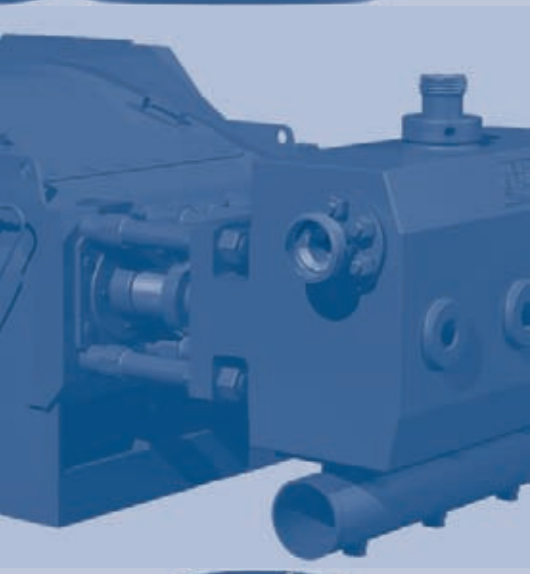
HOSES AND FLOWLINE EQUIPMENT

HIGH PRESSURE EQUIPMENT AND RELATED MODULES AND SERVICES FOR MARINE AND THE OIL AND GAS INDUSTRIES

FLUID CONTROL®

PRODUCT CATALOGUE



Group 0
Flowline Equipment

FLUID CONTROL®

0

Symbol Key:

Available for rental

Fluid Control AS offers a wide range of equipment for hire suitable for both Standard and Sour Gas service, with a comprehensive range of sizes and fittings.

We offer custom rental contracts for both long and short term on all types of equipment.

FEATURES OF THE PROGRAM:

- Monthly reports on rental equipment highlighting all product on rental, length of time on rental, and charges to date by part number for all product rented.
- Material traceability and certification detailing working pressure, service , description and design temperature.
- Daily rates, monthly rates or annual rates.
- 24-hour / 7-day a week service.
- Pickup and delivery service available.
- Quick response to customer emergency requirements.
- Fully certified iron packages available to health, safety, and environmental requirements.
- Large inventories or individual items.

All items with the Rsymbol and that are highlighted in the tables are currently available for rental.
Other sizes and models may be made available for rental upon request.

Example:

			Size					
Valve Model	NSCWP* (PSI)	End Connection	1"	1" x 2"	1 1/2"	2"	3"	4"
SP100TF	10,000	Threaded				x		
SP150TF	15,000	Threaded			x	x		
SP150TMF	15,000	Threaded		x				
SP150WU	15,000	Fig. 1502	x	x	x	x	x	x

Please see our services section at the beginning of the catalogue and contact us at post@fluidcontrol.no to receive more information about our rental program.

Flow Control Reference Guide

The following recommendations for SPM flow control products are intended to be a guide to maximize efficiency, extended product life, and create a safer work environment.

• Treating or discharge iron is produced for the following services:
- Standard Service
- H2S / Sour Gas Service
- Low Temp Service

• SPM® recommends that you designate specific strings of iron for the following applications, and that the designated iron remain in that service application throughout the product's life:
- Energized Fluids
- Acids
- Sour Gas
- Low Temperature Applications

• FLOW RATES ABOVE 42 FEET PER SECOND ARE NOT RECOMMENDED.

• Every string of iron should be pressurized to its maximum planned working pressure prior to each use.

• Pressure seal line pipe threads are not recommended for pulsating service above 10,000 psi or where side loading or erosion are suspected. (Integral or Non-Pressure seal threads are recommended.)

• Most flow control products are certified for the following temperature rating:
- Minimum: -30° C
- Maximum: 110° C

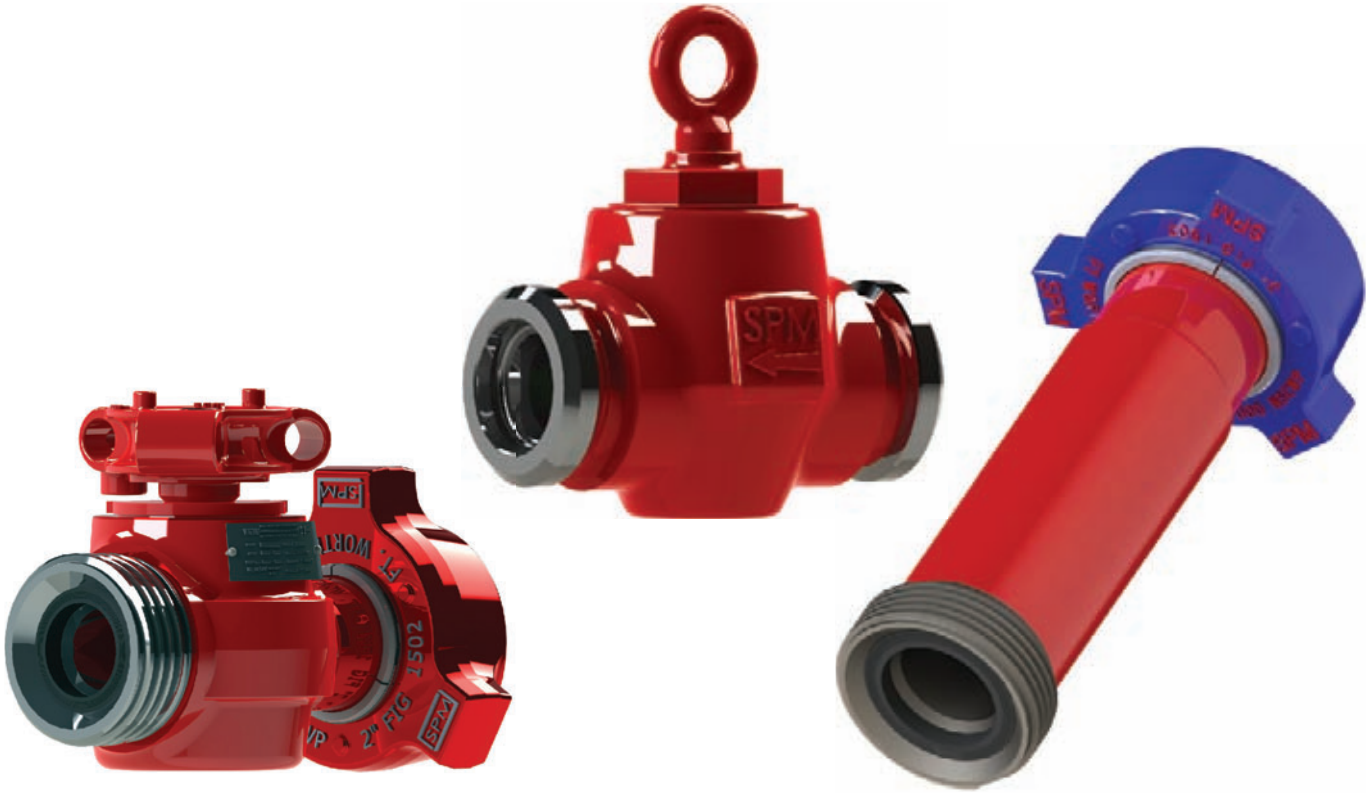
• Personnel must not be around pressure vessel products while pressure is present or being applied.

• Each string, as well as each component, must have regular intervals of maintenance and inspection for safe, proper performance.

• Never tighten or hammer wing unions when pressure is apparent.

• Welding, brazing or heating on high pressure components is prohibited.

• General maintenance will extend the life of flow control products.
- Grease plug valves and swivel joints after every job.
- Replace seals to help prevent leaks and washouts of seal faces.
- Clean all seal areas thoroughly.
- Flush all products with water after each job.



HAMMER UNIONS

Hammer unions are available in a wide range of sizes and in working pressures to 20,000 psi. Pressure seal, non-pressure seal, and welded styles are offered in various sizes and pressures. All SPM hammer unions provide pressure-tight, positive sealing and are available for standard service and sour gas models. SPM hammer unions for sour gas service are specially heat-treated for controlled hardness and utilize fluorocarbon elastomer seal rings.

Figure #	Standard Service PSI Rating		Sour Gas PSI Rating		Nominal Pipe Size (Inches)											
	CWP	Test	CWP	Test	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"
50	500	750	500	750							x	x				
100	1000	1500	1000	1500				x	x	x	x	x	x	x		
200	2000	3000	2000	3000	x	x	x	x	x	x	x	x	x	x		
206	2000	3000	2000	3000	x	x	x	x	x	x	x	x	x	x	x	
207	2000	3000	2000	3000						x	x		x	x	x	
211	2000	3000	2000	3000	x	x	x	x	x	x	x					
400	4000	6000	2500	3750				x	x	x	x					
400	2500	3750	2500	3750								x	x	x	x	x
402	4000	6000	2500	3750				x								
600	6000	9000	-		x		x	x	x	x	x					
602	6000	9000	6000	9000	x	x	x	x	x	x	x					
1002	10000	15000	7500	11250	x	x	x	x	x	x	x					
1002	7500	11250	5000	7500								x	x			
1003	10000	15000	7500	11250				x		x						
1003	7500	11250	5000	7500							x	x				
1004	10000	15000	7500	11250								x	x			
1502	15000	22500	10000	15000	x		x	x	x	x	x	x	x			
2002	20000	30000	-					x		x	x	x	x			
2202	-		15000	22500				x	x	x	x	x	x			

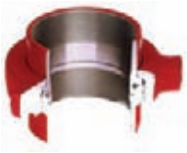


Figure 50

RED NUT – RED SUB

An economical union with precision machined metal-to-metal sealing surfaces plus o-ring seal for air, water, oil or gas service to 1,000 psi NSCWP*.

Figure 100

BLACK NUT YELLOW SUBS

An economical union with precision machined metal-to metal sealing surfaces for air, water, oil or gas service to 1,000 psi NSCWP*.

Figure 200

BLUE NUT GREY SUBS

A precision metal-to-metal sealing surface between male and female subs for air, water, oil, gas and mud service to 2,000 psi NSCWP*.

Figure 206

BLACK NUT YELLOW SUBS

A precision metal-to-metal seal plus O-ring seal for air, water, gas, oil, and mud service to 2,000 psi NSCWP*.

HAMMER UNIONS

Figure 207

BLUE CAP – RED SUB

Interchangeable Fig. 206 sub with blanking cap and O-ring seal to assure no-leak closure of manifolds and lines to 2,000 psi NSCWP*.

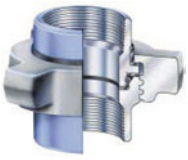


Figure 211

BLACK NUT –BLUE SUBS

A precision O-ring seal plus seal ring and insulation ring to provide a 35 mllionohms resistance across the union. Ideal for production systems with electrolytic corrosion and service up to 2,000 psi NSCWP*.

Figure 400

BLACK NUT RED SUBS

Features a precision ball and cone sealing surface for sure metal-to-metal seal for air, water, oil, gas and mud service to 4,000 psi NSCWP*.

Figure 402

BLACK NUT BLACK SUBS

A resilient lip-type seal for air, water, oil or mud service to 4,000 psi NSCWP*.

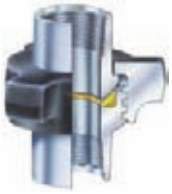


Figure 600

BLACK NUT – GREY SUBS

Features a rustproof bronze seat seal. Ideal for steam services, boiler connections, manifold and line connections service up to 6,000 psi NSCWP*.

Figure 602

BLACK NUT ORANGE SUBS

A replaceable liptype seal ring minimizes fluid flow turbulence and gives pressure seal for air, water, oil, gas and mud service to 6,000 psi NSCWP*.

Figure 1002

RED NUT BLUE SUBS

A resilient lip-type seal protects ball and cone seal against abrasion in air, water, oil, gas and mud service to 10,000 psi NSCWP*.

Figure 1003

BLACK NUT GREY SUBS

A precision metal-to-metal seal plus O-ring seal which allows for misalignment and provides a positive seal with up to 7 1/2° pipe misalignment. Ideal for air, water, gas, oil and mud service to 10,000 psi NSCWP*. 7,500 psi CWP for 4" and 5" sizes.

Figure 1004

RED NUT – RED SUB

A resilient lip-type seal protects ball and cone seal against abrasion in air, water, oil, gas and mud service to 10,000 psi NSCWP*. 7,500 psi CWP for 5" and 6" sizes

Figure 1502

BLUE NUT RED SUBS

For manifold and truck mountings or installations encountering high pressures including air, water, oil, gas and mud service to 15,000 psi NSCWP*.

Figure 2002

WHITE NUT WHITE SUBS

For cementing, fracturing, acidizing, testing and choke-and-kill lines where extreme pressures are encountered to 20,000 psi NSCWP*

Figure 2202

GREEN NUT GREEN SUBS

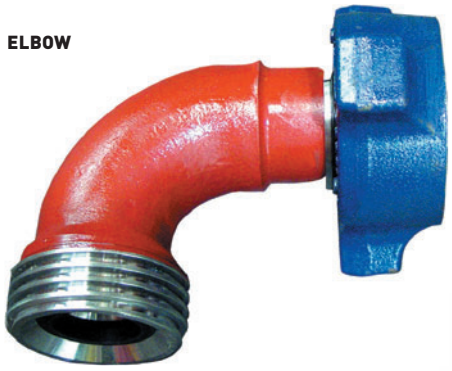
Especially for sour gas service; with heat-treated components, fluoroelastomer seal rings. For service to 15,000 psi NSCWP*.

*Non-Shock Cold Working Pressure

HAMMER UNIONS
Connections and Unions

SPM® manufactures a quality line of high-pressure integral union connections in a broad range of configurations and sizes from 1" through 4" and in pressure ratings to 20,000 psi NSCWP*. Manufactured from high strength alloy steel forgings, SPM® integrals feature a lightweight design not found in competitors' products. All SPM® integral union connections are subjected to controlled heat-treat processes.

ELBOW



TEE

WYE

CROSS

45 AND 90 DEGREE LATERALS

Size	Fig. 1002 10,000 psi*	Fig. 1502 15,000 psi*	Fig. 1502 10,000 psi* H2S	Fig. 2202 15,000 psi* H2S	All Female (Thread)	All Male (Wing)	Combination Styles and Sizes
1"		x			x	x	x
1 1/2"		x		x	x	x	x
2"		x	x	x	x	x	x
3"		x	x	x	x	x	x
4"	x	x	x		x	x	x

*Non-Shock Cold Working Pressure

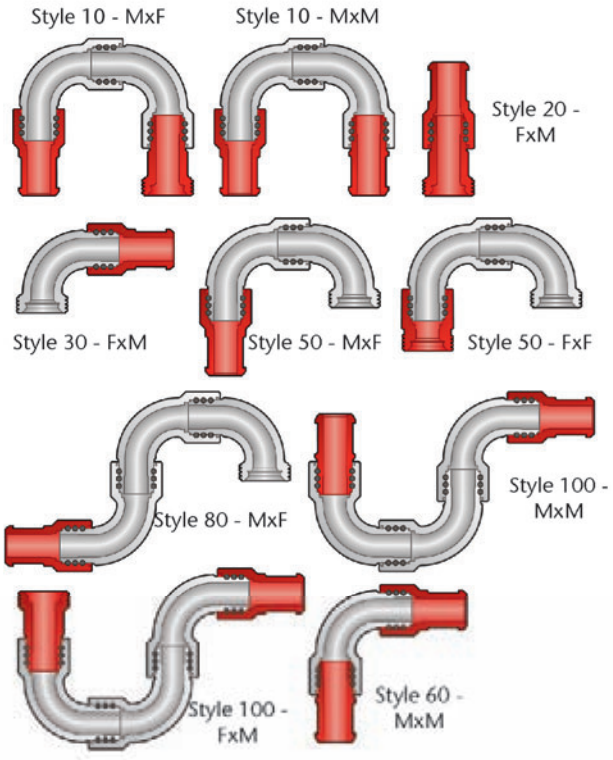
Swivel Joints

SPM 's 3" Fig. 1502 and 4" Fig. 1002 Long Radius Swivel Joints are designed to extend the life of a swivel while maintaining uniform flow.

FEATURES INCLUDE:

- Additional erosion material under critical ball race locations:
  - 3" Fig. 1502 - over 13% more
  - 4" Fig. 1002 - over 22% more
- More stable assembly with better load distribution in 3" Fig. 1502 series, featuring longer ball race life.
- Better distribution of material for more robust female ball race components in 3" Fig. 1502 and 4" Fig.1002 models.
- No danger for any mismatches.
- Available in traditional hammer union styles or in SPM 's patented Safety Iron® connections.

All SPM® swivel joints feature uniform wall thickness throughout for longer and more uniform flow of fluids (including slurries and abrasives), elastomeric packing for service to 225°F, instream packing that is designed not to enter stream regardless of velocity, and improved lubrication.



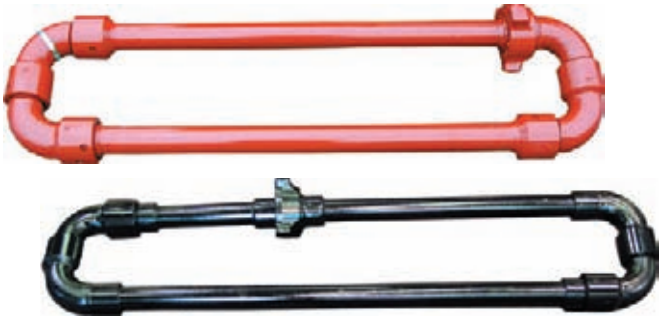
Pressure Rating	Size					
	2"	2" H2S	3"	3" H2S	3" x 2"	4"
Style 10 Fig. 1502 MxF	x	x	x	x		x
Style 10 Fig. 1502 MxM	x	x	x	x		x
Style 20 Fig. 1502 MxF	x		x	x		
Style 30 Fig. 1502 MxF	x		x	x		
Style 50 Fig. 1502 MxF	x	x	x	x	x	x
Style 60 Fig. 1502 MxF	x	x	x	x		
Style 80 Fig. 1502 MxF	x	x	x	x		
Style 100 Fig. 1502 MxF	x	x	x	x	x	
Style 100 Fig. 1502 MxM	x	x	x	x	x	
Style 10 Fig. 1002 MxF						x
Style 10 Fig. 1002 MxM						x
Style 50 Fig. 1002 MxF						x

Steel Hose Loops and Pipe

SPM® all-steel hose loops are used for a variety of high pressure well service applications including discharge lines, water lines, cementing and circulating lines, well test lines and temporary flow lines.

SPM® all-steel hoses utilize field-proven SPM® swivel joints for greater flexibility, shock and vibration resistance, and more uniform flow. Also utilized are SPM® wing union end connections for fast, pressure-tight make-up and break-out.

These rugged hoses handle a full range of fluids to cold working pressures up to 15,000 psi and come in sizes and configurations to meet any need. Hoses for sour gas service are available at cold working pressure up to 10,000 psi. SPM® hoses are designed to easily and conveniently fold up for storage and transportation.



Weir SPM Model	Color Code	Method of Construction	NSCWP* (PSI)	Size (In.)	
		Integral		2	3
Long Radius Swivel Joints	Olive Green†	x	10,000	x	x
	Red	x	15,000	x	x

*Non-Shock Cold Working Pressure
† Sour Gas Service

Flow Line Piping

SPM® all-steel, one piece flow line piping, with wing union end connections, eliminates the need for welds or threads for an uninterrupted bore and greater flow. Piping is available in lengths to 10 feet to handle fluids at cold working pressures to 15,000 psi. They are used on high-pressure discharge lines, auxiliary flow lines, choke-and-kill lines and for abrasive applications.

Size (In.)	Type of Service	NSCWP* (PSI)	End Connection
2	Standard	15,000	Fig. 1502 Union
2	Sour Gas	10,000	Fig. 1502 Union
3	Standard	15,000	Fig. 1502 Union
3	Sour Gas	10,000	Fig. 1502 Union
4	Standard	15,000	Fig. 1502 Union

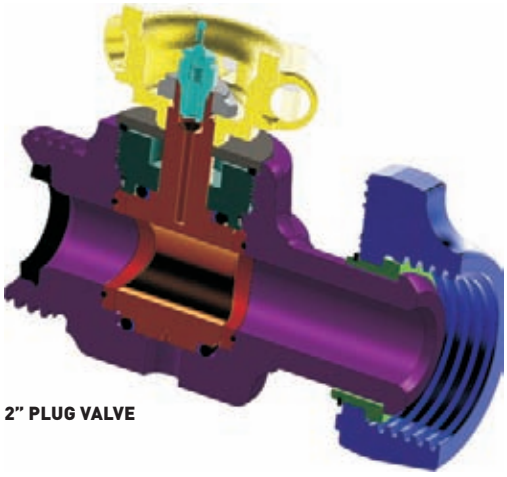
*Non-Shock Cold Working Pressure

PLUG VALVES

1", 1" X 2", 1½", AND 2" PLUG VALVES
SPM® high pressure plug valves are durable, field-proven units that provide dependable service for applications such as cementing, fracturing, acidizing, coiled tubing, and sand control. Available in 1", 1" X 2", 1½" and 2" sizes and in pressure ratings to 15,000 psi NSCWP*, SPM® plug valves feature quality components throughout for greater dependability, minimum weight, and maximum strength. Plug valves are available in standard service and sour gas service models. Special models are available to 20,000 psi.

3" AND 4" PLUG VALVES
SPM® three-inch and four-inch plug valves are available in pressure ratings to 20,000 psi NSCWP*. Features include a flanged body for easier maintenance, integral inlets and outlets, hand crank, locked-open and shut gear drive standard. Standard service and sour gas service models are available.

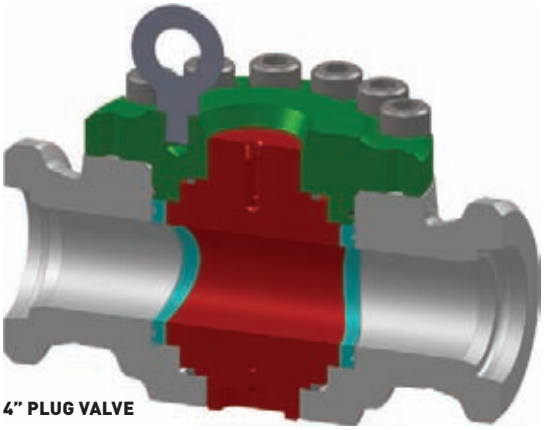
REMOTE OPERATION
Hydraulic and pneumatic actuators are available for all sizes of plug valves, which enhances safety in the field.



2" PLUG VALVE

REPAIR AND SEAL KITS
SPM® repair kits and seal kits contain all the parts necessary to rebuild valves in the field or in the shop. SPM® seal kits contain all items in the standard repair kit, except the plug. Individual components and elastomer kits are also available.

FLUID CONTROL DOES MAINTENANCE, RECERTIFICATION AND REPAIR OF VALVES. FOR MORE DETAILS AND INFORMATION ABOUT OUR VARIOUS SERVICES CHECK OUT OUR SERVICES SECTION AT THE FRONT OF THE CATALOGUE.



4" PLUG VALVE

Valve Model	NSCWP* (PSI)	End Connection	Size					
			1"	1" x 2"	1 1/2"	2"	3"	4"
SP100TF	10,000	Threaded				x		
SP150TF	15,000	Threaded			x	x		
SP150TM	15,000	Threaded		x				
SP150TMF	15,000	Threaded		x				
SP150WU	15,000	Fig. 1502	x	x	x	x	x	x

Special models are availale in 20,000 psi.
*Non-Shock Cold Working Pressure

PLUG VALVE
Light Weight Plug Valve

SPM®'s 2" Light Weight Plug Valve is engineered with safety in mind. The valve is designed to meet HSE lifting requirements in the North Sea while maintaining SPM®'s high quality standards. The Light Weight Plug Valve is available with DNV certification.

- Compact/Lightweight Design
- Meets HSE requirements*
- Weighs 51 lbs (23.1 kg)
- Easy Assembly/ Disassembly
- Available with DNV Certification
- CE Compliant (97/23/EC)

*HSE compliant products offer a safe lifting weight of 55 lbs or less to be lifted and carried by 1 person.

The 2" LW Plug Valve is rated for non-shock cold working pressures up to 15,000 PSI. Like other SPM® high pressure plug valves, the 2" LW Plug valve is able to provide dependable service for applications such as:

- Acidizing
- Cementing
- Coil Tubing
- Fracturing
- Sand Control
- Well Kill

CHOKE TEES

Adjustable and positive choke tees are primarily used in choke manifolds, flow thru manifolds and test manifolds. Various forged-body configurations are available in 2-inch and 3-inch sizes, each rated at 15,000 psi NSCWP*. Choke tees are also available in sour gas configuration.

*Non-Shock Cold Working Pressure

CHECK VALVES

SPM® check valves are made of high strength steel and are precision manufactured to exact tolerances for clapper styles in 2" through 4" sizes, dart styles in 1" through 3" sizes, and CO2/nitrogen styles in 2" and 3" sizes. The clapper design features either a standard coating or superior abrasion and acid resistant coating to give longer operating life in corrosive applications.

The rugged valves operate at working pressures from 6,000 to 20,000 psi in well service applications such as acidizing, cementing, fracturing, and energized fluids. SPM®'s check valves are manufactured from solid forgings to maximize strength and increase abrasion resistance.

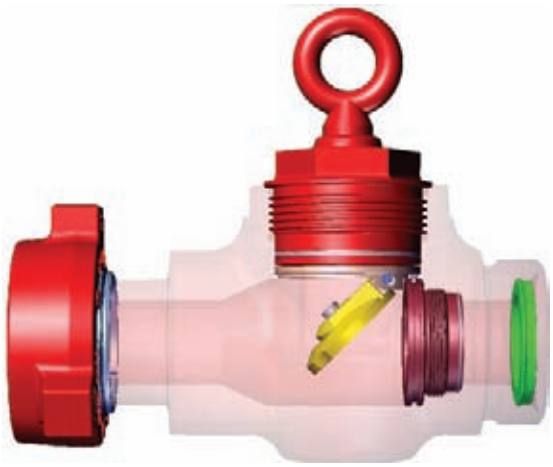
CHECK VALVE SD Clapper Style

SPM®'s new Severe Duty Check Valve is designed specifically to provide longer life and reliable operation in severe service environments. Ideal for the harsh pumping operations seen in the Haynesville shale play, the SD Check Valve utilizes unique design features resulting in improved reliability and performance compared to other check valves currently available to the market.

Valve Size	Inlet	Outlet	Upstream / Downstream	NSCWP* (PSI)
2" 1502	Male	Female	Reverse Flow	15,000
2" 1502	Female	Male	Standard Flow	15,000
2" 2002	Female	Male	Standard Flow	20,000
3" 1502	Male	Female	Reverse Flow	15,000
3" 1502	Female	Male	Standard Flow	15,000
3" 1502 Sour Gas	Male	Female	Reverse Flow	10,000
3" 1502 Sour Gas	Female	Male	Standard Flow	10,000
3" 2002	Female	Male	Standard Flow	20,000
4" 1002	Female	Male	Standard Flow	10,000
4" 1002	Male	Female	Reverse Flow	10,000
4" 1502	Male	Female	Reverse Flow	15,000
4" 1502	Female	Male	Standard Flow	15,000

*Non-Shock Cold Working Pressure

Available in Standard Flow (Wing Ahead) and Reverse Flow (Thread Ahead)



FEATURES & BENEFITS

Utilization of a Threaded Seat:

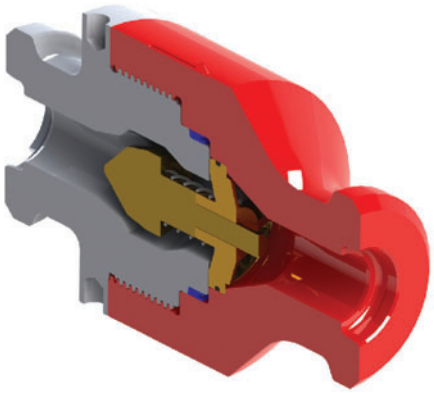
- Self-locking design prevents seat from becoming loose due to high vibration of flow line
- Machined from high erosion and high corrosion resistant NACE compliant stainless steel for longer life
- Features o-ring for excellent sealing performance
- Fully coated clapper provided in most sizes

Enhanced Hanger:

- Flat machined into hanger matches flat machined into body preventing rotation during operation
- Removes hanger pin from assembly requiring fewer component parts

CHECK VALVE
Dart Style

The Dart Style Valve is constructed of a twopiece body that houses an inline spring loaded dart. When fluid enters from the inlet side, it will overcome the low spring force on the dart. The dart will travel away from the inlet and allow the fluid to flow around towards the outlet. When fluid flow stops, the light spring force closes the dart against its seat, preventing fluid from flowing back through the flow line. The SPM® Dart Style Check Valve is available for standard service, CO2/ Nitrogen compatible and for sour gas (H2S) environments.



AVAILABLE IN STANDARD FLOW (WING AHEAD) AND REVERSE FLOW (THREAD AHEAD)

Valve Size	Inlet	Outlet	Upstream / Downstream	NSCWP* (PSI)	Service
1" 1502	Female	Male	Reverse Flow	15,000	Standard
1" 1502	Female	Male	Standard Flow	15,000	Standard
1 1/2" 2002	Male	Female	Reverse Flow	15,000	Standard
1 1/2" 1502	Female	Male	Standard Flow	15,000	Standard
2" 1502	Male	Female	Reverse Flow	15,000	Standard
2" 1502	Female	Male	Standard Flow	15,000	Standard
3" 1502	Male	Female	Reverse Flow	15,000	Standard
3" 1502	Female	Male	Standard Flow	15,000	Standard
2" 1502	Male	Female	Reverse Flow H2S	10,000	H2S
2" 1502	Female	Male	Standard Flow H2S	10,000	H2S
3" 1502	Male	Female	Reverse Flow H2S	10,000	H2S
3" 1502	Female	Male	Standard Flow H2S	10,000	H2S

*Non-Shock Cold Working Pressure

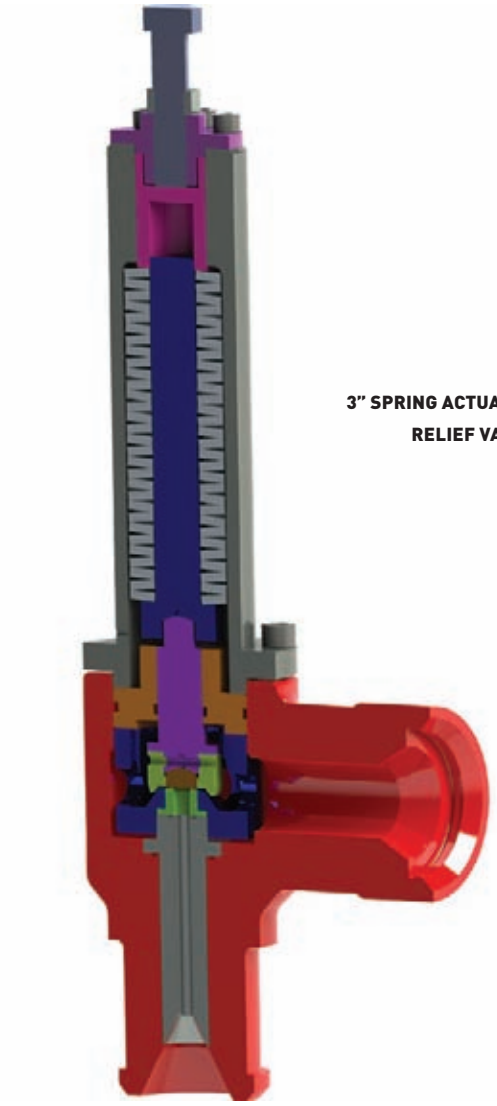
RELIEF VALVES
Spring

SPM® Emergency Relief Valves provide over-pressure protection for reciprocating pumps, treating lines, pressure vessels and other equipment operating under a variety of pressure and flow conditions. The valves are compact, simple to operate and rely on the system's pressure to open when a preset pressure is exceeded, and automatically snap shut when the pressure drops.

The valves are externally adjustable, and unlike shear relief valves, which use common nails to trigger the valve, SPM®'s Emergency Relief Valves utilize an internal spring, nitrogen, or rig air to activate opening and closing. Valves are available in 2", 3" and 4" models.

SPRING
SPM® Spring Actuated Emergency Relief Valves provide over pressure protection for pumps, flow lines, pressure vessels and other equipment operating under a variety of pressures and flow conditions SPM®'s Spring Actuated Emergency Relief Valves are field-tested products that have long been providing reliable over-pressure protection for well service providers.

The valves are externally adjustable to operate from low pressure/ medium flows. Unlike shear relief valves, which use common nails to trigger the valve, SPM®'s Emergency Relief Valves utilize an internal spring to activate opening and closing. Spring actuated relief valves are direct acting, relying on the system's hydraulic pressure to open when the preset force of the spring is exceeded.



3" SPRING ACTUATED RELIEF VALVE

Size	Description	Design Style Spring
2"	1502 M Inlet, Line Pipe Thread Outlet	x
	1502 M Inlet, 1502 F Outlet	x
	1502 M Inlet, 1502 F Outlet Sour Gas	x
	2002 M Inlet, 2002 F Outlet	x
	2202 M Inlet, 2202 F Outlet Sour Gas	x
3"	1502 M Inlet, 1502 F Outlet	x

NOTE:
Approximate flow rate for relief valves:
- 2" Spring - 150 GPM Max.
- 3" Spring - 430 GPM Max.

As flow requirements increase, then multiple valves may be preferred, and are permissible. You may find that two of the 2" valves are a better economic combination than one 3" valve. Multiples of either valve are allowed as long as the valves are all set within 10% of each other.

Example:
If a customer requires a flow of 400 GPM, he may choose to use three 2" spring operated valves or one 3" spring operated valve.

RELIEF VALVES
Emergency Back Pressure

SPM®'s Emergency Back Pressure Relief Valve provides over-pressure protection for reciprocating pumps, treating lines, pressure vessels, and other equipment operating under high-pressure, high-flow conditions. Compact and simple to operate, the valve is direct acting, relying on the system's hydraulic pressure to overcome a preset nitrogen gas force to relieve. It is externally adjustable from zero pressure to maximum setting.

Unlike Shear Relief Valves, which use common nails to trigger the release, the SPM® valve will reseat once the system pressure reduces. And unlike many "High-Lift"Valves, which require a substantial drop in pressure before they will reseat, the SPM® valve exhibits little blow down and will reseat at or near the "cracking pressure".

NOTE:
Approximate flow rate for relief valves:
- 2" Spring - 150 GPM Max.
- 3" Spring - 430 GPM Max.

As flow requirements increase, then multiple valves may be preferred, and are permissible. You may find that two of the 2" valves are a better economic combination than one 3" valve. Multiples of either valve are allowed as long as the valves are all set within 10% of each other.

Example:
If a customer requires a flow of 400 GPM, he may choose to use three 2" spring operated valves or one 3" spring operated valve.

Size	Description	Design Style Spring
3"	1502 M Inlet, 1502 F Outlet	x
	1002 M Inlet, 1002 F Outlet	x
4"	1502 M Inlet, 1502 F Outlet	x

RELIEF VALVES
Full Bore Unloading Valve

SPM® Full Bore Unloading Valves for drilling applications provide over-pressure protection for mud pumps operating under a variety of pressure and flow conditions. The valves are compact, simple to operate and rely on the system's pressure to open when a preset pressure is exceeded and automatically snap shut when the pressure drops.

The valves are externally adjustable, and unlike shear relief valves which use common nails to trigger the valve, Weir SPM®'s Full Bore Unloading Valve utilizes nitrogen or rig air (properly filtered) to activate opening and closing. This model is available in 3" and 4" sizes. Operating pressures range from 5,000 psi to 20,000 psi. Standard service and sour gas models are available.

RELIEF VALVES
N2 Relief Valve Status Indicator System

SPM® now offers a Status Indicator System as an option to be included in all new 3" and 4" Emergency Back Pressure & Unloading Relief Valves. The product operation concept is simple. At any given time when the valve piston lifts greater than 0.030", the system will remotely indicate that the valve has opened. In the instance that the valve piston has dropped below 0.030" the system will then remotely indicate that the valve has closed.

The SPM® Status Indicator System can interface with existing customermanaged data monitoring and logging systems allowing for accurate control and trouble shooting of over pressure events on a frac site. The Data Van Interface directly integrates the Status Indicator System into the data van's data acquisition system. A 200 ft weather resistant cable can be purchased separately for transferring data. Contact Weir SPM®'s Flow Engineering team for more detailed information about interfacing data.

REMOTE CONTROL PANEL
For Nitrogen Relief Valve Operation

The Remote Control Panel offers increased safety during high pressure pumping operations at a safe distance.

To maximize safety, SPM®'s Remote Control panel should be utilized along with the Full Bore Emergency Unloading Valve and the Emergency Back Pressure Relief Valve. The Remote Control Panel regulates the flow of rig air or nitrogen to the relief valve and allows the operator to change pressure relief settings with the flow line. The Remote Control Panel is also engraved with a quick reference Chart for easy adjustment.

SUR-DROP® BALL INJECTORS

SPM® Sur-Drop® High-Pressure Ball Injector features the "Positive Feed System", resulting in a reliable feed and injection rate. New design revisions have enhanced operating performance, made maintenance more convenient, and greatly reduced lead time for faster response to customer needs.

NEW DESIGN UPGRADES:

- Improved manufacturing processes allow for more precise machined parts.
- Increased flexibility in operation by consolidating ball cartridge sizes.
  ~ 5/8" & 3/4" ~ 7/8" & 1" ~ 1-1/8" & 1-1/4"
- Increased convenience in maintenance.
  ~ Two-piece screw assembly allows for more convenient replacement of drive stem, without replacing entire assembly.
- Easy manual loading eliminates use of awkward tools.

SAFETY LIFTING CLAMPS™

The Safety Lifting Clamp™ is a simple to use tool to safely lift long lengths of pipe on site by ensuring the lift occurs at the center of gravity of the pipe, making movement easier, more consistent and most importantly safe.

Safety Lifting Clamps™ are tested to meet ASME B30.20-2010 standards and compliant with NACE MR00175. SPM® offers 4 different assemblies to fit pipe ranging from 3.50" to 6.50" outside diameter.

CEMENT HEADS

Utilizing superior field-tested welding techniques, SPM® cement heads provide high-pressure performance in a variety of designs to meet the needs of the industry. Featuring single or double plug head designs, easy-to-attach landing joints, and reliable plug pin performance, SPM® cement heads perform with consistency and reliability in the field.

Single and Double Head designs are available in the following sizes:

2.875"
3.50"
4.50"
5.0" - 5.5"
7.0" - 7.63"
8.63" - 9.63"
10.75" - 11.75"
13.375"
16.0"
18.63" - 20.0"

Cement Head Manifolds also available

FRAC HEADS

SPM®'s customizable frac heads allow customers to design their ideal frac head for reliable and consistent performance on their frac sites.

SPM frac heads are manufactured from hardened steel and feature field-proven durable welds at the branches. Available in two styles, the "Goat Head" Style and "Inlet" Style, SPM® customizes frac head orders to customer specifications through the use of a Frac Head Request Form.

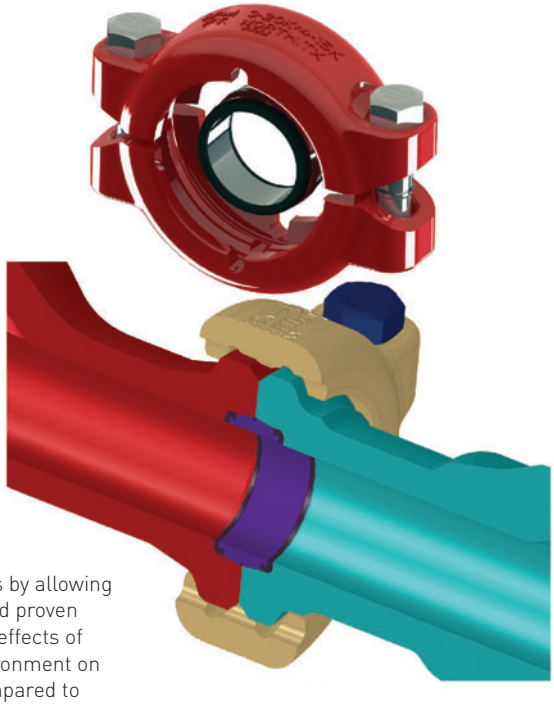
Through the utilization of the Frac Head Request Form, customers may customize their purchase through the following design options:

- Pressure Rating
- Top Connection Type
- Minimum Through-Bore Width
- Number of Side Connections
- Side Connection Branch Angle
- Side Connection Branch, Type, and Pressure Rating
- Bottom Connection Type

SAFETY IRON®

Safety Iron® is a clamp connecting flow line system developed to replace traditional wing nut union connections. The product consists of a seal ring utilizing a soft seal and a metal-to-metal seal, an upper clamp with "captive" bolts, and a lower threaded clamp. The metal seal ring and rubber seal freely slip into the tapered flange end. Sealing is accomplished by the end crush on the rubber seal and tapered metal contact from the clamp force. The result is a superior performing connection compared to traditional hammer union connections, and a safer work environment by allowing the user to "throw away the hammer."

Available in 1½" through 4" in pressure ratings up to 20,000 psi.
U.S. Patent No. 7,204,525



BENEFITS OF SAFETY IRON® VS. TRADITIONAL HAMMER UNION CONNECTIONS:

- Greater Safety
- Less Physically Demanding Assembly/Disassembly
- Less Injury Prone
- Less Labor Intensive & Less Expensive Reinspection
- Faster Break-down
- More Reliable Seal
- Fatigue Resistant Due to Side Loading Ability

SAFETY IRON PRODUCT LINE:

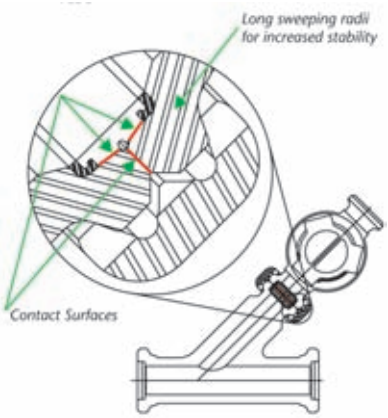
- Swivel Joints
- Check Valves
- Plug Valves
- Relief Valves
- Integrals (Tees, Wyes, Elles, Crosses, and Crossovers)
- Pipe
- Pump Discharge Manifolds

A SAFER MORE RELIABLE CONNECTION

SPM®'s Safety Iron® gives users the opportunity to reduce the risk of accident incidents by allowing the user to "throw away the hammer." The durability of Safety Iron® seals has been field proven in harsh pumping environments and has maintained its sealing properties despite the effects of extreme vibration and cavitation. Not only does Safety Iron® result in a safer work environment on site, but also increases productivity as a superior performing flow line iron system compared to the traditional hammer union connections. The product line is currently available in sizes 11/2" to 4" in pressure ratings up to 20,000 psi. Nearly every flow control product manufactured by SPM® is offered with Safety Iron® connections, and DNV certification is also available. For ultimate safety on site, SPM® suggests applying Safety Iron® along with the Flow Line Safety Restraint System.

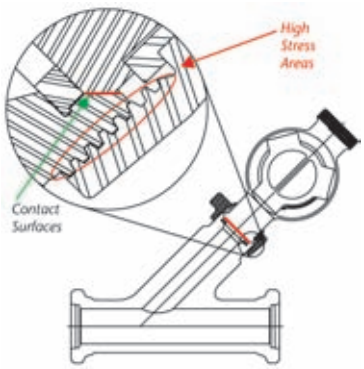
SAFETY IRON® CONNECTION

Safety Iron® connections have a greater surface contact area for a much more stable connection compared to hammer union seals. Safety Iron® flanges are also more robust with larger sweeping radii for additional strength and vibration resistance.



TRADITIONAL HAMMER UNION CONNECTION

Hammer union connections are limited to only one contact seal surface, greatly reducing the integrity of the connection Hammer unions, with their thinner wall section at vital points and higher stress areas due to the jagged grooves of the threads, are more susceptible to damage as a result of vibration or side loading.



SAFETY HAMMER™

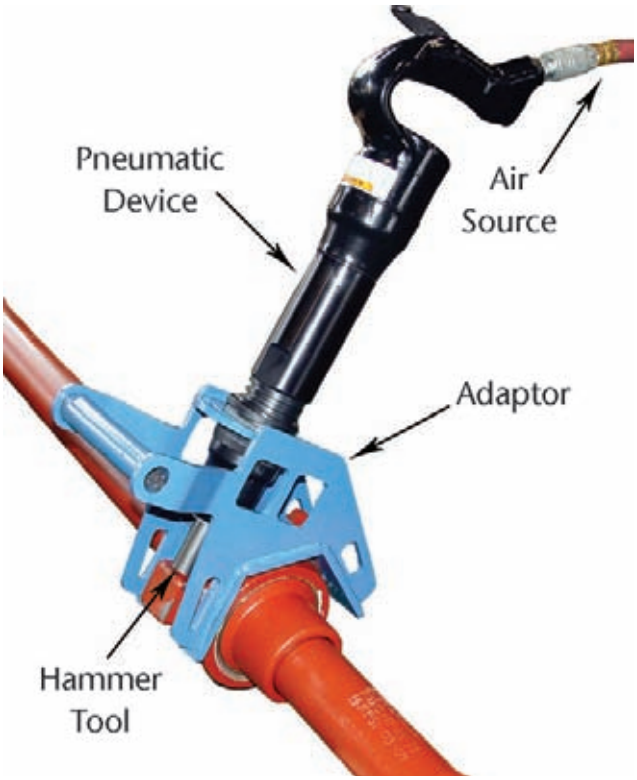
SPM®'s newest product designed to increase safety on the work site is the Safety Hammer™. The Safety Hammer™ promotes a safer work environment by reducing the dangers associated with assembling hammer union connections using a sledgehammer. Safety Hammer™ is a pneumatic tool designed to properly seal hammer union connections with the ease of pushing a button. The dangers of using a sledgehammer are greatly reduced as most connections on-site can be made with the Safety Hammer™.

The Safety Hammer™ is an assembly composed of two main parts: high strength alloy steel adaptor and pneumatic hammer. The steel adaptor can be changed out as needed to fit different union sizes. In order for the Safety Hammer™ to function as intended, SPM® recommends 29 SCFM per hammer, with an air pressure of 90 psi and 1/2" air supply hose size. The Safety Hammer™ will make up and break down the hammer union depending on its orientation.

AVAILABLE IN 2" 1502, 3" 1502, 4" 200/206 AND 4" 602/1002.

There is no other tool on the market that allows for such convenient and safe assembly of hammer union connections.

BENEFITS:
- Lightweight design that is easy to install and operate.
- Less labor intensive assembly/disassembly.
- Lower risk of injury by removing hammer from assembly process.
- Adaptor can easily be interchanged for different size wing unions.



The Safety Hammer now features an upgraded impact tool made of a harder and tougher material for improved life with extended utility, and a redesigned contact end to minimize flaring of the edge.

FLOW LINE SAFETY RESTRAINT SYSTEM

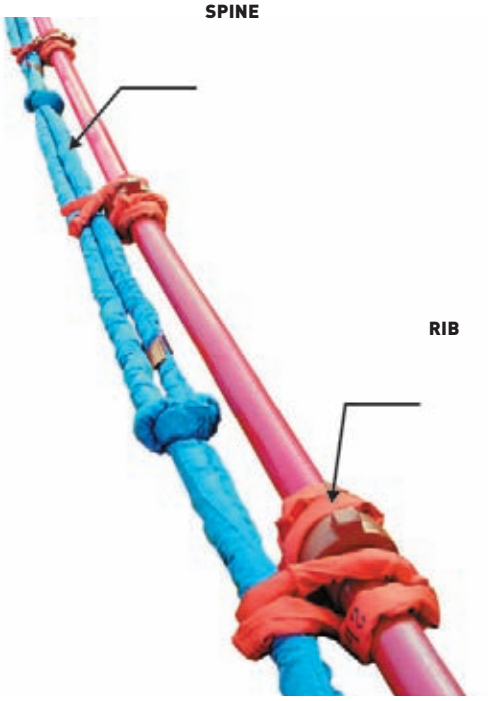
The Flow Line Safety Restraint System, or FSR, is the first and most utilized engineered restraint system specifically designed to reduce the area of danger around high-pressure flow line disengagements. Now, the FSR System is available in two styles: the original Medium Duty FSR and the new Light Duty FSR.

FEATURES OF THE SPM® FSR SYSTEM:

- Extreme high strength and reliability
- Flexible & lightweight
- Easy to install
- Corrosion resistant
- Works in both fluid and gas pumping operations
- Water resistant exterior covers
- Uniquely identifiable colors and labeling
- Available Full-Service Assistance in the field
- Ten years of proven, successful utilization

INSPECTION / REJECTION CRITERIA:

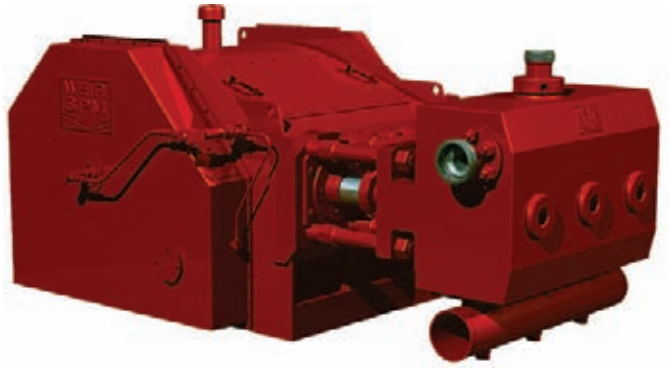
- Easy visual inspection process which can be performed in the field by competent personnel.
- Any damaged items must be taken out of service immediately.
- For more detailed inspection information visit the website below to view the FSR Operations Manual.



	Color Code		Weights		Ratings		
Duty	Rib	Spine	Rib	Spine	2" Iron	3" Iron	4" Iron
Medium Duty	Red	Blue	.85 lbs. / ft.	1.7 lbs. / ft.	20,000 psi	15,000 psi	10,000 psi
Light Duty	Yellow	White	.64 lbs. / ft.	1.00 lbs. / ft.	15,000 psi	7,500 psi	5,000 psi

WELL SERVICE PUMPS

- SPM® manufactures the most comprehensive range of high-pressure plunger pumps in the industry. Weir SPM®'s plunger pump designs incorporate the ultimate in weight and space savings while having a reputation for dependable service even in today's hybrid extended duty applications, such as under-balanced coiled tubing drilling.
- ® SPM offers intermittent duty pump models for the full range of well service applications, and extended duty plunger pump models for those oilfield and industrial applications requiring greater work periods with a small-footprint, lightweight pump.
- SPM®'s DNV Type Approved intermittent duty plunger pumps range from 250 BHP to 3500 BHP with pressure capabilities up to 20,000 psi. Premium plungers, valves, seats, packing, etc. can be configured to a variety of well service needs from mud based coiled tubing support services to hot oil, cementing, acidizing, fracturing, gravel packing, etc.
- SPM®'s durable extended duty plunger pumps range from 175 BHP to 1575 BHP. These extended duty plunger pumps are specially designed to provide durable service in extended applications one day and provide exceptional high pressure / high rate intermittent service the next. These pumps' unique versatility in duty cycle adaptability greatly increases the range of work that can be performed and the amount of revenue than can be generated with a single pump. These pumps are designed so that the expendable parts (packing, etc.) can easily be reconfigured for mud, water, drill cutting, acid, cement, etc.
- SPM® pumps are available with life cycle enhancing "auto-frettage" processing of the fluid cylinder. This very economical process adjusts for the harmful effects of cyclic stress and the stress corrosion cracking which can occur in high-pressure fluid cylinders. SPM®'s state-of-the-art auto-frettage process results in a fluid cylinder with several times the fatigue life expectancy at a fractional increase in cost.
- SPM® provides a wealth of technical data, assembly drawings and maintenance information on it's pumps (and flow control products as well) through an interactive home page on the Internet at www.weiroilandgas.com.



Every SPM pump is tested to full power inhouse before it is delivered to the customer to ensure quality and proper performance. SPM®'s 4500 hp test booth can run any pump up to full working power before delivery to the end user.

PUMP REFERENCE GUIDE

WEIR SPM PUMP MODEL EXPLANATION:

QWS - 2500 - SD

1st letter indicates number of cylinders:

T = triplex
Q = quintuplex

2nd two letters indicate the intended duty cycle:

WS = intermittent, such as well service
EM = Extended Max
HB = extended, such as hydroblast

Numbers indicate max. rated BHP:

2500 = 2500 BHP

Last two letters indicate specialty designation:

SD = super duty
LW = special lightweight design
S = short
HV = horizontal valve
DD = direct drive

Common Pump Formulas:

- Hydraulic Horse Power (HHP) = (GPM x PSI) / 1714
- Brake Horse Power (BHP) = (GPM X PSI) / (1714 x ME)
- Pressure (PSI) = (BHP x 1714 x ME) / GPM
- GPM = (BHP x 1714 x ME) / PSI
- Rod Load = PD x PD x .7854 x PSI
- GPR = (PD x PD x .7854 x SL x NC) / 231
- GPM = GPR x RPM

GPM - Gallons Per Minute
PD - Plunger Diameter
NC - Number of Cylinders
ME - Mechanical Efficiency
SL - Stroke Length
GPR - Gallons Per Revolution

EXTENDING PUMP LIFE & PREVENTATIVE MAINTENANCE PROGRAM

Extending Pump Life:
Extending pump life requires careful operation by the customer. The customer should observe and utilize the following tools and practices:

- Dual inlet or Zoomie manifold
- Properly sized and maintained suction pulsation dampeners
- Properly maintained valves/seats/inserts
- Improved discharge harmonics (may require high pressure dampener)
- Correct piping placement, proper supercharging
- Proper sand and gel concentrations and blender operations

Maintenance:
At the very least, the following maintenance programs should be set up, operated, and recorded for review:

- Power end lube oil and filter inspection
- Fluid end valves and inserts inspection
- Fluid end seats inspection
- Fluid end valve springs inspection
- Plunger packing inspection

Proper maintenance practices are the best way to increase the life of your pumps and pump components. SPM® strongly suggests that each customer develop a maintenance program to be followed at all times.

Pump Duty Cycles
For information on pump duty cycles, Contact SPM® Engineering.

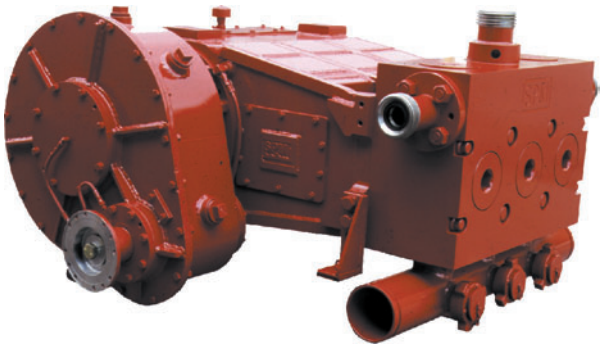
WELL SERVICE PUMP
TWS 600S

The TWS 600S offers a versatile small footprint pump that can perform a variety of duties for the well service industry. The unique design features an offset crankshaft / crosshead design which substantially reduces the load on both the crosshead and crosshead guides as well as the main roller bearings supporting the crankshaft. The TWS 600S can be utilized in a back-to-back configuration to perform rugged acidizing, cementing, gravel packing and snubbing operations.

APPLICATIONS: Acidizing, cementing, gravel packing, snubbing

Rated Max. Brake HP.....600 BHP (447 Kw)
Maximum Rod Load.....100,000 Lbs. (43,360 kg)
Stroke Length.....6" (152.4 mm)
Gear Ratio.....4.61:1
Length.....50-1/4" (1,276 mm)
Width.....52-15/16" (1,344 mm)
Height.....23-7/8" (607 mm)
Weight Dry (Approx.).....4,940# (2,040 kg)

Pump dimensions are approximate. For full detailed drawings, please contact SPM® Engineering.

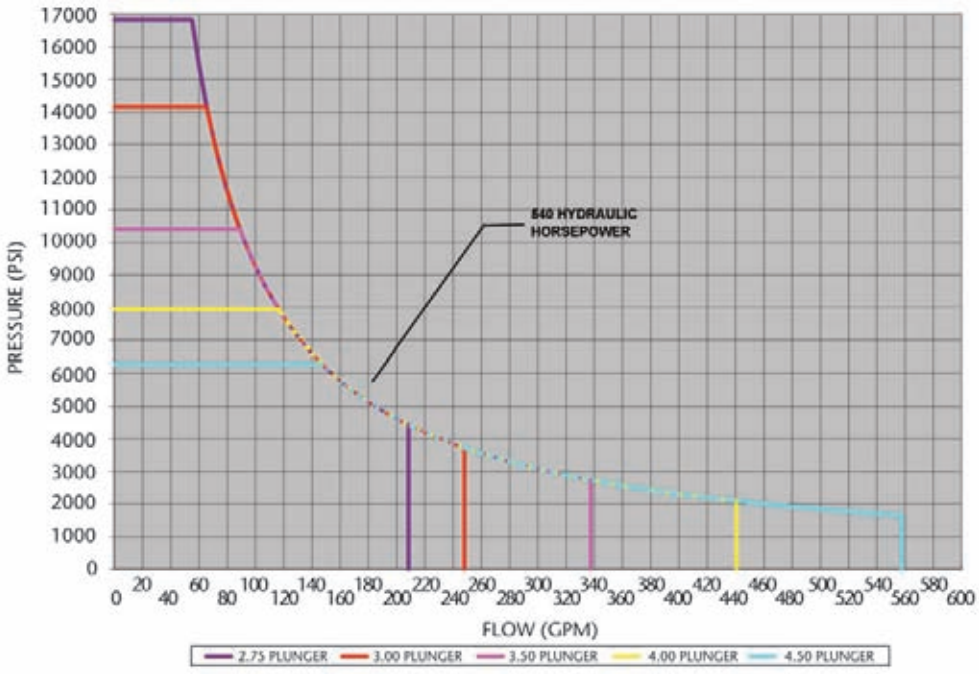


TWS 600S PERFORMANCE DATA [1,2]

Plunger Diameter	Output per rev	Displacement at Pump Strokes per Minute / Pinion RPM									
		50/230		120/552		200/920		300/1380		450/2070	
in (mm)	gal/rev (liter/rev)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)
2½ (63.5)	.38 (1.4)	19 (72)	20,372 (1436)	46 (174)	20,165 (1421)	76 (290)	12,099 (853)	115 (434)	8,066 (568)	172 (651)	5,377 (379)
2¾ (69.9)	.46 (1.8)	23 (87)	16,836 (1186)	56 (210)	16,665 (1174)	93 (350)	9,999 (705)	139 (526)	6,666 (470)	208 (788)	4,444 (313)
3 (76.2)	.55 (2.1)	28 (104)	14,147 (997)	66 (250)	14,003 (987)	110 (417)	8,402 (592)	165 (625)	5,601 (395)	248 (938)	3,734 (263)
3½ (88.9)	.75 (2.8)	37 (142)	10,394 (732)	90 (341)	10,288 (725)	150 (568)	6,173 (435)	225 (851)	4,115 (290)	337 (1277)	2,744 (193)
4 (101.6)	.98 (3.7)	49 (185)	7,958 (561)	118 (445)	7,877 (555)	196 (741)	4,726 (333)	294 (1112)	3,151 (222)	441 (1668)	2,100 (148)
4½ (114.3)	1.24 (4.7)	62 (235)	6,288 (443)	149 (563)	6,224 (439)	248 (938)	3,734 (263)	372 (1407)	2,489 (175)	558 (2111)	1,660 (117)
INPUT POWER: BHP (Kw)		253 (188)		600 (448)		600 (448)		600 (448)		600 (448)	

1 Based on 90% ME and 100% VE - Intermittent Service Only.
2 For applications demanding pressures over 15,000 psi, contact SPM® Engineering.

TWS 600S HYDRAULIC HORSEPOWER CURVE



Note: This chart shows this pump's performance at max hydraulic horsepower. Notice as the plunger size for the pump increases, a greater max flow rate is achieved while the max pressure decreases.

WELL SERVICE PUMP
QWS 1000S

The QWS 1000S offers a similar design as the TWS 600S with its small footprint, but offers a larger power output. The QWS 1000S can also be set up in the back-to-back configuration to perform acidizing, cementing, gravel packing, and snubbing operations.

APPLICATIONS: Acidizing, cementing, gravel packing, snubbing

Rated Max Brake HP.....1,000 BHP (746 Kw)
Maximum Rod Load.....100,000 Lbs. (45,359 kg)
Stroke Length.....6" (152.4 mm)
Gear Ratio.....4.61:1
Length.....50" (1,270 mm)
Width.....73" (1,854 mm)
Height.....24" (609 mm)
Weight Dry (Approx.).....7,040# (3,193 kg)

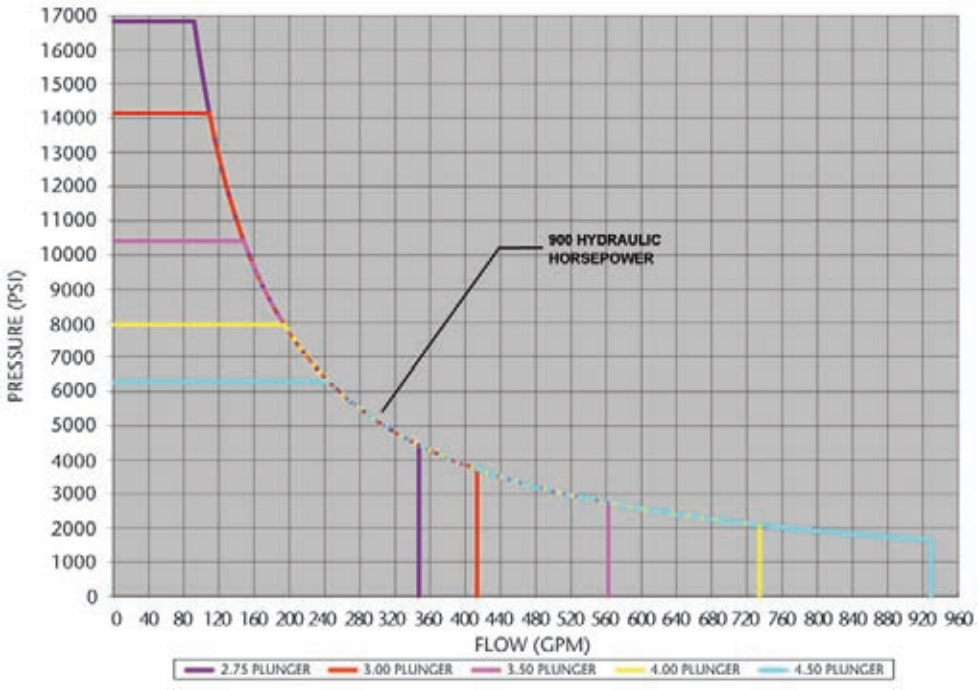
Pump dimensions are approximate. For full detailed drawings, please contact SPM® Engineering.

QWS 1000S PERFORMANCE DATA [1,2]

Plunger Diameter	Output per rev	Displacement at Pump Strokes per Minute / Pinion RPM											
		50/231		100/461		119/548		200/922		300/1380		450/2070	
in (mm)	gal/rev (liter/rev)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)
2½ (63.5)	0.64 (2.4)	32 (121)	20,372 (1436)	64 (241)	20,372 (1436)	76 (287)	20,368 (1435)	127 (483)	12,009 (853)	191 (724)	8,066 (568)	287 (1086)	5,377 (379)
2¾ (69.9)	0.77 (2.9)	39 (146)	16,836 (1186)	77 (292)	16,836 (1186)	92 (347)	16,833 (1186)	154 (584)	9,999 (705)	231 (876)	6,666 (470)	347 (1314)	4,444 (313)
3 (76.2)	0.92 (3.5)	46 (174)	14,147 (997)	92 (347)	14,147 (997)	109 (413)	14,145 (997)	184 (695)	8,402 (592)	275 (1042)	5,601 (395)	413 (1564)	3,734 (263)
3½ (88.9)	1.25 (4.7)	62 (236)	10,394 (732)	125 (473)	10,394 (732)	148 (562)	10,392 (732)	250 (946)	6,173 (435)	375 (1419)	4,115 (290)	562 (2128)	2,744 (193)
4 (101.6)	1.63 (6.2)	82 (309)	7,958 (561)	163 (618)	7,958 (561)	194 (734)	7,956 (561)	326 (1235)	4,726 (333)	490 (1853)	3,151 (222)	734 (2780)	2,100 (148)
4½ (114.3)	2.07 (7.8)	103 (391)	6,288 (443)	207 (782)	6,288 (443)	245 (929)	6,287 (443)	413 (1564)	3,734 (263)	620 (2345)	2.489 (175)	929 (3518)	1,660 (117)
INPUT POWER: BHP (Kw)		421 (314)		842 (628)		1000 (746)		1000 (746)		1000 (746)			

1 Based on 90% ME and 100% VE - Intermittent Service Only.
2 For applications demanding pressures over 15,000 psi, contact SPM® Engineering.

QWS 1000S HYDRAULIC HORSEPOWER CURVE



Note: This chart shows this pump's performance at max hydraulic horsepower. Notice as the plunger size for the pump increases, a greater max flow rate is achieved while the max pressure decreases.

FRAC PUMP TWS 2250

The TWS 2250 is the most powerful triplex in SPM®'s line of well service pumps. This staple of the Weir SPM® line of well service pumps offers great pressure and flow ratings in a smaller package than the large quintuplex pumps offered

APPLICATIONS: Fracturing

Rated Max Brake HP.....2,250 BHP (1678 kW)
Maximum Rod Load.....238,000570 LBf (108,213 kg)
Number of Cylinders.....3 Cly
Stroke Length..... 8" (203 mm)
Gear Ratio..... 6.353:1
Length.....89.9" (2284 mm)
Width.....59.8" (1519 mm)
Height.....44.3" (1125 mm)
Weight Dry (Approx.).....11,750 Lbf (5330 kg)

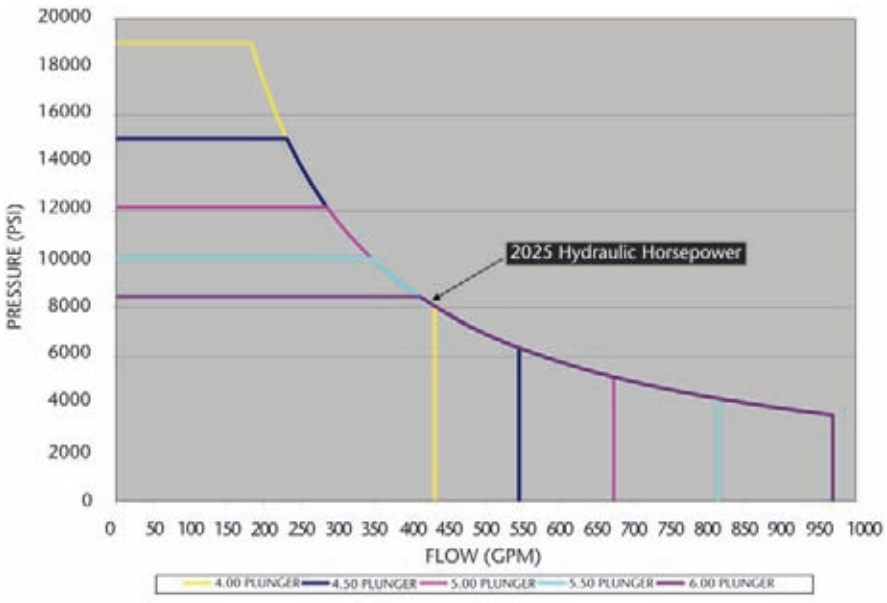
Pump dimensions are approximate. For full detailed drawings, please contact SPM® Engineering.

TWS 2250 PERFORMANCE DATA [1,2]

Plunger Diameter	Displace per rev	Displacement at Pump Strokes per Minute / Pinion RPM											
		75 / 476		115 / 731		115 / 731		200 / 1271		300 / 1906		330 / 2096	
in (mm)	gal/rev (liter/rev)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)
3½ (88.9)	1.00 (3.8)	75 (284)	24,796 (1743)	115 (435)	24,796 (1743)	148 (562)	23,390 (1648)	200 (757)	17,361 (1223)	300 (1135)	11,574 (816)	330 (1249)	10,522 (742)
3¾ (95.3)	1.15 (4.3)	86 (326)	21,600 (1519)	132 (500)	21,600 (1519)	170 (645)	20,375 (1436)	229 (869)	15,124 (1066)	344 (1303)	10,082(711)	379 (1433)	9,166 (646)
4 (101.6)	1.31 (4.9)	98 (371)	18,985 (1335)	150 (568)	18,985 (1335)	194 (734)	17,908 (1262)	261 (988)	13,292 (937)	392 (1483)	8,861 (624)	431 (1631)	8,056 (568)
4½ (114.3)	1.65 (6.3)	124 (469)	15,000 (1055)	190 (719)	15,000 (1055)	245 (929)	14,150 (997)	330 (1251)	10,502 (740)	496 (1876)	7,002 (493)	545 (2064)	6,365 (449)
5 (127.0)	2.04 (7.7)	153 (579)	12,150 (854)	235 (888)	12,150 (854)	303 (1146)	11,461 (808)	408 (1544)	8,507 (600)	612 (2317)	5,671 (400)	673 (2548)	5,156 (363)
5½ (139.7)	2.47 (9.3)	185 (701)	10,042 (706)	284(1075)	10,042 (706)	366 (1387)	9,472 (668)	494 (1869)	7,031 (495)	741 (2803)	4,687 (330)	815 (3083)	4,261 (300)
5¾ (146.1)	2.70 (10.2)	202 (766)	9,187 (646)	310(1174)	9,187 (646)	401 (1516)	8,666 (611)	540 (2043)	6,433 (453)	809 (3064)	4,288 (302)	890 (3370)	3,898 (275)
6 152.4	2.94 (11.1)	220 (834)	8,438 (593)	338(1279)	8,438 (593)	436 (1651)	7,959 (561)	588 (2224)	5,908 (416)	881 (3336)	3,938 (278)	969 (3670)	3,580 (252)
6½ (165.1)	3.45 (13.1)	259 (979)	7,190 (505)	396(1501)	7,190 (505)	512 (1937)	6,782 (478)	690 (2610)	5,034 (355)	1,034 (3915)	3,356 (236)	1,138 (4307)	3,051 (215)
6¾ (171.5)	3.72 (14.1)	279(1056)	6,667 (469)	428(1618)	6,667 (469)	552 (2089)	6,289 (443)	744 (2810)	4,668 (329)	1,115 (4222)	3,112 (219)	1,227 (4644)	2,829 (199)
7 (177.8)	4.00 (15.1)	300(1135)	6,199 (436)	460(1740)	6,199 (436)	594 (2247)	5,548 (412)	800 (3027)	4,340 (306)	1,200 (4541)	2,894 (204)	1,319 (4995)	2,630 (185)
7½ (190.5)	4.59 (17.4)	344(1303)	5,400 (380)	528(1998)	5,400 (381)	681 (2579)	5,094 (359)	918 (3475)	3,781 (266)	1,377(5,212)	2,521 (178)	1,515 (5734)	2,291 (161)
INPUT POWER: BHP (Kw)		1205 (899)		1848 (1378)		2250 (1678)		2250 (1678)		2250 (1678)		2250 (1678)	

1 Based on 90% ME and 100% VE - Intermittent Service Only.
2 For applications demanding pressures over 15,000 psi, contact SPM® Engineering.

TWS 2250 HYDRAULIC HORSEPOWER CURVE



Note: This chart shows this pump's performance at max hydraulic horsepower. Notice as the plunger size for the pump increases, a greater max flow rate is achieved while the max pressure decreases.

FRAC PUMP QWS 2500SD

The QWS 2500SD was developed to handle harsh frac conditions, as seen in the premier North American shale plays. The QWS 2500SD is designed to withstand 10 hours of operation up to 6 days a week while maintaining a high performance rod load capacity that is necessary for pumping in harsh conditions.

APPLICATIONS: Fracturing

Rated Max. Brake HP.....2,500 BHP (1,866 Kw)
Maximum Rod Load.....192,325 Lbs. (87,239 kg)
Stroke Length.....8" (203.2 mm)
Gear Ratio.....6.353:1
Length.....84 3/4" (2,153 mm)
Width.....73 7/8" (1,877 mm)
Height.....43 3/8" (1,102 mm)
Weight Dry (Approx.).....16,000# (7,257 kg)

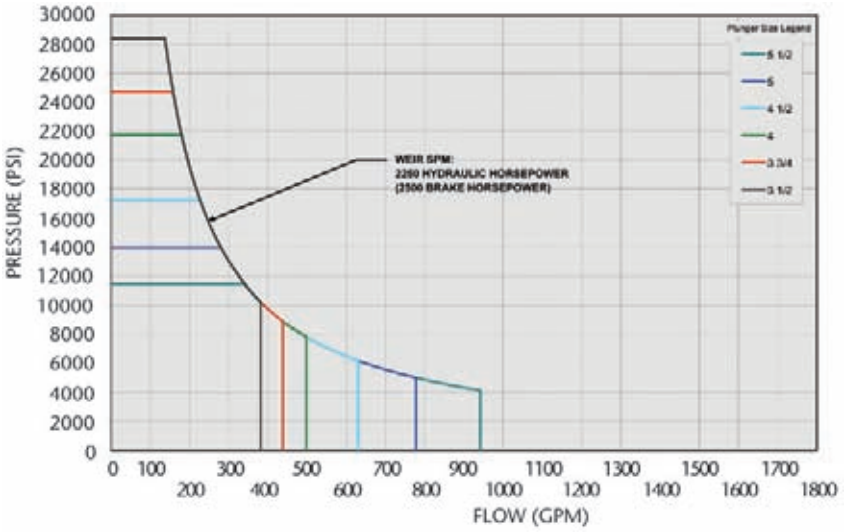
Pump dimensions are approximate. For full detailed drawings, please contact SPM® Engineering.

QWS 2500SD PERFORMANCE DATA [1,2]

Plunger Diameter	Displace per rev	Displacement at Pump Strokes per Minute / Pinion RPM											
		50	319	75	478	110	701	150	956	250	1594	305	1944
in (mm)	gal/rev (liter/rev)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)
3 ½ (88.9)	1.25 (4.7)	62 (236)	28,375 (2000)	94 (355)	28,375 (2000)	137 (520)	28,375 (2000)	187 (709)	20,805 (1466)	312 (1182)	12,483 (880)	381 (1442)	10,232 (721)
3¾ (95.3)	1.43 (5.4)	72 (271)	24,718 (1742)	108 (407)	24,718 (1742)	158 (597)	24,718 (1742)	215 (814)	18,123 (1277)	359 (1357)	10,874 (766)	437 (1656)	8,913 (628)
4 (101.6)	1.63 (6.2)	82 (309)	21,725 (1531)	122 (463)	21,725 (1531)	179 (679)	21,725 (1531)	245 (927)	15,929 (1123)	408 (1544)	9,557 (674)	498 (1884)	7,834 (552)
4½ (114.3)	2.07 (7.8)	103 (391)	17,165 (1210)	155 (586)	17,165 (1210)	227 (860)	17,165 (1210)	310 (1173)	12,586 (887)	516 (1954)	7,551 (532)	630 (2384)	6,190 (436)
5 (127.0)	2.55 (9.7)	217 (483)	13,904 (980)	191 (724)	13,904 (980)	280 (1061)	13,904 (980)	382 (1448)	10,194 (718)	637 (2413)	6,117 (431)	779 (2944)	5,014 (353)
5½ (139.7)	3.09 (11.7)	154 (584)	11,491 (810)	231 (876)	11,491 (810)	339 (1284)	11,491 (810)	463 (1752)	8,425 (594)	771 (2920)	5,055 (356)	941 (3562)	4,144 (292)
INPUT POWER: BHP (Kw)		1137 (848)		1705 (1272)		2500 (1865)		2500 (1866)		2500 (1866)		2500 (1866)	

1 Based on 90% ME and 100% VE - Intermittent Service Only.
2 For applications demanding pressures over 15,000 psi, contact SPM® Engineering.

QWS 2500S HYDRAULIC HORSEPOWER CURVE



Note: This chart shows this pump's performance at max hydraulic horsepower. Notice as the plunger size for the pump increases, a greater max flow rate is achieved while the max pressure decreases.

FRAC PUMP QWS 3500

The QWS 3500 is the most powerful well service pump on the market. With 3500 BHP, the pump is designed to eliminate the number of units required on a site to reach its high pressure pumping capabilities, reducing the user's operational costs.

APPLICATIONS: Fracturing

Rated Max. Brake HP.....3,500 BHP (2,609 Kw)
Maximum Rod Load.....260,000 Lbs. (117,934 kg)
Stroke Length.....10" (254 mm)
Gear Ratio.....7.091:1
Length.....94" (2,388 mm)
Width.....108" (2,743 mm)
Height.....36" (914 mm)
Weight Dry (Approx.).....24,000# (10,866 kg)

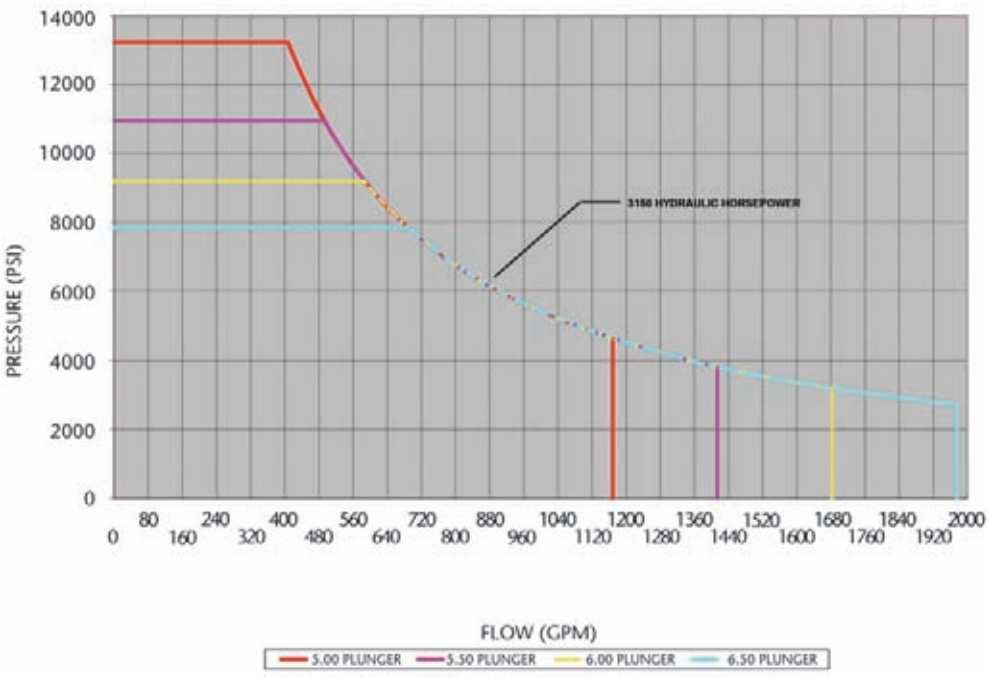
Pump dimensions are approximate. For full detailed drawings, please contact SPM® Engineering.

QWS 3500 PERFORMANCE DATA [1,2]

Plunger Diameter	Displace per rev	Displacement at Pump Strokes per Minute / Pinion RPM											
		50 / 355		75 / 532		96 / 680		150 / 1064		200 / 1418		275 / 1950	
in (mm)	gal/rev (liter/rev)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)
4 (101.5)	2.72 (10.3)	136 (515)	20,690 (1458)	204 (772)	20,690 (1458)	261 (988)	20,690 (1458)	408 (1544)	13,233 (933)	544 (2059)	9,925 (699)	748 (2831)	7,218 (509)
4½ (114.3)	3.44 (13.0)	172 (651)	16,348 (1152)	258 (977)	16,346 (1152)	330 (1250)	16,346 (1152)	516 (1954)	10,456 (737)	688 (2606)	7,842 (553)	947 (3583)	5,703 (402)
5 (127.0)	4.25 (16.1)	212 (804)	13,242 (933)	319 (1206)	13,242 (933)	408 (1543)	13,242 (933)	637 (2413)	8,469 (597)	850 (3217)	6,352 (448)	1,169 (4424)	4,620 (326)
5½ (139.7)	5.14 (19.5)	257 (973)	10,944 (771)	386 (1460)	10,944 (771)	493 (1867)	10,944 (771)	771 (2920)	6,999 (493)	1,028 (3893)	5,250 (370)	1,414 (5353)	3,818 (269)
6 (152.4)	6.12 (23.2)	306 (1158)	9,196 (648)	459 (1737)	9,196 (648)	587 (2222)	9,196 (648)	918 (3475)	5,881 (414)	1,224 (4633)	4,411 (311)	1,683 (6370)	3,208 (226)
6½ (165.1)	7.18 (27.2)	359 (1359)	7,835 (552)	539 (2039)	7,835 (552)	689 (2608)	7,835 (552)	1,077 (4078)	5,011 (353)	1,436 (5437)	3,759 (265)	1,975 (7476)	2,733 (193)
7 (177.8)	8.33 (31.5)	416 (1576)	6,756 (476)	625 (2365)	6,756 (476)	799 (3025)	6,756 (476)	1249 (4729)	4,321 (305)	1,666 (6306)	3,241 (228)	2291 (8670)	2,357 (166)
INPUT POWER: BHP (Kw)		1824 (1361)		2736 (2042)		3500 (2612)		3500 (2612)		3500 (2612)		3500 (2612)	

1 Based on 90% ME and 100% VE - Intermittent Service Only.
2 For applications demanding pressures over 15,000 psi, contact SPM® Engineering.

QWS 3500 HYDRAULIC HORSEPOWER CURVE



Note: This chart shows this pump's performance at max hydraulic horsepower. Notice as the plunger size for the pump increases, a greater max flow rate is achieved while the max pressure decreases.

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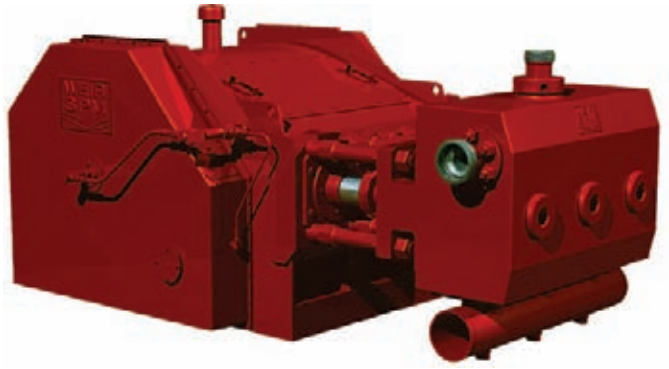
FRAC PUMP TWS 2400

The TWS 2400 is a frac pump designed to better handle the extreme operating conditions seen in the new unconventional gas formations. The TWS 2400 has successfully completed a 1.5 million cycle test proving its durable design and performance capability.



APPLICATIONS: Acidizing, cementing, gravel packing, snubbing

Rated Max. Brake HP.....2,400 BHP (1,790 Kw)
Maximum Rod Load.....273,000 Lbs. (117,934 kg)
Stroke Length.....8" (203 mm)
Gear Ratio.....5.588:1
Length.....90" (2,381 mm)
Width.....60" (1,519 mm)
Height.....44" (1,125 mm)
Weight Dry (Approx.).....11,750# (5,335 kg)

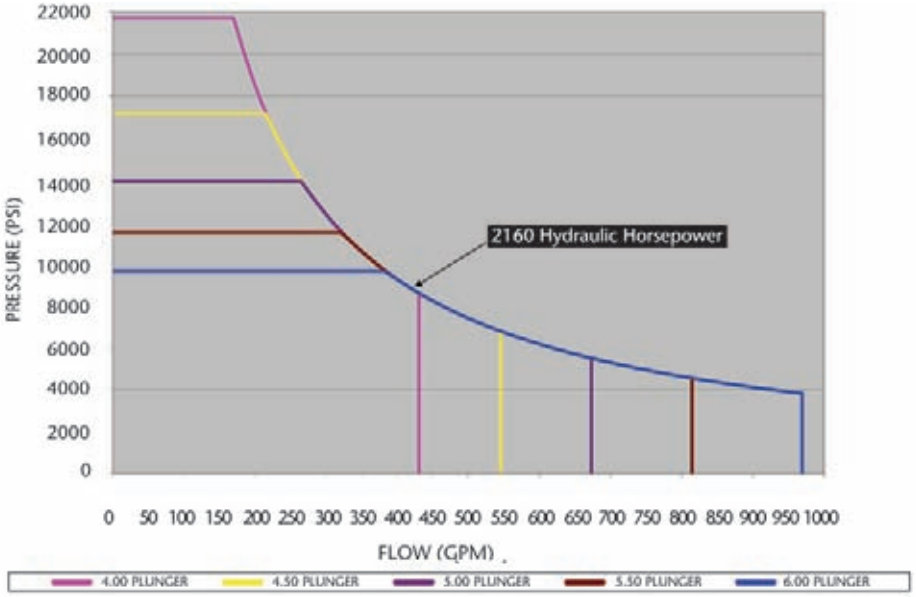
Pump dimensions are approximate. For full detailed drawings, please contact SPM® Engineering.

TWS 2400 PERFORMANCE DATA [1,2]

Plunger Diameter	Displace per rev	Displacement at Pump Strokes per Minute / Pinion RPM											
		75 / 419		115 / 643		131 / 730		200 / 1118		300 / 1676		348 / 1945	
in (mm)	gal/rev (liter/rev)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)
3½ (88.9)	1.00 (3.8)	75 (284)	28,385 (2000)	115 (435)	28,385 (2000)	131 (494)	28,359 (1999)	200 (757)	18,519 (1305)	300 (1135)	12,346 (870)	348 (1317)	10,643 (750)
3¾ (95.3)	1.15 (4.3)	86 (326)	24,718 (1742)	132 (499)	24,718 (1742)	150 (567)	24,704 (1741)	229 (869)	16,132 (1137)	344 (1303)	10,755 (758)	399 (1511)	9,271 (653)
4 (101.6)	1.31 (4.9)	98 (371)	21,725 (1531)	150 (568)	21,725 (1531)	171 (645)	21,713 (1530)	261 (988)	14,178 (999)	392 (1483)	9,452 (666)	454 (1720)	8,148 (574)
4½ (114.3)	1.65 (6.3)	124 (469)	17,165 (1210)	190 (719)	17,165 (1210)	216 (817)	17,156 (1209)	330 (1251)	11,203 (789)	496 (1876)	7,468 (526)	575 (2177)	6,438 (454)
5 (127.0)	2.04 (7.7)	153 (579)	13,904 (980)	235 (888)	13,904 (980)	266 (1008)	13,896 (979)	408 (1544)	9,074 (639)	612 (2316)	6,049 (426)	710 (2687)	5,215 (368)
5½ (139.7)	2.47 (9.3)	185 (701)	11,491 (810)	284 (1074)	11,491 (810)	322 (1220)	11,484 (809)	494 (1869)	7,499 (528)	741 (2803)	5,000 (352)	859 (3251)	4,310 (304)
5¾ (146.1)	2.70 (10.2)	202 (766)	10,513 (741)	310 (1174)	10,513 (741)	352 (1334)	10,507 (740)	540 (2042)	6861 (484)	809 (3063)	4,574 (322)	939 (3554)	3,943 (278)
6 (152.4)	2.94 (11.1)	220 (834)	9,655 (680)	338 (1279)	9,655 (680)	384 (1452)	9,650 (680)	588 (2224)	6,301 (444)	881 (3336)	4,201 (296)	1,022 (3869)	3,622 (255)
6½ (165.1)	3.45 (13.0)	259 (979)	8,227 (580)	396 (1501)	8,227 (580)	450 (1704)	8,223 (579)	690 (2610)	5,369 (378)	1,034 (3915)	3,580 (252)	1,200 (4541)	3,086 (217)
6¾ (171.5)	3.72 (14.1)	279 (1055)	7,629 (538)	428 (1618)	7,629 (538)	486 (1838)	7,625 (537)	744 (2814)	4,979 (351)	1,115 (4222)	3,319 (234)	1,294 (4897)	2,861 (202)
7 (177.8)	4.00 (15.1)	300 (1135)	7,094 (500)	460 (1740)	7,094 (500)	522 (1976)	7,090 (500)	800 (3027)	4,630 (326)	1,200 (4540)	3,086 (218)	1,391 (5297)	2,661 (188)
7½ (190.5)	4.59 (17.4)	344 (1303)	6,179 (435)	528 (1998)	6,179 (435)	599 (2269)	6,176 (435)	918 (3475)	4,033 (284)	1,377 (5212)	2,689 (189)	1,597 (6046)	2,318 (163)
INPUT POWER: BHP (Kw)		1137 (1029)		2114 (1578)		2400 (1791)		2400 (1791)		2400 (1791)		2400 (1791)	

1 Based on 90% ME and 100% VE - Intermittent Service Only.
2 For applications demanding pressures over 15,000 psi, contact SPM® Engineering.

TWS 2400 HYDRAULIC HORSEPOWER CURVE



Note: This chart shows this pump's performance at max hydraulic horsepower. Notice as the plunger size for the pump increases, a greater max flow rate is achieved while the max pressure decreases.

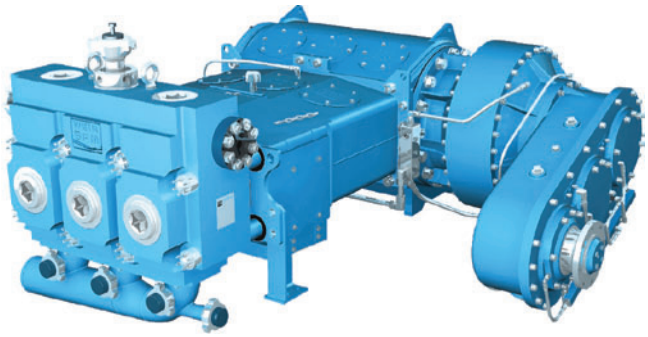
FRAC PUMP
Destiny™ TWS 2500

The SPM® Destiny™ TWS 2500 frac pump is designed for operation in today's harshest multistage frac applications with a 2500 horsepower rating, 273,000 lb rod load, and 10" stroke. The longer stroke requires fewer cycles to produce an equivalent flow rate compared to an 8" stroke quintuplex pump; resulting in less overall wear on expendables and improved overall pump durability. This combination provides more operating ranges than other triplex pumps in this category currently in the market.

APPLICATIONS: Acidizing, cementing, gravel packing, snubbing

Rated Max. Brake HP.....600 BHP (447 Kw)
Maximum Rod Load.....100,000 Lbs. (43,360 kg)
Stroke Length.....6" (152.4 mm)
Gear Ratio.....4.61:1
Length.....50-1/4" (1,276 mm)
Width.....52-15/16" (1,344 mm)
Height.....23-7/8" (607 mm)
Weight Dry (Approx.).....4,940# (2,040 kg)

Pump dimensions are approximate. For full detailed drawings, please contact SPM® Engineering.

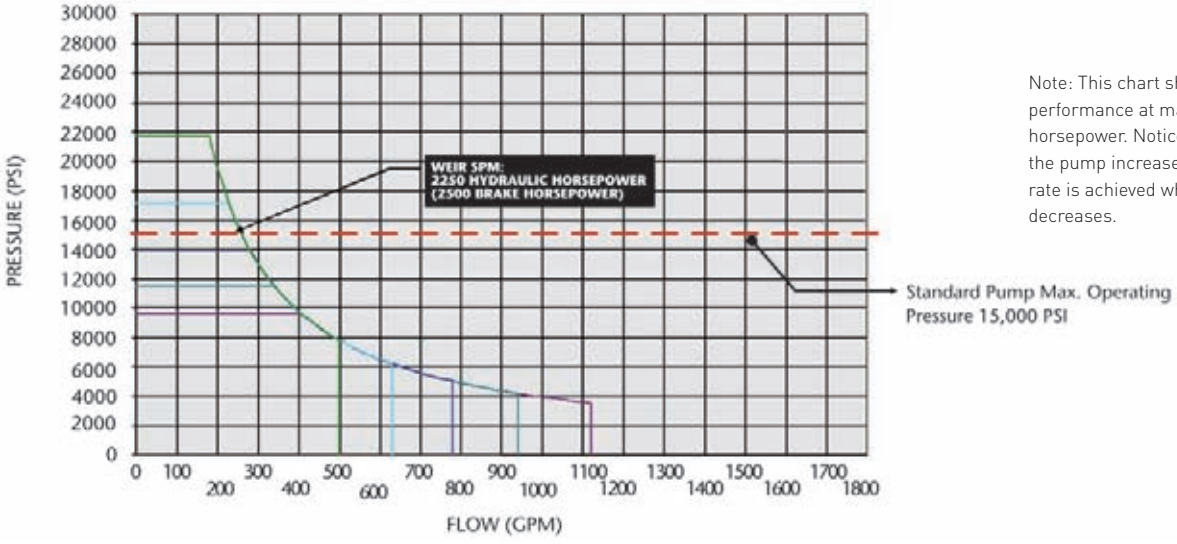


DESTINY™ TWS 2500 PERFORMANCE DATA [1,2]

Plunger Diameter	Displace per rev	Displacement at Pump Strokes per Minute / Pinion RPM											
		50 / 319		75 / 478		110 / 701		150 / 956		250 / 1594		305 / 1944	
in (mm)	gal/rev (liter/rev)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)	gpm (lpm)	psi (kg/cm²)
3½ (88.9)	1.25 (4.7)	62 (236)	28375 (2000)	94 (355)	28375 (2000)	137 (520)	28375 (2000)	187 (709)	20805 (1466)	312 (1182)	12483 (880)	381 (1442)	10232 (721)
3¾ (95.3)	1.43 (5.4)	72 (271)	24718 (1742)	108 (407)	24718 (1742)	158 (597)	21725 (1531)	215 (814)	18123 (1277)	359 (1357)	10874 (766)	437 (1656)	8913 (628)
4 (101.6)	1.63 (6.2)	82 (309)	21725 (1531)	122 (463)	21725 (1531)	179 (679)	21725 (1531)	245 (927)	15929 (1123)	408 (1544)	9557 (674)	498 (1884)	7834 (552)
4½ (114.3)	2.07 (7.8)	103 (391)	17165 (1210)	155 (586)	17165 (1210)	227 (860)	17165 (1210)	310 (1173)	12586 (887)	516 (1954)	7551 (532)	630 (2384)	6190 (436)
5 (127.0)	2.55 (9.7)	127 (483)	13904 (980)	191 (724)	13904 (980)	280 (1061)	13904 (980)	382 (1448)	10194 (718)	637 (2413)	6117 (431)	778 (2944)	5014 (353)
5½ (139.7)	3.09 (11.7)	154 (584)	11491 (810)	231 (876)	11491 (810)	339 (1284)	11491 (810)	463 (1752)	8425 (594)	771 (2920)	5055 (356)	941 (3562)	4144 (292)
5¾ (146.1)	3.37 (12.8)	169 (638)	10513 (741)	253 (957)	10513 (741)	371 (1404)	10513 (741)	506 (1915)	7708 (543)	843 (3191)	4625 (326)	1029 (3893)	3791 (267)
6 (152.4)	3.67 (13.9)	184 (695)	9655 (680)	275 (1042)	9655 (680)	404 (1528)	9655 (680)	551 (2085)	7079 (499)	918 (3475)	4248 (299)	1120 (4239)	3482 (245)
6½ (165.1)	4.31 (16.3)	215 (816)	8227 (580)	323 (1223)	8227 (580)	474 (1794)	8227 (580)	646 (2447)	6032 (425)	1077 (4078)	3619 (255)	1314 (4975)	2967 (209)
6¾ (171.5)	4.65 (17.6)	232 (880)	7629 (538)	349 (1319)	7629 (538)	511 (1934)	7629 (538)	697 (2639)	5594 (394)	1162 (4398)	3356 (237)	1417 (5365)	2751 (194)
7 (177.8)	5.00 (18.9)	250 (946)	7094 (500)	375 (1419)	7094 (500)	550 (2080)	7094 (500)	750 (2838)	5201 (367)	1249 (4729)	3121 (220)	1524 (5770)	2558 (180)
7½ (190.5)	5.74 (21.7)	287 (1086)	6179 (435)	430 (1629)	6179 (435)	631 (2388)	6179 (435)	861 (3257)	4531 (319)	1434 (5429)	2719 (192)	1750 (6624)	2228 (157)
INPUT POWER: BHP (Kw)		1137 (848)		1705 (1272)		2500 (1865)		2500 (1866)		2500 (1866)		2500 (1866)	

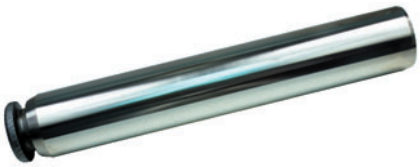
1 Based on 90% ME and 100% VE - Intermittent Service Only.
2 For applications demanding pressures over 15,000 psi, contact SPM®.

DESTINY™ TWS 2500 HYDRAULIC HORSEPOWER CURVE



Note: This chart shows this pump's performance at max hydraulic horsepower. Notice as the plunger size for the pump increases, a greater max flow rate is achieved while the max pressure decreases.

PUMP ACCESSORIES



PLUNGERS

SPM® plungers are engineered and manufactured to precise dimensions with the proper coatings and surface finishes necessary for rugged well service applications.

HIGH PERFORMANCE PLUNGER PACKING

SPM®'S line of high performance packing is designed and manufactured to give extended and dependable service life in high pressure, corrosive and abrasive pumping applications.

VALVES and SEATS

SPM® valves and seats are designed for severe well service applications including high pressure. SPM®'s new Bonded Valves feature a greater flow area, less abrasion and lower fluid velocity through the seat.

AUTOFRETTAGE

Intersecting bores in a fluid cylinder exhibit very high stresses at the corners of the intersection. To combat this problem created at the bore intersections, SPM® recommends that the customer utilize the Autofrettage option when purchasing a fluid end. The Autofrettage procedure is a technique where a "one-time" high hydraulic pressure is imposed on the bore intersection of a new cylinder inducing plastic strain at the intersection while elastic strain remains elsewhere. Relaxation of this one time pressure treatment causes these high-risk areas to develop a residual compressive stress, mitigating the destructive effects of the fatigue. The Autofrettage process may not completely eliminate the likelihood of fatigue failure (since corrosion and erosion still occur). However, it should significantly increase the number of cycles the product can tolerate, ultimately extending the life of the fluid cylinder.

The traditional **"wing style" fluid end** uses a grooved suction bore to lock the valve stop in place. This groove reduces material in key locations possibly leading to cracks in the cylinder during the mature phase of its life cycle.

FLUID END CONFIGURATIONS

SPM® currently offers fluid ends in three configurations, OPI, "Wing" Style Suction Valve Stop, and Grooveless. The "Wing" style fluid end was an improvement over the industry standard OPI style for a number of reasons including cost, serviceability and fluid cylinder life. Due to the customer's need for increased pumping durations, rates, and pressures, SPM® has adopted a Grooveless (GL) version of the suction valve stop. The GL design eliminates a groove in the fluid cylinder and is intended to extend the cylinder's life. All three versions are available and can be used throughout a broad range of the SPM® pump product line. Consult SPM® Sales to determine which style would be beneficial for you.

Weir SPM's new **Grooveless Fluid End** eliminates the groove in the fluid cylinder by replacing the old "wing style" valve stop. The new valve stop design locks under a ridge in the fluid cylinder bore and is held in place through a stem on the suction cover.

PUMP REPAIR

SPM®'s professionally trained technicians perform complete pump repair services for many makes and models of well service pumps. SPM® reduces downtime through convenient repair services in the field (when possible) or at one of its pump repair facilities located around the globe. The most effective way to keep your fleet of units up and running is to utilize SPM®'s pump repair services.

Procedures Include:

- Disassembly of all components
- Inspection, including magnetic particle
- Evaluation of repairs
- Cost estimates
- Repair utilizing SPM technicians
- Test
- Documentation to verify product quality
- Repaint

CONTACT FLUID CONTROL FOR ALL OF YOUR PUMP REPAIR NEEDS

FLUID END REPAIR

In the past, the only option for operators with cracked, washed or eroded fluid ends was to simply discard them. In an effort to offer customers an alternative to disposing of their equipment, SPM® has developed a process to return used blocks as reconditioned fluid ends in "like-new" condition. SPM® has been implementing this process in select areas with great success. Now, all customers will have the opportunity to evaluate the status of their fluid cylinders and have options of whether to replace or refurbish.

Refurbishment Process Includes:

- Disassembly of all components.
- Visual inspection vital areas.
- Thorough examination using multiple techniques.
- Evaluation of repairs & cost estimates.
- Repair utilizing skilled Weir SPM technicians.
- Test & documentation to verify product quality.
- Repaint.
- Record of all visual findings and dimensional data on formatted reports presented to customer.

PLUNGER REPAIR

SPM® now offers Plunger Repair services. This service gives customers the opportunity to repair damaged plungers that would normally be scrapped. The reliable repaired plungers are returned to the customer in "like new" condition, offering a less expensive alternative to the purchase of new plungers.

Group 1
Hydraulic Hoses

FLUID CONTROL®

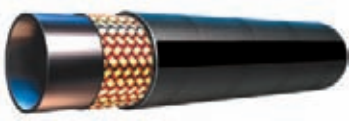
1

Symbol Key

#										
Part No	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m
1SN-04	6.3	1/4	-04	13.4	225	3270	900	13000	100	0.24
Part No	Inside Diameter			Out. Diam.	Working Pressure		Burst Pressure		Bend Radius	Weight

R Available for rental

For information on safe hose assembly, see chapter 20



Type EN853 1SN / ISO 1436
1 Layer Hydraulic Hose

APPLICATIONS:
High-pressure hose for petroleum-based hydraulic oils, *water-glycol and *water-oil hydraulic emulsions, grease, lubricants, crude oil, diesel, air and water. **The hose must be pin-prickled for air and gas applications over 17 bar (250psi).**
The combination of high temperature and high pressure reduces the hose´s lifespan.
Hoses and swaged couplings are also available with type approvals from a number of classification societies.

CONSTRUCTION:

Covering:	Black synthetic rubber
Reinforcement:	1 layer steel wire braid
Internal:	Nitrile rubber (NBR)

TEMPERATURE RANGE:

-40°C to +100°C	for hydraulic oils
-40°C to +85°C	for water
-40°C to +70°C	for air

# Part No	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	Fitting Series
1SN-04	6.3	1/4	-04	13.4	225	3260	900	13000	100	0.24	002SC
1SN-06	9.5	3/8	-06	17.4	180	2610	720	10400	130	0.34	002AT
1SN-08	12.7	1/2	-08	20.7	160	2320	640	9280	180	0.43	002AT
1SN-10	15.9	5/8	-10	23.9	130	1880	520	7500	200	0.49	002AT
1SN-12	19.0	3/4	-12	27.8	105	1530	420	6100	240	0.63	002AT
1SN-16	25.4	1	-16	35.8	88	1270	352	5100	300	0.94	002AT
1SN-20	31.8	1.1/4	-20	44.8	63	910	252	3650	420	1.19	002AT
1SN-24	38.1	1.1/2	-24	51.1	50	725	200	2900	500	1.49	002AT
1SN-32	50.8	2	-32	64.7	40	580	160	2300	630	2.23	002AT

Type EN 853 2SN / ISO 1436
2 Layer Hydraulic Hose

APPLICATIONS:
High-pressure hose for petroleum-based hydraulic oils, *water-glycol and *water-oil hydraulic emulsions, grease, lubricants, crude oil, diesel, air and water. **The hose must be pin-prickled for air and gas applications over 17 bar (250psi).**
The combination of high temperature and high pressure reduces the hose´s lifespan.
Hoses and swaged couplings are also available with type approvals from a number of classification societies.

CONSTRUCTION:

Covering:	Black synthetic rubber
Reinforcement:	2 layers steel wire braid
Internal:	Nitrile rubber (NBR)

TEMPERATURE RANGE

-40°C to +100°C	for hydraulic oils
-40°C to +85°C	for water
-40°C to +70°C	for air

# Part No	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	Fitting Series
2SN-04	6.3	1/4	-04	15.0	400	5800	1600	23200	100	0.39	002AT
2SN-06	9.5	3/8	-06	19.0	330	4775	1320	19100	130	0.55	002AT
2SN-08	12.7	1/2	-08	22.2	275	4000	1100	16000	180	0.67	002AT
2SN-10	15.9	5/8	-10	25.4	250	3600	1000	14500	200	0.77	002AT
2SN-12	19.0	3/4	-12	29.3	215	3100	860	12400	240	1.00	002AT
2SN-16	25.4	1	-16	38.1	165	2400	660	9600	300	1.49	002AT
2SN-20	31.8	1.1/4	-20	47.5	125	1800	500	7200	420	1.73	002AT
2SN-24	38.1	1.1/2	-24	55.0	90	1300	360	5200	500	2.14	002AT
2SN-32	50.8	2	-32	67.0	80	1150	320	4600	630	2.96	002AT

SEE CHAPTER 3 FOR COUPLINGS FOR THESE HOSES

1

Type EN857 2SC / ISO 11237 2SC
2 Layer Compact Hose

APPLICATIONS:
High-pressure hose for petroleum-based hydraulic oils, *water-glycol and *water-oil hydraulic emulsions, grease, lubricants, crude oil, diesel, air and water. **The hose must be pin-prickled for air and gas applications over 17 bar (250psi).**
The combination of high temperature and high pressure reduces the hose´s lifespan.

CONSTRUCTION:

Covering:	Black synthetic rubber
Reinforcement:	2 layers steel wire braid
Internal:	Nitrile rubber (NBR)

TEMPERATURE RANGE:

-40°C to +100°C	for hydraulic oils
-40°C to +85°C	for water
-40°C to +70°C	for air

SUPPLIED WITH TOUGH COVER OUTSIDE COATING ON REQUEST

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2SC-04	6.3	1/4	-04	13.4	425	6160	1700	24640	75	0.30	002SC
2SC-06	9.5	3/8	-06	17.2	350	5075	1400	20300	90	0.42	002SC
2SC-08	12.7	1/2	-08	20.4	310	4495	1240	17980	130	0.52	002SC
2SC-10	15.9	5/8	-10	23.9	280	4060	1120	16240	160	0.66	002SC
2SC-12	19.0	3/4	-12	27.7	280	4060	1120	16240	195	0.86	002SC
2SC-16	25.4	1	-16	35.4	210	3045	840	12180	250	1.17	002SC
2SC-20	31.8	1.1/4	-20	43.0	172	2495	688	9980	335	1.50	002SC

Hydraulic Hose
2 Layer Compact Hose SAE100R16
High-temperature Hose

APPLICATIONS:
High-pressure hose for petroleum-based hydraulic oils, biodegradable oils, *water-glycol and *water-oil hydraulic emulsions, grease, lubricants, crude oil, diesel, air and water. **The hose must be pin-prickled for air and gas applications over 17 bar (250psi).**
The combination of high temperature and high pressure reduces the hose´s lifespan.

CONSTRUCTION:

Covering:	Blue synthetic rubber
Reinforcement:	2 layers steel wire braid
Internal:	Synthetic rubber PKR

TEMPERATURE RANGE:

-48°C to +150°C	for hydraulic oils
-48°C to +85°C	for water
-48°C to +70°C	for air

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2SC-06HT	9.5	3/8	-06	17.0	275	4000	1100	16000	65	0.42	002AT
2SC-08HT	12.7	1/2	-08	20.0	240	3500	960	14000	90	0.51	002AT
2SC-10HT	15.9	5/8	-10	24.0	190	2750	760	11000	100	0.66	002AT
2SC-12HT	19.0	3/4	-12	28.0	155	2250	620	9000	120	0.80	002AT
2SC-16HT	25.4	1	-16	36.0	138	2000	550	8000	150	1.22	002AT

SEE CHAPTER 3 FOR COUPLINGS FOR THESE HOSES

HIGH PRESSURE HOSE
Type Active Wash Compact

APPLICATIONS:
High-pressure hose with synthetic, heat-resistant internal rubber, 2 layers steel wire braid, blue synthetic rubber cover, lightweight, very flexible. Synthetic, oil- and weather-resistant covering.
Special hose for hot-water high-pressure washers.
The combination of high temperature and high pressure reduces the hose´s lifespan.

CONSTRUCTION:

Covering:	Blue synthetic rubber
Reinforcement:	2 layers steel wire braid
Internal:	Synthetic rubber

TEMPERATURE RANGE:
-40°C to +120°C

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2SC-05W	7.9	5/16	-05	15.0	400	5800	1200	17400	75	0.31	46
2SC-06W	9.5	3/8	-06	17.4	400	5800	1200	17400	90	0.38	002SC
2SC-08W	12.7	1/2	-08	20.6	350	5075	1050	15225	110	0.48	002SC

HIGH PRESSURE HOSE
Type Active Wash 400

APPLICATIONS:
High-pressure hose with synthetic, heat-resistant internal rubber, 2 layers steel wire braid, blue synthetic rubber cover, lightweight, very flexible. Synthetic, oil and weather-resistant covering.
Special hose for hot-water high-pressure washers.
The covering needs to be removed before attaching couplings (skive).
The combination of high temperature and high pressure reduces the hose´s lifespan.

CONSTRUCTION:

Covering:	Blue synthetic rubber
Reinforcement:	2 layers steel wire braid
Internal:	Synthetic rubber

TEMPERATURE RANGE:
-40°C to +150°C

# Part No										
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m
AW400-06W	9.5	3/8	-06	19.0	400	5800	1320	19140	130	0.56
AW400-08W	12.7	1/2	-08	22.2	350	5075	1100	15950	180	0.65

SEE CHAPTER 3 FOR COUPLINGS FOR THESE HOSES

1

3 Layer Hydraulic Hose Type 372 4SP

APPLICATIONS:
3-wire braid compact hose with 4SP working pressures. General high pressure small bending radii hydraulic applications. No-skive hose construction. Nitrile (NBR) inner tube for extended fluid compability.

RECOMMENDED FLUIDS
Petroleum and water-glycol based fluids, lubricating oils, air and water. For air above 1.7 MPa, the hose cover must be pin-pricked.

CONSTRUCTION:

Covering:	Synthetic rubber
Reinforcement:	Three high tensile steel wire braids
Internal:	Nitrile (NBR)

TEMPERATURE RANGE:

-40°C to +100°C	for hydraulic oils
max +85°C	for water
max +70°C	for air

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	
372 -06	9.5	3/8	-06	21.4	445	6500	1800	25800	120	0.73	70
372 -08	12.7	1/2	-08	24.6	415	6000	1660	24000	160	0.90	70
372 -10	15.9	5/8	-10	28.2	350	5000	1400	20000	210	1.09	70
372 -12	19.1	3/4	-12	32.2	350	5000	1400	20000	260	1.36	70
372 -16	25.4	1	-16	39.7	280	4000	1220	16000	310	1.78	70

Type EN856 4SP / ISO 3862-1 4SP 4 Layer Hydraulic Hose

APPLICATIONS:
High-pressure hose for petroleum-based hydraulic oils, *water-glycol and *water-oil hydraulic emulsions, grease, lubricants, crude oil, diesel, air and water. **The hose must be pin-prickled for air and gas applications over 17 bar (250psi).**
The combination of high temperature and high pressure reduces the hose´s lifespan. The hose is not suitable for constant immersion in oil. Hoses and couplings are also available with type approvals from a number of classification societies.

CONSTRUCTION:

Covering:	Black synthetic rubber
Reinforcement:	4 layers steel wire spirals
Internal:	Synthetic rubber

TEMPERATURE RANGE:

-40°C to +100°C	for hydraulic oils
-40°C to +85°C	for water
-40°C to +70°C	for air

SUPPLIED WITH TOUGH COVER OUTSIDE COATING ON REQUEST

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	
4SP-06	9.5	3/8	-06	21.4	445	6450	1780	25800	130	0.91	1004
4SP-08	12.7	1/2	-08	24.6	415	6000	1660	24000	180	1.08	1004
4SP-10	15.9	5/8	-10	28.5	390	5650	1560	22600	225	1.39	1004
4SP-12	19.0	3/4	-12	32.0	350	5000	1400	20300	280	1.73	1004
4SP-16	25.4	1	-16	39.7	310	4500	1240	18000	355	2.31	1004
4SP-20	31.8	1.1/4	-20	47.5	280	4050	1120	16200	460	3.07	1104
4SP-24	38.1	1.1/2	-24	53.5	260	3750	1040	15000	560	3.56	1104

SEE CHAPTER 3 FOR COUPLINGS FOR THESE HOSES

Type EN856 4SH / ISO 3862-1 4SH
4 Layer Hydraulic Hose

APPLICATIONS:
High-pressure hose for petroleum-based hydraulic oils, *water-glycol and *water-oil hydraulic emulsions, grease, lubricants, crude oil, diesel, air and water. **The hose must be pin-prickled for air and gas applications over 17 bar (250psi).**
The combination of high temperature and high pressure reduces the hose´s lifespan. The hose is not suitable for constant immersion in oil. Hoses and swaged couplings are also available with type approvals from a number of classification societies.

CONSTRUCTION:

Covering:	Black synthetic rubber
Reinforcement:	4 layers steel wire spirals
Internal:	Synthetic rubber

TEMPERATURE RANGE:

-40°C to +100°C	for hydraulic oils
-40°C to +85°C	for water
-40°C to +70°C	for air

SUPPLIED WITH TOUGH COVER OUTSIDE COATING ON REQUEST

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	
4SH-12	19.0	3/4	-12	32.2	430	6250	1720	25000	280	1.7	1104
4SH-16	25.4	1	-16	38.7	400	5800	1600	23200	340	2.2	1104
4SH-20	31.8	1.1/4	-20	45.5	350	5000	1400	20000	460	2.6	1104
4SH-24	38.1	1.1/2	-24	53.5	310	4500	1240	18000	560	3.4	1104
4SH-32	50.8	2	-32	68.1	280	4050	1120	16200	700	4.8	1104

Type EN856 R13 / ISO 3862-1 R13
4/6 Layer Hydraulic Hose

APPLICATIONS:
High-pressure hose for petroleum-based hydraulic oils, *water-glycol and *water-oil hydraulic emulsions, grease, lubricants, crude oil, diesel, air and water. **The hose must be pin-prickled for air and gas applications over 17 bar (250psi).**
The combination of high temperature and high pressure reduces the hose´s lifespan. The hose is not suitable for constant immersion in oil. Hoses and swaged couplings are also available with type approvals from a number of classification societies.

CONSTRUCTION:

Covering:	Black synthetic rubber
Reinforcement:	4 or 6 layers steel wire spirals
Internal:	Synthetic rubber

TEMPERATURE RANGE:

-40°C to +100°C	for hydraulic oils
-40°C to +85°C	for water
-40°C to +70°C	for air

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	
R13-12	19.1	3/4	-12	32.1	345	5000	1380	20000	220	1.5	1104
R13-16	25.4	1	-16	38.7	345	5000	1380	20000	280	2.2	1104
R13-20	31.8	1.1/4	-20	49.8	345	5000	1380	20000	380	3.7	1306
R13-24	38.1	1.1/2	-24	57.3	345	5000	1380	20000	480	4.8	1306
R13-32	50.8	2	-32	71.1	345	5000	1380	20000	600	6.6	1306

SEE CHAPTER 3 FOR COUPLINGS FOR THESE HOSES

1

Type R13 PUR ORANGE 4 Layer Hydraulic Hose

EXTRUDED COVER:
Thermoplastic Polyurethane.
Elastomer Extrusion offers:-

- Excellent wear resistance.
- Total assembly encapsulation with the prevention of sea water ingress, particularly from external pressure in deep water operation.
- Corrosion elimination.
- Resistant against microbial attack.
- Withstands repeated flexing.
- Flame proof – halogen free.

CONSTRUCTION:
Covering: Orange environment resistant synthetic cover rubber
Reinforcement: Four high tensile steel spirals
Internal: Oil resistant synthetic rubber
Cover Colour Identification : Orange

A HOSE DEVELOPMENT FOR A SPECIFIC APPLICATION
The hose and fitting that offers extended life, improved performance and total sealing capability.

# Part No	mm	inch	mm	inch	bar	psi	bar	psi	R mm	R inch	Test Pressure bar	Test Pressure psi
2" R13 PUR Orange	50.8	2	78.0*	3*	350	5070	1500	21750	630	24.8	525	7605

* Approximate outside diameter – extruded cover thickness – 1.6/2.0mm

Type R15 / ISO 3862-1 R15 4/6 Layer Hydraulic Hose

APPLICATIONS:
High-pressure hose for petroleum-based hydraulic oils, *water-glycol and *water-oil hydraulic emulsions, grease, lubricants, crude oil, diesel, air and water. **The hose must be pin-prickled for air and gas applications over 17 bar (250psi).**
The combination of high temperature and high pressure reduces the hose´s lifespan. The hose is not suitable for constant immersion in oil. Hoses and swaged couplings are also available with type approvals from a number of classification societies.

CONSTRUCTION:
Covering: Black synthetic rubber
Reinforcement: 4 or 6 layers steel wire spirals
Internal: Synthetic rubber

TEMPERATURE RANGE:
-40°C to +100°C for hydraulic oils
-40°C to +85°C for water
-40°C to +70°C for air

# Part No	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	Fitting Series
R15-10	15.9	5/8	-10	28.5	420	6000	1680	24000	225	1.4	1104
R15-12	19.1	3/4	-12	32.0	420	6000	1680	24000	280	1.7	1104
R15-16	25.4	1	-16	39.0	420	6000	1680	24000	300	2.3	1104
R15-20	31.8	1.1/4	-20	50.8	420	6000	1680	24000	400	3.8	1306
R15-24	38.1	1.1/2	-24	57.0	420	6000	1680	24000	500	4.8	1306
R15-32	50.8	2	-32	71.5	420	6000	1680	24000	700	7.0	1306

SEE CHAPTER 3 FOR COUPLINGS FOR THESE HOSES

BLOWOUT PREVENTER Firemaster API 16D Hydraulic Hose System

Fire rated hydraulic hose with permanently attached couplings.

CONSTRUCTION:

Covering:	Extruded protective polyurethane (PU) sheath
Reinforcement:	Four or six high tensile steel spirals
Internal:	Synthetic, swelling resistant rubber tube

TEMPERATURES:
Service temperature range (°C): -40 to 121
Fire rating: Flame temperature
1,100°C for 5 minutes (API)

APPLICATIONS:
Flexible hose for hydraulic systems using mineral oils, glycols and aqueous emulsion oils in fire safety critical areas and for Blowout Preventer control.

SPECIFIED STANDARDS
• API 16D 1st Edition - Control Systems for Drilling Well Control Equipment
• Lloyds Register´s Fire Tests for Flexible Hoses on Offshore Installations, OD 1000/499

The Firemaster 16D Hydraulic Hose System is the latest addition to the Hydrasun range of Fire Rated Hose Assemblies.

Developed primarily to address the stringent requirements demanded for Blowout Prevention and well control applications, the Firemaster 16D is also ideally suited for any high pressure hydraulic applications where there is a need for hoses to be Fire Rated and capable of working in extreme heat in the event of an emergency.

In addition to satisfying the requirements of the Lloyds Register Fire Test for Flexible Hoses on Offshore Installations - OD1000/499 which calls for the pressurised Hose Assembly to withstand temperatures of 1000 degrees C for 5 minutes, the Firemaster 16D also conforms with the API16D standard for Control Systems for Drilling Well Control Equipment.

Other key design features of the product include a heavy-duty cover that affords resistance to abrasion an weathering thus maximizing the life expectancy of the product. Additionally our specially designed integral fittings which are available in a range of materials and thread types provide a complete system solution that delivers the highest levels of technical integrity and reliability.

#										
Part No	inch	mm	inch	mm	psi	bar	R inch	R mm	lbs/ft	kg/m
F5-04	1/4	6.4	1.09	27.80	7250	500	5.91	150	0.67	1.00
F5-06	3/8	9.5	1.12	31.30	6600	460	7.09	180	0.82	1.23
F5-08	1/2	12.7	1.35	34.40	6100	425	9.06	230	0.96	1.43
F5-12	3/4	19	1.65	42.00	6000	420	11.02	280	1.46	2.17
F5-16	1	25.4	1.89	48.10	5500	385	13.39	340	1.89	2.82
F5-20	1.1/4	31.8	2.36	60.00	5000	350	16.50	419	3.08	4.60
F5-24	1.1/2	38.1	2.64	67.20	5000	350	19.69	500	4.00	5.98
F5-32	2	50.8	3.22	81.80	5000	350	24.80	630	5.50	8.20

ASK US ABOUT COUPLING OPTIONS. HOSE AND COUPLINGS ARE ONLY SUPPLIED PREASSEMBLED.

1

UMBILICALS & BYPOD HOSES®

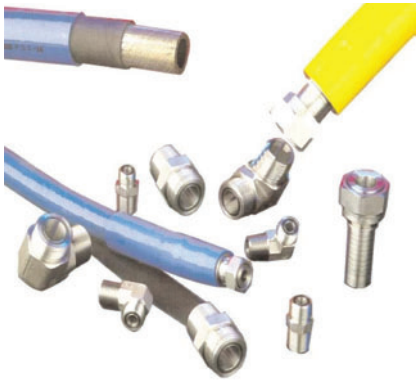
We offer fast track turnaround and delivery of finished product due to our extensive stockholding of specialist hydraulic control line hoses, combined with our in-house capability to manufacture bespoke or specialist end connections in both standard and exotic materials such as Monel, Inconel, 6MO, Super Duplex etc. All Hydrasun's manufacturing operations are approved to BS EN ISO 9001:2000 by LRQA.

A particular area in which we specialise is the short-length Umbilical market offering a custom-engineered service encompassing design, engineering, manufacturing, testing and installation together with back-up support and after-sales service that the medium/large manufacturers can not match.

Our Extrusion and Coatings service encompasses the encapsulation of both single hose and hose bundles with a Polymer or Elastomer cover that significantly increases hose service life whilst assuring operational reliability.

TYPICAL APPLICATIONS FOR HYDRASUN UMBILICALS AND JUMPERS

- IWOC Work over umbilicals
- Topside control umbilicals
- In field well head jumpers
- ROV fly to place jumpers
- Hydraulic control umbilicals
- Water jetting umbilicals
- Test tree control umbilicals
- Abandonment system umbilicals
- Service lines
- Gas umbilicals
- Wire line umbilicals
- Jacket Submergence umbilicals
- Chemical injection lines
- Calm Buoy umbilicals
- Subsea Umbilicals
- Subsea Jumpers
- Hydraulic Flying Leads



The hose and fitting that offers extended life, improved performance with total sealing capability.

Cover Colour Identification : Blue & Yellow
(Green available to special order)

SUBSEA BOP HOSE AND FITTINGS
A Hose Assembly Development for a Specific Application

CONSTRUCTION:
Tube: Service compatible resistant synthetic tube.
Reinforcement: Four high tensile steel spirals.
Cover: Synthetic rubber cover.
Extra Extruded Cover: Thermoplastic Polyurethane.

Elastomer Extrusion - which offers:

- Excellent wear resistance.
- Total assembly encapsulation with the prevention of sea water ingress, particularly from external pressure in deep water operation.
- Corrosion elimination.
- Resistance against microbial attack.
- Withstands repeated flexing.
- Flame-proof - halogen free.

# Part No							R		Test Pressure	
	inch	mm	inch	mm	psi	bar	inch	mm	psi	bar
7KBP-04-Y\B	1/4	6.3	*0.86	*21.8	7000	480	5.9	150	10 500	724
5KBP-08-Y\B	1/2	12.7	*1.10	*28	6000	414	9.0	230	9000	620
5KBP-12-Y\B	**3/4	19	*1.40	*35.8	5500	380	12.0	300	8250	570
5KBP-16-Y\B	1	25	*1.70	*43	5000	345	15.0	340	7500	518
5KBP-24-Y\B	1 1/2	38	*2.40	*61.0	5000	345	20.0	508	7612	525

*Approximate outside diameter - extruded cover thickness - 1.6/2.0mm
** This size is made to special order due to market demand.

Colour Code:
Part number suffixed with Y = Yellow.
Part number suffixed with B = Blue.

ASK US ABOUT COUPLING OPTIONS. HOSE AND COUPLINGS ARE ONLY SUPPLIED PREASSEMBLED.

DRAG CHAIN HOSES

We are able to provide hoses for Drag Chain applications both low- and high pressure covering all services. Over the years we have established good relationships towards international manufactures of hoses and Drag Chains for offshore installations.

Hoses for Drag Chain applications are not standard and are made to order. It is extremely important to avoid elongation when hoses are pressurized and measure accurate length between hose connections. The most standard end connections are flanges or Weco unions. Various materials of hose couplings can be proposed upon request.

MOST FREQUENT SERVICES IN DRAG CHAIN:

- Mud
- Sea Water
- Fresh Water
- Instrument Air
- Heating Water
- Potable Water
- Cement
- Plant Air
- Completion Fluid
- Base Oil
- Hydraulic Oil
- Other services on request

Inspection of hoses in Drag Chain performed by one of our service technicians.

1

ROTARY DRILLING & ROTARY VIBRATOR HOSES
API Grade C
API Grade D
API Grade F

Construction: Synthetic rubber inside. Resistant to corrosion, wear and oil-containing drilling mud.
Reinforced with several layers textile and steel wire, with high tensile strength.
Synthetic rubber covering resistant to oils, ozone and wear and tear.
Temp. range: Operating temperature ÷ 45°C to + 82°C.
Applications: Rotary hoses are available in lengths up to 90 feet (27.5 m) over all length with built-in fittings with male API threads as default. Outside diameter of the fittings are virtually the same as the outside diameter of the hose.
The inside connection between hose and fittings is plane.
Pressure load: Hoses installed offshore can not be pressure loaded higher than 1.25 x maximum working pressure.
Note: Other fittings available on request.

API Grade C

ID Inch	OD mm	Working Pressure		Test Pressure		Bend Radius mm	Weight kg/m	Weight kg/fittings pair	API Flange
		PSI	bar	PSI	bar				
2	96	4000	280	8000	560	900	11.0	17	2.1/2
2.1/2	110	4000	280	8000	560	1200	13.5	22	3
3	131	4000	280	8000	560	1200	19.6	48	4
3.1/2	145	4000	280	8000	560	1400	22.0	64	4
4	157	4000	280	8000	560	1400	26.4	53	5

API Grade D

ID Inch	OD mm	Working Pressure		Test Pressure		Bend Radius mm	Weight kg/m	Weight kg/fittings pair	API Flange
		PSI	bar	PSI	bar				
2	96	5000	350	10000	700	900	11.1	21	2.1/2
2.1/2	113	5000	350	10000	700	1200	15.4	26	3
3	145	5000	350	10000	700	1200	28.0	64	4
3.1/2	163	5000	350	10000	700	1400	37.0	92	4
4	175	5000	350	10000	700	1400	42.7	122	5

API Grade F

ID Inch	OD mm	Working Pressure		Test Pressure		Bend Radius mm	Weight kg/m	Weight kg/fittings pair	API Flange
		PSI	bar	PSI	bar				
2	98	10000	890	15000	1035	900	14.1	80	2.1/16
2.1/2	113	10000	890	15000	1035	1200	18.7	105	2.9/16
3	130	10000	890	15000	1035	1200	25.0	126	3.1/8
3.1/2	145	10000	890	15000	1035	1400	28.5	150	3.1/8
4	174	10000	890	15000	1035	1400	48.1	195	4.1/8

PROTECTIVE SPIRALS

Construction: Spiral made yellow polyethylene HDPE in dimensions 54 mm - 160 mm. Yellow polyethylene MDPE in dimension 32 mm.
Temperature range: -30°C to +180°C.
Applications: Wrap around hoses and cables to protect and keep them together.

Ext. dim mm	Part No	Standard length meter	Spiral thickness mm
32	BOV-6032	6	2.5
54	BOV-6054	6	3.5
75	BOV-6075	6	5.5
110	BOV-6110	6	6.5
160	BOV-6160	6	6.5

Construction: Spiral made of black tempered PVC, hardness SHORE D. Flame-resistant according to UL 94V0.
Temperature range: -10°C to +60°C.
Applications: Wrap around hoses and cables to protect and keep them together.

Part No	ID/OD mm	Std. length meter	Spiral thickness mm	For OD mm
SSW-16	13 / 16	20	1.6	12 - 18
SSW-20	16 / 20	20	1.7	16 - 26
SSW-25	20 / 25	20	2.1	20 - 27
SSW-32	27 / 32	20	2.6	27 - 35
SSW-40	35 / 40	20	2.8	35 - 60
SSW-50	44 / 50	20	3	35 - 75
SSW-75	65 / 75	20	4.3	60 - 120
SSW-90	80 / 90	20	5	75 - 200

HOSE STRAPS "FLUID CONTROL"

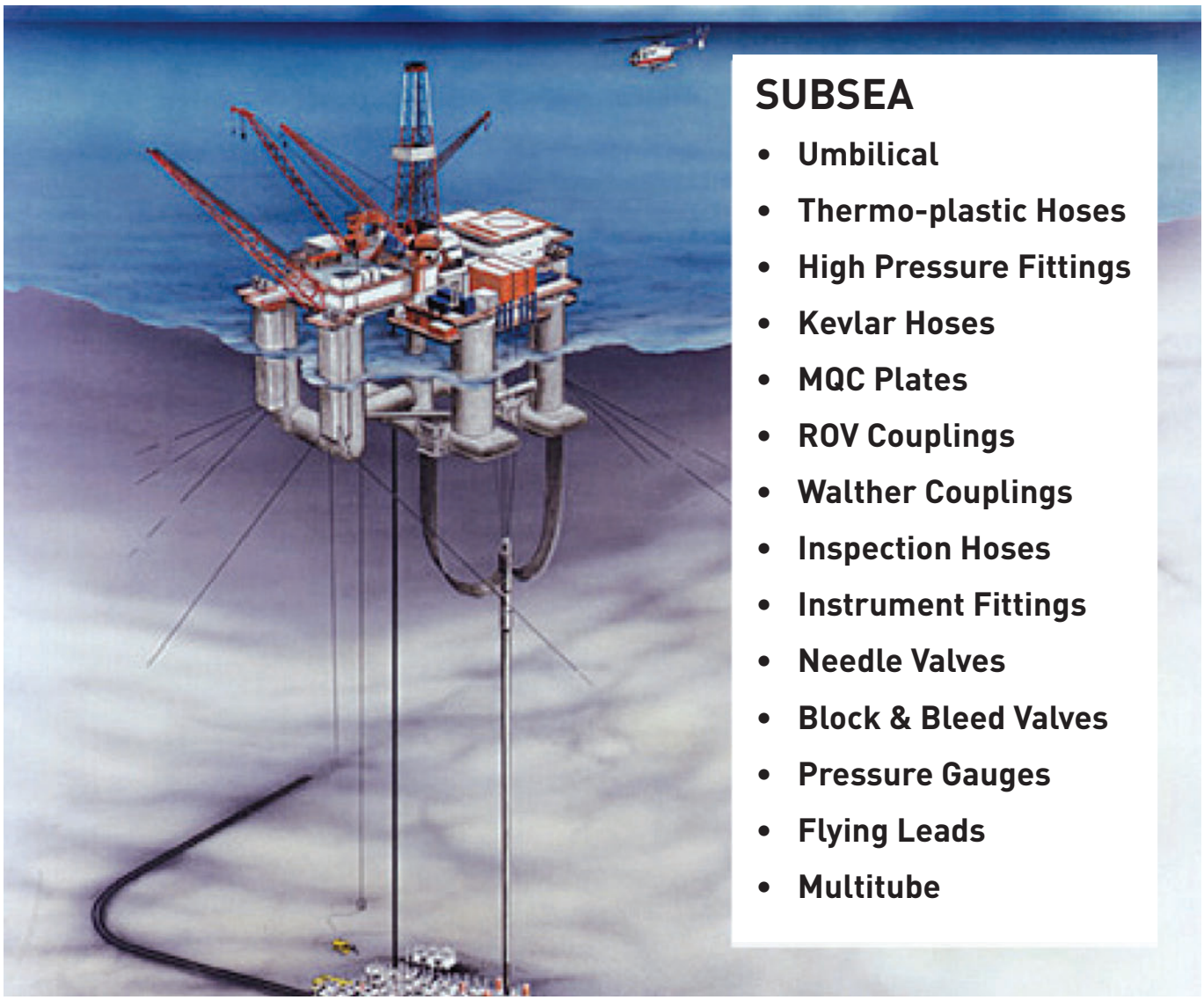
Construction: Sturdy, black polyester with zinc-plated chromated safety lock. Width 25 mm. Thickness approx. 1.5 mm.

Tensile strength: 250 kg.

Applications: Used for attachment of hoses and cables etc.
Length 500 mm Part No REIM-0500
Length 750 mm Part No REIM-0750
Length 1000 mm Part No REIM-1000
Length 1500 mm Part No REIM-1500
Length 2000 mm Part No REIM-2000

Also available in red and green.

1



SUBSEA

- Umbilical
- Thermo-plastic Hoses
- High Pressure Fittings
- Kevlar Hoses
- MQC Plates
- ROV Couplings
- Walther Couplings
- Inspection Hoses
- Instrument Fittings
- Needle Valves
- Block & Bleed Valves
- Pressure Gauges
- Flying Leads
- Multitube

Group 2

Thermoplastic Hoses
Teflon Hoses
Water Jetting Hoses

FLUID CONTROL®

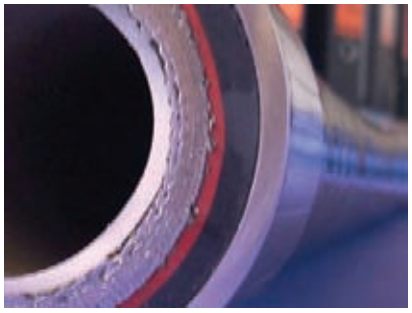
2

Symbol Key

#											
Part No	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	Fitting Series
2388N-04V12W	6.3	1/4	-04	13.3	1280	18560	3200	46400	80	0.30	BS
Part No	Inside Diameter			Out. Dia.	Working Pressure		Burst Pressure		B. Radius	Weight	

R Available for rental

Fluid Control is now a Approved Collaborator for Parker Hannifin. We hold in stock a wide range of thermoplastic hoses, as well as other Parker products.



Selection Table for Hoses

MpA multiplied by 10 = Bar (1 MpA = 10 Bar)

Hose Dimension														
inch	5/64	1/8	5/32	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1	1¼	1½	2
mm	2.0	3.2	4.0	4.8	6.4	7.9	9.5	12.7	15.9	19.0	24.4	31.8	38.1	50.8
dash	-012	-02	-025	-03	-04	-05	-06	-08	-10	-12	-16	-20	-24	-32
DN	2	3	4	5	6	8	10	12	16	20	25	32	40	50

Micro Hoses	Working Pressure Mpa														Fittings Series
2020N	63	53	50												EX
Medium-pressure Hoses															
518C		17.5		21	19	17.5	15.5	15.5	10.5	8.5	7				51/55/56/58
550H				22.5	21	17.5	15.5	14	10	8.5	7				55/56/58
55LT		20		22.5	21	17.5	15.5	14		8.5					55/56/58
510A				21	19	17.5	15.5	14		8.5					51/55/56
High-pressure Hoses															
520N				34.5	34.5	31	27.5	24	19						55/56
528N				34.5	34.5	31	27.5	24							55/56
580N					34.5		27.5	24	19	15.5	14				58
588N					34.5		27.5	24	19	15.5	14				58
590				34.5	34.5		27.5	24	21	17.5	14				55/56/58
575X				34.5	34.5		34.5	34.5		34.5	34.5				55/56/58H
HP/HP8/HP8X				69	69		55								HP
2022NO					69		55								NX-OF
57CR								34,5			34,5				CR
2040N		35		34	31	25	24	18.5	14	12.5	10				56/PX
2040H				34	31	25	24	18.5	14	12.5	10				56/PX
2240N					43										RX
2245N					45	40	37,5	35	33	30	27.5	27.5			8X/NX
2370N/2370H					46.5	44	42	35							NX/RX/9X
Ultra-high-pressure Hoses															
2244N			75				53.5	55							8X
2370N							69								RX
2380N					70	62.5	57,5	55							8X
2388N					80										8X
2390NV91							44,5	41,5		29	28				9X
2X80N					72.0		70			45					8X/LX
2440D/2440N			220	180	164	150	140	130		100	90				LX
2448NV91					103		103*								8X/ *
2640D/2640N			280	250		210		180		140			69	69	5X
Teflon Hoses PTFE/FEP															
919U				21											91N
2030T				27.5	24	20	17.5	15	12.5	10	8				YX
2033T					27.5	25	22.5	20	17.5	15	11				PX/YX
Paint Spray Hoses															
714				36	31		22,5	19							PX
715		35		34	48		38	29	14	12.5	10				HPX
Water Jetting Hoses															
2240D		110	120	100	100	90									TX/AX
2380N					110	100									KX
2244N							86	86							KX
2388N					128			110							BS
2580N				160	140	120									BL
2440D/2440N			220	180	164	150	140	130		100	90				LX
2640D/2640N			280	250		210		180		140	120				HX/5X
2740D			300	280		250		200							HX
2840D				400		300		250							WX

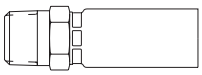
* Ask us about fittings

2

Selection Table for Fittings

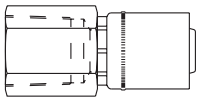
		51	54	55	56	58	5X	8X	9X	91N
NPTF Male 60° Cone	01	X		X	X	X		X	X	X
NPTF Female-rigid	02									
JIC Male-37° Cone	03	X		X	X					X
UNF Male/O-ring	05			X	X			X		
JIC-37° Cone	06	X		X	X	X		X	X	X
Metric Swivel Strong Series 90° Elbow O-ring	1C			X	X	X				
JIC 37°Cone 45° Elbow	37			X	X					X
JIC 37°Cone 90° Elbow	39	X		X	X	X				X
BSP Male-60° Cone	3B							X		
BSP Swivel 60° Cone	92	X	X	X	X	X		X		X
UNF Swivel 59° Cone	AY						X			
BSP Swivel 45° Elbow	B1	X	X	X	X	X				
BSP Swivel 90° Elbow	B2	X	X	X	X	X				
Metric Swivel Light Series Cone	C3	X	X	X	X		X			X
Metric Swivel Light Series Cone 45° Elbow	C4	X	X	X	X					
Metric Swivel Light Series Cone 90° Elbow	C5	X	X	X	X					
Metric Swivel Strong Series	C6	X		X	X	X				
Metric Swivel Strong Series O-ring	C9			X	X	X	X	X		
Metric Swivel Light Series O-ring	CA		X	X	X	X				
Metric Swivel Light Series 45° Elbow O-ring	CE		X	X	X	X				
Metric Swivel Light Series 90° Elbow O-ring	CF		X	X	X	X				
Metric Male 24° Cone Light Series	D0	X		X	X	X				X
Metric Male 24° Cone Strong Series	D2	X		X	X	X				
BSP Male	D9	X		X	X	X		X		X
M16X2 Swivel (Knurled nut)	R8									
BSP Swivel 60° Cone	UO				X			X		
BSP Male- For USIT Ring	Y9									
AE Fitting High Pressure 59° Cone UNF-LH	YA						X			
Metric Swivel Nut	YR									
AE Fitting Medium Pressure 59° Cone UNF-LH	Y2							X		
AE Fitting High Pressure 59° Cone UNF-LH	Y4									
AE Fitting High Pressure 59`Metric cone	YM						X			

01 NPTF Male - 60° Cone



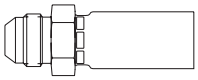
51	BL
54	EX
55	HP
56	BS
58	NX
5X	PX
8X	RX
91N	YX
93N	

02 NPTF Female - rigid



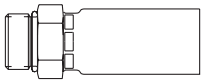
51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

03 JIC Male - 37° Cone



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

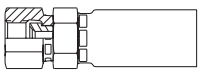
05 UNF Male / O-Ring



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

06 JIC - 37° Cone

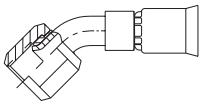
UNF Swivel Nut



51	AX
54	EX
55	HP
56	LX
58	NX
9X	PX
8X	RX
91N	YX
93N	

37 JIC - 37° Cone

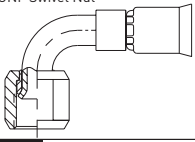
45° Elbow
UNF Swivel Nut



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

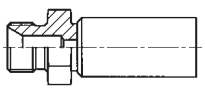
39 JIC - 37° Cone

90° Elbow
UNF Swivel Nut



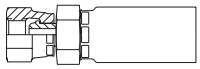
51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

3B BSP Male - 60°Cone



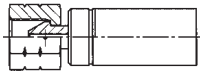
51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

92 Sealing Head (60°)
BSP Swivel Nut



51	BS
54	EX
55	KX
56	LX
58	NX
BL	PX
8X	RX
91N	YX
9X	

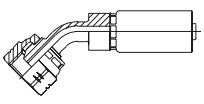
AY 59° Sealing Cone
UNF Swivel Nut



51	–	AB –
54	–	HX –
55	–	KX –
56	–	LX 113
58	–	NX –
5X	69	PX –
8X	–	RX –
91N	–	YX –
93N	–	

B1 Sealing Head (60°)
BSP Swivel Nut

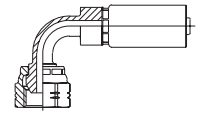
45° Elbow



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

B2 Sealing Head (60°)
BSP Swivel Nut

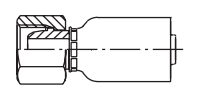
90° Elbow



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

C3 Sealing Head

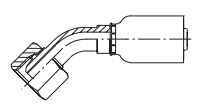
Light Series
Metric Swivel Nut



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

C4 Sealing Head
45° Elbow

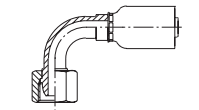
Light Series
Metric Swivel Nut



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

C5 Sealing Head
90° Elbow

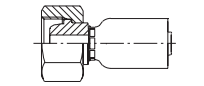
Light Series
Metric Swivel Nut



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

C6 Sealing Head

Heavy Series
Metric Swivel Nut

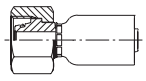


51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

93N	AB	EX	HP	LX	NX	PX	RX	YX	AX	TX	KX	BS	BL	HX	WX
X		X	X		X	X	X	X				X	X		
X															
					X	X		X							
X		X	X		X	X	X	X	X						
					X	X	X								
						X		X							
					X			X							
					X	X	X	X							
	X		X	X	X	X	X	X			X	X	X		
				X							X			X	
						X	X	X							
						X	X	X							
	X			X	X	X		X							
				X	X										
		X		X	X	X	X	X	X		X	X	X	X	
		X				X		X							
						X									
						X									
	X					X		X							
	X				X	X		X							
		X		X		X	X	X							
		X													
	X			X	X	X		X		X					
				X											
				X											
		X													
														X	X
				X										X	X

C9 24° Sealing Cone / O-Ring

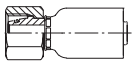
Heavy Series
Metric Swivel Nut
ISO 12151-2



51	AX
54	EX
55	BS
56	LX
58	NX
5X	PX
8X	RX
9X	YX
BL	HX

CA 24° Sealing Cone / O-Ring

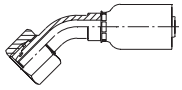
Light Series
Metric Swivel Nut
ISO 12151-2



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

CE 24° Sealing Cone / O-Ring 45° Elbow

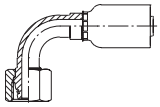
Light Series
Metric Swivel Nut
ISO 12151-2



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

CF 24° Sealing Cone / O-Ring 90° Elbow

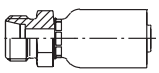
Light Series
Metric Swivel Nut
ISO 12151-2



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

D0 Metric Male 24° Cone

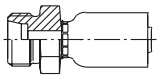
Light Series
ISO 12151-2



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

D2 Metric Male 24° Cone

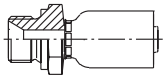
Heavy Series
ISO 12151-2



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

D9 BSP Male

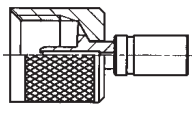
DIN 3852
Shape A



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

R8 Quick Connect Fitting Metric Swivel Nut

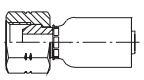
Knurled



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

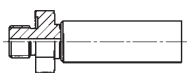
U0 Sealing Head (60°)

BSP Swivel Nut



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

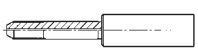
Y9 BSP Male - for USIT Ring



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

YA High Pressure Connector 59° Cone

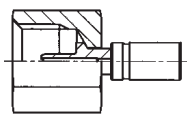
UNF - Left Hand Thread



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

YR Quick Connect Fitting

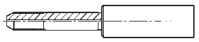
Metric Swivel Nut



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

Y2 Medium Pressure Connector 59° Cone

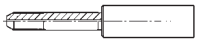
UNF - Left Hand Thread



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	YX
93N	

Y4 High Pressure Connector 59° Cone

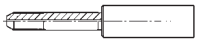
UNF - Left Hand Thread



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	HX
93N	WX

YM High Pressure Connector 59° Metric Cone

Metric - Left Hand Thread



51	AB
54	EX
55	HP
56	LX
58	NX
5X	PX
8X	RX
91N	HX
93N	WX

Type 2020N
Mini Control System

APPLICATIONS:
High-pressure hose for use with petroleum and synthetic hydraulic oils and gases. Special hose for Mini Control pressure measurement equipment (minimess). Supplied with fittings as specified on the next page. Max length change is +2% / -4% at working pressure.
*** Safety factor reduced for diagnostic applications.**

CONSTRUCTION:
Covering: Black Polyamide
Reinforcement: 1 layer braided synthetic fiber
Internal: Polyamide

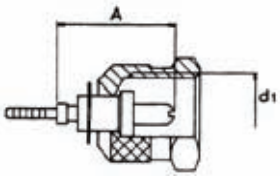
TEMPERATURE RANGE:
÷40°C to +100°C for synthetic and oil-based hydraulic oils

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2020N-012V30	2.0	5/64	-012	4.9	475	6885	1900	27550	20	0.016	EX
2020N-02V30	2.9	1/8	-02	6.0	400	5800	1600	23200	30	0.023	EX
2020N-025V30	4.0	5/32	-025	8.1	440	6380	1760	25520	40	0.042	EX
2020N-012V50	2.0	5/64	-012	4.9	* 630	9135	1900	27550	20	0.016	EX
2020N-02V50	2.9	1/8	-02	6.0	* 530	7685	1600	23200	30	0.023	EX
2020N-025V50	4.0	5/32	-025	8.1	* 500	7250	1760	25520	40	0.042	EX

SEE PAGE 5-19 FOR FITTINGS

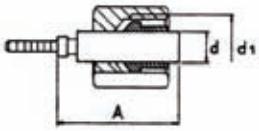
Mini control system – HOSE COUPLINGS FOR USE WITH HOSE type 2020N

M16X2 SCREW LOCK COUPLING



Part No	A mm	d mm	d1 mm	P.max bar
801.10.162	19		M16x2	640

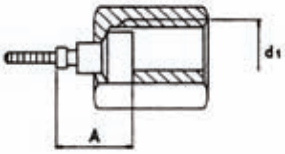
COUPLING WITH PIPE SOCKET



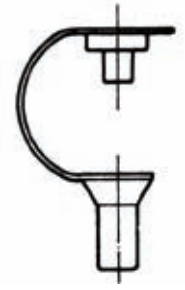
801.32.006	24	6	M14x1,5	640
801.32.008	24	8	M16x1,5	640

Part No of the couplings are complete with pressure sleeve, and includes sleeve with dust plug M16x2 screw lock couplings.

PRESSURE GAUGE COUPLING



801.50.204	25		1/4" BSP	640
801.50.208	25		1/2" BSP	640



OTHER SIZES, THREAD TYPES AND MATERIALS AVAILABLE ON REQUEST

Type 2030T
PTFE Teflon Hose

APPLICATIONS:
There are currently no known solvents for PTFE. Can be used for steam, acids, alkalis, articles of food, oils and corroding oils and corroding substances.
PTFE is highly resistant to natural degradation and aging and does not absorb water. The exceptional low friction resistance minimizes loss of pressure in the hoses.
Type 2030T is well suited for spray painting.

CONSTRUCTION:
Covering: Stainless steel wire braid (reinforcement)
Reinforcement: 1 layer stainless steel wire braiding
Internal: Polytetrafluoroethylene PTFE)

TEMPERATURE RANGE:
÷50°C to +150°C (+230°C up to 20 bar)

# Part No									R		Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2030T-03V70	4.8	3/16	-03	7.8	275	3990	1100	15950	50	0.09	BPX
2030T-04V70	6.3	1/4	-04	9.5	240	3480	960	13920	75	0.13	BPX
2030T-05V70	7.9	5/16	-05	11.5	200	2900	800	11600	100	0.17	BPX
2030T-06V70	9.5	3/8	-06	13.3	175	2540	700	10150	120	0.19	BPX
2030T-08V70	12.7	1/2	-08	16.7	150	2180	600	8700	135	0.29	BPX
2030T-10V70	15.9	5/8	-10	20.0	125	1810	500	7250	160	0.34	BPX
2030T-12V70	19.0	3/4	-12	23.5	100	1450	400	5800	200	0.41	BPX
2030T-16V70	25.4	1	-16	29.0	80	1160	320	4640	250	0.51	BPX

Type 2033T
PTFE Teflon Hose

APPLICATIONS:
There are currently no known solvents for PTFE. Can be used for steam, acids, alkalis, articles of food, oils and corroding oils and corroding substances.
PTFE is highly resistant to natural degradation and aging and does not absorb water. The exceptional low friction resistance minimizes loss of pressure in the hoses.
Type 2030T is well suited for spray painting.

CONSTRUCTION:
Covering: Stainless steel wire braid (reinforcement)
Reinforcement: 2 layers stainless steel wire braiding
Internal: Polytetrafluoroethylene PTFE)

TEMPERATURE RANGE:
÷50°C to +150°C (+230°C up to 20 bar)

# Part No									R		Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2033T-04V70	6.3	1/4	-04	11.0	275	3990	1100	15950	75	0.23	PX
2033T-05V70	7.9	5/16	-05	13.2	250	3630	1000	14500	100	0.26	PX
2033T-06V70	9.5	3/8	-06	15.0	225	3260	900	13050	120	0.34	PX
2033T-08V70	12.7	1/2	-08	18.8	200	2900	800	11600	135	0.47	PX
2033T-10V70	15.9	5/8	-10	21.5	175	2540	700	10150	160	0.53	PX
2033T-12V70	19.0	3/4	-12	25.5	150	2180	600	8700	200	0.69	PX
2033T-16V70	25.4	1	-16	31.0	125	1810	500	7540	250	0.81	PX

Type 518C Non-conductive Hose Specifications Exceed SAE 100 R7

APPLICATIONS:
For medium-pressure hydraulic systems with petroleum or synthetic hydraulic oils, where it is required that the hose must not be electrically conductive. Well suited for hydraulic systems at high-voltage installation working platforms. Max length change is +/- 2% at working pressure.
Given pressures are indicative. Maximum working pressure is dependent on temperature and medium.

CONSTRUCTION:
Covering: Special PFX, orange
Reinforcement: 1 layer braided synthetic fiber
Internal: Polyester Elastomer

TEMPERATURE RANGE:
÷40°C to +100°C for hydraulic oils
÷40°C to +57°C for synthetic oils and water-based fluids

Insulation resistance: SAE J517 (less than 50 µA leakage during 75,000 volts per foot)

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
518C-02	3.2	1/8	-02	8.6	175	2 500	690	10 000	13	0.05	58
518C-03	4.8	3/16	-03	10.7	210	3 000	830	12 000	19	0.07	51/55/56
518C-04	6.3	1/4	-04	12.0	190	2 750	760	11 000	38	0.08	51/55/56
518C-05	7.9	5/16	-05	14.5	175	2 500	690	10 000	44	0.11	51/55/56
518C-06	9.5	3/8	-06	16.0	155	2 250	620	9 000	51	0.14	51/55/56
518C-08	12.7	1/2	-08	20.6	155	2 250	620	9 000	76	0.22	51/55/56
518C-10	15.9	5/8	-10	24.9	105	1 500	420	6 000	102	0.30	51/58
518C-12	19.1	3/4	-12	27.4	85	1 250	345	5 000	152	0.31	51/55/56
518C-16	25.4	1	-16	33.5	70	1 000	275	4 000	203	0.40	51/55/56

Type 550H, SAE 100 R7 High Performance

APPLICATIONS:
Medium-pressure systems, also for mobile hydraulics and agriculture machinery.
Also available as dual- or multi-hose or "Non-Conductive" hose.
Max length change is +/- 2% at working pressure.
Given pressures are indicative. Maximum working pressure is dependent on temperature and medium.

CONSTRUCTION:
Covering: Black pin-pricked Polyurethane
Reinforcement: 2 layers braided synthetic fiber
Internal: Hytrel

TEMPERATURE RANGE:
÷70°C to +100°C for water and water-based oils
÷40°C to +100°C for petroleum and synthetic-based oils and gases

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
550H-03	4.8	3/16	-03	10.9	225	3250	900	13000	19	0.08	55/56
550H-04	6.3	1/4	-04	13.0	210	3000	830	12000	32	0.10	55/56
550H-05	7.9	5/16	-05	14.5	175	2500	700	10000	44	0.11	55/56
550H-06	9.5	3/8	-06	16.5	155	2250	620	9000	51	0.14	55/56
550H-08	12.7	1/2	-08	20.6	140	2000	560	8000	76	0.21	55/56
550H-10	15.9	5/8	-10	24.9	105	1500	420	6000	102	0.30	56/58
550H-12	19.0	3/4	-12	26.9	85	1250	345	5000	127	0.31	55/56
550H-16	25.4	1	-16	33.3	70	1000	275	4000	203	0.40	55/56

FOR MORE INFORMATION ON COUPLING OPTIONS AND QUALITY OF MATERIALS, PLEASE CONTACT US

Type 540N Medium-pressure Hose Specifications Exceed SAE 100 R7

APPLICATIONS:
Medium-pressure systems for oil and synthetic hydraulic fluids and certain chemicals.
Also suitable for agricultural machines, robotic systems and for use with fire resisting fluids.
Max length change is +/- 2% at working pressure.
Given pressures are indicative. Maximum working pressure is dependent on temperature and medium.

CONSTRUCTION:

Covering:	Black pin-pricked Polyurethane
Reinforcement:	1 layer braided synthetic fiber
Internal:	Polyamide

TEMPERATURE RANGE:
÷40°C to +100°C for oil, water and synthetic hydraulic fluids

# Part No											Fitting series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
540N-02	3.2	1/8	-02	8.4	175	2500	690	10000	13	0.05	58
540N-03	4.8	3/16	-03	10.5	210	3000	830	12000	19	0.08	55/56
540N-04	6.3	1/4	-04	12.6	190	2750	760	11000	38	0.10	55/56
540N-05	7.9	5/16	-05	14.1	175	2500	690	10000	44	0.12	55/56
540N-06	9.5	3/8	-06	16.0	155	2250	620	9000	51	0.14	55/56
540N-08	12.7	1/2	-08	20.1	140	2000	560	8000	76	0.21	55/56
540N-12	19.1	3/4	-12	26.3	85	1250	345	5000	152	0.25	55/56

Also available in twin design and as multiline.

Type 520N Standard Hydraulic Hose Specifications Exceed SAE 100 R8

APPLICATIONS:
High-pressure hose for use with oil-based and synthetic hydraulic oils, as well as gases.
Low volumetric expansion and small outer diameter due to aramid fiber reinforcement.
Also available as dual- or multi-hose.
Max length change is +/- 2% at working pressure.
Given pressures are indicative. Maximum working pressure is dependent on temperature and medium.

CONSTRUCTION:
Covering: Black pin-pricked Polyurethane
Reinforcement: 1 layer braided synthetic aramid fiber
Internal: Polyamide

TEMPERATURE RANGE:
÷40°C to +100°C for synthetic and oil-based hydraulic oils

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
520N-03	4.8	3/16	-03	10.9	345	5000	1380	20000	38	0.07	55/56
520N-04	6.3	1/4	-04	13.0	345	5000	1380	20000	51	0.10	55/56
520N-05	7.9	5/16	-05	14.5	310	4500	1240	18000	64	0.12	55/56
520N-06	9.5	3/8	-06	16.5	275	4000	1100	16000	64	0.12	55/56
520N-08	12.7	1/2	-08	20.6	240	3500	960	14000	102	0.20	55/56

Type 528N Standard Hydraulic Hose Non-conductive Hose Specifications Exceed SAE 100 R8

APPLICATIONS:
High-pressure hose for use with oil-based and synthetic hydraulic oils, as well as gases.
Low volumetric expansion and small outer diameter due to aramid fiber reinforcement. Not electrically conductive
according to SAE J517 (less than 50 µA at 75,000 Volts per foot). Max length change is +/- 2% at working pressure.
Given pressures are indicative. Maximum working pressure is dependent on temperature and medium.

CONSTRUCTION:
Covering: Orange Polyurethane
Reinforcement: 1 layer braided synthetic aramid fiber
Internal: Polyamide

TEMPERATURE RANGE:
÷40°C to +100°C for synthetic and oil-based hydraulic oils

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
528N-03	4.8	3/16	-03	10.9	345	5000	1380	20000	38	0.07	55/56
528N-04	6.3	1/4	-04	13.0	345	5000	1380	20000	51	0.10	55/56
528N-05	7.9	5/16	-05	14.5	310	4500	1240	18000	64	0.12	55/56
528N-06	9.5	3/8	-06	16.5	275	4000	1100	16000	64	0.12	55/56
528N-08	12.7	1/2	-08	20.6	240	3500	960	14000	102	0.20	55/56

Type 590 Hybrid High Pressure Hose Specifications Exceed SAE 100 R2

APPLICATIONS:
High-pressure hose for use with oil-, water- and synthetic-based hydraulic oils. Ideal for applications where small bend radius and excellent aging characteristics are important.
Max length change is +/- 2% at working pressure.
Given pressures are indicative. Maximum working pressure is dependent on temperature and medium.

CONSTRUCTION:
Covering: Black Polyurethane
Reinforcement: 1 layer aramid and 1 layer steel wire braiding
Internal: Polyester Elastomer

TEMPERATURE RANGE:
÷40°C to +121°C for oil-based hydraulic oils
÷40°C to +57°C for synthetic and water-based oils

# Part No	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	Fitting Series
590-03	4.8	3/16	-03	10.9	345	5000	1380	20000	38	0.15	55/56
590-04	6.3	1/4	-04	13.0	345	5000	1380	20000	44	0.21	55/56
590-06	9.5	3/8	-06	16.3	275	4000	1100	16000	57	0.29	55/56
590-08	12.7	1/2	-08	20.1	240	3500	960	14000	83	0.37	55/56
590-10	15.9	5/8	-10	24.6	210	3000	840	12000	152	0.57	56/58
590-12	19.1	3/4	-12	27.9	175	2500	690	10000	178	0.66	56/58
590-16	25.0	1	-16	36.1	140	2000	560	8000	203	0.88	56/58

Type 575X High Pressure Hose Low Volumetric Expansion

APPLICATIONS:
High-pressure hose for use with oil-based and synthetic hydraulic oils.
Especially designed for applications where low volumetric expansion and stable pressure is required.
Max length change is +/- 2% at working pressure.
Given pressures are indicative. Maximum working pressure is dependent on temperature and medium.

CONSTRUCTION:
Covering: Black special Polyurethane
Reinforcement: 1 or 2 layers braided synthetic aramid fiber
Internal: Polyamide

TEMPERATURE RANGE:
÷40°C to +100°C for synthetic and oil-based hydraulic oils
max. 70°C for water or methanol-based fluids

# Part No	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	Fitting Series
575X-03	4.8	3/16	-03	10.8	345	5000	1380	20000	38	0.07	55/56
575X-04	6.3	1/4	-04	12.8	345	5000	1380	20000	51	0.10	55/56
575X-06	9.5	3/8	-06	16.3	345	5000	1380	20000	76	0.13	55/56
575X-08	12.7	1/2	-08	20.6	345	5000	1380	20000	102	0.20	55/56
575X-12	19.0	3/4	-12	29.2	345	5000	1380	20000	203	0.53	58H
575X-16	25.4	1	-16	40.4	345	5000	1380	20000	254	0.80	58H

Type AS10 Standard Hydraulic Hose Specifications Equivalent to SAE 100 R11

APPLICATIONS:
High-pressure hose for use with oil-based and synthetic hydraulic oils, as well as gases.
Max length change is +/- 2% at working pressure.
Given pressures are indicative. Maximum working pressure is dependent on temperature and medium.
Also available in other colors.

CONSTRUCTION:
Covering: Black Polyurethane
Reinforcement: 2 layers braided aramid fiber
Internal: Polyamide

TEMPERATURE RANGE:
÷40°C to +100°C for continuous use

# Part No	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	Fitting Series
AS10-03	5.0	3/16	-03	13.5	690	10000	2760	40000	100	0.14	AS10
AS10-04	6.0	1/4	-04	14.8	690	10000	2760	40000	127	0.15	AS10
AS10-05	8.0	5/16	-05	18.3	550	8000	2200	32000	152	0.20	AS10
AS10-06	10.0	3/8	-06	19.3	520	7500	2070	30000	175	0.25	AS10
AS10-08	13.0	1/2	-08	22.6	415	6000	1650	24000	203	0.35	AS10
AS10-10	16.0	5/8	-10	27.9	345	5000	1380	20000	279	0.42	AS10
AS10-16	25.0	1	-16	36.2	345	5000	1380	20000	356	0.52	AS10

Type AS13 Standard Hydraulic Hose Specifications Exceed SAE 100 R8

APPLICATIONS:
High-pressure hose for use with oil-based and synthetic hydraulic oils, as well as gases.
Max length change is +/- 2% at working pressure.
Given pressures are indicative. Maximum working pressure is dependent on temperature and medium. Also available with orange non-electrically conductive covering.

CONSTRUCTION:
Covering: Black pin-pricked Polyurethane
Reinforcement: 2 layers braided polyester fiber
Internal: Hytrel

TEMPERATURE RANGE:
÷40°C to +95°C for continuous use

# Part No	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	Fitting Series
AS13-03	5.0	3/16	-03	12.7	340	5000	1370	20000	38	0.13	ASC13
AS13-04	6.0	1/4	-04	15.7	340	5000	1370	20000	50	0.19	ASC13
AS13-06	10.0	3/8	-06	18.7	270	4000	1100	16000	63	0.23	ASC13
AS13-08	13.0	1/2	-08	22.6	240	3500	960	14000	100	0.31	ASC13
AS13-10	16.0	5/8	-10	25.9	190	2750	750	11000	150	0.37	ASC13
AS13-12	20.0	3/4	-12	28.7	150	2250	620	9000	200	0.42	ASC13
AS13-16	25.0	1	-16	37.2	140	2000	550	8000	254	0.61	ASC13

FOR MORE INFORMATION ON COUPLING OPTIONS AND QUALITY OF MATERIALS, PLEASE CONTACT US

Type HP
High-pressure Hose

APPLICATIONS:
High-pressure hose for hydraulic, pneumatic and lubrication oils - such as high-pressure tools, test equipment, offshore pressure control equipment and offshore oil applications.
HP8 is not electrically conductive.

CONSTRUCTION:

Covering:	Polyamide HP=Blue, HPX=Orange,
Reinforcement:	1 layer braided aramid
Internal:	Polyamide

TEMPERATURE RANGE:
÷40°C to +100°C, max 70°C for water and methanol-based fluids

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
HP-3	5.0	3/16	-03	13.2	690	10000	2760	40000	38	0.13	HP
HP-4	6.0	1/4	-04	15.2	690	10000	2760	40000	64	0.16	HP
HPX-6	10.0	3/8	-06	18.8	690	10000	2210	32000	76	0.24	HP
HP8-3	5.0	3/16	-03	13.2	690	10000	2760	40000	38	0.13	HP
HP8-4	6.0	1/4	-04	15.2	690	10000	2760	40000	64	0.16	HP
HP8X-6	10.0	3/8	-06	18.8	690	10000	2210	32000	76	0.24	HP

Type 2040N Multi-use Hose
Specifications DIN 20 022 Part 1
DNV Approved

APPLICATIONS:
High-pressure hose for hydraulic systems with petroleum, synthetic or water based hydraulic oils. Also ideal for grease, gases and paint spraying.
Max length change is +/- 2% at working pressure.
Given pressures are indicative. Maximum working pressure is dependent on temperature and medium.

CONSTRUCTION:

Covering:	Black Polyurethane
Reinforcement:	1 layer steel wire braiding
Internal:	Polyamide

TEMPERATURE RANGE:
÷40°C to +100°C for synthetic- and oil-based hydraulic oils

Available in other colors

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2040N-02V00	3.2	1/8	-02	7.0	350	5075	1400	20300	30	0.07	PX
2040N-03V00	4.8	3/16	-03	9.8	340	4930	1360	19720	30	0.11	56/PX
2040N-04V00	6.3	1/4	-04	11.9	310	4495	1240	17980	40	0.16	56/PX
2040N-05V00	7.9	5/16	-05	14.0	250	3625	1000	14500	50	0.21	56/PX
2040N-06V00	9.5	3/8	-06	15.9	240	3480	960	13920	60	0.24	56/PX
2040N-08V00	12.7	1/2	-08	19.3	185	2680	740	10730	75	0.29	56/PX
2040N-10V00	16.0	5/8	-10	23.5	140	2030	560	8120	110	0.39	PX
2040N-12V00	19.1	3/4	-12	26.7	125	1810	500	7250	170	0.50	PX
2040N-16V00	25.0	1	-16	33.5	100	1450	400	5800	230	0.60	PX

Type 2040H Standard Hydraulic Hose Specifications DIN 20 022 Part 1 DNV Approved

APPLICATIONS:
High-pressure hose for hydraulic systems with synthetic-, water- or petroleum-based hydraulic oils. Good flexibility due to the special construction method. Ideal for lifting equipment, machines and applications requiring high durability.
Also available as dual- or multi-hose.
Max length change is +/- 2% at working pressure.
Given pressures are indicative. Maximum working pressure is dependent on temperature and medium.

CONSTRUCTION:
Covering: Black Polyurethane
Reinforcement: 1 layer steel wire braiding
Internal: Polyester Elastomer

TEMPERATURE RANGE:
÷40°C to +100°C for oil-based hydraulic oils
÷40°C to +57°C for synthetic- and water-based oils

# Part No									R		Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2040H-03V10	4.8	3/16	-03	9.8	340	4930	1360	19720	30	0.12	56/PX
2040H-04V10	6.3	1/4	-04	11.9	310	4495	1240	17980	40	0.17	56/PX
2040H-05V10	7.9	5/16	-05	14.0	250	3625	1000	14500	50	0.21	56/PX
2040H-06V10	9.5	3/8	-06	15.9	240	3480	960	13920	60	0.26	56/PX
2040H-08V10	12.7	1/2	-08	19.3	185	2680	740	10730	75	0.31	56/PX
2040H-10V10	16.0	5/8	-10	23.5	140	2030	560	8120	110	0.43	PX
2040H-12V10	19.1	3/4	-12	26.7	125	1810	500	7250	170	0.53	PX
2040H-16V10	25.0	1	-16	33.5	100	1450	400	5800	230	0.72	PX

Type 2370N/H Universal High Pressure Hose Specifications Exceed DIN 20 022 Part 2 TÜV/CGA/AGA Approved for CNG

APPLICATIONS:
High-pressure hydraulic systems for petroleum- and synthetic-based hydraulic oils and gases and aggressive media. Ideal for hydraulic and rescue tools.
For CNG use, the hose is only sold pre-assembled with fittings including kink guards.
Also available as dual- or multi-hose.
Max length change is +/- 2% at working pressure.
Given pressures are indicative. Maximum working pressure is dependent on temperature and medium.

CONSTRUCTION:
Covering: Black Polyurethane
Reinforcement: 2 layers steel wire spiral and 2 layers braided synthetic fiber
Internal H: Polyester Elastomer
Internal N: Polyamide

TEMPERATURE RANGE:
÷40°C to +100°C for oil-based hydraulic oils (to +120°C for shorter periods) V71 has PA11 inside. For paint spraying, use fittings series NX

# Part No									R		Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2370N-04V10	6.3	1/4	-04	12.4	465	6740	1860	26970	70	0.19	RX
2370N-05V10	8.2	5/16	-05	14.3	440	6380	1760	25520	100	0.25	RX
2370N-06V10	9.7	3/8	-06	16.4	420	6090	1680	24360	120	0.33	9X
2370N-08V10	12.8	1/2	-08	19.6	350	5075	1400	20300	150	0.42	9X
2370N-06V71	9.5	3/8	-06	16.4	690	10000	1725	25000	120	0.33	RX
2370H-08V10	12.8	1/2	-08	19.6	350	5075	1400	20300	150	0.42	9X

Type 2370M (V30) Universal High Pressure Hose
Polyflex Hose - ChemJec
Specifications Exceed ISO 13628-5

APPLICATIONS:
Withstands high pressure cycles with no signs of stress cracking. Proven to handle methanol. High collapse resistance (HCR) and also providing longer service life. Extremely low permeability. Medium pressure, high temperature, low volumetric expansion hose. Long length subsea umbilical hose. Excellent chemical resistance. Available in long continous length up to 2,500 m.

Given pressures are indicative. Maximum working pressure is dependent on temperature and medium.

CONSTRUCTION:

Covering:	Black PA12
Reinforcement:	High strength wire, synthetic fibre
Internal:	Coextruded core tube with fluoropolymer inside

TEMPERATURE RANGE:
-40°C up to 125°C
-40°F up to 257°F

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2370M-06V10	9.9	3/8	-06	16.6	430	6250	1725	25000	70	0.33	RX

Type 2244N/2245N High-pressure Hose
Specifications Exceed SAE 100 R9/R10

APPLICATIONS:
High-pressure hydraulic systems for petroleum- and synthetic-based hydraulic oils, spray painting, gases and aggressive media. Ideal for hydraulic and rescue tools.
3/4" and 1" hoses are DNV type-approved.
Given pressures are indicative. Maximum working pressure is dependent on temperature and medium.

CONSTRUCTION:

Covering:	Black Polyurethane (Polyurethane from 5/8")
Reinforcement:	2 layers steel wire spiral and 1 layer steel wire braiding
Internal:	Polyamide

TEMPERATURE RANGE:
÷40°C to +100°C for oil-based hydraulic oils (to +125°C for shorter periods)

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2244N-06V00	9.5	3/8	-06	18.0	535	7760	2150	31175	120	0.50	8X
2244N-08V10	12.7	1/2	-08	22.7	550	7970	2200	31900	150	0.80	8X
2244N-20V30	32.0	1.1/4	-20	44.0	275	3990	1100	15950	400	1.83	NX
2245N-04V00	6.3	1/4	-04	12.5	450	6530	1800	26100	70	0.25	NX
2245N-05V00	8.0	5/16	-05	14.3	400	5800	1600	23200	100	0.32	NX
2245N-06V00	9.5	3/8	-06	17.0	375	5440	1500	21750	120	0.42	NX
2245N-08V00	12.7	1/2	-08	20.7	350	5080	1400	20300	165	0.52	NX
2245N-10V30	15.9	5/8	-10	24.5	330	4780	1320	19140	200	0.72	NX
2245N-12V30	19.0	3/4	-12	28.5	300	4350	1200	17400	240	0.92	NX
2245N-16V30	25.4	1	-16	34.0	275	3990	1100	15950	280	1.15	NX

2

Type 714
Spray Paint Hose

APPLICATIONS:
Type 714 is a special hose for high-pressure spray paint designed to meet the market demands. The steel wire braiding makes the hose 100% electrically conductive.
Inner tube specially designed for chlorinated solvents. The polyurethane covering provides excellent flexibility and durability.
Also excellent for use as a hydraulic hose.

CONSTRUCTION:
Covering: Blue Polyurethane
Reinforcement: 1 layer steel wire braiding
Internal: Polyamide

TEMPERATURE RANGE:
÷40°C to +100°C for synthetic- and oil-based hydraulic oils

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
714-03	4.8	3/16	-03	9.4	360	5250	1440	21000	25	0.12	PX
714-04	6.3	1/4	-04	11.7	310	4500	1240	18000	37	0.16	PX
714-06	9.5	3/8	-06	15.1	225	3250	900	13000	50	0.23	PX
714-08	12.7	1/2	-08	18.3	190	2760	760	11000	75	0.30	PX

Type 715
Spray Paint Hose

APPLICATIONS:
Type 715 is a special hose for high-pressure spray paint designed to meet the market demands. The steel wire braiding makes the hose 100% electrically conductive.
Inner tube specially designed for chlorinated solvents. The polyurethane covering provides excellent flexibility and durability.
Also excellent for use as a hydraulic hose.

CONSTRUCTION:
Covering: Blue Polyurethane
Reinforcement: 2 layers steel wire braiding
Internal: Polyamide

TEMPERATURE RANGE:
÷40°C to +100°C for synthetic- and oil-based hydraulic oils

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
715-04	6.3	1/4	-04	13.7	480	7000	1920	28000	25	0.30	HPX
715-06	9.5	3/8	-06	17.0	380	5500	1520	22000	37	0.42	HPX
715-08	12.7	1/2	-08	20.2	290	4250	1160	17000	62	0.51	HPX

Type 2448N (V91) Umbilical hose

APPLICATIONS:
Available in long lengths for use in subsea umbilicals.

CONSTRUCTION:

Covering:	Black PA12
Reinforcement:	4 layers steel wire spiral
Internal:	Methanol washed PA11

TEMPERATURE RANGE:
÷40°C to +100°C
+70°C for water- or methanol-based fluids

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2448N-04V91	6.0	1/4	-04	13.8	1035	15000	4140	60000	150	0.38	8X
2448N-06V91	10.0	3/8	-06	20.3	1035	15000	4140	60000	190	0.74	*

*** FOR COUPLING TYPE, PLEASE CONTACT US**

For machines and tools, see group 19

FOR MORE INFORMATION ON COUPLING OPTIONS AND QUALITY OF MATERIALS, PLEASE CONTACT US

Type 2380N
Specifications Exceed SAE R10

APPLICATIONS:
High-pressure hydraulic systems for petroleum- and synthetic-based hydraulic oils.
Ideal for hydraulic and rescue tools.
Given pressures are indicative. Maximum working pressure is dependent on temperature and medium.

CONSTRUCTION:
Covering: Black Polyurethane (other colors on request)
Reinforcement: 2 layers steel wire spiral and 2 layers steel wire braid
Internal: Polyamide. V91 has methanol-washed PA11

TEMPERATURE RANGE:
÷40°C to +100°C for oil-based hydraulic oils, V91 also for methanol-based fluids

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2380N-04V00	6.3	1/4	-04	13.3	700	10150	2800	40600	70	0.32	8X
2380N-04V91	6.4	1/4	-04	13.5	690	10000	2760	40000	70	0.27	LX/8X
2380N-05V00	7.9	5/16	-05	15.7	625	9625	2500	36250	90	0.41	8X

Also available in twin design

Type 2380M - Polyflex Hose - ChemJec
Specifications Exceed ISO 13628-5

APPLICATIONS:
Withstands high pressure cycles with no signs of stress cracking. Proven to handle methanol. High collapse resistance (HCR) and also providing longer service life. Extremely low permeability. High pressure, high temperature, low volumetric expansion hose. Long length subsea umbilical hose. Excellent chemical resistance. Available in long continuos length up to 3,000 m.

CONSTRUCTION:
Covering: Black PA12
Reinforcement: High strength wire
Internal: Coextruded core tube with fl uoropolymer inside

TEMPERATURE RANGE:
-40°C up to +100°C, short term 125°C

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2380M-04V30	6.4	1/4	-04	13.4	690	10000	2800	40000	230	0.27	8X/LX
2380M-05V30	8.2	5/16	-05	15.7	600	8700	2400	34800	90	0.34	*

Also available in twin design

*Consult factory

Type 2388N
Specifications Exceed SAE R10

APPLICATIONS:
High-pressure hydraulic systems for petroleum and synthetic based hydraulic oils. Ideal for hydraulic and rescue tools.
Given pressures are indicative. Maximum working pressure is dependent on temperature and medium.

CONSTRUCTION:
Covering: Black Polyurethane (other colors on request)
Reinforcement: 2 layers steel wire spiral and 2 layer steel wire braid
Internal: Polyamide

TEMPERATURE RANGE: ÷40°C to +100°C for oil-based hydraulic oils

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2388N-04V00	6.3	1/4	-04	13.3	800	11600	3200	46600	80	0.305	8X

FOR MORE INFORMATION ON COUPLING OPTIONS AND QUALITY OF MATERIALS, PLEASE CONTACT US

Type 2X80N

APPLICATIONS:
High-pressure hydraulic systems for petroleum- and synthetic-based hydraulic oils.
Ideal for hydraulic and rescue tools.
Given pressures are indicative. Maximum working pressure is dependent on temperature and medium.

CONSTRUCTION:
Covering: Black Polyurethane
Reinforcement: Steel wire and aramid combination
Internal: Polyamide

TEMPERATURE RANGE:
÷40°C to +100°C for oil-based hydraulic oils

# Part No									R		Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2X80N-04V10	6.3	1/4	-04	13.4	700	10150	2800	40600	38	0.237	8X
2X80N-06V10	9.8	3/8	-06	18.6	700	10150	2800	40600	70	0.540	LX
2X80N-12V10	19.8	3/4	-12	30.0	450	6525	1800	26100	100	1.080	LX

Type 2390N (V91)

APPLICATIONS:
High-pressure hydraulic systems for petroleum- and synthetic-based hydraulic oils.
Ideal for hydraulic and rescue tools.
Given pressures are indicative. Maximum working pressure is dependent on temperature and medium.

CONSTRUCTION:
Covering: Black Polyurethane
Reinforcement: Steel wire and aramid combination
Internal: Polyamide PA11

TEMPERATURE RANGE:
÷40°C to +100°C for oil-based hydraulic oils

# Part No									R		Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2390N-06V91	9.5	3/8	-06	18.4	445	6454	1780	25800	180	0.33	9X
2390N-08V91	12.7	1/2	-08	21.3	415	6019	1660	24100	200	0.54	9X
2390N-12V91	19.1	3/4	-12	29.0	350	5076	1400	20300	300	0.90	9X
2390N-16V91	25.4	1	-16	35.0	280	4061	1120	16200	340	1.35	9X
2390N-06V91-10K	9.5	3/8	-06	18.4	712	10320	1780	25800	180	0.33	9X

FOR MORE INFORMATION ON COUPLING OPTIONS AND QUALITY OF MATERIALS, PLEASE CONTACT US

Type 2440D/2440N Ultra-high-pressure Hose

APPLICATIONS:
For use with petroleum or synthetic hydraulic fluids, gases and chemicals.
Well suited for hydraulic prestress tools, test rigs and offshore oil applications.
The hose is marked with manufacturer, type of hose, working pressure and production date.
Also available as pin-prickled - add -P after Part No.
Also available in a methanol-washed version - V91.

CONSTRUCTION:

Covering:	2440D Blue Polyamide
Covering:	2440N Black Polyamide
Reinforcement:	4 layers steel wire spiral
Internal:	2440D Polyoxymethylene
Internal:	2440N Polyamide

TEMPERATURE RANGE
÷40oC to +70°C

# Part No	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	Fitting Series
2440D-025V32	3.9	5/32	-025	10.4	2200	31900	5500	79750	100	0.21	LX
2440D-03V32	4.7	3/16	-03	11.5	1800	26090	4400	65220	120	0.25	LX
2440D-04V32	6.3	1/4	-04	12.5	1640	23770	4100	59420	155	0.33	LX
2440D-05V32	8.0	5/16	-05	15.1	1500	21740	3750	54350	175	0.44	LX
2440N-06V30	9.7	3/8	-06	19.4	1400	20290	3500	50720	190	0.70	LX
2440N-08V30	12.8	1/2	-08	22.5	1300	18840	3250	47100	200	0.94	LX
2440N-12V30	19.6	3/4	-12	30.0	1000	14490	2500	36230	250	1.39	LX
2440N-16V30	25.0	1	-16	37.0	900	13040	2250	32610	300	1.90	LX

Type 2640D/2640N Ultra-high-pressure Hose

APPLICATIONS:
For use with petroleum or synthetic hydraulic fluids and chemicals.
Well suited for hydraulic prestress tools, test rigs and offshore oil applications.
The hose is marked with manufacturer, type of hose, working pressure and production date.

CONSTRUCTION:

Covering:	Blue Polyamide
Reinforcement:	6 layers steel wire spiral
Internal:	2640D Polyoxymethylene
Internal:	2640N Polyamide

TEMPERATURE RANGE:
÷40°C to +70°C

# Part No	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	Fitting Series
2640D-025V32	4.0	5/32	-025	12.0	2800	40600	7000	101500	140	0.29	5X
2640D-03V32	4.8	3/16	-03	13.0	2500	36230	6250	90580	175	0.41	5X
2640D-05V32	7.9	5/16	-05	16.9	2100	30430	5250	76090	225	0.68	5X
2640N-08V32	12.7	1/2	-08	24.5	1800	26090	4500	65220	290	1.36	5X
2640N-12V32	19.0	3/4	-12	33.0	1400	20290	3500	50720	350	2.10	5X

FOR WATER JETTING - SEE PAGE 2-25

POLYFLEX HOSE
BLACK EAGLE FAMILY + COLORGARD™
Type 2640N / 2580N

MAIN FEATURES

- COLORGARD, dual colour safety feature with extra thick cover for superior abrasion resistance.
- Plyamide-11 core tube for cleanliness
- Weight up to 27.5 kg/m
- Smaller OD than flexible pipe allows more hose per reel
- Excellent chemical resistance providing long service life in sea water

APPLICATIONS:

Flexible, lightweight, chemical resistant alternative to steel or flexible pipe. Used for high volume pumping in well service applications such as cementing chemical injection and other onshore and subsea well stimulation operations. Available in long continuous lengths (500m to 2,000m depending on size).

CONSTRUCTION:

Core tube:	PA11
Pressure reinforcement:	High strength wire
Cover:	Extra thick polyurethane cover
Colour:	ColorGard™ Safety feature (red inner, black outer cover)

TEMPERATURE RANGE:

-40°C up to +70°C
-40°F up to +158°F

# Part No	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	Fitting Series
2640N-16V80	26.0	1	-16	40.0	1035*	15000*	3000	43500	400	2.90	HX
2640N-24V80	38.1	1.1/2	-24	70.0	690*	10000*	2277	33000	500	7.20	5X
2580N-32V80**	50.5	2	-32	84.5	690*	10000*	1725	25000	800	9.40	BL
2640N-48V80	76.0	3	-48	130.0	690*	10000*	2330	33750	1200	27.50	5X

NOTES:

*Maximum working pressure with safety factor less than 4:1
** 2580N-32V80 is a replacement for 2640N-32V80

POLYFLEX HOSE
GOLDEN EAGLE FAMILY + COLORGARD™
Type 2640M / 2580M / 2448M

MAIN FEATURES
- COLORGARD, dual colour safety feature with extra thick cover for superior abrasion resistance.
- Fluorpolymer based.
- Weight up to 9.2 kg/m
- Smaller OD than flexible pipe allows more hose per reel
- Excellent chemical resistance providing long service life in sea water

APPLICATIONS:
Flexible, lightweight, chemical resistant alternative to steel or flexible pipe. Used for high volume pumping in well service applications with acid fluids and chemical injection and other onshore and subsea well stimulation operations. Available in long continuous lengths (500m to 2,000m depending on size).

CONSTRUCTION:

Core tube:	Fluorpolymer based
Pressure reinforcement:	High strength wire
Cover:	Extra thick Polyurethane
Colour:	ColorGard™ Safety feature (red inner, black outer cover)

TEMPERATURE RANGE:
-40°C up to +100°C, short term 125°C
-40°F up to +212°F, short term 257°F

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2640M-16V80	26.0	1	-16	40.0	690*	10000*	2300	33350	400	2.90	HX
2640M-24V60**	38.0	1.1/2	-24	62.0	690*	10000*	2300	33350	500	6.40	5X
2640M-24V88	38.0	1.1/2	-24	70.5	690	10000*	2300	33350	500	7.20	5X
2448M-32V80	50.5	2	-32	82.0	345*	5000*	1380	20000	500	7.00	BL
2448M-32V88	51.0	2	-32	80.5	345*	5000*	1380	20000	500	8.50	BL
2580M-32V80	50.5	2	-32	84.5	690*	10000*	1725	25000	800	9.20	BL
2580M-32V88	51.0	2	-32	84.5	690*	10000*	1725	25000	800	9.40	BL

NOTES:
*Maximum working pressure with safety factor less than 4:1
** V60: black PVDF cover

POLYFLEX HOSE
PHALCON+ COLORGARD™
Type 2440N / 2448N

MAIN FEATURES
- COLORGARD, dual colour safety feature with extra thick cover for superior abrasion resistance.
- Fluorpolymer- core tube for cleanliness.
- Weight up to 7 kg/m
- Smaller OD than flexible pipe allows more hose per reel
- Excellent chemical resistance providing long service life in sea water

APPLICATIONS:
Used for high volume pumping in well service applications such as chemical injection and other onshore and subsea well stimulation operations. Available in long continuous lengths.

CONSTRUCTION:

Core tube:	PA11
Pressure reinforcement:	High strength wire
Cover:	Extra thick Polyurethane cover
Colour:	ColorGard™ Safety feature (red inner, black outer cover)

TEMPERATURE RANGE:
-40°C up to +70°C
-40°F up to +159°F

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	
2440N-16V80	26.0	1	-16	45.0	517	7500	2070	30000	300	3.00	*
2440N-24V80	38.0	1.1/2	-24	65.0	345	5000	1380	20000	450	4.20	*
2448N-32V80	50.5	2	-32	80.5	345	5000	1380	20000	500	8.50	BL

NOTES:
*Consult factory

2

Type 2240D Ultra-high-pressure Hose For Pipe-cleaning

APPLICATIONS:
Ultra-high-pressure hose for cleaning of pipes, heat exchangers, etc. in the chemical and oil industries. The hose can be used as a flexible lance with pressure over 750 bar.
The hose is available as a special hose with stainless steel wicker work for added external protection.
The hose is marked with manufacturer, type of hose, working pressure and production date.

CONSTRUCTION:
Covering: Blue Polyamide
Reinforcement: 2 layers steel wire spiral
Internal: Polyoxymethylene

TEMPERATURE RANGE:
÷10°C to +70°C for water

# Part No									R		Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2240D-02V32	3.0	1/8	-02	7.0	1100	16950	2750	39875	60	0.07	TX/AX
2240D-025V32	4.0	5/32	-025	7.7	1200	17400	3000	43500	75	0.10	TX/AX
2240D-03V32	4.8	3/16	-03	9.5	1000	14500	2800	40580	95	0.20	TX/AX
2240D-04V32	6.3	1/4	-04	11.5	1000	14500	2500	36230	110	0.26	TX/AX
2240D-05V32	7.9	5/16	-05	13.3	900	13050	2250	32610	120	0.22	TX/AX

Type 2240M Ultra-high-pressure Hose Polyflex Hose - ChemJec

APPLICATIONS:
Withstands high pressure cycles with no signs of stress cracking. Proven to handle methanol. High collapse resistance (HCR) and also providing longer service life. Extremely low permeability. Meets or exceeds the performance requirements of ISO 13628-5. Medium pressure, high temperature, low volumetric expansion hose. Excellent chemical resistance. Long length subsea umbilical hose. Available in long continous length up to 3,000 m.

CONSTRUCTION:
Covering: Black PA12
Reinforcement: High strength wire
Internal: Coextruded core tube with fl uoropolymer inside

TEMPERATURE RANGE:
-40°C up to +100°C, short term 125°C
-40°F up to +212°F, short term 257°F

# Part No									R		Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2240M-04V30	6.4	1/4	-04	11.7	430	6250	1725	25000	120	0.17	RX

Type 2388N Ultra-high-pressure Hose "Blueline" Water Jetting Hose

APPLICATIONS:
Ultra-high-pressure hose for cleaning-applications.
Particularly suitable for use in water jet cleaning in production, shipbuilding, ships, tanks, concrete work, etc.
Well suited for removing dirt, rust, paint, cement, asphalt, etc.
The hose is marked with manufacturer, type of hose, working pressure and production date.

CONSTRUCTION:
Covering: Blue Polyurethane, RAL 5001
Reinforcement: 2 layers steel wire spiral and 2 open layers steel wire spiral
Internal: Polyamide

TEMPERATURE RANGE:
÷40°C to +70°C for water

# Part No	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	Fitting Series
2388N-04V12W	6.3	1/4	-04	13.3	1280	18560	3200	46400	80	0.30	BS
2388N-08V12W	12.7	1/2	-08	23.0	1100	15950	2750	39875	80	0.80	BS

Type 2580N Ultra-high-pressure Hose "Blueline" Water Jetting Hose

APPLICATIONS:
Ultra-high-pressure hose for cleaning-applications.
Particularly suitable for use in water jet cleaning in production, shipbuilding, ships, tanks, concrete work, etc.
Well suited for removing dirt, rust, paint, cement, asphalt, etc.
The hose is marked with manufacturer, type of hose, working pressure and production date.

CONSTRUCTION:
Covering: Blue Polyurethane
Reinforcement: 4 layers steel wire spiral and 2 open layers steel wire spiral
Internal: Polyamide

TEMPERATURE RANGE:
÷40°C to +70°C for water

# Part No	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	Fitting Series
2580N-06V12	9.5	3/8	-06	21.6	1600	23200	4000	58000	95	0.94	BL
2580N-08V12	12.7	1/2	-08	25.0	1400	20300	3500	50750	110	1.19	BL
2580N-12V12	19.0	3/4	-12	32.6	1200	17400	3000	43500	170	1.76	BL

2

Type 2440D/2440N Ultra-high-pressure Hose Water Jetting Hose

APPLICATIONS:
Ultra-high-pressure hose for cleaning-applications.
Particularly suitable for use in water jet cleaning in production, shipbuilding, ships, tanks, concrete work, etc.
Well suited for removing dirt, rust, paint, cement, asphalt, etc.
The hose is marked with manufacturer, type of hose, working pressure and production date.

CONSTRUCTION:

Covering:	Polyamide, V32=Blue, V30=Black
Reinforcement:	4 layers steel wire spiral
Internal:	2440D Polyoxymethylene
Internal:	2440N Polyamide

TEMPERATURE RANGE:
÷40°C to +70°C for water

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	
2440D-025V32	3.9	5/32	-025	10.4	2200	31900	5500	79750	100	0.21	LX
2440D-03V32	4.7	3/16	-03	11.5	1800	26090	4400	65220	120	0.25	LX
2440D-04V32	6.3	1/4	-04	12.5	1640	23770	4100	59420	155	0.33	LX
2440D-05V32	8.0	5/16	-05	15.1	1500	21740	3750	54350	175	0.44	LX
2440N-06V30	9.7	3/8	-06	19.4	1400	20290	3500	50720	190	0.70	LX
2440N-08V30	12.8	1/2	-08	22.5	1300	18840	3250	47100	200	0.94	LX
2440N-12V30	19.6	3/4	-12	30.0	1000	14490	2500	36230	250	1.39	LX
2440N-16V30	25.0	1	-16	37.0	900	13040	2250	32610	300	1.90	LX

Type 2440M Ultra-high-pressure Hose Polyflex Hose - ChemJec

APPLICATIONS:
Withstands high pressure cycles with no signs of stress cracking.
Proven to handle methanol. High collapse resistance (HCR) and also providing longer service life. Extremely low permeability.
Meets or exceeds the performance requirements of ISO 13628-5.
High pressure, high temperature, low volumetric expansion hose.
Long length subsea umbilical hose. Excellent chemical resistance.
Available in long continuos length up to 3,000 m.

CONSTRUCTION:

Covering:	Black PA12
Reinforcement:	High strength wire
Internal:	Coextruded core tube with fl uoropolymer inside

TEMPERATURE RANGE:
-40°C up to +100°C, short term 125°C
-40°F up to +212°F, short term 257°F

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	
2440M-04V30	6.4	1/4	-04	13.1	865	12500	3450	50000	150	0.31	8X
2440M-05V30	8.1	5/16	-05	16.0	690	10000	2760	40000	175	0.49	LX
2440M-06V30	9.9	3/8	-06	19.5	690	10000	2760	40000	190	0.73	LX
2440M-08V30	12.9	1/2	-08	22.7	690	10000	2760	40000	200	0.94	LX
2440M-12V30	19.8	3/4	-12	30.2	630	9135	2500	36250	250	1.46	LX
2440M-16V30*	25.2	1	-16	37.2	560	8120	2250	32625	300	1.90	LX

*Product under development

Type 2640D/2640N Ultra-high-pressure Hose Water Jetting Hose

APPLICATIONS:
Ultra-high-pressure hose for cleaning-applications.
Particularly suitable for use in water jet cleaning in production, shipbuilding, ships, tanks, concrete work, etc.
Well suited for removing dirt, rust, paint, cement, asphalt, etc.
The hose is marked with manufacturer, type of hose, working pressure and production date.

CONSTRUCTION:

Covering:	Blue Polyamide
Reinforcement:	6 layers steel wire spiral
Internal:	2640D Polyoxymethylene
Internal:	2640N Polyamide

TEMPERATURE RANGE:
÷40°C to +70°C for water

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	R mm	kg/m	
2640D-025V32	4.0	5/32	-025	12.0	2800	40600	7000	101500	140	0.29	HX/5X
2640D-03V32	4.8	3/16	-03	13.0	2500	36230	6250	90580	175	0.41	HX/5X
2640D-05V32	7.9	5/16	-05	16.9	2100	30430	5250	76090	225	0.68	HX/5X
2640N-08V32	12.7	1/2	-08	24.5	1800	26090	4500	65220	290	1.36	HX/5X
2640N-12V32	19.0	3/4	-12	33.0	1400	20290	3500	50720	350	2.10	HX/5X
2640N-16V32	25.4	1	-16	40.0	1200	17390	3000	43480	400	2.90	HX/5X

Type 2740D Ultra-high-pressure Hose Water Jetting Hose

APPLICATIONS:
Ultra-high-pressure hose for cleaning-applications.
Particularly suitable for use in water jet cleaning in production, shipbuilding, ships, tanks, concrete work, etc.
Well suited for removing dirt, rust, paint, cement, asphalt, etc.
The hose is marked with manufacturer, type of hose, working pressure and production date.

CONSTRUCTION:
Covering: Red or yellow Polyamide
Reinforcement: 6 layers steel wire spiral
Internal: Polyoxymethylene

TEMPERATURE RANGE:
÷40°C to +70°C for water

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2740D-025V16	4.0	5/32	-025	12.0	3000	43500	7800	113100	120	0.40	HX
2740D-03V34	4.8	3/16	-03	13.2	2800	40600	7000	101500	200	0.47	HX
2740D-05V34	7.9	5/16	-05	17.2	2500	36250	6250	90625	200	0.70	HX
2740D-08V30	12.7	1/2	-08	27.0	2000	29000	5000	72500	300	1.85	HX

Type 2840D Ultra-high-pressure Hose Water Jetting Hose

APPLICATIONS:
Ultra-high-pressure hose for cleaning-applications.
Particularly suitable for use in water jet cleaning in production, shipbuilding, ships, tanks, concrete work, etc.
Well suited for removing dirt, rust, paint, cement, asphalt, etc. Can replace the steel pipes where flexibility is required.
The hose is marked with manufacturer, type of hose, working pressure and production date.

CONSTRUCTION:
Covering: Red Polyamide
Reinforcement: 8 layers steel wire spiral
Internal: Polyoxymethylene

TEMPERATURE RANGE:
÷40°C to +70°C for water

# Part No											Fitting Series
	mm	inch	dash	mm	bar	psi	bar	psi	mm	kg/m	
2840D-03V34	4.8	3/16	-03	15.0	4000	58000	8000	116000	200	0.66	WX
2840D-05V34	7.9	5/16	-05	19.5	3000	43500	7000	101500	250	1.10	WX
2840D-08V30	12.7	1/2	-08	29.8	2500	36250	6250	90625	350	2.50	WX

Ratings Code

G -Good to excellent. Little or no swelling, tensile or surface changes. Preferred choice.

L -Marginal or conditional. Noticeable effects but not necessarily indicating lack of safety. Further testing suggested for specific application.

P -Poor or unsatisfactory. Not recommended without extensive and realistic testing.

– -Indicates that this was not tested.

Material Code for Hose Core Tubes		polyflex® / Parflex® Part Numbers
H	Polyester elastomer	2040H, 2370H, 515H, 518B, 518C, 550H, 558H, 55LT, 560, 590, 593, 1202LT
N	Polyamide	2010N, 2020N, 2X20N, 2040N, 2244N, 2245N, 2370N, 2440N, 2380N, 2640N, 520N, 540N, 573X, 573XL, 575X, 580N, 588N, HP, HP8
PV	Polyvinylchloride (PVC)	GPH
NC	Nylon co polymer	510A, 515A
TFE	Polytetrafluorethylene (PTFE)	2030T, 2033T, 919, 929, 939/939B, 919U
POM	Polyoxymethylene	2440D, 2640D
Material Code for Hose Covers		
U	Polyurethane	2010N, 2040N, 2040H, 2244N, 2245N, 2370H, 2370N, 2380N, 510, 830, 838, 515A, 515H, 510A, 518B, 540N, 550H, 558H 560, 520N, 580N, 588N, 590, 593, HP, HP8, 919U
HF	Special elastomer	55LT, 1202LT
PV	Polyvinylchloride (PVC)	GPH
H	Polyester elastomer	2040N
PFX	Special elastomer	518C
N	Polyamide	2010N, 2020N, 2X20N, 2440D, 2440N, 2640D2245N, 2244N
Material Code for Sealing Components		
V	FKM O-rings	

Notes on the Chemical Resistance Table

(1) The fluid resistance tables are simplified rating tabulations based on immersion tests at 24° C. Higher temperatures tend to reduce ratings. **Since final selection depends on pressure, fluid and ambient temperature and other factors not known to Parker Hannifin , no performance guarantee is expressed or implied.** The indications do not imply any compliance with standards and regulations and do not refer to possible changes of colour, taste or smell. For food and drinking water specially approved materials have to be used. For fluids not listed or for advice on particular applications, please consult Parker Hannifin GmbH, Polyflex Division in Hüttenfeld, Germany.

(2) Hose applications for these fluids must take into account legal and insurance regulations. The chemical resistance indicated does not express or imply approval by certain institutions.

(3) Satisfactory at some concentrations and temperatures, unsatisfactory at others.

(4) For gas applications, the cover should be pin-pricked and the pressure must not be released quickly. Special safety guard accessories are to be used to prevent damage or personal injury in the event of failure.

(5) Chemical resistance does not imply low permeation rates. Please consult Parker Hannifin for a recommendation for your specific requirements

(6)The indication of chemical resistance does not imply any special food compatibility; it refers only to the chemical resistance of the material.

(7)Chemical resistance does not imply acceptability for use in airless paintspray applications. These applications require a special, electrically conductive hose.

Chemical	H	N	U/HF	V	NC	O	OC	PFX	HFR	FEP	TFE	POM
Acetaldehyde	G	L	L	P	–	L	P	L	G	G	G	–
Acetic Acid Glacial	L	L	L	G	P	G	L	L	L	L	G	–
Acetone	L	G	P	P	G	P	P	P	L	G	G	L
Acetylene	–	–	–	–	–	–	–	–	–	–	–	–
Air (4)	G	G	G	G	G	G	G	G	G	G	G	G
Ammonium Chloride	G	P	G	G	P	G	G	G	G	L	G	–
Ammonium Hydroxyde	L	G	P	L	–	G	G	P	L	G	G	–
Anhydrous Ammonia	P	P	P	P	P	P	P	P	P	–	P	–
Aniline	P	P	P	P	P	L	P	P	P	G	G	–
Animal Oils (6)	G	G	G	G	G	P	P	G	G	–	G	–
Aromatic Hydrocarbons	L	G	L	P	G	P	–	L	L	–	G	–
Asphalt	G	G	G	G	G	L	L	G	G	L	G	–
Baygon (insecticide)	L	G	P	–	–	–	–	P	L	–	G	–
Beer	G	G	G	G	–	G	G	G	G	G	G	–
Benzene	L	G	L	P	L	P	P	L	L	G	G	–
Brake Fluid (DOT #3)	–	G	P	P	–	P	P	P	–	–	G	L
Butane (2) (4)	G	G	L	L	P	L	P	L	G	–	–	–
Butter (6)	G	G	G	G	–	G	G	G	G	–	G	–
Calcium Chloride	G	–	G	L	–	G	G	G	G	G	G	–
Carbon Dioxide (4)	G	G	G	G	G	G	G	G	G	–	–	–
Carbon Monoxide (4)	G	–	G	G	–	L	–	G	G	–	–	–
Carbon Tetrachloride	L	G	P	L	G	P	P	P	L	G	G	–
Castor Oil	G	L	L	G	L	P	P	L	G	–	G	–
Chlordane (insecticide)	L	G	P	–	–	–	–	P	L	–	–	–
Chlorinated Hydrocarbon Base Fluids	L	G	L	P	–	–	–	L	L	–	G	–
Chlorinated Petroleum Oil	G	G	L	–	L	–	–	L	G	–	–	–
Chlorinated Solvents	P	–	P	L	–	L	L	P	P	–	G	–
Chlorine, Gaseous, Dry	P	P	P	G	P	L	P	P	P	–	–	–
Chloroform	P	P	P	P	P	P	P	P	P	G	G	–
Chromic Acid	P	–	P	G	P	–	L	P	P	L	G	–
Citric Acid Solutions	G	G	L	G	G	G	G	L	G	G	G	–
Crude Petroleum Oil	G	G	G	G	G	P	P	G	G	–	G	G
Cyclohexane (2)	G	G	G	–	–	P	P	G	G	G	G	–
Cygon (insecticide)	L	G	P	–	–	–	–	P	L	–	–	–
Diazion (insecticide)	L	G	P	–	–	–	–	P	L	–	–	–
Diesel Fuel (2)	G	G	G	L	G	P	P	G	G	–	G	G
Diester Oils	L	G	P	P	–	P	P	P	L	–	G	–
Enamels	G	G	G	L	–	L	L	G	G	–	G	–
Ethanol (6)	G	G	L	L	L	G	G	L	G	–	G	G
Ethers	L	G	P	L	G	L	P	P	L	G	G	P
Ethylene Glycol	G	G	L	G	G	G	G	L	G	G	G	G
Ethylene Oxide	G	G	L	P	–	L	L	L	G	–	–	–
Fatty Acids	G	G	–	G	G	L	L	–	G	G	G	–
Formaldehyde	L	L	P	L	L	G	L	P	L	G	G	–
Formic Acid J	P	P	P	G	P	G	G	P	P	G	G	–

Chemical	H	N	U/HF	V	NC	O	OC	PFX	HFR	FEP	TFE	POM
Freon 12 (5)	P	G	L	G	G	L	–	L	P	–	–	–
Freon 22 (5)	P	G	L	G	G	L	–	L	P	–	–	–
Fruit Juices	G	G	G	G	–	G	G	G	G	–	G	–
Fuel Oil (2)	G	G	L	L	G	P	P	L	G	G	G	G
Gas (Oil) (2)	G	G	G	G	G	P	P	G	G	–	G	–
Gasoline	G	G	–	P	G	P	P	–	G	G	G	–
Glue	–	–	–	–	–	–	–	–	–	–	–	–
Glycerine	G	G	L	G	G	G	G	L	G	G	G	–
Glycols (to 1350 ˚F)	G	G	L	G	G	–	–	L	G	G	G	G
Grease (petroleum base)	G	G	G	G	G	L	L	G	G	–	G	G
Heptachlor (insecticide)	L	G	P	L	–	P	P	P	L	–	G	–
Hexane (2)	G	G	G	L	G	P	P	G	G	G	G	–
Houghto Safe-1000 Series (phosphate esters)	L	G	P	G	G	P	P	P	L	–	G	–
Houghto Safe-600 Series (hydraulic fluid)	G	G	L	G	G	G	L	L	G	–	G	–
Hydraulic Fluid (petroleum base)	G	G	G	G	G	L	L	G	G	L	G	G
Hydraulic Fluid (phosphate ester base)	L	G	L	L	G	P	P	P	L	–	G	–
Hydraulic Fluid (water glycol base)	G	G	G	L	G	–	–	G	G	–	G	–
Hydraulic Oil (petroleum base)	G	G	G	G	G	L	P	G	G	L	G	G
Hydrochloric Acid	P	L	P	L	P	L	P	P	P	G	G	–
Hydrofluoric Acid	P	P	P	L	P	L	P	P	P	G	G	–
Hydrogen, Gaseous (2) (4) (5)	G	G	G	G	G	G	G	G	G	–	–	–
Hydrolube (hydraulic fluid/water glycol base)	G	G	L	G	G	G	G	L	G	–	G	–
IRUS 902 (hydraulic fluid/water-oil emulsion)	G	G	G	G	G	L	P	G	G	–	G	–
Isocyanates (2)	L	L	L	P	–	L	P	L	L	–	G	–
Isooctane (2)	G	G	G	L	G	L	P	L	G	G	G	–
Isopropyl Alcohol	G	G	L	L	G	G	L	L	G	G	G	–
Kerosene (2)	G	G	L	L	G	L	P	P	G	G	G	–
Ketones	L	G	P	P	G	G	P	P	L	G	G	–
Lacquer Solvents	L	G	P	P	–	L	–	P	L	L	G	–
Lactic Acid	P	G	P	G	G	G	G	P	P	G	G	–
Lime (calcium oxide)	G	G	G	G	–	G	G	G	G	G	G	–
Lindol (hydraulic fluid/phosphate esters)	L	G	P	–	–	–	–	P	L	–	G	–
Linseed Oil	G	G	G	L	G	L	P	G	G	G	G	G
LP-Gas	–	–	–	–	–	–	–	–	–	–	–	–
Lubricating Oils (diester base)	L	G	P	–	G	–	–	P	L	–	G	–
Lubricating Oils (petroleum base)	G	G	G	G	G	L	P	G	G	G	G	G
Magnesium Hydroxide	L	G	L	G	–	G	G	L	L	G	G	–
Magnesium Salts	–	G	G	G	–	G	–	G	–	–	G	–
Malathion (insecticide)	L	G	P	–	–	–	–	P	L	–	G	–
Mercury	G	G	G	G	G	G	G	G	G	G	G	–
Meropa Oil (sulphur base)	G	G	–	–	–	–	–	–	–	–	G	–

Chemical	H	N	U/HF	V	NC	O	OC	PFX	HFR	FEP	TFE	POM
Methane	–	–	–	–	–	–	–	–	–	–	–	–
Methanol	G	G	P	P	G	L	P	P	G	–	G	–
Methoxychlor (insecticide)	L	G	P	–	–	–	–	P	L	–	G	–
Methyl Alcohol (6)	G	G	P	P	G	L	P	P	G	G	G	G
Methyl Ethyl Ketone (MEK)	L	G	P	P	G	G	L	P	L	G	G	L
Methyl Ethyl Ketone Peroxide (MEKP)	–	L	P	–	–	–	–	P	–	–	G	–
Methyl Isobutyl Ketone (MIBK)	L	G	P	P	G	L	P	P	L	G	G	–
Methylene Chloride	P	L	P	L	P	L	P	P	P	G	G	P
Milk (6)	G	G	G	G	–	G	G	G	G	G	G	–
Mineral Oil	G	G	G	G	G	L	P	G	G	G	G	G
Mineral Spirits	P	–	L	P	–	–	–	L	P	–	G	–
Motor Oils	G	G	G	G	G	–	–	G	G	G	G	–
Naphta	L	G	P	P	G	P	P	P	L	G	G	G
Natural Gas (4)	–	–	–	–	–	–	–	–	–	–	–	–
Nitric Acid	P	P	P	L	P	P	P	P	P	L	G	–
Nitrobenzene	P	G	P	P	G	P	P	P	P	G	G	–
Nitrogen, Gaseous (4) (5)	G	G	G	G	G	G	G	G	G	G	G	–
Nitrous Oxide	–	L	–	G	–	L	–	G	–	–	–	–
Oil (SAE)	G	G	G	G	G	L	L	G	G	–	G	G
Oil of Turpentine	G	G	P	G	G	P	P	P	G	–	G	–
Oleic Acid	G	G	G	L	G	L	L	G	G	G	G	–
OS 45 Type 3 Hydraulic Fluid (silicate esters)	L	G	L	P	–	P	P	L	L	–	–	–
Oxygen, Gaseous (4) (5) (6)	G	G	G	G	G	G	G	G	G	G	G	–
Ozone	L	P	L	G	P	L	G	P	L	G	G	–
Paint (Oil Base) (7)	G	G	G	P	–	L	P	G	G	–	G	–
Paint Solvents (Oil base)	L	G	L	P	–	P	P	L	L	–	G	–
Pentane (2)	G	G	L	L	–	P	P	L	G	G	G	–
Perchloric Acid	P	P	P	L	P	P	P	P	P	L	G	–
Perchloroethylene	P	P	P	L	P	P	P	P	P	–	G	L
Petroleum Ether	–	–	–	P	–	P	P	–	–	–	–	–
Petroleum Oils	G	G	G	G	G	L	P	G	G	–	G	–
Phenols	P	P	P	L	P	P	P	P	P	–	G	–
Phosphate Esters (above 135 ˚F)	P	G	P	P	–	P	P	P	L	–	G	–
Phosphate Esters (to 135 ˚F)	G	G	P	P	G	P	P	P	G	–	G	–
Polyol Esters	L	G	P	P	–	–	–	P	L	–	G	–
Potassium Hydroxide, 50%	P	P	P	L	–	L	L	P	P	G	G	–
Propane (4) (5)	–	–	–	–	–	–	–	–	–	–	–	–
Propylene Glycol	–	–	G	G	–	G	L	–	–	G	G	–
Pydraul 312C, 625 (to 135 ˚F)	P	G	P	P	G	P	P	P	G	–	G	–
Pydraul F-9, 150, 160 (to 135 ˚F)	G	G	P	P	G	P	P	P	G	–	G	–
Quintolubric 822 Fluid	–	G	G	–	–	–	–	–	–	–	G	–
Salt Water	–	–	–	–	–	–	–	–	–	G	G	–
Sevin (insecticides in water)	G	G	G	–	–	–	–	G	G	–	G	–
Silicone Greases	G	G	G	G	G	–	–	G	G	–	G	–

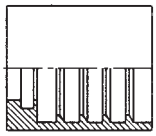
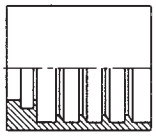
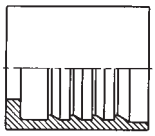
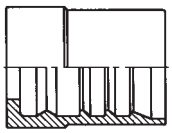
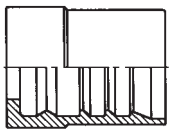
Chemical	H	N	U/HF	V	NC	O	OC	PFX	HFR	FEP	TFE	POM
Silicone Oils	G	G	G	G	G	–	–	G	G	–	G	–
Skydrol 500 & 7000	L	G	P	P	G	P	P	P	L	G	G	–
Soap Solutions	G	G	G	G	G	G	G	G	G	G	G	–
Soda Water	G	G	G	G	G	–	–	G	G	–	G	–
Sodium Borate	G	G	G	G	G	G	G	G	G	G	G	–
Sodium Carbonate	–	–	–	–	–	–	–	–	–	–	–	–
Sodium Chloride Solutions	G	G	G	G	–	G	–	G	G	G	G	–
Sodium Hydroxide, 50%	L	P	P	L	P	L	L	P	L	G	G	–
Sodium Hypochloride	L	P	P	L	–	–	–	P	L	G	G	–
Steam	P	P	P	P	P	P	P	P	P	G	G	–
Stoddard Solvent	P	G	P	L	G	P	P	P	P	G	G	–
Straight Synthetic Oils (phosphate esters)	L	G	P	P	G	–	–	P	L	–	G	–
Sulphur	G	G	G	G	–	L	G	G	G	G	G	–
Sulphur Dioxide	P	L	L	L	–	P	–	L	P	G	G	–
Sulphur Hexafluoride Gas (4) (5)	G	G	G	G	–	G	–	G	G	–	G	–
Sulphuric Acid	P	P	P	–	P	P	P	P	P	–	G	–
Toluol, Toluene	L	G	L	P	G	P	P	P	L	G	G	G
Transmission Fluid	G	G	G	P	G	–	–	G	G	–	G	–
Trichlorethylene	P	L	P	L	G	P	P	P	P	G	G	L
Trisodium Phosphate Solutions	L	G	P	G	G	G	G	P	L	G	G	–
Turpentine	G	G	L	L	G	P	P	P	G	G	G	–
Ucon (hydraulic fluid/water glycol base)	G	G	L	G	G	–	–	L	G	–	G	–
Varnish	G	G	G	P	G	G	L	G	G	–	G	G
Vinegar (6)	L	G	L	G	G	G	G	L	L	G	G	–
Water (above 60 ˚C) (6)	P	G	P	L	–	P	P	P	P	L	G	–
Water (to 60 ˚C) (6)	G	G	G	G	G	G	G	L	G	G	G	G
Water Glycols (above 60 ˚C)	P	G	P	L	–	P	P	P	P	–	G	–
Water Glycols (to 60 ˚C)	G	G	L	G	G	L	L	L	G	–	G	–
Water in oil Emulsions (above 60 ˚C)	P	G	P	L	–	–	–	P	P	–	G	–
Water in oil Emulsions (to 60 ˚C)	G	G	L	G	G	–	–	L	G	–	G	G
Whiskey, Wines (6)	G	G	L	G	G	G	G	G	G	G	G	–
Wood Oils	G	G	L	G	G	–	–	G	G	–	G	G
Xylene	L	G	P	P	G	P	P	P	L	G	G	G
Zinc Chloride	G	G	G	G	P	G	G	G	G	G	G	–

Group 3
Inserts and Sockets

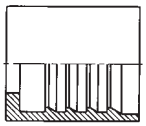
FLUID CONTROL®

3

Carbon Steel Ferrules / Sleeves

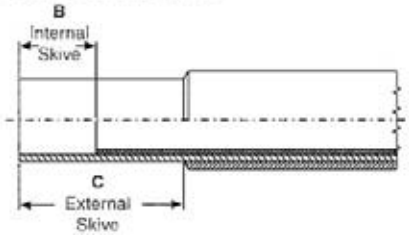
					
Hose Dim.	**1SN / 2SN Non-skive**	**2SC Non-skive**	**4SP Skive**	**4SH Skive**	**R13 / R15 Skive**
1/4"	002SC-04	002SC-04	-	-	-
3/8"	002AT-06	002SC-06	1004-06	-	-
1/2"	002AT-08	002SC-08	1004-08	-	-
5/8"	002AT-10	002SC-10	1004-10	-	-
3/4"	002AT-12	002SC-12	1004-12	1104-12	1104-12
1"	002AT-16	002SC-16	1004-16	1104-16	1104-16
1.1/4"	One piece	One piece	1104-20	1104-20	1306-20
1.1/2"	One piece	One piece	1104-24	1104-24	1306-24
2"	One piece	One piece	1104-32	1104-32	1306-32

FOR STAINLESS STEEL SOCKETS - SEE PAGE 3-11

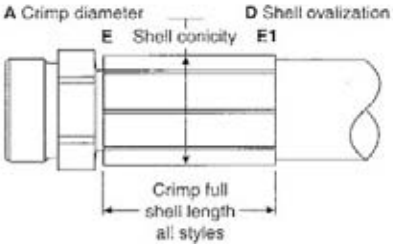


DN	Inch	Size	mm	Hose type	Part no.	A Crimp Diam. mm	B Internal Skive Length +/-1.0 mm	C Extern. Skive Length +/-1.0 mm	D Shell Ovali-zation* mm max.	E Shell Conicity** mm max.
6	1/4"	-04	6.3	1SN	002SC-04	15.60-15.80				
10	3/8"	-06	9.5	1SN	002AT-06	20.60				
12	1/2"	-08	12.7	1SN	002AT-08	23.60				
16	5/8"	-10	15.9	1SN	002AT-10	26.90				
20	3/4"	-12	19.1	1SN	002AT-12	30.75				
25	1"	-16	25.4	1SN	002AT-16	38.35				
32	1.1/4"	-20	31.8	1SN	002AT-20	50.30				
40	1.1/2"	-24	38.1	1SN	002AT-24	58.40				
50	2"	-32	50.8	1SN	002AT-32	69.70				
6	1/4"	-04	6.3	2SN	002AT-04	16.40-16.60				
10	3/8"	-06	9.5	2SN	002AT-06	21.60				
12	1/2"	-08	12.7	2SN	002AT-08	24.65				
16	5/8"	-10	15.9	2SN	002AT-10	27.95				
20	3/4"	-12	19.1	2SN	002AT-12	31.75				
25	1"	-16	25.4	2SN	002AT-16	39.30				
32	1.1/4"	-20	31.8	2SN	002AT-20	51.30				
40	1.1/2"	-24	38.1	2SN	002AT-24	59.40				
50	2"	-32	50.8	2SN	002AT-32	70.70				
6	1/4"	-04	6.3	2SC	002SC-04	15.35-15.85				
10	3/8"	-06	9.5	2SC	002SC-06	20.35-20.85				
12	1/2"	-08	12.7	2SC	002SC-08	23.35-23.85				
16	5/8"	-10	15.9	2SC	002SC-10	26.65-27.15				
20	3/4"	-12	19.1	2SC	002SC-12	30.50-31.00				
25	1"	-16	25.4	2SC	002SC-16	38.10-38.60				
32	1.1/4"	-20	31.8	2SC	002SC-20	44.95-45.45				
10	3/8"	-06	9.5	2SC-06W	002SC-06	20.35-20.85				
12	1/2"	-08	12.7	2SC-08W	002SC-08		-	-	-	-
10	3/8"	-06	9.5	4SP	1004-06	23.50	-	28.0	0.2	0.6
12	1/2"	-08	12.7	4SP	1004-08	26.50	-	32.0	0.2	0.6
16	5/8"	-10	15.9	4SP	1004-10	30.00	-	41.0	0.2	0.6
20	3/4"	-12	19.1	4SP	1004-12	34.50	-	43.0	0.2	0.6
25	1"	-16	25.4	4SP	1004-16	42.20	-	45.0	0.2	0.6
32	1.1/4"	-20	31.8	4SP	1104-20	51.00	21.5	74.0	0.3	1.0
40	1.1/2"	-24	38.1	4SP	1104-24	57.20	22.0	81.0	0.3	1.0
20	3/4"	-12	19.1	4SH	1104-12	33.90	15.0	52.0	0.2	0.6
25	1"	-16	25.4	4SH	1104-16	42.50	17.0	65.0	0.2	0.6
32	1.1/4"	-20	31.8	4SH	1104-20	50.20	21.5	74.0	0.3	1.0
40	1.1/2"	-24	38.1	4SH	1104-24	57.30	22.0	81.0	0.3	1.0
50	2"	-32	50.8	4SH	1104-32	74.20	29.0	85.0	0.3	1.0
20	3/4"	-12	19.1	R13	1104-12	33.90	15.0	52.0	0.2	0.6
25	1"	-16	25.4	R13	1104-16	42.50	17.0	65.0	0.2	0.6
32	1.1/4"	-20	31.8	R13	1306-20	55.50	22.0	65.0	0.3	1.0
40	1.1/2"	-24	38.1	R13	1306-24	63.20	22.0	65.0	0.3	1.0
50	2"	-32	50.8	R13	1306-32	77.30	22.0	75.0	0.3	1.0
16	5/8"	-10	15.9	R15	1104-10	30.40	14.5	50.0	0.2	0.6
20	3/4"	-12	19.1	R15	1104-12	33.90	15.0	52.0	0.2	0.6
25	1"	-16	25.4	R15	1104-16	42.50	17.0	65.0	0.2	0.6
32	1.1/4"	-20	31.8	R15	1306-20	55.50	22.0	58.0	0.3	1.0
40	1.1/2"	-24	38.1	R15	1306-24	63.20	22.0	65.0	0.3	1.0
50	2"	-32	50.8	R15	1306-32	78.00	22.0	75.0	0.3	1.0

Skive Information



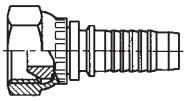
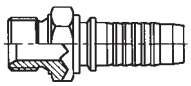
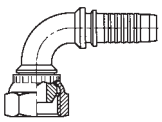
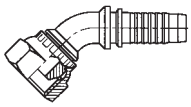
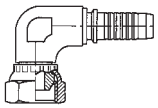
Crimp Information



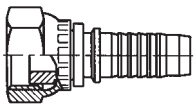
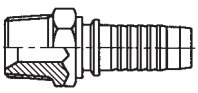
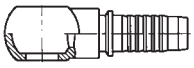
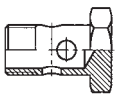
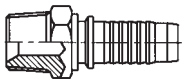
Use vernier callipers to do two diameter measurements 90° apart in the middle of the sleeve. Ovalization is the difference between the smallest and largest diameter. Use vernier callipers to do two diameter measurements 90° apart on the front (E) and rear (E1) of the sleeve. Conicity is the difference between the average measurement E minus the average of E1. (E1 must not be greater than E)

CARBON STEEL FITTINGS
BSP / NPT

Swage couplings carbon steel for hydraulic hoses with 1 and 2 layers steel reinforcement.
Covers 1SN, 2SN and 2SC.
Fittings in dimensions 1.1/4"- 2" are "One Piece"-fittings with pre-assembled sleeve.

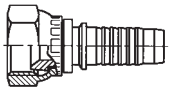
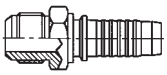
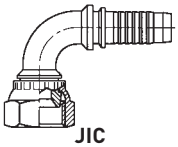
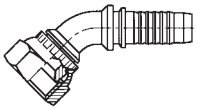






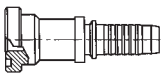
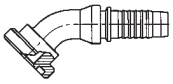
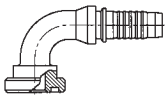
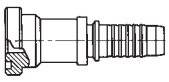
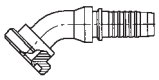
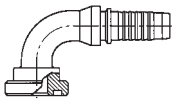
Hose Dim.	Thread	BSP Swivel	BSP Solid	BSP Swivel 90°	BSP Swivel 45°	BSP Swivel 90° Comp.
1/4"	1/4"	001-0404	002-0404	003-0404	004-0404	005-0404
1/4"	3/8"	001-0406	002-0406	003-0406	004-0406	
3/8"	1/4"	001-0604	002-0604	003-0604	004-0604	
3/8"	3/8"	001-0606	002-0606	003-0606	004-0606	005-0606
3/8"	1/2"	001-0608	002-0608	003-0608	004-0608	
1/2"	1/2"	001-0808	002-0808	003-0808	004-0808	005-0808
1/2"	5/8"	001-0810	002-0810	003-0810	004-0810	
1/2"	3/4"	001-0812	002-0812	003-0812	004-0812	
5/8"	5/8"	001-1010	002-1010	003-1010	004-1010	005-1010
5/8"	3/4"	001-1012	002-1012	003-1012	004-1012	
3/4"	3/4"	001-1212	002-1212	003-1212	004-1212	005-1212
3/4"	1"	001-1216	002-1216	003-1216	004-1216	
1"	1"	001-1616	002-1616	003-1616	004-1616	005-1616
1"	1.1/4"	001-1620	002-1620	003-1620	004-1620	
1.1/4"	1.1/4"	001-2020	002-2020	003-2020	004-2020	
1.1/4"	1.1/2"	001-2024	002-2024	003-2024	004-2024	
1.1/2"	1.1/2"	001-2424	002-2424	003-2424	004-2424	
1.1/2"	2"	001-2432	002-2432	003-2432	004-2432	
2"	2"	001-3232	002-3232	003-3232	004-3232	

Hose Dim.	Thread	BSP Swivel Plane	BSP Solid Conical	BSP Banjo	BSP Banjo Bolt	NPT Solid
1/4"	1/4"	009-0404	039-0404	080-0404	082-04	040-0404
1/4"	3/8"		039-0406			040-0406
3/8"	1/4"					040-0604
3/8"	3/8"	009-0606	039-0606	080-0606	082-06	040-0606
3/8"	1/2"	009-0608	039-0608			040-0608
1/2"	1/2"	009-0808	039-0808	080-0808	082-08	040-0808
1/2"	5/8"					
1/2"	3/4"	009-0812				040-0812
5/8"	5/8"	009-1010		080-1010	082-10	
5/8"	3/4"	009-1012	039-1012			040-1012
3/4"	3/4"	009-1212	039-1212	080-1212	082-12	040-1212
3/4"	1"	009-1216	039-1216			040-1216
1"	1"	009-1616	039-1616	080-1616	082-16	040-1616
1"	1.1/4"					040-1620
1.1/4"	1.1/4"		039-2020			040-2020
1.1/4"	1.1/2"					040-2024
1.1/2"	1.1/2"		039-2424			040-2424
1.1/2"	2"					040-2432
2"	2"		039-3232			040-3232

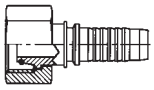
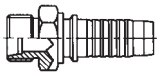
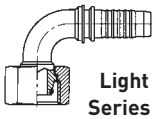
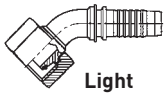
Swage couplings carbon steel for hydraulic hoses with 1 and 2 layers steel reinforcement.
Covers 1SN, 2SN and 2SC.
Fittings in dimensions 1.1/4"- 2" are "One Piece"-fittings with pre-assembled sleeve.

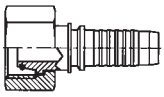
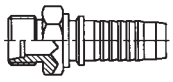
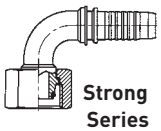
Hose Dim.	Thread	 JIC Swivel	 JIC Solid	 JIC Swivel 90°	 JIC Swivel 45°
1/4"	7/16-20	013-0404	014-0404	016-0404	017-0404
1/4"	1/2-20	013-0405	014-0405	016-0405	017-0405
1/4"	9/16-18	013-0406	014-0406	016-0406	017-0406
3/8"	9/16-18	013-0606	014-0606	016-0606	017-0606
3/8"	3/4-16	013-0608	014-0608	016-0608	017-0608
1/2"	3/4-16	013-0808	014-0808	016-0808	017-0808
1/2"	7/8-14	013-0810	014-0810	016-0810	017-0810
1/2"	1.1/6-12	013-0812	014-0812	016-0812	017-0812
5/8"	7/8-14	013-1010	014-1010	016-1010	017-1010
5/8"	1.1/16-12	013-1012	014-1012	016-1012	017-1012
3/4"	1.1/16-12	013-1212	014-1212	016-1212	017-1212
3/4"	1.3/16-12	013-1214	014-1214	016-1214	017-1214
3/4"	1.5/16-12	013-1216	014-1216	016-1216	017-1216
1"	1.5/16-12	013-1616	014-1616	016-1616	017-1616
1"	1.5/8-12	013-1620	014-1620	016-1620	017-1620
1.1/4"	1.5/8-12	013-2020	014-2020	016-2020	017-2020
1.1/4"	1.7/8-12	013-2024	014-2024	016-2024	017-2024
1.1/2"	1.7/8-12	013-2424	014-2424	016-2424	017-2424
2"	2.1/2-12	013-3232	014-3232	016-3232	017-3232

Hose Dim.	Flange Dim.	 3000 Straight	 3000 45°	 3000 90°	 6000 Straight	 6000 45°	 6000 90°
1/2"	1/2"	043-0808	048-0808	044-0808	063-0808	068-0808	064-0808
1/2"	3/4"	043-0812	048-0812	044-0812	063-0812	068-0812	064-0812
3/4"	3/4"	043-1212	048-1212	044-1212	063-1212	068-1212	064-1212
3/4"	1"	043-1216	048-1216	044-1216	063-1216	068-1216	064-1216
1"	1"	043-1616	048-1616	044-1616	063-1616	068-1616	064-1616
1"	1.1/4"	043-1620	048-1620	044-1620	063-1620	068-1620	064-1620
1.1/4"	1.1/4"	043-2020	048-2020	044-2020	063-2020	068-2020	064-2020
1.1/4"	1.1/2"	043-2024	048-2024	044-2024	063-2024	068-2024	064-2024
1.1/2"	1.1/2"	043-2424	048-2424	044-2424	063-2424	068-2424	064-2424
1.1/2"	2"	043-2432	048-2432	044-2432	063-2432	068-2432	064-2432
2"	2"	043-3232	048-3232	044-3232	063-3232	068-3232	064-3232

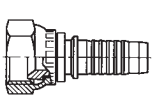
CARBON STEEL FITTINGS
METRIC

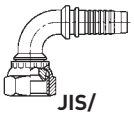
Swage couplings carbon steel for hydraulic hoses with 1 and 2 layers steel reinforcement.
Covers 1SN, 2SN and 2SC.
Fittings in dimensions 1.1/4"- 2" are "One Piece"-fittings with pre-assembled sleeve.

Pipe O.D.	Hose Dim.	Thread	 Light Series Swivel	 Light Series Solid	 Light Series Swivel 90°	 Light Series Swivel 45°
6mm	**1/4"**	**12x1.5**	**033-0406L**	020-0406L	034-0406L	035-0406L
8mm	1/4"	14x1.5	033-0408L	020-0408L	034-0408L	035-0408L
10mm	1/4"	16x1.5	033-0410L	020-0410L	034-0410L	035-0410L
10mm	3/8"	16x1.5	033-0610L	020-0610L	034-0610L	035-0610L
12mm	3/8"	18x1.5	033-0612L	020-0612L	034-0612L	035-0612L
15mm	3/8"	22x1.5	033-0615L	020-0615L	034-0615L	035-0615L
15mm	1/2"	22x1.5	033-0815L	020-0815L	034-0815L	035-0815L
18mm	1/2"	26x1.5	033-0818L	020-0818L	034-0818L	035-0818L
18mm	5/8"	26x1.5	033-1018L	020-1018L	034-1018L	035-1018L
22mm	3/4"	30x2	033-1222L	020-1222L	034-1222L	035-1222L
28mm	1"	36x2	033-1628L	020-1628L	034-1628L	035-1628L
35mm	1.1/4"	45x2	033-2035L	020-2035L	034-2035L	035-2035L
42mm	1.1/2"	52x2	033-2442L	020-2442L	034-2442L	035-2442L

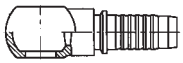
Pipe O.D.	Hose Dim.	Thread	 Strong Series Swivel	 Strong Series Solid	 Strong Series Swivel 90°	 Strong Series Swivel 45°
6mm	1/4"	14x1.5	033-0406S	020-0406S		
8mm	1/4"	16x1.5	033-0408S	020-0408S	034-0408S	035-0408S
10mm	1/4"	18x1.5	033-0410S	020-0410S	034-0410S	035-0410S
10mm	3/8"	18x1.5	033-0610S	020-0610S	034-0610S	035-0610S
12mm	3/8"	20x1.5	033-0612S	020-0612S	034-0612S	035-0612S
14mm	3/8"	22x1.5	033-0614S	020-0614S	034-0614S	035-0614S
16mm	1/2"	24x1.5	033-0816S	020-0816S	034-0816S	035-0816S
20mm	5/8"	30x2	033-1020S	020-1020S	034-1020S	035-1020S
25mm	3/4"	36x2	033-1225S	020-1225S	034-1225S	035-1225S
30mm	1"	42x2	033-1630S	020-1630S	034-1630S	035-1630S
38mm	1.1/4"	52x2	033-2038S	020-2038S	034-2038S	035-2038S

Swage couplings carbon steel for hydraulic hoses with 1 and 2 layers steel reinforcement.
Covers 1SN, 2SN and 2SC.

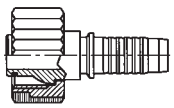




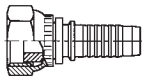
Hose Dim.	Thread	JIS/KOMATSU BSP Swivel	JIS/ KOMATSU BSP Swivel 90°
1/4"	1/4"	067-0404	069-0404
3/8"	3/8"	067-0606	069-0606
1/2"	1/2"	067-0808	069-0808
3/4"	3/4"	067-1212	069-1212
1"	1"	067-1616	069-1616

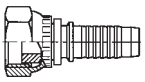


Hose Dim.	Thread	Metric Banjo	Metric Banjo Bolt
1/4"	12x1.5	081-0412	083-12
1/4"	14x1.5	081-0414	083-14
3/8"	14x1.5	081-0614	083-14
3/8"	16x1.5	081-0616	083-16
1/2"	18x1.5	081-0818	083-18
5/8"	22x1.5	081-1022	083-22
3/4"	26x1.5	081-1226	083-26

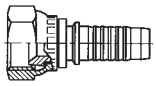


Hose Dim.	Thread	Washer Fitting
1/4"	22x1.5	032-0422
3/8"	22x1.5	032-0622

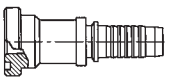


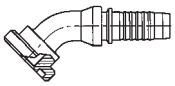


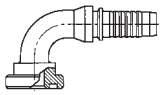
Hose Dim.	Thread	Nitrogen Swivel	CO2 Swivel
1/4"	N2/CO2	N2-04	CO2-04
3/8"	N2/CO2	N2-06	CO2-06
1/2"	N2/CO2	N2-08	CO2-08



Hose Dim.	Thread	JIS Metric Swivel
1/4"	14x1.5	066-0414
3/8"	18x1.5	066-0618
1/2"	22x1.5	066-0822
1/2"	24x1.5	066-0824
5/8"	24x1.5	066-1024
3/4"	30x1.5	066-1230
1"	33x1.5	066-1633



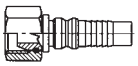
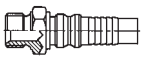
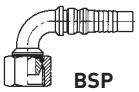
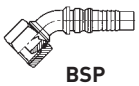
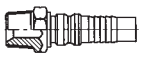


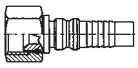
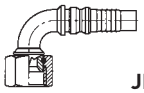
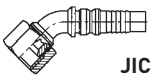


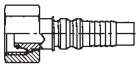
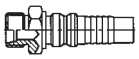
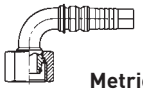
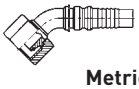
Hose Dim.	Flange O.D.	JIS/KOMATSU Flange Straight	JIS/KOMATSU Flange 45°	JIS/KOMATSU Flange 90°
5/8"	34.2	063-1010	064-1010	065-1010

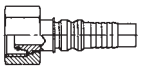
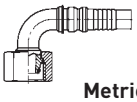
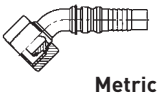
Swage couplings carbon steel for hydraulic hoses with 4 layers steel reinforcement.
Covers EN 856 4SP

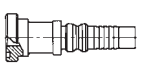
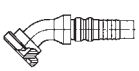
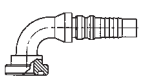
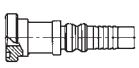
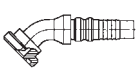
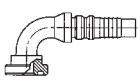
For dimensions over 1", use 4SH interlock series fittings.
N.B! Both inner and outer skive for dimensions over 1"

Hose Dim.	Thread	 BSP Swivel	 BSP Solid	 BSP Swivel 90°	 BSP Swivel 45°	 NPT Solid
3/8"	3/8"	1001-0606	1002-0606	1003-0606	1004-0606	1040-0606
3/8"	1/2"	1001-0608	1002-0608	1003-0608	1004-0608	1040-0608
1/2"	1/2"	1001-0808	1002-0808	1003-0808	1004-0808	1040-0808
1/2"	5/8"	1001-0810	1002-0810	1003-0810	1004-0810	1040-0810
5/8"	5/8"	1001-1010	1002-1010	1003-1010	1004-1010	1040-1010
5/8"	3/4"	1001-1012	1002-1012	1003-1012	1004-1012	1040-1012
3/4"	3/4"	1001-1212	1002-1212	1003-1212	1004-1212	1040-1212
3/4"	1"	1001-1216	1002-1216	1003-1216	1004-1216	1040-1216
1"	1"	1001-1616	1002-1616	1003-1616	1004-1616	1040-1616
1"	1.1/4"	1001-1620	1002-1620	1003-1620	1004-1620	1040-1620

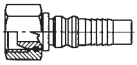
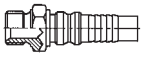
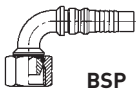
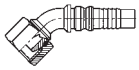
Hose Dim.	Thread	 JIC Swivel	 JIC Solid	 JIC Swivel 90°	 JIC Swivel 45°
3/8"	9/16-18	1013-0606	1014-0606	1016-0606	1017-0606
3/8"	3/4-16	1013-0608	1014-0608	1016-0608	1017-0608
1/2"	3/4-16	1013-0808	1014-0808	1016-0808	1017-0808
1/2"	7/8-14	1013-0810	1014-0810	1016-0810	1017-0810
5/8"	7/8-14	1013-1010	1014-1010	1016-1010	1017-1010
5/8"	1.1/16-12	1013-1012	1014-1012	1016-1012	1017-1012
3/4"	1.1/16-12	1013-1212	1014-1212	1016-1212	1017-1212
3/4"	1.5/16-12	1013-1216	1014-1216	1016-1216	1017-1216
1"	1.5/16-12	1013-1616	1014-1616	1016-1616	1017-1616
1"	1.5/8-12	1013-1620	1014-1620	1016-1620	1017-1620

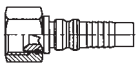
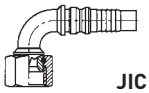
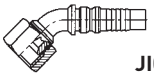
Hose Dim.	Thread	 Metric Swivel Light Series	 Metric Solid Light Series	 Metric Swivel 90° Light Series	 Metric Swivel 45° Light Series
3/8"	18x1.5	1033-0612L	1020-0612L	1034-0612L	1035-0612L
1/2"	22x1.5	1033-0815L	1020-0815L	1034-0815L	1035-0815L
5/8"	26x1.5	1033-1018L	1020-1018L	1034-1018L	1035-1018L
3/4"	30x2	1033-1222L	1020-1222L	1034-1222L	1035-1222L
1"	36x2	1033-1628L	1020-1628L	1034-1628L	1035-1628L

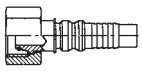
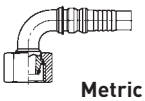
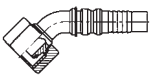
Hose Dim.	Thread	 Metric Swivel Strong Series	 Metric Solid Strong Series	 Metric Swivel 90° Strong Series	 Metric Swivel 45° Strong Series
3/8"	20x1.5	1033-0612S	1020-0612S	1034-0612S	1035-0612S
3/8"	22x1.5	1033-0614S	1020-0614S	1034-0614S	1035-0614S
1/2"	24x1.5	1033-0816S	1020-0816S	1034-0816S	1035-0816S
5/8"	30x2	1033-1020S	1020-1020S	1034-1020S	1035-1020S
3/4"	36x2	1033-1225S	1020-1225S	1034-1225S	1035-1225S
1"	42x2	1033-1630S	1020-1630S	1034-1630S	1035-1630S

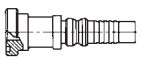
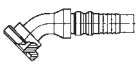
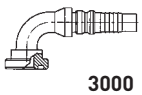
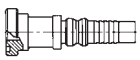
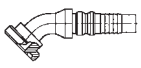
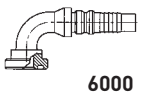
Hose Dim.	Flange Dim.	 3000 Straight	 3000 Flange 45°	 3000 Flange 90°	 6000 Straight	 6000 Flange 45°	 6000 Flange 90°
1/2"	1/2"	1043-0808	1048-0808	1044-0808	1063-0808	1068-0808	1064-0808
1/2"	3/4"	1043-0812	1048-0812	1044-0812	1063-0812	1068-0812	1064-0812
5/8"	3/4"	1043-1012	1048-1012	1044-1012	1063-1012	1068-1012	1064-1012
3/4"	3/4"	1043-1212	1048-1212	1044-1212	1063-1212	1068-1212	1064-1212
3/4"	1"	1043-1216	1048-1216	1044-1216	1063-1216	1068-1216	1064-1216
1"	1"	1043-1616	1048-1616	1044-1616	1063-1616	1068-1616	1064-1616
1"	1.1/4"	1043-1620	1048-1620	1044-1620	1063-1620	1068-1620	1064-1620

Swage couplings Interlock carbon steel for hydraulic hoses with 4 layers steel reinforcement.
Covers EN 856 4SP (SAE100R10) over 1" and EN 856 4SH

Hose Dim.	Thread	 BSP Swivel	 BSP Solid	 BSP Swivel 90°	 BSP Swivel 45°	 NPT Solid
3/4"	3/4"	1101-1212	1102-1212	1103-1212	1104-1212	1140-1212
3/4"	1"	1101-1216	1102-1216	1103-1216	1104-1216	1140-1216
1"	1"	1101-1616	1102-1616	1103-1616	1104-1616	1140-1616
1.1/4"	1.1/4"	1101-2020	1102-2020	1103-2020	1104-2020	1140-2020
1.1/2"	1.1/2"	1101-2424	1102-2424	1103-2424	1104-2424	1140-2424
2"	2"	1101-3232	1102-3232	1103-3232	1104-3232	1140-3232

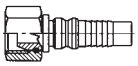
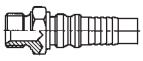
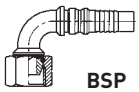
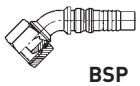
Hose Dim.	Thread	 JIC Swivel	 JIC Solid	 JIC Swivel 90°	 JIC Swivel 45°
3/4"	1.1/16-12	1113-1212	1114-1212	1116-1212	1117-1212
3/4"	1.5/16-12	1113-1216	1114-1216	1116-1216	
1"	1.5/16-12	1113-1616	1114-1616	1116-1616	1117-1616
1"	1.5/8-12	1113-1620		1116-1620	
1.1/4"	1.5/8-12	1113-2020	1114-2020	1116-2020	1117-2020
1.1/4"	1.7/8-12	1113-2024	1114-2024	1116-2024	
1.1/2"	1.7/8-12	1113-2424	1114-2424	1116-2424	1117-2424
2"	2.1/2-12	1113-3232	1114-3232	1116-3232	1117-3232

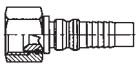
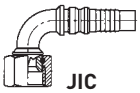
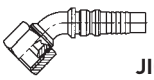
Hose Dim.	Thread	 Metric Swivel Strong Series	 Metric Solid Strong Series	 Metric Swivel 90° Strong Series	 Metric Swivel 45° Strong Series
3/4"	36x2.0	1133-1225S	1120-1225S	1134-1225S	1135-1225S
3/4"	42x2.0	1133-1230S	1120-1230S	1134-1230S	1135-1230S
1"	36x2.0	1133-1625S	1120-1625S	1134-1625S	1135-1625S
1"	42x2.0	1133-1630S	1120-1630S	1134-1630S	1135-1630S
1.1/4"	52x2.0	1133-2038S	1120-2038S	1134-2038S	1135-2038S

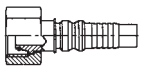
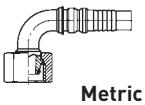
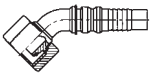
Hose Dim.	Flange Dim.	 3000 Straight	 3000 Flange 45°	 3000 Flange 90°	 6000 Straight	 6000 Flange 45°	 6000 Flange 90°
1/2"	1/2"	1143-0808	1148-0808	1144-0808	1163-0808	1168-0808	1164-0808
1/2"	3/4"	1143-0812	1148-0812	1144-0812	1163-0812	1168-0812	1164-0812
5/8"	3/4"	1143-1012	1148-1012	1144-1012	1163-1012	1168-1012	1164-1012
3/4"	3/4"	1143-1212	1148-1212	1144-1212	1163-1212	1168-1212	1164-1212
3/4"	1"	1143-1216	1148-1216	1144-1216	1163-1216	1168-1216	1164-1216
1"	1"	1143-1616	1148-1616	1144-1616	1163-1616	1168-1616	1164-1616
1"	1.1/4"	1143-1620	1148-1620	1144-1620	1163-1620	1168-1620	1164-1620
1.1/4"	1.1/4"	1143-2020	1148-2020	1144-2020	1163-2020	1168-2020	1164-2020
1.1/4"	1.1/2"	1143-2024	1148-2024	1144-2024	1163-2024	1168-2024	1164-2024
1.1/2"	1.1/2"	1143-2424	1148-2424	1144-2424	1163-2424	1168-2424	1164-2424
1.1/2"	2"	1143-2432	1148-2432	1144-2432	1163-2432	1168-2432	1164-2432
2"	2"	1143-3232	1148-3232	1144-3232	1163-3232	1168-3232	1164-3232

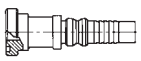
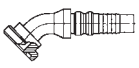
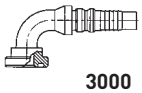
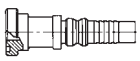
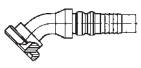
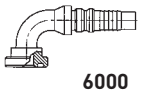
3

Swage couplings carbon steel for hydraulic hoses with 6 layers steel reinforcement.
Covers ISO 3862-1 type R13 and R15

Hose Dim.	Thread	 BSP Swivel	 BSP Solid	 BSP Swivel 90°	 BSP Swivel 45°	 NPT Solid
3/4"	3/4"	1101-1212	1102-1212	1103-1212	1104-1212	1140-1212
3/4"	1"	1101-1216	1102-1216	1103-1216	1104-1216	1140-1216
1"	1"	1101-1616	1102-1616	1103-1616	1104-1616	1140-1616
1.1/4"	1.1/4"	1301-2020	1302-2020	1303-2020	1304-2020	1340-2020
1.1/2"	1.1/2"	1301-2424	1302-2424	1303-2424	1304-2424	1340-2424
2"	2"	1301-3232	1302-3232	1303-3232	1304-3232	1340-3232

Hose Dim.	Thread	 JIC Swivel	 JIC Solid	 JIC Swivel 90°	 JIC Swivel 45°
3/4"	1.1/16-12	1113-1212	1114-1212	1116-1212	1117-1212
3/4"	1.5/16-12	1113-1216	1114-1216	1116-1216	1117-1216
1"	1.5/16-12	1113-1616	1114-1616	1116-1616	1117-1616
1"	1.5/8-12	1113-1620	1114-1620	1116-1620	1117-1620
1.1/4"	1.5/8-12	1313-2020	1314-2020	1316-2020	1317-2020
1.1/4"	1.7/8-12	1313-2024	-	-	-
1.1/2"	1.7/8-12	1313-2424	1314-2424	1316-2424	1317-2424
2"	2.1/2-12	1313-3232	1314-3232	1316-3232	1317-3232

Hose Dim.	Thread	 Metric Swivel Strong Series	 Metric Solid Strong Series	 Metric Swivel 90° Strong Series	 Metric Swivel 45° Strong Series
3/4"	36x2,0	1133-1225S	1120-1225S	1134-1225S	1135-1225S
3/4"	42x2,0	1133-1230S	1120-1230S	1134-1230S	1135-1230S
1"	36x2,0	1133-1625S	1120-1625S	1134-1625S	1135-1625S
1"	42x2,0	1133-1630S	1120-1630S	1134-1630S	1135-1630S
1.1/4"	52x2,0	1333-2038S	1320-2038S	1334-2038S	1335-2038S

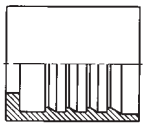
Hose Dim.	Flange Dim.	 3000 Straight	 3000 Flange 45°	 3000 Flange 90°	 6000 Straight	 6000 Flange 45°	 6000 Flange 90°
3/4"	3/4"	1143-1212	1148-1212	1144-1212	1163-1212	1168-1212	1164-1212
3/4"	1"	1143-1216	1148-1216	1144-1216	1163-1216	1168-1216	1164-1216
1"	1"	1143-1616	1148-1616	1144-1616	1163-1616	1168-1616	1164-1616
1"	1.1/4"	1143-1620	1148-1620	1144-1620	1163-1620	1168-1620	1164-1620
1.1/4"	1.1/4"	1343-2020	1348-2020	1344-2020	1363-2020	1368-2020	1364-2020
1.1/4"	1.1/2"	1343-2024	1348-2024	1344-2024	1363-2024	1368-2024	1364-2024
1.1/2"	1.1/2"	1343-2424	1348-2424	1344-2424	1363-2424	1368-2424	1364-2424
1.1/2"	2"	1343-2432	1348-2432	1344-2432	1363-2432	1368-2432	1364-2432
2"	2"	1343-3232	1348-3232	1344-3232	1363-3232	1368-3232	1364-3232

Hose Dim.	1SN Non-skive	2SN Non-skive	2SC Non-skive	4SP Skive	4SH Skive	R13 Skive	R15 Skive
1/4"	001AT-04SS	002AT-04SS	001AT-04SS	-	-	-	-
3/8"	001AT-06SS	002AT-06SS	001AT-06SS	003A-06SS	-	-	-
1/2"	001AT-08SS	002AT-08SS	001AT-08SS	003A-08SS	-	-	-
5/8"	001AT-10SS	002AT-10SS	001AT-10SS	003A-10SS	-	-	-
3/4"	001AT-12SS	002AT-12SS	001AT-12SS	003A-12SS	1104-12SS	1106-12SS	1506-12SS
1"	001AT-16SS	002AT-16SS	001AT-16SS	003A-16SS	1104-16SS	1106-16SS	1506-16SS
1.1/4"	001AT-20SS	002AT-20SS	001AT-20SS	003A-20SS	1104-20SS	1106-20SS	1506-20SS
1.1/2"	001AT-24SS	002AT-24SS	-	003A-24SS	1104-24SS	1106-24SS	1506-24SS
2"	001AT-32SS	002AT-32SS	-	003A-32SS	1104-32SS	1106-32SS	1506-32SS

SERVICE

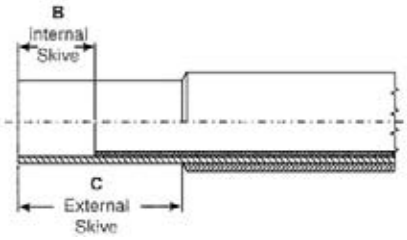
- Industrial pipe layers with certificate of apprenticeship
- Hydraulic Engineers / Certified Welders
- Certified Hose Fitters
- Flush/test units
- Offshore Certified personnel
- Rental of bending/collaring machines, test equipment and hose swage machines
- Service Vehicles
- 24 Hour Service
- Repairs of umbilicals
- Re-certification of hoses
- Machining and Production
- Courses and Training

CRIMPING CHART
STAINLESS STEEL FITTINGS

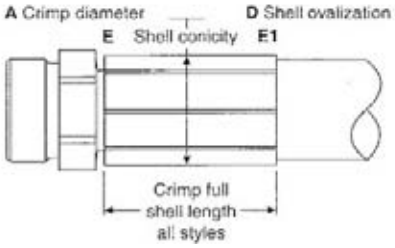


DN	Inch	Size	mm	Hose type	Part no.	A Crimp Diam. mm	B Internal Skive Length +/-1.0mm	C Extern. Skive Length +/-1.0mm	D Shell Ovali-zation* mm max.	E Shell Conicity** mm max.
6	1/4"	-04	6.3	1SN	001AT-04SS	16.7				
10	3/8"	-06	9.5	1SN	001AT-06SS	21.8				
12	1/2"	-08	12.7	1SN	001AT-08SS	24.5				
16	5/8"	-10	15.9	1SN	001AT-10SS	28.0				
20	3/4"	-12	19.1	1SN	001AT-12SS	31.7				
25	1"	-16	25.4	1SN	001AT-16SS	40.0				
32	1.1/4"	-20	31.8	1SN	001AT-20SS	49.7				
40	1.1/2"	-24	38.1	1SN	001AT-24SS	54.5				
50	2"	-32	50.8	1SN	001AT-32SS	70.5				
6	1/4"	-04	6.3	2SN	002AT-04SS	18.5				
10	3/8"	-06	9.5	2SN	002AT-06SS	22.3				
12	1/2"	-08	12.7	2SN	002AT-08SS	26.2				
16	5/8"	-10	15.9	2SN	002AT-10SS	28.5				
20	3/4"	-12	19.1	2SN	002AT-12SS	33.5				
25	1"	-16	25.4	2SN	002AT-16SS	40.5				
32	1.1/4"	-20	31.8	2SN	002AT-20SS	50.0				
40	1.1/2"	-24	38.1	2SN	002AT-24SS	59.0				
50	2"	-32	50.8	2SN	002AT-32SS	72.3				
6	1/4"	-04	6.3	2SC	001AT-04SS	16.8				
10	3/8"	-06	9.5	2SC	001AT-06SS	21.5				
12	1/2"	-08	12.7	2SC	001AT-08SS	24.5				
16	5/8"	-10	15.9	2SC	001AT-10SS	27.8				
20	3/4"	-12	19.1	2SC	001AT-12SS	31.7				
25	1"	-16	25.4	2SC	001AT-16SS	39.8				
32	1.1/4"	-20	31.8	2SC	001AT-20SS					
10	3/8"	-06	9.5	2SC-06W	001AT-06SS					
12	1/2"	-08	12.7	2SC-08W	001AT-08SS					
10	3/8"	-06	9.5	4SP	003A-06SS	23.2		25		
12	1/2"	-08	12.7	4SP	003A-08SS	26.5		27		
16	5/8"	-10	15.9	4SP	003A-10SS	29.5		28		
20	3/4"	-12	19.1	4SP	003A-12SS	34.0		33.5		
25	1"	-16	25.4	4SP	003A-16SS	42.0		38		
32	1.1/4"	-20	31.8	4SP	003A-20SS	52.6		55		
40	1.1/2"	-24	38.1	4SP	003A-24SS	58.0		56		
20	3/4"	-12	19.1	4SH	1104-12SS	34.5	16	42		
25	1"	-16	25.4	4SH	1104-16SS	42.5	20	60		
32	1.1/4"	-20	31.8	4SH	1104-20SS	49.5	20	62		
40	1.1/2"	-24	38.1	4SH	1104-24SS	58.0	27	82		
50	2"	-32	50.8	4SH	1104-32SS	72.0	29	85		
20	3/4"	-12	19.1	R13	1106-12SS	34.5	16	42		
25	1"	-16	25.4	R13	1106-16SS	42.0	20	60		
32	1.1/4"	-20	31.8	R13	1106-20SS	54.0	20	62		
40	1.1/2"	-24	38.1	R13	1106-24SS	64.0	27	82		
50	2"	-32	50.8	R13	1106-32SS	77.8	28	85		
16	5/8"	-10	15.9	R15	1506-10SS	-	-	-		
20	3/4"	-12	19.1	R15	1506-12SS	34.5	16	42		
25	1"	-16	25.4	R15	1506-16SS	41.5	20	60		
32	1.1/4"	-20	31.8	R15	1506-20SS	54.0	20	62		
40	1.1/2"	-24	38.1	R15	1506-24SS	64.0	27	82		
50	2"	-32	50.8	R15	1506-32SS	-	-	-		

Skive Information



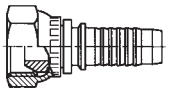
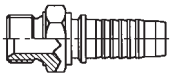
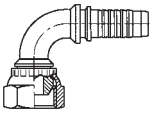
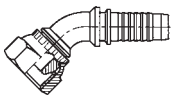
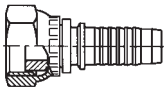
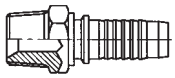
Crimp Information

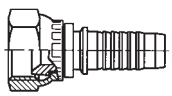
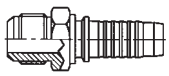
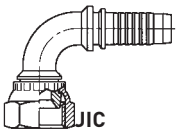
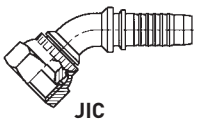


Use vernier callipers to do two diameter measurements 90° apart in the middle of the sleeve. Ovalization is the difference between the smallest and largest diameter. Use vernier callipers to do two diameter measurements 90° apart on the front (E) and rear (E1) of the sleeve. Conicity is the difference between the average measurement E minus the average of E1. (E1 must not be greater than E)

This crimping chart is for guidance only. Use gauge for exact measurement.

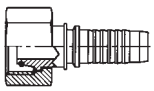
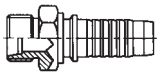
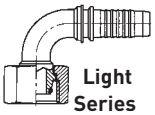
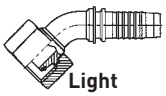
Swage couplings stainless steel for hydraulic hoses with 1, 2 and 4 layers steel reinforcement.
Covers 1SN, 2SN, 2SC and 4SP

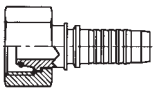
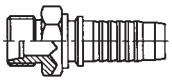
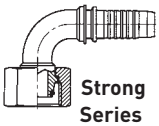
Hose Dim.	Thread Dim.	 BSP Swivel	 BSP Solid	 BSP Swivel 90°	 BSP Swivel 45°	 BSP Swivel plan	 NPT Solid
1/4"	1/4"	001-0404SS	002-0404SS	003-0404SS	004-0404SS		040-0404SS
1/4"	3/8"	001-0406SS	002-0406SS	003-0406SS	004-0406SS		040-0406SS
3/8"	1/4"	001-0604SS	002-0604SS	003-0604SS	004-0604SS		040-0604SS
3/8"	3/8"	001-0606SS	002-0606SS	003-0606SS	004-0606SS	009-0606SS	040-0606SS
3/8"	1/2"	001-0608SS	002-0608SS	003-0608SS	004-0608SS	009-0608SS	040-0608SS
1/2"	1/2"	001-0808SS	002-0808SS	003-0808SS	004-0808SS	009-0808SS	040-0808SS
1/2"	5/8"	001-0810SS	002-0810SS	003-0810SS	004-0810SS		
1/2"	3/4"	001-0812SS	002-0812SS	003-0812SS	004-0812SS	009-0812SS	040-0812SS
5/8"	5/8"	001-1010SS	002-1010SS	003-1010SS	004-1010SS	009-1010SS	
5/8"	3/4"	001-1012SS	002-1012SS	003-1012SS	004-1012SS	009-1012SS	040-1012SS
3/4"	3/4"	001-1212SS	002-1212SS	003-1212SS	004-1212SS	009-1212SS	040-1212SS
3/4"	1"	001-1216SS	002-1216SS	003-1216SS	004-1216SS	009-1216SS	040-1216SS
1"	1"	001-1616SS	002-1616SS	003-1616SS	004-1616SS	009-1616SS	040-1616SS
1"	1.1/4"	001-1620SS	002-1620SS	003-1620SS	004-1620SS		040-1620SS
1.1/4"	1.1/4"	001-2020SS	002-2020SS	003-2020SS	004-2020SS		040-2020SS
1.1/4"	1.1/2"	001-2024SS	002-2024SS	003-2024SS	004-2024SS		040-2024SS
1.1/2"	1.1/2"	001-2424SS	002-2424SS	003-2424SS	004-2424SS		040-2424SS
1.1/2"	2"	001-2432SS	002-2432SS	003-2432SS	004-2432SS		040-2432SS
2"	2"	001-3232SS	002-3232SS	003-3232SS	004-3232SS		040-3232SS

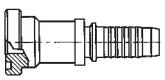
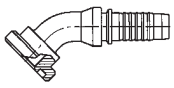
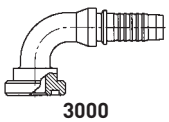
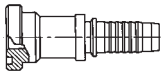
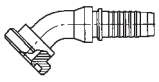
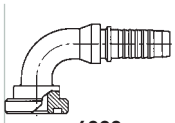
Hose Dim.	Thread	 JIC Swivel	 JIC Solid	 JIC Swivel 90°	 JIC Swivel 45°
1/4"	7/16-20	013-0404SS	014-0404SS	016-0404SS	017-0404SS
1/4"	1/2-20	013-0405SS	014-0405SS	016-0405SS	017-0405SS
1/4"	9/16-18	013-0406SS	014-0406SS	016-0406SS	017-0406SS
3/8"	9/16-18	013-0606SS	014-0606SS	016-0606SS	017-0606SS
3/8"	3/4-16	013-0608SS	014-0608SS	016-0608SS	017-0608SS
1/2"	3/4-16	013-0808SS	014-0808SS	016-0808SS	017-0808SS
1/2"	7/8-14	013-0810SS	014-0810SS	016-0810SS	017-0810SS
1/2"	1.1/6-12	013-0812SS	014-0812SS	016-0812SS	017-0812SS
5/8"	7/8-14	013-1010SS	014-1010SS	016-1010SS	017-1010SS
5/8"	1.1/16-12	013-1012SS	014-1012SS	016-1012SS	017-1012SS
3/4"	1.1/16-12	013-1212SS	014-1212SS	016-1212SS	017-1212SS
3/4"	1.3/16-12	013-1214SS	014-1214SS	016-1214SS	017-1214SS
3/4"	1.5/16-12	013-1216SS	014-1216SS	016-1216SS	017-1216SS
1"	1.5/16-12	013-1616SS	014-1616SS	016-1616SS	017-1616SS
1"	1.5/8-12	013-1620SS	014-1620SS	016-1620SS	017-1620SS
1.1/4"	1.5/8-12	013-2020SS	014-2020SS	016-2020SS	017-2020SS
1.1/4"	1.7/8-12	013-2024SS	014-2024SS	016-2024SS	017-2024SS
1.1/2"	1.7/8-12	013-2424SS	014-2424SS	016-2424SS	017-2424SS
2"	2.1/2-12	013-3232SS	014-3232SS	016-3232SS	017-3232SS

3

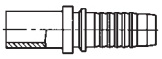
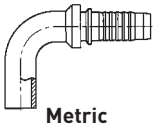
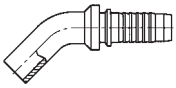
Swage couplings stainless steel for hydraulic hoses with 1, 2 and 4 layers steel reinforcement.
Covers 1SN, 2SN, 2SC and 4SP

Pipe O.D	Hose Dim.	Thread	 Light Series Swivel	 Light Series Solid	 Light Series Swivel 90°	 Light Series Swivel 45°
6mm	1/4"	12x1.5	033-0406LSS	020-0406LSS	034-0406LSS	035-0406LSS
8mm	1/4"	14x1.5	033-0408LSS	020-0408LSS	034-0408LSS	035-0408LSS
10mm	1/4"	16x1.5	033-0410LSS	020-0410LSS	034-0410LSS	035-0410LSS
10mm	3/8"	16x1.5	033-0610LSS	020-0610LSS	034-0610LSS	035-0610LSS
12mm	3/8"	18x1.5	033-0612LSS	020-0612LSS	034-0612LSS	035-0612LSS
15mm	3/8"	22x1.5	033-0615LSS	020-0615LSS	034-0615LSS	035-0615LSS
15mm	1/2"	22x1.5	033-0815LSS	020-0815LSS	034-0815LSS	035-0815LSS
18mm	1/2"	26x1.5	033-0818LSS	020-0818LSS	034-0818LSS	035-0818LSS
18mm	5/8"	26x1.5	033-1018LSS	020-1018LSS	034-1018LSS	035-1018LSS
22mm	3/4"	30x2	033-1222LSS	020-1222LSS	034-1222LSS	035-1222LSS
28mm	1"	36x2	033-1628LSS	020-1628LSS	034-1628LSS	035-1628LSS
35mm	1.1/4"	45x2	033-2035LSS	020-2035LSS	034-2035LSS	035-2035LSS
42mm	1.1/2"	52x2	033-2442LSS	020-2442LSS	034-2442LSS	035-2442LSS

Pipe O.D	Hose Dim.	Thread	 Strong Series Swivel	 Strong Series Solid	 Strong Series Swivel 90°	 Strong Series Swivel 45°
6mm	1/4"	14x1.5	033-0406SSS	020-0406SSS	034-0406SSS	035-0406SSS
8mm	1/4"	16x1.5	033-0408SSS	020-0408SSS	034-0408SSS	035-0408SSS
10mm	1/4"	18x1.5	033-0410SSS	020-0410SSS	034-0410SSS	035-0410SSS
10mm	3/8"	18x1.5	033-0610SSS	020-0610SSS	034-0610SSS	035-0610SSS
12mm	3/8"	20x1.5	033-0612SSS	020-0612SSS	034-0612SSS	035-0612SSS
14mm	3/8"	22x1.5	033-0614SSS	020-0614SSS	034-0614SSS	035-0614SSS
16mm	1/2"	24x1.5	033-0816SSS	020-0816SSS	034-0816SSS	035-0816SSS
20mm	5/8"	30x2	033-1020SSS	020-1020SSS	034-1020SSS	035-1020SSS
25mm	3/4"	36x2	033-1225SSS	020-1225SSS	034-1225SSS	035-1225SSS
30mm	1"	42x2	033-1630SSS	020-1630SSS	034-1630SSS	035-1630SSS
38mm	1.1/4"	52x2	033-2038SSS	020-2038SSS	034-2038SSS	035-2038SSS

Pipe Dim.	Flange Dim.	 3000 Straight	 3000 45°	 3000 90°	 6000 Straight	 6000 45°	 6000 90°
1/2"	1/2"	043-0808SS	048-0808SS	044-0808SS	063-0808SS	068-0808SS	064-0808SS
1/2"	3/4"	043-0812SS	048-0812SS	044-0812SS	063-0812SS	068-0812SS	064-0812SS
3/4"	3/4"	043-1212SS	048-1212SS	044-1212SS	063-1212SS	068-1212SS	064-1212SS
3/4"	1"	043-1216SS	048-1216SS	044-1216SS	063-1216SS	068-1216SS	064-1216SS
1"	1"	043-1616SS	048-1616SS	044-1616SS	063-1616SS	068-1616SS	064-1616SS
1"	1.1/4"	043-1620SS	048-1620SS	044-1620SS	063-1620SS	068-1620SS	064-1620SS
1.1/4"	1.1/4"	043-2020SS	048-2020SS	044-2020SS	063-2020SS	068-2020SS	064-2020SS
1.1/4"	1.1/2"	043-2024SS	048-2024SS	044-2024SS	063-2024SS	068-2024SS	064-2024SS
1.1/2"	1.1/2"	043-2424SS	048-2424SS	044-2424SS	063-2424SS	068-2424SS	064-2424SS
1.1/2"	2"	043-2432SS	048-2432SS	044-2432SS	063-2432SS	068-2432SS	064-2432SS
2"	2"	043-3232SS	048-3232SS	044-3232SS	063-3232SS	068-3232SS	064-3232SS

Swage couplings stainless steel for hydraulic hoses with 1, 2 and 4 layers steel reinforcement.
Covers 1SN, 2SN, 2SC and 4SP

Pipe O.D	Hose Dim.	 Metric L/S Series Straight	 Metric L/S Series 90°	 Metric L/S Series 45°
6mm	1/4"	026-0406SS	027-0406SS	028-0406SS
8mm	1/4"	026-0408SS	027-0408SS	028-0408SS
10mm	1/4"	026-0410SS	027-0410SS	028-0410SS
12mm	1/4"	026-0412SS	027-0412SS	028-0412SS
10mm	3/8"	026-0610SS	027-0610SS	028-0610SS
12mm	3/8"	026-0612SS	027-0612SS	028-0612SS
14mm	3/8"	026-0614SS	027-0614SS	028-0614SS
15mm	3/8"	026-0615SS	027-0615SS	028-0615SS
12mm	1/2"	026-0812SS	027-0812SS	028-0812SS
14mm	1/2"	026-0814SS	027-0814SS	028-0814SS
15mm	1/2"	026-0815SS	027-0815SS	028-0815SS
16mm	1/2"	026-0816SS	027-0816SS	028-0816SS
18mm	1/2"	026-0818SS	027-0818SS	028-0818SS
18mm	5/8"	026-1018SS	027-1018SS	028-1018SS
20mm	5/8"	026-1020SS	027-1020SS	028-1020SS
22mm	5/8"	026-1022SS	027-1022SS	028-1022SS
20mm	3/4"	026-1220SS	027-1220SS	028-1220SS
22mm	3/4"	026-1222SS	027-1222SS	028-1222SS
25mm	3/4"	026-1225SS	027-1225SS	028-1225SS
25mm	1"	026-1625SS	027-1625SS	028-1625SS
28mm	1"	026-1628SS	027-1628SS	028-1628SS
30mm	1"	026-1630SS	027-1630SS	028-1630SS
38mm	1"	026-1638SS	027-1638SS	028-1638SS
30mm	1.1/4"	026-2030SS	027-2030SS	028-2030SS
35mm	1.1/4"	026-2035SS	027-2035SS	028-2035SS
38mm	1.1/4"	026-2038SS	027-2038SS	028-2038SS

We recommend the use of metric inserts instead of pipe sockets with nut and cone.

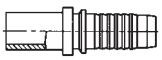
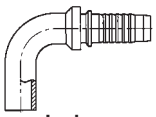
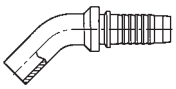
Only a limited range of inserts with pipe sockets in stock.

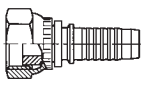
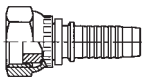
Stainless steel fittings are also available with:

A-lok track	Add A before SS
Swagelok track	Add S before SS
Gyrolok track	Add G before SS

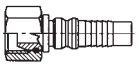
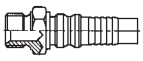
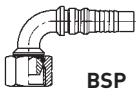
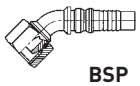
Example metric: 026-0610ASS

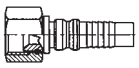
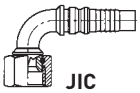
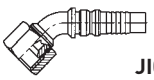
Example inch: 026-0608TASS

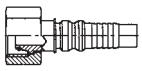
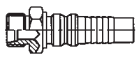
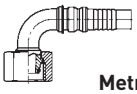
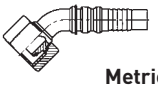
Hose Dim.	Pipe O.D	 Inches L/S Series Straight	 Inches L/S Series 90°	 Inches L/S Series 45°
1/4"	1/4"	026-0404TSS	027-0404TSS	028-0404TSS
1/4"	3/8"	026-0406TSS	027-0406TSS	028-0406TSS
3/8"	3/8"	026-0606TSS	027-0606TSS	028-0606TSS
3/8"	1/2"	026-0608TSS	027-0608TSS	028-0608TSS
1/2"	1/2"	026-0808TSS	027-0808TSS	028-0808TSS
5/8"	5/8"	026-1010TSS	027-1010TSS	028-1010TSS
3/4"	3/4"	026-1212TSS	027-1212TSS	028-1212TSS
1"	1"	026-1616TSS	027-1616TSS	028-1616TSS

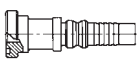
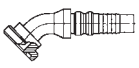
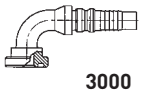
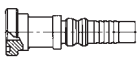
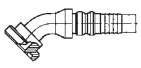
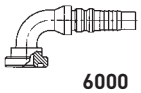
Hose Dim.	Thread	 Nitrogen Swivel	 CO2 Swivel
1/4"	N2/CO2	N2-04SS	CO2-04SS
3/8"	N2/CO2	N2-06SS	CO2-06SS
1/2"	N2/CO2	N2-08SS	CO2-08SS

Swage couplings stainless steel Interlock for hydraulic hoses with 4 layers steel reinforcement.

Hose Dim.	Thread	 BSP Swivel	 BSP Solid	 BSP Swivel 90°	 BSP Swivel 45°	 NPT Solid
3/4"	1"	1101-1216SS	1102-1216SS	1103-1216SS	1104-1216SS	1140-1216SS
1"	1"	1101-1616SS	1102-1616SS	1103-1616SS	1104-1616SS	1140-1616SS
1.1/4"	1.1/4"	1101-2020SS	1102-2020SS	1103-2020SS	1104-2020SS	1140-2020SS
1.1/2"	1.1/2"	1101-2424SS	1102-2424SS	1103-2424SS	1104-2424SS	1140-2424SS
2"	2"	1101-3232SS	1102-3232SS	1103-3232SS	1104-3232SS	1140-3232SS

Hose Dim.	Thread	 JIC Swivel	 JIC Solid	 JIC Swivel 90°	 JIC Swivel 45°
3/4"	1.1/16-12	1113-1212SS	1114-1212SS	1116-1212SS	1117-1212SS
3/4"	1.5/16-12	1113-1216SS	1114-1216SS	1116-1216SS	1117-1216SS
1"	1.5/16-12	1113-1616SS	1114-1616SS	1116-1616SS	1117-1616SS
1"	1.5/8-12	1113-1620SS	1114-1620SS	1116-1620SS	1117-1620SS
1.1/4"	1.5/8-12	1113-2020SS	1114-2020SS	1116-2020SS	1117-2020SS
1.1/4"	1.7/8-12	1113-2024SS	1114-2024SS	1116-2024SS	1117-2024SS
1.1/2"	1.7/8-12	1113-2424SS	1114-2424SS	1116-2424SS	1117-2424SS
2"	2.1/2-12	1113-3232SS	1114-3232SS	1116-3232SS	1117-3232SS

Hose Dim.	Thread	 Metric Swivel Strong Series	 Metric Solid Strong Series	 Metric Swivel 90° Strong Series	 Metric Swivel 45° Strong Series
3/4"	36x2,0	1133-1225SSS	1120-1225SSS	1134-1225SSS	1135-1225SSS
3/4"	42x2,0	1133-1230SSS	1120-1230SSS	1134-1230SSS	1135-1230SSS
1"	36x2,0	1133-1625SSS	1120-1625SSS	1134-1625SSS	1135-1625SSS
1"	42x2,0	1133-1630SSS	1120-1630SSS	1134-1630SSS	1135-1630SSS
1.1/4"	52x2,0	1133-2038SSS	1120-2038SSS	1134-2038SSS	1135-2038SSS

Hose Dim.	Flange Dim.	 3000 Straight	 3000 Flange 45°	 3000 Flange 90°	 6000 Straight	 6000 Flange 45°	 6000 Flange 90°
3/4"	3/4"	1143-1212SS	1148-1212SS	1144-1212SS	1163-1212SS	1168-1212SS	1164-1212SS
3/4"	1"	1143-1216SS	1148-1216SS	1144-1216SS	1163-1216SS	1168-1216SS	1164-1216SS
1"	1"	1143-1616SS	1148-1616SS	1144-1616SS	1163-1616SS	1168-1616SS	1164-1616SS
1"	1.1/4"	1143-1620SS	1148-1620SS	1144-1620SS	1163-1620SS	1168-1620SS	1164-1620SS
1.1/4"	1.1/4"	1143-2020SS	1148-2020SS	1144-2020SS	1163-2020SS	1168-2020SS	1164-2020SS
1.1/4"	1.1/2"	1143-2024SS	1148-2024SS	1144-2024SS	1163-2024SS	1168-2024SS	1164-2024SS
1.1/2"	1.1/2"	1143-2424SS	1148-2424SS	1144-2424SS	1163-2424SS	1168-2424SS	1164-2424SS
1.1/2"	2"	1143-2432SS	1148-2432SS	1144-2432SS	1163-2432SS	1168-2432SS	1164-2432SS
2"	2"	1143-3232SS	1148-3232SS	1144-3232SS	1163-3232SS	1168-3232SS	1164-3232SS

Group 4

Nipples
Flare Fittings
SAE Flanges

FLUID CONTROL®

SHIPPING

- Compensators - Rubber / Steel
- Steel Hoses
- Cam and Groove Adaptors
- Ball Valves
- Butterfly Valves
- High- and Low-pressure Jetting-hoses
- Flanges, Pipes, Pipe Parts
- Gaskets
- Hydraulic Hoses
- Components
- Cataloging Hoses
- Partners / 24 Hour Service in Holland

BSP nipples and adaptors are supplied with
gasket surface in accordance with DIN 3901, DIN 3852 form D.
Material quality: Carbon steel in accordance with BS 970 EN 1A.
Galvanized and chromated in accordance with BS 1706 CL. ZN3

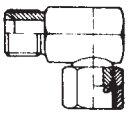
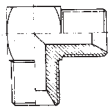
For Stainless Steel, add SS after Part No. Other dimensions and material qualities on request.

Working Pressure 1/8"-350 BAR 1/4" 450 BAR 3/8" 380 BAR 1/2" 310 BAR 5/8" 280 BAR 3/4" 240 BAR 1" 210 BAR 1¼" 170 BAR 1½"-2" 136 BAR Applies to carbon steel		 **Nipple Part No. 101**	 **Bulkhead Part No. 102**	 **Swivel Out./in. Part No. 108**	 **Nipple Socket Out./in. Part No. 109**	 **Socket Part No. 111**	 **Reduction Out./in. Part No. 114**	 **Nipple BSP/NPT Part No. 122**
1/8	1/8	-0202		-0202	-0202	-0202		-0202
1/8	1/4	-0204		-0204	-0204	-0204		-0204
1/8	3/8	-0206				-0206	-0602	-0206
1/8	1/2	-0208						
1/4	1/8			-0402	-0402			-0402
1/4	1/4	-0404	-0404	-0404	-0404	-0404		-0404
1/4	3/8	-0406			-0406	-0406		-0406
1/4	1/2	-0408		-0408	-0408	-0408		-0408
3/8	1/4							-0604
3/8	3/8	-0606	-0606	-0606	-0606	-0606		-0606
3/8	1/2	-0608		-0608	-0608	-0608		-0608
3/8	5/8	-0610		-0610	-0610			
3/8	3/4	-0612				-0612	-1206	-0612
1/2	1/4				-0804			-0804
1/2	3/8			-0806	-0806			-0806
1/2	1/2	-0808	-0808	-0808	-0808	-0808		-0808
1/2	5/8	-0810		-0810	-0810	-0810		
1/2	3/4	-0812		-0812	-0812	-0812		-0812
1/2	1	-0816					-1608	-0816
5/8	1/2			-1008	-1008			-1008
5/8	5/8	-1010	-1010	-1010	-1010	-1010		
5/8	3/4	-1012		-1012	-1012	-1012		-1012
3/4	1/2			-1208	-1208			-1208
3/4	3/4	-1212	-1212	-1212	-1212	-1212		-1212
3/4	1	-1216		-1216	-1216	-1216		-1216
3/4	1¼	-1220					-2012	-1220
1	3/4			-1612	-1612			-1612
1	1	-1616	-1616	-1616	-1616	-1616		-1616
1	1¼	-1620		-1620	-1620	-1620		-1620
1	1½	-1624					-2416	-1624
1¼	1			-2016	-2016			-2016
1¼	1¼	-2020	-2020	-2020	-2020	-2020		-2020
1¼	1½	-2024			-2024	-2024		-2024
1½	1¼				-2420			-2420
1½	1½	-2424		-2424	-2424	-2424		-2424
1½	2	-2432			-2432	-2432		-2432
2	1½				-3224			-3224
2	2	-3232		-3232	-3232	-3232		-3232

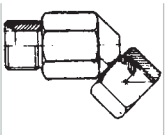
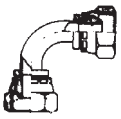
Safety Factor 3,5:1

BSP nipples and adaptors are supplied with
gasket surface in accordance with DIN 3901, DIN 3852 form D.
Material quality: Carbon steel in accordance with BS 970 EN 1A.
Galvanized and chromated in accordance with BS 1706 CL. ZN3

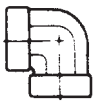
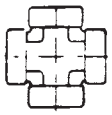
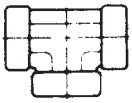
For Stainless Steel, add SS after Part No. Other dimensions and material qualities on request.

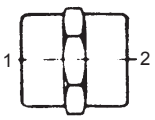
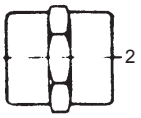
Working Pressure 1/8"-1/4" 440 BAR 3/8" 380 BAR 1/2" 310 BAR 5/8" 280 BAR 3/4" 240 BAR 1" 210 BAR 1¼" 170 BAR 1½"-2" 136 BAR Applies to carbon steel		 **Locknut Part No. 103**	 **Plug Part No. 110**	 **Conical Nipple Part No. 112**	 **Cap Part No. 120**	 **Banjo w/ bolt Part No. 184**	 **Swivel Nipple 90° Part No. 201**	 **Nipple 90° Part No. 210**	 **Swivel Socket Part No. 211**
1/8	1/8	-02	-02	-0202	-02	-	-0202	-0202	-0202
1/4	1/4	-04	-04	-0404	-04	-0404	-0404	-0404	-0404
3/8	3/8	-06	-06	-0606	-06	-0606	-0606	-0606	-0606
1/2	1/2	-08	-08	-0808	-08	-0808	-0808	-0808	-0808
5/8	5/8	-10	-10	-1010	-10	-1010	-1010	-1010	-1010
3/4	3/4	-12	-12	-1212	-12	-1212	-1212	-1212	-1212
1	1	-16	-16	-1616	-16	-1616	-1616	-1616	-1616
1¼	1¼	-20	-20	-2020	-20	-	-2020	-	-
1½	1½	-	-24	-2424	-24	-	-	-	-
2	2	-	-32	-3232	-32	-	-	-	-

For Stainless Steel, add SS after Part No. Other dimensions and material qualities on request.

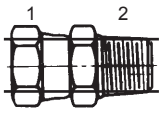
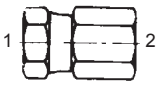
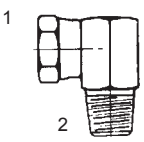
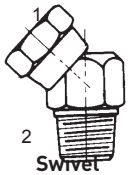
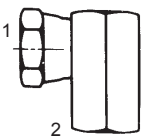
Working Pressure 1/8"-1/4" 440 BAR 3/8" 380 BAR 1/2" 310 BAR 5/8" 280 BAR 3/4" 240 BAR 1" 210 BAR 1¼" 170 BAR 1½"-2" 136 BAR Applies to carbon steel		 **Swivel Nipple 45° Part No. 301**	 **T-nipple Part No. 401**	 **T-swivel Part No. 402**	 **T-swivel Out./in. Part No. 403**	 **T-swivel Out./in. Part No. 404**	 **T-swivel Out./in. Part No. 405**	 **Swivel 90° Part No. 411**
1/8	1/8	-	-0202	-	-	-	-	-
1/4	1/4	-0404	-0404	-0404	-0404	-0404	-0404	-0404
3/8	3/8	-0606	-0606	-0606	-0606	-0606	-0606	-0606
1/2	1/2	-0808	-0808	-0808	-0808	-0808	-0808	-0808
3/4	3/4	-1212	-1212	-1212	-1212	-1212	-1212	-1212
1	1	-1616	-1616	-1616	-1616	-1616	-1616	-1616

Material quality: Carbon steel in accordance with ASTM A 576, cadmium-plated and chromated.
For Stainless Steel, add SS after Part No. Other dimensions and material qualities on request.

Working Pressure 1/8" 420 BAR 1/4" 420 BAR 3/8" 280 BAR 1/2 280 BAR 3/4" 210 BAR 1" 175 BAR 1¼" 140 BAR Applies to carbon steel		 **Nipple Socket Part No. CD**	 **Nipple Socket 45° Part No. CD45**	 **Socket 90° Part No. DD**	 **Cross Part No. KMMO**	 **T Part No. MMO**	 **Plug Part No. HP**
1/8	1/8	-0202	-0202	-0202	-0202	-0202	-02
1/4	1/4	-0404	-0404	-0404	-0404	-0404	-04
3/8	3/8	-0606	-0606	-0606	-0606	-0606	-06
1/2	1/2	-0808	-0808	-0808	-0808	-0808	-08
5/8	5/8	-1010	-1010	-1010	-1010	-1010	-10
3/4	3/4	-1212	-1212	-1212	-1212	-1212	-12
1	1	-1616	-1616	-1616	-1616	-1616	-16
1¼	1¼	-	-	-2020	-2020	-2020	-20

Working Pressure 1/8" 420 BAR 1/4" 420 BAR 3/8" 280 BAR 1/2 280 BAR 3/4" 210 BAR 1" 175 BAR 1¼" 140 BAR Applies to carbon steel		 **Nipple Part No. FF**	 **Nipple Socket Part No. FG**	 **Socket Part No. GG**	 **Reduction Part No.PTR**	 **Socket BSP x NPT Part No. 222**	 **Nipple Socket BSP x NPT Part No. 223**	 **Nipple Socket NPT x BSP Part No. 224**
1/8	1/8	-0202		-0202				
1/8	1/4		-0204					
1/4	1/8	-0402		-0402	-0402			
1/4	1/4	-0404		-0404				
1/4	3/8		-0406					
1/4	1/2		-0408					
3/8	1/8	-0602		-0602	-0602			
3/8	1/4	-0604		-0604	-0604			
3/8	3/8	-0606		-0606				
3/8	1/2		-0608					
1/2	1/8	-0802			-0802			
1/2	1/4	-0804		-0804	-0804	-0804	-0804	-0804
1/2	3/8	-0806		-0806	-0806	-0806	-0806	-0806
1/2	1/2	-0808		-0808		-0808	-0808	-0808
1/2	3/4		-0812					
1/2	1		-0816					
3/4	1/4	-1204		-1204	-1204			
3/4	3/8	-1206		-1206	-1206			
3/4	1/2	-1208		-1208	-1208	-1208	-1208	-1208
3/4	3/4	-1212		-1212		-1212	-1212	-1212
3/4	1		-1216			-1216	-1216	-1216
1	3/8				-1606			
1	1/2				-1608			
1	3/4	-1612			-1612			
1	1	-1616		-1616		-1616	-1616	-1616
1¼	3/4				-2012			
1¼	1				-2016			
1¼	1¼	-2020		-2020				
1¼	1½		-2024					
1½	1				-2416			
1½	1¼				-2420			
1½	1½	-2424		-2424				
2	1½				-3224			
2	2	-3232		-3232				

Material quality: Carbon steel in accordance with ASTM A 108, cadmium-plated and chromated.
For Stainless Steel, add SS after Part No. Other dimensions and material qualities on request.

Thread 1	Thread 2	 Swivel Nipple Part No. 0107	 Swivel Socket Part No. 0207	 Swivel Socket 90° Part No. 2107	 Swivel Nipple 45° Part No. 3107	 Swivel Socket 90° Part No. 2207
1/8	1/8	-0202	-0202	-0202	-0202	-0202
1/4	1/8	-0402				
1/4	1/4	-0404	-0404	-0404	-0404	-0404
1/4	3/8	-0406		-0406		
3/8	1/4	-0604		-0604		
3/8	3/8	-0606	-0606	-0606	-0606	-0606
3/8	1/2	-0608		-0608	-0608	
1/2	1/4	-0804				
1/2	3/8	-0806		-0806		
1/2	1/2	-0808	-0808	-0808	-0808	-0808
1/2	3/4	-0812		-0812	-0812	
3/4	1/2	-1208		-1208		
3/4	3/4	-1212	-1212	-1212	-1212	-1212
3/4	1	-1216		-1216	-1216	
1	3/4	-1612				
1	1	-1616	-1616	-1616	-1616	-1616
1¼	1	-2016				
1¼	1¼	-2020	-2020	-2020	-2020	-2020
1½	1½	-2424	-2424	-2424	-2424	-2424
2	2	-3232	-3232	-3232	-3232	-3232

Working Pressure

1/8"	420 BAR
1/4"	420 BAR
3/8"	280 BAR
1/2"	280 BAR
3/4"	210 BAR
1"	175 BAR
1¼"	140 BAR
1½"	140 BAR
2"	105 BAR

Safety Factor 4:1

Parker FluidConnectors

FLARE FITTINGS
Hydraulic Fittings
Carbon Steel

Flare Fittings Pressure Table Working Pressure

Type:
HTXS - ETXS - JTXS - KTXS - WTXWLNS - WETXWLNS - FNTXS - PNTXS - TRTXS - TT4XS - F40XS - F50XS - C50XS - S50XS - R50XS - F650XS - F870MXS - F64XS

Dim. from 06 mm up to 20 mm. Dash -04 up to -12.	Max. working pressure= 500 Bar.
Dim. 30 mm / Dash -16.	Max. working pressure= 400 Bar.
Dim. 30 mm / Dash- 20.	Max. working pressure= 315 Bar.
Dim. 38 mm / Dash - 24.	Max. working pressure= 210 Bar.

Type:
FTXS - CTXS - VTXS - STXS - RTXS - GTXS - G4XSMO - F6XS - V50XS - C6XS V6XS - S6XS - R6XS.

Dim. from 06 mm up to 20 mm. Dash -04 up to -12.	Max. working pressure= 460 Bar.
Dim. 25 mm / Dash-16.	Max. working pressure= 370 Bar.
Dim. 30 mm / Dash- 20.	Max. working pressure= 280 Bar.
Dim. 38 mm / Dash- 24.	Max. working pressure= 190 Bar.

Type:
C40XS - V40XS - S40XS - R40XS

Dim. from 06 mm up to 20 mm. Dash -04 up to -12.	Max. working pressure= 460 Bar.
Dim. 25 mm / Dash-16.	Max. working pressure= 330 Bar.
Dim. 30 mm / Dash- 20.	Max. working pressure= 230 Bar.
Dim. 38 mm / Dash- 24.	Max. working pressure= 190 Bar.

Max. working pressure:
Pressure indicates values from calculating P max specified in the original Flare Fittings specifications.

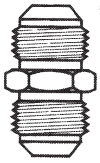
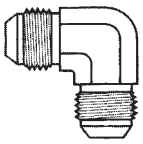
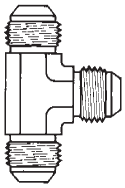
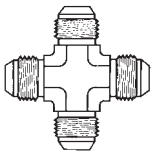
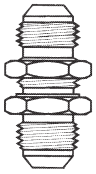
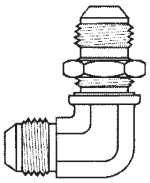
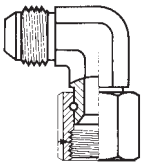
Burst pressure:
Minimum basis from the nominal working pressure: PN x 4.

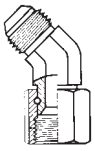
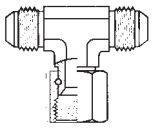
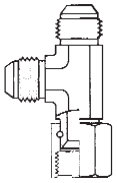
Example:	Part no. HTXS	P max pressure:	500 Bar.
		PN pressure:	350 Bar.

Note: **Our Part No. differs slightly from Parker's original Part No.**

4

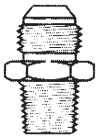
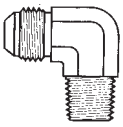
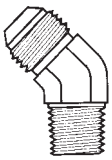
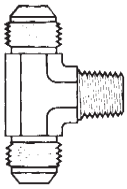
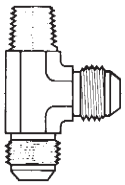
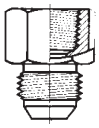
For Stainless Steel, add SS after Part No. Other dimensions and material qualities on request.
Additional information can be found on our website. www.fluidcontrol.no

Pipe O.D. mm	Thread JIC 37°	 Straight Union Part No. HTXS	 90° Union Part No. ETXS	 T-Union Part No. JTXS	 Cross-Union Part No. KTXS	 Straight Bulkhead Part No. WTXWLNS	 90° Bulkhead Part No. WETXLNS	 90° w/Swivel Part No. C6XS
6	7/16-20	4HTXS	4ETXS	4JTXS	4KTXS	4WTXWLNS	4WETXWLNS	4C6XS
8	1/2-20	5HTXS	5ETXS	5JTXS	5KTXS	5WTXWLNS	5WETXWLNS	5C6XS
10	9/16-18	6HTXS	6ETXS	6JTXS	6KTXS	6WTXWLNS	6WETXWLNS	6C6XS
12	3/4-16	8HTXS	8ETXS	8JTXS	8KTXS	8WTXWLNS	8WETXWLNS	8C6XS
14-16	7/8-14	10HTXS	10ETXS	10JTXS	10KTXS	10WTXWLNS	10WETXWLNS	10C6XS
18-20	1 1/16-12	12HTXS	12ETXS	12JTXS	12KTXS	12WTXWLNS	12WETXWLNS	12C6XS
25	1 5/16-12	16HTXS	16ETXS	16JTXS	16KTXS	16WTXWLNS	16WETXWLNS	16C6XS
30-32	1 5/8-12	20HTXS	20ETXS	20JTXS	20KTXS	20WTXWLNS	20WETXWLNS	20C6XS
38	1 7/8-12	24HTXS	24ETXS	24JTXS	24KTXS	24WTXWLNS	24WETXWLNS	24C6XS

Pipe O.D. mm	Thread JIC 37°	 45° w/ Swivel Part No. V6XS	 T w/ Swivel Part No. S6XS	 T w/ Swivel Part No. R6XS	 Cap Part No. FNTXS	 Plug Part No. PNTXS	 Nut Part No. BTXS	 Support Ring Part No. TXS	Nickel Seat Seal Part No. SCX
6	7/16-20	4V6XS	4S6XS	4R6XS	4FNTXS	4PNTXS	4BTXS	TXS06	SCX06
8	1/2-20	5V6XS	5S6XS	5R6XS	5FNTXS	5PNTXS	5BTXS	TXS08	SCX08
10	9/16-18	6V6XS	6S6XS	6R6XS	6FNTXS	6PNTXS	6BTXS	TXS10	SCX10
12	3/4-16	8V6XS	8S6XS	8R6XS	8FNTXS	8PNTXS	8BTXS	TXS12	SCX12
14	7/8-14	10V6XS	10S6XS	10R6XS	10FNTXS	10PNTXS	10BTXS	TXS14	SCX14
15	7/8-14	10V6XS	10S6XS	10R6XS	10FNTXS	10PNTXS	10BTXS	TXS15	SCX15
16	7/8-14	10V6XS	10S6XS	10R6XS	10FNTXS	10PNTXS	10BTXS	TXS16	SCX16
18	1 1/16-12	12V6XS	12S6XS	12R6XS	12FNTXS	12PNTXS	12BTXS	TXS18	SCX18
20	1 1/16-12	12V6XS	12S6XS	12R6XS	12FNTXS	12PNTXS	12BTXS	TXS20	SCX20
25	1 5/16-12	16V6XS	16S6XS	16R6XS	16FNTXS	16PNTXS	16BTXS	TXS25	SCX25
30	1 5/8-12	20V6XS	20S6XS	20R6XS	20FNTXS	20PNTXS	20BTXS	TXS30	SCX30
32	1 5/8-12	20V6XS	20S6XS	20R6XS	20FNTXS	20PNTXS	20BTXS	TXS32	SCX32
38	1 7/8-12	24V6XS	24S6XS	24R6XS	24FNTXS	24PNTXS	24BTXS	TXS38	SCX38

Copper seat seal on request.

For Stainless Steel, add SS after Part No. Other dimensions and material qualities on request.
Additional information can be found on our website. www.fluidcontrol.no

									
Pipe O.D. mm	**Thread JIC 37°**	**Thread NPT**	**Straight Male Part No. FTXS**	**90° Male Part No. CTXS**	**45° Male Part No. VTXS**	**T Male Part No. STXS**	**T Male Part No. RTXS**	**Straight Female Part No. GTXS**	**Swivel Female Part No. F6XS**
6	7/16-20	1/8	4FTXS	4CTXS	4VTXS	4STXS	4RTXS	4GTXS	4F6XS
6	7/16-20	1/4	44FTXS	44CTXS	44VTXS			44GTXS	44F6XS
6	7/16-20	3/8	46FTXS						
6	7/16-20	1/2	48FTXS						
8	1/2-20	1/8	5FTXS	5CTXS	5VTXS	5STXS	5RTXS	5GTXS	
8	1/2-20	1/4	54FTXS	54CTXS	54VTXS			54GTXS	54F6XS
10	9/16-18	1/8	62FTXS	62CTXS	62VTXS				
10	9/16-18	1/4	6FTXS	6CTXS	6VTXS	6STXS	6RTXS	6GTXS	6F6XS
10	9/16-18	3/8	66FTXS	66CTXS	66VTXS			66GTXS	66F6XS
10	9/16-18	1/2	68FTXS	68CTXS	68VTXS				
12	3/4-16	1/4	84FTXS	84CTXS	84VTXS				
12	3/4-16	3/8	8FTXS	8CTXS	8VTXS	8STXS	8RTXS	8GTXS	8F6XS
12	3/4-16	1/2	88FTXS	88CTXS	88VTXS			88GTXS	88F6XS
12	3/4-16	3/4	812FTXS	812CTXS	812VTXS				
14-16	7/8-14	3/8	106FTXS	106CTXS	106VTXS				106F6XS
14-16	7/8-14	1/2	10FTXS	10CTXS	10VTXS	10STXS	10RTXS	10GTXS	10F6XS
14-16	7/8-14	3/4	1012FTXS	1012CTXS					
18-20	1 1/16-12	1/2	128FTXS	128CTXS				128GTXS	128F6XS
18-20	1 1/16-12	3/4	12FTXS	12CTXS	12VTXS	12STXS	12RTXS	12GTXS	12F6XS
18-20	1 1/16-12	1	1216FTXS						
25	1 5/16-12	3/4	1612FTXS	1612CTXS	1612VTXS				1612F6XS
25	1 5/16-12	1	16FTXS	16CTXS	16VTXS	16STXS	16RTXS	16GTXS	16F6XS
30-32	1 5/8-12	1	2016FTXS	2016CTXS					
30-32	1 5/8-12	1¼	20FTXS	20CTXS	20VTXS	20STXS	20RTXS	20GTXS	20F6XS
38	1 7/8-12	1¼	2420FTXS						
38	1 7/8-12	1½	24FTXS	24CTXS				24GTXS	

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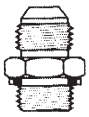
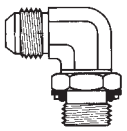
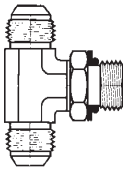
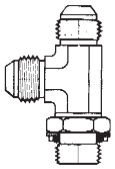
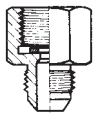
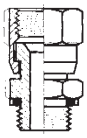
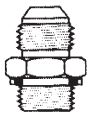
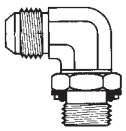
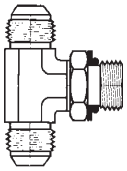
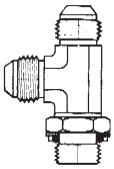
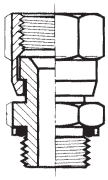
For Stainless Steel, add SS after Part No. Other dimensions and material qualities on request.
All BSP male components come with ED seal
Additional information can be found on our website. www.fluidcontrol.no

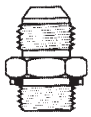
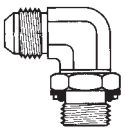
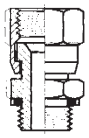
									
Pipe O.D. mm	**Thread JIC 37°**	**Thread BSP**	**Straight Male Part No. F40XS**	**90° Male Part No. C40XS**	**45° Male Part No. V40XS**	**T Male Part No. S40XS**	**T Male Part No. R40XS**	**Straight Female Part No. G4XS**	**Swivel Female Part No. F64XS**
6	7/16-20	1/8	4F40XS	4C40XS	4V40XS			4G4XS	4F64XS
6	7/16-20	1/4	44F40XS	44C40XS				44G4XS	44F64XS
6	7/16-20	3/8	46F40XS						
6	7/16-20	1/2	48F40XS	48C40XS					
8	1/2-20	1/8	5F40XS		5V40XS			5G4XS	
8	1/2-20	1/4	54F40XS	54C40XS					54F64XS
8	1/2-20	3/8	56F40XS	56C40XS					
10	9/16-18	1/8	62F40XS						
10	9/16-18	1/4	6F40XS	6C40XS	6V40XS	6S40XS	6R40XS	6G4XS	6F64XS
10	9/16-18	3/8	66F40XS	66C40XS		66S40XS		66G4XS	66F64XS
10	9/16-18	1/2	68F40XS			68S40XS		68G4XS	
12	3/4-16	1/4	84F40XS	84C40XS				84G4XS	84F64XS
12	3/4-16	3/8	8F40XS	8C40XS	8V40XS	8S40XS	8R40XS	8G4XS	8F64XS
12	3/4-16	1/2	88F40XS	88C40XS		88S40XS		88G4XS	88F64XS
12	3/4-16	3/4	812F40XS						
14-16	7/8-14	3/8	106F40XS	106C40XS	106V40XS				
14-16	7/8-14	1/2	10F40XS	10C40XS	10V40XS	10S40XS	10R40XS	10G4XS	10F64XS
14-16	7/8-14	3/4	1012F40XS	1012C40XS	1012V40XS	1012S40XS	1012R40XS	1012G4XS	1012F64XS
18-20	1 1/16-12	3/8	126F40XS	126C40XS					
18-20	1 1/16-12	1/2	128F40XS	128C40XS		128S40XS			128F64XS
18-20	1 1/16-12	3/4	12F40XS	12C40XS	12V40XS	12S40XS	12R40XS	12G4XS	12F64XS
18-20	1 1/16-12	1	1216F40XS	1216C40XS					1216F64XS
25	1 5/16-12	3/4	1612F40XS	1612C40XS					1612F64XS
25	1 5/16-12	1	16F40XS	16C40XS	16V40XS	16S40XS	16R40XS	16G4XS	16F64XS
25	1 5/16-12	1¼	1620F40XS						
30-32	1 5/8-12	1	2016F40XS	2016C40XS					2016F64XS
30-32	1 5/8-12	1¼	20F40XS	20C40XS	20V40XS	20S40XS	20R40XS	20G4XS	20F64XS
30-32	1 5/8-12	1½	2024F40XS	2024C40XS					
38	1 7/8-12	1¼	2420F40XS	2420C40XS					2420F64XS
38	1 7/8-12	1½	24F40XS	24C40XS	24V40XS			24G4XS	24F64XS

For Stainless Steel, add SS after Part No. Other dimensions and material qualities on request.
All UNF male components come with ED seal.
Additional information can be found on our website. www.fluidcontrol.no

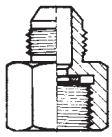
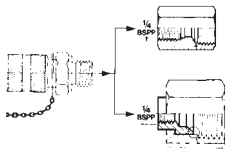
Pipe O.D. mm	Thread JIC 37°	Thread SAE UNF	 Straight Male Part No. F50XS	 90° Male Part No. C50XS	 45° Male Part No. V50XS	 T Male Part No. S50XS	 T Male Part No. R50XS	 Swivel Male Part No. F65XS
6	7/16-20	7/16-20	4F50XS	4C50XS	4V50XS	4S50XS	4R50XS	4F65XS
6	7/16-20	1/2-20	45F50XS					
6	7/16-20	9/16-18	46F50XS					
8	1/2-20	1/2-20	5F50XS	5C50XS	5V50XS	5S50XS	5R50XS	5F65XS
10	9/16-18	9/16-18	6F50XS	6C50XS	6V50XS	6S50XS	6R50XS	6F65XS
10	9/16-18	3/4-16	68F50XS					
12	3/4-16	9/16-18	86F50XS					
12	3/4-16	3/4-16	8F50XS	8C50XS	8V50XS	8S50XS	8R50XS	8F65XS
12	3/4-16	7/8-14	810F50XS	810C50XS				
12	3/4-16	1 1/16-12	812F50XS					
14-16	7/8-14	3/4-16	108F50XS					
14-16	7/8-14	7/8-14	10F50XS	10C50XS	10V50XS	10S50XS	10R50XS	10F65XS
14-16	7/8-14	1 1/16-12	1012F50XS					
18-20	1 1/16-12	3/4-16	128F50XS					
18-20	1 1/16-12	7/8-14	1210F50XS	1210C50XS				
18-20	1 1/16-12	1 1/16-12	12F50XS	12C50XS	12V50XS	12S50XS	12R50XS	12F65XS
18-20	1 1/16-12	1 5/16-12	1216F50XS					
25	1 5/16-12	1 1/16-12	1612F50XS	1612C50XS				
25	1 5/16-12	1 5/16-12	16F50XS	16C50XS	16V50XS	16S50XS	16R50XS	16F65XS
25	1 1/16-12	1 5/8-12	1620F50XS					
30-32	1 5/8-12	1 5/16-12	2016F50XS					
30-32	1 5/8-12	1 5/8-12	20F50XS	20C50XS				20F65XS
38	1 7/8-12	1 7/8-12	24F50XS					

4

For Stainless Steel, add SS after Part No. Other dimensions and material qualities on request.
Additional information can be found on our website. www.fluidcontrol.no

Pipe O.D. mm	Thread JIC 37°	Thread mm	Straight Male Part No. F870XS	90° Male Part No. C870XS	Swivel Male Part No. F687XS
6	7/16-20	M10x1.0	4M10F87XS	4M10C87XS	4M10F687XS
8	1/2-20	M12x1,5	5M12F87XS	5M12C87XS	5M12F687XS
10	9/16-18	M14x1.5	6M14F87XS	6M14C87XS	6M14F687XS
12	3/4-16	M14x1.5	8M14F87XS	8M14C87XS	
12	3/4-16	M16x1.5	8M16F87XS	8M16C87XS	8M16F687XS
12	3/4-16	M18x1.5	8M18F87XS		
14-16	7/8-14	M18x1.5	10M18F87XS	10M18C87XS	
14-16	7/8-14	M22x1.5	10M22F87XS	10M22C87XS	10M22F687XS
18-20	1 1/16-12	M22x1.5	12M22F87XS	12M22C87XS	
18-20	1 1/16-12	M27x2.0	12M27F87XS	12M27C87XS	12M27F687XS
25	1 5/16-12	M33x2.0	16M33F87XS		16M33F687XS
30	1 5/8-12	M42x2.0	20M42F87XS		20M42F687XS
38	1 5/8-12	M50x2.0	24M50F87XS		24M50F687XS

Pipe O.D. mm	Thread JIC 37°	Thread BSP	Manometer Female Part No. G4XSMO	Test Fitting Part No. TT4XS
6	7/16-20	1/4	44G4XSMO	
6	7/16-20	1/2	48G4XSMO	
8	1/2-20	1/4	54G4XSMO	5TT4XS
8	1/2-20	1/2	58G4XSMO	
10	9/16-18	1/4	64G4XSMO	6TT4XS
10	9/16-18	1/2	68G4XSMO	
12	3/4-16	1/4	84G4XSMO	8TT4XS
12	3/4-16	1/2	88G4XSMO	
14-16	7/8-14	1/4	104G4XSMO	10TT4XS
18-20	1 1/16-12	1/4	124G4XSMO	12TT4XS
25	1 5/16-12	1/4	164G4XSMO	16TT4XS
30-32	1 5/8-12	1/4	204G4XSMO	20TT4XS
38	1 7/8-12	1/4	244G4XSMO	24TT4XS

Form B

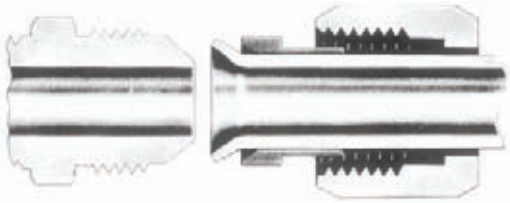
Form A

Pipe 1 O.D. mm	Pipe 2 O.D. mm	Thread 1 JIC 37°	Thread 2 JIC 37°	Reduction Part No. TRTXS
8	6	1/2-20	7/16-20	54TRTXS*
10	6	9/16-18	7/16-20	64TRTXS
10	8	9/16-18	1/2-20	65TRTXS*
12	6	3/4-16	7/16-20	84TRTXS
12	8	3/4-16	1/2-20	85TRTXS
12	10	3/4-16	9/16-18	86TRTXS
14-16	6	7/8-14	7/16-20	104TRTXS
14-16	8	7/8-14	1/2-20	105TRTXS
14-16	10	7/8-14	9/16-18	106TRTXS
14-16	12	7/8-14	3/4-16	108TRTXS*
18-20	6	1 1/16-12	7/16-20	124TRTXS
18-20	8	1 1/16-12	1/2-20	125TRTXS
18-20	10	1 1/16-12	9/16-18	126TRTXS
18-20	12	1 1/16-12	3/4-16	128TRTXS
18-20	14-16	1 1/16-12	7/8-14	1210TRTXS*
25	10	1 5/16-12	9/16-18	166TRTXS
25	12	1 5/16-12	3/4-16	168TRTXS
25	14-16	1 5/16-12	7/8-14	1610TRTXS
25	18-20	1 5/16-12	1 1/16-12	1612TRTXS
30-32	10	1 5/8-12	9/16-18	206TRTXS
30-32	12	1 5/8-12	3/4-16	208TRTXS
30-32	14-16	1 5/8-12	7/8-14	2010TRTXS
30-32	18-20	1 5/8-12	1 1/16-12	2012TRTXS
30-32	25	1 5/8-12	1 5/16-12	2016TRTXS
38	14-16	1 7/8-12	7/8-14	2410TRTXS
38	18-20	1 7/8-12	1 1/16-12	2412TRTXS
38	25	1 7/8-12	1 5/16-12	2416TRTXS
38	30-32	1 7/8-12	1 7/8-12	2420TRTXS

*Form A, these reductions are in one piece.

Form B: loose nut must be ordered in addition; BTXS page 4-8

FLARE FITTINGS
Hydraulic Fittings
Flaring Machines



Approvals: Steel, Stainless steel and brass Flare Fittings fittings are approved by DNV (Det Norske Veritas) for use in hydraulic systems.
Lloyds Register of Shipping, US Coast Guard and U.S. Military Standard have also approved Flare Fittings.

1040 - PARFLANGE MACHINE FOR 37° AND 90° TUBE FLARING
Electric/hydraulic operated, fully automatic orbital flaring machine for JIC 37° and ORFS 90° tube flaring.

Tube dimension: 6x1mm - 38x5mm
Voltage: 220/380V/50Hz - 20/16 A - 4 kW
External dim.: 705 x 805 x 1020mm
Weight: 400 kg.

Tools:
M40 - Clamping dies pr. tube O.D and flaring type
B30 - Flaring/flanging pin pr. tube O.D. x I.D. and flaring type

Use separate tools for stainless steel pipes

1025 - PARFLANGE MACHINE FOR 37° AND 90° TUBE FLARING
Electric/hydraulic operated orbital flaring machine for JIC 37° and ORFS 90° tube flaring. 1025 is a compact and portable machine.

Tube dimension: 6 - 38 mm
Voltage: 220V/50Hz 1 Phase
380V/50Hz 3 Phase
External dim.: 600 x 250 x 500
Weight: 80 kg

Tools:
M40 - Clamping dies pr. tube O.D and flaring type
B30 - Flaring/flanging pin pr. tube O.D. x I.D. and flaring type

Use separate tools for stainless steel pipes

FLARING MACHINE MODEL 1015-A
Hand pump operated
Capacity: Pipe O.D 6 mm to 38 mm
Pipe O.D 1/4" to 1½"
Dimensions: L=600 x W=250 x H=350
Weight: 35 kg

FLARING DIE SET FOR FLARING MACHINE 1015A

Tube O.D. mm	Part No. mm	Tube O.D. inch	Part No. inch
6	M157406-1	1/4	M047415-1
8	M157408-1	5/16	M157408-1
10	M157410-1	3/8	M067415-1
12	M157412	1/2	M087415
14	M157414		
15	M157415		
16	M157416	5/8	M107415
18	M157418		
20	M157420	3/4	M127415
25	M157425	1	M167415
30	M157430		
32	M157432	1¼	M207415
38	M157438	1½	M157438

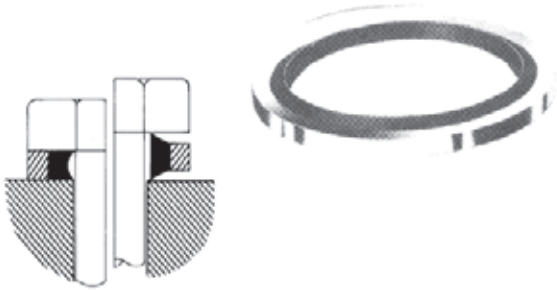
Other machines available on request.

Prices for purchase or rental on request

DBS GASKETS
THREAD TAPE
HIGH-PRESSURE SWIVELS

DOWTY BONDED SEALS

Delivered with nitrile rubber ring, with temperature resistance ÷40°C to +100°C. Resistant to mineral oils, grease, air, water, sea water, emulsions etc. Standard steel ring is made from materials with high-tensile strength, and is surface treated against rust. Also available in AISI 316.

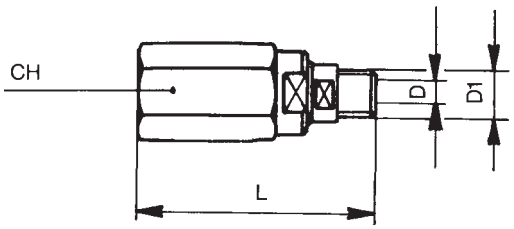


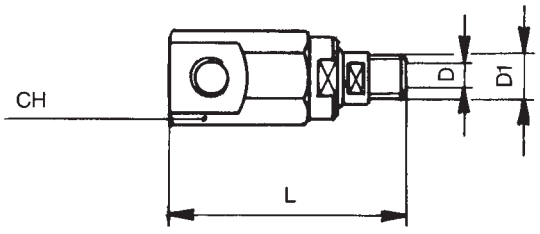
For BSP	Standard Part No. DBS	AISI 316 Part No. DBS	For metric	Standard Part No. DBS
1/8"	-02	-02SS	8 MM	- 08MM
1/4"	-04	-04SS	10 MM	-10MM
3/8"	-06	-06SS	12 MM	-12MM
1/2"	-08	-08SS	14 MM	-14MM
5/8"	-10	-10SS	16 MM	-16MM
3/4"	-12	-12SS	18 MM	-18MM
1"	-16	-16SS	20 MM	-20MM
1¼"	-20	-20SS	22 MM	-22MM
1½"	-24	-24SS	24 MM	-24MM
2"	-32	-32SS	26 MM	-26MM
			28 MM	-28MM
			30 MM	-30MM

For Stainless Steel, add SS after Part No.

TEFLON THREAD TAPE
Width 12 mm
Part No. T82 -012

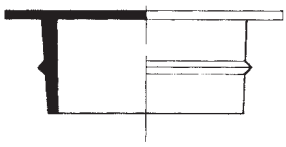
HIGH-PRESSURE SWIVELS
- Intended for oscillating motions





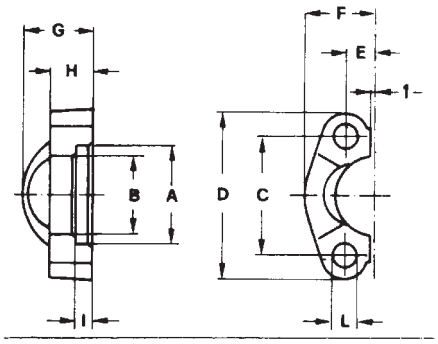
Straight Swivel					90° Swivel					
Thread BSP D1	Part No. 610	L mm	CH mm	D mm	Thread BSP D1	Part No. 615	L mm	CH mm	D mm	Work. Pres. BAR
1/4	**-04**	**85**	**30**	6,5	1/4	-04	91	30	6,5	210
3/8	-06	90	32	9	3/8	-06	98	32	9	210
1/2	-08	99	36	12.5	1/2	-08	109	36	12.5	210
3/4	-12	117	46	18	3/4	-12	133	46	18	210
1	-16	132	50	23.5	1	-16	146	50	23.5	210
1¼	-20	141	65	30	1¼	-20	180	65	30	180
1½	-24	141	75	35	1½	-24	180	75	35	180

PLASTIC CAPS/ PLASTIC PLUGS



PLASTIC CAPS/PLASTIC PLUGS

For BSP	Cap Part No. DBI	Plug Part No. DUT	For JIC	Cap Part No. DBI	Plug Part No. DUT	For Metric	Plug Part No. DUT
1/4"	-BSP04	-BSP04	7/16"-20	-JIC04	-JIC04	14 x 1.5	-MM14
3/8"	-BSP06	-BSP06	1/2"-20	-JIC05	JIC05	16 x 1.5	-MM16
1/2"	-BSP08	-BSP08	9/16"-18	-JIC06	-JIC06	18 x 1.5	-MM18
3/4"	-BSP12	-BSP12	3/4"-16	-JIC08	-JIC08	20 x 1.5	-MM20
1"	-BSP16	-BSP16	7/8"-14	-JIC10	JIC10	22 x 1.5	-MM22
1¼"	-BSP20	-BSP20	11/16"-12	-JIC12	-JIC12	24 x 1.5	-MM24
1½"	-BSP24	-BSP24	15/16"-12	-JIC16	-JIC16	26 x 1.5	-MM26
2"	-BSP32	-BSP32	1⅝"-12		-JIC20	30 x 2.0	-MM30
			1⅞"-12		-JIC24	36 x 2.0	-MM36
			2½"-12		-JIC32	42 x 2.0	-MM42
						45 x 2.0	-MM45
						52 x 2.0	-MM52



SAE FLANGES
SPLIT FLANGES
3000 PSI / 6000 PSI

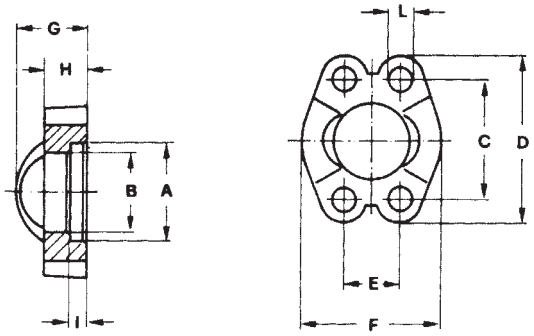
3000 PSI

Dim.	Work. Pres. Bar	Part No. 9553	Dimensions A	B	C	D	E	F	G	H	I	L	Screws Metr.	Weight kg pr. pair
1/2"	210	-2108	30.96	24.26	38.10	54	8.74	22.8	19	13	6.22	9	M 8	0.12
3/4"	210	-2112	38.89	32.13	47.63	65	11.13	25.9	22	14	6.22	10.5	M 10	0.17
1"	210	-2116	45.24	38.48	52.37	70	13.08	29.2	24	16	7.49	10.5	M 10	0.24
1¼"	210	-2120	51.59	43.69	58.72	79	15.09	36.3	22	14	7.49	12	M 10	0.30
1½"	210	-2124	61.09	50.80	69.85	94	17.86	41.1	25	16	7.49	13.5	M 12	0.48
2"	210	-2132	72.24	62.74	77.77	102	21.44	48.2	26	16	9.02	13.5	M 12	0.50
2½"	172	-2140	84.94	74.93	88.90	114	25.40	54.1	38	19	9.02	13.5	M 12	0.74
3"	138	-2148	102.39	90.93	106.38	135	30.96	65.3	41	22	9.02	16.75	M 16	1.40
3½"	34	-2156	115.10	102.36	120.65	152	34.92	69.5	28	22	10.72	17	M 16	1.50
4"	34	-2164	127.79	115.06	130.18	162	38.88	76.0	35	25	10.72	17	M 16	1.65

6000 PSI

Dim.	Work. Pres. Bar	Part No. 9556	Dimensions A	B	C	D	E	F	G	H	I	L	Screws Metr.	Weight kg pr. pair
1/2"	420	-2108	32.54	24.64	40.49	56	9.12	23.6	22	16	7.24	9	M 8	0.16
3/4"	420	-2112	42.06	32.51	50.80	71	11.91	30.0	28	19	8.26	11	M 10	0.35
1"	420	-2116	48.41	38.86	57.15	81	13.89	34.8	33	24	9.02	13	M 12	0.53
1¼"	420	-2120	54.76	44.45	66.68	95	15.88	38.6	38	27	9.78	15	M 14	0.80
1½"	420	-2124	64.29	51.56	79.38	113	18.26	47.5	43	30	12.07	17	M 16	1.35
2"	420	-2132	80.16	67.56	96.82	133	22.23	56.9	52	37	12.07	21	M 20	2.26

Standard material quality FE 52 UNI 7070 - 72 (ST 52,3 - DIN 1700).
For AISI 316L, add SS after Part No.



SAE FLANGES
ONE PIECE FLANGE
3000 PSI / 6000 PSI

3000 PSI

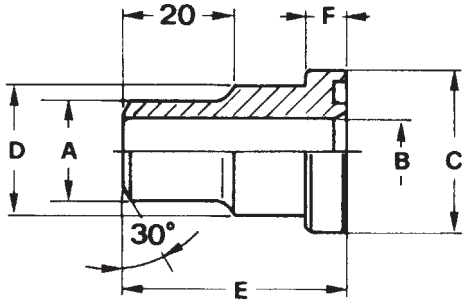
Dim.	Work. Pres. Bar	Part No. 9553	Dimensions A	B	C	D	E	F	G	H	I	L	Screws Metr.	Weight kg pr. pair
1/2"	210	-2708	30.96	24.26	38.10	54	17.48	45.6	19	13	6.22	9	M 8	0.15
3/4"	210	-2712	38.89	32.13	47.63	65	22.23	51.8	22	14	6.22	10.5	M 10	0.17
1"	210	-2716	45.24	38.48	52.37	70	26.19	58.4	24	16	7.49	10.5	M 10	0.22
1¼"	210	-2720	51.59	43.69	58.72	79	30.18	72.6	22	14	7.49	12	M 10	0.30
1½"	210	-2724	61.09	50.80	69.85	94	35.71	82.2	25	16	7.49	13.5	M 12	0.45
2"	210	-2732	72.24	62.74	77.77	102	42.88	96.4	26	16	9.02	13.5	M 12	0.50
2½"	172	-2740	84.94	74.93	88.90	114	50.80	108.2	38	19	9.02	13.5	M 12	0.74
3"	138	-2748	102.39	90.93	106.38	135	61.93	130.6	41	22	9.02	16.75	M 16	1.30
3½"	34	-2756	115.10	102.36	120.65	152	69.85	139	28	22	10.72	17	M 16	1.50
4"	34	-2764	127.79	115.06	130.18	162	77.77	152	35	25	10.72	17	M 16	1.65

6000 PSI

Dim.	Work. Pres. Bar	Part No. 9556	Dimensions A	B	C	D	E	F	G	H	I	L	Screws Metr.	Weight kg pr. pair
1/2"	420	-2708	32.54	24.64	40.49	56	18.24	47.20	22	16	7.24	9	M 8	0.16
3/4"	420	-2712	42.06	32.51	50.80	71	23.80	60	28	19	8.26	11	M 10	0.35
1"	420	-2716	48.41	38.86	57.15	81	27.76	69.6	33	24	9.02	13	M 12	0.53
1¼"	420	-2720	54.76	44.45	66.68	95	31.75	77.2	38	27	9.78	15	M 14	0.80
1½"	420	-2724	64.29	51.56	79.38	113	36.50	95	43	30	12.07	17	M 16	1.35
2"	420	-2732	80.16	67.56	96.82	133	44.45	113.8	52	37	12.07	21	M 20	2.26

Standard material quality FE 52 UNI 7070 - 72 (ST 52,3 - DIN 1700).
For AISI 316L, add SS after Part No.

SAE FLANGES
WELDING ADAPTER FOR BUTT WELDING
3000 PSI / 6000 PSI



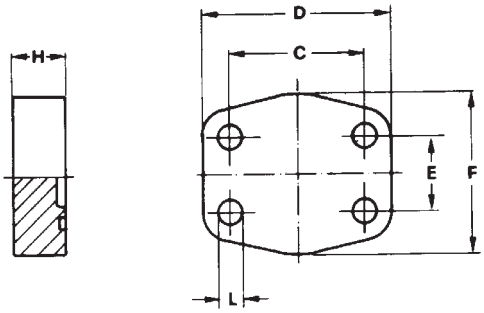
3000 PSI:

Dim.	Working Pressure Bar	Part No. w/ O-ring slot 9553	Part No. w/o O-ring slot 9553	Dimensions A	B	C	D	E	F	Weight kg.
1/2"	210	-3008	-3408	16	12	30.2	24	41	6.73	0.08
3/4"	210	-3012	-3412	25	19	38.1	32	50	6.73	0.16
1"	210	-3016	-3416	30	22	44.4	38	50	8.00	0.23
1¼"	210	-3020	-3420	38	28	50.8	43	55	8.00	0.30
1½"	210	-3024	-3424	45	35	60.3	50	57	8.00	0.40
2"	210	-3032	-3432	60	50	71.4	62	57	9.53	0.50
2½"	172	-3040	-3440	70	55	84.1	74	58	9.53	0.80
3"	138	-3048	-3448	80	68	101.6	90	60	9.53	1.10

6000 PSI:

Dim.	Working Pressure Bar	Part No. w/ O-ring 9556	Part No. w/o O-ring 9556	Dimensions A	B	C	D	E	F	Weight kg.
1/2"	420	-3008	-3408	16	12	31.8	24	34	7.75	0.08
3/4"	420	-3012	-3412	25	18	41.3	32	38	8.76	0.15
1"	420	-3016	-3416	30	22	47.6	38	40	9.53	0.23
1¼"	420	-3020	-3420	38	27	54.0	44	45	10.29	0.30
1½"	420	-3024	-3424	45	32	63.5	51	50	12.57	0.50
2"	420	-3032	-3432	60	45	79.4	67	58	12.57	0.80

Standard material quality FE 37 UNI 7070 - 72 (ST 52,3 - DIN 1700).
For AISI 316L, add SS after Part No.



SAE FLANGES
BLIND FLANGE
3000 PSI / 6000 PSI

3000 PSI:

Dim.	Work. Pres. Bar.	Part No.	Dimensions C	D	E	F	H	L	Screws Metr.	Weight kg
1/2"	345	9553-4908	38.10	54	17.48	48	16	9	M 8	0.20
3/4"	345	9553-4912	47.63	65	22.23	50	16	11	M 10	0.30
1"	345	9553-4916	52.37	70	26.19	60	19	11	M 10	0.37
1¼"	276	9553-4920	58.72	79	30.18	73	18	11.5	M 10	0.54
1½"	207	9553-4924	69.85	93	35.71	83	20	13.5	M 12	0.80
2"	207	9553-4932	77.77	102	42.88	94	20	13.5	M 12	0.90
2½"	172	9553-4940	88.90	114	50.80	105	20	13.5	M 12	1.35
3"	138	9553-4948	106.38	134	61.93	124	24	17.5	M 16	2.35
3½"	34	9553-4956	120.65	152	69.85	140	22	17.5	M 16	2.90
4"	34	9553-4964	130.18	162	77.77	152	25	17.5	M 16	3.90

Blind flanges without o-ring slot on request.

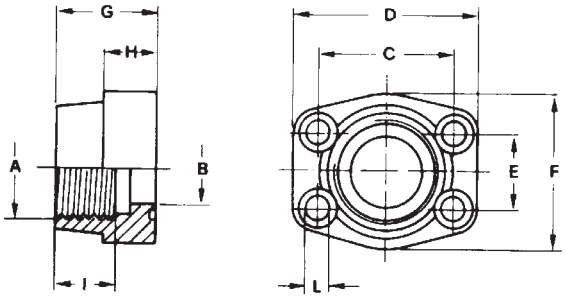
6000 PSI:

Dim.	Work. Pres. Bar.	Part No.	Dimensions C	D	E	F	H	L	Screws Metr.	Weight kg
1/2"	414	9556-4908	40.49	56	18.24	48	16	9	M 8	0.25
3/4"	414	9556-4912	50.80	71	23.80	60	19	11	M 10	0.48
1"	414	9556-4916	57.15	81	27.76	70	24	13	M 12	0.77
1¼"	414	9556-4920	66.68	95	31.75	78	27	15	M 14	0.85
1½"	414	9556-4924	79.38	112	36.50	94	30	17	M 16	1.80
2"	414	9556-4932	96.82	134	44.45	114	28	21	M 20	2.00

Blind flanges without o-ring slot on request.

Standard material quality FE 42 UNI 7070 - 72 (ST 52,3 - DIN 1700).
For AISI 316L, add SS after Part No.

SAE FLANGES
BLOCK FLANGE c/w BSP THREADS
3000 PSI / 6000 PSI



3000 PSI

Dim.	Work. Pres. Bar	Part No. w/ slot 9553	Part No. w/o slot 9553	Dimensions A	B	C	D	E	F	G	H	I	L	Screws Metr.	Weight kg
1/2"	345	-6008	-6108	1/2" BSP	13	38.10	54	17.48	46	36	16	19	9	M 8	0.25
3/4"	345	-6012	-6112	3/4" BSP	19	47.63	65	22.23	50	36	18	19	11	M 10	0.39
1"	345	-6016	-6116	1" BSP	25	52.37	70	26.19	55	38	18	22	11	M 10	0.46
1¼"	276	-6020	-6120	1¼" BSP	32	58.72	79	30.18	68	41	21	22	11.5	M 10	0.66
1½"	207	-6024	-6124	1½" BSP	38	69.85	93	35.71	78	45	25	24	13.5	M 12	1.05
2"	207	-6032	-6132	2" BSP	51	77.77	102	42.88	90	45	25	30	13.5	M 12	1.19
2½"	172	-6040	-6140	2½" BSP	63	88.90	114	50.80	105	50	25	30	13.5	M 12	1.40
3"	138	-6048	-6148	3" BSP	73	106.38	134	61.93	124	50	27	34	17.5	M 16	2.15
4"	34	-6064	-6164	4" BSP	99	130.18	162	77.77	146	48	27	34	17.5	M 16	2.85

Other thread types on request.

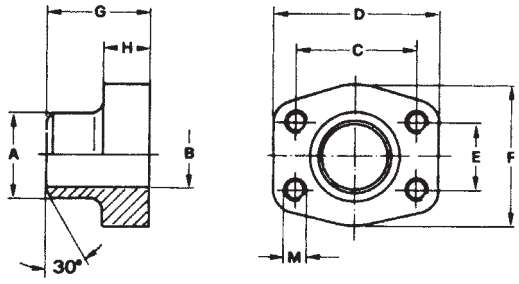
6000 PSI

Dim.	Work. Pres. Bar	Part No. w/ slot 9556	Part No. w/o slot 9556	Dimensions A	B	C	D	E	F	G	H	I	L	Screws Metr.	Weight kg
1/2"	414	-6008	-6108	1/2" BSP	13	40.49	54	18.24	46	36	16	19	9	M 8	0.26
3/4"	414	-6012	-6112	3/4" BSP	19	50.80	71	23.80	55	35	21	22	11	M 10	0.50
1"	414	-6016	-6116	1" BSP	25	57.15	81	27.76	65	42	25	24	13	M 12	0.76
1¼"	414	-6020	-6120	1¼" BSP	32	66.68	95	31.76	78	45	27	25	15	M 14	1.20
1½"	414	-6024	-6124	1½" BSP	38	79.38	112	36.50	94	50	30	28	17.5	M 16	1.65
2"	414	-6032	-6132	2" BSP	51	96.82	134	44.45	114	65	37	30	21	M 20	2.45

Other thread types on request.

Standard material quality FE 42 UNI 7070 - 72 (ST 52,3 - DIN 1700).
For AISI 316L, add SS after Part No.

SAE FLANGES
BLOCK FLANGE FOR BUTT WELDING
3000 PSI / 6000 PSI



3000 PSI

Dim.	Work. Pres. Bar	Part No. w/ slot 9553	Part No. w/o slot 9553	Dimensions A	B	C	D	E	F	G	H	M	Weight kg
1/2"	345	-6208	-6408	21.5	13	38.10	54	17.48	46	36	16	M 8	0.25
2/4"	345	-6212	-6412	28.0	19	47.63	65	22.23	50	36	18	M 10	0.39
1"	345	-6216	-6416	34.0	25	52.37	70	26.19	55	38	18	M 10	0.46
1¼"	276	-6220	-6420	42.8	32	58.72	79	30.18	68	41	21	M 10	0.66
1½"	207	-6224	-6424	48.6	38	69.85	93	35.71	78	44	25	M 12	1.05
2"	207	-6232	-6432	61.0	51	77.77	102	42.88	90	45	25	M 12	1.19
2½"	172	-6240	-6440	77.0	63	88.90	114	50.80	105	50	25	M 12	1.40
3"	138	-6248	-6448	92.0	73	106.38	134	61.93	124	50	27	M 16	2.15
3½"	34	-6256	-6456	103.0	89	120.65	152	69.85	136	48	27	M 16	2.40
4"	34	-6264	-6464	115.5	99	130.18	162	77.77	146	48	27	M 16	2.85

6000 PSI

Dim.	Work. Pres. Bar	Part No. w/ slot 9556	Part No. w/o slot 9556	Dimensions A	B	C	D	E	F	G	H	M	Weight kg
1/2"	414	-6208	-6408	21.5	13	40.49	54	18.24	46	36	16	M 8	0.26
3/4"	414	-6212	-6412	28.0	19	50.80	71	23.8	55	35	21	M 10	0.50
1"	414	-6216	-6416	34.0	25	57.15	79	27.76	68	41	21	M12	0.76
1¼"	414	-6220	-6420	42.8	32	66.68	93	31.75	78	44	25	M 14	1.20
1½	414	-6264	-6424	48.6	38	79.38	112	36.5	94	55	30	M 16	1.65
2"	414	-6232	-6432	61.0	51	96.82	134	44.45	114	65	37	M 20	1.45

Standard material quality FE 42 UNI 7070 - 72 (ST 52,3 - DIN 1700).
For AISI 316L, add SS after Part No.

SAE FLANGES
O-rings/Bolts
3000 PSI / 6000 PSI

O-rings for 3000 and 6000 PSI flanges:

Dim.	Outer dia. mm	Inner dia. mm	Thickness mm	Part No. 9550
1/2"	25.70	18.64	3.53	1308
3/4"	32.05	24.99	3.53	1312
1"	39.98	32.92	3.53	1316
1¼"	44.75	37.69	3.53	1320
1½"	54.28	47.22	3.53	1324
2"	63.80	56.74	3.53	1332
2½"	76.50	69.44	3.53	1340
3"	92.38	85.32	3.53	1348
3½"	105.08	98.02	3.53	1356
4"	117.78	110.72	3.53	1364

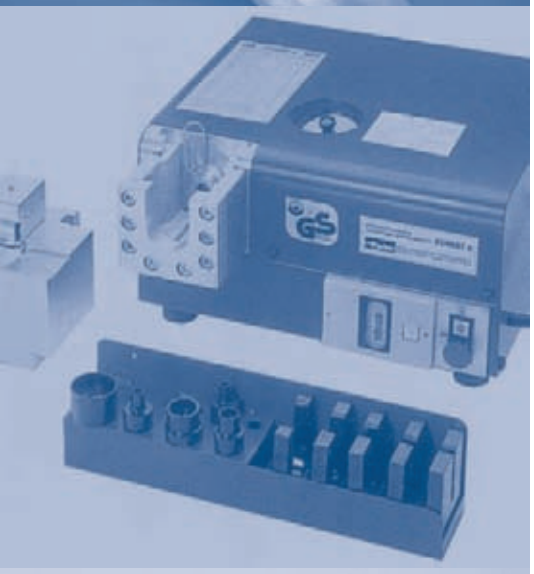
DIN 912 Socket head cap screws with inner hexagon hole w/ nut and spring washer:

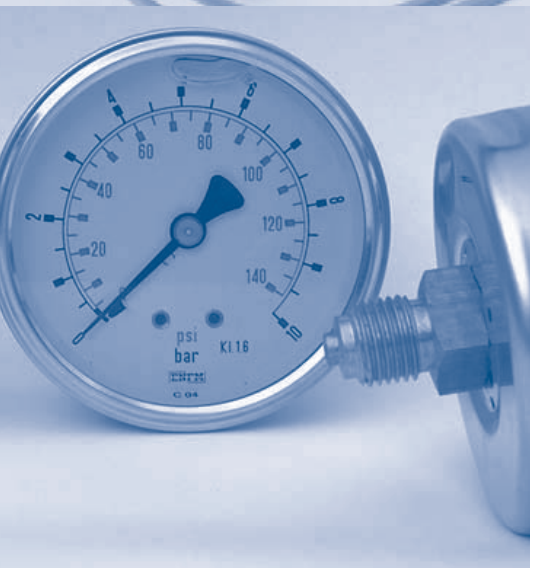
mm	UNC	O.D. mm	MM Bolt Part No. 955	MM Nut Part No. 956	MM Spring washer Part No. 957	UNC Bolt Part No. 955	UNC Nut Part No. 956	UNC Spring washer Part No. 957
8		30	08MM030	08MM	08MM			
8		35	08MM035	08MM	08MM			
8		50	08MM050	08MM	08MM			
10		35	10MM035	10MM	10MM			
10		40	10MM040	10MM	10MM			
	3/8"	38				06038	06	06
12		45	12MM045	12MM	12MM			
12		70	12MM070	12MM	12MM			
	7/16"	50				07050	07	07
	1/2"	50				08050	08	08
	1/2"	57				08057	08	08
14		40	14MM040	14MM	14MM			
14		50	14MM050	14MM	14MM			
14		80	14MM080	14MM	14MM			
16		55	16MM055	16MM	16MM			
16		70	16MM070	16MM	16MM			
16		90	16MM090	16MM	16MM			
20		60	20MM060	20MM	20MM			
20		70	20MM070	20MM	20MM			
20		100	20MM100	20MM	20MM			

Bolt sizes for SAE flanges:

Series 3000	Metric	UNC	Series 6000	Metric	UNC
1/2"	M8x30	5/16 x 1¼"	1/2"	M8x30	5/16 x 1¼"
3/4"	M10x35	3/8 x 1½"	3/4"	M10x40	3/8 x 1½"
1"	M10x35	3/8 x 1½"	1"	M12x45	7/16 x 1¾"
1¼"	M10x40	7/16 x 1¾"	1¼"	M14x45	1/2 x 1¾"
1½"	M12x45	1/2 x 1¾"	1½"	M16x50	5/8 x 2"
2"	M12x45	1/2 x 1¾"	2"	M20x70	3/4 x 2½"
2½"	M12x45	1/2 x 1¾"			
3"	M16x50	5/8 x 2"			
3½"	M16x50	5/8 x 2"			
4"	M16x50	5/8 x 2"			

Standard material quality FE 42 UNI 7070 - 72 (ST 52,3 - DIN 1700).
For AISI 316L, add SS after Part No.





Group 5

Metric DIN Fittings
Tubes and Clamps
MCS and
Pressure Gauges

FLUID CONTROL®

We have certified industrial plumbers with offshore certificates.

Contact us about your piping projects.

We are certified and have experience in:

Metric DIN Fittings (standard DIN fittings), Flare Fittings, A-lok and Autoclave.

We also have equipment and machinery for rent.

Fitting Assembly
(For steel and copper tubes)

For serial assemblies it is recommended to use the VOMO pre-assembly tools.

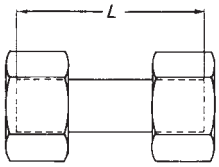
Stainless steel tubes and tube connections with smooth pipe sockets must be pre-assemblied using VOMO pre-assembly tools.

A) TUBE PREPARATION

1 Minimum height (H) for straight tube end

The straight tube end H must not deviate from the roundness and straightness which exceeds the tube tolerance measurements according to DIN 2391.

Minimum length (L) for short tubes



Series	LL				L										S									
Tube OD	4	5	6	8	6	8	10	12	15	18	22	28	35	42	6	8	10	12	14	16	20	25	30	38
H min	24	25	25	26	31	31	33	33	36	38	42	42	48	48	35	35	37	37	43	43	50	54	58	65
L min	30	32	32	33	39	39	42	42	45	48	53	53	60	60	44	44	47	47	54	54	63	68	73	82

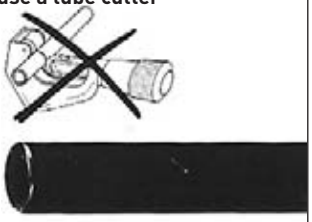
2

The tube is cut at a right angle. 1/2° angle deviation from tube axis allowed.

3

A tube sawing tool simplifies the right angle cutting.

4 Do not use a tube cutter

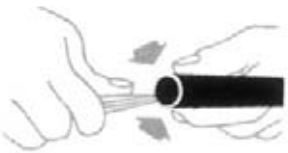


a) Tube cut with tube cutter: large burr

b) Sawn-off tube: almost no burr

B) LUBRICATION

5



Lightly deburr the I.D. and O.D. of the tube.

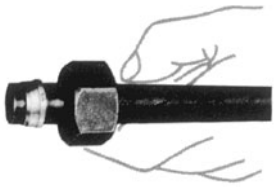
6

Lubricate thread and cone of fitting body or hardened pre-assembly tool, as well as the progressive ring and nut threads.

Fitting Assembly (for steel and copper tubes)

C) TUBE ASSEMBLY

7



Slip nut and progressive ring over tube.

8

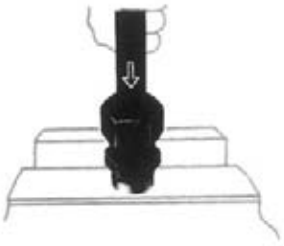
Correct

Incorrect

Check that they are in the proper orientation.

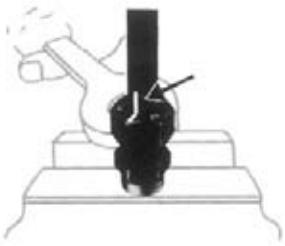
D) ASSEMBLY

9



Screw nut onto fitting body or hardened pre-assembly tool until finger-tight or light wrench resistance. Hold tube against the shoulder in the cone of the fitting body or hardened pre-assembly tool.

10



Mark nut and tube in the finger-tight or light wrench-resistant position.

11

Tighten nut 1 ½ turns if using the fitting body (1 ¼ turns if using the hardened pre-assembly tool). The tube must not turn with the nut. The stop edge in the progressive ring limits over tightening by sharply increasing the tightening torque.

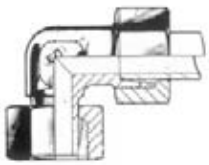
E) PRE-SET INSPECTION

12*

Remove the nut and tube from the fitting and check if a visible collar fills the space completely in front of the first cutting edge. If not, tighten slightly. It does not matter if ring can be rotated on tube end.

F) ASSEMBLY OF FACTORY PRE-ASSEMBLED FITTINGS

13



All factory pre-assembled fittings (EW, ET, EL, EGE, MAVE) are assembled in the corresponding socket with approx. 1/2 turn of the nut past the point of clear noticeable force increase. All connection parts are treated with a lubricant.

*After disassembly, the pipe ends are inserted in the same internal wives in the fitting where assembly was completed.

G) RE-ASSEMBLY

14

Re-install using the installation procedures previously covered. Another wrench must be used to prevent movement of the fitting body.

The nominal pressure (PN) and working pressure (PB) listed in this catalogue show the maximum allowable working pressure including pressure peaks. Hereby it must be taken into account the temperature and pressure reductions that are listed in the tables below.

Types with PN specifications: 4 times. Types with PB specifications: complete fitting min. 2.5 times. Tube connection 4 times (unless otherwise stated). Pressure- and security specification requires that the assembly is carried out in accordance with installation regulations:

Fittings Material	Temp. Range	Pressure Reduction
Steel	40 to +120°c	-
Brass	60 to +175°c	30%
AISI 316	60 to + 20°c	-
AISI 316	+ 50°c	4%
Stainless steel	+ 100°c	11%
Stainless steel	+ 200°c	20%
Stainless steel	+ 300°c	29%
Stainless steel	+ 400°c	33%

HIGH-PRESSURE FITTINGS

Metric DIN Fittings Original DIN 2353 EO-2 Soft-seal fittings

As a part of Parker New Generation metric DIN fittings, the Dry Technology EO-2 Plus Concept proven worldwide has been further developed. EO2-Plus means maximum pressure capability, as well as a new chromium6-free surface with significantly higher corrosion resistance, and greatly reduced tightening torques for larger sized fittings.

The common feature of all EO2-Plus fittings is elastomeric seals on all joints. These are also now available in FKM (e.g. Viton®)* for applications with higher temperatures or aggressive media. This assures leak free operation without retightening – even under extreme working conditions. The easy handling, time and cost saving features, and many assembly advantages of the unique EO2-Plus functional nuts have made EO2-Plus fittings increasingly popular.

EO2-Plus is designed for metric tube and based on German Standards DIN 3861 and DIN 2353, which today are represented by the international standard ISO 8434-1. EO2-Plus is available in "L"- and "S"-Series.

Features, advantages and benefits of EO2-Plus fittings

Naturally all advantages of the proven EO-2 soft sealed technology are also present in EO2-Plus, however, the new EO2-Plus Generation additionally offers the following:

• **Plus: Highest corrosion resistance** – The corrosion resistance is increased by 400% to more than 500 hours. to white rust.

• **Plus: Increased pressure** – Due to the application of even better materials combined with the special processing of individual components, EO2-Plus can be used in applications of up to 800 bar (S series) and 500 bar (L series). EO2-Plus considerably exceeds the DIN/ ISO requirements and guarantees a 4-fold design factor. Thanks to the higher pressure levels, less expensive "L" series fittings can now be used instead of the heavier "S" series, which also is of benefit in limited or tight space applications.

• **Plus: EO-LUB** – Due to the special treatment of the larger sized nuts by the EO-LUB procedure (25S/28L and larger), the tightening torques of EO2-Plus fittings have been reduced by 25%. This makes assembly easier and prevents under-assembly, the most common reason for tube fitting failure.

• **Plus: Chromium6-free** – Due to its chromium6-free treated surface, Parker Metric DIN Fittings now meets the requirements to be expected in the automotive industry and the expected requirements issued by the European Parliament to eliminate the use of materials and surfaces containing chromium 6. The removal of chromium 6 reflects Parker's ongoing commitment to an environmentally clean and safe production process.

• **Plus: Worldwide availability** – EO2-Plus is available worldwide and meets the requirements of the applicable standards for 24° cutting ring fittings.

STANDARDS

EO tube fittings are produced according to DIN 2353
Tube end DIN 3861/ISO 3834

APPROVALS

Det Norske Veritas
Germanischer Lloyd
Lloyds Register of Shipping
Bureau Veritas
Register UdSSR
And others

HIGH-PRESSURE FITTINGS

Metric DIN 2353 Steel Cutting Ring Fittings

Metric DIN steel fittings are produced in materials according to DIN 3859. The fittings comes with chromated surface protection (A3c) except weld fittings that come with phosphated and oiled body and the chromated nut.

The stated operating pressures are either test pressure (PB) or the nominal pressure (PN) according to DIN 2401, part 1 Working temperature for steel fittings is -40 to + 120°C.

Metric DIN steel cutting rings fittings are in stock as bodies, or assembled. The fitting bodies can be used with EO-2 functional nut or with the standard nut and progressive ring, this is more flexible for customers who want to use EO-2 on problem areas and standard EO DPR in less critical locations. All fitting bodies with a male thread comes with ED soft-sealing and all combination fittings have a swivel nut with O-ring on the inner cone.

NB! The price of all fitting bodies in the price list is without nut(s) and the cutting ring(s). Price for stainless steel is included nut(s) and the cutting ring(s).

EO-2 Soft-seal Fittings

Consists of a standard fitting body and a loose function nut in FM which is a nut with a fixed cutting ring and a soft-seal retain ring. The function nuts come in two versions; FM with chromated steel nut and retain ring and cutting ring, and FM-SSA with blank-galvanized nut and retain ring and stainless steel cutting ring. FM SSA is intended for use on stainless steel tubes. EO-2 fittings do not come assembled from stock in Norway, but can be delivered assembled from the plant.

EO-DPR Progressive Ring Fittings

Consists of a standard fitting body and a loose nut M and a loose progressive cutting ring DPR. Some types are still delivered from stock in Norway with body, progressive ring and nut assembled, but because of the strong increase in sales of fitting bodies, most complete fittings will be omitted from stock in Norway.

Metric DIN 2353 Stainless Steel Cutting Ring Fittings

Stainless steel EO fittings are made of stainless steel AISI 316Ti (X6CrNiMoTi - WS 1.4571). All nuts are EO-DUR treated, this is a special patented surface treatment and chemical nickel-plating developed by Parker. The treatment results in a noticeable friction-factor reduction and creates a smoother and easier installation and significantly reduced risk of cold welding.

The fitting bodies can be used with EO-2 functional nut or with a standard nut and progressive ring. This is more flexible for customers who want to use EO-2 on problem areas and standard EO-DPR in less critical locations. All fitting bodies with a male thread comes with soft seals ED and all combination fittings have a swivel nut with O-ring on the inner cone.

EO-2 Stainless Steel Soft-seal Fittings:

Consists of a standard fitting body and loose function nut FM-71 which is a nut with a fixed stainless steel seal/retain ring with Viton soft seals. EO-2 fittings do not come assembled from stock in Norway, but can be delivered assembled from the plant.

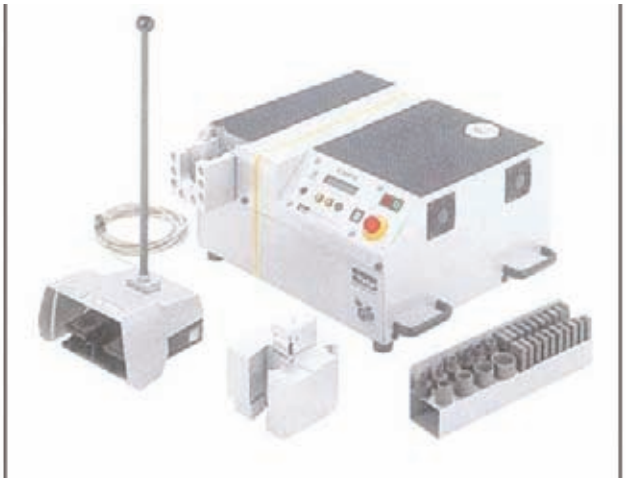
EO-DPR Stainless Steel Progressive Ring Fittings:

Consists of a standard fitting body and a loose nut M-EODUR and a loose progressive cutting ring DPR-71. EO_DPR stainless steel fittings do not come assembled from stock in Norway, but can be delivered assembled from the plant.

The stated operating pressures are either test pressure (PB), or the nominal pressure (PN) according to DIN 2401. Part 1, at working temperature ÷ 60 to + 20°C. The working pressure is under revision. At temperatures over room temperature, the following pressure reductions applies:

+ 50°C	4%
+ 100°C	11%
+ 200°C	20%
+ 300°C	29%
+ 400°C	33%

Assembly Tools



Eomat - Pre-assembly and Flaring Machine

EOMAT II

Electric/hydraulic cutting ring pre-assembly machine. Comes with loose pre-assembly and 37o tube flaring fixture.

Tube dimension:	6-42 mm
Voltage:	220v/50Hz - 1 fase (alt. 380V)
External dim.:	245 x 540 x 420 mm
Weight:	60 kg

EOMAT III

Electric/hydraulic pre-assembly and flaring machine cutting ring and electronic control. The machine sets itself when registrating tube material and dimension. Comes as a base model with loose pre-assembly and 37o tube flaring fixture.

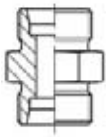
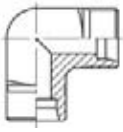
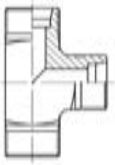
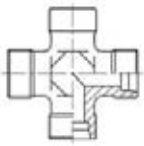
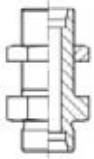
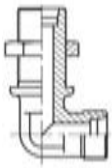
Tube dimension:	6-42 mm
Voltage:	20v/50Hz - 1 fase (alt. 380V)
External dim.:	690 x 530 x 320 mm
Weight:	100 kg

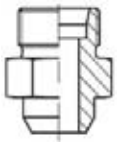
Prices for the purchase or rental on request

For stainless steel, add SS behind Part No. Other dimensions and material qualities on request.
More information about products on our website: www.fluidcontrol.no

Standards:
Carbon steel materials according to DIN 3859, chromated. Working temperature -40 to +120°C
Stainless steel (AISI 316). Nuts over 12 mm are silvered on the threads. Working temperature -60 to +120°C

For working pressure, see table on page 11



Tube O.D.	Thread	Straight Connection Part No.	90° Angle Connection Part No.	Tee Connection Part No.	Cross Connection Part No.	Straight Bulkhead Part No.	90° Bulkhead Part No.	Weldable Bulkhead Part No.	Weldable Connection Part No.
6L	M12x1.5	G06L	W06L	T06L	K06L	SV06L	WSV06L	ESV06L	AS06L
8L	M14x1.5	G08L	W08L	T08L	K08L	SV08L	WSV08L	ESV08L	AS08L
10L	M16x1.5	G10L	W10L	T10L	K10L	SV10L	WSV10L	ESV10L	AS10L
12L	M18x1.5	G12L	W12L	T12L	K12L	SV12L	WSV12L	ESV12L	AS12L
15L	M22x1.5	G15L	W15L	T15L	K15L	SV15L	WSV15L	ESV15L	AS15L
18L	M26x1.5	G18L	W18L	T18L	K18L	SV18L	WSV18L	ESV18L	AS18L
22L	M30x2.0	G22L	W22L	T22L	K22L	SV22L	WSV22L	ESV22L	AS22L
28L	M36x2.0	G28L	W28L	T28L	K28L	SV28L	WSV28L	ESV28L	AS28L
35L	M45x2.0	G35L	W35L	T35L	K35L	SV35L	WSV35L	ESV35L	AS35L
42L	M52x2.0	G42L	W42L	T42L	K42L	SV42L	WSV42L	ESV42L	AS42L
6S	M14x1.5	G06S	W06S	T06S	K06S	SV06S	WSV06S	ESV06S	AS06S
8S	M16x1.5	G08S	W08S	T08S	K08S	SV08S	WSV08S	ESV08S	AS08S
10S	M18x1.5	G10S	W10S	T10S	K10S	SV10S	WSV10S	ESV10S	AS10S
12S	M20x1.5	G12S	W12S	T12S	K12S	SV12S	WSV12S	ESV12S	AS12S
14S	M22x1.5	G14S	W14S	T14S	K14S	SV14S	WSV14S	ESV14S	AS14S
16S	M24x1.5	G16S	W16S	T16S	K16S	SV16S	WSV16S	ESV16S	AS16S
20S	M30x2.0	G20S	W20S	T20S	K20S	SV20S	WSV20S	ESV20S	AS20S
25S	M36x2.0	G25S	W25S	T25S	K25S	SV25S	WSV25S	ESV25S	AS25S
30S	M42x2.0	G30S	W30S	T30S	K30S	SV30S	WSV30S	ESV30S	AS30S
38S	M52x2.0	G38S	W38S	T38S	K38S	SV38S	WSV38S	ESV38S	AS38S

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For stainless steel, add SS behind Part No. Other dimensions and material qualities on request.
More information about products on our website: www.fluidcontrol.no

Standards:
Carbon steel materials according to DIN 3859, chromated. Working temperature -40 to +120°C
Stainless steel (AISI 316). Nuts over 12 mm are silvered on the threads. Working temperature -60 to +120°C

For working pressure, see table on page 11



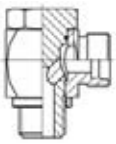
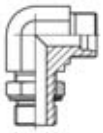


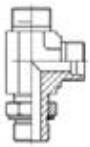
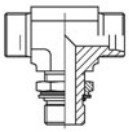



Tube O.D.	Thread	Nut E0 Part No.	Steel Cutting Ring E0 Part No.	Steel Functional Nut w/ Fixed Cutting Ring E02 Part No.	Support Ring w/ Soft-seal E02 Part No.	Steel Functional Nut w/ Stainless Steel Fixed Cutting Ring E02 Part No.	Plug w/ O-ring for Fitting Body Part No.	Plug for Tube Ends Part No.	VOMO Pre-assembly tool Part No.
6L	M12x1.5	M06L	DPR06	FM06L	DOZ06L	FM06LSSA	VKA06	ROV06L	VOMO06L
8L	M14x1.5	M08L	DPR08	FM08L	DOZ08L	FM08LSSA	VKA08	ROV08L	VOMO08L
10L	M16x1.5	M10L	DPR10	FM10L	DOZ10L	FM10LSSA	VKA10	ROV10L	VOMO10L
12L	M18x1.5	M12L	DPR12	FM12L	DOZ12L	FM12LSSA	VKA12	ROV12L	VOMO12L
15L	M22x1.5	M15L	DPR15	FM15L	DOZ15L	FM15LSSA	VKA15	ROV15L	VOMO15L
18L	M26x1.5	M18L	DPR18	FM18L	DOZ18L	FM18LSSA	VKA18	ROV18L	VOMO18L
22L	M30x2.0	M22L	DPR22	FM22L	DOZ22L	FM22LSSA	VKA22	ROV22L	VOMO22L
28L	M36x2.0	M28L	DPR28	FM28L	DOZ28L	FM28LSSA	VKA28	ROV28L	VOMO28L
35L	M45x2.0	M35L	DPR35	FM35L	DOZ35L	FM35LSSA	VKA35	ROV35L	VOMO35L
42L	M52x2.0	M42L	DPR42	FM42L	DOZ42L	FM42LSSA	VKA42	ROV42L	VOMO42L
6S	M14x1.5	M06S	DPR06	FM06S	DOZ06S	FM06SSSA	VKA06	ROV06S	VOMO06S
8S	M16x1.5	M08S	DPR08	FM08S	DOZ08S	FM08SSSA	VKA08	ROV08S	VOMO08S
10S	M18x1.5	M10S	DPR10	FM10S	DOZ10S	FM10SSSA	VKA10	ROV10S	VOMO10S
12S	M20x1.5	M12S	DPR12	FM12S	DOZ12S	FM12SSSA	VKA12	ROV12S	VOMO12S
14S	M22x1.5	M14S	DPR14	FM14S	DOZ14S	FM14SSSA	VKA14	ROV14S	VOMO14S
16S	M24x1.5	M16S	DPR16	FM16S	DOZ16S	FM16SSSA	VKA16	ROV16S	VOMO16S
20S	M30x2.0	M20S	DPR20	FM20S	DOZ20S	FM20SSSA	VKA20	ROV20S	VOMO20S
25S	M36x2.0	M25S	DPR25	FM25S	DOZ25S	FM25SSSA	VKA25	ROV25S	VOMO25S
30S	M42x2.0	M30S	DPR30	FM30S	DOZ30S	FM30SSSA	VKA30	ROV30S	VOMO30S
38S	M52x2.0	M38S	DPR38	FM38S	DOZ38S	FM38SSSA	VKA38	ROV38S	VOMO38S

For stainless steel, add SS behind Part No. Other dimensions and material qualities on request.
More information about products on our website: www.fluidcontrol.no

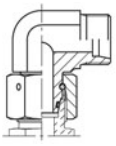
For working pressure, see table on page 11

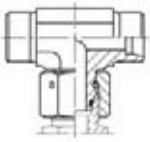
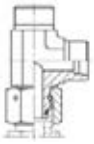
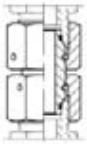



Tube O.D.	Thread BSP Parallel	Banjo w/ Soft Seal Part No.	90° Adjustable Elbow Male Part No.	45° Adjustable Elbow Male Part No.	Tee Adjustable w/ Swivel Part No.	Tee Adjustable w/ Swivel Part No.	Non-return Valve Part No.	Non-return Valve Part No.
6L	1/8	WH06LR	WEE06LR	VEE06LR	LEE06LR	TEE06LR	RHV06LR	RHZ06LR
8L	1/4	WH08LR	WEE08LR	VEE08LR	LEE08LR	TEE08LR	RHV08LR	RHZ08LR
10L	3/8	WH10LR	WEE10LR	VEE10LR	LEE10LR	TEE10LR	RHV10LR	RHZ10LR
12L	3/8	WH12LR	WEE12LR	VEE12LR	LEE12LR	TEE12LR	RHV12LR	RHZ12LR
15L	1/2	WH15LR	WEE15LR	VEE15LR	LEE15LR	TEE15LR	RHV15LR	RHZ15LR
18L	1/2	WH18LR	WEE18LR	VEE18LR	LEE18LR	TEE18LR	RHV18LR	RHZ18LR
22L	3/4	WH22LR	WEE22LR	VEE22LR	LEE22LR	TEE22LR	RHV22LR	RHZ22LR
28L	1	WH28LR	WEE28LR	VEE28LR	LEE28LR	TEE28LR	RHV28LR	RHZ28LR
35L	1.1/4	WH35LR	WEE35LR	VEE35LR	LEE35LR	TEE35LR	RHV35LR	RHZ35LR
42L	1.1/2	WH42LR	WEE42LR	VEE42LR	LEE42LR	TEE42LR	RHV42LR	RHZ42LR
6S	1/4	WH06SR	WEE06SR	VEE06SR	LEE06SR	TEE06SR	RHV06SR	RHZ06SR
8S	1/4	WH08SR	WEE08SR	VEE08SR	LEE08SR	TEE08SR	RHV08SR	RHZ08SR
10S	3/8	WH10SR	WEE10SR	VEE10SR	LEE10SR	TEE10SR	RHV10SR	RHZ10SR
12S	3/8	WH12SR	WEE12SR	VEE12SR	LEE12SR	TEE12SR	RHV12SR	RHZ12SR
14S	1/2	WH14SR	WEE14SR	VEE14SR	LEE14SR	TEE14SR	RHV14SR	RHZ14SR
16S	1/2	WH16SR	WEE16SR	VEE16SR	LEE16SR	TEE16SR	RHV16SR	RHZ16SR
20S	3/4	WH20SR	WEE20SR	VEE20SR	LEE20SR	TEE20SR	RHV20SR	RHZ20SR
25S	1	WH25SR	WEE25SR	VEE25SR	LEE25SR	TEE25SR	RHV25SR	RHZ25SR
30S	1.1/4	WH30SR	WEE30SR	VEE30SR	LEE30SR	TEE30SR	RHV30SR	RHZ30SR
38S	1.1/2	WH38SR	WEE38SR	VEE38SR	LEE38SR	TEE38SR	RHV38SR	RHZ38SR

For working pressure, see table on page 11

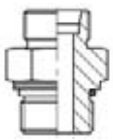
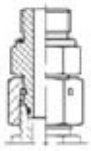
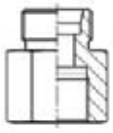
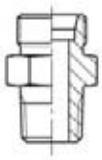
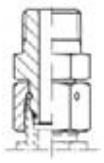



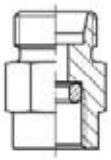
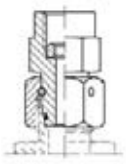

Tube O.D.	Thread Metric	Distance Adapter w/ Swivel Part No.	90° Adjustable Elbow Male Part No.	45° Adjustable Elbow Male Part No.	Tee Adjustable w/ Swivel Part No.	Tee Adjustable w/ Swivel Part No.	Straight Adjustable Swivel Nut Part No.	Non-return Valve Part No.
6L	M12x1.5	DA06L	EW06L	EV06L	ET06L	EL06L	GZ06L	RHD06L
8L	M14x1.5	DA08L	EW08L	EV08L	ET08L	EL08L	GZ08L	RHD08L
10L	M16x1.5	DA10L	EW10L	EV10L	ET10L	EL10L	GZ10L	RHD10L
12L	M18x1.5	DA12L	EW12L	EV12L	ET12L	EL12L	GZ12L	RHD12L
15L	M22x1.5	DA15L	EW15L	EV15L	ET15L	EL15L	GZ15L	RHD15L
18L	M26x1.5	DA18L	EW18L	EV18L	ET18L	EL18L	GZ18L	RHD18L
22L	M30x2.0	DA22L	EW22L	EV22L	ET22L	EL22L	GZ22L	RHD22L
28L	M36x2.0	DA28L	EW28L	EV28L	ET28L	EL28L	GZ28L	RHD28L
35L	M45x2.0	DA35L	EW35L	EV35L	ET35L	EL35L	GZ35L	RHD35L
42L	M52x2.0	DA42L	EW42L	EV42L	ET42L	EL42L	GZ42L	RHD42L
6S	M14x1.5	DA06S	EW06S	EV06S	ET06S	EL06S	GZ06S	RHD06S
8S	M16x1.5	DA08S	EW08S	EV08S	ET08S	EL08S	GZ08S	RDH08S
10S	M18x1.5	DA10S	EW10S	EV10S	ET10S	EL10S	GZ10S	RHD10S
12S	M20x1.5	DA12S	EW12S	EV12S	ET12S	EL12S	GZ12S	RHD12S
14S	M22x1.5	DA14S	EW14S	EV14S	ET14S	EL14S	GZ14S	RHD14S
16S	M24x1.5	DA16S	EW16S	EV16S	ET16S	EL16S	GZ16S	RHD16S
20S	M30x2.0	DA20S	EW20S	EV20S	ET20S	EL20S	GZ20S	RHD20S
25S	M36x2.0	DA25S	EW25S	EV25S	ET25S	EL25S	GZ25S	RHD25S
30S	M42x2.0	DA30S	EW30S	EV30S	ET30S	EL30S	GZ30S	RHD30S
38S	M52x2.0	DA38S	EW38S	EV38S	ET38S	EL38S	GZ38S	RHD 38S

DIN FITTINGS
METRIC DIN FITTINGS

For stainless steel, add SS behind Part No. Other dimensions and material qualities on request.
More information about products on our website: www.fluidcontrol.no

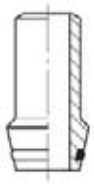
For working pressure, see table on page 11								
Tube O.D.	**Thread BSP/ NPT**	**Male Connector BSPP Part No.**	**Swivel Connector BSPP Part No.**	**Female Connector BSPP Part No.**	**Male Connector NPT Part No.**	**Male Swivel Connector NPT Part No.**	**90° Male Elbow NPT Part No.**	**90° Male Elbow BSPT Part No.**
6L	1/8	GE06LR	EGE06LR	GAI06LR	GE06LN		WE06LN	WE06LR
6L	1/4	GE06LR04			GE06LN04			
6L	3/8	GE06LR06						
6L	1/2	GE06LR08						
8L	1/8	GE08LR02			GE08LN02			
8L	1/4	GE08LR	EGE08LR	GAI08LR	GE08LN		WE08LN	WE08LR
8L	3/8	GE08LR06						
8L	1/2	GE08LR08						
10L	1/4	GE10LR	EGE10LR	GAI10LR	GE10LN	EGE10LN	WE10LN	WE10LR
10L	3/8	GE10LR06		GAI10LR06	GE10LN06			
10L	1/2	GE10LR08		GAI10LR08	GE10LN08			
12L	1/4	GE12LR04	EGE12LR04					
12L	3/8	GE12LR	EGE12LR	GAI12LR			WE12LN	WE12LR
12L	1/2	GE12LR08	EGE12LR08					
12L	3/4	GE12LR12						
15L	3/8	GE15LR06						
15L	1/2	GE15LR	EGE15LR	GAI15LR	GE15LN		WE12LN	WE12LR
15L	3/4	GE15LR12						
18L	3/8	GE18LR06						
18L	1/2	GE18LR	EGE18LR	GAI18LR	GE18LN		WE18LN	WE18LR
18L	3/4	GE18LR12						
22L	1/2	GE22LR08						
22L	3/4	GE22LR	EGE22LR	GAI22LR	GE22LN		WE22LN	WE22LR
28L	3/4	GE28LR12			GE28LN			
28L	1	GE28LR	EGE28LR	GAI28LR	GE28LN	EGE28LN		
35L	1	GE35LR16						
35L	1.1/4	GE35LR	EGE35LR	GAI35LR	GE35LN		WE35LN	WE35LR
42L	1.1/4	GE42LR20	EGE42LR20					
42L	1.1/2	GE42LR	EGE42LR	GAI42LR	GE42LN		WE42LN	WE42LR
6S	1/4	GE06SR	EGE06SR	GAI06SR	GE06SN	EGE06SN	WE06SN	WE06SR
6S	3/8	GE06SR06			GE06SN06			
6S	1/2	GE06SR08						
8S	1/4	GE08SR	EGE08SR	GAI08SR	GE08SN	EGE08SN	WE08SN	WE08SR
8S	3/8	GE08SR06						
10S	1/4	GE10SR04			GE10SN04			
10S	3/8	GE10SR	EGE10SR	GAI10SR	GE10SN		WE10SN	WE10SR
10S	1/2	GE10SR08			GE10SN08			
12S	1/4	GE12SR04	EGE12SR04		GE12SN04			
12S	3/8	GE12SR	EGE12SR	GAI12SR	GE12SN		WE12SN	WE12SR
12S	1/2	GE12SR08	EGE12SR08		GE12SN08			
14S	3/8	GE14SR06					WE14SN	WE14SR
14S	1/2	GE14SR	EGE14SR	GAI14SR				
16S	3/8	GE16SR06						
16S	1/2	GE16SR	EGE16SR	GAI16SR	GE16SN		WE16SN	WE16SR
16S	3/4	GE16SR12						
20S	1/2	GE20SR08						
20S	3/4	GE20SR	EGE20SR	GAI20SR	GE20SN	EGE20SN	WE20SN	WE20SR
25S	3/4	GE25SR12						
25S	1	GE25SR	EGE25SR	GAI25SR	GE25SN	EGE25SN	WE25SN	WE25SR
30S	1	GE30SR16	EGE30SR16					
30S	1.1/4	GE30SR	EGE30SR	GAI30SR	GE30SN		WE30SN	WE30SR
38S	1.1/4	GE38SR20	EGE38SR20					
38S	1.1/2	GE38SR	EGE38SR	GAI38SR	GE38SN		WE38SN	WE38SR

For stainless steel, add SS behind Part No. Other dimensions and material qualities on request.
More information about products on our website: www.fluidcontrol.no

For working pressure, see table on page 11			
Tube O.D.	**Thread BSP Parallel**	**Pressure Gauge Con. BSPP Part No.**	**Sw. Pressure Gauge Con. BSPP Part No.**
6L	1/4	MAV06LR	MAVE06LR
8L	1/4	MAV08LR	MAVE08LR
10L	1/4	MAV10LR	MAVE10LR
12L	1/4	MAV12LR	MAVE12LR
6S	1/4		MAVE06SR04
6S	1/2	MAV06SR	MAVE06SR
8S	1/4		MAVE08SR04
8S	1/2	MAV08SR	MAVE08SR
10S	1/4		MAVE10SR04
10S	1/2	MAV10SR	MAVE10SR
12S	1/4		MAVE12SR04
12S	1/2	MAV12SR	MAVE12SR

For working pressure, see table on page 11	
Thread BSP parallel	**Blanking Plug BSPP Part No.**
1/8	VSTI02
1/4	VSTI04
3/8	VSTI06
1/2	VSTI08
3/4	VSTI12
1	VSTI16
1.1/4	VSTI20
1.1/2	VSTI24
2	VSTI32

For working pressure, see table on page 11	
Thread MM parallel	**Blanking Plug Metric Part No.**
M08x1.5	VSTIM08
M10x1.0	VSTIM10
M12x1.5	VSTIM12
M14x1.5	VSTIM14
M16x1.5	VSTIM16
M18x1.5	VSTIM18
M20x1.5	VSTIM20
M22x1.5	VSTIM22
M26x1.5	VSTIM26
M30x1.5	VSTIM30
M33x2.0	VSTIM33
M42x2.0	VSTIM42
M48x2.0	VSTIM48

For working pressure, see table on page 11	
Tube O.D.	**O-ring Weld Nipple Part No.**
8	SKA08X2
10	SKA10X2
12	SKA12X2.5
15	SKA15X2.5
16	SKA16X3
18	SKA18X2.5
20	SKA20X2.5
20	SKA20X3
25	SKA25X3
28	SKA28X3
30	SKA30X4
35	SKA35X4
38	SKA38X5

Working Pressure Table for Metric DIN steel fittings

*Pressure for some dimensions deviate from this table.

Tube O.D.	FM FM SSA	AS, DA EGE R+N GE R+N* ET, EL, EV, EW GZ, GZR, GR MAV, MAVE GAI M ROV VKA RED* K, W, G, T WSV, SV, ESV	VEE R WEE R LEE R TEE R	WH	GAI R	WE R*
6L	500	500	420	315	500	315
8L	500	500	420	315	500	315
10L	500	500	420	315	500	315
12L	400	400	400	315	400	315
15L	400	400	400	315	400	315
18L	400	400	400	315	400	315
22L	250	250	250	160	250	160
28L	250	250	250	160	250	160
35L	250	250	250	160	250	160
42L	250	250	250	160	250	160
6S	800	900	500	400	630	400
8S	800	900	500	400	630	400
10S	800	900	400	400	630	400
12S	800	900	400	400	630	400
14S	530	700	-	400	700	630
16S	530	630	400	400	400	400
20S	530	630	400	250	400	400
25S	420	630	400	250	400	250
30S	420	420	250	250	400	160
38S	420	420	250	250	315	160

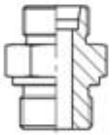
BSP Thread	VSTI R
1/8	500
1/4	500
3/8	500
1/2	500
3/4	500
1	500
1.1/4	400
1.1/2	400
2	250

Largest BSP Thread	RI
1/8	630
1/4	630
3/8	630
1/2	630
3/4	400
1	400
1.1/4	400
1.1/2	315
2	250

Metric Thread	VSTI M
8	500
10	500
12	500
14	500
16	500
18	500
20	500
22	500
26	500
30	500
33	500
42	400
48	400

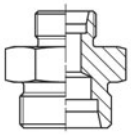
For stainless steel, add SS behind Part No. Other dimensions and material qualities on request.
More information about products on our website: www.fluidcontrol.no

For working pressure, see table on page 11



Tube O.D.	Thread Metric	Male Connector Metric Part No.
6L	M10x1.0	GE06LM
8L	M12x1.5	GE08LM12
8L	M18x1.5	GE08LM18
10L	M14x1.5	GE10LM
10L	M16x1.5	GE10LM16
10L	M18x1.5	GE10LM18
10L	M22x1.5	GE10LM22
12L	M14x1.5	GE12LM14
12L	M16x1.5	GE12LM
12L	M18x1.5	GE12LM18
12L	M22x1.5	GE12LM22
15L	M16x1.5	GE15LM16
15L	M18x1.5	GE15LM
15L	M22x1.5	GE15LM22
18L	M18x1.5	GE18LM18
18L	M22x1.5	GE18LM
22L	M22x1.5	GE22LM22
22L	M26x1.5	GE22LM
28L	M33x2.0	GE28LM
35L	M42x2.0	GE35LM
42L	M48x2.0	GE42LM
6S	M12x1.5	GE06SM
8S	M14x1.5	GE08SM
10S	M16x1.5	GE10SM
12S	M18x1.5	GE12SM
12S	M22x1.5	GE12SM22
14S	M20x1.5	GE14SM
16	M18x1.5	GE16SM18
16	M22x1.5	GE16SM
20	M27x2.0	GE20SM
25	M33x2.0	GE25SM
30	M42x2.0	GE30SM
38	M48x2.0	GE38SM

For working pressure, see table on page 11



Tube 1 O.D.	Tube 2 O.D.	Straight Reducer Part No.
8L	6L	GR0806L
10L	6L	GR1006L
10L	8L	GR1008L
12L	6L	GR1206L
12L	8L	GR1208L
12L	10L	GR1210L
15L	10L	GR1510L
15L	12L	GR1512L
18L	10L	GR1810L
18L	12L	GR1812L
18L	15L	GR1815L
22L	12L	GR2212L
22L	15L	GR2215L
22L	18L	GR2218L
28L	18L	GR2818L
28L	22L	GR2822L
35L	22L	GR3522L
35L	28L	GR3528L
8S	6S	GR0806S
10S	6S	GR1006S
10S	8S	GR1008S
12S	6S	GR1206S
12S	8S	GR1208S
12S	10S	GR1210S
14S	10S	GR1410S
14S	12S	GR1412S
16S	12S	GR1612S
16S	14S	GR1614S
20S	10S	GR2010S
20S	12S	GR2012S
20S	16S	GR2016S
25S	16S	GR2516S
25S	20S	GR2520S
30S	20S	GR3020S
30S	25S	GR3025S
38S	30S	GR3830S

For working pressure, see table on page 11

Male Thread BSPP	Female Thread BSPP	Thread Reducer/ Expander BSPP Part No.
1/8	1/4	RI0204
1/8	3/8	RI0206
1/4	1/8	RI0402
1/4	3/8	RI0406
1/4	1/2	RI0408
1/4	3/4	RI0412
3/8	1/8	RI0602
3/8	1/4	RI0604
3/8	1/2	RI0608
3/8	3/4	RI0612
1/2	1/8	RI0802
1/2	1/4	RI0804
1/2	3/8	RI0806
1/2	3/4	RI0812
1/2	1	RI0816
1/2	1.1/4	RI0820
3/4	1/4	RI1204
3/4	3/8	RI1206
3/4	1/2	RI1208
3/4	1	RI1216
3/4	1.1/4	RI1220
3/4	1.1/2	RI1224
1	1/4	RI1604
1	3/8	RI1606
1	1/2	RI1608
1	3/4	RI1612
1	1.1/4	RI1620
1	1.1/2	RI1624
1.1/4	1/2	RI2008
1.1/4	3/4	RI2012
1.1/4	1	RI2016
1.1/4	1.1/2	RI2024
1.1/2	1/2	RI2408
1.1/2	3/4	RI2412
1.1/2	1	RI2416
1.1/2	1.1/4	RI2420
2	1.1/2	RI3224

For stainless steel, add SS behind Part No. Other dimensions and material qualities on request.
More information about products on our website: www.fluidcontrol.no

For working pressure, see table on page 11

Tube 1 O.D.	Thread 1 Metric	Tube 1 O.D.	Thread 2 Metric	Male Connector Metric Light Series Part No.
8	M14x1.5	6	M12x1.5	RED0806L
10	M16x1.5	6	M12x1.5	RED1006L
10	M16x1.5	8	M14x1.5	RED1008L
12	M18x1.5	6	M12x1.5	RED1206L
12	M18x1.5	8	M14x1.5	RED1208L
12	M18x1.5	10	M16x1.5	RED1210L
15	M22x1.5	6	M12x1.5	RED1506L
15	M22x1.5	8	M14x1.5	RED1508L
15	M22x1.5	10	M16x1.5	RED1510L
15	M22x1.5	12	M18x1.5	RED1512L
18	M26x1.5	6	M12x1.5	RED1806L
18	M26x1.5	8	M14x1.5	RED1808L
18	M26x1.5	10	M16x1.5	RED1810L
18	M26x1.5	12	M18x1.5	RED1812L
18	M26x1.5	15	M22x1.5	RED1815L
22	M30x2.0	6	M12x1.5	RED2206L
22	M30x2.0	8	M14x1.5	RED2208L
22	M30x2.0	10	M16x1.5	RED2210L
22	M30x2.0	12	M18x1.5	RED2212L
22	M30x2.0	15	M22x1.5	RED2215L
22	M30x2.0	18	M26x1.5	RED2218L
28	M36x2.0	6	M12x1.5	RED2806L
28	M36x2.0	8	M14x1.5	RED2808L
28	M36x2.0	10	M16x1.5	RED2810L
28	M36x2.0	12	M18x1.5	RED2812L
28	M36x2.0	15	M22x1.5	RED2815L
28	M36x2.0	18	M26x1.5	RED2818L
28	M36x2.0	22	M30x2.0	RED2822L
35	M45x2.0	6	M12x1.5	RED3506L
35	M45x2.0	8	M14x1.5	RED3508L
35	M45x2.0	10	M16x1.5	RED3510L
35	M45x2.0	12	M18x1.5	RED3512L
35	M45x2.0	15	M22x1.5	RED3515L
35	M45x2.0	18	M26x1.5	RED3518L
35	M45x2.0	22	M30x2.0	RED3522L
35	M45x2.0	28	M36x2.0	RED3528L
42	M52x2.0	6	M12x1.5	RED4206L
42	M52x2.0	8	M14x1.5	RED4208L
42	M52x2.0	10	M16x1.5	RED4210L
42	M52x2.0	12	M18x1.5	RED4212L
42	M52x2.0	15	M22x1.5	RED4215L
42	M52x2.0	18	M26x1.5	RED4218L
42	M52x2.0	22	M30x2.0	RED4222L
42	M52x2.0	28	M36x2.0	RED4228L
42	M52x2.0	35	M45x2.0	RED4235L

For working pressure, see table on page 11

Tube 1 O.D.	Thread 1 Metric	Tube 1 O.D.	Thread 2 Metric	Male Connector Metric Strong Series Part No.
8	M16x1.5	6	M14x1.5	RED0806S
10	M18x1.5	6	M14x1.5	RED1006S
10	M18x1.5	8	M16x1.5	RED1008S
12	M20x1.5	6	M14x1.5	RED1206S
12	M20x1.5	8	M16x1.5	RED1208S
12	M20x1.5	10	M18x1.5	RED1210S
14	M22x1.5	6	M14x1.5	RED1406S
14	M22x1.5	8	M16x1.5	RED1408S
14	M22x1.5	10	M18x1.5	RED1410S
14	M22x1.5	12	M20x1.5	RED1412S
16	M24x1.5	6	M14x1.5	RED1606S
16	M24x1.5	8	M16x1.5	RED1608S
16	M24x1.5	10	M18x1.5	RED1610S
16	M24x1.5	12	M20x1.5	RED1612S
16	M24x1.5	14	M22x1.5	RED1614S
20	M30x2.0	6	M14x1.5	RED2006S
20	M30x2.0	8	M16x1.5	RED2008S
20	M30x2.0	10	M18x1.5	RED2010S
20	M30x2.0	12	M20x1.5	RED2012S
20	M30x2.0	14	M22x1.5	RED2014S
20	M30x2.0	16	M24x1.5	RED2016S
25	M36x2.0	6	M14x1.5	RED2506S
25	M36x2.0	8	M16x1.5	RED2508S
25	M36x2.0	10	M18x1.5	RED2510S
25	M36x2.0	12	M20x1.5	RED2512S
25	M36x2.0	14	M22x1.5	RED2514S
25	M36x2.0	16	M24x1.5	RED2516S
25	M36x2.0	20	M30x2.0	RED2520S
30	M42x2.0	6	M14x1.5	RED3006S
30	M42x2.0	8	M16x1.5	RED3008S
30	M42x2.0	10	M18x1.5	RED3010S
30	M42x2.0	12	M20x1.5	RED3012S
30	M42x2.0	14	M22x1.5	RED3014S
30	M42x2.0	16	M24x1.5	RED3016S
30	M42x2.0	20	M30x2.0	RED3020S
30	M42x2.0	25	M36x2.0	RED3025S
38	M52x2.0	6	M14x1.5	RED3806S
38	M52x2.0	8	M16x1.5	RED3808S
38	M52x2.0	10	M18x1.5	RED3810S
38	M52x2.0	12	M20x1.5	RED3812S
38	M52x2.0	14	M22x1.5	RED3814S
38	M52x2.0	16	M24x1.5	RED3816S
38	M52x2.0	20	M30x2.0	RED3820S
38	M52x2.0	25	M36x2.0	RED3825S
38	M52x2.0	30	M42x2.0	RED3830S

5

Hydraulic Tube
ST. 37.4
DIN 2391 C/DIN 2445

Seamless cold-drawn precision steel tubes in materials ST.37.4, according to DIN 2391 C/DIN 2445. Annealed and phosphated.
Temperature range: -40° to + 120° without pressure reduction.
Standard lengths: 6 m. Available with certificate
DIN 50049, 3.1

# Part No.	OD+WT mm	bar 1	bar 2	bar	kg/m
239-06x1.0	6x1.0	252	458	1358	0.07
239-06x1.5	6x1.5	477	755	2082	0.17
239-08x1.0	8x1.0	184	330	996	0.17
239-08x1.5	8x1.5	342	528	1421	0.17
239-10x1,5	10x1,5	267	406	1393	0.31
239-10x2.0	10x2.0	395	571	1537	0.40
239-12x1.5	12x1.5	218	330	887	0.39
239-12x2.0	12x2.0	321	459	1235	0.49
239-14x2.0	14x2.0	271	384	1033	0.59
239-15x1.5	15x1.5	172	257	692	0.50
239-15x2.0	15x2.0	251	355	947	0.64
239-16x2.0	16x2.0	234	330	887	0.69
239-16x2.5	16x1.5	313	425	1145	0.83
239-18x1.5	18x1.5	142	211	568	0.61
239-18x2.0	18x2.0	206	289	778	0.79
239-20x2.0	20x2.0	184	257	692	0.89
239-20x3.0	20x3.0	308	406	1092	1.25
239-22x1.5	22x1.5	115	172	456	0.76
239-22x2.0	22x2.0	166	323	624	0.99
239-25x2.0	25x2.0	145	202	543	1.13
239-25x2.5	25x2.5	192	257	692	1.39
239-25x3.0	25x3.0	241	315	847	1.63
239-25x4.0	25x4.0	343	437	1178	2.07
239-28x2.0	28x2.0	129	179	481	1.28
239-30x3.0	30x3.0	198	257	692	2.00
239-30x4.0	30x4.0	279	355	955	2.51
239-38x4.0	38x4.0	216	272	733	3.55
239-38x5.0	38x5.0	281	349	940	4.07
239-42x3.0	42x3.0	138	179	481	2.89

Working pressure
1: Bending, tolerance and corrosion included.
2: For straight pipes, tolerance is included but not bending and corrosion.

Hydraulic Tube DIN
AISI 316 L
ASTM-S269, DIN 2391 C

Seamless stainless precision steel tubes in materials AISI 316 (1.440), produced according to ASTM A269, DIN 2391C. Annealed and stained.
Available with certificate DIN 50049, 3.1
Standard lengths: 6 m.

# Part No.	OD+WT mm	bar	bar	kg/m
269-06x1.0	6x1.0	525	2120	0.07
269-08x1.0	8x1.0	379	1514	0.17
269-08x1.5	8x1.5	605	2446	0.24
269-10x1,5	10x1.5	467	1871	0.31
269-10x2.0	10x2.0	654	2650	0.40
269-12x1.5	12x1.5	381	1514	0.39
269-12x2.0	12x2.0	528	2120	0.49
269-15x1.5	15x1.5	298	1178	0.50
269-16x1.5	16x1.5	278	1093	0.54
269-16x2.0	16x2.0	382	1514	0.69
269-18x1.5	18x1.5	245	964	0.61
269-18x2.0	18x2.0	335	1325	0.79
269-20x2.0	20x2.0	299	1178	0.89
269-20x2.5	20x3.0	382	1514	1.08
269-22x2.0	22x2.0	299	1060	0.99
269-25x2.0	25x2.0	235	922	1.13
269-25x2.5	25x2.5	299	1178	1.39
269-25x3.0	25x3.0	364	1448	1.63
269-25x4.0	25x4.0	504	2019	2.07
269-28x2.0	28x2.0	208	815	1.28
269-30x2.5	30x2.5	246	964	1.70
269-30x3.0	30x3.0	298	1178	2.00
269-30x4.0	30x4.0	410	1631	3.35
269-35x2.5	35x2.5	209	815	2.00
269-35x3.0	35x3.0	252	994	2.37
269-38x3.0	38x3.0	231	909	2.59
269-38x4.0	38x4.0	316	1247	3.38
269-38x5.0	38x5.0	404	1606	4.07
269-42x2.5	42x2.5	177	671	2.43
269-42x3.0	42x3.0	208	815	2.89

Working pressure:
Bending, tolerance and corrosion included.
Burst pressure:
Factor based on the failure limit and tensile strength.
Polished tubes on request

Hydraulic Tube Imperial
AISI 316 L

Seamless stainless precision steel tubes in materials AISI 316.
Produced according to ASTM A-269
Available with certificate DIN 50049, 3.1
Safety factor 4:1 in the temperature range -40°C
to + 120°C
Standard lengths: 6 m.

# Part No.	 OD+WT inch	 psi
269T-04x028	1/4"x0.028	4000
269T-04x035	1/4"x0.035	5100
269T-04x049	1/4"x0.049	7500
269T-04x065	1/4"x0.065	10300
269T-06x035	3/8"x0.035	3300
269T-06x049	3/8"x0.049	4800
269T-06x065	3/8"x0.065	6600
269T-08x035	1/2"x0.035	2500
269T-08x049	1/2"x0.049	3500
269T-08x065	1/2"x0.065	4800
269T-08x083	1/2"x0.083	6300
269T-12x049	3/4"x0.049	2400
269T-12x065	3/4"x0.065	3300
269T-12x083	3/4"x0.083	4300
269T-12x095	3/4"x0.095	5000
269T-12x109	3/4"x0.109	5800
269T-16x065	1"x0.065	2400
269T-16x083	1"x0.083	3200
269T-16x095	1"x0.095	3700
269T-16x109	1"x0.109	4200
269T-16x120	1"x0.120	4700

Polished tubes on request

Clamp Parts

CONSTRUCTION:

Tube clamps according to DIN 3015, parts 1-3.
The upper and lower clamp halves are identical. The ribs of the clamping holes are stroke- and vibration-reducing and take up energy in the pipe axis direction. High sound absorption is guaranteed. Because of the construction the clamps are easy to clean.

ASSEMBLY:

Assembly on to metal welding plates: Place welding plates on a base appropriate for the load. Make sure that the clamps are properly aligned. Clamp lower clamp halve onto welding plate, insert tube, place upper clamp halve onto lower halve and fasten with the screws. Attention must be paid to the bias (after completed assembly, clamp halves may not be in contact!) Do not weld with fitted plastic clamp! Extended welding plates may be screw-fastened to the base.

Assembly on support rails: Support rails are available in pieces of 1 m or 2 m length. Weld on support rail or screw-fasten with fastening angle bracket. Insert support rail nuts in rail and turn until stoppage. Clamp lower clamp half on support rail nuts, insert tube, place upper clamp halve onto lower halve and fasten with the screws. Attention must be paid to the bias (after completed assembly, the clamp halves may not be in contact!)

Construction assembly: Clamp lower clamp halve on welding plate or support rail respectively, insert tube, place upper clamp halve on lower halve and fasten with fixing screws. The fixing screw juts out from the upper clamp halve. The application of a locking plate securely fastens the fixing screw and prevents twisting. Clamp on second clamp halve on to the fixing screws etc.

MATERIAL QUALITY:

Bottom and Top Plates: Carbon steel FE 35 is galvanized, or AISI 316 L. Support rails: Carbon steel FE 35.
For clamp parts in AISI 316 Add SS behind Part No.

Clamp Parts - Single Clamps

Clamps Group	Pipe O.D. mm	Pipe O.D. inch	Top Plate	Bottom Plate	Hexagon Head Screw	Stacking Bolt	Locking Plate for AFN	Rail Nut	Rail
1	Group 1		DPN-1	AP-1	KS-M6X30	AFN-1	SB	SM	TS
2	Group 2		DPN-2	AP-2	KS-M6X35	AFN-2	SB	SM	TS
3	Group 3		DPN-3	AP-3	KS-M6X40	AFN-3	SB	SM	TS
4	Group 4		DPN-4	AP-4	KS-M6X45	AFN-4	SB	SM	TS
5	Group 5		DPN-5	AP-5	KS-M6X60	AFN-5	SB	SM	TS

Clamp Parts - Double Clamps

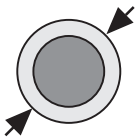
Clamps Group	Pipe O.D. mm	Pipe O.D. inch	Top Plate	Bottom Plate	Hexagon Head Screw	Stacking Bolt Double	Locking Plate for RAFN	Rail Nut	Rail
1	Group 1		RDPN-1	RAP-1	KS-M6X35	AFN-2	RSB	SM	TS
2	Group 2		RDPN-2	RAP-2	KS-M8X35	RAFN-2	RSB	RSM	RTS
3	Group 3		RDPN-3	RAP-3	KS-M8X45	RAFN-3	RSB	RSM	RTS
4	Group 4		RDPN-4	RAP-4	KS-M8X50	RAFN-4	RSB	RSM	RTS
5	Group 5		RDPN-5	RAP-5	KS-M8X60	RAFN-5	RSB	RSM	RTS

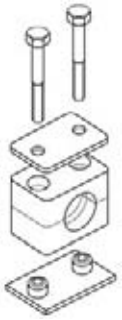
COMPLETE CLAMP AND CLAMP HALVES
Clamp Halves comes in pairs.
Standard clamps are available in Polypropylene.
For complete Polyamide (PA), Rubber (GU) and Aluminium (AL) clamps, add PA, GU or AL behind Part No.

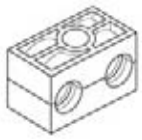
Complete clamps consist of a base plate for welding, 2 clamps halves, top plate and screws.

TEMPERATURE RANGE FOR CLAMPS:

Polypropylene	-30°C to + 90°C
Polyamide (PA)	-40°C to + 120°C
Rubber (GU)	-50°C to + 120°C
Aluminium (AL)	to + 300°C

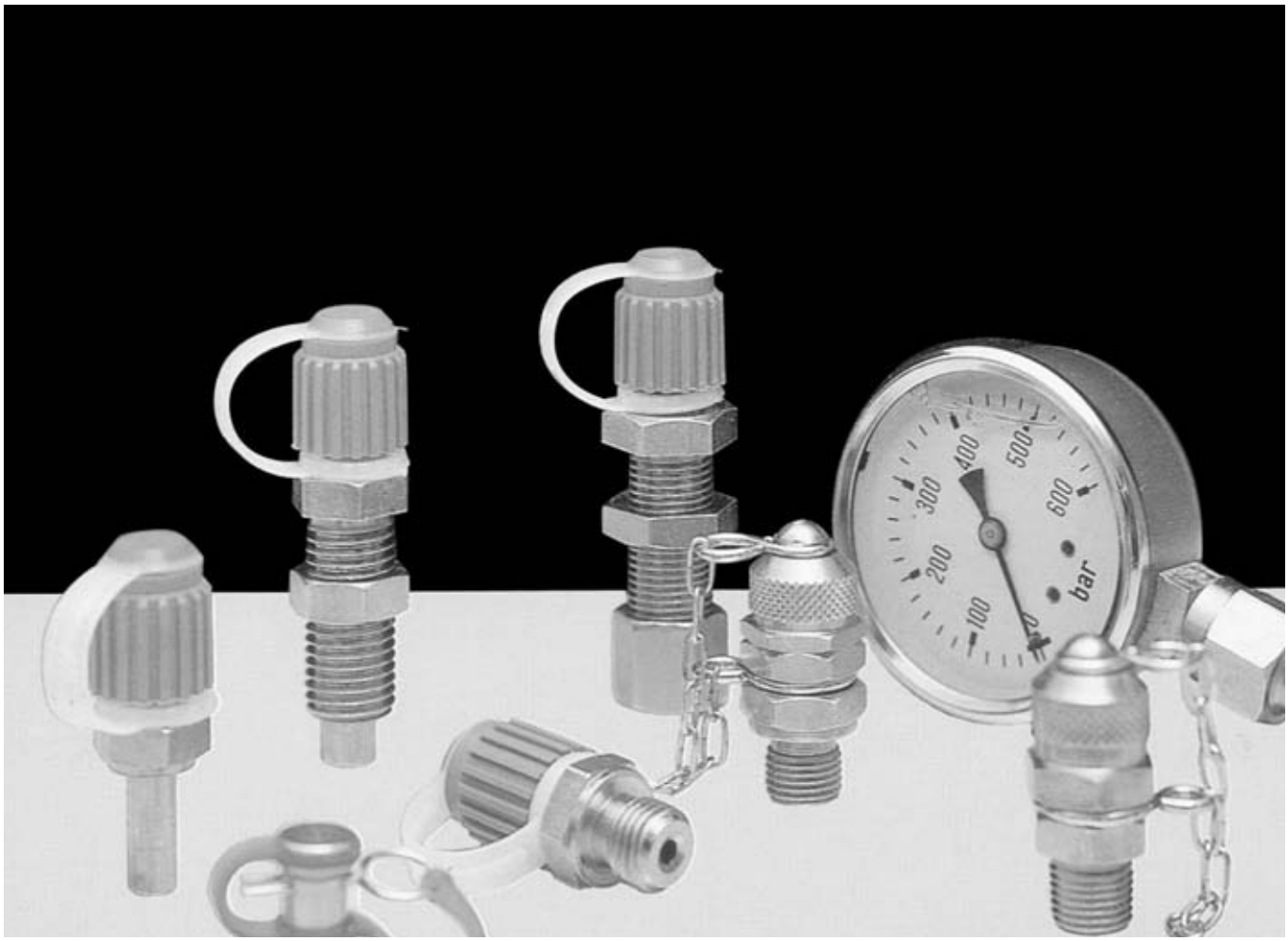






Clamps Group	Pipe O.D. mm	Pipe O.D. inch	Single Clamps Complete	Double Clamps Complete	Single Clamps 2 halves	Double Clamps 2 halves
1	6.0		5555-106	5556-106	NP-106	RNP-106
	6.4	1/4	5555-1064	5556-1064	NP-1064	RNP-1064
	8.0	5/16	5555-108	5556-108	NP-108	RNP-108
	9.5	3/8	5555-1095	5556-1095	NP-1095	RNP-1095
	10.0		5555-110.0	5556-110.0	NP-110.0	RNP-110.0
	12.0		5555-112	5556-112	NP-112	RNP-112
2	12.7	1/2	5555-2127	5556-2127	NP-2127	RNP-2127
	13.5		5555-2135	5556-2135	NP-2135	RNP-2135
	14.0		5555-214	5556-214	NP-214	RNP-214
	15.0		5555-215	5556-215	NP-215	RNP-215
	16.0	5/8	5555-216	5556-216	NP-216	RNP-216
	17.2		5555-2172	5556-2172	NP-2172	RNP-2172
	18.0		5555-218	5556-218	NP-218	RNP-218
3	19.0	3/4	5555-319	5556-319	NP-319	RNP-319
	20.0		5555-320	5556-320	NP-320	RNP-320
	21.3		5555-3213	5556-3213	NP-3213	RNP-3213
	22.0		5555-322	5556-322	NP-322	RNP-322
	23.0		5555-323	5556-323	NP-323	RNP-323
	25.0	1	5555-325	5556-325	NP-325	RNP-325
4	26.9		5555-4269	5556-4269	NP-4269	RNP-4269
	28.0		5555-428	5556-428	NP-428	RNP-428
	30.0		5555-430	5556-430	NP-430	RNP-430
5	32.0	1.1/4	5555-532	5556-532	NP-532	RNP-532
	33.7		5555-5337	5556-5337	NP-5337	RNP-5337
	35.0		5555-535	5556-535	NP-535	RNP-535
	38.0	1.1/2	5555-538	5556-538	NP-538	RNP-538
	40.0		5555-540	5556-540	NP-540	RNP-540
	42.0		5555-542	5556-542	NP-542	RNP-542

M16 x 2 - 630 BAR



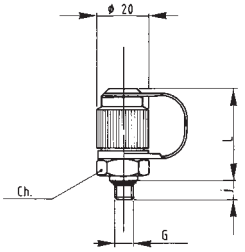
MINI CONTROL SYSTEM
- QUICK RELEASE COUPLINGS FOR PRESSURE MEASUREMENT

- For measurement of high pressure, low pressure or under-pressure
- For ventilation of cylinders and hydraulic systems
- For extraction of oil samples
- For connection of pressure gauges and pressure switches
- Connects easily under pressure
- Small dimensions, robust construction
- External thread entry before the valve opens

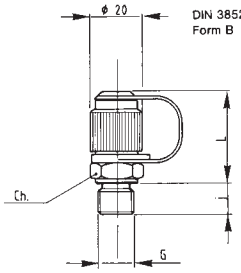
M16 x 2 - 630 BAR

For AISI 316, add SS behind Part No.

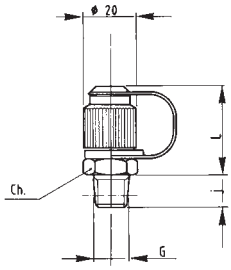
Test Point with threaded connection



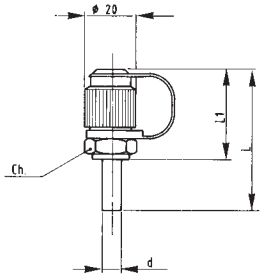
Test Point with threaded connection



Test Point with threaded connection



Test Point with pipe socket



With Steel Cap Part No.	Dimensions G	L mm	Ch mm	J mm
01.008.01	M8 x 1	36	17	8.5
01.010.01	M10 x 1	36	17	8.5
01.014.01	M14 x 1,5 ISO 6149	36	19	10,0
01.404.01	7/16" –20 UNF	36	17	9.0
01.406.01	9/16" –18 UNF	36	19	10.0
01.010.11	M10 x 1	36	17	8.5
01.012.11	M12 x 1,5	36	17	12
01.014.11	M14 x 1,5	36	19	12
01.016.11	M16 x 1,5	36	22	12
01.202.21	1/8" BSP	36	17	8
01.204.21	1/4" BSP	36	19	12
01.206.21	3/8" BSP	36	22	14

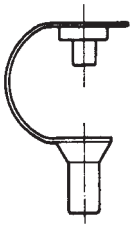
Adapter with BSP male delivered with ED seal

01.202.31	1/8" –28 BSPT	34	17	8
01.204.31	1/4" –19 BSPT	34	17	12
01.206.31	3/8" –19 BSPT	34	22	16
01.302.31	1/8" –27 NPTF	34	17	9.5
01.304.31	1/4" –18 NPTF	34	17	14
01.306.31	3/8" –18 NPTF	34	22	16

With Steel Cap Part No.	Dimensions d mm	Ch mm	L mm	L_1 mm
03.006.51	6	17	56	36
03.008.51	8	17	56	36
03.010.51	10	17	56	36
03.012.51	12	17	56	36

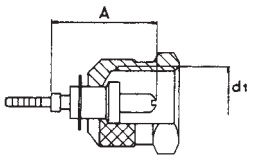
Hose couplings for Mini control system

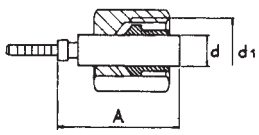
For hoses, see catalogue group 2 page 6

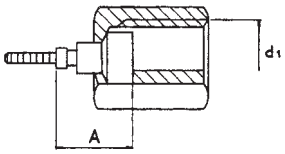


Couplings Part No. are complete with pressure sleeves, and include sleeves with dust plugs for M16x2 screw couplings.

All stated dimensions are including plastic dust cap.







M16x2 Nut Connection

Part No.	A mm	d mm	d1 mm	P.max bar
801.10.162	19		M16x2	640

Pipe Socket Coupling

801.32.006	24	6	M14x1.5	640
801.32.008	24	8	M16x1.5	640

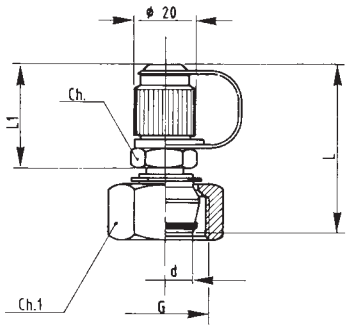
Pressure Gauge Coupling

801.50.204	25		1/4" BSP	640
801.50.208	25		1/2" BSP	640

M16 x 2 - 630 BAR

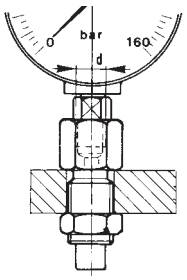
5

Test Point With Threaded Connection With 24° Cone Adapter (DIN 2553)



Part No.	Dimensions d mm	Ch mm	Ch1 mm	L1 mm	G mm	P max bar
02.010.61	10	17	19	36	M16 x 1.5	315
02.012.61	12	17	22	36	M18 x 1.5	315
02.015.61	15	17	27	36	M22 x 1.5	315
02.018.61	18	17	32	36	M26 x 1.5	315
02.022.61	22	17	36	36	M30 x 2	160
02.028.61	28	17	41	36	M36 x 2	160
02.035.61	35	17	50	36	M45 x 2	160
02.042.61	42		60	36	M52 x 2	160
02.110.61	10	17	22	36	M18 x 1.5	630
02.112.61	12	17	22	36	M20 x 1.5	630
02.114.61	14	17	27	36	M22 x 1.5	630
02.116.61	16	17	30	36	M24 x 1.5	400
02.120.61	20	17	36	36	M30 x 2	400
02.125.61	25	17	46	36	M36 x 2	400
02.130.61	30	17	50	36	M42 x 2	400
02.138.61	38	17	60	36	M52 x 2	315

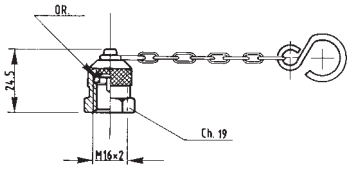
Pressure Gauge Bulk Head With Pressure Suppressor



Part No.	Thread	Dimensions Ch mm	Ch_1 mm	L mm	L_1 mm
08.204.00.1	1/4" BSP	19	19	50	18
08.208.00.1	1/2" BSP	27	19	58	18

PLASTIC DUST CAP

Part No. 03.620.00



STEEL DUST CAP

Part No. 03.620.01

All stated dimensions are including plastic dust cap.

NB! Other material qualities on request

SensoControl®

ServiceJunior

Hand-held measuring devices
ServiceJunior: Perfect and simple measuring. On top of easy operating capturing pressure peaks in hydraulic system can be done immediately.
Measuring and displaying pressure very precise due to 4 digital display. Pressure peaks captured by displaying MAX reading.
ServiceJunior is powered by a battery.

Complete ServiceJunior Kit
- incl. Test Point Adapters and Test Hoses
- Ready to start

SensoControl®

Serviceman Series

The SensoControl® Serviceman Kits (SC-500-01, SC-510-01) are basic equipment to measure pressure, temperature, flow and rotational speed in hydraulics. Simple to operate; particularly suitable for on-site use.

All **SensoControl®** handmeters are provided with sensor recognition. The measuring ranges are automatically scaled and shown on the display. This prevents measuring errors and makes time-consuming adjustment work unnecessary.

SensoControl®

ServiceMaster Series

The **ServiceMaster** is a multi-channel handmeter for the simultaneous measuring of important hydraulic values: **all hydraulic parameters, such as pressure, differential pressure, flow and hydraulic power can be measured, displayed, stored and processed.**

SCKIT-250/350 – Basic and extended Kits in order to measure up to 3 hydraulic data simultaneously.

ServiceMaster Series

SensoControl® handmeters and complete measuring systems are perfectly suited measuring tools for every application. Whether they are used in the industrial area, in mobile hydraulics, for service or repair: measuring and processing of hydraulic values is the basis of safe trouble shooting. The systematic search of errors with modern means is something the service engineer simply cannot do without.

To meet the requirements in both modern industrial hydraulics and complex mobile hydraulics, we offer a range of different models.
SCKIT-400/450 – Advanced Kits for complete diagnosis including software and printer. Up to 6 channels can be measured, displayed and analyzed.

SensoControl®

Pressure Controller SCPSD

Easy handling, high functionality and longterm stability service life are the main characteristics of the electronic **Pressure Controller SCPSD.**

Features:
- Bar/PSI/MPa
- compact design
- can be swivelled
- robust housing (IP 67)
- easy operation
- 2 switching outputs
- 4 limit values
- adjustable analogue output
- delay times (damping)
- hysteresis/window function
- password

If the pressure is to be displayed, or if rapid switching or analogue signals, which have to be adjusted simply and without additional calibration, are required, then the SCPSD is the ideal solution.

Temperature Controller SCPSD

Easy operation and high functionality are the main characteristics from the electronic **Temperature Controller SCTSD.**

Features:
- °C and °F
- compact design
- can be swivelled
- robust housing (IP 67)
- easy operation
- 2 switching outputs
- 4 limit values
- adjustable analogue output
- delay times (damping)
- hysteresis/window function
- password

If the temperature is to be displayed or temperature-dependent switching or analogue signals, which need to be adjusted simply and without additional calibration, are required, then the SCTSD is the ideal solution.

Pressure Sensors SCP/SCPT

Longterm stability, robust compact housing and protection from interference are the main characteristics of the electronic pressure sensor SCP.

Features:
- long term stability
- stainless steel housing
- G 1/2 + G 1/4 BSPP
- compact design
- relative and absolute pressure
- combi-sensor for pressure and temperature

If pressure is to be captured reliably in the long term and if compact dimensions are needed, the SCP is appropriate. If a temperature signal is additionally required, the combi-sensor is the solution.

Temperature Sensor SCT

Compact design and high working pressure are the characteristics of the electronic temperature sensor **SCT**.

Features:
- working pressure up to 630 bar
- compact design
- stainless steel housing
- easy set-up
- –50°C to 250°C
- 0/4 ... 20 mA

If temperatures are to be measured at higher pressures and if a compact design is needed, then the SCT is used.

SensoControl®

Adaptors SCA

Broad range of measuring points and adaptors in galvanized finish for rapid, clean and simple adoption of sensors and measuring equipment to hydraulic systems. Plug and screw designs with various threads and seal forms are available.

For a complete **SensoControl®** catalog, see the product pages on our website www.fluidcontrol.no.

SCE-020 Panel Instrument

Plenty of connections, flexible display and many outputs are the main characteristics of panel instrument **SCE-020**.

Features:
- Inputs: Current
  Voltage
  Frequency
- Units freely selectable
- Adjustable display range
- Outputs: Switch
  Analogue output
- Serial interface: RS 232

To display easily and flexibly various measurement values, panel instrument **SCE-020** is used.

SCE-100 Process Manager

Plenty of connections, flexible dual display and universal evaluation possibilities are the main characteristics of the **Process Manager SCE-100.**
Features:
- dual display
- units selectable
- 4 switch outputs
- 8 limit values
- serial interface RS 232
- min. and max. memory
- difference display
- differential switch output
- built-in clock
- password protection

If various measurement values are to be displayed simultaneously and several switch outputs are needed, the **Process Manager SCE 100** is used (eg. difference signal of two sensors or tank temperature monitoring).

Pressure Gauge - AISI 304

- Brass connection parts
- 1/4" BSP connection
- 63 mm stainless steel AISI 304 case
- BAR and PSI dial

Measuring Range BAR	Bottom Connection	Back Connection
-1,5/1	T213-0	T214-0
1	T213-001	T214-001
6	T213-006	T214-006
10	T213-010	T214-010
16	T213-016	T214-016
25	T213-025	T214-025
40	T213-040	T214-040
60	T213-060	T214-060
100	T213-100	T214-100
250	T213-250	T214-250
400	T213-400	T214-400
600	T213-600	T214-600

We can deliver pressure gauges with 100 mm dial and other special pressure gauges on request. Specify measuring range, connection type, material quality and if the pressure gauge shall be liquid-sealed.

Pressure Gauge - AISI 316

- 1/4" NPT connection
- 63 mm stainless steel AISI 316 case
- BAR and PSI dial

Measuring Range BAR	Bottom Connection	Back Connection
-1.5/1	T211-0	T212-0
1	T211-001	T212-001
6	T211-006	T212-006
10	T211-010	T212-010
16	T211-016	T212-016
25	T211-025	T212-025
40	T211-040	T212-040
60	T211-060	T212-060
100	T211-100	T212-100
250	T211-250	T212-250
400	T211-400	T212-400
600	T211-600	T212-600

Air Pressure Gauge

- 1/4" BSP connection
- 30 mm plastic case
- BAR dial

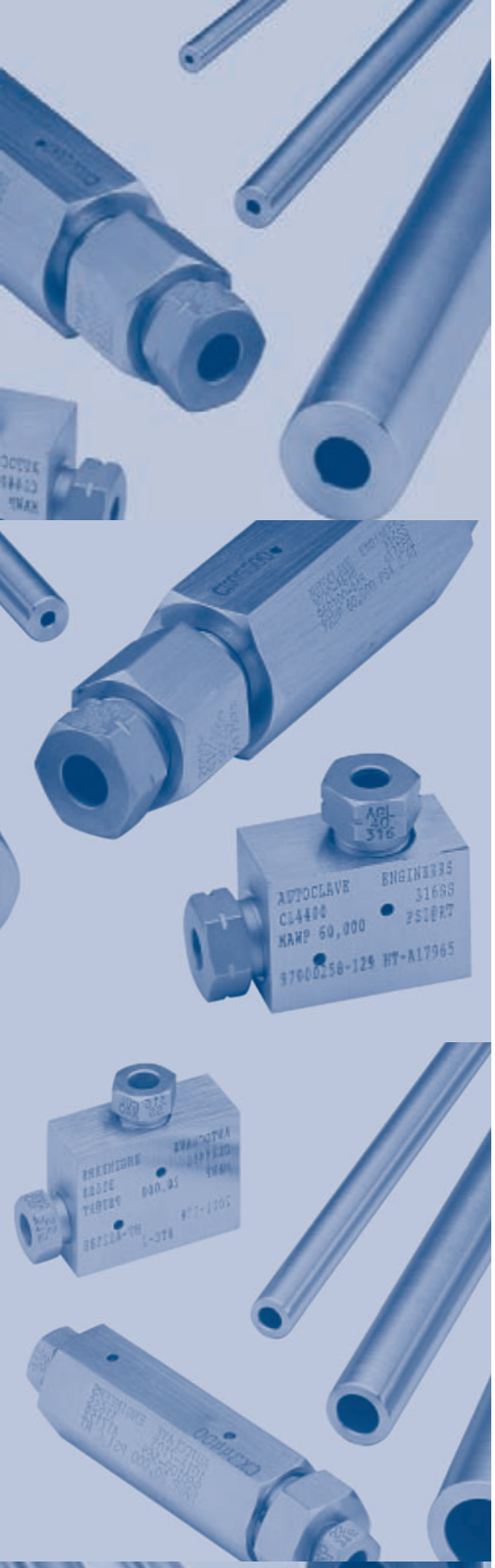
Measuring range BAR	Bottom Connection
10	T210-010
16	T210-016

Measuring range: 10 bar

Connection	Back Connection
1/8"	T220-010
1/4"	T221-010

Bar for panel mounting	T216-0
Front flange for panel mounting	T217-0
Back flange	T218-0

Other combinations available on request.



Group 6

10K

High Pressure Fittings

Tubing

Nipples

Adaptors

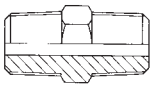
FLUID CONTROL®

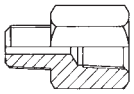
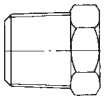
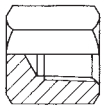
We have certified industrial plumbers with offshore certificates.
Ask us about pipe work.
We are certified and have experience in:
Metric DIN Fittings (standard DIN fittings), Flare Fittings, A-lok and High Pressure Couplings.
We also have equipment and machinery for hire.

On our website you will find the complete High Pressure Couplings catalogue.

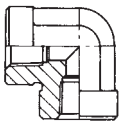
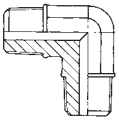
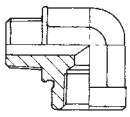
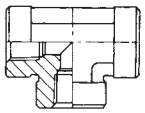
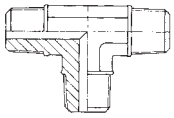
Material Quality:
AISI 316 stainless steel.
Material certificate according to DIN 500049. 3.1.B.
Other material qualities available on request.

STAINLESS STEEL STEEL



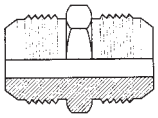
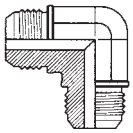
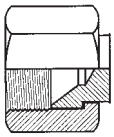
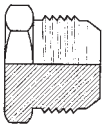
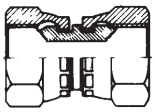
NPT - NPT						
Thread 1	**Thread 2**	**Nipple**	**Socket**	**Nipple Socket**	**Plug**	**Cap**
1/8	1/8	HN10K-0202	HC10K-0202	FMA10K-0202	HP10K-02	PC10K-02
1/8	1/4	HN10K-0204	HC10K-0204	FMA10K-0204		
1/4	1/8			FMA10K-0402		
1/4	1/4	HN10K-0404	HC10K-0404	FMA10K-0404	HP10K-04	PC10K-04
1/4	3/8	HN10K-0406	HC10K-0406	FMA10K-0406		
1/4	1/2	HN10K-0408	HC10K-0408	FMA10K-0408		
3/8	1/4			FMA10K-0604		
3/8	3/8	HN10K-0606	HC10K-0606	FMA10K-0606	HP10K-06	PC10K-06
3/8	1/2	HN10K-0608	HC10K-0608	FMA10K-0608		
1/2	1/4			FMA10K-0804		
1/2	3/8			FMA10K-0806		
1/2	1/2	HN10K-0808	HC10K-0808	FMA10K-0808	HP10K-08	PC10K-08
1/2	3/4	HN10K-0812	HC10K-0812	FMA10K-0812		
1/2	1	HN10K-0816	HC10K-0816	FMA10K-0816		
3/4	1/2			FMA10K-1208		
3/4	3/4	HN10K-1212	HC10K-1212	FMA10K-1212	HP10K-12	PC10K-12
3/4	1	HN10K-1216	HC10K-1216	FMA10K-1216		
1	1/2			FMA10K-1608		
1	3/4			FMA10K-1612		
1	1	HN10K-1616	HC10K-1616	FMA10K-1616	HP10K-16	PC10K-16

NPT - NPT						
Thread 1	**Thread 2**	**Elbow 90° Female**	**Elbow 90° Male**	**Elbow 90° Male/Female**	**Tee Female**	**Tee Male**
1/8	1/8	FE10K-0202	ME10K-0202	FME10K-0202	FT10K-02	MT10K-02
1/4	1/4	FE10K-0404	ME10K-0404	FME10K-0404	FT10K-04	MT10K-04
3/8	3/8	FE10K-0606	ME10K-0606	FME10K-0606	FT10K-06	MT10K-06
1/2	1/2	FE10K-0808	ME10K-0808	FME10K-0808	FT10K-08	MT10K-08

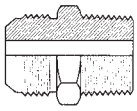
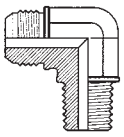
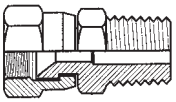
Safety factor: 4:1

JIC - JIC

Thread 1	Thread 2	Nipple	Elbow 90° Male	Cap	Plug	
7/16-20	7/16-20	JHN10K-0404	JME10K-0404	JPC10K-0404	JHP10K-0404	JFFS10K-0404
7/16-20	9/16-18					JFFS10K-0406
7/16-20	3/4-16					JFFS10K-0408
1/2-20	1/2-20	JHN10K-0505	JME10K-0505	JPC10K-0505	JHP10K-0505	JFFS10K-0505
9/16-18	9/16-18	JHN10K-0606	JME10K-0606	JPC10K-0606	JHP10K-0606	JFFS10K-0606
9/16-18	3/4-16					JFFS10K-0608
9/16-18	7/8-14					JFFS10K-0610
9/16-18	1.1/16-12					JFFS10K-0612
3/4-16	3/4-16	JHN10K-0808	JME10K-0808	JPC10K-0808	JHP10K-0808	JFFS10K-0808
7/8-14	7/8-14	JHN10K-1010	JME10K-1010	JPC10K-1010	JHP10K-1010	
1.1/16-12	1.1/16-12	JHN10K-1212	JME10K-1212	JPC10K-1212	JHP10K-1212	
1.5/16-12	1.5/16-12	JHN10K-1616	JME10K-1616	JPC10K-1616	JHP10K-1616	

JIC - NPT

Thread 1	Thread 2	Nipple	Elbow 90° Male	Swivel Nipple
7/16-20	1/8	NJHN10K-0402	NJME10K-0402	NJMFS10K-0402
7/16-20	1/4	NJHN10K-0404	NJME10K-0404	NJMFS10K-0404
7/16-20	3/8	NJHN10K-0406	NJME10K-0406	NJMFS10K-0406
1/2-20	1/4	NJHN10K-0504	NJME10K-0504	NJMFS10K-0504
9/16-18	1/4	NJHN10K-0604	NJME10K-0604	NJMFS10K-0604
9/16-18	3/8	NJHN10K-0606	NJME10K-0606	NJMFS10K-0606
9/16-18	1/2	NJHN10K-0608	NJME10K-0608	NJMFS10K-0608
3/4-16	3/8	NJHN10K-0806	NJME10K-0806	NJMFS10K-0806
3/4-16	1/2	NJHN10K-0808	NJME10K-0808	NJMFS10K-0808
3/4-16	3/4	NJHN10K-0812	NJME10K-0812	NJMFS10K-0812
7/8-14	1/2	NJHN10K-1008	NJME10K-1008	NJMFS10K-1008
7/8-14	3/4	NJHN10K-1012	NJME10K-1012	NJMFS10K-1012

X-OVERS - HP FITTINGS / MALE THREADS

Thread 1 High Pressure Couplings	Thread 2 (See article description)	Part No.	Special Transition Nipples
1/4"	7/16"	ASB-1244	Medium Pressure High Pressure Couplings x JIC male / male adapter
1/4"	9/16"	ASB-1246	Medium Pressure High Pressure Couplings x JIC male / male adapter
3/8"	7/16"	ASB-1264	Medium Pressure High Pressure Couplings x JIC male / male adapter
3/8"	9/16"	ASB-1266	Medium Pressure High Pressure Couplings x JIC male / male adapter
9/16"	7/16"	ASB-1294	Medium Pressure High Pressure Couplings x JIC male / male adapter
9/16"	9/16"	ASB-1296	Medium Pressure High Pressure Couplings x JIC male / male adapter
1/4"	1/4"	ASB-1344	Medium Pressure High Pressure Couplings x BSP male / male adapter
1/4"	3/8"	ASB-1346	Medium Pressure High Pressure Couplings x BSP male / male adapter
3/8"	1/4"	ASB-1364	Medium Pressure High Pressure Couplings x BSP male / male adapter
3/8"	3/8"	ASB-1366	Medium Pressure High Pressure Couplings x BSP male / male adapter
9/16"	1/4"	ASB-1394	Medium Pressure High Pressure Couplings x BSP male / male adapter
9/16"	3/8"	ASB-1396	Medium Pressure High Pressure Couplings x BSP male / male adapter
1/4"	1/4"	ASB-1444	Medium Pressure High Pressure Couplings x NPT male / male adapter
1/4"	3/8"	ASB-1446	Medium Pressure High Pressure Couplings x NPT male / male adapter
3/8"	1/4"	ASB-1464	Medium Pressure High Pressure Couplings x NPT male / male adapter
3/8"	3/8"	ASB-1466	Medium Pressure High Pressure Couplings x NPT male / male adapter
9/16"	1/4"	ASB-1494	Medium Pressure High Pressure Couplings x NPT male / male adapter
9/16"	3/8"	ASB-1496	Medium Pressure High Pressure Couplings x NPT male / male adapter
1/4"	7/16"	ASB-9244	High pressure High Pressure Couplings x JIC male / male adapter
3/8"	7/16"	ASB-9264	High pressure High Pressure Couplings x JIC male / male adapter
3/8"	9/16"	ASB-9266	High pressure High Pressure Couplings x JIC male / male adapter
1/4"	1/4"	ASB-9344	High pressure High Pressure Couplings x BSP male / male adapter
3/8"	1/4"	ASB-9364	High pressure High Pressure Couplings x BSP male / male adapter

Other dimensions and thread types on request.

HIGH PRESSURE FITTINGS AND TUBING
LOW PRESSURE

Pressures to 15,000 psi (1034 bar)

Since 1945 Autoclave Engineers has designed and built premium quality valves, fittings and tubing. This commitment to engineering and manufacturing excellence has earned Autoclave a reputation for reliable, efficient product performance. Autoclave Engineers has long been established as the world leader in high pressure fluid handling components for the chemical/petrochemical,research, and oil and gas industries.

LOW PRESSURE FITTINGS AND TUBING FEATURES:

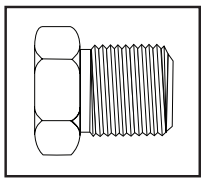
- Single-ferrule compression sleeve.
- Fast easy make-up of connection.
- Available sizes are 1/16", 1/8", 1/4", 3/8", & 1/2".
- Fittings manufactured from cold worked 316 stainless steel.
- Tubing is manufactured from dual rated 316/316L and 304/304L annealed stainless steel.
- All items available in special materials.
- Operating temperatures from -100°F (-73°C) to 650°F (343°C).
- Molybdenum disulfide-coated gland nuts to prevent galling.

The Low Pressure Series uses Autoclave's SpeedBite connection. This single-ferrule compression sleeve connection delivers fast, easy make-up and reliable bubble-tight performance, in liquid or gas service.

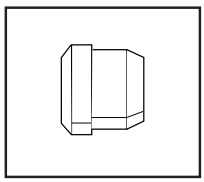
Autoclave Engineers Low Pressure Fittings are designed for use with low pressure valves and tubing. These fittings feature improved SpeedBite compression connections with larger orifices for excellent flow capabilities. Autoclave fittings and components are manufactured of cold-worked type 316 stainless steel. Optional materials are available upon request.

Connection Components

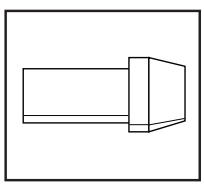
All valves and fittings are supplied complete with appropriate glands and compression sleeves. To order these components separately, use order numbers listed. When using plug, sleeve is not required.



Gland
SMN ( )



Sleeve
SSL ( )



Plug
SP ( )

Add tube size ( )
1/8" - 20
1/4" - 40
3/8" - 60
1/2" - 80

Example: 1/4" Gland - SMN 40

Note: Special material glands may be supplied with four flats in place of standard hex.

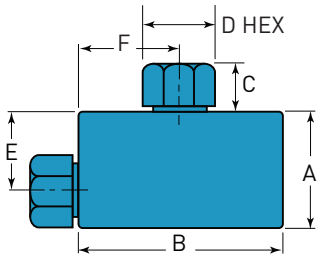
† When ordering glands separately for 10V Series 1/4" and 3/8" valves, substitute 10N for SMN.

1/16" tubing system components are available in the mini-fitting series. 1/16" tubing components can be used in 10V Series valves and fittings if required. Consult factory for information on 1/16" tubing assembly in 1/8" tubing components.

To ensure proper fit use Autoclave Engineers tubing. For mounting hole option add suffix PM to catalog number. Consult factory for mounting hole dimensions.

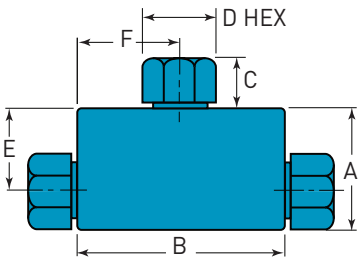
Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Minimum Opening	Dimensions - inches (mm) A	B	C	D Typical	E	F	G Thickness	Block Thickness	Fitting Pattern
Elbow													
SL2200	W125	1/8 (3.18)	15,000 (1034.19)	0.094 (2.39)	1.00 (25.40)	1.50 (38.10)	0.31 (7.87)	0.38 (9.53)	0.75 (19.05)	0.75 (19.05)		0.62 (15.75)	
SL4400	SW250	1/4 (6.35)	15,000 (1034.19)	0.188 (4.78)	1.38 (35.05)	2.00 (50.80)	0.44 (11.18)	0.63 (15.88)	1.00 (25.40)	1.00 (25.40)		0.75 (19.05)	See Fig. 1
SL6600	SW375	3/8 (9.53)	15,000 (1034.19)	0.250 (6.35)	1.38 (35.05)	2.00 (50.80)	0.53 (13.46)	0.75 (19.05)	1.00 (25.40)	1.00 (25.40)		0.75 (19.05)	
SL8800	SW500	1/2 (12.70)	10,000 (689.46)	0.375 (9.53)	1.75 (44.45)	2.50 (63.50)	0.53 (13.46)	0.93 (23.62)	1.25 (31.75)	1.25 (31.75)		1.00 (25.40)	
Tee													
ST2220	W125	1/8 (3.18)	15,000 (1034.19)	0.094 (2.39)	1.00 (25.40)	1.50 (38.10)	0.31 (7.87)	0.38 (9.53)	0.75 (19.05)	0.75 (19.05)		0.62 (15.75)	
ST4440	SW250	1/4 (6.35)	15,000 (1034.19)	0.188 (4.78)	1.38 (35.05)	2.00 (50.80)	0.44 (11.18)	0.63 (15.88)	1.00 (25.40)	1.00 (25.40)		0.75 (19.05)	See Fig. 2
ST6660	SW375	3/8 (9.53)	15,000 (1034.19)	0.250 (6.35)	1.38 (35.05)	2.00 (50.80)	0.53 (13.46)	0.75 (19.05)	1.00 (25.40)	1.00 (25.40)		0.75 (19.05)	
ST8880	SW500	1/2 (12.70)	10,000 (689.46)	0.375 (9.53)	1.75 (44.45)	2.50 (63.50)	0.53 (13.46)	0.93 (23.62)	1.25 (31.75)	1.25 (31.75)		1.00 (25.40)	
Cross													
SX2222	W125	1/8 (3.18)	15,000 (1034.19)	0.094 (2.39)	1.50 (38.10)	1.50 (38.10)	0.31 (7.87)	0.38 (9.53)	0.75 (19.05)	0.75 (19.05)		0.62 (15.75)	
SX4444	SW250	1/4 (6.35)	15,000 (1034.19)	0.188 (4.78)	2.00 (50.80)	2.00 (50.80)	0.44 (11.18)	0.63 (15.88)	1.00 (25.40)	1.00 (25.40)		0.75 (19.05)	See Fig. 3
SX6666	SW375	3/8 (9.53)	15,000 (1034.19)	0.250 (6.35)	2.00 (50.80)	2.00 (50.80)	0.53 (13.46)	0.75 (19.05)	1.00 (25.40)	1.00 (25.40)		0.75 (19.05)	
SX8888	SW500	1/2 (12.70)	10,000 (689.46)	0.375 (9.53)	2.50 (63.50)	2.50 (63.50)	0.53 (13.46)	0.93 (23.62)	1.25 (31.75)	1.25 (31.75)		1.00 (25.40)	

Figure 1



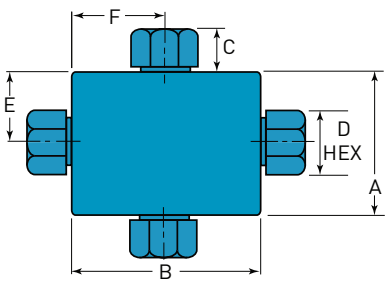
Elbow

Figure 2



Tee

Figure 3



Cross

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All dimensions for reference only and subject to change.
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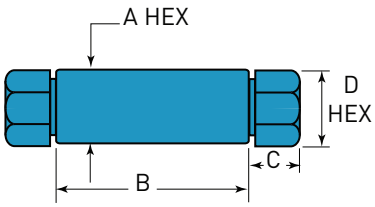
Consult your local representative.

All general terms and conditions of sale, including limitations of our liability, apply to all products and services sold.

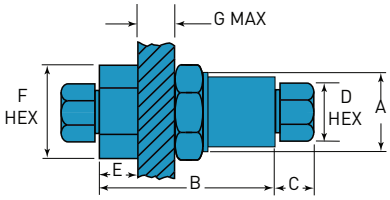
Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Minimum Opening	Dimensions - inches (mm) A	B	C	D Typical	E	F	G Thickness	Block Thickness	Fitting Pattern
Straight Coupling													
15F2211	W125	1/8 (3.18)	15,000 (1034.19)	0.094 (2.39)	0.50 (12.70)	1.25 (31.75)	0.31 (7.87)	0.38 (9.53)					See Fig. 4
6F4422	SW250	1/4 (6.35)	15,000 (1034.19)	0.188 (4.78)	0.62 (15.75)	1.62 (50.80)	0.44 (11.18)	0.63 (15.88)					
6F6622	SW375	3/8 (9.53)	15,000 (1034.19)	0.250 (6.35)	0.75 (19.05)	1.75 (44.45)	0.53 (13.46)	0.75 (19.05)					
4F8822	SW500	1/2 (12.70)	10,000 (689.46)	0.375 (9.53)	1.00 (25.40)	2.00 (50.80)	0.53 (13.46)	0.93 (23.62)					
Bulkhead Coupling													
15BF2211	W125	1/8 (3.18)	15,000 (1034.19)	0.094 (2.39)	0.690 (17.53)	1.75 (44.45)	0.31 (7.87)	0.38 (9.53)	0.38 (9.53)	0.75 (19.05)	0.38 (9.53)		See Fig. 5
6BF4422	SW250	1/4 (6.35)	15,000 (1034.19)	0.188 (4.78)	0.940 (23.88)	1.88 (47.75)	0.44 (11.18)	0.63 (15.88)	0.50 (12.70)	1.00 (25.40)	0.38 (9.53)		
6BF6622	SW375	3/8 (9.53)	15,000 (1034.19)	0.250 (6.35)	0.940 (23.88)	1.88 (47.75)	0.53 (13.46)	0.75 (19.05)	0.50 (12.70)	1.00 (25.40)	0.38 (9.53)		
4BF8822	SW500	1/2 (12.70)	10,000 (689.46)	0.375 (9.53)	1.120 (28.45)	2.38 (60.45)	0.53 (13.46)	0.93 (23.62)	0.78 (19.81)	1.38 (35.05)	0.38 (9.53)		

Figure 4



Straight Coupling

Figure 5



(A=Panel hole drill size)

Bulkhead Coupling

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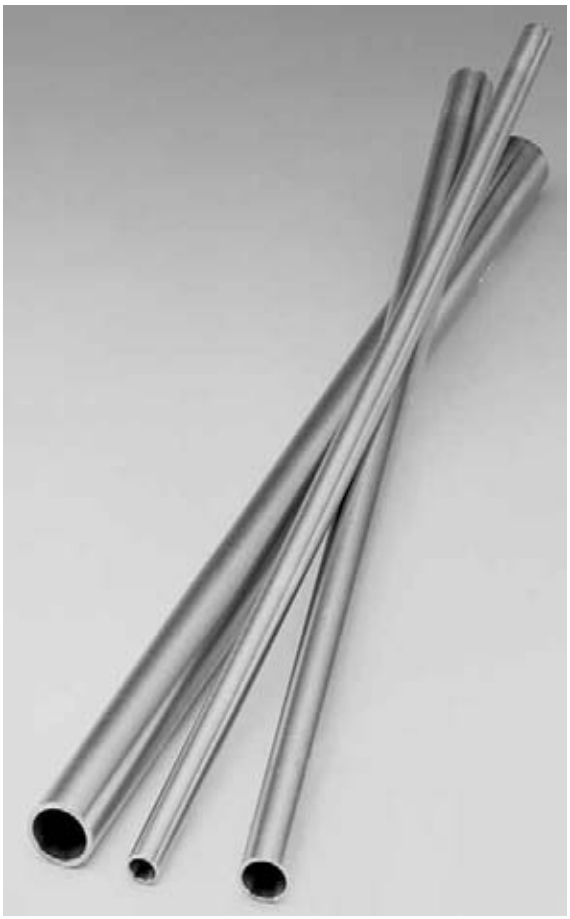
FITTINGS AND TUBING
LOW PRESSURE TUBING

Pressures to 15,000 psi (1034 bar)

Autoclave Engineers offers a complete selection of annealed, seamless stainless steel tubing designed to match the performance standards of Autoclave low pressure valves and fittings. Autoclave low pressure tubing is furnished in random lengths between 20 feet (6 meters) and 26.5 feet (8.0 meters). The average is 24 feet (7.3 meters). The tubing is available in five sizes and a variety of materials. In order to ensure proper sleeve "bite" into tubing, Autoclave Engineers specifies and controls the strength levels of both the tube and sleeve materials.



INSPECTION AND TESTING

Autoclave Engineers low pressure tubing is inspected for compliance with specified defect restrictions as well as carburization or intergranular carbide precipitation. The tubing outside diameter and wall thickness is controlled within close tolerance to assure proper fit. Sample pieces of tube (for each lot) are tested to confirm mechanical properties for proper compression sleeve "bite" and pressure capability. Furthermore, the sample tubes are pressure tested as a final check.

SPECIAL MATERIALS

In addition to the type 316/316L and 304/304L stainless steel tubing listed in this section, Autoclave has a limited stock of hard-to-obtain shorter lengths of the following tubing materials:
Monel 400*, Inconel 600*, Titanium Grade 2*, Nickel 200*, Hastelloy C276* - (* Trademark names)

Please consult factory for stock availabilty.

TUBING TOLERANCE

Nominal Tubing Size inches (mm)	Tolerance/Outside Diameter inches (mm)
1/16 (1.59)	.064/.062 (1.62/1.57)
1/8 (3.18)	.128/.125 (3.25/3.18)
1/4 (6.35)	.254/.250 (6.45/6.35)
3/8 (9.53)	.379/.375 (9.74/9.53)
1/2 (12.70)	.505/.500 (12.83/12.70)

Catalog Number	Tube Materials	Fits Connection Type	Tube Size Inches (mm)			Flow Area in.² (mm²)	Working Pressure psi (bar)*				
			Outside Diameter	Inside Diameter	Wall Thickness		0 - 100°F -17.8 to 37.8°C	200°F 93°C	400°F 204°C	600°F 316°C	650°F 343°C
MS15-070	316SS	W062	1/16 (1.59)	0.026 (0.66)	0.018 (0.46)	0.0005 (0.32)	15,000 (1034.20)	15,000 (1034.20)	14,400 (992.83)	13,600 (937.67)	12,600 (868.73)
MS15-200	316SS	W125		0.052 (1.32)	0.036 (0.91)	0.002 (1.29)	15,000 (1034.20)	15,000 (1034.20)	14,400 (992.83)	13,600 (937.67)	12,600 (868.73)
MS15-166**	304SS			0.069 (1.75)	0.028 (0.71)	0.004 (2.58)	9,950 (686.02)	9,400 (648.10)	8,550 (589.49)	8,450 (582.60)	8,000 (551.57)
MS15-203	316SS	W250 or SW250	1/4 (6.35)	0.084 (2.13)	0.083 (2.11)	0.029 (18.71)	15,000 (1034.16)	15,000 (1034.16)	14,400 (992.83)	13,600 (937.67)	12,600 (868.73)
MS15-055	316SS			0.125 (3.18)	0.062 (1.57)	0.012 (7.74)	11,650 (803.23)	11,650 (761.86)	11,250 (775.65)	10,600 (730.83)	9,850 (679.12)
MS15-161**	304SS			0.180 (4.57)	0.035 (0.89)	0.026 (16.77)	5,450 (375.76)	5,150 (355.07)	4,700 (324.05)	4,600 (317.15)	4,400 (303.36)
MS15-069	316SS			0.180 (4.57)	0.035 (0.89)	0.026 (16.77)	5,450 (375.76)	5,450 (375.76)	5,250 (361.97)	4,950 (341.29)	4,600 (317.15)
MS15-158**	304SS			0.194 (4.93)	0.028 (0.71)	0.029 (18.71)	4,600 (317.15)	4,350 (299.92)	3,950 (272.34)	3,900 (272.34)	3,700 (255.10)
MS15-204	316SS	W375 or SW375	3/8 (9.53)	0.139 (3.53)	0.118 (3.00)	0.015 (9.79)	15,000 (1034.16)	15,000 (1034.16)	14,400 (992.83)	13,600 (937.67)	12,600 (868.73)
MS15-184	304SS			0.195 (4.95)	0.090 (2.29)	0.030 (19.35)	10,000 (689.46)	9,400 (648.10)	8,600 (592.94)	8,500 (586.05)	8,450 (582.60)
MS15-084	316SS			0.195 (4.95)	0.090 (2.29)	0.030 (19.35)	10,000 (689.46)	10,000 (689.46)	9,650 (665.33)	9,000 (620.52)	8,400 (579.15)
MS15-155**	304SS			0.250 (6.35)	0.062 (1.57)	0.049 (31.61)	7,500 (517.10)	7,100 (489.52)	6,450 (444.70)	6,350 (437.81)	6,050 (417.13)
MS15-062	316SS			0.250 (6.35)	0.062 (1.57)	0.049 (31.61)	7,500 (517.10)	7,500 (517.10)	7,200 (496.41)	6,800 (468.84)	6,300 (434.36)
MS15-162**	304SS			0.305 (7.75)	0.035 (0.89)	0.073 (47.10)	3,800 (262.00)	3,550 (244.76)	3,250 (224.08)	3,200 (220.63)	3,050 (210.29)
MS15-205	316SS	W500 or SW500	1/2 (12.70)	0.270 (6.86)	0.118 (3.00)	0.055 (35.48)	10,000 (689.46)	10,000 (689.46)	9,650 (665.33)	9,000 (620.52)	8,400 (579.15)
MS15-208**	304SS			0.270 (6.86)	0.118 (3.00)	0.055 (35.48)	10,000 (689.46)	9,400 (648.10)	8,600 (592.94)	8,500 (586.05)	8,450 (582.60
MS15-065	316SS			0.375 (9.53)	0.062 (1.57)	0.110 (70.97)	5,500 (379.21)	5,500 (379.21)	5,250 (361.97)	4,950 (341.29)	4,600 (317.15)
MS15-165**	304SS			0.402 (10.21)	0.048 (1.22)	0.127 (81.94)	4,000 (275.79)	3,750 (258.55)	3,400 (234.42)	3,400 (234.42)	3,200 (220.63)

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**Items are being discontinued. Contact the factory for available stock

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HIGH PRESSURE FITTINGS AND TUBING MEDIUM PRESSURE

Pressures to 20,000 psi (1379 bar)

Since 1945 Autoclave Engineers has designed and built premium quality valves, fittings and tubing. This commitment to engineering and manufacturing excellence has earned Autoclave a reputation for reliable, efficient product performance. Autoclave Engineers has long been established as the world leader in high pressure fluid handling components for the chemical/petrochemical,research, and oil and gas industries.

MEDIUM PRESSURE FITTINGS, TUBING AND NIPPLES FEATURES:

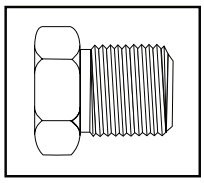
- Coned-and-Threaded Connection.
- Available sizes are 1/4", 3/8", 9/16", 3/4", 1" and 1-1/2".
- Fittings manufactured from cold worked 316 stainless steel.
- Tubing is manufactured from dual rated 316/316L and 304/304L cold worked stainless steel.
- Operating Temperatures from -423°F (-252°C) to 1200°F (649°C).
- Anti-vibration connection components available.
- All items available in special material.

The medium pressure series uses Autoclave's medium pressure connection. This coned-and-threaded connection features orifice sizes to match the high flow characteristics of this series.

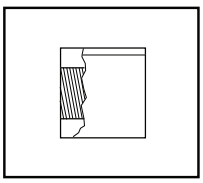
Autoclave Engineers medium pressure fittings, Series SF, are designed for use with Series 20SM medium pressure valves and Autoclave medium pressure tubing. They incorporate medium pressure coned-and-threaded connections with orifices sized to match the high-flow Series 20SC valves.

Connection Components

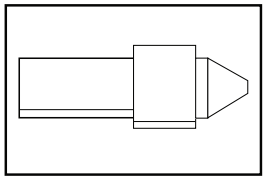
All Autoclave valves and fittings are supplied complete with appropriate glands and collars. To order these components separately, use order numbers listed. When using plug, collar is not required.



Gland
CGLX ( )



Collar
CCLX ( )



Plug
CPX ( )

Add tube size ( )
1/4" - 40
3/8" - 60
9/16" - 90
3/4" - 120
1" - 160
1-1/2" - 240

Example:
1/4" Gland - CGLX 40

To ensure proper fit use Autoclave Engineers tubing.

Note: Special material glands may be supplied with four flats in place of standard hex.

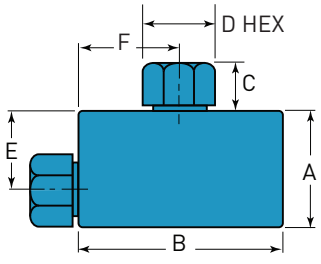
Elbow

Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Minimum Opening	Dimensions - inches (mm) A	B	C	D Typical	E	F	G Thickness	Block Thickness	Fitting Pattern
CLX4400	SF250CX	1/4 (6.35)	20,000 (1378.93)	0.125 (3.18)	1.12 (28.45)	1.50 (38.10)	0.38 (9.53)	0.50 (12.70)	0.75 (19.05)	0.75 (19.05)		0.62 (15.75)	
CLX6600	SF375CX	3/8 (9.53)	20,000 (1378.93)	0.219 (5.56)	1.38 (35.05)	2.00 (50.80)	0.44 (11.10)	0.62 (15.75)	1.00 (25.40)	1.00 (25.40)		0.75 (19.05)	
CLX9900	SF562CX	9/16 (14.29)	20,000 (1378.93)	0.359 (9.12)	1.75 (44.45)	2.50 (63.50)	0.53 (13.46)	0.94 (23.88)	1.25 (31.75)	1.25 (31.75)		1.00 (25.40)	See Fig. 1
CLX12	SF750CX	3/4 (19.05)	20,000 (1378.93)	0.516 (13.11)	2.25 (57.15)	3.00 (76.20)	0.62 (15.75)	1.19 (30.23)	1.50 (38.10)	1.50 (38.10)		1.38 (34.93)	
CLX16	SF1000CX	1 (25.40)	20,000 (1378.93)	0.688 (17.48)	3.00 (76.20)	4.12 (104.65)	0.72 (18.29)	1.38 (35.05)	2.06 (52.32)	2.06 (52.32)		1.75 (44.45)	
CLX24	SF1500CX	1-1/2 (38.10)	15,000 (1034.20)	0.94 (23.80)	4.00 (101.60)	5.75 (146.05)	1.12 (28.45)	1.88 (47.63)	2.88 (73.03)	2.88 (73.03)		2.25 (57.15)	

Tee

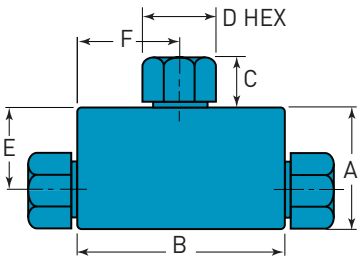
Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Minimum Opening	Dimensions - inches (mm) A	B	C	D Typical	E	F	G Thickness	Block Thickness	Fitting Pattern
CTX4440	SF250CX	1/4 (6.35)	20,000 (1378.93)	0.125 (3.18)	1.12 (28.45)	1.50 (38.10)	0.38 (9.53)	0.50 (12.70)	0.75 (19.05)	0.75 (19.05)		0.62 (15.75)	
CTX6660	SF375CX	3/8 (9.53)	20,000 (1378.93)	0.219 (5.56)	1.38 (35.05)	2.00 (50.80)	0.44 (11.10)	0.62 (15.75)	1.00 (25.40)	1.00 (25.40)		0.75 (19.05)	
CTX9990	SF562CX	9/16 (14.29)	20,000 (1378.93)	0.359 (9.12)	1.75 (44.45)	2.50 (63.50)	0.53 (13.46)	0.94 (23.88)	1.25 (31.75)	1.25 (31.75)		1.00 (25.40)	See Fig. 1
CTX12	SF750CX	3/4 (19.05)	20,000 (1378.93)	0.516 (13.11)	2.25 (57.15)	3.00 (76.20)	0.62 (15.75)	1.19 (30.23)	1.50 (38.10)	1.50 (38.10)		1.38 (34.93)	
CTX16	SF1000CX	1 (25.40)	20,000 (1378.93)	0.688 (17.48)	3.00 (76.20)	4.12 (104.65)	0.72 (18.29)	1.38 (35.05)	2.06 (52.32)	2.06 (52.32)		1.75 (44.45)	
CTX24	SF1500CX	1-1/2 (38.10)	15,000 (1034.20)	0.94 (23.80)	4.00 (101.60)	5.75 (146.05)	1.12 (28.45)	1.88 (47.63)	2.88 (73.03)	2.88 (73.03)		2.25 (57.15)	

Figure 1



Elbow

Figure 2



Tee

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For mounting hole option add suffix PM to catalog number.
Consult factory for mounting hole dimensions.

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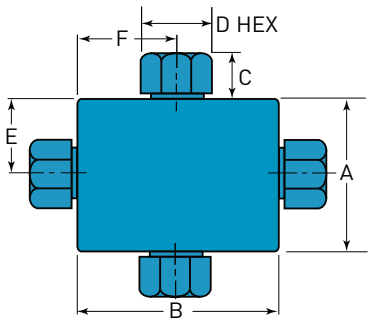
Cross

Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Minimum Opening	Dimensions - inches (mm) A	B	C	D Typical	E	F	G Thickness	Block Thickness	Fitting Pattern
CXX4444	SF250CX	1/4 (6.35)	20,000 (1378.93)	0.125 (3.18)	1.50 (38.10)	1.50 (38.10)	0.38 (9.53)	0.50 (12.70)	0.75 (19.05)	0.75 (19.05)		0.62 (15.75)	
CXX6666	SF375CX	3/8 (9.53)	20,000 (1378.93)	0.219 (5.56)	2.00 (50.80)	2.00 (50.80)	0.44 (11.10)	0.62 (15.75)	1.00 (25.40)	1.00 (25.40)		0.75 (19.05)	
CXX9999	SF562CX	9/16 (14.29)	20,000 (1378.93)	0.359 (9.12)	2.50 (63.50)	2.50 (63.50)	0.53 (13.46)	0.94 (23.88)	1.25 (31.75)	1.25 (31.75)		1.00 (25.40)	See Fig. 3
CXX12	SF750CX	3/4 (19.05)	20,000 (1378.93)	0.516 (13.11)	3.00 (76.20)	3.00 (76.20)	0.62 (15.75)	1.19 (30.23)	1.50 (38.10)	1.50 (38.10)		1.38 (34.93)	
CXX16	SF1000CX	1 (25.40)	20,000 (1378.93)	0.688 (17.48)	4.12 (104.65)	4.12 (104.65)	0.72 (18.29)	1.38 (35.05)	2.06 (52.32)	2.06 (52.32)		1.75 (44.45)	
CXX24	SF1500CX	1-1/2 (38.10)	15,000 (1034.20)	0.94 (23.80)	5.75 (146.05)	5.75 (146.05)	1.12 (28.45)	1.88 (47.63)	2.88 (73.03)	2.88 (73.03)		2.25 (57.15)	

Straight Coupling / Union Coupling

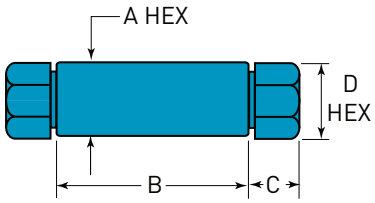
20FX4466 20UFX4466	SF250CX	1/4 (6.35)	20,000 (1378.93)	0.125 (3.18)	0.62 (15.75)	1.62 (41.15)	0.38 (9.53)	0.50 (12.70)	Straight Union	
20FX6666 20UFX6666	SF375CX	3/8 (9.53)	20,000 (1378.93)	0.219 (5.56)	0.75 (19.05)	1.75 (44.45)	0.44 (11.10)	0.62 (15.75)	Straight Union	
20FX9966 20UFX9966	SF562CX	9/16 (14.29)	20,000 (1378.93)	0.359 (9.12)	1.00 (25.40)	2.12 (53.85)	0.53 (13.46)	0.94 (23.88)	Straight Union	See Fig. 4
20FX12 20UFX12	SF750CX	3/4 (19.05)	20,000 (1378.93)	0.516 (13.11)	1.38 (35.05)	2.50 (63.50)	0.62 (15.75)	1.19 (30.23)	Straight Union	
20FX16 20UFX16	SF1000CX	1 (25.40)	20,000 (1378.93)	0.688 (17.48)	1.75 (44.45)	3.50 (88.90)	0.72 (18.29)	1.38 (35.05)	Straight Union	
15FX24 15UFX24	SF1500CX	1-1/2 (38.10)	15,000 (1034.20)	0.94 (23.80)	2.25 (25.15)	5.00 (127.00)	1.12 (28.45)	1.88 (47.63)	Straight Union	

Figure 3



Cross

Figure 4



Straight Coupling / Union Coupling

*Maximum pressure rating is based on the lowest rating of any component.

Actual working pressure may be determined by tubing pressure rating, if lower.

All dimensions for reference only and subject to change.
For prompt service, Autoclave stocks select products.
Consult your local representative.

For mounting hole option add suffix PM to catalog number.
Consult factory for mounting hole dimensions.

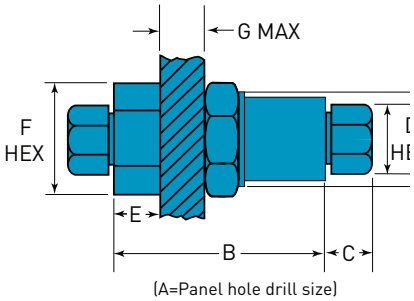
Union Couplings are designed with a removable seat insert allowing disassembly and tubing removal without the necessity of loosening other items in a line.

All general terms and conditions of sale, including limitations of our liability, apply to all products and services sold.

Bulkhead Coupling

Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Minimum Opening	Dimensions - inches (mm) A	B	C	D Typical	E	F	G Thickness	Block Thickness	Fitting Pattern
20BFX4466	SF250CX	1/4 (6.35)	20,000 (1378.93)	0.125 (3.18)	0.81 (20.57)	1.88 (47.75)	0.38 (9.53)	0.50 (12.70)	0.53 (13.46)	1.00 (25.40)	0.38 (9.53)		
20BFX6666	SF375CX	3/8 (9.53)	20,000 (1378.93)	0.219 (5.56)	0.94 (23.88)	2.00 (50.80)	0.44 (11.10)	0.62 (15.75)	0.62 (15.75)	1.00 (25.40)	0.38 (9.53)		
20BFX9966	SF562CX	9/16 (14.29)	20,000 (1378.93)	0.359 (9.12)	1.12 (28.45)	2.38 (60.45)	0.53 (13.46)	0.94 (23.88)	0.78 (19.81)	1.38 (35.05)	0.38 (9.53)		See Fig. 5
20BFX12	SF750CX	3/4 (19.05)	20,000 (1378.93)	0.516 (13.11)	1.69 (42.93)	2.62 (66.55)	0.62 (15.75)	1.19 (30.23)	0.91 (23.11)	1.88 (47.75)	0.38 (9.53)		
20BFX16	SF1000CX	1 (25.40)	20,000 (1378.93)	0.688 (17.48)	1.94 (49.28)	3.50 (88.90)	0.72 (18.29)	1.38 (35.05)	1.50 (38.10)	1.88+ (47.75)	0.38 (9.53)		
15BFX24	SF1500CX	1-1/2 (38.10)	15,000 (1034.20)	0.94 (23.80)	2.44 (61.85)	5.00 (127.00)	1.12 (28.45)	1.88 (47.63)	2.00 (50.80)	2.50+ (63.50)	0.38 (9.53)		

Figure 5



Bulkhead Coupling

*Maximum pressure rating is based on the lowest rating of any component.
Actual working pressure may be determined by tubing pressure rating, if lower.

+ distance across flats

All dimensions for reference only and subject to change. For prompt service, Autoclave stocks select products. Consult your local representative.

For mounting hole option add suffix PM to catalog number.
Consult factory for mounting hole dimensions.

All general terms and conditions of sale, including limitations of our liability, apply to all products and services sold.

FITTINGS, TUBING AND NIPPLES
MEDIUM PRESSURE TUBING

Pressures to 20,000 psi (1379 bar)

Autoclave Engineers offers a complete selection of austenetic, cold drawn stainless steel tubing designed to match the performance standards of Autoclave valves and fittings. Autoclave medium pressure tubing is manufactured specifically for high pressure applications requiring both strength and corrosion resistance. The tubing is furnished in random lengths between 20 feet (6 meters) and 26.5 feet (8.0 meters). The average is 24 feet (7.3 meters). Medium Pressure Tubing is available in six sizes and a variety of materials.

INSPECTION AND TESTING

Autoclave Engineer's medium pressure tubing is inspected to assure freedom from seams, laps, fissures or other flaws, as well as carburization or intergranular carbide precipitation. The outside and inside diameters of the tubing are subject to special inspection and are controlled within close tolerences to assure proper fit. Sample pieces of tube for each lot are tested to confirm mechanical properties. Hydrostatic testing is also performed on a statistical basis and is conducted at the working pressure of the tube. Autoclave will perform 100% hydrostatic testing at additional cost if desired.

SPECIAL MATERIALS

In addition to the type 316/316L and 304/304L stainless steel tubing listed in this section, Autoclave has limited stock of hard-to-obtain special tubing materials:
Monel 400*, Inconel 600*, Inconel 625*, Duplex, Super Duplex, Titanium Grade 2*, Nickel 200*, Hastelloy C276*
(*Trademark names)
Some are available in shorter lengths only.
Please consult factory for stock availability.

TUBING TOLERANCE

Nominal Tubing Size inches (mm)	Tolerance/Outside Diameter inches (mm)
1/4 (6.35)	.248/.243 (6.30/6.17)
3/8 (9.53)	.370/.365 (9.40/9.27)
9/16 (14.27)	.557/.552 (14.15/14.02)
3/4 (19.05)	.745/.740 (18.92/18.80)
1 (25.40)	.995/.990 (25.27/25.14)
1-1/2 (38.10)	1.495/1.490 (37.98/37.85)

Catalog Number	Tube Materials	Fits Connection Type	Tube Size Inches (mm)			Flow Area in.² (mm²)	Working Pressure psi (bar)*				
			Outside Diameter	Inside Diameter	Wall Thickness		-423 to 100°F -252 to 37.8°C	200°F 93°C	400°F 204°C	600°F 316°C	800°F 427°C
MS15-092	316SS	SF250CX	1/4 (6.35)	0.109 (2.77)	0.070 (1.78)	0.009 (5.81)	20,000 (1378.93)	20,000 (1378.93)	19,250 (1327.22)	18,050 (1244.48)	16,800 (1158.30)
MS15-192	304SS						20,000 (1378.93)	18,950 (1306.54)	17,200 (1185.88)	17,000 (1172.09)	16,150 (1113.49)
MS15-093	316SS	SF375CX	3/8 (9.53)	0.203 (5.16)	0.086 (2.18)	0.032 (20.65)	20,000 (1378.93)	20,000 (1378.93)	19,250 (1327.22)	18,050 (1244.48)	16,800 (1158.30)
MS15-193	304SS						20,000 (1378.93)	20,000 (1378.93)	19,250 (1327.22)	18,050 (1244.48)	16,800 (1158.30)
MS15-085	316SS	SF562CX	9/16 (14.29)	0.312 (7.92)	0.125 (3.18)	0.076 (49.03)	20,000 (1378.93)	20,000 (1378.93)	19,250 (1327.22)	18,050 (1244.48)	16,800 (1158.30)
MS15-187	304SS						20,000 (1378.93)	20,000 (1378.93)	19,250 (1327.22)	18,050 (1244.48)	16,800 (1158.30)
MS15-097	316SS	SF562CX	9/16 (14.29)	0.359 (9.12)	0.101 (2.57)	0.101 (65.16)	15,000 (1034.16)	15,000 (1034.16)	14,400 (992.83)	13,650 (941.12)	12,670 (873.55)
MS15-194	304SS						15,000 (1034.16)	14,170 (976.97)	12,900 (889.41)	12,750 (879.07)	12,670 (873.55)
MS15-095	316SS	SF750CX	3/4 (19.05)	0.438 (11.13)	0.156 (3.96)	0.151 (97.42)	20,000 (1378.93)	20,000 (1378.93)	19,250 (1327.22)	18,050 (1244.48)	16,800 (1158.30)
MS15-098	316SS			0.516 (13.11)	0.117 (2.97)	0.209 (134.84)	15,000 (1034.16)	15,000 (1034.16)	14,400 (992.83)	13,650 (941.12)	12,670 (873.55)
MS15-096	316SS	SF1000CX	1 (25.40)	0.562 (14.27)	0.219 (5.56)	0.248 (160.00)	20,000 (1378.93)	20,000 (1378.93)	19,250 (1327.22)	18,050 (1244.48)	16,800 (1158.30)
MS15-099	316SS			0.688 (17.48)	0.156 (3.96)	0.371 (239.35)	15,000 (1034.16)	15,000 (1034.16)	14,400 (992.83)	13,650 (941.12)	12,670 (873.55)
13041	316SS	SF1500CX	1-1/2 (38.10)	0.937 (23.80)	0.281 (7.15)	0.589 (444.88)	15,000 (1034.16)	15,000 (1034.16)	14,430 (994.90)	13,530 (932.85)	12,600 (868.73)

Note: Caution should be exercised in proper selection of Medium Pressure Tubing based on actual operating conditions. Two series available: 15,000 psi (1034 bar) and 20,000 psi (1379 bar).

*Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower.

All dimensions for reference only and subject to change.
For prompt service, Autoclave stocks select products. Consult your local representative.

All general terms and conditions of sale, including limitations of our liability, apply to all products and services sold.

FITTINGS, TUBING AND NIPPLES
MEDIUM PRESSURE CONED-AND-THREADED NIPPLES

Pressures to 20,000 psi (1379 bar)

For rapid system make-up, Autoclave Engineers supplies precut, coned-and-threaded nipples in various sizes and lengths for Autoclave medium pressure valves and fittings.

SPECIAL LENGTHS
In addition to the standard lengths listed in the table below, nipples are available in any custom length. Consult factory.

MATERIALS**
Catalog numbers in table refer to Type 316 Stainless steel.
Optional materials available. Consult factory.

Catalog Number Nipple Length In (mm)							Fits Connection Type	Tube Size inches (mm)		Working Pressure at 100°F psi (bar)*
2.75" (69.85)	3.00" (76.20)	4.00" (101.60)	6.00" (152.40)	8.00" (203.20)	10.00" (254.00)	12.00" (304.80)		O.D.	I.D.	
CNX4402-316	CNX4403-316	CNX4404-316	CNX4406-316	CNX4408-316	CNX44010-316	CNX44012-316	SF250CX	1/4 (6.35)	0.109 (2.77)	20,000 (1378.93)
	CNX6603-316	CNX6604-316	CNX6606-316	CNX6608-316	CNX66010-316	CNX66012-316	SF375CX	3/8 (9.53)	0.203 (5.16)	20,000 (1378.93)
		CNX9904-316	CNX9906-316	CNX9908-316	CNX99010-316	CNX99012-316	SF562CX	9/16 (14.29)	0.312 (7.92)	20,000 (1378.93)
		CNLX9904-316	CNLX9906-316	CNLX9908-316	CNLX99010-316	CNLX99012-316	SF562CX	9/16 (14.29)	0.359 (9.12)	15,000 (1034.16)
		CNLX1204-316	CNLX1206-316	CNLX1208-316	CNLX12010-316	CNLX12012-316	SF750CX	3/4 (19.05)	0.438 (11.13)	20,000 (1378.93)
		CNLX1204-316	CNLX1206-316	CNLX1208-316	CNLX12010-316	CNLX12012-316	SF750CX	3/4 (19.05)	0.516 (13.11)	15,000 (1034.16)
			CNX1606-316	CNX1608-316	CNX16010-316	CNX16012-316	SF1000CX	1 (25.40)	0.562 (14.27)	20,000 (1378.93)
			CNLX1606-316	CNLX1608-316	CNLX16010-316	CNLX16012-316	SF1000CX	1 (25.40)	0.688 (17.48)	15,000 (1034.16)
			CNLX2406-316	CNLX2408-316	CNLX24010-316	CNLX24012-316	SF1500CX	1-1/2 (38.10)	0.937 (23.79)	15,000 (1034.16)

Note: Caution should be exercised when selecting medium pressure nipples since two series are available: 15,000 psi (1034.16 bar) and 20,000 psi (1379 bar)

See medium pressure tubing section for pressures at various temperatures.

*Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower.

**Type 304 Stainless Steel nipples available.

All dimensions for reference only and subject to change.

All general terms and conditions of sale, including limitations of our liability, apply to all products and services sold.

HIGH PRESSURE FITTINGS AND TUBING
HIGH PRESSURE

Pressures to 150,000 psi (10342 bar)

Since 1945 Autoclave Engineers has designed and built premium quality valves, fittings and tubing. This commitment to engineering and manufacturing excellence has earned Autoclave a reputation for reliable, efficient product performance. Autoclave Engineers has long been established as the world leader in high pressure fluid handling components for the chemical/petrochemical, research, and oil and gas, waterjet, and waterblast industries.

HIGH PRESSURE FITTINGS, TUBING AND NIPPLES FEATURES:

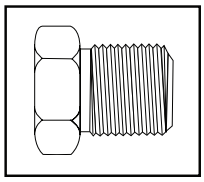
- Coned-and-Threaded Connection.
- Available sizes are 1/4, 5/16, 3/8, 9/16, and 1".
- Fittings manufactured from 316 cold worked or high strength stainless steel.
- Tubing is manufactured from dual rated 316/316L and 304/304L cold worked stainless steel.
- Operating Temperatures from -423°F (-252°C) to 1200°F (649°C).
- Anti-vibration connection components available.
- Ultra-high pressure components.
- Autofrettaged tubing.
- High pressure high cycle tubing.

The high and ultra-high pressure series uses Autoclave's high pressure connector. This coned-and-threaded connection provides dependable performance in gas or liquid service.

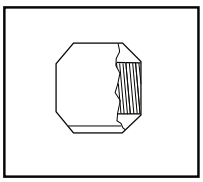
SF are the industry standard for pressures to 150,000 psi (10342 bar). Utilizing Autoclave Engineers high pressure coned-and-threaded connections, these fittings are correlated with Series 30SC, 43SC, 30VM, 40VM, 60VM, 100VM, and 150V valves and Autoclave Engineers high pressure tubing.

Connection Components

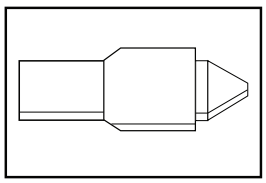
All Autoclave Engineers valves and fittings are supplied complete with appropriate glands and collars. To order these components separately, use order numbers listed. When using plug, collar is not required.



Gland
AGL ( )



Collar
ACL ( )



Plug
AP ( )

Add tube size ( )
1/4" - 40
5/16" - 50
3/8" - 60
9/16" - 90
1" - 160

Example:
9/16" Gland - AGL (90)

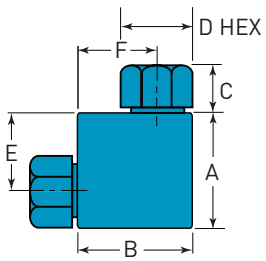
To ensure proper fit use Autoclave Engineers tubing.

Note: Special material glands may be supplied with four flats in place of standard hex.

Connection Type	Gland	Collar	Plug	Connection Components (Industry Standard)
F250C F375C F562C	AGL( )	ACL( )	AP( )	Autoclave Engineer's high pressure fittings 1/4, 3/8 and 9/16 Autoclave Engineer's high pressure fittings 1/4, 3/8 and 9/16 connection components to 60,000 psi (4137 bar). For use with 30VM, 40VM, 60VM valves and fittings.
F1000C43	CGLX160	CCLX160	43CP160	Autoclave Engineer's high pressure 1" connection components to 43,000 psi (2965 bar) for use with 30SC, 43Y valves, and fittings.
F312C150	CGL50	CCL50	CP50	Autoclave Engineer's ultra high pressure 5/16 connection components to 150,000 psi (10342 bar) for use with 100VM and 150V valve and fittings.
	100CGL40 100CGL60	100CCL40 100CCL60	100CP40 100CP60	Autoclave Engineer's 100,000 psi (6895 bar) connection components utilize our 5/16" connection for 1/4" and 3/8" tubing. (See Note*)

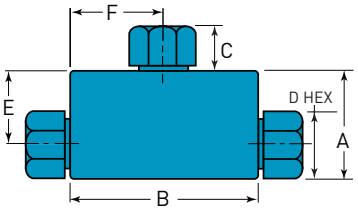
Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Minimum Opening	Dimensions - inches (mm) A	B	C	D Typical	E	F	G Thickness	Block Thickness	Fitting Pattern
Elbow													
CL4400	F250C	1/4 (6.35)	60,000 (4136.79)	0.094 (2.39)	1.00 (25.40)	1.50 (38.10)	0.50 (12.70)	0.63 (15.88)	0.62 (15.75)	0.88 (22.35)		0.75 (19.05)	
100CL4400	F312C150	1/4 (6.35)	100,000 (6894.65)	0.094 (2.39)	2.12 (53.85)	3.00 (76.20)	0.52 (13.21)	0.75 (19.05)	1.50 (38.10)	1.50 (38.10)		1.38 (35.05)	
CL5500	F312C150	5/16 (7.94)	150,000 (10341.97)	0.094 (2.39)	2.12 (53.85)	3.00 (76.20)	0.52 (13.21)	0.75 (19.05)	1.50 (38.10)	1.50 (38.10)		1.38 (35.05)	
CL6600	F375C	3/8 (9.53)	60,000 (4136.79)	0.125 (3.18)	1.50 (38.10)	2.00 (50.80)	0.52 (13.21)	0.81 (20.62)	1.00 (25.40)	1.25 (31.75)		1.00 (25.40)	See Fig. 1
100CL6600	F312C150	3/8 (9.53)	100,000 (6894.65)	0.094 (2.39)	2.12 (53.85)	3.00 (76.20)	0.52 (13.21)	0.75 (19.05)	1.50 (38.10)	1.50 (38.10)		1.38 (35.05)	
CL9900	F562C	9/16 (14.29)	60,000 (4136.79)	0.188 (4.78)	1.88 (47.75)	2.62 (66.55)	0.81 (20.57)	1.19 (30.23)	1.12 (28.45)	1.88 (47.75)		1.50 (38.10)	
40CL9900	F562C40	9/16 (14.29)	40,000 (2757.86)	0.250 (6.35)	1.88 (47.775)	2.62 (66.55)	0.81 (20.57)	1.19 (30.23)	1.12 (28.45)	1.88 (47.75)		1.50 (38.10)	
43CL16	F1000C43	1 (25.40)	43,000 (2964.70)	0.438 (11.13)	3.00 (76.20)	4.12 (104.65)	0.72 (18.29)	1.38 (35.05)	2.06 (52.32)	2.06 (52.32)		1.75 (44.45)	
Tee													
CT4440	F250C	1/4 (6.35)	60,000 (4136.79)	0.094 (2.39)	1.25 (31.75)	2.00 (50.80)	0.50 (12.70)	0.63 (15.88)	0.88 (22.35)	1.00 (25.40)		1.00 (25.40)	
100CT4440	F312C150	1/4 (6.35)	100,000 (6894.65)	0.094 (2.39)	2.12 (53.85)	3.00 (76.20)	0.52 (13.21)	0.75 (19.05)	1.50 (38.10)	1.50 (38.10)		1.38 (35.05)	
CT5550	F312C150	5/16 (7.94)	150,000 (10341.97)	0.094 (2.39)	2.12 (53.85)	3.00 (76.20)	0.52 (13.21)	0.75 (19.05)	1.50 (38.10)	1.50 (38.10)		1.38 (35.05)	
CT6660	F375C	3/8 (9.53)	60,000 (4136.79)	0.125 (3.18)	1.56 (39.62)	2.00 (50.80)	0.52 (13.21)	0.81 (20.62)	1.06 (26.92)	1.00 (25.40)		1.00 (25.40)	See Fig. 2
100CT6660	F312C150	3/8 (9.53)	100,000 (6894.65)	0.094 (2.39)	2.12 (53.85)	3.00 (76.20)	0.52 (13.21)	0.75 (19.05)	1.50 (38.10)	1.50 (38.10)		1.38 (35.05)	
CT9990	F562C	9/16 (14.29)	60,000 (4136.79)	0.188 (4.78)	2.12 (53.85)	2.62 (66.55)	0.81 (20.57)	1.19 (30.23)	1.38 (35.05)	1.31 (47.75)		1.50 (38.10)	
40CT9990	F562C40	9/16 (14.29)	40,000 (2757.86)	0.250 (6.35)	2.12 (53.85)	2.62 (66.55)	0.81 (20.57)	1.19 (30.23)	1.38 (35.05)	1.88 (33.27)		1.50 (38.10)	
43CT16	F1000C43	1 (25.40)	43,000 (2964.70)	0.438 (11.13)	3.00 (76.20)	4.12 (104.65)	0.72 (18.29)	1.38 (35.05)	2.06 (52.32)	2.06 (52.32)		1.75 (44.45)	

Figure 1



Elbow

Figure 2



Tee

*Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower.

All dimensions for reference only and subject to change. For prompt service, Autoclave stocks select products. Consult your local representative.

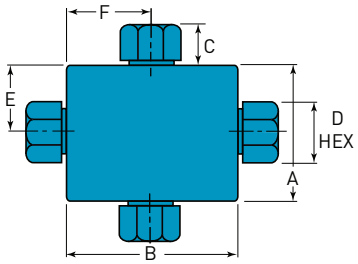
Note: Fittings such as 45° elbows, reducer elbows, and reducer 45° elbows are available upon request. For mounting hole option add suffix PM to catalog number, consult factory for mounting hole dimensions. Contact your local sales representative for additional information.

All general terms and conditions of sale, including limitations of our liability, apply to all products and services sold.

Cross

Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Minimum Opening	Dimensions - inches (mm) A	B	C	D Typical	E	F	G Thickness	Block Thickness	Fitting Pattern
CX4444	F250C	1/4 (6.35)	60,000 (4136.79)	0.094 (2.39)	1.25 (31.75)	2.00 (50.80)	0.50 (12.70)	0.63 (15.88)	0.62 (15.75)	1.00 (25.40)		1.00 (25.40)	
100CX4444	F312C150	1/4 (6.35)	100,000 (6894.65)	0.094 (2.39)	3.00 (76.20)	3.00 (76.20)	0.52 (13.21)	0.75 (19.05)	1.50 (38.10)	1.50 (38.10)		1.38 (35.05)	
CX5555	F312C150	5/16 (7.94)	150,000 (10341.97)	0.094 (2.39)	3.00 (76.20)	3.00 (76.20)	0.52 (13.21)	0.75 (19.05)	1.50 (38.10)	1.50 (38.10)		1.38 (35.05)	
CX6666	F375C	3/8 (9.53)	60,000 (4136.79)	0.125 (3.18)	2.12 (53.85)	2.00 (50.80)	0.52 (13.21)	0.81 (20.62)	1.06 (26.92)	1.00 (25.40)		1.00 (25.40)	See Fig. 3
100CX6666	F312C150	3/8 (9.53)	100,000 (6894.65)	0.094 (2.39)	2.12 (76.20)	3.00 (76.20)	0.52 (13.21)	0.75 (19.05)	1.50 (38.10)	1.50 (38.10)		1.38 (35.05)	
CX9999	F562C	9/16 (14.29)	60,000 (4136.79)	0.188 (4.78)	2.75 (69.85)	2.62 (66.55)	0.81 (20.57)	1.19 (30.23)	1.38 (35.05)	1.31 (33.27)		1.50 (38.10)	
40CX9999	F562C40	9/16 (14.29)	40,000 (2757.86)	0.250 (6.35)	2.75 (69.85)	2.62 (66.55)	0.81 (20.57)	1.19 (30.23)	1.38 (35.05)	1.31 (33.27)		1.50 (38.10)	
43CX16	F1000C43	1 (25.40)	43,000 (2964.70)	0.438 (11.13)	4.12 (104.65)	4.12 (104.65)	0.72 (18.29)	1.38 (35.05)	2.06 (52.32)	2.06 (52.32)		1.75 (44.45)	

Figure 3



Cross

*Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower.

All dimensions for reference only and subject to change. For prompt service, Autoclave stocks select products. Consult your local representative.

Note: Fittings such as 45° elbows, reducer elbows, and reducer 45° elbows are available upon request. For mounting hole option add suffix PM to catalog number, consult factory for mounting hole dimensions. Contact your local sales representative for additional information.

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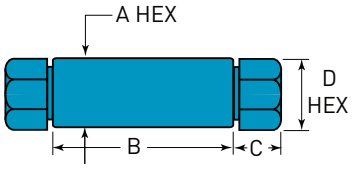
Straight Coupling/Union Coupling

Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Minimum Opening	Dimensions - inches (mm) A	B	C	D Typical	E	F	G Thickness	Block Thickness	Fitting Pattern
60F4433 60UF4433	F250C	1/4 (6.35)	60,000 (4136.79)	0.094 (2.39)	0.75 (19.05)	1.38 (35.05)	0.50 (12.70)	0.63 (15.88)	Straight Union				
100F4433 100UF4433	F312C150	1/4 (7.94)	100,000 (10341.97)	0.094 (2.39)	1.12 (28.45)	2.62 (66.55)	0.52 (13.21)	0.75 (19.05)	Straight Union				
150F5533 150UF5533	F312C150	5/16 (7.94)	150,000 (10341.97)	0.094 (2.39)	1.12 (28.45)	2.62 (66.55)	0.52 (13.21)	0.75 (19.05)	Straight Union				
60F6633 60UF6633	F375C	3/8 (9.53)	60,000 (4136.79)	0.125 (3.18)	1.00 (25.40)	1.75 (44.45)	0.53 (13.46)	0.81 (20.62)	Straight Union				See Fig. 4
100F6633 100UF6633	F312C150	3/8 (9.53)	100,000 (6894.65)	0.094 (2.39)	1.12 (28.45	2.62 (66.55)	0.52 (13.21)	0.75 (19.05)	Straight Union				
60F9933 60UF9933	F562C	9/16 (14.29)	60,0 00 (4136.79)	0.188 (4.78)	1.38 (35.05)	2.19 (55.63)	0.81 (20.57)	1.19 (30.23)	Straight Union				
40F9933 40UF9933	F562C40	9/16 (14.29)	40,000 (2757.86)	0.250 (6.35)	1.38 (35.05)	2.19 (55.63)	0.81 (20.57)	1.19 (30.23)	Straight Union				
43F16 43UF16	F1000C43	1 (25.40)	43,000 (2964.70)	0.438 (11.13)	1.75 (44.45)	3.50 (88.90)	0.72 (18.29)	1.38 (35.05)	Straight Union				

Bulkhead Coupling

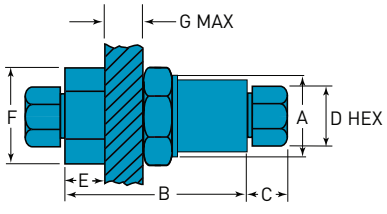
60BF4433	F250C	1/4 (6.35)	60,000 (4136.79)	0.094 (2.39)	0.94 (23.88)	1.88 (47.75)	0.50 (12.70)	0.63 (15.88)	0.50 (12.70)	1.00 (25.40)	0.38 (9.65)		
100BF4433	F312C150	1/4 (6.35)	100,000 (6894.65)	0.094 (2.39)	2.12 (53.85)	3.25 (82.55)	0.52 (13.21)	0.75 (19.05)	1.38 (35.05)	2.00 (50.80)	0.38 (9.65)		
150BF5533	F312C150	5/16 (7.94)	150,000 (10341.97)	0.094 (2.39)	2.12 (53.85)	3.25 (82.55)	0.52 (13.21)	0.75 (19.05)	1.38 (35.05)	2.00 (50.80)	0.38 (9.65)		
60BF6633	F375C	3/8 (9.53)	60,000 (4136.79)	0.125 (3.18)	1.12 (28.45)	2.38 (60.45)	0.53 (13.46)	0.81 (20.62)	0.78 (19.81)	1.38 (35.05)	0.38 (9.65)		See Fig. 5
100BF6633	F312C150	3/8 (9.53)	100,000 (6894.65)	0.094 (2.39)	2.12 (53.85)	3.25 (82.55)	0.52 (13.21)	0.75 (19.05)	1.38 (35.05)	2.00 (50.80)	0.38 (9.65)		
60BF9933	F562C	9/16 (14.29)	60,000 (4136.79)	0.188 (4.78)	1.69 (42.93)	2.75 (69.85)	0.81 (20.57)	1.19 (30.23)	1.00 (25.40)	1.88 (47.75)	0.38 (9.65)		
40BF9933	F562C40	9/16 (14.29)	40,000 (2757.86)	0.250 (6.35)	1.69 (42.93)	2.75 (69.85)	0.81 (20.57)	1.19 (30.23)	1.00 (25.40)	1.88 (47.75)	0.38 (9.65)		
43BF16	F1000C43	1 (25.40)	43,000 (2964.70)	0.438 (11.13)	1.94 (49.28)	3.50 (88.90)	0.72 (18.29)	1.38 (35.05)	1.50 (38.10)	2.13 (54.10)	0.50 (12.70)		

Figure 4



Straight Coupling / Union Coupling

Figure 5



(A=Panel hole drill size)

Bulkhead Coupling

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Actual working pressure may be determined by tubing pressure rating, if lower.

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For prompt service, Autoclave stocks select products. Consult your local representative.

Union Couplings are designed with a removable seat insert allowing disassembly and tubing removal without the necessity of loosening other items in a line.

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FITTINGS, TUBING AND NIPPLES
HIGH PRESSURE TUBING

Pressures to 150,000 psi (10342 bar)

Autoclave Engineers offers a complete selection of austenetic, cold drawn stainless steel tubing designed to match the performance standards of Autoclave valves and fittings. Autoclave high pressure tubing is manufactured specifically for high pressure applications requiring both strength and corrosion resistance. The tubing is furnished in random lengths between 20 feet (6 meters) and 26.5 feet (8.0 meters). The average is 24 feet (7.3 meters). High pressure tubing is available in five sizes and a variety of materials. Special longer lengths are available. Consult factory.

INSPECTION AND TESTING

Autoclave Engineer's high pressure tubing is inspected to assure freedom from seams, laps, fissures or other flaws, as well as carburization or intergranular carbide precipitation. The outside and inside diameters of the tubing are controlled within close tolerances. Sample pieces of tubing for each lot are tested to confirm mechanical properties. Hydrostatic testing is also performed on a statistical basis and is conducted at the working pressure of the tube. Autoclave will perform 100% hydrostatic testing at additional cost if desired.

SPECIAL MATERIALS

In addition to the type 316/316L and 304/304L stainless steel tubing listed in this section, Autoclave has limited stock of hard-to-obtain shorter lengths of the following tubing materials in some sizes: Monel 400*, Inconel 600*, Inconel 625*, Duplex, Super Duplex, Titanium Grade 2*, Nickel 200*, Hastelloy C276*
(*Trademark names)
Some are available in shorter lengths only. Please consult factory for stock availability.

TUBING TOLERANCE

Nominal Tubing Size inches (mm)	Tolerance/Outside Diameter inches (mm)
1/4 (6.35)	.248/.243 (6.30/6.17)
5/16 (7.94)	.310/.306 (7.87/7.77)
3/8 (9.53)	.370/.365 (9.40/9.27)
9/16 (14.29)	.557/.552 (14.15/14.02)
1 (25.40)	.995/.990 (25.27/25.14)

Catalog Number	Tube Materials	Fits Connection Type	Tube Size Inches (mm)			Flow Area in.² (mm²)	Working Pressure psi (bar)*				
			Outside Diameter	Inside Diameter	Wall Thickness		-423 to 100°F -252 to 37.8°C	200°F 93°C	400°F 204°C	600°F 316°C	800°F 427°C
MS15-202	Stainless	(See note 3)	1/4 (6.35)	0.083 (2.11)	0.083 (2.11)	0005 (3.23)	100,000 (6894.64)	100,000 (6894.64)	96,210 (6633.24)	90,368 (6230.55)	84,420 (5820.46)
MS15-081	316SS	F250C					60,000 (4136.79)	60,000 (4136.79)	57,750 (3981.66)	54,250 (3740.35)	50,700 (3495.59)
MS15-182	304SS						60,000 (4136.79)	56,800 (3916.16)	51,650 (3561.09)	50,700 (3495.59)	48,450 (3340.46)
MS15-082	316SS	F312C150	5/16 (7.94)	0.062 (1.57)	0.125 (3.18)	0.033 (1.94)	150,000 (10341.97)	150,000 (10341.97)	144,400 (9955.87)	136,350 (9400.85)	126,750 (8738.97)
MS15-201	Stainless	(See note 3)	3/8 (9.53)	0.125 (3.18)	0.125 (3.18)	0.012 (7.74)	100,000 (6894.64)	100,000 (6894.64)	96,210 (6633.24)	90,368 (6230.55)	84,420 (5820.46)
MS15-087	316SS	F375C					60,000 (4136.79)	60,000 (4136.79)	57,750 (3981.66)	54,250 (3740.35)	50,700 (3495.59)
MS15-183	304SS						60,000 (4136.79)	56,800 (3916.16	51,650 (3561.09)	50,700 (3495.59)	48,450 (3340.46)
MS15-210	Stainless	F562C	9/16 (14.29)	0.188 (4.78)	0.187 (4.75)	0.028 (18.06)	100,000 (6894.64)	100,000 (6894.64)	96,210 (6633.24)	90,368 (6230.55)	84,420 (5820.46)
MS15-083	316SS						60,000 (4136.79)	60,000 (4136.79)	57,750 (3981.66)	54,250 (3740.35)	50,700 (3495.59)
MS15-185	304SS						60,000 (4136.79)	56,800 (3916.16	51,650 (3561.09)	50,700 (3495.59)	48,450 (3340.46)
MS15-090	316SS	F562C40	9/16 (14.29)	0.250 (6.35)	0.156 (3.96)	0.048 (30.97)	40,000 (2757.86)	40,000 (2757.86)	38,500 (2654.44)	36,100 (2488.96)	33,800 (2330.39)
MS15-209	Stainless	F562C40-312	9/16 (14.29)	0.312 (7.92)	0.125 (3.18)	0.076 (49.03)	40,000 (2757.86)	40,000 (2757.86)	38,500 (2654.44)	36,100 (2488.96)	33,800 (2330.39)
MS15-211	316SS	F1000C43	1 (25.40)	0.438 (11.13)	0.281 (7.14)	0.151 (97.42)	43,000 (2964.70)	43,000 (2964.70)	43,000 (2964.70)	41,380 (2853.01)	36,330 (2504.83)
MS15-199	304SS	F1000C43	1 (25.40)	0.438 (11.13)	0.281 (7.14)	0.151 (97.42)	43,000 (2964.70)	40,600 (2799.23)	36,900 (2544.13)	36,300 (2502.76)	34,700 (2392.44)

NOTE:

1. Autofrettaged tubing available (see technical Information section: Pressure Cycling for Autofrettage information)
2. For High Pressure, High Cycle (HPHC) tubing, MS15-201, MS15-202, MS15-209, and MS15-210 are available. (See Technical Information section: Pressure Cycling for additional information)
3. For 100,000 psi rating use F312C150 connection

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FITTINGS, TUBING AND NIPPLES
HIGH PRESSURE CONED-AND-THREADED NIPPLES

Pressures to 150,000 psi (10342 bar)

For rapid system make-up, Autoclave Engineers supplies precut, coned-and-threaded nipples in various sizes and lengths for Autoclave medium pressure valves and fittings.

SPECIAL LENGTHS
In addition to the standard lengths listed in the table below, nipples are available in any custom length. Consult factory.

MATERIALS**
Catalog numbers in table refer to Type 316 Stainless steel.
Note: Most items available in 304SS. Consult factory for availability.

Catalog Number Nipple Length In (mm)							Fits Connection Type	Tube Size inches (mm)		Working Pressure* at 100°F (37.8°) psi (bar)*
2.75" (69.85)	3.00" (76.20)	4.00" (101.60)	6.00" (152.40)	8.00" (203.20)	10.00" (254.00)	12.00" (304.80)		O.D.	I.D.	
CN4402-316	CN4403-316	CN4404-316	CN4406-316	CN4408-316	CN44010-316	CN44012-316	F250C	1/4 (6.35)	0.109 (2.77)	20,000 (1378.93)
		CN5504-316	CN5506-316	CN5508-316	CN55010-316	CN55012-316	F312C150	3/8 (9.53)	0.203 (5.16)	20,000 (1378.93)
	CN6603-316	CN6604-316	CN6606-316	CN6608-316	CN66010-316	CN66012-316	F375C	9/16 (14.29)	0.312 (7.92)	20,000 (1378.93)
		CN9904-316	CN9906-316	CN9908-316	CN99010-316	CN99012-316	F562C	9/16 (14.29)	0.359 (9.12)	15,000 (1034.16)
		40CN9904-316	40CN9906-316	40CN9908-316	40CN99010-316	40CN99012-316	F562C40	3/4 (19.05)	0.438 (11.13)	20,000 (1378.93)
			43CN1606-316	43CN1608-316	43CN16010-316	43CN16012-316	F1000C43	3/4 (19.05)	0.516 (13.11)	15,000 (1034.16)

NOTE:
See High pressure tubing section for pressure ratings at various temperatures.

Material in table is 316 Stainless steel

*Maximum pressure rating is based on the lowest rating of any component.
Actual working pressure may be determined by tubing pressure rating, if lower.

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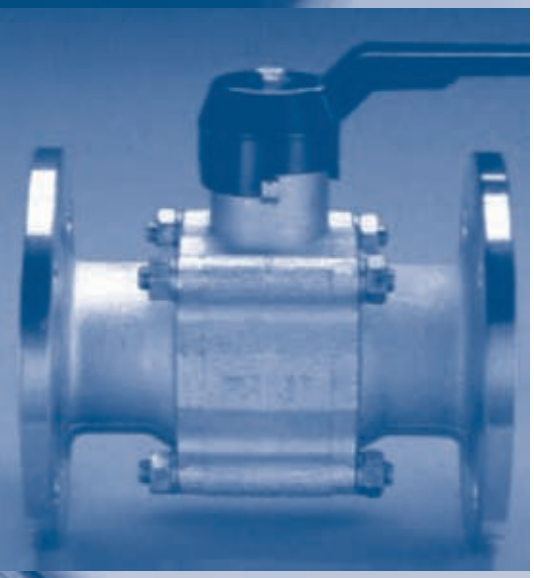
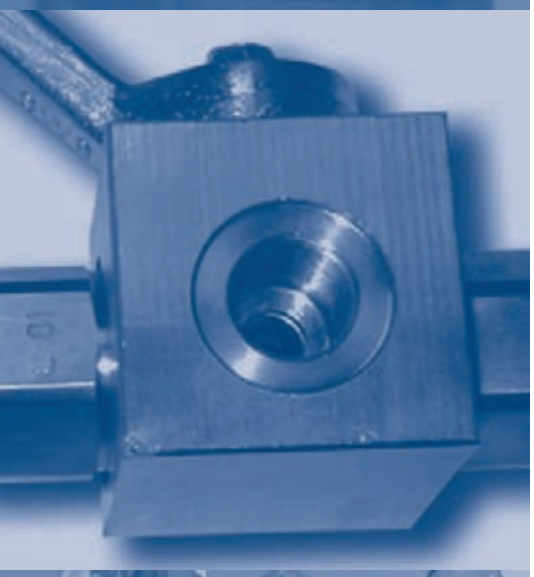
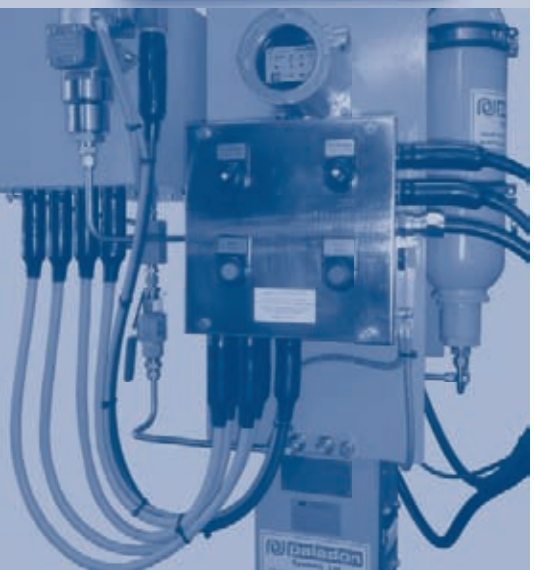


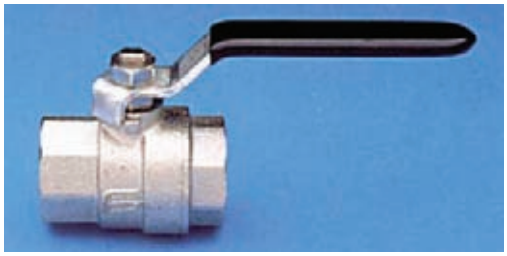




Group 7

Valves

FLUID CONTROL®



BALL VALVE Type 115
Nickel-plated Brass
Full Throughput

Construction:
Nickel-plated pressure-brass valve body.
Ball of hard chrome-plated brass.
Ball Seal - PTFE.
Stem Seal - PTFE. 1/4'' - 2''

		BSP:	NPT:	
Pressure:	1/4" -1/2"	50 bar	50 bar	
	3/4" - 1"	40 bar	40 bar	
	1.1/4" - 1.1/2"	30 bar	30 bar	
	2"	25 bar	25 bar	
	2.1/2"	18 bar	18 bar	red. throughput
	3"	16 bar	14 bar	red. throughput
	4"	14 bar	12 bar	red. throughput

Temp. Range: -20°C to +150°C

Applications:
Water, steam, compressed air, oils, fuel, liquefied gases, etc.

Dim. Conct. Thread	Type 115 Female BSP	Type 115 Female NPT
1/4"	T115-04RP	T115-04F
3/8"	T115-06RP	T115-06F
1/2"	T115-08RP	T115-08F
3/4"	T115-12RP	T115-12F
1"	T115-16RP	T115-16F
1.1/4"	T115-20RP	T115-20F
1.1/2"	T115-24RP	T115-24F
2"	T115-32RP	T115-32F
2.1/2"	T115-40RP	T115-40F
3"	T115-48RP	T115-48F
4"	T115-64RP	T115-64F

BALL VALVE Type 125
Stainless Steel AISI 316
Full Throughput

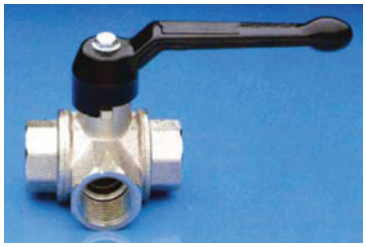
CONSTRUCTION:
AISI 316 stainless steel valve body, ball and spindle.
Ball Seal - PTFE.
Stem Seal - PTFE and Viton.
Comes with BSP and NPT female thread.

Pressure:	1/4" - 2"	BSP/NPT 69 bar
	2.1/2" - 3"	BSP/NPT 63 bar
	4"	BSP/NPT 55 bar

Temp. Range: -20°C to +180°C

APPLICATIONS:
Robust and solid ball valve for water, oil, gasoline, gas, air, steam, food articles and a variety of chemicals.

Dim. Conct. Thread	Type 125 Female BSP	Type 125 Female NPT
1/4"	T125-04RP	T125-04F
3/8"	T125-06RP	T125-06F
1/2"	T125-08RP	T125-08F
3/4"	T125-12RP	T125-12F
1"	T125-16RP	T125-16F
1.1/4"	T125-20RP	T125-20F
1.1/2"	T125-24RP	T125-24F
2"	T125-32RP	T125-32F
2.1/2"	T125-40RP	T125-40F
3"	T125-48RP	T125-48F
4"	T125-64RP	T125-64F



BALL VALVE Type 128
Nickel-plated Brass
3-way w/ L-bore

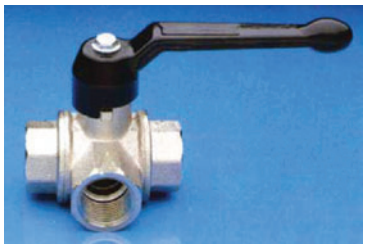
CONSTRUCTION:
Nickel-plated pressure-brass valve body.
Hard chrome-plated brass ball.
Ball Seal - PTFE.
Stem Seal - PTFE. 1/4'' - 2''
Comes with BSP and NPT female thread.

Pressure: 1/4" - 2" BSP 25 bar

Temp. Range: -15ºC to +120ºC

APPLICATIONS:
Water, steam, compressed air, oils, fuel, liquefied gases, etc.

Dim. Conct. Thread	Type 125 Female BSP	Type 126 Handle
1/4"	T128-04RP	T126-04
3/8"	T128-06RP	T126-06
1/2"	T128-08RP	T126-08
3/4"	T128-12RP	T126-12
1"	T128-16RP	T126-16
1.1/4"	T128-20RP	T126-20
1.1/2"	T128-24RP	T126-24
2"	T128-32RP	T126-32



BALL VALVE Type 130/131
Stainless Steel AISI 316
T130: 3-way w/ L-bore
T131: 3-way m /T-bore

CONSTRUCTION:
AISI 316 stainless steel valve body, ball and spindle.
Ball Seal - PTFE.
Stem Seal - PTFE and Viton.
Comes with BSP and NPT female thread.

Pressure: 1/4" - 2" BSP/NPT 69 bar

Temp. Range: -15ºC to +175ºC

APPLICATIONS:
Robust and solid ball valve for water, oil, gasoline,gas, air, steam, food articles and a variety of chemicals.

Dim. Conct. Thread	L-bore Type 130 Female BSP	L-bore Type 130 Female NPT	T-bore Type 131 Female BSP	T-bore Type 131 Female NPT
1/4"	T130-04RP	T130-04NPT	T131-04RP	T131-04NPT
3/8"	T130-06RP	T130-06NPT	T131-06RP	T131-06NPT
1/2"	T130-08RP	T130-08NPT	T131-08RP	T131-08NPT
3/4"	T130-12RP	T130-12NPT	T131-12RP	T131-12NPT
1"	T130-16RP	T130-16NPT	T131-16RP	T131-16NPT
1.1/4"	T130-20RP	T130-20NPT	T131-20RP	T131-20NPT
1.1/2"	T130-24RP	T130-24NPT	T131-24RP	T131-24NPT
2"	T130-32RP	T130-32NPT	T131-32RP	T131-32NPT

BALL VALVE Type 127
Nickel-plated Brass
Full Throughput

CONSTRUCTION:
Nickel-plated pressure-brass valve body.
Hard chrome-plated brass ball.
Ball Seal - PTFE.
Stem Seal - Viton
Comes with flanges according to DIN 2632/33 PN 10/16.

Pressure: 1/4" - 4" 16 bar

Temp. Range: -20°C to +150°C

Applications:
Water, steam, compressed air, oils, fuel,
liquefied gases, etc.

Dim. Conct. Thread	Type 127 DIN fl.	Type 123 Handle
3/4"	T127-12	T123-12
1"	T127-16	T123-16
1.1/4"	T127-20	T123-20
1.1/2"	T127-24	T123-24
2"	T127-32	T123-32
2.1/2"	T127-40	T123-40
3"	T127-48	T123-48
4"	T127-64	T123-64

7

STANDARD SERIES

ECONOMY SERIES

BALL VALVE Type 137/138
DIN and ANSI Flanges
Stainless Steel AISI 316
Standard and Economy Series

CONSTRUCTION:
CF8M/316 valve body.
AISI 316 ball.
Ball Seal - PTFE.
Stem Seal - Viton
Firesafe design.
Standard and economy series.
Comes with flanges according to DIN 2632/33 PN 10/16 and ANSI B16.5 Class 150

Pressure: 3/4" - 4" 16 bar

Temp. Range: -20°C to +150°C

APPLICATIONS:
Water, steam, compressed air, oils, fuel,
liquefied gases, etc.

Dim. Conct. Thread	STANDARD Type 137 DIN fl.	ECONOMY Type 137E DIN fl.	STANDARD Type 138 ANSI 150#.	ECONOMY Type 138E ANSI 150#.
3/4"	T137-12SS	T137E-12SS	T138-12SS	T138E-12SS
1"	T137-16SS	T137E-16SS	T138-16SS	T138E-16SS
1.1/4"	T137-20SS	T137E-20SS	T138-20SS	T138E-20SS
1.1/2"	T137-24SS	T137E-24SS	T138-24SS	T138E-24SS
2"	T137-32SS	T137E-32SS	T138-32SS	T138E-32SS
2.1/2"	T137-40SS	T137E-40SS	T138-40SS	T138E-40SS
3"	T137-48SS	T137E-48SS	T138-48SS	T138E-48SS
4"	T137-64SS	T137E-64SS	T138-64SS	T138E-64SS

NEEDLE / REGULATION VALVES

TYPE 140
Construction:
Brass valve body.
BSP connection
Pressure: 1/4" - 3/4" 210 bar
Temp: -20°C to +150°C
Applications:
Water, steam, comp. air, oils, fuel, liquefied gases.

TYPE 141
Construction:
Carbon steel valve body.
BSP connection
Pressure: 1/4" - 3/4" 350 bar
Temp: -20°C to +150°C
Applications:
Water, steam, comp. air, oils, fuel, liquefied gases.

TYPE 142
Construction:
Carbon steel valve body.
BSP connection
Pressure: 1/4" - 3/4" 400 bar
Temp: -20°C to +150°C
Applications:
Water, steam, comp. air, oils, fuel, liquefied gases.

TYPE 143
Construction:
AISI 316 valve body.
BSP=RP/NPT=F connection
Pressure: 3/4" - 1" 413 bar
Temp: -20°C to +150°C
Applications:
Water, steam, comp. air, oils, fuel, liquefied gases.

Dim. Conct. Thread	Type 140 Brass Female BSP	Type 141 Carbon Steel Female BSP	Type 142 Carbon Steel Female BSP	Type 143 AISI 316 Female BSP
1/4"	T140-04	T141-04RP	T142-04RP	-
3/8"	T140-06	T141-06RP	T142-06RP	-
1/2"	T140-08	T141-08RP	T142-08RP	-
3/4"	T140-12	T141-12RP	T142-12RP	T143-12RPSS/FSS
1"	-	-	-	T143-16RPSS/FSS

NEEDLE / REGULATION VALVES With Check Valve

TYPE 144
Construction:
Brass valve body.
BSP connection
Pressure: 1/4"-1/2" 210 bar
Temp: -20°C to +150°C
Applications:
Water, steam, compressed air, oils, fuel, etc.

TYPE 145
Construction:
Carbon steel valve body.
BSP connection
Pressure: 1/4"-1/2" 350 bar
Temp: -20°C to +150°C
Applications:
Water, steam, compressed air, oils, fuel, etc.

TYPE 146
Construction:
Carbon steel valve body.
BSP connection
Pressure: 1/4" -3/4" 400 bar
Temp: -20°C to +150°C
Applications:
Water, steam, compressed air, oils, fuel, etc.

TYPE 147
Construction:
AISI 316 valve body.
BSP connection
Pressure: 3/4"-1/2" 400 bar
Temp: -20°C to +150°C
Applications:
Water, steam, compressed air, oils, fuel, etc.

Dim. Conct. Thread	Type 144 Brass Female BSP	Type 145 Carbon Steel Female BSP	Type 146 Carbon Steel Female BSP	Type 147 AISI 316 Female BSP
1/4"	T144-04RP	T145-04RP	T146-04RP	T147-04RPSS
3/8"	T144-06RP	T145-06RP	T146-06RP	T147-06RPSS
1/2"	T144-08RP	T145-08RP	T146-08RP	T147-08RPSS
3/4"	-	-	T146-12RP	-

BUTTERFLY VALVE
Wafer Type 170/171/172/173
DIN/ANSI Flanges
Standard and Economy Series

CONSTRUCTION:
Wafer type butterfly valve.
Cast-iron valve body.
AISI 316 / Aluminium bronze disc.
Gasket EPDM - Buna/NBR
Lock on the handle.
ISO 5211 Top for Actuator
Standard and economy series.
Comes with universal flange
for DIN/ANSI

Pressure: 1.1/2" - 8" 16 bar

TEMPERATURE RANGE:
-20°C to +150°C

APPLICATIONS:
Water, air, oils, fuel, gases, etc.

Dim. Conct. Flange	STANDARD Type 170 EPDM Gasket 316 Disc	STANDARD Type 171 BUNA Gasket 316 Disc	STANDARD Type 172 EPDM Gasket Alu.Bronze Disc	STANDARD Type 173 BUNA Gasket Alu.Bronze Disc
1.1/2"	T170-38	T171-38	T172-38	T173-38
2"	T170-50	T171-50	T172-50	T173-50
2.1/2"	T170-63	T171-63	T172-63	T173-63
3"	T170-75	T171-75	T172-75	T173-75
4"	T170-100	T171-100	T172-100	T173-100
5"	T170-125	T171-125	T172-125	T173-125
6"	T170-150	T171-150	T172-150	T173-150
8"	T170-200	T171-200	T172-200	T173-200

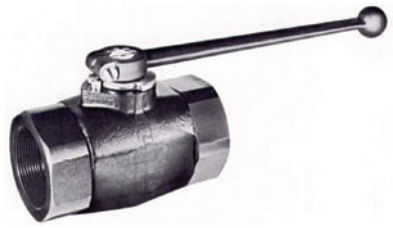
Dim. Conct. Flange	ECONOMY Type 170E EPDM Gasket 316 Disc	ECONOMY Type 171E BUNA Gasket 316 Disc	ECONOMY Type 172E EPDM Gasket Alu.Bronze Disc	ECONOMY Type 173E BUNA Gasket Alu.Bronze Disc
1.1/2"	T170E-38	T171E-38	T172E-38	T173E-38
2"	T170E-50	T171E-50	T172E-50	T173E-50
2.1/2"	T170E-63	T171E-63	T172E-63	T173E-63
3"	T170E-75	T171E-75	T172E-75	T173E-75
4"	T170E-100	T171E-100	T172E-100	T173E-100
5"	T170E-125	T171E-125	T172E-125	T173E-125
6"	T170E-150	T171E-150	T172E-150	T173E-150
8"	T170E-200	T171E-200	T172E-200	T173E-200

AVAILABLE ON REQUEST

BUTTERFLY VALVE
Lug Type
DIN, ANSI Flanges
Standard Series

CONSTRUCTION:
Lug type butterfly valve. Cast-iron valve body. AISI 316 / Aluminium bronze disc.
Gasket EPDM - Buna/NBR. Lock on the handle. ISO 5211 Top for Actuator.
Available for DIN or ANSI.
Pressure: 1.1/2" - 8" 16 bar
Temp. Range: -2°C to +150°C

APPLICATIONS:
Water, air, oils, fuel, gases, etc



BALL VALVE HIGH PRESSURE BKH/SKH Type 8000/8100

From 1/8" to 1.1/4" is block valve (BKH).
1.1/2" and 2" have forged steel valve body (SKH).

CONSTRUCTION:
Block Valve: Valve body - steel 1/8" - 1.1/4"
Forged steel: Valve body - CK 45 1.1/2" - 2"
Hard chrome-plated steel ball.
Ball Seal - polyamide.
Stem Seal - BUNA N.
Comes with BSP and NPTF female thread.

Pressure:
1/8" - 1/2" 500 bar
3/4" 400 bar
1" - 2" 350 bar

Temp. Range: -10°C to +100°C

APPLICATIONS:
High pressure hydraulic, water, air, fuel, liquefied gases, liquids, etc.

Dim. Conct. Thread	Type 8000 Female BSP	Type 8100 Female NPT
1/8"	T8000-02	T8100-02
1/4"	T8000-04	T8100-04
3/8"	T8000-06	T8100-06
1/2"	T8000-08	T8100-08
3/4"	T8000-12	T8100-12
1"	T8000-16	T8100-16
1.1/4"	T8000-20	T8100-20
1.1/2"	T8000-24	T8100-24
2"	T8000-32	T8100-32

BALL VALVE HIGH PRESSURE RKH Type 8000/8100 Stainless Steel AISI 316 L

CONSTRUCTION:
Block valve. Valve body - AISI 316L
AISI 316L ball
Ball Seal - polyamide.
Stem Seal - BUNA N.
Comes with BSP and NPTF female thread.

Pressure:
1/8" - 1/2" 500 bar
3/4" 400 bar
1" - 2" 350 bar

Temp. Range: -20°C to +120°C

APPLICATIONS:
High pressure hydraulic, water, air, fuel, liquefied gases, liquids, etc.

Dim. Conct. Thread	Type 8000 Female BSP	Type 8100 Female NPT
1/8"	T8000-02SS	T8100-02SS
1/4"	T8000-04SS	T8100-04SS
3/8"	T8000-06SS	T8100-06SS
1/2"	T8000-08SS	T8100-08SS
3/4"	T8000-12SS	T8100-12SS
1"	T8000-16SS	T8100-16SS
1.1/4"	T8000-20SS	T8100-20SS
1.1/2"	T8000-24SS	T8100-24SS
2"	T8000-32SS	T8100-32SS

BALL VALVE HIGH PRESSURE 3-WAY
BK3 - Type 9000 - L-bore
BK3 - Type 9100 - T-bore

CONSTRUCTION:
Block valve. Valve body - steel.
Hard chrome-plated steel ball.
Ball Seal - polyamide.
Stem Seal - BUNA N.
Comes with BSP female thread.

Pressure: 1/8" - 3/8" 400 bar
1/2" - 2" 350 bar

Temp. Range: -10°C to +100°C

APPLICATIONS:
High pressure hydraulic, water, air, fuel, liquefied gases, liquids, etc.

L-bore

T-bore

Dim. Conct. Thread	Type 9000 L-bore	Type 9100 T-bore
1/8"	T9000-02	T9100-02
1/4"	T9000-04	T9100-04
3/8"	T9000-06	T9100-06
1/2"	T9000-08	T9100-08
3/4"	T9000-12	T9100-12
1"	T9000-16	T9100-16
1.1/4"	T9000-20	T9100-20
1.1/2"	T9000-24	T9100-24
2"	T9000-32	T9100-32

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BALL VALVE HIGH PRESSURE 3-WAY
BK3 - Type 9000 - L-bore
Stainless Steel AISI 316 L

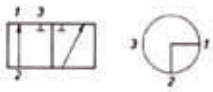
CONSTRUCTION:
Block valve. Valve body - AISI 316L
AISI 316L ball
Ball Seal - polyamide.
Stem Seal - BUNA N.
Comes with BSP female thread.

Pressure: 1/4" - 3/8" 400 bar
1/2" - 1" 350 bar

Temp. Range: -20°C to +120°C

APPLICATIONS:
High pressure hydraulic, water, air, fuel, liquefied gases, liquids, etc.

L-bore



Dim. Conct. Thread	Type 9000 L-bore
1/4"	T9000-04SS
3/8"	T9000-06SS
1/2"	T9000-08SS
3/4"	T9000-12SS
1"	T9000-16SS

BALL VALVE
HIGH PRESSURE 6000 PSI
PB Type 82
Stainless Steel AISI 316 L

CONSTRUCTION:
Block valve. Valve body - AISI 316L
AISI 316L ball.
Ball Seal - PEEK.
Stem Seal - PTFE/PEEK.
Comes with BSP/NPT female thread.

Pressure: 1/4" - 1" 413 bar

Temp. Range: -50ºC to +250ºC

APPLICATIONS:
High pressure hydraulic, water, air, fuel, liquefied gases, liquids, etc.

Dim. Conct. Thread	Type 8300 BSP	Bore Diam. mm	Type 8400 NPT	Bore Diam. mm
1/4"	T82B-04SS	10	T82N-04SS	10
3/8"	T82B-06SS	10	T82N-06SS	10
1/2"	T82B-08SS	10	T82N-08SS	10
3/4"	T82B-12SS	13	T82N-12SS	13
1"	T82B-16SS	19	T82N-16SS	19

BALL VALVE
HIGH PRESSURE 10.000 PSI
UB Type 83
Stainless Steel AISI 316 L

CONSTRUCTION:
Block valve. Valve body - AISI 316L
KAISI 316L ball.
Ball Seal - PEEK.
Stem Seal - PTFE/PEEK.
Comes with BSP/NPT female thread.

Pressure: 1/4" - 1" 690 bar

Temp. Range: -20ºC to +250ºC

APPLICATIONS:
High pressure hydraulic, water, air, fuel, liquefied gases, liquids, etc.

Dim. Conct. Thread	Type 8300 BSP	Bore Diam. mm	Type 8400 NPT	Bore Diam. mm
1/4"	T83B-04SS	10	T83N-04SS	10
3/8"	T83B-06SS	10	T83N-06SS	10
1/2"	T83B-08SS	10	T83N-08SS	10
3/4"	T83B-12SS	13	T83N-12SS	13
1"	T83B-16SS	19	T83N-16SS	19

CHECK VALVE
Type «EUROPA»

Construction: Brass valve body. Glass fiber reinforced synthetic material valve disc. Valve seat has vulcanized elastic sealing of synthetic special rubber. Valve disc coating and spring are CrNi steel.

Working Pressure: 3/8" - 1" 25 bar
1.1/4" - 2" 18 bar
2.1/2" - 4" 12 bar

Temp. Range: Max. -20 +100°C

Applications: Sanitary and heating systems, water, compressed air, hydraulic, fuel, etc. Can be assembled in any position. Comes with BSP female thread.

Opening pressure: 0.05 bar

Type/dim.	1/4"	3/8"	1/2"	3/4"	1"	1.1/4"	1.1/2"	2"	2.1/2"	3"	4"
Check Valve Part no. EURO100	-04	-06	-08	-12	-16	-20	-24	-32	-40	-48	-64
Filter for Check Valve Part no. EURO102	-04	-06	-08	-12	-16	-20	-24	-32	-40	-48	-64

CHECK VALVE
«Inline Check Valves»
Snap-Tite Type CPIFF/3C

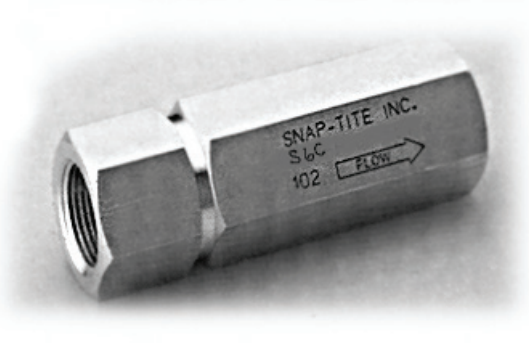
Construction: Valve body/inside parts of steel. Available with BSP/NPT female thread. Opening pressure 5 PSI (0.35 bar). Valves for opening pressure 1 Bar, 1.75 Bar and 4.5 Bar available on request. VITON gasket.

Working Pressure: 1/4" - 1" 5000 PSI (350 bar). 1.1/4" - 2" 3000 PSI (210 BAR)

Temp. Range: -29°C to +190°C
Applications: Wide application area where free flow in one direction and blocked flow in the opposite direction is required.

Safety factor 4:1

Dim.	1/4"	3/8"	1/2"	3/4"	1"	1.1/4"	1.1/2"	2"
Hex. mm	19.5	25.40	31.75	35.05	44.45	50.80	63.50	82.55
Length mm	50.04	66.04	82.55	109.98	121.41	146.30	165.35	184.90
Flow l/min.	11.40	30.30	45.40	75.70	113.55	340.65	473.15	662.40
Weight kg	0.09	0.11	0.41	0.57	1.02	1.70	3.54	5.90
Part no. BSP	CPIFF-2RP	CPIFF-3RP	CPIFF-4RP	CPIFF-6RP	CPIFF-8RP	3C20RP-RP	3C24RP-RP	3C32RP-RP
Part no. NPT	CPIFF-2F	CPIFF-3F	CPIFF-4F	CPIFF-6F	CPIFF-8F	3C20F-F	3C24F-F	3C32F-F



CHECK VALVE «Inline Check Valves» Snap-Tite Type S6C AISI 316

Construction: Valve body and inside parts of AISI 316 stainless steel.
Comes with NPT female thread as standard.
Available with BSP and JIC thread on request.
Opening pressure 5 PSI (0.35 BAR). Valves for different opening pressures available on request. VITON gasket.

Working Pressure: 10000 PSI (690 bar).

Temp. Range: -15°C to +170°C

Applications: Wide application area where free flow in one direction and blocked flow in the opposite direction is required.

Safety factor 4:1

Dim.	1/4"	3/8"	1/2"	3/4"	1"
Hex. mm	19.5	28.45	31.75	41.15	47.75
Length mm	71.60	85.85	94.75	124.70	154.20
Flow l/min.	11.40	30.30	45.45	75.70	113.55
Weight kg.	0.13	0.37	0.54	0.93	1.54
Part no. NPT	S6C4F-F	S6C6F-F	S6C8F-F	S6C12F-F	S6C16F-F

Group 8

Hoses
Oil - Fuel

FLUID CONTROL®

Symbol Key for Hose Tables

Part No.	Hose inside diameter in mm and inches		Hose outside diameter in mm	Hose wall thickness in mm	Hose net weight per meter	Hose maximum working pressure	Hose min. burst pressure = work. pressure x SF	Hose temperature range	Hose maximum vacuum limit	Hose minimum bend radius	Available hose lengths from the factory
#	ID		OD	Th	WT	WP	BP	T	V	BR	L
Part No.	mm	in“	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m

NEW New product in this catalogue

Anti-static hose (This label is not on the hoses with steel spiral)

Food Industry Hose

SUPERIOR ABRASION RESISTANCE Hose with particularly good wear resistance

Non Conductive Hose

R Available for rental

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PETROLEUM / OIL HOSE "SOFTWALL" 10 BAR

CONSTRUCTION:
Inside: Black NBR.
Reinforcement: Synthetic textile braid with high tensile strength.
Outside: Black NBR / EPDM.
Description: Universal hose for oils, petroleum, hydraulic oils, chemicals and inert gases.

# Part No.	ID mm	ID "	OD mm	WT mm	WT kg/m	WP bar	BP bar	T Temp °C	V bar	BR mm	L m
21078-005	5	3/16"	11.5	3.25	0.11	10	40	-30 / +93	-	40	100 / 50
21078-006	6	1/4"	13	3.5	0.13	10	40	-30 / +93	-	50	100 / 50
21078-008	8	5/16"	14.5	3.25	0.15	10	40	-30 / +93	-	65	100 / 50
21078-010	10	3/8"	17	3.5	0.21	10	40	-30 / +93	-	80	100 / 50
21078-013	13	1/2"	21.5	3.75	0.33	10	40	-30 / +93	-	100	100 / 50
21078-016	16	5/8"	25.5	4.75	0.42	10	40	-30 / +93	-	130	100 / 50
21078-019	19	3/4"	30	5.5	0.54	10	40	-30 / +93	-	160	50
21078-025	25	1"	36	5.5	0.73	10	40	-30 / +93	-	200	50
21078-032	32	1¼"	45.5	7.0	1.19	20	60	-40 / +100	-	250	50
21078-038	38	1½"	52.0	7.0	1.40	20	60	-40 / +100	-	305	50

TANK AND BULK LOADING HOSE "HARDWALL" 10 BAR

CONSTRUCTION:
Inside: Black NBR rubber.
Reinforcement: Synthetic textile braid and steel spiral.
Outside: Black CR rubber.
Description: Oil, fuel and hydraulic hose. Resistant to oils with hydrocarbons with up to 50% aromatic content.
Other dimensions available on request.

# Part No.	ID mm	ID "	OD mm	WT mm	WT kg/m	WP bar	BP bar	T Temp °C	V bar	BR mm	L m
22605-019	19	3/4"	29	5	0.75	10	30	-30 / +93	0,8	120	40
22605-025	25	1"	35	5	0.89	10	30	-30 / +93	0,8	150	40
22605-032	32	1.1/4"	42	5	1.10	10	30	-30 / +93	0,8	195	40
22605-038	38	1.1/2"	50	6	1.37	10	30	-30 / +93	0,8	230	40
22605-050	51	2"	62	5.5	1,90	10	30	-30 / +93	0,8	300	40
22605-063	63	2.1/2"	76	6.5	2.30	10	30	-30 / +93	0,8	380	40
22605-075	76	3"	90	7	3.25	10	30	-30 / +93	0,8	450	40
22605-100	102	4"	118	8	4.60	10	30	-30 / +93	0,8	600	40
22605-125	127	5"	148	10.5	6.65	10	30	-30 / +93	0,8	1020	20
22605-150	152	6"	172	10	8.85	10	30	-30 / +93	0,8	1220	20

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

OIL / BULK LOADING HOSE "SOFTWALL" EN 12115 - 16 BAR

CONSTRUCTION:
Inside: Black NBR rubber. Resistant to hydrocarbons (oils) with up to 55% aromatic content.
Reinforcement: 4 layers synthetic textile cord.
Outside: Electrically conductive black CR rubber. Oil, weather and ozone resistant. R <1M ohm
Description: Powerful tank, oil and bulk loading hose.

Labeling: EN 12115 NBR 1

# Part No.	ID mm	ID "	OD mm	WT mm	WT kg/m	WP bar	BP bar	T Temp °C	V %	BR mm	L m
21612-025	25	1"	37	6	0.70	16	64	-30 / +80	-	250	40
21612-032	32	1.1/4"	44	6	0.87	16	64	-30 / +80	-	320	40
21612-038	38	1.1/2"	51	6.5	1.07	16	64	-30 / +80	-	380	40
21612-050	51	2"	67	8	1.65	16	64	-30 / +80	-	500	40
21612-063	63	2.1/2"	79	8	2.00	16	64	-30 / +80	-	630	40

OIL / BULK LOADING HOSE "HARDWALL" EN 12115 - 16 BAR

CONSTRUCTION:
Inside: Black NBR rubber. Resistant to hydrocarbons (oils) with up to 55% aromatic content.
Reinforcement: 4 layers synthetic textile braid and 2 steel spirals..
Outside: Black CR - Oil, weather and ozone resistant.
Description: Powerful bulk loading hose for oil installations and ships, where there are high wear and tensile strength requirements. Suitable for both liquids and solids.

Labeling: EN 12115 NBR 1

# Part No.	ID mm	ID "	OD mm	WT mm	WT kg/m	WP bar	BP bar	T Temp °C	V bar	BR mm	L m
22613-025	25	1"	37	6	0.80	16	64	-30 / +80	0.9	150	40
22613-032	32	1.1/4"	44	6	0.98	16	64	-30 / +80	0.9	200	40
22613-038	38	1.1/2"	51	6.5	1.14	16	64	-30 / +80	0.9	230	40
22613-050	51	2"	65	7	1.64	16	64	-30 / +80	0.9	300	40
22613-063	63	2.1/2"	78	7.5	2.40	16	64	-30 / +80	0.9	380	40

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

TANK AND BULK LOADING HOSE "SOFTWALL" 20 BAR

CONSTRUCTION:
Inside: Black NBR rubber. Resistant to oils with up to 55% aromatic content.
Reinforcement: 4 layers synthetic textile cord with high tensile strength. Max 4% prolongation at 17 bar.
Outside: Black CR - Oil, weather, wear and ozone resistant. Inlaid grounding slit.
Description: Powerful bulk loading hose for oil installations and ships, where there are requirements for high wear and tensile strength. Suitable for both liquids and solids.

# Part No.	ID mm	ID "	OD mm	WT mm	WT kg/m	WP bar	BP bar	T Temp °C	V bar	BR mm	L m
21612-075	76	3"	90	7	2.85	20	60	-40 / +93	-	600	61/122
21612-100	102	4"	116	7	4.00	20	60	-40 / +93	-	820	61/122
21612-125	127	5"	143	8	4.99	20	60	-40 / +93	-	1020	61/122
21612-150	152	6"	170	9	5.20	20	60	-40 / +93	-	1220	61/122
21612-200	203	8"	223	10	8.05	20	60	-40 / +93	-	1620	61
21612-250	254	10"	280	13	13.60	20	60	-40 / +93	-	2040	30.5

TANK AND BULK LOADING HOSE "HARDWALL" 20 BAR

CONSTRUCTION:
Inside: Black NBR rubber. Resistant to oils with up to 55% aromatic content.
Reinforcement: 4 layers synthetic textile cord and steel spiral with high tensile strength.
Outside: Black CR - Oil, weather, wear and ozone resistant.
Description: Powerful bulk loading hose for oil installations and ships, where there are requirements for high wear and tensile strength. Suitable for both liquids and solids.

# Part No.	ID mm	ID "	OD mm	WT mm	WT kg/m	WP bar	BP bar	T Temp °C	V bar	BR mm	L m
22613-075	76	3"	92	8	3.35	20	60	-30 / +93	0.9	450	61
22613-100	102	4"	119	8.5	4.75	20	60	-30 / +93	0.9	620	61
22613-125	127	5"	148	10.5	7.09	20	60	-30 / +93	0.9	760	61
22613-150	152	6"	173	10.5	8.54	20	60	-30 / +93	0.9	920	61
22613-200	203	8"	233	15	10.15	20	60	-30 / +93	0.9	1230	30.5
22613-250	254	10"	293	19.5	14.50	20	60	-30 / +93	0.8	2540	30.5

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

NEW

MUD AND BULK LOADING HOSE "SOFTWALL" 39/40 BAR

CONSTRUCTION:
Inside: B 3380. Oil and wear resistant.
Reinforcement: 4-8 layers polyester cord with high tensile strength.
Outside: Chemivic - Oil, weather and wear resistant. Inlaid grounding slit.
Description: Powerful bulk loading hose for oil installations and ships, where there are requirements for extra-high pump pressure. Specially developed for pumping of liquid mud.

# Part No.	ID mm	ID "	OD mm	WT mm	WT kg/m	WP bar	BP bar	T Temp °C	V bar	BR mm	L m
21615-076	76,2	3"	98	10.9	3.6	40	160	-30/ +70	-	457	61
21615-100	102	4"	128	13	7.6	39	156	-30 / +70	-	612	61
21615-125	127	5"	153	13	9.8	39	156	-30 / +70	-	762	61

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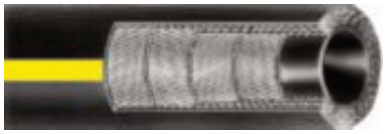
NEW

MUD AND BULK LOADING HOSE "HARDWALL" 40 / 30 BAR

CONSTRUCTION:
Inside: Nitrile. Resistant to oils with up to 40% aromatic content.
Reinforcement: 4 layers synthetic textile cord with high tensile strength.
Outside: Chemivic - Oil, weather and wear resistant.
Description: Powerful bulk loading hose for oil installations and ships, where there are requirements for extra-high pump pressure. Specially developed for pumping of liquid mud. Suitable for crude oil, erosive materials, glycols and methanol / water mixtures.

# Part No.	ID mm	ID "	OD mm	WT mm	WT kg/m	WP bar	BP bar	T Temp °C	V bar	BR mm	L m
22614-100	102	4"	129.9	14.0	9.5	40	170	-20 / +93	0.8	800	61
22614-125	127	5"	160.0	16.5	12.3	40	120	-20 / +93	0.8	1020	30
22614-150	152	6"	184.0	16	13.5	40	120	-20 / +93	0.8	1250	30
22614-200	203	8"	242.0	19.5	23	30	90	-20 / +93	0.8	1800	20

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.



TANK AND BULK LOADING HOSE "HEAVY DUTY SOFTWALL" 9 TONS / 27 BAR

CONSTRUCTION:

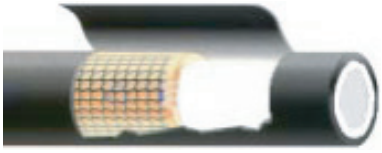
Inside: Black NBR rubber. Resistant to oils with up to 55% aromatic content.

Reinforcement: 4 layers synthetic textile cord with high tensile strength. Max 4% prolongation at 24 bar.

Outside: Black Chemivic - Oil, weather, wear and ozone resistant. Inlaid grounding slit.

Description: Powerful bulk loading hose with 9 tons of tension for oil installations and ships, where there are requirements for extremely high wear and tensile strength. Suitable for both liquids and solids. Outer rubber is 3.5 x more durable than regular rubber.

# Part No.	ID mm	ID "	OD mm	WT mm	WT kg/m	WP bar	BP bar	T Temp °C	V bar	BR mm	L m
21611-075	76	3"	92	8	2.85	27	81	-30 / +93	-	600	61/122
21611-100	102	4"	117	7.5	3.99	27	81	-30 / +93	-	820	61/122
21611-125	127	5"	145	9	4.99	27	81	-30 / +93	-	1020	61/122
21611-150	152	6"	172	10	5.20	27	81	-30 / +93	-	1220	61/122
21611-200	203	8"	227	12	9.40	27	81	-30 / +93	-	1620	30.5
21611-250	254	10"	285	15.5	23.6	27	81	-30 / +93	-	2040	30.5



UNIVERSAL HOSE "TECHNOBEL"

CONSTRUCTION:

Inside: White polyester TPE

Reinforcement: Polyester braid.

Outside: Black PVC.

Description: Universal hose for air, water, varnish, paint, oil, chemicals etc.
Inner tube is of food industry quality. The tube is UV and ozone resistant on the outside.

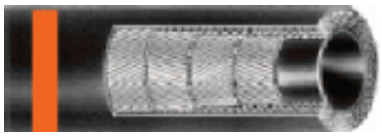
# Part No.	ID mm	ID "	OD mm	WT mm	WT kg/m	WP bar	BP bar	T Temp °C	V bar	BR mm	L m
21088-006	6	1/4"	11	-	0.09	20	60	-15 / +60	-	42	50
21088-008	8	5/16"	14	-	0.13	20	60	-15 / +60	-	56	50
21088-010	10	3/8"	16	-	0.16	20	60	-15 / +60	-	70	50
21088-013	12.7	1/2"	19.5	-	0.22	20	60	-15 / +60	-	90	50
21088-016	16	5/8"	23.5	-	0.30	20	60	-15 / +60	-	112	50
21088-019	19	3/4"	27.5	-	0.40	20	60	-15 / +60	-	133	50
21088-025	25	1"	34.5	-	0.56	20	60	-15 / +60	-	175	50
21088-038	38	1.1/2"	50.5	-	1.12	13	39	-15 / +60	-	266	50
21088-050	50	2"	64	-	1.50	10	30	-15 / +60	-	350	50

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

MARINE EXHAUST ISO 13363
WET EXHAUST HOSE
LIGHT SUCTION HOSE
OIL/FUEL
3 BAR

CONSTRUCTION:
Inside: Black NBR rubber.
Reinforcement: Polyester braid and 2 steel spirals.
Outside: Black CR rubber.
Description: Special hose for water-cooled exhaust for boats and machinery. Max exhaust temperature 580°C
Can also be used for oil, gasoline, diesel, etc. with an aromatic content up to 50%
RINA Certificate. No. DIP/093/05XT, CE marked

# Part No.	ID mm	OD mm	WT mm	WT kg/m	WP bar	BP bar	T Temp °C	V bar	BR mm	L m
22600-025	25	34	4.0	0.5	3		-25 / +120	0.8	100	40/60
22600-032	32	40	4.0	0.65	3	34	-25 / +120	0.8	200	40/60
22600-040	40	48	4.0	0.74	3	25	-25 / +120	0.8	260	40/60
22600-045	45	53	4.0	0.88	3	22	-25 / +120	0.8	285	40/60
22600-051	51	60	4.5	0.99	3	19	-25 / +120	0.8	305	40/60
22600-053	53	62	4.5	1.07	3	18	-25 / +120	0.8	310	40/60
22600-057	57	66	4.5	1.16	3	18	-25 / +120	0.8	325	40/60
22600-063	63	72	4.5	1.25	3	17	-25 / +120	0.8	355	40/60
22600-076	76	85	4.5	1.75	3	15	-25 / +120	0.8	455	40/60
22600-090	90	100	5.0	2.13	3	15	-25 / +120	0.8	535	40/60
22600-100	102	113	5.5	2.62	3	13	-25 / +120	0.8	610	40/60
22600-125	127	138	5.5	3.82	3	11	-25 / +120	0.8	760	40/60



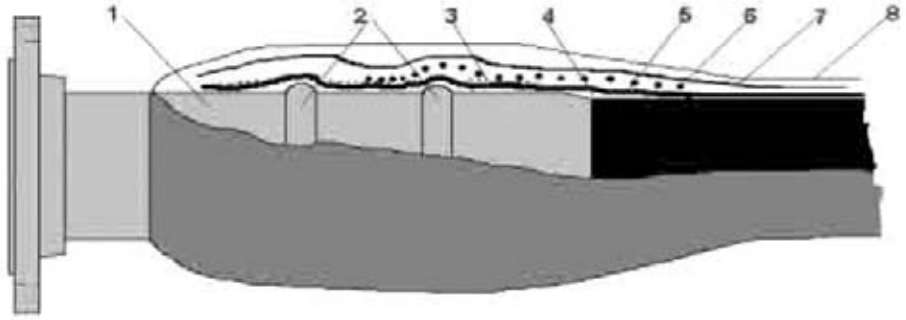
TANK CLEANING HOSE
"BUTTERWORTH"
24 BAR

CONSTRUCTION:
Inside: Black EPDM rubber.
Reinforcement: Textile braid with high tensile strength.
Outside: Black EPDM rubber.
Description: Tank cleaning hose. Oil, sea water and chemical resistant.
Four layers braided reinforcement for a minimum prolongation under pressure.
Orange stripes every 1m for depth indication.
2 stainless steel wires for electrical conductivity.

# Part No.	ID mm	ID "	OD mm	WT mm	WT kg/m	WP bar	BP bar	T Temp °C	V bar	BR mm	L m
21658-038	38	1.1/2"	54	8	1.24	24	80	-30 / +98	-	230	30/60
21658-050	51	2"	68	8.5	1.84	24	80	-30 / +98	-	300	30/60

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

BULK LOADING HOSE "DOCK HOSE"



1. Hose insert with flange
2. Welded circlips
3. Inside binding wire
4. Interior rubber
5. First layer of textile reinforcement
6. Spiral string reinforcement
7. Second layer of textile reinforcement
8. Textile reinforced outer rubber

CONSTRUCTION:

Inside: Black Chemigum (Nitrile) rubber.

Reinforcement: Several layers of textile braid and several spirals.

Outside: Black Wingprene (Neopren) rubber.

Description: Special hose for bulk loading of petroleum products between ship and quay for all types of circumstances. Inner tube is resistant to hydrocarbons with up to 55% aromatic content.
Produced according to BS EN 1765: 1998 (formerly BS 1435)
Produced according to measurements and specifications from the customer.
Available with Nitrile or Viton inside.
Available with all types of flanges. The hoses are built to order.

# Part No.	ID mm	ID "	OD mm	WT mm	WT kg/m	WP bar	BP bar	T Temp °C	V bar	BR mm	L m
22607-100	102	4"	139	18.5	10.1	10	40	-20 / +82	-	0.61	Made to order
22607-150	153	6"	194	20.5	18.1	10	40	-20 / +82	-	0.92	Made to order
22607-200	204	8"	149	22.5	26.0	10	40	-20 / +82	-	1.22	Made to order
22607-250	254	10"	301	23.5	35.2	10	40	-20 / +82	-	1.52	Made to order
22607-300	306	12"	354	24	39.9	10	40	-20 / +82	-	1.83	Made to order
22608-100	102	4"	139	18.5	10.1	15	60	-20 / +82	-	0.61	Made to order
22608-150	153	6"	194	20.5	18.1	15	60	-20 / +82	-	0.92	Made to order
22608-200	204	8"	149	22.5	26.0	15	60	-20 / +82	-	1.22	Made to order
22608-250	254	10"	301	23.5	35.2	15	60	-20 / +82	-	1.52	Made to order
22608-300	306	12"	354	24	39.9	15	60	-20 / +82	-	1.83	Made to order

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

RIG SUPPLY POTABLE WATER SW 81451 - 20 BAR

CONSTRUCTION:

Tube: White FDA compliant NR. Thickness approx 2.4 mm.
Spirals: None
Cover: Orange EPDM. Thickness approx 1.8 mm.
EL Properties: 1 a/s sire.
Lengths: 61 meters.
Description: High load potable water hose soft wall. 4 ply high tensile textile cord with additional anti static wire. Load at break 8 tons.
Properties: Suitable for potable water, dry food material.

# Part No	ID* mm	OD* mm	WT mm	WP** MPa	BP** MPa	R BR mm	WT kg/m
81451-75	76	92	approx 2.4	2	8	Suitable for reels with core diam. >1200	2.85
81451-100	102	118	approx 2.4	2	8	Suitable for reels with core diam. >1200	3.45

* Tolerances ISO 1307
** Values at 23°C

RIG SUPPLY POTABLE WATER SW 81461 - 10 BAR

CONSTRUCTION:

Tube: White NR. FDA CRF 177:2600
Cover: Orange SBR/EPDM.
Service temperature: -30°C - +70°C.
Lengths tolerances: +/- 5%.
Lengths: 40 meters.
Description: Wrapped mandrel built tube, produced on stainless steel mandrel. 2 polyestercord plies. Fabric patterned cover.
Application: Supply of non-oily edible foods, fresh water and potable water from supply vessel to offshore installation in pre-treated condition Hose shall be flushed and cleaned prior to use following good manufacturing procedures.

# Part No	ID* mm	OD* mm	WT mm	WP** bar	BP** bar	R BR mm	WT kg/m
81461-038	38	52		20	60	10 x ID at 3 bar for all sizes	2.2
81461-075	76	92		10	30	10 x ID at 3 bar for all sizes	3.4
81461-100	102	118		10	30	10 x ID at 3 bar for all sizes	3.8

* Manufacturing tolerances ISO R 1307
** Values at 23°C

Group 9

Hoses
Chemicals
Food Industry
Gas - Steam
Special Hoses

FLUID CONTROL®

Symbol Key for Hose Tables

Part No.	Hose inner diameter in mm and inches		Hose outer diameter in mm	Hose wall thickness in mm	Hose net weight per meter	Hose maximum working pressure	Hose min. burst pressure = working pressure x bar	Hose temperature range	Hose maximum vacuum limit	Hose minimum bend radius	Available hose lengths from the factory
#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m

NEW New product in this catalogue

Anti-static hose (This label is not on the hoses with steel spiral)

Food Industry Hose

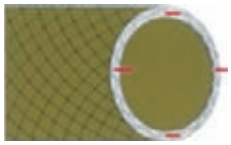
SUPERIOR ABRASION RESISTANCE Hose with superior wear resistance

Non-conductive Hose

R Available for rental

9

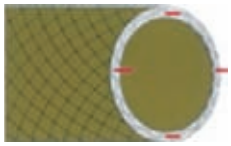
At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.



OIL AND CHEMICAL HOSE "CHEMICOIL" 10.5 BAR

CONSTRUCTION:
Inside: Green thermoplastic elastomer.
Reinforcement: Synthetic braiding and inlaid grounding slit.
Outside: Green thermoplastic elastomer.
Description: Special hose for transportation of gasoline, oil, and a variety of chemicals. Available in lengths up to 200m Can be rolled flat, is light-weighted and is quickly laid out and rolled up. Can be used as a filling hose for aircraft and helicopters.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
31896-075	76	3"	82	3	0.55	10.5	42	-50 / +80	-	-	100
31896-100	102	4"	110	4	0.84	10.5	42	-50 / +80	-	-	100
31896-150	152	6"	160	4	1.62	10.5	42	-50 / +80	-	-	100



CHEMICAL HOSE "ANGUS OFFSHORE" 14 BAR

CONSTRUCTION:
Inside: Green thermoplastic elastomer.
Reinforcement: Synthetic braiding with high tensile strength and inlaid grounding slit.
Outside: Green thermoplastic elastomer.
Description: Angus Offshore is a specially developed rig supply hose for diesel, paraffin, methanol, drillwater, cement, barytes, mud, drinking water etc. Max 2% prolongation at full load.
Volumetric expansion of 15% at full working pressure. Produced according to BS 5750 Pt2.
Approved by the UK Water Research Centre for transportation of drinking water.

Minimum breaking load
3" = 7 tons
4" = 11 tons
5" = 15 tons
6" = 18 tons

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
31850-075	76	3"	84	4	1.03	14	56	-50 / +50	-	-	100
31850-100	102	4"	113	5.5	1.45	14	56	-50 / +50	-	-	100
31850-125	127	5"	139	6	2.05	14	56	-50 / +50	-	-	100
31850-150	152	6"	165	6.5	2.66	14	56	-50 / +50	-	-	100

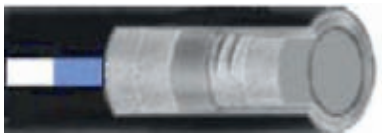
At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

CHEMICAL HOSE "SOFTWALL" "PICKLE HOSE" DIN 2823 / EN 12115 16 BAR

CONSTRUCTION:
Inside: Black seamless extruded EPDM rubber.
Reinforcement: Synthetic textile braid with high tensile strength.
Outside: Electrically conductive black EPDM rubber. Oil, weather and ozone resistant. R<1M ohm
Description: Suitable for a variety of chemicals.

Labeling: EN 12115 EPDM

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
31567-019	19	3/4"	31	6	0.57	16	50	-30 / +80	-	190	40
31567-025	25	1"	37	6	0.70	16	50	-30 / +80	-	250	40
31567-032	32	1.1/4"	44	6	0.87	16	50	-30 / +80	-	320	40
31567-038	38	1.1/2"	51	6.5	1.07	16	50	-30 / +80	-	380	40
31567-050	51	2"	67	8	1.70	16	50	-30 / +80	-	500	40
31567-063	63	2.1/2"	79	8	2.00	16	50	-30 / +80	-	630	40
31567-075	76	3"	92	8	2.51	16	50	-30 / +80	-	800	40
31567-100	102	4"	118	8	4.50	16	50	-30 / +80	-	1250	40



CHEMICAL HOSE "HARDWALL" DIN 2823 / EN 12115 16 BAR

CONSTRUCTION:
Inside: Beige, with a thin UHMW-PE layer.
Reinforcement: Synthetic textile braid. 2 steel spirals and 2 anti-static conductors.
Outside: Black EPDM rubber.
Description: Smooth and durable chemical hose that is resistant to 98% of all common chemicals. Can be sterilized in open systems up to 130 °C in max 20 min.

Labeling: EN 12115 UPE

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
32509-019	19	3/4"	31	6	0.72	16	50	-30 / +80	0.9	120	40
32509-025	25	1"	37	6	1.00	16	50	-30 / +80	0.9	150	40
32509-032	32	1.1/4"	44	6	1.30	16	50	-30 / +80	0.9	200	40
32509-038	38	1.1/2"	51	6.5	1.50	16	50	-30 / +80	0.9	230	40
32509-050	51	2"	65	7	2.20	16	50	-30 / +80	0.9	300	40
32509-063	63	2.1/2"	78	7.5	2.70	16	50	-30 / +80	0.9	380	40
32509-075	76	3"	91	7.5	3.40	16	50	-30 / +80	0.9	450	40
32509-100	102	4"	118	8	4.50	16	50	-30 / +80	0.9	610	40

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

COMPOSITE HOSE CHEM MARINE 707 ANTI-STATIC 15 BAR

WIRES
Antistatic Polypropylene coated mild steel internal wire (P). Galvanised steel external wire (Z). Also available with 304 Stainless Steel internal or external wires (X), 316 on request.

CONSTRUCTION
COMPOTEC® CHEM MARINE 707 is a multi-layer thermoplastic hose manufactured with extra Polypropylene, Polyethylene and Polyester films and Polypropylene fabrics, with a weather-proof and abrasion resistant outer cover made of Polymeric coated Polyester fabric. Outer cover is also available in a special PU coated fabric; its UV, Ozone, Sunlight and weathering resistance, offers superior temperature and abrasion characteristics.

All the different layers are wrapped together and tensioned between internal and external wire spirals of bigger diameter and higher density. This enables our product to maintain extreme flexibility with tremendous strength and durability.

CHARACTERISTICS AND APPLICATIONS
COMPOTEC® CHEM MARINE 707 is manufactured according to the requirement specified by the European Standards EN 13765:2003 Type 3 (BS 5842:1980), and in accordance with the recommendations of NAHAD Guidelines (NAHAD 600/2005).

COMPOTEC® MARINE hose assemblies have been independently tested and type approved to the requirements of International Standards.

COMPOTEC® MARINE hose assemblies are certified by D N V as complying the requirements of CE Directive 97/23 "PED" and are manufactured in accordance with the requirements of Paragraphs 2:12 and 5:7 of the IMO Chemical Carrier Code

COMPOTEC® MARINE HOSES has been approved with "Type Approval Certificate":
- D N V Det Norske Veritas - Cert. N° P-10629
- RINA Registro Italiano Navale - Cert. N° MAC/81398/1/TO/99

Flexible, easy to handle and bend, COMPOTEC® CHEM MARINE 707 is an heavy duty hose for the transfer of a wide variety of chemicals under suction or pressure. CHEM MARINE 707 hoses are used for ship to shore and ship to ship, dockside and general shipboard use.

All hoses are 100% aromatic resistant, antistatic and can be used for suction or discharge. Vacuum rating is 0,9 bar, according to the EN ISO 7233 Method B.COMPOTEC® CHEM MARINE 707 assemblies are fitted with an extensive range of couplings readily available, externally swaged with Stainless Steel or Carbon Steel ferrules.

SAFETY
Electrical continuity is achieved by the two wires bonded to the end fittings, this helps dissipate accumulated charge and to avoid static flash. The electric resistance of hose assemblies is less than 10 ohms, as required by BS 5842:1980 clause 6.2 (EN ISO 8031). Upon request it's possible to manufacture CHEM MARINE hoses in accordance to the Directive 94/9/EC "ATEX", with a special outer antistatic black cover. Hose assemblies can also be provided electrical discontinuous to suit the application.

AS = SPECIAL ANTISTATIC COATING
Outer cover is also available in a special BLACK ANTISTATIC compound which guarantee unique safety and charge dissipating characteristics.

HOSE MARKING
COMPOTEC® - CHEM MARINE - EN 13765 TYPE 3 – PN 15 – 100°C – PP – Quarter/year of hose manufacture

#	ID		WT	WP		BP (EN ISO 1402)		T	BR (EN ISO 1746)	Max L
Part No.	mm	"	kg/m	bar	PSI	bar	PSI	Temp °C	mm	m
COMPCHEMM-100	100	4"	5.2	15	200	75	1000	-40 / +100	400	35
COMPCHEMM-150	150	6"	11.8	15	200	75	1000	-40 / +100	500	20
COMPCHEMM-200	200	8"	14.5	15	200	75	1000	-40 / +100	740	20
COMPCHEMM-250	250	10"	24.1	15	200	75	1000	-40 / +100	1000	12

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

COMPOSITE HOSE OIL MARINE 808 15 BAR

WIRES
Galvanised steel internal and external wires (Z). Also available with 304 Stainless Steel internal or external wires (316 on request).

Colour: Dark Blue

CONSTRUCTION
COMPOTEC® OIL MARINE 808 is a multi-layer thermoplastic hose manufactured with extra Polypropylene, Polyethylene and Polyester films and Polypropylene fabrics, with a weather-proof and abrasion resistant outer cover made of Polymeric coated Polyester fabric. Outer cover is also available in a special PU coated fabric; its UV, Ozone, Sunlight and weathering resistance, offers superior temperature and abrasion characteristics. All the different layers are wrapped together and tensioned between internal and external wire spirals of bigger diameter and higher density. This enables our product to maintain extreme flexibility with tremendous strength and durability.

CHARACTERISTICS AND APPLICATIONS
COMPOTEC® OIL MARINE 808 is manufactured according to the requirement specified by the European Standards EN 13765:2003 Type 3 (BS 5842:1980), and in accordance with the recommendations of NAHAD Guidelines (NAHAD 600/2005).

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COMPOTEC® MARINE hose assemblies have been independently tested and type approved to the requirements of International Standards. COMPOTEC® MARINE hose assemblies are certified by D N V as complying the requirements of CE Directive 97/23 "PED" and are manufactured in accordance with the requirements of Paragraphs 2:12 and 5:7 of the IMO Chemical Carrier Code.

COMPOTEC® MARINE HOSES has been approved with "Type Approval Certificate":
- D N V Det Norske Veritas - Cert. N° P-10629
- RINA Registro Italiano Navale - Cert. N° MAC/81398/1/TO/99

Flexible, easy to handle and bend, **COMPOTEC® OIL MARINE 808 is an heavy duty hose for the transfer of a wide variety of hydrocarbons under suction or pressure. OIL MARINE 808 hoses are used for ship to shore and ship to ship, dockside and general shipboard applications.** All hoses are 100% aromatic resistant, antistatic and can be used for suction or discharge. Vacuum rating is 0,9 bar, according to the EN ISO 7233 Method B. COMPOTEC® OIL MARINE 808 assemblies are fitted with an extensive range of couplings readily available, externally swaged with Stainless Steel or Carbon Steel ferrules.

SAFETY
Electrical continuity is achieved by the two wires bonded to the end fittings, this helps dissipate accumulated charge and to avoid static flash. The electric resistance of hose assemblies is less than 10 ohms, as required by BS 5842:1980 clause 6.2 (EN ISO 8031). Upon request it's possible to manufacture OIL MARINE hoses in accordance to the Directive 94/9/EC "ATEX", with a special outer antistatic black cover.. Hose assemblies can also be provided electrical discontinuous to suit the application.

AS = SPECIAL ANTISTATIC COATING
Outer cover is also available in a special BLACK ANTISTATIC compound which guarantee unique safety and charge dissipating characteristics.

HOSE MARKING
COMPOTEC® - OIL MARINE - EN 13765 TYPE 3 – PN 15 – 100°C – PP – Quarter/year of hose manufacture.

#	ID		WT	WP		BP (EN ISO 1402)		T	BR (EN ISO 1746)	Max L
Part No.	mm	"	kg/m	bar	PSI	bar	PSI	Temp °C	mm	m
COMPOILM-100	100	4"	5.2	15	200	60	850	-40 / +100	400	35
COMPOILM-150	150	6"	10.9	15	200	60	850	-40 / +100	500	20
COMPOILM-200	200	8"	14.9	15	200	60	850	-40 / +100	740	20
COMPOILM-250	250	10"	25.7	15	200	60	850	-40 / +100	1000	12

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

SPONVENT HOSE 6 BAR

CONSTRUCTION:

Inside: Black SBR rubber.

Reinforcement: Synthetic textile braid and steel spirals.

Outside: Black SBR/EPDM rubber.

Description: Suction and pressure hose for agriculture and industry. Suitable for water, shavings, grain, etc. Cover is ozone and weather resistant.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
52945-025	25	1"	35	5	0.75	6	18	-30 / +100	0.9	150	2-6
52945-030	30		40	5	0.82	6	18	-30 / +100	0.9	180	2-6
52945-032	32	1.1/4"	42	5	0.90	6	18	-30 / +100	0.9	190	2-6
52945-035	35		45	5	0.95	6	18	-30 / +100	0.9	210	2-6
52945-038	38	1.1/2"	49	5.5	1.00	6	18	-30 / +100	0.9	228	2-6
52945-040	40		51	5.5	1.20	6	18	-30 / +100	0.9	240	2-6
52945-045	45	1.3/4"	56	5.5	1.30	6	18	-30 / +100	0.9	270	2-6
52945-048	48		59	5.5	1.38	6	18	-30 / +100	0.9	290	2-6
52945-050	50	2"	61	5.5	1.50	6	18	-30 / +100	0.9	300	2-6
52945-057	57		68	5.5	1.65	6	18	-30 / +100	0.9	340	2-6
52945-060	60		72	6	1.80	6	18	-30 / +100	0.9	360	2-6
52945-063	63	2.1/2"	75	6	1.95	6	18	-30 / +100	0.9	380	2-6
52945-065	65		77	6	2.00	6	18	-30 / +100	0.9	390	2-6
52945-070	70		82	6	2.10	6	18	-30 / +100	0.9	420	2-6
52945-075	76	3"	88	6	2.15	6	18	-30 / +100	0.9	450	2-6
52945-080	80		92	6	2.30	6	18	-30 / +100	0.9	480	2-6
52945-085	85		97	6	2.80	6	18	-30 / +100	0.9	510	2-6
52945-090	90	3.1/2"	102	6	3.10	6	18	-30 / +100	0.9	540	2-6
52945-100	102	4"	116	7	3.60	6	18	-30 / +100	0.9	600	2-6
52945-110	115	4.1/2"	129	7	3.70	6	18	-30 / +100	0.9	660	2-6
52945-125	127	5"	141	7	4.50	6	18	-30 / +100	0.9	760	2-6
52945-150	152	6"	168	8	6.30	6	18	-30 / +100	0.9	910	2-6
52945-200	203	8"	221	8	10.00	6	18	-30 / +100	0.9	1200	2-6
52945-250	254	10"	278	12	18.00	6	18	-30 / +100	0.9	1520	2-6

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

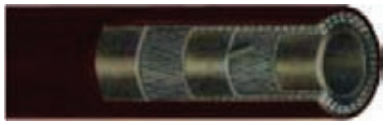
BLACK BULK HOSE "HARDWALL" 10 BAR

CONSTRUCTION:
Inside: Black SBR rubber.
Reinforcement: Synthetic textile braid and steel spirals.
Outside: Black SBR rubber.
Description: Suction and pressure hose for water and light solids, etc.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
52720-025	25	1"	35	5	0.88	10	30	-25 / +80	0.9	200	40
52720-032	32	1.1/4"	42	5	1.08	10	30	-25 / +80	0.9	260	40
52720-038	38	1.1/2"	50	6	1.25	10	30	-25 / +80	0.9	300	40
52720-050	51	2"	63	6	2.27	10	30	-25 / +80	0.9	480	40
52720-063	65	2.1/2"	77	6	2.38	10	30	-25 / +80	0.9	500	40
52720-075	76	3"	90	7	3.01	10	30	-25 / +80	0.9	610	40
52720-100	102	4"	116	7	4.09	10	30	-25 / +80	0.9	820	40
52720-125	127	5"	145	9	6.50	10	30	-25 / +80	0.9	1020	20
52720-150	152	6"	170	9	8.05	10	30	-25 / +80	0.9	1220	20
52720-200	203	8"	224	10.5	12.56	10	30	-25 / +80	0.9	1620	20

For more bulk hoses, see also Group 10, PVC/PU Hoses

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.



STEAM HOSE 7 BAR

CONSTRUCTION:
Inside: Black EPDM rubber.
Reinforcement: Several layers synthetic textile cord.
Outside: Black EPDM rubber. Mandrel built hose.
Description: For saturated steam up to 170°C and hot water up to 90°C, and mild acids and chemicals.

Must be drained after use. See group 20 for further information.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
61350-010	10	1/4"	20	5	0.35	7	70	-40 / +170	-	100	40
61350-013	13	1/2"	23	5	0.4	7	70	-40 / +170	-	130	40
61350-019	19	3/4"	31	6	0.6	7	70	-40 / +170	-	190	40
61350-025	25	1"	39	7	0.78	7	70	-40 / +170	-	250	40
61350-032	32	1.1/4"	46	7	1.05	7	70	-40 / +170	-	320	40
61350-038	38	1.1/2"	54	8	1.23	7	70	-40 / +170	-	380	40
61350-050	50	2"	69	9.5	1.69	7	70	-40 / +170	-	500	40
61350-063	63	2.1/2"	81	9	2.09	7	70	-40 / +170	-	630	40
61350-076	76	3"	95	9.5	2.41	7	70	-40 / +170	-	760	40

STEAM HOSE 17 BAR

CONSTRUCTION:
Inside: Black seamless extruded EPDM rubber.
Reinforcement: Steel braiding
Outside: Black EPDM rubber. Cover is pin-pricked.
Description: For saturated and super-heated steam.

Must be drained after use. See group 20 for further information.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
63330-013	12.7	1/2	27	5.35	0.60	17	170	-40 / +232	-	102	40
63330-019	19	3/4"	33	7	0.73	17	170	-40 / +232	-	152	40
63330-025	25	1"	41	8	1.16	17	170	-40 / +232	-	203	60
63330-032	32	1.1/4"	49	8.5	1.52	17	170	-40 / +232	-	320	40
63330-038	38	1.1/2"	55	8.5	1.74	17	170	-40 / +232	-	380	40
63330-050	51	2"	68	8.5	2.35	17	170	-40 / +232	-	500	60
63330-063	63	2.1/2"	80	8.5	2.84	17	170	-40 / +232	-	630	40
63330-075	76	3"	98	11	5.55	17	170	-40 / +232	-	750	40
63330-100	102	4"	124	11	7.21	17	170	-40 / +232	-	1000	40

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

PROPANE HOSE EN 559 20 BAR

CONSTRUCTION:
Inside: Black NBR/EPDM rubber.
Reinforcement: Synthetic textile braiding.
Outside: Orange NBR rubber.
Description: High quality propane hose. Meets EN 559.
Excellent for LPG and natural gases. Cover has high durability.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
71089-006	6	1/4"	13	3.5	0.19	20	60	-30 / +70	-	60	50/100
71089-008	8	5/16"	15	3.5	0.22	20	60	-30 / +70	-	80	50/100
71089-010	10	3/8"	17	3.5	0.26	20	60	-30 / +70	-	100	50/100
71089-013	13	1/2"	23	5	0.30	20	60	-30 / +70	-	130	50/100
71089-016	16	5/8"	26	5	0.42	20	60	-30 / +70	-	160	50/100
71089-019	20	3/4"	31	5.5	0.56	20	60	-30 / +70	-	200	50/100
71089-025	25	1"	36	5.5	0.69	20	60	-30 / +70	-	250	50/100

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TWIN GAS HOSE MAP GAS 20 BAR

CONSTRUCTION:
Inside: Black NBR rubber.
Reinforcement: Synthetic textile braiding with high tensile strength.
Outside: Blue/orange SBR wear/tear and ozone resistant rubber.
Description: Smooth and durable MAP gas hose for oxygen, propane, propellant gas, etc.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
71074-0606	6.3 x 6.3		-	-	0.35	20	60	-30 / +80	20	65	50
71074-0608	6.3 x 8.0		-	-	0.42	20	60	-30 / +80	20	65	50
71074-1010	10.0 x 10.0		-	-	0.50	20	60	-30 / +80	20	100	50

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

RED ACETYLENE HOSE
BLUE OXYGEN HOSE
EN 559
20 BAR

CONSTRUCTION:
Inside: Black SBR rubber.
Reinforcement: Synthetic textile braiding.
Outside: Red / blue SBR rubber.
Description: Weather resistant gas hose with good durability. Not suitable for oil-based gas and LPG.

Labeling: EN 559 2MPA/20BAR + Diameter and production year.

# Red Acetylene Part No.	ID mm	ID "	OD mm	WT mm	WT kg/m	WP bar	BP bar	T Temp °C	V bar	BR mm	L m
71075-006	6.3	1/4"	13.3	3.5	0.23	20	60	-30 / +70	-	190	50 / 100
71075-010	10	3/8"	18	4	0.27	20	60	-30 / +70	-	270	50 / 100
71075-013	13	1/2"	23	5	0.38	20	60	-30 / +70	-	375	50 / 100
71075-019	19	3/4"	31	6	0.67	20	60	-30 / +70	-	670	50 / 100
Blue Oxygen											
71076-006	6.3	1/4"	13.3	3.5	0.23	20	60	-30 / +70	-	190	50 / 100
71076-010	10	3/8"	18	4	0.27	20	60	-30 / +70	-	270	50 / 100
71076-013	13	1/2"	23	5	0.38	20	60	-30 / +70	-	375	50 / 100
71076-019	19	3/4"	31	6	0.67	20	60	-30 / +70	-	670	50 / 100

RED / BLUE TWIN HOSE
ACETYLENE / OXYGEN
EN 559
20 BAR

CONSTRUCTION:
Inside: Black SBR rubber.
Reinforcement: Synthetic textile braiding.
Outside: Red / blue SBR rubber.
Description: Weather resistant gas hose with good durability. Not suitable for oil-based gas and LPG.

Labeling: EN 559 2MPA/20BAR + Diameter and production year.

# Part No.	ID mm	ID "	OD mm	WT mm	WT kg/m	WP bar	BP bar	T Temp °C	V bar	BR mm	L m
71077-006	6.3	1/4"	14.3	4	0.35	20	60	-30 / +80		65	50 / 100
71077-010	10	3/8"	18	4	0.50	20	60	-30 / +80		100	50 / 100

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

FOOD INDUSTRY HOSE "BLUE FOOD FLEXWING" 10 BAR

CONSTRUCTION:
Inside: White NBR rubber.
Reinforcement: Synthetic textile braiding and 2 steel spirals.
Outside: Blue CR rubber.
Description: High quality food industry hose. Meets USDA -3A and FDA requirements.
Smooth NBR inner rubber. The Cover is oil and grease resistant.
Can be steam cleaned in open systems up to 130°C.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
82410-025	25	1"	37	6	0.85	10	40	-30 / +93	0.9	100	30
82410-032	32	1.1/4"	44	6	1.10	10	40	-30 / +93	0.9	130	30
82410-038	38	1.1/2"	50	6	1.34	10	40	-30 / +93	0.9	155	30
82410-050	51	2"	64	6.5	1.99	10	40	-30 / +93	0.9	200	30
82410-063	63	2.1/2"	78	7.5	2.60	10	40	-30 / +93	0.9	255	30
82410-075	76	3"	91	7.5	3.20	10	40	-30 / +93	0.9	305	30
82410-100	102	4"	118	8	4.95	10	40	-30 / +93	0.9	410	30

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DRINKING WATER HOSE "POTABLE WATER" SOFTWALL 20 BAR

CONSTRUCTION:
Inside: White NR rubber.
Reinforcement: 4 layers synthetic textile braiding.
Outside: Orange EPDM rubber.
Description: FDA approved drinking water hose.
Smooth NR inner rubber.
The cover is oil and sea water resistant.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
81451-050	51	2"	66	7.5	1.90	20	80	-30 /+70	-	1200	61
81451-075	76	3"	92	8	2.85	20	80	-30 / +70	-	1200	61
81451-100	102	4"	118	8	3.45	20	80	-30 / +70	-	1200	61

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

MILK HOSE "BLUE MILK FLEXTRA" 10 BAR

CONSTRUCTION:

Inside: White NBR rubber.

Reinforcement: Synthetic textile braiding and steel spiral.

Outside: Blue CR rubber.

Description: Flexible and light food hose. Especially suitable for milk products, but also good for water, oil and fat-containing food products. The inside is smooth FDA approved NBR rubber.
Can be sterilized in open systems up to 130°C.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
82440-038	38	1.1/2"	50	6	1.32	10	30	-30 / +90	0.9	100	30
82440-050	51	2"	63	6	1.59	10	30	-30 / +90	0.9	127	30
82440-063	63	2.1/2"	77	7	1.85	10	30	-30 / +90	0.9	152	30
82440-075	76	3"	89	6.5	2.76	10	30	-30 / +90	0.9	180	30
82440-100	102	4"	116	7	4.11	10	30	-30 / +90	0.9	250	30

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

BREATHING AIR HOSE 8516 EN 14593 / EN 14594 10 BAR

CONSTRUCTION:
Inside: Black NBR
Reinforcement: PVA
Outside: Black NBR/PVC
Application: Compressed Air
Standard Branding: CODAN 8516 - BREATHING HOSE H,S,F - EN 14593-1/2 - EN 14594 - 10 BAR - year - sn.
Description: Flexible, black hose with two laminated green stripes in accordance with EN 139. Available in other colours to order. For carrying breathing air at high pressure from compressor to filter. Good ozone resistance and external resistance to several chemicals. Ideal for use when cleaning tanks, etc. or where the outer surface of the hose is exposed to adverse conditions. Installed using brass or stainless crimped-on fittings. Choice of connector should be considered carefully. Also according to EN 139: 1994. Please contact Codan for further information.

#	ID mm	OD	WT	WT	WP	BP	T	V	BR	Standard Length
Part No.		mm	mm	g/m	bar	bar	Temp °C	bar	mm	m
8516006	6.3	15.3		192	10	60	-30 / +100		62	50
8516007	7.0	16.4		218	10	60	-30 / +100		66	50
8516010	9.5	19.5		287	10	60	-30 / +100		78	50
8516019	19.1	29.5		521	10	60	-30 / +100		110	50

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BREATHING AIR HOSE EN 14593 10 BAR

CONSTRUCTION:
Inside: Black EPDM rubber.
Reinforcement: Synthetic textile braiding with high tensile strength.
Outside: Green EPDM.
Description: High quality breathing air hose. Inner tube emits no odor or taste. Meets EN 14593 requirements for full mask breathing hoses. High mechanical tensile strength. Durable cover.
The hose withstands weld spatter. FDA approved.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
81482-010	9.5	3/8"	19.5	5	0.32	10	30	-30 / +60	-	50	50

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

FOOD WASHDOWN HOSE "FORTRESS 300" 20 BAR

CONSTRUCTION:

Inside: White NBR rubber.

Reinforcement: Synthetic textile braiding with high tensile strength.

Outside: Blue Carbryn with anti-bacterial Microban®

Description: The most advanced cleaning hose on the market.
The hose is unique in its kind because of its antiseptic properties.
Ideal for catering and food industry.
We have the hose in 3 pressure classes in stock. The 20 bar hose has food industry approved inner rubber.

Read more about Microban® on: www.fluid-control.no

"FORTRESS 300" 20 BAR
Is also available in other colors and dimensions.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
61010-013	13	1/2"	23	5	0.43	20	80	-25 / +93	-	-	100
61010-019	19	3/4"	30	5.5	0.61	20	80	-25 / +93	-	-	100
61010-025	25	1"	38	6.5	0.89	20	80	-25 / +93	-	-	100

FOOD WASHDOWN HOSE "FORTRESS 1500" 80 BAR

"FORTRESS 1500" 80 BAR
Is also available in other colors and dimensions.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
61020-013	13	1/2"	22	4.5	0.30	80	320	-25 / +93	-	-	100

FOOD WASHDOWN HOSE "FORTRESS 3000" 200 BAR

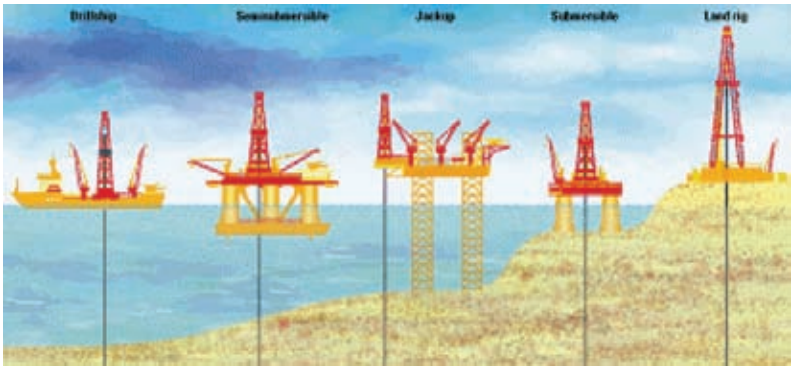
"FORTRESS 3000" 200 BAR
Is also available in other colors and dimensions.

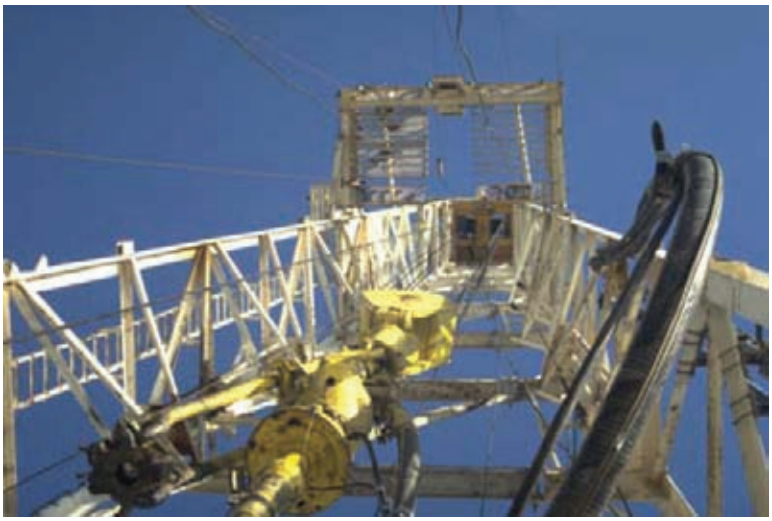
#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
61030-010	10	3/8"	18	4	0.36	200	800	-25 / +93	-	-	100
61030-013	13	1/2"	21	4	0.48	200	800	-25 / +93	-	-	100

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

WE PROVIDE ALL TYPES OF HOSES FOR THE OFFSHORE INDUSTRY.

DRILLING HOSES
"CHOKE & KILL" HOSES
HP MUD HOSES
VIBRATOR HOSES
ROTARY HOSES

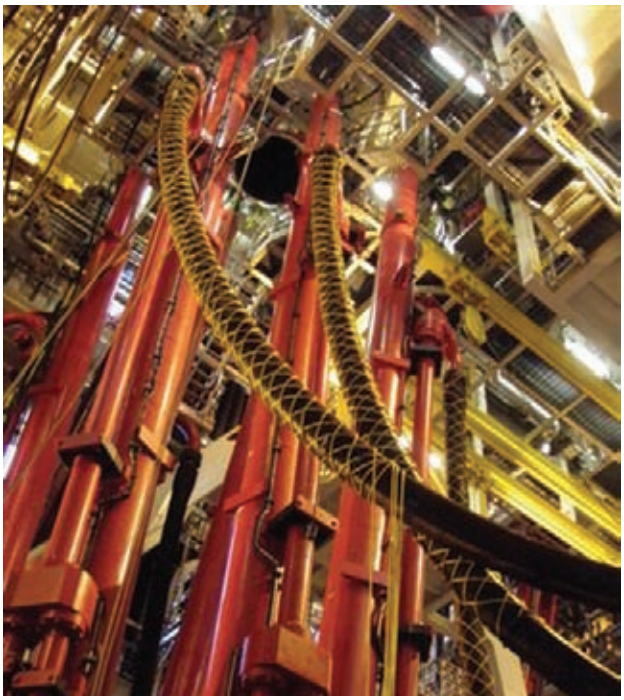




At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

FLUID CONTROL SAFE GRIP

- Prevents Unwanted Falling Objects
- Contributes to a safe drill floor
- Eliminates the conventional clamp and chain
- Chemical resistant
- UV resistant
- Manufactured in accordance with requirements from the Labour Inspection
- Same strength as same dimension steel wire
- The use of SAFE GRIP is applied patented
- A significant contribution to improved Health, Safety and Security
- Verifiable function, tested by third party
- Comes with documentation and user manual



At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

FISH PUMP HOSE 5 BAR

CONSTRUCTION:
Inside: Black Plyosin.
Reinforcement: Synthetic textile braid with high tensile strength.
Outside: Black Plyosin.
Description: Smooth, durable and lightweight fish pump hose with excellent abrasion properties. Ozone and seawater resistant.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
91100-250	254	10"	264	5	4.05	5	15	-30 / +70	-	-	61
91100-300	305	12"	315	5	4.89	5	15	-30 / +70	-	-	61
91100-350	358	14"	368	5	5.68	5	15	-30 / +70	-	-	61
91100-400	408	16"	418	5	6.48	5	15	-30 / +70	-	-	61
91100-450	457	18"	473	8	8.30	5	15	-30 / +70	-	-	30

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SAND BLASTING HOSE 12 BAR

CONSTRUCTION:
Inside: Black NR rubber with high wear resistance. Electrically conductive.
Reinforcement: Synthetic textile braid with high tensile strength.
Outside: Black, anti-static SBR/NR with high wear resistance.
Description: Sand blasting hose with high durability. Designed for minimum prolongation, torsion and twisting. Outside rubber is anti-static.
Inner abrasion <70mm³ DIN 53516

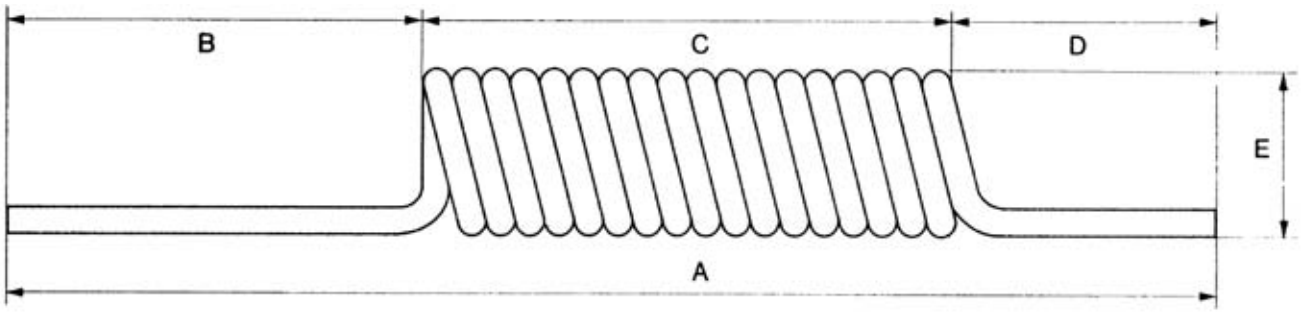
#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	bar	mm	m
91750-013	13	1/2	27	7	0.51	12	36	-30 / +80	-	130	40
91750-016	16	5/8	30	7	0.60	12	36	-30 / +80	-	160	40
91750-019	19	3/4"	33	7	0.69	12	36	-30 / +80	-	190	40
91750-025	25	1"	40	7.5	0.90	12	36	-30 / +80	-	250	40
91750-032	32	1.1/4"	48	8	1.2	12	36	-30 / +80	-	320	40
91750-038	38	1.1/2"	56	9	1.57	12	36	-30 / +80	-	380	40
91750-050	51	2"	71	10	2.2	12	36	-30 / +80	-	500	40

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

SELF RETRACTING POLYURETHANE SPIRAL HOSE

Construction: Blue polyurethane spiral hose with "tails" in both ends, to keep quick couplings and fittings away from the spiral.
Temperature range: -40°C to + 80°C.
Applications: Air tools, instrumentation, etc.

# Part No.	mm	mm	m	bar	A mm	B mm	C mm	D mm	E mm
958-5820	8	5.0	2	10	780	500	180	100	42
958-5840	8	5.0	4	10	1000	500	400	100	42
958-5860	8	5.0	6	10	1230	500	630	100	42
958-5880	8	5.0	8	10	1400	500	800	100	42
958-6020	10	6.5	2	10	785	500	185	100	52
958-6040	10	6.5	4	10	1000	500	400	100	52
958-6060	10	6.5	6	10	1235	500	635	100	52
958-6080	10	6.5	8	10	1400	500	800	100	52
958-6220	12	8.0	2	10	780	500	180	100	65
958-6240	12	8.0	4	10	990	500	390	100	65
958-6260	12	8.0	6	10	1190	500	590	100	65
958-6280	12	8.0	8	10	1380	500	780	100	65
958-6620	16	11.0	2	10	741	500	140	100	108
958-6640	16	11.0	4	10	890	500	290	100	108
958-6660	16	11.0	6	10	1050	500	450	100	108
958-6680	16	11.0	8	10	1220	500	620	100	108



At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

PYROJACKET 500°C FLAME RESISTANT HEAT RESISTANT TYPE - PJ

CONSTRUCTION:
Inside/outside: Thick glass fiber braid
Outside: Red silicon rubber coating
Temperature: -55°C to + 260°C - continuous
Temperature: Max 30 min +850°C, ref. to: NFE 48-084
Temperature: Max 15 min. +1100°C, ref. to: SAE AS 10556

Applications: Protective sleeve for hoses, pipes and cables from fire and radiant heat in smelting plants, industry and offshore. Excellent also as insulation sleeve for enclosing hot pipes, or to reduce heat loss.
Outside silicon rubber is resistant to most chemicals and oils.

Production Lengths: Max 12 meters

# Part No.	ID mm	OD mm	WT kg
PJ-025	25	33	0.32
PJ-045	45	53	0.45
PJ-050	50	58	0.58
PJ-055	55	63	0.61
PJ-080	80	89	0.94

Other dimensions available on request

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

FLAMESHIELD-300
Firewater Mains
T-300 AH

CONSTRUCTION:
Inside: Synthetic seawater and oil-resistant rubber.
Reinforcement: Reinforced with steel braiding and several layers glass fiber tissue.
Outside: Red flame-resistant special rubber resistant to oils and ozone.

Applications:
Flame Shield 300 is specifically designed for use in "Fire Water Mains Systems" on offshore installations, where the demands for performance, security, and guaranteed "lifetime" of the product is absolutely necessary.

Flameshield 300 is tested under full working pressure in temperatures higher than +700°C in periods between 30 and 60 minutes, in a closed fire chamber at full working pressure and with no flow in the hose.

Flameshield 300 exceeds the requirements of the DNV and American Bureau of Shipping.

Flame Shield 300 replaces the flexible interior corrugated metal hoses in "Fire Water Mains Systems" where producers have not been able to provide guarantees for the expected life of the product, because of the damage that occurs with "stagnant" seawater. Another problem area is the construction of metal hoses (corrugated interior), which can cause significant pressure loss.

Flame Shield 300 is primarily designed for "Fire Water Mains Systems", but is also usable for fuel, air and oil.

FLAMESHIELD 300:
- Compact and solid design for maximum life expectancy.
- Uniform construction, no requirement for exterior steel protection.
- Low prolongation & 0% contraction at full working pressure.
- 2 year warranty period.
- Wide range of end fittings - NPT Male, Hammer lug unions, flanges, Straub Grip, quick couplings, etc. in different material qualities, carbon steel, AISI 316 L, UNS S31254 (6MO), etc.
- Full traceability in accordance with DIN 50049.3.1.B is available for the end fittings.

#	ID		OD	WT	WT	WP		V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	psi	%	mm	mm
93300-025	25	1	49	12	2.9	21	305	-	300	40
93300-032	32	1 1/4	56	12	3.5	21	305	-	330	40
93300-038	38	1 1/2	62	12	3.9	21	305	-	370	40
93300-050	51	2	79	14	4.7	21	305	-	400	40
93300-075	76	3	108	16	7.2	21	305	-	500	40
93300-100	102	4	128	13	9.0	21	305	-	600	40
93300-125	127	5	155	14	16.0	21	305	-	1030	40
93300-150	152	6	180	14	19.7	21	305	-	1140	40
93300-200	204	8	237	17	27.3	21	305	-	1440	20
93300-250	254	10	288	17	34.2	21	305	-	1780	20

Safety factor: 5:1
Temperature range: -40°C to +90°C.
Standards:
Brand: API Spec

At high temperatures the working pressure is reduced. Constant high pressure and temperature reduces the tube life span.

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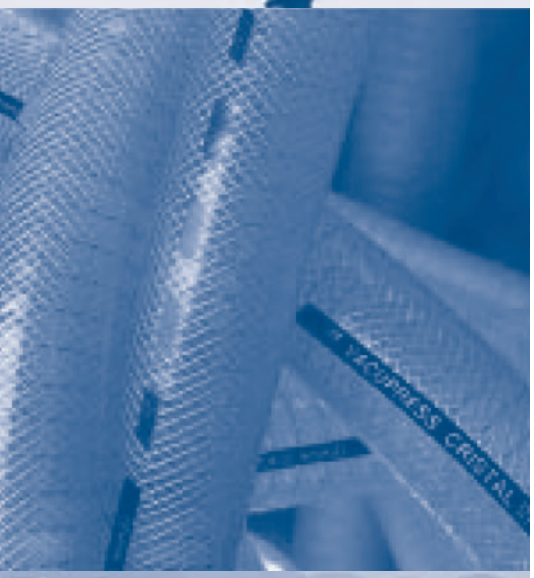

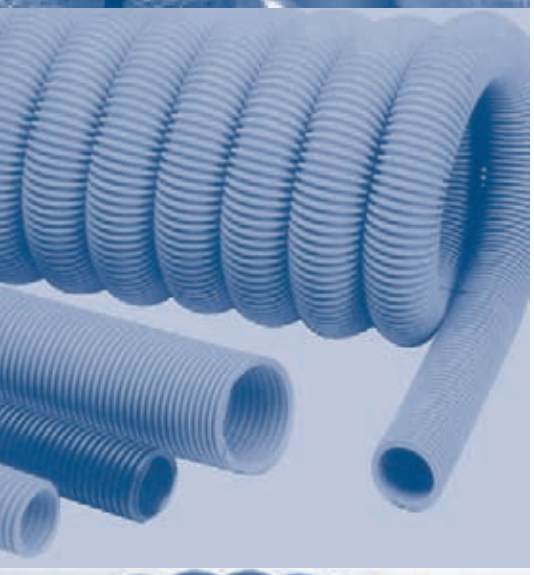

Group 10

PVC - PU Hoses

FLUID CONTROL®

Symbol Key for Hose Tables

Part No.	Hose inner diameter in mm and inches		Hose outer diameter in mm	Hose wall thickness in mm	Hose net weight per meter	Hose maximum working pressure	Hose min. burst pressure = working pressure x bar	Hose temperature range	Hose maximum vacuum limit	Hose minimum bend radius	Available hose lengths from the factory
#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Part No.	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m

NEW New product in this catalogue

Anti-static hose (This label is not on the hoses with steel spiral)

Food Industry Hose

SUPERIOR ABRASION RESISTANCE Hose with superior wear resistance

Non-conductive Hose

10

AIR HOSE "SUPER NOBEL AIR" 20 BAR

CONSTRUCTION:
Inside: Sand-colored smooth PVC
Reinforcement: Polyester braid
Covering: Sand-colored PVC
Description: Very light and flexible air hose. Excellent for air tools, etc.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
11024-006	6	1/4"	11	2.5	0.08	20	3:1	-20 / +60	-	22	50
11024-008	8	5/16"	13	2.5	0.10	20	3:1	-20 / +60	-	30	50
11024-010	10	3/8"	16	3	0.14	20	3:1	-20 / +60	-	48	50
11024-013	13	1/2"	19	3	0.20	20	3:1	-20 / +60	-	65	50
11024-016	16	5/8"	23	3	0.28	20	3:1	-20 / +60	-	85	50
11024-019	20	3/4"	27	3.5	0.35	20	3:1	-20 / +60	-	95	50
11024-025	25	1"	34	4.5	0.50	20	3:1	-20 / +60	-	135	50

REINFORCED PVC INDUSTRY HOSE

CONSTRUCTION:
Inside: Clear PVC
Reinforcement: Polyester braid
Covering: Clear PVC
Description: Food industry approved hose suitable for air, water, gases, oils and a number of chemicals.
See chemical table for full overview. Stated working pressure is at 23°C.
Working pressure is decreasing with increasing temperatures.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
11045-006	6	1/4"	12	3	0.08	20	60	-20 / +60	-	20	100
11045-008	8	5/16"	14	3	0.13	18	54	-20 / +60	-	30	100
11045-010	10	3/8"	16	3	0.15	18	54	-20 / +60	-	40	100
11045-013	13	1/2"	19	3	0.22	12	36	-20 / +60	-	55	50
11045-016	16	5/8"	22	3	0.30	10	30	-20 / +60	-	110	50
11045-019	19	3/4"	26	3.5	0.36	10	30	-20 / +60	-	115	50
11045-025	25	1"	33	4	0.54	8	24	-20 / +60	-	145	50
11045-032	32	1.1/4"	42	5	0.74	8	24	-20 / +60	-	164	50
11045-038	38	1.1/2"	48	5	0.87	8	24	-20 / +60	-	346	50
11045-050	50	2"	62	6	1.48	8	24	-20 / +60	-	520	25

All technical specifications on this page are stated at 18°C. All tolerance limits are + / -5%

CLEAR PVC INDUSTRIAL HOSE

CONSTRUCTION:
Inside: Clear PVC
Reinforcement: None
Covering: Clear PVC
Description: Food industry approved hose suitable for air, water, gases, oils and a number of chemicals. See chemical table for a full overview. Stated working pressure is at 23°C. Working pressure is decreasing with increasing temperatures

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
10046-003	3	1/8"	6	1.5	0.025	-	-	-20 / +60	-	24	200
10046-005	5	3/16"	8	1.5	0.035	-	-	-20 / +60	-	40	200
10046-006	6	1/4"	9	1.5	0.044	-	-	-20 / +60	-	48	200
10046-008	8	5/16"	12	2	0.05	-	-	-20 / +60	-	64	100
10046-010	10	3/8"	14	2	0.09	-	-	-20 / +60	-	80	100
10046-013	13	1/2"	19	3	0.19	-	-	-20 / +60	-	130	100
10046-016	16	5/8"	22	3	0.22	-	-	-20 / +60	-	160	100
10046-019	20	3/4"	27	3.5	0.32	-	-	-20 / +60	-	200	50
10046-025	25	1"	34	4.5	0.50	-	-	-20 / +60	-	250	50

ARMORVIN HNA

CONSTRUCTION:
Inside: Transparent PVC
Reinforcement: Steel spiral
Covering: Transparent PVC
Description: Light suction and pressure hose for the food industry, granule and transport of fluids where a small bend radius is important. Smooth on the inside and outside. Alcohol resistance 28°.
The Armorvin hose series with steel spiral is available in other variants. Ask for a brochure.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
42047-010	10	3/8"	3	-	0.16	7	21	-5 / +65	70	20	60
42047-013	12	1/2"	3	-	0.18	7	21	-5 / +65	70	25	60
42047-016	16	5/8"	3.2	-	0.23	6	18	-5 / +65	70	35	60
42047-019	20	3/4"	3.4	-	0.34	5	15	-5 / +65	70	50	60
42047-025	25	1"	4	-	0.51	5	15	-5 / +65	70	60	60
42047-032	32	1.1/4"	4.2	-	0.65	4.5	13.5	-5 / +65	70	75	60
42047-038	38	1.1/2"	4.5	-	0.80	4	12	-5 / +65	70	90	30
42047-050	50	2"	5	-	1.20	3	9	-5 / +65	70	125	30
42047-075	75	3"	6.8	-	2.50	2	6	-5 / +65	70	200	30
42047-100	100	4"	7	-	3.25	2	6	-5 / +65	70	300	30

All technical specifications on this page are stated at 18°C. All tolerance limits are + / -5%

VACUPRESS CRISTAL

CONSTRUCTION:
Inside: Transparent PVC
Reinforcement: Polyester braid and steel spiral
Covering: Transparent PVC
Description: Flexible and durable hose for suction and pressure.
Smooth on the inside and outside.
For water, food products and alcohol up to 28%.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
42048-019	19	3/4"	28	4.5	0.45	20	60	-5 / +65	90	80	60
42048-025	25	1"	35.5	5.25	0.68	20	60	-5 / +65	90	90	60
42048-032	32	1.1/4"	42.5	5.25	0.80	16	48	-5 / +65	90	110	60
42048-038	38	1.1/2"	51	6.5	1.15	14	42	-5 / +65	90	135	30
42048-050	50	2"	63	6.5	1.60	14	42	-5 / +65	90	170	30
42048-063	63	2.1/2"	77	7	2.55	12	36	-5 / +65	90	210	30
42048-075	76	3"	92	8	2.80	12	36	-5 / +65	90	250	30
42048-100	102	4"	120	8.5	3.90	10	30	-5 / +65	90	400	30

Other dimensions on request

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VACUPRESS CHEMI

CONSTRUCTION:
Inside: Black thermoplastic rubber
Reinforcement: Polyester braid and steel spiral
Covering: Green thermoplastic rubber
Description: Flexible and durable hose for suction and pressure.
Smooth on the inside and outside. For oils, hydraulic oils and a number of chemicals. Can be cleaned in 110°C for 2 minutes.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
42049-019	19	3/4"	28	4.5	0.38	15	45	-25 / +80	90	70	60
42049-025	25	1"	35.5	5.25	0.58	14	42	-25 / +80	90	80	60
42049-032	32	1.1/4"	42.5	5.25	0.70	10	30	-25 / +80	90	90	60
42049-038	38	1.1/2"	50	6	1,20	10	30	-25 / +80	90	100	30
42049-050	50	2"	63	6.5	1.28	10	30	-25 / +80	90	130	30
42049-063	63	2.1/2"	76	6.5	1.60	9	27	-25 / +80	90	180	30
42049-075	76	3"	91	7.5	2.35	8	24	-25 / +80	90	230	30
42049-100	102	4"	119	8.5	3.10	7	21	-25 / +80	90	310	30

Other dimensions on request

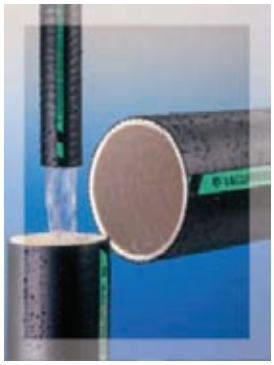
All technical specifications on this page are stated at 18°C. All tolerance limits are + / -5%

VACUPRESS FOOD

CONSTRUCTION:
Inside: White thermoplastic rubber
Reinforcement: Polyester braid and steel spiral
Covering: Blue thermoplastic rubber
Description: Flexible and durable hose for suction and pressure.
Smooth on the inside and outside. FDA approved.
For milk, dairy products and other food products.
Can be cleaned in 110°C for 2 minutes.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
42050-019	19	3/4"	28	4.5	0.38	15	45	-25 / +80	90	70	60
42050-025	25	1"	35.5	5.25	0.58	14	42	-25 / +80	90	80	60
42050-032	32	1.1/4"	42.5	5.25	0.70	10	30	-25 / +80	90	90	60
42050-038	38	1.1/2"	50	6	902	10	30	-25 / +80	90	100	30
42050-050	50	2"	63	6.5	1.28	8	24	-25 / +80	90	130	30
42050-063	63	2.1/2"	76	6.5	1.60	8	24	-25 / +80	90	180	30
42050-075	76	3"	91	7.5	2.35	8	24	-25 / +80	90	230	30
42050-100	102	4"	119	8.5	3.10	7	21	-25 / +80	90	310	30

Other dimensions on request



VACUPRESS SUPERELASTIC

CONSTRUCTION:
Inside: White PVC
Reinforcement: Polyester braid and steel spiral
Covering: Black PVC
Description: Flexible and durable hose for suction and pressure.
Smooth on the inside and outside.
For water, food products and alcohol up to 28%.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
42051-019	19	3/4"	28	4.5	0.48	20	60	-25 / +60	90	70	60
42051-025	25	1"	35.5	5.25	0.68	16	48	-25 / +60	90	80	60
42051-032	32	1.1/4"	42.5	5.25	0.80	16	48	-25 / +60	90	100	60
42051-038	38	1.1/2"	51	6.5	1.20	14	42	-25 / +60	90	125	30
42051-050	50	2"	63	6.5	1.60	12	36	-25 / +60	90	150	30
42051-063	63	2.1/2"	77	7	2.10	12	36	-25 / +60	90	190	30
42051-075	76	3"	92	8	2.85	12	36	-25 / +60	90	190	30
42051-100	102	4"	120	8.5	3.95	10	30	-25 / +60	90	295	30

Other dimensions on request

All technical specifications on this page are stated at 18°C. All tolerance limits are + / -5%

VACUPRESS OIL

CONSTRUCTION:
Inside: Black PVC/PU/NR mixture
Reinforcement: Polyester braid and steel spiral
Covering: Black PVC/PU/NR mixture
Description: Flexible and durable hose for suction and pressure. Smooth on the inside and outside. For oils, fuel and hydraulic oils. 3" and bigger has an anti-static copper wire.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
42052-019	19	3/4"	28	4.5	0.45	16	48	-25 / +55	90	70	60
42052-025	25	1"	35.5	5.25	0.64	16	48	-25 / +55	90	80	60
42052-032	32	1.1/4"	42.5	5.25	0.80	16	48	-25 / +55	90	100	60
42052-038	38	1.1/2"	51	6.5	1.20	14	42	-25 / +55	90	125	40
42052-050	50	2"	63	6.5	1.75	12	36	-25 / +55	90	150	40
42052-063	63	2.1/2"	77	7	2.05	12	36	-25 / +55	90	190	40
42052-075	76	3"	91	7.5	2.60	10	30	-25 / +55	90	210	30
42052-100	102	4"	118	8	3.70	8	24	-25 / +55	90	300	30

Other dimensions on request

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AMERICA BLUE OIL

CONSTRUCTION:
Inside: Blue PVC
Reinforcement: Hardened PVC spiral
Covering: Blue PVC
Description: Light suction and pressure hose for transport of oil and petro-chemical products. Available with copper slits for grounding.

#	#	ID		OD	WT	WT	WP	BP	T	V	BR	L
Standard	Anti-static	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
44669-025	44670-025	25	1"	-	3	0.50	6	18	-25 / +55	70	90	30
44669-032	44670-032	32	1.1/4"	-	4.5	0.60	5	15	-25 / +55	70	110	30
44669-038	44670-038	38	1.1/2"	-	4.7	700	5	15	-25 / +55	70	130	30
44669-050	44670-050	51	2"	-	5.5	1.05	4.5	13.5	-25 / +55	70	175	30/50
44669-063	44670-063	63	2.1/2"	-	6	1.39	4.0	12	-25 / +55	70	220	30
44669-075	44670-075	76	3"	-	6.4	1.70	3.5	10.5	-25 / +55	70	270	50
44669-100	44670-100	102	4"	-	7.4	2.70	2.5	7.5	-25 / +55	70	360	30
44669-150	44670 -150	152	6"	-	9	4.70	1.5	4.5	-25 / +55	70	540	30

All technical specifications on this page are stated at 18°C. All tolerance limits are + / -5%

BLUE DRAIN HOSE SUPER JAMAICA L

CONSTRUCTION:
Inside: Blue PVC
Reinforcement: Polyester braid
Covering: Blue PVC
Description: Light and flexible drain hose, designed for the drain side of bilge pumps and irrigation systems.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
11030-025	25	1"	-	-	0.16	8.5	25.5	-10 / +60	-	-	50/100
11030-032	32	1.1/4"	-	-	0.21	8.5	25.5	-10 / +60	-	-	50/100
11030-038	38	1.1/2"	-	-	0.24	8.5	25.5	-10 / +60	-	-	50/100
11030-050	51	2"	-	-	0.32	6.5	19.5	-10 / +60	-	-	50/100
11030-063	63	2.1/2"	-	-	0.42	6.5	19.5	-10 / +60	-	-	50/100
11030-075	76	3"	-	-	0.52	5.5	16.5	-10 / +60	-	-	50/100
11030-100	102	4"	-	-	0.72	5.5	16.5	-10 / +60	-	-	50/100
11030-125	127	5"	-	-	1.13	3	9	-10 / +60	-	-	50/100
11030-150	152	6"	-	-	1.35	3	9	-10 / +60	-	-	50/100
11030-200	204	8"	-	-	2.00	2.5	7	-10 / +60	-	-	50/50

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BLUE DRAIN HOSE SUPER JAMAICA M

CONSTRUCTION:
Inside: Blue PVC
Reinforcement: Polyester braid
Covering: Blue PVC
Description: Light and flexible drain hose, designed for the drain side of bilge pumps and irrigation systems.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
11031-025	25	1"	-	-	0.19	10	30	-10 / +60	-	-	50/100
11031-032	32	1.1/4"	-	-	0.24	10	30	-10 / +60	-	-	50/100
11031-038	38	1.1/2"	-	-	0.30	10	30	-10 / +60	-	-	50/100
11031-050	51	2"	-	-	0.41	10	30	-10 / +60	-	-	50/100
11031-063	63	2.1/2"	-	-	0.57	8	24	-10 / +60	-	-	50/100
11031-075	76	3"	-	-	0.70	8	24	-10 / +60	-	-	50/100
11031-100	102	4"	-	-	1.00	8	24	-10 / +60	-	-	50/100
11031-125	127	5"	-	-	1.35	6	18	-10 / +60	-	-	50/100
11031-150	152	6"	-	-	1.60	4	12	-10 / +60	-	-	50/100
11031-200	204	8"	-	-	2.40	3	9	-10 / +60	-	-	50/50

All technical specifications on this page are stated at 18°C. All tolerance limits are + / -5%

ARIZONA SUPERELASTIC

CONSTRUCTION:
Inside: Grey PVC
Reinforcement: Hardened green PVC spiral
Covering: Grey PVC
Description: Super flexible, powerful suction and pressure hose for septic contractors, agriculture and industry. Green hard coating on the spiral. Smooth on the inside. Available in more dimensions than shown in the table.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
44268-025	25	1"	-	4.4	0.50	7	21	-25 / +55	90	100	50
44268-032	32	1.1/4"	-	4.4	0.60	6	18	-25 / +55	90	130	50
44268-038	38	1.1/2"	-	4.4	0.70	6	18	-25 / +55	90	150	50
44268-050	51	2"	-	5.5	1.05	5	15	-25 / +55	90	200	50
44268-063	63	2.1/2"	-	6	1.39	4.5	13.5	-25 / +55	90	250	50
44268-075	76	3"	-	6.5	1.70	4	12	-25 / +55	90	300	30/50
44268-100	102	4"	-	7.3	2.70	3	9	-25 / +55	90	400	30
44268-125	127	5"	-	8.3	3.90	2.5	7.5	-25 / +55	90	510	20
44268-150	152	6"	-	9	5.00	2	6	-25 / +55	90	610	20
44268-200	203	8"	-	13	10.00	1.5	4.5	-25 / +55	90	800	10

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SUPER ARIZONA PU

SUPERIOR ABRASION RESISTANCE

CONSTRUCTION:
Inside: Grey PVC/PU
Reinforcement: Hardened yellow PVC spiral
Covering: Grey PVC/PU
Description: Super flexible, powerful suction and pressure hose for abrasive materials such as sand, cement, grains and granulates. PU is 5 times more durable than PVC. Yellow hard coating on the spiral. Very smooth on the inside.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
44269-032	32	1.1/4"	-	4.4	0.60	6	18	-25 / +55	70	130	50
44269-038	38	1.1/2"	-	4.8	700	6	18	-25 / +55	70	150	50
44269-045	45	1.3/4"	-	5	0.90	5	15	-25 / +55	70	180	50
44269-050	51	2"	-	5	1.05	5	15	-25 / +55	70	200	50
44269-063	63	2.1/2"	-	5.5	1.39	4	12	-25 / +55	70	250	50
44269-075	76	3"	-	6.1	1.70	4	12	-25 / +55	70	300	30/50
44269-090	89	3.1/2"	-	6.7	2.25	3	9	-25 / +55	70	360	30
44269-100	102	4"	-	7.4	2.85	3	9	-25 / +55	70	400	20
44269-125	127	5"	-	8.6	4.10	2.5	7.5	-25 / +55	70	510	20
44269 -150	152	6"	-	9.3	5.20	2	6	-25 / +55	70	610	20

All technical specifications on this page are stated at 18°C. All tolerance limits are + / -5%

LUISIANA
LUISIANA SUPERELASTIC
LUISIANA PU

CONSTRUCTION:
Inside: Transparent PVC
Reinforcement: Hardened PVC spiral
Covering: Transparent PVC. 44466: Yellowish. 44467: Greenish. 44468: Whitish.
Description: 44466. Light suction and pressure hose for transport of food and liquids. Alcohol resistance 28°. Smooth on the inside. Food industry quality.
Description: 44467. Light suction and pressure hose for transport of abrasive materials.
Description: 44468. Light suction and pressure hose for transport of abrasive materials.

# Luisiana	ID mm	ID "	OD mm	WT mm	WT kg/m	WP bar	BP bar	T Temp °C	V %	BR mm	L m
44466-025	25	1"	-	3.3	0.33	8	24	-5 / +60	70	120	50
44466-032	32	1.1/4"	-	3.6	0.46	7	21	-5 / +60	70	150	50
44466-038	38	1.1/2"	-	3.7	0.55	6.5	18	-5 / +60	70	170	50
44466-050	50	2"	-	4.1	0.81	6.0	15	-5 / +60	70	220	50
44466-063	63	2.1/2"	-	4.0	1.04	5	15	-5 / +60	70	290	50
44466-075	75	3"	-	5.2	1.38	4	12	-5 / +60	70	350	50
44466-100	102	4"	-	6.2	2.16	4	12	-5 / +60	70	480	25
44466-125	127	5"	-	6.8	3.13	3	9	-5 / +60	50	730	25
44466-150	152	6"	-	7.4	4.25	3	9	-5 / +60	50	810	25
44466-200	203	8"	-	9.1	6.40	2	6	-5 / +60	50	900	10

# Luisiana Superelastic	ID		OD	WT	WT	WP	BP	T	V	BR	L
44467-025	25	1"	-	3.3	0.33	6.5	21	-25 / +55	70	100	50
44467-032	32	1.1/4"	-	3.6	0.46	5.5	18	-25 / +55	70	135	50
44467-038	38	1.1/2"	-	3.7	0.55	4.5	15	-25 / +55	70	155	50
44467-050	50	2"	-	4.1	0.80	3.5	12	-25 / +55	70	200	50
44467-063	63	2.1/2"	-	4.0	1.04	3.5	12	-25 / +55	70	260	50
44467-075	75	3"	-	5.2	1.38	2.5	9	-25 / +55	70	315	30
44467-100	102	4"	-	6.2	2.16	2.5	9	-25 / +55	70	430	25
44467-125	127	5"	-	6.8	3.13	2	7.5	-25 / +55	50	670	25
44467-150	152	6"	-	7.4	4.25	2	7.5	-25 / +55	50	750	25

# Luisiana PU	ID		OD	WT	WT	WP	BP	T	V	BR	L
44468-038	38	1.1/2"	-	3.5	0.50	5	15	-5 / +60	55	200	25
44468-045	45	1.3/4"	-	3.5	0.60	4.5	13.5	-5 / +60	55	240	25
44468-050	50	2"	-	4.0	0.75	4	12	-5 / +60	55	260	25

All technical specifications on this page are stated at 18°C. All tolerance limits are + / -5%

OREGON

CONSTRUCTION:

Inside: Grey PVC
Reinforcement: Hardened PVC spiral
Covering: Grey PVC
Description: Light extraction and ventilation hose for wood processing, textile and other industries.
Industrial vacuum cleaner hose. Very flexible. Smooth on the outside and corrugated on the outside.
Self-extinguishing according to UL 94 V2

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
44161-020	20	3/4"	-	-	0.17	-	-	-10 / +60	50	20	50
44161-025	25	1"	-	-	0.19	-	-	-10 / +60	50	25	50
44161-030	30	-	-	-	0.23	-	-	-10 / +60	50	30	50
44161-032	32	1.1/4"	-	-	0.26	-	-	-10 / +60	50	32	50
44161-035	35	-	-	-	0.30	-	-	-10 / +60	50	35	50
44161-038	38	1.1/2"	-	-	0.31	-	-	-10 / +60	50	38	50
44161-040	40	-	-	-	0.33	-	-	-10 / +60	40	40	50
44161-045	45	1.3/4"	-	-	0.37	-	-	-10 / +60	40	45	50
44161-050	50	2"	-	-	0.44	-	-	-10 / +60	40	50	50
44161-060	60	-	-	-	0.56	-	-	-10 / +60	40	60	50
44161-063	63	2.1/2"	-	-	0.60	-	-	-10 / +60	40	63	50
44161-070	70	-	-	-	0.64	-	-	-10 / +60	40	70	50
44161-075	75	3"	-	-	0.73	-	-	-10 / +60	40	75	50
44161-080	80	-	-	-	0.79	-	-	-10 / +60	40	80	30
44161-090	90	3.1/2"	-	-	0.95	-	-	-10 / +60	40	90	30
44161-100	100	4"	-	-	0.98	-	-	-10 / +60	40	100	30
44161-110	110	-	-	-	1.12	-	-	-10 / +60	40	110	30
44161-120	120	-	-	-	1.30	-	-	-10 / +60	40	120	30
44161-125	125	5"	-	-	1.36	-	-	-10 / +60	40	125	30
44161-130	130	-	-	-	1.44	-	-	-10 / +60	40	130	30
44161-140	140	-	-	-	1.60	-	-	-10 / +60	40	140	30
44161-150	150	6"	-	-	1.76	-	-	-10 / +60	40	150	30
44161-160	160	-	-	-	1.93	-	-	-10 / +60	40	160	20
44161-180	180	-	-	-	2.30	-	-	-10 / +60	40	180	20
44161-200	200	8"	-	-	2.65	-	-	-10 / +60	40	200	20
44161-250	250	10"	-	-	3.60	-	-	-10 / +60	40	250	15
44161-300	300	12"	-	-	4.50	-	-	-10 / +60	40	300	10

All technical specifications on this page are stated at 18°C. All tolerance limits are + / -5%

SUPERIOR ABRASION RESISTANCE

OREGON PU
OREGON PU ANTI-STATIC

CONSTRUCTION:

Inside:	Transparent PU
Reinforcement:	Hardened PVC spiral
Covering:	Transparent PU
Safety factor:	
Temperature °C:	-25 / +85

DESCRIPTION:
Flexible and light hose for suction and transport of abrasive materials, as well as for the fish industry where there is a limited need for pressure and vacuum.
The hose is very smooth on the inside and corrugated on the outside. Food industry quality.
Chemical, moisture- and microbe resistant.
PU is 7-8 times more durable than PVC.

#	#	ID		OD	WT	WT	WP	V	BR	L
	Anti-static	mm	"	mm	kg/m	kg/m	bar	%	mm	m
44162-025	44163-025	25	1"	-	0.15	0.19	-	40	25	20
44162-030	44163-030	30	-	-	0.16	0.21	-	40	30	20
44162-032	44163-032	32	1.1/4"	-	0.18	0.24	-	40	32	20
44162-035	44163-035	35	-	-	0.20	0.25	-	40	35	20
44162-038	44163-038	38	1.1/2"	-	0.25	0.31	-	30	38	20
44162-040	44163-040	40	-	-	0.28	0.33	-	30	40	20
44162-045	44163-045	45	1.3/4"	-	0.32	0.37	-	30	45	20
44162-050	44163-050	50	2"	-	0.39	0.44	-	30	50	20
44162-060	44163-060	60	-	-	0.44	0.50	-	30	60	20
44162-063	44163-063	63	2.1/2"	-	0.47	0.53	-	30	63	20
44162-070	44163-070	70	-	-	0.60	0.66	-	30	70	20
44162-075	44163-075	75	3"	-	0.60	0.66	-	30	75	20
44162-080	44163-080	80	-	-	0.62	0.68	-	30	80	20
44162-090	44163-090	90	3.1/2"	-	0.75	0.81	-	30	90	20
44162-100	44163-100	100	4"	-	0.85	0.92	-	30	100	20
44162-110	44163-110	110	-	-	1.05	1.12	-	30	110	20
44162-120	44163-120	120	-	-	1.10	1.18	-	30	120	20
44162-125	44163-125	125	5"	-	1.17	1.25	-	30	125	20
44162-130	44163-130	130	-	-	1.28	1.35	-	30	130	20
44162-140	44163-140	140	-	-	1.40	1.50	-	30	140	20
44162-150	44163-150	150	6"	-	1.45	1.60	-	30	150	20
44162-160	44163-160	160	-	-	1.70	1.78	-	30	160	20
44162-180	44163-180	180	-	-	2.00	2.10	-	30	180	10
44162-200	44163-200	200	8"	-	2.18	2.28	-	30	200	10
44162-250	-	250	10"	-	2.96	-	-	30	250	10
44162-300	-	300	12"	-	3.70	-	-	30	300	10

All technical specifications on this page are stated at 18°C. All tolerance limits are + / -5%

SUPERFLEX PU L / PU PU PLUS H / PU PLUS HM

CONSTRUCTION:

Inside:	Transparent PU
Reinforcement:	Steel spiral
Covering:	Transparent PU
Safety factor:	
Temperature °C:	-40 / +90 (125 for shorter periods)

Part No. for PU L	**:42340- dim.**
Part No. for PU R	**:42341- dim.**
Part No. for PU PLUS H	**:42342- dim.**
Part No. for PU PLUS HM/R	**:42343- dim.**

DESCRIPTION:

Very flexible and durable suction and ventilation hose for wood processing, textile and other industry where wear resistance and flexibility is important.

The hose is available in 4 versions:

PU L	0.4-0.6 mm wall thickness
PU R	0.5-0.8 mm wall thickness
PU PLUS H	1.0-1.1 mm wall thickness
PU PLUS HM/R	1.3-1.6 mm wall thickness

#	WT gr./mtr.				WP bar				V %				BR mm			
	PU L	PU PU R	PU PLH	PU PLHM	PU L	PU PU R	PU PLH	PU PLHM	PU L	PU PU R	PU PLH	PU PLHM	PU L	PU PU R	PU PLH	PU PLHM
-030	130	-	-	-	0.60	-	-	-	30	-	-	-	7	-	-	-
-038	140	166	480	500	0.55	1.50	2.80	2.70	28	48	75	80	8	38	75	75
-040	150	180	520	550	0.50	1.40	2.60	2.60	25	45	70	75	10	40	80	80
-045	170	200	570	600	0.48	1.30	2.30	2.40	23	40	65	65	12	45	90	90
-050	185	260	630	670	0.45	1.20	2.00	2.20	20	35	60	60	13	50	100	100
-060	220	300	740	770	0.40	1.00	1.80	1.80	16	30	50	50	15	60	120	120
-063	230	320	770	850	0.38	0.90	1.60	1.70	15	25	50	50	16	63	125	130
-070	330	420	880	950	0.35	0.80	1.50	1.60	14	25	45	48	18	70	140	140
-075	350	440	940	1050	0.30	0.80	1.30	1.50	10	20	40	45	19	75	150	150
-080	370	480	1000	1100	0.27	0.70	1.20	1.40	10	20	40	42	20	80	160	160
-090	420	520	1100	1200	0.23	0.70	1.10	1.20	10	20	35	40	22	90	180	180
-100	480	660	1250	1350	0.20	0.60	1.00	1.10	0.9	15	30	35	20	100	200	200
-110	520	720	-	-	0.20	0.60	-	-	0.9	15	-	-	22	110	-	-
-120	550	780	1480	1630	0.19	0.50	0.80	0.90	0.9	15	25	30	24	120	240	240
-125	590	800	1580	1800	0.19	0.50	0.80	0.90	0.8	15	25	25	25	125	250	250
-130	610	840	1630	1800	0.18	0.50	0.80	0.80	0.8	15	25	25	26	130	260	260
-140	660	900	1750	2000	0.15	0.50	0.70	0.80	0.8	15	20	25	28	140	280	280
-150	700	1100	1840	2150	0.11	0.40	0.70	0.80	0.6	10	20	22	30	150	300	300
-160	750	1160	-	-	0.10	0.40	-	-	0.6	10	-	-	32	160	-	-
-170	780	1240	-	-	0.09	0.40	-	-	0.6	10	-	-	34	170	-	-
-180	830	1300	-	-	0.09	0.40	-	-	0.6	10	-	-	36	180	-	-
-200	920	1440	2500	3300	0.08	0.30	0.50	0.60	0.5	10	15	18	40	200	400	400
-220	1070	1580	-	-	0.07	0.30	-	-	0.5	5	-	-	45	220	-	-
-250	1250	1880	3800	3700	0.05	0.20	0.40	0.50	0.4	5	10	12	50	250	500	500
-300	1500	2250	4500	4900	0.03	0.20	0.30	0.40	0.3	4	10	12	60	300	600	600
-350	1750	-	-	-	0.02	-	-	-	0.3	-	-	-	70	-	-	-
-400	2000	-	-	-	0.02	-	-	-	0.2	-	-	-	80	-	-	-
-450	2300	-	-	-	0.01	-	-	-	0.1	-	-	-	90	-	-	-
-500	2500	-	-	-	0.01	-	-	-	0.1	-	-	-	100	-	-	-
-600	3000	-	-	-	0.01	-	-	-	0.1	-	-	-	120	-	-	-

All technical specifications on this page are stated at 18°C. All tolerance limits are + / -5%

VENTILATION HOSE "XOFLEX"

Construction:
Silver Gray vinyl-impregnated glass fiber built on vinyl-coated steel spiral. The hose is produced in standard lengths, each 6 meters, compressed to about 0.4 meters and individually packed in plastic sleeves.

Applications:
The hose is self-extinguishing according to DIN 4102 and approved by the Ministry of Labour. Xoflex is therefore very suitable as a hot air hose for Kocoverk, extraction hose for welding fumes, etc.

#	ID		BR	L
	mm	"	mm	m
42077-050	-	2"	0.107	6/12
42077-063	-	2.1/2	0.117	6/12
42077-075	-	3"	0.221	6/12
42077-082	-	3.1/4"	0.240	6/12
42077-089	-	3.1/2"	0.259	6/12
42077-100	-	4"	0.300	6/12
42077-114	-	4.1/4"	0.367	6/12
42077-125	-	5"	0.453	6/12
42077-140	-	5.1/2"	0.543	6/12
42077-150	-	6"	0.588	6/12
42077-163	-	6.1/2"	0.683	6/12
42077-178	-	7"	0.688	6/12
42077-200	-	8"	0.786	6/12
42077-225	-	9"	0.895	6/12
42077-250	-	10"	0.993	6/12
42077-300	-	12"	1.192	6/12
42077-350	-	14"	1.392	6/12
42077-400	-	16"	1.582	6/12
42077-450	-	18"	1.782	6/12
42077-500	-	20"	2.016	6/12
42077-550	-	22"	2.230	6/12

EXHAUST EXTRACTION HOSE "DETROIT"

Construction: Thermoplastic rubber hose with spiral that won´t break when driven over.
Applications: Exhaust and waste gas hose ideal for use on reels. Very light and flexible hose. Resistant to short periods of up to 170°C.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
44092-050	50	2"	68	-	0.52	-	-	-40 / +150	50	120	30
44092-060	60	-	80	-	0.63	-	-	-40 / +150	35	150	30
44092-075	75	3"	93	-	0.75	-	-	-40 / +150	15	180	30
44092-100	100	4"	120	-	1.00	-	-	-40 / +150	10	230	30
44092-125	125	5"	145	-	1.25	-	-	-40 / +150	8	280	30
44092-150	150	6"	172	-	1.50	-	-	-40 / +150	6	330	30
44092-200	200	8"	224	-	1.95	-	-	-40 / +150	5	440	20

All technical specifications on this page are stated at 18°C. All tolerance limits are + / -5%

VACUUM CLEANER HOSE "EVA INDUSTRIAL"

CONSTRUCTION:
Inside: Grey non-spiral EVA (ethyl vinyl acetate) hose that won´t break when driven over. Relatively smooth inside and corrugated on the outside.

Applications: Resistant to very rough treatment, and is ideal for use as a point suction hose for welding fumes, vacuum cleaner hose for household and industrial vacuum cleaners, suction hose for water vacuums, etc.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
40920-025	25	1"	33	4	0.20	-	-	-30 / +60	50	66	30
40920-029	29	-	36	3.5	0.22	-	-	-30 / +60	50	76	30
40920-032	32	1.1/4"	41	4.5	0.27	-	-	-30 / +60	50	82	30
40920-038	38	1.1/2"	48	5	0.36	-	-	-30 / +60	50	93	30
40920-045	45	1.3/4"	55	5	407	-	-	-30 / +60	50	111	30
40920-050	50	2"	61	5.5	0.56	-	-	-30 / +60	50	122	30
40920-060	60	-	72	6	0.70	-	-	-30 / +60	40	146	30
40920-075	75	3"	88	6.5	0.92	-	-	-30 / +60	40	155	15
40920-080	80	-	94	7	1.00	-	-	-30 / +60	40	170	15

ANTI-STATIC VACUUM CLEANER HOSE "EVA ANTISTATIC"

CONSTRUCTION:
Inside: Black non-spiral EVA (ethyl vinyl acetate) hose that won´t break when driven over. Relatively smooth inside and corrugated on the outside. Anti-static

Applications: Resistant to very rough treatment, and is ideal for use as a point suction hose for welding fumes, vacuum cleaner hose for household and industrial vacuum cleaners, suction hose for water vacuums, etc.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
40930-025	25	1"	33	4	0.20	-	-	-30 / +60	50	66	30
40930-032	32	1.1/4"	41	4.5	0.27	-	-	-30 / +60	50	82	30
40930-038	38	1.1/2"	48	5	0.36	-	-	-30 / +60	50	93	30
40930-045	45	1.3/4"	55	5	0.47	-	-	-30 / +60	50	111	30
40930-050	50	2"	61	5.5	0.56	-	-	-30 / +60	50	122	30

All technical specifications on this page are stated at 18°C. All tolerance limits are + / -5%

VACUUM CLEANER HOSE HI-VAC

Construction: Polyethylene on the outside and inside. Black and yellow covering reinforced with black durable spiral.

Applications: Very lightweight and flexible suction hose. Resistant to rough treatment such as driving over. For water and septic trucks. Resistant to organic and alkaline liquids, some acids and oil products.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
44640-038	38	1.1/2"	55	8.5	0.89	-	-	-45 / +65	100	100	6-18
44640-050	51	2"	70	9.5	1.27	-	-	-45 / +65	100	125	6-18
44640-063	63	2.1/2"	87	12	1.86	-	-	-45 / +65	100	150	6-18
44640-075	76	3"	103	13.5	2.38	-	-	-45 / +65	100	200	6-18
44640-100	102	4"	143	21	4.91	-	-	-45 / +65	100	250	6-18

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SUPERIOR ABRASION RESISTANCE

PVC SUCTION HOSE "SHARK HOSE"

Construction: Transparent PVC on the inside and outside. Reinforced with blue hardened PVC spiral.

Applications: Very powerful suction hose for transport of fish and liquids. Smooth on the inside.

#	ID		OD	WT	WT	WP	BP	T	V	BR	L
	mm	"	mm	mm	kg/m	bar	bar	Temp °C	%	mm	m
44468-100	102	4"	-	10	2.90	2.5	3:1	-25 / +55	100	200	10
44468-125	127	5"	-	11	3.60	2.5	3:1	-25 / +55	95	300	10
44468-150	152	6"	-	11.5	5.60	2	3:1	-25 / +55	95	350	10
44468-200	203	8"	-	13.5	9.20	2	3:1	-25 / +55	95	600	10
44468-250	254	10"	-	18	14.50	1.5	3:1	-25 / +55	95	1000	10
44468-300	304	12"	-	20	19.00	1.5	3:1	-25 / +55	95	1500	10
44468-350	355	14"	-	20	22.00	1.25	3:1	-25/ +55	90	2200	13.5
44468-400	407	16"	-	21.5	28.00	1	3:1	-25 / +55	90	3000	12

All technical specifications on this page are stated at 18°C. All tolerance limits are + / -5%

Group 11

Steel Hoses
Expansion Joints

FLUID CONTROL®

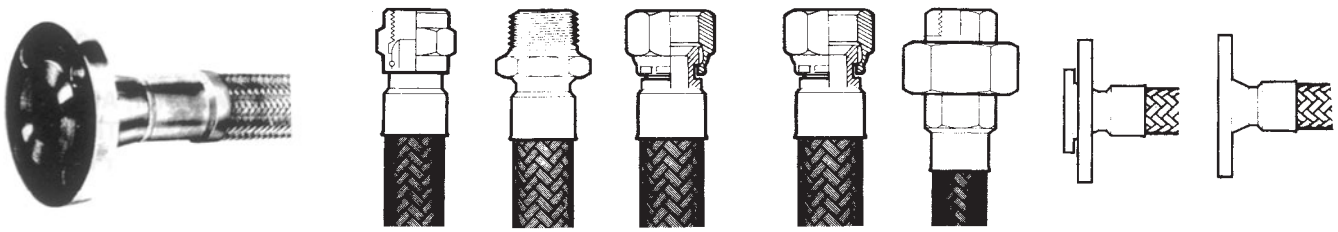
Fluid Control has Scandinavia's largest stock of steel tubes.
Our welders are certified in AISI 316, 6MO, Duplex and Titanium.

Steel hoses are as flexible as rubber hoses, and have many benefits in terms of temperature, resistance abrasion and ozone exposure.

FITTINGS ALTERNATIVES FOR BOA STEEL HOSES

Steel hoses come with fittings that are argon welded to the hose. All types of carbon steel, stainless and stainless steel fittings and flanges can in principle be welded to the steel hoses.

Fittings of other material qualities are also available.
We can offer advice on material compatibility.



On request we pressure test the hose(s) with water up to 1.5 times specified working pressure after the fittings are welded.

TECHNICAL INFORMATION:

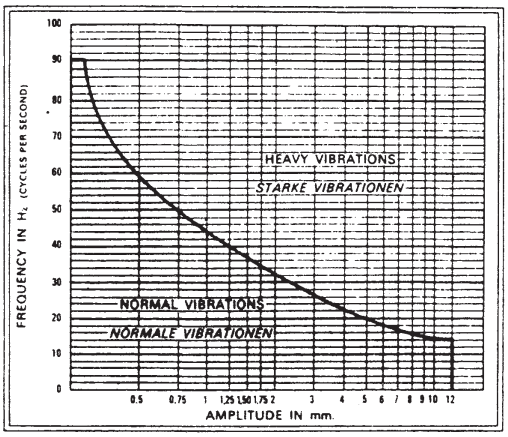
Pressure: Pr = burst pressure during "normal" conditions, e.g. that the hose is assembled straight and without motion with internal hydrostatic pressure at 20°C.
Pn = nominal pressure $\geq \frac{Pr}{4}$ = maximum working pressure under "normal" conditions.

Practical rule: $Ps = Pn \times \frac{Kt}{Ks}$

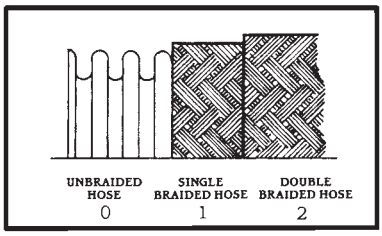
Ps = Maximum working pressure
Kt = Correction factor for use at "abnormal" temperature
Ks = The safety factor is dependent on operating conditions
All hoses are tested under normal conditions at 1.5 times working pressure.

Practical rule: P_s (Max. working pressure) = $P_r \times \frac{K_t}{K_s}$

TYPE OF FLOW	K_s = SAFETY FACTOR		
	NO VIBRATIONS	NORMAL VIBRATIONS	HEAVY VIBRATIONS
static or uniform	4	8	14
pulsatory	8	16	28
shocks	24	48	not recommended



TEMPERATURE	K_t = TEMPERATURE COEFFICIENT
20 °C	1
100 —	0,95
150 —	0,88
200 —	0,83
250 —	0,79
300 —	0,75
350 —	0,72
400 —	0,68
450 —	0,64
500 —	0,61
550 —	0,59
600 —	0,57
650 —	0,55
700 —	0,50
750 —	0,46
800 —	0,41



BOA STAINLESS STEEL HOSES
Type Parnor

Construction: Parallel corrugated flexible steel hose made from butt-welded sheet metal, AISI 316 L.
One or two layers of braiding AISI 304 L or AISI 316 L.
Temp. Range: -200°C to + 600°C, derating factors according to ISO10380
Applications: Transfer of chemicals, oil products, steam, gases etc., both pressure and vacuum, in static and moving installations. "Parnor" is made with "open" corrugations.
"BOA Parnor" holds a type approval by Det Norske Veritas.

DN [mm]	No. of braids	Ext. Dia [mm]	WP [bar]	Static [mm]	Dynamic [mm]	[kg/m]
6	0	9.8	18	10	-	0.050
	1	11.4	140	23	110	0.160
	2	13	145	25	140	0.270
8	0	13.6	14	14	-	
	1	15.2	115	28	130	0.244
	2	16.8	121	32	130	
10	0	16.2	10	16	-	0.092
	1	17.8	100	32	150	0.260
	2	19.4	105	38	150	0.430
12	0	18.6	12	24	-	0.120
	1	20.2	80	39	165	0.355
	2	21.8	97	45	165	0.590
15	0	22.5	7.5	29	-	0.150
	1	24.1	63	50	195	0.420
	2	25.7	77	58	195	0.690
20	0	28.3	4.3	35	-	0.232
	1	29.9	50	60	225	0.530
	2	31.5	68	70	225	0.830
25	0	34.8	3	42	-	0.328
	1	36.4	40	73	260	0.730
	2	38	55	85	260	1.130
32	0	43.4	3.3	51	-	0.420
	1	45.4	40	90	300	1.070
	2	47.4	55	105	300	1.720
40	0	52.4	2.2	61	-	0.500
	1	54.4	32	115	340	1.370
	2	56.4	44	130	340	2.240
50	0	64.8	2.1	73	-	0.780
	1	67.3	32	140	390	1.840
	2	69.8	45	160	390	2.900
65	0	80.9	1.3	89	-	1.310
	1	83.4	25	175	460	2.720
	2	85.9	38	200	460	4.130
80	0	99.6	1.4	108	-	1.550
	1	102.6	23	240	660	3.180
	2	105.6	38	240	660	4.810
100	0	126.5	0.5	126	-	2.260
	1	129.5	15	290	750	4.650
	2	132.5	25	290	750	7.040
125	0	152.0	0.4	147	-	3.300
	1	155.0	13	340	1000	5.900
150	0	174.0	0.3	169	-	4.700
	1	177.0	11	390	1250	7.300

Other steel qualities available on request.

LNG COUPLINGS
Liquid Gas

CONSTRUCTION:
LNG couplings for stainless steel hoses. Male and female coupling made of AISI 316 material, and brass nut of non-sparking material. Comes with viton gasket in male coupling.

Size	Male Coupling	Female Coupling	Nut	Blind Cap	Dust Plug	Dust Cap	Retainer Ring
1.1/2"	LNG-M040	LNG-F040	LNG-N040	LNG-BC040	LNG-DP040	LNG-DC040	LNG-RR040
2.1/2"	LNG-M065	LNG-F065	LNG-N065	LNG-BC065	LNG-DP065	LNG-DC065	LNG-RR065

EXHAUST EXPANSION JOINTS

CONSTRUCTION:
Standard quality AISI 321 L bellow, carbon steel pipe and flange connections. The exhaust bellows comes without inner conductors as standard, but exhaust bellows with conductors are available on request. Other bellow and connection material qualities, AISI 304, AISI 316L, Inconel, 6MO, Titanium etc. on request.

Pressure class: 2.5 bar

Temperature range: -270°C to +550°C, depending on the materials.

#	Nominal Diameter mm	Axial Movement mm	Pipe end OD	Approx. Total Length	
				With Pipe	With Flanges
AXR4-040	40	+/- 21	48.3	215	165
AXR4-050	50	+/- 23	60.3	215	170
AXR4-065	65	+/- 29	76.1	215	170
AXR4-080	80	+/- 30	88.9	220	180
AXR4-100	100	+/- 33	114.3	190	150
AXR4-125	125	+/- 35	139.7	220	185
AXR4-150	150	+/- 40	168.3	255	200
AXR4-200	200	+/- 44	219.1	255	285
AXR4-250	250	+/- 42	273.0	255	285
AXR4-300	300	+/- 45	323.9	290	185
AXR4-350	350	+/- 44	355.6	290	180
AXR4-400	400	+/- 65	406.4	330	220
AXR4-450	450	+/- 50	457.0	290	180
AXR4-500	500	+/- 73	508.0	340	250
AXR4-600	600	+/- 68	610.0	330	240
AXR4-700	700	+/- 63	711.2	330	230
AXR4-800	800	+/- 66	812.8	330	230
AXR4-900	900	+/- 66	914.4	330	230
AXR4-1000	1000	+/- 66	1016.0	330	230

Adaptation of building length on request.
Other variants, unions and pressure classes on request.

EXPANSION JOINTS
Pressure class PN 16

CONSTRUCTION:
Standard quality AISI 521 L bellow, carbon steel pipe and flange connections. The expansion joints comes without inner conductors as standard, but are available with conductors on request.
Other bellow and connection material qualities, AISI 304, AISI 316L, Inconel, 6MO, Titanium etc. on request.

Temperature range: -270°C to +550°C, depending on the materials.

- Delivered from our own welding workshops.
- Certified welders / workshops.

#	Nominal Diameter mm	Axial Movement mm	Pipe End OD	Approx. Total Length	
				With Pipe	With Flanges
AXR16-040	40	+/- 24	48.3	240	190
AXR16-050	50	+/- 25	60.3	240	195
AXR16-065	65	+/- 29	76.1	240	195
AXR16-080	80	+/- 37	88.9	270	230
AXR16-100	100	+/- 40	114.3	245	205
AXR16-125	125	+/- 55	139.7	275	240
AXR16-150	150	+/- 55	168.3	295	240
AXR16-200	200	+/- 62	219.1	305	330
AXR16-250	250	+/- 73	273.0	340	380
AXR16-300	300	+/- 87	323.9	415	430
AXR16-350	350	+/- 85	355.6	415	440
AXR16-400	400	+/- 97	406.4	455	485
AXR16-450	450	+/- 81	457.0	410	525
AXR16-500	500	+/- 115	508.0	485	525
AXR16-600	600	+/- 125	610.0	500	550

Adaptation of building length on request.
Other variants, unions and pressure classes on request.

EXPANSION JOINTS
Rubber

Construction: Made in different rubber qualities with color coding for identification:
Yellow ring: – For mineral oil products, fuel, gas, emulsions up to + 80°C
Red ring: – For cold and hot water up to + 100°C
Green ring: – For acids, alkalis, chemicals, etc. up to +80°C
White ring: – For drinking water and food products according to DIN 7725
Black ring: – For cold and hot water, glycol up to +70°C

Flanges: Expansion joints come with standard carbon steel flanges (CS), drilled according to DIN 2632
NT 10/16 and 150 lbs ANSI B 16.5
Stainless steel AISI 316 L and UNS S31254 (6M0) flanges on request

Pressure: All types of expansion joints are intended for normal working pressure with the following limitations:
For temperatures up to +20°C – 16 bar
For temperatures up to +50°C – 12 bar
For temperatures up to +80°C – 8 bar
The expansion joints are tested up to 25 bar

Axial Movement: To compensate for axial movement the expansion joints can be stretched 30 mm and compressed 30 mm

Standard Length: 130 mm

Lateral Movement: Sideways displacement can be compensated by 20-30 mm, depending on the diameter.
Large sideways displacement can be compensated by connecting a number of expansion joints with a short section of pipe in between.
Available with type approval.

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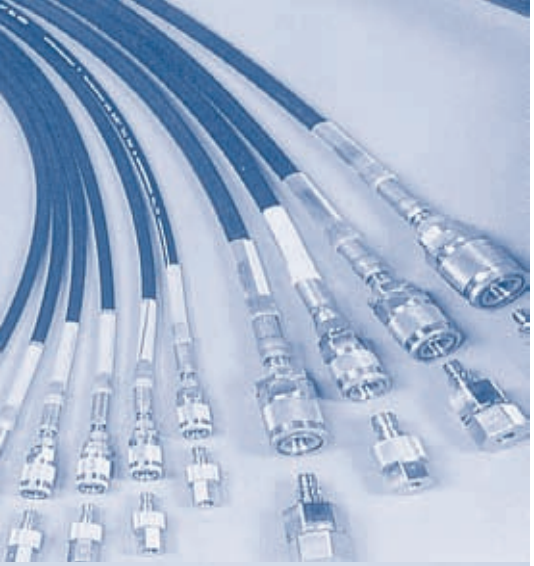
		Flange dimensions, mm						Yellow ring w/CS flange		Red ring w/CS flange		Black ring w/CS flange	
		DIN 2632 NT10/16			150 lbs ANSI B 16.5								
DN mm	DN inch	OD Flange mm	Bolt Circle dia. mm	Dia. Bolt mm	OD Flange mm	Bolt Circle dia. mm	Dia. Bolt mm	NT 10/16 Part No.	150 lbs Part No.	NT 10/16 Part No.	150 lbs Part No.	NT 10/16 Part No.	150 lbs Part No.
32	1.1/4	140	100	18	118	90	16	6010-032	6020-032	7010-032	7020-032	8010-032	8020-032
40	1.1/2	150	110	18	127	98	16	6010-038	6020-038	7010-038	7020-038	8010-038	8020-038
50	2	165	125	18	152	121	19	6010-050	6020-050	7010-050	7020-050	8010-050	8020-050
65	2.1/2	185	145	18	178	140	19	6010-063	6020-063	7010-063	7020-063	8010-063	8020-063
80	3	200	160	18	191	152	19	6010-075	6020-075	7010-075	7020-075	8010-075	8020-075
100	4	220	180	18	229	190	19	6010-100	6020-100	7010-100	7020-100	8010-100	8020-100
125	5	250	210	18	250	216	22	6010-125	6020-125	7010-125	7020-125	8010-125	8020-125
150	6	285	240	23	280	241	22	6010-150	6020-150	7010-150	7020-150	8010-150	8020-150
								Only NT 10		Only NT 10		Only NT 10	
200	8	340	295	23	343	298	22	6010-200	6020-200	7010-200	7020-200	8010-200	8020-200
250	10	395	350	23	406	362	26	6010-250	6020-250	7010-250	7020-250	8010-250	8020-250
300	12	445	400	23	432	432	26	6010-300	6020-300	7010-300	7020-300	8010-300	8020-300

The expansion joints are available in other dimensions on request.
When ordering expansion joints with NT 10/16 and 150 lbs stainless steel AISI 316 L flanges, add -SS after Part No.
Green ring and white ring expansion joints available on request.



Group 12

High-pressure Quick Release Couplings Tema - Snap-tite

FLUID CONTROL®

INDEX

TECHNICAL INFORMATION
TEMA QUICK RELEASE COUPLINGS, HYDRAULICS

Series 2500

Construction:
Standard Coupling Casing: Hard chrome-plated brass / stainless steel: AISI 316
Standard nipple: Hardened steel, zinc chromated / stainless steel: AISI 316
Springs and balls: Stainless steel
Temperature: O-ring seal: Nitrile - 40°C to + 100°C
O-ring seal: Viton - 25°C to + 200°C
Throughput: Full throughput, with minimal pressure loss. The standard version comes with the safety mechanism "Sleeve Lock"
Pressure Class: Given pressure rating applies to the static pressure. At pulsating pressure, use 50% of the given working pressure.
Safety Factor: 4:1
Applications: Hydraulic systems, fuel, water and gas.

Series 3800
Series 5000
Series 7500
Series 10000

Construction:
Standard Coupling Casing: Hard chrome-plated brass / stainless steel: AISI 316
Standard nipple: Hardened steel, zinc chromated / stainless steel: AISI 316
Springs and balls: Stainless steel
Temperature: O-ring seal: Nitrile - 40°C to + 100°C
O-ring seal: Viton - 25°C to + 200°C
Throughput: Full throughput, with minimal pressure loss. The standard version comes with the safety mechanism "Sleeve Lock"
Available with: Pressure eliminator / valve in the coupling or nipple for easier disconnection when pressure in the system.
Pressure Class: Given pressure rating applies to the static pressure. At pulsating pressure, use 50% of the given working pressure.
Safety Factor: 4:1
Applications: Hydraulic systems, fuel, water and gas.

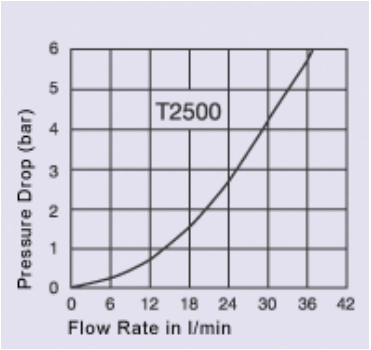
Series 15000
Series 20000

Construction:
Standard Coupling Casing: Hardened steel, zinc chromated / stainless steel: AISI 316
Standard nipple: Hardened steel, zinc chromated / stainless steel: AISI 316
Springs and balls: Stainless steel
Temperature: O-ring seal: Nitrile - 40°C to + 100°C
O-ring seal: Viton - 25°C to + 200°C
Throughput: Full throughput, with minimal pressure loss. The standard version comes with the safety mechanism "Sleeve Lock"
Available with: Pressure eliminator / valve in the coupling or nipple for easier disconnection when pressure in the system.
Pressure Class: Given pressure rating applies to the static pressure. At pulsating pressure, use 50% of the given working pressure.
Safety Factor: 4:1
Applications: Hydraulic systems, fuel, water and gas.

Series FF

Construction:
Standard Coupling Casing: Hard chrome-plated brass / stainless steel: AISI 316
Standard nipple: Hardened steel, zinc chromated / stainless steel: AISI 316
Springs and balls: Stainless steel
Temperature: O-ring seal: Nitrile - 40°C to + 100°C
O-ring seal: Viton - 25°C to + 200°C
Throughput: Full throughput, with minimal pressure loss. The standard version comes with the safety mechanism "Sleeve Lock"
Pressure Class: Pressure elmininator in the nipple part. Can be operated, connected and disconnected with one hand. The coupling is 100% spill free.
Safety Factor: 4:1
Applications: Hydraulic systems, Cranes and panel mounting. Also used on trucks.

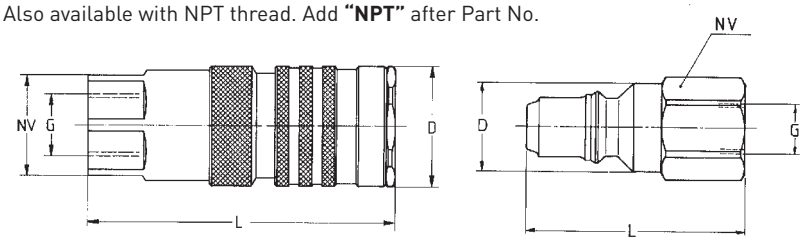
TEMA QUICK RELEASE COUPLINGS HYDRAULIC Series 2500 1/4"



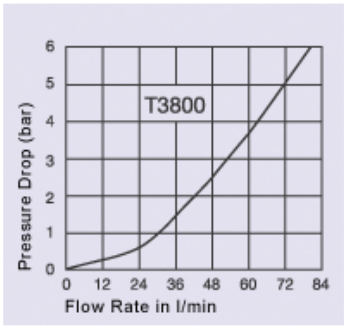
Viscosy = 30 cST = 4°E
Oil temp. 50°C.

Type	Part No.	Dim. Female Thread BSP	Minimum Through-put mm	Sealing Material	D mm	L mm	WS mm	Working Pressure Connected MPa	Working Pressure Connected bar	Burst Pressure Connected MPa	Burst Pressure Connected bar	Working Pressure Disconnected MPa	Working Pressure Disconnected bar	Weight gr.
Coupling														
w/ Valve	2510	1/4"	6.5	Nitrile	25	64	21	45	450	180	1800	30	300	150
w/o Valve	2510 UV	1/4"	6.5	Nitrile	25	64	21	45	450	180	1800	30	300	145
w/ Valve	2510 V	1/4"	6.5	Viton	25	64	21	45	450	180	1800	30	300	150
w/o Valve	2510 VUV	1/4"	6.5	Viton	25	64	21	45	450	180	1800	30	300	145
Nipple														
w/ Valve	2520	1/4"	6.5	Nitrile	18	45	19	45	450	180	1800	30	300	40
w/o Valve	2520 UV	1/4"	6.5	–	18	45	19	45	450	180	1800	30	300	35
w/ Valve	2520 V	1/4"	6.5	Viton	18	45	19	45	450	180	1800	30	300	40
Stainless Steel Coupling														
w/ Valve	2510 RV	1/4"	6.5	Viton	25	64	21	21	210	165	1650	21	210	145
w/o Valve	2510 RVUV	1/4"	6.5	Viton	25	64	21	21	210	165	1650	21	210	140
Stainless Steel Nipple														
w/ Valve	2520 RV	1/4"	6.5	Viton	18	45	19	21	210	165	1650	21	210	45
w/ Brass Valve	2520 RF	1/4"	6.5	Nitrile	18	45	19	21	210	165	1650	21	210	44
w/o Valve	2520 RUV	1/4"	6.5	–	18	45	19	21	210	165	1650	21	210	40
Dust protection for:														
Coupling	2516			PVC		29								10
Nipple	2526			PVC		38								14
O-ring														
Inner	2500-08			Nitrile										
Outer	2500-09			Nitrile										
Inner	2500-08 V			Viton										
Outer	2500-09 V			Viton										
Inner	2500-08 T			Teflon										
Outer	2500-09 T			Teflon										

Also available with NPT thread. Add **"NPT"** after Part No.



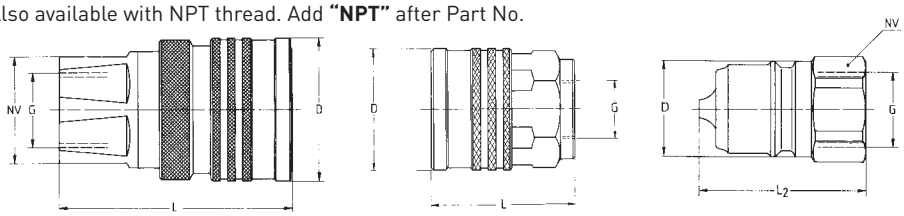
TEMA QUICK RELEASE COUPLINGS HYDRAULIC Series 3800 3/8"



Viscosy = 30 cST = 4°E
Oil temp. 50°C.

Type	Part No.	Dim. Female Thread BSP	Minimum Through-put mm	Sealing Material	D mm	L mm	WS mm	Working Pressure Connected MPa	Working Pressure Connected bar	Burst Pressure Connected MPa	Burst Pressure Connected bar	Working Pressure Disconnected MPa	Working Pressure Disconnected bar	Weight gr.
Coupling														
w/ Valve	3810	3/8"	10	Nitrile	34	59	28	35	350	130	1300	28	280	250
w/o Valve	3810 UV	3/8"	10	Nitrile	34	59	28	35	350	130	1300	28	280	240
w/ Valve	3810 V	3/8"	10	Viton	34	59	28	35	350	130	1300	28	280	250
w/o Valve	3810 VUV	3/8"	10	Viton	34	59	28	35	350	130	1300	28	280	240
w/o Valve	3810 H	3/8"	10	Nitrile	34	40	29	35	350	130	1300	28	280	150
w/o Valve	3810 HV	3/8"	10	Viton	34	40	29	35	350	130	1300	28	280	150
Nipple														
w/ Valve	3820	3/8"	10	Nitrile	21	42	22	35	350	130	1300	28	280	60
w/ Valve	3820 MN	3/8"	10	Nitrile	21	42	22	2	20	≥50	≥500	2	20	60
w/o Valve	3820 UV	3/8"	10	–	21	38	22	35	350	130	1300	28	280	50
w/ Valve	3820 V	3/8"	10	Viton	21	42	22	35	350	130	1300	28	280	60
Coupling w/ Eliminator														
w/ Valve	3811	3/8"	10	Nitrile	34	59	28	35	350	130	1300	28	280	250
w/ Valve	3811 V	3/8"	10	Viton	34	59	28	35	350	130	1300	28	280	250
Nipple w/ Eliminator														
w/ Valve	3821	3/8"	10	Nitrile	21	42	22	35	350	130	1300	28	280	60
w/ Valve	3821 V	3/8"	10	Viton	21	42	22	35	350	130	1300	28	280	60
Stainless Steel Coupling														
w/ Valve	3810 RV	3/8"	10	Viton	34	59	24	23	230	135	1350	21	210	205
w/o Valve	3810 RVUV	3/8"	10	Viton	34	59	24	23	230	135	1350	21	210	195
Brass Valve w/ Elimin.	3811 RFV	3/8"	10	Viton	34	59	24	23	230	135	1350	21	210	205
Stainless Steel Nipple														
w/ Valve	3820 RV	3/8"	10	Viton	21	42	22	23	230	135	1350	21	210	57
w/o Valve	3820 RUV	3/8"	10	–	21	38	22	23	230	135	1350	21	210	47
Brass Valve w/ Elimin.	3821 RFV	3/8"	10	Viton	21	42	22	23	230	135	1350	21	210	57
Dust protection for:														
Coupling	3816			PVC	38									14
Nipple	3826			PVC	40									17
O-ring														
Inner	3800-08			Nitrile										
Outer	3800-09			Nitrile										
Inner	3800-08 V			Viton										
Outer	3800-09 V			Viton										
Inner	3800-08 T			Teflon										
Outer	3800-09 T			Teflon										

Also available with NPT thread. Add **"NPT"** after Part No.



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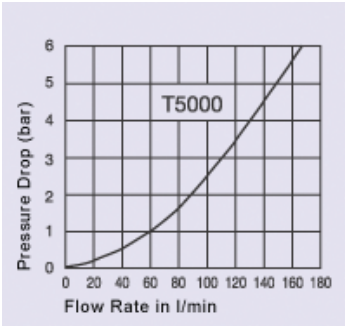
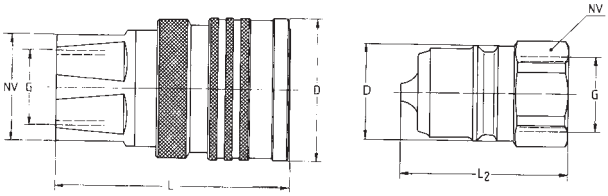
TEMA QUICK RELEASE COUPLINGS HYDRAULIC Series 5000 1/2"



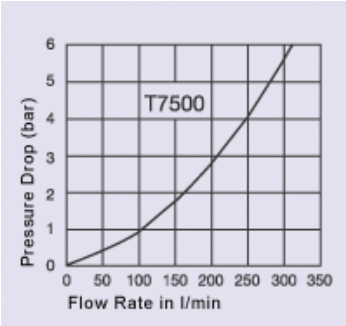
Viscosy = 30 cST = 4°E
Oil temp. 50°C.

Type	Part No.	Dim. Female Thread BSP	Minimum Through-put mm	Sealing Material	D mm	L mm	WS mm	Working Pressure Connected MPa	Working Pressure Connected bar	Burst Pressure Connected MPa	Burst Pressure Connected bar	Working Pressure Disconnected MPa	Working Pressure Disconnected bar	Weight gr.
Coupling														
w/ Valve	5010	1/2"	13	Nitrile	40	65	30	30	300	110	1100	25	250	320
w/o Valve	5010 UV	1/2"	13	Nitrile	40	65	30	30	300	110	1100	25	250	305
w/ Valve	5010V	1/2"	13	Viton	40	65	30	30	300	110	1100	25	250	320
w/o Valve	5010 VUV	1/2"	13	Viton	40	65	30	30	300	110	1100	25	250	305
Nipple														
w/ Valve	5020	1/2"	13	Nitrile	26	46	27	30	300	110	1100	25	250	91
w/o Valve	5020 UV	1/2"	13	–	26	42	27	30	300	110	1100	25	250	76
w/ Valve	5020 V	1/2"	13	Viton	26	46	27	30	300	110	1100	25	250	91
Coupling w/ Eliminator														
w/ Valve	5011	1/2"	13	Nitrile	40	65	30	30	300	110	1100	25	250	320
w/o Valve	5011 V	1/2"	13	Viton	40	65	30	30	300	110	1100	25	250	320
Nipple w/ Eliminator														
w/ Valve	5021	1/2"	13	Nitrile	26	46	27	30	300	110	1100	25	250	91
w/o Valve	5021 V	1/2"	13	Viton	26	46	27	30	300	110	1100	25	250	91
Stainless Steel Coupling														
w/ Valve	5010 RV	1/2"	13	Viton	40	65	30	21	210	130	1300	21	210	305
w/o Valve	5010 RVUV	1/2"	13	Viton	40	65	30	21	210	130	1300	21	210	290
Brass Valve w/ Elimin.	5011 RFV	1/2"	13	Viton	40	65	30	21	210	130	1300	21	210	305
Stainless Steel Nipple														
w/ Valve	5020 RV	1/2"	13	Viton	26	46	27	21	210	130	1300	21	210	93
w/o Valve	5020 RUV	1/2"	13	–	26	42	27	21	210	130	1300	21	210	78
Brass Valve w/ Elimin.	5021 RFV	1/2"	13	Viton	26	46	27	21	210	130	1300	21	210	93
Dust protection for:														
Coupling	5016			PVC-plastic		39								17
Nipple	5026			PVC-plastic		42								23
O-ring														
Inner	5000-08			Nitrile										
Outer	5000-09			Nitrile										
Inner	5000-08 V			Viton										
Outer	5000-09 V			Viton										
Inner	5000-08 T			Teflon										
Outer	5000-09 T			Teflon										
Back-up														
	5000-07			Teflon										
	5000-07 T			Teflon										

Also available with NPT thread. Add **"NPT"** after Part No.



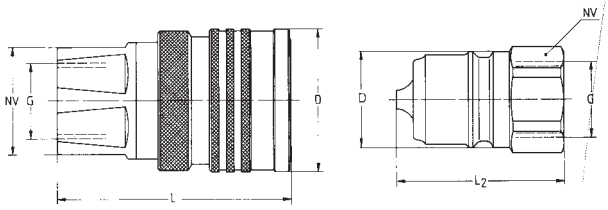
TEMA QUICK RELEASE COUPLINGS HYDRAULIC Series 7500 3/4"



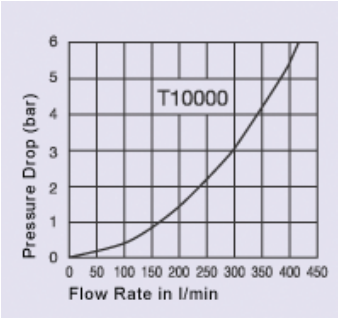
Viscosy = 30 cST = 4°E
Oil temp. 50°C.

Type	Part No.	Dim. Female Thread BSP	Minimum Through-put mm	Sealing Material	D mm	L mm	WS mm	Working Pressure Connected MPa	Working Pressure Connected bar	Burst Pressure Connected MPa	Burst Pressure Connected bar	Working Pressure Disconnected MPa	Working Pressure Disconnected bar	Weight gr.
Coupling														
w/ Valve	7510	3/4"	20	Nitrile	52	73	38	28	280	107	1070	20	200	585
w/o Valve	7510 UV	3/4"	20	Nitrile	52	73	38	28	280	107	1070	20	200	545
w/ Valve	7510 V	3/4"	20	Viton	52	73	38	28	280	107	1070	20	200	585
w/o Valve	7510 VUV	3/4"	20	Viton	52	73	38	28	280	107	1070	20	200	545
Nipple														
w/ Valve	7520	3/4"	20	Nitrile	35	52	36	28	280	107	1070	20	200	185
w/o Valve	7520 UV	3/4"	20	–	35	47	36	28	280	107	1070	20	200	155
w/ Valve	7520 V	3/4"	20	Viton	35	52	36	28	280	107	1070	20	200	185
Super w/ Valve	7520 S	3/4"	20	Nitrile	35	52	36	28	280	107	1070	28	280	200
Super w/o Valve	7520 SUV	3/4"	20	–	35	47	36	28	280	107	1070	28	280	170
Coupling w/ Eliminator														
w/ Valve	7511	3/4"	20	Nitrile	52	73	38	28	280	107	1070	20	200	585
w/o Valve	7511 V	3/4"	20	Viton	52	73	38	28	280	107	1070	20	200	585
Nipple w/ Eliminator														
w/ Valve	7521	3/4"	20	Nitrile	35	52	36	28	280	107	1070	20	200	185
w/ Valve	7521 V	3/4"	20	Viton	35	52	36	28	280	107	1070	20	200	185
Super w/ Valve	7521 S	3/4"	20	Nitrile	35	52	36	28	280	107	1070	28	280	200
Stainless Steel Coupling														
w/ Valve	7510 RV	3/4"	20	Viton	52	73	38	18	180	80	800	18	180	510
w/o Valve	7510 RVUV	3/4"	20	Viton	52	73	38	18	180	80	800	18	180	480
Brass Valve w/ Elimin.	7511 RFV	3/4"	10	Viton	52	73	38	18	180	80	800	18	180	510
Stainless Steel Nipple														
w/ Valve	7520 RV	3/4"	20	Viton	35	52	36	18	180	80	800	18	180	190
w/o Valve	7520 RUV	3/4"	20	–	35	47	36	18	180	80	800	18	180	160
Brass Valve w/ Elimin.	7521 RFV	3/4"	20	Viton	35	52	36	18	180	80	800	18	180	190
Dust protection for:														
Coupling	7516			PVC		43								
Nipple	7526			PVC		45								
O-ring														
Inner	7500-08			Nitrile										
Outer	7500-09			Nitrile										
Inner	7500-08 V			Viton										
Outer	7500-09 V			Viton										
Inner	7500-08 T			Teflon										
Outer	7500-09 T			Teflon										
Back-up														
	7500-07			Teflon										
	7500-07 T			Teflon										

Also available with NPT thread. Add **"NPT"** after Part No.
TEMA "SUPER Nipple" for extreme operating conditions.
High pulsating pressure: hydraulic presses, front loaders, cranes, snow plows and pneumatic tools with rough treatment requirements



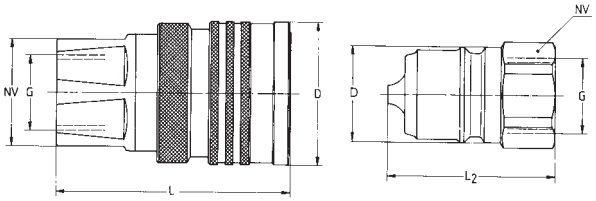
TEMA QUICK RELEASE COUPLINGS HYDRAULIC Series 10 000 1"



Viscosy = 30 cST = 4°E
Oil temp. 50°C.

Type	Part No.	Dim. Female Thread BSP	Minimum Through-put mm	Sealing Material	D mm	L mm	WS mm	Working Pressure Connected MPa	Working Pressure Connected bar	Burst Pressure Connected MPa	Burst Pressure Connected bar	Working Pressure Disconnected MPa	Working Pressure Disconnected bar	Weight gr.
Coupling														
w/ Valve	10010	1"	25	Nitrile	60	88	45	25	250	93	930	25	250	920
w/o Valve	10010 UV	1"	25	Nitrile	60	88	45	25	250	93	930	25	250	870
w/ Valve	10010 V	1"	25	Viton	60	88	45	25	250	93	930	25	250	920
w/o Valve	10010 VUV	1"	25	Viton	60	88	45	25	250	93	930	25	250	870
w/ Valve	10010 T	1"	25	Teflon	60	88	45	25	250	93	930	25	250	920
w/ Valve	10010 TV	1"	25	Teflon/ Viton	60	88	45	25	250	93	930	25	250	920
Nipple														
w/ Valve	10020	1"	25	Nitrile	40	61	46	25	250	93	930	25	250	340
w/o Valve	10020 UV	1"	25	–	44	55	46	25	250	93	930	25	250	290
w/ Valve	10020 V	1"	25	Viton	61	55	46	25	250	93	930	25	250	340
Coupling w/ Eliminator														
w/ Valve	10011	1"	25	Nitrile	60	88	45	25	250	93	930	25	250	920
w/ Valve	10011 V	1"	25	Viton	60	88	45	25	250	93	930	25	250	920
Nipple w/ Eliminator														
w/ Valve	10021	1"	25	Nitrile	44	61	46	25	250	93	930	25	250	340
w/ Valve	10021 V	1"	25	Viton	44	61	46	25	250	93	930	25	250	340
Stainless Steel Coupling														
w/ Valve	10010 RV	1"	25	Viton	60	88	45	24	240	95	950	16,5	165	900
w/o Valve	10010 RVUV	1"	25	Viton	60	88	45	24	240	95	950	16,5	165	850
Brass Valve														
w/ Eliminator	10011 RFV	1"	25	Viton	60	88	45	15	150	70	700	15	150	900
Stainless Steel Nipple														
w/ Valve	10020 RV	1"	25	Viton	44	61	46	24	240	95	950	24	240	338
w/o Valve	10020 RUV	1"	25	–	44	55	46	24	240	95	950	24	240	288
Brass Valve														
w/ Eliminator	10021RFV	1"	25	Viton	44	61	46	15	150	70	700	15	150	338
Dust Protection for:														
Coupling	10016			PVC		51								44
Nipple	10026			PVC		56								54
O-ring														
Inner	10000-08			Nitrile										
Outer	10000-09			Nitrile										
Inner	10000-08V			Viton										
Outer	10000-09V			Viton										
Inner	10000-08T			Teflon										
Outer	10000-09T			Teflon										

Also available with NPT thread. Add **"NPT"** after Part No.

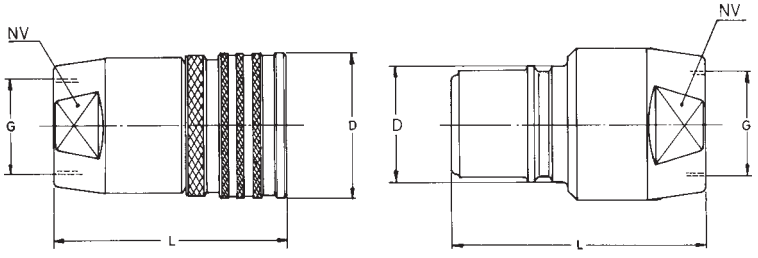


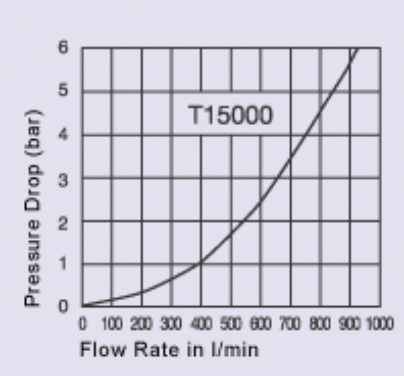
TEMA QUICK RELEASE COUPLINGS HYDRAULIC
Series 15 000 1 1/2"

Type	Part No.	Dim. Female Thread BSP	Minimum Through-put mm	Sealing Material	D mm	L mm	WS mm	Working Pressure Connected MPa	Working Pressure Connected bar	Burst Pressure Connected MPa	Burst Pressure Connected bar	Working Pressure Disconnected MPa	Working Pressure Disconnected bar	Weight gr.
Coupling														
w/ Valve	15010	1 1/2"	35.0	Nitrile	73	112	60	20	200	75	750	18	180	1455
w/o Valve	15010 UV	1 1/2"	35.0	Nitrile	73	112	60	20	200	75	750	18	180	1380
w/ Valve	15010 V	1 1/2"	35.0	Viton	73	112	60	20	200	75	750	18	180	1455
w/o Valve	15010 VUV	1 1/2"	35.0	Viton	73	112	60	20	200	75	750	18	180	1380
Nipple														
w/ Valve	15020	1 1/2"	35.0	Nitrile	48.5	107	60	20	200	75	750	18	180	1030
w/o Valve	15020 UV	1 1/2"	35.0	–	48.5	107	60	20	200	75	750	18	180	955
w/ Valve	15020 V	1 1/2"	35.0	Viton	48.5	107	60	20	200	75	750	18	180	1030
Stainless Steel Coupling														
w/ Valve	15010 RV	1 1/2"	35.0	Viton	73	112	60	15	150	>100	>1000	15	150	1550
w/o Valve	15010 RVUV	1 1/2"	35.0	Viton	73	112	60	15	150	>100	>1000	15	150	1375
Stainless Steel Nipple														
w/ valve	15020 RV	1 1/2"	35.0	Viton	48.5	107	60	15	150	>100	>1000	15	150	1115
w/o valve	15020 RUV	1 1/2"	35.0	–	48.5	107	60	15	150	>100	>1000	15	150	930
Dust protection for:														
Coupling	15016			acetal		25								72
Nipple	15026			Acetal		50								130
O-ring														
Inner	15000-08			Nitrile										
Outer	15000-09			Nitrile										
Inner	15000-08 V			Viton										
Outer	15000-09 V			Viton										

Also available with NPT thread. Add **"NPT"** after Part No.

Viscosy = 30 cST = 4°E
Oil temp. 50°C.





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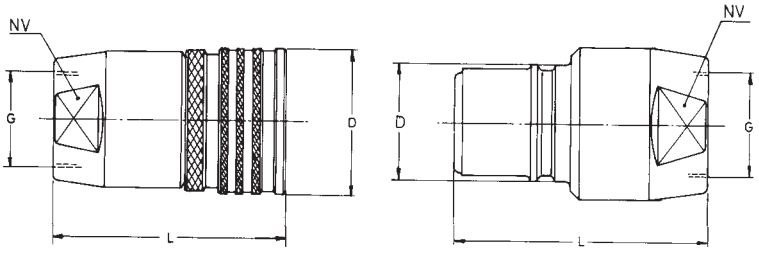
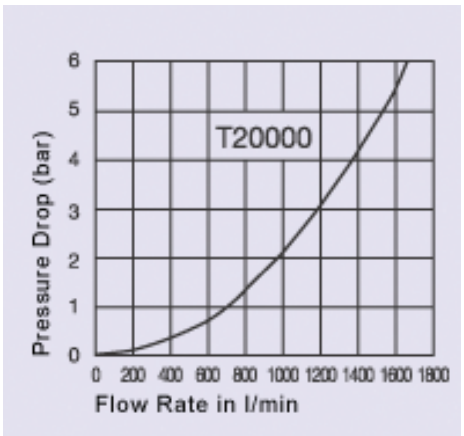
TEMA QUICK RELEASE COUPLINGS HYDRAULIC Series 20 000 2"

Type	Part No.	Dim. Female Thread BSP	Minimum Through-put mm	Sealing Material	D mm	L mm	WS mm	Working Pressure Connected MPa	Working Pressure Connected bar	Burst Pressure Connected MPa	Burst Pressure Connected bar	Working Pressure Disconnected MPa	Working Pressure Disconnected bar	Weight gr.
Coupling														
w/ Valve	20010	2"	45	Nitrile	90	144	75	18	180	70	700	15	150	2955
w/o Valve	20010 UV	2"	45	Nitrile	90	144	75	18	180	70	700	15	150	2855
w/ Valve	20010 V	2"	45	Viton	90	144	75	18	180	70	700	15	150	2955
w/o Valve	20010 VUV	2"	45	Viton	90	144	75	18	180	70	700	15	150	2855
Nipple														
w/ Valve	20020	2"	45	Nitrile	60	142	75	18	180	70	700	15	150	2110
w/o Valve	20020 UV	2"	45	–	60	142	75	18	180	70	700	15	150	2110
w/ Valve	20020 V	2"	45	Viton	60	142	75	18	180	70	700	15	150	2110
Stainless Steel Coupling														
w/ Valve	20010RV	2"	45	Viton	90	144	75	8	80	>100	>1000	8	80	3150
w/o Valve	20010RVUV	2"	45	Viton	90	144	75	8	80	>100	>1000	8	80	2795
Stainless Steel Nipple														
w/ Valve	20020 RV	2	45	Viton	60	142	75	8	80	>100	>1000	8	80	2300
w/o Valve	20020RUV	2	45	Viton	60	142	75	8	80	>100	>1000	8	80	1955
Dust protection for:														
Coupling	20016			Acetal		27								44
Nipple	20026			Acetal		67								54

Also available with NPT thread. Add **"NPT"** after Part No.



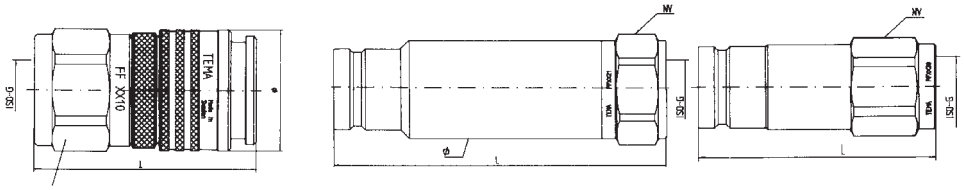
Viscosy = 30 cST = 4°E
Oil temp. 50°C.

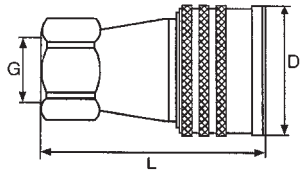


TEMA QUICK RELEASE COUPLINGS HYDRAULIC
Series 4000 - 4100
Series FF 3/8" to 1"

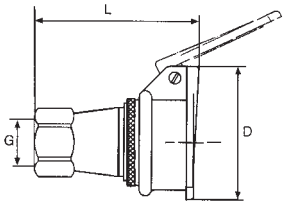
Type	Part No.	Dim. Female Thread BSP	Minimum Through-put mm	Sealing Material	D mm	L mm	WS mm	Working Pressure Connected		Burst Pressure Connected		Working Pressure Disconnected		Weight gr.
								MPa	bar	MPa	bar	MPa	bar	
Coupling w/ Valve	IF-3810	3/8"	9,0	Nitrile	32	71	30	25	250	110	1100	20	200	234
Nipple w/ Valve	IF-3820	3/8"	9,0	Nitrile	32	58	30	25	250	110	1100	20	200	164
Nipple w/ Eliminator w/ Valve	IF-3821	3/8"	9,0	Nitrile	32	87	30	25	250	110	1100	20	200	220
Coupling w/ Valve	IF-3810-50	1/2"	9,0	Nitrile	32	73	30	25	250	110	1100	20	200	256
Nipple w/ Valve	IF-3820-50	1/2"	9,0	Nitrile	32	60	30	25	250	110	1100	20	200	164
Nipple w/ Eliminator w/ Valve	IF-3821-50	1/2"	13,0	Nitrile	32	89	30	25	250	110	1100	20	200	232
Coupling w/ Valve	FF 5010	1/2"	13,0	Nitrile	44	81,5	40	35	350	150	1500	35	350	540
Nipple w/ Valve	FF 5020	1/2"	13,0	Nitrile	35	84	32	35	350	150	1500	35	350	285
Nipple w/ Eliminator w/ Valve	FF 5021	1/2"	13,0	Nitrile	40	120	36	35	350	150	1500	35	350	570
Coupling w/ Valve	FF 7510	3/4"	19,0	Nitrile	55	98	41	35	350	150	1500	35	350	965
Nipple w/ Valve	FF 7520	3/4"	19,0	Nitrile	45	101	41	35	350	150	1500	35	350	600
Nipple w/ Eliminator w/ Valve	FF 7521	3/4"	19,0	Nitrile	56	145,5	50	35	350	150	1500	35	350	1350
Coupling w/ Valve	FF 10010	1"	25,5	Nitrile	70	120	55	25	250	100	1000	25	250	2000
Nipple w/ Valve	FF 10020	1"	25,5	Nitrile	60	130	55	25	250	100	1000	25	250	1160
Nipple w/ Eliminator w/ Valve	FF 10021	1"	25,5	Nitrile	60	182	55	25	250	100	1000	25	250	1840

Also available with NPT thread. Add **"NPT"** after Part No.

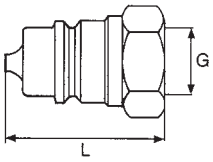




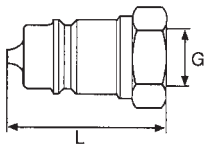
Coupling



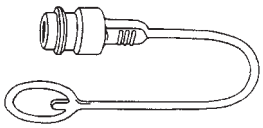
Coupling + plastic cap



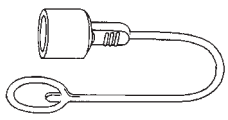
Nipple



Nipple - extended version



Dust protection for coupling



Dust protection for nipple

TEMA QUICK RELEASE COUPLINGS
HYDRAULIC
Series 5500
ISO - standard A and ISO 5675 / SMS 3275
Standard norm for agricultural machinery

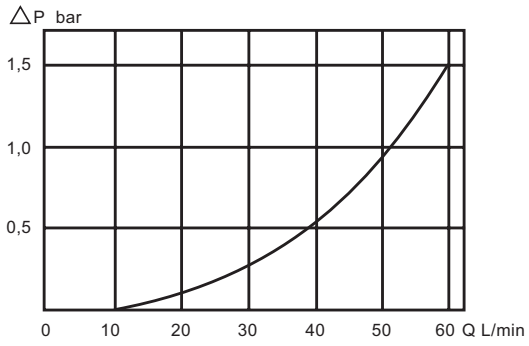
Construction:
Standard coupling casing: Hard-drawn chrome-plated brass
Standard nipple: Hardened steel, zinc chromated
Springs and balls: Stainless steel
Sealing: Nitrile or Viton
Available with: Pressure eliminator in the nipple
Applications: Hydraulic systems in agriculture and industry
Is interchangeable with most coupling types built after ISO-standard A

Type	Part No.	Female Connection ISO-BSP	Sealing Material	D mm	L mm	WS mm	Max Work. Pres. bar	Min. Burst Pres. bar	Weight g
Coupling	5510	1/2	Nitrile	38	63	27	250	1150	248
Coupling + plastic cap	5510-5540	1/2	Nitrile	58	67	27	250	1150	248
Coupling	5510 V	1/2	Viton	38	63	27	250	1150	230
Nipple	5520	1/2	Nitrile		46	27	250	1150	80
Nipple	5520 V	1/2	Viton		46	27	250	1150	80
Nipple w/ eliminator	5521	1/2	Nitrile		46	27	250	1150	80
Nipple Extended version	5520 F	1/2	Nitrile		51	27	250	1150	80
Nipple extended version w/ eliminator	5521 F	1/2	Nitrile		51	27	250	1150	85
Plastic cap	5540		PVC	58	24				8
Dust protection for coupling	5516		PVC*						10
Dust protection for nipple	5526		PVC*						10
Gasket kit consisting of O-ring and support ring	5500-PSN		Nitrile/ Teflon						
	5500-PSV		Viton/ Teflon						

*Prevents dust and dirt from entering the system when the coupling is disconnected

Quality: Oil and cold resistant plastic.

PRESSURE DROP CHART



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QUICK RELEASE COUPLINGS
Snap-tite
Series H
Steel

Construction: Yellow-chromated steel coupling and nipple. BUNA N gasket as standard. Coupling and nipple are available with and without valve. Coupling can be delivered with a safety mechanism, sleeve lock, in all dimensions. Design in accordance with MIL–C–51234.

Features:
- Small dimensions • Low pressure loss • Two-piece construction • End cap can be replaced
- PH version with pressure relief valve (available on request from the factory)

Snap-tite Series H can be used in the following combinations:
- Quick release coupling with double closure: Coupling and nipple with valve.
- Quick release coupling with single closure: Coupling with valve, nipple without.
- Quick release coupling without closure and full opening: Coupling and nipple without valve.

Temp. range:
- 40°C to + 90°C (BUNA N gasket)
- 29°C to + 190°C (VITON gasket)

Applications: All-round quick release coupling for industrial, construction and offshore activities. Applicable for hydraulic, air, liquids, gases etc.

Dim./ Connection	Coupling w/ Valve		Coupling w/ Valve and Sleevelock		Coupling w/o Valve		Nipple w/ Valve		Nipple w/o Valve		Working Pressure w/ Valve		Working Pressure w/o Valve	
	Fem. NPT Part No. VHC	Fem. BSP Part No. VHC	Fem. NPT Part No. VHC	Fem.BSP Part No. VHC	Fem.NPT Part No. PHC	Fem.BSP Part No. PHC	Fem.NPT Part No. VHN	Fem.BSP Part No. VHN	Fem. NPT Part No. PHN	Fem. BSP Part No. PHN	Bar	PSI	Bar	PSI
1/4"	4-4F	4-4RP	4-4FSL	4-4RPSL	4-4F	4-4RP	4-4F	4-4RP	4-4F	4-4RP	450	6500	760	11000
3/8"	6-6F	6-6RP	6-6FSL	6-6RPSL	6-6F	6-6RP	6-6F	6-6RP	6-6F	6-6RP	310	4500	760	11000
1/2"	8-8F	8-8RP	8-8FSL	8-8RPSL	8-8F	8-8RP	8-8F	8-8RP	8-8F	8-8RP	280	4000	760	11000
3/4"	12-12F	12-12RP	12-12FSL	12-12RPSL	12-12F	12-12RP	12-12F	12-12RP	12-12F	12-12RP	245	3500	625	9000
1"	16-16F	16-16RP	16-16FSL	16-16RPSL	16-16F	16-16RP	16-16F	16-16RP	16-16F	16-16RP	140	2000	415	6000
1.1/4"	20-20F	20-20RP	20-20FSL	20-20RPSL	20-20F	20-20RP	20-20F	20-20RP	20-20F	20-20RP	125	1750	345	5000
1.1/2"	24-24F	24-24RP	24-24FSL	24-24RPSL	24-24F	24-24RP	24-24F	24-24RP	24-24F	24-24RP	105	1500	345	5000
2"	32-32F	32-32RP	32-32FSL	32-32RPSL	32-32F	32-32RP	32-32F	32-32RP	32-32F	32-32RP	105	1500	280	4000
2.1/2"	40-40F	40-40RP	40-40FSL	40-40RPSL	40-40F	40-40RP	40-40F	40-40RP	40-40F	40-40RP	70	1000	70	1000
3"	48-48F	48-48RP	48-48FSL	48-48RPSL	48-48F	48-48RP	48-48F	48-48RP	48-48F	48-48RP	55	750	55	750
4"	64-64F	64-64RP	64-64FSL	64-64RPSL	64-64F	64-64RP	64-64F	64-64RP	64-64F	64-64RP	35	500	35	500

Safety factor 2:1 Testing pressure 1.5 x working pressure.

QUICK RELEASE COUPLINGS
Snap-tite
Series H
Brass

Construction: Brass coupling and nipple. BUNA N gasket as standard.
Coupling and nipple are available with and without valve. Coupling can be delivered with a safety mechanism, sleeve lock, in all dimensions. Design in accordance with MIL–C–51234.

Features:
- Small dimension • Low pressure loss • Two-piece construction • End cap can be replaced
- PH version with pressure relief valve (available on request from the factory)

Snap-tite Series H can be used in the following combinations:
- Quick release coupling with double closure: Coupling and nipple with valve.
- Quick release coupling with single closure: Coupling with valve, nipple without.
- Quick release coupling without closure and full opening: Coupling and nipple without valve.

Temp.range: - 40°C to + 93°C (BUNA N gasket)
- 29°C to + 190°C (VITON gasket)

Applications: All-round quick release coupling for industrial, construction and offshore activities. Applicable for hydraulic, air, liquids, gases etc.

Dim./ Connection	Coupling w/ Valve		Coupling w/o Valve		Nipple w/ Valve		Nipple w/o Valve		Working Pressure w/ valve		Working Pressure w/o valve	
	Fem.NPT Part No. BVHC	Fem.BSP Part No. BVHC	Fem.NPT Part No. BPHC	Fem.BSP Part No. BPHC	Fem.NPT Part No. BVHN	Fem.BSP Part No. BVHN	Fem.NPT Part No. BPHN	Fem.BSP Part No. BPHN	Bar	PSI	Bar	PSI
1/4"	4-4F	4-4RP	4-4F	4-4RP	4-4F	4-4RP	4-4F	4-4RP	155	2250	280	4000
3/8"	6-6F	6-6RP	6-6F	6-6RP	6-6F	6-6RP	6-6F	6-6RP	155	2250	280	4000
1/2"	8-8F	8-8RP	8-8F	8-8RP	8-8F	8-8RP	8-8F	8-8RP	140	2000	280	4000
3/4"	12-12F	12-12RP	12-12F	12-12RP	12-12F	12-12RP	12-12F	12-12RP	140	2000	245	3500
1"	16-16F	16-16RP	16-16F	16-16RP	16-16F	16-16RP	16-16F	16-16RP	125	1750	210	3000
1.1/4"	20-20F	20-20RP	20-20F	20-20RP	20-20F	20-20RP	20-20F	20-20RP	25	350	70	1000
1.1/2"	24-24F	24-24RP	24-24F	24-24RP	24-24F	24-24RP	24-24F	24-24RP	25	350	70	1000
2"	32-32F	32-32RP	32-32F	32-32RP	32-32F	32-32RP	32-32F	32-32RP	30	400	55	750
2.1/2"	40-40F	40-40RP	40-40F	40-40RP	40-40F	40-40RP	40-40F	40-40RP	30	400	30	400
3"	48-48F	48-48RP	48-48F	48-48RP	48-48F	48-48RP	48-48F	48-48RP	15	200	15	200
4"	64-64F	64-64RP	64-64F	64-64RP	64-64F	64-64RP	64-64F	64-64RP	10	150	10	150

Safety factor 2:1 Testing pressure 1.5 x working pressure.

QUICK RELEASE COUPLINGS
Snap-tite
Series H
Stainless Steel AISI 316

Construction: Stainless steel AISI 316 coupling and nipple. BUNA N gasket as standard.
Coupling and nipple are available with and without valve. Coupling can be delivered with a safety mechanism, sleeve lock, in all dimensions (add SL after Part No.).
Design in accordance to MIL–C–51234.

Features: • Small dimensions • Low pressure loss • Two-piece construction • End cap can be replaced

Snap-tite Series H can be used in the following combinations:
• Quick release coupling with double closure: Coupling and nipple with valve.
• Quick release coupling with single closure: Coupling with valve, nipple without.
• Quick release coupling without closure and full opening: Coupling and nipple without valve.

Temp. range: - 40°C to + 93°C (BUNA N gasket)
- 29°C to + 190°C (VITON gasket)

Applications: All-round quick release coupling for industrial, construction and offshore activities. Applicable for hydraulic, air, liquids, gases etc.

NB: All pressures stated are when connected

Special nipple for water jet: Special material hardened SH, combination - AISI 316 and Nitronic.
Without valve 3/8" NPT female: Part No. S049-3
Without valve 1/2" NPT female: Part No. S023-3

Dim./ Connection	Coupling w/ Valve		Coupling w/o Valve		Nipple w/ Valve		Nipple w/o Valve		Working Pressure w/ valve		Working Pressure w/o valve	
	Fem. NPT Part No. SVHC	Fem. BSP Part No. SVHC	Fem. NPT Part No. SPHC	Fem. BSP Part No. SPHC	Fem. NPT Part No. SVHN	Fem. BSP Part No. SVHN	Fem. NPT Part No. SPHN	Fem. BSP Part No. SPHN	Bar	PSI	Bar	PSI
1/4"	4-4F	4-4RP	4-4F	4-4RP	4-4F	4-4RP	4-4F	4-4RP	345	5000	690	10000
3/8"	6-6F	6-6RP	6-6F	6-6RP	6-6F	6-6RP	6-6F	6-6RP	280	4000	555	8000
1/2"	8-8F	8-8RP	8-8F	8-8RP	8-8F	8-8RP	8-8F	8-8RP	260	3750	555	8000
3/4"	12-12F	12-12RP	12-12F	12-12RP	12-12F	12-12RP	12-12F	12-12RP	140	2000	485	7000
1"	16-16F	16-16RP	16-16F	16-16RP	16-16F	16-16RP	16-16F	16-16RP	140	2000	280	4000
1.1/4"	20-20F	20-20RP	20-20F	20-20RP	20-20F	20-20RP	20-20F	20-20RP	105	1500	210	3000
1.1/2"	24-24F	24-24RP	24-24F	24-24RP	24-24F	24-24RP	24-24F	24-24RP	105	1500	210	3000
2"	32-32F	32-32RP	32-32F	32-32RP	32-32F	32-32RP	32-32F	32-32RP	35	500	70	1000
2.1/2"	40-40F	40-40RP	40-40F	40-40RP	40-40F	40-40RP	40-40F	40-40RP	30	400	30	400
3"	48-48F	48-48RP	48-48F	48-48RP	48-48F	48-48RP	48-48F	48-48RP	30	400	30	400
4"	64-64F	64-64RP	64-64F	64-64RP	64-64F	64-64RP	64-64F	64-64RP	25	300	25	300

Safety factor 2:1 Testing pressure 1.5 x working pressure.

QUICK RELEASE COUPLINGS
Snap-tite
Series H
Accessories and Spare Parts

Dust caps / dust plugs: Part No. for aluminum dust cap and dust plug includes 300 mm galvanized steel chain.

Dim.	 Plastic Combination Cap / Plug Part No.	 Aluminium Cap Part No.	 Aluminium Plug Part No.
1/4"	PDCP-4	-	-
3/8"	PDCP-6	-	-
1/2"	PDCP-8	-	-
3/4"	PDCP-12	-	-
1"	PDCP-16	-	-
1.1/4"	–	ADCH-20	AMPH-20
1.1/2"	–	ADCH-24	AMPH-24
2"	–	ADCH-32	AMPH-32
2.1/2"	–	ADCH-40	AMPH-40
3"	–	ADCH-48	AMPH-48

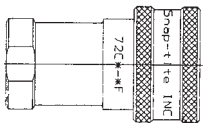
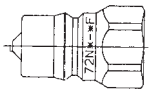
	U-gasket		O-ring, Large (for adaptor)		O-ring, Small (for valve)	
						
Dim.	**Buna N Part No.**	**Viton Part No.**	**Buna N Part No.**	**Viton Part No.**	**Buna N Part No.**	**Viton Part No.**
1/4"	H4-56A	H4-56V	H4-59A	H4-59V	H4-55A	H4-55V
3/8"	H6-56A	H6-56V	H6-59A	H6-59V	–	–
1/2"	H8-56A	H8-56V	H8-59A	H8-59V	–	–
3/4"	H12-56A	H12-56V	H12-59A	H12-59V	–	–
1"	H16-56A	H16-56V	H16-59A	H16-59V	–	–
1.1/4"	H20-56A	H20-56V	H20-59A	H20-59V	H20-55A	H20-55V
1.1/2"	H24-56A	H24-56V	H24-59A	H24-59V	H24-55A	H24-55V
2"	H32-56A	H32-56V	H32-59A	H32-59V	H32-55A	H32-55V
2.1/2"	H40-56A	H40-56V	H40-59A	H40-59V	H40-55A	H40-55V
3"	H48-56A	H48-56V	H48-59A	H48-59V	H48-55A	H48-55V
4"	H64-56A	H64-56V	H64-59A	H64-59V	H64-55A	H64-55V

QUICK RELEASE COUPLINGS
Snap-tite
Series 72
Stainless Steel AISI 303

Construction: Stainless steel AISI 303 coupling and nipple AISI 303. Viton gasket as standard. Valve in coupling and nipple. Spill-free connection and disconnection. Coupling can be delivered with a safety mechanism, sleeve lock, in all dimensions, to avoid accidents when disconnecting. (add SL after Part No.). Series 72 can be delivered with all AISI 316 parts.

Temp.range: -29°C to +190°C (Viton gasket).

Applications: Quick release coupling for high-pressure hydraulic.

Dim./ Connect.	Coupling 		Nipple 		Working pressure	
	Female NPT Part No.	Female BSP Part No.	Female NPT Part No.	Female BSP Part No.	Bar	PSI
1/4"	S72C4-4F	S72C4-4RP	S72N4-4F	S72N4-4RP	380	5500
3/8"	S72C6-6F	S72C6-6RP	S72N6-6F	S72N6-6RP	260	3750
1/2"	S72C8-8F	S72C8-8RP	S728-8F	S72N8-8RP	260	3750
3/4"	S72C12-12F	S72C12-12RP	S72N12-12F	S72N12-12RP	210	3000
1"	S72C16-16F	S72C16-16RP	S72N16-16F	S72N16-16RP	210	3000

Safety factor 4:1. Testing pressure 1.5 x working pressure.

QUICK RELEASE COUPLINGS
Snap-tite Series 72

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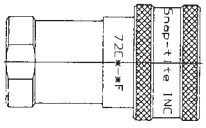
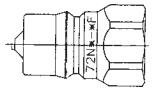
Construction: Steel coupling and nipple, surface treated against corrosion. BUNA N gasket as standard. Valve in coupling and nipple. Built in accordance with ISO Standard B, and is interchangeable with for example Hansen Series HK, Aeroquip FD 45, Parker.
Coupling can be delivered with a safety mechanism, sleeve lock, in all dimensions, to avoid accidents when disconnecting. (add SL after Part No.). Better pressure and lower pressure drop than for example Hansen HK Series.

Temp. range: -40°C to +93°C (BUNA N gasket).

Applications: Quick release coupling for high-pressure hydraulic.

Dim./ Connect.	Coupling 		Nipple 		Plastic combination cap/plug 	Working pressure	
	Female NPT Part No.	Female BSP Part No.	Female NPT Part No.	Female BSP Part No.	Part No.	Bar	PSI
1/4"	72C4-4F	72C4-4RP	72N4-4F	72N4-4RP	72PDCP-4	520	7500
3/8"	72C6-6F	72C6-6RP	72N6-6F	72N6-6RP	72PDCP-6	345	5000
1/2"	72C8-8F	72C8-8RP	72N8-8F	72N8-8RP	72PDCP-8	345	5000
3/4"	72C12-12F	72C12-12RP	72N12-12F	72N12-12RP	72PDCP-12	280	4000
1"	72C16-16F	72C16-16RP	72N16-16F	72N16-16RP	72PDCP-16	280	4000

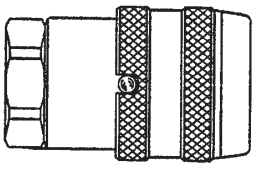
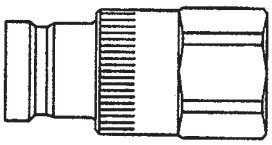
Safety factor 4:1. Testing pressure 1.5 x working pressure.

QUICK RELEASE COUPLINGS
Snap-tite
Series 71
Style 3
Steel

Construction: Surface treated against corrosion. Yellow chrome zinc.
Standard gaskets: BUNA N.
Available on request: VITON and EPR.
Spill-free connection and disconnection.
Can be delivered with safety lock, "Sleeve Lock" on the coupling. Add SL after Part No.

Temperature range: -40°C to +93°C with standard gasket BUNA N.

Applications: Quick release coupling for high pressure and air.

Coupling Dim.	Female Thread	Coupling		Nipple		Dust Plug	Dust Cap	Working Pressure	
									
		Female NPT Part No.	Female BSP Part No.	Female NPT Part No.	Female BSP Part No.	Plastic Part No.	Plastic Part No.	Bar	PSI
1/4"	1/4"	71-3C4-4F	71-3C4-4RP	71-3N4-4F	71-3N4-4RP	71-3PCC-4	71-3PNC-4	690	10.000
3/8"	1/4"	71-3C6-4F	71-3C6-4RP	71-3N6-4F	71-3N6-4RP	71-3PCC-6	71-3PNC-6	690	10.000
3/8"	3/8"	71-3C6-6F	71-3C6-6RP	71-3N6-6F	71-3N6-6RP	71-3PCC-6	71-3PNC-6	690	10.000
3/8"	1/2"	71-3C6-8F	71-3C6-8RP	71-3N6-8F	71-3N6-8RP	71-3PCC-6	71-3PNC-6	690	10.000
1/2"	1/2"	71-3C8-8F	71-3C8-8RP	71-3N8-8F	71-3N8-8RP	71-3PCC-8	71-3PNC-8	690	10.000
3/4"	3/4"	71-3C12-12F	71-3C12-12RP	71-3N12-12F	71-3N12-12RP	71-3PCC-12	71-3PNC-12	520	7.500
1"	1"	71-3C16-16F	71-3C16-16RP	71-3N16-16F	71-3N16-16RP	71-3PCC-16	71-3PNC-16	520	7.500
1"	1.1/4"	71-3C16-20F	71-3C16-20RP	71-3N16-20F	71-3N16-20RP	71-3PCC-20	71-3PNC-16	520	7.500

Safety factor: 2:1 - testing pressure 1.5 x working pressure.

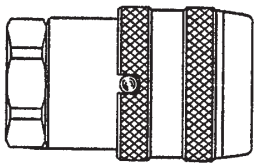
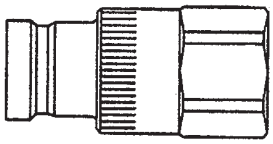
Note: Dimensions 3/8" - 1/2" and 3/4" coupling and nipple are interchangeable with old type 71 - styles 1 and 2.
Dimension 1" is not interchangeable, 1/4" has a brand new design.
Repair kit is available for all dimensions.

QUICK RELEASE COUPLINGS
Snap-tite
Series 71 - Style 3
Stainless Steel
AISI 316

Construction: Stainless Steel AISI 316 steel.
Standard gaskets: BUNA N.
Available on request: VITON and EPR.
Spill-free connection and disconnection.
Can be delivered with safety lock, "Sleeve Lock" on the coupling. Add SL after Part No.

Temperature range: -40°C to +93°C with standard gasket BUNA N.

Applications: Quick release coupling for high pressure and air.

Coupling Dim.	Female Thread	Coupling		Nipple		Dust Plug	Dust Cap	Working Pressure	
									
		Female NPT Part No.	Female BSP Part No.	Female NPT Part No.	Female BSP Part No.	Plastic Part No.	Plastic Part No.	Bar	PSI
1/4"	1/4"	S71-3C4-4F	S71-3C4-4RP	S71-3N4-4F	S71-3N4-4RP	71-3PCC-4	71-3PNC-4	345	5000
3/8"	1/4"	S71-3C6-4F	S71-3C6-4RP	S71-3N6-4F	S71-3N6-4RP	71-3PCC-6	71-3PNC-6	345	5000
3/8"	3/8"	S71-3C6-6F	S71-3C6-6RP	S71-3N6-6F	S71-3N6-6RP	71-3PCC-6	71-3PNC-6	345	5000
3/8"	1/2"	S71-3C6-8F	S71-3C6-8RP	S71-3N6-8F	S71-3N6-8RP	71-3PCC-6	71-3PNC-6	345	5000
1/2"	1/2"	S71-3C8-8F	S71-3C8-8RP	S71-3N8-8F	S71-3N8-8RP	71-3PCC-8	71-3PNC-8	350	5000
3/4"	3/4"	S71-3C12-12F	S71-3C12-12RP	S71-3N12-12F	S71-3N12-12RP	71-3PCC-12	71-3PNC-12	350	5000
1"	1"	S71-3C16-16F	S71-3C16-16RP	S71-3N16-16F	S71-3N16-16RP	71-3PCC-16	71-3PNC-16	280	4000
1"	1.1/4"	S71-3C16-20F	S71-3C16-20RP	S71-3N16-20F	S71-3N16-20RP	71-3PCC-20	71-3PNC-16	280	4000

Safety factor: 2:1 - testing pressure 1.5 x working pressure.

Note: Dimensions 3/8" - 1/2" and 3/4" coupling and nipple are interchangeable with old type 71 - styles 1 and 2.
Dimension 1" is not interchangeable, 1/4" has a brand new design.
Repair kit is available for all dimensions.
Also available as SH71 for ultra-high pressure.

QUICK RELEASE COUPLINGS
Snap-tite
Series 75

Construction: Steel coupling and nipple, zinc-chromated against corrosion. BUNA N gasket as standard, with Teflon back-up ring. Spill-free connection and disconnection by screwing the nipple in the coupling. Can be connected at 30% of stated working pressure.
Temperature range: -40°C to + 90°C (BUNA N gasket).
Applications: Quick release coupling for high-pressure hydraulics, especially for offshore, for hydraulic pliers, oil drilling equipment etc.
Approved by Det Norske Veritas.

Dim./ Connection Female NPT	Coupling Part No.	Nipple Part No.	Dust Plug Part No.	Dust Cap Part No.	Working Pressure Bar	Working Pressure PSI
3/4"	75C12-12F	75N12-12F	75MDP-12	75MDC-12	345	5000
1"	75C16-16F	75N16-16F	75MDP-16	75MDC-16	345	5000
1.1/4"	75C20-20F	75N20-20F	75MDP-20	75MDC-20	345	5000
1.1/2"	75C24-24F	75N24-24F	75MDP-24	75MDC-24	345	5000
2"	75C32-32F	75N32-32F	75MDP-32	75MDC-32	345	5000

Safety factor 2:1. Testing pressure 1.5 x working pressure. Series 75 is also available in dimensions 2.1/2", 3" and 4".
Series 75 is also available with female BSP thread.

QUICK RELEASE COUPLINGS
Snap-tite
Series 78

Construction: Brass coupling and nipple. BUNA N gasket as standard. Steel nipple flange.
Spill-free connection and disconnection by screwing the nipple in the coupling. Can be connected under pressure. Snap-tite Series 78 is interchangeable with among others Aeroquip Series 5100.
Temperature range: -40°C to + 93°C (BUNA N gasket).
Applications: Quick release coupling for high-pressure hydraulics, especially for offshore, for hydraulic pliers, oil drilling equipment etc.

Dim./ Connection Female NPT	Coupling Part No.	Nipple Part No.	Steel Dust Plug Part No.	Steel Dust Cap Part No.	Steel Nipple Flange Part No.	Working Pressure Bar	Working Pressure PSI
3/4"	B78C12-12F	B78N12-12F	78DP-12	78DC-12	78F-12	210	3000
1"	B78C16-16F	B78N16-16F	78DP-16	78DC-16	78F-16	210	3000
1.1/4"	B78C20-20F	B78N20-20F	78DP-20	78DC-20	78F-20	190	2780
1.1/2"	B78C24-24F	B78N24-24F	78DP-24	78DC-24	78F-24	175	2500

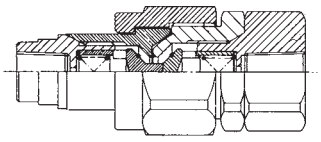
Safety factor 2:1. Testing pressure 1.5 x working pressure.

QUICK RELEASE COUPLINGS
"Screw type"
Type QR 74

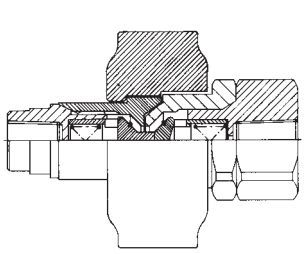
Construction: Quick release coupling series with valve in coupling and nipple. Spill-free connection and disconnection in a few seconds by screwing the nipple in the coupling. The valves are automatically closed in both parts when disconnected.
Service-friendly - all components can be replaced
Available in different materials - 316L is standard.
Connection: NPT female thread. Viton gasket.
Can be produced to customer specifications, for example with different thread, bulkhead etc.
Available with wing nut for easy assembly or hex for narrow installations.

Applications: QR74 is a robust quick release coupling series for most industrial fluids including hydraulic fluids, lubricants and air. QR74 is specially developed for use in critical areas offshore, where it is required that equipment must be able to be operated in a blow-out situation.
QR74 is approved by Lloyds Register of Shipping for fires up to 700°C.

With Hex



With Wing Nut



	With Hex				With Wing Nut					
	Coupling		Nipple		Coupling		Nipple		Bar	
Dim. / Connection	Carbon Steel Part No. QR74	Stainless Steel 316 Part No. QR74	Carbon Steel Part No. QR74	Stainless Steel 316 Part No. QR74	Carbon Steel Part No. QR74	Stainless Steel 316 Part No. QR74	Carbon Steel Part No. QR74	Stainless Steel 316 Part No. QR74	Working Pressure	Burst Pressure
3/8"	-102-06	-202-06	-101-06	-201-06	-702-06	-802-06	-101-06	-201-06	345	1730
1/2"	-102-08	-202-08	-101-08	-201-08	-702-08	-802-08	-101-08	-201-08	345	1600
3/4"	-102-12	-202-12	-101-12	-201-12	-702-12	-802-12	-101-12	-201-12	345	1300
1"	-102-16	-202-16	-101-16	-201-16	-702-16	-802-16	-101-16	-201-16	345	1200
1 1/4"	-102-20	-202-20	-101-20	-201-20	-702-20	-802-20	-101-20	-201-20	345	1000
1 1/2"	-102-24	-202-24	-101-24	-201-24	-702-24	-802-24	-101-24	-201-24	345	930
2"	-102-32	-202-32	-101-32	-201-32	-702-32	-802-32	-101-32	-201-32	207	900

NEW

QUICK RELEASE COUPLINGS
BOP version
Snap-tite
Series 75DBP

Construction: Steel coupling and nipple, zinc-chromated against corrosion. BUNA N gasket as standard, with Teflon back-up ring. Spill-free connection and disconnection by screwing the nipple in the coupling. Can be connected at 30% of stated working pressure.

Temperature range: -40°C to + 90°C (BUNA N gasket).

Applications: Quick release coupling specially designed for use on BOP in accordance with API 16D. Certified by Lloyds to resist 700° C for 5 min.

Dim./ Connection Female NPT	 Coupling Part No.	 Nipple Part No.	 Dust Plug Part No.	 Dust Cap Part No.	Working Pressure Bar	Working Pressure PSI
3/4"	75C12-12FDBP	75N12-12FDBP	75MDP-12	75MDC-12	345	5000
1"	75C16-16FDBP	75N16-16FDBP	75MDP-16	75MDC-16	345	5000
1.1/4"	75C20-20FDBP	75N20-20FDBP	75MDP-20	75MDC-20	345	5000

QUICK RELEASE COUPLINGS
Pioneer series 3000
High-pressure - Screw Type

Construction: Hardened, zinc-chromated steel screw coupling and nipple.
Nitrile gasket (1/4") and Polyurethane (3/8")
Valve in coupling and nipple. Steel dust cover.

Applications: Special coupling for hydraulic tools, for extra high static pressure.
The coupling part comes with male thread, and the nipple with female.

Temperature range: 1/4": -40°C to +110°C
3/8": -40°C to +80°C

Male / Female NPTF	Coupling Part No.	Nipple Part No.	Dust Plug Part No.	Dust Cap Part No.	Working Pressure Bar
1/4"	3050-2	3010-2	3009-2	3005-2	700
3/8"	3050-3	3010-3	3009-3	3005-3	700

Construction: Hardened zinc-chromated steel coupling body and nipple. Valve in coupling and nipple.
Both valves open and provide full throughput when connected.
All couplings and nipples comes with dust plug and cap.
Temperature range: -40°C to +100°C
Applications: Special coupling for high-pressure hydraulics. Spill-free connection and disconnection.

CEJN Series 115
1000 bar

Working pressure: 1000 bar
Burst pressure: 2600 bar min.

Female BSP*	Coupling Part No.	Nipple Part No.	Female NPT	Coupling Part No.	Nipple Part No.
1/8"	115-1201	115-6201	1/8"	115-1401	115-6401
1/4"	115-1202	115-6202	1/4"	115-1402	115-6402
3/8"	115-1204	115-6204	3/8"	115-1404	115-6404

CEJN Series 116
1500 bar

Working pressure: 1500 bar
Burst pressure: 3000 bar min.

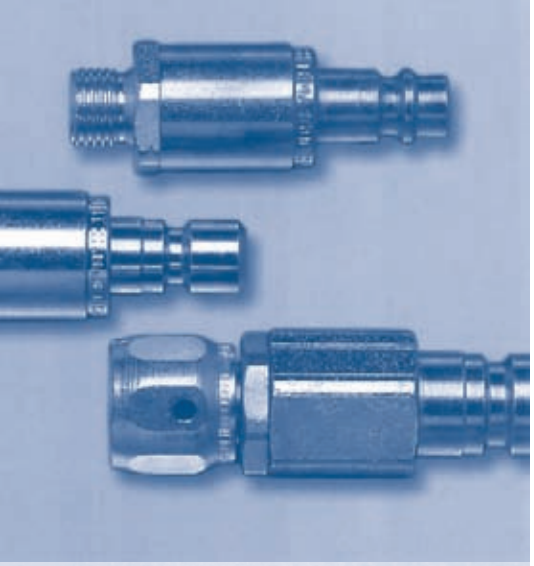
Female BSP*	Coupling Part No.	Nipple Part No.	Female NPT	Coupling Part No.	Nipple Part No.
1/8"	116-1201	116-6201	1/8"		
1/4"	116-1202	116-6202	1/4"	116-1402	116-6402

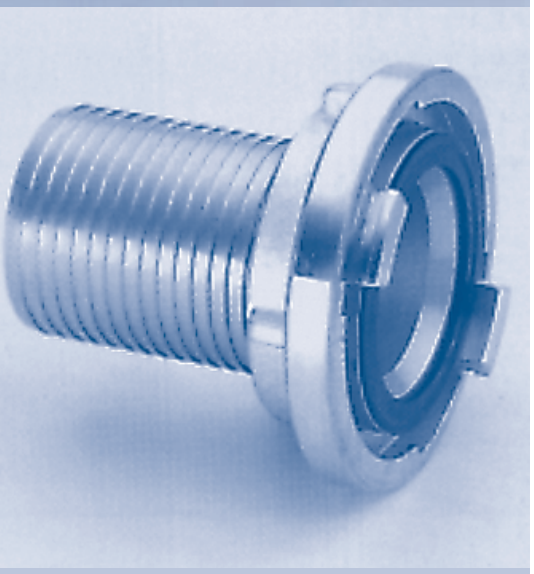
CEJN Series 125
2000 bar

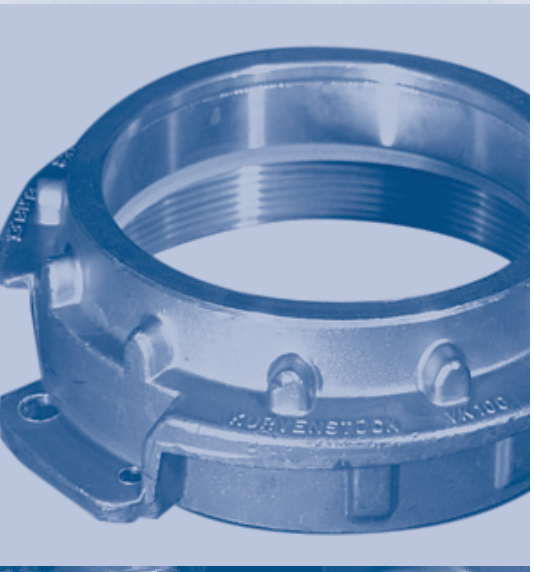
Working pressure: 2000 bar
Burst pressure: 4000 bar min.

Female BSP*	Coupling Part No.	Nipple Part No.
1/4"	125-1202	125-6202

* BSP female thread is delivered with 120° inside sealing cone







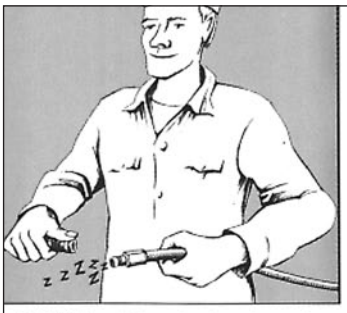
Group 13

Quick Release Couplings

Low-pressure

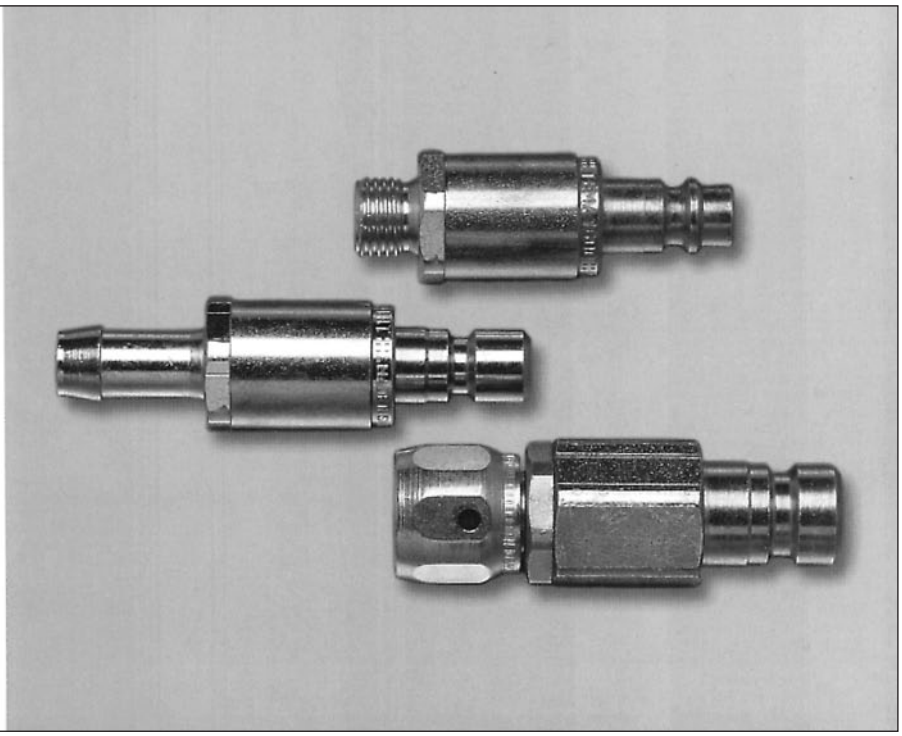
FLUID CONTROL®

TEMA SAFETY NIPPLE FOR COMPRESSED AIR



TEMA Safety nipple

Standard nipple



TEMA Safety Nipple is designed to take away disconnection recoils in compressed air systems. A dangerous and often criticized factor in the workplace disappears. The nipple also makes disconnecting quieter. TEMA Safety Nipple is available for series 1300, 1400, 1600, 1700 and 1800.

Product Features

- Reduces the risk of injury
- Does not reduce the airflow
- Can be connected to other brands.
  For example Bosch 823, Cejn 310, Cejn 320, Luna 25, Obac 25, Rectus 25 and others
- Reduces recoil and noise to a minimum
- Meets ISO 4414-9.4 requirements.
- Service free construction
- Low cost security increase

TECHNICAL INFORMATION
QUICK RELEASE COUPLINGS FOR COMPRESSED AIR

Series 1100

Throughput:
11 liters/sec.[1]
Connection power:
5.6 kg [2]
Minimum
Throughput Diameter:
5.5 mm
Connections:
ISO-G 1/8
ISO-G 1/4 male
Length:
55 mm

Ø: 18 mm
Max Working Pressure:
30 Bar
Other Applications:
Water, gas

Series 1400

Throughput:
15 liters/sec
Connection power:
6.5 kg [2]
Minimum
Throughput Diameter:
6.0 mm
Connections:
ISO-G 1/4, 3/8" female
ISO-R 1/4, 3/8 [3]
Hose Connection:
1/4"-1/2"
Length: 37 mm

Ø: 22 mm

Can be connected to: Hansen 3000, Cejn 310, Atlas, Qic8 and others.

Series 1300/1300 E

Throughput:
28 liters/sec [1]
Connection power:
Series 1300: 9.5 kg [2]
Series 1300 E 7.3 kg [2]
Minimum
Throughput Diameter:
Series 1300: 6.8 mm
Series 1300 E: 7.4 mm
Connections:
ISO-G 1/4, 3/8 female,
ISO-R 1/4 3/8 [3]
ISO-G 3/8 male
Hose Connection:
1300 E: 1/4" - 1/2"
Length:
Series 1300: 49 mm
Series 1300E: 55 mm
Ø: 22 mm [4]
Max Working Pressure:
30 Bar
Other Applications:
Water, gas

Series 1600

Throughput:
37 liters/sec [1]
Connection power:
7.6 kg [2]
Minimum
Throughput Diameter:
7.5 mm
Connections:
ISO-G1/4, 3/8, 1/2 female
ISO-R 1/4, 3/8 1/2 [3]
Hose Connection:
1/4" - 1/2"
Length: 57 mm
Ø: 23 mm
Max Working Pressure: 30 Bar
Can be connected to: JWL-5200, Cejn 320, Luna 25, Obac 25, Rectus 25 and others.

Series 1800/1800 E

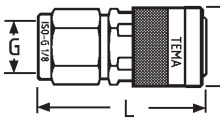
Throughput:
65 liters/sec [1]
Connection power:
Series 1800: 12.7 kg [2]
Series 1800 E: 10.8 kg [2]
Minimum
Throughput Diameter:
Series 1800: 10.4
Series 1800 E: 10.2 mm
Connections:
ISO-G 3/8, 1/2, 3/4 female
ISO-G 1/2 male
ISO-R 1/2 [3]
Length:
Series 1800: 54 mm
Series 1800E: 60 mm
Ø: 27 mm [4]
Max Working Pressure:
30 bar
Other Applications:
Water, gas

Series 1100 - 1300 - 1600 - 1800 - have a valve in the coupling part.

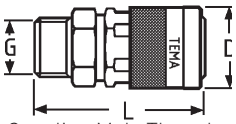
Series 1100N - 1300N - 1800N - have a valve in both the coupling and nipple

Note! These series are not interchangeable!

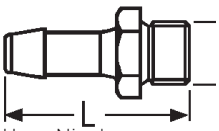
[1] Measured at 6 bar air pressure and 0.5 bar pressure loss
[2] Measured at 6 bar air pressure
[3] ISO-R = conical outside
[4] #4 is missing



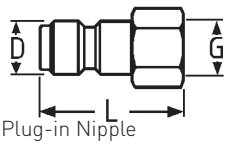
Coupling Female Thread



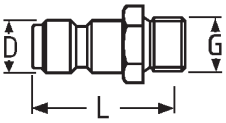
Coupling Male Thread



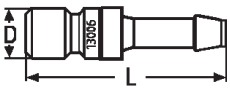
I
Hose Nipple



II
Plug-in Nipple
Female Thread



III
Plug-in Nipple
Male Thread



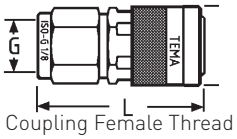
IV
Plug-in Nipple
w/ Hose Connection

TEMA AIR COUPLING
Series 1100

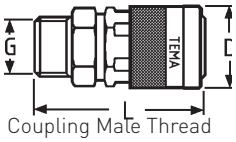
Type	Part No.	Dimension ISO-BSP Male	Dimension ISO-BSP Female	Min. Through-put mm	Rubber Quality	D mm	L mm	WS mm	Max Work. Pres. bar	Hose Inside Diameter mm	Hose Inside Diameter inches	Weight gr.
Coupling	1100		1/8	5.5	nitrile	18	37	15	30			40
	1100 A	1/4		5.5	nitrile	18	38	15	30			35
	1100 V		1/8	5.5	viton	18	37	15	30			40
	1100 AV	1/4		5.5	viton	18	38	15	30			35
Nipple I	1105	1/8					27	12	30	5	3/16"	7
	1106	1/8					27	12	30	6	1/4"	8
Plug-in Nipple Male Thread II	11110	1/8				9.5	27	12	30			9
Plug-in Nipple Female Thread III	11410		1/8			9.5	27	12	30			10
Plug-in Nipple w/ Hose Conn. IV	11005		1/8			9.5	33		30	5	3/16"	6
	11006					9.5	33		30	5	3/16"	7
Plastic Protection Body Nipple	2316				PVC							3
	2326				PVC							3
O-ring	11310 N				nitrile							
	11310 V				viton							
Fiber Gasket	11320											

1) All coupling bodies in the 1100 series are available without valve. Add "UV" after Part No.
Series 1100 is not interchangeable with series 1100N.

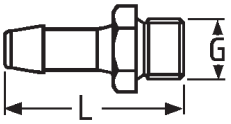
TEMA AIR COUPLING
Series 1100 N



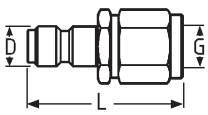
Coupling Female Thread



Coupling Male Thread



I
Hose Nipple



II
Plug-in Nipple
Female Thread

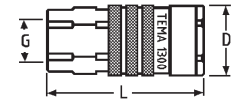
Note! Valve in coupling and nipple

Type	Part No.	Dimension ISO-BSP Male	Dimension ISO-BSP Female	Min. Through-put mm	Rubber Quality	D mm	L mm	WS mm	Max Work. Pres. bar	Hose Inside Diameter mm	Hose Inside Diameter inches	Weight gr.
Coupling	1100 N		1/8	4,8	nitrile	18	37	15	50			40
	1100 NA	1/4		4,8	nitrile	18	38	15	50			35
	1100 NV		1/8	4,8	viton	18	37	15	50			40
	1100 NAV	1/4		4,8	viton	18	38	15	50			35
Nipple I	1105	1/8					27	12	30	5	3/16"	7
	1106	1/8					27	12	30	6	1/4"	8
Plug-in Nipple Female Thread II	11410 MN		1/8		nitrile	9,5	36	15	20			20
	11410 MV		1/8		viton	9,5	36	15	20			20
Plastic Protection Body Nipple	2316				PVC							3
	2326				PVC							3
O-ring	11310 N				nitrile							
	11310 V				viton							
Fiber Gasket	11320											

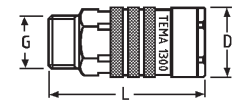
Series 1100N is not interchangeable with series 1100.

Fiber Gasket

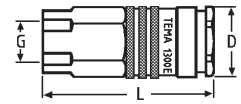
TEMA AIR COUPLING
Series 1300



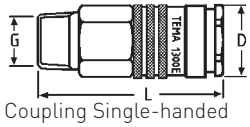
Coupling Female Thread



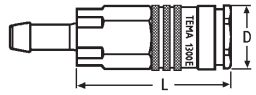
Coupling Male Thread



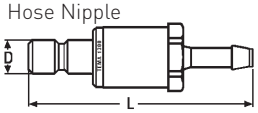
Coupling Single-handed
Female Thread



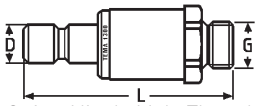
Coupling Single-handed
Male Thread



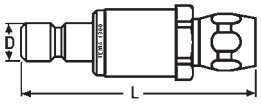
Coupling Single-handed incl.
Hose Nipple



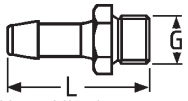
Safety Nipple
w/ Hose Connection



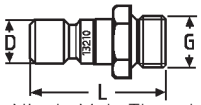
Safety Nipple Male Thread



Safety Nipple
w/ Hose Socket

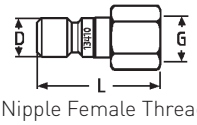


Hose Nipple



Nipple Male Thread

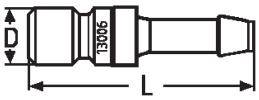
Protective Sleeve



Nipple Female Thread

Type	Part No.	Dimension ISO-BSP Male	Dimension ISO-BSP Female	Min. Through-put mm	Rubber Quality	D mm	L mm	WS mm	Max Work. Pres. bar	Hose Inside Diameter mm	Hose Inside Diameter inches	Weight gr.
Coupling 4)	1300		1/4	6.8	nitrile	22	49	18	30			81
	1300 A	3/8		6.8	nitrile	22	49	18	30			81
	1300 B		3/8	6.8	nitrile	22	50	20	30			86
	1300 V		1/4	6.8	viton	22	49	18	30			81
	1300 AV	3/8		6.8	viton	22	49	18	30			75
	1300 BV		3/8	6.8	viton	22	50	20	30			86
Coupling Single-handed	1300 E		1/4	7.4	nitrile	22	55	19	30			96
	1300 EA	3/8		7.4	nitrile	22	56	19	30			88
	1300 EB		3/8	7.4	nitrile	22	55	20	30			94
	1300 EC	1/4		7.4	nitrile	22	58	19	30			92
	1300 ED	1/2		7.4	nitrile	26	57	23	30			108
	1300 EEB		3/8	7.4	nitrile	26	55	20	30			100
Coupling incl. Hose Nipple	1300 EK06			4.8	nitrile	22	78	19	30	6	1/4"	98
	1300 EK08			6.4	nitrile	22	78	19	30	8	5/16"	99
	1300 EK10			7.4	nitrile	22	78	19	30	10	3/8"	100
	1300 EK12			7.4	nitrile	22	77	19	30	12	1/2"	101
	1300 EK10			7.4	nitrile	26	78	19	30	10	3/8"	110
Hose Nipple I)	1306	1/4					37	16	30	6	1/4"	16
	1308	1/4					37	16	30	8	5/16"	17
	1310	1/4					37	16	30	10	3/8"	19
	1312	1/4					38	16	30	12	1/2"	21
Nipple II) Male Thread	13110	1/8				12	35	13	30			17
	13110 M	1/8				12	35	13	10			17
	13210	1/4				12	38	14	30			23
	13210 M	1/4				12	35	16	10			25
	13220	3/8				12	38	17	30			27
	13230	1/2				12	40	22	30			38
Nipple III) Female Thread	13405		1/8			12	32	13	30			17
	13410		1/4			12	36	16	30			23
	13410-100	1/4				12	124	16	30			65
	13411 M		1/4			12	44	18	10			39
	13420		3/8			12	36	20	30			28
Nipple IV) w/ Hose Connection	13006					12	44		30	6	1/4"	14
	13008					12	44		30	8	5/16"	15
	13010					12	44		30	10	3/8"	16
	13012					12	47		30	12	1/2"	22
Safety Nipple V)	13006 S					12	73	20	30	6	1/4"	47
	13008 S					12	73	20	30	8	5/16"	49
	13010 S					12	73	20	30	10	3/8"	51
	13012 S					12	74	20	30	12	1/2"	55
	13210 S	1/4				12	60	20	30			49
	13220 S	3/8				12	60	20	30			48
	13230 S	1/2				12	63	25	30			67
Safety Nipple Combined w/ Hose Socket VI)	13006 S-1					12	69	20	30	6	1/4"	60
	13008 S-1					12	69	20	30	6	1/4"	60
	13010 S-1					12	69	20	30	10	3/8"	65
Plastic Protection Coupling	1316				PVC							5
Nipple	1326				PVC							3
Disc Gasket	13310 N				nitrile							
	13310 V				viton							
O-ring (1300 E)	N7-9.3				nitrile							
Protective Sleeve	1300-351				PVC	33	73					15
Fiber Gasket	13320											

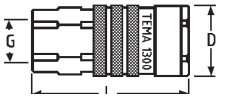

Fiber Gasket



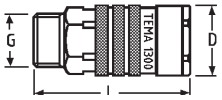
Nipple w/ Hose Connection

13

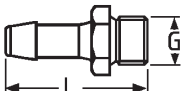
TEMA AIR COUPLING
Series 1300 N



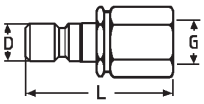
Coupling Female Thread



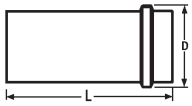
Coupling Male Thread



Hose Nipple



Nipple Female Thread



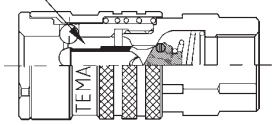
Protective Sleeve


Fiber Gasket

Type	Part No.	Dimension ISO-BSP Male	Dimension ISO-BSP Female	Min. Through-put mm	Rubber Quality	D mm	L mm	WS mm	Max Work. Pres. bar	Hose Inside Diameter mm	Hose Inside Diameter inches	Weight gr.
Coupling	1300 N		1/4	5.8	nitrile	22	49	18	50[1]			81
	1300 NA	3/8		5.8	nitrile	22	49	18	50[1]			75
	1300 NB		3/8	5.8	nitrile	22	50	20	50[1]			86
	1300 NV		1/4	5.8	viton	22	49	18	50[1]			81
	1300 NAV	3/8		5.8	viton	22	49	18	50[1]			75
	1300 NBV		3/8	5.8	viton	22	50	20	50[1]			86
Nipple [1]	1306	1/4					37	16	30	6	1/4"	16
	1308	1/4					37	16	30	8	5/16"	17
	1310	1/4					37	16	30	10	3/8"	19
	1312	1/4					37	16	30	12	1/2"	21
Nipple Female Thread II)	13410 MN [2]		1/4		nitrile	12	44	18	20[1]			42
	13410 STN [3]		1/4		nitrile	12	44	18	50[1]			40
	13410 MNV [2]		1/4		viton	12	44	18	20[1]			42
	13410 STNV [3]		1/4		viton	12	44	18	50[1]			40
Plastic Protection Coupling Nipple	1316				PVC							5
	1326				PVC							3
O-ring	13310 N				nitrile							
	13310 V				viton							
Protective Sleeve Fiber Gasket	1300-351				PVC	33	73					15
	13320											

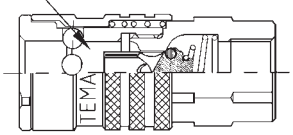
[1] Max working pressure for steam 10 bar.
[2] Material quality brass.
[3] Material quality steel.

Long valve that opens the valve in the N-nipple

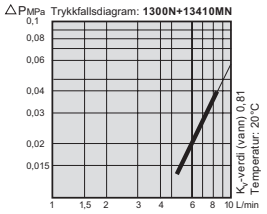


Coupling N-series

Standard coupling (series 1300, 1800) with short valve

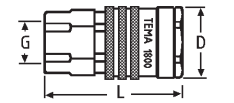


Coupling Standard

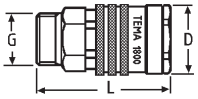


13

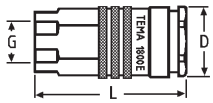
TEMA AIR COUPLING
Series 1800



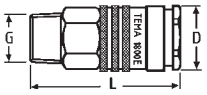
Coupling Female Thread



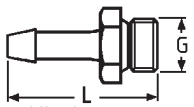
Coupling Male Thread



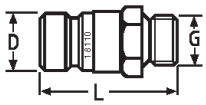
Coupling Single-handed Female Thread



Coupling Single-handed Male Thread



Hose Nipple



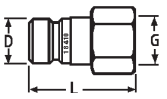
Plug-in Nipple Male Thread

Type	Part No.	Dimension ISO-BSP Male	Dimension ISO-BSP Female	Min. Through-put mm	Rubber Quality	D mm	L mm	WS mm	Max Work. Pres. bar	Hose Inside Diameter mm	Hose Inside Diameter inches	Weight gr.
Coupling [11]	1800		3/8	10.4	nitrile	27	54	22	30			125
	1800 A	1/2		10.4	nitrile	27	54	22	30			115
	1800 B		1/2	10.4	nitrile	27	55	24	30			130
	1800 C		3/4	10.4	nitrile	27	57	30	30			160
	1800 L[2]		3/8	10.4	nitrile	27	54	22	30			125
	1800 SV[2]		3/8	10.4	nitrile	27	54	22	30			125
	1800 RV[4]		3/8	10.0	viton	27	54	22	30[7]			115
	1800 V		3/8	10.4	viton	27	54	22	30			125
	1800 AV	1/2		10.4	viton	27	54	22	30			115
	1800 BV		1/2	10.4	viton	27	55	24	30			130
	1800 CV		3/4	10.4	viton	27	57	30	30			160
	1800 ST[9]		3/8	10.4	nitrile	27	54	22	30			122
	1800 AST[9]	1/2		10.4	nitrile	27	54	22	30			112
	1800 BST[9]		1/2	10.4	nitrile	27	55	24	30			127
Coupling Single-handed	1800 E		3/8	10.2	nitrile	27	60	23	30			146
	1800 EA	1/2		10.2	nitrile	27	64	23	30			140
	1800 EB		1/2	10.2	nitrile	27	61	24	30			146
	1800 EE[10]		3/8	10.2	nitrile	31	60	23	30			157
Nipple [1]	1806	3/8					38	19	30	6	1/4"	21
	1808	3/8					38	19	30	8	5/16"	23
	1810	3/8					38	19	30	10	3/8"	25
	1810 R[4]	3/8					38	19	30	10	3/8"	22
	1812	3/8					39	19	30	12	1/2"	29
	1812 R[5]	3/8					39	19	30	12	1/2"	27
	1816	3/8					39	19	30	16	5/8"	29
	1819	3/8					39	19	30	19	3/4"	34
	1912[5]	3/8					43	21	30	12	1/2"	36
Nipple Male Thread	18105	1/8				16	36	16	30			26
	18110	1/4				16	39	16	30			29
	18110 MS[6]	1/4				16	36	16	10			29
	182010	3/8				16	38	17	30			30
	18210 R[4]	3/8				16	36	19	30			31
	18210 SV[3]	3/8				16	36	19	30			35
	18220	1/2				16	40	22	30			41
	18220 M[1]	1/2				16	40	22	10			44
	18230	3/4				16	43	27	30			66

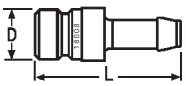
[1] Quality: brass, applicable to water.
[2] Coupling 1800L comes with safety mechanism to prevent disconnection under pressure.
[3] Coupling 1800SV fits nipple 18210SV.
[4] Quality: stainless steel SS2382.
[5] Quality: steel.
[6] Nipple 18110MS has built-in filter for accumulation of dirt.
[7] Max working pressure for liquids is 50 bar.
[8] Fits all nipples in the 1800 series except 18210SV.
[9] Quality socket: steel.
[10] Comes with turbo socket.
[11] All couplings in the 1800 series are available without valve - add "UV" after Part No.

Continued from previous page

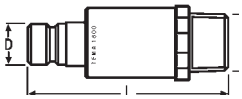
TEMA AIR COUPLING
Series 1800



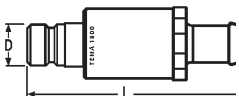
Plug-in Nipple Female Thread



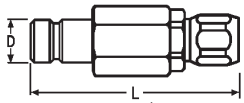
Plug-in Nipple
w/ Hose Connection



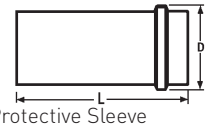
Safety Nipple Male Thread



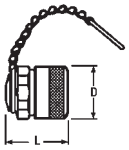
Safety Nipple
w/ Hose Connection



Safety Nipple w/ Hose Socket



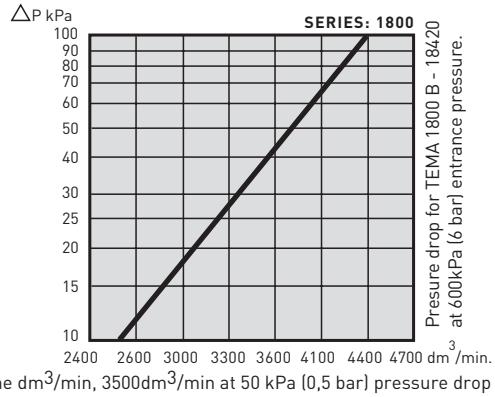
Protective Sleeve



Metal Protection

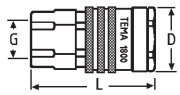

Fiber Gasket

Type	Part No.	Dimension ISO-BSP Male	Dimension ISO-BSP Female	Min. Through-put mm	Rubber Quality	D mm	L mm	WS mm	Max Work. Pres. bar	Hose Inside Diameter mm	Hose Inside Diameter inches	Weight gr.
Nipple Female Thread	18405		1/4			16	36	16	30			30
	18410		3/8			16	36	20	30			33
	18410 R[4]		3/8			16	36	22	30			41
	18411 M[1]		3/8			16	49	22	30			60
	18420		1/2			16	39	25	30			53
Plug-in Nipple w/ Hose Connection	18006					16	44		30	6	1/4"	20
	18008					16	44		30	8	5/16"	22
	18010					16	44		30	10	3/8"	24
	18010 M[1]					16	44		10	10	3/8"	24
	18012					16	45		30	12	1/2"	27
	18012 M[1]					16	45		10	12	1/2	27
	18016					16	46		30	16	5/8"	26
	18019					16	46		30	19	3/4"	32
Safety Nipple	18006 S					16	70	21	30	6	1/4"	60
	18008 S					16	70	21	30	8	5/16"	61
	18010 S					16	70	2	30	10	3/8"	63
	18012 S					16	71	21	30	12	1/2"	68
	18016 S					16	71	21	30	16	5/8"	66
	18019 S					16	71	21	30	19	3/4"	70
	18110 S	1/4				16	58	21	30			62
	18210 S	3/8				16	58	21	30			62
	18220 S	1/2				16	60	21	30			80
Safety Nipple combined with Hose Socket	18008 S-1					16	67	21	30	8	5/16"	79
	18010 S-1					16	67	21	30	10	3/8"	83
	18012 S-1					16	67	21	30	12	1/2"	88
Plastic Protection Coupling Nipple Protective Sleeve	5026				PVC							
	2526				PVC							
	1800-35				PVC	37	41					10
	1800-351				PVC	37	78					20
Metal Protection	18415[8]					23	78					45
Disc Gasket (1800 E)	18310 N				Nitrile							
	18310 V				viton							
	18310 NE				nitrile							
Fiber Gasket	18320											

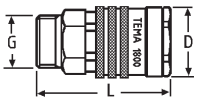


Air volume dm3/min, 3500dm3/min at 50 kPa (0,5 bar) pressure drop

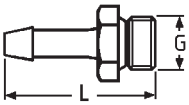
TEMA AIR COUPLING
Series 1800 N



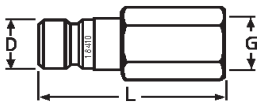
Coupling Female Thread



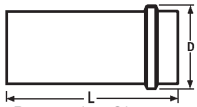
Coupling Male Thread



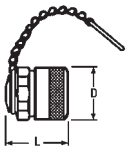
Hose Nipple



Plug-in Nipple Female Thread



Protective Sleeve



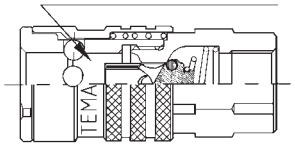
Metal Protection


Fiber Gasket

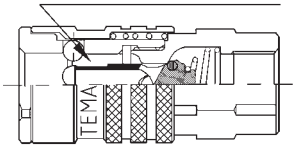
Type	Part No.	Dimension ISO-BSP Male	Dimension ISO-BSP Female	Min. Through-put mm	Rubber Quality	D mm	L mm	WS mm	Max Work. Pres. bar	Hose Inside Diameter mm	Hose Inside Diameter inches	Weight gr.
Coupling	1800 N		3/8	9.5	nitrile	27	54	22	50[1]			125
	1800 NA	1/2		9.5	nitrile	27	54	22	50[1]			115
	1800 NB		1/2	9.5	nitrile	27	55	24	50[1]			130
	1800 NBA		1/2	9.5	EPDM	27	55	25	50[1]			138
	1800 NC		3/4	9.5	nitrile	27	57	30	50[1]			160
	1800 NV		3/8	9.5	viton	27	54	22	50[1]			125
	1800 NAV	1/2		9.5	viton	27	54	22	50[1]			115
	1800 NBV		1/2	9.5	viton	27	55	24	50[1]			130
	1800 NCV		3/4	9.5	viton	27	57	30	50[1]			160
Nipple	1806	3/8					38	19	30	6	1/4"	21
	1808	3/8					38	19	30	8	5/16"	23
	1810	3/8					38	19	30	10	3/8"	25
	1812	3/8					39	19	30	12	1/2"	29
	1816	3/8					39	19	30	16	5/8"	29
	1819	3/8					39	19	30	19	3/4"	34
Plug-in Nipple Female Thread	18410 MN[2]		3/8		nitrile	16	49	22	10[1]			70
	18410 STN[3]		3/8		nitrile	16	49	22	50[1]			65
	18420 MN[2]	4]			nitrile	16	47	22	10[1]			60
	18442 MNA[5]		1/2		nitrile	16	52	25	10[1]			90
	18430 MN		3/4		nitrile	16	54	30	10[1]			129
	18410 MNV[2]		3/8		viton	16	49	22	10[1]			70
	18410 STV[3]		3/8		viton	16	49	22	50[1]			65
	18422 MNAV[5]		1/2		viton	16	52	25	10[1]			90
Plastic Protection Coupling Nipple	5026				PVC							
	2526				PVC							
O-ring	18310 N				nitrile							
	18310 V				viton							
Protective Sleeve	1800-35				PVC	37	41					10
	1800-351				PVC	37	78					20
Metal Protection	18415					23	27					45
Fiber Gasket	18320											

[1] Max working pressure for steam is 10 bar.
[2] Quality: brass
[3] Quality: steel
[4] 1/2"-14 NPTF Male
[5] Quality: zinc-treated brass

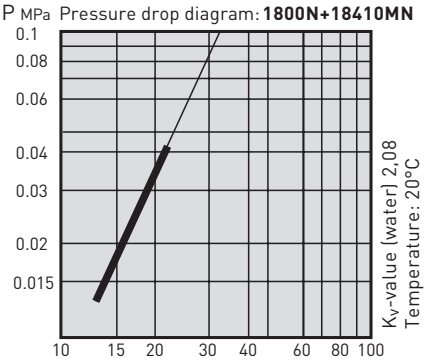
Standard coupling (series 1300, 1800) with short valve



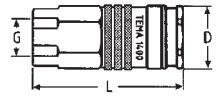
Long valve that opens the valve in the N-nipple



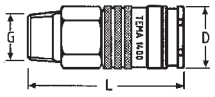
ΔP MPa Pressure drop diagram: **1800N+18410MN**



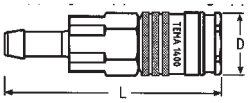
TEMA AIR COUPLING
Series 1400



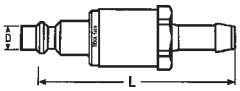
Coupling Female Thread



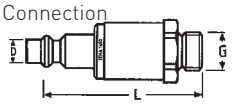
Coupling Male Thread



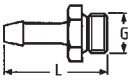
Coupling incl. Hose Connection



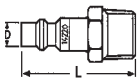
V
Safety Nipple, w/ Hose Connection



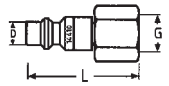
V
Safety Nipple Male Thread



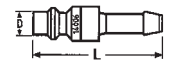
I
Hose Nipple



II
Plug-in Nipple Male Thread



III
Plug-in Nipple Female Thread



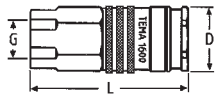
IV
Plug-in Nipple w/ Hose Connection


Fiber Gasket

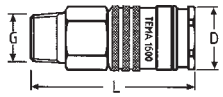
Type	Part No.	Dimension ISO-BSP Male	Dimension ISO-BSP Female	Min. Through-put mm	Rubber Quality	D mm	L mm	WS mm	Max Work. Pres. bar	Hose Inside Diameter mm	Hose Inside Diameter inches	Weight gr.
Coupling	1400		1/4	7.4	nitrile	22	55	19	30			100
	1400 A		3/8	7.4	nitrile	22	55	20	30			96
	1400 C	1/4		7.4	nitrile	22	58	19	30			93
	1400 D	3/8		7.4	nitrile	22	56	19	30			90
Coupling incl. Hose Nipple	1400 K06			4.8	nitrile	22	78	20	30	6	1/4"	103
	1400 K08			6.4	nitrile	22	78	20	30	8	5/16"	105
	1400 K10			7.4	nitrile	22	78	20	30	10	3/8"	105
	1400 K12			7.4	nitrile	22	77	20	30	12	1/2"	107
Hose Nipple I	1306[2]	1/4					37	16	30	6	1/4"	16
	1308[2]	1/4					37	16	30	8	5/16"	17
	1310[2]	1/4					37	16	30	10	3/8"	19
	1312[2]	1/4					38	16	30	12	1/2"	21
Plug-in Nipple Male Thread II	14110	1/8				8	36	12	30			16
	14210	1/4				8	36	12	30			16
	14220	3/8				8	41	17	30			23
Plug-in Nipple III Female Thread	14405		1/8			8	33	12	30			11
	14410		1/4			8	40	17	30			24
	14420		3/8			8	42	20	30			31
Plug-in Nipple IV w/ Hose Connection	14006					8	47		30	6	1/4"	14
	14008					8	47		30	8	5/16"	15
	14010					8	47		30	10	3/8"	15
	14010 M[1]					8	47		10	10	3/8"	15
	14012					8	49		30	12	1/2"	17
Safety Nipple V	14006 S					8	76	20	30	6	1/4"	49
	14008 S					8	76	20	30	8	5/16"	50
	14010 S					8	76	20	30	10	3/8"	51
	14012 S					8	77	20	30	12	1/2"	55
	14210 S	1/4				8	63	20	30			49
Plastic Protection Coupling Nipple	3826				PVC							17
	1326				PVC							3
Fiber Gasket	13320											

[1] Quality: Brass
[2] Coupling 1400A is interchangeable with series 1800
Note! Interchangeable with Cejn 310, Hansen 3000, Luna 23, OBAC 23, Atlas Qic8

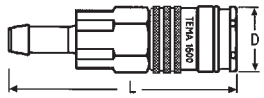
TEMA AIR COUPLING
Series 1600



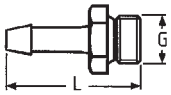
Coupling Female Thread



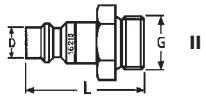
Coupling Male Thread



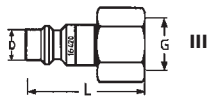
Coupling incl. Hose Nipple



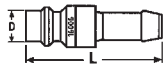
I
Hose Nipple



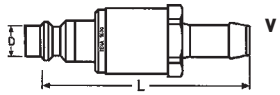
II
Plug-in Nipple
Male Thread



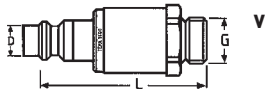
III
Plug-in Nipple
Female Thread



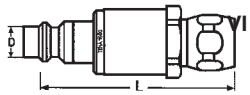
IV
Plug-in Nipple
w/ Hose Connection



V
Safety Nipple
w/ Hose Connection



V
Safety Nipple Male Thread

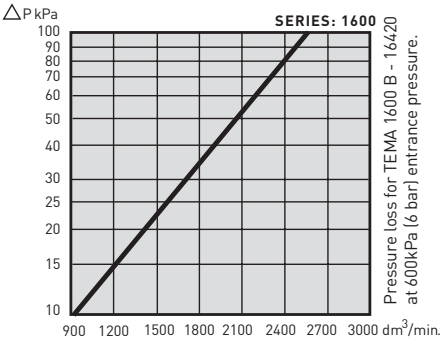


VI
Safety Nipple w/ Hose Socket

Type	Part No.	Dimension ISO-BSP Male	Dimension ISO-BSP Female	Min. Through-put mm	Rubber Quality	D mm	L mm	WS mm	Max Work. Pres. bar	Hose Inside Diameter mm	Hose Inside Diameter inches	Weight gr.
Coupling	1600		1/4	7.5	nitrile	23	58	19	30			108
	1600 A	3/8		7.5	nitrile	23	59	19	30			98
	1600 B		3/8	7.5	nitrile	23	57	20	30			106
	1600 C	1/2		7.5	nitrile	23	61	23	30			125
	1600 D	1/4		7.5	nitrile	23	61	19	30			100
	1600 F		1/2	7.5	nitrile	23	57	25	30			127
Coupling incl. Hose Nipple	1600 K06			4.8	nitrile	23	80	19	30	6	1/4"	113
	1600 K08			6.4	nitrile	23	80	19	30	8	5/16"	114
	1600 K10			7.5	nitrile	23	80	19	30	10	3/8"	115
	1600 K12			7.5	nitrile	23	79	19	30	12	1/2"	115
Hose Nipple[1] I	1306	1/4					37	16	30	6	1/4"	16
	1308	1/4					37	16	30	8	5/16"	17
	1310	1/4					37	16	30	10	3/8"	19
	1312	1/4					38	16	30	12	1/2"	21
	1806	3/8					38	19	30	6	1/4"	21
	1808	3/8					38	19	30	8	5/16"	23
	1810	3/8					38	19	30	10	3/8"	25
	1812	3/8					39	19	30	12	1/2"	29
Plug-in Nipple II Male Thread	16110	1/8				10	32	13	30			14
	16210	1/4				10	38	14	30			20
	16220	3/8				10	36	19	30			24
	16230	1/2				10	40	22	30			34
Plug-in Nipple III Female Thread	16405		1/8			10	30	13	30			13
	16410		1/4			10	36	16	30			21
	16420		3/8			10	36	20	30			28
	16430		1/2			10	40	25	30			48
Plug-in Nipple IV w/ Hose Connection	16006					10	43		30	6	1/4"	12
	16008					10	43		30	8	5/16"	13
	16010					10	43		30	10	3/8"	15
	16012					10	46		30	12	1/2"	22
Safety Nipple V	16006 S					10	73	20	30	6	1/4"	46
	16008 S					10	73	20	30	8	5/16"	48
	16010 S					10	73	20	30	10	3/8"	49
	16012 S					10	74	20	30	12	1/2"	53
	16210 S	1/4				10	60	20	30			49
Safety Nipple combined with Hose Socket VI	16006 S-1					10	69	20	30	6	1/4"	62
	16008 S-1					10	69	20	30	8	5/16"	64
	16010 S-1					10	69	20	30	10	3/8"	68
Plastic Protection Coupling	1316				PVC							5
Nipple	1326				PVC							3
O-ring	N7-9,3				nitrile							
Fiber Gasket	13320											

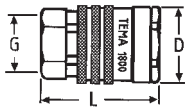
[1] 1306-1312 fits 1600
1806-1812 fits 1600 B
[2] Interchangeable with Cejn 320, Luna 25, OBAC 25, Rectus 25, Bosch 825


Fiber Gasket

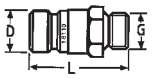


Air Volume dm3/min, 2040dm3/min at 50 kPa (0,5 bar) pressure loss.

TEMA AIR COUPLING
Series 1800 H

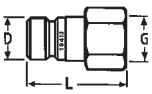


Coupling Female Thread



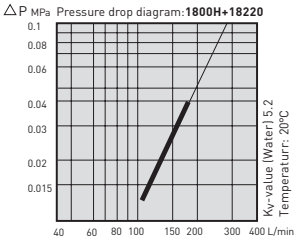
I

Plug-in Nipple Male Thread



II

Plug-in Nipple Female Thread

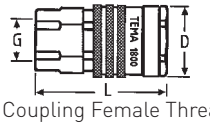


Note! For high-pressure water!

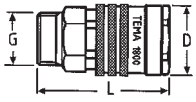
Type	Part No.	Dimension ISO-BSP Male	Female	Min. Through-put mm	Rubber Quality	D mm	L mm	WS mm	Max Work. Pres. bar	Hose Inside Diameter mm	inches	Weight gr.
Coupling	1800 H		3/8	10.5	nitrile	27	43	22	100			100
	1800 HV		3/8	10.5	viton	27	43	22	100			100
Plug-in Nipple I	18105	1/8				16	36	16	100			26
Male Thread	18110	1/4				16	36	16	100			29
	18110 A	1/4				16	36	16	100			31
	18210	3/8				16	38	17	100			30
	18210R [2]	3/8				16	36	19	100			31
	18220	1/2				16	40	22	100			41
	18220 M [1]	1/2				16	40	22	10			44
	18230	3/4				16	43	27	100			66
Plug-in Nipple II	18405		1/4			16	35	16	100			30
Female Thread	18410		3/8			16	36	20	100			33
	18410 R [2]		3/8			16	36	22	100			41
	18411 M [1]		3/8			16	48	22	10			60
	18420		1/2			16	39	25	100			53
Disc Gasket	18310 N				nitrile							
	18310 V				viton							

1) Quality: brass, max pressure 10 bar.
2) Quality: stainless steel SS2382.
3) Working pressure applies to liquids.

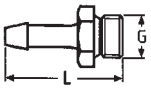
TEMA AIR COUPLING
Series 1800 D



Coupling Female Thread

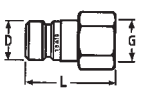


Coupling Male Thread



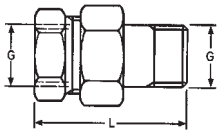
I

Hose Nipple



II

Plug-in Nipple Female Thread



Adapter 1840

Adapter 1841

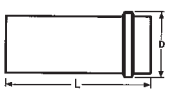
Adapter 1843

NB! For high-pressure lubrication systems (SPL - Single Point Lubrication)!

Type	Part No.	Dimension ISO-BSP Male	Female	Min. Through-put mm	Rubber Quality	D mm	L mm	WS mm	Max Work. Pres. bar	Hose Female Diameter mm	inches	Weight gr.
Coupling	1800 D		3/8	10.0	nitrile	27	54	22	30			127
	1800 AD	1/2		10.0	nitrile	27	54	22	30			117
	1800 AD2	1/2		10.0	nitrile	27	54	22	30			117
	1800 BD		1/2	10.0	nitrile	27	55	22	30			117
Hose Nipple I	1806	3/8					38	19	30	6	1/4"	21
	1808	3/8					38	19	30	8	5/16"	23
	1810	3/8					38	19	30	10	3/8"	25
	1812	3/8					39	19	30	12	1/2"	29
	1816	3/8					39	19	30	16	5/8"	29
	1819	3/8					39	19	30	19	3/4"	34
Plug-in Nipple II Female Thread	18410 D		3/8			16	36	20	30			32
	18410 DS		3/8			16	52	22	30			70
Adapter	1840[1]	1/2	1/2				53					138
	1841[2]						24					6
	1843[2]						21					5
Disc Gasket Protective Sleeve	18310 N				nitrile							
	1800-35				PVC	37	41					10
	1800-351				PVC	37	78					20
Fiber Gasket	18320											

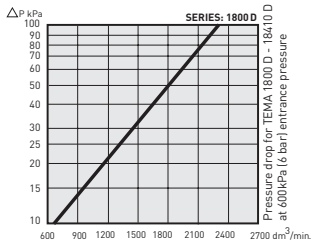
[1] Adapter 1840 fits coupling 1800 D

[2] Adaptors 1841 and 1843 fit coupling 1800 AD2



Protective Sleeve

Fiber Gasket



Air volume dm^3/min, $1800 dm^3/min$ at 50 kPa (0,5 bar) pressure drop

HANSEN Series 3000

Construction: This series has valves only in the coupling part. The nipple can freely swivel when connected to the coupling. Coupling is produced in solid brass, the nipple in stainless steel.

Applications: Compressed air, grease, gases, oils, paint, vacuum, etc.

Working pressure connected: 138 bar

Part No. HANSEN	Connection	Coupling	Nipple	Part No. HANSEN	Connection
-2900	1/8" Male NPT			-012	1/8" Male NPT
-3100	1/4" Male NPT			-010	1/4" Male NPT
-3300	3/8" Male NPT			-014	3/8" Male NPT
-2800	1/8" Female NPT			-013	1/8" Female NPT
-3000	1/4" Female NPT			-011	1/4" Female NPT
-3200	3/8" Female NPT			-015	3/8" Female NPT
-3600	1/4" Hose I.D.			-016	1/4" Hose I.D.
-3800	5/16" Hose I.D.			-018	5/16" Hose I.D.
-3700	3/8" Hose I.D.			-017	3/8" Hose I.D.

HANSEN Series 5000

Construction: This series has valves only in the coupling part. The nipple can freely swivel when connected to the coupling. Coupling is produced in solid brass, the nipple in stainless steel.

Applications: Compressed air, grease, gases, oils, paint, vacuum, etc.

Working pressure connected: 35 bar

Part No. HANSEN	Connection	Coupling	Nipple	Part No. HANSEN	Connection
-5100	3/8" Male NPT			-052	3/8" Male NPT
-5300	1/2" Male NPT			-054	1/2" Male NPT
-5500	3/4" Male NPT			-056	3/4" Male NPT
-5000	3/8" Female NPT			-053	3/8" Female NPT
-5200	1/2" Female NPT			-055	1/2" Female NPT
-5400	3/4" Female NPT			-057	3/4" Female NPT
-5700	3/8" Hose I.D.			-059	3/8" Hose I.D.
-5800	1/2" Hose I.D.			-060	1/2" Hose I.D.
-5900	3/4" Hose I.D.			-061	3/4" Hose I.D.

QUICK RELEASE COUPLINGS
Cam and Groove Adaptors

Construction: Built in accordance to MIL C-27487 specifications. Completely air- and watertight under pressure and vacuum. Available with both BSP and NPT threads. BUNA N gasket as standard. All 8 main parts are available in aluminum (AL), brass (BR), stainless steel AISI 316 L (SS) and polypropylene (PP).
Other material qualities, for example UNS 31254 (6MO) available on request.
Interchangeable with Ever-Tite, Seal, Fast, PT, OPW, Camlok, Snaplock, Andrews etc.

Temperature range: Aluminium, brass and stainless steel couplings stainless steel: Depending on gasket material.
BUNA N -40^{0}C to + 120^{0}C, Viton -40^{0}C to +200^{0}C . Polypropylene couplings max +70^{0}C.
At this temperature, the working pressure is reduced by 40%

Applications: For transporting water, oil, fuel, liquid gases, chemicals, abrasive products, etc.

A

DIM.	Aluminium Part No. BSP: 632A NPT: 633A	Brass Part No. BSP: 632A NPT: 633A	AISI 316 L Part No. BSP:632A NPT: 633A	Polyprop. Part No. BSP: 632A NPT: 633A
1/2"	013AL	013BR	013SS	013PP
3/4"	019AL	019BR	019SS	019PP
1"	025AL	025BR	025SS	025PP
1.1/4"	032AL	032BR	032SS	032PP
1.1/2"	038AL	038BR	038SS	038PP
2"	050AL	050BR	050SS	050PP
2.1/2"	063AL	063BR	063SS	
3"	075AL	075BR	075SS	075PP
4"	100AL	100BR	100SS	
5"	125AL	125BR	125SS	
6"	150AL	150BR	150SS	

B

DIM.	Aluminium Part No. BSP: 632B NPT: 633B	Brass Part No. BSP: 632B NPT: 633B	AISI 316 L Part No. BSP:632B NPT: 633B	Polyprop. Part No. BSP:632B NPT:633B
1/2"	013AL	013BR	013SS	013PP
3/4"	019AL	019BR	019SS	019PP
1"	025AL	025BR	025SS	025PP
1.1/4"	032AL	032BR	032SS	032PP
1.1/2"	038AL	038BR	038SS	038PP
2"	050AL	050BR	050SS	050PP
2.1/2"	063AL	063BR	063SS	
3"	075AL	075BR	075SS	075PP
4"	100AL	100BR	100SS	
5"	125AL	125BR	125SS	
6"	150AL	150BR	150SS	

C

DIM.	Aluminium Part No. 633C	Brass Part No. 633C	AISI 316 L Part No. 633C	Polyprop. Part No. 633C
1/2"	013AL	013BR	013SS	013PP
3/4"	019AL	019BR	019SS	019PP
1"	025AL	025BR	025SS	025PP
1.1/4"	032AL	032BR	032SS	032PP
1.1/2"	038AL	038BR	038SS	038PP
2"	050AL	050BR	050SS	050PP
2.1/2"	063AL	063BR	063SS	
3"	075AL	075BR	075SS	075PP
4"	100AL	100BR	100SS	
5"	125AL	125BR	125SS	
6"	150AL	150BR	150SS	

D

DIM.	Aluminium Part No. BSP: 632D NPT: 633D	Brass Part No. BSP: 632D NPT: 633D	AISI 316 L Part No. BSP:632D NPT: 633D	Polyprop. Part No. BSP:632D NPT:633D
1/2"	013AL	013BR	013SS	013PP
3/4"	019AL	019BR	019SS	019PP
1"	025AL	025BR	025SS	025PP
1.1/4"	032AL	032BR	032SS	032PP
1.1/2"	038AL	038BR	038SS	038PP
2"	050AL	050BR	050SS	050PP
2.1/2"	063AL	063BR	063SS	
3"	075AL	075BR	075SS	075PP
4"	100AL	100BR	100SS	
5"	125AL	125BR	125SS	
6"	150AL	150BR	150SS	

QUICK RELEASE COUPLINGS
Cam and Groove Adaptors

E

DIM.	Aluminium Part No. 633E	Brass Part No. 633E	AISI 316 L Part No. 633E	Polyprop. Part No. 633E
1/2"	013AL	013BR	013SS	013PP
3/4"	019AL	019BR	019SS	019PP
1"	025AL	025BR	025SS	025PP
1.1/4"	032AL	032BR	032SS	032PP
1.1/2"	038AL	038BR	038SS	038PP
2"	050AL	050BR	050SS	050PP
2.1/2"	063AL	063BR	063SS	
3"	075AL	075BR	075SS	075PP
4"	100AL	100BR	100SS	
5"	125AL	125BR	125SS	
6"	150AL	150BR	150SS	

F

DIM.	Aluminium Part No. BSP: 632F NPT: 633F	Brass Part No. BSP: 632F NPT: 633F	AISI 316 L Part No. BSP:632F NPT: 633F	Polyprop. Part No. BSP:632F NPT:633F
1/2"	013AL	013BR	013SS	013PP
3/4"	019AL	019BR	019SS	019PP
1"	025AL	025BR	025SS	025PP
1.1/4"	032AL	032BR	032SS	032PP
1.1/2"	038AL	038BR	038SS	038PP
2"	050AL	050BR	050SS	050PP
2.1/2"	063AL	063BR	063SS	
3"	075AL	075BR	075SS	075PP
4"	100AL	100BR	100SS	
5"	125AL	125BR	125SS	
6"	150AL	150BR	150SS	

DUST PLUG

DIM.	Aluminium Part No. 634A	Brass Part No. 634A	AISI 316 L Part No. 634A	Polyprop. Part No. 634A
1/2"	013AL	013BR	013SS	
3/4"	019AL	019BR	019SS	019PP
1"	025AL	025BR	025SS	025PP
1.1/4"	032AL	032BR	032SS	
1.1/2"	038AL	038BR	038SS	038PP
2"	050AL	050BR	050SS	050PP
2.1/2"	063AL	063BR	063SS	
3"	075AL	075BR	075SS	075PP
4"	100AL	100BR	100SS	
5"	125AL	125BR	125SS	
6"	150AL	150BR	150SS	

DUST CAP

DIM.	Aluminium Part No. 634B	Brass Part No. 634B	AISI 316 L Part No. 634B	Polyprop. Part No. 634B
1/2"	013AL	013BR	013SS	
3/4"	019AL	019BR	019SS	019PP
1"	025AL	025BR	025SS	025PP
1.1/4"	032AL	032BR	032SS	
1.1/2"	038AL	038BR	038SS	038PP
2"	050AL	050BR	050SS	050PP
2.1/2"	063AL	063BR	063SS	
3"	075AL	075BR	075SS	075PP
4"	100AL	100BR	100SS	
5"	125AL	125BR	125SS	
6"	150AL	150BR	150SS	

WORKING PRESSURE FOR COUPLINGS IN DIFFERENT MATERIAL QUALITIES (BAR)

Material/Dim.	1/2"	3/4"- 2"	2.1/2"	3"	4"	5"- 6"	6" w/ 4 arms
Brass	11	18	11	9	7	5	10
Aluminium	11	18	11	9	7	5	10
Stainless steel 316 L	11	18	16	14	7	7	14
Polypropylene	5	7		4			

Working pressure for polypropylene couplings must be reduced by 40% at +70°C.

QUICK RELEASE COUPLINGS SPECIALITIES
Cam and Groove Adaptors

Leverlock - coupling series with locking mechanism to prevent accidental disconnection. Interchangeable with standard cam and groove adaptor nipples. Available in AISI 316L stainless steel in dimensions. 1'', 1.1/4'', 1.1/2'', 2''and 3''.

Flotite - coupling series with built-in ball valve to prevent leakage and contamination. Available in AISI 316L stainless steel in dimensions. 1'', 1.1/2'', 2''.

Lockable dust caps - dust caps with locking handle to prevent unwanted access to tanks. Available in all material qualities in dimensions 1.1/4' 'to 4''.

GASKETS: BUNA N TEMP. -40°C TO +120°C TO 200°C.

Dim.	BUNA N Part No.	VITON Part No.	Dim.	BUNA N Part No.	VITON Part No.
1/2''	650N13	652A013	2.1/2''	650N063	652A063
3/4''	650N19	652A019	3''	650N075	652A075
1''	650N25	652A025	4''	650N100	652A100
1.1/4''	650N32	652A032	5''	650N125	652A125
1.1/2''	650N38	652A038	6''	650N150	652A150
2''	650N50	652A050			

The gaskets are available with teflon coating

HANDLE W / RING AND LOCKING PIN

Coupling Dimension	Brass: Part No.	Stainless Steel: Part No.
1/2''-3/4''	636HT019	637HT019
1''	636HT025	637HT025
1.1/4'' - 2.1/2''	636HT063	637HT063
3''-4''	636HT100	637HT100
5'''	636HT125	637HT125
6''	636HT150	637HT150

CHAIN WITH HOOK

Length		Brass	Weight	Stainless Steel	Weight
Inches	mm	Part No.	Kg	Part No.	Kg
8	200	638-KJ-200	0.013		
12	300	638-KJ-300	0.019	639-KJ-300	0.027

"LAUX" QUICK RELEASE COUPLINGS
Mod. C - German series
Mod. 42 - Swedish series

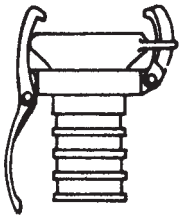
Construction: Galvanized steel. Couplings and nipples with welding ends, black unprocessed steel. Male Thread BSP.

Applications: For transportation of water, oil, air, steam, grain, flour, cement, concrete, asphalt, etc.

Swedish series Mod. 42 comes with a locking mechanism. Mod. C and Mod. 42 are not interchangeable.

COUPLING WITH HOSE TAIL:

Dim.	Mod. C Part No.	Mod. 42 Part No.
1.1/2"		SMS-038
2"	KMS-050	SMS-050
2.1/2"	KMS-070	SMS-063
3"	KMS-089	SMS-075
4"	KMS-108	SMS-100
5"	KMS-133	SMS-125
6"	KMS-159	SMS-150

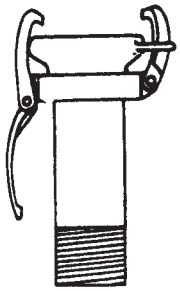


NIPPLE WITH HOSE TAIL:

Dim.	Mod. C Part No.	Mod. 42 Part No.
1.1/2"		SVS-038
2"	KVS-050	SVS-050
2.1/2"	KVS-070	SVS-063
3"	KVS-089	SVS-075
4"	KVS-108	SVS-100
5"	KVS-133	SVS-125
6"	KVS-159	SVS-150

COUPLING WITH MALE THREAD:

Dim.	Mod. C Part No.	Mod. 42 Part No.
1.1/2"		SMG-038
2"	KMG-050	SMG-050
2.1/2"	KMG-070	SMG-063
3"	KMG-089	SMG-075
4"	KMG-108	SMG-100



NIPPLE WITH MALE THREAD:

Dim.	Mod. C Part No.	Mod. 42 Part No.
1.1/2"		SVG-038
2"	KVG-050	SVG-050
2.1/2"	KVG-070	SVG-063
3"	KVG-089	SVG-075
4"	KVG-108	SVG-100
5"	KVG-133	SVG-125
6"	KVG-159	SVG-150

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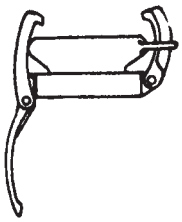
COUPLING WITH WELDING END:

Dim.	Mod. C Part No.	Mod. 42 Part No.
1.1/2"		SMM-038
2"	KKM-050	SMM-050
2.1/2"	KKM-070	SMM-063
3"	KKM-089	SMM-075
4"	KKM-108	SMM-100
5"	KKM-133	SMM-125
6"	KKM-159	SMM-150



NIPPLE WITH WELDING END:

Dim.	Mod. C Part No.	Mod. 42 Part No.
1.1/2"		SKV-038
2"	KKV-050	SKV-050
2.1/2"	KKV-070	SKV-063
3"	KKV-089	SKV-075
4"	KKV-108	SKV-100
5"	KKV-133	SKV-125
6"	KKV-159	SKV-150

GASKETS

Type/Dim.	Part No.	1.1/2"	2"	2.1/2"	3"	4"	5"	6"
Mod. C. Standard	KKG		-050	-070	-089	-108	-133	-159
Mod. C. Heat Part No.	KKGV		-050	-070	-089	-108	-133	-159
Mod. 42 Standard EPDM -50°C to +120°C	SKG	-038	-050	-063	-075	-100	-125	-150
Mod. 42 Oil Part No. Nitrile -40°C to +100°C	SKGO	-038	-050	-063	-075	-100	-125	-150
Mod. 42 Chemicals Part No. VITON -30°C to +250°C	SKGX	-038	-050	-063	-075	-100	-125	-125

QUICK RELEASE COUPLINGS NOR

Construction: Brass and aluminum Nor couplings are available in 3 sizes, Lock 1, Lock 2 and Lock 3.
The table below applies to Lock 1, which has the largest diameter. BSP Thread.
Coupling and coupling ring: Brass - hot-pressed. Screws: Stainless steel.
Aluminium - anodized. Gasket: Nitrile rubber.

Applications: Special coupling for fire hoses and fire equipment.

Gasket Part No. 2829-1

HOSE TAIL:

Dim.	Part No. Brass	Part No. Aluminium
1.1/2"	2820-038	2920-038
2"	2820-050	2920-050
2.1/2"	2820-063	2920-063
3"	2820-075	2920-075

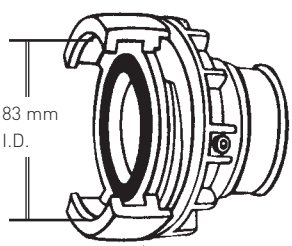
MALE BSP THREAD:

Dim.	Part No. Brass	Part No. Aluminium
1.1/2"	2830-038	2930-038
2"	2830-050	2930-050
2.1/2"	2830-063	2930-063
3"	2830-075	2930-075

FEMALE BSP THREAD:

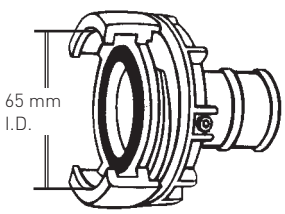
Dim.	Part No. Brass	Part No. Aluminium
1.1/2"	2840-038	2940-038
2"	2840-050	2940-050
2.1/2"	2840-063	2940-063
3"	2840-075	2940-075

Lock 1



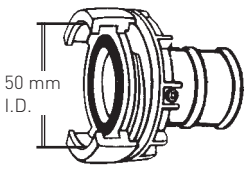
1.1/2", 2.1/2" and 3"

Lock 2
Only available in brass



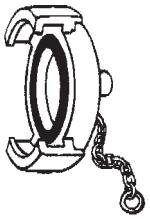
1.1/4", 1.1/2" and 2"

Lock 3

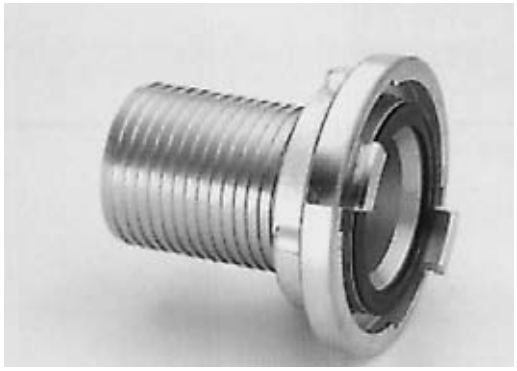


1", 1.1/4" and 1.1/2"

Blind cover Lock 1
Brass Part No. 2850-1
Aluminium Part No. 2950-1



Locking Key Part No. 2810 for locks 1-2-3



QUICK RELEASE COUPLINGS STORZ

Construction: Storz brass and aluminum quick release couplings are available in 4 sizes, locks A, B, C and D. Part numbers below apply to Lock C, which is the most commonly used lock size. BSP Thread.

Applications: Special coupling for fire hoses and fire equipment.

Inner distance between the lugs:
Lock A: 133 mm
Lock B: 89 mm
Lock C: 66 mm
Lock D: 31 mm

Hose tail:
Lock A: 4'', 110 mm
Lock B: 1.1/2'', 2'', 2.1/2'', 3''
Lock C: 1'', 1.1/4'', 1.1/2'', 2''
Lock D: 1''

HOSE TAIL:

Dim.	Part No. Brass	Part No. Aluminium
1"	3820-025	3920-025
1.1/4"	3820-032	3920-032
1.1/2"	3820-038	3920-038
2"	3820-050	3920-050

Inner distance between the lugs:
Lock A: 133 mm
Lock B: 89 mm
Lock C: 66 mm
Lock D: 31 mm

Male thread:
Lock A: 4''
Lock B: 1.1/2'', 2'', 2.1/2'', 3''
Lock C: 1'', 1.1/2'', 2''
Lock D: 1''

MALE BSP THREAD:

Dim.	Part No. Brass	Part No. aluminium
1"	3830-025	3930-025
1.1/2"	3830-038	3930-038
2"	3830-050	3930-050

Inner distance between the lugs:
Lock A: 133 mm
Lock B: 89 mm
Lock C: 66 mm
Lock D: 31 mm

Female thread:
Lock A: 4''
Lock B: 2'', 2.1/2'', 3''
Lock C: 1.1/2'', 2''
Lock D: 1''

FEMALE BSP THREAD:

Dim.	Part No. Brass	Part No. aluminium
1.1/2"	3840-038	3940-038
2"	3840-050	3940-050

Inner distance between the lugs:
Lock A: 133 mm
Lock B: 89 mm
Lock C: 66 mm
Lock D: 31 mm

BLIND COVER:

Dim.	Part No. Brass	Part No. aluminium
1'' - 2"	3850	3950

Locking Key: Part No. 3960

QUICK RELEASE COUPLINGS «TW» (TANKER) COUPLINGS

Construction: Brass and aluminum «TW» quick release couplings comes with female BSP thread in the coupling and nipple. BUNA N coupling gasket. Vulkolan thread gasket.

Applications: Tanker coupling for tank cars and tank farms for transportation of all types of oils and fuels. Available in stainless steel AISI 316 on request.

COUPLING WITH FEMALE THREAD:

Dim.	Brass	Aluminium	AISI 316
2"	MK-050BR	MK-050AL	MK-050SS
3"	MK-075BR	MK-075AL	MK-075SS
4"	MK-100BR	MK-100AL	MK-100SS

NIPPLE WITH FEMALE THREAD:

Dim.	Brass	Aluminium	AISI 316
2"	VK-050BR	VK-050AL	VK-050SS
3"	VK-075BR	VK-075AL	VK-075SS
4"	VK-100BR	VK-100AL	VK-100SS

DUST PLUG:

Dim.	Polyamide	Chain
2"	VB-050	TV-007
3"	VB-075	
4"	VB-100	

DUST CAP:

Dim.	Brass	Aluminium	AISI 316
2"	MB-050BR	MB-050AL	MB-050SS
3"	MB-075BR	MB-075AL	MB-075SS
4"	MB-100BR	MB-100AL	MB-100SS

GASKET:

Dim.	Coupling Gasket	Thread Gasket
2"	PO-050	VD-050
3"	PO-075	VD-075
4"	PO-100	VD-100

TW tanker couplings can be mounted on the hose with all-round couplings with aluminium safety clamps - Part No. 7830.

CLAW COUPLINGS
European Standard
Material quality: Galvanized Malleable Iron
Working pressure: Max 10 bar at 20°C

Dim.	42 mm Standard Gasket Part No.	Connection	42 mm Heat Resistant Gasket Part No.	Connection	61 mm Standard Gasket Part No.	Connection
1/4"	KAG-06	1/4" Male BSP	KIG-06	1/4" Female BSP	SKG-06	1/4" Hose I.D.
3/8"	KAG-10	3/8" Male BSP	KIG-10	3/8" Female BSP	SKG-10	3/8" Hose I.D.
1/2"	KAG-13	1/2" Male BSP	KIG-13	1/2" Female BSP	SKG-13	1/2" Hose I.D.
3/4"	KAG-19	3/4" Male BSP	KIG-19	3/4" Female BSP	SKG-19	3/4" Hose I.D.
1"	KAG-25	1" Male BSP	KIG-25	1" Female BSP	SKG-25	1" Hose I.D.
	KAG-32	1.1/4" Male BSP	KIG-32	1.1/4" Female BSP	SKG-32	1.1/4" Hose I.D.

Dim.	Large (62 mm Claw Distance) Part No.	Connection	Large (62 mm Claw Distance) Part No.	Connection	Large (62 mm Claw Distance) Part No.	Connection
1.1/4"	SKAG-32	1.1/4" Male BSP	SKIG-32	1.1/4" Female BSP	SSKG-32	1.1/4" Hose I.D.
1.1/2"	SKAG-38	1.1/2" Male BSP	SKIG-38	1.1/2" Female BSP	SSKG-38	1.1/2" Hose I.D.

42 mm Standard Gasket Part No.	42 mm Heat Resistant Gasket Part No.	61 mm Standard Gasket Part No.
GOOR	DGOR	SGOR

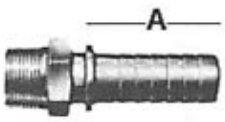
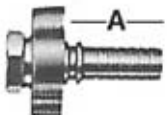
CLAW COUPLINGS «AIR KING»
American Standard
«Chicago Dixon»
Working Pressure: Max 10 Bar at 20°C

TYPE			Dim.	Malleable Cast Iron Part No.	Brass Part No.	Stainless Steel AISI316L Part No.
Female NPT	2 Claws		1/4''	UF-025	UF-025BR	
			3/8''	UF-037	UF-037BR	
			1/2''	UF-050	UF-050BR	UF-050SS
			3/4''	UF-075	UF-075BR	UF-075SS
			1''	UF-100	UF-100BR	UF-100SS
	4 Claws		1.1/4''	UF-125	UF-125BR	
			1.1/2''	UF-150	UF-150BR	
			2''	UF-200	UF-200BR	
Hose Tail	2 Claws		1/4''	UH-025	UH-025BR	
			3/8''	UH-037	UH-037BR	
			1/2''	UH-050	UH-050BR	UH-050SS
			5/8''	UH-062	UH-062BR	
			3/4''	UH-075	UH-075BR	UH-075SS
			1''	UH -100	UH-100BR	UH-100SS
	4 Claws		1.1/4''	UH-125	UH-125BR	
			1.1/2''	UH-150	UH-150BR	
			2''	UH-200	UH-200BR	
Male NPT / 2 Claws			1/4''	UM-025	UM-025BR	
			3/8''	UM-037	UM-037BR	
			1/2''	UM-050	UM-050BR	UM-050SS
			3/4''	UM-075	UM-075BR	UM-075SS
			1''	UM-100	UM-100BR	UM-100SS
Blind Cap / 2 Claws			1/4'' - 1''	UD - 301	UD - 301BR	UD - 301SS
Three-way Claw / 2 Claws			1/4'' - 1''	UW - 300	UW - 300BR	

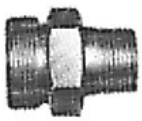
Safety Clip Steel	Safety Clip SPF-175 w/ 150 mm Brass Chain and Ring	Small Gasket	Large Gasket
			
Part No.: SPF - 175	**Part No.: SPF-175-150**	**SBR Rubber: Part No.: UG Neoprene Rubber: Part No.: UGS**	**Part No.: UG - 201**

Use of the safety clip is necessary to ensure that the "Air King" claw coupling is not disconnected by accident. Use of the safety clip guarantees that the couplings are connected correctly, as the safety clips are otherwise unable to be put in. The use of "Whip-Check" safety wire over the couplings to avoid damage to personnel and equipment as a result of inappropriate use is recommended.

DIXON
«BOSS GROUND JOINT SEAL»
Applications: Air, water, steam, liquid gases etc

Hose I.D.	Thread NPTF	A mm	 Coupling w/ Male Thread		 Coupling w/ Wing Nut and Female Spud		 Female Spud	
			Ad. Cast Iron Part No.	Bronze UNS 83600 Part No.	Malleable Iron Part No.	Bronze UNS 83600 Part No.	Ad. Cast Iron Part No.	Bronze UNS 83600 Part No.
1/2''	1/2''	42	NI-08		HI-08		HPG-8	
3/4''	3/4''	60	NI-12	NI-12BR	HI-12	HI-12BR	HPG-12	HPG-12BR
1''	1''	69	NI-16	NI-16BR	HI-16	HI-16BR	HPG-16	HPG-16BR
1.1/4''	1.1/4''	90	NI-20	NI-20BR	HI-20	HI-20BR	HPG-20	HPG-20BR
1.1/2''	1.1/2''	94	NI-24	NI-24BR	HI-24	HI-24BR	HPG-24	HPG-24BR
2''	2''	103	NI-32	NI-32BR	HI-32	HI-32BR	HPG-32	HPG-32BR
2.1/2''	2.1/2''	114	NI-40		HI-40		HPG-40	
3''	3''	129	NI-48	NI-48BR	HI-48		HPG-48	
4''	4''	149	NI-64		HI-64		HPG-64	

DIXON
«BOSS» ADAPTORS AND SPARE PARTS BRONZE

Male Thread NPTF	 Adaptor Bronze UNS 95200 Part No.	 Male spud Bronze UNS 95200 Part No.	 Double Spud Bronze UNS 83600 Part No.	 Nut Bronze UNS 83600 Part No.
3/4''	GMA-12BR	WM-12BR	DB-12BR	BB-12BR
1''	GMA-16BR	WM-16BR	DB-16BR	BB-16BR
1.1/4''	GMA-20BR			BB-20BR
1.1/2''	GMA-24BR	WM-24BR	DB-24BR	BB-24BR
2''	GMA-32BR	WM-32BR	DB-32BR	BB-32BR

COUPLINGS FOR TANKER HOSES, GAS HOSES ETC.

All-round Couplings w/ Aluminium Safety Clamps

Interchangeable Couplings for Tanker and Fuel Hoses

Hose I.D.	Thread BSP	Female BSP Part No. 7820	Male BSP Part No. 7830	Hose I.D.	Thread BSP	Female BSP Part No. 7801	Female Male Part No. 7802
1.1/4''	1.1/4''	-20-20	-20-20	5/8''	3/4''	-10-12	
1.1/2''	1.1/2''	-24-24	-24-24	3/4''	3/4''	-12-12	-12-12
1.1/2''	2''	-24-32	-24-32	3/4''	1''	-12-16	-12-16
2''	2''	-32-32	-32-32	1''	1''	-16-16	-16-16
2.1/2''	2.1/2''	-40-40	-40-40	1''	1.1/4''	-16-20	
3''	3''	-48-48	-48-48	1.1/4''	1.1/4''	-20-20	-20-20
4''	4''	-64-64	-64-64	1.1/2''	1.1/2''	-24-24	-24-24

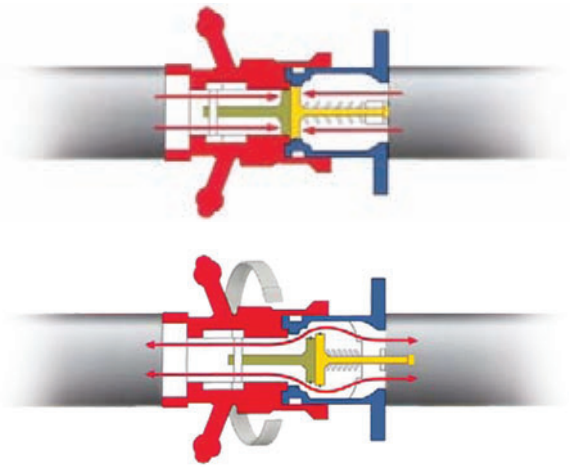
Other dimensions on request.

DRY BREAK COUPLINGS
For safe fluid handling

FOR SAFE FLUID HANDLING
In sizes from 1" to 6" and a wide range of material options, Dry-Break® couplings offer advanced fluid handling solutions for a diverse range of industries.

Major offshore exploration, chemical, pharmaceutical and petro chemical companies rely on Dry break couplings to safely transfer their most aggressive or valuable products.

Designed for safe and easy use with minimum operator intervention. Dry break couplings offer an unbeatable combination of technical, safety and performance features.



CERTIFICATES / APPROVALS
- • Vd-TÜV type approval, mark TÜ.AGG.162-93 towards ADR, RID, IMDG and VDI-rules 2440, part 3.3.1.3.
- • CE-marked, European directives 97/23/EC (PED) and 94/9/EC (ATEX) compliant.
- • TDT approval, mark TDT-UW-30/09 towards ADR/RID in Poland.
- • Manufactured under EN ISO 9001:2000.
- • Certified towards ISO 14001:2004 and OHSAS 18001:2007.
- • Manufactured towards EN 13480 and EN 13445.

13

FEATURES
- Valves open and close automatically on connection and disconnection.
- Simple single action operation, no levers or switches to operate.
- Valves are guaranteed closed prior to disconnection.
- Minimal residual loss on disconnection (e.g. maximum 0.35cc for 2" DN50).
- Will connect and disconnect under pressure and flow where necessary.
- Extremely reliable, very few moving parts.
- Robust construction, no external operational components.
- Available with selectivity system to prevent cross contamination.
- Reduces spillages to virtually zero.
- Dramatically improves both operational and fugitive emission performance.
- Reduces the possibility of human error in transfer operations.
- Improves efficiency.

DRY BREAK COUPLINGS ARE AVAILABLE WITH COLOR AND MECHANICAL CODING

HOW IT WORKS
Turning the hose unit 15° clockwise locks the units together. The valves are still closed and are not opened until a further rotation of 90° has been performed and then the product flow is guaranteed. To close the valve and to unlock the units, reverse the procedure.

DRY BREAK COUPLING 1.1/2" (70 mm)

Materials: Aluminium, gunmetal and stainless steel 316L, other on request.
Seals: FKM (Viton®), NBR (Nitrile), EPDM, Chemraz®, Kalrez®. Other materials on request.
Working pressure: PN 10 - PN 25.
Test pressure: Working pressure +50%.
Safety factor: 5:1.
End connections: BSP- and NPT-threads. DIN-, ASA-, TW- and TTMA-flanges (available for both tank and hose units). Other threads and flanges on request.
Compatibility: NATO STANAG 3756.
Description: Dry-Break couplings in 1" size are designed for smaller bore applications where compact dimensions are required. One handed operation, high flow rate and minimal release on disconnection make dry break couplings perfect for transferring high value or sensitive medias with confidence.

	Hose Unit		Tank Unit, Thread		Tank Unit, Flange		Dust Plug	Dust Cap
			70 mm socket		70 mm socket			
Connection	Thread BSP Part No.	Thread NPSF Part No.	Thread BSP Part No.	Thread NPSF Part No.	150 lbs. ANSI B 16.5 Part No.	DIN 2632 PN 10/16 Part No.	Part No.	Part No.
1.1/2" (DN 40)	5005-2307	5803-2307	5001-2207	5801-2207	5025-2207	5113-2207	6075-2007	6070-2407
2" (DN 50)	5006-2307	5804-2307	5002-2207	5802-2207	5109-2207	5114-2207	6075-2007	6070-2407

DRY BREAK COUPLING 2.1/2" (105 mm)

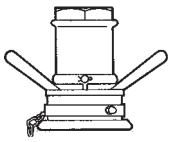
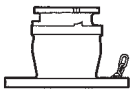
Materials: Aluminium, gunmetal and stainless steel 316L, other on request.
Seals: FKM (Viton®), NBR (Nitrile), EPDM, Chemraz®, Kalrez®. Other materials on request.
Working pressure: PN 10 - PN 25.
Test pressure: Working pressure +50%.
Safety factor: 5:1.
End connections: BSP- and NPT-threads. DIN-, ASA-, TW- and TTMA-flanges (available for both tank and hose units). Other threads and flanges on request.
Compatibility: NATO STANAG 3756.
Description: The 2½" TODO-MATIC® coupling is generally used in road tanker and aviation applications transferring a variety of liquids and vapours.

	Hose Unit		Tank Unit, Thread		Tank Unit, Flange		Dust Plug	Dust Cap
			105 mm socket		105 mm socket			
Connection	Thread BSP Part No.	Thread NPSF Part No.	Thread BSP Part No.	Thread NPSF Part No.	150 lbs. ANSI B 16.5 Part No.	DIN 2632 PN 10/16 Part No.	Part No.	Part No.
2.1/2" (DN 65)	5332C2307	5808C2307	5331C2207	5807C2207	5306C2207	5329C2207	5436-2207	5435C2407
3" (DN 80)	5432C2307	5810C2307	5431C2207	5809C2207	5405C1107	5340C2207	5436-2207	5435C2407

SELECTIVITY:
To avoid incorrect installation or product mix-up, selectivity is available on request.

DRY BREAK COUPLING 3" (119 mm)

Materials: Aluminium, gunmetal and stainless steel 316L, other on request.
Seals: FKM (Viton®), NBR (Nitrile), EPDM, Chemraz®, Kalrez®. Other materials on request.
Working pressure: PN 10 - PN 25.
Test pressure: Working pressure +50%.
Safety factor: 5:1.
End connections: BSP- and NPT-threads. DIN-, ASA-, TW- and TTMA-flanges (available for both tank and hose units). Other threads and flanges on request.
Compatibility: NATO STANAG 3756.
Description: A true 3" coupling, similar in size to the 2½" but with greater flow. Typically used for road and rail tank loading / discharge, in plant chemical transfers etc. Tough construction, ease of handling, no spillage and high flow made this coupling form the natural choice for N.A.T.O refuelling standardisation.

Connection	Hose Unit		Tank Unit, Thread		Tank Unit, Flange		Dust Plug	Dust Cap
			 119 mm socket		 119 mm socket			
	Thread BSP Part No.	Thread NPSF Part No.	Thread BSP Part No.	Thread NPSF Part No.	150 lbs. ANSI B 16.5 Part No.	DIN 2632 PN 10/16 Part No.	Part No.	Part No.
3" (DN 80)	5532C2307	5812C2307	5531C2207	5811C2207	5505C1107	5544C2207	5536-2207	5535C2407

SELECTIVITY:
To avoid incorrect installation or product mix-up, selectivity is available on request.

DRY BREAK COUPLING 4" (164 mm)

Materials: Aluminium, gunmetal and stainless steel 316L, other on request.
Seals: FKM (Viton®), NBR (Nitrile), EPDM, Chemraz®, Kalrez®. Other materials on request.
Working pressure: PN 10 - PN 25.
Test pressure: Working pressure +50%.
Safety factor: 5:1.
End connections: BSP- and NPT-threads. DIN-, ASA-, TW- and TTMA-flanges (available for both tank and hose units). Other threads and flanges on request.
Compatibility: NATO STANAG 3756.
Description: Without exception, the most compact, light weight, high flow 4" self sealing coupling system available. Used extensively for offshore ship to rig transfers of fuels and drinking water, aviation fuel bunkering, rail tank loading / discharge, chemicals etc. Rapid, positive connection and disconnection make dry break couplings the standard for barge to ferry re-fuelling and multiple rail tank discharge.

Connection	Hose Unit w/ VITON Gasket		Hose Unit w/ Nitrile Gasket		Tank Unit Thread		Tank Unit Flange		Dust Plug	Dust Cap
					 164 mm socket		 164 mm socket			
	Thread BSP Part No.	Thread NPSF Part No.	Thread BSP Part No.	Thread NPSF Part No.	Thread BSP Part No.	Thread NPSF Part No.	150 lbs. ANSI B 16,5 Part No.	DIN 2632 PN 10/16 Part No.	Part No.	Part No.
4" (DN 100)	5632D1307	5832D1307	5632D1306	5832D1306	5631-1107	5831-1107	5600-1107	5995-1107	5636-100	5635-1307

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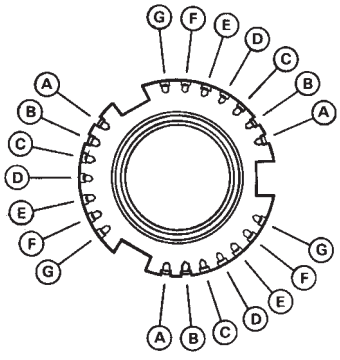
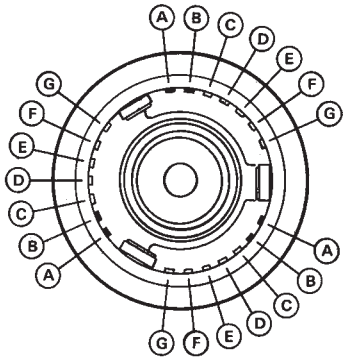
SELECTIVITY:
To avoid incorrect installation or product mix-up, selectivity is available on request.

Selective position					1	2	3	4	5	6	7	8
Peg and slot position				A & B	A & C	A & D	A & E	A & F	A & G	B & C	B & D	
9	10	11	12	13	14	15	16	17	18	19	20	21
B & E	B & F	B & G	C & D	C & E	C & F	C & G	D & E	D & F	D & G	E & F	E & G	F & G

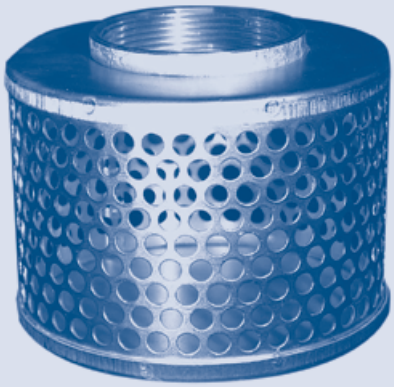


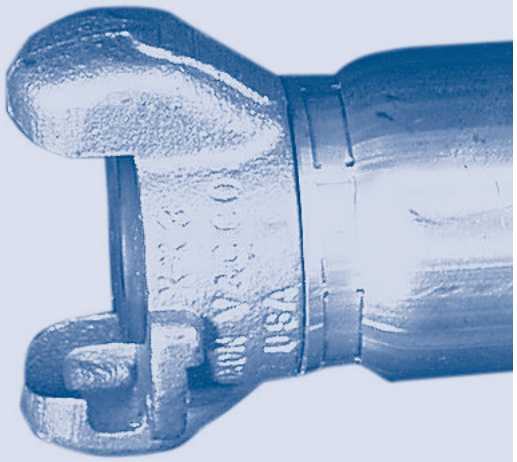
Tank Unit

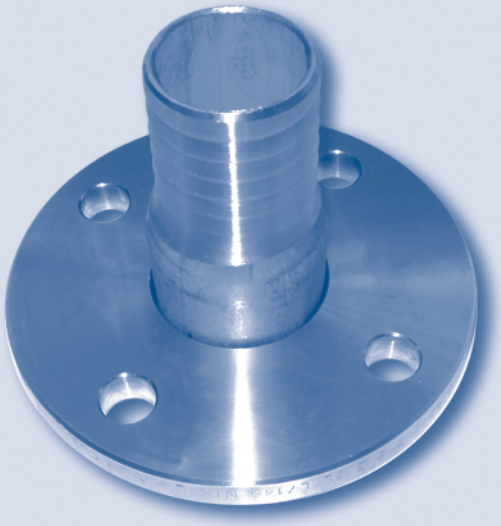
Selective pin and slot position



Hose Unit







Group 15

Inserts for Low-pressure Hoses

FLUID CONTROL®

«KING COMBINATION» NIPPLES
Type KCN

Construction:

Hose nipples w/ thread:	Black cadmium-plated steel
Stainless steel hose nipples:	Pipe, AISI 316
Hose nipples w/ butt-weld end:	Seamless unprocessed black steel

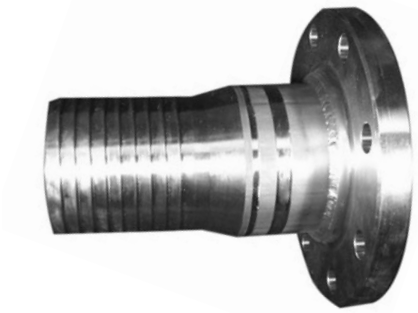
For stainless steel, add SS after Part No.
Other dimensions, types and material qualities on request.

For Hose I.D. / NPT and BSP Male Thread	Length Hose Tail mm	Butt-weld End O.D. mm	 NPT Thread Cadmium-plated steel Part No.	 BSP Thread Cadmium-plated steel Part No.	 Butt-weld End Part No.
1/2"	40	21.3	KCN-013NPT	KCN-013BSP	KCN-013WN
3/4"	40	26.9	KCN-019NPT	KCN-019BSP	KCN-019WN
1"	42	33.4	KCN-025NPT	KCN-025BSP	KCN-025WN
1.1/4"	42	42.2	KCN-032NPT	KCN-032BSP	KCN-032WN
1.1/2"	54	48.3	KCN-038NPT	KCN-038BSP	KCN-038WN
2"	64	60.3	KCN-050NPT	KCN-050BSP	KCN-050WN
2.1/2"	64	73.0	KCN-063NPT	KCN-063BSP	KCN-063WN
3"	86	88.9	KCN-075NPT	KCN-075BSP	KCN-075WN
4"	99	114.3	KCN-100NPT	KCN-100BSP	KCN-100WN
5"	120	141.3	KCN-125NPT	KCN-125BSP	KCN-125WN
6"	150	168.3	KCN-150NPT	KCN-150BSP	KCN-150WN
8"	194	219.1	KCN-200NPT	KCN-200BSP	KCN-200WN
10"	196	273.0	KCN-250NPT	KCN-250BSP	KCN-250WN
12"	235	323.8	KCN-300NPT	KCN-300BSP	KCN-300WN

FERRULE - INDUSTRIAL
Type RRH

Material quality: Stainless steel AISI 316L
Other types on request.

Hose I.D.	I.D. mm	Length mm	Part No.	Hose I.D.	I.D. mm	Length mm	Part No.
1/2"	23.9	45	RRH-02445	2"	70.1	70	RRH-07070
3/4"	35.0	55	RRH-03555	2"	70.1	110	RRH-070110
3/4"	35.0	70	RRH-03570	3"	100.0	90	RRH-10090
1"	40.0	70	RRH-04050	4"	114.0	105	RRH-114105
1"	40.5	80	RRH-04080	4"	125.0	105	RRH-125105
1"	44.0	80	RRH-04480	5"	150.0	140	RRH-150140
1.1/2"	53.0	60	RRH-05360	6"	161.5	150	RRH-162150



WELDED FLANGED HOSE SPIGOTS
150 lbs - ANSI B16,5 - Type FHSA
DIN 2632/33 - NT 10/16 - Type FHSD

Nom. Pipe Dim.		O.D. Flange		Hole Centerline		No. of Holes		Hole Diameter		Hose Tail w/ ANSI Flange Part No FHSA	Hose Tail w/ DIN Flange Part No. FHSA
inch	mm	ASA inch	DIN mm	ASA inch	DIN mm	ASA inch	DIN mm	A mm	B mm		
1/2	15	3.½	95	2.3/8	65	4	4	5/8	14	-015	-015
3/4	20	3.7/8	105	2.3/4	75	4	4	5/8	14	-020	-020
1	25	4.¼	115	3.1/8	85	4	4	5/8	14	-025	-025
1¼	32	4.5/8	140	3.½	100	4	4	5/8	18	-032	-032
1½	40	5	150	3.7/8	110	4	4	5/8	18	-040	-040
2	50	6	165	4.3/4	125	4	4	3/4	18	-050	-050
2.½	65	7	185	5.½	145	4	4	3/4	18	-063	-063
3	80	7.½	200	6	160	4	8	3/4	18	-075	-075
4	100	9	220	7.½	180	8	8	3/4	18	-100	-100
5	125	10	250	8.½	210	8	8	7/8	18	-125	-125
6	150	11	285	9.½	240	8	8*	7/8	22	-200	-200
10	250	16	395	14.¼	350	12	12	1	22	-250	-250
12	300	17	445	17	400	12	12	1	22	-300	-300

*NT 16 - 12 holes

DIXON
STEEL HOSE
MENDER
TYPE HMC

Material quality: Cadmium-plated steel

Dimension (inch)	1/4	5/16	3/8	1/2	5/8	3/4	1	1.1/4	1.1/2	2	2.1/2	3	4	5	6	8	10	12
Length in total	70	70	79	90	100	114	114	114	114	118	140	175	205	243	278	360	415	440
Part No. HMC	-006	-008	-010	-013	-016	-019	-025	-032	-038	-050	-063	-075	-100	-125	-150	-200	-250	-300

DIXON
«BOSS» HOSE MENDER

Material quality: Malleable Iron

Dimension	Length Total	Length Hose Grip	Part No.
1/2''	108	46	MI-08
3/4''	146	61	MI-12
1''	175	86	MI-16
1.1/4''	206	87	MI-20
1.1/2''	210	90	MI-24
2''	232	100	MI-32
2.1/2''	264	111	MI-40
3''	302	129	MI-48

DIXON
ROUND HOLE STRAINER

Material quality: Cadmium-plated steel.
To be used with King Combination Nipple (KCN).

NPT Female	Part No.
1.1/2''	RHS-038
2''	RHS-050
2.1/2''	RHS-063
3''	RHS-076
4''	RHS-102
5''	RHS-127
6''	RHS-152
8''	RHS-200

PERMANENTLY ATTACHED SWAGE FITTINGS FOR HOSES INDUSTRIAL RANGE SIZE DIAMETER: 2'' - 12''

Ferrule
Type SF

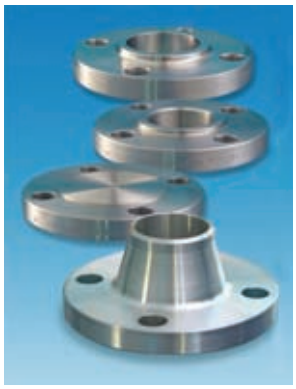
Nipple Male NPT - Type SN
Nipple Male BSP - Type SB
Type SN/SB

Nipple Plain SCH 40
Type SP

Nipple for Victaulic
Type SV

Hose I.D. / Nipple/ Thread	Hose O.D. mm	Hose Tail Length mm	O.D. Victaulic Plain End mm	Ferrule Part No.	Nipple NPT Male Part No.	Nipple BSP Male Part No.	Nipple Plain End Part No.	Nipple for Victaulic Part No.
2''	64-69	86	60,3	SF-050	SN-050	SB-050	SP-050	SV-050
2.1/2''	78-82	105	76,1	SF-063	SN-063	SB-063	SP-063	SV-063
3''	89-97	120	88,9	SF-075	SN-075	SB-075	SP-075	SV-075
4''	117-126	135	114,3	SF-100	SN-100	SB-100	SP-100	SV-100
5''	137-154	160	141,3	SF-125	SN-125	SB-125	SP-125	SV-125
6''	160-182	178	168,3	SF-150	SN-150	SB-150	SP-150	SV-150
8''	215-236	213	219,1	SF-200	SN-200	SB-200	SP-200	SV-200
10''	On request							
12''	On request							

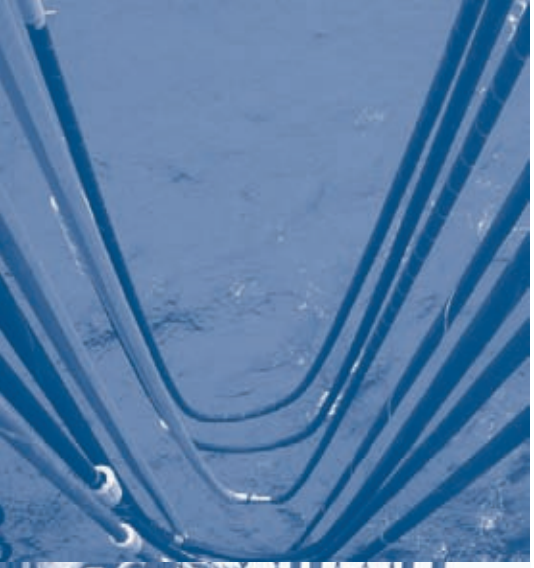
For stainless steel, add SS after Part No.



FLANGE TABLE
According to DIN, NS and ANSI

DN i mm		15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800
DN in inch		1/2"	3/4"	1"	11/4"	11/2"	2"	21/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"
DIN PN 6	Flens yd / Flange yd	80	90	100	120	130	140	160	190	210	240	265	320	375	440	490	540		645			
	Hullsirkel / Pitch	55	65	75	90	100	110	130	150	170	200	225	280	335	395	445	495		600			
	Skrudiam. / Bolt size	10	10	10	12	12	12	12	16	16	16	16	16	16	20	20	20		20			
	Ant.skruer / No.of bolts	4	4	4	4	4	4	4	4	4	8	8	8	12	12	12	16		20			
DIN PN10	Flens yd / Flange yd	95	105	115	140	150	165	185	200	220	250	285	340	395	445	505	565	615	670	780	895	1015
	Hullsirkel / Pitch	65	75	85	100	110	125	145	160	180	210	240	295	350	400	460	515	565	620	725	840	950
	Skrudiam. / Bolt size	12	12	12	16	16	16	16	16	16	16	20	20	20	20	20	27	27	30	27	27	30
	Ant.skruer / No.of bolts	4	4	4	4	4	4	4	8	8	8	8	8	12	16	16	16	20	20	20	24	24
DIN PN16	Flens yd / Flange yd	95	105	115	140	150	165	185	200	220	250	285	340	405	460	520	580	640	715	840	910	1025
	Hullsirkel / Pitch	65	75	85	100	110	125	145	160	180	210	240	295	355	410	470	525	585	650	770	840	950
	Skrudiam. / Bolt size	12	12	12	16	16	16	16	16	16	16	20	20	24	24	24	27	27	30	33	33	36
	Ant. skruer / No. of bolts	4	4	4	4	4	4	4	8	8	8	8	12	12	12	16	16	20	20	20	24	24
DIN PN25	Flens yd / Flange yd	95	105	115	140	150	165	185	200	235	270	300	360	425	485	555	620	670	730	845	960	1085
	Hullsirkel / Pitch	65	75	85	100	110	125	145	160	190	220	250	310	370	430	490	550	600	660	770	875	990
	Skrudiam. / Bolt size	12	12	12	16	16	16	16	16	20	24	24	24	27	27	30	33	33	33	36	39	45
	Ant. skruer / No. of bolts	4	4	4	4	4	4	8	8	8	8	8	12	12	16	16	16	20	20	20	24	24
DIN PN40	Flens yd / Flange yd	95	105	115	140	150	165	185	200	235	270	300	375	450	515	580	660	685	755			
	Hcd / Bcd. Hcd	65	75	85	100	110	125	145	160	190	220	250	320	385	450	510	585	610	670			
	Skrudiam. / Bolt size	12	12	12	16	16	16	16	16	20	24	24	27	30	30	33	36	36	39			
	Ant.skruer / No. of bolts	4	4	4	4	4	4	8	8	8	8	8	12	12	16	16	16	20	20			
DIN PN64	Flens yd / Flange yd	105	130	140	155	170	180	205	215	250	295	345	415	470	530	600	670					
	Hullsirkel / Pitch	75	90	100	110	125	135	160	170	200	240	280	345	400	460	525	585					
	Skrudiam. / Bolt size	12	16	16	20	20	20	20	20	24	27	30	33	33	33	36	39					
	Ant.skruer / No. of bolts	4	4	4	4	4	4	8	8	8	8	8	12	12	16	16	16					
ANSI #150 (PN10)	Flens yd / Flange yd	88,9	98,4	107,9	117,5	127	152,4	177,8	190,5	228,6	254	279,4	342,9	406,4	482,6	533,4	596,9	635	698,5	812,8		
	Hullsirkel / Pitch	60,3	69,8	79,4	88,9	98,4	120,6	139,7	152,4	190,5	215,9	241,3	298,4	361,9	431,8	476,2	539,7	577,8	635	749,3		
	Bolt hull: / Bolthole size:	16	16	16	16	16	19	19	19	19	22	22	22	25	25	29	29	32	32	35		
	Ant.hull: / of holls: No.	4	4	4	4	4	4	4	4	8	8	8	8	12	12	12	16	16	20	20		
ANSI #300 (PN20)	Flens yd / Flange yd	95,2	117,5	123,8	133,3	155,6	165,1	190,5	209,5	254	279,4	317,5	381	444,5	520,7	584,2	647,7	711,2	774,7	914,4		
	Hullsirkel / Pitch	66,7	82,5	88,9	98,4	114,3	127	149,2	168,3	200	234,9	269,9	330,2	387,3	450,8	514,3	571,5	628,6	685,8	812,8		
	Bolt hull: / Bolthole size:	16	19	19	19	22	19	22	22	22	22	22	25	29	32	32	35	35	35	41		
	Ant.hull: / of holls: No.	4	4	4	4	4	8	8	8	8	8	12	12	16	16	20	20	24	24	24		

OTHER FLANGES CAN BE PROVIDED ON REQUEST

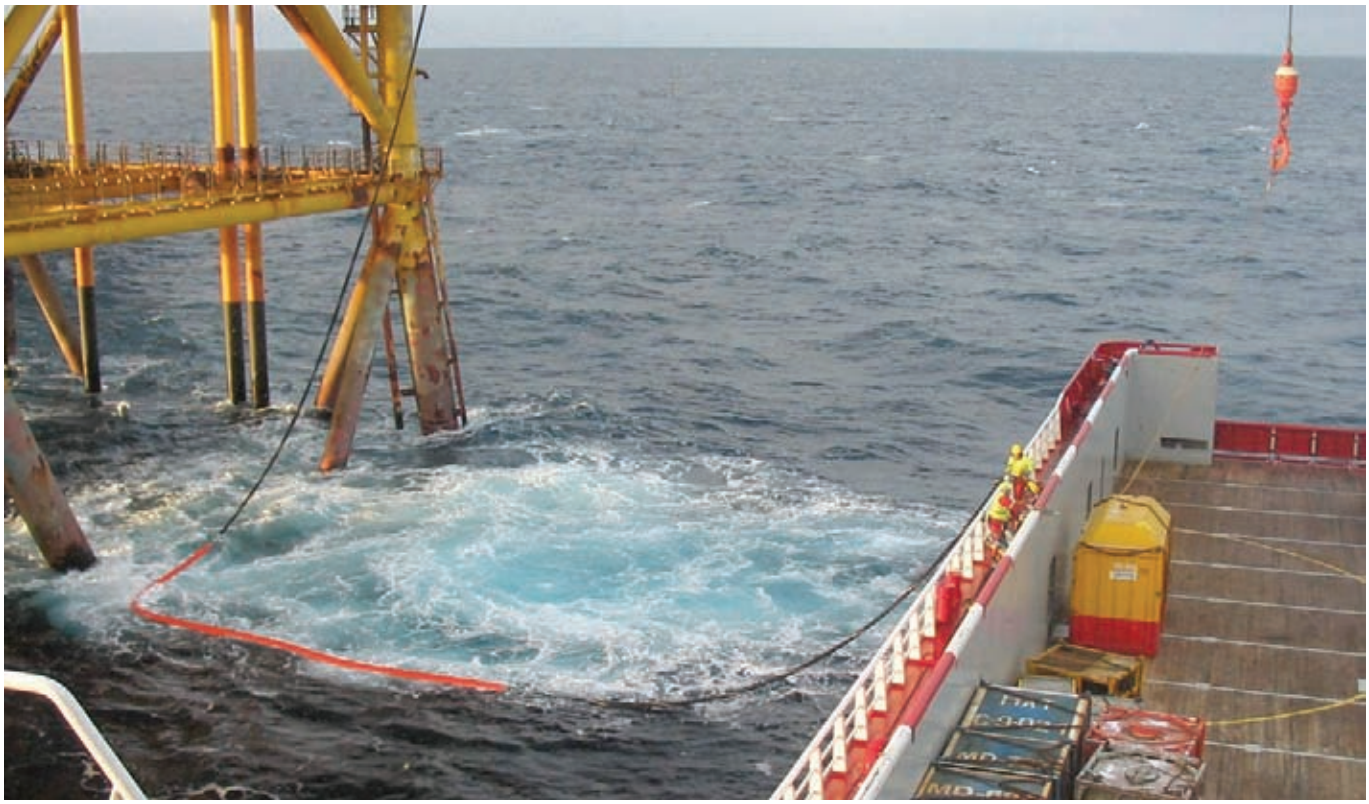


Group 17

Bulk-loading Hoses

FLUID CONTROL®

BULK-LOADING HOSES
- Solutions for the future



Fluid Control delivers the best solution for bulk-loading hoses.

High quality and reuse of parts provide high safety and economy through a long life span.

We also provide easier and more affordable solutions where requirements for quality and durability are less critical.

Self-developed products such as Weak-link, VLF swivel and floating hoses meet today's requirements for safety and quality.

Greater demands when it comes to environmental issues, reliability and downtime, requires continuous development of new and improved solutions.

Long experience and close cooperation with operators, as well as investment in product development has made us a market leader in the field of bulk-loading hoses.

By taking into account future environmental and safety requirements when entering into contracts, we ensure a smooth and economical solution for the customer.

BULK-LOADING HOSES
- Solutions for the future

We have standardized our bulk-loading hoses to consist of three sections; platform, floating and supply boat.

The biggest wear and tear is usually on the platform and supply boat sections. By using noble metals such as AISI 316 and JM7 on hose inserts, break-away couplings and unions, we can use these parts over again a number of times. A repair then consists only of replacing the worn-out rubber hose.

The life span of the metal parts can be up to 5-10 years.

Our largest customers are now consistently using floating hose, break-away coupling and swivel on all its bulk-loading hoses. This has resulted in big savings both when it comes to safety and economy, documented by statistics and reporting.

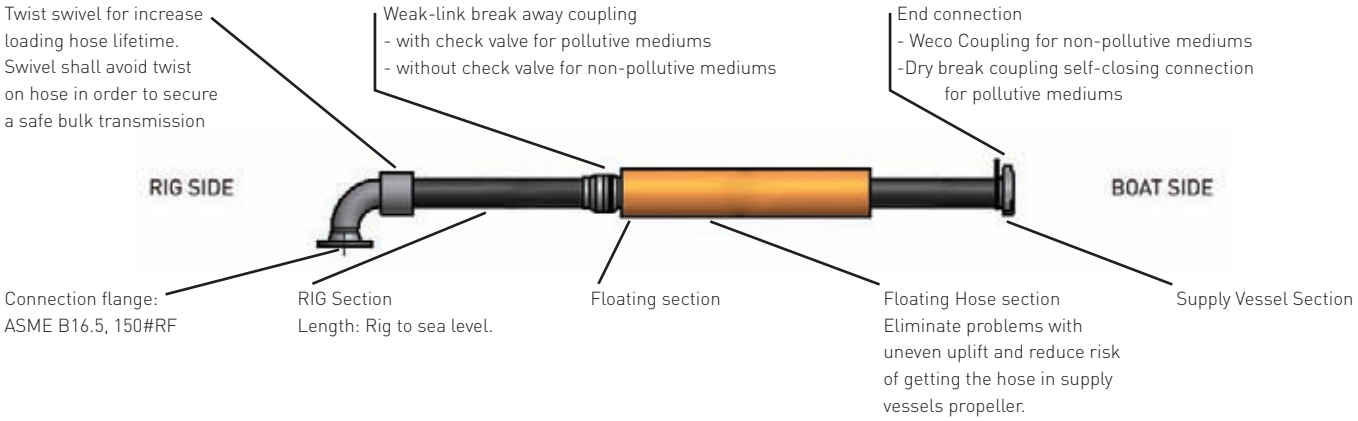
ADVANTAGES:

- HSE Environmental Considerations
- Fewer emissions caused by the boat getting the hose in the propeller.
- Flow tubing provides exceptional visibility in the water, and stable buoyancy, in contrast to conventional floating elements and beads.
- Max 2 liters of emissions when there is a break in the break-away coupling valve.
- Slimline design. No flanges or floating element hang-up.
- Economy
- Significantly less downtime.
- Reuse of metal components.
- Maintenance-free swivel joints and break-away couplings with 10-year warranty.
- Certified and traceable components.

Special Solutions

- Break joints - Weak Link
- Swivels - VLF Original
- Floating Hoses
- Reuse Components with Guaranteed lifetime
- Hose Management Service - "The Environmental Doctor"
- HP Special Fittings
- Special Design by Customer Needs
- Engineering
- Technical Support

THE FLUID CONTROL BULK-LOADING HOSE CONCEPT



- Soft Wall Hose / Hard Wall Hose
- Working Pressure 10 bar / 20 bar / 27 bar / 39 bar

Fluid Control, together with our larger customers, have developed through the years, a unique bulk-loading hose concept to find the best solution in terms of health, safety, environment and economy. In close cooperation with users, we have reached today's solutions.

Our self-developed products provide the best solution in terms of health, safety, environment and economy.

- **Maintenance-free low-friction swivel**
- **"Slimline" break-away coupling with and without valve**
- **Integrated floating hose**
- **"Green profile" with our reuse program**
- **Maintenance program with inspections**

HSE

Fluid Control has designed and developed products and assemblies with respect to health, safety and environment.

- Low friction swivel prevents twisting of the hose that can damage the hose and cause emissions.
- Break-away joint ensures a controlled break and prevents emissions if the hose is subjected to tension.
- All components our bulk-loading hose concept have "slim line" design that prevents a hang up.
- The floating hose´s good visibility and smooth buoyancy minimizes the risk of getting the hose in the propeller.

Green profile and economy

Reuse of all metal parts and components of the floating the hose enables us to use high quality materials to provide the best possible quality of the components. Over a period of some years, it is also a very economical solution since one only replace the worn rubber hose and pressure sleeves.

Our statistics show that the platforms have reduced the consumption of hoses significantly due to the transition to our bulk-loading hose concept. The feedback from ship captains and other users of our bulk hoses is very positive.

Maintenance Program

We that can customize a maintenance program for the bulk-loading hoses with periodic inspections so that undesirable incidents and downtime are kept to a minimum. Preventative maintenance and inspections provide good economy and safety.

SWIVEL
"VLF" Very Low Friction
Butt-weld Ends

Construction: The swivel is designed to obtain a minimum friction when rotating and to prevent twisted hoses.
The swivel is specially designed for bulk-loading hoses will result in a safe and reduced loading time.
The swivel is maintenance free. Its unique design makes it also tight from the outside,
and therefore does not need any lubrication.
Can be delivered with thread, flange or hub. Client to decide.

Material quality: Standard, body and other main parts in stainless steel: AISI 316 / AISI 303.
Other material qualities on request.

Temperature range: -40°C to +150°C

Documentation: Material certificates with traceability acc. DIN 50049-3.1

Applications: The swivel is designed for installation on equipment where rotation takes place,
or where rotation can occur. A twisted hose will prevent the medium to flow through.
The swivel is designed for axial loads.
Maximum radial load is 200 N/m calculated from the swivel center.
Ask for installation instructions for other applications in connection with bulk-loading hoses.

The swivel is included in our reuse program.

# Part No.	ID		OD	L	WP		BP		WT
	mm	inch	mm	mm	bar	psi	bar	psi	kg
SVIVEL-075 SS		3"			60	870	240	3480	
SVIVEL-100 SS	102	4"	178	137	60	870	240	3480	17.2
SVIVEL-125 SS	127	5"	216	149	60	870	240	3480	24.8
SVIVEL-150 SS		6"			60	870	240	3480	
SVIVEL-075 303		3"			60	870	240	3480	
SVIVEL-100 303	102	4"	178	137	60	870	240	3480	17.2
SVIVEL-125 303	127	5"	216	149	60	870	240	3480	24.8
SVIVEL-150 303		6"			60	870	240	3480	

FLOATING HOSE

CONSTRUCTION:
Our own developed fully integrated floating hose is constructed with a buoyancy that satisfies all the standard media used in bulk loading between offshore platforms and supply vessels.
Hose with higher buoyancy may be made to order.
A fully integrated floating hose gives smoother buoyancy, better visibility, optimal flexibility in relation to all conventional floating elements.

The integrated floating hose also eliminates the problem conventional floating elements have that they can displace and cause uneven buoyancy.
This reduces the risk of the hose coming into the vessel propeller.

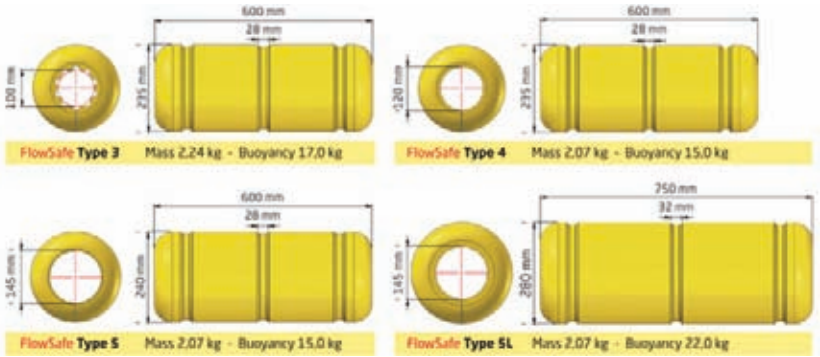
Combined with our own developed swivels, coupling and break-away coupling, this is a solution with high quality and safety.

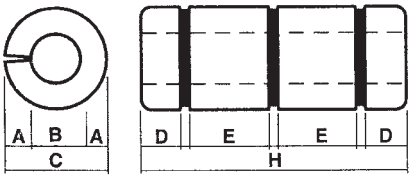
All components of the floating hose is part of our reuse program.

HOSE FLOTATION ELEMENTS "FLOW SAFE"

CONSTRUCTION:
Flow Safe hose flotation device is made of BACELL plastic, an incredibly shock absorbent, strong and elastic material with 100% watertight cells.
In spite of its great strengths is its own weight very low, and the flotation elements have therefore great buoyancy.

APPLICATIONS:
The flotation elements are a cheaper and simpler alternative to a floating hose for transferring fluids between supply boat and offshore installation.
The Flow Safe hose flotation elements help prevent the hose from contact with the vessel an to avoid contact with the propeller.





Hose Size	Part No.	Net Weight kg/dm3	Net Buoyancy kg	A mm	B mm	C mm	D mm	E mm	H mm
3"	FSA-075	0.13	17		100	235			600
4"	FSA-100	0.11	15	56	120	235	80	190	600
5"	FSA-125	0.11	15	58	145	240	100	200	600
5"	FSA-125L	0.11	22		145	280			750

BREAK-AWAY COUPLING WITH VALVE

Construction: Excellent in use for bulkloading systems on offshore installations on ship to ship or ship to shore fluid and bulktransport, which require high demands of safety and environment. The coupling has female NPT thread as standard. Other connections on request. The coupling comes with or without an automatic closing-valve.

Material quality: AISI 316 and AISI 303. Other material qualities on request.

Temperature range: -40°C to +150°C

Break Point: 2.5, 4.0 or 6.0 tons breaking torque as standard. Other breaking torques on request.

Documentation: Material certificates with traceability (NS-EN 10204 3.1).

Applications: The break-away coupling is designed for installation on equipment where a controlled break is necessary when a overload occurs. For equipment that lead polluting media a break-away coupling with automatic closing-valve is recommended to prevent spills. Our own tests show that spill at a break does not exceed 2 liters at 10 bar.

The break-away couplings are part of our reuse program

Part No.	Dimension Inch	Dimension mm	Automatic Closing-valve	Ø max	Length max	Weight
BA097640-100 SS	4"	100	No	150 mm	148 mm	8.5 kg
BA095640-100 SS	4"	100	Yes	160 mm	274 mm	15.4 kg
BA097640-125 SS	5"	125	No	160 mm	178 mm	8.6 kg
BA095640-125 SS	5"	125	Yes	160 mm	274 mm	
BA097640-100 303	4"	100	No	150 mm	148 mm	8.5 kg
BA095640-100 303	4"	100	Yes	160 mm	274 mm	15.4 kg
BA097640-125 303	5"	125	No	160 mm	178 mm	8.6 kg
BA095640-125 303	5"	125	Yes	160 mm	274 mm	

OTHER DIMENSIONS ON REQUEST

BREAK-AWAY COUPLING WITHOUT VALVE

HOSE LIFTERS "HOOK"

Type "Hook"

Size Hose	SWL	Part No.
2"	4 tons	HLK-050
3"	4 tons	HLK-075
4"	4 tons	HLK-100
5"	4 tons	HLK-125
6"	4 tons	HLK-150

Type "Single eye lift"

Size Hose	SWL	Part No. Bronze	Part No. Steel
3"	4 tons	BEL-075	SEL-075
4"	4 tons	BEL-100	SEL-100
5"	4 tons	BEL-125	SEL-125
6"	4 tons	BEL-150	SEL-150

For use as a lifting arrangement on bunkering and loading hoses. Covers the requirements for lifting equipment for use in offshore and shipping.

Material quality:
Aluminium bronze (Spark-free material) and steel. Comes with documentation.

Approvals:
CE approved.

THE HOSE LIFTERS ARE A PART OF OUR REUSE PROGRAM.

HOSE BUN

Construction: Red polyurethane with yellow polyester wrapping straps.

Applications: For use on hoses, cables etc. when bunkering and loading.

Hose Size	Part No.	Length mm	Strap Length mm	Max Load kg	Weight kg
3"	SAD-075	249	775	675	1.13
4"	SAD-100	292	876	1000	1.70
6"	SAD-150	546	990	3600	6.20
8"	SAD-200	762	1270	5400	13.40
10"	SAD-250	1040	1575	7650	23.90

HAMMER LUG UNION
Nickel Aluminium Bronze

Construction: The unions are made according to the same specifications as the standard range. Made of corrosion and spark free material, with approximately the same tensile strength as steel unions.

Alloy: Copper (Cu) 82%, aluminium (AL) 10%, nickel (Ni) 4%, iron (Fe) 4%.

Documentation: Material certificates with traceability (DIN 50049-3.1b).

The Bronze unions are a part of our reuse program.




Type	NPTF Female	Complete Union Part No.	Male Sub. Part No.	Female Sub Part No.	Nut Part No.	Working Pressure PSI/Bar
Fig. 100/200	4''	JM7-400-0	JM7-400-1	JM7-400-2	JM7-400-3	2000/138
Fig. 50	5''	JM7-500-0	JM7-500-1	JM7-500-2	JM7-500-3	500/35

TANK AND BUNKERING HOSE "SOFTWALL" 20 BAR

CONSTRUCTION:

Inside: Black NBR rubber. Resistant to oils with aromatic content up to 55%.

Reinforcement: 4 layer synthetic textile cord with high tensile strength. Max 4% elongation at 17 bar.

Cover: Black CR - Oil, weather, abrasion and ozone resistant. Built-in grounding slit.

Temperature range: -40°C up to +93°C

Description: Heavy bunkering hose for oil installations and ships, where there are requirements for high tear and tensile strength. Suitable for both liquid media and solids. Coil length 61/122m.

#	ID		OD	WT	WP		BP		BR	WT
Part No	mm	inch	mm	mm	bar	psi	bar	psi	mm	kg/m
21612-100	102	4"	116	7	20	290	60	870	820	4.00
21612-125	127	5"	143	8	20	290	60	870	1020	4.99

TANK AND BUNKERING HOSE "HEAVY DUTY SOFTWALL" 27 BAR

CONSTRUCTION:

Inside: Black NBR rubber. Resistant to oils with aromatic content up to 55%.

Reinforcement: 4 layer synthetic textile cord with high tensile strength. Max 4% elongation at 24 bar.

Cover: Black Chemivic - Oil, weather, abrasion and ozone resistant. Built-in grounding slit.

Temperature range: -30°C up to +93°C

Description: Heavy bunkering hose with 9 tons of tension for oil installations and ships, where there is a requirement for extremely high tear and tensile strength. Suitable for both liquid media and solids. Cover is 3.5 x more durable than conventional rubber. Coil length 61/122m.

#	ID		OD	WT	WP		BP		BR	WT
Part No	mm	inch	mm	mm	bar	psi	bar	psi	mm	kg/m
21611-100	102	4"	117	7.5	27	400	81	1200	820	3.99
21611-125	127	5"	145	9	27	400	81	1200	1020	4.99

TANK AND BUNKERING HOSE "HARDWALL" 20 BAR

CONSTRUCTION:

Inside: Black NBR rubber. Resistant to oils with aromatic content up to 55%.

Reinforcement: 4 layer synthetic textile cord with high tensile strength.

Cover: Black CR - Oil, weather, abrasion and ozone resistant.

Temperature range: -30°C up to +93°C

Description: Heavy bunkering hose for oil installations and ships, where there are requirements for high tear and tensile strength. Suitable for both liquid media and solids. Coil length 61m.

#	ID		OD	WT	WP		BP		BR	WT
Part No	mm	inch	mm	mm	bar	psi	bar	psi	mm	kg/m
22613-100	102	4"	119	8.5	20	290	60	870	620	4.75
22613-125	127	5"	148	10.5	20	290	60	870	760	7.09

RIG SUPPLY POTABLE WATER SW 81451 - 20 BAR

CONSTRUCTION:

Tube: White FDA compliant NR. Thickness approx 2.4 mm.
Spirals: None
Cover: Orange EPDM. Thickness approx 1.8 mm.
EL Properties: 1 a/s sire.
Lengths: 61 meters.
Description: High load potable water hose soft wall. 4 ply high tensile textile cord with additional anti static wire. Load at break 8 tons.
Properties: Suitable for potable water, dry food material.

# Part No	ID* mm	OD* mm	WT mm	WP** MPa	BP** MPa	R BR mm	WT kg/m
81451-75	76	92	approx 2.4	2	8	Suitable for reels with core diam. >1200	2.85
81451-100	102	118	approx 2.4	2	8	Suitable for reels with core diam. >1200	3.45

* Tolerances ISO 1307
** Values at 23°C

RIG SUPPLY POTABLE WATER SW 81461 - 10 BAR

CONSTRUCTION:

Tube: White NR. FDA CRF 177:2600
Cover: Orange SBR/EPDM.
Service temperature: -30°C - +70°C.
Lengths tolerances: +/- 5%.
Lengths: 40 meters.
Description: Wrapped mandrel built tube, produced on stainless steel mandrel. 2 polyestercord plies. Fabric patterned cover.
Application: Supply of non-oily edible foods, fresh water and potable water from supply vessel to offshore installation in pre-treated condition Hose shall be flushed and cleaned prior to use following good manufacturing procedures.

# Part No	ID* mm	OD* mm	WT mm	WP** bar	BP** bar	R BR mm	WT kg/m
81461-038	38	52		20	60	10 x ID at 3 bar for all sizes	2.2
81461-075	76	92		10	30	10 x ID at 3 bar for all sizes	3.4
81461-100	102	118		10	30	10 x ID at 3 bar for all sizes	3.8

* Manufacturing tolerances ISO R 1307
** Values at 23°C

PERMANENTLY ATTACHED SWAGE FITTINGS FOR HOSES INDUSTRIAL RANGE SIZE DIAMETER: 2'' - 12''

Ferrule
Type SF

Nipple Male NPT - Type SN
Nipple Male BSP - Type SB
Type SN / SB

Nipple Plain SCH 40
Type SP

Nipple for Victaulic
Type SV

Hose I.D. / Nipple/ Thread	Hose O.D. mm	Hose Tail Length mm	O.D. Victaulic Plain End mm	Ferrule Part No.	Nipple NPT Male Part No.	Nipple BSP Male Part No.	Nipple Plain End Part No.	Nipple for Victaulic Part No.
2''	64-69	86	60,3	SF-050	SN-050	SB-050	SP-050	SV-050
2.1/2''	78-82	105	76,1	SF-063	SN-063	SB-063	SP-063	SV-063
3''	89-97	120	88,9	SF-075	SN-075	SB-075	SP-075	SV-075
4''	117-126	135	114,3	SF-100	SN-100	SB-100	SP-100	SV-100
5''	137-154	160	141,3	SF-125	SN-125	SB-125	SP-125	SV-125
6''	160-182	178	168,3	SF-150	SN-150	SB-150	SP-150	SV-150
8''	215-236	213	219,1	SF-200	SN-200	SB-200	SP-200	SV-200
10''	On request							
12''	On request							

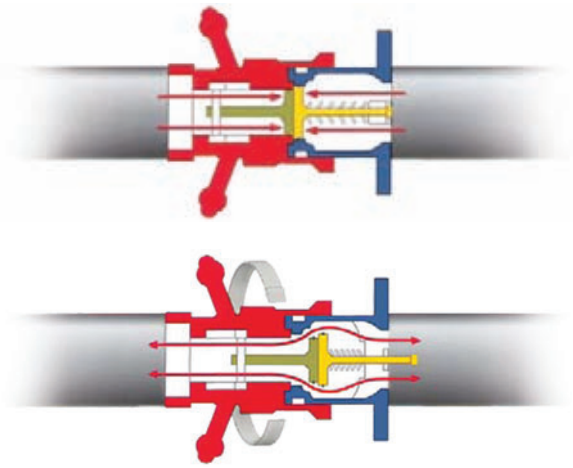
For stainless steel steel, add SS after Part No.

DRY BREAK COUPLINGS
For safe fluid handling

FOR SAFE FLUID HANDLING
In sizes from 1" to 6" and a wide range of material options, Dry-Break® couplings offer advanced fluid handling solutions for a diverse range of industries.

Major offshore exploration, chemical, pharmaceutical and petro chemical companies rely on Dry break couplings to safely transfer their most aggressive or valuable products.

Designed for safe and easy use with minimum operator intervention. Dry break couplings offer an unbeatable combination of technical, safety and performance features.



CERTIFICATES / APPROVALS
- • Vd-TÜV type approval, mark TÜ.AGG.162-93 towards ADR, RID, IMDG and VDI-rules 2440, part 3.3.1.3.
- • CE-marked, European directives 97/23/EC (PED) and 94/9/EC (ATEX) compliant.
- • TDT approval, mark TDT-UW-30/09 towards ADR/RID in Poland.
- • Manufactured under EN ISO 9001:2000.
- • Certified towards ISO 14001:2004 and OHSAS 18001:2007.
- • Manufactured towards EN 13480 and EN 13445.

FEATURES
- Valves open and close automatically on connection and disconnection.
- Simple single action operation, no levers or switches to operate.
- Valves are guaranteed closed prior to disconnection.
- Minimal residual loss on disconnection (e.g. maximum 0.35cc for 2" DN50).
- Will connect and disconnect under pressure and flow where necessary.
- Extremely reliable, very few moving parts.
- Robust construction, no external operational components.
- Available with selectivity system to prevent cross contamination.
- Reduces spillages to virtually zero.
- Dramatically improves both operational and fugitive emission performance.
- Reduces the possibility of human error in transfer operations.
- Improves efficiency.

DRY BREAK COUPLINGS ARE AVAILABLE WITH COLOR AND MECHANICAL CODING

HOW IT WORKS
Turning the hose unit 15° clockwise locks the units together. The valves are still closed and are not opened until a further rotation of 90° has been performed and then the product flow is guaranteed. To close the valve and to unlock the units, reverse the procedure.

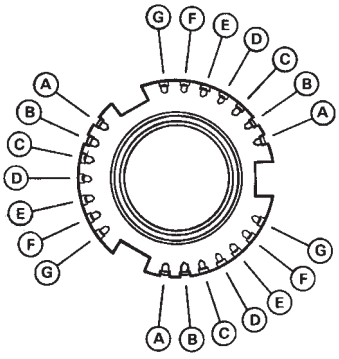
DRY BREAK COUPLING 4" (164 mm)

Materials: Aluminium, gunmetal and stainless steel 316L, other on request.
Seals: FKM (Viton®), NBR (Nitrile), EPDM, Chemraz®, Kalrez®. Other materials on request.
Working pressure: PN 10 - PN 25.
Test pressure: Working pressure +50%.
Safety factor: 5:1.
End connections: BSP- and NPT-threads. DIN-, ASA-, TW- and TTMA-flanges (available for both tank and hose units). Other threads and flanges on request.
Compatibility: NATO STANAG 3756.
Description: Without exception, the most compact, light weight, high flow 4" self sealing coupling system available. Used extensively for offshore ship to rig transfers of fuels and drinking water, aviation fuel bunkering, rail tank loading / discharge, chemicals etc. Rapid, positive connection and disconnection make dry break couplings the standard for barge to ferry re-fuelling and multiple rail tank discharge.

Connection	Hose Unit w/ VITON Gasket		Hose Unit w/ Nitrile Gasket		Tank Unit Thread		Tank Unit Flange		Dust Plug	Dust Cap
					164 mm socket		164 mm socket			
	Thread BSP Part No.	Thread NPSF Part No.	Thread BSP Part No.	Thread NPSF Part No.	Thread BSP Part No.	Thread NPSF Part No.	150 lbs. ANSI B 16,5 Part No.	DIN 2632 PN 10/16 Part No.	Part No.	Part No.
4" (DN 100)	5632D1307	5832D1307	5632D1306	5832D1306	5631-1107	5831-1107	5600-1107	5995-1107	5636-100	5635-1307

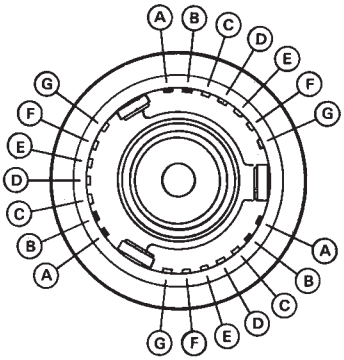
SELECTIVITY:
To avoid incorrect installation or product mix-up, selectivity is available on request.

Selective position					1	2	3	4	5	6	7	8
Peg and slot position				A & B	A & C	A & D	A & E	A & F	A & G	B & C	B & D	
9	10	11	12	13	14	15	16	17	18	19	20	21
B & E	B & F	B & G	C & D	C & E	C & F	C & G	D & E	D & F	D & G	E & F	E & G	F & G

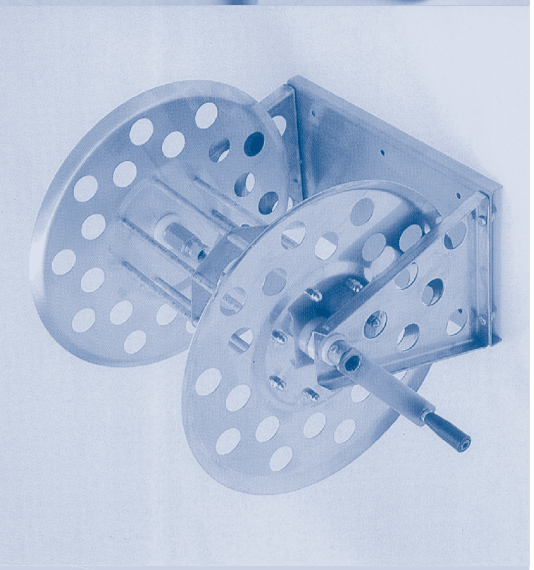


Tank Unit

Selective pin and slot position



Hose Unit

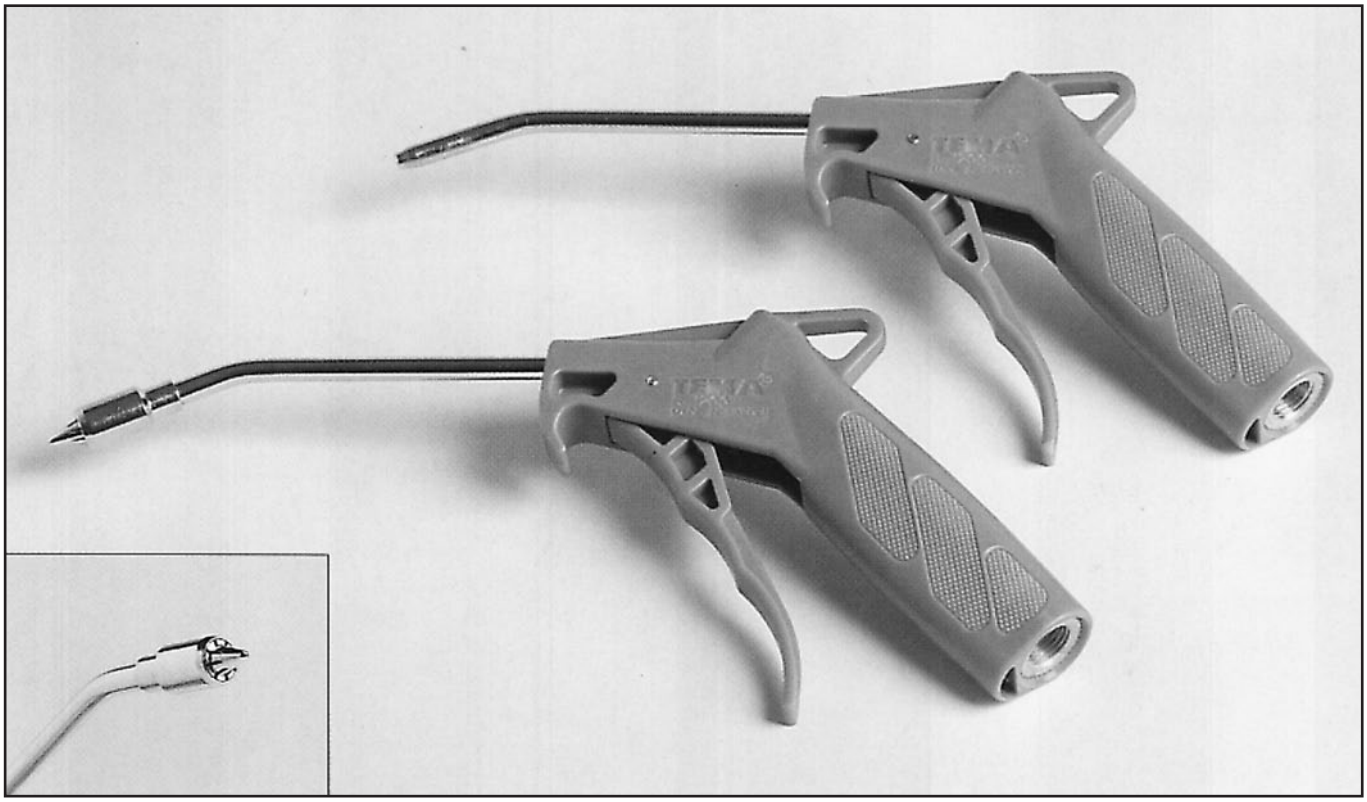


Group 18

Hose Reels
Spray Guns
Spraying Equipment

FLUID CONTROL®

AIR GUN
Tema



Air Gun
- with an effective ventilation system and long lifetime

Tema air gun has been manufactured with a special shut-off valve system. It has soft-starting features and a sealing system that provides frictionless movement of the valve spindle. This gives a long and secure running. All incoming components are corrosion resistant. The pistol handle is very easy to handle, made of impact resistant acetate plastic. The gun, which is available with several sizes of pipe, has several installation options.

PRODUCT BENEFITS:

- Infinitely variable air control
- High efficiency
- Corrosion-resistant components
- Dependable
- Manufactured of shock-proof plastic
- Several ways for hanging up
- Low-noise type available
- Patented design

JET NOZZLES
SPRAY GUN

Chrome-plated brass with rubber coating. Fully adjustable from shut-off.

Hose Tail		Male Thread BSP	
Dim.	**Part No.**	**Dim.**	**Part No.**
1/2''	Minor-13	-	-
3/4''	Minor-19	-	-
1''	Minor-25	1''	Minor-16

UNIFIRE V12 JET NOZZLE

Chrome-plated brass with rubber coating for adjusting the jet from closed to concentrated. Pipes are supplied with plastic covers.
Comes with male thread. Recommended in use with NOR or Storz quick release couplings.

Female Thread BSP	Part No.
1''	V12-025
2''	V12-050

NITO ADJUSTABLE SPRAY NOZZLE

For 1/2'' and 3/4'' hoses.
Part No. 912

«ACTION» WATER WASH-DOWN GUN

Construction: Brass body, rubber-coated for protection against shock and impact.
Applications: Dairies, slaughterhouses, food processing, offshore and onshore industry.
Max. working pressure: 25 bar.
Max, temperature: approx. 80°C.
Capacity: 25l/min.

Female Thread BSP	Part No.
1/2''	NKT-3000

Couplings with transition to 3/4'' and 1'' hose available on request.

Press the trigger lightly for a finely distributed jet of water.

Press the trigger all the way back for a stronger jet.

Stepless setting:
Use a screwdriver to set the desired strength of the jet.

HOSE REEL MODEL 9083

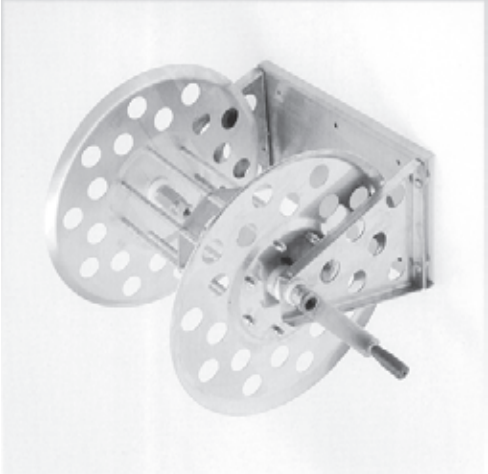
Construction: Painted steel
Automatic pull-back
For mounting on both roof and walls.
Max. working pressure: 200 bar
Temperature range: -10°C to +70°C.
Hose length: 35 meters
Hose dimension: 1/2"

Part No. 9083
Part No. is for reel without hose.

HOSE REEL MODEL SM 120

Construction: Water inlet through the center, stainless steel.
Rewinding hand crank.
Max. pressure: 250 bar
Max. temperature: 150°C
Max. hose length: 3/8" - 100 meters
Weight: 14 kg

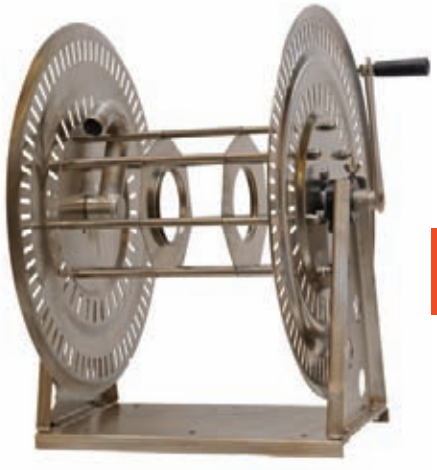
Part no. 9120



HOSE REEL - 91-1801

Construction: Stainless AISI 316. Available with swing bracket.
Max. pressure: 250 bar
Max. hose dia.: 3/4" - 1"
Max. hose length: 3/4" - 50 meters, 1" - 35 meters
Inlet/Outlet: 3/4"F - 1"F
Weight: 14 kg
Swiwel: 1" Stainless

Part no. 91-1801



HOSE REELS
Model 9090 – 9091 – 9092 - 9093

Powder coated steel spring driven hose reel, open type, guide arm variable position series EVO MY10 .Suitable up to max. 25 mt. 1/2 ''.

This series consist of an evolution of the former adjustable guide arms series and features an unique bracket , creating a stronger structural support.
Also mounted a new spring with more spirals . The fluid passage is granted by a new coupling flanged pivot on series zinc plated and on **request in stainless steel AISI 316**

Mod. 9767 - swing bracket for 9090-9091

Mod. 9768 - swing bracket for 9092

Mod. 9758 - swing bracket for 9093

HOSE REELS
Model 9590 – 9591 – 9592 - 9593

Stainless steel spring driven hose reel, open type, guide arm variable position series EVO MY10 .Suitable up to max. 25 mt. 1/2 ''.

This series consist of an evolution of the former adjustable guide arms series and features an unique bracket , creating a stronger structural support.
Also mounted a new spring with more spirals . The fluid passage is granted by a new coupling flanged pivot on series **in stainless steel AISI 316**

Mod. 9760 - swing bracket for 9590- 9591

Mod. 9765 - swing bracket for 9592

Mod. 9775 - swing bracket for 9593

Model	Max. Pressure	Connections In - Out	I.D. Swivel mm	Max Ø Hose	Hose Assembly Capacity Max 3/8 - 1/2	Weight kg	Spool Width mm	Mod. Swing Bracket on Request	Dimensions (X-Z-Y)
9090	600 bar	M 1/2' - F 1/2 '	12	1/2 '	15 mt	12	120	9767	240x550x450
9091	600 bar	M 1/2' - F 1/2 '	12	1/2 '	20 – 15 mt	13	120	9767	240x550x450
9092	600 bar	M 1/2' - F 1/2 '	12	1/2 '	25 – 20 mt	16	150	9768	270x550x450
9093	600 bar	M 1/2' - F 1/2 '	12	1/2 '	25 mt	19	200	9758	310x550x450
9590	200 bar	M 1/2' - F 1/2 '	10	1/2 '	15 mt	12	120	9760	240x550x450
9591	200 bar	M 1/2' - F 1/2 '	10	1/2 '	20 – 15 mt	13	120	9760	240x550x450
9592	200 bar	M 1/2' - F 1/2 '	10	1/2 '	25 – 20 mt	16	150	9765	270x550x450
9593	200 bar	M 1/2' - F 1/2 '	10	1/2 '	25 mt	19	200	9775	310x550x450

Advised hoses for these models according to types of fluid and length.

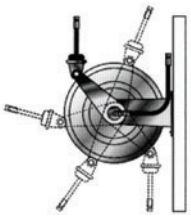
Type of fluid	Ø hose	10 mt	15 mt	20 mt.	25 mt.
Oil / antifreeze	1/2' R1T 160 bar	28710	28715	28720	28725
Grease	1/4' R2T 400 bar	4510	4515	4520	4525
High pressure water	3/8' R2T 330 bar	4710	4715	4720	4725
Air / water	3/8 ' 40 bar	3810	3815	3820	3825

SPRING RETRACTABLE HOSE REELS
Model 9081 – 9082

Spring driven hose-reels **adjustable arms series**, designed for applications requiring length hoses max. 20 mt (1/2" hose).
Reels are standard supplied without hose and it´s compatible with oil, antifreeze, grease, air and water.
For the hose selection see the table at end of page

Mod. 9767 - swing bracket for 9081

Mod. 9768 - swing bracket for 9082



SPRING RETRACTABLE HOSE REELS
Model 9581 – 9582

Spring driven hose-reels made of AISI 304 stainless steel **adjustable arms series**, designed for applications requiring length hoses max. 20 mt (1/2" hose). Reels are standard supplied without hose and it´s compatible with oil, antifreeze, grease, air and water at low and high pressure. For the hose selection see the table at end of page.

Mod. 9760 - swing bracket for 9581

Mod. 9765 - swing bracket for 9582

Model	Max. Pressure	Connections In - Out	I.D. Swivel mm	Max Ø Hose	Hose Assembly Capacity Max 3/8 - 1/2	Weight kg	Spool Width mm	Mod. Swing Bracket on Request	Dimensions (X-Z-Y)
9081	600 bar	M 1/2˝ - F 1/2 ˝	12	1/2 ˝	15 mt	13	120	9767	240x550x450
9082	600 bar	M 1/2˝ - F 1/2 ˝	12	1/2 ˝	20 mt	18	150	9768	260x550x450
9581	200 bar	M 1/2˝ - F 1/2 ˝	12	1/2 ˝	15 mt	13	120	9760	240x550x450
9582	200 bar	M 1/2˝ - F 1/2 ˝	12	1/2 ˝	20 mt	18	150	9765	260x550x450

Advised selection of flexible hoses for the above reels, according to the type of fluid and the work length.

Type of fluid	Ø hose	10 mt	15 mt	20 mt.
Oil / antifreeze	1/2˝ R1T 140 bar	28710	28715	28720
Grease	1/4˝ R2T 400 bar	4510	4515	4520
High pressure water	3/8˝ R2T 400 bar	4710	4715	4720
Compressed Air / water	3/8 ˝ 20 bar	3810	3815	3820

SPRING RETRACTABLE HOSE REELS
Big Series - Model 9085

Hose-reels **twin springs big series**, designed for applications requiring length hoses till 30 mt.
Reels are standard supplied without hose and it´s compatible with oil, antifreeze, diesel, air and water at low pressure.
For the hose selection see the table at end of page

SPRING RETRACTABLE HOSE REELS
Model 9581 – 9582

Hose-reels made of AISI 304 stainless steel twin springs big series, designed for applications requiring length hoses till 30 mt.
Reels are standard supplied without hose and it´s compatible with oil, antifreeze, diesel, air and water at low pressure. For the hose selection see the table at end of page.

Model	Max. Pressure	Connections In - Out	I.D. Swivel mm	Max Ø Hose	Max Hose Length	Weight kg	Spool Width mm	Dimensions (X-Z-Y)
9085	20 bar	M 1˝ - F 1˝	20	1˝	30 mt	50	400	590x650x590
9585	20 bar	M 1˝ - F 1˝	20	1˝	30 mt	50	400	590x650x590

Advised selection of flexible hoses for the above reels, according to the type of fluid and the work length.

Type of fluid	Ø hose	20 mt	25 mt	30 mt.
Oil / antifreeze	3/4" - 20 bar	28920	28925	28930
Compressed Air / water	3/4" - 20 bar	28920	28925	28930
Diesel	3/4" - 20 bar	28920	28925	28930
	1" - 20 bar	289620	289525	289530

SPRING RETRACTABLE HOSE REELS
Model 9029 – 9084

Spring driven hose-reels **adjustable arms series**, designed for applications requiring length hoses max. 10 mt. Reels are standard supplied without hose and it's compatible with diesel, air and water at low pressure.
For the hose selection see the table at end of page.

Mod. 9768 - swing bracket for 9029

Mod. 9777 - swing bracket for 9084

SPRING RETRACTABLE HOSE REELS
Model 9527 – 9534

Spring driven hose-reels made of AISI 304 stainless steel adjustable arms series, designed for applications requiring length hoses max. 10 mt.
Reels are standard supplied without hose and it's compatible with diesel, air and water at low pressure.
For the hose selection see the table at end of page.

Mod. 9765 - swing bracket for 9527

Mod. 9770 - swing bracket for 9534

Model	Max. Pressure	Connections In - Out	I.D. Swivel mm	Max Ø Hose	Hose Assembly Capacity Max 3/8 - 1/2	Weight kg	Spool Width mm	Mod. Swing Bracket on Request	Dimensions (X-Z-Y)
9029	20 bar	M 1" - F 1"	20	1"	10 mt - 8 mt	18	150	9768	270x530x490
9084	20 bar	M 1" - F 1"	20	1"	20 mt - 15 mt	27	150	9777	270x590x600
9527	20 bar	M 1" - F 1"	20	1"	10 mt - 8 mt	18	150	9765	270x530x490
9534	20 bar	M 1" - F 1"	20	1"	20 mt - 15 mt	27	150	9770	270x590x600

Advised selection of flexible hoses for the above reels, according to the type of fluid and the work length.

Type of fluid	Ø hose	8 mt	10 mt	15 mt.	20 mt
Acqua a bassa pressione	3/4'' - 30 bar	18908	18910	18915	18920
Compressed Air / water	3/4'' - 40 bar	39908	39910	39915	39920
Diesel	3/4'' - 17 bar	28808	28810	28815	28820
	1'' - 17 bar	289608	289610	289615	-

Spray Gun - Vega Inox

Part No.	Inlet	Outlet	Weight gr	Weight oz
30.3150.00	3/8 Bsp F	1/4 Bsp F	830	29.2
30.3150.50	3/8 Npt F	1/4 Npt F	830	29.2

High-pressure Spray Gun - Vega

Part No.	Inlet	Outlet	Weight gr	Weight oz
30.2030.00	3/8 Bsp F	1/4 Bsp F	780	27.5
30.2030.80	3/8 Bsp M	1/4 Bsp F	780	27.5
30.2035.00	3/8 Bsp F	1/4 Bsp F	780	27.5

High-pressure Spray Gun - RL 84

Part No.	Inlet	Outlet	Weight gr	Weight oz
30.5400.00	1/2 Bsp F	1/2 Bsp F	1417	50.0

Rated Pressure: 500 bar - 50 MPa 7250 psi
Permissible Pressure: 560 bar - 56 MPa 8100 psi
Rated Flow Rate: 80 l/min 21 USGpm
Rated Temperature: 100 °C - 210 °F
Extensions: 30.5000.40-80-92

Vented Grip - Stainless Steel Tube

Part No.	Length mm	Length inch	Outlet	Weight gr	Weight oz
40.0765.00	700	27.5	1/4 Npt F	550	19.4
40.0965.00	900	35.4	1/4 Npt F	600	21.8
40.1265.00	1200	47.2	1/4 Npt F	900	31.6
40.1565.00	1500	59.0	1/4 Npt F	1060	37.3
40.1765.00	1700	66.9	1/4 Npt F	1120	39.4
40.2065.00	2000	78.7	1/4 Npt F	1250	43.8

COMMON FEATURES
Rated Pressure: 250 bar - 25 MPa - 3650 psi
Permissible Pressure: 280 bar - 28 MPa - 4050 psi
Rated Flow Rate: 40 l/min - 10,5 USGpm
Rated Temperature: 160 °C - 320 °F
Inlet: 1/4 Bsp M

Vented Grip - S3 Zinc-Plated Tube

Part No.	Length mm	Length inch	Outlet	Weight gr	Weight oz
40.0535.00	500	19.7	1/4 Npt F	550	19.4
40.0755.00	700	27.5	1/4 Npt F	620	21.8
40.0955.00	900	35.4	1/4 Npt F	690	24.2
40.1255.00	1200	47.2	1/4 Npt F	1010	35.4
40.1555.00	1500	59.0	1/4 Npt F	1070	41.0
40.1755.00	1700	66.9	1/4 Npt F	1250	43.8
40.2055.00	2000	78.7	1/4 Npt F	1400	49.1

COMMON FEATURES
Rated Pressure: 250 bar - 25 MPa - 3650 psi
Permissible Pressure: 280 bar - 28 MPa - 4050 psi
Rated Flow Rate: 40 l/min - 10,5 USGpm
Rated Temperature: 160 °C - 320 °F
Inlet: 1/4 Bsp M

Lances with tip protector and nozzle holder. 1/8Npt F outlet available on request.

Lance and nozzle holder for RL 84 - RL204

Part No.	Length mm	Length inch	Inlet	Outlet	Weight gr	Weight oz
30.5000.40	400	15.7	1/2 Bsp M	1/4 Npt F	865	30.40
30.5000.80	800	31.5	1/2 Bsp M	1/4 Npt F	1480	52.50
30.5000.92	1250	50	1/2 Bsp M	1/4 Npt F	2150	76.40
30.5018.51			Nipple 1/2 Bsp M	1/4 Npt F	55	2.00
	Nozzle holder					

Material: Stainless steel

UR25 - Rotating nozzle 1/4 Bsp F - 250 bar

Part No.	Nozzle Size	Inlet	Weight gr	Weight oz
25.1620.30	03	1/4 Bsp F	410	14.46
25.1620.35	035	1/4 Bsp F	410	14.46
25.1620.40	04	1/4 Bsp F	410	14.46
25.1620.45	045	1/4 Bsp F	410	14.46
25.1620.50	05	1/4 Bsp F	410	14.46
25.1620.55	055	1/4 Bsp F	410	14.46
25.1620.60	06	1/4 Bsp F	410	14.46
25.1620.65	065	1/4 Bsp F	410	14.46
25.1620.70	07	1/4 Bsp F	410	14.46
25.1620.80	07	1/4 Bsp F	410	14.46

COMMON FEATURES

Min. operating pressure: 80 bar - 8 MPa - 1150 psi
Rated Pressure: 250 bar - 25 MPa - 3650 psi
Min. flow rate: 6 (03 - 80 bar) l/min - 1,6 (03 - 1150 psi) USGpm
Max. flow rate: 29 (08 - 250 bar) l/min - 7,7 (08 - 3650 psi) USGpm
Rated Temperature: 100 °C - 212 °F
Min. operating temperature: 5 °C - 41 °F

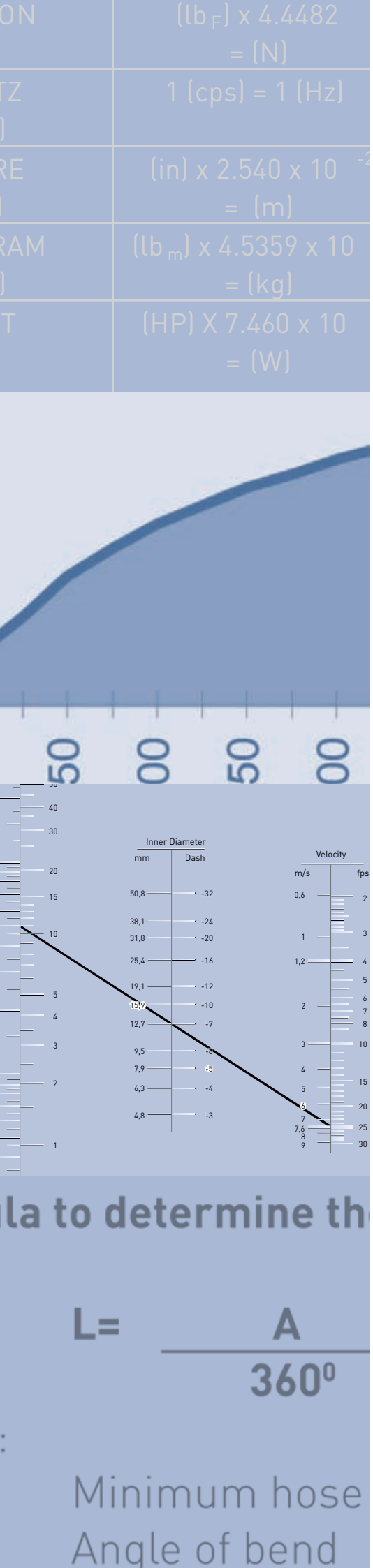
Patent No.: **Patent Pending**

Drain Cleaning Nozzle 3/8 Bsp M

Part No.	Nozzle Size	No. of Ports	Inlet	Weight gr	Weight oz
25.1210.51	06	9	3/8 Bsp M	36	1.2

COMMON FEATURES

Rated Pressure: 250 bar - 25 MPa - 3650 psi
Material: Stainless steel



Group 20

Technical Information

FLUID CONTROL®

WORTH KNOWING ABOUT HOSES IN GENERAL

Many factors affect the lifespan of hoses. Some examples are: High-temperature, external environment, sunlight (UV radiation), wear and tear, scratches, crushing, etc. It is therefore impossible to estimate a hose´s expected lifetime.
The right choice of rubber / PVC / thermo plastic materials both outside and inside the hose is crucial.
The various rubber PVC and thermo plastic materials have different characteristics and react differently to oils, chemicals, UV radiation, temperature etc.
It is rare that a hose is worn out because of internal influences by the medium it transports if the right inner liner is chosen. The exception is when hoses are used for transport of dry, hard media such as granules, cement, baryte, slurry, etc.
By focusing on the external environment and ensuring that the hoses´ damaging external influences are minimized, the longest lifespan for the hoses is achieved. We are happy to help you achieve this.

The working pressures in tables are generally between 15-25°C
High temperature reduces the hose working pressure.

PRESSURE EQUIPMENT DIRECTIVE (PED) AND HOSES

The Pressure Equipment Directive covers general pressure equipment which exceeds 0.5 bar.
Equipment that falls under the Pressure Equipment Directive must be type approved and CE marked.
Hoses (flexibles) are exempt from the directive. Everything that is delivered to floating installations and ships are also exempt.
Fluid Control AS has had a thorough review with DNV to determine which of our products fall under the Pressure Equipment Directive and concluded that it only applies to ball valves and manifolds.

More about the Pressure Equipment Directive can be found at: www.dsb.no

FLEXIBILITY AND BEND RADIUS

Flexibility and minimum bend radius are important factors in hose length calculation and hose selection if the hose will be subjected to sharp curvatures in normal use.

Adequate flexibility means the hose should be able to conform to the smallest anticipated bend radius without too much stress. The minimum bend radius is generally specified for each hose in this catalogue. This is the radius to which the hose can be bent in service without damaging or appreciably shortening its life. The radius is measured to the inside of the curvature.

Formula to determine the minimum hose length, given (minimum) bend radius and the angle of the bend required:

$$L = \frac{A}{360^0} \times 2\pi B$$

Where:
L= Minimum hose length to make bend (bend must be made as long as this portion of hose length)
A= Angle of bend
B= Given minimum bend radius of hose
π= 3.14

Example: To make a 60^0 bend where the hose´s minimum bend radius is 15 cm

$$L = \frac{60^0}{360^o} \times 2 \times 3.14 \times 15 \approx 16 \text{ CM}$$

Thus, the bend must be made over approximately 16 cm of hose length. The bend radius must be equal to or greater than the rated minimum bend radius. Bending the hose to a smaller bend radius than minimum may kink the hose which can result in hose damage and early failure.

ELECTRICAL PROPERTIES

In accordance with ASTM D991 a standard rubber hose is classified as:
A. Electrically conductive, if the resistance is at the most 10^4 ohm/m
B. Anti-static, if the resistance is 10^4 – 10^8 ohm/m
C. Electrically non-conductive, if the resistance is 10^{10} ohm/m minimum

Any special requirements in respect to electrically properties must be stated when ordering.

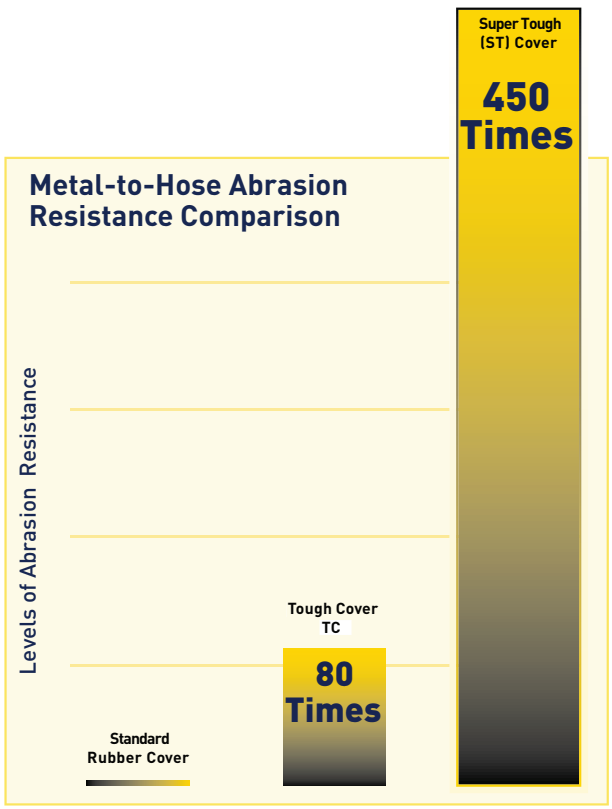
SAFE HOSE ASSEMBLY

APPLICATION

There are so many operational factors affecting the functionality and service life of hydraulic rubber hoses and there is such a wide variety of external circumstances they have to work in that some few basic parameters such as pressure, size and fitting types cannot provide a sufficient basis for selecting and producing the proper product.

The only unfailing way is to start ... from the end – to learn and thoroughly understand the application the hose assembly will work in.

HOSE HINT
You do not always need additional sleeve to protect the hose against abrasion!
Parker high and extremely high abrasion resistant **TOUGH Cover** and **Super TOUGH** versions with 80-times and 450-times higher abrasion resistance do the same, but better and cheaper!



MAIN OPERATIONAL FACTORS:

- Market (agriculture, construction, marine, mining, ...)
- Machine / equipment type
- Hydraulic system pressure
- Static / dynamic
- Extreme pulses (frequency, amplitude)
- Surges, peaks, spikes
- Suction strains
- Flow rate
- Ambient / fluid temperature (permanent, peak)
- Biodegradable oil
- Other fluid – liquid / gaseous
- Bend radius
- etc.

MAIN EXTERNAL CIRCUMSTANCES:

- Extreme environmental conditions
- Ultraviolet light / sunlight
- Ozone / smog / salt water
- Restricted space
- Abrasives / sharp-edged objects
- Mechanical loads (strain , stress, torsion)
- Mechanical vibrations
- Fittings heated
- Fittings under voltage / current
- Electrical / magnetic field
- Heat exposure
- Flame / fire exposure
- etc.

OTHER REQUIREMENTS:

- Certificate / approval needed
- Special (OEM) specification
- Environmental requirements
- Work safety requirements

SAFE HOSE ASSEMBLY

ROUTING

The **routing** of the hose assembly and the environment in which the hose assembly operates directly influence the service life of the hose assembly. The following diagrams indicate the correct routing of hose assemblies that will maximise its service life and assure a safe working functionality.

When hose installation is straight, it must be assured that there is enough slack in the hose to allow for changes in length that occur when pressure is applied. When pressurized, hose that is too short may pull loose from its hose fittings or stress the hose fitting connections, causing premature metallic or seal failures.

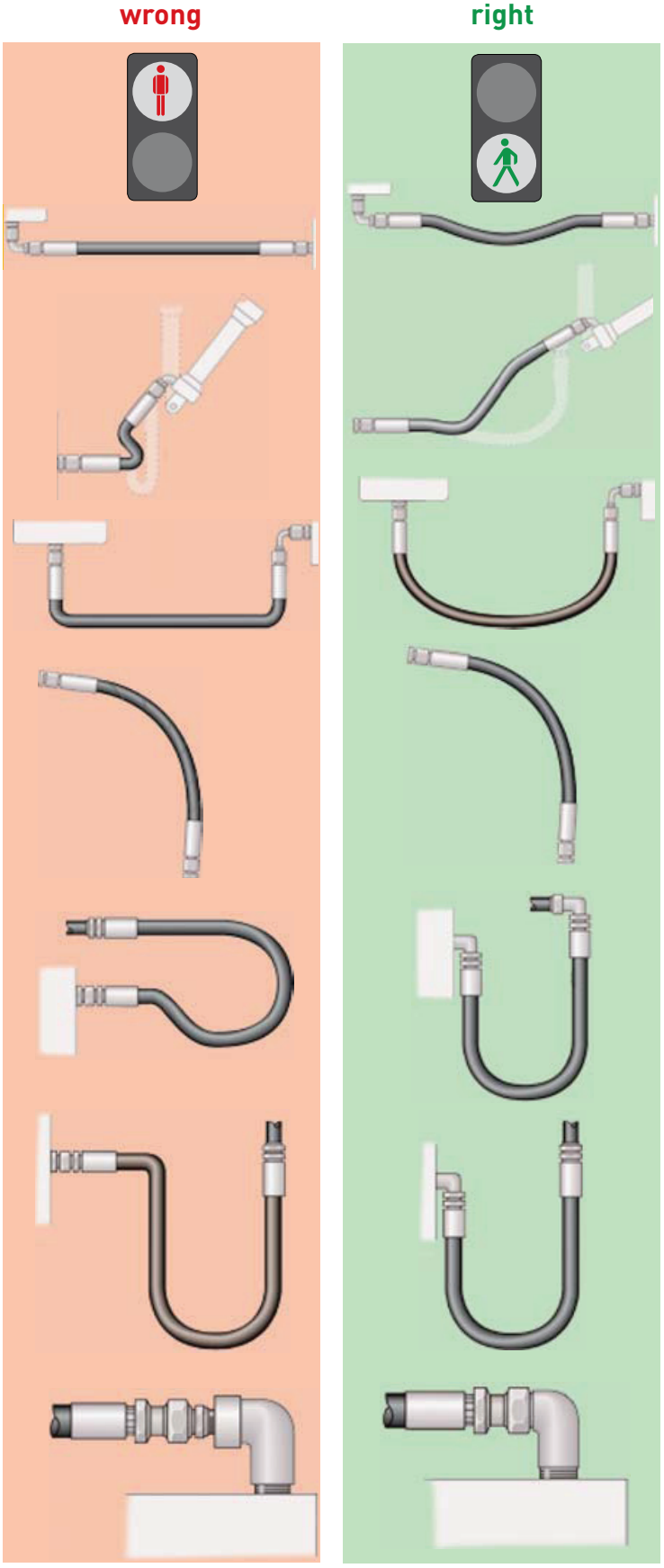
The **hose length** must be determined so that the hose assembly has enough slack to allow the system components to move or vibrate without creating tension in the hose.

However, care needs to be taken not to allow too much slack and therefore introduce the risk of the hose snagging on other equipment or rubbing on other components.

Mechanical straining of the hoses needs to be avoided, so the hose must not be bent below its minimum bend radius or twisted during installation. The minimum bending radii for each hose is stated in the hose tables in the catalogue.

The plane of movement must also be considered and the hose routing selected accordingly.

Hose routing also plays an important role on the selection of the hose fittings, as the correct fittings can avoid straining the hoses, unnecessary hose length or multiple threaded joints.



SAFE HOSE ASSEMBLY

INSTALLATION

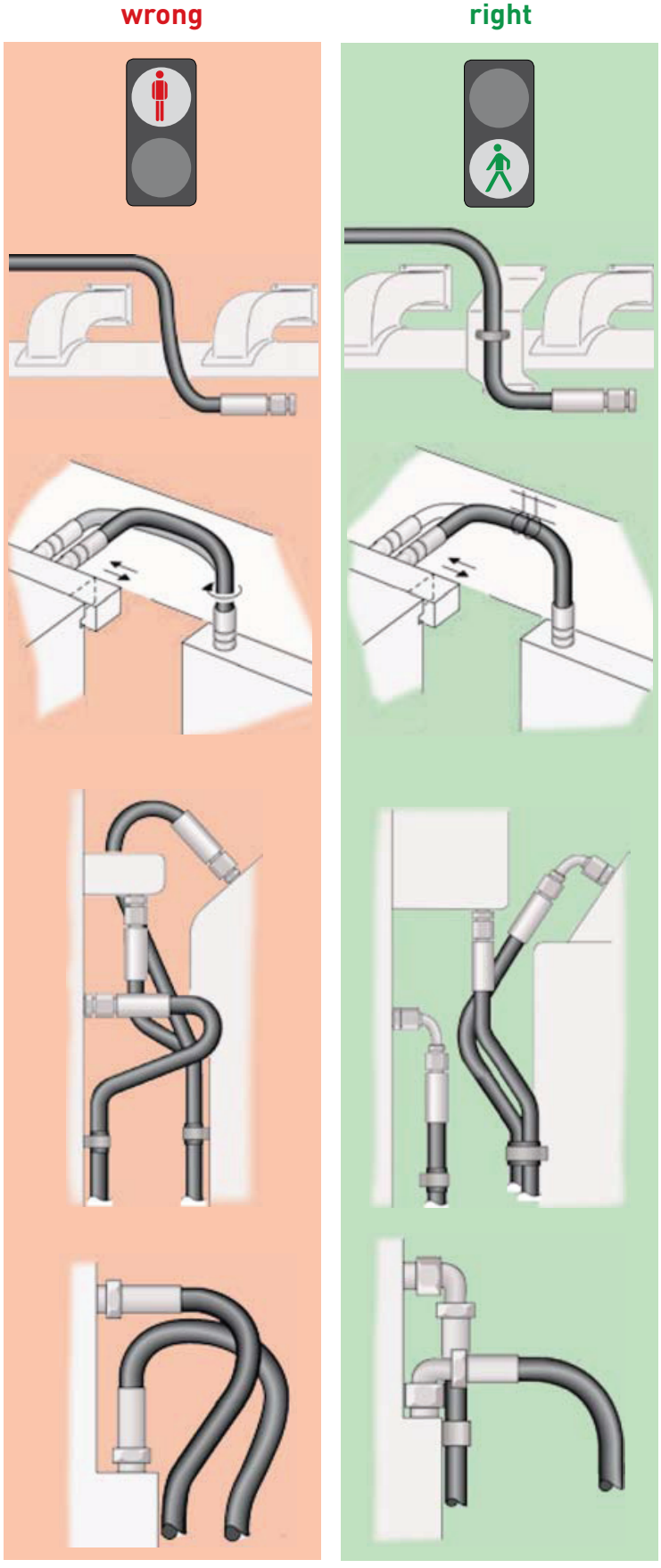
Correct clamping (holding/supporting) of the hose should be exercised to securely route the hose or to avoid the hose contacting surfaces that will cause the hose damage.
It is however, vital that the hose be allowed to keep its functionality as a "flexible-pipe" and not be restricted from changing in length when under pressure.

It should also be noted that hoses for high- and low-pressure lines shall not be crossed or clamped together, as the difference in changes in length could wear the hose covers.
Hose should not be bent in more than one plane. If hose follows a compound bend, it shall be coupled into separate segments or clamped into segments that each flex in only one plane.

Hoses should be kept away from hot parts as high ambient temperatures shorten hose life. Protective insulation may need to be used in unusually high ambient temperature areas.

Whilst the importance of the functionality is primate the aesthetics and practicality of the installation should also be considered in the design.

It should be considered that maintenance might be necessary at some stage in the future, so prohibitive design routings should be avoided.

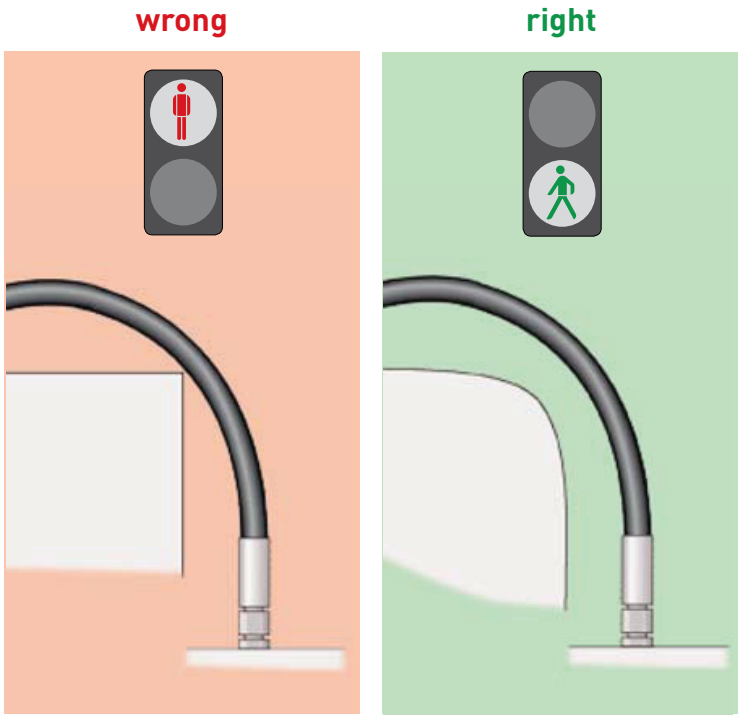


SAFE HOSE ASSEMBLY

ENVIRONMENTAL INFLUENCES

ABRASIVE INFLUENCES
In general care should be taken that the hose is not exposed to direct surface contact that will cause abrasive wearing of the outer cover (either hose to object or hose to hose contact). If however, the application is such that this cannot be avoided, either a hose with a higher abrasion resistant hose cover or a protective sleeve need to be used.

Parker (TC) or (ST) covers offer 80 times or respectively 1000 times the abrasion resistance of standard rubber covers.



SAFE HOSE ASSEMBLY

HOSES STORAGE – BEST PRACTICES

Store hoses and hose assemblies in a cool, dark and dry room with capped ends in closed boxes (preferably in the original Parker packaging) and in the manner facilitating inspection of the hose condition and the first-in first-out (FIFO) inventory control system.

The main factors determining the hose storage are:

a) Temperature
Preferably between 15 °C and 25 °C, without rapid and frequent fluctuation.

b) Humidity
Preferably not higher than 65 %, protect hose against moisture and avoid atmospheric humidity condensation.

c) Heat
Store hose away from heat sources.

d) Light
Protect hose against direct sun light, light of discharge lamps and other ultraviolet sources.

e) Corrosive liquids and fumes
Do not store in the same room with corrosive chemicals.

f) Ozone
Avoid using high power electrical equipment and electrical spark sources in the storage room.

g) Oils and greases
Avoid direct contact.

h) Space and bends
Keep hose in stress-free shape never bent below the min. bend radius.

i) Electrical and magnetic fields
Store hose away from powerful electric transformers, motors and generators that could induce current in the hose metal reinforcement.

j) Rodents and insects
Protect against rodents and insects.

FITTINGS STORAGE – BEST PRACTICES

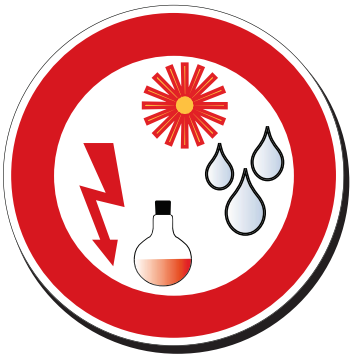
For storing fittings the same rules as for hose are applicable (especially for fittings with rubber sealing), in addition:

a) Mismatching and confusing
Avoid unnecessary repacking and store fittings in clearly marked closed containers (preferably in the original Parker packaging).

b) Damage of threads and sealing surfaces
Avoid unnecessary reloading and handling.

c) Fittings with O-rings
Assure that storage period of fittings with O-rings or other rubber sealing does not exceed 2 years (remember: first in-first out).

d) Caps
Hose assemblies fittings should be capped against damage and contamination.



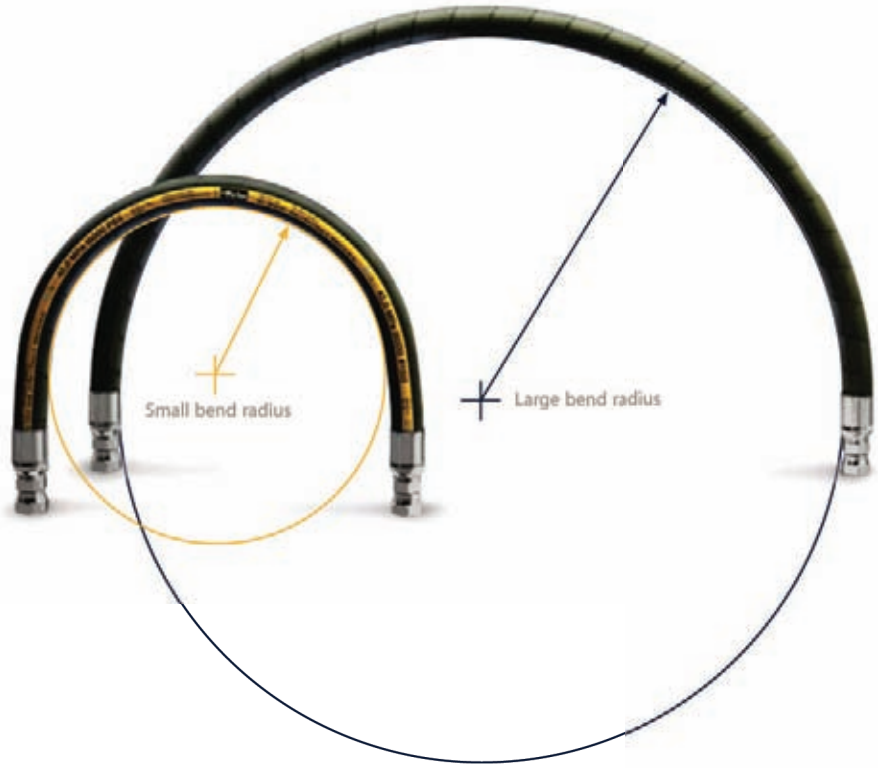
SAFE HOSE ASSEMBLY

HOSE BEND RADIUS

The role of hydraulic hose is to provide a connection of relatively movable parts of the circuit and so its bending is a natural state the hose is designed for. However, the layout of the reinforcement wire or fibre inside a bent hose **may** shift to less appropriate positions.

The tube and cover are stretched and become thinner and so the pressure resistance of a bent hose considerably decreases. For this reason working pressure and bend radius are negatively interdependent parameters and the maximum working pressures specified in this catalogue are conditioned by respecting the min. bend radius.

REMEMBER
In order not to displace the hose reinforcement and/or damage its tube or cover, hydraulic hoses must never be bent below the min. bend radius specified in this catalogue – even without any pressure or even in bulk when stored or packed!



HOSE HINT
Bend radius and bending force are two different things! Not even apparently "flexible" hoses (with low bending force) may be bent below the min. allowed radius!

RECOMMENDED FLUIDS

As the power transmitting – not fluid conveying – element, hydraulic hose should be first of all used for the primary applications and with the recommended fluids specified in this catalogue!

CHEMICAL GUIDE

This section is intended as a general indication of the compatibility of the various materials used in hoses, with the liquids and chemicals listed.

1. TEMPERATURE
Higher temperatures increase the effect of chemicals on rubber compounds. The effect of a temperature change varies depending on the polymer and the chemicals used. A compound which is suitable at room temperature might fail very quickly at higher temperatures.

2. SERVICE CONDITIONS
A rubber compound usually swells when exposed to a chemical. With a given amount of swell, a hose or tube may function satisfactorily if the hose is in a static condition, but fail quickly if the hose is subject to flexing.

3. THE GRADE OR BLAND OF THE RUBBER COMPOUND
Basic rubber polymers are sometimes mixed or blended together to enhance a particular property for a specific service. The reaction to a particular chemical blend of polymers may, therefore, somewhat differ from the reaction to the single one. When in doubt, a sample of the compound should always be tested with the particular chemical.

GENERAL CHEMICAL RESISTANCE OF HOSE RUBBER COMPOUNDS

Common Name	Code	Composition	Properties
Natural	NR	Isoprene Rubber (Natural)	Excellent physical properties, including abrasion resistance. Not oil resistant.
SBR	SBR	Styrene-Butadiene Rubber	Good physical properties, including abrasion resistance. Not oil resistant.
EPM or EPDM	EPDM	Ethylene-propylene-diene-terpolymer	Good general purpose polymer. Excellent heat, ozone and weather resistance. Not oil resistant.
Neoprene	CR	Chloroprene	Excellent weathering resistance. Fire retardant. Good oil resistance. Good physical properties.
Buna-N or Nitrile	NBR	Nitrile-Butadiene	Excellent oil resistance. Good physical properties.
Hypalon®	CSM	Chloro-sulfonated polyethylene	Excellent ozone-, weathering and acid resistance. Good abrasion and heat resistance. Can be compounded for good oil resistance.
Chlorinated Polyethylene (CPE)	CM	Chloro-polyethylene	Good long term resistance to UV and weathering. Good oil and chemical resistance. Excellent flame resistance. Good low temperature impact resistance.
Cross Linked Polyethylene	XLPE	Cross Linked Polyethylene	Excellent resistance to most solvents, oils and chemicals. Do not confuse with chemical properties of standard polyethylene.
Butyl	IIR	Isobutene-isoprene	Very good weathering resistance, low permeability to air. Good physical properties. Poor resistance to petroleum based fluids.
Viton	FKM	Fluorocarbon Rubber	Excellent high temperature resistance, particularly in air or oil. Good physical properties. Very good chemical resistance.
Fluorcarbon Resin (Teflon)	TFE	Polytetra-fluoroethylene	Excellent chemical and solvent resistance, inert to most materials. Smooth anti-adhesive surface - easy to clean.
ALFATER XL	EPDM+PP	Ethylene-propylene diene-terpolymer + polypropylene	Good general purpose polymer. Excellent heat, ozone and weather resistance. Fair/good oil resistance.

STEAM HOSE SAFETY FACTORS

Handling steam is a very hazardous situation. Using care and some safety precaution can minimise or eliminate personal or property damage.

SELECTING AND USING STEAM HOSE

1. Make sure steam hose is identified as a steam hose. It should be branded as such, stating working pressure and temperature rating
2. Make sure working pressure and temperature is not exceeded.
3. Do not allow hose to remain under pressure when not in use.
4. Avoid excess bending or flexing of hose near the coupling. Straight line operation is preferred. If bends are necessary as part of operation, spring guards may help.
5. Be sure and use recommended steam hose couplings and clamps on hose.

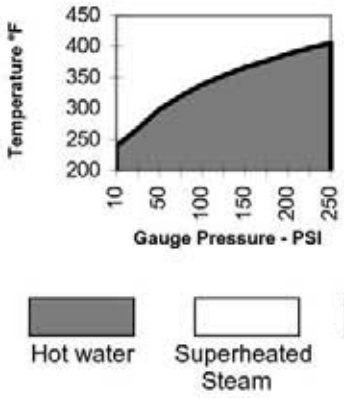
MAINTENANCE OF STEAM HOSE

1. Periodic inspection of hose should include looking for cover blisters and lumps.
2. Check for kinked areas that could damage hose.
3. **Drain hose after each use to avoid tube damage before hose is put back in operation, to avoid *"popcorning"* of the tube.**
4. Check tightness of clamps bolts after each use.
5. Check to see if clamps halves are touching. If they do, recouple hose with smaller clamps to insure proper tightness or grip around hose.
6. Do not store hose over hooks.
7. Steam hose lying on metal racks or installed around steel piping will dry out the hose, causing tube and cover cracking.
8. For service in sub-zero application, use only T-331 Chlorobuthyl hose.

The charts represent the three forms of water when subjected to heat and pressure. Use only hoses specifically designed for the application.

STEAM HOSE CHART
Saturated steam

Gauge Pressure (PSI)	Temperature of Saturated Steam (°F)
10	239
25	267
50	298
75	320
100	338
125	353
150	366
175	377
200	388
225	397
250	406



TEMPERATURE OF SATURATED STEAM

Gauge Pressure lbl/m²	Gauge Pressure kgf/cm²	Gauge Pressure Atm	Gauge Pressure Bar	Temperature °C	Temperature °F	Gauge Pressure lbl/m²	Gauge Pressure kgf/cm²	Gauge Pressure Atm	Gauge Pressure Bar	Temperature °C	Temperature °F
25	1.76	1.70	1.73	130	267	120	8.44	8.16	8.28	177	350
30	2.11	2.04	2.07	134	274	140	9.84	9.52	9.66	182	361
35	2.46	2.38	2.42	138	281	160	11.25	10.88	11.04	188	371
40	2.81	2.72	2.76	141	287	180	12.65	12.24	12.42	193	379
45	3.16	3.06	3.11	144	292	200	14.06	13.60	13.80	198	388
50	3.52	3.40	3.45	148	298	225	15.82	15.30	15.53	203	397
60	4.22	4.08	4.14	153	307	250	17.58	17.00	17.25	208	406
70	4.92	4.76	4.83	158	316	275	19.33	18.70	18.98	212	414
80	5.62	5.44	5.52	162	324	300	21.09	20.40	20.70	216	422
90	6.32	6.12	6.21	166	330	325	22.85	22.10	22.43	221	429
100	7.03	6.80	6.90	170	338	350	24.61	23.80	24.15	225	437

CORROSIVE STEAM

When the water used to generate steam contains dissolved air, oxygen or carbon dioxide, then these gases end up as contaminants in the steam. At high temperatures of steam both oxygen and carbon dioxide are extremely corrosive. Carbon dioxide is acidic and therefore attacks metals whereas the oxygen corrodes metals and oxidises rubbers. Corrosion of metals in the presence of both oxygen and acids is forty times faster than with either alone. Boiler water is therefore normally treated not only to remove the "hardness" which would cause "furring" of the boiler but also to remove dissolved oxygen and carbon dioxide and to ensure that the steam is not only not acidic but even slightly alkaline. Boiler water treatment is a specialised subject beyond the scope of this technical sheet but correct steam generation is important.

DETERIORATION OF STEAM HOSE

Like all rubber products steam hoses have a finite life and are subject to gradual deterioration with use. However, it sometimes happens that hoses which have been giving a good life suddenly start failing without apparent reason. In such cases it is often a change in the steam conditions causing a rapid acceleration of a normal failure mode. It is therefore useful to consider how steam hoses normally last and thus how the condition of the steam affects hose life.

PRESSURE CONVERSION TABLE

METRIC TO PSI
(1 kPa = 145 psi)

Kilo Pascals (kPa)	Mega Pascals (MPa)	Bar (Bar)	Pounds per Square Inch (psi)
100	0.1	1	14.5
200	0.2	2	29.0
300	0.3	3	43.5
400	0.4	4	58.0
500	0.5	5	72.5
600	0.6	6	87.0
700	0.7	7	101.5
800	0.8	8	116.0
900	0.9	9	130.5
1,000	1.0	10	145.0
2,000	2.0	20	290.1
3,000	3.0	30	435.1
4,000	4.0	40	580.2
5,000	5.0	50	725.2
6,000	6.0	60	870.2
7,000	7.0	70	1,015
8,000	8.0	80	1,160
9,000	9.0	90	1,305
10,000	10	100	1.450
20,000	20	200	2,901
30,000	30	300	4,351
40,000	40	400	5,802
50,000	50	500	7,252
60,000	60	600	8,702
70,000	70	700	10,153
80,000	80	800	11,603
90,000	90	900	13,053
100,000	100	1,000	14,504
200,000	200	2,000	29,008
300,000	300	3,000	43,511

PSI TO METRIC
(1 psi = 6.89 kPa)

Pounds per Square Inch (psi)	Kilo Pascals (kPa)	Mega Pascals (MPa)	Bar (Bar)
10	68.9	0.07	0.7
20	137.9	0.14	1.4
30	206.8	0.21	2.1
40	275.8	0.28	2.8
50	344.7	0.34	3.4
60	413.7	0.41	4.1
70	482.6	0.48	4.8
80	551.6	0.55	5.5
90	620.5	0.62	6.2
100	689	0.7	6.9
200	1,379	1.4	13.8
300	2,068	2.1	20.7
400	2,758	2.8	27.6
500	3,447	3.4	34.5
600	4,137	4.1	41.4
700	4,826	4.8	48.3
800	5,516	5.5	55.2
900	6,205	6.2	62.1
1,000	6,895	6.9	68.9
2,000	13,790	13.8	147.9
3,000	20,684	20.7	206.8
4,000	27,579	27.6	275.8
5,000	34,474	34.5	344.7
6,000	41,369	41.4	413.7
7,000	48,263	48.3	482.6
8,000	55,158	55.2	551.6
9,000	62,053	62.1	620.5
10,000	68,948	68.9	689
20,000	137,895	147.9	1,379
30,000	206,843	206.8	2,068
40,000	275,790	275.8	2,758

MILLIMETRES TO INCHES

1 mm = 0.0397 inch
1 inch = 25.4 mm

mm	inches
10	3/8
13	1/2
16	5/8
19	3/4
22	7/8
25	1
28	1 1/8
30	1 3/16
32	1 1/4
35	1 3/8
38	1 1/2

mm	inches
40	1 9/16
42	1 5/8
45	1 3/4
48	1 7/8
51	2
55	2 1/8
57	2 /
60	2 3/8
63	2 1/2
65	2 5/8
70	2 7/8

mm	inches
76	3
80	3 1/8
90	3 1/2
102	4
105	4 1/8
110	4 5/16
115	4 1/2
127	5
140	5 1/2
152	6
170	6 5/8

TEMPERATURE CONVERSION TABLE

To use table, start in the center column
- To convert from F to C use value to the left
- To convert from C to F use value to the right

Celsius $^0C = 5/9 (^0F - 32)$

Fahrenheit $^0F = 9/5\ ^0C + 32$

°C	°F / °C	°F	°C	°F / °C	°F	°C	°F / °C	°F	°C	°F / °C	°F	°C	°F / °C	°F
-273,0	-459,4		-17,8	0	32,0	10,0	50	122,0	37,8	100	212,0	260,0	500	932,0
-267,8	-450		-17,2	1	33,8	10,6	51	123,8	43,3	110	230,0	265,6	510	950,0
-262,2	-440		-16,7	2	35,6	11,1	52	125,6	48,9	120	248,0	271,1	520	968,0
-256,7	-430		-16,1	3	37,4	11,7	53	127,4	54,4	130	266,0	276,7	530	986,0
-251,1	-420		-15,6	4	39,2	12,2	54	129,2	60,0	140	284,0	282,2	540	1004,0
-245,6	-410		-15,0	5	41,0	12,8	55	131,0	65,6	150	302,0	287,8	550	1022,0
-240,0	-400		-14,4	6	42,8	13,3	56	132,8	71,1	160	320,0	293,3	560	1040,0
-234,4	-390		-13,9	7	44,6	13,9	57	134,6	76,7	170	338,0	298,9	570	1058,0
-228,9	-380		-13,3	8	46,4	14,4	58	136,4	82,2	180	356,0	304,4	580	1076,0
-223,3	-370		-12,8	9	48,2	15,0	59	138,2	87,8	190	374,0	310,0	590	1094,0
-217,8	-360		-12,2	10	50,0	15,6	60	140,0	93,3	200	392,0	315,6	600	1112,0
-212,2	-350		-11,7	11	51,8	16,1	61	141,8	98,9	210	410,0	321,1	610	1130,0
-206,7	-340		-11,1	12	53,6	16,7	62	143,6	104,4	220	428,0	326,7	620	1148,0
-201,1	-330		-10,6	13	55,4	17,2	63	145,4	110,0	230	446,0	332,2	630	1166,0
-195,6	-320		-10,0	14	57,2	17,8	64	147,2	115,6	240	464,0	337,8	640	1184,0
-190,0	-310		-9,4	15	59,0	18,3	65	149,0	121,1	250	482,0	343,3	650	1202,0
-184,4	-300		-8,9	16	60,8	18,9	66	150,8	126,7	260	500,0	348,9	660	1220,0
-178,9	-290		-8,3	17	62,6	19,4	67	152,6	132,2	270	518,0	354,4	670	1238,0
-173,3	-280		-7,8	18	64,4	20,0	68	154,4	137,8	280	536,0	360,0	680	1256,0
-169,4	-273	-459,4	-7,2	19	66,2	20,6	69	156,2	143,3	290	554,0	365,6	690	1274,0
-167,8	-270	-454,0	-6,7	20	68,0	21,1	70	158,0	148,9	300	572,0	371,1	700	1292,0
-162,2	-260	-436,0	-6,1	21	69,8	21,7	71	159,8	154,4	310	590,0	376,7	710	1310,0
-156,7	-250	-418,0	-5,6	22	71,6	22,2	72	161,6	160,0	320	608,0	382,2	720	1328,0
-151,1	-240	-400,0	-5,0	23	73,4	22,8	73	163,4	165,6	330	626,0	387,8	730	1346,0
-145,6	-230	-382,0	-4,4	24	75,2	23,3	74	165,2	171,1	340	644,0	393,3	740	1364,0
-140,0	-220	-364,0	-3,9	25	77,0	23,9	75	167,0	176,7	350	662,0	398,9	750	1382,0
-134,4	-210	-346,0	-3,3	26	78,8	24,4	76	168,8	182,2	360	680,0	404,4	760	1400,0
-128,9	-200	-328,0	-2,8	27	80,6	25,0	77	170,6	187,8	370	698,0	410,0	770	1418,0
-123,3	-190	-310,0	-2,2	28	82,4	25,6	78	172,4	193,3	380	716,0	415,6	780	1436,0
-117,8	-180	-292,0	-1,7	29	84,2	26,1	79	174,2	198,9	390	734,0	421,1	790	1454,0
-112,2	-170	-274,0	-1,1	30	86,0	26,7	80	176,0	204,4	400	752,0	426,7	800	1472,0
-106,7	-160	-256,0	-0,6	31	87,8	27,2	81	177,8	210,0	410	770,0	432,2	810	1490,0
-101,1	-150	-238,0	0,0	32	89,6	27,8	82	179,6	215,6	420	788,0	437,8	820	1508,0
-95,6	-140	-220,0	0,6	33	91,4	28,3	83	181,4	221,1	430	806,0	443,3	830	1526,0
-90,0	-130	-202,0	1,1	34	93,2	28,9	84	183,2	226,7	440	824,0	448,9	840	1544,0
-84,4	-120	-184,0	1,7	35	95,0	29,4	85	185,0	232,2	450	842,0	454,4	850	1562,0
-78,9	-110	-166,0	2,2	36	96,8	30,0	86	186,8	237,8	460	860,0	460,0	860	1580,0
-73,3	-100	-148,0	2,8	37	98,6	30,6	87	188,6	243,3	470	878,0	465,6	870	1598,0
-67,8	-90	-130,0	3,3	38	100,4	31,1	88	190,4	248,9	480	896,0	471,1	880	1616,0
-62,2	-80	-112,0	3,9	39	102,2	31,7	89	192,2	254,4	490	914,0	476,7	890	1634,0
-56,7	-70	-94,0	4,4	40	104,0	32,2	90	194,0				482,2	900	1652,0
-51,1	-60	-76,0	5,0	41	105,8	32,8	91	195,8				487,8	910	1670,0
-45,6	-50	-58,0	5,6	42	107,6	33,3	92	197,6				493,3	920	1688,0
-40,0	-40	-40,0	6,1	43	109,4	33,9	93	199,4				498,9	930	1706,0
-34,4	-30	-22,0	6,7	44	111,2	34,4	94	201,2				504,4	940	1724,0
-28,9	-20	-4,0	7,2	45	113,0	35,0	95	203,0				510,0	950	1742,0
-23,3	-10	14,0	7,8	46	114,8	35,6	96	204,8				515,6	960	1760,0
-17,8	0	32,0	8,3	47	116,6	36,1	97	206,6				521,1	970	1778,0
			8,9	48	118,4	36,7	98	208,4				526,7	980	1796,0
			9,4	49	120,2	37,2	99	210,2				532,2	990	1814,0
						37,8	100	212,0				537,8	1000	1832,0

CONVERSION FACTORS

To convert	Into	Multiply by
atmospheres	cms of mercury	76.0
atmospheres	ft of water (at 4 C)	33.90
atmospheres	in of mercury (at 0 C)	29.92
atmospheres	kgs/sq cm	1.0333
atmospheres	kgs/sq meter	10,332
atmospheres	pounds/sq in	14.70
Bar	Newton/sq m	10^{5}
bar	atmospheres	0.9869
bar	at (tech.)	1.0197
bar	psi	14.504
Barrels-Oil	gals-oil	42
BT Units	kg-calories	0.2520
BTUs	ft-lbs	777.9
BTUs	hp-hrs	3.927×10^{4}
BTUs	kgs-meters	107.5
BTUs	kw-hrs	2.928×10^{4}
BTU/Min	ft-lb/sec	12.96
BTU/min	hp	0.02356
BTU/min	kw	0.01757
BTU/min	watts	17.57
Centimetres	inches	0.3937
cm	meters	0.01
cm	mm	10
cms mercury	atm	0.01316
cms mercury	ft water	0.4461
cms mercury	kgs/sq meter	136.0
cms mercury	lbs/sq ft	27.85
cms mercury	lbs/sq in	0.1934
cms/second	ft/min	1.969
cms/sec	ft/sec	0.03281
cms/sec	km/hr	0.036
cms/sec	meter/min	0.6
cms/sec	miles/hr	0.02237
cms/sec	miles/min	3.728×10^{4}
Cms/Sec/Sec	ft/sec/sec	0.03281
Cubic Cms	cu ft	3.531×10^{5}
cu cms	cu in	6.102×10^{2}
cu cms	cu meters	10^{6}
cu cms	cu yds	1.308×10^{6}
cu cms	gals	2.642×10^{4}
cu cms	litres	10^{3}
cu cms	pints (liq)	2.113×10^{3}
cu cms	quarts (liq)	1.057×10^{3}

To covert	Into	Multiply by
cubic feet	cubic cms	2.832×10^{4}
cu ft	cu inches	1728
cu ft	cu meters	0.02832
cu ft	cu yds	0.03704
cu ft	gals	7.48052
cu ft	litres	28.32
cu ft	pints (liq)	59.84
cu ft	quarts (liq)	29.92
cu ft/min	cu cms/sec	472.0
cu ft/min	gals/sec	0.1247
cu ft/min	litres/sec	0.4720
cu ft/min	lbs water/min	62.43
cu ft/sec	gals/min	448.831
cu inches	cc	16.39
cu ins	cu ft	5.787×10^{4}
cu ins	cu meters	1.639×10^{5}
cu ins	cu yds	2.143×10^{5}
cu ins	gals	4.329×10^{3}
cu ins	litres	1.639×10^{2}
cu ins	pints (liq)	0.03463
cu ins	quarts (liq)	0.01732
cu Meters	cc	10^{4}
cu M	cu ft	35.31
cu M	cu ins	61,023
cu M	cu yds	1.308
cu M	gals	264.2
cu M	litres	10^{3}
cu M	pints (liq)	2113
cu M	quarts (liq)	1057
cu yards	cu cms	7.646×10^{5}
cu yds	cu ft	27
cu yds	cu ins	46,656
cu yds	cu meters	0.7646
cu yds	gals	202.0
Decimetres	meters	0.1
Degrees (Angle)	minutes	60
Degrees (angle)	radians	0.01745
Degrees (angle)	sec's	3600
Degrees/sec	radians/sec	0.01745
Degrees/sec	revs/min	0.1667
Degrees/sec	revs/sec	0.002778
Feet	cms	30.48
ft	ins	12
ft	meters	0.3048
ft	yds	$^{1}/_{3}$

CONVERSION FACTORS

To convert	Into	Multiply by
Ft of Water	atms	0.02950
ft of w	ins mercury	0.8826
ft of w	kgs/sq cm	0.03048
ft of w	lbs/sq ft	62.32
ft of w	lbs/sq in	0.4328
feet/min	cm/sec	0.5080
ft/min	ft/sec	0.01667
ft/min	kms/hr	0.01829
ft/min	meters/min	0.3048
ft/min	miles/hr	0.01136
ft/sec/sec	cms/sec/sec	30.48
ft/sec/sec	Meters/sec/sec	0.3048
ft-pounds	BTUs	1.286×10^{3}
ft lbs	hp-hrs	5.050×10^{7}
ft lbs	kg-calories	3.241×10^{4}
ft lbs	kg-meters	0.1383
ft lbs	kw-hrs	3.766×10^{7}
ft-lbs/min	BTUs/min	1.286×10^{3}
ft-lbs/min	ft-lbs/sec	0.01667
ft-lbs/min	hp	3.030×10^{5}
ft-lbs/min	kg-calories/min	3.241×10^{3}
ft-lbs/min	kws	2.260×10^{5}
ft-lbs/sec	BTUs/min	7.717×10^{2}
ft-lbs/sec	hp	1.818×10^{3}
ft-lbs/sec	kg-calories/min	1.945×10^{2}
ft-lbs/sec	kws	1.356×10^{3}
gallons	ccs	3785
gals	cu ft	0.1337
gals	cu ins	231
gals	cu meters	3.785×10^{3}
gals	litres	3.785
gals	pints (liq)	8
gals	quarts (liq)	4
gallons, Imp	US gals	1.20095
gallons, US	imp gals	0.83267
Gals Water	lbs water	8.3304
gallons/min	cu ft/sec	2.228×10^{3}
gal/min	litres/sec	0.06308
gal/min	cu ft/hr	8.0208
horse-power	BTUs/min	42.44
hp	ft-lbs/min	33,000
hp	ft-lbs/sec	550
hp	hp (metric)	1.014
hp	kg-calories/min	10.70

To convert	Into	Multiply by
hp	kws	0.7457
hp	watts	745.7
Hp-Hours	BTUs	2547
hp-hrs	ft-lbs	1.98×10^{6}
hp-hrs	kg-calories	641.7
hp-hrs	kg-meters	2.737×10^{5}
hp-hrs	kw-hrs	0.7457
Inches	cms	2.540
Ins Mercury	atms	0.03342
ins mercury	ft water	1.133
ins mercury	kgs/sq cm	0.03453
ins mercury	lbs/sq ft	70.73
ins mercury	lbs/sq in	0.4912
Ins of Water	atms	0.002458
ins of w	ins mercury	0.07355
ins of w	kgs/sq cm	0.002540
ins of w	lbs/sq ft	5.202
ins of w	lbs/sq in	0.03613
Kilograms	dynes	980,665
kgs	lbs	2.205
kgs	tons (short)	1.102×10^{3}
kgs	grams	1000
Kgs/Sq Cm	atms	0.9678
kgs/sq cm	ft water	32.81
kgs/sq cm	ins mercury	28.96
kgs/sq cm	lbs/sq ft	20.48
kgs/sq cm	lbs/sq in	14.22
kilometres	cms	10^{5}
kms	ft	3281
kms	meters	10^{3}
kms	miles	0.6214
kms/hr	cms/sec	27.78
kms/hr	ft/min	54.68
kms/hr	ft/sec	0.9113
kms/hr	meters/min	16.67
kms/hr	miles/hr	0.6214
Kms/Hr/Sec	cms/sec/sec	27.78
kms/hr/sec	ft/sec/sec	0.9113
kms/hr/sec	Meters/sec/sec	0.2778
kilowatts	BTUs/min	56.92
kws	ft-lbs/min	4.425×10^{4}
kws	ft-lbs/sec	737.6
kws	hp	1.341
kws	kg-calories/min	14.34

CONVERSION FACTORS

To convert	Into	Multiply by
kws	watts	10^{3}
Kilowatt-Hrs	BTUs	3415
kw-hrs	ft-lbs	2.655×10^{6}
kw-hrs	hp-hours	1.341
kw-hrs	kg-calories	860.5
kw-hrs	kg-meters	3.671×10^{5}
litres	ccs	10^{3}
litres	cu ft	0.03531
litres	cu ins	61.02
litres	cu meters	10^{-2}
litres	gals	0.2642
litres	quarts (liq)	1.057
Litres/min	gals/sec	4.403×10^{3}
Meters	cms	100
meters	ft	3.281
meters	ins	39.37
meters	kms	10^{3}
meters	mms	10^{3}
meters/min	cms/sec	1.667
meters/min	ft/min	3.281
meters/min	ft/sec	0.05468
meters/min	kms/hr	0.06
meters/min	miles/hr	0.03728
Meters/Sec	ft/min	196.8
meters/sec	ft/sec	3.281
meters/sec	kms/hr	3.6
meters/sec	kms/min	0.06
meters/sec	miles/hr	2.237
meters/sec	miles/min	0.03728
Micron	meters	10^{6}
microns	in	39×10^{6}
Miles/Hr	cms/sec	44.70
miles/hr	ft/min	88
miles/hr	ft/sec	1.467
miles/hr	kms/hr	1.609
miles/hr	meters/min	26.82
Millimetres	cms	0.1
mms	ins	0.0397
Minute (Angle)	radians	2.909×10^{4}
Newton	kgs	0.1020
Ounces	lbs	0.0625
Ozs	gram	28.349527

To convert	Into	Multiply by
Ozs (Fluid)	cu in	1.805
Ozs (fluid)	litters	0.02957
Pounds	Ozs	16
lbs	tons (short)	0.005
lbs	newton (N)	4.44
lbs	gram	453.5924
Lbs of water	cu ft	0.01605
lbs of water	cu in	27.73
lbs of water	gals	0.1204
Lbs of Water/Min	cu ft/sec	2.679×10^{4}
Pounds/Cu Ft	lbs/cu in	5.787×10^{4}
Pounds/Cu In	lbs/cu ft	1728
Pounds/Sq In	atms	0.06804
lbs/sq in	ft water	2.311
lbs/sq in	in mercury	2.036
lbs/sq in	kgs/sq cm	0.07031
Radians	degrees	57.29578
tons (long)	kgs	1016
tons (long)	lbs	2240
tons (long)	tons (short)	1.12000
Tons (Short)	kgs	2000
tons (short)	kps	907.18486
tons (short)	tons (long)	0.89287
tons (short)	tons (metric)	0.90718
Watts	BTUs/min	0.05692
watts	ft-lbs/min	44.26
watts	ft-lbs/sec	0.7376
watts	hp	1.341×10^{3}
watts	kg-calories/min	0.01434
watts	kws	10
Watts/Hours	BTUs	3.415
watts-hrs	ft-lbs	2655
watts-hrs	hp-hrs	1.341×10^{3}
watts-hrs	kg-calories	0.8605
watts-hrs	kg-meters	367.1
watts-hrs	kw-hrs	10

CONVERSION FACTORS

Unit	Factor	Conversion unit
Work		
(Basic unit J - Joules)		
1J = 1 NM = 1 Ws		
ft.-lb. - foot-pound	1,35582	J - Joules
in.-lb. - inch-pound	0,112985	J - Joules
J - Joules	0,737561	ft.-lb. - foot-pound
J - Joules	8,850732	in.-lb. - inch-pound
Pressure		
(Basic unit Pa)		
$1\ Pa = 1\ N/m^2\ 1\ \frac{Kg}{m \times s^2}$		
bar	10^{-1}	Mpa - Mega-Pascal
bar	10^{5}	Pa - Pascal
bar	14.503768	psi - pound per square inch
in.-Hg - inch Hg	33.863788	mb - Millibar
mb - Millibar	0.029528	in.-Hg - inch Hg
Mpa - Mega-Pascal	10	bar
Pa - Pascal	10^{-5}	bar
psi - pound per square inch	0.068948	bar
Area		
(Basic unit m^2) $1\ m^2 = 10^4\ cm^2$		
cm^2 - square centimetre	0,1550	sq. in. - square inch
m^2 - square metre	10,76391	sq. ft. - square foot
sq. in. - square inch	6,4516	cm^2 - square centimetre
sq. ft. - square foot	0,092903	m^2 - square metre
Flow rate		
(Basic unit m^3/s)		
$1\ m^3/s = 10^3\ dm^3/s = 10^3\ l/s$		
cu. ft./min. - cubic foot per minute	28,3168	dm^3 /min (l/min) -cubic decimetre per minute (litre per minute)
dm^3 /min (l/min) - cubic decimetre per minute (litre per minute)	0,035315	cu. ft./min. - cubic foot per minute
dm^3 /min (l/min) - cubic decimetre per minute (litre per minute)	0,016667	dm^3 /s (l/s) - cubic decimetre per second (litre per second)
dm^3 /min (l/min) - cubic decimetre per minute (litre per minute)	0,219969	gal. /min. - gallon per minute (UK)
dm^3 /min (l/min) - cubic decimetre per minute (litre per minute)	0,264172	gal. /min. - gallon per minute (USA)
dm^3 /min (l/min) - cubic decimetre per second (litre per second)	60	dm^3 /min (l/min) - cubic decimetre per minute (litre per minute)
gal. /min. (UK) - gallon per minute	4,54609	dm^3 /min (l/min) - cubic decimetre per minute (litre per minute)
gal. /min. (USA) - gallon per minute	3,78541	dm^3 /min (l/min) - cubic decimetre per minute (litre per minute)
l/min - litre per minute	see dm^3/min	
l/s - litre per second	see dm^3/s	
Velocity		
(Basic unit m/s)		
1m/s = 3,6 km/h		
ft./sec- - foot per second	1,09728	km/h - kilometre per hour
ft./sec. - foot per second	0,3048	m/s - metre per second
km/h - kilometre per hour	0,911344	ft./sec. - foot per second
mil./h - mile per hour	0,44704	m/s - metre per second
m/s - metre per second	3,28084	ft./sec. - foot per second
m/s - metre per second	2,236936	mil./h - mile per hour

Unit	Factor	Conversion unit
Weight		
(Basic unit kg)		
$1\ kg = 10^3\ g = 10^{-3}\ Mg$		
g - gram	0,035274	oz. - ounce
kg - kilogram	2,204622	lb. - pound
lb. - pound	0,453592	kg - kilogram
Mg megagram	1	t - ton
oz. - ounce	28,349525	g - gram
t - ton	0,984206	(Long) ton (UK)
t-ton	1,102311	(Short) ton (USA)
(Long) ton (UK)	1,016047	t - ton
(Short) ton (USA)	0,907185	t - ton
1 lb./ft. - pound per foot	1,488	kg/m - kilogram per metre
kg/m - kilogram per metre	0,672	1 lb./ft. - pound per foot
Length		
(Basic unit m)		
$1m = 10^3\ mm = 10^{-3}\ km$		
ft. - foot	0,3048	m - metre
in. - inch	25,4	mm - millimetre
m - metre	3,28084	ft. - foot
m - metre	1,09362	yd. - yard
mm - millimetre	0,03937	in. - inch
yd. - yard	0,9144	m - metre
Power		
(Basic unit W)		
$1W = 1J/s = 1Nm/s = 10^{-3}\ kW$		
Btu/hr. - British thermal unit per hour	0,293071	W - watt
ft.-lbf./sec.-foot-pound force per second	1,35582	W - watt
hp - horsepower	0,7457	kW - kilowatt
kW - kilowatt	1,341022	hp - horsepower
kW - kilowatt	1,3596	PS- horsepower
hp - horsepower	0,7355	kW - kilowatt
W - watt	3,41242	Btu/hr. - British thermal unit per hour
W - watt	0,737561	ft.-lb./sec. - foot-pound force per second
Volume		
(Basic unit m^3) $1\ m^3 = 10^3\ dm^3 = 10^3\ l = 10^6\ cm^3$		
cm^3 - cubic centimetre	0,061204	cu.in. - cubic inch
cu. ft. - cubic foot	28,3168	dm^3 - cubic decimetre (l - litre)
cu.in. - cubic inch	16,3871	dm^3 - cubic decimetre (l - litre)
cu. yd. - cubic yard	0,764555	m^3 - cubic metre
dm^3 - cubic decimetre (l - litre)	0,035315	cu. ft. - cubic foot
dm^3 - cubic decimetre (l - litre)	0,219969	gal. - gallon (UK)
dm^3 - cubic decimetre (l - litre)	0,264172	gal. - gallon (USA)
gal. - gallon (UK)	4,54609	dm^3 - cubic decimetre (l - litre)
gal. - gallon (USA)	3,78541	dm^3 - cubic decimetre (l - litre)
l - litre	see dm^3	
m^3 - cubic metre	1,30795	cu. yd. - cubic yard

THREAD ABBREVIATIONS

API	American Petroleum Institute Taper Thread
ASAE	American Society of Agricultural Engineers
ASSPT	American National Straight Pipe Thread
ASTPT	American National Taper Pipe Thread
BSP	British Standard Parallel Pipe Thread
BSTP	British Standard Taper Pipe Thread
FIEI	Farm and Industrial Equipment Institute
FPT	Female Pipe Thread
GHT	Garden Hose Thread
IPT	American Iron Pipe Thread-Straight
JIC	Joint Industry Conference (SAE 37°)
JIS	Japanese Industrial Standard
M/MM	Metric Thread
NPS	American National Pipe Thread - Straight
NPSM	American National Pipe Thread - Straight Mechanical
NPT	American National Pipe Thread - Taper
NPTF	American National Pipe Thread - Taper (Dry Seal)
NST	American National Standard Thread - Straight
ORFS	O-ring front seal
R	Rørgjenge (BSP)
RT	British Round Thread
SAE	Society of Automative Engineers (45°)
URT	Dennis Urgan Round Thread
UNC	Unified Coarse Thread
UNF	Unified Fine Thread
VEE	Shelvoke & Drewry "VEE" Round Thread
W	Whithwort Thread

STANDARD ABBREVIATIONS

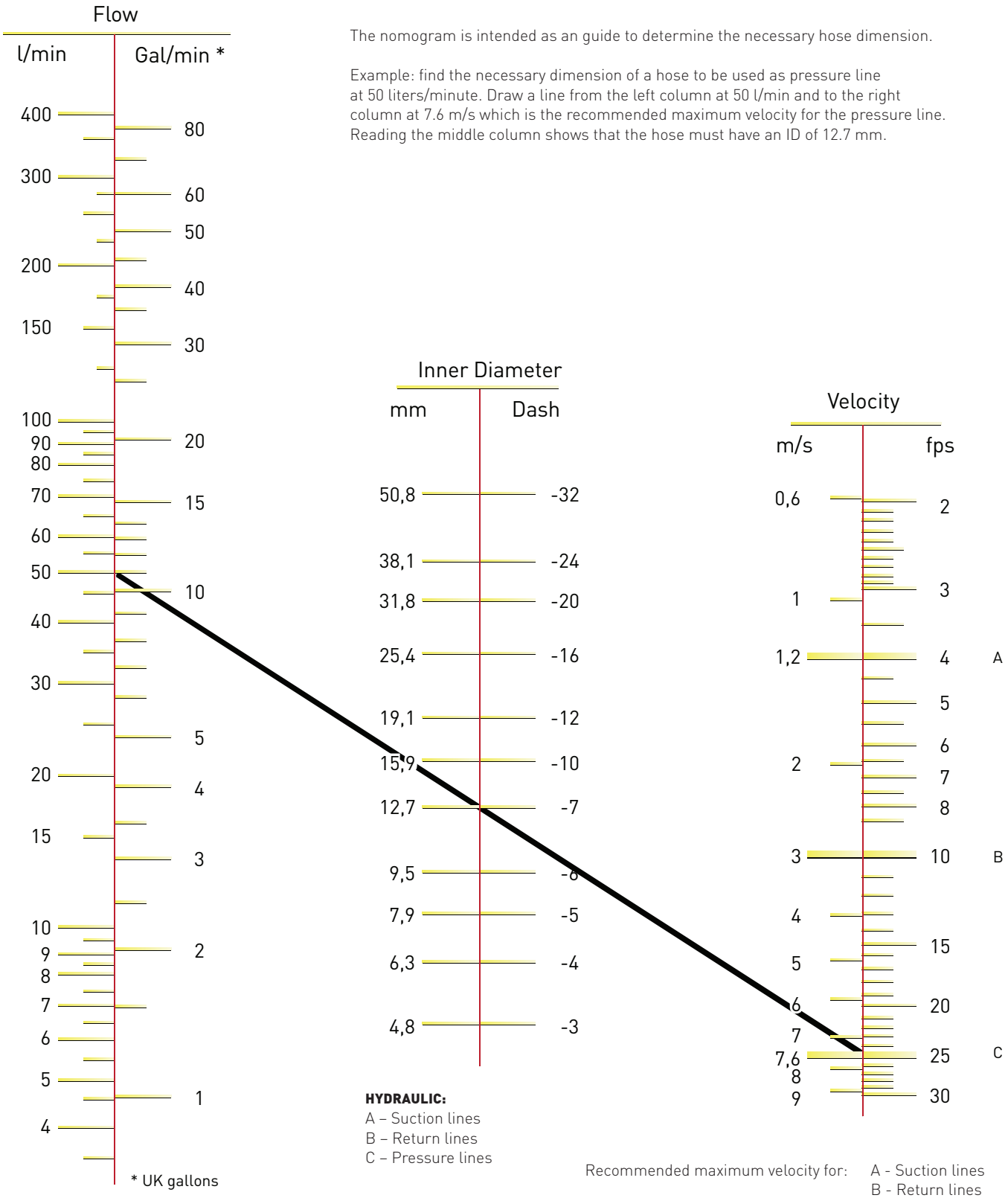
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
API	American Petroleum Institute
ASA	American Standards Association
ASM	American Society for Metals
ASME	American Society for Mechanical Materials
BS	British Standard
DIN	Deutche Industrie Normen
EN	Europeisk standard
ISO	International Organization for Standardization
JIS	Japanese Industrial Standard
MIL-STD	Military Standard (USA)
MSS	Manufactures Standardizaion Society (Valve and Fittings Industry)
NF	Norme Francaise
NS	Norsk Standard
SAE	Society of Automotive Engineers
SIS	Svensk Standard
SMS	Sveriges Mekanfôrbunds Standardcentral
SSG	Standardisation Group of the Swedish Forest Industry
UL	Underwriters Laboratories
UNI	Instuto Nationale Unifacacione (Italia)
USCG	United States Coast Guard

THREAD TABLE FOR HYDRAULIC COUPLINGS

OD mm	ID mm		Type
8,00	6,92	MM	8x1
9,73	8,57	BSP	1/8" x 28
10,00	8,92	MM	10 x 1
10,27	8,77	NPTF	1/8" x 27
11,11	9,74	JIC	7/16" x 20
12,00	10,38	MM	12 x 1,5
12,70	11,33	JIC	1/2" x 20
13,16	11,45	BSP	1/4" x 19
13,57	11,31	NPTF	1/4" x 18
14,00	12,38	MM	14 x 1,5
14,29	12,76	JIC	9/16 x 18
15,88	14,35	SAE	5/8" x 18
16,00	14,38	MM	16 x 1,5
16,66	14,95	BSP	3/8" x 19
17,06	14,80	NPTF	3/8" x 18
18,00	16,38	MM	18 x 1,5
19,05	17,33	JIC	3/4" x 16
20,00	18,38	MM	20 x 1,5
20,96	18,63	BSP	1/2" x 14
21,22	18,32	NPTF	1/2" x 14
22,00	20,38	MM	22 x 1,5
22,23	20,26	JIC	7/8" x 14
22,91	20,59	BSP	5/8" x 14
24,00	22,38	MM	24 x 1,5
26,00	24,38	MM	26 x 1,5
26,44	24,12	BSP	3/4" x 14
26,57	23,67	NPTF	3/4" x 14
26,99	25,10	JIC	1.1/16 x 12
28,00	26,38	MM	28 x 1,5
30,00	27,83	MM	30 x 2
30,16	28,20	JIC	1.3/16" x 12
30,20	27,88	BSP	7/8" x 14
31,23	29,61	NPTF	1" x 11,5
33,25	30,29	BSP	1" x 11
33,34	31,40	JIC	1.5/16" x 12
36,00	33,83	MM	36 x 2
41,28	39,30	JIC	1.5/8" x 12
41,91	38,95	BSP	1.1/4" x 11
41,99	38,45	NPTF	1.1/4" x 11,5
42,00	39,83	MM	42 x 2
45,00	42,83	MM	45 x 2
47,63	45,80	JIC	1.7/8" x 12
47,80	44,85	BSP	1.1/2" x 11
48,05	44,52	NPTF	1.1/2" x 11,5
52,00	49,83	MM	52 x 2
59,61	56,66	BSP	2" x 11
60,09	56,56	NPTF	2" x 11,5
63,20	60,80	JIC	2.1/2 x 12
65,71	62,75	BSP	2.1/4" x 11
72,70	67,62	NPTF	2.1/2" x 8
75,18	72,23	BSP	2.1/2" x 11
87,88	84,93	BSP	3" x 11
88,61	85,53	NPTF	3" x 8
113,03	110,07	BSP	4" x 11
113,97		NPT	4" x 8
140,95		NPT	5" x 8
167,79		NPT	6" x 8
218,44		NPT	8" x 8

NOTE! NPTF to be measured on the fourth thread top

FLOW CAPACITY NOMOGRAM



The nomogram is intended as an guide to determine the necessary hose dimension.

Example: find the necessary dimension of a hose to be used as pressure line at 50 liters/minute. Draw a line from the left column at 50 l/min and to the right column at 7.6 m/s which is the recommended maximum velocity for the pressure line. Reading the middle column shows that the hose must have an ID of 12.7 mm.

HYDRAULIC:
A – Suction lines
B – Return lines
C – Pressure lines

Recommended maximum velocity for:
A - Suction lines
B - Return lines
C - Pressure lines

* Recommended velocities are according to hydraulic fluids with maximum viscosity of 315 S.S.U. and at 38°C, with an ambient temperature between 18° and 68°C

RECOMMENDED FITTING AND ADAPTER INSTALLATION TORQUE

SAE J514 37°C Flare (JIC)

Dash	(Inch)	Lb. ft. Min	Lb. ft. Max	N.m Min	N.m Max
-4	1/4	11	12	15	16
-5	5/16	14	15	19	21
-6	3/8	18	20	24	28
-8	1/2	36	39	49	53
-10	5/8	57	63	77	85
-12	3/4	79	88	107	119
-16	1	108	113	147	140
-20	1 1/4	127	133	172	181
-24	1 1/2	158	167	215	226
-32	2	245	258	332	350

BSPP

Dash	(Inch)	Lb .ft.	N.m
-2	1/8	15	20
-4	1/4	19	25
-6	3/8	36	49
-8	1/2	44	60
-12	3/4	87	118
-16	1	100	137
-20	1 1/4	123	167
-24	1 1/2	151	206

SAE J51453 O-ring Seal

Dash	(Inch)	Lb.ft. Min	Lb.ft. Max	N.m Min	N.m Max
-4	1/4	10	12	14	16
-6	3/8	18	20	24	27
-8	1/2	32	35	43	47
-10	5/8	46	50	60	68
-12	3/4	65	70	90	95
-14	7/8	65	70	90	95
-16	1	92	100	125	135
-20	1 1/4	125	140	170	190
-24	1 1/2	150	165	200	225

JIS (B8363)

Dash	(Inch)	Lb.ft.	N.m
-4	1/4	19	25
-6	3/8	25	34
-8	1/2	43	59
-10	5/8	87	118
-12	3/4	87	118
-16	1	100	137
-20	1 1/4	123	167
-24	1 1/2	151	206
-32	2	180	245

SAE J518 Code 61 Flange Half Bolt

Dash	(Inch)	Lb.ft. Min	Lb.ft. Max	N.m Min	N.m Max
-8	1/2	15	19	20	25
-12	3/4	21	29	28	40
-16	1	27	35	37	48
-20	1 1/4	35	46	48	62
-24	1 1/2	46	58	62	79
-32	2	54	66	73	90
-40	2 1/2	79	91	107	124
-48	3	137	149	186	203

Metric

Thread mm	Lb.ft.	N.m
M12x1.5	15	1
M14x1.5	19	25
M16x1.5	33	45
M18x1.5	37	50
M20x1.5	52	70
M22x1.5	55	75
M24x1.5	74	100
M26x1.5	81	110
M30x2	96	160
M36x2	162	220
M42x2	170	230
M45x2	220	300
M52x2	367	500

SAE J518 Code 62 - Flange Half Bolt

Dash	Lb. ft. (Inch)	Lb. ft. Min	N.m Max	N.m Min	Max
-8	1/2	15	19	20	25
-12	3/4	25	33	34	45
-16	1	42	50	56	68
-20	1 1/4	62	75	85	102
-24	1 1/2	116	133	158	181
-32	2	199	216	271	294

Chemical Resistance Chart – Material Composition

CLASSIFICATION AND CONDITIONS
This chemical recommendation table should only be used as a guide to selecting the most useful hose that is resistant to solvents, acids, salts and other chemical solutions.

The specific classifications in this table are based on empirical experience, as well as laboratory experiments.

Unless otherwise specified, the classification is based on concentrated or diluted solutions at room temperature 20°C (68°F).

When the working temperature for a given chemical differs from the temperature given in classification table, reduced hose lifespan is expected. The reduced duration can only be determined by user evaluation of the hose in each case. Contact Fluid Control for recommendation and assistance if in doubt.

CODES:

Blank	=	No data
E	=	Excellent
G	=	Good
F	=	Fair
C	=	Conditional
X	=	Unsatisfactory

ASTM Codes	Trade Name	Polymer Description
AU	Estane, Desmopan	Polyurethane
IIR	Enjay Butyl	Isobutylene-isoprene-butyl
CM	Tyrin	Chlorinated Polyethylene-butyl
CR	Neoprene, Bayprene	Polycloroprene
CSM	Hypalon	Chloro-sulfonyl-Polyethylene
EPDM	Dutral	Ethylene-Propylene-Diene
TPES	Hytrel	Thermoplastic Polyester
NBR	Chemigun-Perbunan N	Acrylonitrile-Nitrile
PA	Nylon, Zytel	Polyamide
NR	SMR	Natural rubber
T	Thiokol	Polysulfide
SBR		Styrene-Butadiene
EPDM/PP	ALFATER XL	EPDM + PP
PTFE	Teflon	Fluorocarbon resin
FKM	Viton	Fluoroelastomer
XLPE		Crosslinked Polyethylene

CHEMICAL RESISTANCE CHART

CHEMICAL OR MATERIAL CONVEYED	COMPOUND																
	AU	IIR	CM	CR	CSM	EPDM	TPES	NBR	PA	NR	T	SBR	EPDM_PP	PTFE	FKM	XLPE	UHMWPE
ACETALDEHYDE	X	E		F	C	G		X	E		X	X		G		E	G
ACETIC ACID, GLACIAL	X	G	G	X	X	G	E	C	X	X	X	X	X	C	X	E	E
ACETIC ACID, 10%	X	E	E	F	F	E	E	X	E	F	F	F	E	G	C	E	G
ACETIC ACID, 50%	X	E	E	X	X	E	E	X	C	G	F	X	C	G	C	E	E
ACETIC ANHYDRIDE	X	E	E	G	G	E	C	X	G	F	G	X	X	G	X	E	G
ACETIC OXIDE		E	E		G					F		G		E	X	E	G
ACETONE	X	E	E	X	F	E	G	X	E	C	E	C	E	G	X	E	E
ACETONE CYANOHYDRIN		E	E		F					F		F			X	E	G
ACETONITRILE			E														
ACETOPHENONE	X	E		X	X	E		X		X		X		E	X		
ACETYL ACETONE	X	G	G	X	X	E		X		X		X			X	E	G
ACETYL CHLORIDE	X	X	E	X	X	X		X		X		X		G	E	G	G
ACETYL OXIDE		E	E		G					F		G			X	E	G
ACETYLENE	C	E		G	E	E	E	E	E	E	E	E		F	F	F	E
ACETYLENE DI-+TERA CHLORIDE		X			X					X		X			G	G	G
ACROLEIN		E			G					G		F			E	E	G
ACRYLENITRILE	X	X	E	X	C	X		X	G	X		X		G	X	C	G
ACRYLIC ACID			E														G
ADIPIC ACID	E	E		G	E	G		G				G					
AIR, +300F	X			X	X	X		X		X		X			X		
ALK-TRI		X			X			X		X					E	E	I
ALLYL ALCOHOL		E	E		E					E		E			E	E	E
ALLYL BROMIDE		X	G		X					X		X			G	G	G
ALLYL CHLORIDE		F	G	X	X	X				X		X			G	G	G
ALUM		E	E	E	E	E		E	C	E	E	E		E	E	E	E
ALUMINIUM ACETATE	X	G	E	G		E		F		X		X		E	X	E	E
ALUMINIUM CHLORIDE	E	E	E	E	E	E	C	E	X	E	E	E		E	E	E	E
ALUMINIUM FLUORIDE	C	E		E	E	E		E	X	G		E		E	C	E	
ALUMINIUM FORMATE		G			X					X		X			X	E	E
ALUMINIUM HYDROXIDE			E	E	G			G		E							E
ALUMINIUM NITRATE	C	E	E	E	E	E		E		E		E		E	E	E	
ALUMINIUM SULFATE	X	E	E	E	E	E	C	E	X	E	E	E		E	E	E	E
ALUMUS-NH3-CR-K		E		E	E	E		E	X	E		E		E	E		
AMINES-MIXED	X	G		G	X	G		X		G		G			X		
AMINOBENZENE			G														G
AMINODIMETHILBENZENE			C														
AMINOETHANO			E														E
AMINOXYLENE			C														
AMMONIUM CARBONATE	G	E		E		E		X	G	E		E			C		
AMMONIUM CHLORIDE	E	E	E	E	E	E	E	E	X	E	E	E		E	C	E	E
AMMONIUM HYDROXIDE	X	E	E	E	G	E	C	X	E	X	C	X		E	C	E	E
AMMONIUM NITRATE	X	E		E	E	E		E	E		C	E		E	C	E	E
AMMONIUM PHOSPHATE, DIBASIC		E	E	E	E	E		E	E	E		E		E	C	E	E
AMMONIUM SULPHATE	E	E	E	E	E	E	C	E	E	E	C	E		E	X	E	E
AMMONIUM SULPHITE		E	E		E					E		E			E	E	E
AMMONIUM THIOSULFATE	G	E	E		E					E		E		E	E	E	E
AMYL ACETATE	X	E	C	X	X	X	C	X	E	X	E	X	X	C	X	E	E
AMYL ACETONE		G			X					X		X			X	E	
AMYL ALCOHOL	X	E	E	G	E	E	E	X	E	E	E	E	X	E	G	E	E
AMYL BROMIDE			C														
AMYL CHLORIDE	C	X	G	X	X	X				X		X		E	G	G	E
AMYL ETHER			E														
AMYLAMINE		E	G		F					G		G					E
ANETHOLE		X	X		X				G	X		X			G	G	F
ANILINE	X	E	G	X	X	C	X	X	X	X	X	X	E	E	C	E	E
ANILINE DYES	X	G	G	G	G	G		X	X	G		G		F	G	E	G
ANILINE OIL	X	G		X	X	G		X		X		X			C		G
ANIMAL FATS	C	G	E	C	X	C	E	E	E	X	E	X	X		E	E	E
ANTIMONY PENTACHLORIDE		X			X					X		X				E	E
AQUA REGIA	X	X	G	X	C	C		X		X		X		E	G	G	G
ARGON	E	G		X	X	E	E	C	E	X		X		E			
ARSENIC ACID	C	E	E	E	E	E		E		E		E		E	E	E	E
ASPHALT	G	X		X	X	X	C	X	E	X	F	X		E	E	X	X
ASTM FUEL A	E	X	E	E	G	X	E	E	E	X		X	X	E	E		
ASTM FUEL B	E	X	G	X	X	X	E	E	E	X		X	X	E	E		
ASTM FUEL C	X	X	G	X	X	X	E	G	E	X		X	X	E	E		
ASTM OIL NO.1	E	X	E	E	G	X	E	E	E	X	E	X	X	E	E	E	E
ASTM OIL NO.2	E	X	E	G	X	X	E	E	E	X		X	X	E	E	E	E
ASTM OIL NO.3	E	X	G	X	X	X	C	E	E	X	E	X	X	E	E	E	E
ASTM OIL NO.4	X	X		X	X	X		G		X		X			E		
AUTOMATIC TRASMISSION FLUID	G	X	E	G	C	X		E		X		X			E		

CHEMICAL OR MATERIAL CONVEYED	COMPOUND																
	AU	IIR	CM	CR	CSM	EPDM	TPES	NBR	PA	NR	T	SBR	EPDM_PP	PTFE	FKM	XLPE	UHMWPE
BANANA OIL		C	G			C		X				X					
BARIUM CHLORIDE	G	E	E	E	E	E		E	X	E	G	E		E	E	E	E
BARIUM HYDROXIDE	E	E	E	E	E	E	C	E	E	E	G	E		E	E	E	E
BARIUM SULFIDE	E	E	E	E	E	E		E	F	E		E		E	E	E	E
BEER	X	E	E	G	E	G	G	C	G	E		E		E	E		
BEET SUGAR LIQUORS	X	E	E	G	E	E		E	E	E		E		E	E		
BENZAL CHLORIDE		G	X													E	E
BENZALDEHYDE	X	E	C	X	X	E	X	X	E	X		X	X	C	X	E	E
BENZENE	X	X	X	X	X	X	C	X	E	X	F	X	X	G	E	E	G
BENZENE CARBOXYLIC ACID			E														
BENZINE	G	X		G	X	X		E	E	X	E	X		E	E	E	E
BENZOIC ACID	X	X	E	X	X	X		X	G	X		X		G	E	E	E
BENZOL			G			X		X	F					E			G
BENZOTRICHLORIDE			X													G	F
BENZYL ACETATE		G	G		X					X		X			X	E	E
BENZYL ALCOHOL	X	X	E	C	F	X		X	C	X		X	X	E	E	E	E
BENZYL CHLORIDE		G	X	X	C	G		X		C	X	C		E	C	E	E
BENZYL ETHER			C														
BIS (2-CLOROETHYL) ETHER			G														
BLACK SULFATE LIQUOR	X	E		G	G	E		G	F	G	X	G		E	E		E
BLEACH	X	G		X	F	G		X		X	X	X		E	G	G	F
BORAX SOLUTION	G	E	E	E	E	E	E	C	E	G	X	G	G	E	E	E	
BORIC ACID	E		E	E	E	E	E	E	E	E	X	E	E	E	E	E	
BRAKE FLUID (HD-557)12 DAYS		G	E	G	G	E		C	E		X	E		E	X		
BRINE		E	E	E	E	E		F	C	E		E		E	E	E	E
BROMACIL						E											
BROMOBENZENE	X	X	X	X	X	X		X		X	C	X			G	C	G
BROMOCHLOROMETANE		G	G	X	X	G		X		X	X	X			X	G	F
BROMOETHANE			G														
BROMOTOLUENE		X	X		X					X		X			G	F	X
BUGDIOXANE																E	
BUNKER OIL	G	X		X	X	X		E		X	E	E		E	E	E	G
BUTADIENE	X	X		X	C	X		X		X	C	X		E	G	E	
BUTANE	E	E	G	E	G	X	E	E	E	X	E	X		E	E	E	
BUTANOIC ACID			E														
BUTANOL (BUTYL ALCOHOL)	G	E	E	E	E	G	E	E	E	E	G	E	G	E	E	E	E
BUTANONE	X		G				X	X	E				X	G		E	G
BUTOXYETHANOL			E														
BUTYL ACETATE	X	G	G	X	X	C	C	X		X	X	X		C	X	E	E
BUTYL ACRYLATE		X	G	X	X	X		X		X	G				X	G	G
BUTYL ALCOHOL	G	E	E	E	E	E		E		E	G	E		G	E	E	E
BUTYL ALDEHYDE		E	G							F					X	E	E
BUTYL BENZYL PHTHALATE		E		X	X	E		C		X	C	X			C	E	E
BUTYL CARBITOL		E	E	C	C	E		X		X	C	X		E	C	C	E
BUTYL CELLUSOLVE	E	E	E	X	X	G		C		X	E	X		E	X	E	E
BUTYL CHLORIDE		F	C		X					X		X			G	G	G
BUTYL ETHER	G	C	E	X	X	C		C		X	G	X			X	E	E
BUTYL ETHER ACETALDEHYDE		E			X					X		X			X	E	E
BUTYL ETHYL ETHER		G			X					X		X				E	E
BUTYL OLEATE		G		X	X	G		X		X		X			E		
BUTYL PHTHALATE		E	C		X					X		X			F	E	E
BUTYL STEARATE		X	G	X	X	X		G		X	E	X		E	C	E	E
BUTYLENE	X	X		C	X	X		G		X	G	X			E		F
BUTYRALDEHYDE	X	E	G	X	X	G		X		X	C	X		E	X	E	E
BUTYRIC ACID		F	E	X	X	G	C	X		F		X		E	G	E	E
BUTYRIC ANHYDRIDE		F			G					F		X			X	E	E
CADMIUM ACETATE		G	E		X					X		X				E	E
CALCIUM ALUMINATE		E			E					E		E			E	E	E
CALCIUM BICHROMATE		E			F											G	F
CALCIUM BISULFIDE				C		X	G	E	F					E			
CALCIUM CHLORIDE	E	E	E	E	E	E	E	E	C	E	E	E		E	E	E	E
CALCIUM HYDROXIDE	E	E	E	E	G	E	E	E	E	E	X	G		E	E	E	E
CALCIUM HYPOCHLORITE	X	G	E	X	F	E	E	X	X	X	X	X		E	X	C	G
CALCIUM NITRATE	E	E	E	E	E	E		E	E	E	E	E		E	E	E	E
CALCIUM SULFIDE	E	E	E	E	E	E		G		E	X	E		E	E	E	E
CALCIUM ACETATE	X	G	E	G	X	E		G		X	X	X		E	X	E	E
CAPRYLIC ACID		F	E		G					F		X				E	E
CARBAMIDE			E														
CARBITOL	X	F	E	G	X	G		G		X	G	X		E	G	E	E
CARBOLIC ACID PHENOL		E	E	X	X	G		X		X	X	X		E	E	E	E
CARBON DIOXIDE	E	E		C	E	C	E	X	E	E	E	E		E	G	E	E
CARBON DISULFIDE	X	X	C	X	X	X		X	X	X	G	X		E	E	C	F
CARBON MONOXIDE	G	E		C	E	C	E	E	E	E	X	G		E	E	E	
CARBON TETRACHLORIDE	X	X	X	X	X	X	C	X	G	X	C	X	X	E	E	G	G

CHEMICAL OR MATERIAL CONVEYED	COMPOUND																
	AU	IIR	CM	CR	CSM	EPDM	TPES	NBR	PA	NR	T	SBR	EPDM_PP	PTFE	FKM	XLPE	UHMWPE
CARBON ACID	X	E	E	X	E	G	X	X	X	E	E	E	X	E	E	E	E
CASTROL OIL	G	E	E	E	E	G	G	E	E	F	X	G		E	E	E	
CAUSTIC SODA (SEE SODIUM HYDROXIDE)																	E
CELLOSOLVE ACETATE	X	E		X	X	G		X	F	X	E	X		E	X	E	E
CELLUGUARD	X	E		E	E	G		E	E	E	E	E		E	E		
CETYLIC ACID			E														
CHINA WOOD OIL (TUNG OIL)	C	C		G	X	X		E		X	C	X			E		
CHLORINATED SOLVENTS	X	X		X	X	X		X	C	X	X	X		E	E	G	G
CHLORO-2-PROPANONE			X														
CHLOROACETIC ACID	X	F		X	X	X	X	X	X	X	X	X	X	C	X	E	E
CHLOROACETONE	X	G	X	X	X	E		X		X	X	X		E	X	E	E
CHLOROBENZENE	X	X	X	X	X	X	X	X	E	X	X	X	X	E	E	G	G
CHLOROBUTANE		F	C		X					X		X			E	G	F
CHLORODANE						E		E									
CHLOROTHYL BENZENE		X	X		X					X		X			G	E	E
CHLOROFORM	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	G	G
CHLOROPENTANE		X	G		X					X		X			E	E	E
CHLOROSULFONIC ACID	X	X	X	C	X	X	X	X	X	X		X		C	X	G	X
CHLOROTOLUENE	X	X	X	X	X	X		X		X	X	X		E	G	G	G
CHLOROX	X	G	E	G	G	G		G		X	X	X			E		
CHROME PLATING SOLUTIONS	X	X		X	X	G		X		X	X	X			E		
CHROMIC ACID	X	F	E	X	G	C	X	X	X	X	X	X	X	E	C	G	G
CHROMIUM TRIOXIDE			E														
CINNAMENE			C														
CIS-9-OCTADECENOIC ACID		G	E		X					X		X			C	E	
CITRIC ACID	E	E		E	E	E	E	E	E	E	X	E	E	E	C	E	
COAL OIL		X			X	X		X	E	X		X	X		E	E	E
COAL TAR		X		G	X	X		E		X		X			E	E	E
COAL TAR NAPHTHA		X			X					X		X			E	E	E
COCONUT OIL	C	G		G	X	C		E		X	X	X		E	C	E	
COKE OVEN GAS	X	X		X	X	X		X	E	X	X	X		C	E	E	
COOLANOL (MONSANTO)	X			E	G	X	X	E		X	X	X			E		
COPPER CHLORIDE	G	E	G	C	E	E	E	C	C	F	X	E		X	E	E	E
COPPER CYANIDE	E	E		E	E	E		E		E		E		E	E	E	
COPPER HYDRATE		E			G					F		G			F	E	E
COPPER HYDROXIDE		E			G					F		G			F	E	E
COPPER SULFATE	G	E	E	E	E	E	E	E	X	F	X	E		E	E	E	E
CORN OIL	G	E	G	C	X	C	G	E	G	X	X	X		G	E	E	
COTTONSEED OIL	G	C	G	C	X	C	G	C	E	X	X	X		E	E	C	G
CREOSOTE	C	X		C	X	X		C	X	X	C	X	X	E	E	E	E
CRESOLS	X	X	E	X	X	X		X	X	X	X	X	X	E	E	E	E
CRESYLIC ACID	X	X		X	X	X		X		X	X	X		E	E	E	E
CROTONALDEHYDE		E	E		X					X		X			X	E	E
CRUDE OIL		X		X	X	X		G	E	X		X		E	E	E	E
CUMENE	X	X	C	X	X	X		X		X	G	X		E	E	E	E
CUPRIC CARBONATE		E	E		E					F		E			E	E	E
CUPRIC HYDROXIDE			E														
CUPRIC NITRATE	G	E	E		E					F		E			E	E	E
CUPRIC SULFATE	G	E	E		E					F		E			E	E	E
CUTTING OIL	E	X		G	G	X		E		X	E	X		E	E		
CYCLOHEXANE	G	X	E	X	X	X	E	G	E	X	G	X	X	E	X	G	E
CYCLOHEXANOL		X	E	G	X	X		C	E	X	G	X	X	E	E	E	E
CYCLOHEXANONE	X	X	C	X	X	X		X	E	X	G	X	X	E	X	E	E
CYCLOPENTANE		X	G		X					X		X			E	E	E
CYCLOPENTANOL		X	E		X					X		X			G	E	E
CYCLOPENTANONE		X	G		X					X		X				E	E
CYCLOPENTIL ALCOHOL			E														
D-FURALDEHYDE			E														
DDT IN KEROSENE		X		F	X	X		E	E	X	E	X		E	E	E	E
DECAHYDRONAPHTHALENE			C														
DECAHYDROXYNHAPHTHALENE			C														
DECALIN		X	X	X	X	X		X		X	G	X		E	E	E	X
DECYL ALCOHOL		E	E		E					E		E			G	E	E
DECYL ALDEHYDE		E			X					X		X			X	E	E
DECYL BUTYL PHTHALATE		E			X					X		X			F	E	E
DECIL CARBINOL			E														
DETERGENT, WATER SOLUTION	X	E	G	G	G	E		E		G		G		E	E		
DEVELOPING FLUID (PHOTO)		G		E	E	G		E		E	E	G			E		
DEXTRON	G	X		G	X	X		E		X		X			E		
DI (2ETHYLHEXYL) ADIPATE			C														
DI (2ETHYLHEXYL) PHTHALATE			C														
DI-ISO-BUTYLENE	X	X		X	X	X		G		X	E	X			E	E	
DI-ISO-DECYL PHTHALATE			E														

CHEMICAL OR MATERIAL CONVEYED	COMPOUND																
	AU	IIR	CM	CR	CSM	EPDM	TPES	NBR	PA	NR	T	SBR	EPDM_PP	PTFE	FKM	XLPE	UHMWPE
DI-ISO-PROPANOLAMINE		E	E														
DI-ISO-PROPYL ETHER		F	E		X					X		X				E	
DI-ISO-PROPYL KETONE	X	G	C	X	X	E		X		X	G	X		E	X	E	
DI-P-MENTHA-1,8-DIENE			G														
DIACETONE ALCOHOL	X	E	E	X	X	X		X		X	C	X		E	X	C	E
DIACETYLMETHANE			E														
DIALLYLPHTHALATE			G														
DIAMMONIUM PHPSPHATE									E								
DIAMYL NAPHTHALENE		E			X					X		X			F	E	
DIAMYLAMINE		E	E		G					F		G					E
DIAMYLENE		X	G		X					X		X			E	E	E
DIAMYLPHENOL		X	E		X					X		X			E	E	E
DIBENZYL ETHER	G	E	C	X	X	X		X		X	C	X		E	X	E	E
DIBROMOBENZENE		X			X					X		X			E	E	G
DIBROMOMETHANE			C														
DIBUTYL ETHER	C	G	E	X	X	C		X		X	E	X		E	C	E	E
DIBUTYL PHTHALATE	X	C	C	X	X	C	E	X	E	X	G	X		E	C	E	E
DIBUTYL SEBACATE	X	E	G	X	X	G		X		X	G	X		E	F	E	E
DIBUTYLAMINE	X	X	E	X	X	X		X		X	X	X		E	X		E
DICALCIUM PHOSPHATE		E			E					E		E			E	E	E
DICHLORO ETHYLENE	C						X		C				X				F
DICHLOROACETIC ACID		F	G		X					G		X			X	E	E
DICHLOROBENZENE	X	X	X	X	X	X	X	X	E	X	C	X	X	G	E	G	G
DICHLOROBUTANE	X	X	C	X	X	X		G		X	C	X			E	E	E
DICHLORODIFLUOROMETHANE		X			X					X		X			G		I
DICHLOROETHANE		X	C		X					X		X			E	E	E
DICHLOROETHYL ETHER		X	G		X					X		X				E	E
DICHLOROHEXANE		X	C		X					X		X			E	E	E
DICHLOROMETHANE		X	C		X					X		X			E	E	E
DICHLOROPENTANE		X	C		X					X		X			E	E	E
DICHLOROPROPANE		X	C		X					X		X		E	E	E	E
DICHLOROPROPENE														E	E	E	
DICHLOROTOLUENE			X														
DIESEL OIL	C	X		C	C	X	C	E	E	X	E	X	X	E	E	C	E
DIETHANOL AMINE		E	E		F		C			G		G					E
DIETHYLBENZINE	X	X	C	X	X	X		X		X	G	X			E	E	E
DIETHYL ETHER	G	X	E	C	X	X		X	G	X	E	X		G	X	E	
DIETHYL KETONE		G	C		X					F		X			X	E	E
DIETHYL OXALATE		E	E		X					E		E				E	E
DIETHYL PHTHALATE		E	G	X	X	G	E		E	X		X		E	F	E	E
DIETHYL SEBACATE	X	E	G	X	X	C	G	X		X	G	X	E		E		E
DIETHYL SULFATE			E														E
DIETHYLAMINE	C	E	E	C	C	G		C		G	G	G		E	X	C	E
DIETHYLENE GLYCOL	X	E	E	E	E	E		E		E	X	E			E	C	E
DIETHYLENE OXIDE			G														
DIETHYLENETRIAMINE		E	E		F					G		G					E
DIETHYLTRIAMINE		E	E		F					G		G					E
DIHYDROXY SUCCINIC ACID			E														
DIHYDROXYDIETHYL ETHER		E	E		E					E		E			E		E
DIISOBUTYL KETONE		G		X	X	G		X		X	E	X			X	E	E
DIISODECYL PHTHALATE		E			X					X		X			F	E	E
DIISOOCTYL ADIPATE		E			X					X		X			F	E	E
DIISOOCTYL PHTHALATE		E			X					X		X			F	E	E
DIMETHYL CARBINOL			E														E
DIMETHYL KETONE			E														E
DIMETHYL PHTHALATE		G	E	X	X	G		X		X	G	X		E	G	E	E
DIMETHYL SULFATE			E														E
DIMETHYL SULFIDE			G														G
DIMETHYL-3-PENTANONE			C														
DIMETHYL-4-HEPTANONE			C														
DIMETHYLAMINE			E											E		E	E
DIMETHYLANILINE		C	C	C	X	G		C				C		E			
DIMETHYLBENZENE			X														E
DIMETHYLBUTANE			G														
DIOCTYL ADIPATE			C														E
DIOCTYL PHTHALATE	X	E	C	X	X	C	G	C	G	X	G	X		G	G	E	E
DIOXALANE	X	C	G	X	X	G		X		X	X	X		E	X	E	E
DIOXANE	X	G	G	X	X	G		X		X	X	X		E	X		E
DIPENTENE	X	X	G	X	X	X		G		X	E	X		E	E		
DIPENTYLAMINE			G														
DIPROPYLAMINEOLAMINE		E	G		G					G		G					E
DIPROPYLENE GLYCOL		E	E		E					E		E			E		E
DISODIUM PHOSPHATE		E	E		E					E		E				E	E

CHEMICAL OR MATERIAL CONVEYED	COMPOUND																
	AU	IIR	CM	CR	CSM	EPDM	TPES	NBR	PA	NR	T	SBR	EPDM_PP	PTFE	FKM	XLPE	UHMWPE
DIVINYL BENZENE		X	X		X					X		X			E	E	E
DOWELL INHIBITOR			G														
DOWFAX 2A1 SOLVENT			E														
DOWFAX 2A1 TA			E														
DOWFAX 6A1 SOLVENT			G														
DOWFAX 6A1 TA			E														
DOWTHERMN, A AND E		X	C	X	X	X		X	C	X	X	X		E	E	E	E
DRY CLEANING FLUIDS		X		X	X	X		C				X			E		
DUCGKIRIOEBAANE		X															
DURD AW-16,31						X		E	E					E			
DURO FR-HD						X		E	E					E			
ETHANOIC ACID			E											C			
ETHANOL (GRAIN ALCOHOL)	X	E		E	E	E	E	C	E	E	E	E	E	C	C	E	E
ETHANOLAMINE		E	E	G	C	E		G		G	G	G		E	X	C	E
ETHERS	G	X		X	X	C		X	E	X	E	X		E	C		
ETHYL ACETATE	X	G	G	X	X	C	C	X	E	X	G	X	E	E	X	E	E
ETHYL ACETOACETATE		G	E	X	X	G		X		X		X		E	X	E	E
ETHYL ACETONE			G														
ETHYL ACRYLATE		G	G	X	X	G		X		X		X			X	G	E
ETHYL ALCOHOL		E		E	E	E	E	C	E	E	E	E	E	C	C	E	E
ETHYL ALDEHYDE		E								F					X	E	E
ETHYL ALUMINIUM DICHLORIDE		X			X					X		X			G	G	F
ETHYL BENZENE		X	X	X	X	X		X		X		X		E	E	E	E
ETHYL BROMIDE	C	X	C	X	X	X		G		X					E		
ETHYL BUTYL ACETATE		G			X					X		X			X	E	E
ETHYL BUTYL ALCOHOL		E			E					E		E			G	E	E
ETHYL CELLULOSE	G	G		G	G	G		G	C	G	X	G		E	X	E	
ETHYL CHLORIDE	C	F		X	X	X	X	X	E	X	X	X	X	E	E	G	G
ETHYL DICHLORIDE		X	C		X					X		X			G	G	G
ETHYL DIISOBUTYLTHIO-CABARMATE										E	F	E					
ETHYL ETHER	G	C	E	X	X	X		C		X	E	X		E	X	E	E
ETHYL FORMATE		G	E	G	X	G		X		X	X	X		E	X	E	E
ETHYL IODIDE		X	C		X					X		X			G	G	F
ETHYL OXALATE	E	X	E	X	X	X		X		X	E	X		E	E	E	E
ETHYL PHTHALATE			G														E
ETHYL SILICATE		E	E	E	G	E		E		F	G	F		E	E	E	E
ETHYL-N-BUTYL KETONE		G	C		X					X		X			X	E	E
ETHYL-1-BUTANOL		E	E		E					E		E			E	E	E
ETHYLAMINE		G	E		F					F		F					E
ETHYLENE CHLOROHYDRIN	X	G		C	G	C	X	X		G	G	G	X	E	E	E	G
ETHYLENE DIAMINE	X	E	G	E	F	E		E		G	X	G		E	X	E	E
ETHYLENE DIBROMIDE	X	X	C	X	X	C		X		X	X	X			G	G	F
ETHYLENE DICHLORIDE	X	X	C	X	X	X	X	X	E	X	X	X	X	E	G	G	G
ETHYLENE G. MONOETHYL E ACETATE												E					
ETHYLENE G. MONOBUTYL ETHER																E	
ETHYLENE G. MONOETHYL ETHER																E	
ETHYLENE G. MONOEHEXIL ETHER																E	
ETHYLENE GLYCOL	E	E	E	E	E	E	E	E	E	E	C	E	E	E	E	C	E
ETHYLENE OXIDE	X	C		X	X	C	E	X	E	X		X		X	X		E
FATTY ACIDS		X	G	C	X	X		C	E	X	X	X	X	E	E	E	G
FERRIC BROMADE		E			E					E		E			E	E	E
FERRIC CHLORIDE	E	E	E	G	E	E	C	E	X	E	E	E		E	E	E	E
FERRIC NITRATE	E	E	E	E	E	E		E	E	E	E	E		E	E	E	
FERRIC SULFATE		E	E	E	E	E		E	X	E	E	E		E	E	E	E
FERROUS ACETATE		G			X					X		X			X	E	E
FERROUS CHLORIDE	E	E		E	E	E	E	E	E	E	E	E		E	E	E	E
FERROUS SULFATE	E	E	E	E	E	E	E	G	E	E		E		E	E	E	E
FLUOBORIC ACID		E	E	C	E	E		C		E	X	G		E	C	C	G
FLUORINE	X	C		X		X		X	X	X	X	X	X	X	G	X	X
FLUOSILICIC ACID		E	E	C	E	E	C	C		E	X	C		E	C	C	G
FORMALDEHYDE	X	E	E	C	C	G	C	X	E	G	G	C	E	E	X	E	E
FORMALIN		E	E		E					G		G			E	E	E
FORMIC ACID	X	E	E	C	F	E	C	X	X	G	C	G	E	E	X	C	E
FREON SO2				E		E			E				X	E			
FREON 113				E	E	C	E	E		C		G	X	E	G		
FREON 12	G	X	E	G	X	X	G	G	E	X	G	X	X	X	G	C	E
FREON 22	X	F	E	X	X		X	X	X	X	X	X	X	X	X	C	E
FUEL A (ASTM)		X		G	X	X		E		X	E	X			E	G	G
FUEL B (ASTM)		X		F	X	X		E		X	E	X			E	G	G
FUEL OIL	X	X	E	G	C	X	X	E	E	X	E	X		E	E	C	E
FURAN		X	E	X	X	C		X		X	G	X					
FURFURAL		E	E	X	X	C		X		X	X	X	E	E	X	E	E
FURFURAN			E	X	X	C		X		X		X		E			

CHEMICAL OR MATERIAL CONVEYED	COMPOUND																
	AU	IIR	CM	CR	CSM	EPDM	TPES	NBR	PA	NR	T	SBR	EPDM_PP	PTFE	FKM	XLPE	UHMWPE
FURFURYL ALCOHOL	X	F	E	X	X	G		X	E	X	X	X	E	G	G	E	E
GALLIC ACID	X	G	E	X	C	G		C		E	C	C		E	C	C	E
GALLOTANNIC ACID			E														
GAS, COAL									E				X				
GAS, HIGH OCTANE	C			X		X	E	G	E				X	E			
GASOLINE	G	X	G	X	X	X	E	E	E	X	E	X		E	E	E	G
GLACIAL ACRYLIC ACID																E	
GLUCONIC ACID		F	E		G					X		X				E	E
GLUCOSE	X	E		G	E	G		G	G	E	X	E		G	E	E	G
GLYCERINE	X	E	E	E	E	E	E	E	E	E	G	E	X	E	E	C	E
GLYCEROL	X	E	E	E	E	E		E	E	E	E	E		E	E		
GLYCOGENIC ACID			E														
GLYCOLS	X	E	E	E	E	E	G	E	E	E	E	E	G	E	E	E	G
GLYCONIC ACID			E														
GLYCLYL ALCOHOL			E														
GREASE	E	X		X	X	X	E	E	E	X	E	X	X	E	E	G	E
GREEN SULPHATE LIQUOR		E	G	G	E	E		G	C	E	X	E		E	E	E	E
HALON 1211				E				E									
HELIUM	G	E		E	E	E	G	E	E	E	E	E		G	E		
HEPTALDEHYDE			G														
HEPTANAL		E	G		X					X		X				E	E
HEPTANE	G	X	E	G	X	X	G	E	E	X	E	X		E	E	G	E
HEPTANE CARBOXYLIC ACID			E														E
HEPTANOIC ACID			E														
HEPTANONE			C														
HEXADECANOIC ACID			E														
HEXALDEHYDE	G	G		E	C	E		X		X	G	X		E	X	E	E
HEXANE	G	X	G	C	X	X	X	C	E	X	E	X		E	E	G	G
HEXANOL		E	E		E					E		E			G	E	E
HEXENE		X	E	G	G	X		G		X		X		E	E	E	G
HEXYL ALCOHOL	X	C	E	G	C	C		E		E	E	E		E	G	E	E
HEXYL METHYL KETONE		G			X					X		X			X	E	E
HEXYLAMINE		E	G		F					G		G					E
HEXYLENE GLYCOL		E	E		E					E		E			E		E
HISTOWAX			E														
HYDRAULIC & MOTOR OIL	E	X	E	C	G	X	E	E	E	X	E	X	X	E	E	E	
HYDRAZINE	X	E	C	G	E	X	G	X	E	X	E			X			
HYDROBROMIC ACID	X	E	E	X	E	E		X	X	E	C	X		E	C	C	G
HYDROCLORIC ACID	C	F	E	X	X	X	C	X	X	E	X	X	E	E	E	E	E
HYDROCIANIC ACID		E	C	E	C	C	X	C	G	X	G		E	E			
HYDROFLUORIC ACID	X	E	E	X	E	X	X	X	X	X	X	X	X	E	G	C	E
HYDROFLUOSILICIC ACID		E	E	C	E	E	C		E	X	C		E	C	C		G
HYDROGEN CHLORIDE ANHYDROUS			E														
HYDROGEN DIOXIDE (10%)		F								X		X			E		G
HYDROGEN GAS	E	E	E	E	G	E	E	E	E	G	C	G		E	C	E	E
HYDROGEN PEROXIDE OVER 10%		X	E	X	X	X		X	X	X	X	X		E	E	C	F
HYDROGEN PEROXIDE 10%		F	E	F	F	F		X	X	X	X	X		E	E	C	G
HYDROGEN SULFIDE (WET)	X	E	G	C	X	E	E	X	X	X	E	X		E	X	E	G
HYDROXY BENZENE			E														
HYDROXYISOBUTYRONIRILE			E														
HYDROXYTOLUENE			E														
HYVAR VXL						E											
IMINODI-2-PROPANOL			E														
IMINODIETHANOL			E														
IODINE		C	E	X	E	C		C		C	C	C			C	C	E
IODINE PENTAFLUORIDE	X	X		X	X	X		X		X	X	X			X		
IODOFORM				X		X		E		X		X					
ISO-BUTANAL			G														E
ISO-BUTYLAMINE			G														E
ISO-BUTYLBROMIDE			C														G
ISO-BUTYLCARBINOL			E														E
ISOCYANATES																E	E
ISOOCTANE	E	X	G	C	X	X	E	E	E	X	E	X	X	E	E	E	G
ISOPROPYL ACETATE	X	G		X	X	X		X		X	G	X		E	X	E	E
ISOPROPYL ALCOHOL	X	E	E	C	E	E	E	C	E	E	E	E		E	E	E	E
ISOPROPYL ETHER	E	X		X	C	X		C		X	E	X		E	X	E	E
JET FUELS		X		G	X	X		E		X	E	X			E	E	E
JP-4 OIL	C	X		X	X	X	C	G	E	X	G	X	C	E	E		
KEROSENE	E	X	E	C	X	X	C	E	E	X	E	X	X	E	E	E	E
KETONES	X	E		X	X	E	C	C	E	X	G	X	X	E	X		
LACQUER SOLVENTS	X	X		X	X	X	C	X	E	X	E	X		E	X	G	
LACTIC ACID - COLD	E	E		E	G	X	C	X	X	G	X	G		E	C	C	
LACTIC ACID - HOT				X	C	X	C	X	X	X	X	X		E	E		

CHEMICAL OR MATERIAL CONVEYED	COMPOUND																
	AU	IIR	CM	CR	CSM	EPDM	TPES	NBR	PA	NR	T	SBR	EPDM_PP	PTFE	FKM	XLPE	UHMWPE
LARD		X	E	C	X	X		E		X	X	X		E	C	C	
LAVENDER OIL	X	X		X	X	X		G		X	G	X		E	E	G	
LEAD ACETATE	X	G	E	G	X	E		G		E	X	X		E	X	E	E
LEAD NITRATE		E	E	E	X	E		E		E	X	E					
LEAD SULFATE			E	E	E	E					E		E		E	E	E
LIME			E	C		G		X	G					G			
LIME BLEACH		E		G	G	E		E		E	X	G			E		
LIME SULFUR		E		E	E	E		X		X	X	X		E	E	E	
LIMONENE			G														
LINOLEIC ACID		X		X	X	X		G		X	X	X		E	G		
LINSEED OIL	G	C	E	C	C	X	C	E	E	X	F	X		E	E	C	E
LIQUID PETROLEUM GAS (LPG)	E	X	G	G	X	X		E		X	E	X		E	E	E	X
LUBRICATING OIL	E	X	E	C	F	X	E	G	E	X	E	X		E	E	E	E
LYE SOLUTIONS	X	E	E	G	E	E		G		G	G	G			G		G
MEK	X	G	C	X	X	E	C	X	E	X	G	X	X	E	X	E	G
MAGNESIUM ACETATE		G	E													E	E
MAGNESIUM CHLORIDE	E	E	E	E	E	E	C	E	X	E	C	E			E	E	E
MAGNESIUM HYDRATE		E			G					E		G			G	E	E
MAGNESIUM HYDROXYDE	G	E	E	G	G	E	C	G	X	E	C	G		E	G	E	E
MAGNESIUM SULFATE & SULPHITE		E	E	E	E	E		E	E	E	E	E		E	E	E	E
MALEIC ACID		X		X	X	X		X	C	X	G	X			E	G	E
MALEIC ANHYDRIDE		X		X	X	X		X		X		X			X		
MALIC ACID		X		C	G	X		C		C	C	C		E	C	C	G
MANGANOUS SULFATE			E														
MAPP				E		G		E				G					
MERCURY	G	E	E	E	E	E	G	E	E	E	E	E		E	E	E	
MERCURY VAPORS		E		E	E	E		E		E		E			E		
MESITYL OXIDE	X	G	G	X	X	G		X		X	G	X		E		E	E
METHALLYL ALCOHOL		E	E		E					E		E			X	E	E
METHALLYL CHLORIDE			C														
METHANE CARBOXYLIC ACID			E	G		X			E					E			
METHANOIC ACID			E														
METHANOL (METHYL ALCOHOL)	X	E	E	E	E	E		E	E	E	G	E		E	E		E
METHANOL (WOOD ALCOHOL)	E	E	E	E	E	E	E	E	E	E	E	E	E	E	X	E	E
METHOXY ETHANOL			E														
METHOXYETHOXY ETHANOL			E														
METHOXYPROPENYL BENZENE			X														
METHYL ACETATE	X	G	E	X	X	E		X	E	X	G	X		E	X	E	E
METHYL ACETOACETATE	X	G	E	X	X	G		X		X	G	X			X	E	E
METHYL ACETONE		G	E		X					F		X			X	E	E
METHYL ACETYLENE PROPADIENE				E		G		E				G					
METHYL ALLYL ALCOHOL			E														
METHYL ALLYL CHLORIDE		F	C		X					X		X			F	G	E
METHYL AMYL CARBINOL		E			E					E		E			X	E	E
METHYL BENZENE		X	C		X					X		X			E	E	E
METHYL BROMIDE		X		X	X	X		C	E	X		X	X	E	E	G	
METHYL BUTANE			E														
METHYL BUTYL ALCOHOL			E														E
METHYL BUTYL KETONE	X	G		X	X	E		X		X	E	X			X		E
METHYL CARBITOL		F	E		X					X		X				E	E
MRTHYL CELLOSOLVE	X	E	E	C	X	G		C		X		X		E	X		E
METHYL CHLORIDE	X	C	X	X	X	X	X	X	X	X	X	X	X	E	E	G	E
METHYL CYANIDE			E														
METHYL ETHYL KETONE	X	G	C	X	X	E	C	X	E	X	G	X	X	E	X	E	E
METHYL HEXANOL		E			E					E		E			F	E	E
METHYL METHACRILATE		X	C	X	X	C		X	C	X		X	C	E	X	G	G
METHYL NORMAL AMYL KETONE		G			X					X		X			X	E	E
METHYL PROPYL ETHER		G			X					X		X				E	E
METHYL SALYCILATE		G		X	X	G		X		C		C		E	C		
METHYL STYRENE			C														
METHYL SULFIDE			C														
METHYL TERTIARY METYL ETHER		G	X	X				X				X		G	X		
METHYL 1-2, 4-PENTANEDIOL			E														
METHYL-ISO-AMYL-KETONE			C														
METHYL-L-PROPANOL			E														
METHYL-2-BUTANOL		E	E		E					E		E			F	E	
METHYL-2-BUTANONE		G	G		X					X		X			X	E	
METHYL-2-HEXANONE		G	C		X					X		X			X	E	
METHYL-2-PENTANOL			E														
METHYL-2-PENTANONE			C														
METHYL-2-PROPEN-L-OL			E														
METHYL-3-PENTEN-1-ONE			C														
METHYL-4-ISOPROPYL BENZENE			C														

CHEMICAL OR MATERIAL CONVEYED	COMPOUND																
	AU	IIR	CM	CR	CSM	EPDM	TPES	NBR	PA	NR	T	SBR	EPDM_PP	PTFE	FKM	XLPE	UHMWPE
METHYLALLYL ACETATE		G			X					X		X			X	E	
METHYLAMYL ALCOHOL		E	E		E					E		E			X	E	E
METHYLCYCLOEXANE		X	G		X					X		X			G	G	E
METHYLENE BROMIDE			C														G
METHYLENE CHLORIDE	X	X	X	X	X	X	C	X	X	X		X	X	E	G	G	G
METHYLETYL KETONE	X	G	C	X	X	E	C	X	E	X	G	X	X	E	X	E	
METHYLEXYL KETONE		G	C		X					X		X			X	E	
METHYLISOBUTYL CARBINOL		E	E	G	C	E		G		G	C	G			C	C	E
METHYLISOBUTYL KETONE	X	C	C	X	X	C	C	X	E	X	G	X	X	E	X	E	E
METHYLISOPROPYL KETONE	X	G	G	X	X	X		X	E	X	G	X		E	X	E	E
METHYLLACTONITRILE			E														
METHYLPHENOL			E														
METHYLPROPYL CARBINOL		E	E		G					G		G			F	E	E
METHYLPROPYL KETONE		G	G		X					X		X			X	E	E
MIL-A-6091	X	E		E	E	E		G		E	E	E			E		
MIL-C-4339	X	X		X	X	X		E		X	E	X			E		
MIL-C-7024	G	X		X	X	X		E		X	E	X			E		
MIL-E-9500	X	E		E	E	E		E		E	E	E			E		
MIL-F-16884	C	X		C	C	X		E		X	E	X			E		
MIL-F-17111	C	X		G	X	X		E		X	E	X			E		
MIL-F-25558 (RJ-1)				G		X		E							E		
MIL-G-10924	G	X		X	G	X		E		X	E	X			E		
MIL-G-25013	C	X		G	G	X		E		X	G	X			E		
MIL-G-25537				G		X		E							E		
MIL-G-3545	C	X		G	C	X		E		X	C	X			E		
MIL-G-5572	G	X		X	X	X		E		X	E	X			E		
MIL-G-7711	E	X		X	X	X		E		X	E	X			E		
MIL-H-05606 (HFA)				G		X		E							E		
MIL-H-13910	X	G		E	G	E		E		G	C	E			E		
MIL-H-19457	X	E		X	X	E		X		X	X	X			X		
MIL-H-22251		E		G	G	E		G			X	G			C		
MIL-H-27601				G		X		E							E		
MIL-H-5606 (J43)				G		X		E	E					E	E		
MIL-H-6083	G	X		E	G	X		E	E	X	E	X		E	E		
MIL-H-8446 (MLO-8515)	X	X		E		X		G		X	G	X			E		
MIL-J-5161	C	X		X	X	X		G		X	E	X			E		
MIL-J-5624 (JP-3,JP-4,JP-5)	C	X		X	X	X		E		X	G	X			E		
MIL-L-15016	E	X		G	G	X		E		X	E	X			E		
MIL-L-17331	E	X		G	G	X		E		X	E	X			E		
MIL-L-2104	E	X		G	C	X		E	E	X	E	X		E	E		
MIL-L-21260	E	X		G	G	X		E		X	E	X			E		
MIL-L-23699	C	X		C	C	X		G		X	G	X			E		
MIL-L-25681				G		E		G							E		
MIL-L-3150	G	X		G	G	X		E		X	E	X			E		
MIL-L-4343	E	C		E	G	C		E		X	E	X			E		
MIL-L-6082	E	X		G	G	X		E		X	E	X			E		
MIL-L-6085	C	X		X	X	X		G		X	G	X			E		
MIL-L-7808	X	X		X	X	X		G	X	X	G	X		E	E		
MIL-L-7870	X	X		G	X	X		E		X		X			E		
MIL-L-9000	C	X		G	C	X		E		X	G	X			E		
MIL-L-9236	X	X		X	X	X		G		X	G	X			E		
MIL-P-27402				G		E		G							C		
MIL-R-25567 (RP-1)			E		X		E							E			
MIL-S-3136 TYPE 1 FUEL	G	X		G	C	X		E		X	E	X			E		
MIL-S-3136 TYPE 2 FUEL	C	X		X	X	X		G		X	E	X			E		
MIL-S-3136 TYPE 3 FUEL	C	X		X	X	X		G		X	E	X			E		
MIL-S-3136 TYPE 4 OIL, LOWSWELL	E	X		E	E	X		E		X	E	X			E		
MIL-S-3136 TYPE 5 OIL, MEDSWELL	G	X		G	G	X		E		X	E	X			E		
MIL-S-3136 TYPE 6 OIL, HI SWELL	G	X		X	X	X		E		X	E	X			E		
MIL-S-81087				E		E		E							E		
MINERAL OIL	E	X	E	C	F	X	E	E	E	X	E	X	X	E	E	E	
MINERAL SPIRITS		X		F	X	X		E		X	E	X			E	E	E
MOBILE HFA						X		E	E					E			
MOLTEN SULFUR		G			F					X		X			G	X	
MONO-CHLOROACETIC ACID		F	E		X					G		X			C	E	E
MONOBUTYL ETHER		F			X					X		X			X	E	
MONOCHLOROBENZENE	X	X		X	X	X	C	X	G	X	X	X	X	E	E	G	G
MONOCHLORODIFLUOROMETHANE		F			X					X		X			X	C	I
MONOETHANOL AMINE	X	E		X	X	E		X		E	X	X			X	E	E
MONOETHYL AMINE		G	E		F					F		F		E	C	C	E
MORPHOLINE						X		X	X					E			
MOTOR OIL, 40W			E														
MTBE		G	X	X				X				X		G	X		F

CHEMICAL OR MATERIAL CONVEYED	COMPOUND																
	AU	IIR	CM	CR	CSM	EPDM	TPES	NBR	PA	NR	T	SBR	EPDM_PP	PTFE	FKM	XLPE	UHMWPE
MURIATC ACID		F	E	X	X	F		X		E	X	X			E	E	E
N-BUTANAL			G														
N-BUTYLAMINE	X	X	G	X	X	X		C		X	X	X			X		
N-BUTYLBENZENE		X	C		X					X		X			E	E	
N-BUTYLBROMIDE		X	C		X					X		X			G	G	
N-BUTYLBUTYRATE		F	C		X					X		X			X	G	
N-BUTYLCARBINOL			E														
N-NONYL ALCOHOL			E														
N-OCTANE	X	X	E	G	X	X		G		X	G	X			E	G	
N-SERV (75% XYLENE)									E					E	E	C	
NA-K						X		X						X			
NAPHTHA	E	X	E	X		X	E	C	E	X	E	X	X	E	E	E	E
NAPHTHALENE	C	F	E	X	X	X	C	X	E	X	C	X	X	E	C	E	E
NAPHTHENIC ACID			E	X	X	X		G		X	G	X		E	E		
NATURAL GAS	C	X	E	E	F	X		E	G	X	E	X	X	E	C	C	
NEOHEXANE		X	G		X					X		X			E	E	E
NEON GAS	E	E		E	E	E		E	E	E	E	E	E	E	E		
NEU-TRI		X			X					X		X			E	E	E
NICKEL ACETATE	X	E		G	X	E		G		E	X	X		E	X	E	
NICKEL CHLORIDE	C	E	E	G	E	E		E	X	E	E	E		E	E	E	E
NICKEL NITRATE		E	E	E	E	E				E		E			E	E	E
NICKEL SULFATE		E	E	E	E	E		E	E	E	C	E		E	E	E	E
NIETYLENE										E							
NITRIC ACID, CONC (16N)	X	C	X	X	G	X	C	X	X	X	X	X	X	E	C	G	
NITRIC ACID, RED FUMING	X	G	X	X	X	X	C	X	X	X	X	X	X	E	X	X	X
NITRIC ACID, 10%	X	G		X	X	C	C	X	X	X	X	X	E	E	X	C	E
NITRIC ACID, 13N			E											E			
NITRIC ACID, 13N +5%			E											E			
NITRIC ACID, 20%		G		X	X	G	F	X		X	X	X		E	C	E	E
NITRIC ACID, 30%	C	F		X	X	C	X	X	X	X	X	X		G	C	E	G
NITRIC ACID, 30% - 70%		F		X	F	F		X		X	X	X			C	G	F
NITRILOTRIETHANOL			E														
NITROBENZENE	X	F	C	X	X	X	C	X	E	X	X	X	C	E	G	E	E
NITROETHANE	X	G	E	C	G	G		X		G		G		E	X	E	
NITROGEN	E	E	E	E	E	E		E	G	E	E	E		E	E	E	E
NITROMETHANE	X	G		C	C	G		X		G		C		E	X	E	
NITROUS OXIDE GAS									X					E			E
NONANOIC ACID			E														
NONANOL			E														
NUTO H						X		E	E					E			
NYVAC LIGHT						E		X	E					E			
OCTANOIC ACID			E														
OCTANOL		E	E		G					G		G			G	E	E
OCTYL ACETATE		G	C		X					X		X			X	E	E
OCTYL ALCOHOL	X	E	E	G	E	C		G		E	G	E		E	E	E	E
OCTYL ALDEHYDE		E	E		X					X		X			X	E	E
OCTYL AMINE		E	G		F					G		G			C	C	E
OCTYL CARBINOL		E	E		E					E		E			G	E	E
OCTYLENE GLYCOL		E			E					E		E			E	C	E
OIL-PETROLEUM		X		G	F	X		E		X	E	X			E	E	G
OLEIC ACID	G	G	E	X	X	X	E	C	E	X	X	X		E	G	E	E
OLEUM (FUMING SULFURIC ACID)	C	X		X	X	X	X	C	E	X	X	X		E	X	X	X
OLIVE OIL	E	E	G	E	F	E		E		X	C	X		E	E	C	
ORTHO-DICHLOROBENZENE	X	X		X	X	X		X		X	G	X		G	E	G	E
ORTHO-DICHLOROBENZOL		X			X					X		X			G	G	E
ORTHOXYLENE		X			X					X		X			E	E	G
OXALIC ACID	E	E	E	X	X	E		X	X	X	X	X	E	E	C	C	E
OXYDIETHANOL			E														
OZONE	G	G	E	C	G	E		X	X	X	F	X		E	C	C	E
P-CYMENE	X	X	X	X	X	X		X		X	X	X		E	E	E	
PAINT THINNER	X	X		X	X	X		X		X	G	X	X	E	G		
PALMITIC ACID	E	E	E	C	C	C	E	E	X	X	F	X	E	E	C	C	E
PAPERMAKERS ALUM		E		E	E	E		E		E	E	E			E	E	E
PARA-DICHLOROBENZENE	X	X		X	X	X		X		X	X	X			E	G	
PARAFFIN WAX		X	E	G	X	X		E		X	E	X			E	X	E
PARALDEHYDE		E								F					X	E	E
PARAXYLENE		X			X					X		X			E	E	E
PCB														E	E		
PELARGONIC ALCOHOL		E	E		X					X		X				E	
PENTACHLOROETHANE		X			X					X		X			E	E	E
PENTADIONE			G														
PENTAMETHYLENE			G														
PENTANE	X	X	E	G	F	X		E		X	E	X			E	G	G

CHEMICAL OR MATERIAL CONVEYED	COMPOUND																
	AU	IIR	CM	CR	CSM	EPDM	TPES	NBR	PA	NR	T	SBR	EPDM_PP	PTFE	FKM	XLPE	UHMWPE
PENTANOL			E														E
PENTANONE		G	C		X					X		X			X	E	E
PENTASOL		E		E	E					E		E			E	E	
PENTYL ACETATE			C														
PENTYL ALCOHOL			E														
PENTYL BROMIDE			C														
PENTYL CHLORIDE			C														
PENTYL ETHER			E														
PENTYLAMINE			G														
PERCHLORIC ACID - 2N	X	G		C	G	C	X	X	C	X	X	X	X	E	E	E	
PERCHLOROETHYLENE	X	X	C	X	X	X	X	X	X	X	X	X	X	E	E	G	G
PERCHLOROMETHANE			C														
PETROLEUM CRUDE	E	X	E	G	X	X		E		X	E	X			E	E	E
PETROLEUM ETHER		X	E		X	X		G	E	X		X		E	E	E	E
PETROLEUM OILS		X		G	X	X		X	G	X	E	X		E	E	E	E
PHENBO	X																
PHENOL	X	E	E	X	X	X	X	X	X	X	X	X	X	E	E	E	E
PHENOLSULFONIC ACID		F	E		X					X		X			X	G	F
PHENYLAMINE			G						C								G
PHENYLBROMIDE			X														
PHENYLBUTANE			C														
PHENYLCHLORIDE		X	X		X					X		X			E	E	E
PHENYLETHYLENE			C														
PHENYLMETHANE			C														
PHENYLMETHANOL			X														
PHENYLMETHYL ACETATE			G														
PHOSPHATE ESTERS	X					E	X	X	E				E	E			
PHOSPHORIC ACID 10%		E	E	X	E	X		X	X	E	C	E		E	E	E	E
PHOSFORIC ACID 10% - 85%	X	G	E	X	E	X		X	C	G	C	X	E	E	E	E	E
PHOSPHORUS TRICHLORIDE		E	X	X	X	E		X		X		X		E	E		
PIRIC ACID, H20 SOLUTION	X		G	C	G	X	C	X	X	G		G	X	E	E		
PINE OIL		X	G	X	X	X		X		X	G	X		E	E	E	E
PINENE	G	X	G	F	X	X		G		X	G	X		E	E	E	E
POLY CHLORINATED BIPHENOL														E	E		
POLYETHYLENE GLYCOL E-400		E	E		E					E		E			E		E
POLYOL ESTER		X		X		X		G		X					G		
POLYPROPYLENE GLYCOL		E			E					E		E			E		E
POTASSIUM ACETATE	X	G	E	G	X	E		G		X	X	X		E	X	E	E
POTASSIUM BISULFATE		E	E		E					E		E			E	E	E
POTASSIUM BISULFITE		E	E		E					E		E			E		E
POTASSIUM CARBONATE		E	E	E	E	E			G	E		E			E	E	E
POTASSIUM CHLORIDE	E	E	E	E	E	E		E	E	E	E	E		E	E	E	E
POTASSIUM CHROMATE		E	E		F											G	G
POTASSIUM CYANIDE	E	E	E	E	E	E		E	E	E	E	E		E	E	E	
POTASSIUM DICHROMATE	G	E	E	E	F	E	C	E		G	E	G		E	E	G	G
POTASSIUM HYDRATE		E			G					E		G			F	E	E
POTASSIUM HYDROXYDE	C	E	E	C	G	E	G	X	C	E	X	G		E	X	E	G
POTASSIUM NITRATE	E	E	E	E	E	E		E	E	E	E	E		E	E	E	E
POTASSIUM PERMANGANATE, 5%							X										
POTASSIUM SILICATE		E	E		E					E		E			E	E	E
POTASSIUM SULFATE	G	E	E	E	E	E		E	E	E		E		E	E	E	E
POTASSIUM SULFIDE			E														E
POTASSIUM SULFITE		E	E	E	E	E				E		E			E	E	E
PRESTONE ANTIFREEZE				E		E		E							E		
PRODUCER GAS		X		G	G	X		E		X		E		E	E		
PROPANE	E	X	E	C	G	X		E	E	X	E	X		E	E	E	
PROPANEDIOL		E	E		E					E		E			E		E
PROPANETRIOL			E														
PROPANOL		E	E		E					E		E			F	E	E
PROPANOLAMINE			E														E
PROPANONE			E														
PROPEN-L-OL			E														
PROPENEDIAMENE			E														
PROPENENITRILE			E														
PROPENYL ALCOHOL			E														
PROPENYLANISOLE			X														
PROPIONIC ACID						E		X								E	
PRIOPIONITRILE				G		X		E							E		
PROPYL ACETATE	X	G	G	X	X	G		X		X	G	X			X	E	E
PROPYL ALCOHOL	C	E	E	E	E	E		E		E	E	E			E	E	E
PROPYL ALDEHYDE		E								F					X	E	E
PROPYL BENZENE			C														E
PROPYL CHLORIDE		F	C		X					X		X			G	G	G

CHEMICAL RESISTANT CHART

CHEMICAL OR MATERIAL CONVEYED	COMPOUND																
	AU	IIR	CM	CR	CSM	EPDM	TPES	NBR	PA	NR	T	SBR	EPDM_PP	PTFE	FKM	XLPE	UHMWPE
PROPYL ETHER			E														
PROPYL NITRATE		G	G	X	X	G		X		X		X			X		
PROPYLENE	X	X	E	X	X	X		X		X	G	X			E		
PROPYLENE DIAMINE		E			F					G		G					E
PROPYLENE GLYCOL	E	E			E					E		E		E	E		E
PYDRAUL, 'E' SERIES			G	X	X	E	E	X	E	X		X		E	X	E	
PYDRAULIC 'C'				X		X	E	X						E	E		
QUINTOLUBRIC 822 SERIES		X		X		X		G		X					G		
RED OIL	G	X	E	G	G	X		E		X	E	X		E	E		
REFRIGERANT 11				X		X		G							G		
REFRIGERANT 12				G		X		E							G		
REFRIGERANT 22				G		X		X							G		
RESORCINOL	X						X	X	X				X	E			
SAE NO. 10 OIL	E			C	X		E	G	E				X	E	X		
SAL AMMONIAC	E	E	E	E	E	E		E		E		E			E		
SEA WATER	E	E		G	E	E	E	E	E	E	X	E	E	E	E	E	E
SEWAGE	X	F	E	E	E	F		E	E	F	F	F		E	C	E	E
SILICATE ESTERS		X		E	E	X		G	E	X		X		E	E		
SILICATE OF SODA		E	E		E					E		E			E	E	E
SILICONE GREASE		E	E	E	E	E	E	E		E		E		E	E		
SILICONE OIL		E	E	E	E	E		E		E		E			E		
SILVER NITRATE	E	E	E	E	E	E		G		E		E		E	E	E	
SKYDROL 500 TYPE 2				X	X	E		X						E	X		
SKYDROL 500B	C	G	G	X	X	E	E		E				E	E	X		
SKYDROL 500C		G	G	X	X		E							E	X		
SKYDROL 7000 TYPE 2				X		E		X						E	G		
SOAP SOLUTIONS	C	E	E	G	E	E	E	E	E	G	X	E	E	E	E	E	E
SODA ASH		E	E	E	E	E		E	E	E	X	E		E	E	E	E
SODA LIME		E			G					E		G			F	E	E
SODA NITER		E	E		E					E		E			E	E	E
SODIUM ACETATE	E	G	E	G	X	E		G		X	X	X		E	X	E	E
SODIUM ALUMINATE		E	E		E					E		E			E	E	E
SODIUM BICARBONATE		E		E	E	E		E		E	C	E		E	E		
SODIUM BISULFATE		F	E	E	E	E		E	E	F	F	F		E	C	E	E
SODIUM BISULFITE		E	E	E	E	E		E		E	C	E		E	E	C	E
SODIUM BORATE		E	E	E	E	E		E		E	E	E		E	E	E	
SODIUM CARBONATE		E	E	E	E	E		E		E	C	E			E	E	E
SODIUM CHLORIDE	E	E	E	E	E	E	E	E	E	E	C	E	E	E	E	E	E
SODIUM CYANIDE		E	E	E	E	E		E	E	E	E	E		E	C	E	
SODIUM DICHROMATE		E	E	C	F	E	X	C		C	C	C			C	G	E
SODIUM HYDRATE		E			G					E		G			F	E	E
SODIUM HYDROCHLORITE		G		X	F	G		X		X	X	X			G	G	E
SODIUM HYDROXIDE (CAUSTIC SODA)	G	E	E	G	G	E	G	X	C	E	X	G		E	G	E	E
SODIUM HYPOCHLORITE	X	G	E	X	F	G	E	G	X	X	X	X	E	E	E	G	G
SODIUM METAPHOSPHATE		E	E	G	G	E		E		E		E		E	E	E	
SODIUM NITRATE	X	E	E	G	E	E		G	E	E	C	E		E	C	E	E
SODIUM PERBORATE		E		G	G	E		G	E	G	G	G		E	E	E	
SODIUM PEROXIDE	X	E	G	G	G	E	C	G		G		G		E	E	E	
SODIUM PHOSPHATE	E	E	E	G	E	E		E	E	E		E		G	E	E	
SODIUM SILICATE		E	E	E	E	E		E	E	E	C	E		E	E	E	E
SODIUM SULFATE		E	E	E	E	E		E	E	E	C	E		E	E	E	E
SODIUM SULFIDE	E	E	E	E	E	E		E	E	E	C	E			E	E	E
SODIUM SULFITE	E	E	E	E	E	E		E		E	C	E			E	E	E
SODIUM THIOSULFATE	E	E	E	E	E	E		G	E	E	C	E		E	E	E	E
SOYBEAN OIL	G	E		G	G	C	C	E	E	X	E	X		E	E	E	G
STANNIC CHLORIDE		E	E	X	E	E		E	E	E	X	E		E		E	E
STANNIC SULFIDE		E			E					E		E				E	E
STANNOUS CHLORIDE		E	E	E	E	E	C	E		E	X	E		E	C	E	E
STANNOUS SULFIDE		E			E					E		E				E	E
STEAM, BELOW 350 DEG F	X	G	X	X	X	E	C	X	X	X	X	X		E	X	X	
STEARIC ACID	E	G	E	G	X	G	C	G	E	X	C	X	E	E	C	E	E
STODDARD SOLVENT	E	X	E	G	X	X		E		X	E	X		E	E	E	E
STYRENE	E	X	C	X	X	X	X	X	E	X	X	X		E	G	G	G
SULFAMIC ACID		E	E	G	G	E		G		G	C	G			C	C	F
SULFUR		F		X	F	F		X		X	X	X		E	G	X	
SULFUR CHLORIDE		X		C	G	X		C	G	X	X	X		E	E	E	
SULFUR DIOXIDE		G		X	G	G	C	X	X	C	C	C		E	C	C	G
SULFUR TRIOXIDE, DRY		G	X	X	X	G		X	X	G		G		E	E	G	
SULFURIC ACID 60% (200F)			G														G
SULFURIC ACID, CONC.	X	X	X	X	E	X	C	X	X	X	X	X		C	E	E	X
SULFURIC ACID, FUMING		X	X	X	X	X	X	X		X	X	X		E	X	X	X
SULFURIC ACID, 25%	X	E		X	X	E	X	X	X	G	X	X		E	F	E	E
SULFURIC ACID, 25%-50%	X	E	E	X	X	E	X	X	X	G	X	X		E	G	E	G

CHEMICAL OR MATERIAL CONVEYED	COMPOUND																
	AU	IIR	CM	CR	CSM	EPDM	TPES	NBR	PA	NR	T	SBR	EPDM_PP	PTFE	FKM	XLPE	UHMWPE
SULFURIC ACID, 50%-96%	X	X		X	G	X	X	X	X	X	X	X		E	E	E	G
SULFUROUS ACID, 10%		E	E	X	E	G	G	X		E	X	G		E	C	E	E
SULFUROUS ACID, 10%-85%		E	E	X	E	G	G	X		E	X	X		E	C	E	E
SUTAN														E	F	E	
T-BUTYL AMINE					X	G											
TALL OIL		X		G	X	X		E		X	C	X			E	C	E
TALLOW		X		G	X	X		E		X	C	X			C	C	E
TANNIC ACID	C	E	E	G	E	E	E	E	X	E	C	F	E	E	C	C	E
TAR		X		G	X	X		X	X	X	G	X		E	E	X	X
TAR BITUMINOUS		X		C	X	X		G		X		X		E	E		
TARTARIC ACID	C	E	E	G	E	G	C	E	X	C	C	X	E	E	C	C	E
TELONE 2																E	
TERITARY BUTYL ALCOHOL	X	E	G	G	E	G		G		E	G	E		E	E	E	E
TERPINOL	G	C	E	X	X	C		G		X	E	X		E	E	G	
TERTIARY BUTYL AMINE					X	G											
TERTIARY BUTYL MERCAPTAN		X		X	X	X		X		X		X		E	E		
TEST ENTRY	X	G	C	E			X				F	X					
TEST ENTRY 1							E										
TETRACHLOROBENZENE		X			X					X		X			G	G	G
TETRACHLOROETHANE		X			X					X		X			E	E	G
TETRACHLOROETHYLENE	X	X	X	X	X	X		X	C	X	X	X			E	E	E
TETRACHLOROMETHANE		X	C		X					X		X			E	E	E
TETRACHLORONAPHTHALENE		X			X					X		X			G	G	G
TETRAETHYLENE GLYCOL		E			E					E		E			E		E
TETRAETHYLORTHOSILICATE			E														
TETRAHYDROFURAN	X	X	X	X	X	X	G	X	C	X	E	X	X		X	C	G
THF							G		C		E					C	I
TIN CHLORIDE		E			E					E		E				E	E
TITANIUM TETRACHLORIDE	X	X	X	X	X	X		G		X	C	X			E		G
TOLUENE	X	E	X	X	X	X	C	X	E	X	C	X	X	E	E	G	E
TOLUIDINE			C														F
TOLUOL			C														E
TRANSFORMER OIL	E	X	E	G	C	X		E		X	E	X		E	E		F
TRANSMISSION 'A' OIL	E	X	E	G	X	X		E	E	X	E	X		E	E	F	G
TRI(2-HYDROXYETHYL) AMINE			E														E
TRIBUTYL PHOSPHATE	X	E	C	X	X	G		X	E	X	E	X		E	X	E	E
TRIBUTYLAMINE		E	E	G	F					G		G					E
TRICHLOROACETIC ACID	X	G		X	X	G		G		C		G		E	C	E	
TRICHLOROBENZENE		X	X		X					X		X			G	G	G
TRICHLOROETHANE	X	X	X	X	X	X		X		X	X	X		E	E	G	E
TRICHLOROETHYLENE	X	X	X	X	X	X	C	X	E	X	X	X		X	E	G	F
TRICHLOROMETHANE			X														
TRICHLOROTOLUENE			X														
TRICRESYL PHOSPHATE	X	E	E	X	X	X		X		X	C	X		E	G	E	E
TRIETHANOLAMINE	X	E	E	G	G	G	X	C		E	C	X		E	X	E	E
TRIETHYLAMINE		E	E		F					G		G					E
TRIETHYLENE GLYCOL		E	E		E					E		E			E		E
TRIHYDROXYBENZOIC ACID			E														
TRIMETHYL PENTANES (MIXED)			E														
TRIMETHYL PENTENE			E														
TRIMETHYLAMINE			E											E		E	
TRISODIUM PHOSPHATE	E	E	E	E	E	E	E	E	E	E	E	E		E	E	E	E
TRITOYL PHOSPHATE			E														
TUNG OIL				G													
TUNG OIL (CHINA OIL)	C	C		G	C	X	C	E		X	G	X		E	E	E	
TURPENTINE	E	X	G	X	X	X		X	E	X	F	X	X	E	E	G	E
UDMH				G	E	E		G		E		E			X		
UNDECYL ALCOHOL			E														
UREA	E	E	E	E					E					E		E	E
URETHANE FORMULATIONS								E	E					E			
URIC ACID									E				E				
VARNISH	C	X		X	X	X	G	G	E	X	E	X		E	E		
VEGETABLE OILS		E	E	C	X	C		E		X	C	X		E	E	E	
VERSILUBE F44								E	E					E			
VERSILUBE F55						X		E	E					E			
VINEGAR	X	E	G	F	F	E	E	X	E	E	C	F		E	C	X	
VINEGAR ACID			G														
VINYL ACETATE		G	E		X					X		X			X	E	E
VINYL BENZENE		X	C		X					X		X			G	G	E
VINYL CHLORIDE		X	X	X	X	X		X		X		X		E	E	E	E
VINYL CYANIDE			E														
VINYL ETHER		G			X					X		X				E	E
VINYL STYRENE			X														

CHEMICAL OR MATERIAL CONVEYED	COMPOUND																
	AU	IIR	CM	CR	CSM	EPDM	TPES	NBR	PA	NR	T	SBR	EPDM_PP	PTFE	FKM	XLPE	UHMWPE
VINYL TOLUENE		X	C		X					X		X			E	E	E
VINYL TRICHLORIDE		X	G		X					X		X			E	E	E
VITAL, 4300,5310						X		X	E					E			
VM & NAPHTHA		X		F	X	X		E		X	E	X			E	X	E
WATER	E	E	E	G	E	E	E	E	E	E	E	F	E	E	E	E	E
WATER, BOILING				E		E	G										
WATER, SODA							E		E				E	E			
WEMCO C	E	X		G	X	X		E		X	E	X			E		
WHISKEY	X	E	E	E	E	E		E	E	E	X	E		E	X	X	
WHITE OIL	E	X		E	X	X		E		X	X	X		E	X	X	E
WHITE PINE OIL		X		X	X	X		G		X	G	X			E		
WINES	X	E	E	E	E	E		E	E	E	X	E		E	X	X	
WOOD ALCOHOL	X	E		E	E	E		E		E	G	E			X	E	E
WOOD OIL	C	X		G	C	X		E		X	G	X		E	E	E	
XENON	E	E		E	E	E		E		E	E	E			E		
XYLENE, XYLON	C	X	X	X	X	X	C	X	E	X	F	X	X	E	E	G	G
XYLIDINE	X	X	C	C	X	G		C		C	X	C		E	X	G	G
ZEOLITES		E		E	E	E		E		E		E			E		
ZINC ACETATE	X	E	E	E	E	E		E		E	X	X		E	X		
ZINC CARBONATE		E			E					E		E			E	E	E
ZINC CHLORIDE	E	E	X	E	E	E	E	E	X	E	E	E		E	E	E	E
ZINC CHROMATE		E			F											G	E
ZINC SULFATE		E	X	E	E	E		E	E	E	E	E		E	E	E	E
O-AMINOTOLUENE			G														
1 UNDECANOL		E	E		E					E		E			G	E	G
1-AMINO-2-PROPANOL			E														
1-AMINOBUTANE			G														
1-AMINOPENTANE			G														
1-BROMO-2-METHYL PROPANE			G														
1-BROMO-3-METHYL BUTANE			G														
1-BROMOBUTANE			G														
1-CHLORO-2-METHYL PROPANE			C														
1-CHLORO-3-METHYL BUTANE			C														
1-DECANOL		E	E		E					E		E			G	E	E
1-HENDACANOL			E														
1,4-DIOXANE		G	G	X	X	E				X		X			X	E	
2(2AMINOETHYLAMINO) ETHANOL			E														
2(2ETHOXYETHOXY) ETHANOL			E														
2(2ETHOXYETHOXY) ETHYL ACETATE			E														
2-AMINOETHANOL		E	E		G					G		G					
2-CHLORO-1-HYDROXY-BENZENE			C														
2-CHLOROPHENOL	X	X	C	X	X	X		X		X	X	X			E	G	E
2-CHLOROPROPANE			G	X	X	X				X		X			X	E	E
2-ETHOXYETHANOL			E														
2-ETHOXYETHYL ACETATE			G														
2-ETHYL(BUTYRALDEHYDE)		E	C		X					X		X			X	E	E
2-ETHYL-1-HEXANOL	X	E	E	E	E	E		E		E	G	E			G	E	E
2-ETHYLHEXANOIC ACID			E														E
2-ETHYLHEXYL ACETATE			G														E
2-OCTANONE			C														
2,4-DI-SEC--PENTYLPHENOL			E														
3-BROMOPROPENE			G														
3-CHLORO-2-METHYL PROPANE			G														
3-CHLOROPROPENE			G														
3OAL OIL																E	
4-HYDROXY-4-METHYL-2-PENTANONE			E														

PVC CHEMICAL RESISTANT CHART

CODES:

A: Satisfactory
C: Questionable - Suggest testing
U: Unsatisfactory
Blank: No data available

Chemical	Concentration	Temperature 20°C 60°C 68°F 140°F		Chemical	Concentration	Temperature 20°C 60°C 68°F 140°F	
Acetate Solvents		U	U	Chlorine	Wet Gas	C	U
Acetic Acid	10%	A	C	Chlorine	Water	U	U
Acetic Acid	Glacial	C	U	Chlorobenzene		U	U
Acetone		U	U	Chlorinated Hydrocarbons		U	U
Acrylonitrile		A	C	Chloroform		U	U
Adipic Acid		A	C	Chromic Acid	10%	A	C
Alcohol Butyl		A	C	Citric Acid		A	A
Alcohol Ethyl		A	C	Coal Tar		U	U
Alcohol Isopropyl		A	C	Copper Chloride		A	A
Alcohol Methyl		A	C	Copper Nitrate		A	A
Aluminum Acetate		A		Copper Sulphate		A	A
Aluminum Chloride		A	A	Cottonseed Oil			
Aluminum Hydroxide		A		Creosote		U	U
Aluminum Sulfate		A	A	Cresol		A	C
Allyl Chloride				Cresylic Acid		U	U
Ammonia	0.88 S.G. (Aqueous)	A	A	Cyclohexane		A	C
Ammonia	Dry Gas	A		Cyclohexanone		U	U
Ammonia	Liquid	U	U	DDT Weed Killer		A	C
Ammonium Chloride		A	A	Detergent Synthetic		A	A
Ammonium Hydroxide		A		Developers Photographic		A	A
Animal Oils				Dextrin		A	A
Amyl Acetate		U	U	Dextrose		A	A
Aniline Oils				Dibutyl Phthalate		U	U
Aromatic Hydrocarbons		U	U	Dichlorobenzene		U	U
Asphalt		U	U	Diesel Oil			
ASTM Fuel A		A	A	Diethylene Glycol		A	A
ASTM Fuel B		U	U	Diethyl Ether		U	U
ASTM 1 Oil				Di-isodecyl Phthalate		U	U
ASTM 3 Oil				Dicotyl Phthalate		U	U
Barium Chloride		A	A	Emulsifiers		A	A
Barium Hydroxide		A	A	Emulsions Photographic		A	A
Barium Sulfide		A	A	Ethyl Acetate		U	U
Benzene		U	U	Ethylene Dichloride		U	U
Benzine		C	C	Ethylene Glycol		A	A
Bordeaux Mixture		A	A	Fatty Acid		A	A
Borax		A	A	Ferric Chloride		A	A
Boric Acid		A	A	Ferric Sulphate		A	A
Brine		A	A	Ferrous Chloride		A	A
Bromine Traces		U	U	Ferrous Sulphate		A	A
Butyl Acetate		U	U	Fixing Solution Photographic	A	A	
Calcium Hydroxide		A	A	Fluorine		U	U
Calcium Hypochlorite		A	A	Formaldehyde	40%	U	U
Carbonic Acid		C	U	Formic Acid	40%	A	A
Carbon Dioxide		A	A	Formic Acid	50%	C	U
Carbon Disulphite		U	U	Formic Acid	100%	U	U
Carbon Monoxide		A	A	Fuel Oil			
Carbon Tetrachloride		U	U	Glacial Acetic Acid		C	U
Casein		A	C	Glucose		A	A
Chlorine	Dry gas	A	A	Glycerine		A	A

PVC CHEMICAL RESISTANT CHART

Chemical	Concentration	Temperature 20°C 68°F	60°C 140°F
Grape Sugar		A	A
Grease			
Heptane		C	U
Hexane		C	U
Hydrobromic Acid		A	A
Hydrochloric Acid	10%	A	A
Hydrochloric Acid	40%	A	U
Hydrofluoric Acid	10%	A	C
Hydrofluoric Acid	40%	A	U
Hydrofluoboric Acid		A	A
Hydrofluosilicic Acid		A	A
Hydrogen Peroxide		A	
Hydrogen Sulphide		A	
Iso-octan		A	C
Isopropyl Acetate		U	U
Kerosene		C	C
Ketones		U	U
Lactic Acid	10%	A	
Lactic Acid	100%	U	U
Lacquer Solvents		C	U
Linseed Oil			
Lubricating Oils			
Magnesium Chloride		A	A
Magnesium Hydroxide		A	A
Magnesium Sulphate		A	A
Malic Acid		A	A
Methyl Acetate		U	U
Methyl Bromide		U	U
Methyl Ethyl Ketone		U	U
Methylene Chloride		U	U
Mineral Oils			
Monochlorobenzene		U	U
Naphtha		C	U
Napthalene		C	U
Nitric Acid	10%	A	A
Nitric Acid	40%	A	C
Nitric Acid	70%	U	U
Nitrobenzene		U	U
Nitrogen Fertilizers		A	
Oleic Acid		A	C

Chemical	Concentration	Temperature 20°C 68°F	60°C 140°F
Oxalic Acid		A	A
Palmitic Acid		A	A
Paraffin		A	A
Pentane		C	U
Perchloroethylene		U	U
Phenol		C	U
Phosphoric Acid		A	A
Pitch		A	C
Potassium Hydroxide		A	A
Propane		A	A
Sea Water		A	A
Sodium Hydroxide (caustic soda)	10%	A	A
Sodium Hydroxide (caustic soda)	50%	A	U
Sodium Cyanide		A	A
Soybean Oil			
Stearic Acid		A	A
Styrene		U	U
Sulphur Dioxide	Dry	A	A
Sulphur Dioxide	Moist	C	U
Sulphur Dioxide	Liquid	U	U
Sulphuric Acid	45%	A	A
Sulphuric Acid	60%	C	C
Sulphuric Acid	98%	U	U
Sulphurous Acid	30%	A	
Tannic Acid		A	A
Tartaric Acid		A	A
Tetrahydrofuran		U	U
Toluene		U	U
Trichlorethylene		U	U
Triethanolamine		A	A
Tricresyl Phosphate		U	U
Turpentine		C	U
Urea		A	A
Vinegar		A	A
Vinyl Acetate		U	U
Vinyl Chloride		U	U
Water		A	A
Xylene		U	U
Zinc Chloride		A	A
Zinc Sulphate		A	A

24 HOUR SERVICE

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