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REFERENCE MANUAL

INSTRUMENTATION

PIPING PRODUCTS



INSTRUMENTATION



VALVES AND ACTUATORS



MANUFACTURING



INDENT SERVICE



HYDRAULIC



The World of Prochem

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Instrumentation



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For more detailed information on the products listed above, please request a complete manufacturers' catalogue from your local Prochem office.

WARNING: Improper selection or use of products described herein can cause personal injury or property damage. Whilst every care has been taken in preparation of the data contained in this handbook, Prochem Pipeline Products accepts no liability for the accuracy of information supplied. It is solely the responsibility of the system designer and user to select products suitable for their specific application requirements and to ensure proper installation, operation, and maintenance of these products. Material compatibility, product ratings, and application details should be considered in the selection.

GYROLOK®



HOKE® manufactured **GYROLOK®** tube fittings have been carefully designed and manufactured to provide a wide range of outstanding leak-tight application capabilities.



MANUFACTURED BY



GYROLOK® to Tube Union



GYROLOK® to Male Pipe

HOKE® has built a first-class reputation for designing and manufacturing state-of-the-art products. In striving for maximum quality and value, HOKE® has set the industry standards for product safety, operability, durability and reliability.

HOKE® manufactured GYROLOK® fittings are available as standard in brass, 316 Stainless Steel and Monel® 400. Also available for custom orders in special shapes and materials:

Hastelloy® C276:	HC
Duplex:	DX3
Super Duplex:	D50
6Mo (UNS S31254):	6MO
Inconel® 600:	INC
Inconel® 625:	625
Incoloy® 825:	825
Titanium:	Ti

Monel, Hastelloy, Inconel and Incoloy are registered trademarks.

Twin Ferrule

GYROLOK® to Female Pipe



GYROLOK® Stub
Connectors/Adaptors



GYROLOK® to Welded Systems

Tube Fittings

GYROLOK®

Pressure Rating

GYROLOK® fitting ends are rated for working pressures higher than the tubing recommended for use with GYROLOK® fittings. Tubing should not be utilised at pressures above its maximum allowable working pressures. Check the GYROLOK® Tubing Data Charts for specific information. If no pressure is identified for a given size and wall thickness of tubing, that tubing is not considered suitable for use with tube fittings. Pressure ratings may vary for other fitting ends, such as NPT or O-ring seal.

Vacuum Rating

GYROLOK® offers deep vacuum capability. With good quality tubing, GYROLOK® fittings will be leak-tight at vacuum levels at 10⁻⁹ torr while tested with a leakage sensitivity of 10⁻⁹ sccs.

Temperature

GYROLOK® fittings provide safe, reliable performance from cryogenic temperatures to high temperature bake out levels, depending on material.

- 316 Stainless Steel: -200 to 426°C (-325 to 800°F)
- Brass (copper tubing): -200 to 203°C (-325 to 400°F)
- Monel®: -200 to 426°C (-325 to 800°F)
- Nylon: -53 to 65°C (-65 to 150°F)

CAUTION (For Stainless Steel): Intermittent use to 649°C (1200°F) is possible, however prolonged exposure to temperatures over 426°C (800°F) is not recommended.

CAUTION (For Nylon): Material strength decreases rapidly as temperature increases (e.g. allowable pressure at 100°C (212°F) is approximately 40% of allowable pressure at 24°C (75°F).)

Training and Engineering Support

We can train every one of your trades people to make sure each understands how a GYROLOK® fitting functions. By teaching the proper tubing preparation and installation procedures, we ensure maximum product performance.

We take the time to assist our customers in finding the GYROLOK® fitting that is right for their specific needs. Contact Prochem for more of our informative support materials and catalogues.

Monel is a registered trademark.

GYROLOK®

GYROLOK®

GYROLOK® to 37° Flare (AN)



GYROLOK® Cap and Plug



GYROLOK® Components



Safety Changer Ferrule &
Safety Changer Nut & Ferrule



GYROLOK®



GYROLOK® RT & RS

GYROLOK® to O-Ring Seal & Tube to SAE/MS



GYROLOK® Specials

Count on HOKE® Safety

We pride ourselves on our solid commitment to safety. HOKE® manufactured products are machined with total precision, for a long life and maximum performance. Standard materials include 316 Stainless Steel, Brass and Monel®. Hastelloy® C276, Duplex, Super Duplex, 6Mo (UNS S31254), Inconel®, Incoloy® and Titanium, are used to meet special customer requirements. Each product is manufactured to resist the detrimental effects of corrosion, and to withstand extreme pressures or vacuum conditions, as well as temperatures ranging from cryogenic -198 to 648°C (-325 to 1200°F).

HOKE® manufactured products meet the most stringent standards for safety, reliability and quality: AGA (American Gas Association), ANSI (American National Standards Institute), ASME (American Society of Mechanical Engineers), ASTM (American Society for Testing and Materials), MSS (Manufacturers Standardization Society) and NACE (National Association of Corrosion Engineers).

As a result, HOKE® manufactured products are the choice of OEMs, refiners, chemical manufacturers and all those whose primary concern is safe, reliable performance.

If you have any questions about the design specifications of HOKE® manufactured products, contact Prochem.

Monel, Hastelloy, Inconel and Incoloy are registered trademarks.



GYROLOK®

Quick Reference Guide

UAN UNION, BUAN BULKHEAD AN UNION AND AAN AN ADAPTOR



AF ADAPTOR FEMALE



U UNION



RU REDUCING UNION



BA BULKHEAD ADAPTOR



R REDUCER



BU BULKHEAD UNION



TTT UNION TEE



AM ADAPTOR MALE



PC PORT CONNECTOR & PC REDUCING PORT CONNECTOR



LU UNION ELBOW



C UNION CROSS



HYDRAULIC PRE-SETTING TOOL



CM CONNECTOR MALE



LM ELBOW MALE



TMT MALE RUN TEE



TTM MALE BRANCH TEE



QUICK COUPLERS



BCM BULKHEAD MALE CONNECTOR



LMF 45D MALE ELBOW



TWIN FERRULE TUBE FITTINGS

CF CONNECTOR FEMALE



LF ELBOW FEMALE



N NUT



BN BULKHEAD NUT



TFT FEMALE RUN TEE



TTF FEMALE BRANCH TEE



KN KNURLED NUT



SCRN SCREEN



BCF BULKHEAD CONNECTOR FEMALE



CP TUBE CAP



FF FRONT FERRULE



FR REAR FERRULE



P PLUG



CLF LAPPED FLANGE CONNECTOR



SCF SAFETY CHANGER FERRULE



SCNF SAFETY CHANGER NUT & FERRULE



EZ (G SERIES) GYROLOK®



EC (BSPT) GYROLOK®



FCRF INTEGRAL FLANGE



GYROGAGE



EA (G SERIES) GYROLOK®



FTC FUSABLE PLUG



DI DIELECTRIC FITTING

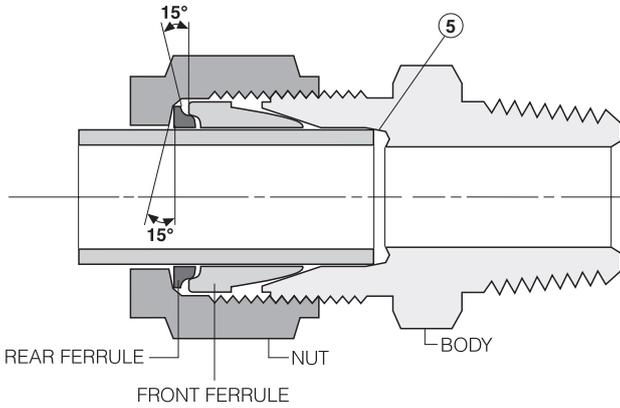


GMT GYROLOK® MARKING TOOL

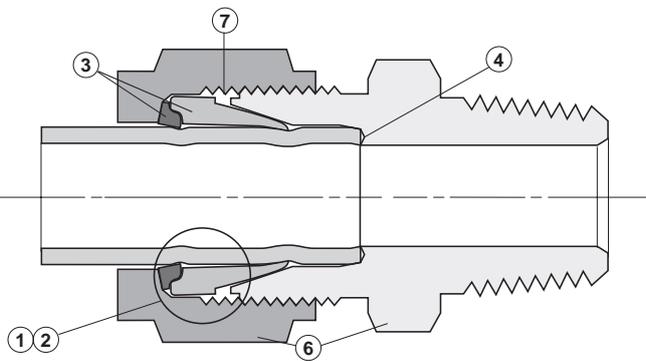


GYROLOK®

HAND ASSEMBLED



FULLY ASSEMBLED FITTING AND TUBE



MANUFACTURED BY



THE GYROLOK® DESIGN

GYROLOK® Tube Fittings have been carefully designed and manufactured to provide a wide range of outstanding leak-tight application capabilities.

Materials

GYROLOK® fittings are available as standard in Brass, 316 Stainless Steel and Monel®:

- 316 Stainless Steel Forgings: ASTM A-182
- 316 Stainless Steel Bar Stock: ASTM A-479
- Brass Forgings, Alloy 377: QQ-B-626
- Brass Bar Stock, Alloy 353: ASTM B-453
- Brass Bar Stock, Alloy 360: QQ-B-626
- Monel® Forgings, Alloy 400: QQ-N-281
- Monel® Bar Stock, Alloy 405: QQ-N-281
- Monel® Bar Stock, Alloy K500: QQ-N-286

GYROLOK® fittings are also available for custom orders in special shapes and special materials:

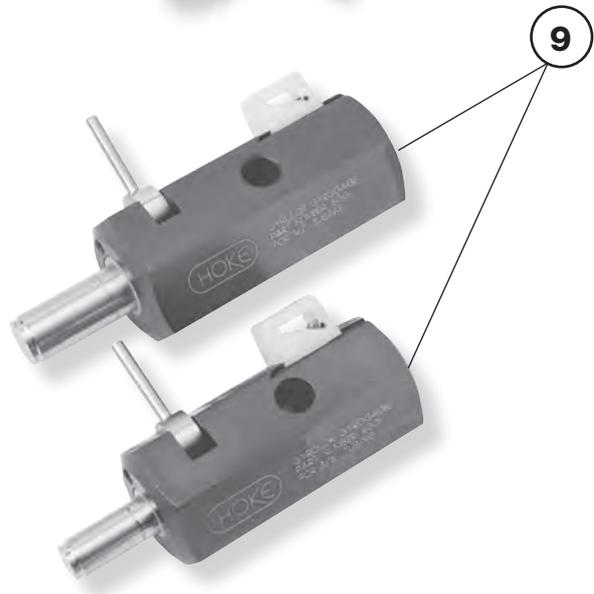
- Hastelloy® C276: HC
- Duplex: DX3
- Super Duplex: D50
- 6Mo (UNS S31254): 6MO
- Inconel® 600: INC
- Inconel® 625: 625
- Incoloy® 825: 825
- Titanium: Ti

Contact Prochem for further information.

Certified Material Test Reports (CMTRs)

Bodies and nuts of GYROLOK® fittings in all materials other than Brass are heat code traceable. To obtain CMTRs for these components, place separate orders for such items and specify "CMTRs required on all items".

Monel, Hastelloy, Inconel and Incoloy are registered trademarks.



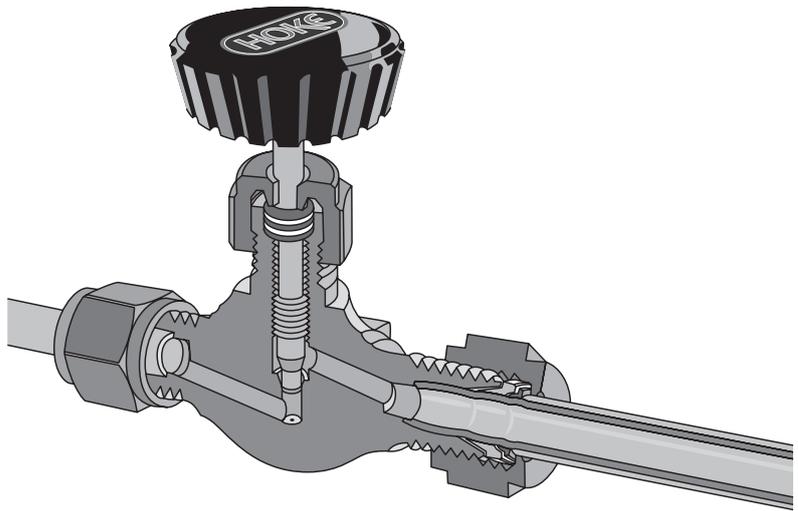
Features AND Benefits

FEATURES

BENEFITS

<p>1 CONTROLLED FERRULE DRIVE</p> 	<p>Roll-in locking action of rear ferrule: During fitting makeup, 15° angles close – between the rear ferrule and nut, and between the rear ferrule and front ferrule – thus preventing overstressing of tubing or excessively reducing tubing’s inside diameter.</p> <p>Front ferrule shoulder: Front ferrule shoulder prevents body expansion and nut jamming, caused by overtightening.</p>	<p>Provides maximum user safety under high pressure/vibration conditions. Prevents overstressing, which causes tubing failure and possible injury. System efficiency is improved by maximising flow.</p> <p>Provides unmatched remake life. Maximises value and economy.</p>
<p>2 HOKE® VALVES WITH INTEGRAL GYROLOK® END FITTINGS</p> 	<p>Controlled ferrule drive prevents end connection expansion, thus prolonging valve life and eliminating the need to use female ended valves with separate fittings. Eliminates a possible leak path and extends valve life.</p>	<p>Long product life and maximum value. Safety and economy.</p>
<p>3 STAINLESS STEEL FERRULE MANUFACTURE</p>	<p>Front ferrules – no surface treatment in any size. Rear ferrules – no surface treatment in sizes 1/2" (12 mm) and under. Sizes over 1/2" (12 mm) treated and plated.</p>	<p>Increased resistance to media and atmospheric corrosion extends product life and user safety.</p>
<p>4 BUTT SEAL</p> 	<p>Provides a second, series seal and eliminates dead space.</p>	<p>Maximises fitting leak integrity and user safety. Can seal with scratched tubing. Increases accuracy in sampling applications. Reduces pump-down time in vacuum applications.</p>
<p>5 SIZING ANGLE</p>	<p>Slight taper in the tube socket’s base of the fitting body reduces possibility of tube sticking.</p>	<p>Less tube sticking during disassembly saves time and money.</p>
<p>6 MATERIAL TRACEABILITY ON FITTING BODY AND NUT</p>	<p>Bodies and nuts made of 316 Stainless Steel, Monel® and special materials are heat code traceable to Certified Material Test Reports. <i>Monel is a registered trademark.</i></p>	<p>Traceability provides added safety. Certified Material Test Reports are available for review and verification.</p>
<p>7 SILVER-PLATED NUT THREADS</p>	<p>Silver plating extends fitting life by preventing galling, up to 1200°C.</p>	<p>Extended product life at extreme temperatures.</p>
<p>8 GYROLOK® SAFETY CHANGER NUT & FERRULE SETS</p>	<p>Nut and ferrule sets supplied on rods, already correctly oriented. (Not necessary to handle ferrules when replacing components.)</p>	<p>Safest, simplest device for component replacement.</p>
<p>9 GYROGAGE & GYROLOK® MARKING TOOL</p> 	<p>Marks tubing to show that tubing has been properly inserted into fitting, and that fitting has been properly tightened.</p>	<p>Maximum safety resulting from ability to verify correct tube insertion and proper tightening.</p>

HOKE® Needle Valves



**HOKE® valves
are available
with GYROLOK®
compression
fitting ends**

HOKE® manufactures a complete line of precision needle valves for both general purpose and severe service applications. A variety of user benefits including reduced fugitive emissions and extended product life, are provided by features such as HOKE's Dyna-Pak® packing and positive handwheel drive.



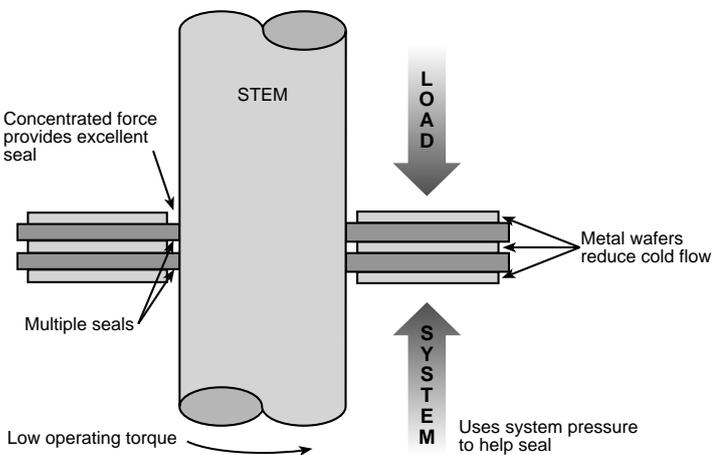
DYNA-PAK® STEM PACKING SYSTEM

Dyna-Pak® provides superior sealing performance while reducing maintenance costs. Consisting of alternate wafers of PTFE and metal spacers, stem leakage is virtually eliminated while the problems associated with PTFE cold flow are minimised.

As the packing nut is tightened, metal spacers squeeze the PTFE wafers, driving the PTFE against the stem. At the stem, forces are concentrated and the PTFE wafers provide multiple line seals. In addition to squeezing the PTFE wafers, the metal spacers help contain the PTFE and drastically reduce its ability to creep.

Dyna-Pak® packing has the ability to:

- Utilise system pressure to increase effectiveness in eliminating leakage.
- Provide reduced operating torque.
- Help eliminate fugitive emissions.
- Reduce the need for frequent packing adjustments.
- Operate in temperatures from -54 to 232°C (-65 to 450°F).



HOKE® Needle Valves are offered with a choice of Stem Tip options to provide greater flexibility



Blunt Vee-Point
The blunt vee-point stem tip provides full flow with only a few turns of the valve handle.



Regulating
The regulating stem tip has a gradually tapered tip which allows for greater control of flow.



Non-rotating Metal Stem Tip
A non-rotating stem tip is typically used in high cycle applications to extend the service life of the valve. Its purpose is to prevent galling in the seat and on the stem tip. As the valve is closed, the stem tip contacts the valve seat, and is driven straight into it without rotating.



Vee-Point
The vee-point stem tip is used to provide leak-tight shutoff in small orifice valves.

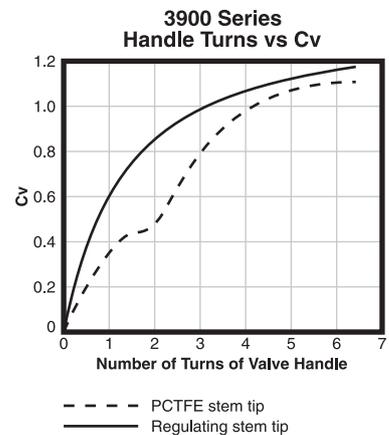
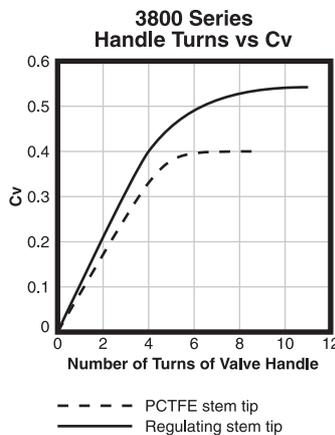
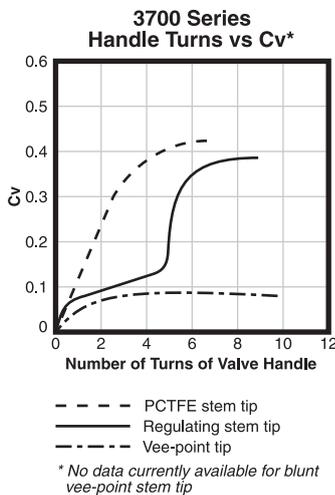


PCTFE
A PCTFE stem tip requires a lower seating torque than a metal stem tip. It will provide full flow through the valve with only a few handle turns. The PCTFE tip is replaceable and has a maximum temperature of +121° C (+250° F).



Non-rotating PCTFE Stem Tip
A non-rotating PCTFE stem tip operates in the same fashion as the non-rotating metal stem tip but requires less seating torque.

Each stem tip has its own unique flow characteristics with some typical flow curves shown below. Refer to the complete HOKE® Needle Valve catalogue for the flow curves for each valve.



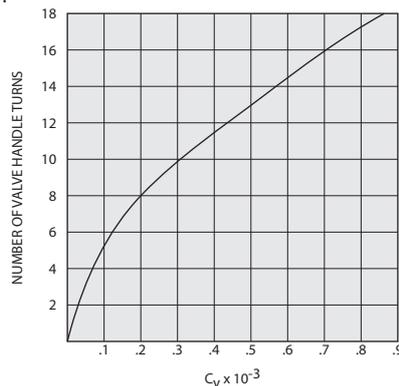
Metering Valves

HOKE® offers a range of fine control needle valves, called metering valves, in three different series – 1300, 1600 and 2300.

Using between 18 and 20 turns of the handle from closed to fully open, these valves offer extremely precise flow control.

Micrometer handles are available with some having a clip lock function to prevent any changes to the setting.

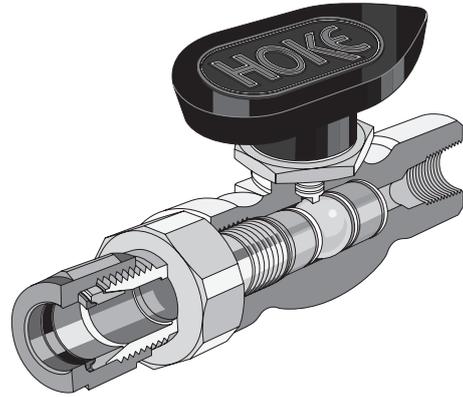
Refer to the complete HOKE® metering valve catalogue for the flow curves for each valve.



Typical metering valve flow curve showing 18 handle turns from closed to fully open

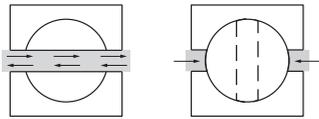


HOKE® Ball Valves

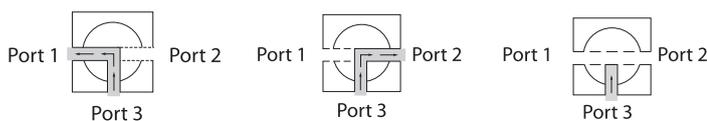


The HOKE® industrial and high performance line of ball valves are available in 2, 3, 4 and 5-way designs.

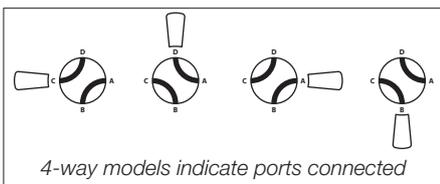
2-way valves provide an on/off isolation function with a 90° turn of the handle.



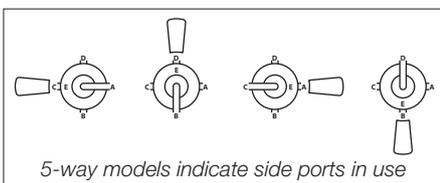
3-way valves divert flow from the common port (usually the bottom port) to either one of the other ports with a 180° turn of the handle.



4-way valves are dual switching valves changing two flow paths at the same time.



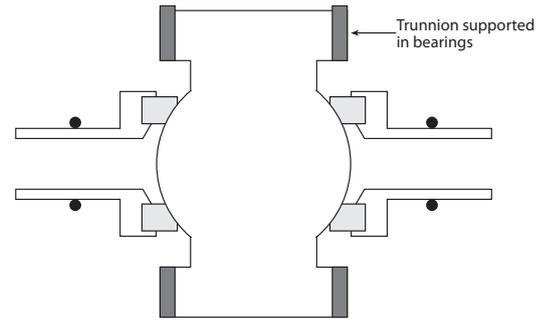
5-way valves, or diverter valves, allow flow from the common port (bottom) to any of the other four ports.



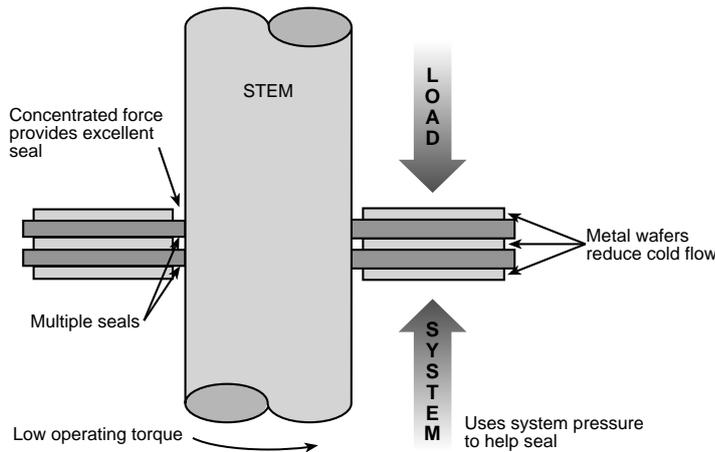
BALL VALVES

- Are available with NPT ends or with **GYROLOK®** Compression Fitting Ends.
- Have indication of flow direction via the position of the handle.
- Are available with floating ball as standard or trunnion design for higher pressure service.
- Are available with welded ends (fixed ends) to prevent accidental disconnection and for enhanced emissions safety.
- Are available in many materials such as Brass, 316 Stainless Steel, Monel®, Duplex and Hastelloy® with other materials available on request.
- Utilise Dyna-Pak for superior sealing and reduced wear.

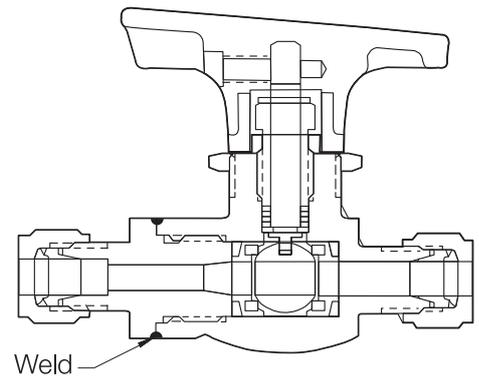
Trunnion Design



Dyna-Pak® Stem Packing System



HOKE® 70 Series ball valve with welded ends



DL/TL Ball Valves

DL & TL Series

Uni-directional, High Cycle, Zero Leak Ball Valves

HOKE® DL/TL ball valves are uni-directional, high cycle valves that exceed 100,000 cycles with zero seat leakage.* In applications where bi-directional flow is required, HOKE® T and D series valves exceed 50,000 cycles. HOKE® ball valves can be ordered in brass, 316 stainless steel or Monel® materials* with a manual handle as standard. Consult Prochem if other materials are required.

For remote actuation, factory assembled HOKE® Space Saver® Actuators are available. D, DL, T and TL series valves can be ordered with welded end fittings to prevent accidental disassembly or with gasketed end fittings, if valve rebuild becomes necessary.

* Depending on seat, seal and washer material selected. See full HOKE® Ball Valve catalogue for ordering details.

Actuated Valves



Select HOKE® valves can be remotely actuated. Pneumatic or electric operators provide flexibility and convenience. HOKE® pneumatic actuators feature a unique space saving concept and the ability to operate two valves on the same actuator (pictured). Electric actuators are offered both as weather-proof or explosion-proof units in 115 Volt AC or 24 Volt DC versions.



Before making your valve selection, be sure to consider the system pressure, operating temperature, required flow and materials of construction. If your application requires a valve not available in this catalogue, contact your local Prochem office.

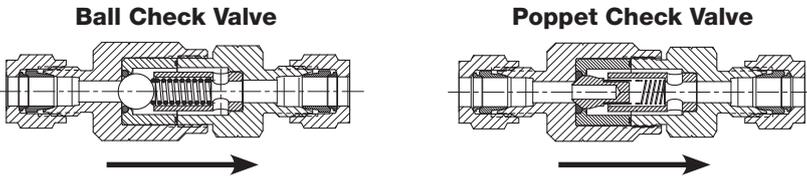
Monel and Hastelloy are registered trademarks.

Check Valves

A check valve is designed to prevent back-flow of media by closing when the inlet pressure is reduced below that of the spring (cracking pressure).

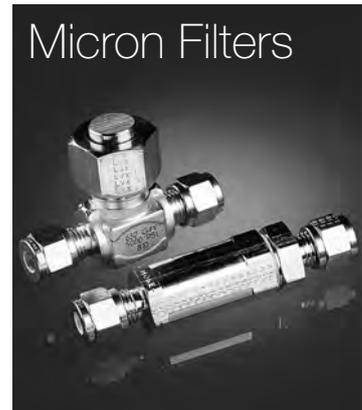
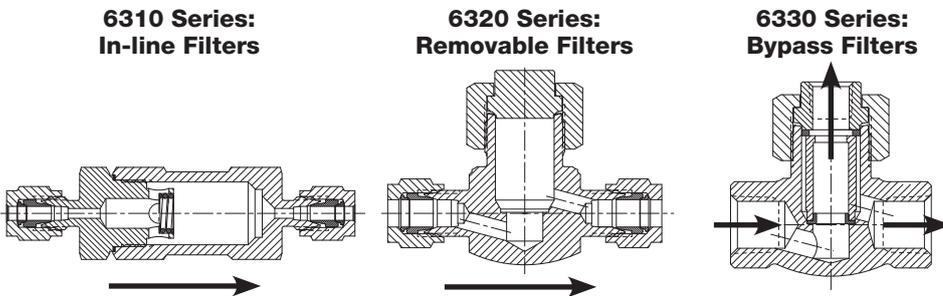
Check valves are manufactured in two types: Ball or Poppet with four different cracking pressures offered as standard.

The 691F Series is a check valve for high flow applications.



Filters

Filters are manufactured in three styles: in-line, by-pass and removable with five filter ranges available.



316 Stainless Steel Elements

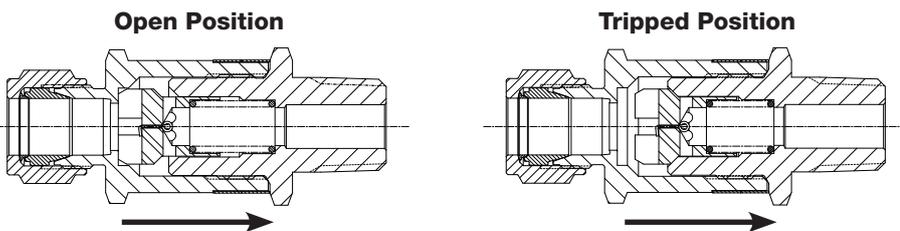
Micron Range	For 1/8" & 1/4" Size Housings	For 3/8" & 1/2" Size Housings	Identifying Digit	Cv Factor
2 to 5µ	80410-1 80409-1*	—	-1	0.006
5 to 9µ	80410-2 80409-2*	—	-2	0.055
10 to 15µ	80410-3 80409-3*	91442-1	-3	0.33
20 to 30µ	80410-4 80409-4*	—	-4	0.39
40 to 55µ	80410-5 80409-5*	—	-5	0.42
0.5µ	80410-6	—	-6	
100µ	80410-7	—	-7	

* For use with 6330 Series Bypass-type housing

HOKE® valves are available with GYROLOK® compression fitting ends

Excess Flow Valves

XVH Series Excess Flow Valves act as flow switches that automatically close when a flow spike occurs preventing uncontrolled release of system fluid.



The spring holds the poppet in the open position during normal flow. When flow increases to the predetermined rate or trip point, the poppet will close.

Manual Reset

The poppet will remain in the tripped position with zero leakage and zero flow until pressure is manually equalized across the poppet. When the pressure becomes equal, the spring will then reset the poppet to the open position, allowing normal flow.

Automatic Reset

The poppet will remain in the tripped position until system pressure becomes equal across the poppet. The bleed orifice in the poppet will allow the pressure to slowly equalize across the valve if the downstream line is closed or repaired. When the pressure becomes equal, the spring will then reset the poppet to the open position, allowing normal flow.



Bleed Valves &



Safety Relief

Bleed Valves

Bleed valves are available in many different configurations including threaded, compression tee, compression cross and a popular new bleed union.

Plug Valves

The 7300 series Plug Valves provide full flow or leak-tight shut off with a quarter turn. A down stream vent can be added as an option where down stream pressure is relieved through a small hole in the body when the valve is closed.

Plug Valves



Cylinders

With sizes from 10ml to 15.1L (4 gallons), with pressure ratings up to 345 bar (5000 psi) in a range of different alloys, HOKE® has the sampling cylinder for your application.

The cylinders can be formed or spun during manufacture and are available with a range of different certifications including Department of Transport (DOT) and Transportable Pressure Equipment Directive (TPED).

Isolation valves, safety relief devices and dip tubes are available to compliment the cylinders.

Refer to the HOKE® Cylinder catalogue for complete details.

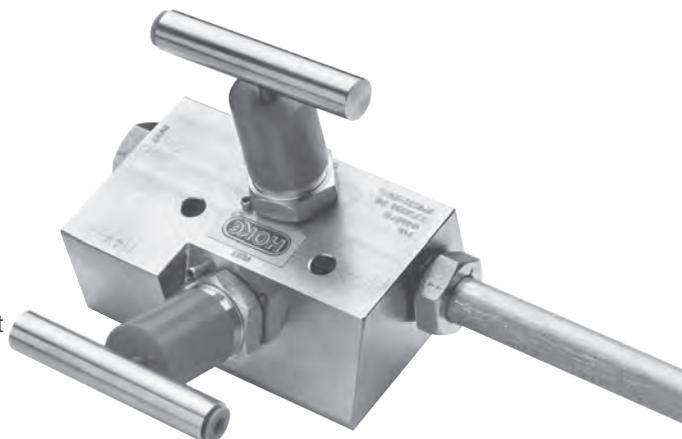


Manifolds

General Purpose Instrument Manifolds at a Glance

HOKE® offers a variety of 2, 3, and 5-valve instrument manifolds in direct and remote mount styles with vent configurations to meet most flow, pressure, and level measurement application requirements. HOKE® 2-valve manifolds are designed for static pressure and liquid level applications; the 3 and 5-valve manifolds are well suited for use with most differential pressure transmitters and can accept both female and flange process impulse line connections.

HOKE® also produce a manifold with integral compression fittings which reduces the number of connections required and eliminates leak paths giving greater integrity of connection.



Quick Couplers

- Redundant o-ring seals in couplers provide quick leak tight sealing in vacuum or pressurized systems.
- Dependable poppet valves with integral o-ring seals are standard in coupler and plug (Double shutoff applications).
- Built-in positive valve stops prevent flow checking in the coupling. Valve guides align valves exactly to the coupler's valve seat preventing chance of leakage when in a disconnected mode.
- Smooth positive sleeve engagement and firm grip of the plug portion of the coupling assembly is assured with HOKE's PTFE- bonded stainless locking "dogs".
- All coupler and valving springs are constructed from 316 material.
- Keyed sleeves for all sizes.



Relief Valve

R6000 relief valves are available for applications ranging from 0.34 bar (5 psi) to 414 bar (6000 psi) cracking pressure.

R6000 right angle relief valves provide users with the highest accuracy and consistency of cracking and reseal pressures due to narrow spring pressure ranges. (Cracking pressures).

PED certification and CE marking are standard for all models. Valves can be factory preset according to customer specifications.

All R6000 relief valves are offered with multiple end connections to ensure application versatility.

HOKE® Precision Instrument Pipe Fittings are manufactured with high quality NPT tapered threads in a wide variety of configurations to provide broad application capabilities.

Ratings and specifications are as follows:

Threads utilised on HOKE® Precision Instrument Pipe Fittings are National Pipe Taper (NPT) which exceed the requirements of ANSI B1.20.1.

Pressure Ratings for temperatures up to 38°C (100°F) are identified for each individual pipe fitting in the dimensional data charts.

Temperatures noted below apply to basic fitting capabilities. In all cases consideration must also be given to the type of thread sealant used. For example, PTFE tape has a maximum temperature rating of 232°C (450°F).

316 Stainless Steel: -198 to 648°C
(-325 to 1200°F)

Note: Prolonged exposure to temperature over 426°C (800°F) is not recommended.

Brass: -198 to 204°C (-325 to 400°F)

Materials: HOKE® Precision Instrument Pipe Fittings are available as standard in Brass and 316 Stainless Steel. HOKE® Pipe Fittings can also be supplied in other materials including Monel®, Hastelloy® C276, Inconel®, Incoloy®, Duplex, Super Duplex and Titanium, as well and in special shapes. Specifications for standard materials are:
316 Stainless Steel Forgings: ASTM A-182
316 Stainless Steel Bar Stock: ASTM A-479
Brass Forgings, Alloy 377: QQ-B-626
Brass Bar Stock, Alloy 353: ASTM B-453 or Alloy 360: QQ-B-626

Heat Traceability: HOKE® Precision Instrument Pipe Fittings are heat code traceable in all alloys except brass with certified material test reports (CMTR's) available on request.

Monel, Hastelloy, Inconel and Incoloy are registered trademarks.



HOKE®
Pipes
Fittings



King Instrument Company

King Instrument Company has been a leading manufacturer of flow measurement equipment since 1983.

King Instrument Company offers a comprehensive line of variable area flow meters including acrylic, polysulfone, glass and metal tube meters. Optional alarms and 4-20 mA transmitter available on selected models.



CIRCOR Tech™ Products



The CIRCOR Tech™ product line consists of CT76 Series Sample Conditioning Systems, D-Series Modular Diaphragm Valves and all related CIRCOR Tech™ Certified, NeSSI Compliant 3rd-Party Components necessary to build modular sample conditioning systems for analyzers.

Along with the hardware, the CIRCOR Tech™ product line includes a myriad of service attributes, such as Expert Process Analyzer System Knowledge, Expert Sample Conditioning System Knowledge, Superior Technical and Trouble Shooting Knowledge, CIRCOR Tech™ Certified Design, Manufacturing, Quality, Assembly, Distribution and Sales.

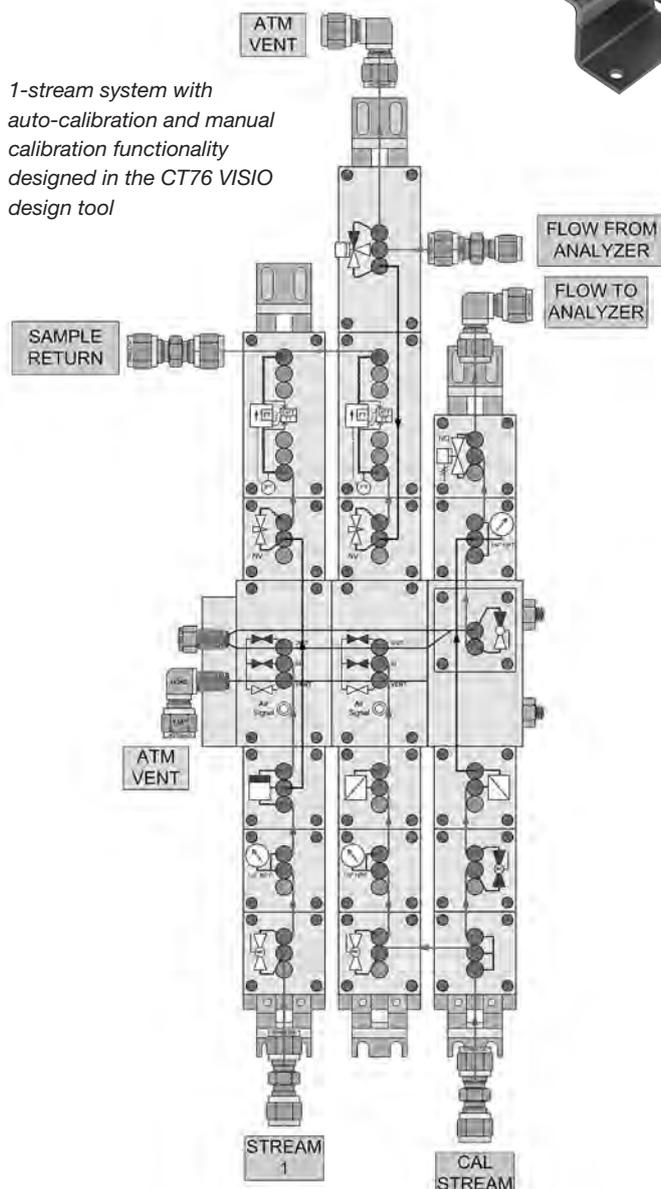
The CIRCOR Tech™ advancements in digital temperature and flow monitoring technology enable you to monitor the health of your sample system from a remote computer and carry out preventative maintenance to ensure your system remains on-line. All available in a standard modular footprint from CIRCOR Tech™.

Further, your installation costs can be reduced and uptime increased with the use of the 6-pac low-powered pilot valves for pneumatic controls.

Ask your Prochem representative about the CIRCOR Tech™ digital technologies.



1-stream system with auto-calibration and manual calibration functionality designed in the CT76 VISIO design tool



CT76 Modular Sampling Systems

ANSI/ISA-76.00.02-2002

- Three degrees of freedom that allow you to truly design the best system to fit your needs.
- On-axis and off-axis process inlet connections allow easy entrance and exit for sample streams.
- The design of the system also allows for easy field modification due to the fact that it is completely self-contained and truly modular.
- The autonomy of the individual sticks allows for modification of one line without having to redo adjacent manifold lines. You do not have to undo all your work merely to add one new component.
- Third-level connectors allow for customized tube lengths that bypass adjacent component positions without the need for additional hardware or a hybrid of tubing, fittings, and modular hardware.
- You can visually trace the flow paths of the process fluids, eliminating the confusion that can arise from visually-compromised or totally internal flow paths.
- THE RESULT IS A HIGHLY COMPACT AND COST-EFFECTIVE SYSTEM DESIGN.

D Series Diaphragm Valves

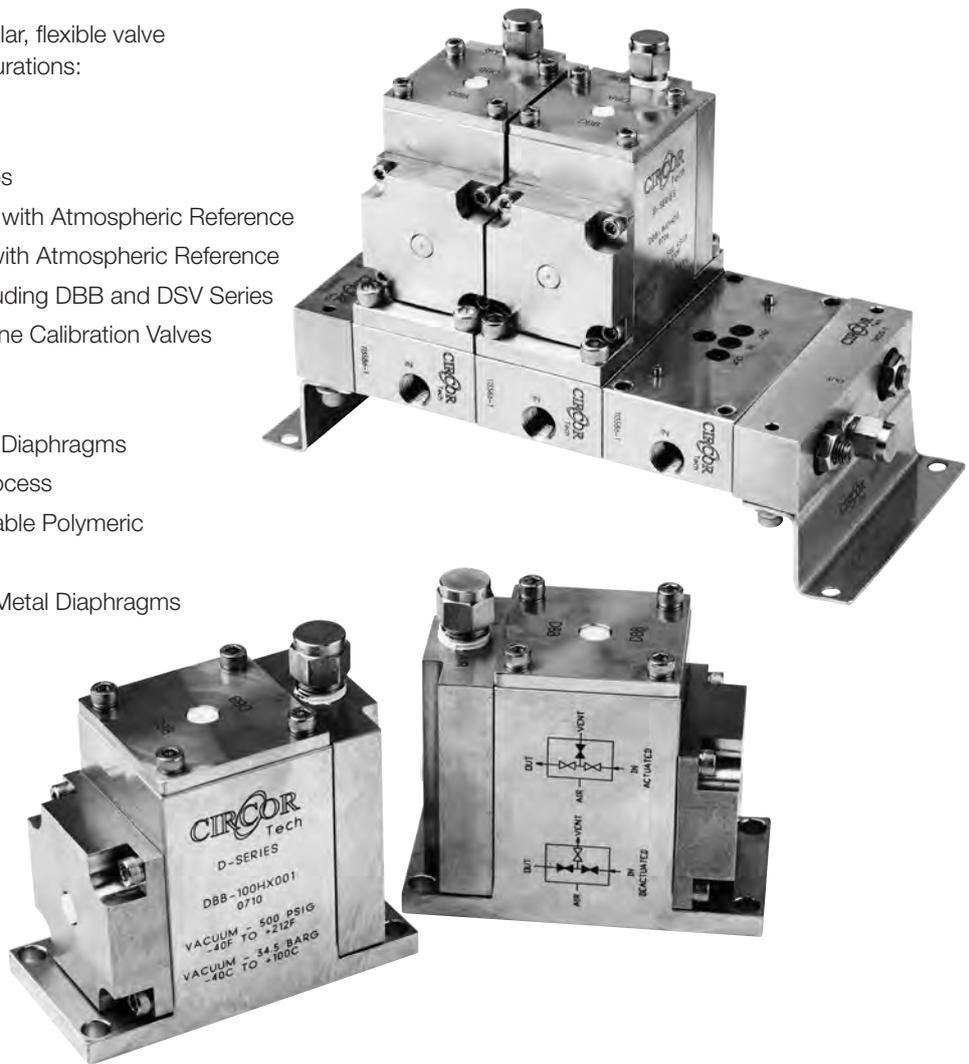
The D Series Diaphragm Valves are modular, flexible valve assemblies available in a variety of configurations:

- DV1 Series 2-way Valves
- DV5 Series 3-way Valves
- DBB Series Double Block & Bleed Valves
- DSV Series GC Valve (Normally Closed) with Atmospheric Reference
- DSS Series GC Valve (Normally Open) with Atmospheric Reference
- DBA Series GC Manifold Assembly including DBB and DSV Series
- DBC Series Probe Blowback/Sample Line Calibration Valves

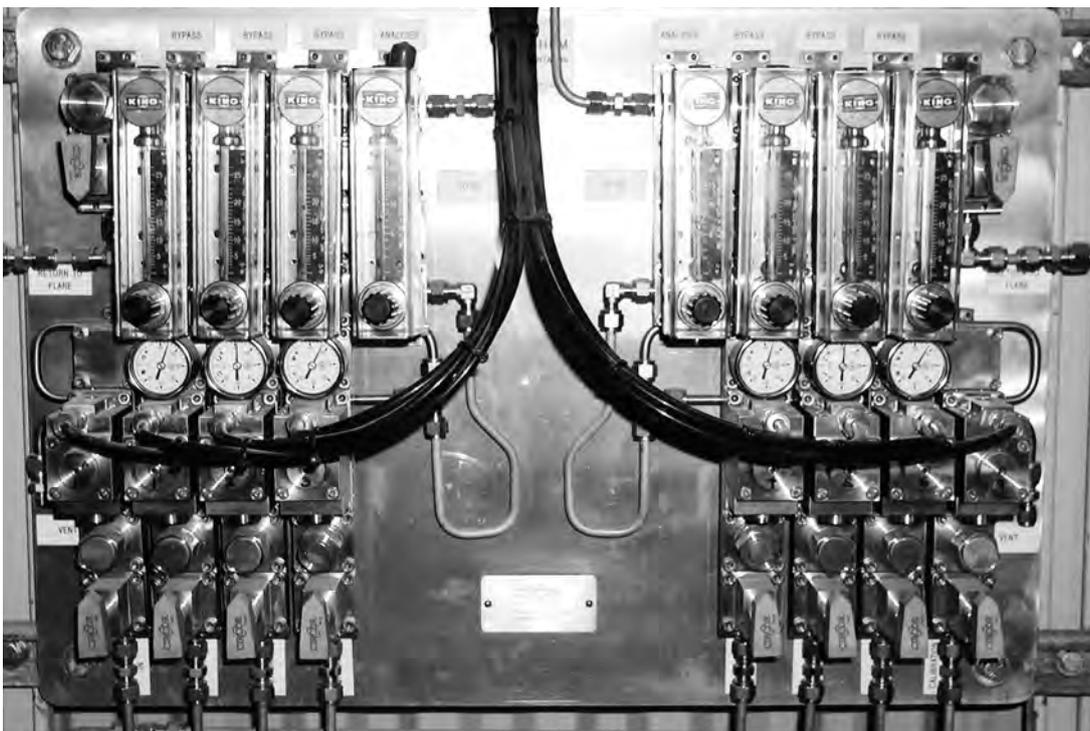
D Series Valve Benefits

- High Cycle Elgiloy® Corrosion Resistant Diaphragms
- No Dynamic O-rings in Contact with Process
- High Integrity Shut Off with Non-Permeable Polymeric
- Valve Seat (PCTFE, PEEK)
- Environmentally Friendly Zero Leakage Metal Diaphragms
- High Cycle Life
- Low Internal Volumes
- High Cv

Elgiloy is a registered trademark.



Below: Customer installed system consisting of two separate 3-stream and calibration conditioning systems. Installed, operational and maintenance free for more than 7 years.





GO Regulator® provides a comprehensive range of high purity, industrial and analyser products which include pressure reducing regulators – single stage, two stage, back pressure, vaporising as well as a range of relief valves, filters and automatic changeover systems to complement their range of control components.

A versatile range of pressure reducing regulators designed to fulfil a wide range of needs in instrumentation, sample systems and other applications such as semiconductor processing gases.

Selection features include:

- Gas or liquid service
- Various seat materials
- Various orifice sizes
- Operating temperatures of -40 to 538°C
- Material selection Stainless Steel 316L, Brass, Monel®, Hastelloy® or Titanium
- Pressures to 68.9 MPa (10,000 psi)

Single Stage



Similar in design to pressure reducing regulators, which regulate outlet pressures, back pressure regulators control the inlet pressures. Standard features allow service in many varied applications including corrosive fluids and with the optional features available, the user can tailor these units to suit virtually any application.

- Subatmospheric or positive back pressure control
- Stainless steel or brass
- Optional wetted materials of construction Monel®, Hastelloy® or Titanium
- Liquid or gas service
- Bubble tight shutoff

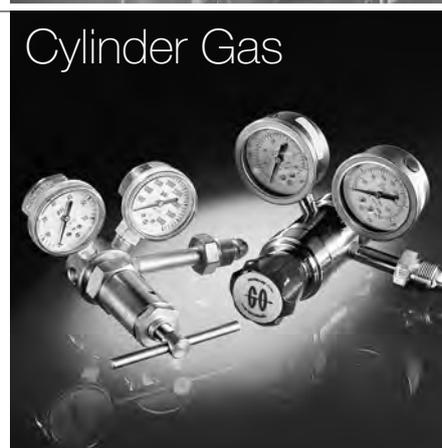
Back Pressure



Single and dual stage precision pressure reducing regulators for all cylinder gas, instrumentation industry applications where precision pressure supply is required.

- Stainless steel, brass and exotic alloys
- AS, CGA, BS and DIN cylinder connection accessories
- Various porting configurations
- Pressure gauges 2" dual scale
- Maximum inlet pressure 41.4 MPa (6000 psi)
- Low internal volumes

Cylinder Gas



GO REGULATOR

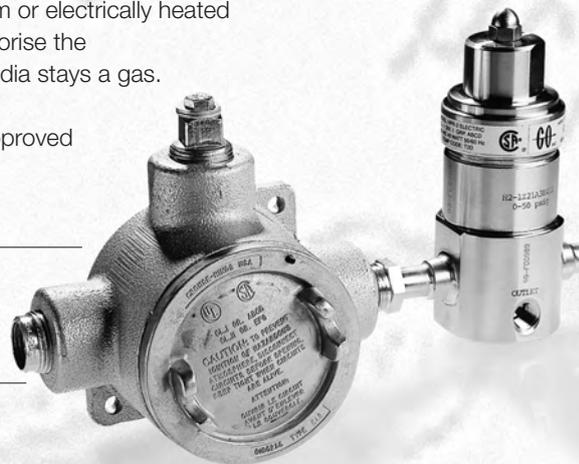
Monel and Hastelloy are registered trademarks.

Heated / Vaporising



Designed to heat and/or vaporise a gas or liquid sample before entering the analyser system. A steam or electrically heated inlet heat exchanger is utilised to vaporise the sample stream to ensure the flow media stays a gas.

- Steam or electrically heated
- IECEX, ATEX, CSA and Cenelec approved
- 316L stainless steel or Monel®
- Low internal volume



A selection of automatic changeover systems are available to deliver a continuous supply of gas from dual sources.

- Available in stainless steel and brass (other materials on request)
- 0.01% pressure control accuracy
- Allows changing of cylinders during operation
- Complete panel system option including gauges and vent valves for easy installation



Cross Over System



Diaphragm Valves



The DV Series Diaphragm Valves are totally free of springs, bellows, packing, o-rings and lubricants in the process wetted area. Metal to metal seals to atmosphere ensure that there is no absorption of undesirable elements into the flow stream. Elgiloy® diaphragms ensure the utmost in corrosion resistance and life span.

GO Regulator®

Circle Seal Controls®



We offer the industry's widest choice of quality precision valves and controls for industrial and aerospace/military applications. Our products include check valves, relief valves, shutoff valves, solenoid valves, cryogenic valves, sampling and bleed valves, electro-mechanical valves, float, vacuum, and pilot operated valves; pressure regulators; tyre fill valve gauges; gauge savers; temperature compensating pressure regulation systems.

Circle Seal Controls® is a manufacturer of reliable solutions in valves and controls for hydraulic, pneumatic, and cryogenic systems.

Excess Flow



Stop uncontrolled discharge of system media in the eventuality of a downstream line rupture.

- Safety shut-off
- Surge protection
- Variety of end connections
- Variety of seals
- Automatic reset

Check Valves



A wide selection of check valves for liquid and gas service.

- Connections from 1/8" to 2" in compression, female pipe, US and British threaded ends.
- Various body materials ie. stainless steel, brass, carbon steel, aluminium
- Pressure ratings to 20,000 psig
- Zero leakage at low back pressure
- Various seat materials

Inline and right angled adjustable pressure relief valves.

- Connections from 1/8" to 1-1/2" (sizes vary for different models)
- Stainless steel, brass, steel and aluminium
- Operating range 0-10,500 psig
- Zero leakage
- 0.5 to 10,500 psig cracking pressure
- Positive reseal

Relief Valves



Classic Filters

Classic Filters manufacture bonded microfibre filter elements and associated filter housings. They are suitable for a variety of gas and liquid applications and are used in a wide range of industries around the world.

Our disposable microfibre filter elements are extremely efficient as well as being low cost. There are a number of benefits with this type of element and they offer high flow rates with very low pressure drops.

All products conform to industry standard sizes and grades, being completely interchangeable with other manufacturers' filter housings and elements. As well as the disposable type elements we also have a range of stainless steel and PTFE elements available.

The comprehensive product range enables a greater flexibility for customers because of the wider choice of standard designs. The development of new products is customer driven and our engineers work closely with OEM customers and end-users.

Special housings and filter elements designed and produced in-line with customer requirements and specifications are always available.

Prochem is the appointed Australian and Singaporean distributor and are here to find a solution to your filtration problem.



FILTRATION APPLICATIONS

Our filter housings and elements are suitable for a wide range of liquid and gas applications for particulate and coalescing.

Housings are available in a selection of materials to provide a solution for the most demanding applications. Materials including 316L Stainless Steel, Aluminium, PTFE, Nylon, Polypropylene, PVDF, as well as exotic materials such as Monel®, Hastelloy®, Titanium and Inconel®.

Coalescing Filtration

Coalescing is the separation of liquid aerosols and droplets from a gas. Using a coalescing filter element installed in a housing with three ports the wet gas sample passes through element inside to outside.

The inner capture layer is a high efficiency coalescing layer and the outer a coarser drainage layer. Coalescing filter elements will also remove particulates at the same efficiency as particulate filter elements of the same grade.

Housings are available with a variety of drain port sizes and physical dimensions to maximise service life.

Particulate Filtration

Particulates are removed from gases and liquids using a two port in-line filter housing and particulate type filter element. The liquid or gas flows through the element from the outside to the inside to maximise the service life.

Using the same particulate filter elements in a housing with a single port, solids are removed from liquids and gases in end of line applications.



Fast Loop & Bypass

Bypass or Fast Loop installations are used to minimise the time delay in sample systems. A relatively high flow is used to get the sample close to the analyser and then the low flow sample is split using the filter housing with the rest of the flow being returned to the process.



Traditionally bypass applications used a three port T-shaped housing, however the Fast Loop style housings allow a continuous flushing of the filter element and greatly increases the service life and reduces the internal volume of the system.

PTFE Porous Membranes

PTFE membrane housings are designed to remove liquids from a gas. The porous PTFE membrane will only allow molecules of gas or vapour to pass through it and so all liquid is stopped.

They are suitable for sampling systems and applications to protect analysers and other instruments.



Monel, Hastelloy and Inconel are registered trademarks.

DOPAK® Sampling Systems

DOPAK® Sampling Systems offers closed loop and vent samplers for liquids, gases, liquefied gases and solids.



Benefits

- Safer for the operator
 - Eliminate spills
- Safer for the environment
 - Eliminate spills
- Safer for the sample (representativity)
 - Minimal contamination
- Easy operation
- Low maintenance

Introduction to Sampling

Due to the growing complexity of the industrial processes in general and more specifically for processes in the (petro) chemical and pharmaceutical industries, the need for tests and analyses increases continuously.

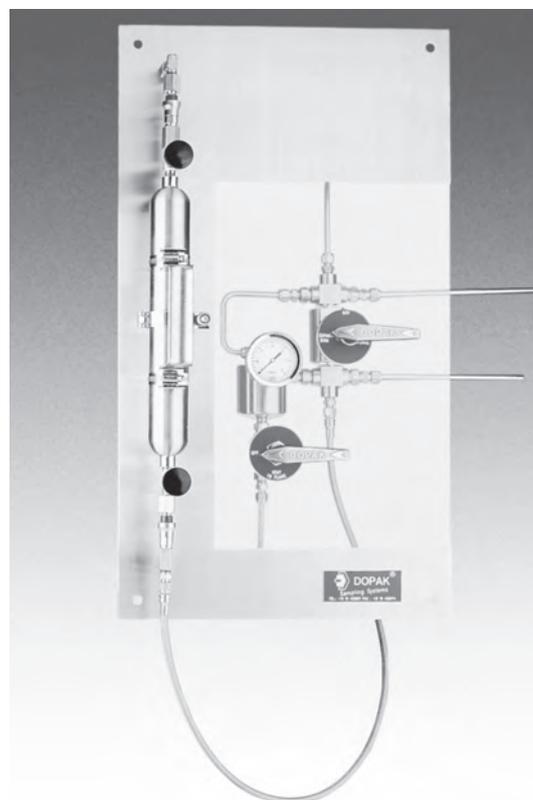
The need for representative samples plays a critical role in ensuring product verification. Yet sampling directly from the process often includes the risk of exposure to the operator, as well as contamination and pollution to the environment. The DOPAK® Sampling Systems reduce such risks with its patented design and simple method of operation.

DOPAK® Sampling Systems

Samplers for liquids, gases, liquefied gases and solids.

The DOPAK® Sampling Systems concept is widely used and accepted among the leaders in the chemical and petrochemical industry. Our track record is easily explained because DOPAK® Sampling Systems solves the problem of taking samples of toxic, dangerous and volatile substances.

With DOPAK® Sampling Systems closed vent samplers for liquids, gas, liquefied gas and solids, the operator is better shielded from contact with the product being sampled and local spillage can be avoided meaning volatile substances are prevented from escape into the atmosphere. Safety in the widest sense is highly improved.



DOPAK® Sample Containers

DOPAK® offers two types of sample containers namely bottles, sealed with cap and septum and cylinders. The type of container used is of influence on the type of sampling system.

Sampling in cylinders

A sample is drawn from the process and arrives at process pressure in the sample container. The container consists of a cylinder at both ends equipped with a needle valve and a quick connect coupling. The cylinder is connected to the sampler.

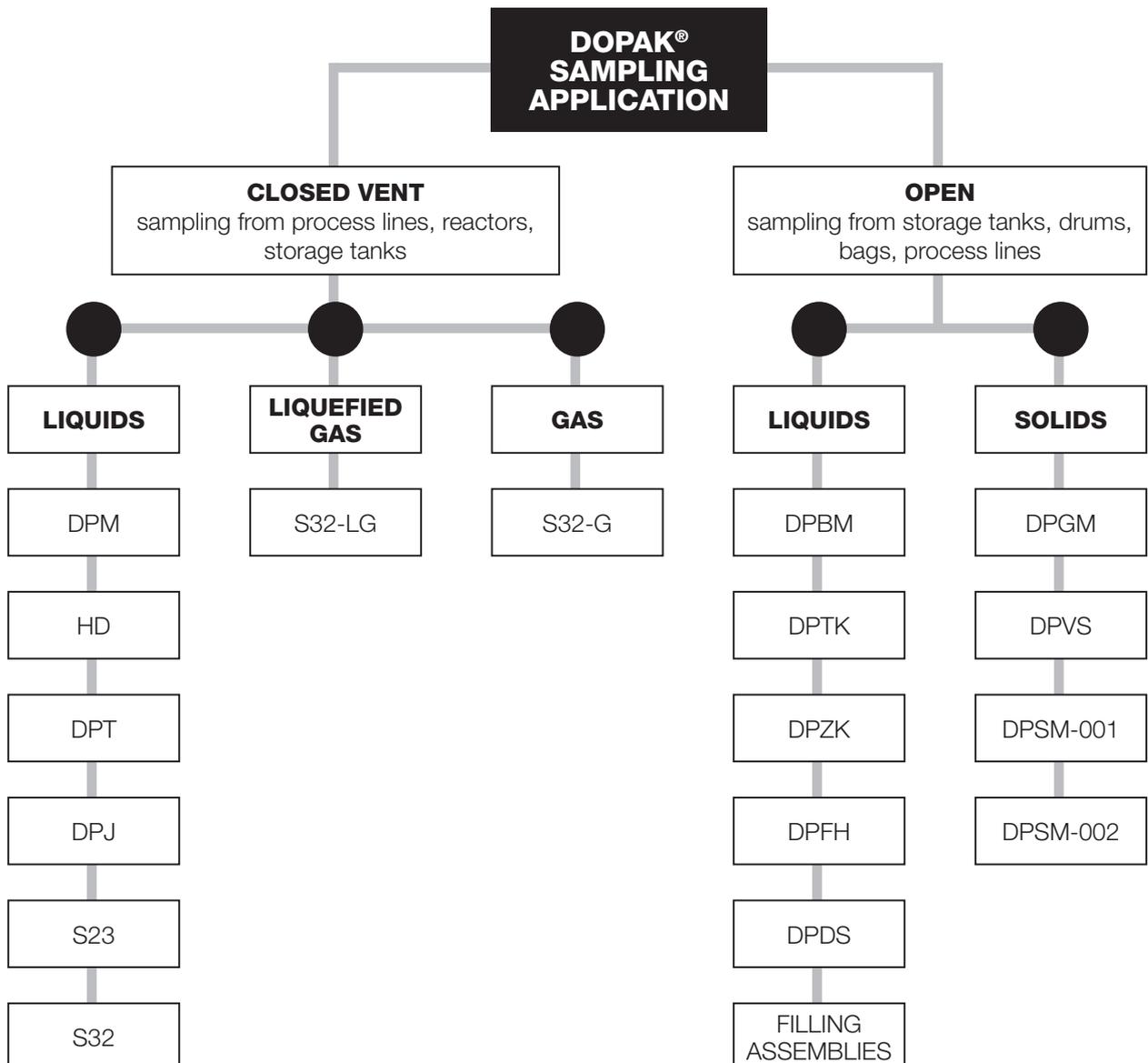
Once in position, the product can flow through the sample cylinder. When sampling liquefied gases, a fixed amount of liquid is transferred to the expansion chamber to ensure partial filling of the cylinder. The operator closes the needle valves on the sample cylinder and allows the quick connect to be depressurised to a vent connection. The cylinder may be then disconnected from the sampler.

Sampling in bottles

A sample is drawn from the process and arrives at atmospheric pressure in the sample container. The container consists of a bottle sealed with cap and septum which is inserted into the sleeve until the septum is pierced by the needles extending from the needle assembly.

Once in position, the product can flow into the sample bottle via the process needle, while air and gases are being vented by the vent needle. When the required amount has been taken, the operator stops the product flow and the bottle is pulled out of the sleeve. The septum reseals automatically.

In applications where a cap and septum cannot be used, DOPAK® offers a seal ring on top of the sleeve, in combination with a filling assembly.



Stainless Steel Tube

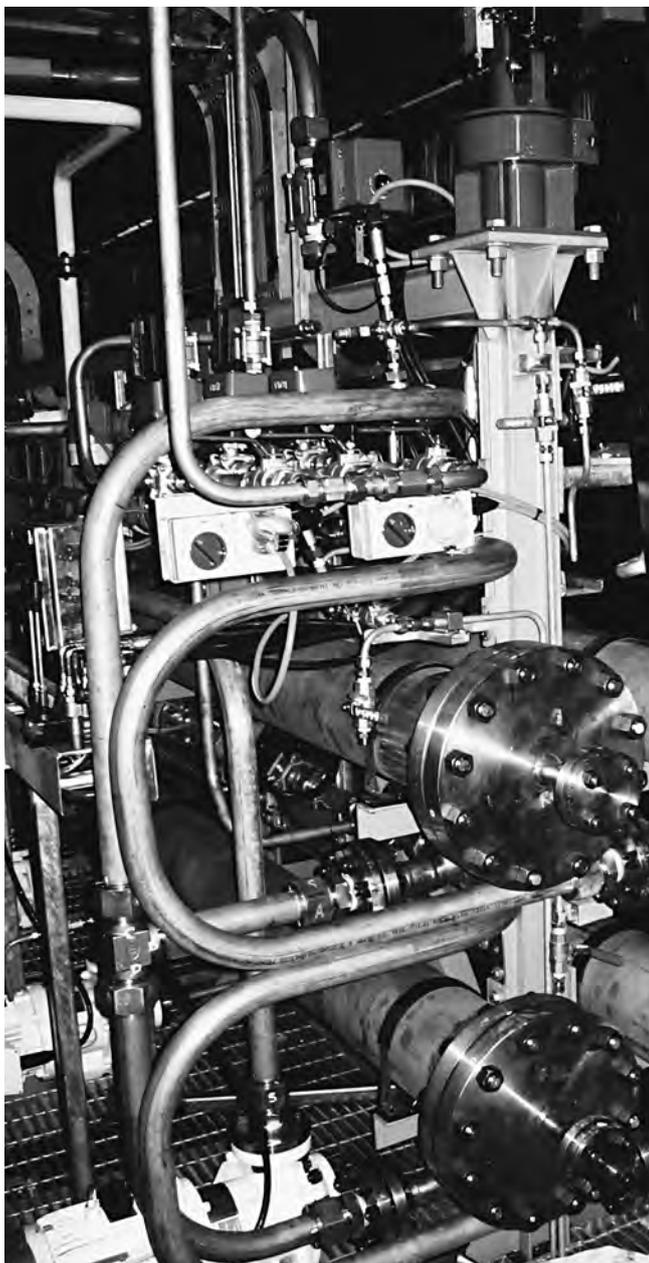
Prochem leads the field in the supply of high quality instrument tube for offshore and onshore applications as well as general service. These grades are stocked throughout Australia, Singapore and Thailand.

Seamless Stainless Steel Tube

Prochem's stock of 3.2 (1/8") to 50.8 mm (2") OD is available in a variety of wall thickness ranging from 0.71 (22 SWG) up to 3.25 mm (10 SWG).

All tube from 4.76 mm (3/16") OD is available in 6 m lengths continuously marked along the length of the tube with size, wall thickness, standard, grade, heat number and manufacturer's name.

From general purpose through to the rigors of a heat exchanger application, Prochem has your tube requirements covered.



Seamless Duplex Tube

At elevated temperatures in a high chloride environment industry turns to Seamless Duplex tubes, to provide extra corrosion resistance.

Prochem stock tubes are supplied in Duplex – to ASTM A789 UNS S31803.

Available ex-stock in sizes 6.35 (1/4") to 12.70 mm (1/2") OD with other sizes available on request.

Super Duplex Tubes to ASTM A789 UNS S32750 and UNS S32760 are available on request.

Seamless Monel® Tube

Available ex-stock in sizes 6.35 (1/4") to 12.70 mm (1/2"), OD with other sizes available on request.

Tube to ASTM B163/B165 UNS N04400.

Seamless 904L Tubing

Available ex-stock in sized 6.35 (1/4") to 12.70 mm (1/2") OD with other sizes available on request.

Tube to ASTM A269 UNS N80904

Seamless 6Mo (UNS S31254) Tubing

Available ex-stock in sized 6.35 (1/4") to 19.10 mm (3/4") OD with other sizes available on request.

Tube to ASTM A269 UNS S31254.

PVC Sheathed Copper Tube

Available in sizes 6.35 (1/4") to 12.70 mm (1/2") OD in 300m drum coils.

Copper Tube to ASTM B75-C12200.

316 or other exotic materials available with outer sheathing on request.

Coiled Tube

For applications where installation of compression fittings is difficult, or for where long continuous runs are required, Prochem have coiled tubing available to ASTM A269 TP316 stainless steel from 3.18 (1/8") to 25.4 mm (1") OD either from stock or through our world wide network.

Other special corrosion resistant alloys such as Hastelloy®, Inconel®, 317L and Titanium are available on request.

Monel, Hastelloy and Inconel are registered trademarks.



For use with Twin Ferrule Compression Fittings and Valves

Correct and successful compression fitting performance demands that the “Ferrule hardness” be significantly harder than the “tubing hardness” on which it is used to ensure that the ferrules are able to swage onto the tube.

Tubing with hardness at the higher end of the ASTM standard specified range may compromise make-up integrity and it is therefore important to limit the hardness of tube for use with twin ferrule compression fittings.

Prochem limits the hardness of all 316/316L seamless stainless steel tube up to and including 25.4 mm (1") OD to a maximum hardness level of Rockwell B (HRB) 80, offering a fully annealed tube to ensure make-up integrity.

The tube surface is a critical part of the sealing mechanism when using a compression fitting, hence a visual inspection of the tubing to ensure it is free from scratches and other damage is required. Severe scratches or damage to the tubing could affect the safe installation of the compression fitting and thus any tubing in poor condition should be disposed of. Finished tubes shall be scratch free, straight and smooth ends free of burrs.

Heat Exchanger

Tubes used for boiler, superheater and heat exchanger applications are controlled under the specification ASTM A213 which includes tighter dimensional tolerances (OD and Wall thickness), with the requirement for Tensile Testing and a Flattening Test though these are not a requirement of ASTM A269.

Prochem stock from 4.76 mm OD x 0.91 mm WT (3/16" OD x 20 SWG) to 25.4 mm OD x 2.1 mm WT (1" OD x 14 SWG) dual codified to ASTM A269/213, and minimum Molybdenum content of 2.5%.

316 with 2.5% Minimum Molybdenum Content

The demanding chloride environment found in coastal Australian industry, both onshore and offshore, puts much strain on the corrosion resistance of standard 316 stainless steels. In co-operation with leading petrochemical, refining and offshore Oil and Gas companies, Prochem developed the 2.5% minimum Molybdenum specification to enhance the corrosion resistance of seamless tubes used throughout Australian industries.

History has now identified the same problem in other parts of the world and subsequently tubing with a minimum 2.5% Molybdenum content is being specified in industries throughout Asia and the Middle East.

Prochem stock a range of tube sizes from 4.76 mm (3/16") to 25.4 mm (1") OD and wall thicknesses from 0.91 (20 SWG) to 2.1 mm (14 SWG). The range of wall thickness available varies with the OD of the tube. These tubes are dual codified to ASTM A269/A213, with minimum Molybdenum content of 2.5%.

Pickled & Passivated vs. Bright Annealed Tubing

Prochem stock Annealed and Pickled (AP) Seamless Tube which has a “matt” finish and a range of Bright Annealed (BA) Seamless Tube which has a “shiny” finish.

AP tube is used throughout industry where appearance is not important and is considered the standard for Refinery and Offshore Oil and Gas projects.

BA tube is used throughout industries where aesthetic appearance is important, such as by the OEM's who manufacture panels and analyser houses.

BA should not be confused with polished tube whose surface is also “shiny” but may have been hardened during polishing to unacceptable levels for use with compression fittings.

There is a further risk when using “shiny” tube in that welded tube, whose distinction to Seamless BA tube is undetectable to the naked eye, may be substituted for Seamless tube. Welded tube has lower maximum allowable working pressures compared to that of seamless tube.

Caution should therefore be taken when using “shiny” tube.



THEORETICAL WORKING PRESSURE FOR SEAMLESS TUBE

Duplex UNS S31803 (Seamless) -51 to 38°C

Size		Wall Thickness				
		inch	0.035	0.049	0.065	0.083
mm	inch	mm	0.89	1.24	1.65	2.11
6.35	1/4"	psi	7,721	10,273	14,753	
		kPa	53,195	70,782	101,647	
9.53	3/8"	psi	5,011	7,208	8,925	
		kPa	34,527	49,666	61,492	
12.7	1/2"	psi	3,939	5,633	7,660	10,066
		kPa	27,141	38,812	52,780	69,358
19.05	3/4"	psi		3,676	4,956	6,447
		kPa		25,331	34,148	44,418
25.4	1"	psi		2,729	3,663	4,742
		kPa		18,800	25,239	32,670

**Super Duplex UNS S32750 / S32760 (Seamless)
UNS S32750 -28 to 38°C, UNS S32760 -51 to 38°C**

Size		Wall Thickness				
		inch	0.035	0.049	0.065	0.083
mm	inch	mm	0.89	1.24	1.65	2.11
6.35	1/4"	psi	9,342	12,430	17,851	
		kPa	64,366	85,646	122,993	
9.53	3/8"	psi	6,064	8,722	10,799	
		kPa	41,778	60,096	74,405	
12.7	1/2"	psi	4,766	6,816	9,269	12,180
		kPa	32,840	46,963	63,864	83,923
19.05	3/4"	psi		4,448	5,997	7,801
		kPa		30,650	41,320	53,745
25.4	1"	psi		3,302	4,432	5,737
		kPa		22,748	30,539	39,531

TUBE WORKING PRESSURE NOTES:

Tube working pressures have been calculated in accordance with ASME B31.3

Where Thickness < Diameter/6, the formula 304.1.2 3a has been used. Where Thickness ≥ Diameter/6, the formula K304.1.2 35c has been used.

For Duplex UNS S31803

S = 30,000 psi

Y = 0.4

W = 1

E = 1

c0 has been neglected

For Super Duplex UNS S32750/S32760

S = 36,300 psi

Y = 0.4

W = 1

E = 1

c0 has been neglected

Tube Outside Diameter and Wall Thickness Tolerances have been considered from ASTM A789 when calculating the working pressures.

The Allowable Working Pressures calculated are a guide only. As there are variables that will alter the Allowable Working Pressure of the tube, it is the ultimate responsibility of the customer to verify that the tube is suitable for the application.

This table does not advise suitability for use with compression fittings. The purchaser must refer to the compression fitting manufacturers tubing data charts for size and wall thickness suitability.

Monel® UNS N04400 (Seamless Annealed) -198 to 38°C Average Wall

Size		Wall Thickness				
		inch	0.035	0.049	0.065	0.083
mm	inch	mm	0.89	1.24	1.65	2.11
6.35	1/4"	psi	4,969	6,636	9,564	
		kPa	34,237	45,724	65,898	
9.53	3/8"	psi	3,320	4,785	5,958	
		kPa	22,878	32,966	41,053	
12.7	1/2"	psi	2,455	3,511	4,775	6,275
		kPa	16,918	24,193	32,900	43,233
19.05	3/4"	psi		2,292	3,089	4,018
		kPa		15,789	21,286	27,687
25.4	1"	psi		1,701	2,283	2,956
		kPa		11,719	15,732	20,364

Monel is a registered trademark.

904L UNS N08904 (Seamless) -28 to 38°C

Size		Wall Thickness				
		inch	0.035	0.049	0.065	0.083
mm	inch	mm	0.89	1.24	1.65	2.11
6.35	1/4"	psi	5,319	7,077	10,163	
		kPa	36,646	48,762	70,025	
9.53	3/8"	psi	3,452	4,966	6,148	
		kPa	23,786	34,215	42,362	
12.7	1/2"	psi	2,714	3,881	5,277	6,935
		kPa	18,697	26,738	36,360	47,781
19.05	3/4"	psi		2,533	3,414	4,441
		kPa		17,450	23,525	30,599
25.4	1"	psi		1,880	2,524	3,267
		kPa		12,951	17,387	22,506

6Mo UNS S31254 (Seamless) -28 to 38°C

Size		Wall Thickness				
		inch	0.035	0.049	0.065	0.083
mm	inch	mm	0.89	1.24	1.65	2.11
6.35	1/4"	psi	6,974	9,280	13,327	
		kPa	48,053	63,940	91,821	
9.53	3/8"	psi	4,527	6,512	8,062	
		kPa	31,190	44,865	55,547	
12.7	1/2"	psi	3,558	5,089	6,920	9,093
		kPa	24,517	35,060	47,678	62,653
19.05	3/4"	psi		3,321	4,477	5,824
		kPa		22,882	30,847	40,124
25.4	1"	psi		2,465	3,309	4,283
		kPa		16,983	22,799	29,512

TUBE WORKING PRESSURE NOTES:

Tube working pressures have been calculated in accordance with ASME B31.3

Where Thickness < Diameter/6, the formula 304.1.2 3a has been used. Where Thickness ≥ Diameter/6, the formula K304.1.2 35c has been used.

For Monel® 400 UNS N04400

S = 18,700 psi

Y = 0.4

W = 1

E = 1

c0 has been neglected.

For 904L UNS N08904

S = 20,667 psi

Y = 0.4

W = 1

E = 1

c0 has been neglected

For 6Mo UNS S31254

S = 27,100 psi

Y = 0.4

W = 1

E = 1

c0 has been neglected.

For Monel® 400 UNS N04400 Tube Outside Diameter and Wall Thickness Tolerances have been considered from ASTM B163/B165 when calculating the working pressures. Tolerances on tubes less than 1/2" OD (12.7 mm) have been assumed to be the same as 1/2" OD (12.7 mm)

For 904L UNS N08904 and 6Mo UNS S31254 Tube Outside Diameter and Wall Thickness Tolerances have been considered from ASTM A269 when calculating the working pressures.

The Allowable Working Pressures calculated are a guide only. As there are variables that will alter the Allowable Working Pressure of the tube, it is the ultimate responsibility of the customer to verify that the tube is suitable for the application.

This table does not advise suitability for use with compression fittings. The purchaser must refer to the compression fitting manufacturers tubing data charts for size and wall thickness suitability.

THEORETICAL WORKING PRESSURE FOR SEAMLESS TUBE TP316/316L

316 (Seamless) -253 to 38°C

Size		Wall Thickness							
		inch	0.028	0.036	0.048	0.064	0.083	0.109	0.128
mm	inch	mm	0.71	0.91	1.22	1.63	2.11	2.77	3.25
3.18	1/8"	psi	8,579	12,083	19,185				
		kPa	59,110	83,254	132,188				
4.76	3/16"	psi	5,883	7,153	10,389				
		kPa	40,534	49,282	71,581				
6.35	1/4"	psi	4,311	5,682	7,199	10,464	15,363		
		kPa	29,700	39,150	49,603	72,097	105,848		
7.94	5/16"	psi	3,401	4,460	6,129	7,836	11,060		
		kPa	23,436	30,730	42,229	53,990	76,205		
9.53	3/8"	psi		3,671	5,017	6,274	8,679		
		kPa		25,290	34,566	43,230	59,797		
12.7	1/2"	psi		2,711	3,681	5,031	6,726	8,539	
		kPa		18,678	25,362	34,667	46,343	58,834	
15.88	5/8"	psi		2,149	2,907	3,953	5,249	6,474	
		kPa		14,806	20,029	27,233	36,166	44,604	
19.05	3/4"	psi		1,780	2,402	3,255	4,304	5,809	5,887
		kPa		12,264	16,549	22,424	29,654	40,023	40,562
25.4	1"	psi			1,781	2,403	3,161	4,235	4,741
		kPa			12,269	16,555	21,780	29,181	32,665
31.75	1-1/4"	psi				1,906	2,500	3,335	3,726
		kPa				13,131	17,224	22,980	25,673
38.1	1-1/2"	psi				1,574	2,060	2,741	3,058
		kPa				10,844	14,196	18,886	21,072
50.8	2"	psi				1,173	1,532	2,032	2,263
		kPa				8,083	10,556	13,997	15,593

TUBE WORKING PRESSURE NOTES:

Tube working pressures have been calculated in accordance with ASME B31.3

Where Thickness < Diameter/6, the formula 304.1.2 3a has been used. Where Thickness ≥ Diameter/6, the formula K304.1.2 35c has been used.

For TP316

S = 20,000 psi

Y = 0.4

W = 1

E = 1

c0 has been neglected

Tube Outside Diameter and Wall Thickness Tolerances have been considered when calculating the working pressures.

Numbers in standard text have been calculated based on ASTM A269/213 tolerances

Numbers in bold italic text have been calculated based on ASTM A269 tolerances

The Allowable Working Pressures calculated are a guide only. As there are variables that will alter the Allowable Working Pressure of the tube, it is the ultimate responsibility of the customer to verify that the tube is suitable for the application.

This table does not advise suitability for use with compression fittings. The purchaser must refer to the compression fitting manufacturers tubing data charts for size and wall thickness suitability.

TOOLING



For absolute reliability and seamless installation, contact Prochem for your tooling needs.

Prochem Installation and Safety Training improves the overall safety of your fluid system installations to ensure installation integrity and reliability.

Train your staff with Prochem!!



RIDGID® 600 SERIES Lever Benders



The RIDGID® 600 Series Lever Benders are designed to easily bend materials such as copper, steel, stainless steel and other hard metal tube to a maximum of 180°. Built-in rollers and a heavy-duty handle design combine to produce high quality bends with greatly reduced effort when compared to conventional benders.

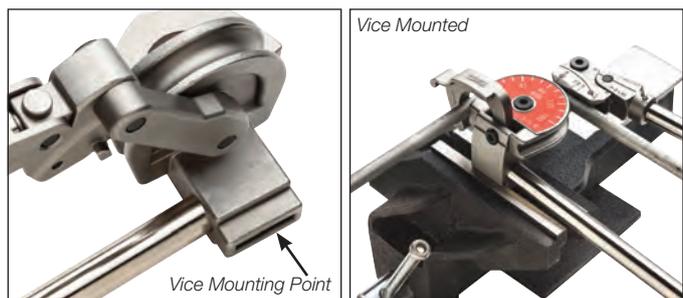
Part Number	Tube OD	Bend Radius
38028	3/16"	5/8"
38033	1/4"	5/8"
38038	5/16"	15/16"
38043	3/8"	15/16"
38048	1/2"	1-1/2"
38053	6 mm	16 mm
38038	8 mm	24 mm
38058	10 mm	24 mm
38063	12 mm	38 mm

The benders can be used either hand held or with the bender mounted in a vice. Vice mounting is especially useful when bending hard or thick walled materials.

The benders have inbuilt features allowing users to make 180° bends without removing the tube or the handles from the bender. Further, you do not have to cross the handles to make the 180° bend. This is unlike other benders where removal of the tube or handles and crossing of the handles is common meaning the **RIGID 600 Series Lever Benders** are by far the easiest to use.

The instructions are shown below.

1. Once the tube has been bent 90°, turn the carriage handle so that the pin moves to the "unlock" position.
2. Rotate the handle around the carriage until the 90-180° triangle mark on the handle aligns with the triangle mark on the carriage.
3. Turn the carriage handle so that the pin moves toward the "lock" position. Make sure the handle is secure to the carriage.
4. Continue to bend the tube to the desired angle up to 180°. The handles will not cross.





35S STAINLESS STEEL TUBING CUTTER

The 35S has been designed for optimised performance on Stainless Steel Tube.

Features:

- Six individual bearings replace traditional rollers. The bearings create a smoother cut, and allow for increased speed around the tube.
- A contoured frame allows for easy alignment while adjusting the cutter to make the cut.
- Specially designed Stainless Steel cutter wheel contains bearings in the hub, to decrease drag around the tube for a smoother cut.
- Ergonomic knob allows for easy adjustments.

Part Number	Model Number	Description	Tube OD	
			mm	inch
29963	35S	Stainless Steel Tubing Cutter with Cutter Wheel	6 to 35	1/4 to 1-3/8
29973	E635	Replacement Stainless Steel Cutter Wheel		



223S/227S INNER-OUTER REAMERS

Features:

- Integrated measurement tool allows you to easily measure pipe size.
- 227S features 45 cutting edges on the Inner and Outer cone allowing for fast, clean Inner reaming and Outer deburring. The 223S features 36 cutting edges.

Part Number	Model Number	Description	Tube OD	
			mm	inch
29983	223S	Inner-Outer Reamer	9 to 32	3/8" to 1-1/4"
29993	227S	Inner-Outer Reamer	12 to 51	1/2" to 2"



127S INNER-OUTER REAMERS

Specifically manufactured for Prochem, the blades have been designed to enable easy and more efficient deburring of 6.3 mm (1/4") OD tubing.

Capable of use on tubing up to 38 mm (1-1/2") OD.

Part Number	Model Number	Description	Tube OD	
			mm	inch
43573	127S	Inner-Outer Reamer	6 to 38	1/4" to 1-1/2"

RATCHET TUBE WRENCHES

Models R9 – R14

Features:

- Made from a high-quality carbon and stainless steel, RIDGID Ratchet.
- Tube Wrenches can be used in a wide variety of applications from plumbing to hydraulics.
- The spring-loaded jaws snap open and close around the fitting, enabling the tool to be used in tight quarters.
- The multi-point contact of the wrench helps prevent distortion of thin-walled fittings.



Part Number	Model Number	Description	Capacity	GYROLOK® Nut
48552	R9	Ratcheting Tube Wrench	9/16"	1/4"
48562	R11	Ratcheting Tube Wrench	11/16"	3/8"
48577	R14	Ratcheting Tube Wrench	7/8"	1/2"

GYROGAGE – GG

A calibrated instrument designed to give installer and inspector absolute confidence that a fitting has been made-up properly.



Features	Benefits
Missing ferrule indicator:	Maximises system safety by confirming that all components are in place.
Scribing tool:	Assures proper assembly by marking tubing to show that it has been properly inserted into fitting, and that fitting has been properly tightened.
Usable by both assembler and post assembly inspector:	Redundant method of verification.
Color-coded gauges:	Simplifies selection of appropriate system gauge: metric (blue) or fractional (green).
Size markings:	Simplifies selection of appropriate size gauge.
Single tool per size:	Eliminates need for extra tools; use one tool for installation and inspection, even for hard-to-reach assemblies.
Choice of marking methods:	Adds flexibility to assembly and inspection with choice of marking systems: built-in scriber or separate ink marker*.



Part Number	Tube Size		Replacement Scribers*
	mm	inch	
Fractional Sizes			
1GG	1.58	1/16	SPGGK1
2GG	3.18	1/8	SPGGK2
3GG	4.76	3/16	SPGGK3
4GG	6.35	1/4	SPGGK4
6GG	9.53	3/8	SPGGK4
8GG	12.70	1/2	SPGGK4
10GG	15.88	5/8	SPGGK5
12GG	19.05	3/4	SPGGK5
14GG	22.23	7/8	SPGGK5
16GG	25.40	1	SPGGK5

Part Number	Tube Size		Replacement Scribers*
	mm		
Metric Sizes			
3GG/MM	3		SPGGK2
6GG/MM	6		SPGGK4
8GG/MM	8		SPGGK4
10GG/MM	10		SPGGK4
12GG/MM	12		SPGGK4
14GG/MM	14		SPGGK5
16GG/MM	16		SPGGK5
18GG/MM	18		SPGGK5
20GG/MM	20		SPGGK5
22GG/MM	22		SPGGK5
25GG/MM	25		SPGGK5

* GYROGAGE scribers can be quickly and easily replaced using the referenced kit numbers.

GYROLOK[®] Marking Tool – GMT

The GYROLOK[®] Marking Tool provides the installer with an economical means of ensuring both proper tubing insertion into the fitting and adequate nut tightening.

Part Number	Size
2GMT	1/8"
4GMT	1/4"
6GMT	3/8"
8GMT	1/2"
10GMT	5/8"
12GMT	3/4"
16GMT	1"
468GMT	1/4" + 3/8" + 1/2"



Hydraulic Pre-setting Tool – HPST

Larger tube fittings often require more effort to assemble properly than can be consistently achieved using hand wrenches. HOKE® offers a portable Hydraulic Pre-setting Tool to make the assembly of larger fittings:

- Safer. The Hydraulic Pre-setting Tool helps assure consistently correct assembly of larger fittings.
- Simpler. Interchangeable die sets allow easy conversion from one tube and fitting size to another.
- More cost-efficient. Using the Hydraulic Pre-setting Tool extends fitting life and reduces assembly time.



Using the portable Hydraulic Pre-setting Tool, the GYROLOK® nut and ferrule system is initially set onto the tubing. The pre-set fitting and tube assembly is then easily installed by following the GYROLOK® reassembly instructions.

How it works

GYROLOK® nut and ferrule system components are assembled onto Hydraulic Pre-Setting Tool. Hand pump is operated until indicator arm releases.

Pre-set tube assembly is ready for installation using standard GYROLOK® remake instructions.

Features	Benefits
One basic pre-setting head for all sizes:	Provides versatility and value by covering sizes from 1/2" through 2" and 12 mm through 50 mm.
Interchangeable die sets:	Allows easy conversion from one tube and fitting size to another.
10,000 psi hydraulic pump:	Provides the force necessary for consistent, fast, and simple fitting assembly.
Carrying case:	Rugged steel carrying case offers easy transportation as well as a single storage location for all tool components.

Pre-setting Tool – PST

Where limited space prevents easy tightening of the fitting nut, the PST can be used pre-swage the ferrules to the tubing to ensure correct tightening and ultimately a well made-up fitting.



Part Number	Tube OD	Dimensions — inches	
		Length	Across Flats
1PST	1/16	2.25	3/8
2PST	1/8	1.94	11/16
3PST	3/16	2	1/2
4PST	1/4	1.94	11/16
6PST	3/8	1.97	11/16
8PST	1/2	2	7/8
12PST	3/4	2.50	1 1/8
16PST	1	2.50	1 1/2

Part Number	Tube OD	Dimensions — mm	
		Length	Across Flats
3PSTMM	3	49.2	17.3
6PSTMM	6	49.0	17.3
8PSTMM	8	50.0	17.3
10PSTMM	10	50.8	17.3
12PSTMM	12	50.8	22.0
14PSTMM	14	50.8	22.0
16PSTMM	16	63.5	28.4
18PSTMM	18	63.5	28.4
20PSTMM	20	63.5	28.4
22PSTMM	22	63.5	37.9
25PSTMM	25	63.5	37.9

Saddles

Prochem offer a complete range of stainless steel saddles fabricated from the highest quality 316 marine grade stainless steel.

Complete Tubing Control with Stainless Steel Saddles

- 316 Marine Grade Stainless Steel
- Weather and corrosion resistant
- 18g reinforced rib for added strength for sizes up to and including 12.7 mm (1/2")
- Manufactured to precision tube tolerances



Tube Size	Part Number				
	Suit 1 Tube – 1 Screw Hole	Suit 1 Tube – 2 Screw Holes	Suit 2 Tubes – 2 Screw Holes	Suit 3 Tubes – 2 Screw Holes	Suit 4 Tubes – 2 Screw Holes
1/4" / 6 mm	-	PC41	PC42	PC43	PC44
3/8" / 10 mm	-	PC61	PC62	PC63	PC64
1/2" / 12 mm	-	PC81	PC82	PC83	PC84
5/8" / 16 mm	PC101/1	PC101/2	-	-	-
3/4" / 20 mm	PC121/1	PC121/2	-	-	-
1" / 25 mm	PC161/1	PC161/2	-	-	-
1 1/4" / 32 mm	PC201/1	PC201/2	-	-	-
1 1/2" / 38 mm	PC241/1	PC241/2	-	-	-
2" / 50 mm	PC321/1	PC321/2	-	-	-

Leak-Check

Leak-Check is chemically formulated to be used for the detection of leaks in compressed air and gas systems.

Leak-Check is a non-toxic, non-corrosive and non-flammable liquid effective over a wide temperature range from 0 to 76°C. It can detect the smallest of leaks in any compressed air, gas or oxygen systems undergoing pressure testing. The scientifically formulated liquid can check for escaping gases in piping, inflated equipment. It finds use in both industrial and residential application.

- Non-breakable, pocket sized container.
- Big, long-lasting bubble from a few drops.
- Bubble size indicative of size of leak.

Part Number	Description
LC250ML	LEAK CHECK 250ML BOTTLE
LC05LTR	LEAK CHECK 5LTR CONTAINER
LC20LTR	LEAK CHECK 20LTR CONTAINER



Thread Tape

Teflon based Thread Tape is available from Prochem in Silver, Yellow and White.

SILVER TAPE

Especially designed for use with Stainless Steel, the **Silver Tape** is impregnated with nickel powder which acts like bearing plates keeping the male and female surfaces from galling or cold welding together. Thicker and more dense than standard tapes, the Silver Tape ensures an effective seal.

YELLOW TAPE

With approval by major gas authorities, the **Yellow Tape** if used for sealing on gas applications. This tape has not been stretched during manufacture meaning it is less porous, less likely to shred or string and requires less tape to provide an effective seal.

Approvals

Unasco Yellow Gas seal tape is approved by the following authorities:
 American Gas Association
 Australia Gas Association
 Canadian Gas Association
 Underwriters' Laboratories
 Underwriters' Laboratories of Canada

WHITE TAPE

White Tape is used for domestic, air, water, hydraulic or low pressure applications.



Part Number	Description
TH4S000	Silver Thread Tape – 12 mm Wide
TH4Y001	Yellow Thread Tape – 12 mm Wide
T3EU003	White Thread Tape – 12 mm Wide

Thread Paste

Loctite® 567™ PST® Thread Sealant is a general purpose instant sealer for tapered and straight/tapered fittings.

With excellent solvent resistance, it can prevent galling and withstand temperatures up to 204°C (400° F). Excellent for high pressure applications: locks and seals tapered metal, pipe threads and fittings. It is ideal for stainless steel, aluminium, galvanized metal and other inert metals. Disassembles with hand tools.



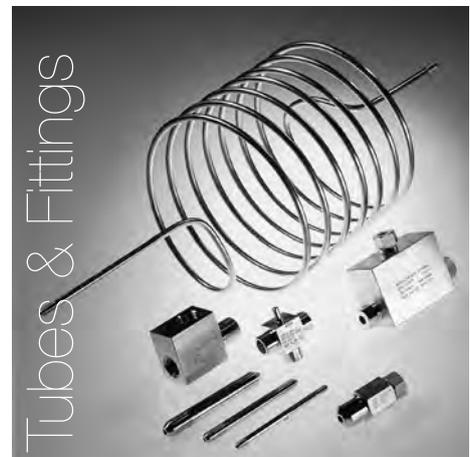
Part Number	Description
56747	50ml Thread Sealant White – 567 Loctite



BuTech Pressure Systems is the world's leading supplier of high pressure piping components.

BuTech

Pressure Systems



Tubes & Fittings



Subsea



Valves

BuTech Pressure Systems is a leading supplier to the oil, natural gas, compressed gas, chemical and petrochemical industries as well as aerospace, marine, government and niche industrial markets.

System components are available in every imaginable alloy to handle pressures from vacuum to 10,000 bar (150,000 psi) in tube and pipe sizes from 6 (1/8") to 25 (1") and temperatures from -253 to 649°C (-423 to 1200°F). Any extreme application of erosive or corrosive solids, liquids or gases is where BuTech products feel right at home.

The following components are available to satisfy your high pressure piping requirements:

- | | |
|---------------------------|------------------------------|
| Subsea Valves | Needle Valves |
| Ball Valves | Relief Valves |
| Metering Valves | Check Valves |
| Elbows, Tees, Crosses | Quick Disconnect Couplings |
| Adapters and Couplings | Bulkheads |
| Safety Head Assemblies | Rupture Discs |
| Tube Nipples | Filters |
| Anti-Vibration Assemblies | Pressure Gauges and Snubbers |
| Thermocouples | Assembly Tools |
| Tubing | High-Pressure Hose |

BuTech Subsea Ball and Needle Valves

BuTech's subsea, relief, needle, ball, and double block and bleed valves, and assemblies are installed in some of the oil and gas industry's most challenging applications. From ball valves for delayed coker units to subsea valves performing in the harsh environments of the deepest offshore waters, BuTech leads the industry in performance, safety, and reliability.

Features and Benefits

- API 6A, 19th ed., ISO 10423:2003 PR2, Annex F/ PSL3G qualified valves available.
- Internally pressure tested to 1,379 bar (20,000 psi).
- Externally tested to 4,200 meters (14,000') depth.
- Typical service life guarantee of 25 years.
- Custom designed for instrumentation, process control and chemical injection applications Remote Operated Vehicle (ROV) capabilities in template control panels, subsea wellheads and christmas trees.
- Manufactured to meet the requirements of NACE MR0175, API Spec 6A & 17D, ASME, ANSI and various other standards.
- Trouble free operation in a variety of media including hydrogen sulfides, corrosion inhibitors, paraffin thinners, hydraulic fluids and other harsh chemicals.



BuTech Double Block and Bleed Valves

BuTech's Double Block and Bleed Ball Valve combines two isolating ball valves and a central needle bleed valve into one compact manifold. BuTech also offers double block and bleed needle valves and single block and bleed needle valves in various sizes and materials for higher flows, higher pressures or for sour gas applications.

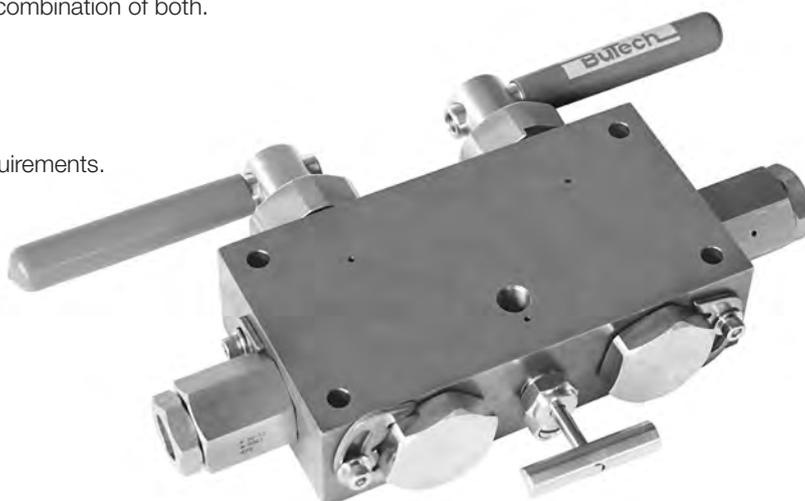
Features and Benefits

- Pressures to 1,380 bar (20,000 psi) at 22°C (72°F).
- Available with Needle Valves or Ball Valves, or a combination of both.
- Compact Design.
- Manual Lever or Actuator Activated.
- Minimised leakage points.
- Reduced Installation costs and maintenance requirements.

Standard materials include:

- Stainless steel
- Monel®
- Hastelloy®
- Titanium
- Inconel®
- Bronze
- Aluminum Bronze

Monel, Hastelloy and Inconel are registered trademarks.



ATKOMATIC® Solenoid Valves

Heavy-duty process solenoid valves for clean air, gases, liquids, steam, corrosive fluids and cryogenic fluids. 6 mm (1/8") to 80 mm (3") NPT or BSPT, pressures to 69 MPa (10,000 psi), fluid temperatures from -251 to 434°C (-420 to 750°F), bronze or stainless steel construction.



Efficient Design

- Packless – no stem packing except on manual opening/throttle device.
- Tight closing – resilient seats on most valves to assure positive shutoff.
- Minimum number of moving parts – a piston and plunger assembly.
- Easy maintenance – coil replacement without opening pressure containment. Internal parts can be replaced without removing the entire valve from the pipe line (on most valves).

Rugged Construction Features

- Highest quality materials – for maximum corrosion resistance, stainless steel valves are 316 stainless and bronze valves are Naval M bronze.
- Full ported flow capacities – able to withstand full pressure drop to rated pressures.
- Continuous duty coils – hermetically sealed coils on most valves.

Extensive Product Testing

- All valves are operationally tested at the maximum and minimum operational pressures.
- Fully ported valves (pilot operated and semi-direct lift) are tested on full flow systems to assure proper piston operation.
- All valves are tested on oil, air and/or water to simulate the fluid for which the valve is ordered.
- Each valve is tested against exact factory standards for internal and external leakage.

ATKOMATIC® has 60 years experience in designing and manufacturing quality solenoid valves. Many of our valves have been in service more than 40 years and are still providing valuable service to our customers.

Prochem NPT Ball Valves



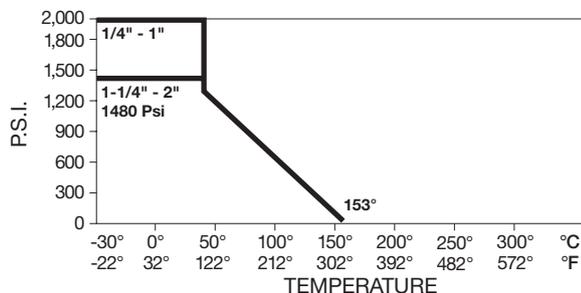
2-WAY FULL BORE 2-PIECE STAINLESS NPT W.O.G.

Full Bore 2-piece threaded valves allowing straight-through flow. Virtually no head loss and a superior performer with mildly abrasive as well as corrosive fluids. Ideal for in-line control of process fluids.

Available in sizes 8 mm to 50 mm (1/4" to 2").

- All 316 wetted and non wetted components
- Full Port
- 2-piece body
- Investment cast CF8M
- Anti-blowout stem
- Adjustable stem packing
- Actuator mounting pad to ISO 5211
- Seat material Virgin PTFE

Pressure/Temperature Rating



Part Number	Size
VFB22008NA	8 NPT (1/4")
VFB22010NA	10 NPT (3/8")
VFB22015NA	15 NPT (1/2")
VFB22020NA	20 NPT (3/4")
VFB22025NA	25 NPT (1")
VFB22032NA	32 NPT (1 1/4")
VFB22040NA	40 NPT (1 1/2")
VFB22050NA	50 NPT (2")



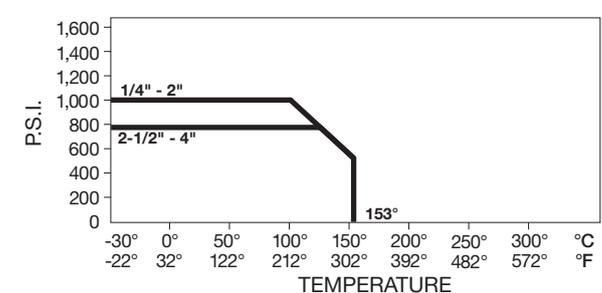
2-WAY FULL BORE 3-PIECE STAINLESS NPT W.O.G.

3-piece construction allows end connections to be permanently fitted to the pipe, so the valve body can be removed enabling replacement of seals without disturbing pipework.

Available in sizes 8 mm to 100 mm (1/4" to 4").

- Full port
- 3-piece swing out body
- Investment cast CF8M
- In-line repairable
- Anti-blowout stem
- Locking SS handle
- Adjustable stem packing
- Actuator mounting pad to ISO 5211
- Seat material Reinforced PTFE

Pressure/Temperature Rating



Part Number	Size
VFB13008NGA	8 NPT (1/4")
VFB13010NGA	10 NPT (3/8")
VFB13015NGA	15 NPT (1/2")
VFB13020NGA	20 NPT (3/4")
VFB13025NGA	25 NPT (1")
VFB13032NGA	32 NPT (1 1/4")
VFB13040NGA	40 NPT (1 1/2")
VFB13050NGA	50 NPT (2")

Stainless Steel



WARNING: Improper selection or use of products described herein can cause personal injury or property damage. Product information described herein is offered for use by the system designer and user. It is solely the responsibility of the system designer and user to select products suitable for their specific application requirements and to ensure proper installation, operation, and maintenance of these products. Material compatibility, product ratings, and application details should be considered in the selection.

Prochem offers 316 Stainless Steel Braided Hose with 316 Stainless Steel Hose Ends featuring Carbon-Impregnated Teflon®.

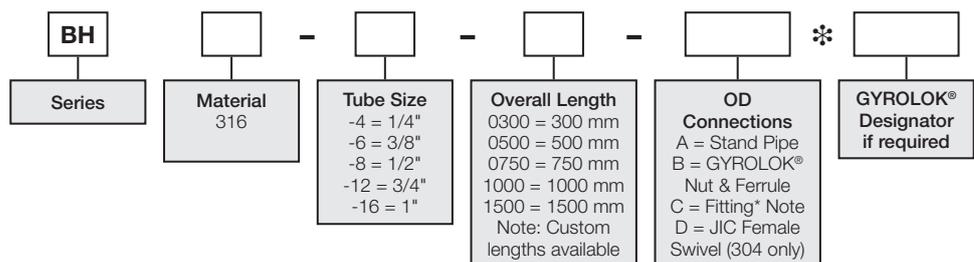
TECHNICAL DATA										
Dash Size	Tube OD (Stand Pipe)		Minimum Bend Radius	Hose I.D.	Operation Pressure		Room Temp Burst		Braid Material	End Connect Material
	mm	inch			bar	psi	bar	psi		
-4	6.35	1/4"	38.1	4.8	206	3000	827	12000	316	316
-6	9.53	3/8"	88.9	7.9	172	2500	689	10000	316	316
-8	12.7	1/2"	114.3	10.4	103	1500	414	6000	316	316
-12	19.1	3/4"	152.4	15.7	86	1250	345	5000	316	316
-16	25.4	1"	228.6	22.4	62	900	248	3600	316	316

***Note:** Add standard GYROLOK® fitting designator to complete your selection if required, please refer to the GYROLOK® catalogue for complete fitting selection. If sizes other than the tube size are required on the outer end of the GYROLOK® fitting, full GYROLOK® fitting part number is required.

Examples:

- BH 316-4-0500-CC*CM-LM = 6.35 mm (1/4") Hose 500 mm long c/w GYROLOK® Connector Male x GYROLOK® Male Elbow
- BH 316-6-0300-AC*CF= 9.53 mm (3/8") Hose 300 mm long c/w Stand Pipe x GYROLOK® Connector Female.

HOSE CODING



Braided Hoses

TEFLON[®] LINED

Prochem Smooth Bore Hose of Teflon[®] is specified in many of the most difficult applications in industry. The extruded tube has excellent flex life, high temperature resistance and chemical resistance.

Additionally, since teflon is steam compatible and non-adhesive, Prochem hose is an excellent choice in applications requiring steam cleaning of an assembly used in the transfer of a highly viscous media, such as adhesives, paints or food products.

The 316 stainless steel wire reinforcement/outer cover provides the strength necessary to carry the working pressure and has the durability to withstand harsh environments.

High temperature hydraulic and pneumatic systems, like those found in steel mills, foundries, transit buses and air compressors, are ideal locations to offer Prochem hose as a problem solver.

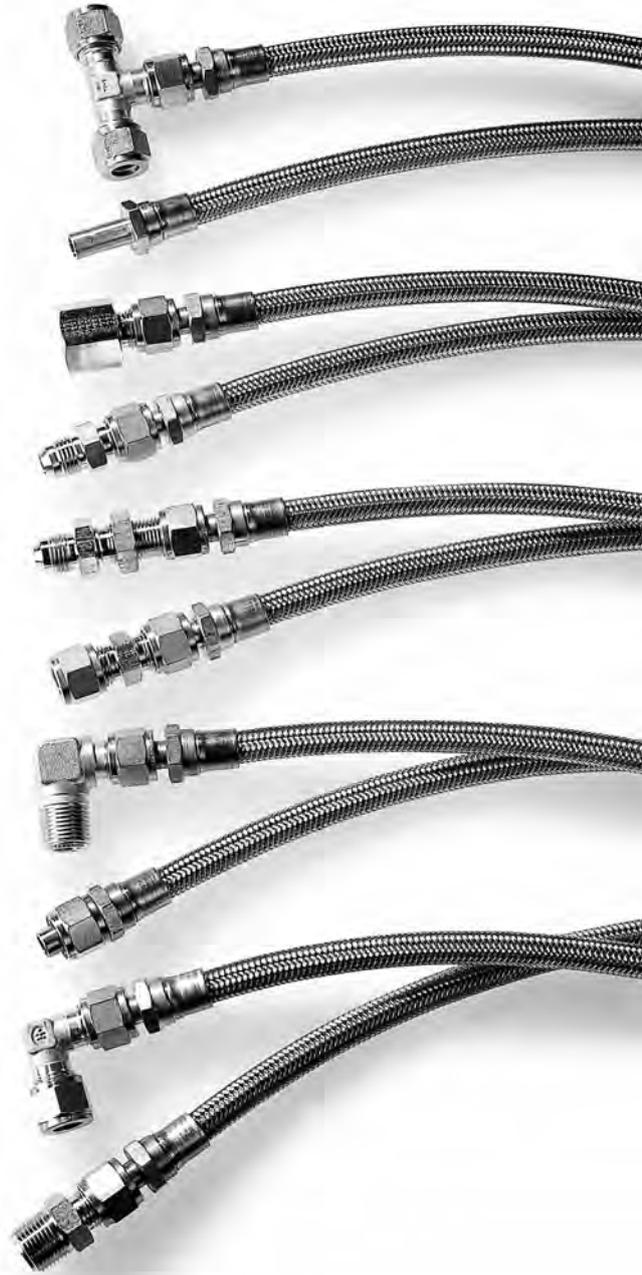
Additionally, the hose used has an internal conductive static dissipating liner that provides a path to the hose end fittings for applications where flow induced electrostatic charges can occur.

A selection of optional end connections that are available. Please refer to the GYROLOK[®] catalogue for complete fitting selection.

MATERIALS

Braid	316 Stainless Steel	ALL SIZES
End Connections	316 Stainless Steel	ALL SIZES
Inner Core	Smooth bore virgin Teflon [®] carbon impregnated	
Temperature Range	-54 to 230°C (-65 to 450°F) Steam service: 13.8 bar (200 psi), 148°C (300°F)	
Specification	SAE 100 R 14	

Braided Hoses with nut/ferrule ends or compression fitting ends can be pressure tested in-house. Pressure Test Certificates available on request.



ANDERSON GREENWOOD
INSTRUMENTATION PRODUCTS

Anderson Greenwood offer the complete range of instrument valve product.



Anderson Greenwood supply the ideal valve for each application, be it simple isolation or manifolds for pressure, flow and level measurement instruments.

In addition to its comprehensive range of standard valves and manifolds, Anderson Greenwood has also developed a number of products for primary isolation applications.

With the Keyblok double block and bleed integral manifolds, Anderson Greenwood has overcome the weight and space restrictions associated with many of these traditional installations compared with traditional piping valves.

Continuing along the line of meeting space savings, the Monoflange manifold is designed to mount directly to process flanges, providing maximum safety and minimum vibration. The Monoflange also combines compactness with easy access in the field since its versatile design allows for horizontal or vertical mounting.



Anderson Greenwood hand valve and gauge valves include multi-port and block and bleed styles suitable for gauge isolation, calibration and venting with a choice of either globe pattern or through-bore designs. A wide choice of end connections and comprehensive range of standard gauge accessories allows complete flexibility for individual installations.

Specifications

- Materials: CS, SS, Duplex and other exotic materials
- Seats: Metal (globe and plug)
- Soft (globe and plug)
- Standard Orifice Size: 3 mm (1/8") to 16 mm (5/8").
- Pressure (max): 690 barg (10,000 psig)
- Temperature (max): 538°C (1,000°F)



Distribution Manifold



Distribution Manifolds designed to distribute air for panel and cabinet instrumentation and can easily be wall or pipestand mounted.

Distribution manifolds are available with either with needle valve with hard seats or ball valve designs.

Needle valves are suitable for pressures up to 414 barg (6000 psig) while ball valves are suitable for pressures up to 138 barg (2000 psig).

The manifold has 15 (1/2") to 25 (1") NPT end connections as standard and comes with the option of 8 (1/4"), 10 (3/8") or 15 (1/2") NPT outlets.

Distribution manifolds are available with any number of bonnet/outlet connections up to 12 way.

Manifold Valves



Anderson Greenwood has the largest and most innovative range of static and differential pressure manifolds available for every kind of instrument.

These include conventional two, three and five valve manifolds as well as purpose designed manifolds for special applications.

Available in direct or remote mount, these manifolds are suitable for all instruments from a pressure gauge to pressure transmitters.

Integral manifolds are those uniquely connected to the transmitter of a specific manufacturers' model and cannot be used on a different transmitter brand. Manifolds are manufactured to specifically suite Rosemount™ Transmitter Models 3051, 2024 and 3095.

SaddleMount



The SaddleMount™ system is designed for close coupling DP transmitters to orifice flange unions. The system can be used on DP measurement for gas, liquids and steam. The SaddleMount™ is totally self draining and can be mounted horizontally or vertically. The system features a straight through 10 mm [3/8"] bore directly from the orifice taps to the transmitter sensing module which reduces pulsation induced error. Pulsation error is one of the leading causes of inaccurate transmitter measurement. The system allows mounting of traditional DP or co-planer style (Rosemount 3051) DP transmitters with a choice of 3 or 5 valve instrument manifolds for power, process or natural gas measurement. The system does not require impulse lines, thereby considerably reducing installation and maintenance costs.

Modular Mounting System



The Modular Mounting System for instrument impulse line installations has been developed in conjunction with Shell International (SIPM) and has particular applications in the petrochemical and refining industries. Based on a standard mounting plate, it allows components to be either pre-assembled in the workshop or assembled at a later stage, providing maximum flexibility without compromising quality and safety.

The Modular Mounting System has a full range of manifolds for differential pressure, pressure and gauge applications and accessories including GRP enclosures, heating blocks, seal pots, purge blocks and test connection boxes.

Anderson Greenwood



KEYBLOK LARGE BORE

The Keyblok Large Bore is an innovative range of two piece Primary Isolation double block and bleed valves. With sizes up to 80 mm (3") and pressures up to Class 1500 the design offers double the safety of a single isolate valve but does this within the same face to face dimension. The large bore design is ideal for dirty service where blockage is of concern and for vessel measurement/diaphragm seal/flow type applications.



KEYBLOK

The range of primary isolation double block and bleed valves meets both instrument and piping engineers' specifications, offering significant savings on space, weight, installation and cost. Suitable for line isolation, sample connectors and chemical injection service, Keyblok manifolds use ball valves, outside screw and yoke (OS&Y) bonnets and threaded bonnet instrument valves, and are available with a full range of threaded and flanged connections up to API 10K. Bore size range is 10 mm to 19 mm.



MONOFLANGE

The Monoflange manifolds can be mounted directly onto vertical or horizontal flanged connections, allowing a gauge to be kept in an upright position. Suitable for both primary isolation (double block and bleed) and instrument (block and bleed, block) duties, the Monoflange provides isolation, venting and instrument mounting in a single compact unit. The designs incorporate safety features that limit vibration and reduce the overall height of a gauge installation. Bore size is 5 mm.



ROOT VALVE

Root Valves are an integrally forged one-piece double block and bleed assembly for primary isolation of pressure take-offs where the valve is either screwed or welded directly into the vessel or process pipe without the need for a flanged connection. Instruments may be directly mounted to the valve outlet or alternatively remotely mounted with gauge lines/impulse pipe work. Bore size range is 5 mm to 10 mm.

PRIMARY ISOLATION VALVE Applications

All Anderson Greenwood Instrumentation Products Primary Isolation Valves are designed to comply with the following code requirements:

- ANSI/ASME B16.34 Material wall thickness
- ANSI/ASME B16.5 Flange dimensions
- ANSI/ASME 8 Design procedures and materials
- ANSI/ASME B1.20.1 National pipe threads
- API 607/BS6755 Fire tested



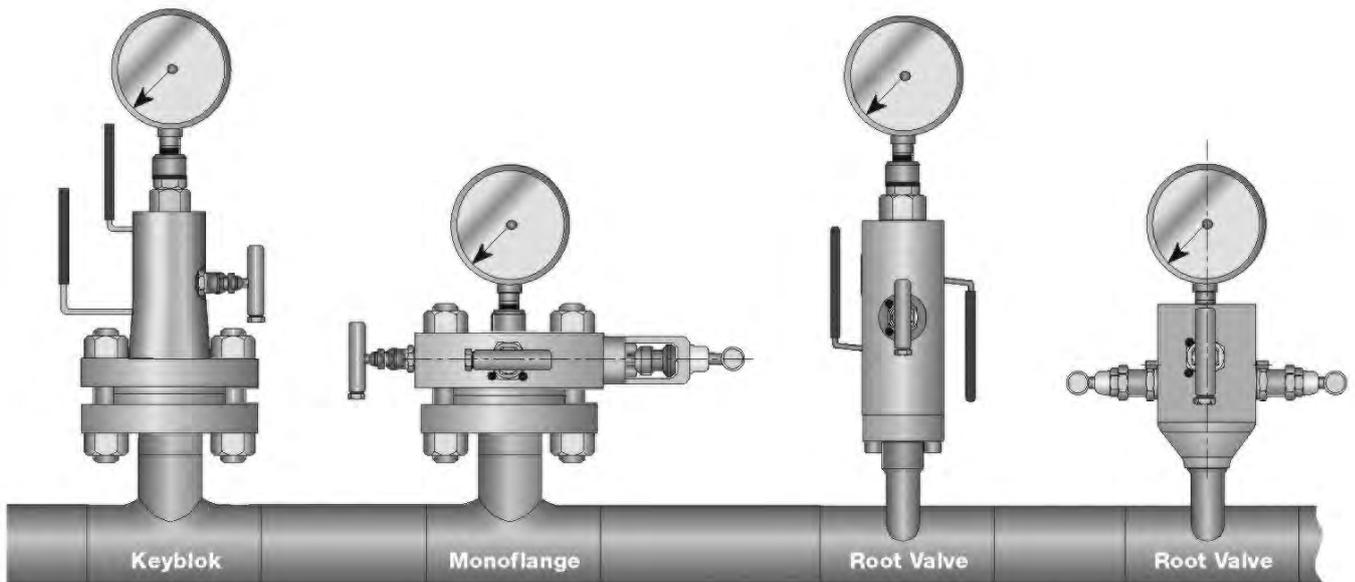
Applications

- Double block and bleed instrument isolation
- Gauge isolation
- Instrument drain
- Chemical injection connection
- Sample connections
- Chemical seat instrument isolation
- Piping/instrument interface
- Direct mounting of instruments
- Remote mounting of instruments

Advantages

Advantages gained by installing Anderson Greenwood Instrumentation Products Keyblok and Monoflange Primary Isolation Valves, based on a typical ANSI 25 mm (1"), Class 1500 one-piece integrally forged valve:

- Reduced weight – 7.0kg (15.4lb)
- Reduced height – 250.0 mm (10 inches)
- Reduced leakage points
- Reduced effect of system vibration
- Supporting brackets are not required
- Reduced bending moment acting on the vessel branch fitting weld
- Reduced installation cost
- Reduced gaskets and bolting



KEYBLOK

- Ball and Globe Style Needle Valves
- Flanged and Threaded Connections
- Integrally Forged Body

MONOFLANGE

- Globe Style Needle Valves
- Flanged and Threaded Connections
- Slimline Integrally Forged Body

ROOT VALVE

- Ball or Globe Style Needle Valves
- Welded or Threaded Connections
- Integrally Forged Body





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