

Waverley brownall product catalogue



Supplied by
HYDRAULIC & GAS SERVICES LTD

Tel: 0161 480 9966
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To enhance the product range and service abilities in line with modern demands, Waverley brownall have appointed Hydraulic & gas Services as a major agent.

H & G are approved to deal with any enquiries you may have from one off adaptors to major projects.

Our intension is to work together to ensure our mutual clients recieve the best possible service.

H & G with ourselves can supply on site expertise and training.

Waverley brownall
official agents



Certificate No. RS40518
BS EN ISO 9002: 1994

Waverley was established in 1929 and has progressed to become a leading supplier of pipeline components, valves and instrumentation products

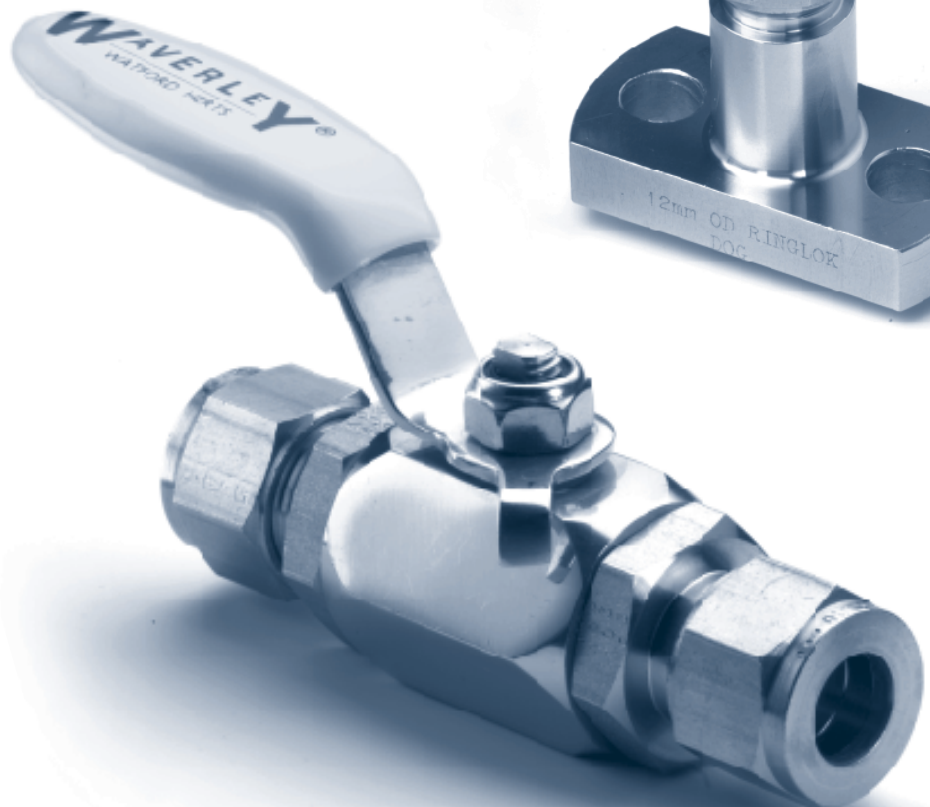
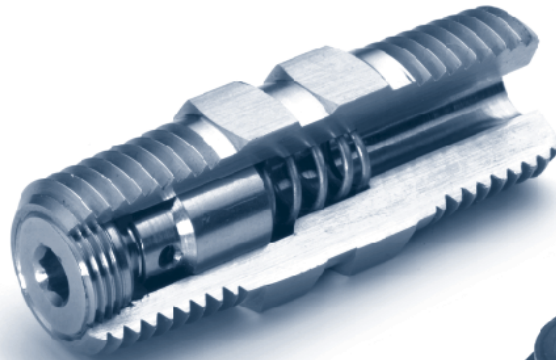
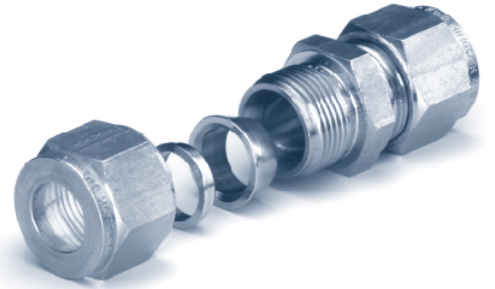
In 1998, Waverley acquired Brownall to offer you new products and solutions for demanding applications

Today, we are able to offer you:

Delivery Ex-stock availability of our standard catalogue range, enabling us to provide overnight deliveries; helping you to reduce downtime.

Product range Our wide product range offers you everything from complete instrumentation packages to a one off requirement. Experience with supplying customer specials means that we can effectively source complementary products or meet your requirements from our specials design and manufacturing operation.

Manufacturing Investment in new manufacturing resources has led to an extension of our range in 1998. In addition to our traditional range of 316 stainless steel products, we now offer compression fittings in monel and other exotic alloys.



- **Ringlok® fittings** section 1
- mini check valves** section 4
- flange fittings** section 1
- ball valves** section 3

on time delivery, every
customer, every time



Our distribution system is based on customer needs. Large finished goods stock means you are given the local support and service you require. We combine local stocking distributors with computer technology that can deliver your orders on time – a service intended to satisfy every customer, every time.

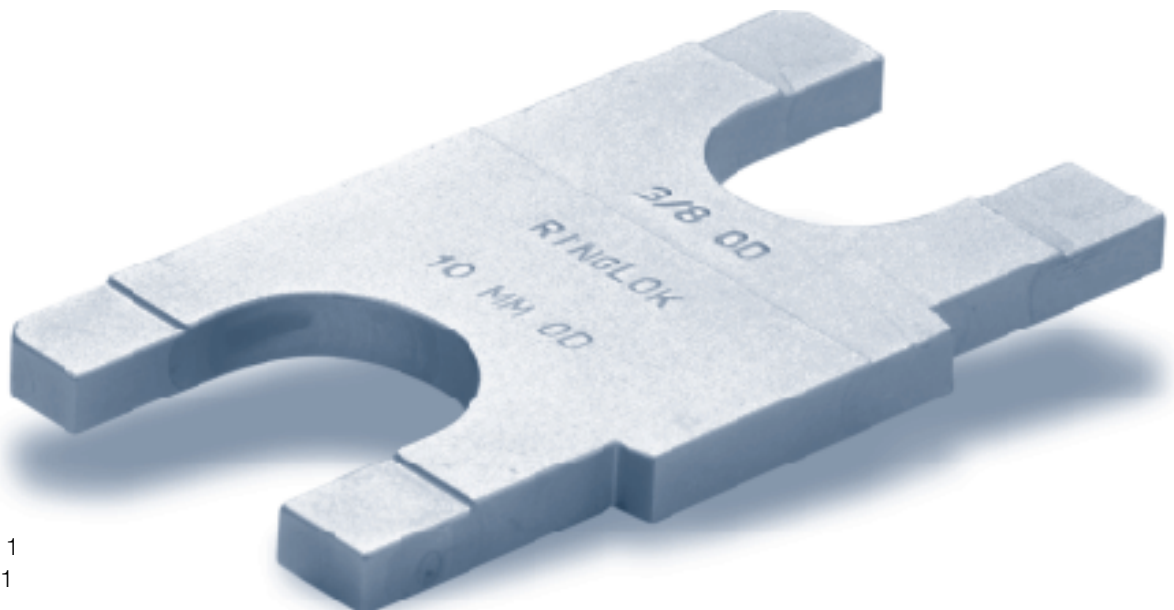
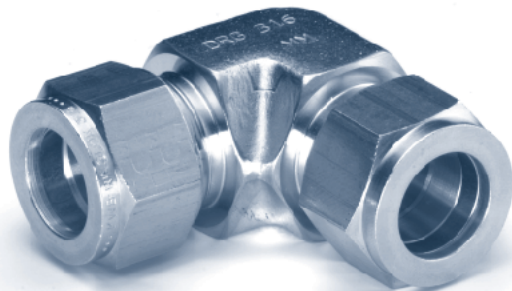
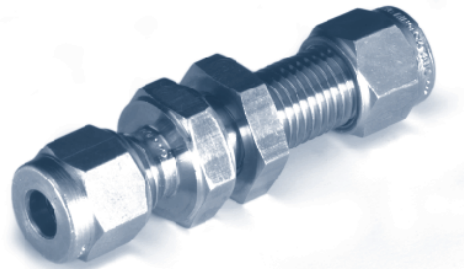
In 1998, Waverley acquired Brownall and so created a new force in control and instrumentation products.

Waverley now has available to you a world-wide approved and specified double ferrule compression fitting - Ringlok®.

New products in our range now include

Ringlok® double ferrule OD compression fittings
Duoloc® single ferrule OD compression fittings
Superloc® carbon steel single ferrule OD compression fittings
Unilok® chromatography fittings
Brownall precision pipe fittings
Brownall weld fittings
Brownall precision needle, gauge and manifold valves

Waverley is a member of Tatem, a group of specialist engineering businesses operating worldwide.



our philosophy
is dominated
by quality





Our philosophy is dominated by quality. Each Waverley product is designed using state-of-the-art CAD technology and is subjected to rigorous quality control procedures.

This dedication to quality has led to us being awarded and maintaining the BS EN ISO 9001 certificate since 1989. There are also certificates of product conformance from Lloyds and several company approvals eg. British Gas – a reflection of Waverley’s consideration to meeting customer quality requirements.

A range of over 2000 standard products, manufactured in the UK and available ex-stock assures you of immediate delivery whilst our engineers provide complete technical support and can assist in the design and development of custom made solutions.

Waverley has built its reputation for quality instrumentation products among the largest industrial companies. Our products are used on systems where corrosion resistance, high pressure, clean room environments and high temperatures are critical factors.

Typical industries where you will use Waverley products include

- chemical and petrochemical plants**
- oil and gas transmission**
- water treatment and water works**
- food and pharmaceutical processing**
- desalination plants**
- shipbuilding and offshore**
- pulp and paper mills**
- Biotechnology**
- semiconductor fabricating industry**
- R&D systems**
- primary metals manufacture**



→ **ball valves** section 3

← **relief valves** section 4

the quality of Waverley
and Brownall products
has resulted in our
heritage of recognition,
specification and
global approvals

approvals and projects supplied

BS EN ISO 9001 (Global)
QUASCO and approved
by BSI (Global)
ABS type approval
LLOYDS type approval to
BS 4368 part 4
LLOYDS general approval for
classified installations
TUV (Germany) type approval
American Bureau of Shipping
(Global marine) type approval

We are also approved suppliers to the following companies and many others.

BG Transco
British Petroleum
British Nuclear Fuels
Shell
Texaco
Powergen
European Gas Turbines

Proven project supply

In addition to the approvals, we are able to highlight recent proven experience of project supply and specification.

Britannia Conoco/Chevron
Armada British Gas
Oman LNG Chiyoda/Foster Wheeler
Rastanura Bechtel
Snorre Saga



contact

Hydraulic & Gas Services

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OD tube compression fittings

Ringlok® double ferrule OD compression fittings
Duoloc® single ferrule OD compression fittings
Superloc® carbon steel single ferrule OD compression fittings
Unilok® chromatography fittings
Flange fittings

1

Ball valves

BV 1000 series ball valves
BV 3000, 6000 series ball valves
3 way ball valves
Meca-Inox 3 piece ball valves

3

Check valves, relief valves and strainers

CV series check valves
Mini check valves
Relief valves
Inline tee filters

4

Screwed fittings

BSP screwed pipe fittings
60° hose components
Plugs, bushes and seals
NPT screwed pipe couplings
Precision pipe fittings
Weld fittings

5

Related pipeline products

Special screwed adaptors
60° coned swivel adaptors
Pallet swage fittings
Butt weld fittings
Nominal bore piping
Flanges
Quick connect couplings
Gauges
Pipe clamps

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Corrosion resistance chart
Thread identification chart
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Material specification chart
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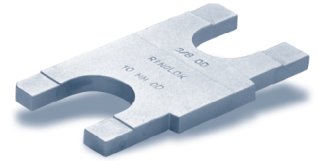
OD tube compression fittings



Bulkhead coupling 1.24



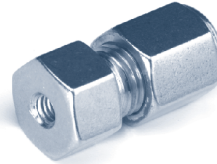
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Pictorial index

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Ball valves



Female/female 1000lb class ball valve 3.06



Male/female 1000lb class ball valve 3.06



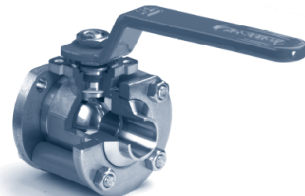
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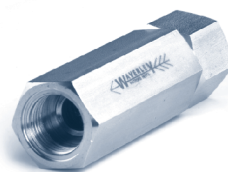
Meca-Inox 3 piece ball valve 3.30

4

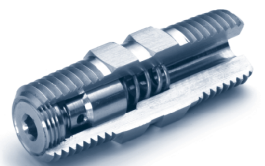
Check valves, relief valves and strainers



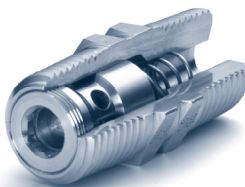
Check valve 4.02



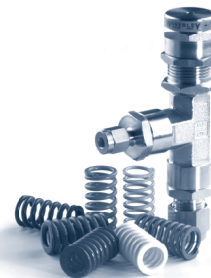
Check valve 4.02



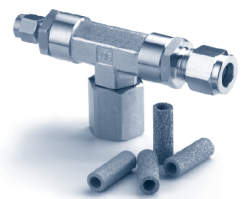
Adjustable mini check valve 4.10



Mini check valve 4.10



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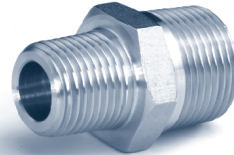
Pictorial index

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Screwed pipe fittings



BSP equal tee [5.02](#)



Hexagon reducing nipple [5.05](#)



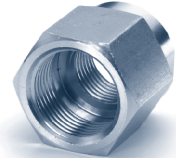
60° BSP male union [5.07](#)



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Technical specifications

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OD tube compression fittings

Ringlok®

Ringlok® twin ferrule stainless steel OD compression fittings were developed to satisfy the stringent needs of the oil, gas, petrochemical, refining, power, pharmaceutical and general process/instrumentation industries. The range provides optimum performance and value in the connection of tubes for high pressure or vacuum; elevated or cryogenic temperatures; vibration and impulse loading; corrosive or hazardous environments and media.

Ringlok® twin ferrule fittings are available through an international network of authorised distributors, in a full range of metric and imperial sizes and thread forms. Delivered ready assembled, Ringlok® fittings (type approved by Lloyds and TUV) are manufactured in stainless steel 316, monel alloy 400, and other exotic alloys.

Waverley offer one of the widest ranges of twin ferrule stainless steel OD compression fittings in the world. Other key advantages of using Ringlok® include:

unique ferrule hardening process retaining 316 stainless steel corrosion resistance;

ex-stock availability of catalogued range. Rapid turn around of special couplings.

Duoloc® and Superloc®

Duoloc® single ferrule OD compression fittings have been extensively used for onshore applications for over 25 years. These include instrumentation for gas control systems, gas R&D systems, process control for chemical plant and general hydraulic industries.

The fittings are resistant to vibration, providing ease of assembly (controlled bite), break and remake facility and offer full material cast code traceability.

The complete range of single ferrule OD compression fittings are available in carbon and stainless steel 316.

Duoloc® fittings can be modified to suit thermocouplings and glass or PVC tube.

Duoloc® single ferrule OD compression fittings are based on BS4368 part 2 - imperial type A and part 3 - metric light series type A.

Unilok® chromatography fittings

Unilok® chromatography fittings have been designed to meet the high quality requirements of the chromatography and gas analytical applications.

HPLC is the most widely used technique in laboratory analysis.

The success of the HPLC process is dictated by the performance of the column, which in turn depends on the column end fitting - the Unilok® chromatography coupling.

Flange fittings

Waverley flange connectors are for use at the primary isolation point of piping systems. Designed for ease of use, flange fittings easily connect process piping to instrumentation tubing. The flange adaptor (kidney type) provides a direct connection of tube OD compression couplings to instrument transmitters.

Quality engineered for instrumentation and process applications.

Working pressures in accordance with piping code ANSI B31.1 and refinery piping code ANSI B31.3

Material 316 stainless steel (other materials and NACE hardness available to order)

All fittings are cast coded for complete material traceability.

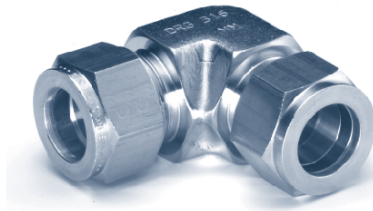
All materials conform to ASTM specifications.

OD tube compression fittings

- 1.02 Ringlok® double ferrule OD compression fittings
- 1.33 Duoloc® single ferrule OD compression fittings
- 1.75 Superloc® carbon steel single ferrule OD compression fittings
- 1.85 Unilok® chromatography fittings
- 1.91 Flange fittings



1.24



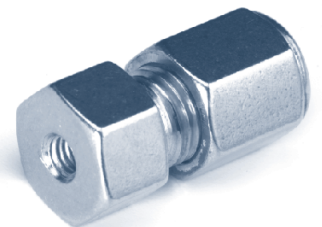
1.42



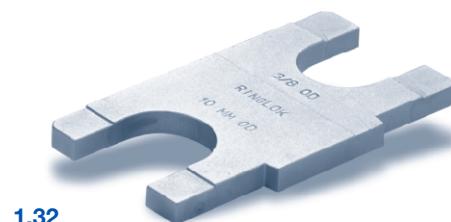
1.24



1.94



1.87



1.32

Ringlok® double ferrule OD compression fittings

Ringlok® compression fittings

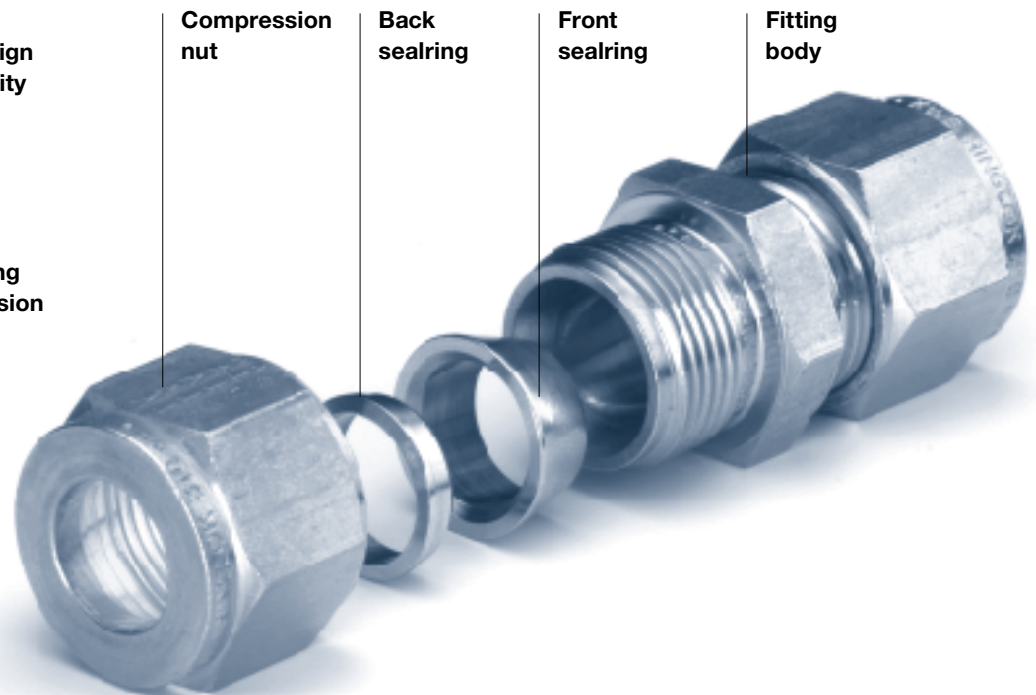
Designed to meet the specifications that are required to ensure a safe and reliable instrument hook-up.

The integrity and performance of the Ringlok® product has proved to be successful in complying with independent testing as required by TNO, Harwell, Lloyds Register and TUV etc.

As market demands are forever increasing with higher pressures, sour service and nuclear applications, Ringlok® fittings are manufactured in various materials such as 316 stainless steel, Titanium, Duplex and other exotic alloys to satisfy these environments.

Over the years the product design has incorporated full gaugeability giving continuity of break and remake with interchangeability of all components.

Waverley have expanded the application of the Ringlok® fitting in the manufacture of compression ended valves and flanges as standard products.



Ringlok® double ferrule OD compression fittings

Application, benefits and design features

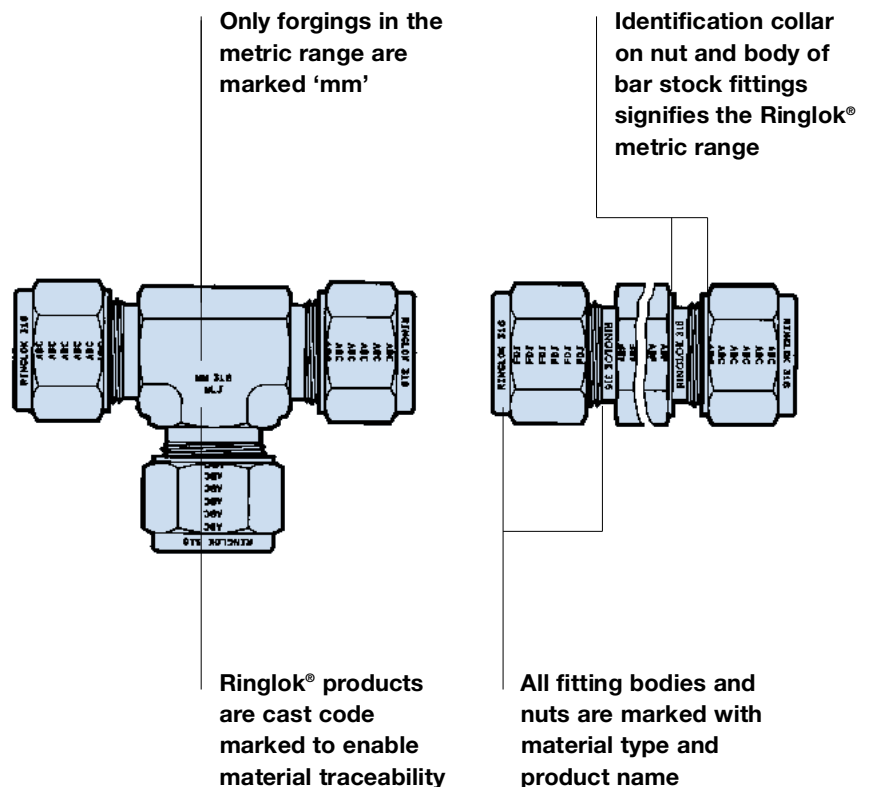
Features

- Low torque assembly
- Low stress joint
- High surface finish to all threads
- Silver plating on the internal surfaces of the compression nut
- All connecting threads are protected by colour coded plastic caps
- Quality management system to ISO 9001
- Cast code traceability
- Close tolerance tube location
- Corrosion resistant hard casing to back ring
- All parts manufactured to close tolerances
- Comprehensive assembly gauging system
- Delivered assembled ready for use
- Fittings available in a wide range of materials

Benefits

- Easy make-up of joint
- No stress transmitted to tube
- No galling of the threads during assembly
- Provides repeated break and re-make of the fitting without thread damage
- Prevention of thread damage and instant recognition of connecting end type
- Consistent product quality from a quality assured company
- All materials are traceable to original mill certificate
- Positive alignment of tube to fitting
- Safety and integrity in corrosive conditions
- Provides full interchangeability of Ringlok® components
- Quality control before system pressurisation
- Ready for immediate use
- Suitable for use in corrosive environments

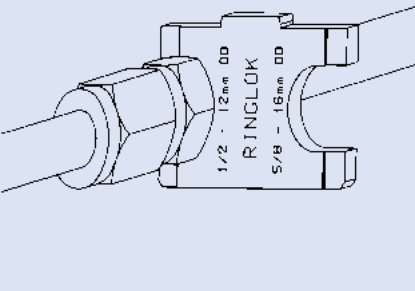
Identification and traceability



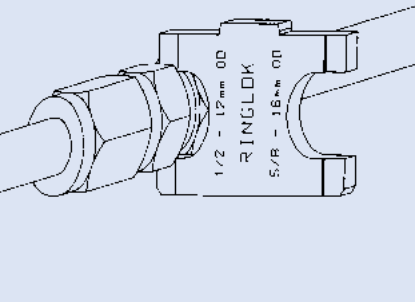
Ringlok® double ferrule OD compression fittings

Gaugeability

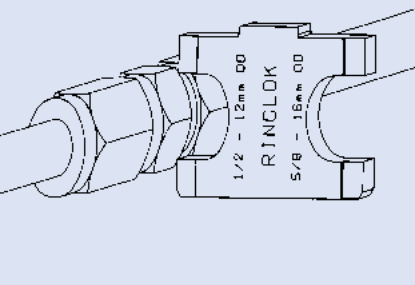
Undertight assembly



Correct assembly



Overtight assembly



Gaugeability

To ensure the consistent performance of Ringlok® fittings and to enable accurate inspection of the assembled joint, a comprehensive gauging system has been developed. The Ringlok® gauging system enables quality control before system pressurisation and assists in the joint assembly. To achieve this degree of gaugeability the precision of each component in the fitting is scrupulously maintained, for this reason always use only genuine Ringlok® components throughout.

Undertight assembly

In this condition the joint has not been tightened 1 1/4 turns which means the fitting is not fully assembled and should be tightened further until it gauges correctly.

Correct assembly

In this condition the joint has been tightened 1 1/4 turns which means the fitting is fully assembled and is gauging correctly.

Overtight assembly

In this condition the joint has been overtightened more than 1 1/4 turns. Overtightened joints generally function correctly and in most cases do not need to be replaced.

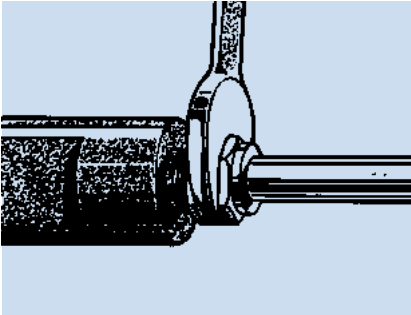
The Ringlok® gauging system is unique in that it indicates all conditions of assembly, from undertight through to overtight joints and full tube insertion into the fitting.

During the installation the tube is marked using a gauge as a guide. On insertion of the tube into the fitting, the mark will be 1.5mm from the back of the nut when the joint is correctly assembled.

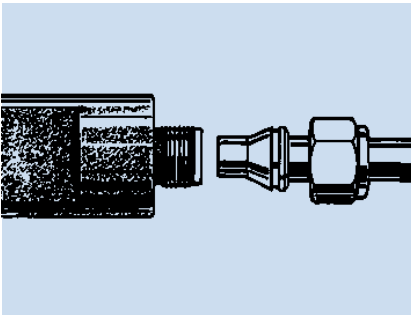
Correct use of the gauge will ensure that safety and performance is maintained and, because inspection is completed before the system is pressurised, costs will be minimised.

Ringlok® double ferrule OD compression fittings

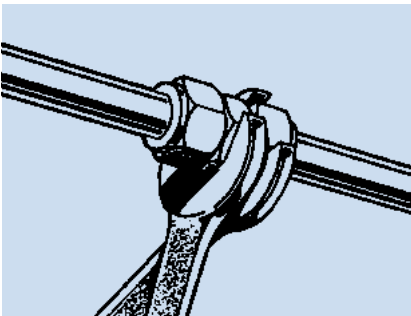
Pre-assembly instructions



Hold the pre-assembly tool in a vice, then assemble the joint to the assembly instructions found on page 1.06



Remove the tube assembly from the pre-assembly tool.



Insert the tube assembly into the fitting body then follow the re-assembly instructions on page 1.06

Pre-assembly instructions

Pre-Assembly tools are manufactured from hardened Maraging Steel and are designed to withstand repeated assemblies.

Pre-assembly is recommend

When fittings are to be used in confined spaces, or in locations where accessibility for in-situ assembly presents difficulties.

Where thick wall tubes or standpipe adaptors are to be used.

When using forged fittings where in-situ spannering of the forging body may present difficulties.

To reduce installation stresses when tube sizes exceed 1/2" (12mm) OD.

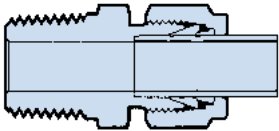
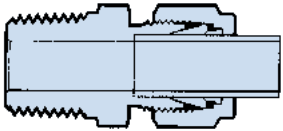
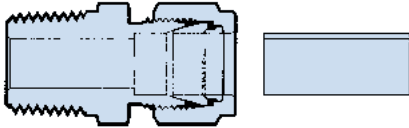
As an aid to ensuring joints are made correctly as described and illustrated.

Note: Pre-assembly tools must be kept clean and lubricated at all times.

1

Ringlok® double ferrule OD compression fittings

Assembly instructions



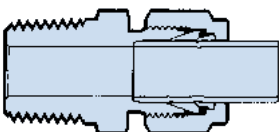
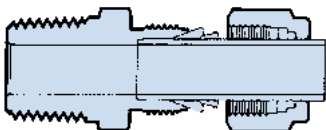
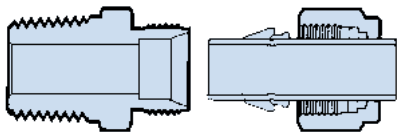
- 1 Cut the tube to the required length, leaving the ends square to the tube axis, remove all burrs.
- 2 Insert the prepared tube into the fitting assembly, ensuring the tube end fully enters the fitting, engages in the abutment diameter and that the nut is finger tight.
- 3 For 1/16", 1/8", 3/16" OD, 3mm, 4mm OD size fittings, tighten the nut 3/4 of a turn from finger tight, to complete the assembly.

For all other sizes use 1 1/4 turns from finger tight.

For blanking plugs, tighten the nut 1/6 of a turn from finger tight.

Re-assembly instructions

Ringlok® fittings can be disassembled and re-assembled many times without impairing the function and efficiency of the joints.



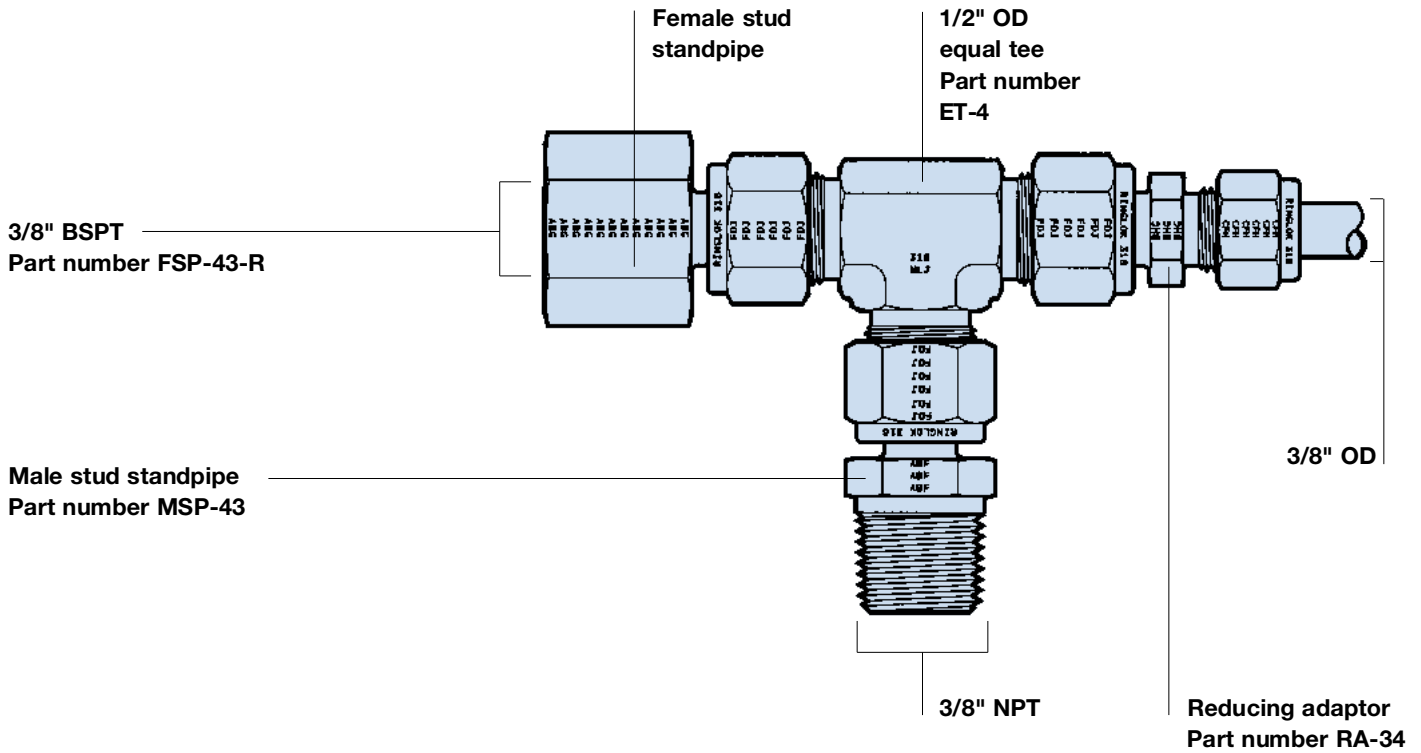
- 1 Prior to re-assembly ensure that the fitting body and tube assembly are free from any contaminant or damage.
- 2 Insert the tube assembly into the fitting body until the sealings seat firmly.
- 3 Tighten the nut by hand. Rotate the nut 1/4 of a turn with a spanner or until the original one and a quarter turn position is reached, then if necessary tighten the nut a further small amount to ensure the assembly is positively sealed.

Caution

Mixing components may not provide reliable joint assemblies and leakage could occur. Use only Ringlok® components for safety and reliability.

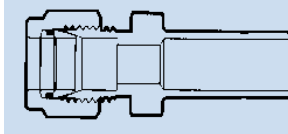
Ringlok® double ferrule OD compression fittings

Application of adaptors

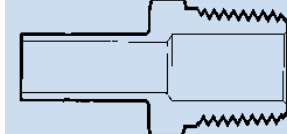


Male and female standpipe adaptors are available with NPT, BSPP and BSPT threads.

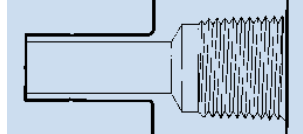
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Ringlok® double ferrule OD compression fittings

Thread data

Thread data

Throughout the fittings industry there are many types of connecting threads used in various applications, the most common of which being 'Pipe Threads'. There are basically two forms of pipe thread, taper and parallel.

Taper pipe threads

These threads function by mating the male and female taper threads together, causing an 'interference' fit, where pressure-tight joints are made on the threads, a thread sealant is essential for this type of joint, that will also act as a lubricant to prevent galling during assembly. The correct sealant compatible with the application should be selected, the most widely used being PTFE tape.

It is recommended that 3-5 rounds of tape are applied in the direction of the thread to ensure adequate coverage and leak tightness of the joint is achieved. Other types of sealant should be used in accordance with the manufacturers recommendations.

Typical taper threads

NPT Taper Pipe Threads
- ANSI/ASME B1.20.1.

ISO-(BSPT) Taper Pipe Threads
- ISO 7/1 and BS21.

ISO taper pipe threads are similar in appearance to NPT threads, therefore care should be taken not to mix these threads.

Parallel pipe threads

These threads are not designed to seal on the thread, they are designed to seal on adjacent faces, by the use of a sealing gasket. Male threads are machined with a tapered undercut to centralise the gasket during assembly.

Parallel female threads are machined with a flat bottom face to accommodate an internal seal.

ISO-(BSPP) Parallel Pipe Threads
- ISO 228/1 and BS 2779.

Thread protection and identification

All male threads are supplied with colour coded protective plastic caps to prevent handling damage.

NPT Blue
BSPT Red
BSPP Red

Recommended working pressures

Pressure rating (psi)

NPT pipe size	male	female
1/16	10,600	6,300
1/8	9,600	6,100
1/4	7,600	6,200
3/8	6,000	5,000
1/2	6,200	5,700
3/4	5,000	4,400
1	5,000	4,900

The pressure ratings shown above are in accordance with piping code ASME B31.1 and refinery code ANSI B31.3 for threads manufactured from 316 stainless steel.

Ringlok® double ferrule OD compression fittings

Tube selection

The following variables should be considered when ordering tube for use with Ringlok® fittings i.e. Tubing material, hardness, wall thickness and surface finish. The following tables show the maximum working pressures of seamless tubes for use with Ringlok® fittings. For tubes with a wall thickness other than those listed, information regarding safe working pressures can be obtained from our Technical Department.

Stainless steel tubing

Stainless steel tubing should be fully annealed and conform to ASTM A269 or equivalent. A maximum hardness of Hv180 (HRB 80) is preferred, but if harder tube is used Hv200 (HRB 90) is the maximum allowed by ASTM A269. The working pressures in the tables are based on tubing rated at 75,000psi minimum UTS, an allowable working stress of 20,000psi as specified in ANSI B31.3 1987, for a temperature range of -29°C to +38°C.

Ringlok® double ferrule OD compression fittings

Tube selection

Recommended maximum working pressure for seamless 316 and 254 6MO stainless steel tubing

Tubing within this shaded area is not recommended for gas service

It is recommended that tubing used within this shaded area be pre-assembled in a pre-assembly tool prior to installation.

Tube OD inch	Tube wall thickness (inches) Pressure in psi											
	.010	.012	.014	.016	.020	.028	.035	.049	.065	.083	.095	.109
1/18	5944	7142	8823	10240	13492							
1/8					5841	8664	11329					
3/16						5523	7100	10539				
1/4						4071	5194	7588	10426			
3/8							3370	4849	6548			
1/2							2495	3564	4772	6336		
5/8								2959	4049	5263	6130	
3/4								2445	3334	4316	5013	5793
1									2464	3174	3674	4230

Tube OD metric	Tube wall thickness (millimetres) Pressure in bar						
	.5	.07	1.0	1.5	2.0	2.5	3.0
3	428	638					
4		646	671				
6		298	424	686			
8			310	492			
10			244	384	527		
12			202	315	436		
16				247	338	430	
20				195	266	336	
25				154	210	264	323

For working pressures above ambient temperature multiply by the factor in the table

°C	38	93	204	316	427	538
°F	100	200	400	600	800	1000
SS 316 to ASTM A269	1	1	.96	.85	.79	.76
Alloy 400	1	.88	.79	.79	.75	
CN 102 to BS2871	1	.95	.85	.60		
C106 Copper	1	.80	.50			

Recommend maximum working pressure for alloy 400 tubing

For use with Ringlok® fittings. Tubing should be fully annealed and conform to ASTM B165-1987 or equivalent for seamless nickel-copper alloy UNS 4400 Tubing, with a minimum UTS of 70,000 psi and an allowable working stress of 18,700psi. The tube shall have a maximum hardness of Hv 170 (HRB 75).

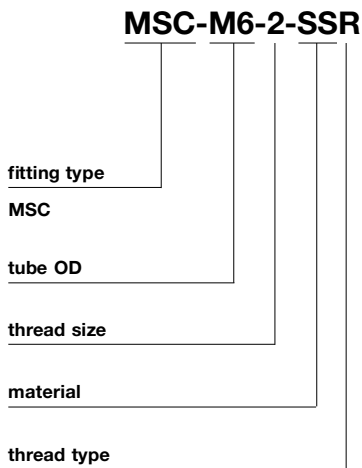
Tube OD metric	Tube wall thickness (millimetres) Pressure in bar				
	.6	.8	1.0	1.5	2.0
6	229	304	396		
8		294	289		
10			228	359	
12			188	295	408

Ringlok® double ferrule OD compression fittings

How to order

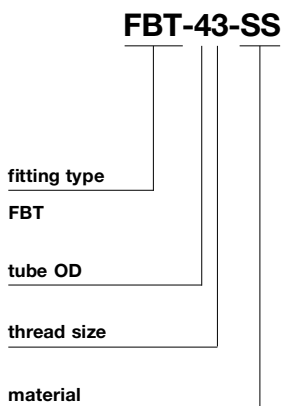
Metric ordering example

Metric part number example: 6mm OD
Male Stud Coupling; Thread size 1/4
BSPT; Material, 316 Stainless Steel.



Imperial ordering example

Imperial part number example: 1/2" OD
female branch tee; thread size 3/8"
NPT; Material, 316 Stainless Steel.



When ordering Ringlok® fittings always quote the part number. This is built up from the fitting description, tube OD, connecting thread size, (this is made up from multiples of 1/8ths), material and thread type. In the ordering examples below a 6mm OD by 1/4" BSPT Male stud coupling made from 316 stainless steel is required.

The part number starts MSC which represents Male Stud Coupling then a dash to separate, then M6 denoting 6mm tube outside diameter (OD). The next number is the connecting thread size, 2 (1/8 multiplied by 2 = 1/4"), then the material, SS for Stainless Steel, followed by the suffix R denoting BSPT thread type - if the thread had been NPT then no suffix would be required, as NPT is the standard thread. In the second example a 1/2" OD by 3/8" NPT female branch tee the part number is FBT = Female Branch Tee, 4 (1/8 multiplied by 4 = 1/2"), 3 (1/8 multiplied by 3 = 3/8"), SS Stainless Steel and no suffix = NPT.

Other materials

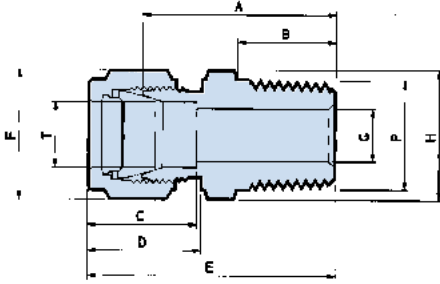
To denote different materials the same applies as in the examples above i.e. the stainless Steel was represented by the letters SS. If the example had been Alloy 400 then the material would have been represented by the letter M. The table below contains the materials and the letter code representing them.

Material	Code
Stainless Steel 316	SS
Alloy 400	M
UNS S31254	6MO
Duplex UNS S31 803	D
Hastelloy C276	H
Incoloy 825	IY
Titanium	T

1

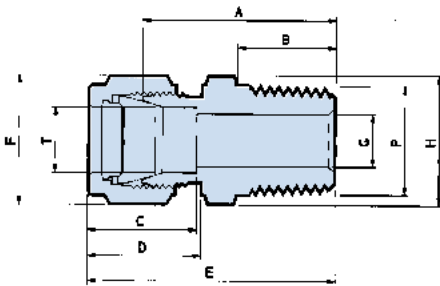
Ringlok® double ferrule OD compression fittings

Male stud coupling NPT



T tube OD	P NPT pipe	part number	A	B	C	D	E	F hex	H hex	G min
1/16"	1/16"	MSC-0101-SS	0.88"	0.38"	0.35"	0.47"	1.04"	5/16"	7/16"	0.05"
1/16"	1/8"	MSC-011-SS	0.88"	0.38"	0.35"	0.47"	1.04"	5/16"	7/16"	0.05"
1/8"	1/8"	MSC-11-SS	0.91"	0.38"	0.52"	0.62"	1.19"	7/16"	7/16"	0.09"
1/8"	1/4"	MSC-12-SS	1.13"	0.56"	0.52"	0.62"	1.14"	7/16"	7/16"	0.09"
3/16"	1/8"	MSC-031-SS	0.94"	0.38"	0.55"	0.65"	1.22"	1/2"	7/16"	0.13"
3/16"	1/4"	MSC-032-SS	1.16"	0.56"	0.55"	0.65"	1.44"	1/2"	9/16"	0.13"
1/4"	1/8"	MSC-21-SS	1.00"	0.38"	0.63"	0.72"	1.31"	9/16"	9/16"	0.19"
1/4"	1/4"	MSC-22-SS	1.19"	0.56"	0.63"	0.72"	1.50"	9/16"	9/16"	0.19"
1/4"	3/8"	MSC-23-SS	1.22"	0.56"	0.63"	0.72"	1.53"	9/16"	3/4"	0.19"
1/4"	1/2"	MSC-24-SS	1.44"	0.75"	0.63"	0.72"	1.75"	9/16"	7/8"	0.19"
3/8"	1/4"	MSC-32-SS	1.28"	0.56"	0.69"	0.78"	1.59"	11/16"	11/16"	0.28"
3/8"	3/8"	MSC-33-SS	1.28"	0.56"	0.69"	0.78"	1.59"	11/16"	3/4"	0.28"
3/8"	1/2"	MSC-34-SS	1.50"	0.75"	0.69"	0.78"	1.81"	11/16"	7/8"	0.28"
1/2"	1/4"	MSC-42-SS	1.31"	0.56"	0.91"	0.88"	1.72"	7/8"	7/8"	0.28"
1/2"	3/8"	MSC-43-SS	1.31"	0.56"	0.91"	0.88"	1.72"	7/8"	7/8"	0.41"
1/2"	1/2"	MSC-44-SS	1.50"	0.75"	0.91"	0.88"	1.91"	7/8"	7/8"	0.41"
1/2"	3/4"	MSC-46-SS	1.59"	0.75"	0.91"	0.88"	2.00"	7/8"	1 1/8"	0.41"
5/8"	3/8"	MSC-53-SS	1.34"	0.56"	0.97"	0.88"	1.75"	1"	15/16"	0.41"
5/8"	1/2"	MSC-54-SS	1.53"	0.75"	0.97"	0.88"	1.94"	1"	15/16"	0.50"
5/8"	3/4"	MSC-56-SS	1.59"	0.75"	0.97"	0.88"	2.00"	1"	1 1/8"	0.50"
3/4"	1/2"	MSC-64-SS	1.59"	0.75"	0.97"	0.88"	2.00"	1 1/8"	1 1/8"	0.50"
3/4"	3/4"	MSC-66-SS	1.59"	0.75"	0.97"	0.88"	2.00"	1 1/8"	1 1/8"	0.63"
3/4"	1"	MSC-68-SS	1.88"	0.94"	0.97"	0.88"	2.29"	1 1/8"	1 1/2"	0.63"
1"	3/4"	MSC-86-SS	1.78"	0.75"	1.23"	1.05"	2.27"	1 1/2"	1 1/2"	0.72"
1"	1"	MSC-88-SS	1.97"	0.94"	1.23"	1.05"	2.46"	1 1/2"	1 1/2"	0.88"

Male stud coupling NPT metric

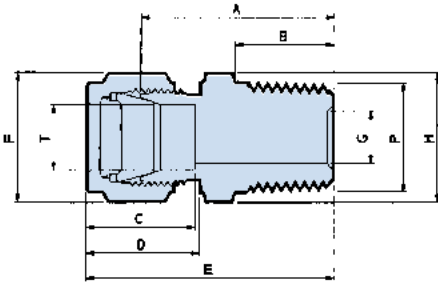


T tube OD	P NPT pipe	part number	A	B	C	D	E	F hex	H hex	G min
3mm	1/8"	MSC-M3-1-SS	23.1mm	9.6mm	13.4mm	15.7mm	30.1mm	7/16"	7/16"	2.3mm
3mm	1/4"	MSC-M3-2-SS	28.7mm	14.2mm	13.4mm	15.7mm	35.7mm	7/16"	9/16"	2.3mm
4mm	1/8"	MSC-M4-1-SS	23.8mm	9.6mm	14.2mm	16.5mm	30.8mm	1/2"	7/16"	2.7mm
4mm	1/4"	MSC-M4-2-SS	29.5mm	14.2mm	14.2mm	16.5mm	36.5mm	1/2"	9/16"	2.7mm
6mm	1/8"	MSC-M6-1-SS	25.4mm	9.6mm	16.0mm	18.2mm	33.3mm	9/16"	9/16"	4.8mm
6mm	1/4"	MSC-M6-2-SS	30.2mm	14.2mm	16.0mm	18.2mm	38.1mm	9/16"	9/16"	4.8mm
6mm	3/8"	MSC-M6-3-SS	31.0mm	14.2mm	16.0mm	18.2mm	38.9mm	9/16"	3/4"	4.8mm
6mm	1/2"	MSC-M6-4-SS	36.5mm	19.0mm	16.0mm	18.2mm	44.4mm	9/16"	7/8"	4.8mm
8mm	1/8"	MSC-M8-1-SS	26.1mm	9.6mm	16.7mm	19.0mm	34.0mm	11/16"	9/16"	4.8mm
8mm	1/4"	MSC-M8-2-SS	31.0mm	14.2mm	16.7mm	19.0mm	38.9mm	11/16"	9/16"	6.3mm
8mm	3/8"	MSC-M8-3-SS	31.7mm	14.2mm	16.7mm	19.0mm	39.6mm	11/16"	3/4"	6.3mm
10mm	1/4"	MSC-M10-2-SS	32.5mm	14.2mm	17.5mm	19.8mm	40.4mm	3/4"	11/16"	7.1mm
10mm	3/8"	MSC-M10-3-SS	32.5mm	14.2mm	17.5mm	19.8mm	40.4mm	3/4"	3/4"	7.8mm
10mm	1/2"	MSC-M10-4-SS	38.1mm	19.0mm	17.5mm	19.8mm	46.0mm	3/4"	7/8"	7.8mm
12mm	1/4"	MSC-M12-2-SS	33.2mm	14.2mm	23.1mm	22.3mm	43.6mm	7/8"	7/8"	7.1mm
12mm	3/8"	MSC-M12-3-SS	33.2mm	14.2mm	23.1mm	22.3mm	43.6mm	7/8"	7/8"	9.6mm
12mm	1/2"	MSC-M12-4-SS	38.1mm	19.0mm	23.1mm	22.3mm	49.5mm	7/8"	7/8"	9.6mm
12mm	3/4"	MSC-M12-6-SS	40.3mm	19.0mm	23.1mm	22.3mm	50.7mm	7/8"	1 1/8"	9.6mm
16mm	3/8"	MSC-M16-3-SS	34.0mm	14.2mm	24.6mm	22.3mm	44.4mm	1"	15/16"	10.3mm
16mm	1/2"	MSC-M16-4-SS	38.8mm	19.0mm	24.6mm	22.3mm	49.2mm	1"	15/16"	12.7mm
16mm	3/4"	MSC-M16-6-SS	40.6mm	19.0mm	24.6mm	22.3mm	50.7mm	1"	1 1/8"	12.7mm
20mm	1/2"	MSC-M20-4-SS	40.3mm	19.0mm	24.6mm	22.3mm	50.7mm	1 5/16"	1 1/8"	12.7mm
20mm	3/4"	MSC-M20-6-SS	40.3mm	19.0mm	24.6mm	22.3mm	50.7mm	1 5/16"	1 1/8"	16.7mm
25mm	3/4"	MSC-M25-5-SS	45.2mm	19.0mm	31.2mm	26.6mm	57.6mm	1 1/2"	1 1/2"	18.2mm
25mm	1"	MSC-M25-8-SS	50.0mm	23.8mm	31.2mm	26.6mm	62.4mm	1 1/2"	1 1/2"	22.3mm

'G' dimension is minimum opening, some fittings may be back-drilled with a larger bore from the pipe thread end

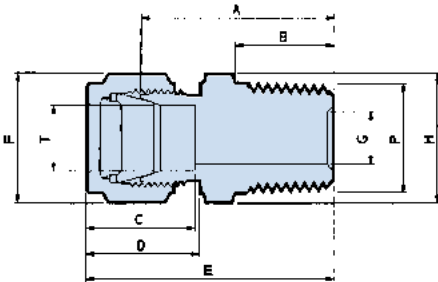
Ringlok® double ferrule OD compression fittings

Male stud coupling BSPT



T tube OD	P BSPT pipe	part number	A	B	C	D	E	F hex	H hex	G min
1/16"	1/8"	MSC-011-SSR	0.88"	0.38"	0.35"	0.47"	1.03"	5/16"	7/16"	0.05"
1/8"	1/8"	MSC-11-SSR	0.91"	0.38"	0.52"	0.62"	1.19"	7/16"	7/16"	0.09"
1/8"	1/4"	MSC-12-SSR	1.03"	0.47"	0.52"	0.62"	1.31"	7/16"	9/16"	0.09"
3/16"	1/8"	MSC-031-SSR	0.94"	0.38"	0.55"	0.65"	1.22"	1/2"	7/16"	0.13"
3/16"	1/4"	MSC-032-SSR	1.06"	0.47"	0.55"	0.65"	1.34"	1/2"	9/16"	0.13"
1/4"	1/8"	MSC-21-SSR	1.00"	0.38"	0.63"	0.72"	1.31"	9/16"	9/16"	0.16"
1/4"	1/4"	MSC-22-SSR	1.09"	0.47"	0.63"	0.72"	1.40"	9/16"	9/16"	0.19"
1/4"	3/8"	MSC-23-SSR	1.16"	0.50"	0.63"	0.72"	1.47"	9/16"	11/16"	0.19"
1/4"	1/2"	MSC-24-SSR	1.31"	0.63"	0.63"	0.72"	1.62"	9/16"	7/8"	0.19"
3/8"	1/4"	MSC-32-SSR	1.19"	0.47"	0.69"	0.78"	1.50"	11/16"	11/16"	0.22"
3/8"	3/8"	MSC-33-SSR	1.22"	0.50"	0.69"	0.78"	1.53"	11/16"	11/16"	0.28"
3/8"	1/2"	MSC-34-SSR	1.38"	0.63"	0.69"	0.78"	1.69"	11/16"	7/8"	0.28"
1/2"	1/4"	MSC-42-SSR	1.22"	0.47"	0.91"	0.88"	1.63"	7/8"	7/8"	0.34"
1/2"	3/8"	MSC-43-SSR	1.25"	0.50"	0.91"	0.88"	1.66"	7/8"	7/8"	0.34"
1/2"	1/2"	MSC-44-SSR	1.38"	0.63"	0.91"	0.88"	1.79"	7/8"	7/8"	0.41"
1/2"	3/4"	MSC-46-SSR	1.59"	0.75"	0.91"	0.88"	2.00"	7/8"	1 1/8"	0.41"
5/8"	3/8"	MSC-53-SSR	1.28"	0.50"	0.97"	0.88"	1.69"	1"	15/16"	0.34"
5/8"	1/2"	MSC-54-SSR	1.41"	0.63"	0.97"	0.88"	1.82"	1"	15/16"	0.44"
5/8"	3/4"	MSC-56-SSR	1.59"	0.75"	0.97"	0.88"	2.00"	1"	1 1/8"	0.50"
3/4"	1/2"	MSC-64-SSR	1.47"	0.63"	0.97"	0.88"	1.88"	1 1/8"	1 1/8"	0.44"
3/4"	3/4"	MSC-66-SSR	1.59"	0.75"	0.97"	0.88"	2.00"	1 1/8"	1 1/8"	0.63"
3/4"	1"	MSC-68-SSR	1.81"	0.88"	0.97"	0.88"	2.22"	1 1/8"	1 1/2"	0.63"
1"	3/4"	MSC-86-SSR	1.78"	0.75"	1.23"	1.05"	2.27"	1 1/2"	1 1/2"	0.63"
1"	1"	MSC-88-SSR	1.91"	0.88"	1.23"	1.05"	2.40"	1 1/2"	1 1/2"	0.88"

Male stud coupling BSPT metric

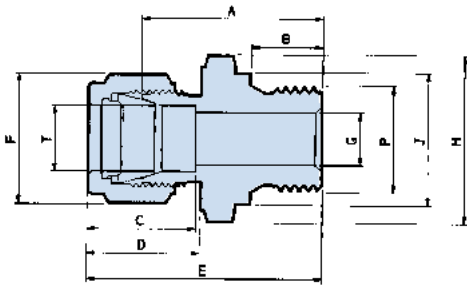


T tube OD	P BSPT pipe	part number	A	B	C	D	E	F hex	H hex	G min
3mm	1/8"	MSC-M3-1-SSR	23.1mm	9.6mm	13.4mm	15.7mm	30.1mm	7/16"	7/16"	2.3mm
3mm	1/4"	MSC-M3-2-SSR	26.1mm	11.9mm	13.4mm	15.7mm	33.1mm	7/16"	9/16"	2.3mm
4mm	1/8"	MSC-M4-1-SSR	23.8mm	9.6mm	14.2mm	16.5mm	30.8mm	1/2"	7/16"	2.7mm
4mm	1/4"	MSC-M4-2-SSR	26.9mm	11.9mm	14.2mm	16.5mm	33.9mm	1/2"	9/16"	2.7mm
6mm	1/8"	MSC-M6-1-SSR	25.4mm	9.6mm	16.0mm	18.2mm	33.3mm	9/16"	9/16"	4.0mm
6mm	1/4"	MSC-M6-2-SSR	27.6mm	11.9mm	16.0mm	18.2mm	35.5mm	9/16"	9/16"	4.8mm
6mm	3/8"	MSC-M6-3-SSR	29.4mm	12.7mm	16.0mm	18.2mm	37.3mm	9/16"	11/16"	4.8mm
6mm	1/2"	MSC-M6-4-SSR	33.2mm	16.0mm	16.0mm	18.2mm	41.1mm	9/16"	7/8"	4/8mm
8mm	1/8"	MSC-M8-1-SSR	26.1mm	9.6mm	16.7mm	19.0mm	34.0mm	11/16"	9/16"	4.0mm
8mm	1/4"	MSC-M8-2-SSR	28.7mm	11.9mm	16.7mm	19.0mm	36.6mm	11/16"	9/16"	5.5mm
8mm	3/8"	MSC-M8-3-SSR	30.2mm	12.7mm	16.7mm	19.0mm	38.1mm	11/16"	3/4"	6.3mm
10mm	1/4"	MSC-M10-2-SSR	30.2mm	11.9mm	17.5mm	19.8mm	38.1mm	3/4"	11/16"	5.5mm
10mm	3/8"	MSC-M10-3-SSR	31.0mm	12.7mm	17.5mm	19.8mm	38.9mm	3/4"	11/16"	7.8mm
10mm	1/2"	MSC-M10-4-SSR	35.0mm	16.0mm	17.5mm	19.8mm	42.9mm	3/4"	7/8"	7.8mm
12mm	1/4"	MSC-M12-2-SSR	31.0mm	11.9mm	23.1mm	22.3mm	41.4mm	7/8"	7/8"	5.5mm
12mm	3/8"	MSC-M12-3-SSR	31.7mm	12.7mm	23.1mm	22.3mm	42.1mm	7/8"	7/8"	9.6mm
12mm	1/2"	MSC-M12-4-SSR	35.0mm	16.0mm	23.1mm	22.3mm	45.4mm	7/8"	7/8"	9.6mm
12mm	3/4"	MSC-M12-6-SSR	40.3mm	19.0mm	23.1mm	22.3mm	50.7mm	7/8"	1 1/8"	9.6mm
16mm	3/8"	MSC-M16-3-SSR	32.5mm	12.7mm	24.6mm	22.3mm	42.9mm	1"	15/16"	8.6mm
16mm	1/2"	MSC-M16-4-SSR	35.8mm	16.0mm	24.6mm	22.3mm	46.2mm	1"	15/16"	11.1mm
16mm	3/4"	MSC-M16-6-SSR	40.3mm	19.0mm	24.6mm	22.3mm	50.7mm	1"	1 1/8"	12.7mm
20mm	1/2"	MSC-M20-4-SSR	37.3mm	16.0mm	24.6mm	22.3mm	47.7mm	1 5/16"	1 1/8"	11.1mm
20mm	3/4"	MSC-M20-6-SSR	40.3mm	19.0mm	24.6mm	22.3mm	50.7mm	1 5/16"	1 1/8"	16.0mm
25mm	3/4"	MSC-M25-6-SSR	45.2mm	19.0mm	31.2mm	26.6mm	57.6mm	1 1/2"	1 1/2"	16.5mm
25mm	1"	MSC-M25-8-SSR	48.5mm	22.3mm	31.2mm	26.6mm	60.9mm	1 1/2"	1 1/2"	22.3mm

'G' dimension is minimum opening, some fittings may be back-drilled with a larger bore from the pipe thread end

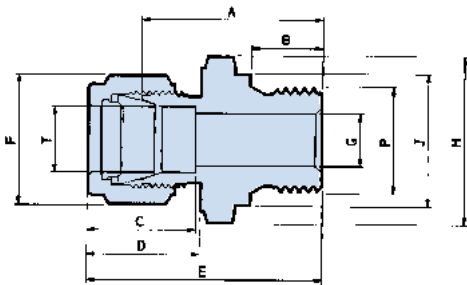
Ringlok® double ferrule OD compression fittings

Male stud coupling BSPP



T tube OD	P BSPP pipe	part number	A	B	C	D	E	F hex	H hex	G min	J
1/16"	1/8"	MSC-011-SSG	0.91"	0.32"	0.35"	0.47"	1.07"	5/16"	9/16"	0.05"	0.55"
1/16"	1/4"	MSC-012-SSG	1.11"	0.47"	0.35"	0.47"	1.27"	5/16"	3/4"	0.05"	0.71"
1/8"	1/8"	MSC-11-SSG	0.94"	0.32"	0.52"	0.62"	1.22"	7/16"	9/16"	0.09"	0.55"
1/8"	1/4"	MSC-12-SSG	1.15"	0.47"	0.52"	0.62"	1.42"	7/16"	3/4"	0.09"	0.71"
3/16"	1/8"	MSC-031-SSG	0.97"	0.32"	0.55"	0.65"	1.25"	1/2"	9/16"	0.13"	0.55"
3/16"	1/4"	MSC-032-SSG	1.18"	0.47"	0.55"	0.65"	1.45"	1/2"	3/4"	0.13"	0.71"
1/4"	1/8"	MSC-21-SSG	1.00"	0.32"	0.63"	0.72"	1.31"	9/16"	9/16"	0.16"	0.55"
1/4"	1/4"	MSC-22-SSG	1.21"	0.47"	0.63"	0.72"	1.52"	9/16"	3/4"	0.19"	0.71"
1/4"	3/8"	MSC-23-SSG	1.26"	0.47"	0.63"	0.72"	1.52"	9/16"	7/8"	0.19"	0.87"
1/4"	1/2"	MSC-24-SSG	1.45"	0.55"	0.63"	0.72"	1.76"	9/16"	1 1/8"	0.19"	1.02"
3/8"	1/4"	MSC-32-SSG	1.27"	0.47"	0.69"	0.78"	1.58"	11/16"	3/4"	0.22"	0.71"
3/8"	3/8"	MSC-33-SSG	1.32"	0.47"	0.69"	0.78"	1.63"	11/16"	7/8"	0.28"	0.87"
3/8"	1/2"	MSC-34-SSG	1.51"	0.55"	0.69"	0.78"	1.82"	11/16"	1 1/8"	0.28"	1.02"
1/2"	1/4"	MSC-42-SSG	1.30"	0.47"	0.91"	1.71"	7/8"	7/8"	7/8"	0.22"	0.71"
1/2"	3/8"	MSC-43-SSG	1.32"	0.47"	0.91"	0.88"	1.73"	7/8"	7/8"	0.34"	0.87"
1/2"	1/2"	MSC-44-SSG	1.51"	0.55"	0.91"	0.88"	1.92"	7/8"	1 1/8"	0.41"	1.02"
1/2"	3/4"	MSC-46-SSG	1.59"	0.63"	0.91"	0.88"	2.00"	7/8"	1 5/16"	0.41"	1.26"
5/8"	3/8"	MSC-53-SSG	1.35"	0.47"	0.97"	0.88"	1.76"	1"	15/16"	0.34"	0.87"
5/8"	1/2"	MSC-54-SSG	1.51"	0.55"	0.97"	0.88"	1.92"	1"	1 1/8"	0.44"	1.02"
5/8"	3/4"	MSC-56-SSG	1.59"	0.63"	0.97"	0.88"	2.00"	1"	1 5/16"	0.50"	1.26"
3/4"	1/2"	MSC-64-SSG	1.51"	0.55"	0.97"	0.88"	1.92"	1 1/8"	1 1/8"	0.44"	1.02"
3/4"	3/4"	MSC-66-SSG	1.59"	0.63"	0.97"	0.88"	2.00"	1 1/8"	1 5/16"	0.63"	1.26"
3/4"	1"	MSC-68-SSG	1.80"	0.71"	0.97"	0.88"	2.21"	1 1/8"	1 11/16"	0.63"	1.54"
1"	3/4"	MSC-86-SSG	1.78"	0.63"	1.23"	1.05"	2.27"	1 1/2"	1 1/2"	0.63"	1.26"
1"	1"	MSC-88-SSG	1.89"	0.71"	1.23"	1.05"	2.38"	1 1/2"	1 11/16"	0.88"	1.54"

Male stud coupling BSPP metric

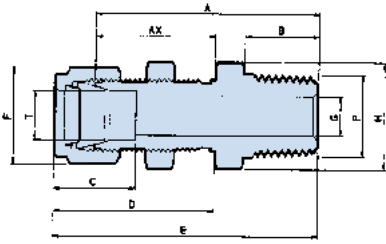


T tube OD	P BSPP pipe	part number	A	B	C	D	E	F hex	H hex	G min	J
3mm	1/8"	MSC-M3-1-SSG	23.5mm	8.1mm	13.4mm	15.7mm	30.8mm	7/16"	9/16"	2.3mm	14.0mm
3mm	1/4"	MSC-M3-2-SSG	28.9mm	11.9mm	13.4mm	15.7mm	35.9mm	7/16"	3/4"	2.3mm	18.0mm
4mm	1/8"	MSC-M4-1-SSG	24.6mm	8.1mm	14.2mm	16.5mm	31.6mm	1/2"	9/16"	2.7mm	14.0mm
4mm	1/4"	MSC-M4-2-SSG	29.9mm	11.9mm	14.2mm	16.5mm	36.9mm	1/2"	3/4"	2.7mm	18.0mm
6mm	1/8"	MSC-M6-1-SSG	25.3mm	8.1mm	16.0mm	18.2mm	33.2mm	9/16"	9/16"	4.0mm	14.0mm
6mm	1/4"	MSC-M6-2-SSG	30.7mm	11.9mm	16.0mm	18.2mm	38.6mm	9/16"	3/4"	4.8mm	18.0mm
6mm	3/8"	MSC-M6-3-SSG	31.9mm	11.9mm	16.0mm	18.2mm	39.8mm	9/16"	7/8"	4.8mm	22.0mm
6mm	1/2"	MSC-M6-4-SSG	36.7mm	14.0mm	16.0mm	18.2mm	44.6mm	9/16"	1 1/8"	4.8mm	26.0mm
8mm	1/8"	MSC-M8-1-SSG	26.1mm	8.1mm	16.7mm	19.0mm	34.0mm	11/16"	9/16"	4.0mm	14.0mm
8mm	1/4"	MSC-M8-2-SSG	31.4mm	11.9mm	16.7mm	19.0mm	39.3mm	11/16"	3/4"	5.5mm	18.0mm
8mm	3/8"	MSC-M8-3-SSG	32.7mm	11.9mm	16.7mm	19.0mm	40.6mm	11/16"	7/8"	6.3mm	22.0mm
10mm	1/4"	MSC-M10-2-SSG	32.2mm	11.9mm	17.5mm	19.8mm	40.1mm	2/4"	3/4"	5.5mm	18.0mm
10mm	3/8"	MSC-M10-3-SSG	33.5mm	11.9mm	17.5mm	19.8mm	41.4mm	3/4"	7/8"	7.8mm	22.0mm
10mm	1/2"	MSC-M10-4-SSG	38.3mm	14.0mm	17.5mm	19.8mm	46.2mm	3/4"	1 1/8"	7.8mm	26.0mm
12mm	1/4"	MSC-M12-2-SSG	33.0mm	11.9mm	23.1mm	22.3mm	43.4mm	7/8"	7/8"	4.0mm	18.0mm
12mm	3/8"	MSC-M12-3-SSG	33.5mm	11.9mm	23.1mm	22.3mm	43.9mm	7/8"	7/8"	9.6mm	22.0mm
12mm	1/2"	MSC-M12-4-SSG	38.3mm	14.0mm	23.1mm	22.3mm	48.7mm	7/8"	1 1/8"	9.6mm	26.0mm
12mm	3/4"	MSC-M12-6-SSG	40.3mm	16.0mm	23.1mm	22.3mm	50.7mm	7/8"	1 5/16"	16.0mm	32.0mm
16mm	3/8"	MSC-M16-3-SSG	34.2mm	11.9mm	24.6mm	22.3mm	44.6mm	1"	15/16"	8.6mm	22.0mm
16mm	1/2"	MSC-M16-4-SSG	38.3mm	14.0mm	24.6mm	22.3mm	48.7mm	1"	1 1/8"	11.1mm	26.0mm
16mm	3/4"	MSC-M16-6-SSG	40.3mm	16.0mm	24.6mm	22.3mm	50.7mm	1"	1 4/16"	12.7mm	32.0mm
20mm	1/2"	MSC-M20-4-SSG	38.3mm	14.0mm	24.6mm	22.3mm	48.7mm	1 5/16"	1 1/8"	11.1mm	26.0mm
20mm	3/4"	MSC-M20-6-SSG	40.3mm	16.0mm	24.6mm	22.3mm	50.7mm	1 5/16"	1 5/16"	16.0mm	32.0mm
25mm	3/4"	MSC-M25-6-SSG	45.1mm	16.0mm	31.2mm	26.6mm	57.5mm	1 1/2"	1 1/2"	16.0mm	32.0mm
25mm	1"	MSC-M25-8-SSG	48.0mm	18.0mm	31.2mm	26.6mm	60.4mm	1 1/2"	1 11/16"	22.3mm	39.0mm

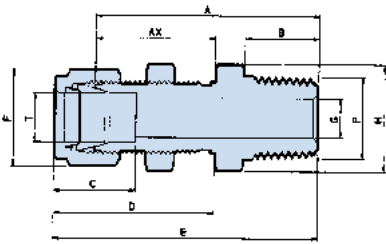
'G' dimension is minimum opening, some fittings may be back-drilled with a larger bore from the pipe thread end

Ringlok® double ferrule OD compression fittings

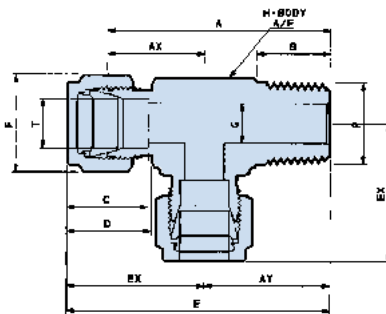
Male bulkhead coupling NPT



Male bulkhead coupling NPT metric



Male run tee NPT



T tube OD	P NPT pipe	part number	A	Ax	B	C	D	E	F hex	H hex	G min	panel hole drill size	panel thickness max
1/8"	1/8"	MBC-11-SS	1.53"	0.97"	0.38"	0.52"	1.24"	1.81"	7/16"	1/2"	0.09"	21/64"	0.44"
1/4"	1/8"	MBC-21-SS	1.66"	1.03"	0.38"	0.52"	1.24"	1.81"	7/16"	1/2"	0.09"	29/64"	0.50"
1/4"	1/4"	MBC-22-SS	1.84"	1.03"	0.56"	0.63"	1.34"	2.15"	9/16"	11/16"	0.19"	29/64"	0.50"
3/8"	1/4"	MBC-32-SS	1.97"	1.16"	0.56"	0.69"	1.47"	2.28"	11/16"	3/4"	0.28"	37/64"	0.50"
1/2"	3/8"	MBC-43-SS	2.09"	1.25"	0.56"	0.91"	1.66"	2.50"	7/8"	15/16"	0.41"	49/64"	0.56"
1/2"	1/2"	MBC-44-SS	2.28"	1.25"	0.75"	0.91"	1.66"	2.69"	7/8"	15/64"	0.41"	49/64"	0.56"

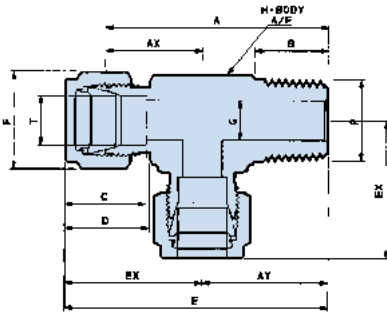
T tube OD	P NPT pipe	part number	A	Ax	B	C	D	E	F hex	H hex	G min	panel hole drill size	panel thickness max
3mm	1/8"	MBC-M3-1-SS	39.7mm	24.6mm	9.6mm	13.4mm	31.6mm	46.7mm	7/16"	9/16"	2.3mm	8.3mm	11.1mm
6mm	1/8"	MBC-M6-1-SS	42.0mm	26.1mm	9.6mm	16.0mm	34.0mm	49.9mm	9/16"	11/16"	4.8mm	11.5mm	12.7mm
6mm	1/4"	MBC-M6-2-SS	46.7mm	26.1mm	14.2mm	16.0mm	34.0mm	54.9mm	9/16"	11/16"	4.8mm	11.5mm	12.7mm
10mm	1/4"	MBC-M10-2-SS	50.8mm	29.4mm	14.2mm	17.5mm	37.3mm	58.7mm	3/4"	7/8"	7.1mm	16.3mm	12.7mm
12mm	3/8"	MBC-M12-3-SS	53.9mm	31.7mm	14.2mm	23.1mm	42.1mm	64.3mm	7/8"	15/16"	9.6mm	19.4mm	14.2mm
12mm	1/2"	MBC-M12-4-SS	58.7mm	31.7mm	19.0mm	23.1mm	42.1mm	69.1mm	7/8"	15/16"	9.6mm	19.4mm	14.2mm

T tube OD	P NPT pipe	part number	A	Ax	Ay	B	C	D	E	Ex hex	F hex	H hex	G min
1/16"	1/16"	MRT-0101-SS	1.24"	0.59"	0.65"	0.38"	0.35"	0.47"	1.40"	0.75"	5/16"	3/8"	0.05"
1/16"	1/8"	MRT-011-SS	1.27"	0.59"	0.68"	0.38"	0.35"	0.47"	1.43"	0.75"	5/16"	3/8"	0.05"
1/8"	1/8"	MRT-11-SS	1.30"	0.62"	0.68"	0.38"	0.52"	0.62"	1.58"	0.90"	7/16"	3/8"	0.09"
1/8"	1/4"	MRT-12-SS	1.63"	0.71"	0.92"	0.56"	0.52"	0.62"	1.91"	0.99"	7/16"	1/2"	0.09"
3/16"	1/8"	MRT-031-SS	1.48"	0.74"	0.74"	0.38"	0.55"	0.65"	1.76"	1.02"	1/2"	1/2"	0.13"
1/4"	1/8"	MRT-21-SS	1.51"	0.77"	0.74"	0.38"	0.63"	0.72"	1.82"	1.08"	9/16"	1/2"	0.19"
1/4"	1/4"	MRT-22-SS	1.69"	0.77"	0.92"	0.56"	0.63"	0.72"	2.08"	1.08"	9/16"	1/2"	0.19"
3/8"	1/4"	MRT-32-SS	1.94"	0.91"	1.03"	0.56"	0.69"	0.78"	2.25"	1.22"	11/16"	5/8"	0.28"
3/8"	3/8"	MRT-33-SS	1.94"	0.91"	1.03"	0.56"	0.69"	0.78"	2.25"	1.22"	11/16"	5/8"	0.28"
1/2"	3/8"	MRT-43-SS	2.13"	1.02"	1.11"	0.56"	0.91"	0.88"	2.54"	1.43"	7/8"	13/16"	0.41"
1/2"	1/2"	MRT-44-SS	2.32"	1.02"	1.30"	0.75"	0.91"	0.88"	2.73"	1.43"	7/8"	13/16"	0.41"
5/8"	1/2"	MRT-54-SS	2.61"	1.17"	1.44"	0.75"	0.97"	0.88"	3.02"	1.58"	1"	1 1/16"	0.50"
3/4"	3/4"	MRT-66-SS	2.61"	1.17"	1.44"	0.75"	0.97"	0.88"	3.02"	1.58"	1 1/8"	1 1/16"	0.63"
1"	1"	MRT-88-SS	3.28"	1.45"	1.83"	0.94"	1.23"	1.05"	3.77"	1.94"	1 1/2"	1 3/8"	0.88"

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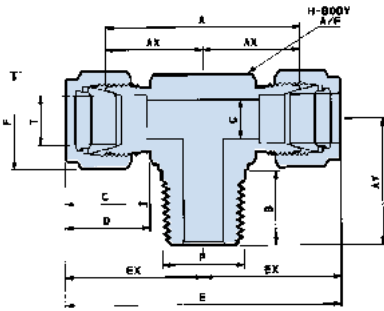
Ringlok® double ferrule OD compression fittings

Male run tee NPT metric



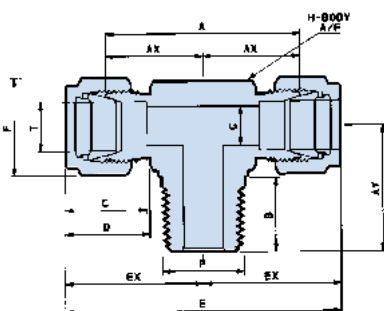
T tube OD	P NPT pipe	part number	A	Ax	Ay	B	C	D	E	Ex	F hex	H hex	G min
3mm	1/8"	MRT-M3-1-SS	33.8mm	15.7mm	17.3mm	9.6mm	13.4mm	15.7mm	40.4mm	22.7mm	7/16"	3/8"	2.3mm
3mm	1/4"	MRT-M3-2-SS	41.4mm	18.0mm	23.4mm	14.2mm	13.4mm	15.7mm	48.4mm	25.0mm	7/16"	1/2"	2.3mm
4mm	1/8"	MRT-M4-1-SS	37.6mm	18.8mm	18.8mm	9.6mm	14.2mm	16.5mm	44.6mm	25.8mm	1/2"	1/2"	2.7mm
6mm	1/8"	MRT-M6-1-SS	38.3mm	19.5mm	18.8mm	9.6mm	16.0mm	18.2mm	46.2mm	27.4mm	9/16"	1/2"	4.8mm
6mm	1/4"	MRT-M6-2-SS	42.9mm	19.5mm	23.4mm	14.2mm	16.0mm	18.2mm	50.8mm	27.4mm	9/16"	1/2"	4.8mm
8mm	1/8"	MRT-M8-1-SS	43.9mm	22.3mm	21.6mm	9.6mm	16.7mm	19.0mm	51.8mm	30.2mm	11/16"	5/8"	4.8mm
10mm	1/4"	MRT-M10-2-SS	54.1mm	25.9mm	28.2mm	14.2mm	17.5mm	19.8mm	62.0mm	33.8mm	3/4"	13/16"	7.1mm
10mm	3/8"	MRT-M10-3-SS	54.1mm	25.9mm	28.2mm	14.2mm	18.5mm	19.8mm	62.0mm	33.8mm	3/4"	13/16"	7.8mm
12mm	3/8"	MRT-M12-3-SS	54.1mm	25.9mm	28.2mm	14.2mm	23.1mm	22.3mm	64.5mm	36.3mm	7/8"	13/16"	9.6mm
12mm	1/2"	MRT-M12-4-SS	59.0mm	25.9mm	33.0mm	19.0mm	23.1mm	22.3mm	69.3mm	36.3mm	7/8"	13/16"	9.6mm
16mm	1/2"	MRT-M16-4-SS	66.2mm	29.7mm	36.5mm	19.0mm	24.6mm	22.3mm	76.7mm	40.1mm	1"	1 1/16"	12.7mm
20mm	3/4"	MRT-M20-6-SS	76.1mm	34.5mm	41.7mm	19.0mm	24.6mm	22.3mm	86.6mm	44.9mm	1 5/16"	1 3/8"	16.7mm
25mm	1"	MRT-M25-8-SS	83.2mm	36.8mm	46.5mm	23.8mm	31.2mm	26.6mm	95.7mm	49.2mm	1 1/2"	1 3/8"	22.3mm

Male branch tee NPT



T tube OD	P NPT pipe	part number	A	Ax	Ay	B	C	D	E	Ex	F hex	H hex	G min
1/6"	1/6"	MBT-0101-SS	1.18"	0.59"	0.65"	0.38"	0.35"	0.47"	1.50"	0.75"	5/16"	3/8"	0.05"
1/6"	1/8"	MBT-011-SS	1.18"	0.59"	0.68"	0.38"	0.35"	0.47"	1.50"	0.75"	5/16"	3/8"	0.05"
1/8"	1/8"	MBT-11-SS	1.24"	0.62"	0.68"	0.38"	0.52"	0.62"	1.80"	0.90"	7/16"	3/8"	0.09"
1/8"	1/4"	MBT-12-SS	1.42"	0.71"	0.92"	0.56"	0.52"	0.62"	1.98"	0.99"	7/16"	1/2"	0.09"
3/16"	1/8"	MBT-031-SS	1.48"	0.74"	0.74"	0.38"	0.55"	0.65"	2.04"	1.02"	1/2"	1/2"	0.13"
1/4"	1/8"	MBT-21-SS	1.54"	0.77"	0.74"	0.38"	0.63"	0.72"	2.16"	1.08"	9/16"	1/2"	0.19"
1/4"	1/4"	MBT-22-SS	1.54"	0.77"	0.92"	0.56"	0.63"	0.72"	2.16"	1.08"	9/16"	1/2"	0.19"
3/8"	1/4"	MBT-32-SS	1.82"	0.91"	1.03"	0.56"	0.69"	0.78"	2.44"	1.22"	11/16"	5/8"	0.28"
3/8"	3/8"	MBT-33-SS	1.82"	0.91"	1.03"	0.56"	0.69"	0.78"	2.44"	1.22"	11/16"	5/8"	0.28"
1/2"	3/8"	MBT-43-SS	2.04"	1.02"	1.11"	0.56"	0.91"	0.88"	2.86"	1.43"	7/8"	13/16"	0.41"
1/2"	1/2"	MBT-44-SS	2.04"	1.02"	1.30"	0.75"	0.91"	0.88"	2.86"	1.43"	7/8"	1 3/8"	0.41"
5/8"	1/2"	MBT-54-SS	2.34"	1.17"	1.44"	0.75"	0.97"	0.88"	3.16"	1.58"	1"	1 1/16"	0.50"
3/4"	1/2"	MBT-64-SS	2.34"	1.17"	1.44"	0.75"	0.97"	0.88"	3.16"	1.58"	1 1/8"	1 1/16"	0.63"
1"	1"	MBT-88-SS	2.90"	1.45"	1.83"	0.94"	1.23"	1.05"	3.88"	1.94"	1 1/2"	1 3/8"	0.88"

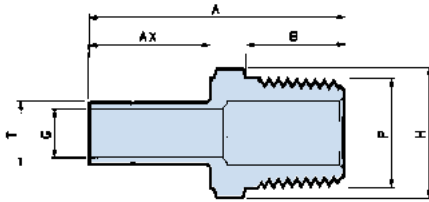
Male branch tee NPT metric



T tube OD	P NPT pipe	part number	A	Ax	Ay	B	C	D	E	Ex	F hex	H hex	G min
3mm	1/8"	MBT-M3-1-SS	31.4mm	15.7mm	17.3mm	9.6mm	13.4mm	15.7mm	45.4mm	22.7mm	7/16"	3/8"	2.3mm
3mm	1/4"	MBT-M3-2-SS	36.0mm	18.0mm	23.4mm	14.2mm	13.4mm	15.7mm	50.0mm	25.0mm	7/16"	1/2"	2.3mm
4mm	1/8"	MBT-M4-1-SS	37.6mm	18.8mm	18.8mm	9.6mm	14.2mm	16.5mm	51.6mm	25.8mm	1/2"	1/2"	2.7mm
6mm	1/8"	MBT-M6-1-SS	39.0mm	19.5mm	18.8mm	9.6mm	16.0mm	18.2mm	54.8mm	27.4mm	9/16"	1/2"	4.8mm
6mm	1/4"	MBT-M6-2-SS	39.0mm	19.5mm	23.4mm	14.2mm	16.0mm	18.2mm	54.8mm	27.4mm	9/16"	1/2"	4.8mm
8mm	1/8"	MBT-M8-1-SS	44.6mm	22.3mm	21.6mm	9.6mm	16.7mm	19.0mm	60.4mm	30.2mm	11/16"	5/8"	4.8mm
10mm	3/8"	MBT-M10-3-SS	51.8mm	25.9mm	28.2mm	14.2mm	17.5mm	19.8mm	67.6mm	33.8mm	3/4"	13/16"	7.1mm
10mm	3/8"	MBT-M10-3-SS	51.8mm	25.9mm	28.2mm	14.2mm	17.5mm	19.8mm	67.6mm	33.8mm	3/4"	13/16"	7.8mm
12mm	3/8"	MBT-M12-3-SS	51.8mm	25.9mm	28.2mm	14.2mm	23.1mm	22.3mm	72.6mm	36.3mm	7/8"	13/16"	9.6mm
12mm	1/2"	MBT-M12-4-SS	51.8mm	25.9mm	33.0mm	19.0mm	23.1mm	22.3mm	72.6mm	36.3mm	7/8"	13/16"	9.6mm
16mm	1/2"	MBT-M16-4-SS	59.4mm	29.7mm	36.6mm	19.0mm	24.6mm	22.3mm	80.2mm	40.1mm	1"	1 1/16"	12.7mm
20mm	3/4"	MBT-M20-6-SS	69.0mm	34.5mm	41.7mm	19.0mm	24.6mm	22.3mm	89.8mm	44.9mm	1 5/16"	1 3/8"	16.7mm
25mm	1"	MBT-M25-8-SS	73.6mm	36.8mm	46.5mm	23.8mm	31.2mm	26.6mm	98.4mm	49.2mm	1 1/2"	1 3/8"	22.3mm

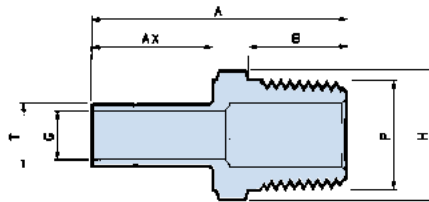
Ringlok® double ferrule OD compression fittings

Male stud standpipe adaptor NPT



T tube OD	P NPT pipe	part number	A	Ax	B	H hex	G min
1/8"	1/8"	MSP-11-SS	1.09"	0.53"	0.38"	7/16"	0.08"
1/8"	1/4"	MSP-12-SS	1.31"	0.53"	0.56"	9/16"	0.08"
3/16"	1/8"	MSP-031-SS	1.12"	0.56"	0.38"	7/16"	0.13"
1/4"	1/8"	MSP-21-SS	1.22"	0.66"	0.38"	7/16"	0.17"
1/4"	1/4"	MSP-22-SS	1.44"	0.66"	0.56"	9/16"	0.17"
3/8"	1/4"	MSP-32-SS	1.50"	0.72"	0.56"	9/16"	0.26"
3/8"	3/8"	MSP-33-SS	1.53"	0.72"	0.56"	11/16"	0.26"
1/2"	3/8"	MSP-43-SS	1.75"	0.94"	0.56"	11/16"	0.36"
1/2"	1/2"	MSP-44-SS	1.97"	0.94"	0.75"	7/8"	0.36"
5/8"	1/2"	MSP-54-SS	2.03"	1.00"	0.75"	7/8"	0.48"
3/4"	3/4"	MSP-66-SS	2.13"	1.00"	0.75"	1 1/8"	0.57"
1"	1"	MSP-88-SS	2.67"	1.26"	0.94"	1 1/2"	0.77"

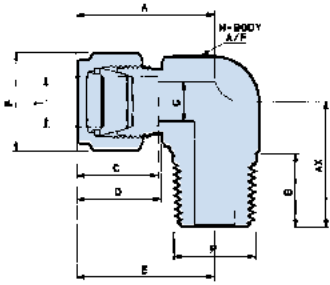
Male stud standpipe adaptor NPT metric



T tube OD	P NPT pipe	part number	A	Ax	B	H hex	G min
3mm	1/8"	MSP-M3-1-SS	27.6mm	13.4mm	9.6mm	7/16"	1.8mm
3mm	1/4"	MSP-M3-2-SS	33.2mm	13.4mm	14.2mm	9/16"	1.8mm
4mm	1/8"	MSP-M4-1-SS	28.5mm	14.2mm	9.6mm	9/16"	1.8mm
6mm	1/8"	MSP-M6-1-SS	31.8mm	16.7mm	9.6mm	7/16"	4.0mm
6mm	1/4"	MSP-M6-2-SS	36.5mm	16.7mm	14.2mm	9/16"	4.0mm
8mm	1/8"	MSP-M8-1-SS	31.8mm	17.5mm	9.6mm	7/16"	4.8mm
10mm	1/4"	MSP-M10-2-SS	38.8mm	18.2mm	14.2mm	9/16"	7.1mm
10mm	3/8"	MSP-M10-3-SS	38.8mm	18.2mm	14.2mm	11/16"	7.1mm
12mm	3/8"	MSP-M12-3-SS	44.4mm	23.8mm	14.2mm	11/16"	8.3mm
12mm	1/2"	MSP-M12-4-SS	50.0mm	23.8mm	19.0mm	7/8"	8.3mm
16mm	1/2"	MSP-M16-4-SS	51.6mm	25.4mm	19.0mm	7/8"	12.2mm
20mm	3/4"	MSP-M20-6-SS	54.0mm	25.4mm	19.0mm	1 1/8"	15.4mm
25mm	1"	MSP-M25-8-SS	67.7mm	32.0mm	23.8mm	1 1/2"	19.0mm

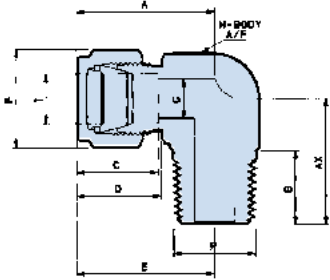
Ringlok® double ferrule OD compression fittings

Male stud elbow NPT



T tube OD	P NPT pipe	part number	A	Ax	B	C	D	E	F hex	H hex	G min
1/16"	1/16"	MSE-0101-SS	0.59"	0.65"	0.38"	0.35"	0.47"	0.75"	5/16"	3/8"	0.05"
1/16"	1/8"	MSE-011-SS	0.59"	0.68"	0.38"	0.35"	0.47"	0.75"	5/16"	3/8"	0.05"
1/8"	1/8"	MSE-11-SS	0.62"	0.68"	0.38"	0.52"	0.62"	0.90"	7/16"	3/8"	0.09"
1/8"	1/4"	MSE-12-SS	0.71"	0.92"	0.56"	0.52"	0.62"	0.99"	7/16"	1/2"	0.09"
3/16"	1/8"	MSE-031-SS	0.74"	0.74"	0.38"	0.55"	0.65"	1.02"	1/2"	1/2"	0.13"
3/16"	1/4"	MSE-032-SS	0.74"	0.92"	0.56"	0.55"	0.65"	1.02"	1/2"	1/2"	0.13"
1/4"	1/8"	MSE-21-SS	0.77"	0.74"	0.38"	0.63"	0.72"	1.08"	9/16"	1/2"	0.19"
1/4"	1/4"	MSE-22-SS	0.77"	0.92"	0.56"	0.63"	0.72"	1.08"	9/16"	1/2"	0.19"
1/4"	3/8"	MSE-23-SS	0.85"	1.03"	0.56"	0.63"	0.72"	1.16"	9/16"	5/8"	0.19"
1/4"	1/2"	MSE-24-SS	0.96"	1.30"	0.75"	0.63"	0.72"	1.27"	9/16"	13/16"	0.19"
3/8"	1/4"	MSE-32-SS	0.91"	1.03"	0.56"	0.69"	0.78"	1.22"	11/16"	5/8"	0.28"
3/8"	3/8"	MSE-33-SS	0.91"	1.03"	0.56"	0.69"	0.78"	1.22"	11/16"	5/8"	0.28"
3/8"	1/2"	MSE-34-SS	0.91"	1.03"	0.56"	0.69"	0.78"	1.22"	11/16"	5/8"	0.28"
3/8"	3/8"	MSE-33-SS	0.91"	1.03"	0.56"	0.69"	0.78"	1.22"	11/16"	5/8"	0.28"
3/8"	1/2"	MSE-34-SS	1.02"	1.30"	0.75"	0.69"	0.78"	1.33"	11/16"	13/16"	0.28"
1/2"	1/4"	MSE-42-SS	1.02"	1.11"	0.56"	0.91"	0.88"	1.43"	7/8"	13/16"	0.28"
1/2"	3/8"	MSE-43-SS	1.02"	1.11"	0.56"	0.91"	0.88"	1.43"	7/8"	13/16"	0.41"
1/2"	1/2"	MSE-44-SS	1.02"	1.30"	0.75"	0.91"	0.88"	1.43"	7/8"	13/16"	0.41"
1/2"	3/4"	MSE-46-SS	1.17"	1.44"	0.75"	0.91"	0.88"	1.58"	7/8"	1 1/16"	0.41"
5/8"	1/2"	MSE-54-SS	1.17"	1.44"	0.75"	0.97"	0.88"	1.58"	1"	1 1/16"	0.50"
5/8"	3/4"	MSE-56-SS	1.17"	1.44"	0.75"	0.97"	0.88"	1.58"	1"	1 1/16"	0.50"
3/4"	1/2"	MSE-64-SS	1.17"	1.44"	0.75"	0.97"	0.88"	1.58"	1 1/8"	1 1/16"	0.50"
3/4"	3/4"	MSE-66-SS	1.17"	1.44"	0.75"	0.97"	0.88"	1.58"	1 1/8"	1 1/16"	0.63"
1"	3/4"	MSE-86-SS	1.45"	1.64"	0.75"	1.23"	1.05"	1.94"	1 1/2"	1 3/4"	0.72"
1"	1"	MSE-88-SS	1.45"	1.83"	0.94"	1.23"	1.05"	1.94"	1 1/2"	1 3/8"	0.88"

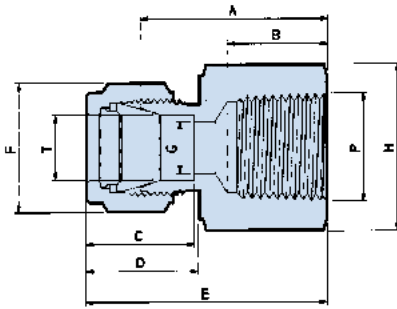
Male stud elbow NPT metric



T tube OD	P NPT pipe	part number	A	Ax	B	C	D	E	F hex	H hex	G min
3mm	1/8"	MSE-M3-1-SS	15.7mm	17.3mm	9.6mm	13.4mm	15.7mm	25.0mm	7/16"	1/2"	2.3mm
3mm	1/4"	MSE-M3-2-SS	18.0mm	23.4mm	14.2mm	13.4mm	15.7mm	22.7mm	7/16"	3/8"	2.3mm
4mm	1/8"	MSE-M4-1-SS	18.8mm	18.8mm	9.6mm	14.2mm	16.5mm	25.8mm	1/2"	1/2"	2.7mm
4mm	1/4"	MSE-M4-2-SS	18.8mm	23.4mm	14.2mm	14.2mm	16.5mm	25.8mm	1/2"	1/2"	2.7mm
6mm	1/8"	MSE-M6-1-SS	19.5mm	18.8mm	9.6mm	16.0mm	18.2mm	27.4mm	9/16"	1/2"	4.8mm
6mm	1/4"	MSE-M6-2-SS	19.5mm	23.4mm	14.2mm	16.0mm	18.2mm	27.4mm	9/16"	1/2"	4.8mm
6mm	3/8"	MSE-M6-3-SS	21.6mm	26.2mm	14.2mm	16.0mm	18.2mm	29.5mm	9/16"	5/8"	4.8mm
6mm	1/2"	MSE-M6-4-SS	24.4mm	33.0mm	19.0mm	16.0mm	18.2mm	32.2mm	9/16"	13/16"	4.8mm
8mm	1/8"	MSE-M8-1-SS	22.3mm	21.6mm	9.6mm	16.7mm	19.0mm	30.2mm	11/16"	5/8"	4.8mm
8mm	1/4"	MSE-M8-2-SS	22.3mm	36.2mm	14.2mm	16.7mm	19.0mm	30.2mm	11/16"	5/8"	6.3mm
8mm	3/8"	MSE-M8-3-SS	22.3mm	26.2mm	14.2mm	16.7mm	19.0mm	30.2mm	11/16"	5/8"	6.3mm
10mm	1/4"	MSE-M10-2-SS	25.9mm	28.2mm	14.2mm	17.5mm	19.8mm	33.8mm	3/4"	13/16"	7.1mm
10mm	3/8"	MSE-M10-3-SS	25.9mm	28.2mm	14.2mm	17.5mm	19.8mm	33.8mm	3/4"	13/16"	7.8mm
10mm	1/2"	MSE-M10-4-SS	25.9mm	33.0mm	19.0mm	17.5mm	19.8mm	33.8mm	3/4"	13/16"	7.8mm
12mm	1/4"	MSE-M12-2-SS	25.9mm	28.2mm	14.2mm	23.1mm	22.3mm	36.3mm	7/8"	13/16"	7.1mm
12mm	3/8"	MSE-M12-3-SS	25.9mm	28.2mm	14.2mm	23.1mm	22.3mm	36.3mm	7/8"	13/16"	9.6mm
12mm	1/2"	MSE-M12-4-SS	25.9mm	33.0mm	19.0mm	23.1mm	22.3mm	36.3mm	7/8"	13/16"	9.6mm
12mm	3/4"	MSE-M12-6-SS	29.7mm	36.3mm	19.0mm	23.1mm	22.3mm	40.1mm	7/8"	1 1/16"	9.6mm
16mm	1/2"	MSE-M16-4-SS	29.7mm	36.6mm	19.0mm	24.6mm	22.3mm	40.1mm	1"	1 1/8"	12.7mm
16mm	3/4"	MSE-M16-6-SS	29.7mm	36.6mm	19.0mm	24.6mm	22.3mm	40.1mm	1"	1 1/8"	12.7mm
20mm	1/2"	MSE-M20-4-SS	34.5mm	41.7mm	19.0mm	24.6mm	22.3mm	44.9mm	1 5/16"	1 3/8"	12.7mm
20mm	3/4"	MSE-M20-6-SS	34.5mm	41.7mm	19.0mm	24.6mm	22.3mm	44.9mm	1 5/16"	1 3/8"	16.7mm
25mm	3/4"	MSE-M25-6-SS	26.8mm	41.7mm	19.0mm	31.2mm	26.6mm	49.2mm	1 1/2"	1 3/8"	18.2mm
25mm	1"	MSE-M25-8-SS	36.8mm	46.5mm	23.8mm	31.2mm	26.6mm	49.2mm	1 1/2"	1 3/8"	22.3mm

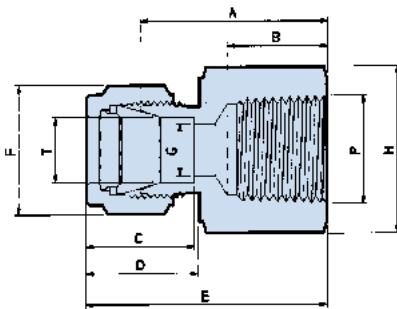
Ringlok® double ferrule OD compression fittings

Female stud coupling NPT



T tube OD	P NPT pipe	part number	A	B	C	D	E	F hex	H hex	G min
1/16"	1/16"	FSC-0101-SS	0.83"	0.39"	0.35"	0.47"	0.99"	5/16"	7/16"	0.05"
1/16"	1/8"	FSC-011-SS	0.84"	0.39"	0.35"	0.47"	1.00"	5/16"	9/16"	0.05"
1/8"	1/8"	FSC-11-SS	0.86"	0.39"	0.52"	0.62"	1.14"	7 1/6"	9/16"	0.09"
1/8"	1/4"	FSC-12-SS	1.09"	0.59"	0.52"	0.62"	1.37"	7/16"	3/4"	0.09"
3/16"	1/8"	FSC-031-SS	0.89"	0.39"	0.55"	0.65"	1.17"	1/2"	9/16"	0.13"
3/16"	1/4"	FSC-032-SS	1.09"	0.59"	0.55"	0.65"	1.37"	1/2"	3/4"	0.13"
1/4"	1/8"	FSC-21-SS	0.92"	0.39"	0.63"	0.72"	1.23"	9/16"	9/16"	0.19"
1/4"	1/4"	FSC-22-SS	1.12"	0.59"	0.63"	0.72"	1.43"	9/16"	3/4"	0.19"
1/4"	3/8"	FSC-23-SS	1.19"	0.59"	0.63"	0.72"	1.50"	9/16"	7/8"	0.19"
1/4"	1/2"	FSC-24-SS	1.38"	0.78"	0.63"	0.72"	1.69"	9/16"	1 1/8"	0.19"
3/8"	1/4"	FSC-32-SS	1.19"	0.59"	0.69"	0.78"	1.50"	11/16"	3/4"	0.28"
3/8"	3/8"	FSC-33-SS	1.25"	0.59"	0.69"	0.78"	1.56"	11/16"	7/8"	0.28"
3/8"	1/2"	FSC-34-SS	1.44"	0.78"	0.69"	0.78"	1.75"	11/16"	1 1/8"	0.28"
1/2"	1/4"	FSC-42-SS	1.19"	0.59"	0.91"	0.88"	16.0"	7/8"	7/8"	0.41"
1/2"	3/8"	FSC-43-SS	1.25"	0.59"	0.91"	0.88"	1.66"	7/8"	7/8"	0.41"
1/2"	1/2"	FSC-44-SS	1.46"	0.78"	0.91"	0.88"	1.87"	7/8"	1 1/8"	0.41"
1/2"	3/4"	FSC-46-SS	1.55"	0.81"	0.91"	0.88"	1.96"	7/8"	15/16"	0.41"
5/8"	3/8"	FSC-53-SS	1.25"	0.59"	0.97"	0.88"	1.66"	1"	15/16"	0.50"
5/8"	1/2"	FSC-54-SS	1.50"	0.78"	0.97"	0.88"	1.91"	1"	1 1/8"	0.50"
3/4"	1/2"	FSC-64-SS	1.46"	0.78"	0.97"	0.88"	1.87"	1 1/8"	1 1/8"	0.63"
3/4"	3/4"	FSC-66-SS	1.55"	0.81"	0.97"	0.88"	1.96"	1 1/8"	15/16"	0.63"
1"	3/4"	FSC-86-SS	1.66"	0.81"	1.23"	1.05"	2.15"	1 1/2"	1 1/2"	0.88"
1"	1"	FSC-88-SS	1.92"	1.00"	1.23"	1.05"	2.41"	1 1/2"	1 11/16"	0.88"

Female stud coupling NPT metric

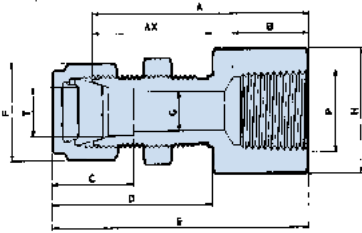


T tube OD	P NPT pipe	part number	A	B	C	D	E	F hex	H hex	G min
3mm	1/8"	FSC-M3-1-SS	21.8mm	9.9mm	13.4mm	15.7mm	28.8mm	7/16"	9/16"	2.3mm
3mm	1/4"	FSC-M3-2-SS	27.7mm	15.0mm	13.4mm	15.7mm	34.7mm	7/16"	3/4"	2.3mm
4mm	1/8"	FSC-M4-1-SS	22.6mm	9.9mm	14.2mm	16.5mm	29.6mm	1/2"	9/16"	2.7mm
4mm	1/4"	FSC-M4-2-SS	28.0mm	15.0mm	14.2mm	16.5mm	35.0mm	1/2"	3/4"	2.7mm
6mm	1/8"	FSC-M6-1-SS	23.4mm	9.9mm	16.0mm	18.2mm	31.3mm	9/16"	9/16"	4.8mm
6mm	1/4"	FSC-M6-2-SS	28.5mm	15.0mm	16.0mm	18.2mm	36.4mm	9/16"	3/4"	7.8mm
6mm	3/8"	FSC-M6-3-SS	30.0mm	15.0mm	16.0mm	18.2mm	37.9mm	9/16"	7/8"	4.8mm
6mm	1/2"	FSC-M6-4-SS	35.6mm	19.8mm	16.0mm	18.2mm	43.5mm	9/16"	1 1/8"	4.8mm
8mm	1/4"	FSC-M8-2-SS	29.3mm	15.0mm	16.7mm	19.0mm	37.2mm	11/16"	3/4"	6.3mm
8mm	3/8"	FSC-M8-3-SS	30.8mm	15.0mm	16.7mm	19.0mm	38.7mm	11/16"	7/8"	6.3mm
10mm	1/4"	FSC-M10-2-SS	30.0mm	15.0mm	17.5mm	19.8mm	37.9mm	3/4"	3/4"	7.8mm
10mm	3/8"	FSC-M10-3-SS	31.7mm	15.0mm	17.5mm	19.8mm	39.6mm	3/4"	7/8"	7.8mm
10mm	1/2"	FSC-M10-4-SS	36.5mm	19.8mm	17.5mm	19.8mm	44.4mm	3/4"	1 1/8"	7.8mm
12mm	1/4"	FSC-M12-2-SS	30.4mm	15.0mm	23.1mm	22.3mm	40.8mm	7/8"	7/8"	9.6mm
12mm	3/8"	FSC-M12-3-SS	31.7mm	15.0mm	23.1mm	22.3mm	42.1mm	7/8"	7/8"	9.6mm
12mm	1/2"	FSC-M12-4-SS	37.3mm	19.8mm	23.1mm	22.3mm	47.7mm	7/8"	1 1/8"	9.6mm
12mm	3/4"	FSC-M12-6-SS	39.7mm	20.5mm	23.1mm	22.3mm	50.1mm	7/8"	15/16"	9.6mm
16mm	3/8"	FSC-M16-3-SS	31.3mm	15.0mm	24.6mm	22.3mm	41.7mm	1"	15/16"	12.7mm
16mm	1/2"	FSC-M16-4-SS	38.0mm	19.8mm	24.6mm	22.3mm	48.4mm	1"	1 1/8"	12.7mm
20mm	1/2"	FSC-M20-4-SS	36.8mm	19.8mm	24.6mm	22.3mm	47.2mm	1 5/16"	1 1/8"	16.7mm
20mm	3/4"	FSC-M20-6-SS	39.1mm	20.5mm	24.6mm	22.3mm	49.5mm	1 5/16"	1 5/16"	16.7mm
25mm	3/4"	FSC-M25-6-SS	42.2mm	20.5mm	31.2mm	26.6mm	54.6mm	1 1/2"	1 1/2"	22.3mm
25mm	1"	FSC-M25-8-SS	48.8mm	25.4mm	31.2mm	26.6mm	51.2mm	1 1/2"	1 11/16"	22.3mm

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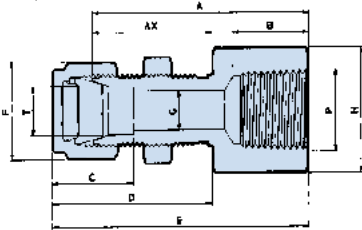
Ringlok® double ferrule OD compression fittings

Female bulkhead coupling NPT



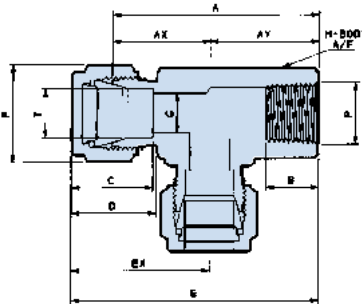
T tube OD	P NPT pipe	part number	A	Ax	B	C	D	E	F hex	H hex	G min	panel hole drill size	panel thickness max
1/8"	1/8"	FBC-11-SS	1.49"	0.97"	0.39"	0.52"	1.24"	1.77"	7/16"	9/16"	0.09"	21/64"	0.44"
1/4"	1/8"	FBC-21-SS	1.55"	1.03"	0.39"	0.63"	1.34"	1.86"	9/16"	11/16"	0.19"	29/64"	0.50"
1/4"	1/4"	FBC-22-SS	1.75"	1.03"	0.59"	0.63"	1.34"	2.06"	9/16"	3/4"	0.19"	29/64"	0.50"
3/8"	1/4"	FBC-32-SS	1.88"	1.16"	0.59"	0.69"	1.47"	2.19"	11/16"	3/4"	0.28"	37/64"	0.50"
1/2"	3/8"	FBC-43-SS	2.03"	1.25"	0.59"	0.91"	1.66"	2.44"	7/8"	15/16"	0.41"	49/64"	0.56"
1/2"	1/2"	FBC-44-SS	2.22"	1.25"	0.78"	0.91"	1.66"	2.63"	7/8"	1 1/8"	0.41"	49/64"	0.56"

Female bulkhead coupling NPT metric



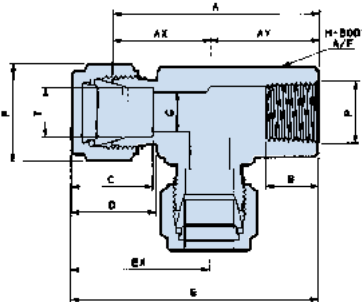
T tube OD	P NPT pipe	part number	A	Ax	B	C	D	E	F hex	H hex	G min	panel hole drill size	panel thickness max
3mm	1/8"	FBC-M3-1-SS	37.7mm	24.6mm	9.9mm	13.4mm	31.6mm	44.7mm	7/16mm	9/16mm	2.3mm	8.3mm	11.1mm
6mm	1/8"	FBC-M6-1-SS	44.3mm	26.1mm	15.0mm	16.0mm	34.0mm	52.2mm	9/16mm	3/4mm	4.8mm	11.5mm	12.7mm
10mm	1/4"	FBC-M10-2-SS	47.6mm	29.4mm	15.0mm	17.5mm	37.3mm	55.5mm	3/4mm	7/8mm	7.8mm	16.3mm	12.7mm
12mm	3/8"	FBC-M12-3-SS	51.4mm	31.7mm	15.0mm	22.3mm	42.1mm	61.8mm	7/8mm	15/16mm	9.6mm	19.4mm	14.2mm
12mm	1/2"	FBC-M12-4-SS	56.3mm	31.7mm	19.8mm	22.3mm	42.1mm	66.7mm	7/8mm	1 1/8mm	9.6mm	19.4mm	14.2mm

Female run tee NPT



T tube OD	P NPT pipe	part number	A	Ax	Ay	B	C	D	E	Ex	F hex	H hex	G min
1/16"	1/16"	FRT-0101-SS	1.25"	0.59"	0.66"	0.39"	0.35"	0.47"	1.41"	0.75"	5/16"	3/8"	0.05"
1/16"	1/8"	FRT-011-SS	1.43"	0.68"	0.75"	0.39"	0.35"	0.47"	1.59"	0.84"	5/16"	1/2"	0.05"
1/8"	1/8"	FRT-11-SS	1.46"	0.71"	0.75"	0.39"	0.52"	0.62"	1.74"	0.99"	7/16"	1/2"	0.09"
1/8"	1/4"	FRT-12-SS	1.67"	0.79"	0.88"	0.59"	0.52"	0.62"	1.95"	1.07"	7/16"	5/8"	0.09"
3/16"	1/8"	FRT-031-SS	1.49"	0.74"	0.75"	0.39"	0.55"	0.65"	1.77"	1.02"	1/2"	1/2"	0.13"
1/4"	1/8"	FRT-21-SS	1.52"	0.77"	0.75"	0.39"	0.63"	0.72"	1.83"	1.08"	9/16"	1/2"	0.19"
1/4"	1/4"	FRT-22-SS	1.73"	0.85"	0.88"	0.59"	0.63"	0.72"	2.04"	1.16"	9/16"	5/8"	0.19"
3/8"	1/4"	FRT-32-SS	1.79"	0.91"	0.88"	0.59"	0.69"	0.78"	2.10"	1.22"	11/16"	5/8"	0.28"
3/8"	3/8"	FRT-33-SS	1.90"	1.02"	0.88"	0.59"	0.69"	0.78"	2.21"	1.33"	11/16"	13/16"	0.28"
1/2"	3/8"	FRT-43-SS	1.90"	1.02"	0.88"	0.59"	0.91"	0.88"	2.31"	1.43"	7/8"	13/16"	0.41"
1/2"	1/2"	FRT-44-SS	2.29"	1.17"	1.12"	0.78"	0.91"	0.88"	2.70"	1.58"	7/8"	1 1/16"	0.41"
5/8"	1/2"	FRT-54-SS	2.29"	1.17"	1.12"	0.78"	0.97"	0.88"	2.70"	1.58"	1"	1 1/16"	0.50"
3/4"	3/4"	FRT-66-SS	2.61"	1.36"	1.25"	0.81"	0.97"	0.88"	3.02"	1.77"	1 1/8"	1 3/8"	0.63"
1"	3/4"	FRT-86-SS	2.70"	1.45"	1.25"	0.81"	1.23"	1.05"	3.19"	1.94"	1 1/2"	1 3/8"	0.88"

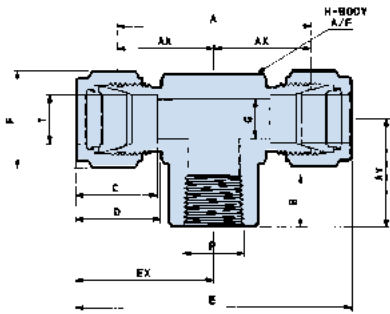
Female run tee NPT metric



T tube OD	P NPT pipe	part number	A	Ax	Ay	B	C	D	E	Ex	F hex	H hex	G min
3mm	1/8"	FRT-M3-1-SS	37.0mm	18.0mm	19.0mm	9.9mm	13.4mm	15.7mm	44.0mm	25.0mm	7/16"	1/2"	2.3mm
3mm	1/4"	FRT-M3-2-SS	42.3mm	20.0mm	22.3mm	15.0mm	13.4mm	15.7mm	49.3mm	27.0mm	7/16"	5/8"	2.3mm
4mm	1/8"	FRT-M4-1-SS	37.8mm	18.8mm	19.0mm	9.9mm	14.2mm	16.5mm	44.8mm	25.8mm	1/2"	1/2"	2.7mm
6mm	1/8"	FRT-M6-1-SS	38.5mm	19.5mm	19.0mm	9.9mm	16.0mm	18.2mm	46.4mm	27.4mm	9/16"	1/2"	4.8mm
6mm	1/4"	FRT-M6-2-SS	44.6mm	21.6mm	22.3mm	15.0mm	16.0mm	18.2mm	51.8mm	29.5mm	9/16"	5/8"	4.8mm
8mm	1/8"	FRT-M8-1-SS	41.3mm	22.3mm	19.0mm	9.9mm	16.7mm	19.0mm	49.2mm	30.2mm	11/16"	5/8"	6.4mm
10mm	1/4"	FRT-M10-2-SS	48.2mm	25.9mm	22.3mm	15.0mm	17.5mm	19.8mm	56.1mm	33.8mm	3/4"	13/16"	7.8mm
10mm	3/8"	FRT-M10-3-SS	48.2mm	25.9mm	22.3mm	15.0mm	17.5mm	19.8mm	56.1mm	33.8mm	3/4"	13/16"	7.8mm
12mm	3/8"	FRT-M12-3-SS	48.2mm	25.9mm	22.3mm	15.0mm	23.1mm	22.3mm	58.6mm	36.3mm	7/8"	13/16"	9.6mm
12mm	1/2"	FRT-M12-4-SS	58.1mm	29.7mm	28.4mm	19.8mm	23.1mm	22.3mm	68.5mm	40.1mm	7/8"	1 1/16"	9.6mm
16mm	1/2"	FRT-M16-4-SS	58.1mm	29.7mm	28.4mm	19.8mm	24.6mm	22.3mm	68.5mm	40.1mm	1"	1 1/16"	12.7mm
20mm	3/4"	FRT-M20-6-SS	66.2mm	34.5mm	31.7mm	20.5mm	24.6mm	22.3mm	76.6mm	44.9mm	1 5/16"	1 3/8"	16.7mm
25mm	3/4"	FRT-M25-6-SS	68.5mm	36.8mm	31.7mm	20.5mm	31.2mm	26.6mm	80.9mm	49.2mm	1 1/2"	1 3/8"	22.3mm

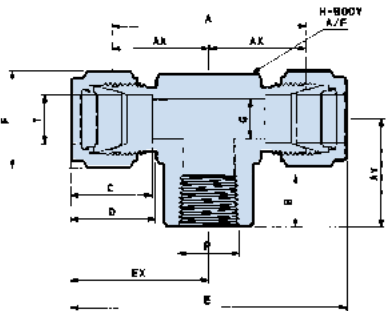
Ringlok® double ferrule OD compression fittings

Female branch tee NPT



T tube OD	P NPT pipe	part number	A	Ax	Ay	B	C	D	E	Ex	F hex	H hex	G min
1/16"	1/16"	FBT-0101-SS	1.18"	0.59"	0.66"	0.39"	0.35"	0.47"	1.50"	0.75"	5/16"	3/8"	0.05"
1/16"	1/8"	FBT-011-SS	1.36"	0.68"	0.75"	0.39"	0.35"	0.47"	1.68"	0.84"	5/16"	1/2"	0.05"
1/8"	1/8"	FBT-11-SS	1.42"	0.71"	0.75"	0.39"	0.52"	0.62"	1.98"	0.99"	7/16"	1/2"	0.09"
1/8"	1/4"	FBT-12-SS	1.58"	0.79"	0.88"	0.59"	0.52"	0.62"	2.14"	1.07"	7/16"	5/8"	0.09"
3/16"	1/8"	FBT-031-SS	1.48"	0.74"	0.75"	0.39"	0.55"	0.65"	2.02"	1.02"	1/2"	1/2"	0.13"
1/4"	1/8"	FBT-21-SS	1.54"	0.77"	0.75"	0.39"	0.63"	0.72"	2.16"	1.08"	9/16"	1/2"	0.19"
1/4"	1/4"	FBT-22-SS	1.70"	0.85"	0.88"	0.59"	0.63"	0.72"	2.32"	1.16"	9/16"	5/8"	0.19"
3/8"	1/4"	FBT-32-SS	1.82"	0.91"	0.88"	0.59"	0.69"	0.78"	2.44"	1.22"	11/16"	5/8"	0.28"
3/8"	3/8"	FBT-33-SS	2.04"	1.02"	0.88"	0.59"	0.69"	0.78"	2.66"	1.33"	11/16"	13/16"	0.28"
1/2"	3/8"	FBT-43-SS	2.04"	1.02"	0.88"	0.59"	0.91"	0.88"	2.86"	1.43"	7/8"	13/16"	0.41"
1/2"	1/2"	FBT-44-SS	2.34"	1.17"	1.12"	0.78"	0.91"	0.88"	3.16"	1.58"	7/8"	1 1/16"	0.41"
5/8"	1/2"	FBT-54-SS	2.34"	1.17"	1.12"	0.78"	0.97"	0.88"	3.16"	1.58"	1"	1 1/16"	0.50"
3/4"	3/4"	FBT-66-SS	2.72"	1.36"	1.25"	0.81"	0.97"	0.88"	3.54"	1.77"	1 1/8"	1 3/8"	0.63"
1"	3/4"	FBT-86-SS	2.90"	1.45"	1.25"	0.81"	1.23"	1.05"	3.88"	1.94"	1 1/2"	1 3/8"	0.88"

Female branch tee NPT metric

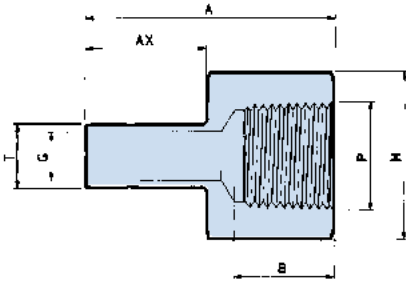


T tube OD	P NPT pipe	part number	A	Ax	Ay	B	C	D	E	Ex	F hex	H hex	G min
3mm	1/8"	FBT-M3-1-SS	36.0mm	18.0mm	19.0mm	9.9mm	13.4mm	15.7mm	50.0mm	25.0mm	7/16"	1/2"	2.3mm
3mm	1/4"	FBT-M3-2-SS	40.0mm	20.0mm	22.3mm	15.0mm	13.4mm	15.7mm	54.0mm	27.0mm	7/16"	5/8"	2.3mm
4mm	1/8"	FBT-M4-1-SS	37.6mm	18.8mm	19.0mm	9.9mm	14.2mm	16.5mm	51.6mm	25.8mm	1/2"	1/2"	2.7mm
6mm	1/8"	FBT-M6-1-SS	39.0mm	19.5mm	19.0mm	9.9mm	16.0mm	18.2mm	54.8mm	27.4mm	9/16"	1/2"	4.8mm
6mm	1/4"	FBT-M6-2-SS	43.2mm	21.6mm	22.3mm	15.0mm	16.0mm	18.2mm	59.0mm	29.5mm	9/16"	5/8"	4.8mm
8mm	1/8"	FBT-M8-1-SS	44.6mm	22.3mm	19.0mm	9.9mm	16.7mm	19.0mm	60.4mm	30.2mm	11/16"	5/8"	6.4mm
10mm	1/4"	FBT-M10-2-SS	51.8mm	25.9mm	22.3mm	15.0mm	17.5mm	19.8mm	67.6mm	33.8mm	3/4"	13/16"	7.8mm
12mm	3/8"	FBT-M12-3-SS	51.8mm	25.9mm	22.3mm	15.0mm	23.1mm	22.3mm	72.6mm	36.3mm	7/8"	13/16"	9.6mm
12mm	1/2"	FBT-M12-4-SS	59.4mm	29.7mm	28.4mm	19.8mm	23.1mm	22.3mm	80.2mm	40.1mm	7/8"	1 1/16"	9.6mm
16mm	1/2"	FBT-M16-4-SS	59.4mm	29.7mm	28.4mm	19.8mm	24.6mm	22.3mm	80.2mm	40.1mm	1"	1 1/6"	12.7mm
20mm	3/4"	FBT-M20-6-SS	69.0mm	34.5mm	31.7mm	20.5mm	24.6mm	22.3mm	89.8mm	44.9mm	1 5/16"	1 3/8"	16.7mm
25mm	3/4"	FBT-M25-6-SS	73.6mm	36.8mm	31.7mm	20.5mm	31.2mm	26.6mm	98.4mm	49.2mm	1 1/2"	1 3/8"	22.3mm

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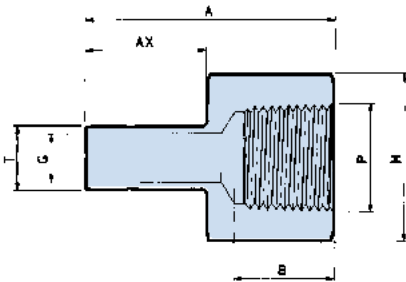
Ringlok® double ferrule OD compression fittings

Female stud standpipe adaptor NPT



T tube OD	P NPT pipe	part number	A	Ax	B	H hex	G min
1/8"	1/8"	FSP-11-SS	1.06"	0.53"	0.39"	9/16"	0.08mm
1/8"	1/4"	FSP-12-SS	1.30"	0.53"	0.59"	3/4"	0.08mm
3/16"	1/8"	FSP-031-SS	1.08"	0.56"	0.39"	9/16"	0.13mm
1/4"	1/8"	FSP-21-SS	1.17"	0.66"	0.39"	9/16"	0.17mm
1/4"	1/4"	FSP-22-SS	1.38"	0.66"	0.59"	3/4"	0.17mm
3/8"	1/4"	FSP-32-SS	1.44"	0.72"	0.59"	3/4"	0.26mm
3/8"	3/8"	FSP-33-SS	1.50"	0.72"	0.59"	7/8"	0.26mm
1/2"	3/8"	FSP-43-SS	1.72"	0.94"	0.59"	7/8"	0.36mm
1/2"	1/2"	FSP-44-SS	1.90"	0.94"	0.78"	1 1/8"	0.36mm
5/8"	1/2"	FSP-54-SS	1.97"	1.00"	0.78"	1 1/8"	0.48mm
3/4"	1/2"	FSP-64-SS	1.97"	1.00"	0.78"	1 1/8"	0.57mm
1"	3/4"	FSP-86-SS	2.26"	1.27"	0.81"	1 5/16"	0.77mm

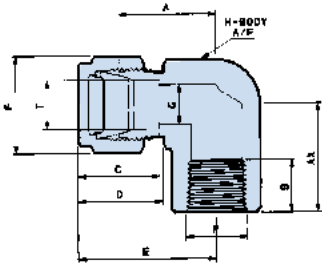
Female stud standpipe adaptor NPT metric



T tube OD	P NPT pipe	part number	A	Ax	B	H hex	G min
3mm	1/8"	FSP-M3-1-SS	27.0mm	13.4mm	9.9mm	9/16"	1.8mm
3mm	1/4"	FSP-M3-2-SS	32.8mm	13.4mm	15.0mm	3/4"	1.8mm
4mm	1/8"	FSP-M4-1-SS	27.6mm	14.2mm	9.9mm	9/16"	2.3mm
6mm	1/8"	FSP-M6-1-SS	29.7mm	16.7mm	9.9mm	9/16"	4.0mm
6mm	1/4"	FSP-M6-2-SS	35.2mm	16.7mm	15.0mm	3/4"	4.0mm
8mm	1/4"	FSP-M8-2-SS	30.5mm	17.5mm	15.0mm	3/4"	5.5mm
10mm	1/4"	FSP-M10-2-SS	36.5mm	18.2mm	15.0mm	3/4"	7.1mm
10mm	3/8"	FSP-M10-3-SS	38.1mm	18.2mm	15.0mm	7/8"	7.1mm
12mm	3/8"	FSP-M12-3-SS	43.6mm	23.8mm	15.0mm	7/8"	8.3mm
12mm	1/2"	FSP-M12-4-SS	48.4mm	23.8mm	19.8mm	1 1/8"	8.3mm
16mm	1/2"	FSP-M16-4-SS	50.0mm	25.4mm	19.8mm	1 1/8"	12.2mm
20mm	1/2"	FSP-M20-4-SS	50.0mm	25.4mm	19.8mm	1 1/8"	15.4mm
25mm	3/4"	FSP-M25-6-SS	57.4mm	32.0mm	20.5mm	1 5/16"	19.0mm

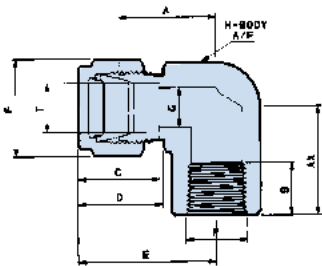
Ringlok® double ferrule OD compression fittings

Female stud elbow NPT



T tube OD	P NPT pipe	part number	A	Ax	B	C	D	E	F hex	H hex	G min
1/16"	1/16"	FSE-0101-SS	0.59"	0.66"	0.39"	0.35"	0.47"	0.75"	5/16"	3/8"	0.05"
1/16"	1/8"	FSE-011-SS	0.68"	0.75"	0.39"	0.35"	0.47"	0.84"	5/16"	1/2"	0.05"
1/8"	1/8"	FSE-11-SS	0.71"	0.75"	0.39"	0.52"	0.62"	0.99"	7/16"	1/2"	0.09"
1/8"	1/4"	FSE-12-SS	0.79"	0.88"	0.59"	0.82"	0.62"	1.07"	7/16"	5/8"	0.09"
3/16"	1/8"	FSE-031-SS	0.74"	0.75"	0.39"	0.55"	0.65"	1.02"	1/2"	1/2"	0.13"
3/16"	1/4"	FSE-031-SS	0.82"	0.88"	0.59"	0.55"	0.65"	1.10"	1/2"	5/8"	0.13"
1/4"	1/8"	FSE-21-SS	0.77"	0.75"	0.39"	0.63"	0.72"	1.08"	9/16"	1/2"	0.19"
1/4"	1/4"	FSE-22-SS	0.85"	0.88"	0.59"	0.63"	0.72"	1.16"	9/16"	5/8"	0.19"
1/4"	3/8"	FSE-23-SS	0.96"	0.88"	0.59"	0.63"	0.72"	1.27"	9/16"	13/16"	0.19"
1/4"	1/2"	FSE-24-SS	1.11"	1.12"	0.78"	0.63"	0.72"	1.42"	9/16"	1 1/16"	0.19"
3/8"	1/4"	FSE-32-SS	0.91"	0.88"	0.59"	0.69"	0.78"	1.22"	11/16"	5/8"	0.28"
3/8"	3/8"	FSE-33-SS	1.02"	0.88"	0.59"	0.69"	0.78"	1.33"	11/16"	13/16"	0.28"
3/8"	1/2"	FSE-34-SS	1.17"	1.12"	0.78"	0.69"	0.78"	1.48"	11/16"	1 1/6"	0.28"
1/2"	1/4"	FSE-42-SS	1.02"	0.88"	0.59"	0.91"	0.88"	1.43"	7/8"	13/16"	0.41"
1/2"	3/8"	FSE-43-SS	1.02"	0.88"	0.59"	0.91"	0.88"	1.43"	7/8"	13/16"	0.41"
1/2"	1/2"	FSE-44-SS	1.17"	1.12"	0.78"	0.91"	0.88"	1.58"	7/8"	1 1/16"	0.41"
1/2"	3/4"	FSE-46-SS	1.36"	1.25"	0.81"	0.91"	0.88"	1.77"	7/8"	1 3/8"	0.41"
5/8"	3/8"	FSE-53-SS	1.17"	0.93"	0.59"	0.97"	0.88"	1.58"	1"	1 1/6"	0.50"
5/8"	1/2"	FSE-54-SS	1.17"	1.12"	0.78"	0.97"	0.88"	1.58"	1"	1 1/6"	0.50"
3/4"	1/2"	FSE-64-SS	1.17"	1.12"	0.78"	0.97"	0.88"	1.58"	1 1/8"	1 1/6"	0.63"
3/4"	3/4"	FSE-66-SS	1.36"	1.25"	0.81"	0.97"	0.88"	1.77"	1 1/8"	1 3/8"	0.63"
1"	3/4"	FSE-86-SS	1.45"	1.25"	0.81"	1.23"	1.05"	1.94"	1 1/2"	1 3/8"	0.88"

Female stud elbow NPT metric

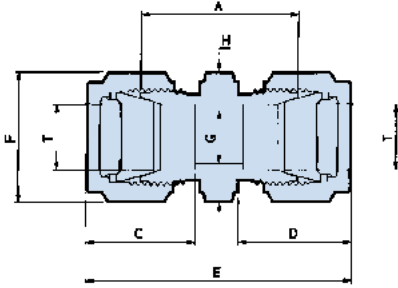


T tube OD	P NPT pipe	part number	A	Ax	B	C	D	E	F hex	H hex	G min
3mm	1/8"	FSE-M3-1-SS	18.0mm	19.0mm	9.9mm	13.4mm	15.7mm	25.0mm	7/16"	1/2"	2.3mm
3mm	1/4"	FSE-M3-2-SS	20.0mm	22.3mm	15.0mm	13.4mm	15.7mm	27.0mm	7/16"	5/8"	2.3mm
4mm	1/8"	FSE-M4-1-SS	18.8mm	19.0mm	9.9mm	14.2mm	16.5mm	25.8mm	1/2"	1/2"	2.7mm
4mm	1/4"	FSE-M4-2-SS	20.8mm	22.3mm	15.0mm	14.2mm	16.5mm	27.8mm	1/2"	5/8"	2.7mm
6mm	1/8"	FSE-M6-1-SS	19.5mm	19.0mm	9.9mm	16.0mm	18.2mm	27.4mm	9/16"	1/2"	4.8mm
6mm	1/4"	FSE-M6-2-SS	21.6mm	22.3mm	15.0mm	16.0mm	18.2mm	29.5mm	9/16"	5/8"	4.8mm
6mm	3/8"	FSE-M6-3-SS	24.4mm	22.3mm	15.0mm	16.0mm	18.2mm	32.2mm	9/16"	13/16"	4.8mm
6mm	1/2"	FSE-M6-4-SS	28.2mm	28.4mm	19.8mm	16.0mm	18.2mm	36.1mm	9/16"	1 1/6"	4.8mm
8mm	1/8"	FSE-M8-1-SS	22.3mm	19.0mm	9.9mm	16.7mm	19.0mm	30.2mm	11/16"	5/8"	6.4mm
8mm	1/4"	FSE-M8-2-SS	22.3mm	22.3mm	15.0mm	16.7mm	19.0mm	30.2mm	11/16"	5/8"	6.4mm
10mm	1/4"	FSE-M10-2-SS	25.9mm	22.3mm	15.0mm	17.5mm	19.8mm	33.8mm	3/4"	13/16"	7.8mm
10mm	3/8"	FSE-M10-3-SS	25.9mm	22.3mm	15.0mm	17.5mm	19.8mm	33.8mm	3/4"	13/16"	7.8mm
10mm	1/2"	FSE-M10-4-SS	29.7mm	28.4mm	19.8mm	17.5mm	19.8mm	37.6mm	3/4"	1 1/6"	7.8mm
12mm	1/4"	FSE-M12-2-SS	25.9mm	22.3mm	15.0mm	23.1mm	22.3mm	36.3mm	7/8"	13/16"	9.6mm
12mm	3/8"	FSE-M12-3-SS	25.9mm	22.3mm	15.0mm	23.1mm	22.3mm	36.3mm	7/8"	13/16"	9.6mm
12mm	1/2"	FSE-M12-4-SS	29.7mm	28.4mm	19.8mm	23.1mm	22.3mm	40.1mm	7/8"	1 1/6"	9.6mm
12mm	3/4"	FSE-M12-6-SS	34.5mm	31.7mm	20.5mm	23.1mm	22.3mm	44.9mm	7/8"	1 3/8"	9.6mm
16mm	3/8"	FSE-M16-3-SS	29.7mm	23.6mm	15.0mm	24.6mm	22.3mm	40.1mm	1"	1 1/6"	12.7mm
16mm	1/2"	FSE-M16-4-SS	29.7mm	28.4mm	19.8mm	24.6mm	22.3mm	40.1mm	1"	1 1/6"	12.7mm
20mm	1/2"	FSE-M20-4-SS	34.5mm	31.0mm	19.8mm	24.6mm	22.3mm	44.9mm	1 5/16"	1 3/8"	16.7mm
20mm	3/4"	FSE-M20-6-SS	34.5mm	31.7mm	20.5mm	24.6mm	22.3mm	44.9mm	1 5/16"	1 3/8"	16.7mm
25mm	3/4"	FSE-M25-6-SS	36.8mm	31.7mm	20.5mm	31.2mm	26.6mm	49.2mm	1 1/2"	1 3/8"	22.3mm

1

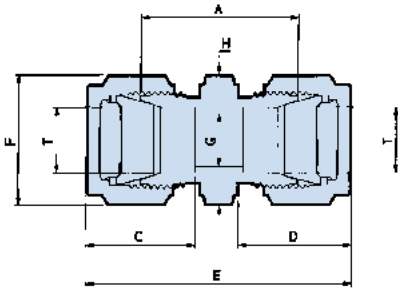
Ringlok® double ferrule OD compression fittings

Straight coupling



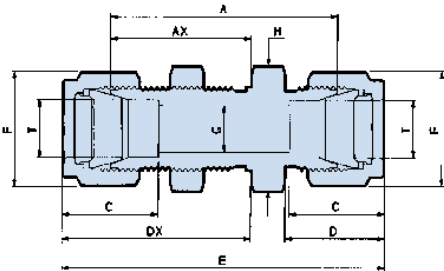
T tube OD	part number	A	C	D	E	F hex	H hex	G min
1/16"	SC-01-SS	0.81"	0.35"	0.47"	1.13"	5/16"	5/16"	0.05"
1/8"	SC-1-SS	0.88"	0.52"	0.62"	1.43"	7/16"	7/16"	0.09"
3/16"	SC-03-SS	0.94"	0.55"	0.65"	1.49"	1/2"	1/2"	0.13"
1/4"	SC-2-SS	1.03"	0.63"	0.72"	1.66"	9/16"	9/16"	0.19"
3/8"	SC-3-SS	1.19"	0.69"	0.78"	1.81"	11/16"	11/16"	0.28"
1/2"	SC-4-SS	1.22"	0.91"	0.88"	2.04"	7/8"	7/8"	0.41"
5/8"	SC-5-SS	1.25"	0.97"	0.88"	2.07"	1"	15/16"	0.50"
3/4"	SC-6-SS	1.31"	0.97"	0.88"	2.13"	11/8"	11/8"	0.63"
1"	SC-8-SS	1.59"	1.23"	1.05"	2.57"	11/2"	11/2"	0.88"

Straight coupling metric



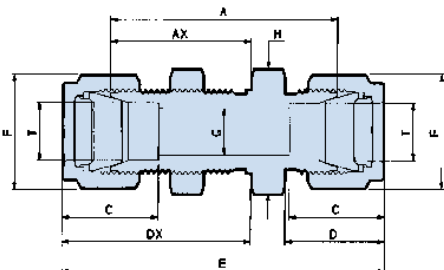
T tube OD	part number	A	C	D	E	F hex	H hex	G min
3mm	SC-M3-SS	22.3mm	13.4mm	15.7mm	36.3mm	7/16"	7/16"	2.3mm
4mm	SC-M4-SS	23.8mm	14.2mm	16.5mm	37.8mm	1/2"	7/16"	2.7mm
6mm	SC-M6-SS	26.1mm	16mm	18.2mm	41.9mm	9/16"	9/16"	4.8mm
8mm	SC-M8-SS	27.6mm	16.7mm	19mm	43.4mm	11/16"	9/16"	6.3mm
10mm	SC-M10-SS	30.2mm	17.5mm	19.8mm	46mm	3/4"	11/16"	7.8mm
12mm	SC-M12-SS	31mm	23.1mm	22.3mm	51.8mm	7/8"	7/8"	9.6mm
16mm	SC-M16-SS	31.7mm	24.6mm	22.3mm	52.5mm	1"	15/16"	12.7mm
20mm	SC-M20-SS	33.2mm	24.6mm	22.3mm	54mm	15/16"	11/8"	16.7mm
25mm	SC-M25-SS	40.3mm	31.2mm	26.6mm	65.1mm	11/2"	11/2"	22.3mm

Bulkhead coupling



T tube OD	part number	A	Ax	C	D	Dx	E	F hex	H hex	G min	panel hole drill size	panel thickness max
1/16"	BC-01-SS	0.97"	0.53"	0.35"	0.47"	0.69"	1.29"	5/16"	5/16"	0.05"	13/64"	0.13"
1/8"	BC-1-SS	1.5"	0.97"	0.52"	0.62"	1.24"	2.06"	7/16"	1/2"	0.09"	21/64"	0.44"
3/16"	BC-03-SS	1.59"	1"	0.55"	0.65"	1.27"	2.15"	1/2"	9/16"	0.13"	25/64"	0.5"
1/4"	BC-2-SS	1.69"	1.03"	0.63"	0.72"	1.34"	2.31"	9/16"	11/16"	0.19"	29/64"	0.5"
3/8"	BC-3-SS	1.88"	1.16"	0.69"	0.78"	1.47"	2.5"	11/16"	3/4"	0.28"	37/64"	0.5"
1/2"	BC-4-SS	2.03"	1.25"	0.91"	0.88"	1.66"	2.85"	7/8"	15/16"	0.41"	49/64"	0.56"
5/8"	BC-5-SS	2.13"	1.28"	0.97"	0.88"	1.69"	2.95"	1"	1 1/8"	0.5"	57/64"	0.56"
3/4"	BC-6-SS	2.31"	1.47"	0.97"	0.88"	1.88"	3.13"	1 1/8"	1 5/16"	0.63"	1 1/64"	0.69"
1"	BC-8-SS	2.81"	1.78"	1.23"	1.05"	2.27"	3.79"	1 1/2"	1 1/2"	0.88"	1 21/64"	0.88"

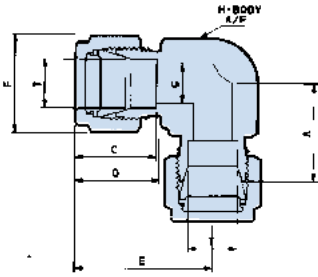
Bulkhead coupling metric



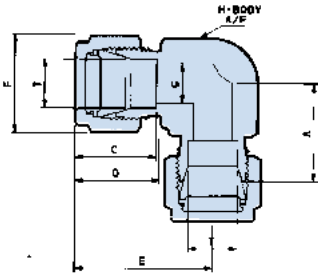
T tube OD	part number	A	Ax	C	D	Dx	E	F hex	H hex	G min	panel hole drill size	panel thickness max
3mm	BC-M3-SS	38.8mm	24.6mm	13.4mm	15.7mm	31.6mm	52.8mm	7/16"	9/16"	2.3mm	8.3mm	11.1mm
4mm	BC-M4-SS	40.5mm	25.4mm	14.2mm	16.5mm	32.4mm	54.5mm	1/2"	9/16"	2.7mm	9.9mm	12.7mm
6mm	BC-M6-SS	42.8mm	26.1mm	16mm	18.2mm	34mm	58.6mm	9/16"	11/16"	4.8mm	11.5mm	12.7mm
8mm	BC-M8-SS	46.1mm	28.7mm	16.7mm	19mm	36.6mm	61.9mm	11/16"	3/4"	6.3mm	13.1mm	14.2mm
10mm	BC-M10-SS	48.4mm	29.4mm	17.5mm	19.8mm	37.3mm	64.2mm	3/4"	7/8"	7.8mm	16.3mm	12.7mm
12mm	BC-M12-SS	51.5mm	31.7mm	23.1mm	22.3mm	42.1mm	72.3mm	7/8"	1 5/16"	9.6mm	19.4mm	14.2mm
16mm	BC-M16-SS	53.9mm	32.5mm	24.6mm	22.3mm	42.9mm	74.7mm	1"	1 1/8"	12.7mm	22.6mm	14.2mm
20mm	BC-M20-SS	58.7mm	37.3mm	24.6mm	22.3mm	47.7mm	79.5mm	1 5/16"	1 5/16"	16.7mm	27.4mm	17.5mm
25mm	BC-M25-SS	71.3mm	45.2mm	31.2mm	26.6mm	57.5mm	96.1mm	1 1/2"	1 1/2"	22.3mm	33.7mm	22.3mm

Ringlok® double ferrule OD compression fittings

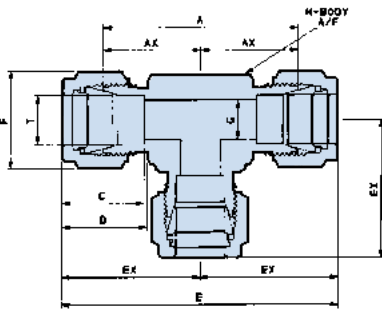
Equal elbow



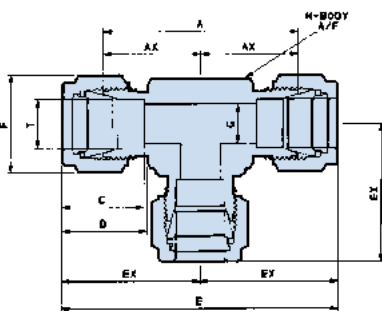
Equal elbow metric



Equal tee



Equal tee metric



T tube OD	part number	A	C	D	E	F hex	H hex	G min
1/16"	EE-01-SS	0.59"	0.35"	0.47"	0.75"	5/16"	3/8"	0.05"
1/8"	EE-1-SS	0.62"	0.52"	0.62"	0.9"	7/16"	3/8"	0.09"
3/16"	EE-03-SS	0.74"	0.55"	0.65"	1.02"	1/2"	1/2"	0.13"
1/4"	EE-2-SS	0.77"	0.63"	0.72"	1.08"	9/16"	1/2"	0.19"
3/8"	EE-3-SS	0.91"	0.69"	0.78"	1.22"	11/16"	5/8"	0.28"
1/2"	EE-4-SS	1.02"	0.91"	0.88"	1.43"	7/8"	13/16"	0.41"
5/8"	EE-5-SS	1.17"	0.97"	0.88"	1.58"	1"	1 1/16"	0.5"
3/4"	EE-6-SS	1.17"	0.97"	0.88"	1.58"	1 1/8"	1 1/16"	0.63"
1"	EE-8-SS	1.45"	1.23"	1.05"	1.94"	1 1/2"	1 3/8"	0.88"

T tube OD	part number	A	C	D	E	F hex	H hex	G min
3mm	EE-M3-SS	15.7mm	13.4mm	15.7mm	22.7mm	7/16"	3/8"	2.3mm
4mm	EE-M4-SS	18.8mm	14.2mm	16.5mm	25.8mm	1/2"	1/2"	2.7mm
6mm	EE-M6-SS	19.5mm	16mm	18.2mm	27.4mm	9/16"	1/2"	4.8mm
8mm	EE-M8-SS	22.3mm	16.7mm	19mm	30.2mm	11/16"	5/8"	6.3mm
10mm	EE-M10-SS	25.9mm	17.5mm	19.8mm	33.8mm	3/4"	13/16"	7.8mm
12mm	EE-M12-SS	25.9mm	23.1mm	22.3mm	36.3mm	7/8"	13/16"	9.6mm
16mm	EE-M16-SS	29.7mm	24.6mm	22.3mm	40.1mm	1"	1 1/16"	12.7mm
20mm	EE-M20-SS	34.5mm	24.6mm	22.3mm	44.9mm	1 5/16"	1 3/8"	16.7mm
25mm	EE-M25-SS	36.8mm	31.2mm	26.6mm	49.2mm	1 1/2"	1 3/8"	22.3mm

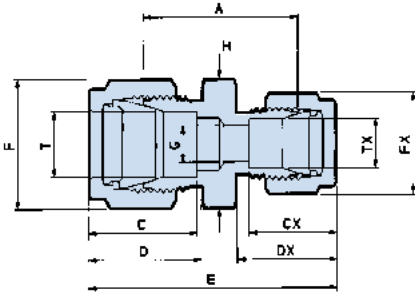
T tube OD	part number	A	Ax	C	D	E	Ex	F hex	H hex	G min
1/16"	ET-01-SS	1.18"	0.59"	0.35"	0.47"	1.5"	0.75"	5/16"	3/8"	0.05"
1/8"	ET-1-SS	1.24"	0.62"	0.52"	0.62"	1.8"	0.9"	7/16"	3/8"	0.09"
3/16"	ET-03-SS	1.48"	0.74"	0.55"	0.65"	2.04"	1.02"	1/2"	1/2"	0.13"
1/4"	ET-2-SS	1.54"	0.77"	0.63"	0.72"	2.16"	1.08"	9/16"	1/2"	0.19"
3/8"	ET-3-SS	1.82"	0.91"	0.69"	0.78"	2.44"	1.22"	11/16"	5/8"	0.28"
1/2"	ET-4-SS	2.04"	1.02"	0.91"	0.88"	2.86"	1.43"	7/8"	13/16"	0.41"
5/8"	ET-5-SS	2.34"	1.17"	0.97"	0.88"	3.16"	1.58"	1"	1 1/16"	0.5"
3/4"	ET-6-SS	2.34"	1.17"	0.97"	0.88"	3.16"	1.58"	1 1/8"	1 1/16"	0.63"
1"	ET-8-SS	2.9"	1.45"	1.23"	1.05"	3.88"	1.94"	1 1/2"	1 3/8"	0.88"

T tube OD	part number	A	Ax	C	D	E	Ex	F hex	H hex	G min
3mm	ET-M3-SS	31.4mm	15.7mm	13.4mm	15.7mm	45.4mm	22.7mm	7/16"	3/8"	2.3mm
4mm	ET-M4-SS	37.6mm	18.8mm	14.2mm	16.5mm	51.6mm	25.8mm	1/2"	1/2"	2.7mm
6mm	ET-M6-SS	39mm	19.5mm	16mm	18.2mm	54.8mm	27.4mm	9/16"	1/2"	4.8mm
8mm	ET-M8-SS	44.6mm	22.3mm	16.7mm	19mm	60.4mm	30.2mm	11/16"	5/8"	6.3mm
10mm	ET-M10-SS	51.8mm	25.9mm	17.5mm	19.8mm	67.6mm	33.8mm	3/4"	13/16"	7.8mm
12mm	ET-M12-SS	51.8mm	25.9mm	23.1mm	22.3mm	72.6mm	36.3mm	7/8"	13/16"	9.6mm
16mm	ET-M16-SS	59.4mm	29.7mm	24.6mm	22.3mm	80.2mm	40.1mm	1"	1 1/16"	12.7mm
20mm	ET-M20-SS	69mm	34.5mm	24.6mm	22.3mm	89.8mm	44.9mm	1 5/16"	1 3/8"	16.7mm
25mm	ET-M25-SS	73.6mm	36.8mm	31.2mm	26.6mm	98.4mm	49.2mm	1 1/2"	1 3/8"	22.3mm

1

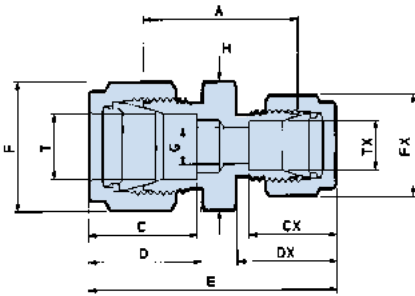
Ringlok® double ferrule OD compression fittings

Reducing coupling



T tube OD	Tx tube OD	part number	A	C	Cx	D	Dx	E	F hex	Fx hex	H hex	G min
1/8"	1/16"	RC-101-SS	0.84"	0.52"	0.35"	0.62"	0.47"	1.27"	7/16"	5/16"	7/16"	0.05"
3/16"	1/8"	RC-031-SS	0.91"	0.55"	0.52"	0.65"	0.62"	1.46"	1/2"	7/16"	7/16"	0.09"
1/4"	1/16"	RC-201-SS	0.94"	0.63"	0.35"	0.72"	0.47"	1.41"	9/16"	5/16"	9/16"	0.05"
1/4"	1/8"	RC-21-SS	0.97"	0.63"	0.52"	0.72"	0.62"	1.56"	9/16"	7/16"	9/16"	0.09"
1/4"	3/16"	RC-203	1.00"	0.63"	0.55"	0.72"	0.65"	1.59"	9/16"	1/2"	9/16"	0.13"
3/8"	1/8"	RC-31-SS	1.06"	0.69"	0.52"	0.78"	0.62"	1.65"	11/16"	7/16"	11/16"	0.09"
3/8"	1/4"	RC-32-SS	1.13"	0.69"	0.63"	0.78"	0.72"	1.76"	11/16"	9/16"	11/16"	0.19"
1/2"	1/4"	RC-42-SS	1.16"	0.91"	0.63"	0.88"	0.72"	1.89"	7/8"	9/16"	7/8"	0.19"
1/2"	5/16"	RC-4-M8-SS	1.19"	0.91"	0.66"	0.88"	0.75"	1.92"	7/8"	11/16"	7/8"	0.25"
1/2"	3/8"	RC-43-SS	1.22"	0.91"	0.69"	0.88"	0.78"	1.94"	7/8"	11/16"	7/8"	0.28"
5/8"	3/8"	RC-53-SS	1.25"	0.97"	0.69"	0.88"	0.78"	1.97"	1"	11/16"	15/16"	0.28"
5/8"	1/2"	RC-54-SS	1.25"	0.97"	0.91"	0.88"	0.88"	2.07"	1"	7/8"	15/16"	0.41"
3/4"	1/2"	RC-64-SS	1.31"	0.97"	0.91"	0.88"	0.88"	2.13"	1 1/8"	7/8"	1 1/8"	0.41"
3/4"	5/8"	RC-65-SS	1.31"	0.97"	0.97"	0.88"	0.88"	2.13"	1 1/8"	1"	1 1/8"	0.50"
1"	1/2"	RC-84-SS	1.53"	1.23"	0.91"	1.05"	0.88"	2.43"	1 1/2"	7/8"	1 1/2"	0.41"
1"	5/8"	RC-85-SS	1.56"	1.23"	0.97"	1.05"	0.88"	2.46"	1 1/2"	1"	1 1/2"	0.50"
1"	3/4"	RC-86-SS	1.53"	1.23"	0.97"	1.05"	0.88"	2.43"	1 1/2"	1 1/8"	1 1/2"	0.63"

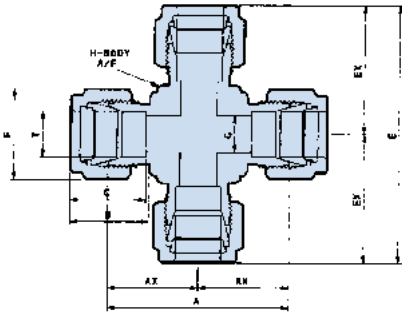
Reducing coupling metric



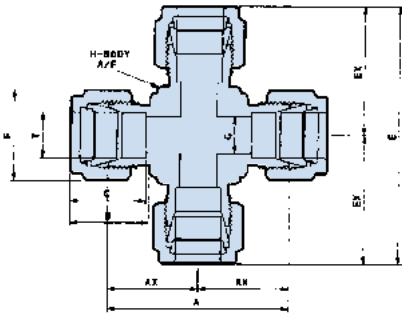
T tube OD	Tx tube OD	part number	A	C	Cx	D	Dx	E	F hex	Fx hex	H hex	G min
4mm	3mm	RC-M4-M3-SS	23.1mm	14.2mm	13.4mm	16.5mm	15.7mm	37.1mm	1/2"	7/16"	7/16"	2.3mm
6mm	3mm	RC-M6-M4-SS	23.8mm	16.0mm	13.4mm	18.2mm	15.7mm	38.7mm	9/16"	7/16"	1/2"	2.3mm
6mm	3mm	RC-M6-M4-SS	24.6mm	16.0mm	14.2mm	18.2mm	16.5mm	39.5mm	9/16"	1/2"	9/16"	2.7mm
8mm	6mm	RC-M8-M6-SS	26.9mm	16.7mm	16.0mm	19.0mm	18.2mm	42.7mm	11/16"	9/16"	9/16"	4.8mm
10mm	6mm	RC-M10-M6-SS	28.7mm	17.5mm	16.0mm	19.8mm	18.2mm	44.5mm	3/4"	9/16"	11/16"	4.8mm
10mm	8mm	RC-M10-M8-SS	29.4mm	17.5mm	16.7mm	19.8mm	19.0mm	45.2mm	3/4"	11/16"	11/16"	6.3mm
12mm	6mm	RC-M12-M6-SS	29.4mm	23.1mm	16.0mm	22.3mm	18.2mm	47.7mm	7/8"	9/16"	7/8"	4.8mm
12mm	8mm	RC-M12-M8-SS	30.2mm	23.1mm	16.7mm	22.3mm	19.3mm	48.5mm	7/8"	11/16"	7/8"	6.3mm
12mm	10mm	RC-M12-M10-SS	31.0mm	23.1mm	17.5mm	22.3mm	19.8mm	49.3mm	7/8"	3/4"	7/8"	7.8mm
10mm	10mm	RC-M16-M10-SS	31.7mm	24.6mm	18.5mm	22.3mm	19.8mm	50.0mm	1"	3/4"	15/16"	7.8mm
16mm	12mm	RC-M16-M12-SS	31.7mm	24.6mm	23.1mm	22.3mm	22.3mm	52.5mm	1"	7/8"	15/16"	9.6mm
20mm	12mm	RC-M20-M12-SS	33.2mm	24.6mm	23.1mm	22.3mm	22.3mm	54.0mm	1 5/16"	7/8"	1 1/8"	9.6mm
20mm	16mm	RC-M20-M16-SS	33.2mm	24.6mm	24.6mm	22.3mm	22.3mm	54.0mm	1 5/16"	1"	1 1/8"	12.7mm
25mm	16mm	RC-M25-M16-SS	38.1mm	31.2mm	24.6mm	26.6mm	22.3mm	60.9mm	1 1/2"	1"	1 1/2"	12.7mm
35mm	10mm	RC-M25-M20-SS	38.1mm	31.2mm	24.6mm	26.6mm	22.3mm	60.9mm	1 1/2"	1 5/16"	1 1/2"	16.7mm

Ringlok® double ferrule OD compression fittings

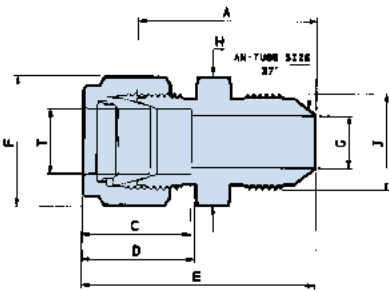
Equal cross



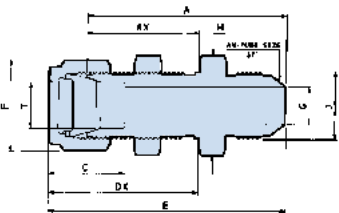
Equal cross metric



Ringlok to AN straight connector



Ringlok bulkhead to AN connector



T tube OD	part number	A	Ax	C	D	E	Ex	F hex	H hex	G min
1/8"	EC-1-SS	1.42"	0.71"	0.52"	0.62"	1.98"	0.99"	7/16"	1/2"	0.09"
3/16"	EC-03-SS	1.48"	0.74"	0.55"	0.65"	2.04"	1.02"	1/2"	1/2"	0.13"
1/4"	EC-2-SS	1.54"	0.77"	0.63"	0.72"	2.16"	1.08"	9/16"	1/2"	0.19"
3/8"	EC-3-SS	2.04"	1.02"	0.69"	0.78"	2.66"	1.33"	11/16"	13/16"	0.28"
1/2"	EC-4-SS	2.04"	1.02"	0.91"	0.88"	2.86"	1.43"	7/8"	13/16"	0.41"
5/8"	EC-5-SS	2.34"	1.17"	0.97"	0.88"	3.16"	1.58"	1"	1 1/16"	0.5"
3/4"	EC-6-SS	2.34"	1.17"	0.97"	0.88"	3.16"	1.58"	1 1/8"	1 1/16"	0.63"
1"	EC-8-SS	2.9"	1.45"	1.23"	1.05"	3.88"	1.94"	1 1/2"	1 3/8"	0.88"

T tube OD	part number	A	Ax	C	D	E	Ex	F hex	H hex	G min
3mm	EC-M3-SS	36mm	18mm	13.4mm	15.7mm	50mm	25mm	7/16"	1/2"	2.3"
4mm	EC-M4-SS	37.6mm	18.8mm	14.2mm	16.5mm	51.6mm	25.8mm	1/2"	1/2"	2.7"
6mm	EC-M6-SS	39mm	19.5mm	16mm	18.2mm	54.8mm	27.4mm	9/16"	1/2"	4.8"
8mm	EC-M8-SS	50.2mm	25.1mm	16.7mm	19mm	66mm	33mm	11/16"	13/16"	6.3"
10mm	EC-M10-SS	51.8mm	25.9mm	17.5mm	19.8mm	67.6mm	33.8mm	3/4"	13/16"	7.8"
12mm	EC-M12-SS	51.8mm	25.9mm	23.1mm	22.3mm	72.6mm	36.3mm	7/8"	13/16"	9.6"
16mm	EC-M16-SS	59.4mm	29.7mm	24.6mm	22.3mm	80.2mm	40.1mm	1"	1 1/16"	12.7"
20mm	EC-M20-SS	69mm	34.5mm	24.6mm	22.3mm	89.8mm	44.9mm	1 5/16"	1 3/8"	16.7"
25mm	EC-M25-SS	73.6mm	36.8mm	31.2mm	26.6mm	98.4mm	49.2mm	1 1/2"	1 3/8"	22.3"

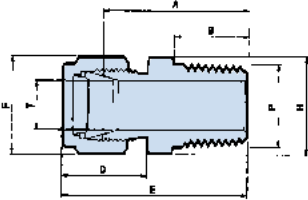
T tube OD	AN tube flare size	Part Number	A	C	D	E	F hex	H hex	G min	J
1/16"	1/8"	SAN-011-SS	0.95"	0.35"	0.47"	1.11"	5/16"	7/16"	0.05"	5/16-24-UNJF
1/8"	1/8"	SAN-11-SS	0.98"	0.52"	0.62"	1.26"	7/16"	7/16"	0.06"	5/16-24-UNJF
1/8"	1/4"	SAN-12-SS	1.11"	0.52"	0.62"	1.39"	7/16"	9/16"	0.09"	7/16-20 UNJF
1/4"	1/4"	SAN-22-SS	1.19"	0.63"	0.72"	1.50"	9/16"	9/16"	0.09"	7/16-20 UNJF
3/8"	1/4"	SAN-32-SS	1.27"	0.69"	0.78"	1.58"	11/16"	11/16"	0.17"	7/16-20 UNJF
3/8"	3/8"	SAN-33-SS	1.27"	0.69"	0.78"	1.58"	11/16"	11/16"	0.28"	9/16-18 UNJF
1/2"	1/2"	SAN-44-SS	1.41"	0.91"	0.88"	1.82"	7/8"	7/8"	0.39"	3/4-16-UNJF
3/4"	3/4"	SAN-66-SS	1.71"	0.97"	0.88"	2.12"	1 1/8"	1 1/8"	0.61"	1 1/16-12 UNJ
1"	1"	SAN-88-SS	1.94"	1.23"	1.05"	2.43"	1 1/2"	1 1/2"	0.84"	1 5/16-12 UNJ

T tube OD	AN tube flare size	part number	A	Ax	C	Dx	E	F hex	H hex	G min	J	panel hole size	panel thickness max
1/4"	1/4"	BAN-22-SS	1.83"	1.03"	0.63"	1.34"	2.14"	9/16"	11/16"	0.17"	7/16-20 UNJF	29/64"	0.5"
3/8"	3/8"	BAN-33-SS	1.97"	1.16"	0.69"	1.47"	2.28"	1 1/16"	3/4"	0.28"	9/16-18 UNJF	37/64"	0.5"
1/2"	1/2"	BAN-44-SS	2.22"	1.25"	0.91"	1.66"	2.63"	7/8"	15/16"	0.39"	3/4-16 UNJF	49/64"	0.56"
3/4"	3/4"	BAN-66-SS	2.71"	1.47"	0.97"	1.88"	3.12"	1 1/8"	1 5/16"	0.61"	1 1/16-12 UNJ	1 1/64"	0.69"
1"	1"	BAN-88-SS	3.16"	1.78"	1.23"	2.27"	3.65"	1 1/2"	1 1/2"	0.84"	1 5/16-12 UNJ	1 21/64"	0.88"

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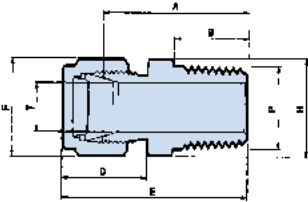
Ringlok® double ferrule OD compression fittings

Thermocoupling NPT



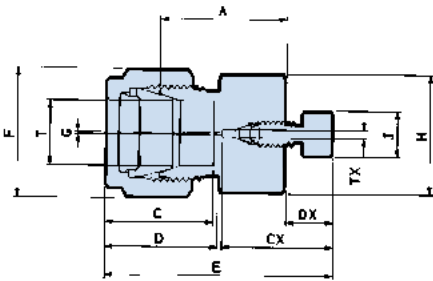
T tube OD	P NPT pipe	part number	A	B	D	E	F hex	H hex
1/8"	1/8"	MTC-11-SS	0.91"	0.38"	0.62"	1.19"	7/16"	7/16"
3/16"	1/8"	MTC-031-SS	0.94"	0.38"	0.65"	1.22"	1/2"	7/16"
1/4"	1/4"	MTC-22-SS	1.19"	0.56"	0.72"	1.50"	9/16"	1/2"
1/4"	3/8"	MTC-23-SS	1.22"	0.56"	0.72"	1.53"	9/16"	3/4"
3/8"	3/8"	MTC-33-SS	1.28"	0.56"	0.78"	1.59"	11/16"	3/4"
3/8"	1/2"	MTC-34-SS	1.50"	0.75"	0.78"	1.81"	11/16"	7/8"
1/2"	1/2"	MTC-44-SS	1.50"	0.75"	0.88"	1.91"	7/8"	7/8"
1/2"	3/4"	MTC-46-SS	1.59"	0.75"	0.88"	2.00"	7/8"	1 1/8"

Thermocoupling NPT metric



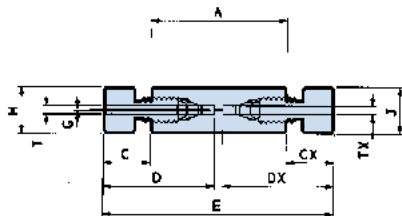
T tube OD	P NPT pipe	part number	A	B	D	E	F hex	H hex
3mm	1/8"	MTC-M3-1-SS	23.1mm	9.6mm	15.7mm	30.1mm	7/16"	7/16"
4mm	1/8"	MTC-M4-1-SS	23.8mm	9.6mm	16.5mm	30.8mm	1/2"	7/16"
6mm	1/4"	MTC-M6-2-SS	30.2mm	14.2mm	18.2mm	38.1mm	9/16"	9/16"
6mm	3/8"	MTC-M6-3-SS	31.0mm	14.2mm	18.2mm	39.9mm	9/16"	3/4"
8mm	3/8"	MTC-M8-3-SS	31.7mm	14.2mm	19mm	39.6mm	11/16"	3/4"
10mm	3/8"	MTC-M10-3-SS	32.5mm	14.2mm	19.8mm	40.4mm	3/4"	3/4"
10mm	1/2"	MTC-M10-4-SS	38.1mm	19.0mm	19.8mm	46.0mm	3/4"	7/8"
12mm	1/2"	MTC-M12-4-SS	38.1mm	19.0mm	22.3mm	48.5mm	7/8"	7/8"
12mm	3/4"	MTC-M12-6-SS	40.3mm	19.0mm	22.3mm	50.7mm	7/8"	1 1/8"

Column end fitting



T tube OD	Tx tube pipe	part number	A	C	Cx	D	Dx	E	F	H hex	J hex	G min
1/8"	1/16"	CEF-1-SS	0.71"	0.52"	0.65"	0.62"	0.25"	1.24"	7/16"	7/16"	1/4"	1/64"
1/4"	1/16"	CEF-2-SS	0.77"	0.63"	0.65"	0.72"	0.25"	1.33"	9/16"	9/16"	1/4"	1/64"
3/8"	1/16"	CEF-3-SS	0.83"	0.69"	0.65"	0.78"	0.25"	1.39"	11/16"	11/16"	1/4"	1/64"
1/2"	1/16"	CEF-4-SS	0.96"	0.91"	0.65"	0.88"	0.25"	1.62"	7/8"	7/8"	1/4"	1/64"

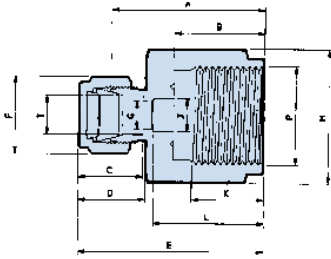
Union connector



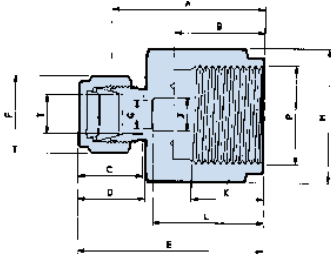
T tube OD	Tx tube pipe	part number	A	C	Cx	D	Dx	E	H hex	J hex	G min
1/16"	1/16"	UC-0101-SS	0.83"	0.25"	0.25"	0.65"	0.65"	1.33"	1/4"	1/4"	1/64"
1/8"	1/16"	UC-101-SS	1.02"	0.28"	0.25"	0.84"	0.65"	1.55"	7/16"	1/4"	1/64"
1/8"	1/8"	UC-11-SS	1.19"	0.28"	0.28"	0.84"	0.84"	1.75"	7/16"	3/8"	0.05"

Ringlok® double ferrule OD compression fittings

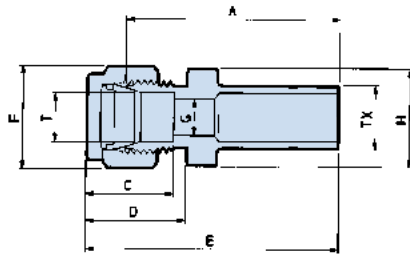
Pressure gauge coupling BSPP



Pressure gauge coupling BSPP metric



Reducing adaptor



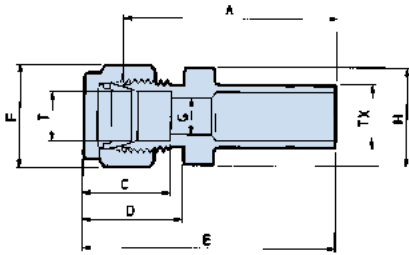
T tube OD	P BSPP pipe	part number	A	B	C	D	E	F hex	H hex	G min	J	K min	L
1/8"	1/8"	PGC-11-SS	0.94"	0.39"	0.52"	0.62"	1.22"	7/16"	9/16"	0.09"	0.18"	0.29"	0.51"
1/4"	1/4"	PGC-22-SS	1.16"	0.51"	0.63"	0.72"	1.47"	9/16"	3/4"	0.19"	0.22"	0.37"	0.65"
1/4"	3/8"	PGC-23-SS	1.34"	0.63"	0.63"	0.72"	1.65"	9/16"	7/8"	0.19"	0.24"	0.47"	0.83"
3/8"	3/8"	PGC-33-SS	1.41"	0.63"	0.69"	0.78"	1.72"	11/16"	7/8"	0.24"	0.24"	0.47"	-
3/8"	1/2"	PGC-34-SS	1.53"	0.75"	0.69"	0.78"	1.84"	11/16"	1 1/8"	0.28"	0.28"	0.57"	-
1/2"	1/2"	PGC-44-SS	1.53"	0.75"	0.91"	0.88"	1.94"	7/8"	1 1/8"	0.28"	0.28"	0.57"	-

T tube OD	P BSPP pipe	part number	A	B	C	D	E	F hex	H hex	G min	J	K min	L
3mm	1/8"	PGC-M3-1-SS	23.8mm	9.9mm	13.4mm	15.7mm	30.8mm	7/16mm	9/16mm	2.3mm	4.5mm	7.5mm	13.0mm
6mm	1/4"	PGC-M6-2-SS	29.4mm	12.9mm	16.0mm	18.2mm	37.3mm	9/16mm	3/4mm	4.8mm	5.5mm	9.5mm	16.5mm
6mm	3/8"	PGC-M6-3-SS	34.0mm	16.0mm	16.0mm	18.2mm	41.9mm	9/16mm	7/8mm	4.8mm	6.0mm	12.0mm	21.0mm
10mm	3/8"	PGC-M10-3-SS	35.8mm	16.0mm	17.5mm	19.8mm	43.7mm	3/4mm	7/8mm	6.0mm	6.0mm	12.0mm	-
10mm	1/2"	PGC-M10-4-SS	38.8mm	19.0mm	17.5mm	19.8mm	46.7mm	3/4mm	1 1/8mm	7.0mm	7.0mm	14.5mm	-
12mm	1/2"	PGC-M12-4-SS	38.8mm	19mm	23.1mm	22.3mm	49.2mm	7/8mm	1 1/8mm	7mm	7mm	14.5mm	-

T tube OD	Tx tube dia	part number	A	C	D	E	F hex	H hex	G min
1/16"	1/8"	RA-011-SS	1.03"	0.35"	0.47"	1.19"	5/16"	5/16"	0.05"
1/16"	1/4"	RA-012-SS	1.16"	0.35"	0.47"	1.32"	5/16"	5/16"	0.05"
1/8"	3/16"	RA-103-SS	1.09"	0.52"	0.62"	1.37"	7/16"	7/16"	0.09"
1/8"	1/4"	RA-12-SS	1.19"	0.52"	0.62"	1.47"	7/16"	7/16"	0.09"
3/16"	1/8"	RA-031-SS	1.09"	0.55"	0.65"	1.37"	1/2"	7/16"	0.13"
3/16"	1/4"	RA-032-SS	1.22"	0.55"	0.65"	1.50"	1/2"	7/16"	0.13"
1/4"	1/8"	RA-21-SS	1.16"	0.63"	0.72"	1.47"	9/16"	9/16"	0.08"
1/4"	3/16"	RA-203-SS	1.19"	0.63"	0.72"	1.50"	9/16"	9/16"	0.13"
1/4"	3/8"	RA-23-SS	1.34"	0.63"	0.72"	1.65"	9/16"	9/16"	0.19"
3/8"	1/4"	RA-32-SS	1.38"	0.69"	0.78"	1.69"	11/16"	11/16"	0.17"
3/8"	1/2"	RA-34-SS	1.66"	0.69"	0.78"	1.97"	11/16"	11/16"	0.28"
3/8"	5/8"	RA-35-SS	1.72"	0.69"	0.78"	2.03"	11/16"	11/16"	0.28"
1/2"	3/8"	RA-43-SS	1.47"	0.91"	0.88"	1.88"	7/8"	7/8"	0.27"
1/2"	5/8"	RA-45-SS	1.75"	0.91"	0.88"	2.16"	7/8"	7/8"	0.41"
1/2"	3/4"	RA-46-SS	1.75"	0.91"	0.88"	2.16"	7/8"	7/8"	0.41"
5/8"	1/2"	RA-54-SS	1.72"	0.97"	0.88"	2.13"	1"	15/16"	0.36"
5/8"	3/4"	RA-56-SS	1.78"	0.97"	0.88"	2.19"	1"	15/16"	0.50"
3/4"	1/2"	RA-64-SS	1.78"	0.97"	0.88"	2.19"	1"	15/16"	0.36"
3/4"	1"	RA-68-SS	2.11"	0.97"	0.88"	2.52"	1 1/8"	1 1/8"	0.63"
1"	3/4"	RA-86-SS	2.03"	1.23"	1.05"	2.52"	1 1/2"	1 1/2"	0.58"

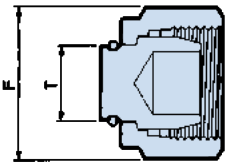
Ringlok® double ferrule OD compression fittings

Reducing adaptor metric



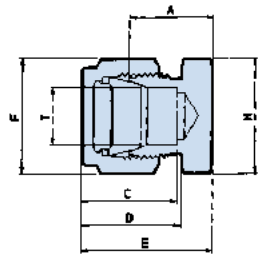
T tube OD	Tx tube dia	part number	A	C	D	E	F hex	H hex	G min
3mm	4mm	RA-M3-M4-SS	27.6mm	13.4mm	15.7mm	34.6mm	7/16"	7/16"	2.3mm
3mm	6mm	RA-M3-M6-SS	30.2mm	13.4mm	15.7mm	37.2mm	7/16"	7/16"	2.3mm
4mm	3mm	RA-M4-M3-SS	27.7mm	14.2mm	16.5mm	34.7mm	7/16"	7/16"	1.8mm
4mm	6mm	RA-M4-M6-SS	31.0mm	14.2mm	16.5mm	38.0mm	1/2"	7/16"	2.7mm
6mm	3mm	RA-M6-M3-SS	29.3mm	16.0mm	18.2mm	37.2mm	9/16"	9/16"	1.8mm
6mm	4mm	RA-M6-M4-SS	30.2mm	16.0mm	18.2mm	28.1mm	9/16"	9/16"	2.3mm
6mm	8mm	RA-M6-M8-SS	33.2mm	16.0mm	18.2mm	41.1mm	9/16"	9/16"	4.8mm
6mm	10mm	RA-M6-M10-SS	34.0mm	16.0mm	18.2mm	41.9mm	9/16"	9/16"	4.8mm
8mm	10mm	RA-M8-M10-SS	35.0mm	16.7mm	19.0mm	42.9mm	11/16"	9/16"	5.3mm
8mm	12mm	RA-M8-M12-SS	40.3mm	16.7mm	19.0mm	48.2mm	11/16"	9/16"	6.3mm
10mm	6mm	RA-M10-M6-SS	35.0mm	17.5mm	19.8mm	42.9mm	3/4"	11/16"	4.0mm
10mm	12mm	RA-M10-M12-SS	42.1mm	17.5mm	19.8mm	50.0mm	3/4"	11/16"	7.8mm
10mm	16mm	RA-M10-M16-SS	42.1mm	17.5mm	19.8mm	51.5mm	3/4"	11/16"	7.8mm
12mm	10mm	RA-M12-M10-SS	37.3mm	23.1mm	22.3mm	47.7mm	7/8"	7/8"	7.1mm
12mm	16mm	RA-M12-M16-SS	44.4mm	23.1mm	22.3mm	54.8mm	7/8"	7/8"	9.6mm
12mm	20mm	RA-M12-M20-SS	44.4mm	23.1mm	22.3mm	54.8mm	7/8"	7/8"	9.6mm
16mm	12mm	RA-M16-M12-SS	43.6mm	24.6mm	22.3mm	54.0mm	1"	15/16"	8.3mm
16mm	20mm	RA-M16-M20-SS	45.2mm	24.6mm	22.3mm	55.6mm	1"	15/16"	12.7mm
20mm	12mm	RA-M20-M12-SS	45.2mm	24.6mm	22.3mm	55.6mm	1 5/16"	1 1/8"	8.3mm
20mm	25mm	RA-M20-M25-SS	53.5mm	24.6mm	22.3mm	63.9mm	1 5/16"	1 1/8"	16.7mm
25mm	20mm	RA-M25-M20-SS	51.5mm	31.2mm	26.6mm	63.9mm	1 1/2"	1 1/2"	15.4mm

Blanking plug



T tube OD	part number	F hex	T tube OD	part number	F hex
1/16"	BP-01-SS	5/16"	3mm	BP-M3-SS	7/16"
1/8"	BP-1-SS	7/16"	4mm	BP-M4-SS	1/2"
3/16"	BP-03-SS	1/2"	6mm	BP-M6-SS	9/16"
1/4"	BP-2-SS	9/16"	8mm	BP-M8-SS	11/16"
3/8"	BP-3-SS	11/16"	10mm	BP-M10-SS	3/4"
1/2"	BP-4-SS	7/8"	12mm	BP-M12-SS	7/8"
5/8"	BP-5-SS	1"	16mm	BP-M16-SS	1"
3/4"	BP-6-SS	1 1/8"	20mm	BP-M20-SS	1 5/16"
1"	BP-8-SS	1 1/2"	25mm	BP-M25-SS	1 1/2"

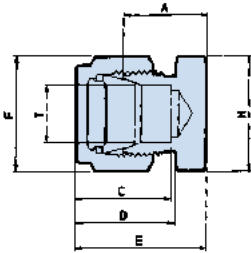
Blanking end



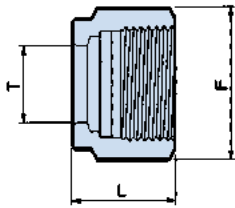
T tube OD	part number	A	C	D	E	F hex	H hex
1/16"	BE-01-SS	0.5"	0.35"	0.47"	0.66"	5/16"	5/16"
1/8"	BE-1-SS	0.53"	0.52"	0.62"	0.81"	7/16"	7/16"
3/16"	BE-03-SS	0.56"	0.55"	0.65"	0.84"	1/2"	7/16"
1/4"	BE-2-SS	0.63"	0.63"	0.72"	0.94"	9/16"	9/16"
3/8"	BE-3-SS	0.72"	0.69"	0.78"	1.03"	11/16"	11/16"
1/2"	BE-4-SS	0.75"	0.91"	0.88"	1.16"	7/8"	7/8"
5/8"	BE-5-SS	0.87"	0.97"	0.88"	1.28"	1"	15/16"
3/4"	BE-6-SS	0.91"	0.97"	0.88"	1.32"	1 1/8"	1 1/8"
1"	BE-8-SS	1.17"	1.23"	1.05"	1.66"	1 1/2"	1 1/2"

Ringlok[®] double ferrule OD compression fittings

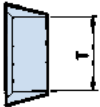
Blanking end metric



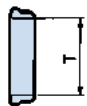
Compression nut



Front sealing



Back sealing



T tube OD	part number	A	C	D	E	F hex	H hex
3"	BE-M3-SS	13.4"	13.4"	15.7"	20.4"	7/16"	7/16"
4"	BE-M4-SS	14.3"	14.2"	16.5"	21.3"	1/2"	7/16"
6"	BE-M6-SS	15.9"	16"	18.2"	23.8"	9/16"	9/16"
8"	BE-M8-SS	17.5"	16.7"	19"	25.4"	11/16"	9/16"
10"	BE-M10-SS	18.2"	17.5"	19.8"	26.1"	3/4"	11/16"
12"	BE-M12-SS	18.7"	23.1"	22.3"	29.1"	7/8"	7/8"
16"	BE-M16-SS	22"	24.6"	22.3"	32.4"	1"	15/16"
20"	BE-M20-SS	23.2"	24.6"	22.3"	33.6"	1 5/16"	1 1/8"
25"	BE-M25-SS	29.7"	31.2"	26.6"	42.1"	1 1/2"	1 1/2"

T tube OD	part number	L	F hex	T tube OD	part number	L	F hex
1/16"	CN-01-SS	0.31"	5/16"	3mm	CN-M3-SS	12mm	7/16"
1/8"	CN-1-SS	0.47"	7/16"	4mm	CN-M4-SS	12mm	1/2"
3/16"	CN-03-SS	0.47"	1/2"	6mm	CN-M6-SS	12.7mm	9/16"
1/4"	CN-2-SS	0.5"	9/16"	8mm	CN-M8-SS	13.4mm	11/16"
3/8"	CN-3-SS	0.56"	11/16"	10mm	CN-M10-SS	14.2mm	3/4"
1/2"	CN-4-SS	0.69"	7/8"	12mm	CN-M12-SS	17.5mm	7/8"
5/8"	CN-5-SS	0.69"	1"	16mm	CN-M16-SS	17.5mm	1"
3/4"	CN-6-SS	0.69"	1 1/8"	20mm	CN-M20-SS	17.5mm	1 5/16"
1"	CN-8-SS	0.81"	1 1/2"	25mm	CN-M25-SS	20.5mm	1 1/2"

T tube OD	part number
1/16"	FR-01-SS
1/8"	FR-1-SS
3/16"	FR-03-SS
1/4"	FR-2-SS
3/8"	FR-3-SS
1/2"	FR-4-SS
5/8"	FR-5-SS
3/4"	FR-6-SS
1"	FR-8-SS

T tube OD	part number
3"	FR-M3-SS
4"	FR-M4-SS
6"	FR-M6-SS
8"	FR-M8-SS
10"	FR-M10-SS
12"	FR-M12-SS
16"	FR-M16-SS
20"	FR-M20-SS
25"	FR-M25-SS

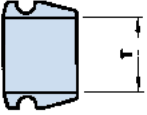
T tube OD	part number
1/16"	BR-01-SS
1/8"	BR-1-SS
3/16"	BR-03-SS
1/4"	BR-2-SS
3/8"	BR-3-SS
1/2"	BR-4-SS
5/8"	BR-5-SS
3/4"	BR-6-SS
1"	BR-8-SS

T Tube OD	part number
3"	BR-M3-SS
4"	BR-M4-SS
6"	BR-M6-SS
8"	BR-M8-SS
10"	BR-M10-SS
12"	BR-M12-SS
16"	BR-M16-SS
20"	BR-M20-SS
25"	BR-M25-SS

1

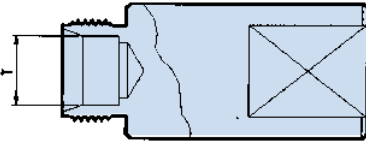
Ringlok® double ferrule OD compression fittings

Unilok searing



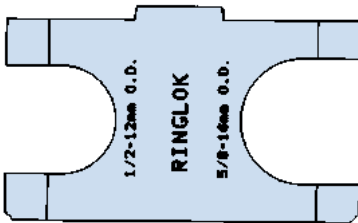
T tube OD	part number	T tube OD	part number
1/16"	UR-01	3mm	UR-M3
1/8"	UR-1	4mm	UR-M4
3/16"	UR-03	6mm	UR-M6
1/4"	UR-2	8mm	UR-M8
3/8"	UR-3	10mm	UR-M10
1/2"	UR-4	12mm	UR-M12
5/8"	UR-5	16mm	UR-M16
3/4"	UR-6	20mm	UR-M20
1"	UR-8	25mm	UR-M25

Pre-assembly tools



T tube OD	part number	T tube OD	part number
1/8"	PA-1	3mm	PA-M3
3/16"	PA-03	4mm	PA-M4
1/4"	PA-2	6mm	PA-M6
3/8"	PA-3	8mm	PA-M8
1/2"	PA-4	10mm	PA-M10
5/8"	PA-5	12mm	PA-M12
3/4"	PA-6	16mm	PA-M16
1"	PA-8	20mm	PA-M20
		25mm	PA-M25

Check gauge



T tube OD	part number	T tube OD	part number
1/4"	RACG-1	6mm	RACG-1
3/8"	RACG-2	8mm	RACG-1
1/2"	RACG-3	10mm	RACG-2
5/8"	RACG-4	12mm	RACG-3
3/4"	RACG-5	16mm	RACG-3
1"	RACG-6	20mm	RACG-4
		25mm	RACG-5

Duoloc[®] single ferrule OD compression fittings

1

Duoloc® single ferrule OD compression fittings

Duoloc® single ferrule OD compression fittings

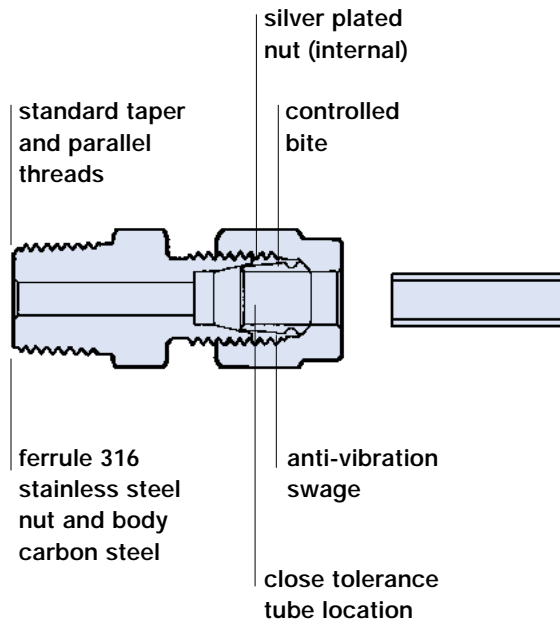
Single ferrule fittings

Duoloc® single ferrule OD compression fittings, manufactured from 316 stainless steel and carbon steel respectively, are long established products and have been supplied to the hydraulic general engineering, chemical, petrochemical, nuclear and power industries, for over 25 years.

The products are manufactured and produced within the control systems approved by BS EN ISO 9001. Imperial sized fittings are in accordance with BS 4368 part 2 1968. Metric sized fittings are in accordance with BS 4368 part 3.

Carbon steel products are zinc plated to BS 1706 and BS 3382. Maximum application temperature for Superloc® is 300°C and for Duoloc® is 350°C. All products are manufactured from fully certified and QC assessed materials.

NB all Superloc® fittings are supplied with stainless steel ferrules.



Duoloc® single ferrule OD compression fittings

Application, benefits and design features

Application

For use with stainless and carbon steel tube especially in vibration conditions.

Ordering example

When ordering Duoloc® fittings always quote the part number. This is built up from the tube OD, connecting thread size, (this is made up from multiples of 1/8"), and thread type. The standard range is made from 316L stainless steel.

Ordering example - imperial

316 stainless steel male stud elbow
1/4" OD with thread size 1/2" NPT.

2/4N MSE	
tube OD	
1 1/8"	
3/16 3/16"	
2 1/4"	
3 3/8"	
4 1/2"	
6 3/4"	
8 1"	
thread size	
1 1/8"	
2 1/4"	
3 3/8"	
4 1/2"	
6 3/4"	
8 1"	
thread type	
P BSP parallel	
T BSP taper	
N NPTF	
fitting type	
MSE male stud elbow	

Ordering example - metric

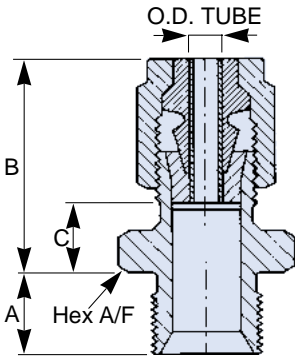
316 stainless steel male stud coupling
12mm OD with thread size 1/4" BSPT.

12M/2T MSC	
tube OD	
6M 6mm	
8M 8mm	
10M 10mm	
12M 12mm	
15M 15mm	
16M 16mm	
18M 18mm	
20M 20mm	
22M 22mm	
25M 25mm	
thread size	
1 1/8"	
2 1/4"	
3 3/8"	
4 1/2"	
6 3/4"	
8 1"	
fitting type	
P BSP parallel	
T BSP taper	
N NPTF	
fitting type	
MSC male stud coupling	

1

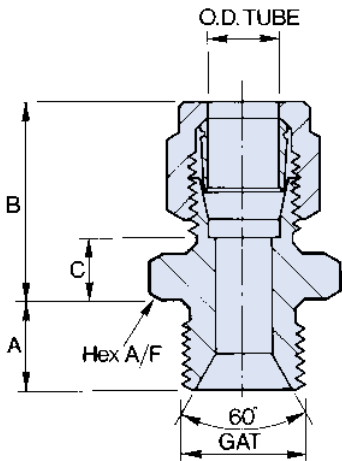
Duoloc® single ferrule OD compression fittings

BSP parallel male stud coupling



OD tube	thread size GAT	part number	A	B	C	hex A/F
1/8"	1/8" BSP	1/1P MSC	0.450"	0.970"	0.370"	0.562"
1/8"	1/4" BSP	1/2P MSC	0.450"	1.033"	0.370"	0.750"
1/8"	3/8" BSP	1/3P MSC	0.530"	1.064"	0.370"	0.875"
1/8"	1/2" BSP	1/4P MSC	0.600"	1.095"	0.432"	1.125"
3/16"	1/8" BSP	3/16/1P MSC	0.450"	1.003"	0.370"	0.562"
3/16"	1/4" BSP	3/16/2P MSC	0.450"	1.066"	0.370"	0.750"
3/16"	3/8" BSP	3/16/3P MSC	0.530"	1.097"	0.370"	0.875"
3/16"	1/2" BSP	3/16/4P MSC	0.600"	1.128"	0.432"	1.125"

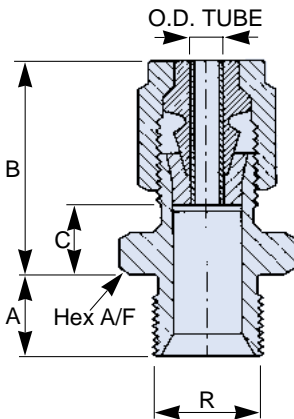
BSP parallel male stud coupling



OD tube	thread size GAT	part number	A	B	C	hex A/F
1/4"	1/8" BSP	2/1P MSC	0.450"	0.906"	0.370"	0.562"
1/4"	1/4" BSP	2/2P MSC	0.450"	0.969"	0.370"	0.750"
1/4"	3/8" BSP	2/3P MSC	0.530"	1.000"	0.370"	0.875"
1/4"	1/2" BSP	2/4P MSC	0.600"	1.031"	0.432"	1.125"
3/8"	1/8" BSP	3/1P MSC	0.450"	1.062"	0.402"	0.750"
3/8"	1/4" BSP	3/2P MSC	0.450"	1.062"	0.402"	0.750"
3/8"	3/8" BSP	3/3P MSC	0.530"	1.094"	0.402"	0.875"
3/8"	1/2" BSP	3/4P MSC	0.600"	1.125"	0.464"	1.125"
1/2"	1/4" BSP	4/2P MSC	0.450"	1.188"	0.402"	0.875"
1/2"	3/8" BSP	4/3P MSC	0.530"	1.188"	0.402"	0.875"
1/2"	1/2" BSP	4/4P MSC	0.600"	1.218"	0.464"	1.125"
1/2"	3/4" BSP	4/6P MSC	0.750"	1.218"	0.527"	1.300"
1/2"	1" BSP	4/8P MSC	0.800"	1.218"	0.527"	1.670"
3/4"	3/8" BSP	6/3P MSC	0.530"	1.406"	0.588"	1.125"
3/4"	1/2" BSP	6/4P MSC	0.600"	1.406"	0.535"	1.125"
3/4"	3/4" BSP	6/6P MSC	0.750"	1.406"	0.588"	1.300"
3/4"	1" BSP	6/8P MSC	0.800"	1.406"	0.588"	1.670"
1"	1/2" BSP	8/4P MSC	0.600"	1.625"	0.588"	1.500"
1"	3/4" BSP	8/6P MSC	0.750"	1.625"	0.588"	1.500"
1"	1" BSP	8/8P MSC	0.800"	1.625"	0.588"	1.670"

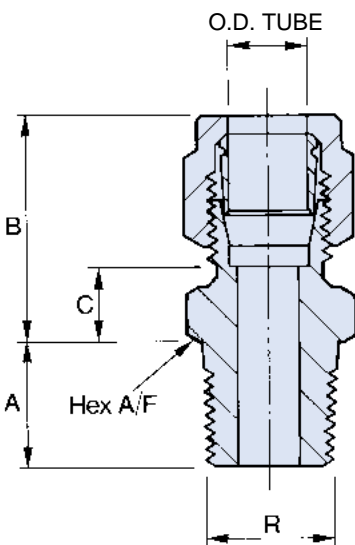
Duoloc® single ferrule OD compression fittings

BSPT male stud coupling



OD tube	thread size R	part number	A	B	C	hex A/F
1/8"	1/8" BSPT	1/1T MSC	0.375"	0.970"	0.370"	0.562"
1/8"	1/4" BSPT	1/2T MSC	0.500"	1.033"	0.370"	0.562"
1/8"	3/8" BSPT	1/3T MSC	0.562"	1.064"	0.370"	0.750"
1/8"	1/2" BSPT	1/4T MSC	0.687"	1.095"	0.432"	0.875"
3/16"	1/8" BSPT	3/16/1T MSC	0.375"	1.003"	0.370"	0.562"
3/16"	1/4" BSPT	3/16/2T MSC	0.500"	1.066"	0.370"	0.562"
3/16"	3/8" BSPT	3/16/3T MSC	0.562"	1.097"	0.370"	0.750"
3/16"	1/2" BSPT	3/16/4T MSC	0.687"	1.128"	0.432"	0.875"

BSPT male stud coupling

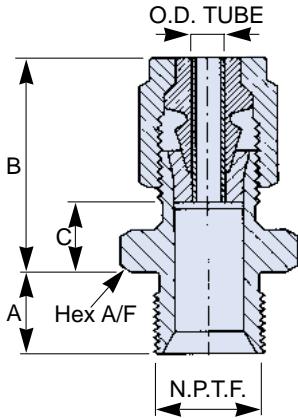


OD tube	thread size R	part number	A	B	C	hex A/F
1/4"	1/8" BSPT	2/1T MSC	0.375"	0.906"	0.370"	0.562"
1/4"	1/4" BSPT	2/2T MSC	0.500"	0.969"	0.370"	0.562"
1/4"	3/8" BSPT	2/3T MSC	0.562"	1.000"	0.370"	0.750"
1/4"	1/2" BSPT	2/4T MSC	0.687"	1.031"	0.432"	1.875"
3/8"	1/8" BSPT	3/1T MSC	0.375"	1.062"	0.402"	0.750"
3/8"	1/4" BSPT	3/2T MSC	0.500"	1.062"	0.402"	0.750"
3/8"	3/8" BSPT	3/3T MSC	0.562"	1.094"	0.402"	0.750"
3/8"	1/2" BSPT	3/4T MSC	0.687"	1.125"	0.464"	0.875"
3/8"	3/4" BSPT	3/6T MSC	0.750"	1.125"	0.527"	1.125"
1/2"	1/8" BSPT	4/1T MSC	0.375"	1.188"	0.402"	0.875"
1/2"	1/4" BSPT	4/2T MSC	0.500"	1.188"	0.402"	0.875"
1/2"	3/8" BSPT	4/3T MSC	0.562"	1.188"	0.402"	0.875"
1/2"	1/2" BSPT	4/4T MSC	0.687"	1.218"	0.464"	0.875"
1/2"	3/4" BSPT	4/6T MSC	0.750"	1.218"	0.527"	1.125"
1/2"	1" BSPT	4/8T MSC	0.875"	1.218"	0.527"	1.375"
3/4"	3/8" BSPT	6/3T MSC	0.562"	1.406"	0.588"	1.125"
3/4"	1/2" BSPT	6/4T MSC	0.687"	1.406"	0.535"	1.125"
3/4"	3/4" BSPT	6/6T MSC	0.750"	1.406"	0.588"	1.125"
3/4"	1" BSPT	6/8T MSC	0.875"	1.406"	0.588"	1.375"
1"	1/2" BSPT	8/4T MSC	0.687"	1.625"	0.588"	1.500"
1"	3/4" BSPT	8/6T MSC	0.750"	1.625"	0.588"	1.500"
1"	1" BSPT	8/8T MSC	0.875"	1.625"	0.585"	1.500"

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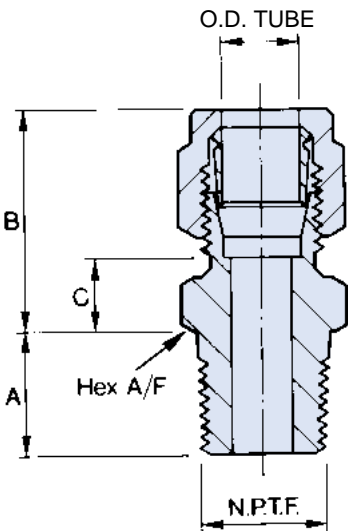
Duoloc® single ferrule OD compression fittings

NPTF male stud coupling



OD tube	thread size NPTF	part number	A	B	C	hex A/F
1/8"	1/8" NPTF	1/1N MSC	0.375"	0.970"	0.370"	0.562"
1/8"	1/4" NPTF	1/2N MSC	0.500"	1.033"	0.370"	0.562"
1/8"	3/8" NPTF	1/3N MSC	0.562"	1.064"	0.370"	0.750"
1/8"	1/2" NPTF	1/4N MSC	0.687"	1.095"	0.432"	0.875"
3/16"	1/8" NPTF	3/16/1N MSC	0.375"	1.003"	0.370"	0.562"
3/16"	1/4" NPTF	3/16/2N MSC	0.500"	1.066"	0.370"	0.562"
3/16"	3/8" NPTF	3/16/3N MSC	0.562"	1.097"	0.370"	0.750"
3/16"	1/2" NPTF	3/16/4N MSC	0.687"	1.128"	0.432"	0.875"

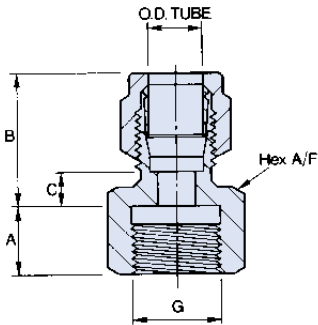
NPTF male stud coupling



OD tube	thread size NPTF	part number	A	B	C	hex A/F
1/4"	1/8" NPTF	2/1N MSC	0.375"	0.906"	0.370"	0.562"
1/4"	1/4" NPTF	2/2N MSC	0.500"	0.969"	0.370"	0.562"
1/4"	3/8" NPTF	2/3N MSC	0.562"	1.000"	0.370"	0.750"
1/4"	1/2" NPTF	2/4N MSC	0.687"	1.031"	0.432"	0.875"
3/8"	1/8" NPTF	3/1N MSC	0.375"	1.062"	0.402"	0.750"
3/8"	1/4" NPTF	3/2N MSC	0.500"	1.062"	0.402"	0.750"
3/8"	3/8" NPTF	3/3N MSC	0.562"	1.094"	0.402"	0.750"
3/8"	1/2" NPTF	3/4N MSC	0.687"	1.125"	0.464"	0.875"
1/2"	1/8" NPTF	4/1N MSC	0.375"	1.188"	0.402"	0.875"
1/2"	1/4" NPTF	4/2N MSC	0.500"	1.188"	0.402"	0.875"
1/2"	3/8" NPTF	4/3N MSC	0.562"	1.188"	0.402"	0.875"
1/2"	1/2" NPTF	4/4N MSC	0.687"	1.218"	0.464"	0.875"
1/2"	3/4" NPTF	4/6N MSC	0.750"	1.218"	0.527"	1.125"
1/2"	1" NPTF	4/8N MSC	0.875"	1.218"	0.526"	1.375"
3/4"	3/8" NPTF	6/3N MSC	0.562"	1.406"	0.535"	1.125"
3/4"	1/2" NPTF	6/4N MSC	0.687"	1.406"	0.535"	1.125"
3/4"	3/4" NPTF	6/6N MSC	0.750"	1.406"	0.588"	1.125"
3/4"	1" NPTF	6/8N MSC	0.875"	1.406"	0.588"	1.375"
1"	1/2" NPTF	8/4N MSC	0.687"	1.625"	0.588"	1.500"
1"	3/4" NPTF	8/6N MSC	0.750"	1.625"	0.588"	1.500"
1"	1" NPTF	8/8N MSC	0.875"	1.625"	0.585"	1.500"

Duoloc® single ferrule OD compression fittings

BSP parallel female stud coupling

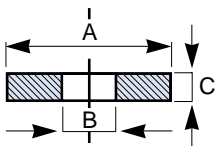


OD tube	thread size G	part number	A	B	C	hex A/F
1/8"	1/8" BSP	1/1P FSC	0.375"	0.970"	0.334"	0.562"
1/8"	1/4" BSP	1/2P FSC	0.437"	0.970"	0.330"	0.750"
1/8"	3/8" BSP	1/3P FSC	0.500"	0.970"	0.340"	0.875"
1/8"	1/2" BSP	1/4P FSC	0.625"	0.970"	0.340"	1.125"
3/16"	1/8" BSP	3/16/1P FSC	0.375"	1.003"	0.334"	0.562"
3/16"	1/4" BSP	3/16/2P FSC	0.437"	1.003"	0.330"	0.750"
3/16"	3/8" BSP	3/16/3P FSC	0.500"	1.003"	0.340"	0.875"
3/16"	1/2" BSP	3/16/4P FSC	0.625"	1.003"	0.340"	1.125"

For 1/8" & 3/16" see Assembly Page 1.36

1/4"	1/8" BSP	2/1P FSC	0.375"	0.906"	0.334"	0.562"
1/4"	1/4" BSP	2/2P FSC	0.437"	0.906"	0.330"	0.750"
1/4"	3/8" BSP	2/3P FSC	0.500"	0.906"	0.340"	0.875"
1/4"	1/2" BSP	2/4P FSC	0.625"	0.906"	0.340"	1.125"
3/8"	1/4" BSP	3/2P FSC	0.437"	1.000"	0.340"	0.750"
3/8"	3/8" BSP	3/3P FSC	0.500"	1.000"	0.340"	0.875"
3/8"	1/2" BSP	3/4P FSC	0.625"	1.000"	0.360"	1.125"
1/2"	1/4" BSP	4/2P FSC	0.437"	1.093"	0.360"	0.875"
1/2"	3/8" BSP	4/3P FSC	0.500"	1.093"	0.360"	0.875"
1/2"	1/2" BSP	4/4P FSC	0.625"	1.093"	0.400"	1.125"
3/4"	1/2" BSP	6/4P FSC	0.625"	1.437"	0.400"	1.125"
3/4"	3/4" BSP	6/6P FSC	0.750"	1.437"	0.473"	1.300"
1"	1/2" BSP	8/4P FSC	0.625"	1.625"	0.473"	1.500"
1"	3/4" BSP	8/6P FSC	0.750"	1.625"	0.473"	1.500"
1"	1" BSP	8/8P FSC	0.875"	1.625"	0.473"	1.670"

BSP parallel gauge washer PTFE

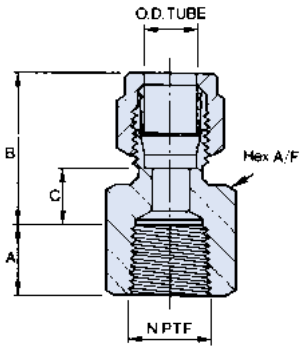


thread size G	part number	A	B	C
1/8"	GW1	0.339"	0.157"	0.102"
1/4"	GW2	0.453"	0.165"	0.102"
3/8"	GW3	0.583"	0.236"	0.102"
1/2"	GW4	0.728"	0.236"	0.126"
3/4"	GW6	0.945"	0.500"	0.126"
1"	GW8	1.200"	0.669"	0.126"

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Duoloc® single ferrule OD compression fittings

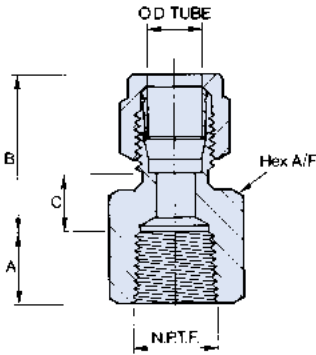
BSPT female stud coupling



OD tube	thread size Rc	part number	A	B	C	hex A/F
1/8"	1/8" BSPT	1/1T FSC	0.500"	0.970"	0.300"	0.562"
1/8"	1/4" BSPT	1/2T FSC	0.656"	0.970"	0.300"	0.750"
1/8"	3/8" BSPT	1/3T FSC	0.703"	0.970"	0.300"	0.875"
1/8"	1/2" BSPT	1/4T FSC	0.750"	0.970"	0.300"	1.125"
3/16"	1/8" BSPT	3/16/1T FSC	0.500"	1.003"	0.300"	0.562"
3/16"	1/4" BSPT	3/16/2T FSC	0.656"	1.003"	0.300"	0.750"
3/16"	3/8" BSPT	3/16/3T FSC	0.703"	1.003"	0.300"	0.875"
3/16"	1/2" BSPT	3/16/4T FSC	0.750"	1.003"	0.300"	1.125"
For 1/8" & 3/16" see Assembly Page 1.36						
1/4"	1/8" BSPT	2/1T FSC	0.500"	0.906"	0.300"	0.562"
1/4"	1/4" BSPT	2/2T FSC	0.656"	0.906"	0.300"	0.750"
1/4"	3/8" BSPT	2/3T FSC	0.703"	0.906"	0.300"	0.875"
1/4"	1/2" BSPT	2/4T FSC	0.750"	0.906"	0.300"	1.125"
3/8"	1/4" BSPT	3/2T FSC	0.656"	1.000"	0.300"	0.750"
3/8"	3/8" BSPT	3/3T FSC	0.703"	1.000"	0.350"	0.875"
3/8"	1/2" BSPT	3/4T FSC	0.750"	1.000"	0.350"	1.125"
1/2"	1/4" BSPT	4/2T FSC	0.656"	1.093"	0.350"	0.875"
1/2"	3/8" BSPT	4/3T FSC	0.703"	1.093"	0.350"	0.875"
1/2"	1/2" BSPT	4/4T FSC	0.750"	1.093"	0.350"	1.125"
3/4"	1/2" BSPT	6/4T FSC	0.750"	1.250"	0.350"	1.125"
3/4"	3/4" BSPT	6/6T FSC	0.800"	1.250"	0.400"	1.300"
1"	1/2" BSPT	8/4T FSC	0.750"	1.375"	0.400"	1.500"
1"	3/4" BSPT	8/6T FSC	0.800"	1.375"	0.400"	1.500"
1"	1" BSPT	8/8T FSC	1.050"	1.375"	0.500"	1.670"

Duoloc® single ferrule OD compression fittings

NPTF female stud coupling

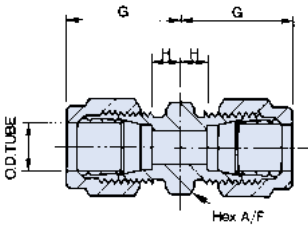


OD tube	thread size NPTF	part number	A	B	C	hex A/F
1/8"	1/8" NPTF	1/1N FSC	0.500"	0.970"	0.300"	0.562"
1/8"	1/4" NPTF	1/2N FSC	0.656"	0.970"	0.300"	0.750"
1/8"	3/8" NPTF	1/3N FSC	0.703"	0.970"	0.300"	0.875"
1/8"	1/2" NPTF	1/4N FSC	0.750"	0.970"	0.300"	1.125"
3/16"	1/8" NPTF	3/16/1N FSC	0.500"	1.003"	0.300"	0.562"
3/16"	1/4" NPTF	3/16/2N FSC	0.656"	1.003"	0.300"	0.750"
3/16"	3/8" NPTF	3/16/3N FSC	0.703"	1.003"	0.300"	0.875"
3/16"	1/2" NPTF	3/16/4N FSC	0.750"	1.003"	0.300"	1.125"

For 1/8" & 3/16" see Assembly Page 1.36

1/4"	1/8" NPTF	2/1N FSC	0.500"	0.906"	0.300"	0.562"
1/4"	1/4" NPTF	2/2N FSC	0.656"	0.906"	0.300"	0.750"
1/4"	3/8" NPTF	2/3N FSC	0.703"	0.906"	0.300"	0.875"
1/4"	1/2" NPTF	2/4N FSC	0.750"	0.906"	0.300"	1.125"
3/8"	1/4" NPTF	3/2N FSC	0.656"	1.000"	0.300"	0.750"
3/8"	3/8" NPTF	3/3N FSC	0.703"	1.000"	0.350"	0.875"
3/8"	1/2" NPTF	3/4N FSC	0.750"	1.000"	0.350"	1.125"
1/2"	1/4" NPTF	4/2N FSC	0.656"	1.093"	0.350"	0.875"
1/2"	3/8" NPTF	4/3N FSC	0.703"	1.093"	0.350"	0.875"
1/2"	1/2" NPTF	4/4N FSC	0.750"	1.093"	0.350"	1.125"
3/4"	1/2" NPTF	6/4N FSC	0.750"	1.250"	0.350"	1.125"
3/4"	3/4" NPTF	6/6N FSC	0.800"	1.250"	0.400"	1.300"
1"	1/2" NPTF	8/4N FSC	0.750"	1.375"	0.400"	1.500"
1"	3/4" NPTF	8/6N FSC	0.800"	1.375"	0.400"	1.500"
1"	1" NPTF	8/8N FSC	1.050"	1.375"	0.500"	1.670"

Straight coupling

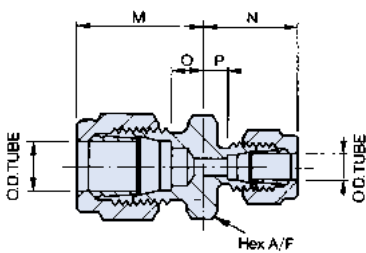


OD tube	part number	G	H	hex A/F
1/8"	1/1 SC	0.876"	0.218"	0.562"
3/16"	3/16 SC	0.909"	0.218"	0.562"

For 1/8" & 3/16" see Assembly Page 1.36

1/4"	2/2 SC	0.812"	0.218"	0.562"
3/8"	3/3 SC	0.937"	0.281"	0.750"
1/2"	4/4 SC	1.046"	0.296"	0.875"
3/4"	6/6 SC	1.234"	0.390"	1.125"
1"	8/8 SC	1.406"	0.437"	1.500"

Reducing coupling



OD tube 1	OD tube 2	part number	M	N	O	P	hex A/F
1/4"	1/8"	2/1 RC	0.812"	0.876"	0.218"	0.218"	0.562"
1/4"	3/16"	2/3/16 RC	0.812"	0.909"	0.218"	0.218"	0.562"

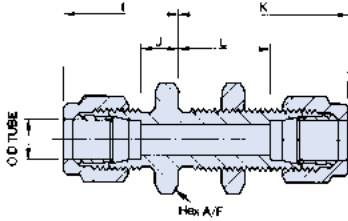
For 1/8" & 3/16" see Assembly Page 1.36

3/8"	1/4"	3/2 RC	0.937"	0.843"	0.281"	0.250"	0.750"
1/2"	1/4"	4/2 RC	1.046"	0.859"	0.296"	0.265"	0.875"
1/2"	3/8"	4/3 RC	1.046"	0.953"	0.296"	0.296"	0.875"
3/4"	1/2"	6/4 RC	1.234"	1.078"	0.390"	0.328"	1.300"
1"	1/2"	8/4 RC	1.406"	1.125"	0.437"	0.375"	1.500"
1"	3/4"	8/6 RC	1.406"	1.281"	0.437"	0.437"	1.500"

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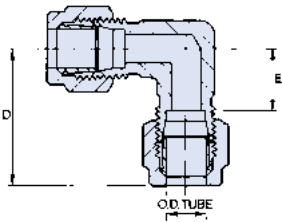
Duoloc® single ferrule OD compression fittings

Bulkhead coupling



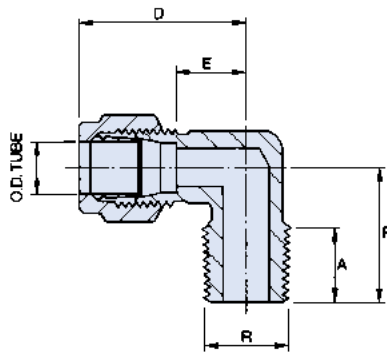
OD tube	part number	I	J	K	L	hex A/F	clearance bore in bulkhead
1/8"	1/1 BULK	0.970"	0.312"	1.626"	0.968"	0.750"	0.468"
3/16"	3/16 BULK	1.003"	1.312"	1.659"	0.968"	0.750"	0.468"
For 1/8" & 3/16" see Assembly Page 1.36							
1/4"	2/2 BULK	0.906"	0.312"	1.562"	0.968"	0.750"	0.468"
3/8"	3/3 BULK	1.062"	0.406"	1.687"	1.031"	0.875"	0.656"
1/2"	4/4 BULK	1.187"	0.437"	1.875"	1.125"	1.125"	0.781"
3/4"	6/6 BULK	1.406"	0.562"	2.093"	1.250"	1.300"	1.093"
1"	8/8 BULK	1.625"	0.656"	2.187"	1.218"	1.500"	1.343"

Equal elbow



OD tube	part number	D	E
1/8"	1/1 E	1.220"	0.562"
3/16"	3/16 E	1.253"	0.562"
For 1/8" & 3/16" see Assembly Page 1.36			
1/4"	2/2 E	1.156"	0.562"
3/8"	3/3 E	1.250"	0.593"
1/2"	4/4 E	1.437"	0.687"
3/4"	6/6 E	1.843"	1.000"
1"	8/8 E	2.031"	1.062"

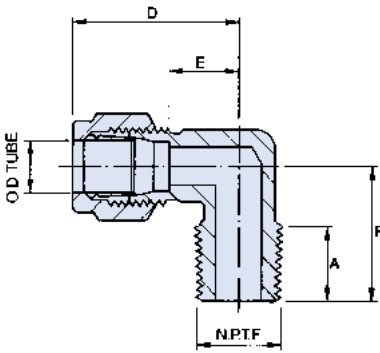
BSPT male stud elbow



OD tube	thread size R	part number	A	D	E	F
1/8"	1/8" BSPT	1/1T MSE	0.375"	1.220"	0.562"	0.868"
1/8"	1/4" BSPT	1/2T MSE	0.500"	1.220"	0.562"	0.958"
1/8"	3/8" BSPT	1/3T MSE	0.562"	1.220"	0.562"	1.187"
1/8"	1/2" BSPT	1/4T MSE	0.687"	1.220"	0.707"	1.311"
3/16"	1/8" BSPT	3/16/1T MSE	0.375"	1.253"	0.562"	0.868"
3/16"	1/4" BSPT	3/16/2T MSE	0.500"	1.253"	0.562"	0.958"
3/16"	3/8" BSPT	3/16/3T MSE	0.562"	1.253"	0.562"	1.187"
3/16"	1/2" BSPT	3/16/4T MSE	0.687"	1.253"	0.707"	1.311"
For 1/8" & 3/16" see Assembly Page 1.36						
1/4"	1/8" BSPT	2/1T MSE	0.375"	1.156"	0.562"	0.868"
1/4"	1/4" BSPT	2/2T MSE	0.500"	1.156"	0.562"	0.958"
1/4"	3/8" BSPT	2/3T MSE	0.562"	1.156"	0.562"	1.187"
1/4"	1/2" BSPT	2/4T MSE	0.687"	1.274"	0.707"	1.311"
3/8"	1/4" BSPT	3/2T MSE	0.500"	1.250"	0.593"	1.125"
3/8"	3/8" BSPT	3/3T MSE	0.562"	1.250"	0.593"	1.187"
3/8"	1/2" BSPT	3/4T MSE	0.687"	1.437"	0.777"	1.311"
1/2"	1/4" BSPT	4/2T MSE	0.500"	1.437"	0.687"	1.125"
1/2"	3/8" BSPT	4/3T MSE	0.562"	1.437"	0.687"	1.375"
1/2"	1/2" BSPT	4/4T MSE	0.687"	1.437"	0.687"	1.375"
3/4"	1/2" BSPT	6/4T MSE	0.687"	1.843"	1.000"	1.625"
3/4"	3/4" BSPT	6/6T MSE	0.750"	1.843"	1.000"	1.688"
1"	3/4" BSPT	8/6T MSE	0.750"	2.501"	1.085"	1.594"
1"	1" BSPT	8/8T MSE	0.875"	2.407"	0.991"	1.556"

Duoloc® single ferrule OD compression fittings

NPTF male stud elbow

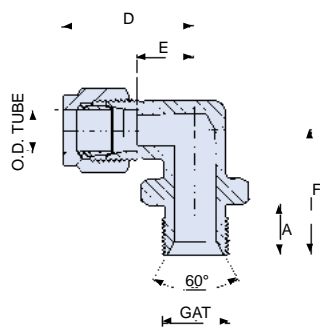


OD tube	thread size NPTF	part number	A	D	E	F
1/8"	1/8" NPTF	1/1N MSE	0.375"	1.220"	0.562"	0.868"
1/8"	1/4" NPTF	1/2N MSE	0.500"	1.220"	0.562"	0.958"
1/8"	3/8" NPTF	1/3N MSE	0.562"	1.220"	0.562"	1.187"
1/8"	1/2" NPTF	1/4N MSE	0.687"	1.220"	0.707"	1.311"
3/16"	1/8" NPTF	3/16/1N MSE	0.375"	1.253"	0.562"	0.868"
3/16"	1/4" NPTF	3/16/2N MSE	0.500"	1.253"	0.562"	0.958"
3/16"	3/8" NPTF	3/16/3N MSE	0.562"	1.253"	0.562"	1.187"
3/16"	1/2" NPTF	3/16/4N MSE	0.687"	1.253"	0.707"	1.311"

For 1/8" & 3/16" see Assembly Page 1.36

1/4"	1/8" NPTF	2/1N MSE	0.375"	1.156"	0.562"	0.868"
1/4"	1/4" NPTF	2/2N MSE	0.500"	1.156"	0.562"	0.958"
1/4"	3/8" NPTF	2/3N MSE	0.562"	1.156"	0.562"	1.187"
1/4"	1/2" NPTF	2/4N MSE	0.687"	1.274"	0.707"	1.311"
3/8"	1/4" NPTF	3/2N MSE	0.500"	1.250"	0.593"	1.125"
3/8"	3/8" NPTF	3/3N MSE	0.562"	1.250"	0.593"	1.187"
3/8"	1/2" NPTF	3/4N MSE	0.687"	1.437"	0.777"	1.311"
1/2"	1/4" NPTF	4/2N MSE	0.500"	1.437"	0.687"	1.125"
1/2"	3/8" NPTF	4/3N MSE	0.562"	1.437"	0.687"	1.375"
1/2"	1/2" NPTF	4/4N MSE	0.687"	1.437"	0.687"	1.375"
3/4"	1/2" NPTF	6/4N MSE	0.687"	1.843"	1.000"	1.625"
3/4"	3/4" NPTF	6/6N MSE	0.750"	1.843"	1.000"	1.688"
1"	3/4" NPTF	8/6N MSE	0.750"	2.501"	1.085"	1.594"
1"	1" NPTF	8/8N MSE	0.875"	2.407"	0.991"	1.566"

BSP male stud elbow



OD tube	thread size GAT	part number	A	D	E	F
1/8"	1/8" BSP	1/1P MSE	0.450"	1.220"	0.562"	1.063"
1/8"	1/4" BSP	1/2P MSE	0.450"	1.220"	0.562"	1.063"
3/16"	1/8" BSP	3/16/1P MSE	0.450"	1.253"	0.562"	1.063"
3/16"	1/4" BSP	3/16/2P MSE	0.450"	1.253"	0.562"	1.063"

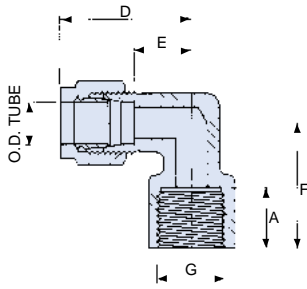
For 1/8" & 3/16" see Assembly Page 1.36

1/4"	1/8" BSP	2/1P MSE	0.450"	1.156"	0.562"	1.063"
1/4"	1/4" BSP	2/2P MSE	0.450"	1.156"	0.562"	1.063"
3/8"	1/4" BSP	3/2P MSE	0.450"	1.250"	0.593"	1.063"
3/8"	3/8" BSP	3/3P MSE	0.530"	1.250"	0.593"	1.500"
1/2"	1/4" BSP	4/2P MSE	0.450"	1.437"	0.687"	1.500"
1/2"	3/8" BSP	4/3P MSE	0.530"	1.437"	0.687"	1.500"
1/2"	1/2" BSP	4/4P MSE	0.600"	1.437"	0.687"	1.500"

1

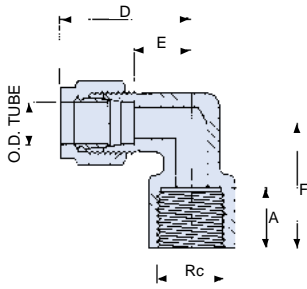
Duoloc® single ferrule OD compression fittings

BSPP female stud elbow



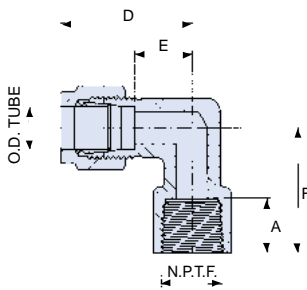
OD tube	thread size GAT	part number	A	D	E	F
1/8"	1/8" BSP	1/1P FSE	0.375"	1.220"	0.562"	1.063"
1/8"	1/4" BSP	1/2P FSE	0.437"	1.220"	0.562"	1.063"
3/16"	1/8" BSP	3/16/1P FSE	0.375"	1.253"	0.562"	1.063"
3/16"	1/4" BSP	3/16/2P FSE	0.437"	1.253"	0.562"	1.063"
For 1/8" & 3/16" see Assembly Page 1.36						
1/4"	1/8" BSP	2/1P FSE	0.375"	1.156"	0.562"	1.063"
1/4"	1/4" BSP	2/2P FSE	0.437"	1.156"	0.562"	1.063"
3/8"	1/4" BSP	3/2P FSE	0.437"	1.250"	0.593"	1.063"
3/8"	3/8" BSP	3/3P FSE	0.500"	1.250"	0.593"	1.500"
1/2"	1/4" BSP	4/2P FSE	0.437"	1.437"	0.687"	1.500"
1/2"	3/8" BSP	4/3P FSE	0.500"	1.437"	0.687"	1.500"
1/2"	1/2" BSP	4/4P FSE	0.625"	1.437"	0.687"	1.500"

BSPT female stud elbow



OD tube	thread size Rc	part number	A	D	E	F
1/8"	1/8" BSPT	1/1T FSE	0.500"	1.220"	0.562"	1.063"
1/8"	1/4" BSPT	1/2T FSE	0.656"	1.220"	0.562"	1.063"
3/16"	1/8" BSPT	3/16/1T FSE	0.500"	1.253"	0.562"	1.063"
3/16"	1/4" BSPT	3/16/2T FSE	0.656"	1.253"	0.562"	1.063"
For 1/8" & 3/16" see Assembly Page 1.36						
1/4"	1/8" BSPT	2/1T FSE	0.500"	1.156"	0.562"	1.063"
1/4"	1/4" BSPT	2/2T FSE	0.656"	1.156"	0.562"	1.063"
3/8"	1/4" BSPT	3/2T FSE	0.656"	1.250"	0.593"	1.063"
3/8"	3/8" BSPT	3/3T FSE	0.703"	1.250"	0.593"	1.500"
1/2"	1/4" BSPT	4/2T FSE	0.656"	1.437"	0.687"	1.500"
1/2"	3/8" BSPT	4/3T FSE	0.703"	1.437"	0.687"	1.500"
1/2"	1/2" BSPT	4/4T FSE	0.750"	1.437"	0.687"	1.500"

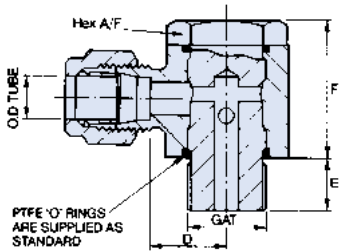
NPTF female stud elbow



OD tube	thread size NPTF	part number	A	D	E	F
1/8"	1/8" NPTF	1/1N FSE	0.500"	1.220"	0.562"	1.063"
1/8"	1/4" NPTF	1/2N FSE	0.656"	1.220"	0.562"	1.063"
3/16"	1/8" NPTF	3/16/1N FSE	0.500"	1.253"	0.562"	1.063"
3/16"	1/4" NPTF	3/16/2N FSE	0.656"	1.253"	0.562"	1.063"
For 1/8" & 3/16" see Assembly Page 1.36						
1/4"	1/8" NPTF	2/1N FSE	0.500"	1.156"	0.562"	1.063"
1/4"	1/4" NPTF	2/2N FSE	0.656"	1.156"	0.562"	1.063"
3/8"	1/4" NPTF	3/2N FSE	0.656"	1.250"	0.593"	1.063"
3/8"	3/8" NPTF	3/3N FSE	0.703"	1.250"	0.593"	1.500"
1/2"	1/4" NPTF	4/2N FSE	0.656"	1.437"	0.687"	1.500"
1/2"	3/8" NPTF	4/3N FSE	0.703"	1.437"	0.687"	1.500"
1/2"	1/2" NPTF	4/4N FSE	0.750"	1.437"	0.687"	1.500"

Duoloc® single ferrule OD compression fittings

BSP banjo coupling

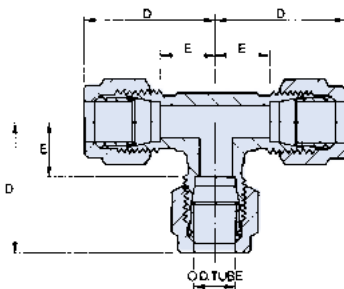


OD tube	thread size GAT	part number	square body A/F	D	E	F	hex bolt A/F
1/8"	1/8" BSP	1/1P BC	1.000"	0.620"	0.354"	1.125"	17 mm
1/8"	1/4" BSP	1/2P BC	1.000"	0.620"	0.450"	1.125"	22 mm
3/16"	1/8" BSP	3/16/1P BC	1.000"	0.620"	0.354"	1.125"	17 mm
3/16"	1/4" BSP	3/16/2P BC	1.000"	0.620"	0.450"	1.125"	22 mm

For 1/8" & 3/16" see Assembly Page 1.36

1/4"	1/8" BSP	2/1P BC	1.000"	0.620"	0.354"	1.125"	17 mm
1/4"	1/4" BSP	2/2P BC	1.000"	0.620"	0.450"	1.125"	0.750"
3/8"	1/4" BSP	3/2P BC	1.250"	0.652"	0.450"	1.125"	22 mm
3/8"	3/8" BSP	3/3P BC	1.250"	0.652"	0.530"	1.250"	0.875"
1/2"	3/8" BSP	4/3P BC	1.500"	0.776"	0.530"	1.250"	0.875"
1/2"	1/2" BSP	4/4P BC	1.500"	0.776"	0.625"	1.375"	1.125"

Equal tee

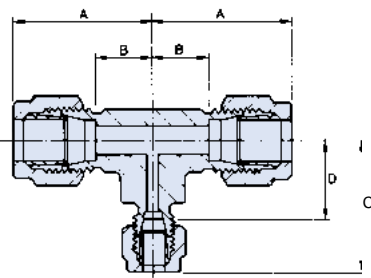


OD tube	part number	D	E
1/8"	1/1/1T	1.220"	0.562"
3/16"	3/16 T	1.253"	0.562"

For 1/8" & 3/16" see Assembly Page 1.36

1/4"	2/2/2T	1.156"	0.562"
3/8"	3/3/3T	1.250"	0.593"
1/2"	4/4/4T	1.437"	0.687"
3/4"	6/6/6T	1.843"	1.000"
1"	8/8/8T	2.031"	1.062"

Tee - unequal branch

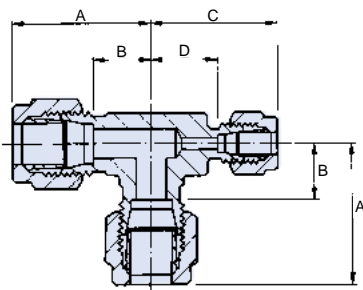


run OD	branch OD	run OD	part number	A	B	C	D
1/4"	1/8"	1/4"	2/1/2 TUB	1.220"	0.562"	1.284"	0.562"
1/4"	3/16"	1/4"	2/3/16/2 TUB	1.220"	0.562"	1.317"	0.562"

For 1/8" & 3/16" see Assembly Page 1.36

3/8"	1/4"	3/8"	3/2/3 TUB	1.250"	0.593"	1.156"	0.562"
1/2"	1/4"	1/2"	4/2/4 TUB	1.437"	0.687"	1.156"	0.562"
1/2"	3/8"	1/2"	4/3/4 TUB	1.437"	0.687"	1.250"	0.593"
3/4"	3/8"	3/4"	6/3/6 TUB	1.843"	1.000"	1.250"	0.593"
3/4"	1/2"	3/4"	6/4/6 TUB	1.843"	1.000"	1.437"	0.687"
1"	1/2"	1"	8/4/8 TUB	2.032"	1.062"	1.437"	0.687"
1"	3/4"	1"	8/6/8 TUB	2.032"	1.062"	1.843"	1.000"

Tee - unequal run



run OD	branch OD	run OD	part number	A	B	C	D
1/4"	1/4"	1/8"	2/2/1 TUR	1.220"	0.562"	1.284"	0.562"
1/4"	1/4"	3/16"	2/2/3/16 TUR	1.220"	0.562"	1.317"	0.562"

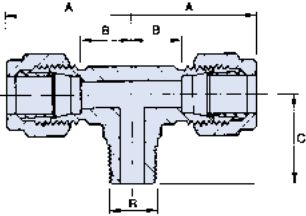
For 1/8" & 3/16" see Assembly Page 1.36

3/8"	3/8"	1/4"	3/3/2 TUR	1.250"	0.593"	1.156"	0.562"
1/2"	1/2"	1/4"	4/4/2 TUR	1.437"	0.687"	1.156"	0.562"
1/2"	1/2"	3/8"	4/4/3 TUR	1.437"	0.687"	1.250"	0.593"
3/4"	3/4"	3/8"	6/6/3 TUR	1.843"	1.000"	1.250"	0.593"
3/4"	3/4"	1/2"	6/6/4 TUR	1.843"	1.000"	1.437"	0.687"
1"	1"	1/2"	8/8/4 TUR	2.032"	1.062"	1.437"	0.687"
1"	1"	3/4"	8/8/6 TUR	2.032"	1.062"	1.843"	1.000"

1

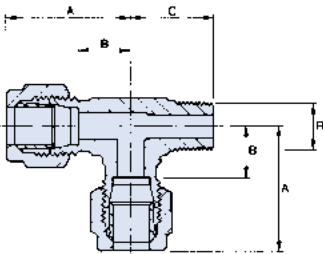
Duoloc® single ferrule OD compression fittings

Tee – BSPT male stud branch



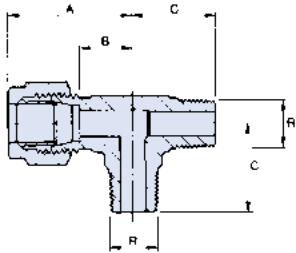
run OD	branch R	run OD	part number	A	B	C
1/4"	1/8" BSPT	1/4"	2/1T/2 TMSB	1.156"	0.567"	0.826"
1/4"	1/4" BSPT	1/4"	2/2T/2 TMSB	1.156"	0.567"	0.937"
3/8"	1/4" BSPT	3/8"	3/2T/3 TMSB	1.250"	0.593"	0.937"
3/8"	3/8" BSPT	3/8"	3/3T/3 TMSB	1.250"	0.593"	1.125"
1/2"	1/4" BSPT	1/2"	4/2T/4 TMSB	1.437"	0.687"	0.937"
1/2"	3/8" BSPT	1/2"	4/3T/4 TMSB	1.437"	0.687"	1.125"
1/2"	1/2" BSPT	1/2"	4/4T/4 TMSB	1.437"	0.687"	1.375"

Tee – BSPT male stud run



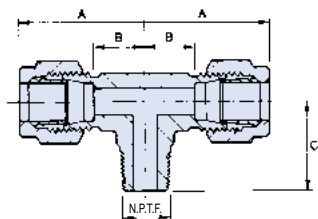
run OD	branch OD	run R	part number	A	B	C
1/4"	1/4"	1/8" BSPT	2/2/1T TMSR	1.156"	0.567"	0.826"
1/4"	1/4"	1/4" BSPT	2/2/2T TMSR	1.156"	0.567"	0.937"
3/8"	3/8"	1/4" BSPT	3/3/2T TMSR	1.250"	0.593"	0.937"
3/8"	3/8"	3/8" BSPT	3/3/3T TMSR	1.250"	0.593"	1.125"
1/2"	1/2"	1/4" BSPT	4/4/2T TMSR	1.437"	0.687"	0.937"
1/2"	1/2"	3/8" BSPT	4/4/3T TMSR	1.437"	0.687"	1.125"

Tee – BSPT male stud run and BSPT male branch



run OD	branch R	run R	part number	A	B	C
1/4"	1/8" BSPT	1/8" BSPT	2/1T/1T MBMR	1.156"	0.567"	0.826"
1/4"	1/4" BSPT	1/4" BSPT	2/2T/2T MBMR	1.156"	0.567"	0.937"
3/8"	1/4" BSPT	1/4" BSPT	3/2T/2T MBMR	1.250"	0.593"	0.937"
1/2"	1/4" BSPT	1/4" BSPT	4/2T/2T MBMR	1.437"	0.687"	0.937"
1/2"	3/8" BSPT	3/8" BSPT	4/3T/3T MBMR	1.437"	0.687"	1.125"

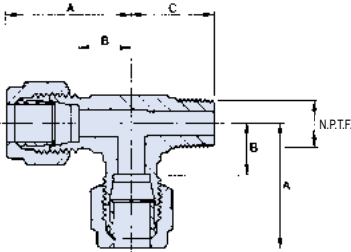
Tee – NPTF male stud branch



run OD	branch NPTF	run OD	part number	A	B	C
1/4"	1/8" NPTF	1/4"	2/1N/2 TMSB	1.156"	0.567"	0.826"
1/4"	1/4" NPTF	1/4"	2/2N/2 TMSB	1.156"	0.567"	0.937"
3/8"	1/4" NPTF	3/8"	3/2N/3 TMSB	1.250"	0.593"	0.937"
3/8"	3/8" NPTF	3/8"	3/3N/3 TMSB	1.250"	0.593"	1.125"
1/2"	1/4" NPTF	1/2"	4/2N/4 TMSB	1.437"	0.687"	0.937"
1/2"	3/8" NPTF	1/2"	4/3N/4 TMSB	1.437"	0.687"	1.125"
1/2"	1/2" NPTF	1/2"	4/4N/4 TMSB	1.437"	0.687"	1.375"

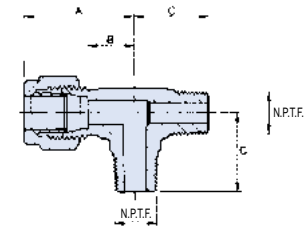
Duoloc® single ferrule OD compression fittings

Tee – NPTF male stud run



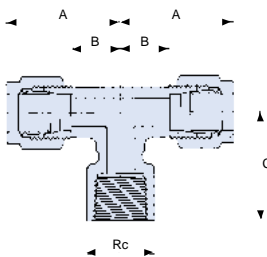
run OD	branch OD	run NPTF	part number	A	B	C
1/4"	1/4"	1/8" NPTF	2/2/1N TMSR	1.156"	0.567"	0.826"
1/4"	1/4"	1/4" NPTF	2/2/2N TMSR	1.156"	0.567"	0.937"
3/8"	3/8"	1/4" NPTF	3/3/2N TMSR	1.250"	0.593"	0.937"
3/8"	3/8"	3/8" NPTF	3/3/3N TMSR	1.250"	0.593"	1.125"
1/2"	1/2"	1/4" NPTF	4/4/2N TMSR	1.437"	0.687"	0.937"
1/2"	1/2"	3/8" NPTF	4/4/3N TMSR	1.437"	0.687"	1.125"

Tee – NPTF male stud run and NPTF male branch



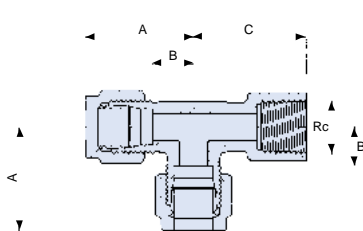
run OD	branch NPTF	run NPTF	part number	A	B	C
1/4"	1/8" NPTF	1/8" NPTF	2/1N/1N MBMR	1.156"	0.567"	0.826"
1/4"	1/4" NPTF	1/4" NPTF	2/2N/2N MBMR	1.156"	0.567"	0.937"
3/8"	1/4" NPTF	1/4" NPTF	3/2N/2N MBMR	1.250"	0.593"	0.937"
1/2"	1/4" NPTF	1/4" NPTF	4/2N/2N MBMR	1.437"	0.687"	1.937"
1/2"	3/8" NPTF	3/8" NPTF	4/3N/3N MBMR	1.437"	0.687"	1.125"

Tee – BSPT female stud branch



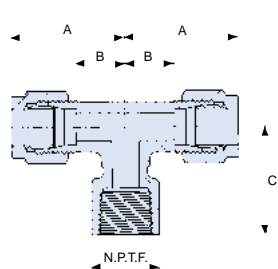
run OD	branch Rc	run OD	part number	A	B	C
1/4"	1/8" BSPT	1/4"	2/1T/2 TFBSB	1.156"	0.567"	1.063"
1/4"	1/4" BSPT	1/4"	2/2T/2 TFBSB	1.156"	0.567"	1.063"
3/8"	1/4" BSPT	3/8"	3/2T/3 TFBSB	1.250"	0.593"	1.063"
3/8"	3/8" BSPT	3/8"	3/3T/3 TFBSB	1.250"	0.593"	1.500"
1/2"	1/4" BSPT	1/2"	4/2T/4 TFBSB	1.437"	0.687"	1.500"
1/2"	3/8" BSPT	1/2"	4/3T/4 TFBSB	1.437"	0.687"	1.500"
1/2"	1/2" BSPT	1/2"	4/4T/4 TFBSB	1.437"	0.687"	1.500"

Tee – BSPT female stud run



run OD	branch OD	run Rc	part number	A	B	C
1/4"	1/4"	1/8" BSPT	2/2/1T TFBSR	1.156"	0.567"	1.063"
1/4"	1/4"	1/4" BSPT	2/2/2T TFBSR	1.156"	0.567"	1.063"
3/8"	3/8"	1/4" BSPT	3/3/2T TFBSR	1.250"	0.593"	1.063"
3/8"	3/8"	3/8" BSPT	3/3/3T TFBSR	1.250"	0.593"	1.500"
1/2"	1/2"	1/4" BSPT	4/4/2T TFBSR	1.437"	0.687"	1.500"
1/2"	1/2"	3/8" BSPT	4/4/3T TFBSR	1.437"	0.687"	1.500"
1/2"	1/2"	1/2" BSPT	4/4/4T TFBSR	1.437"	0.687"	1.500"

Tee – NPTF female stud branch

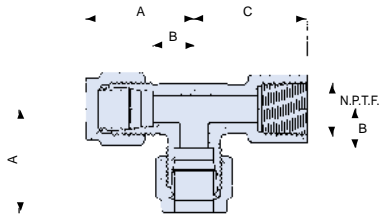


run OD	branch NPTF	run OD	part number	A	B	C
1/4"	1/8" NPTF	1/4"	2/1N/2 TFBSB	1.156"	0.567"	1.063"
1/4"	1/4" NPTF	1/4"	2/2N/2 TFBSB	1.156"	0.567"	1.063"
3/8"	1/4" NPTF	3/8"	3/2N/3 TFBSB	1.250"	0.593"	1.063"
3/8"	3/8" NPTF	3/8"	3/3N/3 TFBSB	1.250"	0.593"	1.500"
1/2"	1/4" NPTF	1/2"	4/2N/4 TFBSB	1.437"	0.687"	1.500"
1/2"	3/8" NPTF	1/2"	4/3N/4 TFBSB	1.437"	0.687"	1.500"
1/2"	1/2" NPTF	1/2"	4/4N/4 TFBSB	1.437"	0.687"	1.500"

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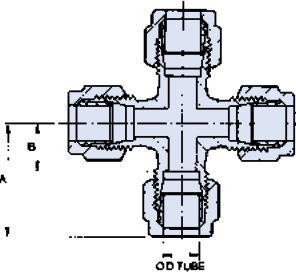
Duoloc® single ferrule OD compression fittings

Tee – NPTF female stud run



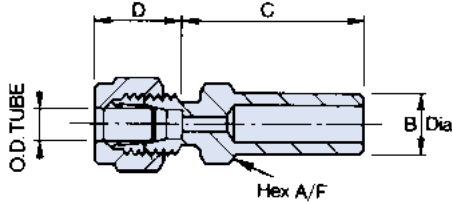
run OD	branch OD	run NPTF	part number	A	B	C
1/4"	1/4"	1/8" NPTF	2/2/1N TFSR	1.156"	0.567"	1.063"
1/4"	1/4"	1/4" NPTF	2/2/2N TFSR	1.156"	0.567"	1.063"
3/8"	3/8"	1/4" NPTF	3/3/2N TFSR	1.250"	0.593"	1.063"
3/8"	3/8"	3/8" NPTF	3/3/3N TFSR	1.250"	0.593"	1.500"
1/2"	1/2"	1/4" NPTF	4/4/2N TFSR	1.437"	0.687"	1.500"
1/2"	1/2"	3/8" NPTF	4/4/3N TFSR	1.437"	0.687"	1.500"
1/2"	1/2"	1/2" NPTF	4/4/4N TFSR	1.437"	0.687"	1.500"

Equal cross



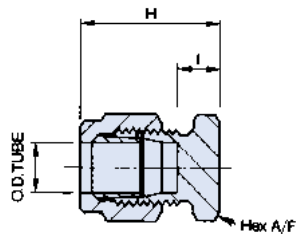
OD tube	part number	A	B
1/8"	1/1 CR	1.220"	0.562"
3/16"	3/16 CR	1.253"	0.562"
For 1/8" & 3/16" see Assembly Page 1.36			
1/4"	2/2 CR	1.156"	0.562"
3/8"	3/3 CR	1.250"	0.593"
1/2"	4/4 CR	1.437"	0.687"

Reducing adaptor



OD tube	B dia	part number	C	D	hex A/F
1/8"	3/8"	1/3 RA	1.187"	0.657"	0.562"
1/8"	1/2"	1/4 RA	1.281"	0.657"	0.562"
3/16"	3/8"	3/16/3 RA	1.187"	0.690"	0.562"
3/16"	1/2"	3/16/4 RA	1.281"	0.690"	0.562"
For 1/8" & 3/16" see Assembly Page 1.36					
1/4"	3/8"	2/3 RA	1.187"	0.593"	0.562"
1/4"	1/2"	2/4 RA	1.281"	0.593"	0.562"
3/8"	1/2"	3/4 RA	1.375"	0.656"	0.750"
1/2"	3/4"	4/6 RA	1.625"	0.750"	0.875"
1/2"	1"	4/8 RA	1.781"	0.750"	1.125"
3/4"	1"	6/8 RA	1.906"	0.843"	1.125"

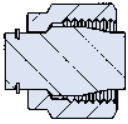
Blanking end



OD tube	part number	H	I	hex A/F
1/8"	BE1	0.970"	0.312"	0.562"
3/16"	BE3/16	1.003"	0.312"	0.562"
For 1/8" & 3/16" see Assembly Page 1.36				
1/4"	BE2	0.906"	0.312"	0.562"
3/8"	BE3	1.062"	0.406"	0.750"
1/2"	BE4	1.187"	0.437"	0.875"
3/4"	BE6	1.406"	0.562"	1.125"
1"	BE8	1.625"	0.656"	1.500"

Duoloc[®] single ferrule OD compression fittings

Blanking plug

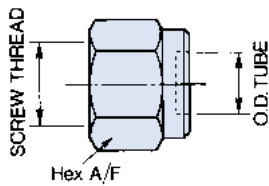


OD tube	part number
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For 1/8" & 3/16" use Part No. BP2.

1/4"	BP2
3/8"	BP3
1/2"	BP4
3/4"	BP6
1"	BP8

Compression nut



OD tube	part number	hex A/F	screw thread
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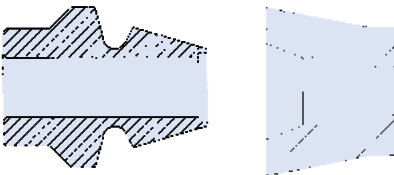
For 1/8" OD & 3/16" OD use 1/4" nut 2N.

1/4"	2N	0.562"	7/16" x 20 T.P.I.U.N.F.
3/8"	3N	0.750"	5/8" x 16 T.P.I.U.N.F.
1/2"	4N	0.875"	3/4" x 16 T.P.I.U.N.F.
3/4"	6N	1.312"	11/16" x 16 T.P.I.U.N.F.
1"	8N	1.500"	15/16" x 16 T.P.I.U.N.F.

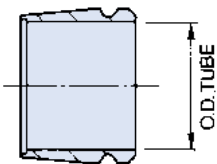
1/8" and 3/16" OD ferrule

tube OD	part number
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1/8"	1F
3/16"	3/16F



OD ferrule



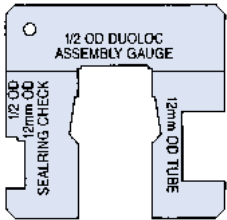
tube OD	part number
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1/4"	2F
3/8"	3F
1/2"	4F
3/4"	6F
1"	8F

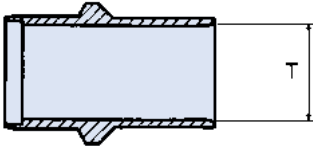
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Duoloc® single ferrule OD compression fittings

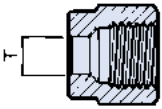
Assembly check gauge



Flexloc ferrule



Flexloc compression nut



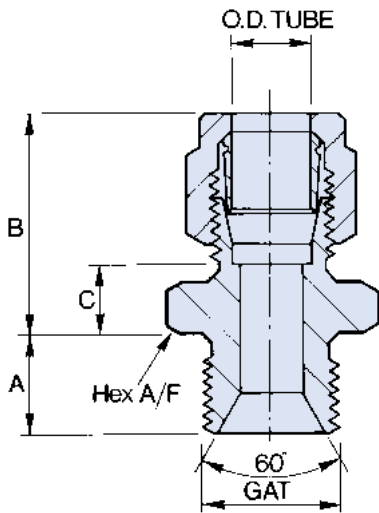
tube OD	part number
1/4"	DAG-2
3/8"	DAG-3
1/2"	DAG-4
5/8"	DAG-5
3/4"	DAG-6
1"	DAG-8

T tube OD	basic part number
1/4"	FLR-2-SF
3/8"	FLR-3-SF
1/2"	FLR-4-SF

T tube OD	part number stainless steel	part number carbon steel
1/4"	FLN-2-SF	SN-2-CF
3/8"	FLN-3-SF	SN-3-CF
1/2"	FLN-4-SF	SN-4-CF

Duoloc[®] single ferrule OD compression fittings

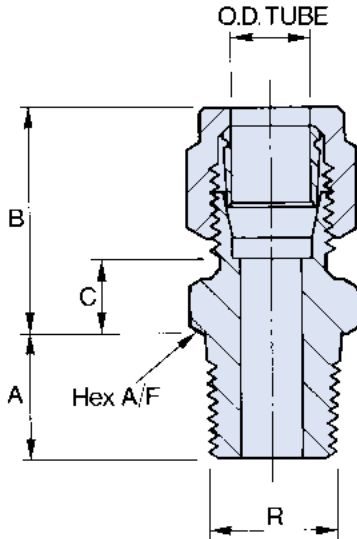
BSP parallel male stud coupling



OD tube	thread size GAT	part number	A	B	C	hex A/F
6mm	1/8" BSP	6m/1P MSC	11.5mm	24.0mm	9.5mm	14.0mm
6mm	1/4" BSP	6m/2P MSC	11.5mm	24.0mm	9.5mm	19.0mm
6mm	3/8" BSP	6m/3P MSC	13.5mm	24.0mm	9.5mm	22.0mm
6mm	1/2" BSP	6m/4P MSC	15.0mm	24.0mm	11.0mm	28.5mm
8mm	1/8" BSP	8m/1P MSC	11.5mm	27.0mm	8.5mm	17.0mm
8mm	1/4" BSP	8m/2P MSC	11.5mm	27.0mm	8.5mm	19.0mm
8mm	3/8" BSP	8m/3P MSC	13.5mm	27.0mm	8.5mm	22.0mm
8mm	1/2" BSP	8m/4P MSC	15.0mm	27.0mm	10.0mm	28.5mm
10mm	1/8" BSP	10m/1P MSC	11.5mm	27.0mm	9.0mm	19.0mm
10mm	1/4" BSP	10m/2P MSC	11.5mm	27.0mm	9.0mm	19.0mm
10mm	3/8" BSP	10m/3P MSC	13.5mm	27.0mm	9.0mm	22.0mm
10mm	1/2" BSP	10m/4P MSC	15.0mm	27.0mm	10.5mm	28.5mm
12mm	1/4" BSP	12m/2P MSC	11.5mm	27.0mm	9.0mm	19.0mm
12mm	3/8" BSP	12m/3P MSC	13.5mm	27.0mm	9.0mm	22.0mm
12mm	1/2" BSP	12m/4P MSC	15.0mm	27.0mm	10.5mm	28.5mm
12mm	3/4" BSP	12m/6P MSC	19.0mm	27.0mm	12.0mm	33.0mm
15mm	1/4" BSP	15m/2P MSC	11.5mm	29.0mm	9.5mm	19.0mm
15mm	3/8" BSP	15m/3P MSC	13.5mm	29.0mm	9.5mm	24.0mm
15mm	1/2" BSP	15m/4P MSC	15.0mm	29.0mm	11.0mm	28.5mm
15mm	3/4" BSP	15m/6P MSC	19.0mm	29.0mm	12.5mm	33.0mm
16mm	1/2" BSP	16m/4P MSC	15.0mm	32.5mm	11.0mm	28.5mm
16mm	3/4" BSP	16m/6P MSC	19.0mm	32.5mm	11.0mm	33.0mm
18mm	3/4" BSP	18m/6P MSC	19.0mm	35.0mm	13.5mm	33.0mm
20mm	1/2" BSP	20m/4P MSC	15.0mm	35.8mm	14.5mm	33.0mm
20mm	3/4" BSP	20m/6P MSC	19.0mm	35.8mm	14.5mm	33.0mm
20mm	1" BSP	20m/8P MSC	20.5mm	35.8mm	14.5mm	42.5mm
22mm	1/2" BSP	22m/4P MSC	15.0mm	38.0mm	14.5mm	33.0mm
22mm	3/4" BSP	22m/6P MSC	19.0mm	38.0mm	14.5mm	33.0mm
22mm	1" BSP	22m/8P MSC	20.5mm	38.0mm	14.5mm	42.5mm
25mm	1" BSP	25m/8P MSC	20.5mm	39.8mm	14.5mm	42.5mm

Duoloc® single ferrule OD compression fittings

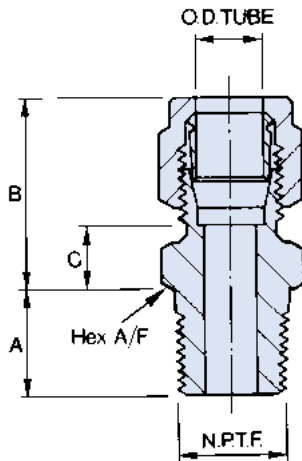
BSPT male stud coupling



OD tube	thread size R	part number	A	B	C	hex A/F
6mm	1/8" BSPT	6m/1T MSC	9.5mm	24.0mm	9.5mm	14.0mm
6mm	1/4" BSPT	6m/2T MSC	12.5mm	24.0mm	9.5mm	14.0mm
6mm	3/8" BSPT	6m/3T MSC	14.0mm	24.0mm	9.5mm	19.0mm
6mm	1/2" BSPT	6m/4T MSC	17.5mm	24.0mm	11.0mm	22.0mm
8mm	1/8" BSPT	8m/1T MSC	9.5mm	27.0mm	8.5mm	17.0mm
8mm	1/4" BSPT	8m/2T MSC	12.5mm	27.0mm	8.5mm	17.0mm
8mm	3/8" BSPT	8m/3T MSC	14.0mm	27.0mm	8.5mm	19.0mm
8mm	1/2" BSPT	8m/4T MSC	17.5mm	27.0mm	10.0mm	22.0mm
10mm	1/8" BSPT	10m/1T MSC	9.5mm	27.0mm	9.0mm	19.0mm
10mm	1/4" BSPT	10m/2T MSC	12.5mm	27.0mm	9.0mm	19.0mm
10mm	3/8" BSPT	10m/3T MSC	14.0mm	27.0mm	9.0mm	19.0mm
10mm	1/2" BSPT	10m/4T MSC	17.5mm	27.0mm	10.5mm	22.0mm
12mm	1/4" BSPT	12m/2T MSC	12.5mm	27.0mm	9.0mm	19.0mm
12mm	3/8" BSPT	12m/3T MSC	14.0mm	27.0mm	9.0mm	19.0mm
12mm	1/2" BSPT	12m/4T MSC	17.5mm	27.0mm	10.5mm	22.0mm
12mm	3/4" BSPT	12m/6T MSC	19.0mm	27.0mm	12.0mm	28.5mm
15mm	1/4" BSPT	15m/2T MSC	12.5mm	29.0mm	10.5mm	24.0mm
15mm	3/8" BSPT	15m/3T MSC	14.0mm	29.0mm	10.5mm	24.0mm
15mm	1/2" BSPT	15m/4T MSC	17.5mm	29.0mm	11.0mm	24.0mm
15mm	3/4" BSPT	15m/6T MSC	19.0mm	29.0mm	12.5mm	28.5mm
16mm	1/2" BSPT	16m/4T MSC	17.5mm	32.5mm	11.0mm	27.0mm
16mm	3/4" BSPT	16m/6T MSC	19.0mm	32.5mm	11.0mm	28.5mm
18mm	3/4" BSPT	18m/6T MSC	19.0mm	35.0mm	13.5mm	28.5mm
20mm	1/2" BSPT	20m/4T MSC	17.5mm	35.8mm	14.5mm	33.0mm
20mm	3/4" BSPT	20m/6T MSC	19.0mm	35.8mm	14.5mm	33.0mm
20mm	1" BSPT	20m/8T MSC	22.0mm	35.8mm	14.5mm	35.0mm
22mm	3/8" BSPT	22m/3T MSC	14.0mm	38.0mm	14.5mm	33.0mm
22mm	1/2" BSPT	22m/4T MSC	17.5mm	38.0mm	14.5mm	33.0mm
22mm	3/4" BSPT	22m/6T MSC	19.0mm	38.0mm	14.5mm	33.0mm
22mm	1" BSPT	22m/8T MSC	22.0mm	38.0mm	14.5mm	35.0mm
25mm	3/4" BSPT	25m/6T MSC	19.0mm	39.8mm	14.5mm	38.0mm
25mm	1" BSPT	25m/8T MSC	22.0mm	39.8mm	14.5mm	38.0mm

Duoloc® single ferrule OD compression fittings

NPTF male stud coupling

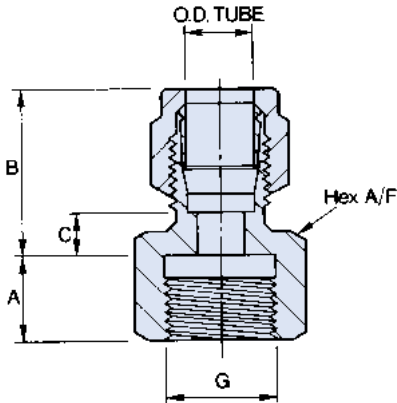


OD tube	thread size NPTF	part number	A	B	C	hex A/F
6mm	1/8" NPTF	6m/1N MSC	9.5mm	24.0mm	9.5mm	14.0mm
6mm	1/4" NPTF	6m/2N MSC	12.5mm	24.0mm	9.5mm	14.0mm
6mm	3/8" NPTF	6m/3N MSC	14.0mm	24.0mm	9.5mm	19.0mm
6mm	1/2" NPTF	6m/4N MSC	17.5mm	24.0mm	11.0mm	22.0mm
8mm	1/8" NPTF	8m/1N MSC	9.5mm	27.0mm	8.5mm	17.0mm
8mm	1/4" NPTF	8m/2N MSC	12.5mm	27.0mm	8.5mm	17.0mm
8mm	3/8" NPTF	8m/3N MSC	14.0mm	27.0mm	8.5mm	19.0mm
8mm	1/2" NPTF	8m/4N MSC	17.5mm	27.0mm	10.0mm	22.0mm
10mm	1/8" NPTF	10m/1N MSC	9.5mm	27.0mm	9.0mm	19.0mm
10mm	1/4" NPTF	10m/2N MSC	12.5mm	27.0mm	9.0mm	19.0mm
10mm	3/8" NPTF	10m/3N MSC	14.0mm	27.0mm	9.0mm	19.0mm
10mm	1/2" NPTF	10m/4N MSC	17.5mm	27.0mm	10.5mm	22.0mm
12mm	1/4" NPTF	12m/2N MSC	17.5mm	27.0mm	9.0mm	19.0mm
12mm	3/8" NPTF	12m/3N MSC	14.0mm	27.0mm	9.0mm	19.0mm
12mm	1/2" NPTF	12m/4N MSC	17.5mm	27.0mm	10.5mm	22.0mm
12mm	3/4" NPTF	12m/6N MSC	19.0mm	27.0mm	12.0mm	24.0mm
15mm	1/4" NPTF	15m/2N MSC	12.5mm	29.0mm	9.5mm	24.0mm
15mm	3/8" NPTF	15m/3N MSC	14.0mm	29.0mm	9.5mm	24.0mm
15mm	1/2" NPTF	15m/4N MSC	17.5mm	29.0mm	11.0mm	28.5mm
15mm	3/4" NPTF	15m/6N MSC	19.0mm	29.0mm	12.5mm	28.5mm
16mm	1/2" NPTF	16m/4N MSC	17.5mm	32.5mm	11.0mm	27.0mm
16mm	3/4" NPTF	16m/6N MSC	19.0mm	32.5mm	11.0mm	28.5mm
18mm	3/4" NPTF	18m/6N MSC	19.0mm	35.0mm	13.5mm	28.5mm
20mm	1/2" NPTF	20m/4N MSC	17.5mm	35.8mm	14.5mm	33.0mm
20mm	3/4" NPTF	20m/6N MSC	19.0mm	35.8mm	14.5mm	33.0mm
20mm	1" NPTF	20m/8N MSC	22.0mm	35.8mm	14.5mm	35.0mm
22mm	1/2" NPTF	22m/4N MSC	17.5mm	38.0mm	14.5mm	33.0mm
22mm	3/4" NPTF	22m/6N MSC	19.0mm	38.0mm	14.5mm	33.0mm
22mm	1" NPTF	22m/8N MSC	22.0mm	38.0mm	14.5mm	33.0mm
25mm	3/4" NPTF	25m/6N MSC	19.0mm	39.8mm	14.5mm	38.0mm
25mm	1" NPTF	25m/8N MSC	22.0mm	39.8mm	14.5mm	38.0mm

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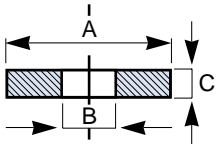
Duoloc® single ferrule OD compression fittings

BSP parallel female stud coupling



OD tube	thread size G	part number	A	B	C	hex A/F
6mm	1/8" BSP	6m/1P FSC	12.0mm	24.0mm	9.0mm	14.0mm
6mm	1/4" BSP	6m/2P FSC	12.0mm	24.0mm	9.0mm	19.0mm
6mm	3/8" BSP	6m/3P FSC	13.0mm	24.0mm	9.0mm	22.0mm
6mm	1/2" BSP	6m/4P FSC	16.0mm	24.0mm	9.0mm	27.0mm
8mm	1/4" BSP	8m/2P FSC	12.0mm	27.0mm	9.0mm	19.0mm
8mm	1/2" BSP	8m/4P FSC	16.0mm	27.0mm	9.0mm	27.0mm
10mm	1/4" BSP	10m/2P FSC	12.0mm	27.0mm	9.0mm	19.0mm
10mm	3/8" BSP	10m/3P FSC	14.0mm	27.0mm	9.0mm	22.0mm
10mm	1/2" BSP	10m/4P FSC	16.0mm	27.0mm	9.0mm	27.0mm
12mm	1/4" BSP	12m/2P FSC	12.0mm	27.0mm	9.0mm	19.0mm
12mm	3/8" BSP	12m/3P FSC	14.0mm	27.0mm	9.0mm	22.0mm
12mm	1/2" BSP	12m/4P FSC	16.0mm	27.0mm	9.0mm	27.0mm
15mm	1/2" BSP	15m/4P FSC	16.0mm	29.0mm	10.0mm	27.0mm
16mm	1/2" BSP	16m/4P FSC	16.0mm	31.0mm	10.0mm	28.5mm
18mm	3/4" BSP	18m/6P FSC	19.0mm	31.5mm	10.0mm	33.0mm
20mm	3/4" BSP	20m/6P FSC	19.0mm	32.0mm	11.0mm	33.0mm
22mm	1/2" BSP	22m/4P FSC	16.0mm	36.0mm	11.0mm	33.0mm
22mm	3/4" BSP	22m/6P FSC	19.0mm	36.0mm	11.0mm	33.0mm
25mm	3/4" BSP	25m/6P FSC	19.0mm	36.0mm	11.0mm	38.0mm

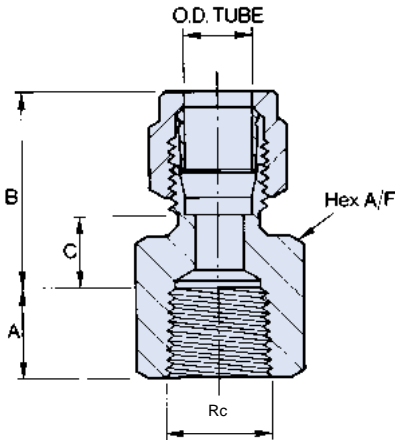
BSP parallel gauge washer PTFE



thread size G	part number	A	B	C
1/8"	GW1	8.6mm	4.0mm	2.6mm
1/4"	GW2	11.5mm	4.1mm	2.6mm
3/8"	GW3	14.8mm	6.0mm	2.6mm
1/2"	GW4	18.5mm	6.0mm	3.2mm
3/4"	GW6	24.0mm	12.7mm	3.2mm
1"	GW8	30.4mm	17.0mm	3.2mm

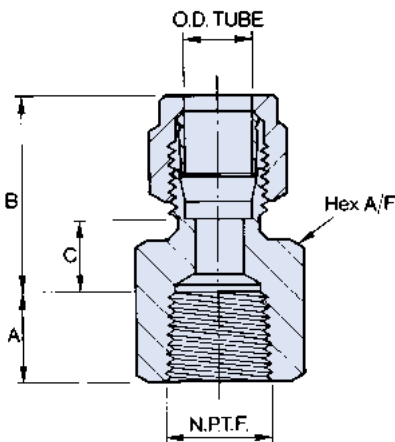
Duoloc[®] single ferrule OD compression fittings

BSPT female stud coupling



OD tube	thread size Rc	part number	A	B	C	hex A/F
6mm	1/8" BSPT	6m/1T FSC	13.0mm	24.0mm	9.0mm	19.0mm
6mm	1/4" BSPT	6m/2T FSC	17.0mm	24.0mm	9.0mm	19.0mm
6mm	1/2" BSPT	6m/4T FSC	19.0mm	24.0mm	9.0mm	27.0mm
8mm	1/4" BSPT	8m/2T FSC	17.0mm	27.0mm	9.0mm	19.0mm
8mm	1/2" BSPT	8m/4T FSC	19.0mm	27.0mm	9.0mm	27.0mm
10mm	1/8" BSPT	10m/1T FSC	13.0mm	27.0mm	9.0mm	19.0mm
10mm	1/4" BSPT	10m/2T FSC	17.0mm	27.0mm	9.0mm	19.0mm
10mm	3/8" BSPT	10m/3T FSC	18.0mm	27.0mm	9.0mm	22.0mm
10mm	1/2" BSPT	10m/4T FSC	19.0mm	27.0mm	9.0mm	27.0mm
12mm	1/4" BSPT	12m/2T FSC	17.0mm	27.0mm	9.0mm	19.0mm
12mm	3/8" BSPT	12m/3T FSC	18.0mm	27.0mm	9.0mm	22.0mm
12mm	1/2" BSPT	12m/4T FSC	19.0mm	27.0mm	9.0mm	27.0mm
15mm	1/2" BSPT	15m/4T FSC	19.0mm	29.0mm	10.0mm	27.0mm
16mm	1/2" BSPT	16m/4T FSC	19.0mm	36.0mm	14.0mm	28.5mm
18mm	3/4" BSPT	18m/6T FSC	19.0mm	38.5mm	17.0mm	33.0mm
20mm	3/4" BSPT	20m/6T FSC	19.0mm	39.0mm	18.0mm	33.0mm
22mm	1/2" BSPT	22m/4T FSC	19.0mm	41.0mm	16.0mm	33.0mm
22mm	3/4" BSPT	22m/6T FSC	19.0mm	43.0mm	18.0mm	33.0mm
25mm	3/4" BSPT	25m/6T FSC	19.0mm	43.0mm	18.0mm	38.0mm

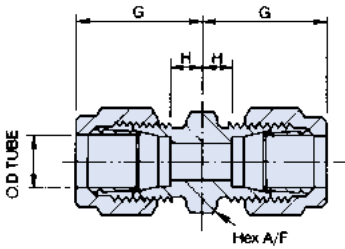
NPTF female stud coupling



OD tube	thread size NPTF	part number	A	B	C	hex A/F
6mm	1/8" NPTF	6m/1N FSC	13.0mm	24.0mm	9.0mm	19.0mm
6mm	1/4" NPTF	6m/2N FSC	17.0mm	24.0mm	9.0mm	19.0mm
6mm	1/2" NPTF	6m/4N FSC	19.0mm	24.0mm	9.0mm	27.0mm
8mm	1/4" NPTF	8m/2N FSC	17.0mm	27.0mm	9.0mm	19.0mm
8mm	1/2" NPTF	8m/4N FSC	19.0mm	27.0mm	9.0mm	27.0mm
10mm	1/8" NPTF	10m/1N FSC	13.0mm	27.0mm	9.0mm	19.0mm
10mm	1/4" NPTF	10m/2N FSC	17.0mm	27.0mm	9.0mm	19.0mm
10mm	3/8" NPTF	10m/3N FSC	18.0mm	27.0mm	9.0mm	22.0mm
10mm	1/2" NPTF	10m/4N FSC	19.0mm	27.0mm	9.0mm	27.0mm
12mm	1/4" NPTF	12m/2N FSC	17.0mm	27.0mm	9.0mm	19.0mm
12mm	3/8" NPTF	12m/3N FSC	18.0mm	27.0mm	9.0mm	22.0mm
12mm	1/2" NPTF	12m/4N FSC	19.0mm	27.0mm	9.0mm	27.0mm
15mm	1/2" NPTF	15m/4N FSC	19.0mm	29.0mm	10.0mm	27.0mm
16mm	1/2" NPTF	16m/4N FSC	19.0mm	36.0mm	14.0mm	28.5mm
18mm	3/4" NPTF	18m/6N FSC	19.0mm	38.5mm	17.0mm	33.0mm
20mm	3/4" NPTF	20m/6N FSC	19.0mm	39.0mm	18.0mm	33.0mm
22mm	1/2" NPTF	22m/4N FSC	19.0mm	41.0mm	16.0mm	33.0mm
22mm	3/4" NPTF	22m/6N FSC	19.0mm	43.0mm	18.0mm	33.0mm
25mm	3/4" NPTF	25m/6N FSC	19.0mm	43.0mm	18.0mm	38.0mm

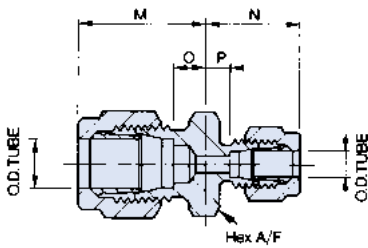
Duoloc® single ferrule OD compression fittings

Straight coupling



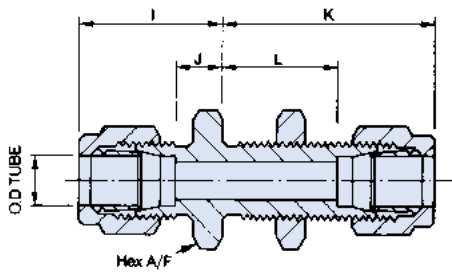
OD tube	part number	G	H	hex A/F
6mm	6m/6m SC	23.0mm	5.0mm	14.0mm
8mm	8m/8m SC	25.0mm	4.5mm	17.0mm
10mm	10m/10m SC	27.0mm	5.0mm	19.0mm
12mm	12m/12m SC	28.0mm	6.0mm	19.0mm
15mm	15m/15m SC	28.0mm	6.0mm	24.0mm
16mm	16m/16m SC	29.0mm	6.8mm	27.0mm
18mm	18m/18m SC	30.0mm	8.5mm	28.5mm
20mm	20m/20m SC	31.0mm	9.8mm	33.0mm
22mm	22m/22m SC	35.0mm	9.8mm	33.0mm
25mm	25m/25m SC	35.0mm	9.8mm	38.0mm

Reducing coupling



OD tube 1	OD tube 2	part number	M	N	O	P	hex A/F
8mm	6mm	8m/6m RC	22.0mm	22.0mm	6.0mm	6.0mm	17.0mm
10mm	6mm	10m/6m RC	22.0mm	25.0mm	6.0mm	6.0mm	19.0mm
10mm	8mm	10m/8m RC	25.0mm	22.0mm	6.0mm	6.0mm	19.0mm
12mm	6mm	12m/6m RC	25.0mm	22.0mm	6.0mm	6.0mm	22.0mm
12mm	8mm	12m/8m RC	25.0mm	22.0mm	6.0mm	6.0mm	22.0mm
12mm	10mm	12m/10m RC	25.0mm	22.0mm	6.0mm	6.0mm	22.0mm
15mm	6mm	15m/6m RC	26.0mm	22.0mm	6.0mm	6.0mm	24.0mm
15mm	10mm	15m/10m RC	26.0mm	22.0mm	6.0mm	6.0mm	24.0mm
15mm	12mm	15m/12m RC	30.0mm	26.0mm	6.0mm	6.0mm	24.0mm
22mm	15mm	22m/15m RC	30.0mm	26.0mm	8.0mm	6.0mm	33.0mm

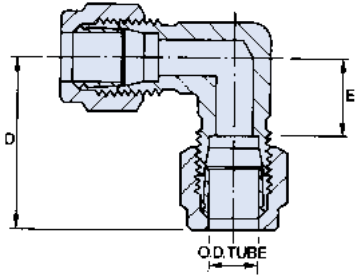
Bulkhead coupling



OD tube	part number	I	J	K	L	hex A/F	bulkhead bore dia
6mm	6m/6m BULK	23.0mm	8.0mm	42.0mm	25.0mm	17.0mm	12.2mm
8mm	8m/8m BULK	25.0mm	8.0mm	42.0mm	27.0mm	19.0mm	14.2mm
10mm	10m/10m BULK	27.0mm	10.0mm	42.0mm	27.0mm	22.0mm	16.2mm
12mm	12m/12m BULK	28.0mm	9.0mm	43.0mm	27.0mm	24.0mm	18.2mm
15mm	15m/15m BULK	28.0mm	9.0mm	47.0mm	29.0mm	28.0mm	22.3mm
16mm	16m/16m BULK	32.5mm	11.0mm	53.0mm	31.0mm	32.0mm	24.3mm
18mm	18m/18m BULK	35.0mm	13.5mm	56.0mm	35.0mm	32.0mm	26.3mm
20mm	20m/20m BULK	35.8mm	14.5mm	57.0mm	35.0mm	36.0mm	28.3mm
22mm	22m/22m BULK	38.0mm	14.5mm	60.0mm	35.0mm	36.0mm	30.2mm
25mm	25m/25m BULK	39.8mm	14.5mm	60.5mm	35.0mm	42.5mm	33.2mm

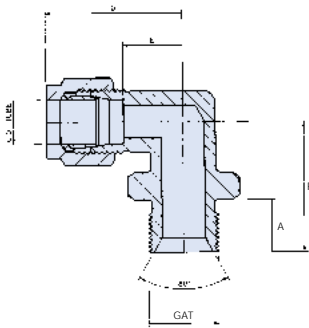
Duoloc® single ferrule OD compression fittings

Equal elbow



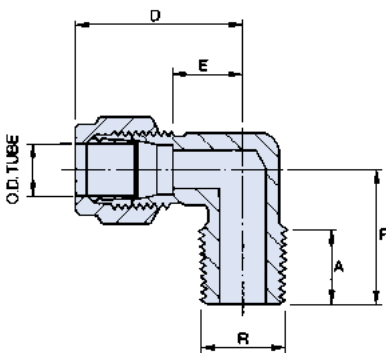
OD tube	part number	D	E
6mm	6m/6m E	30.0mm	15.0mm
8mm	8m/8m E	33.0mm	15.0mm
10mm	10m/10m E	33.0mm	15.0mm
12mm	12m/12m E	36.0mm	17.0mm
15mm	15m/15m E	46.0mm	26.0mm
16mm	16m/16m E	48.0mm	26.0mm
18mm	18m/18m E	48.0mm	26.0mm
20mm	20m/20m E	48.0mm	26.0mm
22mm	22m/22m E	52.0mm	28.0mm
25mm	25m/25m E	56.0mm	28.0mm

BSPP male stud elbow



OD tube	thread size GAT	part number	A	D	E	F
6mm	1/8" BSP	6m/1P MSE	11.5mm	30.0mm	15.0mm	27.0mm
6mm	1/4" BSP	6m/2P MSE	11.5mm	30.0mm	15.0mm	27.0mm
8mm	1/4" BSP	8m/2P MSE	11.5mm	33.0mm	15.0mm	27.0mm
10mm	1/4" BSP	10m/2P MSE	11.5mm	33.0mm	15.0mm	27.0mm
10mm	3/8" BSP	10m/3P MSE	13.5mm	33.0mm	15.0mm	38.0mm
10mm	1/2" BSP	10m/4P MSE	15.0mm	33.0mm	17.0mm	38.0mm
12mm	1/4" BSP	12m/2P MSE	11.5mm	36.0mm	17.0mm	38.0mm
12mm	3/8" BSP	12m/3P MSE	13.5mm	36.0mm	17.0mm	38.0mm
12mm	1/2" BSP	12m/4P MSE	15.0mm	36.0mm	17.0mm	38.0mm

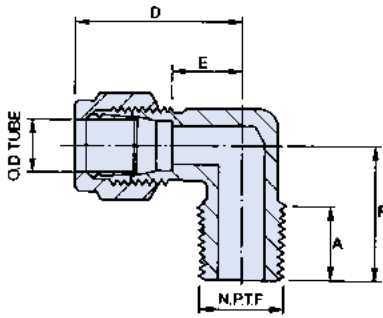
BSPT male stud elbow



OD tube	thread size R	part number	A	D	E	F
6mm	1/8" BSPT	6m/1T MSE	10.0mm	30.0mm	15.0mm	23.0mm
6mm	1/4" BSPT	6m/2T MSE	13.0mm	30.0mm	15.0mm	26.0mm
8mm	1/8" BSPT	8m/1T MSE	10.0mm	33.0mm	15.0mm	24.0mm
8mm	1/4" BSPT	8m/2T MSE	13.0mm	33.0mm	15.0mm	26.0mm
10mm	1/4" BSPT	10m/2T MSE	13.0mm	33.0mm	15.0mm	26.0mm
10mm	3/8" BSPT	10m/3T MSE	14.0mm	33.0mm	15.0mm	26.0mm
10mm	1/2" BSPT	10m/4T MSE	17.0mm	33.0mm	15.0mm	35.0mm
12mm	1/4" BSPT	12m/2T MSE	13.0mm	36.0mm	17.0mm	29.0mm
12mm	3/8" BSPT	12m/3T MSE	14.0mm	36.0mm	17.0mm	30.0mm
12mm	1/2" BSPT	12m/4T MSE	17.0mm	36.0mm	17.0mm	35.0mm
12mm	3/4" BSPT	12m/6T MSE	19.0mm	36.0mm	17.0mm	38.0mm
15mm	1/2" BSPT	15m/4T MSE	17.0mm	46.0mm	26.0mm	38.0mm
15mm	3/4" BSPT	15m/6T MSE	19.0mm	46.0mm	26.0mm	38.0mm
16mm	1/2" BSPT	16m/4T MSE	17.0mm	48.0mm	26.0mm	38.0mm
18mm	3/4" BSPT	18m/6T MSE	19.0mm	48.0mm	26.0mm	38.0mm
20mm	3/4" BSPT	20m/6T MSE	19.0mm	48.0mm	26.0mm	38.0mm
22mm	1/2" BSPT	22m/4T MSE	17.0mm	52.0mm	28.0mm	38.0mm
22mm	3/4" BSPT	22m/6T MSE	19.0mm	52.0mm	28.0mm	38.0mm
25mm	3/4" BSPT	25m/6T MSE	19.0mm	56.0mm	28.0mm	38.0mm

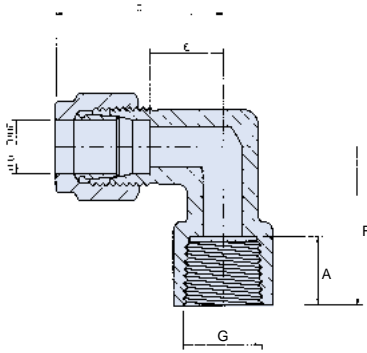
Duoloc® single ferrule OD compression fittings

NPTF male stud elbow



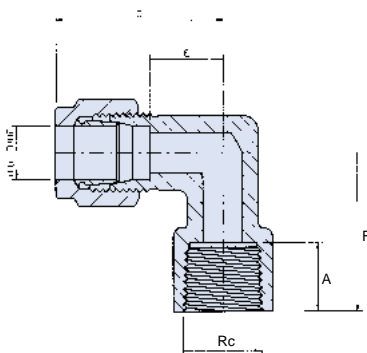
OD tube	thread size NPTF	part number	A	D	E	F
6mm	1/8" NPTF	6m/1N MSE	10.0mm	30.0mm	15.0mm	23.0mm
6mm	1/4" NPTF	6m/2N MSE	13.0mm	30.0mm	15.0mm	26.0mm
8mm	1/4" NPTF	8m/2N MSE	13.0mm	33.0mm	15.0mm	26.0mm
10mm	1/4" NPTF	10m/2N MSE	13.0mm	33.0mm	15.0mm	26.0mm
10mm	3/8" NPTF	10m/3N MSE	14.0mm	33.0mm	15.0mm	26.0mm
10mm	1/2" NPTF	10m/4N MSE	17.0mm	30.0mm	15.0mm	35.0mm
12mm	1/4" NPTF	12m/2N MSE	13.0mm	36.0mm	17.0mm	29.0mm
12mm	3/8" NPTF	12m/3N MSE	14.0mm	36.0mm	17.0mm	30.0mm
12mm	1/2" NPTF	12m/4N MSE	17.0mm	36.0mm	17.0mm	35.0mm
12mm	3/4" NPTF	12m/6N MSE	19.0mm	36.0mm	17.0mm	38.0mm
15mm	1/2" NPTF	15m/4N MSE	17.0mm	46.0mm	26.0mm	38.0mm
15mm	3/4" NPTF	15m/6N MSE	19.0mm	46.0mm	26.0mm	38.0mm
16mm	1/2" NPTF	16m/4N MSE	17.0mm	48.0mm	26.0mm	38.0mm
18mm	3/4" NPTF	18m/6N MSE	19.0mm	48.0mm	26.0mm	38.0mm
20mm	3/4" NPTF	20m/6N MSE	19.0mm	48.0mm	26.0mm	38.0mm
22mm	1/2" NPTF	22m/4N MSE	17.0mm	52.0mm	28.0mm	38.0mm
22mm	3/4" NPTF	22m/6N MSE	19.0mm	52.0mm	28.0mm	38.0mm
25mm	3/4" NPTF	25m/6N MSE	19.0mm	56.0mm	28.0mm	38.0mm

BSPP female stud elbow



OD tube	thread size G	part number	A	D	E	F
6mm	1/4" BSP	6m/2P FSE	12.0mm	30.0mm	15.0mm	27.0mm
8mm	1/4" BSP	8m/2P FSE	12.0mm	33.0mm	15.0mm	27.0mm
10mm	1/4" BSP	10m/2P FSE	12.0mm	33.0mm	15.0mm	27.0mm
10mm	3/8" BSP	10m/3P FSE	14.0mm	33.0mm	15.0mm	38.0mm
12mm	1/4" BSP	12m/2P FSE	12.0mm	36.0mm	17.0mm	38.0mm
12mm	3/8" BSP	12m/3P FSE	14.0mm	36.0mm	17.0mm	38.0mm
12mm	1/2" BSP	12m/4P FSE	16.0mm	36.0mm	17.0mm	38.0mm

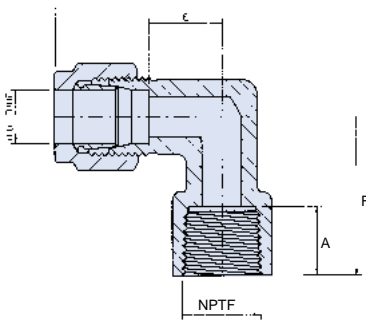
BSPT female stud elbow



OD tube	thread size Rc	part number	A	D	E	F
6mm	1/4" BSPT	6m/2T FSE	17.0mm	30.0mm	15.0mm	27.0mm
8mm	1/4" BSPT	8m/2T FSE	17.0mm	33.0mm	15.0mm	27.0mm
10mm	1/4" BSPT	10m/2T FSE	17.0mm	33.0mm	15.0mm	27.0mm
10mm	3/8" BSPT	10m/3T FSE	18.0mm	33.0mm	15.0mm	38.0mm
10mm	1/2" BSPT	10m/4T FSE	19.0mm	33.0mm	15.0mm	38.0mm
12mm	1/4" BSPT	12m/2T FSE	17.0mm	36.0mm	17.0mm	38.0mm
12mm	3/8" BSPT	12m/3T FSE	18.0mm	36.0mm	17.0mm	38.0mm
12mm	1/2" BSPT	12m/4T FSE	19.0mm	36.0mm	17.0mm	38.0mm

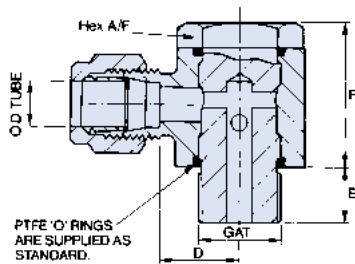
Duoloc® single ferrule OD compression fittings

NPTF female stud elbow



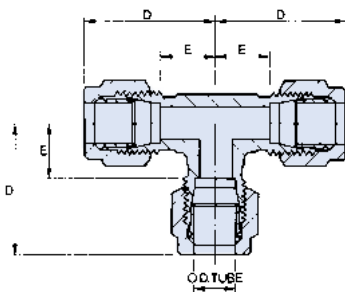
OD tube	thread size NPTF	part number	A	D	E	F
6mm	1/4" NPTF	6m/2N FSE	17.0mm	30.0mm	15.0mm	27.0mm
8mm	1/4" NPTF	8m/2N FSE	17.0mm	33.0mm	15.0mm	27.0mm
10mm	1/4" NPTF	10m/2N FSE	17.0mm	33.0mm	15.0mm	27.0mm
10mm	3/8" NPTF	10m/3N FSE	18.0mm	33.0mm	15.0mm	38.0mm
10mm	1/2" NPTF	10m/4N FSE	19.0mm	33.0mm	15.0mm	38.0mm
12mm	1/4" NPTF	12m/2N FSE	17.0mm	36.0mm	17.0mm	38.0mm
12mm	3/8" NPTF	12m/3N FSE	18.0mm	36.0mm	17.0mm	38.0mm
12mm	1/2" NPTF	12m/4N FSE	19.0mm	36.0mm	17.0mm	38.0mm

BSP Banjo coupling



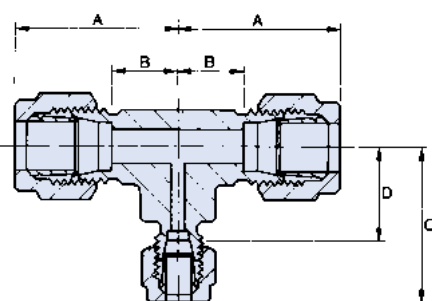
OD tube	thread size GAT	part number	square body A/F	D	E	F	A/F bolt
6mm	1/8" BSP	6m/1P BC	22.0mm	16.0mm	9.0mm	28.0mm	17.0mm
6mm	1/4" BSP	6m/2P BC	22.0mm	16.0mm	10.5mm	28.5mm	19.0mm
8mm	1/4" BSP	8m/2P BC	24.5mm	16.0mm	10.5mm	28.5mm	19.0mm
10mm	1/4" BSP	10m/2P BC	31.0mm	19.0mm	10.5mm	30.0mm	19.0mm
10mm	3/8" BSP	10m/3P BC	31.0mm	19.0mm	13.5mm	32.0mm	22.0mm
12mm	3/8" BSP	12m/3P BC	38.0mm	20.0mm	13.5mm	34.0mm	22.0mm
12mm	1/2" BSP	12m/4P BC	38.0mm	20.0mm	16.0mm	35.0mm	28.5mm

Equal tee



OD tube	part number	D	E
6mm	6m T	30.0mm	15.0mm
8mm	8m T	33.0mm	15.0mm
10mm	10m T	33.0mm	15.0mm
12mm	12m T	36.0mm	17.0mm
15mm	15m T	46.0mm	26.0mm
16mm	16m T	48.0mm	26.0mm
18mm	18m T	48.0mm	26.0mm
20mm	20m T	48.0mm	26.0mm
22mm	22m T	53.0mm	30.0mm
25mm	25m T	53.0mm	30.0mm

Reducing branch tee



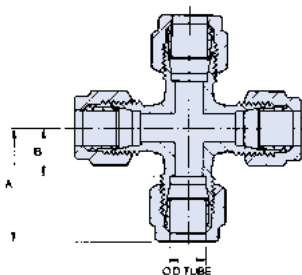
run OD	branch OD	run OD	part number	A	B	C	D
10mm	6mm	10mm	10m/6m RBT	30.0mm	15.0mm	30.0mm	15.0mm
12mm	6mm	12mm	12m/6m RBT	36.0mm	17.0mm	36.0mm	17.0mm
15mm	10mm	15mm	15m/10m RBT	46.0mm	26.0mm	46.0mm	26.5mm

Other reducing tees on request

1

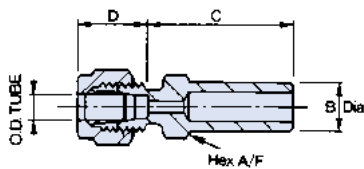
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Equal cross



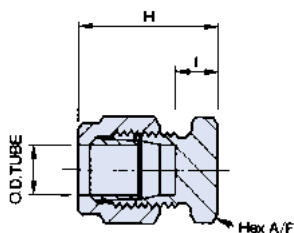
OD tube	part number	D	E
6mm	6m CR	30.0mm	15.0mm
8mm	8m CR	33.0mm	15.0mm
10mm	10m CR	33.0mm	15.0mm
12mm	12m CR	36.0mm	17.0mm

Reducing adaptor



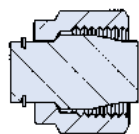
OD tube	B dia	part number	C	D	hex A/F
6mm	8mm	6m/8m RA	35.3mm	15.5mm	14.0mm
6mm	10mm	6m/10m RA	35.3mm	15.5mm	14.0mm
6mm	12mm	6m/12m RA	35.3mm	15.5mm	14.0mm
6mm	15mm	6m/15m RA	39.3mm	15.5mm	17.0mm
8mm	10mm	8m/10m RA	36.3mm	16.7mm	17.0mm
8mm	12mm	8m/12m RA	36.3mm	16.7mm	17.0mm
10mm	12mm	10m/12m RA	36.8mm	18.2mm	19.0mm
10mm	15mm	10m/15m RA	38.8mm	18.2mm	19.0mm
12mm	15mm	12m/15m RA	38.8mm	19.2mm	19.0mm
15mm	20mm	15m/20m RA	44.0mm	19.5mm	24.0mm
15mm	22mm	15m/22m RA	44.0mm	19.5mm	24.0mm

Blanking end



OD tube	part number	H	I	hex A/F
6mm	BE6m	25.0mm	9.3mm	14.0mm
8mm	BE8m	25.0mm	8.3mm	17.0mm
10mm	BE10m	27.0mm	8.8mm	19.0mm
12mm	BE12m	28.0mm	8.8mm	22.0mm
15mm	BE15m	30.0mm	10.5mm	24.0mm
16mm	BE16m	33.0mm	10.5mm	27.0mm
18mm	BE18m	34.5mm	13.0mm	28.5mm
20mm	BE20m	36.0mm	14.5mm	33.0mm
22mm	BE22m	36.0mm	14.5mm	33.0mm
25mm	BE25m	40.0mm	14.5mm	38.0mm

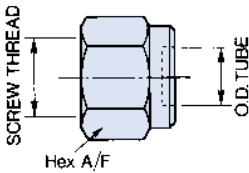
Blanking plug



OD tube	part number
6mm	BP6m
8mm	BP8m
10mm	BP10m
12mm	BP12m
15mm	BP15m
16mm	BP16m
18mm	BP18m
20mm	BP20m
22mm	BP22m
25mm	BP25m

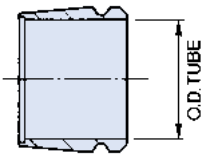
Duoloc® single ferrule OD compression fittings

Compression nut



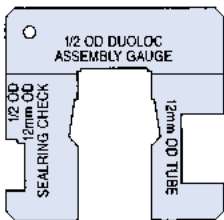
O.D. tube	part number	hex A/F	screw thread
6mm	6M N	14.0mm	M12mm x 1.5mm PITCH
8mm	8M N	17.0mm	M14mm x 1.5mm PITCH
10mm	10M N	19.0mm	M16mm x 1.5mm PITCH
12mm	12M N	22.0mm	M18mm x 1.5mm PITCH
15mm	15M N	27.0mm	M22mm x 1.5mm PITCH
16mm	16M N	28.5mm	M24mm x 1.5mm PITCH
18mm	18M N	33.0mm	M26mm x 1.5mm PITCH
20mm	20M N	36.0mm	M28mm x 1.5mm PITCH
22mm	22M N	36.0mm	M30mm x 2.0mm PITCH
25mm	25M N	38.0mm	M33mm x 2.0mm PITCH

OD ferrule



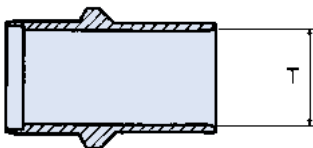
tube OD	part number
6mm	6M F
8mm	8M F
10mm	10M F
12mm	12M F
15mm	15M F
16mm	16M F
18mm	18M F
20mm	20M F
22mm	22M F
25mm	25M F

Assembly check gauge



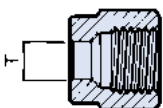
tube OD	part number
6mm	DAG-M6
8mm	DAG-M8
10mm	DAG-M10
12mm	DAG-M12
15mm	DAG-M15
18mm	DAG-M18
22mm	DAG-M22
25mm	DAG-M25

Flexloc ferrule



T tube OD	basic part number
6mm	FLR-M6-SF
8mm	FLR-M8-SF
10mm	FLR-M10-SF
12mm	FLR-M12-SF

Flexloc compression nut

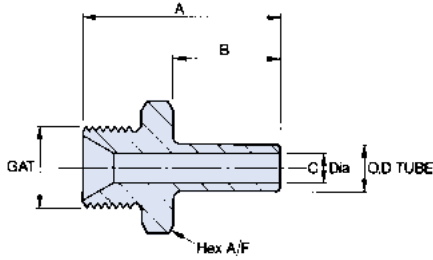


T tube OD	part number stainless steel
6mm	FLN-M6-SF
8mm	FLN-M8-SF
10mm	FLN-M10-SF
12mm	FLN-M12-SF

1

Duoloc® single ferrule OD compression fittings

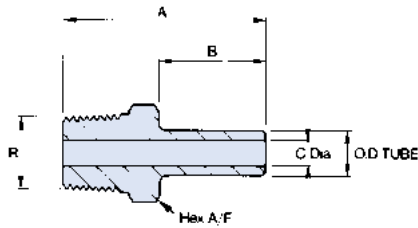
BSP parallel male standpipe adaptor



OD	thread size GAT	part number	A	B	C	hex A/F
1/4"	1/8" BSP	2/1P MSA	1.793"	1.093"	0.100"	0.562"
1/4"	1/4" BSP	2/2P MSA	1.793"	1.093"	0.100"	0.750"
1/4"	3/8" BSP	2/3P MSA	1.873"	1.093"	0.100"	0.875"
1/4"	1/2" BSP	2/4P MSA	2.000"	1.093"	0.100"	1.125"
3/8"	1/4" BSP	3/2P MSA	1.793"	1.093"	0.157"	0.750"
3/8"	3/8" BSP	3/3P MSA	1.873"	1.093"	0.157"	0.875"
3/8"	1/2" BSP	3/4P MSA	2.000"	1.093"	0.157"	1.125"
1/2"	1/4" BSP	4/2P MSA	1.793"	1.093"	0.312"	0.750"
1/2"	3/8" BSP	4/3P MSA	1.873"	1.093"	0.312"	0.875"
1/2"	1/2" BSP	4/4P MSA	2.000"	1.093"	0.312"	1.125"
3/4"	1/2" BSP	6/4P MSA	2.162"	1.250"	0.437"	1.125"
3/4"	3/4" BSP	6/6P MSA	2.375"	1.250"	0.437"	1.300"
1"	3/4" BSP	8/6P MSA	2.625"	1.500"	0.437"	1.300"
1"	1" BSP	8/8P MSA	2.675"	1.500"	0.750"	1.670"
6mm	1/4" BSP	6M/2P MSA	45.5mm	28mm	2.5mm	19mm
10mm	1/4" BSP	10M/2P MSA	45.5mm	28mm	6mm	19mm
10mm	3/8" BSP	10M/3P MSA	47.5mm	28mm	6mm	22mm
10mm	1/2" BSP	10M/4P MSA	50mm	28mm	6mm	28.5mm
12mm	1/4" BSP	12M/2P MSA	45.5mm	28mm	8mm	19mm
12mm	3/8" BSP	12M/3P MSA	47.5mm	28mm	8mm	22mm
12mm	1/2" BSP	12M/4P MSA	50mm	28mm	8mm	28.5mm
15mm	3/8" BSP	15M/3P MSA	50mm	30mm	9.5mm	22mm
15mm	1/2" BSP	15M/4P MSA	53mm	30mm	10mm	28.5mm
16mm	1/2" BSP	16M/4P MSA	53mm	30mm	10mm	28.5mm
18mm	1/2" BSP	18M/4P MSA	53mm	30mm	10mm	28.5mm
20mm	3/4" BSP	20M/6P MSA	59mm	30mm	10mm	33.0mm
22mm	3/4" BSP	22M/6P MSA	62mm	33.5mm	16mm	33.0mm
25mm	3/4" BSP	25M/6P MSA	62mm	33.5mm	16mm	33.0mm

Duoloc[®] single ferrule OD compression fittings

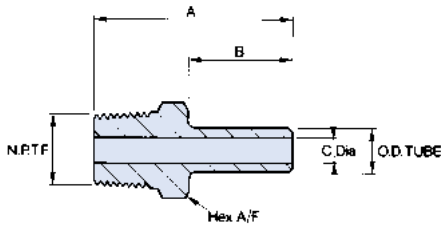
BSPT parallel male standpipe adaptor



OD	thread size R	part number	A	B	C	hex A/F
1/4"	1/8" BSPT	2/1T MSA	1.718"	1.093"	0.100"	0.437"
1/4"	1/4" BSPT	2/2T MSA	1.843"	1.093"	0.100"	0.562"
1/4"	3/8" BSPT	2/3T MSA	1.905"	1.093"	0.100"	0.750"
1/4"	1/2" BSPT	2/4T MSA	2.093"	1.093"	0.100"	0.875"
3/8"	1/4" BSPT	3/2T MSA	1.843"	1.093"	0.157"	0.562"
3/8"	3/8" BSPT	3/3T MSA	1.905"	1.093"	0.157"	0.750"
3/8"	1/2" BSPT	3/4T MSA	2.093"	1.093"	0.157"	0.875"
1/2"	1/4" BSPT	4/2T MSA	1.843"	1.093"	0.312"	0.562"
1/2"	3/8" BSPT	4/3T MSA	1.905"	1.093"	0.312"	0.750"
1/2"	1/2" BSPT	4/4T MSA	2.093"	1.093"	0.312"	0.875"
3/4"	1/2" BSPT	6/4T MSA	2.250"	1.250"	0.437"	0.875"
3/4"	3/4" BSPT	6/6T MSA	2.375"	1.250"	0.437"	1.125"
1"	3/4" BSPT	8/6T MSA	2.625"	1.500"	0.750"	1.125"
1"	1" BSPT	8/8T MSA	2.750"	1.500"	0.750"	1.375"
6mm	1/4" BSPT	6M/2T MSA	47mm	26mm	2.5mm	14mm
8mm	1/4" BSPT	8M/2T MSA	47mm	26mm	4mm	14mm
10mm	1/4" BSPT	10M/2T MSA	47mm	26mm	5.5mm	14mm
10mm	3/8" BSPT	10M/3T MSA	47.5mm	26mm	5.5mm	19mm
10mm	1/2" BSPT	10M/4T MSA	51mm	26mm	6mm	22mm
12mm	1/4" BSPT	12M/2T MSA	45mm	26mm	5.5mm	14mm
12mm	3/8" BSPT	12M/3T MSA	48mm	26mm	8mm	19mm
12mm	1/2" BSPT	12M/4T MSA	51mm	26mm	8mm	22mm
15mm	1/2" BSPT	15M/4T MSA	55mm	30mm	11mm	22mm
16mm	1/2" BSPT	16M/4T MSA	55mm	30mm	11mm	22mm
18mm	1/2" BSPT	18M/4T MSA	55mm	30mm	11mm	22mm
20mm	3/4" BSPT	20M/6T MSA	59mm	30mm	11mm	28.5mm
22mm	3/4" BSPT	22M/6T MSA	62mm	33.5mm	16mm	33mm
25mm	3/4" BSPT	25M/6T MSA	62mm	33.5mm	16mm	33mm

Duoloc® single ferrule OD compression fittings

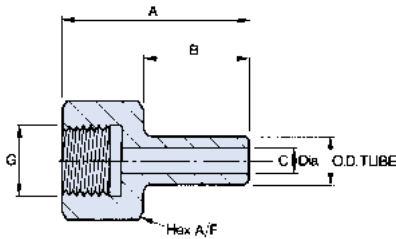
NPTF male standpipe adaptor



OD	thread size NPTF	part number	A	B	C	hex A/F
1/4"	1/8" NPTF	2/1N MSA	1.718"	1.093"	0.100"	0.437"
1/4"	1/4" NPTF	2/2N MSA	1.843"	1.093"	0.100"	0.562"
1/4"	3/8" NPTF	2/3N MSA	1.905"	1.093"	0.100"	0.750"
1/4"	1/2" NPTF	2/4N MSA	2.093"	1.093"	0.100"	1.875"
3/8"	1/4" NPTF	3/2N MSA	1.843"	1.093"	0.235"	0.562"
3/8"	3/8" NPTF	3/3N MSA	1.905"	1.093"	0.235"	0.750"
3/8"	1/2" NPTF	3/4N MSA	2.093"	1.093"	0.235"	0.875"
1/2"	1/4" NPTF	4/2N MSA	1.843"	1.093"	0.250"	0.562"
1/2"	3/8" NPTF	4/3N MSA	1.905"	1.093"	0.312"	0.750"
1/2"	1/2" NPTF	4/4N MSA	2.093"	1.093"	0.312"	0.875"
3/4"	1/2" NPTF	6/4N MSA	2.250"	1.250"	0.500"	0.875"
3/4"	3/4" NPTF	6/6N MSA	2.375"	1.250"	0.500"	1.125"
1"	3/4" NPTF	8/6N MSA	2.625"	1.250"	0.750"	1.125"
1"	1" NPTF	8/8N MSA	2.750"	1.500"	0.750"	1.375"
6mm	1/4" NPTF	6M/2N MSA	44mm	26mm	2.5mm	14mm
8mm	1/4" NPTF	8M/2N MSA	47mm	26mm	4mm	14mm
10mm	1/4" NPTF	10M/2N MSA	47mm	26mm	5.5mm	14mm
10mm	3/8" NPTF	10M/3N MSA	47.5mm	26mm	5.5mm	19mm
10mm	1/2" NPTF	10M/4N MSA	51mm	26mm	6mm	22mm
12mm	1/4" NPTF	12M/2N MSA	45mm	26mm	5.5mm	14mm
12mm	3/8" NPTF	12M/3N MSA	48mm	26mm	8mm	19mm
12mm	1/2" NPTF	12M/4N MSA	51mm	26mm	8mm	22mm
15mm	1/2" NPTF	15M/4N MSA	55mm	30mm	11mm	22mm
16mm	1/2" NPTF	16M/4N MSA	55mm	30mm	11mm	22mm
18mm	1/2" NPTF	18M/4N MSA	55mm	30mm	11mm	22mm
20mm	3/4" NPTF	20M/6N MSA	59mm	30mm	11mm	28.5mm
22mm	3/4" NPTF	22M/6N MSA	62mm	33.5mm	16mm	33mm
25mm	3/4" NPTF	25M/6N MSA	62mm	33.5mm	16mm	33mm

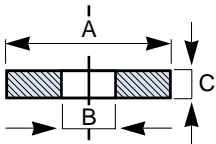
Duoloc® single ferrule OD compression fittings

BSP parallel female standpipe adaptor



OD	thread size G	part number	A	B	C	hex A/F
1/4"	1/4" BSP	2/2P FSA	1.893"	1.093"	0.100"	0.750"
1/4"	3/8" BSP	2/3P FSA	1.905"	1.093"	0.100"	0.875"
1/4"	1/2" BSP	2/4P FSA	2.000"	1.093"	0.100"	1.125"
3/8"	1/4" BSP	3/2P FSA	1.893"	1.093"	0.235"	0.750"
3/8"	3/8" BSP	3/3P FSA	1.905"	1.093"	0.235"	0.875"
3/8"	1/2" BSP	3/4P FSA	2.000"	1.093"	0.235"	1.125"
1/2"	1/4" BSP	4/2P FSA	1.893"	1.093"	0.312"	0.750"
1/2"	3/8" BSP	4/3P FSA	1.905"	1.093"	0.312"	0.875"
1/2"	1/2" BSP	4/4P FSA	2.000"	1.093"	0.312"	1.125"
3/4"	1/2" BSP	6/4P FSA	2.135"	1.250"	0.437"	1.125"
6mm	1/4" BSP	6M/2P FSA	42mm	26mm	2.5mm	19mm
8mm	1/4" BSP	8M/2P FSA	42mm	26mm	4mm	19mm
10mm	3/8" BSP	10M/3P FSA	45mm	26mm	6mm	22mm
10mm	1/2" BSP	10M/4P FSA	48mm	26mm	6mm	28.5mm
12mm	3/8" BSP	12M/3P FSA	45mm	26mm	8mm	22mm
12mm	1/2" BSP	12M/4P FSA	48mm	26mm	8mm	28.5mm
15mm	1/2" BSP	15M/4P FSA	52mm	26mm	8mm	28.5mm
16mm	1/2" BSP	16M/4P FSA	52mm	30mm	8mm	28.5mm
18mm	1/2" BSP	18M/4P FSA	52mm	30mm	8mm	28.5mm

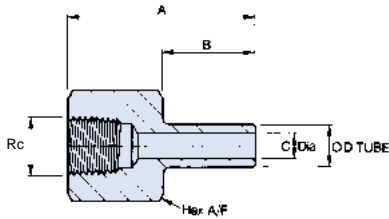
BSP parallel gauge washer PTFE



thread size G	part number	A	B	C
1/8"	GW1	0.339"	0.157"	0.102"
1/4"	GW2	0.453"	0.165"	0.102"
3/8"	GW3	0.583"	0.236"	0.102"
1/2"	GW4	0.728"	0.236"	0.126"
3/4"	GW6	0.945"	0.500"	0.126"
1"	GW8	1.200"	0.669"	0.126"

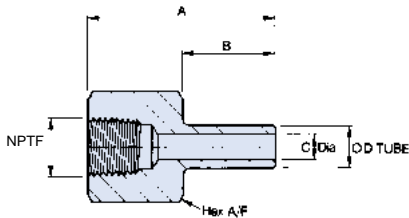
Duoloc® single ferrule OD compression fittings

BSPT female standpipe adaptors



OD	thread size Rc	part number	A	B	C	hex A/F
1/4"	1/4" BSPT	2/2T FSA	2.000"	1.093"	0.100"	0.750"
1/4"	3/8" BSPT	2/3T FSA	2.125"	1.093"	0.100"	0.875"
1/4"	1/2" BSPT	2/4T FSA	2.250"	1.093"	0.100"	1.125"
3/8"	1/4" BSPT	3/2T FSA	2.000"	1.093"	0.235"	0.750"
3/8"	3/8" BSPT	3/3T FSA	2.125"	1.093"	0.235"	0.875"
3/8"	1/2" BSPT	3/4T FSA	2.250"	1.093"	0.235"	1.125"
1/2"	1/4" BSPT	4/2T FSA	2.000"	1.093"	0.312"	0.750"
1/2"	3/8" BSPT	4/3T FSA	2.125"	1.093"	0.312"	0.875"
1/2"	1/2" BSPT	4/4T FSA	2.250"	1.093"	0.312"	1.125"
3/4"	1/2" BSPT	6/4T FSA	2.350"	1.250"	0.437"	1.125"
6mm	1/4" BSPT	6M/2T FSA	50mm	26mm	2.5mm	19mm
8mm	1/4" BSPT	8M/2T FSA	50mm	26mm	4mm	19mm
10mm	3/8" BSPT	10M/3T FSA	53mm	26mm	6mm	22mm
10mm	1/2" BSPT	10M/4T FSA	55mm	26mm	6mm	28.5mm
12mm	3/8" BSPT	12M/3T FSA	53mm	26mm	8mm	22mm
12mm	1/2" BSPT	12M/4T FSA	55mm	26mm	8mm	28.5mm
15mm	1/2" BSPT	15M/4T FSA	59mm	30mm	11mm	28.5mm
16mm	1/2" BSPT	16M/4T FSA	59mm	30mm	11mm	28.5mm
18mm	1/2" BSPT	18M/4T FSA	59mm	30mm	11mm	28.5mm

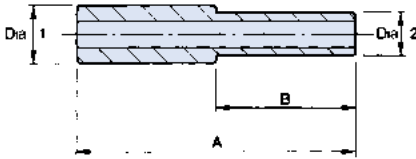
NPTF female standpipe adaptors



OD	thread size NPTF	part number	A	B	C	hex A/F
1/4"	1/4" NPTF	2/2N FSA	2.000"	1.093"	0.100"	0.750"
1/4"	3/8" NPTF	2/3N FSA	2.125"	1.093"	0.100"	0.875"
1/4"	1/2" NPTF	2/4N FSA	2.250"	1.093"	0.100"	1.125"
3/8"	1/4" NPTF	3/2N FSA	2.000"	1.093"	0.235"	0.750"
3/8"	3/8" NPTF	3/3N FSA	2.125"	1.093"	0.235"	0.875"
3/8"	1/2" NPTF	3/4N FSA	2.250"	1.093"	0.235"	1.125"
1/2"	1/4" NPTF	4/2N FSA	2.000"	1.093"	0.312"	0.750"
1/2"	3/8" NPTF	4/3N FSA	2.125"	1.093"	0.312"	0.875"
1/2"	1/2" NPTF	4/4N FSA	2.250"	1.093"	0.312"	1.125"
3/4"	1/2" NPTF	6/4N FSA	2.350"	1.250"	0.437"	1.125"
6mm	1/4" NPTF	6M/2N FSA	50mm	26mm	2.5mm	19mm
8mm	1/4" NPTF	8M/2N FSA	50mm	26mm	4mm	19mm
10mm	3/8" NPTF	10M/3N FSA	53mm	26mm	6mm	22mm
10mm	1/2" NPTF	10M/4N FSA	55mm	26mm	6mm	28.5mm
12mm	3/8" NPTF	12M/3N FSA	53mm	26mm	8mm	22mm
12mm	1/2" NPTF	12M/4N FSA	55mm	26mm	8mm	28.5mm
15mm	1/2" NPTF	15M/4N FSA	59mm	30mm	11mm	28.5mm
16mm	1/2" NPTF	16M/4N FSA	59mm	30mm	11mm	28.5mm
18mm	1/2" NPTF	18M/4N FSA	59mm	30mm	11mm	28.5mm

Duoloc® single ferrule OD compression fittings

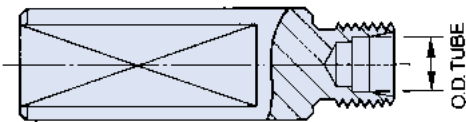
Reducing standpipe



dia 1	dia 2	part number	A	B	C
3/8"	1/4"	3/2 RS	2.186"	1.093"	0.100"
1/2"	1/4"	4/2 RS	2.186"	1.093"	0.100"
1/2"	3/8"	4/3 RS	2.186"	1.093"	0.235"
3/4"	1/2"	6/4 RS	2.343"	1.093"	0.312"
1"	1/2"	8/4 RS	2.593"	1.093"	0.312"

Ferrule pre-forming tool

Material steel case hardened



tube OD	part number
1/4"	PFT2
3/8"	PFT3
1/2"	PFT4
3/4"	PFT6
1"	PFT8
6mm	6M PFT
8mm	8M PFT
10mm	10M PFT
12mm	12M PFT
15mm	15M PFT
16mm	16M PFT
18mm	18M PFT
20mm	20M PFT
22mm	22M PFT
25mm	25M PFT

Pre-assembly is recommended:

when fittings are to be installed in confined spaces, or in locations where accessibility for in-situ assembly presents difficulties;

where thick wall tubes or stand pipe adaptors are to be used;

when using forged fittings where in-situ spanning of the forging body may present difficulties;

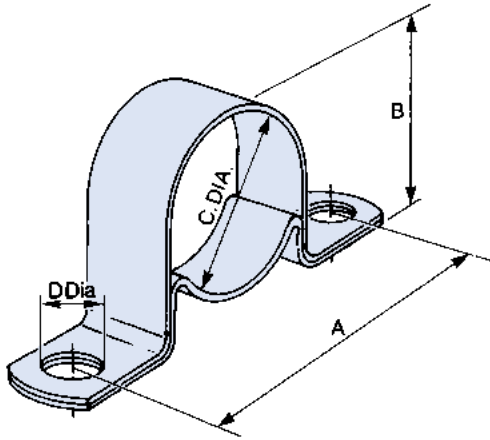
to reduce installation stresses when tube sizes exceed 1/2" OD (12mm);

as an aid to checking joints are made correctly as described and illustrated on page 1.74.

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Duoloc® single ferrule OD compression fittings

Pipe clips



part number	A	B	C dia	D dia
PC 2	0.675"	0.510"	0.250"	0.225"
PC 3	0.875"	0.675"	0.375"	0.225"
PC 4	1.000"	0.840"	0.500"	0.225"
PC 6	1.312"	1.200"	0.750"	0.225"
PC 8	1.675"	1.550"	1.000"	0.225"
PC 6M	17.0mm	13.0mm	6.0mm	5.7mm
PC 8M	19.5mm	16.0mm	8.0mm	5.7mm
PC 10M	22.0mm	17.0mm	10.0mm	5.7mm
PC 12M	25.5mm	21.3mm	12.0mm	5.7mm
PC 15M	29.5mm	26.8mm	15.0mm	5.7mm
PC 16M	29.5mm	27.0mm	16.0mm	5.7mm
PC 18M	33.5mm	30.5mm	18.0mm	5.7mm
PC 20M	33.5mm	30.5mm	20.0mm	5.7mm
PC 22M	36.5mm	34.5mm	22.0mm	5.7mm
PC 25M	42.5mm	39.4mm	25.0mm	5.7mm

Duoloc® single ferrule OD compression fittings

Metric and imperial OD tubing

Stocked sizes and recommended maximum working pressures for stainless steel tubes (bar)

Imperial and metric

OD tube	gauge	wall thickness	inside dia	working pressure
1/8"	22 SWG	0.028"	0.069"	682
3/16"	22 SWG	0.028"	0.132"	434
1/4"	20 SWG	0.036"	0.178"	517
1/4"	18 SWG	0.048"	0.154"	600
1/4"	16 SWG	0.064"	0.122"	645
3/8"	20 SWG	0.036"	0.303"	276
3/8"	18 SWG	0.048"	0.279"	379
3/8"	16 SWG	0.064"	0.247"	517
1/2"	18 SWG	0.048"	0.404"	276
1/2"	16 SWG	0.064"	0.372"	379
3/4"	16 SWG	0.064"	0.622"	240
1"	16 SWG	0.064"	0.872"	171
1"	14 SWG	0.083"	0.834"	212

OD tube	wall thickness	inside dia	working pressure
6mm	1.0mm	4.0mm	517
8mm	1.0mm	6.0mm	413
10mm	1.5mm	7.0mm	517
12mm	1.5mm	9.0mm	379
15mm	1.5mm	12.0mm	265
16mm	1.5mm	13.0mm	247
18mm	1.5mm	15.0mm	228
20mm	1.5mm	17.0mm	195
22mm	1.5mm	19.0mm	199
25mm	1.5mm	22.0mm	145

Maximum working pressures at temperatures shown

1 atmosphere = 1 bar = 14.7 lbf/in²

°C	100	200	300	400	500
Factor	0.96	0.94	0.92	0.90	0.75

Waverley stocks a wide range of 316 Stainless Steel Seamless Tubing to ASTM A269 in both metric and imperial sizes (see table).

The range of tube coincides with the Duoloc® range of Waverley's Single Ferrule Compression Fittings.

The tube standard ASTM A269 specifies a maximum hardness of Rb 90. Tube supplied by Waverley has a bright annealed surface condition. The tube is annealed so it is suitable for use with all compression fittings, enabling the hardened ferrules to make a true bite.

Waverley stocks the tube in 6m randoms, but for ease of transportation most customers accept the tube cut in half (a random length is between 5m and 7m).

Waverley will cut the tube into any length at no extra charge, but the minimum length is 1m.

Pressure and temperature rating

Waverley Stainless Steel Compression Couplings may be used at temperatures of up to 350°C. The performance of Waverley tube couplings exceeds the yield strength of tubing. Below are tables giving the relationships between temperature and pressures for preferred gauges of solid drawn tube to BS 3605, ASTM A269 and AISI 321. Waverley Components and Products Ltd. does not guarantee the accuracy of the information given and no responsibility can be accepted in relation thereto.

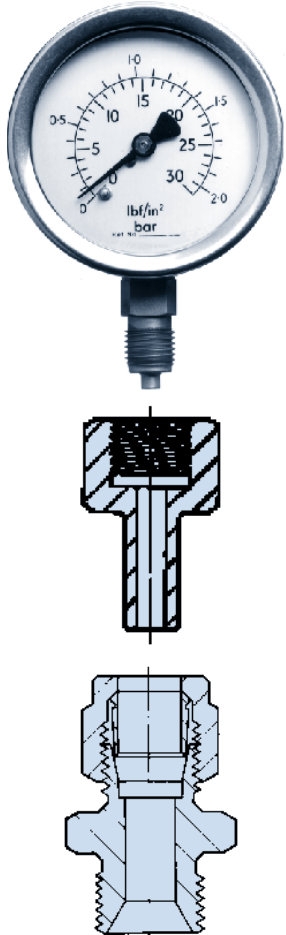
Stainless steel 316 tube selection

The following conditions must be observed when selecting stainless steel tube for use with Waverley compression couplings. Tubing should be solid drawn and fully annealed to ASTM A-269 or equivalent. A maximum hardness of Rb 80 is preferred, but if harder tube is used, Rb 90 should be the maximum allowed and specified. Tube tolerances up to 1" OD or 25mm OD should be within ± 0.004" or 0.1mm including ovality.

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Duoloc® single ferrule OD compression fittings

Gauge adaptors



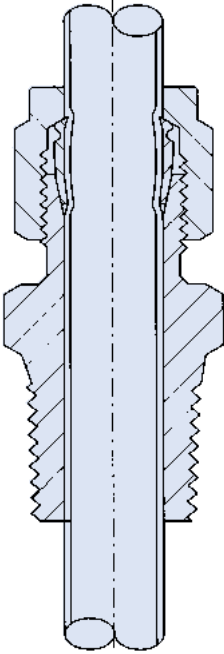
Waverley are able to offer a wide range of gauge adaptors with most combinations of male and female threads available to be supplied ex-stock. Any items not available as standard can be manufactured as specials.

Our recommendation is that as a majority of gauges are supplied with a male thread, screw a female standpipe adaptor on to the gauge. Then, depending on the other connection, either a male or female stud coupling can be assembled to the standpipe to leave the required thread.

This gives you the added benefit that by loosening the compression joint the gauge can be positioned facing the required direction.

Duoloc® single ferrule OD compression fittings

Thermocouple connectors



Most of Waverley's range of male and female stud couplings are suitable for use with thermocouples or any other type of probe that needs to pass right through the fitting before being locked in place by the compression ferrule.

At the time of order just inform our sales staff that the fittings are required for use with thermocouples. A slight modification is then required to the standard component. This modification only adds one or two days to the delivery time.

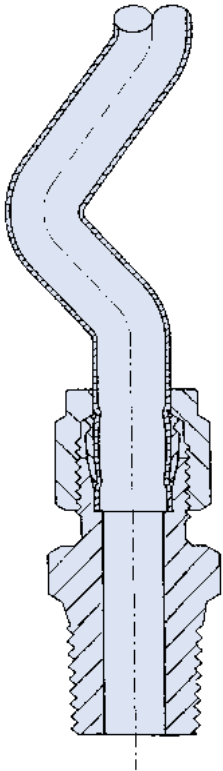
The only instance where this modification is not possible is if the thread at the opposite side to the compression fitting is too small to allow a sufficient bore through the fitting.

NB Boring through compression fittings in the above way can reduce pressure ratings. Please contact our sales team for information.

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Duoloc® single ferrule OD compression fittings

Using single ferrule OD compression fittings with nylon and other soft tubing



Waverley's single ferrule OD compression fittings have a unique design feature which allows you to assemble the compression joint in the normal way without the need for a tube insert.

Single ferrule compression fittings will work perfectly well with most types of soft tubing as long as the tube has a wall thickness of 1mm or above.

If the compression fittings are to be used with glass tubing, PTFE ferrules can be supplied.

NB Wall thickness of soft tubing must be a minimum of 1mm.

Duoloc[®] single ferrule OD compression fittings

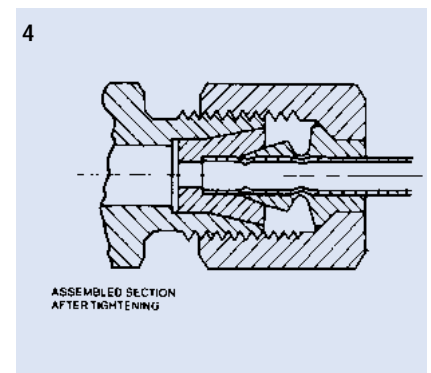
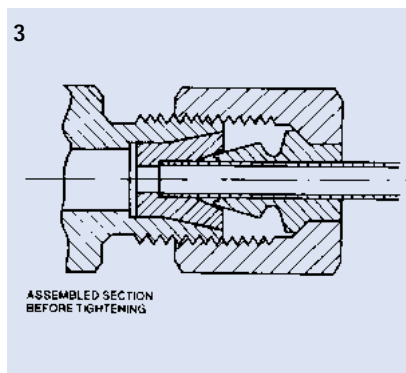
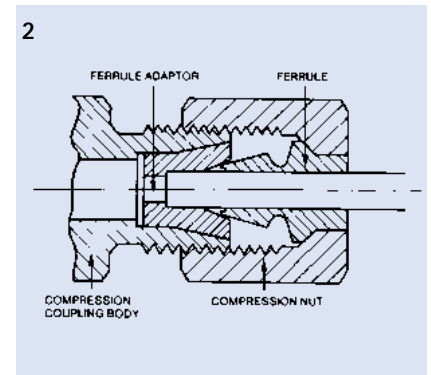
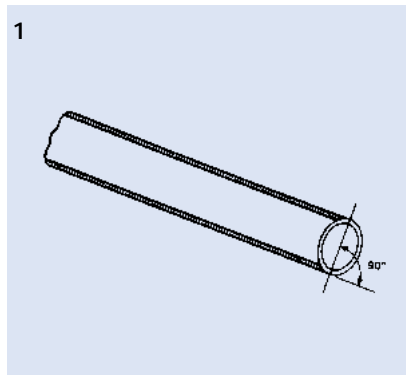
Assembly instructions for 316 stainless steel 1/8" OD and 3/16" OD compression couplings for stainless and nylon tubing

Adherence to the following simple instructions for the assembly of Waverley compression couplings will result in a sound pressure joint being formed. Pre-determination of the correct gauge, quality and material of the tube in relation to the medium to be contained and the pressure and temperature of that medium shall be the user's responsibility. It is also necessary to ensure that the general working conditions, pipework design and fixings are suitable.

These fittings must be lubricated prior to assembly.

Tube to be seamless, annealed to max hardness of HRB 90.

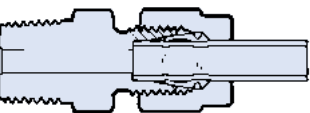
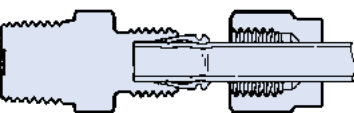
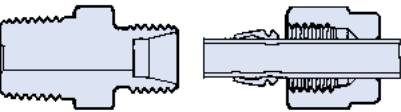
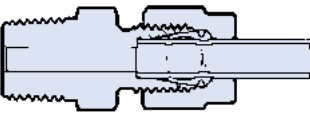
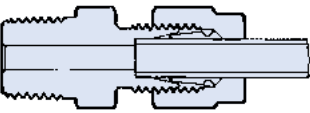
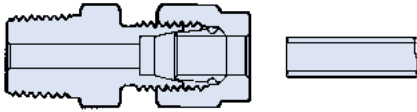
- 1 Tube should be cut to length with ends prepared as square as possible, all burrs removed.
- 2 Prior to assembly, the nut and the ferrule should be removed from the body, placed over the end of the prepared tube and the ferrule face that contacts the ferrule adaptor lubricated.
- 3 The end of the tube should then be inserted into the body of the coupling, taking care to ensure that the tube butts firmly onto the abutment shoulder.
- 4 Tighten the nut until the ferrule is felt to grip the tube enough to prevent it from being turned. Then tighten the nut a further 1 turn.



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Duoloc® single ferrule OD compression fittings

Assembly instructions



- 1 Cut the tube to the required length, leaving the ends square to the tube axis, remove all burrs.
- 2 Ensure that the fitting body, nut and ferrule assembly is clean and lubricated. Insert the prepared tube into the body of the fitting making sure that the tube butts firmly on to the abutment step and the nut is finger tight.
- 3 Tighten the nut 1 1/4 turns to complete the assembly.

For blanking plugs use only 1/6 turn from the finger tight position.

Re-assembly instructions

Fittings can be broken and remade without impairing the function and efficiency of the joints.

- 1 Prior to re-assembly ensure that the fitting body and tube assembly are free from any contaminant or damage.
- 2 Insert the tube assembly into the fitting body until the ferrule seats firmly.
- 3 Tighten the nut until the original assembly position is reached then tighten the nut a further small amount to ensure the assembly is positively sealed.

Caution

Mixing components may not provide reliable joint assemblies and leakage could occur. Use only Waverley components for safety and reliability.

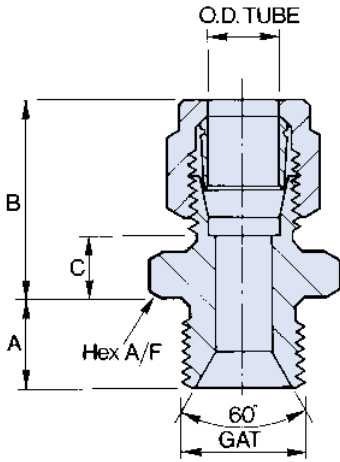
Waverley fittings are supplied as a complete assembly of body, ring and compression nut and ready for use.

**Superloc[®] single ferrule
OD compression fittings**
Carbon steel

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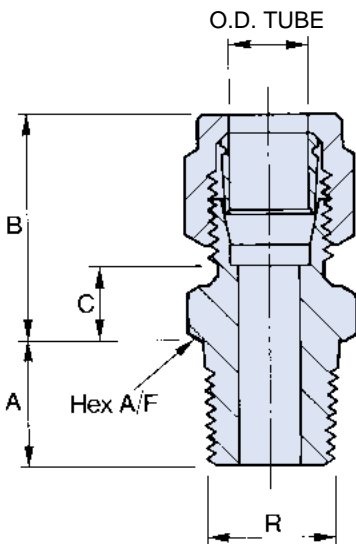
Superloc® single ferrule OD compression fittings Carbon steel

BSP parallel male stud coupling



OD tube	thread size GAT	part number	A	B	C	hex A/F
1/4"	1/8" BSP	SMSC-21-CGD	0.450"	0.906"	0.370"	0.562"
1/4"	1/4" BSP	SMSC-22-CGD	0.450"	0.969"	0.370"	0.750"
1/4"	3/8" BSP	SMSC-23-CGD	0.530"	1.000"	0.370"	0.875"
3/8"	1/4" BSP	SMSC-32-GCD	0.450"	1.062"	0.402"	0.750"
3/8"	3/8" BSP	SMSC-33-GCD	0.530"	1.094"	0.402"	0.875"
1/2"	1/4" BSP	SMSC-42-GCD	0.450"	1.188"	0.402"	0.875"
1/2"	3/8" BSP	SMSC-43-GCD	0.530"	1.188"	0.402"	0.875"
1/2"	1/2" BSP	SMSC-44-GCD	0.600"	1.218"	0.464"	1.125"
3/4"	1/2" BSP	SMSC-64-GCD	0.600"	1.406"	0.535"	1.125"
1"	1" BSP	SMSC-88-GCD	0.800"	1.625"	0.588"	1.670"

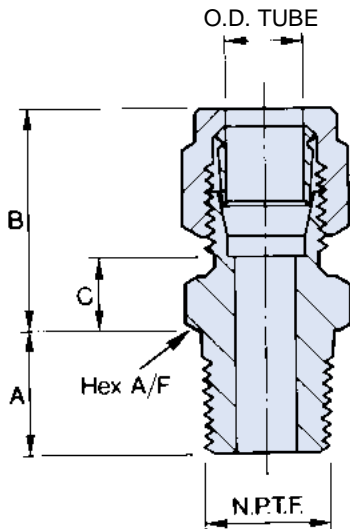
BSPT male stud coupling



OD tube	thread size R	part number	A	B	C	hex A/F
1/4"	1/8" BSPT	SMSC-21-CRD	0.375"	0.906"	0.370"	0.562"
1/4"	1/4" BSPT	SMSC-22-CRD	0.500"	0.969"	0.370"	0.562"
1/4"	3/8" BSPT	SMSC-23-CRD	0.562"	1.000"	0.370"	0.750"
3/8"	1/4" BSPT	SMSC-32-CRD	0.500"	1.062"	0.402"	0.750"
3/8"	3/8" BSPT	SMSC-33-CRD	0.562"	1.094"	0.402"	0.750"
1/2"	1/4" BSPT	SMSC-42-CRD	0.500"	1.188"	0.402"	0.875"
1/2"	3/8" BSPT	SMSC-43-CRD	0.562"	1.188"	0.402"	0.875"
3/4"	1/2" BSPT	SMSC-64-CRD	0.687"	1.406"	0.535"	1.125"
1"	1" BSPT	SMSC-88-CRD	0.875"	1.625"	0.585"	1.500"

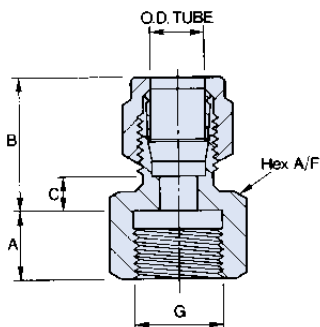
Superloc® single ferrule OD compression fittings Carbon steel

NPTF male stud coupling



OD tube	thread size NPTF	part number	A	B	C	hex A/F
1/4"	1/8" NPTF	SMSC-21-CND	0.375"	0.906"	0.370"	0.562"
1/4"	1/4" NPTF	SMSC-22-CND	0.500"	0.969"	0.370"	0.562"
1/4"	3/8" NPTF	SMSC-23-CND	0.562"	1.000"	0.370"	0.750"
3/8"	1/4" NPTF	SMSC-32-CND	0.500"	1.062"	0.402"	0.750"
3/8"	3/8" NPTF	SMSC-33-CND	0.562"	1.094"	0.402"	0.750"
1/2"	1/4" NPTF	SMSC-42-CND	0.500"	1.188"	0.402"	0.875"
1/2"	3/8" NPTF	SMSC-43-CND	0.562"	1.188"	0.402"	0.875"
1/2"	1/2" NPTF	SMSC-44-CND	0.687"	1.218"	0.464"	0.875"
3/4"	1/2" NPTF	SMSC-64-CND	0.687"	1.406"	0.535"	1.125"
1"	1" NPTF	SMSC-88-CND	0.875"	1.625"	0.585"	1.500"

BSP parallel female stud coupling

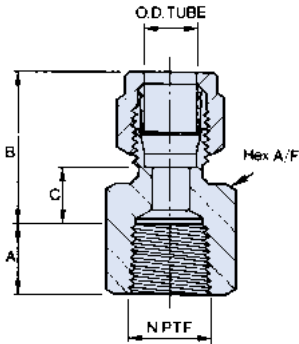


OD tube	thread size G	part number	A	B	C	hex A/F
1/4"	1/4" BSP	SFSC-22-CGD	0.437"	0.906"	0.330"	0.750"
3/8"	1/4" BSP	SFSC-32-CGD	0.437"	1.000"	0.340"	0.750"
3/8"	3/8" BSP	SFSC-33-CGD	0.500"	1.000"	0.340"	0.875"
3/8"	1/2" BSP	SFSC-34-CGD	0.625"	1.000"	0.360"	1.125"
1/2"	1/4" BSP	SFSC-42-CGD	0.437"	1.093"	0.360"	0.875"
1/2"	3/8" BSP	SFSC-43-CGD	0.500"	1.093"	0.360"	0.875"
1/2"	1/2" BSP	SFSC-44-CGD	0.625"	1.093"	0.400"	1.125"
3/4"	1/2" BSP	SFSC-64-CGD	0.625"	1.437"	0.400"	1.125"
3/4"	3/4" BSP	SFSC-66-CGD	0.750"	1.437"	0.473"	1.300"
1"	1" BSP	SFSC-88-CGD	0.875"	1.625"	0.473"	1.670"

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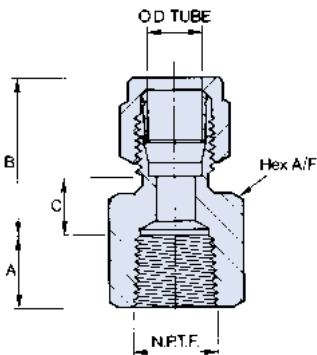
Superloc® single ferrule OD compression fittings Carbon steel

BSPT female stud coupling



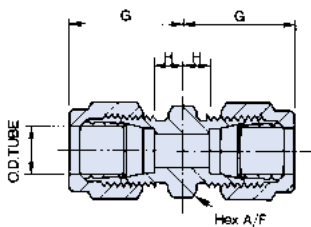
OD tube	thread size Rc	part number	A	B	C	hex A/F
1/4"	1/4" BSPT	SFSC-22-CRD	0.656"	0.906"	0.300"	0.750"
3/8"	1/4" BSPT	SFSC-32-CRD	0.656"	1.000"	0.300"	0.750"
3/8"	3/8" BSPT	SFSC-33-CRD	0.703"	1.000"	0.350"	0.875"
3/8"	1/2" BSPT	SFSC-34-CRD	0.750"	1.000"	0.350"	1.125"
1/2"	1/4" BSPT	SFSC-42-CRD	0.656"	1.093"	0.350"	0.875"
1/2"	3/8" BSPT	SFSC-43-CRD	0.703"	1.093"	0.350"	0.875"
1/2"	1/2" BSPT	SFSC-44-CRD	0.750"	1.093"	0.350"	1.125"
3/4"	1/2" BSPT	SFSC-64-CRD	0.750"	1.250"	0.350"	1.125"
3/4"	3/4" BSPT	SFSC-66-CRD	0.800"	1.250"	0.400"	1.300"
1"	1" BSPT	SFSC-88-CRD	1.050"	1.375"	0.500"	1.670"

NPTF female stud coupling



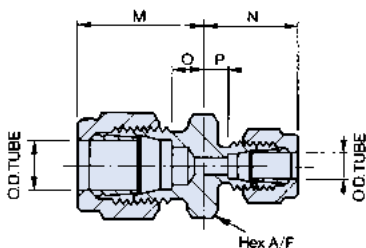
OD tube	thread size NPTF	part number	A	B	C	hex A/F
1/4"	1/4" NPTF	SFSC-22-CND	0.656"	0.906"	0.300"	0.750"
3/8"	1/4" NPTF	SFSC-32-CND	0.656"	1.000"	0.300"	0.750"
3/8"	3/8" NPTF	SFSC-33-CND	0.703"	1.000"	0.350"	0.875"
3/8"	1/2" NPTF	SFSC-34-CND	0.750"	1.000"	0.350"	1.125"
1/2"	1/4" NPTF	SFSC-42-CND	0.656"	1.093"	0.350"	0.875"
1/2"	3/8" NPTF	SFSC-43-CND	0.703"	1.093"	0.350"	0.875"
1/2"	1/2" NPTF	SFSC-44-CND	0.750"	1.093"	0.350"	1.125"
3/4"	1/2" NPTF	SFSC-64-CND	0.750"	1.250"	0.350"	1.125"
1"	1" NPTF	SFSC-88-CND	1.050"	1.375"	0.500"	1.670"

Straight coupling



OD tube	part number	G	H	hex A/F
1/4"	SSC-2-CD	0.812"	0.218"	0.562"
3/8"	SSC-3-CD	0.937"	0.281"	0.750"
1/2"	SSC-4-CD	1.046"	0.296"	0.875"
3/4"	SSC-6-CD	1.234"	0.390"	1.125"
1"	SSC-8-CD	1.406"	0.437"	1.500"

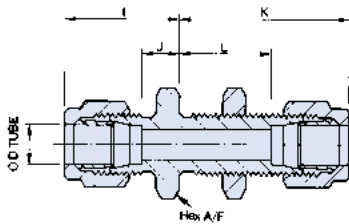
Reducing coupling



OD tube 1	OD tube 2	part number	M	N	O	P	hex A/F
3/8"	1/4"	SRC-32-CD	0.937"	0.843"	0.281"	0.250"	0.750"
1/2"	1/4"	SRC-42-CD	1.046"	0.859"	0.296"	0.265"	0.875"
1/2"	3/8"	SRC-43-CD	1.046"	0.953"	0.296"	0.296"	0.875"
3/4"	1/2"	SRC-64-CD	1.234"	1.078"	0.390"	0.328"	1.300"
1"	1/2"	SRC-84-CD	1.406"	1.125"	0.437"	0.375"	1.500"
1"	3/4"	SRC-86-CD	1.406"	1.281"	0.437"	0.437"	1.500"

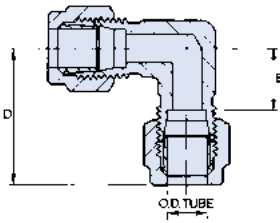
Superloc® single ferrule OD compression fittings Carbon steel

Bulkhead coupling



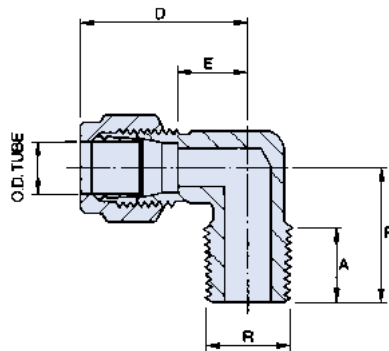
OD tube	part number	I	J	K	L	hex A/F	clearance bore in bulkhead
1/4"	SBC-2-CD	0.906"	0.312"	1.562"	0.968"	0.750"	0.468"
3/8"	SBC-3-CD	1.062"	0.406"	1.687"	1.031"	0.875"	0.656"
1/2"	SBC-4-CD	1.187"	0.437"	1.875"	1.125"	1.125"	0.781"
3/4"	SBC-6-CD	1.406"	0.562"	2.093"	1.250"	1.300"	1.093"
1"	SBC-8-CD	1.625"	0.656"	2.187"	1.218"	1.500"	1.343"

Equal elbow



OD tube	part number	D	E
1/4"	SEE-2-CD	1.156"	0.562"
3/8"	SEE-3-CD	1.250"	0.593"
1/2"	SEE-4-CD	1.437"	0.687"
3/4"	SEE-6-CD	1.843"	1.000"
1"	SEE-8-CD	2.031"	1.062"

BSPT male stud elbow

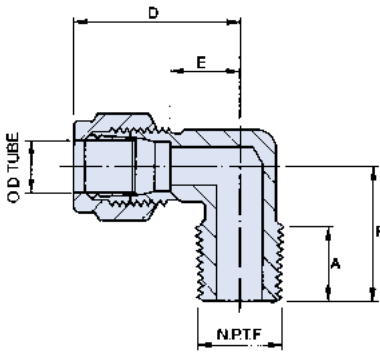


OD tube	thread size R	part number	A	D	E	F
1/4"	1/8" BSPT	SMSE-21-CRD	0.375"	1.156"	0.562"	0.868"
1/4"	1/4" BSPT	SMSE-22-CRD	0.500"	1.156"	0.562"	0.958"
3/8"	1/4" BSPT	SMSE-32-CRD	0.500"	1.250"	0.593"	1.125"
3/8"	3/8" BSPT	SMSE-33-CRD	0.562"	1.250"	0.593"	1.187"
1/2"	1/4" BSPT	SMSE-42-CRD	0.500"	1.437"	0.687"	1.125"
1/2"	3/8" BSPT	SMSE-43-CRD	0.562"	1.437"	0.687"	1.375"
1/2"	1/2" BSPT	SMSE-44-CRD	0.687"	1.437"	0.687"	1.375"
3/4"	1/2" BSPT	SMSE-64-CRD	0.687"	1.843"	1.000"	1.625"
3/4"	3/4" BSPT	SMSE-66-CRD	0.750"	1.843"	1.000"	1.688"
1"	3/4" BSPT	SMSE-86-CRD	0.750"	2.501"	1.085"	1.594"
1"	1" BSPT	SMSE-88-CRD	0.875"	2.407"	0.991"	1.556"

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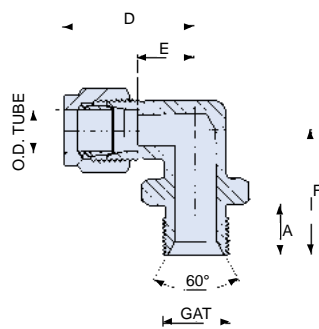
Superloc® single ferrule OD compression fittings Carbon steel

NPTF male stud elbow



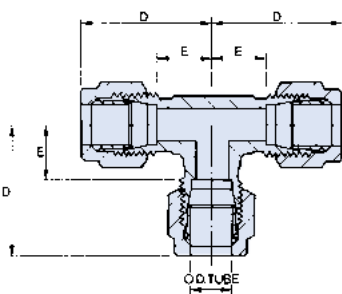
OD tube	thread size NPTF	part number	A	D	E	F
1/4"	1/8" NPTF	SMSE-21-CND	0.375"	1.156"	0.562"	0.868"
1/4"	1/4" NPTF	SMSE-22-CND	0.500"	1.156"	0.562"	0.958"
3/8"	1/4" NPTF	SMSE-32-CND	0.500"	1.250"	0.593"	1.125"
3/8"	3/8" NPTF	SMSE-33-CND	0.562"	1.250"	0.593"	1.187"
1/2"	1/4" NPTF	SMSE-42-CND	0.500"	1.437"	0.687"	1.125"
1/2"	3/8" NPTF	SMSE-43-CND	0.562"	1.437"	0.687"	1.375"
1/2"	1/2" NPTF	SMSE-44-CND	0.687"	1.437"	0.687"	1.375"
3/4"	1/2" NPTF	SMSE-64-CND	0.687"	1.843"	1.000"	1.625"
3/4"	3/4" NPTF	SMSE-66-CND	0.750"	1.843"	1.000"	1.688"
1"	3/4" NPTF	SMSE-86-CND	0.750"	2.501"	1.085"	1.594"

BSPP male stud elbow



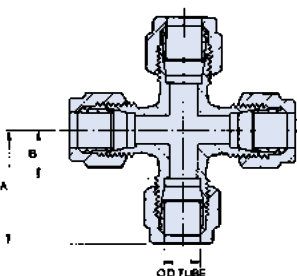
OD tube	thread size GAT	part number	A	D	E	F
1/4"	1/8" BSP	SMSE-21-CGD	0.450"	1.156"	0.562"	1.063"
1/4"	1/4" BSP	SMSE-22-CGD	0.450"	1.156"	0.562"	1.063"
3/8"	1/4" BSP	SMSE-32-CGD	0.450"	1.250"	0.593"	1.063"
3/8"	3/8" BSP	SMSE-33-CGD	0.530"	1.250"	0.593"	1.500"
1/2"	1/4" BSP	SMSE-42-CGD	0.450"	1.437"	0.687"	1.500"
1/2"	3/8" BSP	SMSE-43-CGD	0.530"	1.437"	0.687"	1.500"
1/2"	1/2" BSP	SMSE-44-CGD	0.600"	1.437"	0.687"	1.500"

Equal tee



OD tube	part number	D	E
1/4"	SET-2-CD	1.156"	0.562"
3/8"	SET-3-CD	1.250"	0.593"
1/2"	SET-4-CD	1.437"	0.687"
3/4"	SET-6-CD	1.843"	1.000"
1"	SET-8-CD	2.031"	1.062"

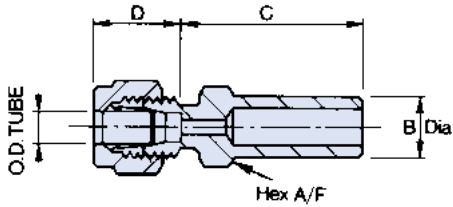
Equal cross



OD tube	part number	A	B
1/4"	SEC-2-CD	1.156"	0.562"
3/8"	SEC-3-CD	1.250"	0.593"
1/2"	SEC-4-CD	1.437"	0.687"

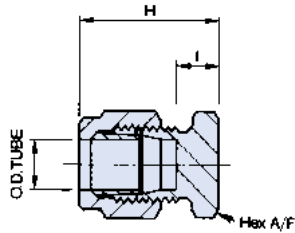
Superloc® single ferrule OD compression fittings Carbon steel

Reducing adaptor



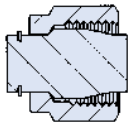
OD tube	B dia	part number	C	D	hex A/F
1/4"	3/8"	SRA-23-CRD	1.187"	0.593"	0.562"
1/4"	1/2"	SRA-24-CRD	1.281"	0.593"	0.562"
1/2"	3/4"	SRA-46-CRD	1.625"	0.750"	0.875"
1/2"	1"	SRA-48-CRD	1.781"	0.750"	1.125"
3/4"	1"	SRA-68-CRD	1.906"	0.843"	1.125"

Blanking end



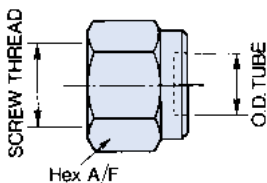
OD tube	part number	H	I	hex A/F
1/4"	SBE-2-CD	0.906"	0.312"	0.562"
3/8"	SBE-3-CD	1.062"	0.406"	0.750"
1/2"	SBE-4-CD	1.187"	0.437"	0.875"
3/4"	SBE-6-CD	1.406"	0.562"	1.125"
1"	SBE-8-CD	1.625"	0.656"	1.500"

Blanking plug



OD tube	part number
1/4"	SBP-2-CD
3/8"	SBP-3-CD
1/2"	SBP-4-CD
3/4"	SBP-6-CD
1"	SBP-8-CD

Compression nut

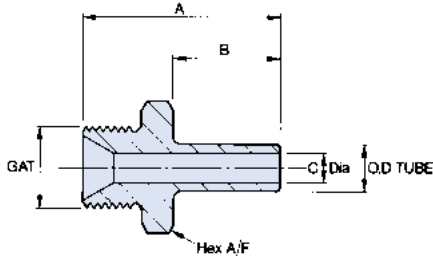


OD tube	part number	hex A/F	screw thread
1/4"	SCN-2-C	0.562"	7/16" x 20 T.P.I.U.N.F.
3/8"	SCN-3-C	0.750"	5/8" x 16 T.P.I.U.N.F.
1/2"	SCN-4-C	0.875"	3/4" x 16 T.P.I.U.N.F.
3/4"	SCN-6-C	1.312"	11/16" x 16 T.P.I.U.N.F.
1"	SCN-8-C	1.500"	15/16" x 16 T.P.I.U.N.F.

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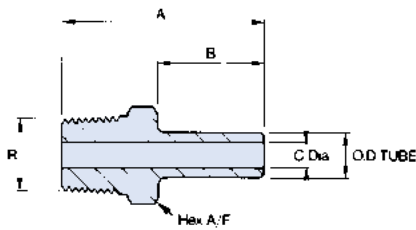
Superloc® single ferrule OD compression fittings Carbon steel

BSP parallel male standpipe adaptor



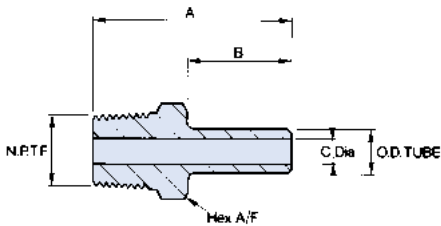
OD	thread size GAT	part number	A	B	C	hex A/F
1/4"	1/8" BSP	SMSP-21-CG	1.793"	1.093"	0.100"	0.562"
1/4"	1/4" BSP	SMSP-22-CG	1.793"	1.093"	0.100"	0.750"
3/8"	1/4" BSP	SMSP-32-CG	1.793"	1.093"	0.157"	0.750"
3/8"	3/8" BSP	SMSP-33-CG	1.873"	1.093"	0.157"	0.875"
1/2"	3/8" BSP	SMSP-43-CG	1.873"	1.093"	0.312"	0.875"
3/4"	1/2" BSP	SMSP-64-CG	2.162"	1.250"	0.437"	1.125"
3/4"	3/4" BSP	SMSP-66-CG	2.375"	1.250"	0.437"	1.300"
1"	1" BSP	SMSP-88-CG	2.675"	1.500"	0.750"	1.670"

BSPT parallel male standpipe adaptor



OD	thread size R	part number	A	B	C	hex A/F
1/4"	1/8" BSPT	SMSP-21-CR	1.718"	1.093"	0.100"	0.437"
1/4"	1/4" BSPT	SMSP-22-CR	1.843"	1.093"	0.100"	0.562"
3/8"	1/4" BSPT	SMSP-32-CR	1.843"	1.093"	0.157"	0.562"
3/8"	3/8" BSPT	SMSP-33-CR	1.905"	1.093"	0.157"	0.750"
1/2"	1/2" BSPT	SMSP-44-CR	2.093"	1.093"	0.312"	0.875"
3/4"	1/2" BSPT	SMSP-64-CR	2.250"	1.250"	0.437"	0.875"
3/4"	3/4" BSPT	SMSP-66-CR	2.375"	1.250"	0.437"	1.125"
1"	1" BSPT	SMSP-88-CR	2.750"	1.500"	0.750"	1.375"

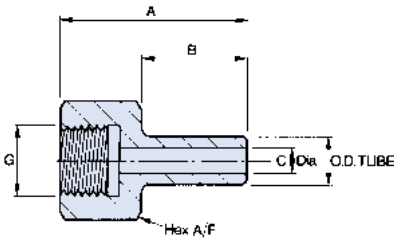
NPTF male standpipe adaptor



OD	thread size NPTF	part number	A	B	C	hex A/F
1/4"	1/4" NPTF	SMSP-22-CN	1.843"	1.093"	0.100"	0.562"
3/8"	1/4" NPTF	SMSP-32-CN	1.843"	1.093"	0.235"	0.562"
3/8"	3/8" NPTF	SMSP-33-CN	1.905"	1.093"	0.235"	0.750"
1/2"	3/8" NPTF	SMSP-43-CN	1.905"	1.093"	0.312"	0.750"
1/2"	1/2" NPTF	SMSP-44-CN	2.093"	1.093"	0.312"	0.875"
3/4"	3/4" NPTF	SMSP-66-CN	2.375"	1.250"	0.500"	1.125"

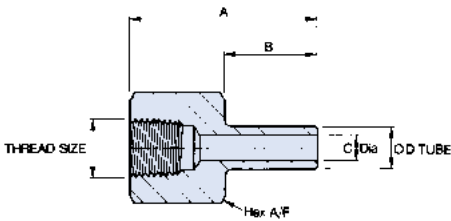
Superloc® single ferrule OD compression fittings Carbon steel

BSP parallel female standpipe adaptor



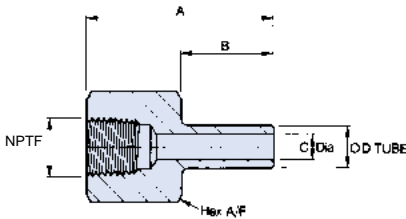
OD	thread size G	part number	A	B	C	hex A/F
3/8"	1/4" BSP	SFSP-32-CG	1.893"	1.093"	0.235"	0.750"
1/2"	3/8" BSP	SFSP-43-CG	1.905"	1.093"	0.312"	0.875"
3/4"	1/2" BSP	SFSP-64-CG	2.135"	1.250"	0.437"	1.125"

BSPT female standpipe adaptors



OD	thread size Rc	part number	A	B	C	hex A/F
3/8"	1/4" BSPT	SFSP-32-CR	2.000"	1.093"	0.235"	0.750"
1/2"	3/8" BSPT	SFSP-43-CR	2.125"	1.093"	0.312"	0.875"
3/4"	1/2" BSPT	SFSP-64-CR	2.350"	1.250"	0.437"	1.125"

NPTF female standpipe adaptors



OD	thread size NPTF	part number	A	B	C	hex A/F
3/8"	1/4" NPTF	SFSP-32-CN	2.000"	1.093"	0.235"	0.750"
1/2"	3/8" NPTF	SFSP-43-CN	2.125"	1.093"	0.312"	0.875"
3/4"	1/2" NPTF	SFSP-64-CN	2.350"	1.250"	0.437"	1.125"

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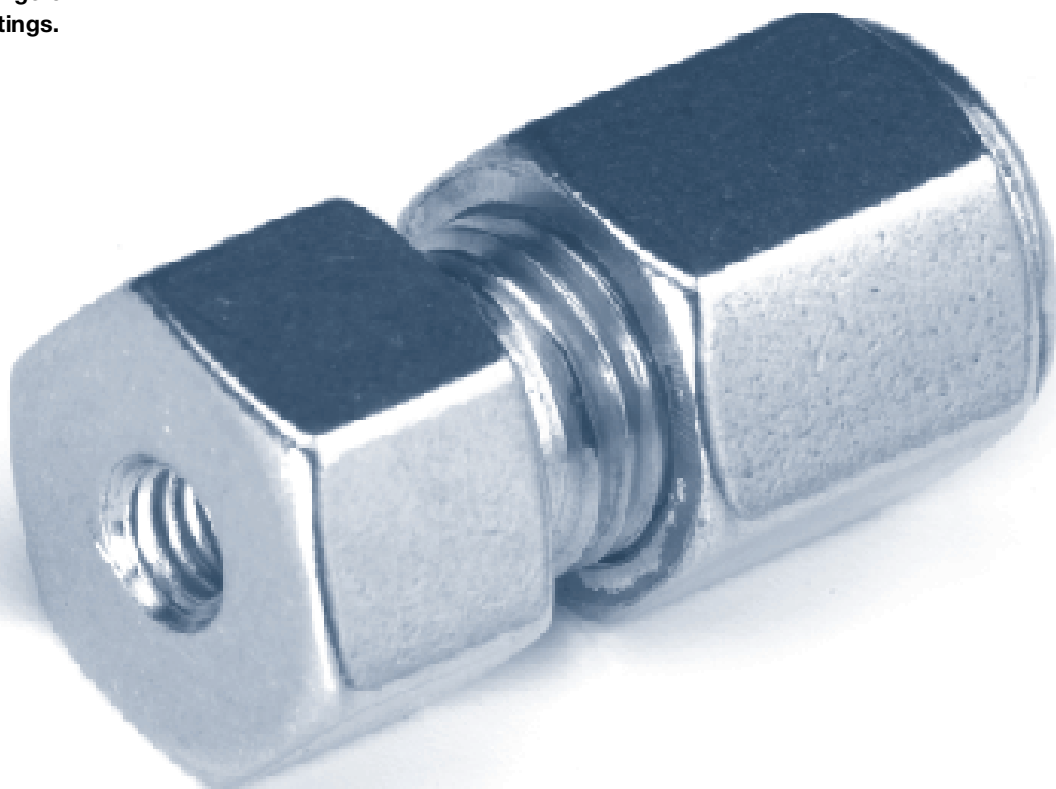
Unilok[®] chromatography fittings

Unilok[®] chromatography fittings

Unilok[®] chromatography fittings

HPLC is the most widely used technique in laboratory analysis. The success of the HPLC process is dictated by the performance of the column, which in turn is dependent on the column end fitting.

Waverley, the premier UK manufacturer of high precision Ringlok[®] compression couplings and complimentary fittings now introduce a wide range of chromatography fittings.



Unilok[®] chromatography fittings

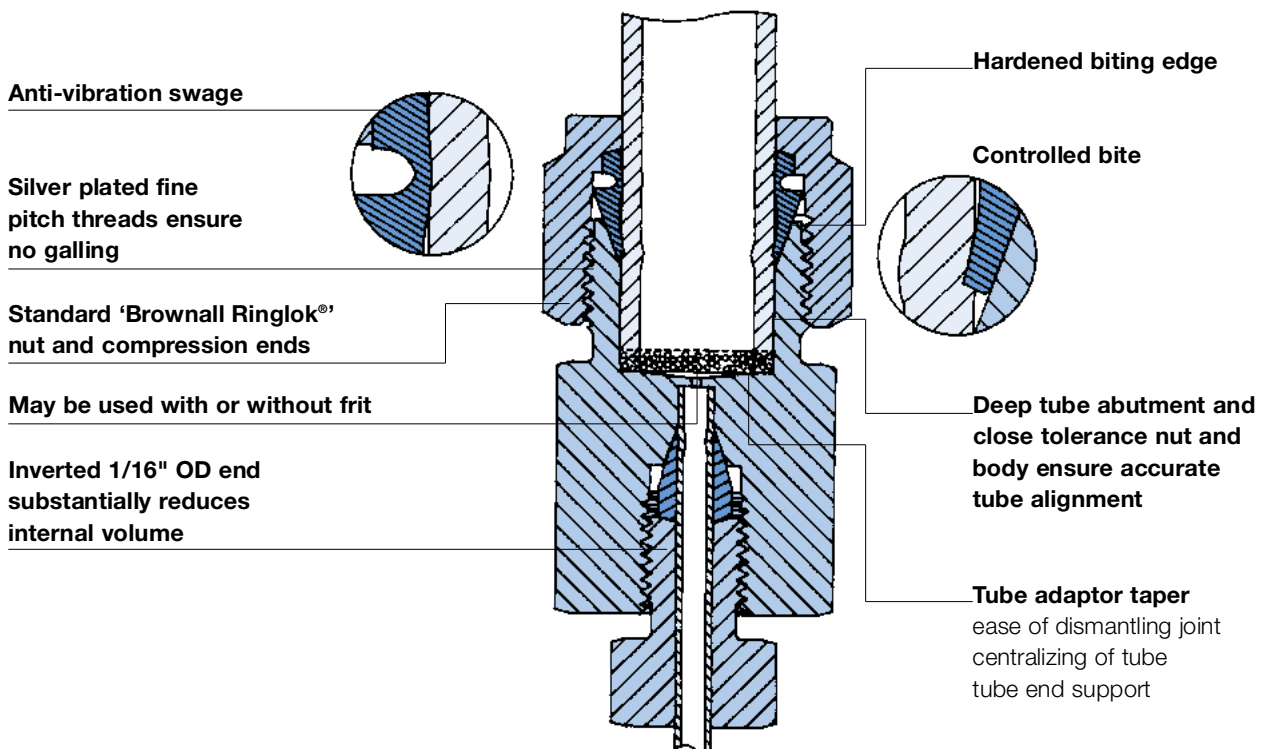
Application, benefits and design features

Applications

Chemical and petrochemical processing
 Oil and gas transmission
 Offshore
 Food and pharmaceutical processing
 OEM

The Unilok[®] ring is manufactured to close tolerances with a high degree of accuracy and surface finish, is fully interchangeable with standard Ringlok[®] front and back seal rings and is compatible with Ringlok[®] gaugeability system. Effective use on thin and thick wall tubes maintains a 4:1 factor of safety on working pressure of tube.

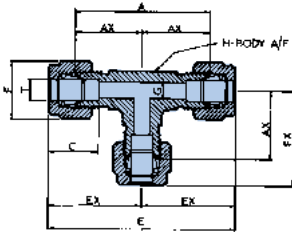
For assembly instructions refer to Ringlok[®] compression fittings section from page 1.02.



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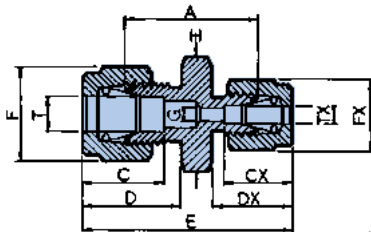
Unilok® chromatography fittings

Equal tee



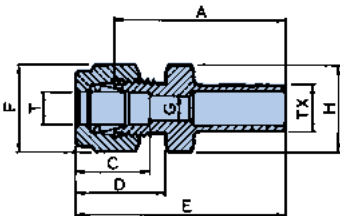
part number	T tube OD	A	AX	C	E	EX	F	G	H
UET-01	1/16"	1 3/16"	19/32"	11/32"	11/2"	3/4"	5/16"	0.051"	3/8"
UET-1	1/8"	1 1/2"	3/4"	17/32"	23/32"	13/64"	7/16"	3/32"	1/2"
UET-2	1/4"	19/16"	25/32"	19/32"	25/32"	15/64"	9/16"	3/16"	1/2"
UET-3	3/8"	1 13/16"	29/32"	21/32"	213/32"	113/64"	11/16"	9/32"	5/8"
UET-4	1/2"	21/32"	11/64"	29/32"	227/32"	127/64"	1/8"	13/32"	13/16"

Reducing coupling



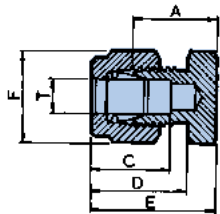
part number	T tube OD	TX tube OD	A	C	CX	D	DX	E	F	FX	G	H
URC-101	1/8"	1/16"	27/32"	1 7/32"	11/32"	41/64"	15/32"	1 19/64"	7/16"	5/16"	0.051"	7/16"
URC-21	1/4"	1/8"	31/32"	19/32"	1 7/32"	45/64"	41/64"	19/16"	9/16"	7/16"	3/32"	9/16"
URC-32	3/8"	1/4"	1 1/8"	21/32"	1 9/32"	49/64"	45/64"	1 23/32"	1 1/16"	9/16"	3/16"	1 1/16"
URC-43	1/2"	3/8"	1 7/32"	29/32"	21/32"	55/64"	49/64"	1 59/64"	7/8"	11/12"	9/32"	7/8"

Reducing adaptor



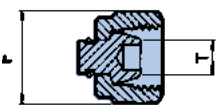
part number	T tube OD	TX tube OD	A	C	D	E	F	G	H
URA-011	1/16"	1/8"	1 1/32"	11/32"	15/32"	13/16"	5/16"	0.051"	5/16"
URA-101	1/8"	1/16"	29/32"	17/32"	41/64"	1 13/64"	7/16"	3/32"	7/16"
URA-12	1/8"	1/4"	13/16"	17/32"	41/64"	1 31/64"	7/16"	3/32"	7/16"
URA-23	1/4"	3/8"	1 11/32"	19/32"	45/64"	1 41/64"	9/16"	3/16"	9/16"
URA-24	1/4"	1/2"	19/16"	19/32"	45/64"	1 55/64"	9/16"	3/16"	9/16"

Blanking end



part number	T tube OD	A	C	D	E	F	HI
UBE-01	1/16"	15/32"	11/32"	15/32"	5/8"	5/16"	5/16"
UBE-1	1/8"	17/32"	17/32"	41/64"	53/64"	7/16"	7/16"
UBE-2	1/4"	5/8"	19/32"	45/64"	59/64"	1/2"	7/16"
UBE-3	3/8"	23/32"	21/32"	49/64"	11/64"	11/16"	11/16"
UBE-4	1/2"	3/4"	29/32"	55/64"	19/64"	7/8"	7/8"

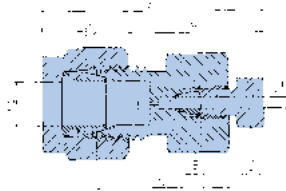
Blanking plug



part number	T tube OD	F
UBP-01	1/16"	5/16"
UBP-1	1/8"	7/16"
UBP-2	1/4"	9/16"
UBP-3	3/8"	11/16"
UBP-4	1/2"	7/8"

Unilok[®] chromatography fittings

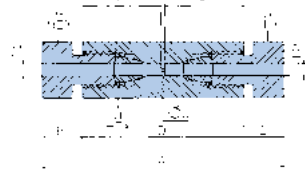
Column end fitting



part number	T1 tube OD	T2 tube OD	A	B	C	D	E	F
UCEF-1	1/8"	1/16"	111/64"	45/64"	43/64"	7/16"	7/16"	1/4"
UCEF-2	1/4"	1/16"	11/4"	3/4"	47/64"	9/16"	1/2"	1/4"
UCEF-3	3/8"	1/16"	15/16"	3/4"	51/64"	11/16"	5/8"	1/4"
UCEF-4	1/2"	1/16"	117/16"	27/32"	59/64"	7/8"	7/8"	1/4"

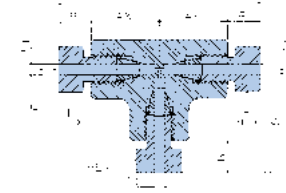
orifice - o 1/64

Union connector



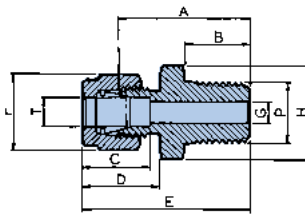
part number	T1 tube OD	T2 tube OD	A	B	C	D	E	F	G	H	J	LO
UUC-0101	1/16"	1/16"	115/64"	13/64"	13/64"	53/64"	13/32"	13/32"	1/4"	1/4"	1/4"	1/64"
UUC-101	1/8"	1/16"	17/16"	15/64"	13/64"	11/64"	9/16"	13/32"	3/8"	7/16"	1/4"	1/64"
UUC-11	1/8"	1/8"	141/64"	15/64"	15/64"	13/16"	9/16"	9/16"	3/8"	7/16"	3/8"	0.051"

Equal tee - low volume



part number	T1 tube OD	A	AX	B	C	D	E
UET-01-LV	1/16"	19/32"	7/16"	13/64"	29/64"	21/32"	1/4"

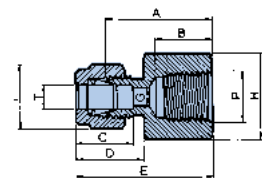
Male stud coupling



part number	T tube OD	P NPT pipe	A	B	C	D	E	F	G	H
UMSC-0101	1/16"	1/16"	7/8"	3/8"	11/32"	15/32"	11/32"	5/16"	0.051"	7/16"
UMSC-11	1/8"	1/8"	29/32"	3/8"	17/32"	41/64"	113/64"	7/16"	3/32"	7/16"
UMSC-22	1/4"	1/4"	1 3/16"	9/16"	19/32"	45/64"	131/64"	9/16"	3/16"	9/16"
UMSC-33	3/8"	3/8"	1 9/32"	9/16"	21/32"	49/64"	137/64"	11/16"	9/32"	11/16"
UMSC-44	1/2"	1/2"	1 1/2"	3/4"	29/32"	55/64"	129/32"	7/8"	13/32"	7/8"

A full range of compression end sizes and connecting thread combinations are available. The above part numbers are valid for NPT connecting threads only. BSP and BSPT connecting threads are also available. Please add the following suffix to part no when ordering - G for BSP and R for BSPT

Female stud coupling



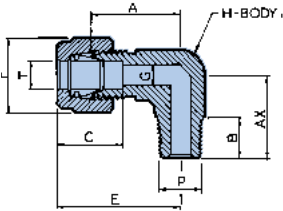
part number	T tube OD	P NPT pipe	A	B	C	D	E	F	G	H
UFSC-0101	1/16"	1/16"	53/64"	25/64"	11/32"	15/32"	63/64"	5/16"	0.051"	7/16"
UFSC-11	1/8"	1/8"	7/8"	25/64"	17/32"	41/64"	1 11/64"	7/16"	3/32"	9/16"
UFSC-22	1/4"	1/4"	1 1/8"	19/32"	19/32"	45/64"	1 13/32"	9/16"	3/16"	3/4"
UFSC-33	3/8"	3/8"	1 1/4"	19/32"	21/32"	49/64"	1 5/16"	11/16"	9/32"	13/16"
UFSC-44	1/2"	1/2"	1 11/64"	1 1/8"	25/32"	29/32"	1 37/64"	7/8"	13/32"	1 1/16"

A full range of compression end sizes and connecting thread combinations are available. The above part numbers are valid for NPT connecting threads only. BSP and BSPT connecting threads are also available. Please add the following suffix to part no when ordering - G for BSP and R for BSPT

1

Unilok® chromatography fittings

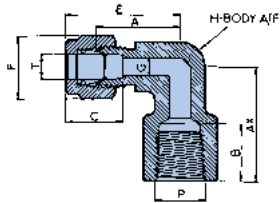
Male stud elbow



part number	T tube OD	P NPT pipe	A	AX	B	C	E	F	G	H
UMSE-0101	1/16"	1/16"	1 1/16"	3/4"	3/8"	1 1/32"	27/32"	5/16"	0.051"	1/2"
UMSE-11	1/8"	1/8"	3/4"	3/4"	3/8"	17/32"	11/8"	7/16"	3/32"	1/2"
UMSE-22	1/4"	1/4"	13/16"	15/16"	9/16"	19/32"	17/64"	9/16"	3/16"	1/2"
UMSE-33	3/8"	3/8"	29/32"	1 1/8"	9/16"	21/32"	113/64"	1 1/16"	9/32"	9/16"
UMSE-44	1/2"	1/2"	63/64"	1 5/16"	3/4"	29/32"	125/64"	7/8"	13/32"	1 1/16"

A full range of compression end sizes and connecting thread combinations is available. The above part numbers are valid for NPT connecting threads only. BSP and BSPT connecting threads are also available. Please add the following suffix to part no when ordering - G for BSP and R for BSPT

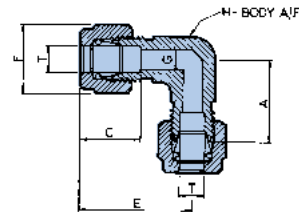
Female stud elbow



part number	T tube OD	P NPT pipe	A	AX	B	C	E	F	G	H
UFSE-0101	1/16"	1/16"	11/16"	3/4"	25/64"	11/32"	27/32"	5/16"	0.051"	1/2"
UFSE-11	1/8"	1/8"	3/4"	3/4"	25/64"	17/32"	1 1/8"	7/16"	3/32"	1/2"
UFSE-22	1/4"	1/4"	7/8"	7/8"	19/32"	19/32"	111/64"	9/16"	3/16"	5/8"
UFSE-33	3/8"	3/8"	11/64"	7/8"	19/32"	21/32"	15/16"	11/16"	9/32"	13/16"
UFSE-44	1/2"	1/2"	111/64"	1 1/8"	25/32"	29/32"	137/64"	7/8"	13/32"	1 1/16"

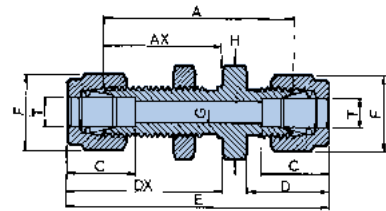
A full range of compression end sizes and connecting thread combinations is available. The above part numbers are valid for NPT connecting threads only. BSP and BSPT connecting threads are also available. Please add the following suffix to part no when ordering - G for BSP and R for BSPT

Equal elbow



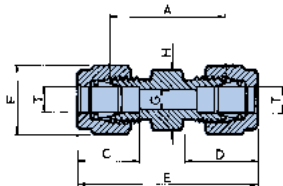
part number	T tube OD	A	C	E	F	G	H
UEE-01	1/16"	19/32"	11/32"	3/4"	5/16"	0.051"	3/8"
UEE-1	1/8"	3/4"	17/32"	1 1/8"	7/16"	3/32"	1/2"
UEE-2	1/4"	25/32"	19/32"	1 5/64"	9/16"	3/16"	1/2"
UEE-3	3/8"	29/32"	21/32"	113/64"	11/16"	9/32"	5/8"
UEE-4	1/2"	1 1/64"	29/32"	127/32"	7/8"	13/32"	13/16"

Bulkhead coupling



part number	T tube OD	A	AX	C	D	DX	E	F	G	H
UBC-01	1/16"	1"	9/16"	11/32"	15/32"	23/32"	15/16"	5/16"	0.051"	5/16"
UBC-1	1/8"	1 1/2"	31/32"	17/32"	41/64"	117/64"	23/32"	7/16"	3/32"	7/16"
UBC-2	1/4"	1 11/16"	1 1/32"	19/32"	45/64"	1 21/64"	2 9/32"	9/16"	3/16"	11/16"
UBC-3	3/8"	1 7/8"	1 5/32"	21/32"	49/64"	1 29/64"	2 15/32"	11/16"	9/32"	3/4"
UBC-4	1/2"	2"	1 1/4"	29/32"	55/64"	1 21/32"	2 13/16"	7/8"	13/32"	15/16"

Straight coupling



part number	T tube OD	A	C	D	E	F	G	H
USC-01	1/16"	13/16"	11/32"	15/32"	1 1/8"	5/16"	0.051"	5/16"
USC-1	1/8"	7/8"	17/32"	41/64"	1 15/32"	7/16"	3/32"	7/16"
USC-2	1/4"	1 1/32"	19/32"	45/64"	1 5/8"	9/16"	3/16"	9/16"
USC-3	3/8"	1 3/16"	21/32"	49/64"	1 25/32"	11/16"	9/32"	11/16"
USC-4	1/2"	1 7/32"	29/32"	55/64"	2 1/32"	7/8"	13/32"	7/8"

Flange fittings

Flange fittings

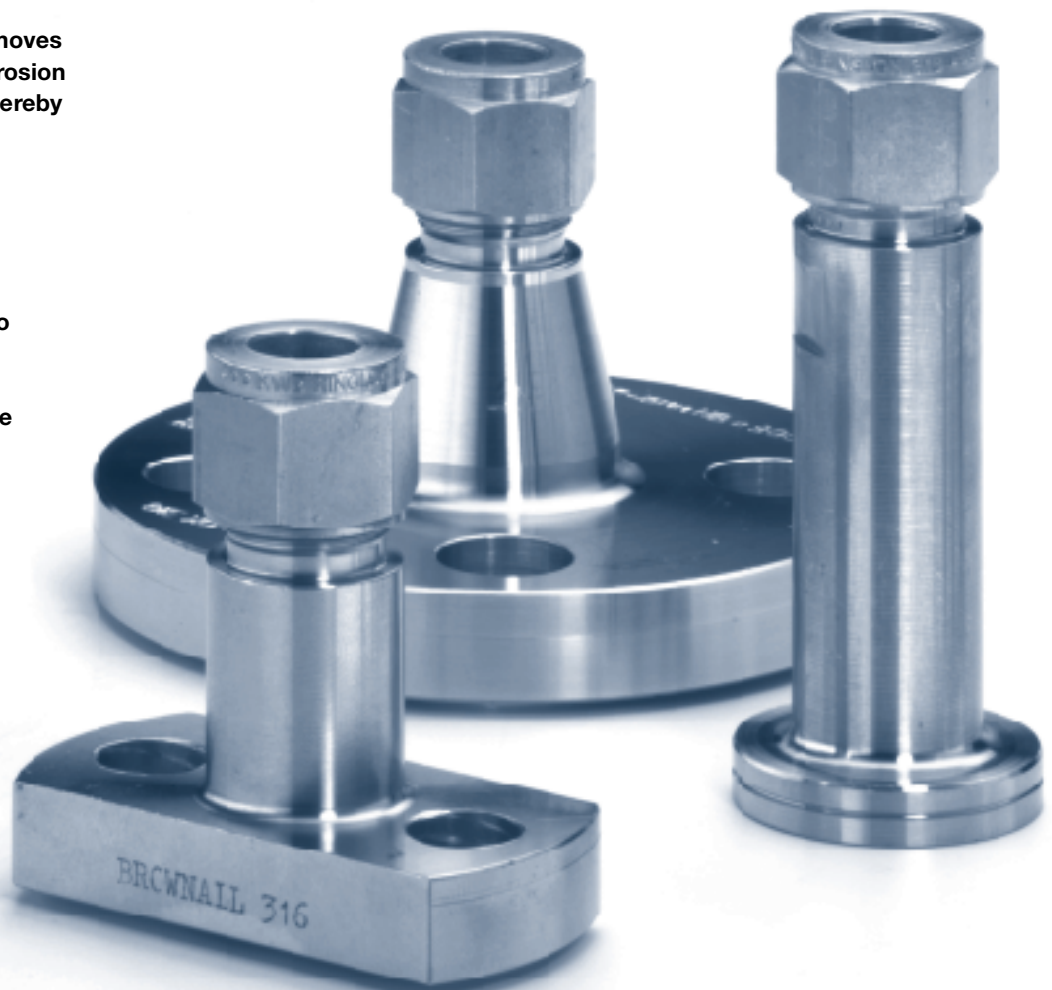
Flange fittings

The Waverley Flange connector, for use at the primary isolation point of piping systems is designed to eliminate the problems associated with the connection of piping to instrumentation tubing.

Trouble-free installation is guaranteed even after repeated assembly and dis-assembly of the Waverley single or twin ferrule compression fitting.

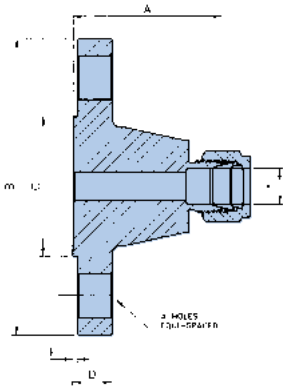
The unique construction removes leak paths and possible corrosion points from welded joints thereby dispensing with the need of costly crack detection.

The flange connector is manufactured from a 316 stainless steel forging and the flange detail conforms to BS 1560. It is available with a sealing face of rough or smooth finish, and in a range of combinations of nominal bore size, pressure ratings and compression ends.



Flange fittings

Flange connector 150lb, 300lb, 600lb class



drawing	Ringlok® connection
F6045	Ringlok® – 150psi – raised face
F6109	Ringlok® – 300psi – raised face
F6165	Ringlok® – 600psi – raised face
F6220	Ringlok® – 150psi – flat face
F6507	Ringlok® – 300psi – flat face
F6508	Ringlok® – 600psi – flat face

drawing	Duoloc® Connection
F6037	Duoloc® – 150psi – raised face
F6146	Duoloc® – 300psi – raised face
F6110	Duoloc® – 600psi – raised face
F6177	Duoloc® – 150psi – flat face
F6509	Duoloc® – 300psi – flat face
F6510	Duoloc® – 600psi – flat face

Note: RTJ flange connectors are also available on request

nb size 150lb class	A	B	C	D	E
1/2" – 15mm	1.88"	3.50"	1.38"	0.44"	0.06"
3/4" – 20mm	2.06"	3.88"	1.69"	0.50"	0.06"
1" – 25mm	2.19"	4.25"	2.00"	0.56"	0.06"

nb size 300lb class	A	B	C	D	E
1/2" – 15mm	2.06"	3.75"	1.38"	0.56"	0.06"
3/4" – 20mm	2.25"	4.62"	1.69"	0.62"	0.06"
1" – 25mm	2.44"	4.88"	2.00"	0.69"	0.06"

nb size 600lb class	A	B	C	D	E
1/2" – 15mm	2.31"	3.75"	1.38"	0.81"	0.25"
3/4" – 20mm	2.50"	4.62"	1.69"	0.87"	0.25"
1" – 25mm	2.69"	4.88"	2.00"	0.94"	0.25"

T – tube OD is available in metric and imperial compression ends up to 12mm OD and 1/2" OD single or twin ferrule design.

Overall length of component (including nut) will vary slightly with size and type of compression end.

Important

Compression joints to be assembled in a pre-assembly tool before being re-assembled into flange.

All dimensions in inches.

Other sizes of flange are available on request.

Ordering example

Example for 1/2" OD Ringlok® – 150psi-1/2" NB (15mm) Rough finish raised faced flange connector.

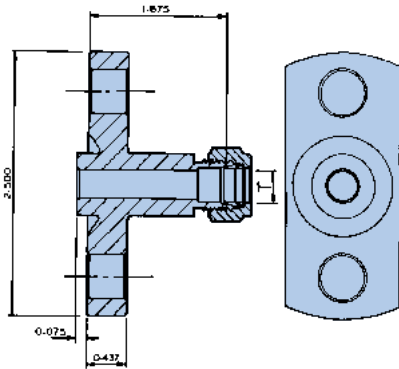
F6045/4 15 R

drawing number	
ODsize	2 1/4" 3 3/8" 4 1/2" M6 6mm M8 8mm M10 10mm M12 12mm
NBsize	1/2" 15mm 3/4" 20mm 1" 25mm
face finish	R rough S smooth

larger OD sizes are available

Flange fittings

Flange adaptor kidney type



drawing	description
F6511	Ringlok® connection grooved face flange
F6512	Ringlok® connection flat face flange
F6513	Duoloc® connection grooved face flange
F6514	Duoloc® connection flat face flange

Above drawing numbers and diagram are for a typical flange configuration for up to 100 bar pressure.

The Waverley flange adaptor is available in several conditions.

The flange connection may be grooved for insertion of sealing washer, or in the flat face condition.

Both of the above conditions may be combined with either single or twin ferrule ends, weld and screwed connections.

Available in 316 and 316L material.

T – tube OD is available in metric and imperial compression ends up to 12mm OD and 1/2" OD single or twin ferrule design.

Overall length of component (including nut) will vary slightly with size and type of compression end.

Important

Compression joints to be assembled in a pre-assembly tool before being re-assembled into flange.

Flange detail can be supplied in accordance with DIN 19 213 up to a maximum working pressure of 400 bar.

Ordering example

Example for 1/2" OD Duoloc® flange adaptor with groove face

F6513 G-4-D

drawing number

face finish

G grooved
F flat

OD size

2 1/4"
3 3/8"
4 1/2"
M6 6mm
M8 8mm
M10 10mm
M12 12mm

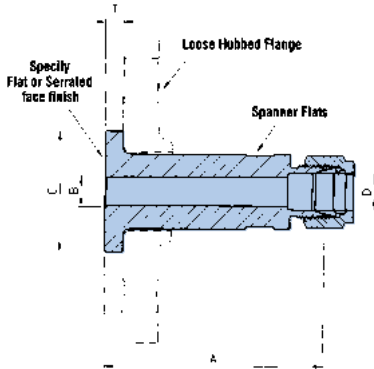
Duoloc® or Ringlok®

D Duoloc®
R Ringlok®

larger OD sizes are available

Flange fittings

Lapped joint 1/2" NB



D tube OD	A	T	B dia min	C dia
6mm	73.0mm	6.5mm	21/64"	34.9mm
8mm	73.8mm	6.5mm	21/64"	34.9mm
10mm	74.6mm	6.5mm	5/16"	34.9mm
12mm	74.6mm	6.5mm	3/8"	34.9mm
1/2"	2.875"	0.256"	21/64"	1.37"
3/8"	2.93"	0.256"	5/16"	1.37"
1/2"	2.937"	0.256"	21/64"	1.37"

The Waverley lapped joint is suitable for use with loose hubbed flanges in classes 150 to 2500 conforming to BS 1560 specifications for steel flanges.

Important

Compression joints to be assembled in a pre-assembly tool before being assembled into flange.

Tube OD is available in metric and imperial compression ends single or twin ferrule design.

Overall length of component (including nut) will vary slightly with size and type of compression end.

Ordering example

Example for 1/2" OD Ringlok® lapped joint with serrated face

LJS-4-R-20

component

face finish

S serrated
F flat

OD size

2 1/4"
3 3/8"
4 1/2"
M6 6mm
M8 8mm
M10 10mm
M12 12mm

Duoloc® or Ringlok®

D Duoloc®
R Ringlok®

NBsize

15 1/2"
20 3/4"
25 1"

larger OD sizes are available

Ball valves

Waverley ball valves are UK manufactured to exacting standards of design and quality to give system reliability - whatever the conditions.

1000lb, 3000lb and 6000lb class.
1/4" - 1", Waverley ball valves are available in a wide range of thread forms and end connections, assembled and fully pressure tested as required.

Lockable handles or pneumatically operated actuators can be supplied, fully assembled, with Waverley's ball valve range.

Three-way ball valves and Meca-Inox three piece ball valves are available ex-stock, with a wide range of end connections provided as illustrated.

Ball valves

3.02 BV 1000 series ball valves

3.10 BV 3000, 6000 series ball valves

3.20 3 way ball valves

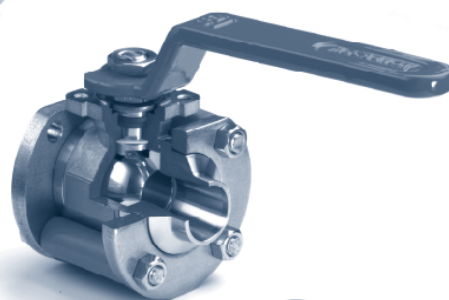
3.29 Meca-Inox 3 piece ball valves



3.06



3.16



3.30



3.06



3.07

3

BV 1000 series ball valves

BV 1000 series ball valves

The BV series ball valves are designed to be compact and reliable. The BV 1000 series ball valve is rated to 1,000psi. It is a simple but effective one piece valve design used for low pressure on/off service. It offers a visual indication of flow direction and colour coded handle. It has a wide choice of end connections from 1/4" up to 1" in BSP, BSPT and NPT threads. It is also available in hose tail and compression ended formats. (See appropriate section in catalogue.) Standard materials are 316 Stainless Steel.



BV 1000 series ball valves

Benefits, applications and design features

Features

90° fast actuation
 Low operating torque
 Compact one piece design
 Bi-directional flow
 Replaceable seats
 Temperature rating -45 – 230°C
 Up to 1,000psi
 Colour coded handle
 Anti blow out spindle

Applications

Low pressure shut off
 Drain valve
 Compressed air service
 liquid or vapour service

Benefit

PVC sleeve colour coded for pressure rating 1000psi - Red

Handle pressed from 304 Stainless Steel for corrosion resistance and long life with 90° positive stop.

One piece anti-blow out spindle incorporated in to the design ensuring safety and seal integrity. An anti-vibration nyloc nut is incorporated on the spindle

Body manufactured from hexagon bar stock in 316 stainless steel as standard.

Ball is manufactured from 316 stainless steel to give material continuity throughout the valve. It is of a floating ball arrangement, which compensates for seat wear and fluctuations in pressure and temperature.

BV 1000 seats are manufactured from PTFE and are easily renewable.

PVC sleeve

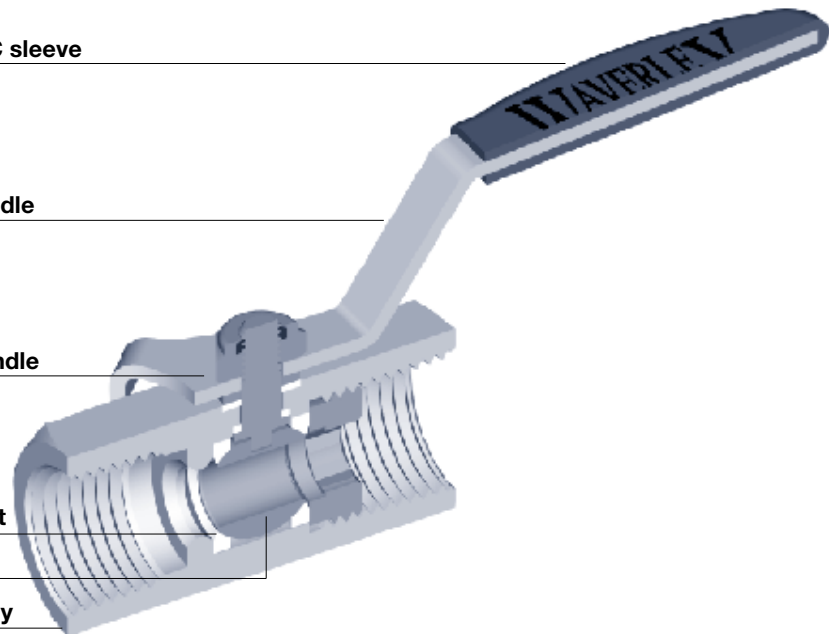
Handle

Spindle

Seat

Ball

Body



3

BV 1000 series ball valves

Technical specifications

Technical specifications

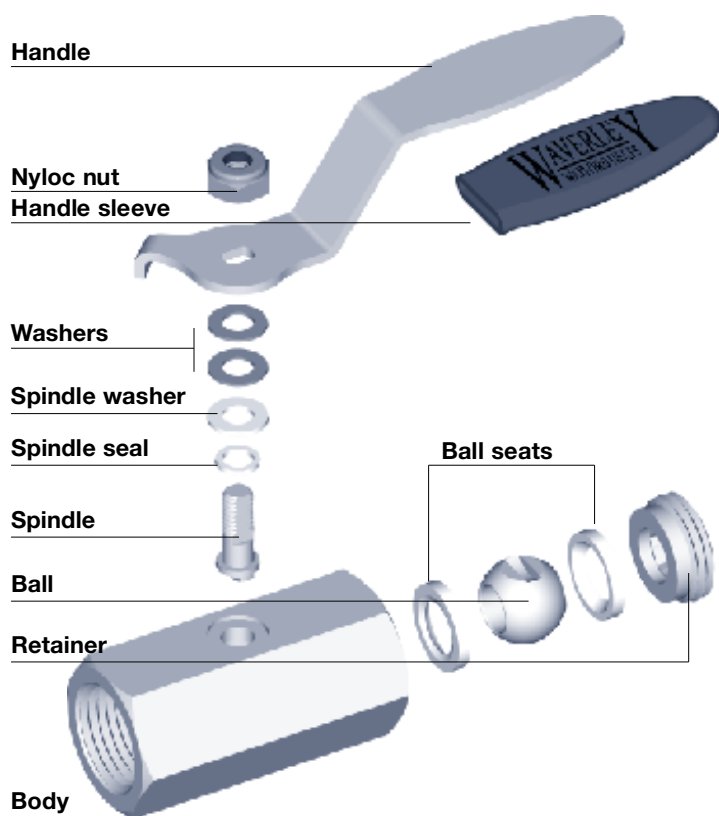
Pressure range	0-1000psi	
Temperature range	-45 to 230°C	
Cv rating (ball orifice diameter)		
Valve size	Cv	Orifice
1/4"	0.72	(0.375")
3/8"	2.30	(0.375")
1/2"	3.00	(0.375")
3/4"	6.30	(0.600")
1"	9.00	(0.600")

Materials of construction

Body	316 stainless steel
Ball	316 stainless steel
Spindle	316 stainless steel
Spindle seal	PTFE glass filled
Spindle washer	PTFE
Retainer	316 stainless steel
Handle	304 stainless steel
Belleville washer	316 stainless steel
Nyloc nut	316 stainless steel
Handle sleeve	PVC
Ball seats	PTFE

Valve markings

Make or manufacturer	Waverley
Pressure rating	1000psi
Cast code	ABC123



Testing

All Waverley ball valves are 100% tested for sealing performance based on BS 6755 Pt1. These tests consist of: Low pressure (50 psi 3.5 bar) High pressure shell (1,500psi 103.5 Bar)

Seal kits

Seal kits are supplied for necessary maintenance. These consist of ball seats and spindle seals.

Cleaning and packaging

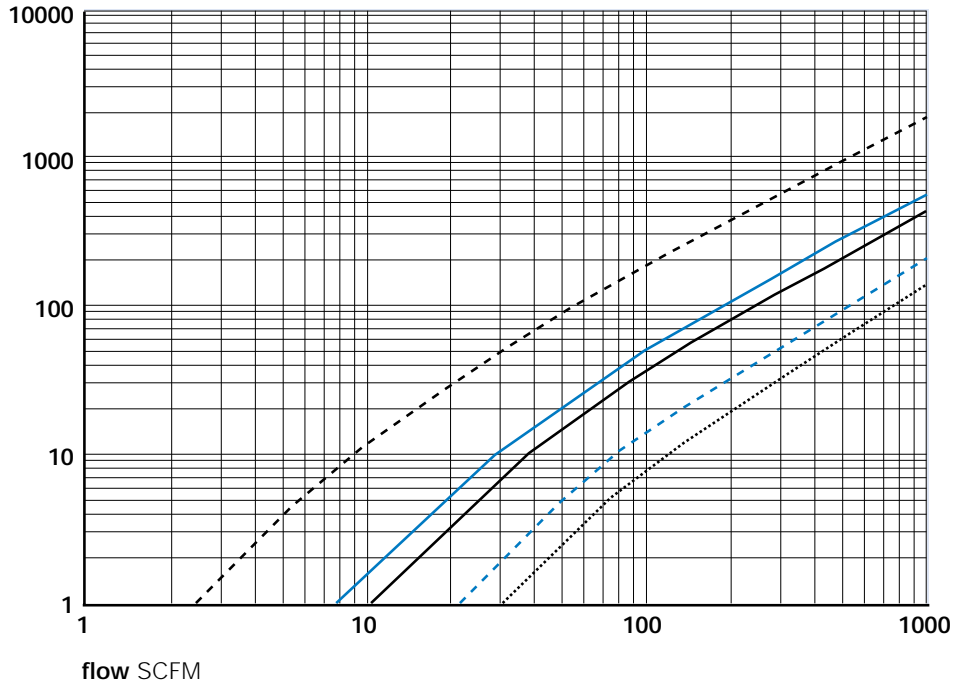
All Waverley ball valves are dispatched fully degreased and sealed. Cleaning for oxygen use on application.

BV 1000 series ball valves

Air flow

- 1/4" valve
- 3/8" valve
- 1/2" valve
- - 3/4" valve
- 1" valve

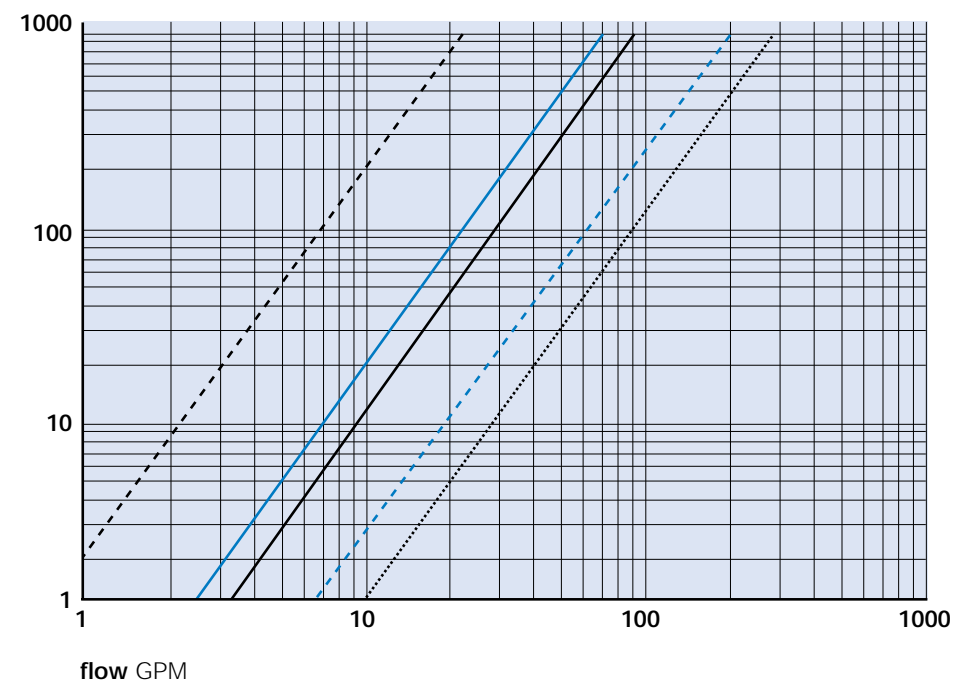
pressure drop psi



Water flow

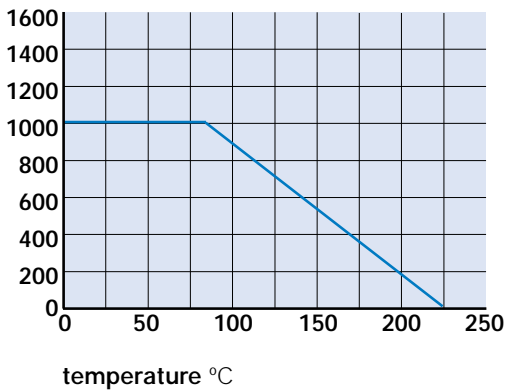
- 1/4" valve
- 3/8" valve
- 1/2" valve
- - 3/4" valve
- 1" valve

pressure drop psi



Pressure vs temperature performance

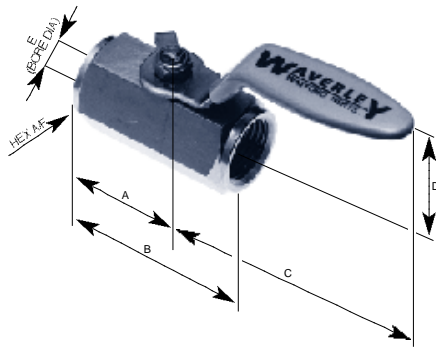
pressure psi



3

1000lb class ball valves

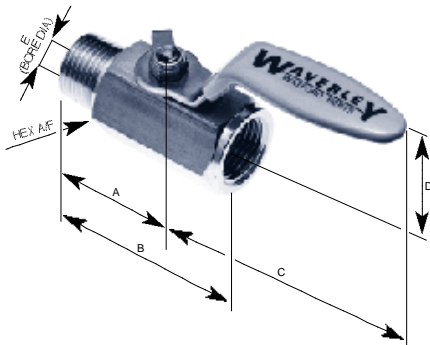
Female/female 1000lb class



thread size	part number	A	B	C	D	E	hex A/F
G 1/4" BSP	BV2P	0.750"	1.657"	2.375"	1.175"	0.200"	0.750"
G 3/8" BSP	BV3P	0.855"	1.810"	3.225"	1.500"	0.300"	0.875"
G 1/2" BSP	BV4P	1.082"	2.165"	3.250"	1.650"	0.355"	1.062"
G 3/4" BSP	BV6P	1.180"	2.600"	4.100"	2.000"	0.500"	1.300"
G 1" BSP	BV8P	1.675"	3.100"	4.100"	2.100"	0.610"	1.670"
Rc 1/4" BSPT	BV2T	0.750"	1.575"	2.375"	1.175"	0.200"	0.669"
Rc 3/8" BSPT	BV3T	0.855"	1.775"	3.225"	1.500"	0.300"	0.875"
Rc 1/2" BSPT	BV4T	1.082"	2.160"	3.250"	1.650"	0.355"	1.062"
Rc 3/4" BSPT	BV6T	1.180"	2.400"	4.100"	2.000"	0.500"	1.300"
Rc 1" BSPT	BV8T	1.437"	2.950"	4.100"	2.100"	0.610"	1.500"
Rc 1 1/2" BSPT	BV12T	1.800"	3.550"	5.950"	2.750"	0.950"	2.175"
Rc 2" BSPT	BV16T	2.125"	4.250"	5.950"	3.125"	1.250"	2.775"
1/4" NPTF	BV2N	0.750"	1.575"	2.375"	1.175"	0.200"	0.669"
3/8" NPTF	BV3N	0.855"	1.775"	3.225"	1.500"	0.300"	0.875"
1/2" NPTF	BV4N	1.082"	2.160"	3.250"	1.650"	0.355"	1.062"
3/4" NPTF	BV6N	1.180"	2.400"	4.100"	2.000"	0.500"	1.300"
1" NPTF	BV8N	1.437"	2.950"	4.100"	2.100"	0.610"	1.500"

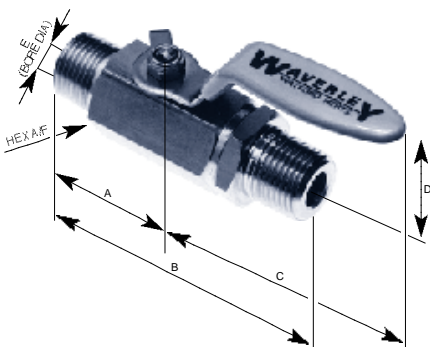
BSP Parallel valves are counter bored in the end faces to accept PTFE O-rings (which are supplied) to act as sealing face.

Male/female 1000lb class



thread size	part number	A	B	C	D	E	hex A/F
R 1/4" BSPT	BV2 M/F	1.000"	1.812"	2.375"	1.175"	0.200"	0.669"
R 3/8" BSPT	BV3 M/F	1.275"	2.185"	3.225"	1.500"	0.300"	0.875"
R 1/2" BSPT	BV4 M/F	1.350"	2.440"	3.250"	1.650"	0.355"	1.062"
R 3/4" BSPT	BV6 M/F	1.525"	2.750"	4.100"	2.000"	0.500"	1.300"
R 1" BSPT	BV8 M/F	1.750"	3.250"	4.100"	2.100"	0.610"	1.500"
1/4" NPTF	BV2N M/F	1.000"	1.812"	2.375"	1.175"	0.200"	0.669"
1/2" NPTF	BV4N M/F	1.350"	2.440"	3.225"	1.650"	0.355"	1.062"
3/4" NPTF	BV6N M/F	1.525"	2.750"	4.100"	2.000"	0.500"	1.300"

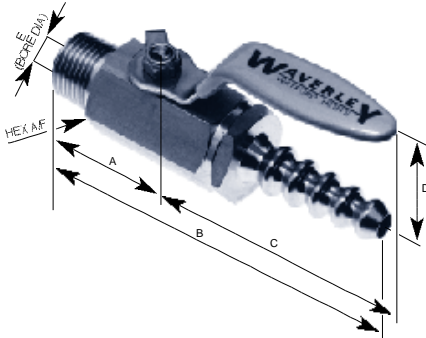
Male/male 1000lb class



thread size	part number	A	B	C	D	E	hex A/F
R 1/4" BSPT	BV2 M/M	1.000"	2.540"	2.375"	1.175"	0.200"	0.669"
R 3/8" BSPT	BV3 M/M	1.275"	3.000"	3.225"	1.500"	0.300"	0.875"
R 1/2" BSPT	BV4 M/M	1.350"	3.475"	3.250"	1.650"	0.355"	1.062"
R 3/4" BSPT	BV6 M/M	1.525"	3.875"	4.100"	2.000"	0.500"	1.300"
R 1" BSPT	BV8 M/M	1.750"	4.500"	4.100"	2.100"	0.610"	1.500"
1/4" NPTF	BV2N M/M	1.000"	2.540"	2.375"	1.175"	0.200"	0.668"
1/2" NPTF	BV4N M/M	1.350"	3.475"	3.250"	1.650"	0.355"	1.062"
3/4" NPTF	BV6N M/M	1.525"	3.875"	4.100"	2.000"	0.500"	1.300"

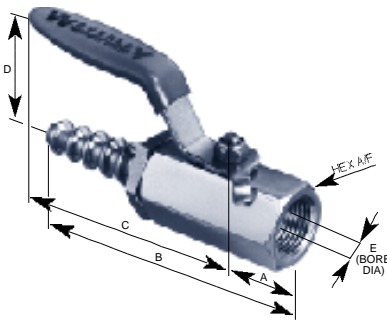
1000lb class ball valves

Male/straight hose tail 1000lb class



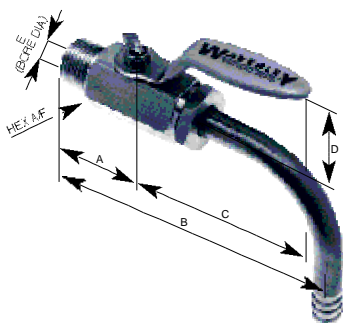
thread size	part number	A	B	C	D	E	hex A/F
R 1/4" BSPT	BV2 M/H	1.000"	2.875"	2.375"	1.175"	0.200"	0.669"
R 3/8" BSPT	BV3 M/H	1.275"	3.687"	3.225"	1.500"	0.300"	0.875"
R 1/2" BSPT	BV4 M/H	1.350"	4.400"	3.250"	1.650"	0.355"	1.062"
R 3/4" BSPT	BV6 M/H	1.525"	5.000"	4.100"	2.000"	0.500"	1.300"
R 1" BSPT	BV8 M/H	1.750"	5.500"	4.100"	2.100"	0.610"	1.670"
1/4" NPTF	BV2N M/H	1.000"	2.875"	2.375"	1.175"	0.200"	0.669"
3/8" NPTF	BV3N M/H	1.275"	3.687"	3.225"	1.500"	0.300"	0.875"
1/2" NPTF	BV4N M/H	1.350"	4.400"	3.250"	1.650"	0.355"	1.062"
3/4" NPTF	BV6N M/H	1.525"	5.000"	4.100"	2.000"	0.500"	1.300"
1" NPTF	BV8N M/H	1.750"	5.500"	4.100"	2.100"	0.610"	1.670"

Female/straight hose tail 1000lb class



thread size	part number	A	B	C	D	E	hex A/F
R 1/4" BSPT	BV2 F/H	0.750"	2.625"	2.375"	1.175"	0.200"	0.669"
R 3/8" BSPT	BV3 F/H	0.855"	3.267"	3.225"	1.500"	0.300"	0.875"
R 1/2" BSPT	BV4 F/H	1.082"	4.150"	3.250"	1.650"	0.355"	1.062"
R 3/4" BSPT	BV6 F/H	1.180"	4.655"	4.100"	2.000"	0.500"	1.300"
R 1" BSPT	BV8 F/H	1.437"	5.187"	4.100"	2.100"	0.610"	1.670"
1/4" NPTF	BV2N F/H	0.750"	2.625"	2.375"	1.175"	0.200"	0.669"
3/8" NPTF	BV3N F/H	0.855"	3.267"	3.225"	1.500"	0.300"	0.875"
1/2" NPTF	BV4N F/H	1.082"	4.150"	3.250"	1.650"	0.355"	1.062"
3/4" NPTF	BV6N F/H	1.180"	4.655"	4.100"	2.000"	0.500"	1.300"
1" NPTF	BV8N F/H	1.437"	5.187"	4.100"	2.100"	0.610"	1.670"

Male 90° hose tail 1000lb class

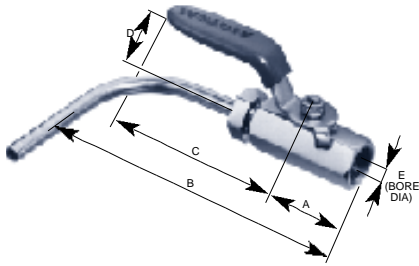


thread size	part number	A	B	C	D	E	hex A/F
R 1/4" BSPT	BV2 M/H 90	1.000"	2.250"	2.375"	1.175"	0.200"	0.669"
R 3/8" BSPT	BV3 M/H 90	1.275"	2.750"	3.225"	1.500"	0.300"	0.875"
R 1/2" BSPT	BV4 M/H 90	1.350"	3.500"	3.250"	1.650"	0.355"	1.062"
R 3/4" BSPT	BV6 M/H 90	1.525"	6.300"	4.100"	2.000"	0.500"	1.300"
R 1" BSPT	BV8 M/H 90	1.750"	6.900"	4.100"	2.100"	0.610"	1.670"
1/4" NPTF	BV2N M/H 90	1.000"	2.250"	2.375"	1.175"	0.200"	0.669"
1/2" NPTF	BV4N M/H 90	1.350"	3.500"	3.250"	1.650"	0.355"	1.062"
3/4" NPTF	BV6N M/H 90	1.525"	6.300"	4.100"	2.000"	0.500"	1.300"
1" NPTF	BV8N M/H 90	1.750"	6.900"	4.100"	2.000"	0.500"	1.300"

3

1000lb class ball valves

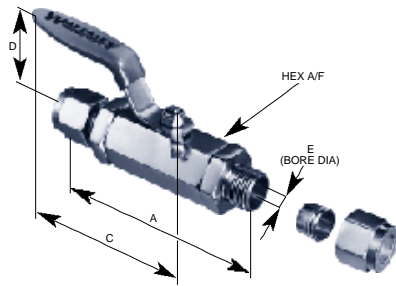
Female 90° hose tail 1000lb class



thread size	part number	A	B	C	D	E	hex A/F
R 1/4" BSPT	BV2 F/H 90	0.750"	2.000"	2.375"	1.175"	0.200"	0.669"
R 3/8" BSPT	BV3 F/H 90	0.855"	2.325"	3.225"	1.500"	0.300"	0.875"
R 1/2" BSPT	BV4 F/H 90	1.082"	3.250"	3.250"	1.650"	0.355"	1.062"
R 3/4" BSPT	BV6 F/H 90	1.180"	6.300"	4.100"	2.000"	0.500"	1.300"
R 1" BSPT	BV8 F/H 90	1.437"	6.900"	4.100"	2.100"	0.610"	1.500"
1/4" NPTF	BV2N F/H 90	0.750"	2.000"	2.375"	1.175"	0.200"	0.669"
3/8" NPTF	BV3N F/H 90	0.855"	2.325"	3.225"	1.500"	0.300"	0.875"
1/2" NPTF	BV4N F/H 90	1.082"	3.250"	3.250"	1.650"	0.355"	1.062"
3/4" NPTF	BV6N F/H 90	1.180"	6.300"	4.100"	2.000"	0.500"	1.300"
1" NPTF	BV8N F/H 90	1.437"	6.900"	4.100"	2.100"	0.610"	1.500"

Duoloc® single ferrule OD compression 1000lb class

Length A is from abutment to abutment

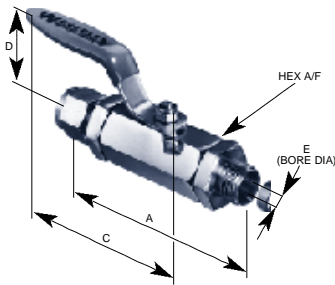


OD tube	part number	A	C	D	E	hex A/F
1/8"	BV1 OD	2.397"	2.375"	1.175"	0.200"	0.750"
3/16"	BV3/16 OD	2.397"	2.375"	1.175"	0.200"	0.750"
1/4"	BV2 OD	2.397"	2.375"	1.175"	0.200"	0.750"
3/8"	BV3 OD	2.614"	3.225"	1.500"	0.300"	0.875"
1/2"	BV4 OD	3.087"	3.250"	1.650"	0.355"	1.062"
3/4"	BV6 OD	3.486"	4.100"	2.000"	0.500"	1.300"
1"	BV8 OD	4.298"	4.100"	2.100"	0.610"	1.670"
6mm	BV6M OD	63.5mm	60mm	31mm	5mm	19mm
8mm	BV8M OD	66.5mm	82mm	42mm	8mm	22mm
10mm	BV10M OD	67mm	82mm	42mm	8mm	22mm
12mm	BV12M OD	76mm	82mm	42mm	9mm	27mm
15mm	BV15M OD	79mm	82mm	42mm	9mm	27mm
16mm	BV16M OD	66mm	82mm	42mm	9mm	27mm
18mm	BV18M OD	93mm	105mm	50mm	12.5mm	33mm
20mm	BV20M OD	95mm	105mm	50mm	12.5mm	33mm
22mm	BV22M OD	95mm	105mm	50mm	12.5mm	33mm
25mm	BV25M OD	108mm	105mm	50mm	12.5mm	33mm

1000lb class ball valves

Ringlok® double ferrule OD compression 1000lb class

Length A is from abutment to abutment



OD tube	part number	A	C	D	E	hex A/F
1/8"	BV1=OD	2.357"	2.375"	1.175"	0.200"	0.750"
3/16"	BV3/16=OD	2.357"	2.375"	1.175"	0.200"	0.750"
1/4"	BV2=OD	2.362"	2.375"	1.175"	0.200"	0.750"
3/8"	BV3=OD	2.512"	3.225"	1.500"	0.300"	0.875"
1/2"	BV4=OD	2.741"	3.250"	1.650"	0.355"	1.062"
3/4"	BV6=OD	3.150"	4.100"	2.000"	0.500"	1.300"
1"	BV8=OD	3.470"	4.100"	2.100"	0.610"	1.670"
6mm	BV6M=OD	59mm	60mm	31mm	5mm	19mm
8mm	BV8M=OD	60mm	82mm	42mm	8mm	22mm
10mm	BV10M=OD	64mm	82mm	42mm	8mm	22mm
12mm	BV12M=OD	70mm	82mm	42mm	9mm	27mm
15mm	BV15M=OD	70mm	82mm	42mm	9mm	27mm
16mm	BV16M=OD	70mm	82mm	42mm	9mm	27mm
18mm	BV18M=OD	80mm	105mm	50mm	12.5mm	33mm
20mm	BV20M=OD	80mm	105mm	50mm	12.5mm	33mm
22mm	BV22M=OD	80mm	105mm	50mm	12.5mm	33mm
25mm	BV25M=OD	90mm	105mm	50mm	12.5mm	33mm

3

3.10 Product Catalogue

BV 3000, 6000 series ball valves

BV 3000, 6000 series ball valves

The BV 3000 and BV 6000 series ball valves are rated at 3000 and 6000psi. The valve is designed to be compact and reliable with long service life. The centre body is designed specifically to accept our wide range of end connections allowing non-standard combinations to be supplied. This includes single and double ferrule OD compression ends in 1/8" to 1" sizes. Standard materials are 316 Stainless Steel.



BV 3000, 6000 series ball valves

Benefits, applications and design features

Features

Unique end connection system
 90° fast actuation
 Low operating torque
 Bi-directional flow
 Replaceable seats
 Temperature rating -45 – 230°C
 Up to 6,000psi
 Colour coded handle
 Anti blow out spindle

Applications

Hydraulic test equipment
 Pneumatic systems
 Laboratory equipment
 Liquid or vapour services
 Corrosive applications

PVC sleeve colour coded for pressure rating.
 3000 psi - Blue
 6000 psi - Yellow

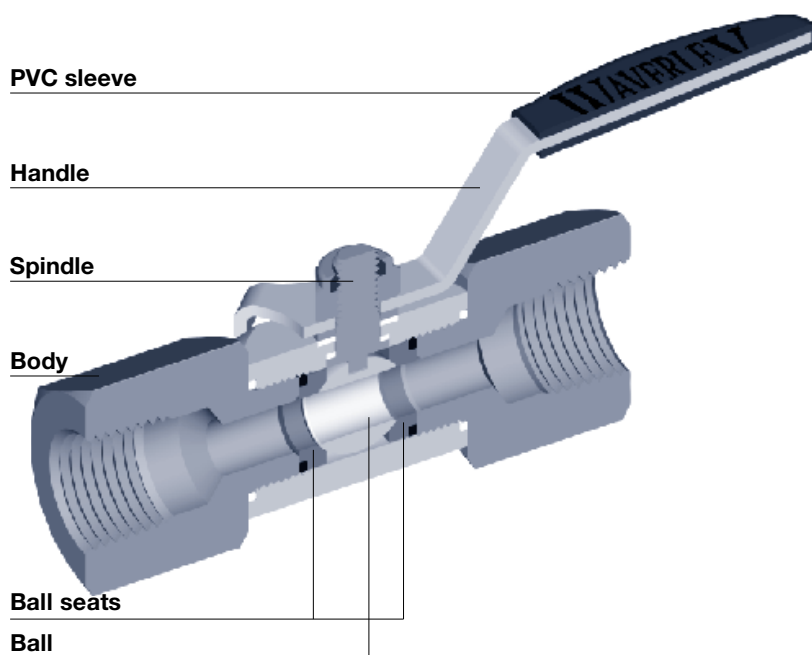
Handle pressed from 304 Stainless Steel for corrosion resistance and long life with 90° positive stop.

One piece anti-blow out spindle incorporated in to design ensuring safety and seal integrity. An anti-vibration nyloc nut is incorporated on the spindle.

Body manufactured from hexagon bar stock in 316 stainless steel as standard. Designed to accept our unique end connections.

Ball is manufactured from 316 stainless steel to give material continuity throughout the valve. It is of a floating ball arrangement, which compensates for seat wear and fluctuations in pressure and temperature.

BV 3,000 and 6,000 seats are manufactured from Peek and are easily renewable.



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BV 3000, 6000 series ball valves

Technical specifications

Technical specifications

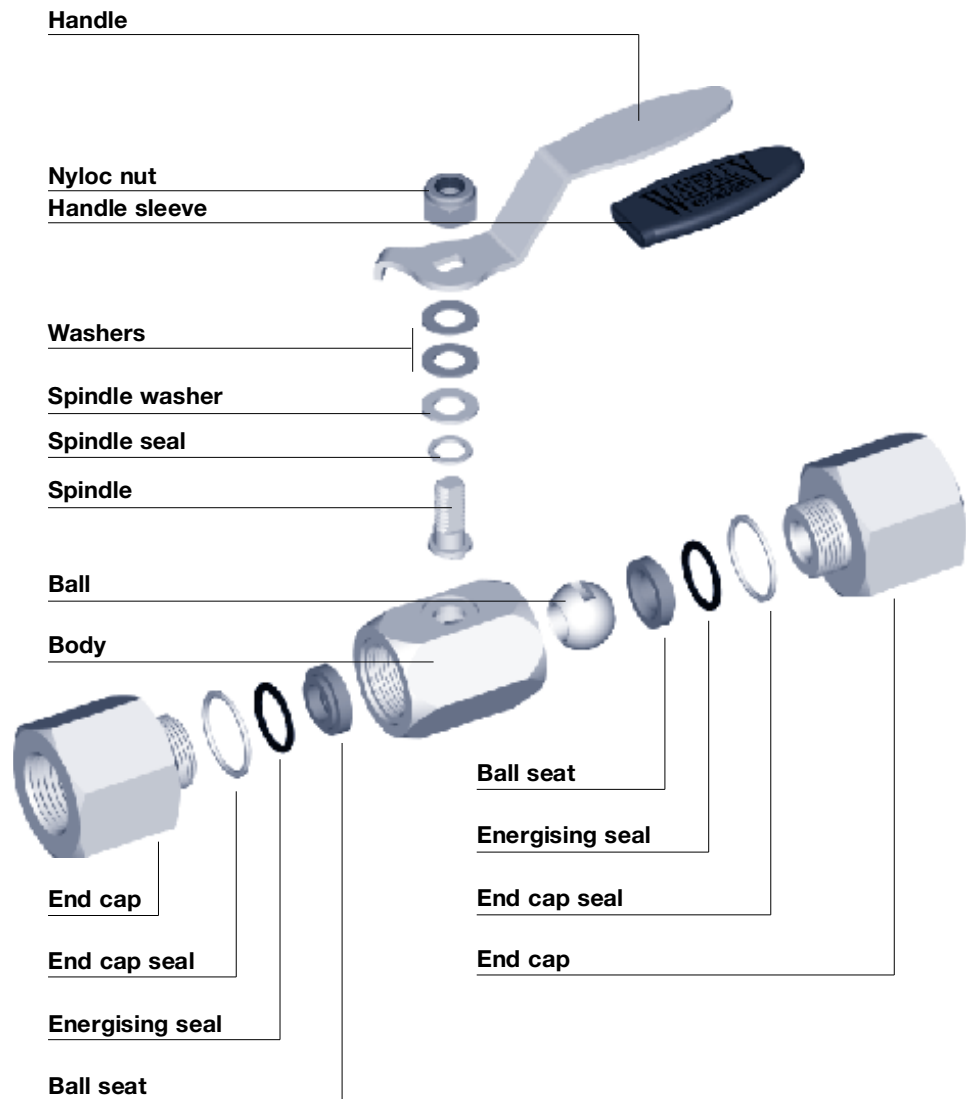
Pressure range	0-3000psi	
	0-6000psi	
Temperature range	-45 to 230°C	
Cv rating (ball orifice diameter)		
Valve	Cv	Orifice
1/4"	5.0	(0.375")
3/8"	5.0	(0.375")
1/2"	5.0	(0.375")
3/4"	14.0	(0.600")
1"	14.0	(0.600")

Materials of construction

Body	316 stainless steel
Ball	316 stainless steel
Spindle	316 stainless steel
Spindle seal	PTFE glass filled
Spindle washer	PTFE
End cap	316 stainless steel
Handle	304 stainless steel
Belleville washer	316 stainless steel
Nyloc nut	316 stainless steel
Handle sleeve	PVC
Ball seat	Peek
Energising seal	PTFE
End cap seal	PTFE

Valve markings

Make or manufacturer	Waverley
Pressure rating	3000, 6000psi
Cast code	ABC



Testing

All Waverley ball valves are 100% tested for sealing performance based on BS 6755 Pt1. These tests consist of: Low pressure (50psi 3.5 bar)
 BV 3000 High pressure shell (4,500psi 310 Bar) BV 6000 High pressure shell (9,000psi 620 Bar).

Seal kits

Seal kits are supplied for necessary maintenance. These consist of ball seats and spindle seals.

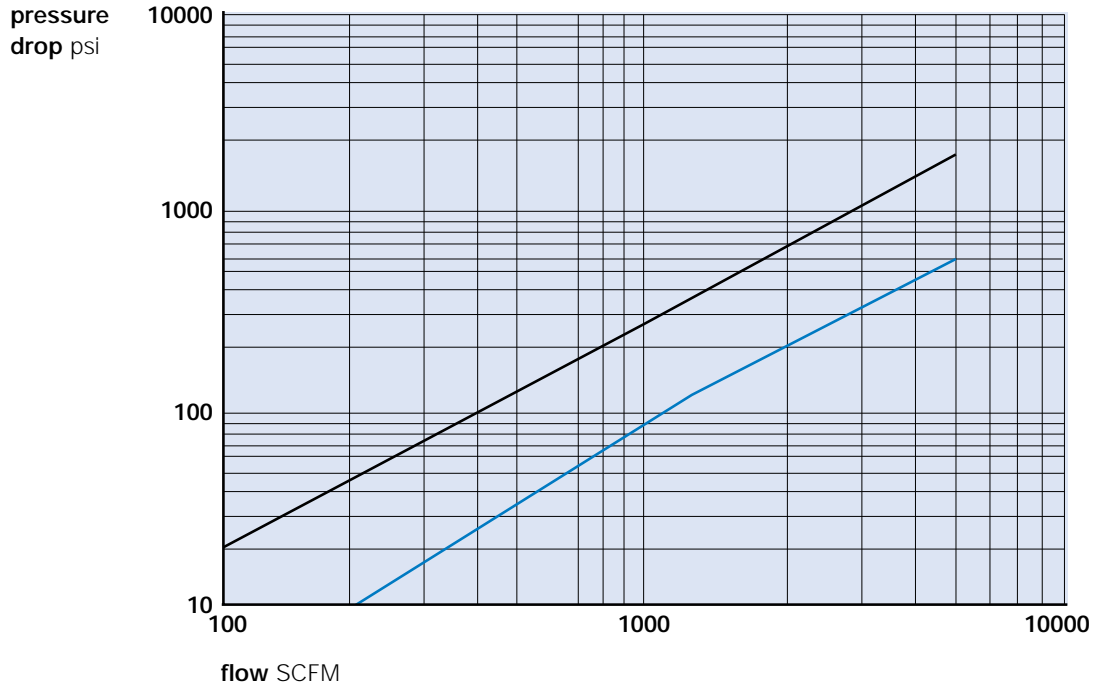
Cleaning and packaging

All Waverley ball valves are fully degreased and sealed. Cleaning for oxygen use on application.

BV 3000, 6000 series ball valves

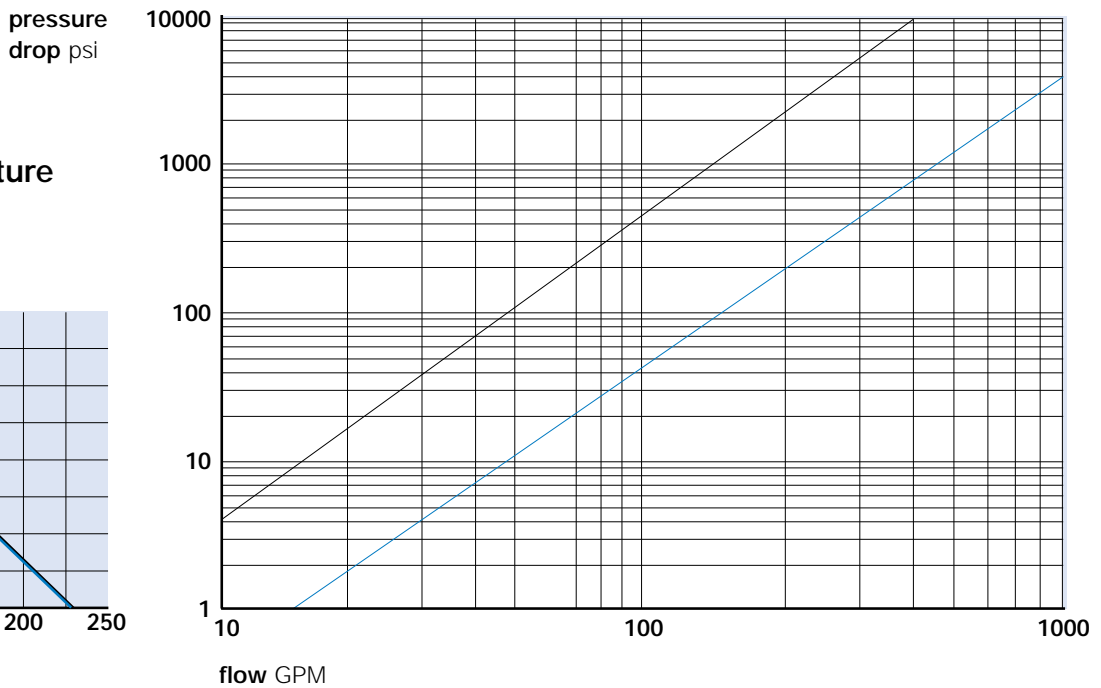
Air flow

- 1/4" to 1/2"
- 3/4" to 1"



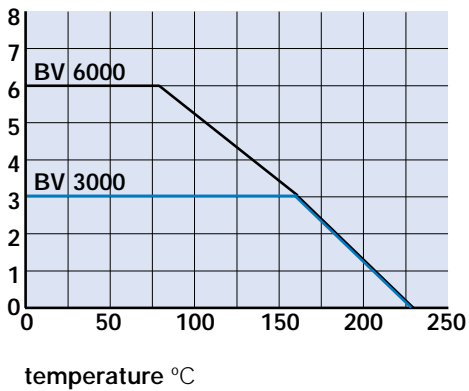
Water flow

- 1/4", 3/8", 1/2"
- 3/4", 1"



Pressure vs temperature performance

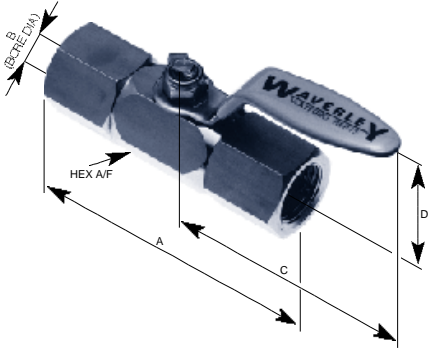
pressure psi
thousands



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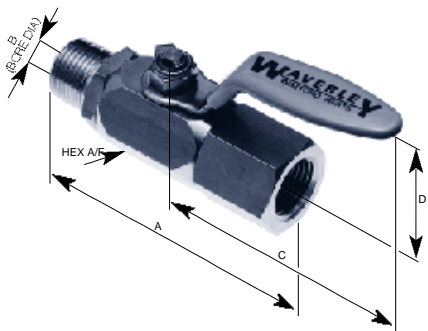
3000lb class ball valves

Female/female 3000lb class



thread size	part number	A	B	C	D	hex A/F
G 1/4" BSP	BV3000/2P	3.060"	0.375"	3.150"	1.772"	1.125"
G 3/8" BSP	BV3000/3P	3.420"	0.375"	3.150"	1.772"	1.125"
G 1/2" BSP	BV3000/4P	3.694"	0.375"	3.150"	1.772"	1.125"
G 3/4" BSP	BV3000/6P	4.341"	0.600"	3.950"	2.175"	1.750"
G 1" BSP	BV3000/8P	4.464"	0.600"	3.950"	2.175"	1.750"
Rc 1/4" BSPT	BV3000/2T	3.200"	0.375"	3.150"	1.772"	1.125"
Rc 3/8" BSPT	BV3000/3T	3.420"	0.375"	3.150"	1.772"	1.125"
Rc 1/2" BSPT	BV3000/4T	3.694"	0.375"	3.150"	1.772"	1.125"
Rc 3/4" BSPT	BV3000/6T	4.335"	0.600"	3.950"	2.175"	1.750"
Rc 1" BSPT	BV3000/8T	4.585"	0.600"	3.950"	2.175"	1.750"
1/4" NPTF	BV3000/2N	3.200"	0.375"	3.150"	1.772"	1.125"
3/8" NPTF	BV3000/3N	3.420"	0.375"	3.150"	1.772"	1.125"
1/2" NPTF	BV3000/4N	3.694"	0.375"	3.150"	1.772"	1.125"
3/4" NPTF	BV3000/6N	4.335"	0.600"	3.950"	2.175"	1.750"
1" NPTF	BV3000/8N	4.585"	0.600"	3.950"	2.175"	1.750"

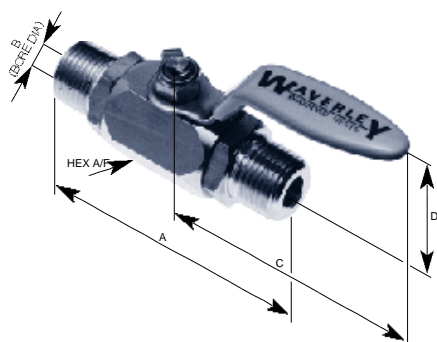
Male/female 3000lb class



thread size	part number	A	B	C	D	hex A/F
G 1/4" BSP	BV3000/2P MF	2.980"	0.375"	3.150"	1.772"	1.125"
G 3/8" BSP	BV3000/3P MF	3.240"	0.375"	3.150"	1.772"	1.125"
G 1/2" BSP	BV3000/4P MF	3.447"	0.375"	3.150"	1.772"	1.125"
G 3/4" BSP	BV3000/6P MF	4.520"	0.600"	3.950"	2.175"	1.750"
G 1" BSP	BV3000/8P MF	4.630"	0.600"	3.950"	2.175"	1.750"
Rc 1/4" BSPT	BV3000/2T MF	3.100"	0.375"	3.150"	1.772"	1.125"
Rc 3/8" BSPT	BV3000/3T MF	3.210"	0.375"	3.150"	1.772"	1.125"
Rc 1/2" BSPT	BV3000/4T MF	3.534"	0.375"	3.150"	1.772"	1.125"
Rc 3/4" BSPT	BV3000/6T MF	4.515"	0.600"	3.950"	2.175"	1.750"
Rc 1" BSPT	BV3000/8T MF	4.762"	0.600"	3.950"	2.175"	1.750"
1/4" NPTF	BV3000/2N MF	3.100"	0.375"	3.150"	1.772"	1.125"
3/8" NPTF	BV3000/3N MF	3.272"	0.375"	3.150"	1.772"	1.125"
1/2" NPTF	BV3000/4N MF	3.534"	0.375"	3.150"	1.772"	1.125"
3/4" NPTF	BV3000/6N MF	4.515"	0.600"	3.950"	2.175"	1.750"
1" NPTF	BV3000/8N MF	4.762"	0.600"	3.950"	2.175"	1.750"

3000lb class ball valves

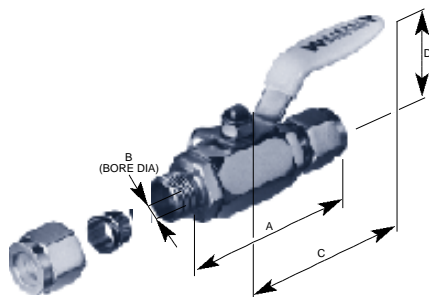
Male/male 3000lb class



thread size	part number	A	B	C	D	hex A/F
G 1/4" BSP	BV3000/2P M	2.900"	0.375"	3.150"	1.772"	1.125"
G 3/8" BSP	BV3000/3P M	3.060"	0.375"	3.150"	1.772"	1.125"
G 1/2" BSP	BV3000/4P M	3.200"	0.375"	3.150"	1.772"	1.125"
G 3/4" BSP	BV3000/6P M	4.690"	0.600"	3.950"	2.175"	1.750"
G 1" BSP	BV3000/8P M	4.790"	0.600"	3.950"	2.175"	1.750"
R 1/4" BSPT	BV3000/2T M	3.000"	0.375"	3.150"	1.772"	1.125"
R 3/8" BSPT	BV3000/3T M	3.125"	0.375"	3.150"	1.772"	1.125"
R 1/2" BSPT	BV3000/4T M	3.375"	0.375"	3.150"	1.772"	1.125"
R 3/4" BSPT	BV3000/6T M	4.690"	0.600"	3.950"	2.175"	1.750"
R 1" BSPT	BV3000/8T M	4.940"	0.600"	3.950"	2.175"	1.750"
1/4" NPTF	BV3000/2N M	3.000"	0.375"	3.150"	1.772"	1.125"
3/8" NPTF	BV3000/3N M	3.125"	0.375"	3.150"	1.772"	1.125"
1/2" NPTF	BV3000/4N M	3.375"	0.375"	3.150"	1.772"	1.125"
3/4" NPTF	BV3000/6N M	4.690"	0.600"	3.950"	2.175"	1.750"
1" NPTF	BV3000/8N M	4.940"	0.600"	3.950"	2.175"	1.750"

Duoloc® single ferrule OD compression 3000lb class

Length A is from abutment to abutment



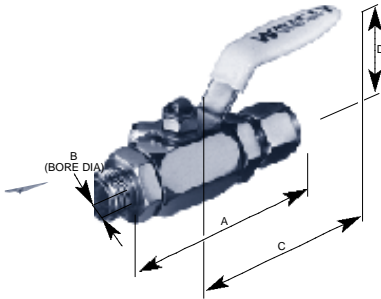
tube OD	part number	A	B	C	D	hex A/F
1/8"	BV3000/1OD	2.240"	0.375"	3.150"	1.772"	1.125"
3/16"	BV3000/3/16OD	2.240"	0.375"	3.150"	1.772"	1.125"
1/4"	BV3000/2OD	2.240"	0.375"	3.150"	1.772"	1.125"
3/8"	BV3000/3OD	2.304"	0.375"	3.150"	1.772"	1.125"
1/2"	BV3000/4OD	2.302"	0.375"	3.150"	1.772"	1.125"
3/4"	BV3000/6OD	3.564"	0.600"	3.950"	2.175"	1.750"
1"	BV3000/8OD	3.752"	0.600"	3.950"	2.175"	1.750"
6mm	BV3000/6MOD	57.5mm	9.5mm	80.0mm	45.0mm	28.6mm
8mm	BV3000/8MOD	56.5mm	9.5mm	80.0mm	45.0mm	28.6mm
10mm	BV3000/10MOD	57.0mm	9.5mm	80.0mm	45.0mm	28.6mm
12mm	BV3000/12MOD	57.0mm	9.5mm	80.0mm	45.0mm	28.6mm
15mm	BV3000/15MOD	57.5mm	9.5mm	80.0mm	45.0mm	28.6mm
16mm	BV3000/16MOD	58.0mm	9.5mm	80.0mm	45.0mm	28.6mm
18mm	BV3000/18MOD	58.5mm	9.5mm	80.0mm	45.0mm	28.6mm
20mm	BV3000/20MOD	90.0mm	15.2mm	100.0mm	55.2mm	44.5mm
22mm	BV3000/22MOD	90.0mm	15.2mm	100.0mm	55.2mm	44.5mm
25mm	BV3000/25MOD	90.0mm	15.2mm	100.0mm	55.2mm	44.5mm

3

3000lb class ball valves

Ringlok® double ferrule OD compression 3000lb class

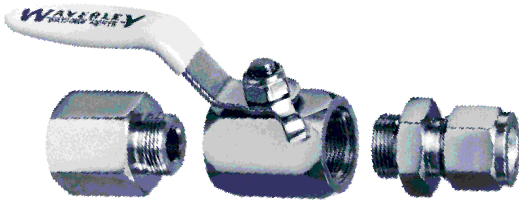
Length A is from abutment to abutment



tube OD	part number	A	B	C	D	hex A/F
1/8"	BV3000=1OD	2.240"	0.375"	3.150"	1.772"	1.125"
3/16"	BV3000=3/16OD	2.240"	0.375"	3.150"	1.772"	1.125"
1/4"	BV3000=2OD	2.240"	0.375"	3.150"	1.772"	1.125"
3/8"	BV3000=3OD	2.304"	0.375"	3.150"	1.772"	1.125"
1/2"	BV3000=4OD	2.302"	0.375"	3.150"	1.772"	1.125"
3/4"	BV3000=6OD	3.564"	0.600"	3.950"	2.175"	1.750"
1"	BV3000=8OD	3.752"	0.600"	3.950"	2.175"	1.750"
6mm	BV3000=6MOD	57.5mm	9.5mm	80.0mm	45.0mm	28.6mm
8mm	BV3000=8MOD	56.5mm	9.5mm	80.0mm	45.0mm	28.6mm
10mm	BV3000=10MOD	57.0mm	9.5mm	80.0mm	45.0mm	28.6mm
12mm	BV3000=12MOD	57.0mm	9.5mm	80.0mm	45.0mm	28.6mm
15mm	BV3000=15MOD	57.5mm	9.5mm	80.0mm	45.0mm	28.6mm
16mm	BV3000=16MOD	58.0mm	9.5mm	80.0mm	45.0mm	28.6mm
18mm	BV3000=18MOD	58.5mm	9.5mm	80.0mm	45.0mm	28.6mm
20mm	BV3000=20MOD	90.0mm	15.2mm	100.0mm	55.2mm	44.5mm
22mm	BV3000=22MOD	90.0mm	15.2mm	100.0mm	55.2mm	44.5mm
25mm	BV3000=25MOD	90.0mm	15.2mm	100.0mm	55.2mm	44.5mm

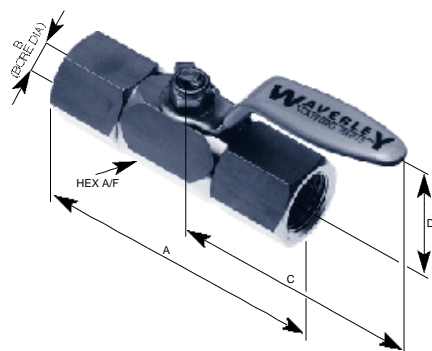
Special design features any combination of ends

With the 3000lb class ball valve range there are two sizes of ball valve body. This enables you to select combinations of ends and sizes e.g. 1/2" BSPP female x 1/2" OD compression (as shown in photo).



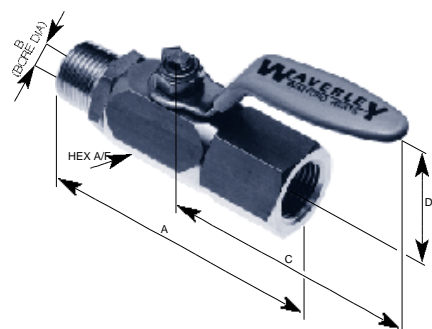
6000lb class ball valves

Female/female 6000lb class



thread size	part number	A	B	C	D	hex A/F
G 1/4" BSP	BV6000/2P	3.060"	0.375"	3.150"	1.772"	1.125"
G 3/8" BSP	BV6000/3P	3.420"	0.375"	3.150"	1.772"	1.125"
G 1/2" BSP	BV6000/4P	3.694"	0.375"	3.150"	1.772"	1.125"
G 3/4" BSP	BV6000/6P	4.341"	0.600"	3.950"	2.175"	1.750"
G 1" BSP	BV6000/8P	4.464"	0.600"	3.950"	2.175"	1.750"
Rc 1/4" BSPT	BV6000/2T	3.200"	0.375"	3.150"	1.772"	1.125"
Rc 3/8" BSPT	BV6000/3T	3.420"	0.375"	3.150"	1.772"	1.125"
Rc 1/2" BSPT	BV6000/4T	3.694"	0.375"	3.150"	1.772"	1.125"
Rc 3/4" BSPT	BV6000/6T	4.335"	0.600"	3.950"	2.175"	1.750"
Rc 1" BSPT	BV6000/8T	4.585"	0.600"	3.950"	2.175"	1.750"
1/4" NPTF	BV6000/2N	3.200"	0.375"	3.150"	1.772"	1.125"
3/8" NPTF	BV6000/3N	3.420"	0.375"	3.150"	1.772"	1.125"
1/2" NPTF	BV6000/4N	3.694"	0.375"	3.150"	1.772"	1.125"
3/4" NPTF	BV6000/6N	4.335"	0.600"	3.950"	2.175"	1.750"
1" NPTF	BV6000/8N	4.585"	0.600"	3.950"	2.175"	1.750"

Male/female 6000lb class

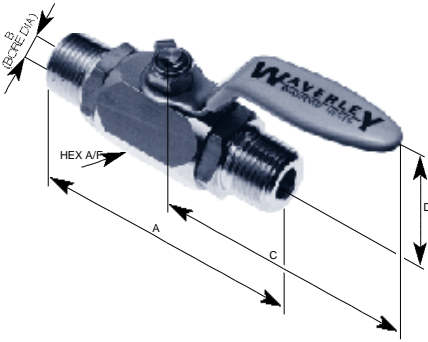


thread size	part number	A	B	C	D	hex A/F
G 1/4" BSP	BV6000/2P MF	2.980"	0.375"	3.150"	1.772"	1.125"
G 3/8" BSP	BV6000/3P MF	3.240"	0.375"	3.150"	1.772"	1.125"
G 1/2" BSP	BV6000/4P MF	3.447"	0.375"	3.150"	1.772"	1.125"
G 3/4" BSP	BV6000/6P MF	4.520"	0.600"	3.950"	2.175"	1.750"
G 1" BSP	BV6000/8P MF	4.630"	0.600"	3.950"	2.175"	1.750"
R 1/4" BSPT	BV6000/2T MF	3.100"	0.375"	3.150"	1.772"	1.125"
R 3/8" BSPT	BV6000/3T MF	3.210"	0.375"	3.150"	1.772"	1.125"
R 1/2" BSPT	BV6000/4T MF	3.534"	0.375"	3.150"	1.772"	1.125"
R 3/4" BSPT	BV6000/6T MF	4.515"	0.600"	3.950"	2.175"	1.750"
R 1" BSPT	BV6000/8T MF	4.762"	0.600"	3.950"	2.175"	1.750"
1/4" NPTF	BV6000/2N MF	3.100"	0.375"	3.150"	1.772"	1.125"
3/8" NPTF	BV6000/3N MF	3.272"	0.375"	3.150"	1.772"	1.125"
1/2" NPTF	BV6000/4N MF	3.534"	0.375"	3.150"	1.772"	1.125"
3/4" NPTF	BV6000/6N MF	4.515"	0.600"	3.950"	2.175"	1.750"
1" NPTF	BV6000/8N MF	4.762"	0.600"	3.950"	2.175"	1.750"

3

6000lb class ball valves

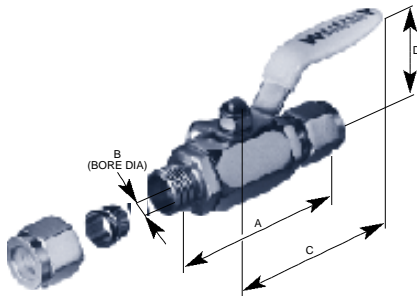
Male/male 6000lb class



thread size	part number	A	B	C	D	hex A/F
G 1/4" BSP	BV6000/2P M	2.900"	0.375"	3.150"	1.772"	1.125"
G 3/8" BSP	BV6000/3P M	3.060"	0.375"	3.150"	1.772"	1.125"
G 1/2" BSP	BV6000/4P M	3.200"	0.375"	3.150"	1.772"	1.125"
G 3/4" BSP	BV6000/6P M	4.690"	0.600"	3.950"	2.175"	1.750"
G 1" BSP	BV6000/8P M	4.790"	0.600"	3.950"	2.175"	1.750"
R 1/4" BSPT	BV6000/2T M	3.000"	0.375"	3.150"	1.772"	1.125"
R 3/8" BSPT	BV6000/3T M	3.125"	0.375"	3.150"	1.772"	1.125"
R 1/2" BSPT	BV6000/4T M	3.750"	0.375"	3.150"	1.772"	1.125"
R 3/4" BSPT	BV6000/6T M	4.690"	0.600"	3.950"	2.175"	1.750"
R 1" BSPT	BV6000/8T M	4.690"	0.600"	3.950"	2.175"	1.750"
1/4" NPTF	BV6000/2N M	3.000"	0.375"	3.150"	1.772"	1.125"
3/8" NPTF	BV6000/3N M	3.125"	0.375"	3.150"	1.772"	1.125"
1/2" NPTF	BV6000/4N M	3.375"	0.375"	3.150"	1.772"	1.125"
3/4" NPTF	BV6000/6N M	4.690"	0.600"	3.950"	2.175"	1.750"
1" NPTF	BV6000/8N M	4.690"	0.600"	3.950"	2.175"	1.750"

Duoloc® single ferrule OD compression 6000lb class

Length A is from abutment to abutment

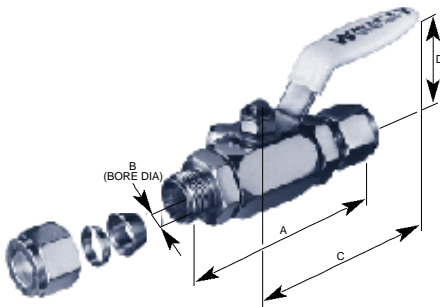


tube OD	part number	A	B	C	D	hex A/F
1/8"	BV6000/1OD	2.240"	0.375"	3.150"	1.772"	1.125"
3/16"	BV6000/3/16OD	2.240"	0.375"	3.150"	1.772"	1.125"
1/4"	BV6000/2OD	2.240"	0.375"	3.150"	1.772"	1.125"
3/8"	BV6000/3OD	2.304"	0.375"	3.150"	1.772"	1.125"
1/2"	BV6000/4OD	2.302"	0.375"	3.150"	1.772"	1.125"
3/4"	BV6000/6OD	3.564"	0.600"	3.950"	2.175"	1.750"
1"	BV6000/8OD	3.752"	0.600"	3.950"	2.175"	1.750"
6mm	BV6000/6MOD	57.5mm	9.5mm	80mm	45mm	28.6mm
8mm	BV6000/8MOD	56.5mm	9.5mm	80mm	45mm	28.6mm
10mm	BV6000/10MOD	57mm	9.5mm	80mm	45mm	28.6mm
12mm	BV6000/12MOD	57mm	9.5mm	80mm	45mm	28.6mm
15mm	BV6000/15MOD	57.5mm	9.5mm	80mm	45mm	28.6mm
16mm	BV6000/16MOD	58mm	9.5mm	80mm	45mm	28.6mm
18mm	BV6000/18MOD	58.5mm	9.5mm	80mm	45mm	28.6mm
20mm	BV6000/20MOD	90mm	15.2mm	100mm	55.2mm	44.5mm
22mm	BV6000/22MOD	90mm	15.2mm	100mm	55.2mm	44.5mm
25mm	BV6000/25MOD	90mm	15.2mm	100mm	55.2mm	44.5mm

6000lb class ball valves

Ringlok® double ferrule OD compression 6000lb class

Length A is from abutment to abutment



tube OD	part number	A	B	C	D	hex A/F
1/8"	BV6000=1OD	2.200"	0.375"	3.150"	1.772"	1.125"
3/16"	BV6000=3/16OD	2.200"	0.375"	3.150"	1.772"	1.125"
1/4"	BV6000=2OD	2.204"	0.375"	3.150"	1.772"	1.125"
3/8"	BV6000=3OD	2.202"	0.375"	3.150"	1.772"	1.125"
1/2"	BV6000=4OD	2.076"	0.375"	3.150"	1.772"	1.125"
3/4"	BV6000=6OD	2.990"	0.600"	3.950"	2.175"	1.750"
1"	BV6000=8OD	2.934"	0.600"	3.950"	2.175"	1.750"
6mm	BV6000=6MOD	55mm	9.5mm	80mm	45mm	28.6mm
8mm	BV6000=8MOD	56mm	9.5mm	80mm	45mm	28.6mm
10mm	BV6000=10MOD	55mm	9.5mm	80mm	45mm	28.6mm
12mm	BV6000=12MOD	51mm	9.5mm	80mm	45mm	28.6mm
15mm	BV6000=15MOD	50mm	9.5mm	80mm	45mm	28.6mm
16mm	BV6000=16MOD	50mm	9.5mm	80mm	45mm	28.6mm
18mm	BV6000=18MOD	52mm	9.5mm	80mm	45mm	28.6mm
20mm	BV6000=20MOD	76mm	15.2mm	100mm	55.2mm	44.5mm
22mm	BV6000=22MOD	76mm	15.2mm	100mm	55.2mm	44.5mm
25mm	BV6000=25MOD	76mm	15.2mm	100mm	55.2mm	44.5mm

Special design features and combination of ends



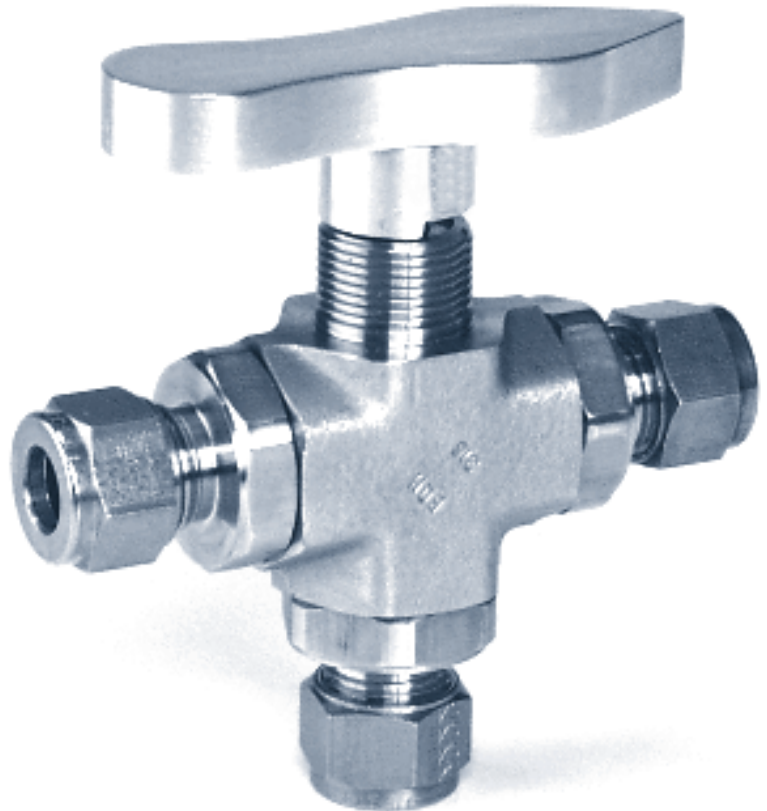
With the 6000lb class ball valve range there are two sizes of ball valve body. This enables you to select combinations of ends and sizes e.g. 1/2" BSPP female x 1/2" OD compression (as shown in photo).

3

3 way ball valves

3 way BV 3000 series ball valves

The 3 way BV 3000 series ball valve is rated at 3000psi. The valve is designed to be compact and reliable with long service life. The centre body is designed specifically to accept our wide range of end connections allowing non-standard combinations to be supplied. This includes single and double ferrule OD compression ends in 1/8" to 1" sizes. Standard materials are 316L Stainless Steel.



3 way ball valves

Benefits, applications and design features

Features

Unique end connection system
 90° fast actuation
 Panel mount facility
 Low operating torque
 L port flow
 Replaceable seats
 Temperature rating -45 – 230°C
 Up to 3,000psi
 Anti blow out spindle

Applications

Liquid or vapour service
 Change over valve

Benefits

Handle cast in aluminium with bayonet connection to the spindle.
 180° positive stop.

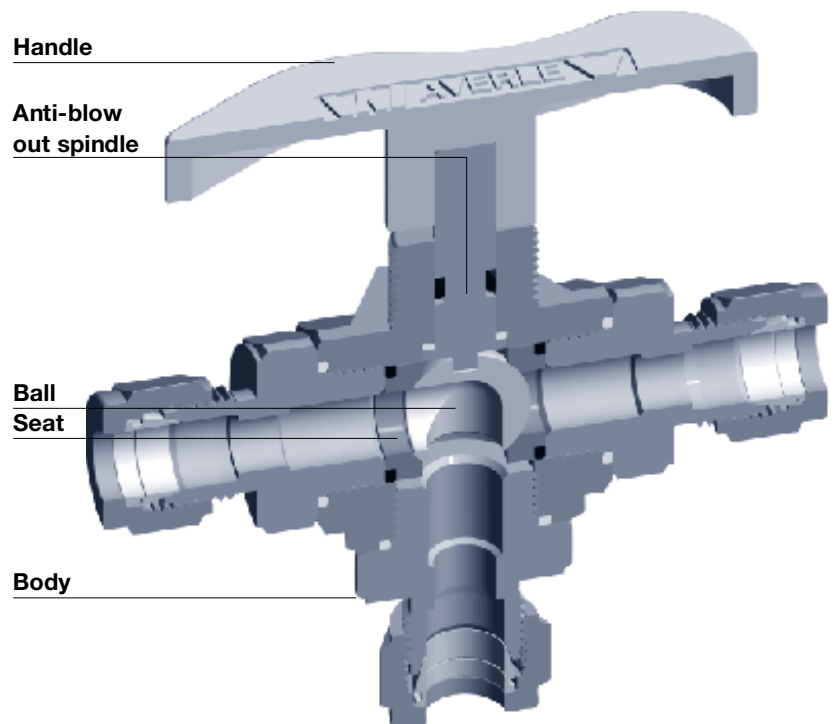
One piece anti-blow out spindle incorporated in to design ensuring safety and seal integrity. Spindle has Viton O-ring internal seal reducing operating torque and reducing fugative emissions.

Body manufactured from forging in 316 stainless steel as standard. Designed to accept our unique end connections.

Ball is manufactured from 316 stainless steel to give material continuity throughout the valve. It is of a floating ball arrangement, which compensates for seat wear and fluctuations in pressure and temperature.

Seats are manufactured from Peek and are easily renewable.

Panel mount facility.



3

3 way ball valves

Technical specifications

Technical specifications

Pressure Range	0-3000psi
Temperature Range	-45 to 230°C

Materials of construction

Body	316 stainless steel
Ball	316 stainless steel
Spindle	316 stainless steel
Spindle seal	Peek
Spindle washer	Peek
End cap	316 stainless steel
Handle	Aluminium
Washer	316 stainless steel
Nyloc nut	316 stainless steel
Handle sleeve	PVC
End cap seal	PTFE
Energising seal	PTFE
Seat	Peek
Lock screw	304 stainless steel

Valve markings

Make or manufacturer	Waverley
Direction arrow	
Pressure rating	3000 psi
Cast code	ABC

Handle

Lock screw

Spindle washer

Washers

Spindle

Body

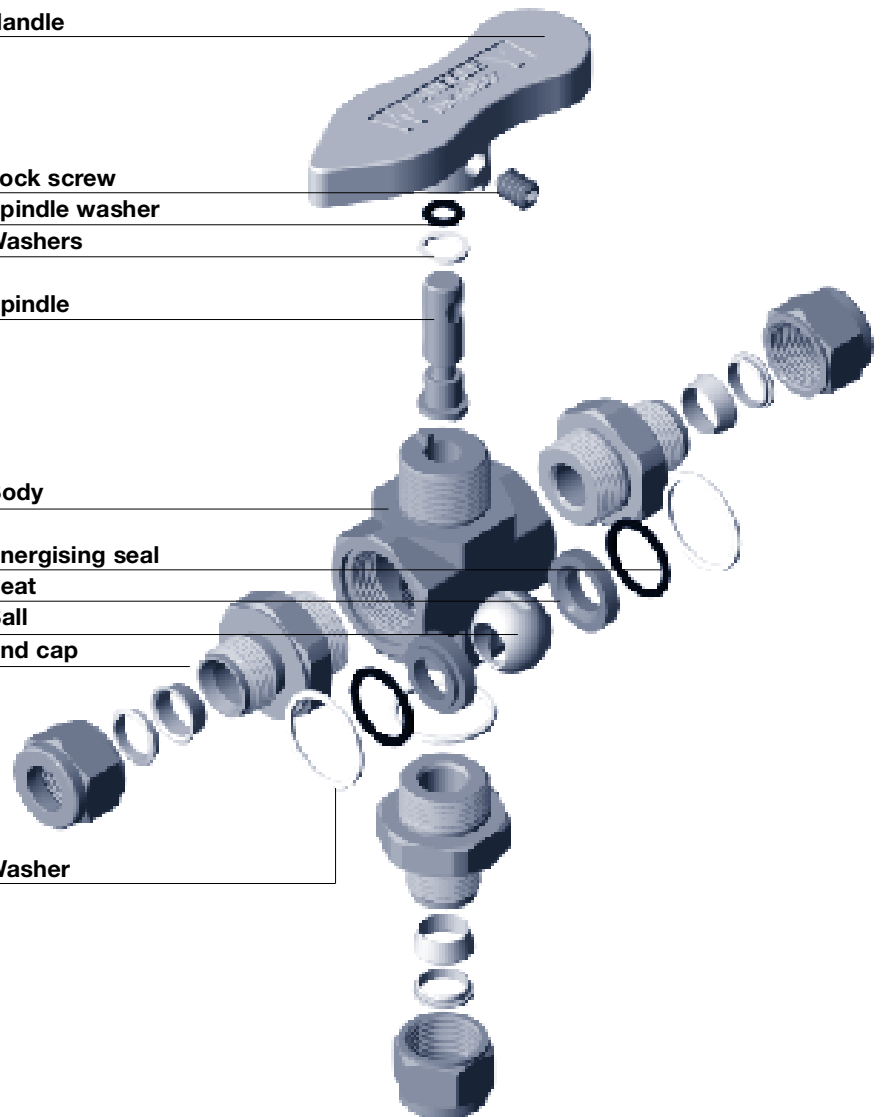
Energising seal

Seat

Ball

End cap

Washer



3 way ball valves

Technical specifications

Testing

All Waverley ball valves are 100% tested for sealing performance based on BS 6755 Pt1. These tests consist of: Low pressure (50 psi 3.5 bar) High pressure shell (4,500 psi 310 Bar)

Seal kits

Seal kits are supplied for necessary maintenance. These consist of ball seats and spindle seals.

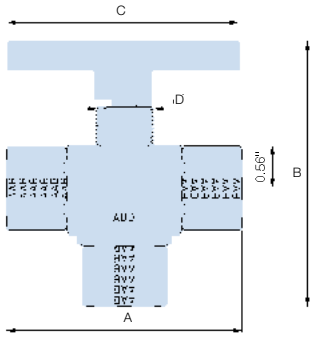
Cleaning and packaging

All Waverley ball valves are dispatched fully degreased and sealed. Cleaning for oxygen use on application.

3

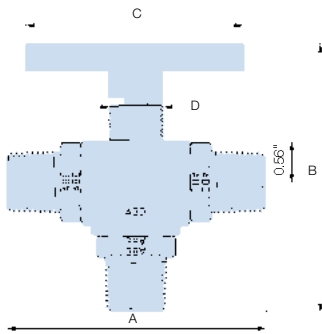
3 way ball valves

Female/female 3 way ball valves



thread size	part number	A	B	C	D
G 1/4" BSP	3BV/2P	3.060"	3.530"	3.000"	0.750"
G 3/8" BSP	3BV/3P	3.420"	3.710"	3.000"	0.750"
G 1/2" BSP	3BV/4P	3.694"	3.847"	3.000"	0.750"
Rc 1/4" BSPT	3BV/2T	3.200"	3.600"	3.000"	0.750"
Rc 3/8" BSPT	3BV/3T	3.420"	3.710"	3.000"	0.750"
Rc 1/2" BSPT	3BV/4T	3.690"	3.845"	3.000"	0.750"
1/4" NPTF	3BV/2N	3.200"	3.600"	3.000"	0.750"
3/8" NPTF	3BV/3N	3.420"	3.710"	3.000"	0.750"
1/2" NPTF	3BV/4N	3.690"	3.845"	3.000"	0.750"

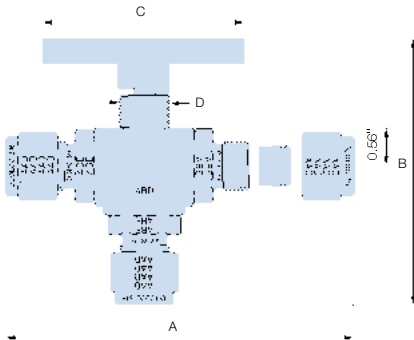
Male/male 3 way ball valves



thread size	part number	A	B	C	D
G 1/4" BSP	3BV/2P/M	2.900"	3.450"	3.000"	0.750"
G 3/8" BSP	3BV/3P/M	3.060"	3.530"	3.000"	0.750"
G 1/2" BSP	3BV/4P/M	3.200"	3.600"	3.000"	0.750"
Rc 1/4" BSPT	3BV/2T/M	3.000"	3.500"	3.000"	0.750"
Rc 3/8" BSPT	3BV/3T/M	3.125"	3.563"	3.000"	0.750"
Rc 1/2" BSPT	3BV/4T/M	3.750"	3.875"	3.000"	0.750"
1/4" NPTF	3BV/2N/M	3.000"	3.500"	3.000"	0.750"
3/8" NPTF	3BV/3N/M	3.125"	3.563"	3.000"	0.750"
1/2" NPTF	3BV/4N/M	3.375"	3.688"	3.000"	0.750"

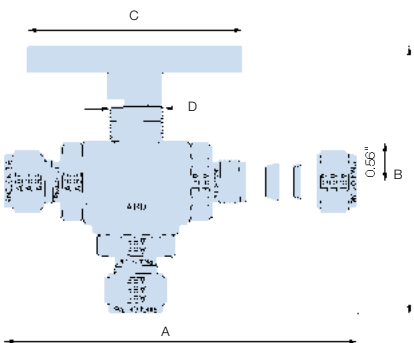
3 way ball valves

Duoloc® single ferrule OD compression



thread size	part number	A	B	C	D
1/8" O/D	3BV/1OD	2.240"	3.120"	3.000"	0.750"
3/16" O/D	3BV/3/16OD	2.240"	3.120"	3.000"	0.750"
1/4" O/D	3BV/2OD	2.240"	3.120"	3.000"	0.750"
3/8" O/D	3BV/3OD	2.304"	3.152"	3.000"	0.750"
1/2" O/D	3BV/4OD	2.302"	3.151"	3.000"	0.750"
6MM O/D	3BV/6MOD	58"	80"	76"	19"
8MM O/D	3BV/8MOD	57"	79"	76"	19"
10MM O/D	3BV/10MOD	57"	79"	76"	19"
12MM O/D	3BV/12MOD	57"	79"	76"	19"

Ringlok® double ferrule OD compression



thread size	part number	A	B	C	D
1/8" O/D	3BV=1OD	2.200"	3.100"	3.000"	0.750"
3/16" O/D	3BV=3/16OD	2.200"	3.100"	3.000"	0.750"
1/4" O/D	3BV=2OD	2.204"	3.102"	3.000"	0.750"
3/8" O/D	3BV=3OD	2.302"	3.151"	3.000"	0.750"
1/2" O/D	3BV=4OD	2.076"	3.038"	3.000"	0.750"
6MM O/D	3BV=6MOD	55"	78"	76"	19"
8MM O/D	3BV=8MOD	56"	79"	76"	19"
10MM O/D	3BV=10MOD	55"	78"	76"	19"
12MM O/D	3BV=12MOD	51"	76"	76"	19"

3

Lockable handle ball valves

All of Waverley's 1000lb, 3000lb and 6000lb class Ball Valves can be supplied with lockable handles.

This device allows the valve to be locked in either the open or closed position.

All of the parts used in the locking mechanism are stainless steel.

The locking device is designed to be used with a padlock although these are **not** supplied.

To order lockable handled ball valves:

Select the type of valve required from pages 3.06 - 3.19.

Note the part number of the required valve.

Prefix this part number with the letter 'L' (eg. BV2P now becomes LBV2P).



To order lockable handles only

1000lb class	part number
1/4"	LBV2-10
3/8"	LBV3-10
1/2"	LBV4-10
3/4"	LBV6-10
1"	LBV8-10

3000lb/6000lb class	part number
1/4" - 1/2"	LBV6000/4
3/4" + 1"	LBV6000/4A

Actuated ball valves

Waverley's range of actuated ball valves are entirely manufactured in the UK and offer a unique compact design. The actuators are the ideal complement to Waverley's range of 1000lb, 3000lb and 6000lb class valves on pages 3.06 - 3.19.

Waverley's actuated ball valves are sold as complete factory mounted units and offer space saving, corrosion resistance and long maintenance free operation.

Waverley's actuated ball valves have the following important features:

Simple robust design – allowing ease of use and installation.

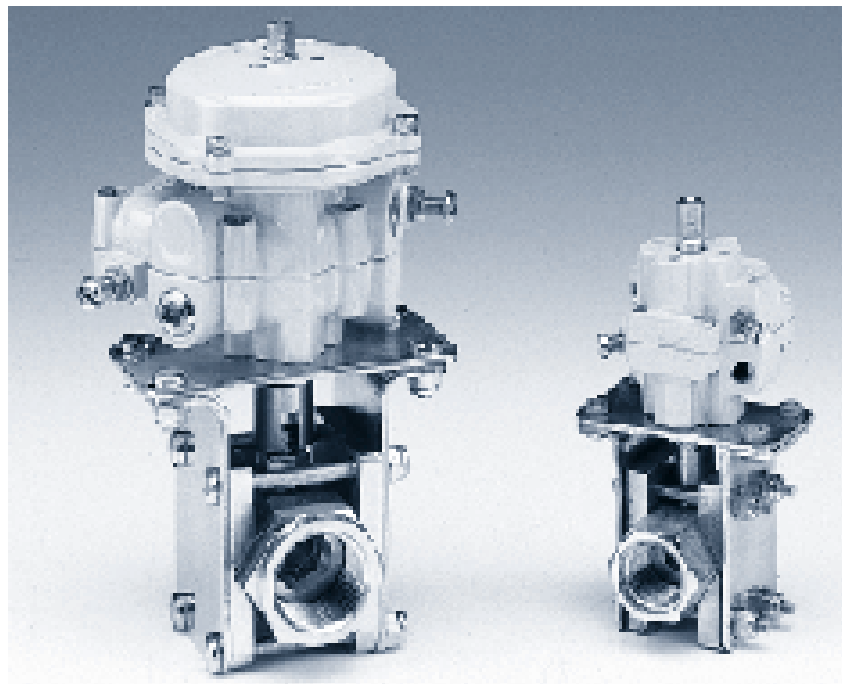
Compact and space saving – best torque/size package available.

Only one moving part on the actuator – allows the simplest and most reliable mechanism for quarter turn actuation.

Durable corrosion resistant materials. The actuator casing is made from die cast zinc alloy and then epoxy coated.

Valves are stainless steel.

Waverley's quality control programme approved to BS5750 – since 1987, ensures that each unit is manufactured to the highest quality standards and tested before leaving the factory.

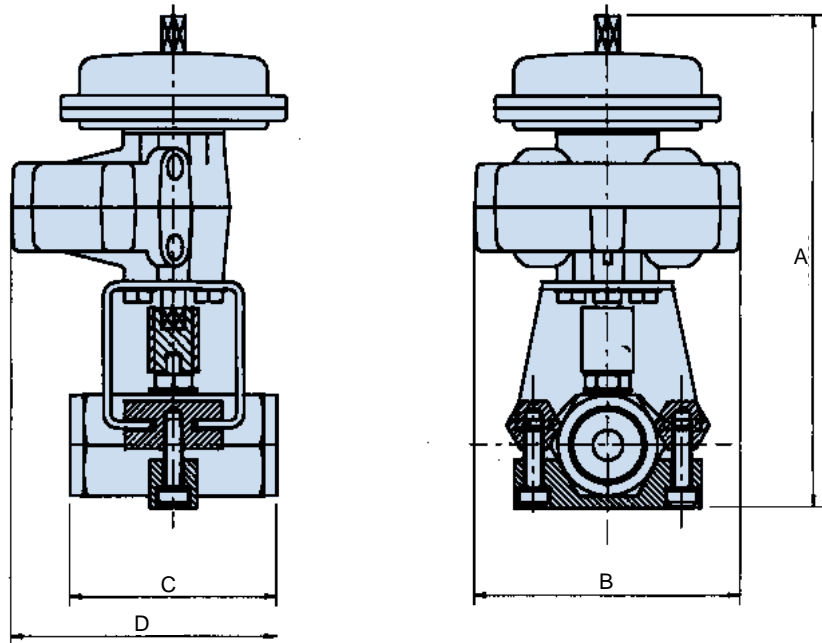


3

Actuated ball valves

1000lb class	1/4"	3/8"	1/2"	3/4"	1"	3000lb/6000lb class	1/4"-1/2"
A	3.464"	5.118"	5.118"	6.614"	6.811"		6.425"
B	1.260"	2.795"	2.795"	3.661"	3.661"		3.661"
C	1.654"	1.775"	2.160"	2.402"	2.952"		see note
D	N/A	2.795"	2.795"	3.740"	3.700"		see note

Note The C+D dimensions are not shown for the 3000lb and 6000lb ball valves as these change depending on the end connections.



To order ball valves with air actuators.

Select the type of ball valve required from pages 3.06 - 3.19.

Note the part number of the required ball valve.

Decide which type of actuator is required and then prefix the standard ball valve part number with one of the following:

Standard Double Acting Actuator- 'A'.

Actuator fitted with spring return normally closed - 'ASRC'.

Actuator fitted with spring return normally open - 'ASRO'.

(eg BV2P with spring return normally closed = ASRC BV2P)

Meca-Inox 3 piece ball valves

3

Meca-Inox

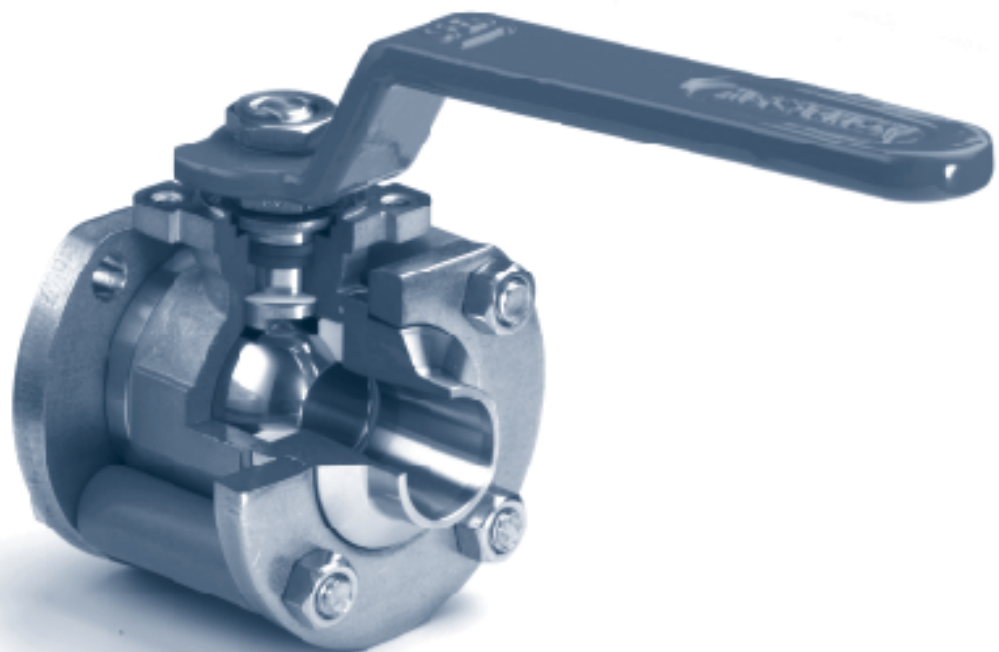
Meca-Inox 3 piece ball valves

Waverley three piece ball valves are designed to give the flexibility of easy maintenance and servicing.

Once installed into the line, the centre part of the valve can be unbolted and removed.

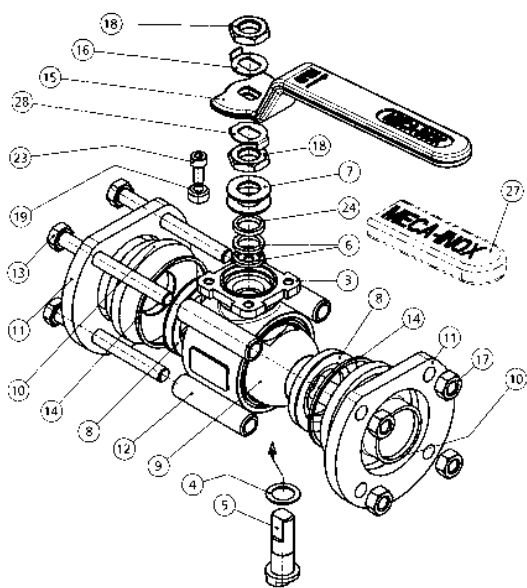
The seats and seals can then be cleaned or replaced.

If required, the complete centre section can be supplied and replaced.



3 piece ball valves materials

Construction materials



item number	quantity	ball valves description	stainless steel material (AISI)	carbon steel material (AISI)
3	1	body	CF3M (316L)	A216 WCA
4	1	stem thrust seal	15% glass filled PTFE	15% glass filled PTFE
5	1	stem	316L	316L
6	1	gland-packing	antistatic PTFE	antistatic PTFE
7	2	spring washers	301	301
8	2	seat	15% glass filled PTFE	15% glass filled PTFE
9	1	ball		
		size 1/4" to 3/4"	316L	316L
		size 1" to 2"	316L	420
10	2	loose end	316L	1020
10	2	fixed end	316L	A216 WCA
10	2	flanged end	316L	1020
11	2	body flange	304L	zinc plated carbon steel
12	4	distance piece	PTFE	PTFE
13, 17	4	screw		
		size 1/4" to 3/4"	A2	A2
		size 1" to 2"	A2	zinc plated carbon steel
14	2	body seal	PTFE	PTFE
15	1	handle std <i>option</i>	forged carbon steel 316	forged carbon steel 316
16	1	nut lock	304L	304L
18	2	nut	316L	316L
19	1	stop ring	304L	304L
23	1	stop	A2	A2
24	1	gland	316L	316L
27	1	plastic cover <i>option</i>	PVC	PVC
28	1	nut stop	304L	304L

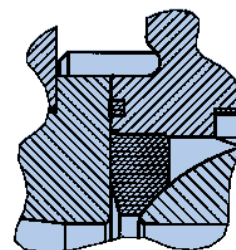
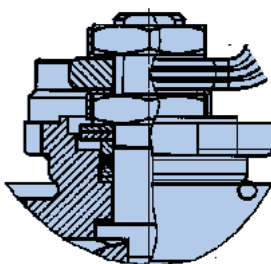
Main features

Gland packing

Chevron type gland-packing with wear compensation.
Antistatic according to ISO 7121.

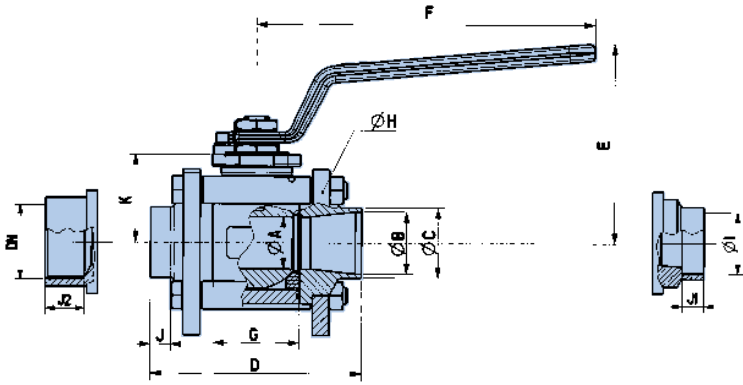
Sealings

Encapsulated body seals.
Internal diameter of seats out of media flow:
Seats can't be brought away by the flow.
Seats shape designed to ensure reasonable operating torques:
Actuator calculation.



3

Meca-Inox 3 piece ball valve



part number

Butt weld ends	PS4LBW...
Socket weld ends	PS4LSW...
BSP 'P' threaded	PS4LTG...
NPT threaded	PS4LTB...

Max operating pressure **1500psi**

Loose ends L Stainless steel and carbon steel full bore

size		A	B SS	B CS	C	D	E	F	G	H	I	J	J1	J2	K	ISOweight 5211* (BW)Gallons	CV	
08	1/4"	11.1	9.5	8.9	13.5	65	70	120	20.4	56	14.1	6.4	9.5	12	27.5	F03	0.600	26
12	3/8"	11.1	13.2	12.6	17.2	65	70	120	20.4	56	17.8	7.3	9.5	12	27.5	F03	0.600	26
15	1/2"	14	17.3	15.5	21.3	70	73	120	24.4	63	21.9	7.3	9.5	16	31	F03	0.745	29
20	3/4"	19	22.9	20.5	26.9	85	91	160	31.6	80	27.5	7.2	11	16	37.9	F04	1.475	30
25	1"	25	29.7	27.3	33.7	100	95	160	41.4	88	34.3	9.4	12.5	20	42	F04	1.840	70
32	1 1/4"	32	37.2	34.4	42.4	110	111	190	48.2	104	43	9.2	14.5	22	54	F05	2.955	90
40	1 1/2"	38	43.1	40.3	48.3	125	116	190	56.2	117	48.9	10.7	16	22	59	F05	3.685	160
50	2"	50	54.5	52.3	60.3	150	137	230	71	148	61.1	8.6	17.5	25	73	F07	7.280	470

Loose ends L Stainless steel and carbon steel reduced bore

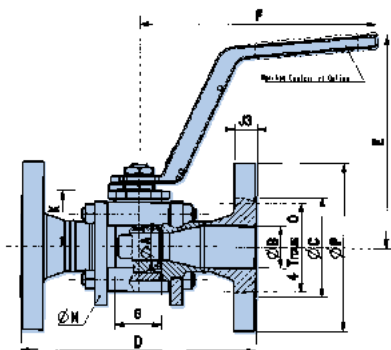
size		A	B SS	B CS	C	D	E	F	G	H	I	J	J1	J2	K	ISOweight 5211* (BW)Gallons	CV	
15	1/2"	11.1	17.3	15.5	21.3	65	70	120	20.4	56	21.9	8.5	9.5	16	27.5	F03	0.615	11
20	3/4"	14	22.9	20.5	26.9	70	73	120	24.4	63	27.5	8.8	11	16	31	F03	0.630	20
25	1"	19	29.7	27.5	33.7	85	91	160	31.6	80	34.3	9.1	12.5	20	37.9	F04	1.320	25
32	1 1/4"	25	37.2	34.4	42.4	100	95	160	41.4	88	43	11.9	14.5	22	42	F04	1.700	55
40	1 1/2"	32	43.1	40.3	48.3	110	111	190	48.2	104	48.9	10.9	16	22	54	F05	2.690	75
50	2"	38	54.5	52.3	60.3	125	116	190	56.2	117	61.1	14.1	17.5	25	59	F05	3.990	145
65	2 1/2"	50	70.3	66.1	76.1	150	137	230	71	148	76.9	13.2	19	25	73	F07	7.900	230

Meca-Inox

3 piece ball valve

part number

PS4LBC...

Max operating pressure **1500psi**

Loose ends L

Stainless steel and carbon steel
flanged ends full bore

size	A	B	C	D	E	F	G	H	J3 PN16	J3 PN40	K	O	P	ISOweight 5211*	CV gallons
15 1/2"	14	17.3	45	130	126	120	24.4	63	14	16	31	4x14/65	95	F03	2.225 27
20 3/4"	19	22.3	58	150	145	160	31.6	80	16	18	37.9	4x14/75	105	F04	3.600 29
25 1"	25	28.5	68	160	149	160	41.4	88	16	18	42	4x14/85	115	F04	4.210 69
32 1 1/4"	32	37.2	78	180	160	190	48.2	104	16	18	54	4x18/100	140	F05	6.220 90
40 1 1/2"	38	43.1	88	200	165	190	56.2	117	16	18	59	4x18/110	150	F05	8.150 163
50 2"	50	54.5	102	230	180	230	71	148	18	20	73	4x18/125	165	F07	14.100 475

Loose ends L

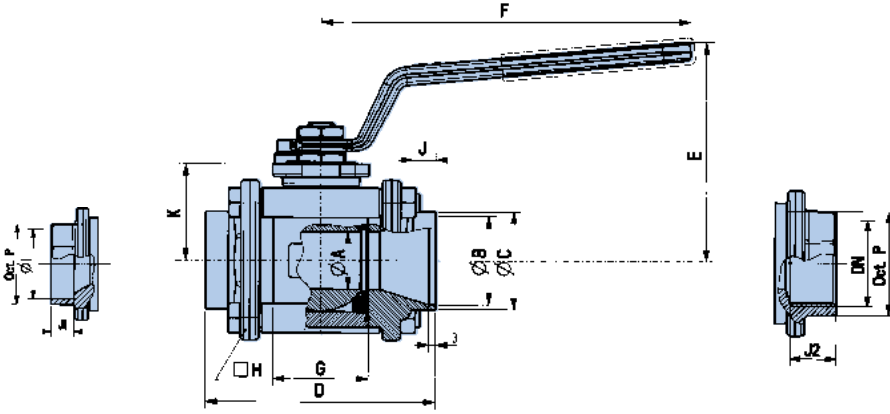
Stainless steel and carbon steel
flanged ends reduced bore

size	A	B	C	D	E	F	G	H	J3 PN16	J3 PN40	K	O	P	ISOweight 5211*	CV gallons
15 1/2"	11.1	17.3	47	130	123	120	20.4	56	14	16	27.5	4x14/65	95	F03	2.150 10.5
20 3/4"	14	22.3	58	150	126	120	24.4	63	16	18	31	4x14/75	105	F03	3.150 18.3
25 1"	19	28.5	68	160	145	160	31.6	80	16	18	37.9	4x14/85	115	F04	3.850 25
32 1 1/4"	25	37.2	78	180	149	160	41.4	88	16	18	42	4x18/100	140	F04	5.400 53
40 1 1/2"	32	43.1	88	200	160	190	46.2	104	16	18	54	4x18/110	150	F05	7.000 73
50 2"	38	54.5	102	230	165	190	56.2	117	18	20	59	4x18/125	165	F05	10.100 146
65 2 1/2"	50	70.3	122	290	180	230	71	148	18	22	73	4x18/145	185	F07	16.500 225

8x18 en PN40

3

Meca-Inox 3 piece ball valve



part number

Butt weld ends	PS4FBW...
Socket weld ends	PS4FSW...
BSP 'P' threaded	PS4FTG...
NPT threaded	PS4FTB...

Max operating pressure **1500psi**

**Fixed ends F
Stainless steel and carbon steel
full bore**

size		A	B SS	B CS	C	D	E	F	G	H	I	J	J1	J2	K	ISOweight 5211*	CV (BW)gallons	
08	1/4"	11.1	9.5	9	13.5	65	70	120	20.4	43.5	14.1	6.4	9.5	12	27.5	F03	0.600	26
12	3/8"	11.1	13.2	12.5	17.2	65	70	120	20.4	43.5	17.8	7.3	9.5	12	27.5	F03	0.600	26
15	1/2"	14	17.3	16.1	21.3	70	73	120	24.4	49.5	21.9	7.3	9.5	16	31	F03	0.745	29
20	3/4"	19	22.9	21.7	26.9	85	91	160	31.6	62	27.5	7.2	11	16	37.9	F04	1.475	30
25	1"	25	29.7	27.3	33.7	100	95	160	41.4	70	34.3	9.4	12.5	20	42	F04	1.840	70
32	1 1/4"	32	37.2	36	42.4	110	111	190	48.2	82	43	9.2	14.5	22	54	F05	2.955	90
40	1 1/2"	38	43.1	41.9	48.3	125	116	190	56.2	92	48.9	10.7	16	22	59	F05	3.685	160
50	2"	50	54.5	53.1	60.3	150	137	230	71	116	61.1	8.6	17.5	25	73	F07	7.280	470

**Fixed ends F
Stainless steel and carbon steel
reduced bore**

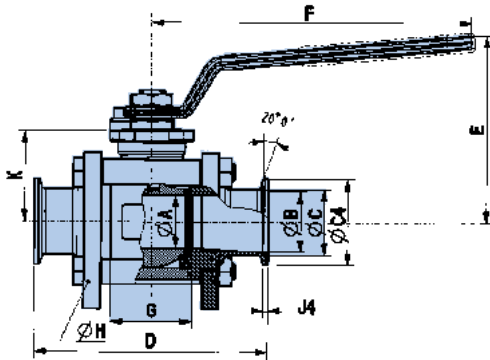
size		A	B SS	B CS	C	D	E	F	G	H	I	J	J1	J2	K	ISOweight 5211*	CV (BW)gallons	
15	1/2"	11.1	17.3	16.1	21.3	65	70	120	20.4	43.5	21.9	8.5	9.5	16	27.5	F03	0.615	11
20	3/4"	14	22.9	21.7	26.9	70	73	120	24.4	49.5	27.5	8.8	11	16	31	F03	0.630	20
25	1"	19	29.7	27.3	33.7	85	91	160	31.6	62	34.3	9.1	12.5	20	37.9	F04	1.320	25
32	1 1/4"	25	37.2	36	42.4	100	95	160	41.4	70	43	11.9	14.5	22	42	F04	1.700	55
40	1 1/2"	32	43.1	41.9	48.3	110	111	190	48.2	82	48.9	10.9	16	22	54	F05	2.690	75
50	2"	38	54.5	53.1	60.3	125	116	190	56.2	92	61.1	14.1	17.5	25	59	F05	3.990	145
65	2 1/2"	50	70.3	68.9	76.1	150	137	230	71	116	76.9	13.2	19	25	73	F07	7.900	230

Meca-Inox 3 piece ball valve

part number

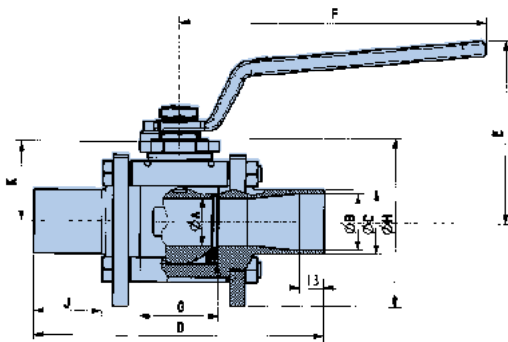
PS4...Clam

Max operating pressure **1500psi**



Ball valves with triclamp connections

size		A	B	C	C4	D	E	F	G	H	J4	K
15	1/2"	11.1	15.5	18	25	89	70	120	20.4	56	2.85	27.5
20	1"	14	15.5	18	25	101	73	120	24.4	63	2.85	31
32	1 1/2"	25	35	38.6	50.5	114	91	160	31.6	80	2.85	37.9
40	2"	32	35	38.6	50.5	139	111	190	48.2	104	2.85	54
50	2 1/2"	38	48	51.6	64	159	116	190	56.2	117	2.85	59



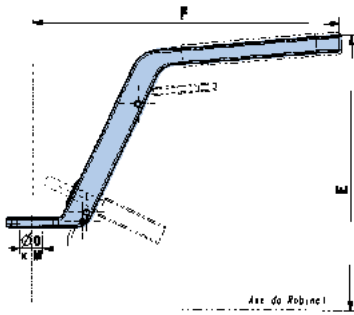
Ball valves with connections for socket welding

size		A	B	C	D	E	F	G	H	J	K
8	1/4"	11.1	9.5	13.5	123	70	120	20.4	56	35.4	27.5
12	3/8"	11.1	13.2	17.2	121	70	120	20.4	56	35.3	27.5
15	1/2"	14	17.3	21.3	126	73	120	24.4	63	35.3	31
20	3/4"	19	22.9	26.9	141	91	160	31.6	80	35.2	37.9
25	1"	25	29.7	33.7	152	95	160	41.4	88	35.4	42
32	1 1/4"	32	37.2	42.4	162	111	190	48.2	104	35.2	54
40	1 1/2"	38	43.1	48.3	174	116	190	56.2	117	35.2	59
50	2"	50	54.5	60.3	203	137	230	71	148	35.1	73

3

Meca-Inox Options for operation

Stainless steel handle



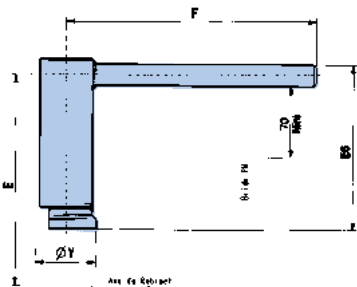
size (N)	size (V)	part number	E	F	
08 -12	1/4 - 3/8"	15	04...15 P4NI/P4NI+CV	123	120
15	1/4"	20	04...15 P4NI/P4NI+CV	126	120
20	3/4"	25	04...15 P4NI/P4NI+CV	145	160
25	1"	32	04...15 P4NI/P4NI+CV	149	160
32	1 1/4"	40	04...15 P4NI/P4NI+CV	160	190
40	1 1/2"	50	04...15 P4NI/P4NI+CV	165	190
50	2"	65	04...15 P4NI/P4NI+CV	180	230

From this evolutive handle, it is possible to fit following various executions of the handle and options:

- Locking device
- Padlock
- Limit switches
- Inductive sensors

This handle is designed to be used with flanges.

Extended stainless steel handle



size (N)	size (V)	part number	E	E6	F	Y	
08 - 12	1/4 - 3/8"	15	PLRI4	133	102	120	38
15	1/2"	20	PLRI4	136,5	102	120	38
20	3/4"	25	PLRI4	150	106,5	160	39
25	1"	32	PLRI4	154,1	106,5	160	39
32	1 1/4"	40	PLRI4	163,8	102	190	48
40	1 1/2"	50	PLRI4	168,8	102	190	48
50	2"	65	PLRI4	188,4	105	230	65

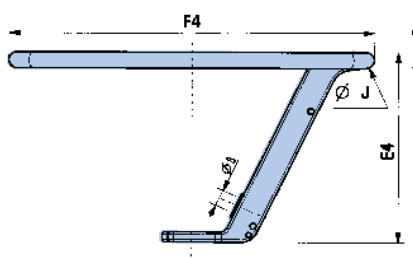
In AISI 304L, this handle is easily fitted on the ball valve.

It is usually used in case of pipe insulation.

Meca-Inox

Options for operation

Stainless steel hand wheel



size (N)	size (V)	part number	E4	F4 VONI	F4 VRNI	J		
08 - 12	1/4 - 3/8"	15	1/2"	VONI/VRNI	86.2	130 x 68	136	6
15	1/2"	20	3/4"	VONI/VRNI	86.2	130 x 68	136	6
20	3/4"	25	1"	VONI/VRNI	94.4	166 x 88	178	8
25	1"	32	1 1/4"	VONI/VRNI	94.4	166 x 88	178	8
32	1 1/4"	40	1 1/2"	VONI/VRNI	91.3	210 x 110	220	10
40	1 1/2"	50	2"	VONI/VRNI	91.3	210 x 110	220	10
50	2"	65	2 1/2"	VONI/VRNI	88.4	242 x 127	252	12

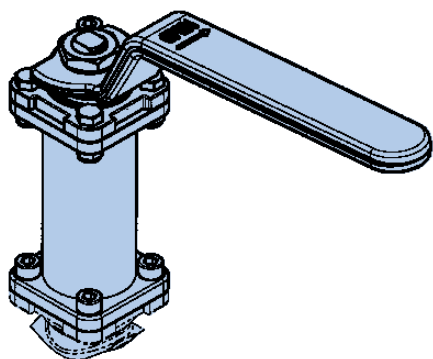
This oval hand wheel retains the locking possibilities of the stainless steel handle.

It can be supplied in standard and/or extended execution.

A round hand wheel is also available.

In case of extended execution, locking and signaling options are not available.

Stainless steel stem extension



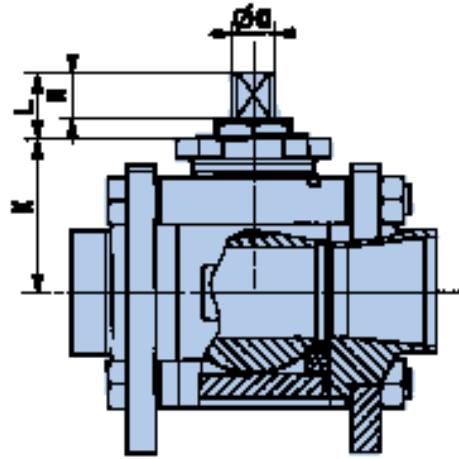
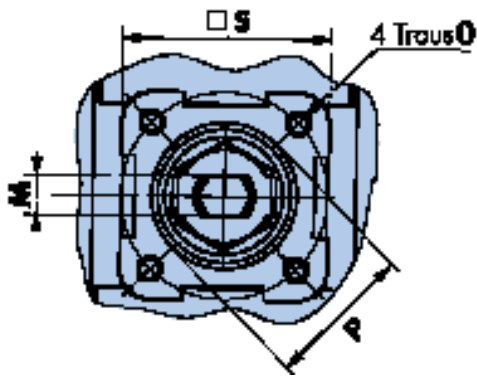
size (N)	size (V)	part number	height mm		
08 - 12	1/4 - 3/8"	15	1/2"	REH4	80
15	1/2"	20	3/4"	REH4	80
20	3/4"	25	1"	REH4	80
25	1"	32	1 1/4"	REH4	80
32	1 1/4"	40	1 1/2"	REH4	100
40	1 1/2"	50	2"	REH4	100
50	2"	65	2 1/2"	REH4	100

This extension is fitted on the ISO 5211 top flange. It can be used on hand operated and/or motorized ball valves.

It allows a very efficient insulation as it can be fixed all around the extension.

3

Meca-Inox



Dimensions for motorization

size N	size V	ISO 5211	K	L	M	N	O	P	Q	S
10	1/4 - 3/8"	F03	27,5	7.2	6	3.6	4xM5/36	25	10	36
15	1/2"	F03	31	13.3	6	8.7	4xM5/36	25	10	36
20	3/4"	F04	37,9	18.3	8	12.6	4xM5/42	30	12	42
25	1"	F04	42	18.3	8	12.6	4xM5/42	30	12	42
32	1"1/4	F05	54	24.1	11	16.2	4xM6/50	35	16	50
40	1"1/2	F05	59	24.1	11	16.2	4xM6/50	35	16	50
50	2"	F07	73	29.5	12	19	4xM8/70	55	18	69

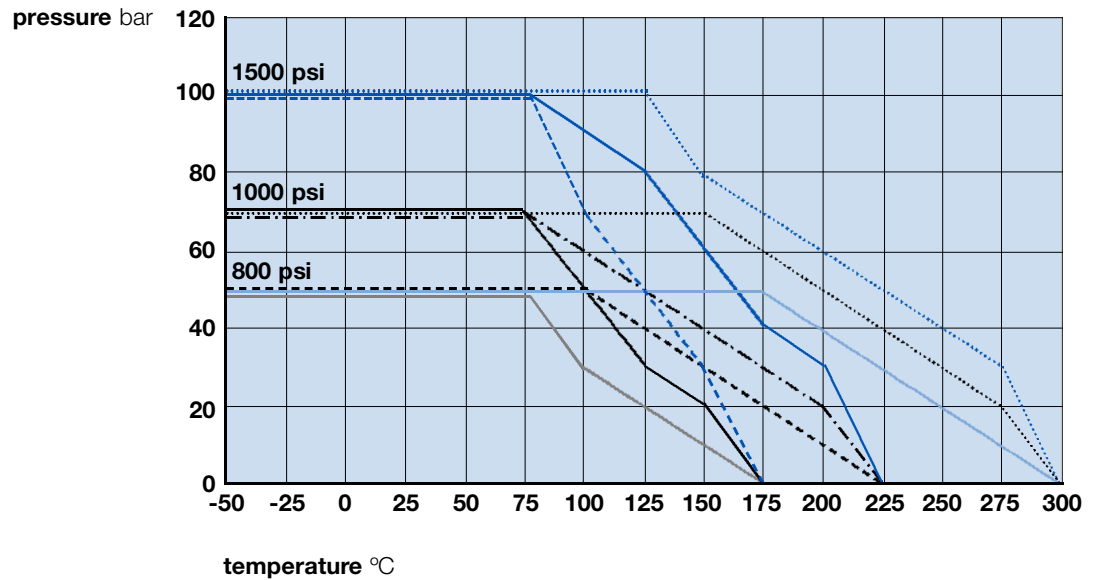
Tightening torques of the bolts

size N	size V	torque (Nm)
08	-	10
12	15	10
15	20	10
20	25	22
25	32	22
32	40	30
40	50	40
50	65	60

Meca-Inox

Pressure temperature diagram

- - PS4 DN10-20
- PS4 DN25-32
- PS4 DN40-50
- PM4 DN10-20
- PM4 DN25-32
- PP4 DN10-20
- PP4 DN25-32
- PP4 DN40-50



For carbon steel ball valves:
Minimum temperature -25°C (-13°F)

For flanged ball valves,
service pressure
limited to flanges pressure rating.

PS4 15% glass filled

PTFE seats

Most highly corrosive chemicals
Solvents, resins
Fuel
Neutral gas, oxygen, nitrogen

PM4 Carbon and glass filled PTFE seats

Temperatures up to 225°C (437°F)
Saturated steam up to 8 bars
Thermal fluids
With a 4 mm vent hole in the ball:
Saturated steam up to 12 bars

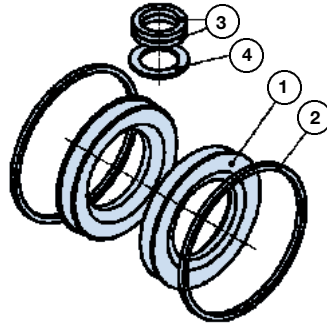
PP4 PEEK seats

Temperatures up to 300°C (572°F).
Abrasive mediums.

On request, possible PTFE
cavity fillers supply.

Meca-Inox

Spare seal kits



Spare seals kits include:

- 1 2 seats
- 2 2 body seals
- 3 1 gland-packing (2 parts)
- 4 1 stem thrust seal

Precautions to observe during assembly

Take care not to mark or score the sealing surfaces

- 1 Point-welding of connections: Use either a jig with dimensions of the body or this latter itself (here again, be careful not to damage components). Check parallelism of connections faces and their alignment.
- 2 Welding of the ends.
- 3 Re-assembly of the body: Remove all foreign parts from the pipe. Any metallic part can score the valve seats and cause a risk of leakage. Insert the body (open position) between connections. It should get in easily (gap 1 to 2 mm). Do not try to fit the body by force since it can damage seats and alter the sealing. The body is self-centering on distance pieces. Fit the last distance piece. Adjust the body alignment (loose ends: 360° around the pipe).
- 4 Maintenance: When used on high temperatures, it is necessary to tighten bolts during first working stop. To change internal parts, tighten off progressively both screws. Remove 1 bolt and the distance piece. Remove the body (open position). Replace used parts.
- 5 Re-assembly: Make as above.

The ball valve must be out of service before any maintenance dismantling.

Check valves, relief valves and strainers

1/4" - 1", Waverley check valves are available in a wide range of thread forms and ends, assembled and fully pressure tested as required. Maximum safe working pressure 3000psi. The check valves can be supplied with either PTFE or viton seals and can be modified to comply with NACE MR-01-75 when required.

The Waverley Mini Check Valve (MCV) series is a miniature, compact one piece body check valve for unidirectional control of flow up to 6,000 psi. with minimal pressure drop. End connections include male or female threaded format, and Ringlok® compression ends. The MCV also features a fully encapsulated seal, a choice of Viton or Buna N seal. A variety of cracking pressures from 2 to 350psi, a minimal pressure drop and bubble tight shut off.

Waverley pressure relief valves are externally adjustable and UK manufactured with a safe working pressure of 6000psi. With a size range of 1/4" - 1", Waverley relief valves offer a special design feature - the main body of the valve is consistent throughout the range and is machined to make available a wide range of thread forms and ends as illustrated. A range of colour coded springs give you the flexibility of choosing relief pressure to your application.

The Waverley Inline Tee Filter (strainer) is a general purpose product which is designed to provide a simple solution for removing system contamination from flow media. It is designed for liquid or gas applications and for pressures of up to 6,000psi. It also incorporates a variety of elements and inlet and outlet port connections including Ringlok® and Duoloc®.

It should be noted when ordering, that the correct screen should be chosen. To choose a finer screen than is necessary will lead to early clogging and too coarse could damage downstream instrumentation.

Check valves, relief valves and strainers

4.02 CV series check valves

4.10 Mini check valves

4.14 Relief valves

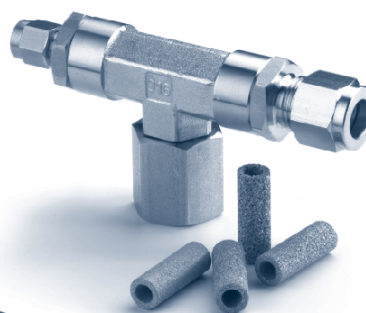
4.20 Inline tee filters



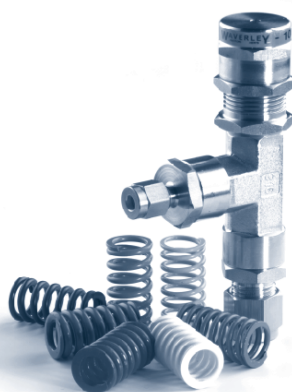
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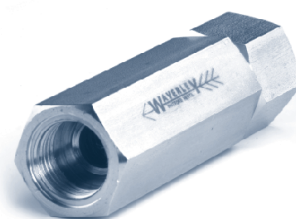
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4.14



4.02

4

CV series check valves

CV series check valves

The CV series check valves are designed to give unidirectional flow control of liquids and gases with a minimal pressure drop.

It is a general purpose Poppet type check valve for flow control up to 3,000psi. For use on liquid or gas applications where the control of flow is the main criteria. The valve has a variety of inlet and outlet port connections including single and double ferrule OD compression.



CV series check valves

Benefits, applications and design features

Features

- Robust design
- Poppet mounted seal
- Choice of PTFE or Viton seals
- Variety of cracking pressures
- Minimal pressure drop
- Bubble tight shut off

Applications

- Prevents reverse flow
- Low pressure relief valve
- Locks upstream pressure
- Up to 3,000psi
- Liquid or vapour service

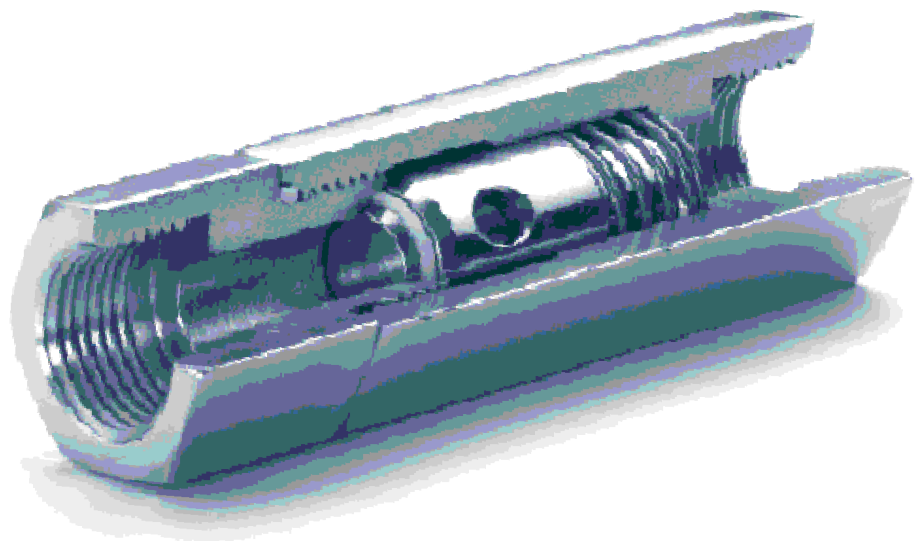
Benefit

Body precision machined from 316 Stainless Steel incorporating male female threaded connections, Duoloc® and Ringlok® compression ends.

Poppet machined from 316 stainless steel incorporating PTFE or Viton seal.

Choice of springs for a range of preset cracking pressures.

Endcap manufactured from 316 stainless steel, with precision machined cone for bubble tight shut off (PTFE or Viton seal).



4

CV series check valves

Technical specifications

Technical specifications

Pressure range	0-3000psi
Temperature range PTFE	-45 to 230°C
Temperature range Viton	-23 to 200°C
Nominal cracking pressure	5,15,25,30,45psi
Others on request	
CV rating valve size	CV
1/4"	0.65
3/8"	0.65
1/2"	1.92
3/4"	6.10
1"	6.60

Materials of construction

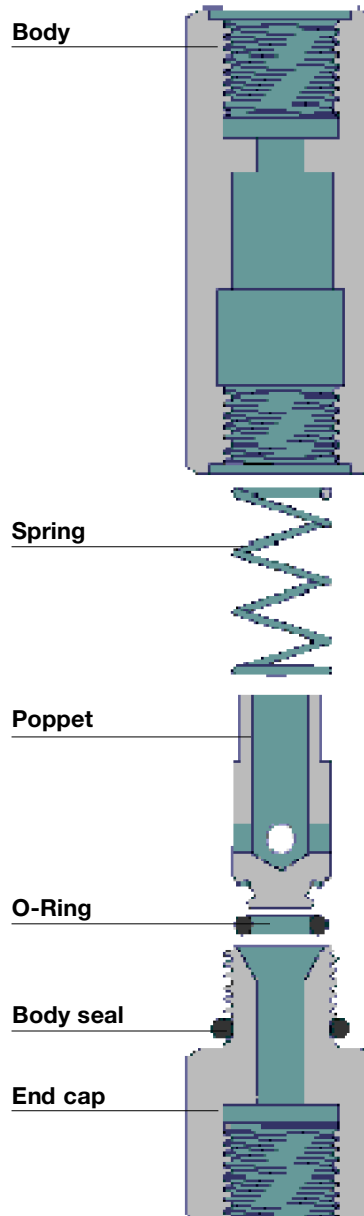
Body	316 stainless steel
Spring	316 stainless steel
Poppet	316 stainless steel
O-Ring	PTFE/Viton
End cap	316 stainless steel
Body seal	PTFE/Viton

Valve connections

NPT	ANSI/ASME B1-20.1
BSPT	BS21
BSP	BS2779

Valve markings

Make or manufacturer	Waverley
Direction arrow	
Pressure rating	3000 psi
Cast code	ABC



Testing

Waverley check valves have been tested for sealing performance based on BS 6755 Pt1. These tests consist of: Low pressure (50psi 3.5 bar)
High pressure shell (4,500psi 310 Bar)

Seal kits

Seal kits are supplied for necessary maintenance. These consist of poppet and endcap seals and a new spring.

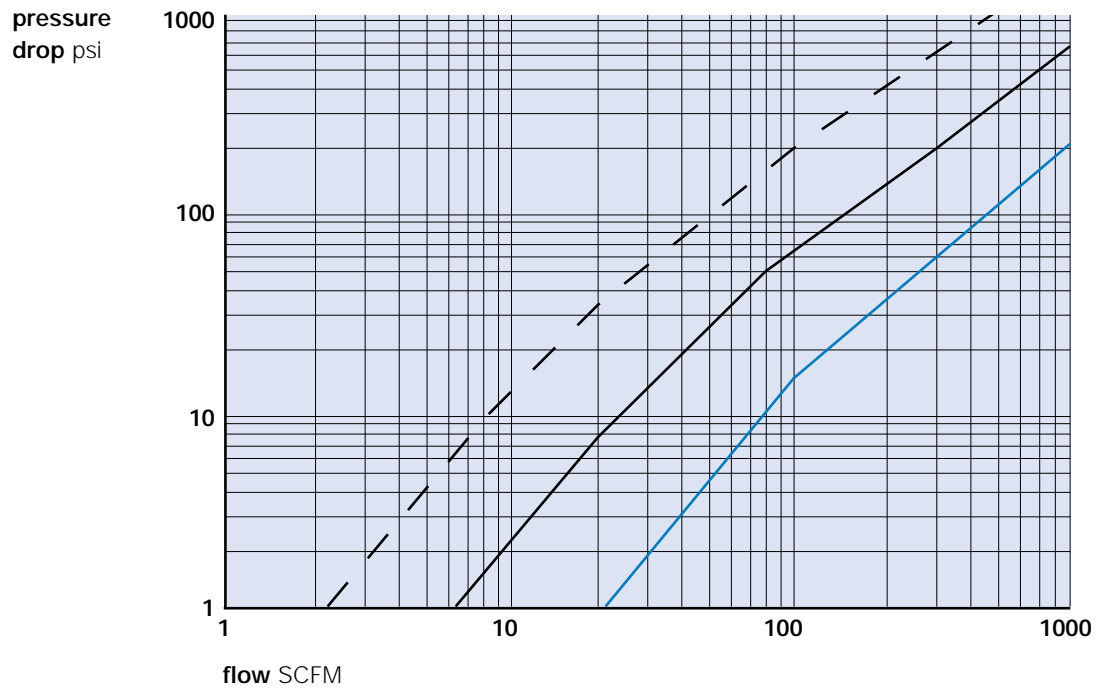
Cleaning and packaging

All check valves are dispatched fully degreased and sealed. Cleaning for oxygen use on application.

CV series check valves

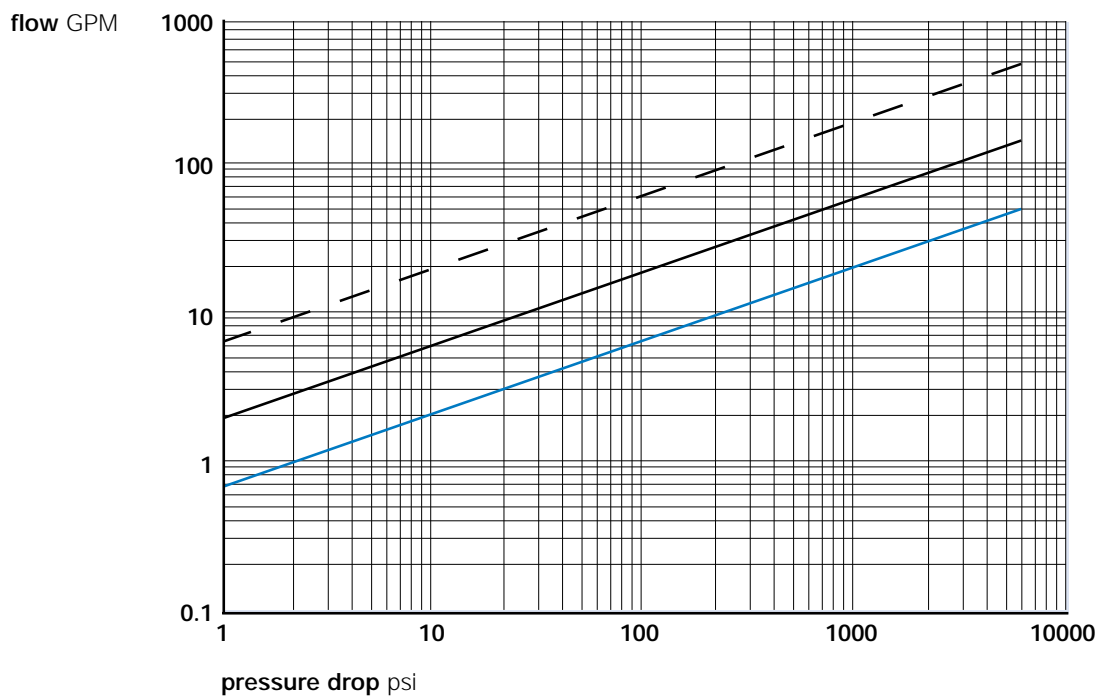
Air flow

- 1/4", 3/8"
- 1/2"
- 3/4", 1"



Water flow

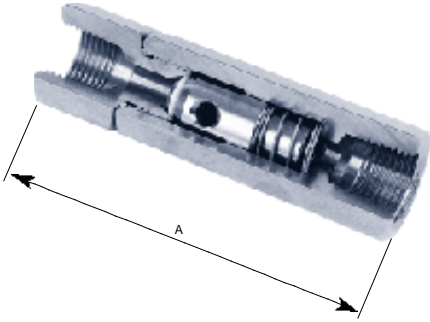
- 1/4", 3/8"
- 1/2"
- 3/4", 1"



4

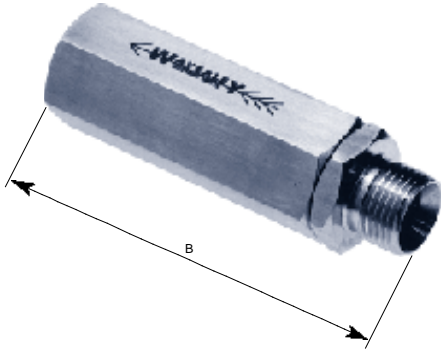
Check valves

Female/female



thread size	part number	A	hex A/F
1/8" BSP	CV1P	3.000"	0.750"
1/4" BSP	CV2P	3.000"	0.750"
3/8" BSP	CV3P	3.500"	0.875"
1/2" BSP	CV4P	4.000"	1.125"
3/4" BSP	CV6P	5.800"	1.670"
1" BSP	CV8P	5.800"	1.670"
1 1/2" BSP	CV12P	6.565"	2.500"
1/4" BSPT	CV2T	3.000"	0.750"
3/8" BSPT	CV3T	3.500"	0.875"
1/2" BSPT	CV4T	4.000"	1.125"
3/4" BSPT	CV6T	5.800"	1.670"
1" BSPT	CV8T	5.800"	1.670"
1 1/2" BSPT	CV12T	7.100"	2.500"
1/4" NPTF	CV2N	3.000"	0.750"
3/8" NPTF	CV3N	3.500"	0.875"
1/2" NPTF	CV4N	4.000"	1.125"
3/4" NPTF	CV6N	5.800"	1.670"
1" NPTF	CV8N	5.800"	1.670"
1 1/2" NPTF	CV12N	7.100"	2.500"

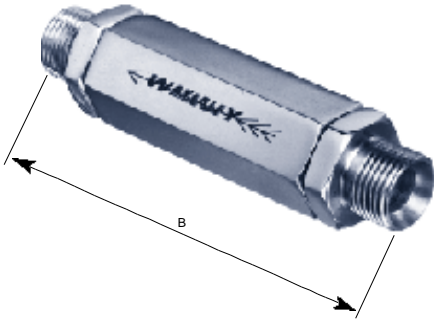
Male/female



thread size	part number	B	hex A/F
1/8" BSP	CV1P M/F	2.825"	0.750"
1/4" BSP	CV2P M/F	2.825"	0.750"
3/8" BSP	CV3P M/F	3.355"	0.875"
1/2" BSP	CV4P M/F	4.000"	1.125"
3/4" BSP	CV6P M/F	5.670"	1.670"
1" BSP	CV8P M/F	5.720"	1.670"
1/4" BSPT	CV2T M/F	2.875"	0.750"
3/8" BSPT	CV3T M/F	3.375"	0.875"
1/2" BSPT	CV4T M/F	4.100"	1.125"
3/4" BSPT	CV6T M/F	5.670"	1.670"
1" BSPT	CV8T M/F	5.800"	1.670"
1/4" NPTF	CV2N M/F	2.875"	0.750"
3/8" NPTF	CV3N M/F	3.375"	0.875"
1/2" NPTF	CV4N M/F	4.100"	1.125"
3/4" NPTF	CV6N M/F	5.670"	1.670"
1" NPTF	CV8N M/F	5.800"	1.670"

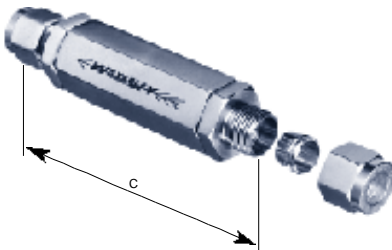
Check valves

Male/male



thread size	part number	B	hex A/F
1/8" BSP	CV1P M/M	3.395"	0.750"
1/4" BSP	CV2P M/M	3.525"	0.750"
3/8" BSP	CV3P M/M	4.135"	0.875"
1/2" BSP	CV4P M/M	5.000"	1.125"
3/4" BSP	CV6P M/M	6.795"	1.670"
1" BSP	CV8P M/M	6.895"	1.670"
1/4" BSPT	CV2T M/M	3.625"	0.750"
3/8" BSPT	CV3T M/M	4.187"	0.875"
1/2" BSPT	CV4T M/M	5.100"	1.125"
3/4" BSPT	CV6T M/M	6.795"	1.670"
1" BSPT	CV8T M/M	7.050"	1.670"
1/4" NPT	CV2N M/M	3.625"	0.750"
3/8" NPT	CV3N M/M	4.187"	0.875"
1/2" NPT	CV4N M/M	5.100"	1.125"
3/4" NPT	CV6N M/M	6.795"	1.670"
1" NPT	CV8N M/M	7.050"	1.670"

Duoloc® single ferrule OD compression

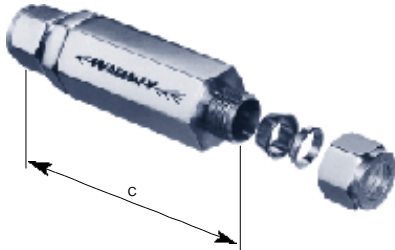


tube OD	part number	C	hex A/F
1/8"	CV1 OD	2.865"	0.750"
3/16"	CV3/16 OD	2.865"	0.750"
1/4"	CV2 OD	2.865"	0.750"
3/8"	CV3 OD	3.429"	0.875"
1/2"	CV4 OD	4.022"	1.125"
3/4"	CV6 OD	5.636"	1.670"
1"	CV8 OD	5.740"	1.670"
6mm	CV6M OD	75.5mm	19.0mm
8mm	CV8M OD	84.0mm	22.0mm
10mm	CV10M OD	88.0mm	28.5mm
12mm	CV12M OD	100.0mm	28.5mm
15mm	CV15M OD	103.0mm	28.5mm
16mm	CV16M OD	101.0mm	28.5mm
18mm	CV18M OD	106.0mm	28.5mm
20mm	CV20M OD	145.0mm	42.0mm
22mm	CV22M OD	145.0mm	42.0mm
25mm	CV25M OD	145.0mm	42.0mm

4

Check valves

Ringlok® double ferrule OD compression



tube OD	part number	C	hex A/F
1/8"	CV1=OD	2.825"	0.750"
3/16"	CV3/16=OD	2.825"	0.750"
1/4"	CV2=OD	2.829"	0.750"
3/8"	CV3=OD	3.327"	0.875"
1/2"	CV4=OD	3.676"	1.125"
3/4"	CV6=OD	5.100"	1.670"
1"	CV8=OD	4.920"	1.670"
6mm	CV6M=OD	71.0mm	19.0mm
8mm	CV8M=OD	85.0mm	22.0mm
10mm	CV10M=OD	85.0mm	28.5mm
12mm	CV12M=OD	93.0mm	28.5mm
15mm	CV15M=OD	91.0mm	28.5mm
16mm	CV16M=OD	91.0mm	28.5mm
18mm	CV18M=OD	94.0mm	28.5mm
20mm	CV20M=OD	128.5mm	42.0mm
22mm	CV22M=OD	128.5mm	42.0mm
25mm	CV25M=OD	127.0mm	42.0mm

Replacement seal kits comprising of two seals and spring

valve size	part number
1/4"	CV2 SEALS
3/8"	CV3 SEALS
1/2"	CV4 SEALS
3/4"	CV6 SEALS
1"	CV8 SEALS

Mini check valves

4

Mini check valves

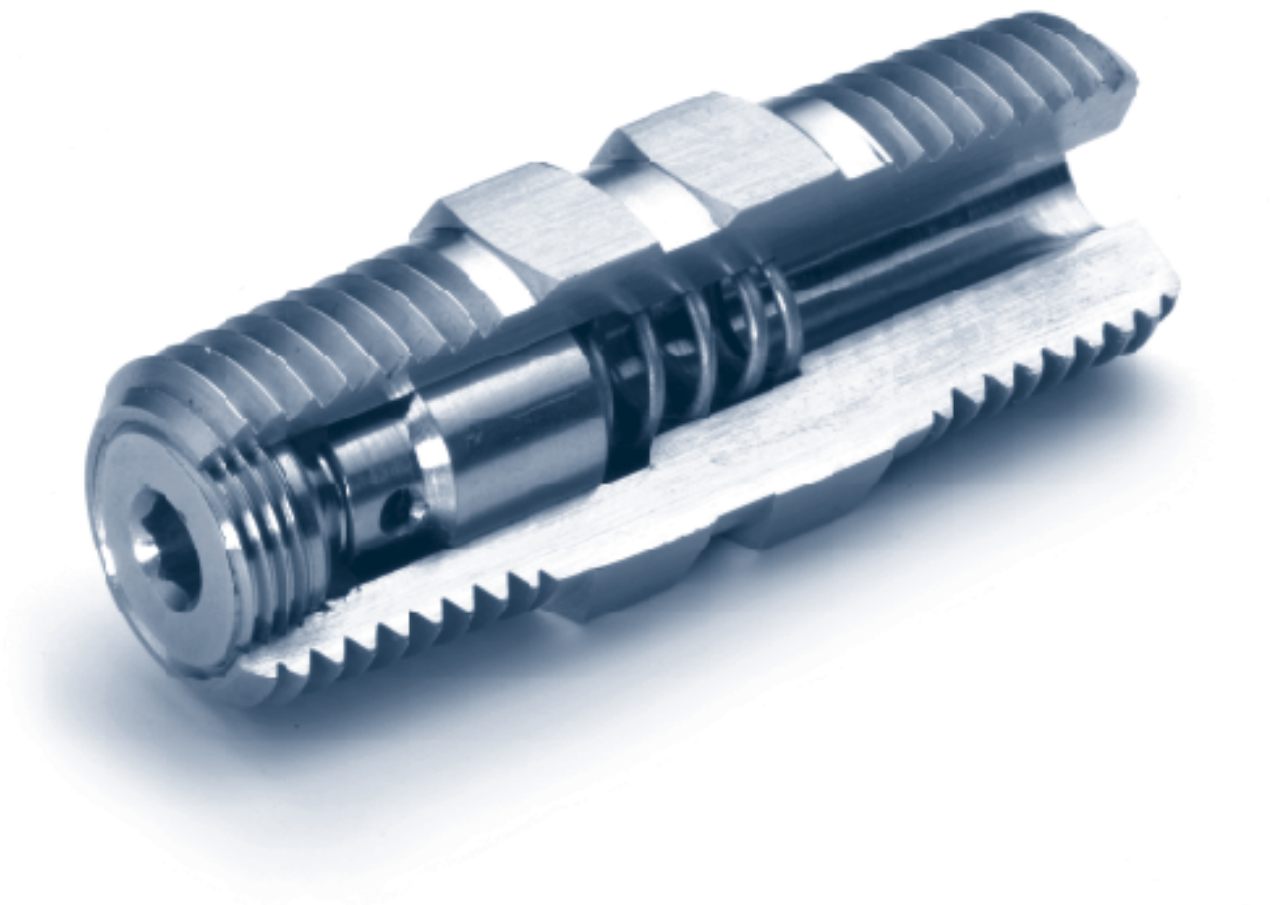
MCV & ACV series check valves

MCV

The MCV series check valve is a miniature, compact one piece body check valve for unidirectional control of flow up to 6,000psi. with minimal pressure drop. End connections include male or female threaded format, and single and double ferrule OD compression ends.

ACV

The ACV series check valve is as described above with adjustable spring to give a variety of cracking pressures.



Mini check valves

Benefits, applications and design features

Features

- Working pressure up to 6,000psi
- Fully encapsulated seal
- Choice of Viton or Buna N seal
- Variety of cracking pressures from 2 to 350psi
- Minimal pressure drop
- Bubble tight shut off

Applications

- Prevents reverse flow
- Low pressure relief valve
- Locks upstream pressure
- Up to 6,000psi
- Liquid or vapour service
- Low pressure relief valve

Design Features

- Fully contained O-ring seal
- One piece precision machined body
- Adjustable spring
- Lock screw to maintain crack pressure

4

Mini check valves

Technical specifications

Technical specifications

Pressure range	0-6000psi
Temperature range Viton	-23 to 200°C
Temperature range High Nitrile	-40 to 120°C
Factor of safety.	4:1
Nominal cracking pressure	3, 5, 10, 20, 40, 60, 100, 150 psi
CV rating Also see flow graphs	
1/4"	0.30
1/2"	0.92

Materials of construction

Part	Description	Material
A	Body	316 stainless steel
B	Spring	316 stainless steel
C	Poppet	316 stainless steel
D	O-Ring	Viton (Std)
E	Seal retainer	316 stainless steel
F	Lock screw	316 stainless steel
G	Adjusting screw	316 stainless steel

Valve connections

NPT	ANSI/ASME B1-20.1
BSPT	BS21
BSP	BS2779

Valve markings

Make or manufacturer	Waverley
Operating limits	6000psi
Direction arrow	
Cast code	ABC

Deflector cap

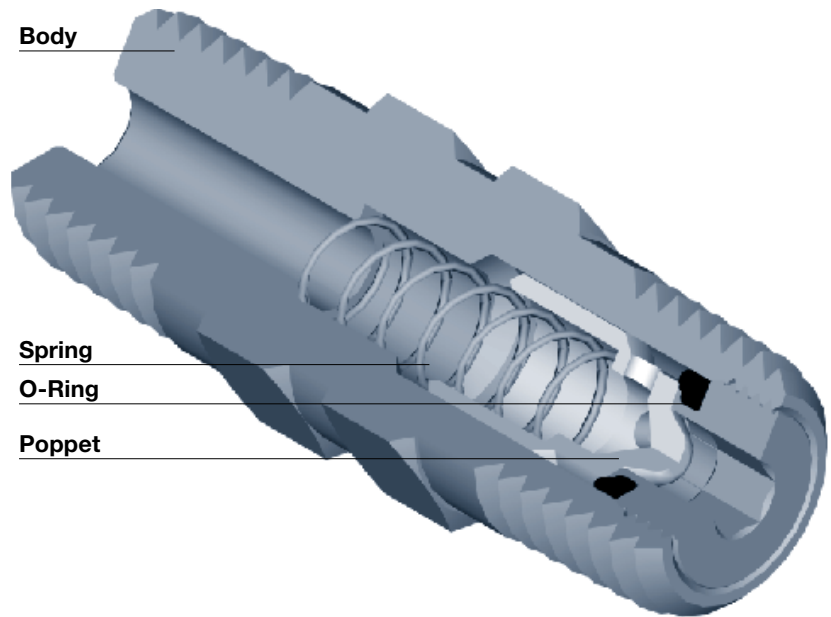
Part Number	Description	Material
2 WC	1/4" Deflector	Nylon 6
2 WC	1/2" Deflector	Nylon 6

Body

Spring

O-Ring

Poppet



Springs

Spring material is 304 Stainless Steel as standard. 316 Stainless Steel available as an option. Please specify on order.

Deflector cap

Cap also available for the safe deflection of media when valve is used as a low pressure relief valve.

Testing

Waverley check valves have been tested for sealing performance based on BS 6755 Pt1. These tests consist of: Low pressure (50psi 3.5 bar) High pressure shell (9,000psi 620 bar).

Seal kits

Seal kits are supplied for necessary maintenance and consist of poppet O-ring seal.

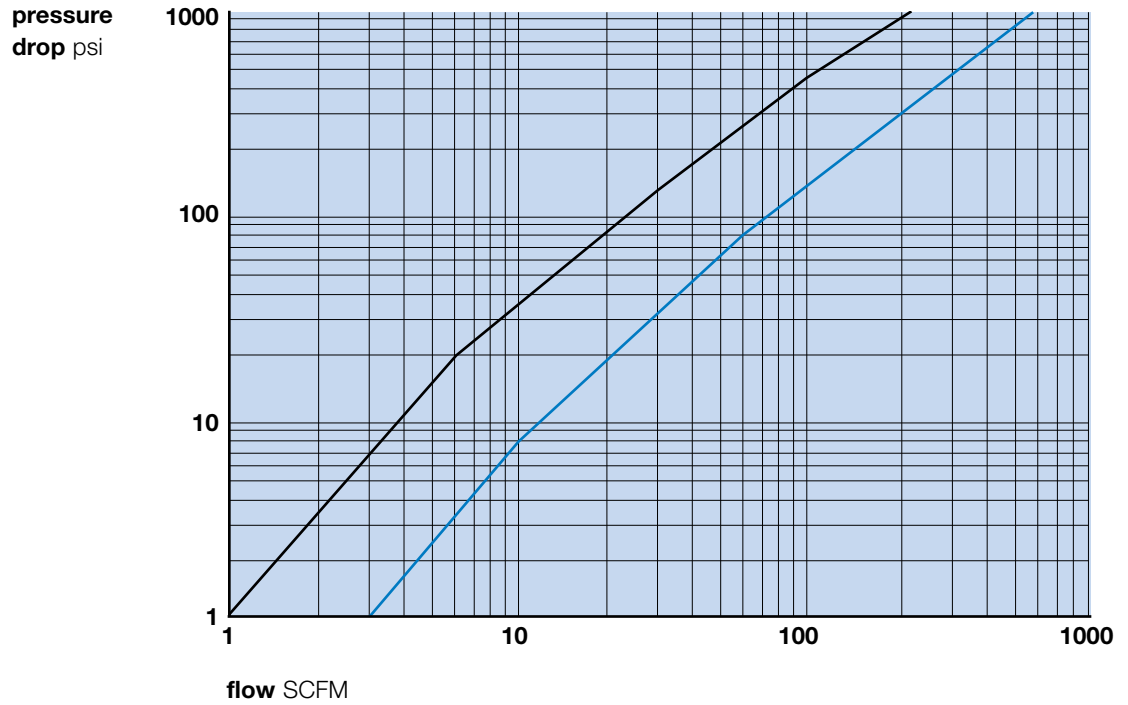
Cleaning and packaging

All check valves are dispatched fully degreased and sealed. Cleaning for oxygen use on application.

Mini check valves

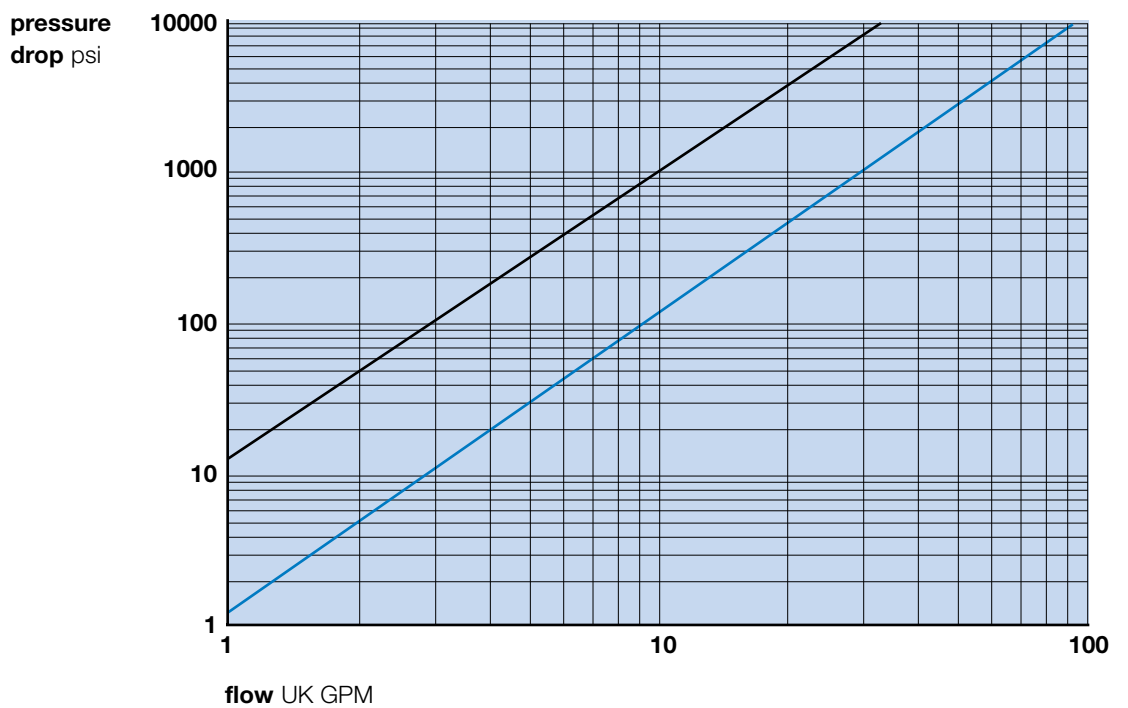
Air flow

- 1/4"
- 1/2"



Water flow

- 1/4"
- 1/2"



4

Relief valves

Waverley proportional relief valves

Operation

When inline pressure exceeds the force exerted by the spring, the valve stem opens. The flow through the valve is proportional to the increase in pressure. As the valve is balanced, cracking pressure is not effected by outlet back pressure. The relief valve setting is adjusted by rotating the adjustment cap.

Features

Maximum working pressure 6000psi

Cracking pressures from 100 to 6000psi

All 316 Stainless Steel construction with choice of seals

Range of end connections available including Double and Single ferrule OD Compression, BSP, BSPT, NPT



Relief valves

Technical specifications

Temperature ratings

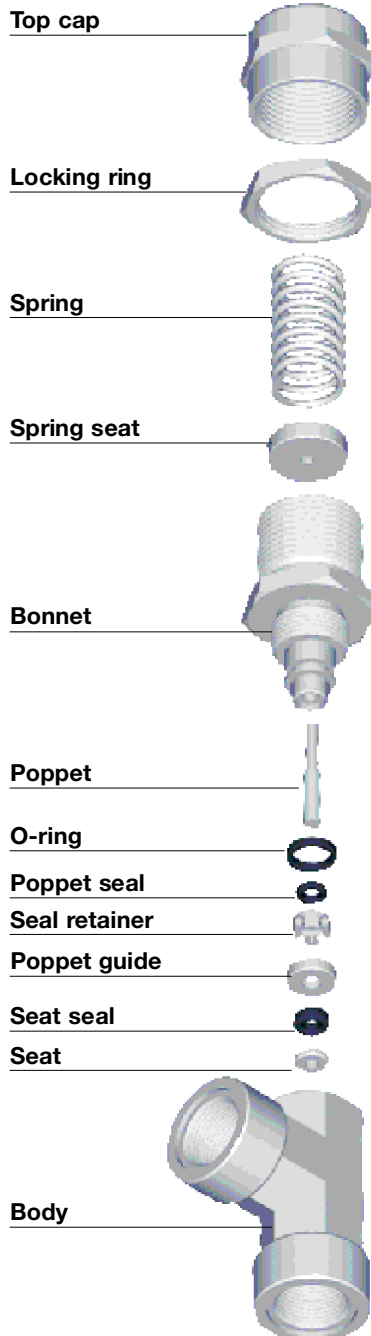
Temperature range Viton	-20 to 200°C
Temperature range High Nitrile	-40 to 120°C
Cracking pressure	Adjustable from 100 to 6000psi
Maximum working pressure	6000psi
Outlet maximum working pressure	1500psi

Materials of construction

Top cap	316 stainless steel
Locking ring	316 stainless steel
Spring	316 stainless steel
Spring seat	316 stainless steel
Bonnet	316 stainless steel
O-ring	High Nitrile
Poppet seal	High Nitrile
Seal retainer	316 stainless steel
Poppet	316 stainless steel
Poppet guide	316 stainless steel
Seat seal	High Nitrile
Seat	316 stainless steel
Body	316 stainless steel

Spring selection chart

	PSI	Bar	Colour	Part
A	100-500	3.4-34	Yellow	PRV13
B	500-1000	34-68	Purple	PRV14
C	1000-2000	68-136	Orange	PRV15
D	2000-3000	136-204	Brown	PRV16
E	3000-4000	204-272	White	PRV17
F	4000-5000	272-340	Red	PRV18
G	5000-6000	340-408	Green	PRV19



Cracking pressure

The cracking pressure on valves that have not been used for long periods of time may be above the set pressure.

Pre-set pressure

Valves ordered as standard will not have a pre-set relief setting. Relief valves may be pre-set to order.

Testing

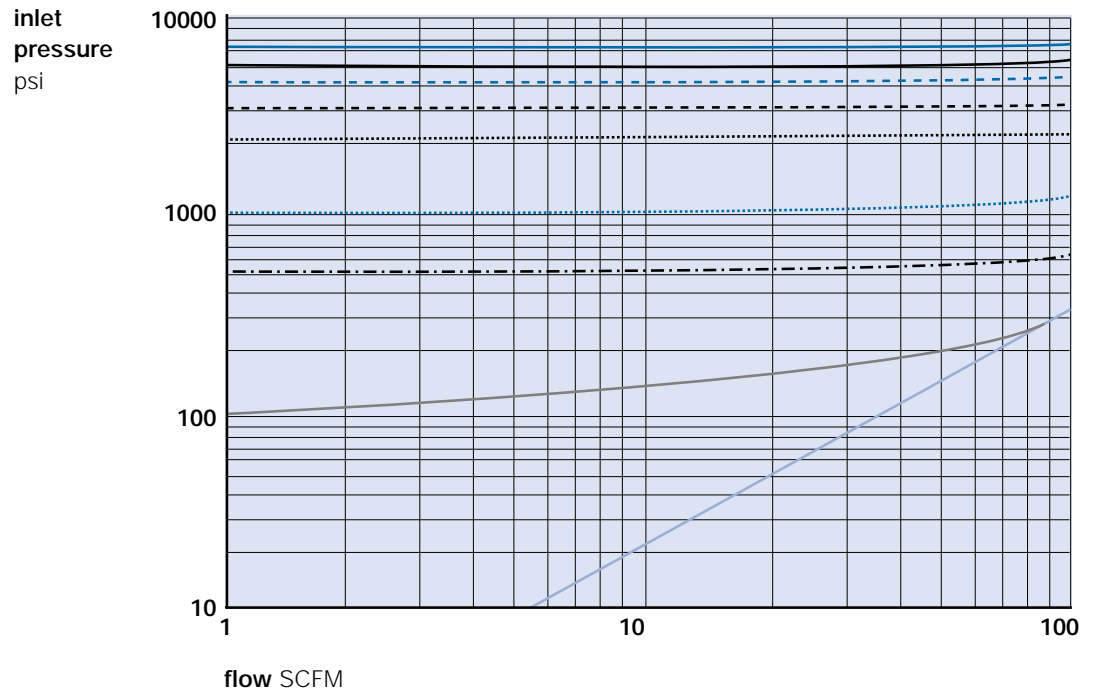
Each valve is individually tested for pressure relief operation and sealing performance based on BS 6755 P1.

4

Relief valves

Air flow

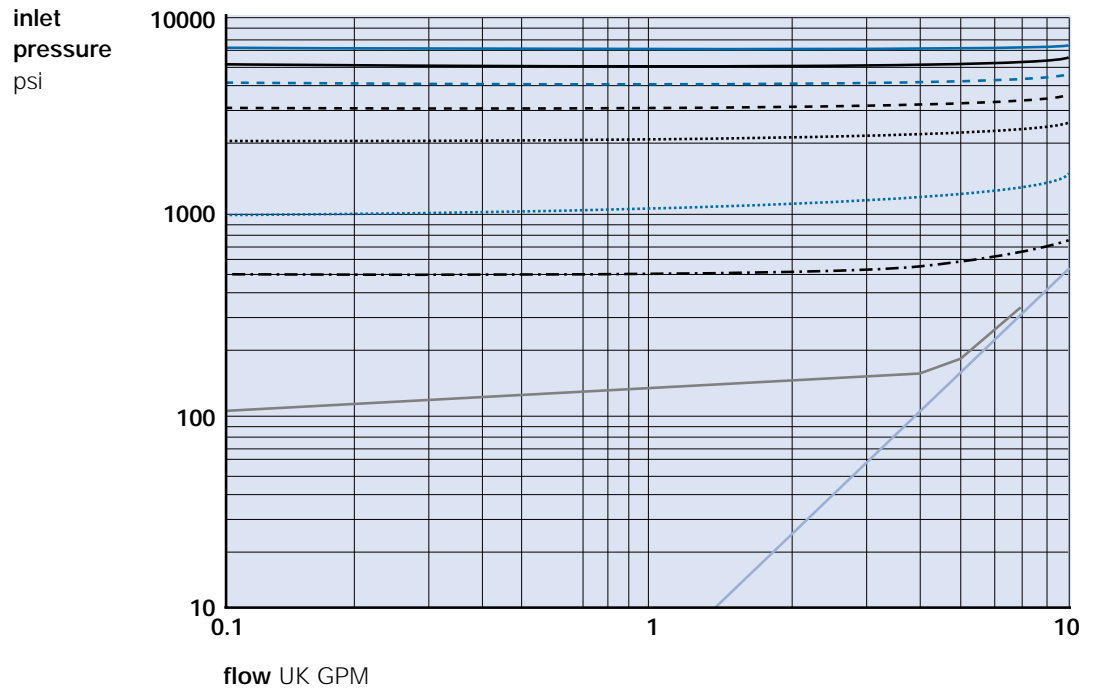
- Cv = 0.42
- A set at 100psi
- A set at 500psi
- B set at 1000psi
- C set at 2000psi
- - - D set at 3000psi
- - - E set at 4000psi
- F set at 5000psi
- G set at 6000psi



Relief valves

Water flow

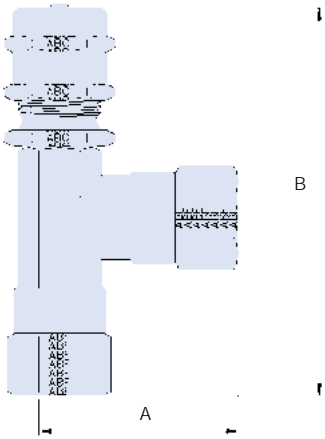
- Cv = 0.42
- A set at 100psi
- - - A set at 500psi
- B set at 1000psi
- - - C set at 2000psi
- - - D set at 3000psi
- - - E set at 4000psi
- F set at 5000psi
- G set at 6000psi



4

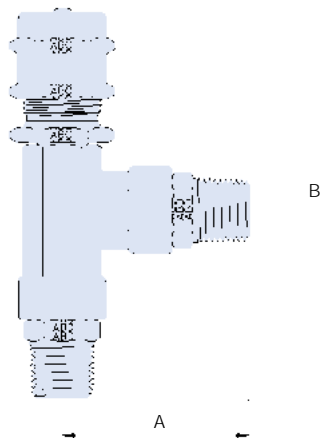
Relief valves

Female/female



thread size	part number	A	B
G 1/4" BSP	PRV/2P	2.236"	5.110"
G 3/8" BSP	PRV/3P	2.416"	5.290"
G 1/2" BSP	PRV/4P	2.553"	5.427"
Rc 1/4" BSPT	PRV/2T	2.306"	5.180"
Rc 3/8" BSPT	PRV/3T	2.416"	5.290"
Rc 1/2" BSPT	PRV/4T	2.551"	5.425"
1/4" NPTF	PRV/2N	2.306"	5.180"
3/8" NPTF	PRV/3N	2.416"	5.290"
1/2" NPTF	PRV/4N	2.551"	5.425"

Male/male

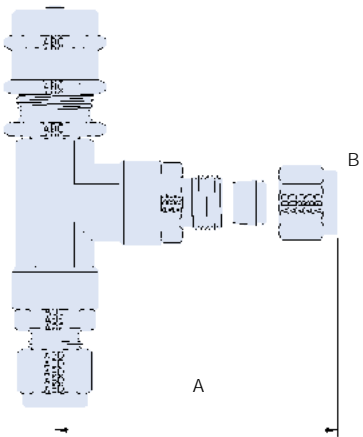


thread size	part number	A	B
G 1/4" BSP	PRV/2P/M	2.156"	5.030"
G 3/8" BSP	PRV/3P/M	2.236"	5.110"
G 1/2" BSP	PRV/4P/M	2.306"	5.180"
Rc 1/4" BSPT	PRV/2T/M	2.206"	5.080"
Rc 3/8" BSPT	PRV/3T/M	2.269"	5.143"
Rc 1/2" BSPT	PRV/4T/M	2.581"	5.455"
1/4" NPTF	PRV/2N/M	2.206"	5.080"
3/8" NPTF	PRV/3N/M	2.269"	5.143"
1/2" NPTF	PRV/4N/M	2.394"	5.268"

Please state opening pressure or spring requirement when ordering.

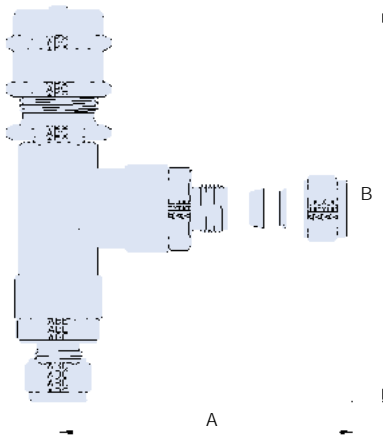
Relief valves

Duoloc® single ferrule OD compression



thread size	part number	A	B
1/8" O/D	PRV/1OD	1.826"	4.700"
3/16" O/D	PRV/3/16OD	1.826"	4.700"
1/4" O/D	PRV/2OD	1.826"	4.700"
3/8" O/D	PRV/3OD	1.858"	4.732"
1/2" O/D	PRV/4OD	1.857"	4.731"
6MM O/D	PRV/6MOD	47mm	165mm
8MM O/D	PRV/8MOD	46mm	164mm
10MM O/D	PRV/10MOD	46mm	165mm
12MM O/D	PRV/12MOD	46mm	165mm

Ringlok® double ferrule OD compression



thread size	part number	A	B
1/8" O/D	PRV=1OD	1.806"	4.680"
3/16" O/D	PRV=3/16OD	1.806"	4.680"
1/4" O/D	PRV=2OD	1.808"	4.682"
3/8" O/D	PRV=3OD	1.857"	4.731"
1/2" O/D	PRV=4OD	1.744"	4.618"
6MM O/D	PRV=6MOD	45mm	163mm
8MM O/D	PRV=8MOD	46mm	164mm
10MM O/D	PRV=10MOD	45mm	163mm
12MM O/D	PRV=12MOD	43mm	159mm

Please state opening pressure or spring requirement when ordering.

4

Inline tee filter

Inline tee filter

The Waverley inline tee filter is a general purpose product which is designed to provide a simple solution for removing system contamination from flow media. It is designed for liquid or gas applications and for pressures of up to 6,000psi. It also incorporates a variety of elements and inlet and outlet port connections including single and double ferrule OD compression.

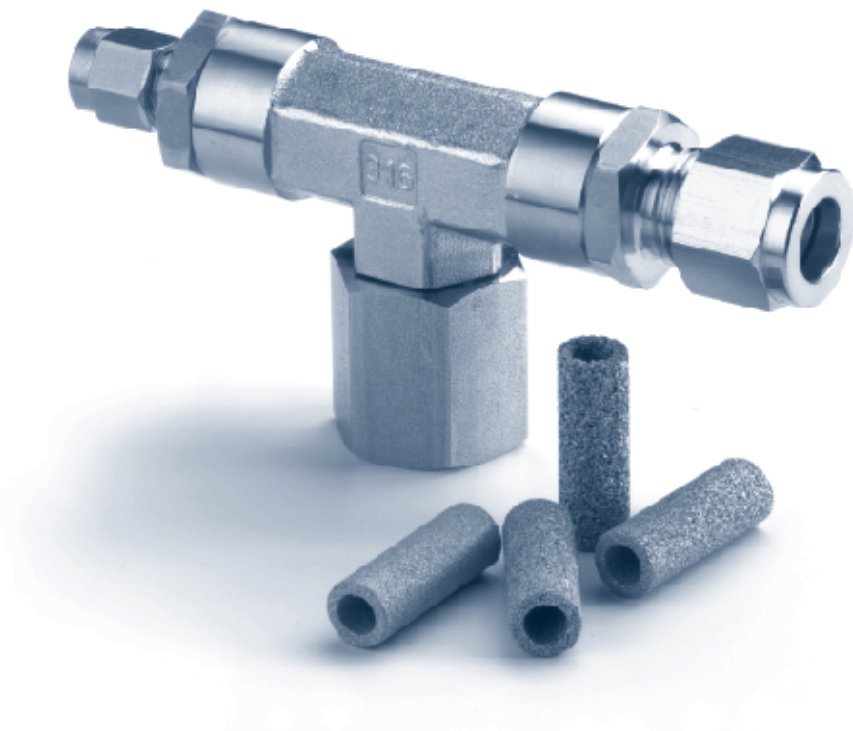
It should be noted when ordering, that the correct screen should be chosen. To choose a finer screen than is necessary will lead to early clogging and too coarse could damage downstream instrumentation.

Operation

Fluid passes through the outside of the element to the inside. This gives the largest possible area for filtration and minimises cleaning. It also ensures the element remains seated through pressure pulsations.

Features

- Maximum working pressure 6000psi
- 316 stainless steel construction
- Choice of elements from 15 to 400 micron
- Body remains in situ throughout cleaning
- Range of end connections



Inline tee filter

Technical specifications

Materials of constructions

Bonnet	316 stainless steel
Body	316 stainless steel
Sintered filter	316 stainless steel
O-ring	Viton
Back up ring	PTFE
Filter seat	PTFE
Filter cap	PTFE

Technical specifications

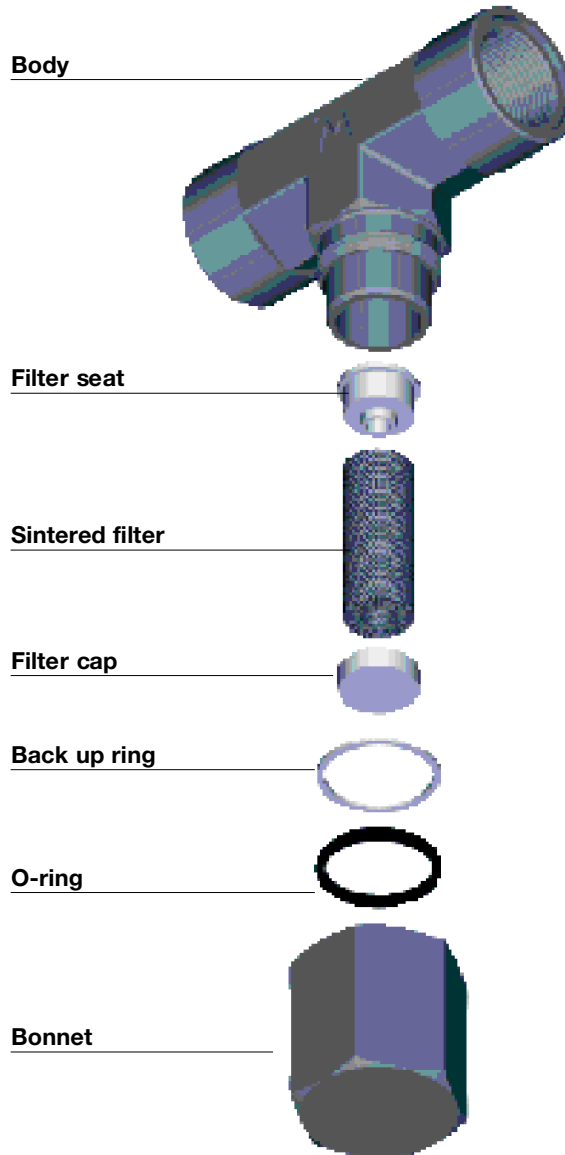
Pressure rating	6000psi
Temperature rating	-20 to 230°C
Sintered grades (µm)	
Mesh grades (µm)	15, 60, 100, 200, 400
Sintered element area (sq in)	1.708

Valve connections

NPT	ANSI/ASME B1-20.1
BSPT	BS21
BSP	BS2779

Valve markings

Make or manufacturer	Waverley
Direction arrow	
Pressure rating	6,000psi
Cast code	ABC
Filter grade	15 µm



Inline tee filter

Installation and maintenance

It is recommended the filter is installed with the bonnet downwards. This reduces the risk of contamination during filter removal.

To clean or replace filter, unscrew the bonnet and withdraw the filter assembly. Replace or clean filter assembly and replace in bonnet. Screw back into body, re-seating filter assembly.

Valve connections

Waverley strainers are supplied threaded in male and female format to the following standards up to 1/2".

Valve connections

Compression fitting ends can also be supplied in the following format.

Ringlok® (Double Ferrule)

1/8" to 1/2" OD

Duoloc® (Single Ferrule)

1/8" to 1/2" OD

Valve markings

Each valve is marked with the information shown.

Testing

Waverley Tee Filters have been tested for sealing performance based on BS 6755 Pt1. These tests consist of:

Low pressure (50 psi 3.5 bar)

High pressure shell (9,000 psi 620 Bar)

Seal kits

Seal kits are supplied for necessary maintenance, and consist of O-rings and element retaining caps.

Cleaning and packaging

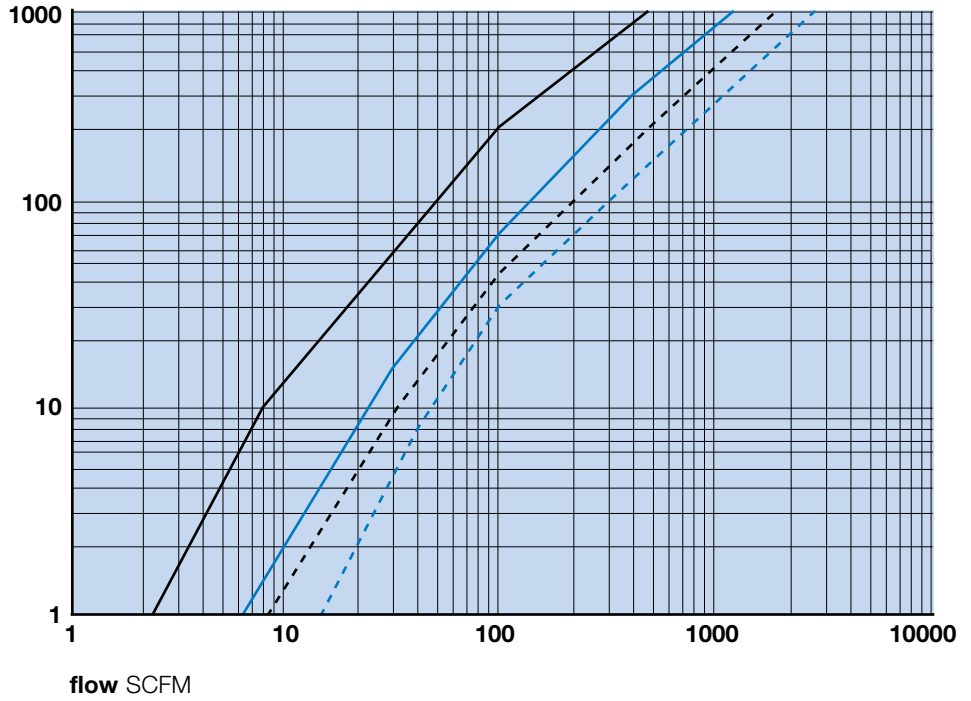
All Waverley filters are dispatched fully degreased and sealed. Cleaning for oxygen use on application.

Inline tee filter

Air flow

- 15 micron
- 60 micron
- - 100 micron
- - 200 micron

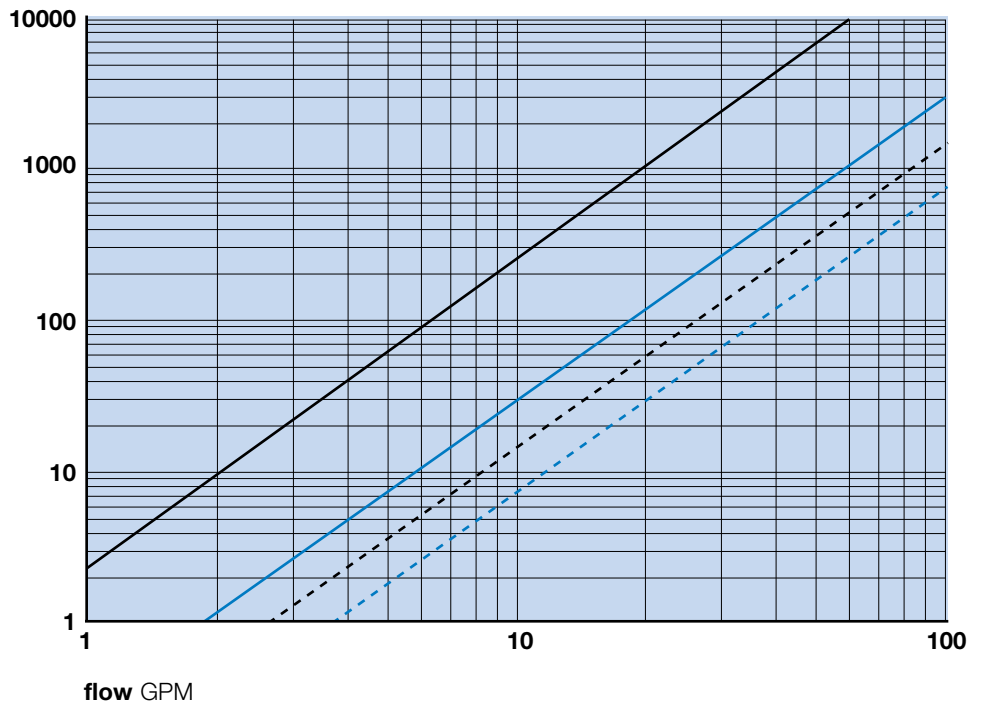
pressure drop psi



Water flow

- 15 micron
- 60 micron
- - 100 micron
- - 200 micron

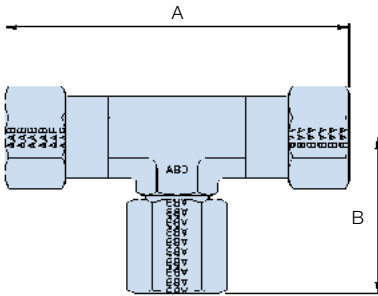
pressure drop psi



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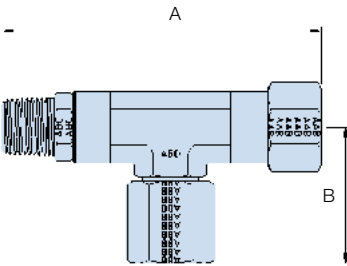
Inline tee filter

Female/female



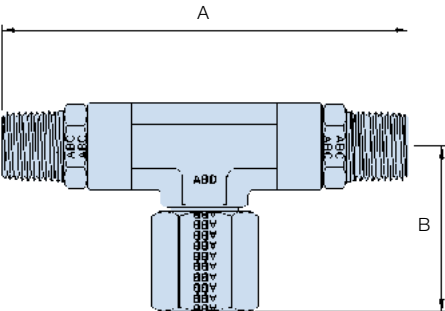
thread size	part number	A	B to C/L
G 1/4" BSP	ST/2P	4.394"	1.968"
G 3/8" BSP	ST/3P	4.754"	1.968"
G 1/2" BSP	ST/4P	5.028"	1.968"
Rc 1/4" BSPT	ST/2T	4.534"	1.968"
Rc 3/8" BSPT	ST/3T	4.754"	1.968"
Rc 1/2" BSPT	ST/4T	5.024"	1.968"
1/4" NPTF	ST/2N	4.534"	1.968"
3/8" NPTF	ST/3N	4.754"	1.968"
1/2" NPTF	ST/4N	5.024"	1.968"

Male/female



thread size	part number	A	B to C/L
G 1/4" BSP	ST/2P/MF	4.314"	1.968"
G 3/8" BSP	ST/3P/MF	4.574"	1.968"
G 1/2" BSP	ST/4P/MF	4.781"	1.968"
Rc 1/4" BSPT	ST/2T/MF	4.434"	1.968"
Rc 3/8" BSPT	ST/3T/MF	4.544"	1.968"
Rc 1/2" BSPT	ST/4T/MF	4.868"	1.968"
1/4" NPTF	ST/2N/MF	4.434"	1.968"
3/8" NPTF	ST/3N/MF	4.606"	1.968"
1/2" NPTF	ST/4N/MF	4.868"	1.968"

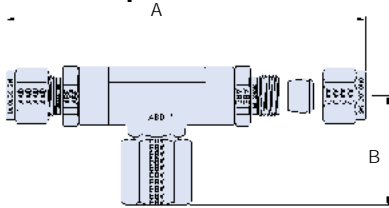
Male/male



thread size	part number	A	B to C/L
G 1/4" BSP	ST/2P/M	4.234"	1.968"
G 3/8" BSP	ST/3P/M	4.394"	1.968"
G 1/2" BSP	ST/4P/M	4.534"	1.968"
Rc 1/4" BSPT	ST/2T/M	4.334"	1.968"
Rc 3/8" BSPT	ST/3T/M	4.459"	1.968"
Rc 1/2" BSPT	ST/4T/M	5.084"	1.968"
1/4" NPTF	ST/2N/M	4.334"	1.968"
3/8" NPTF	ST/3N/M	4.459"	1.968"
1/2" NPTF	ST/4N/M	4.709"	1.968"

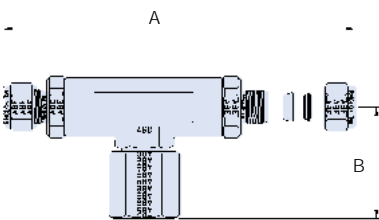
Inline tee filter

Duoloc® single ferrule OD compression



thread size	part number	A	B to C/L
1/8" O/D	ST/1OD	2.240"	1.968"
3/16" O/D	ST/3/16OD	2.240"	1.968"
1/4" O/D	ST/2OD	2.240"	1.968"
3/8" O/D	ST/3OD	2.304"	1.968"
1/2" O/D	ST/4OD	2.302"	1.968"
6MM O/D	ST/6MOD	58mm	50mm
8MM O/D	ST/8MOD	57mm	50mm
10MM O/D	ST/10MOD	57mm	50mm
12MM O/D	ST/12MOD	57mm	50mm

Ringlok® double ferrule OD compression



thread size	part number	A	B to C/L
1/8" O/D	ST=1OD	3.534"	1.968"
3/16" O/D	ST=3/16OD	3.534"	1.968"
1/4" O/D	ST=2OD	3.538"	1.968"
3/8" O/D	ST=3OD	3.636"	1.968"
1/2" O/D	ST=4OD	3.410"	1.968"
6MM O/D	ST=6MOD	89mm	50mm
8MM O/D	ST=8MOD	90mm	50mm
10MM O/D	ST=10MOD	89mm	50mm
12MM O/D	ST=12MOD	85mm	50mm

Screwed pipe fittings

Featuring BSP screwed pipe fittings, 60° coned male unions, tube and hose components, plugs, bushes, caps, seals, NPT screwed pipe fittings, weld fittings and precision pipe fittings.

BSP screwed pipe fittings comply with BS 1740 or BS 1387. Reducing bushes up to 1" BSPT are stocked with taper internal threads. These are suitable for a safe working pressure of 3000psi and are used for adapting gauges, instruments and valves.

Hexagon nipples and hexagon reducing nipples up to 1" BSPT have bores to make them suitable for a safe working pressure of 3000psi.

Hexagon plugs and square headed plugs are manufactured from solid bar and NOT castings.

60° coned male unions based on AGS 949 and BS 5200. Tube and hose adaptors based on BS 1906 and BS 2464. Any of the standpipe adaptors illustrated can be serrated to convert them to male or female hose adaptors. Standpipe adaptors are the same size as equivalent OD tube and therefore have a smaller OD than the equivalent hoesetail end.

BSPP plugs, bushes, and caps are manufactured from hexagons large enough to allow for the use of seals. Screw seal assemblies are stocked to suit all threads from 1/8" BSP - 2" BSP and suitable for a safe working pressure of 3000psi and are available in PTFE/stainless steel 316 and nitrile/stainless steel 316.

NPTF screwed pipe fittings are manufactured to comply with BS 3799. All catalogued items are stocked and suitable for use at a safe working pressure of 3000psi.

Weld fittings have been designed specifically for welded instrumentation systems. A necessary addition to this range is the compression to weld fitting for use on systems requiring the inline removal and replacement of certain critical components.

Waverley precision pipe fittings are manufactured from high quality 316 stainless steel forgings and each product in this range benefits from our cast coded system for easy traceability, even after many years in service. All threads available to NPT to ANSI/ASME B1.20.1.1983. BSPT to BS 21 and BSPP to BS 2779. Size range 1/8" to 1".

Screwed pipe fittings

5.02 BSP screwed pipe fittings

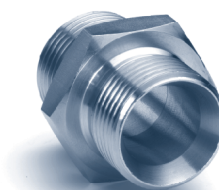
5.07 60° hose components

5.14 Plugs, bushes and seals

5.18 NPT screwed pipe couplings

5.22 Precision pipe fittings

5.28 Weld fittings



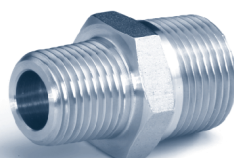
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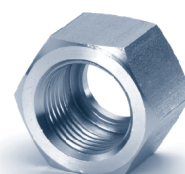
5.02



5.15



5.05



5.09



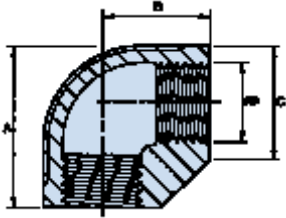
5.02

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BSP screwed pipe fittings

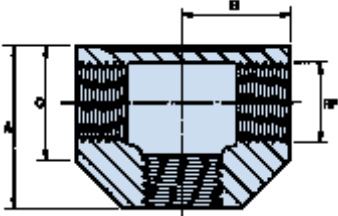
90° elbow 150lb class

Also 45° elbows



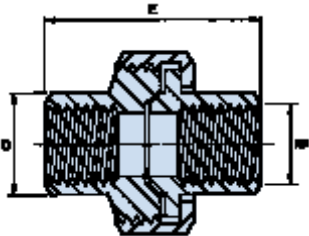
thread size RP	part number	A	B	C
1/4" BSP	E2	1.250"	0.750"	1.000"
3/8" BSP	E3	1.500"	1.000"	1.125"
1/2" BSP	E4	1.750"	1.125"	1.250"
3/4" BSP	E6	2.125"	1.375"	1.500"
1" BSP	E8	2.500"	1.500"	2.000"
1 1/4" BSP	E10	2.875"	1.625"	2.250"
1 1/2" BSP	E12	3.125"	2.000"	2.500"
2" BSP	E16	3.625"	2.125"	3.000"

Equal tee 150lb class



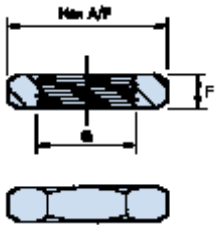
thread size RP	part number	A	B	C
1/4" BSP	T2	1.250"	0.750"	1.000"
3/8" BSP	T3	1.500"	1.000"	1.125"
1/2" BSP	T4	1.750"	1.125"	1.250"
3/4" BSP	T6	2.125"	1.375"	1.500"
1" BSP	T8	2.500"	1.500"	2.000"
1 1/4" BSP	T10	2.875"	1.625"	2.250"
1 1/2" BSP	T12	3.125"	2.000"	2.500"
2" BSP	T16	3.625"	2.125"	3.000"

Hexagon union 150lb class



thread size RP	part number	D	E	hex A/F
1/4" BSP	H2	0.740"	1.400"	1.125"
3/8" BSP	H3	0.861"	1.680"	1.312"
1/2" BSP	H4	1.025"	1.840"	1.500"
3/4" BSP	H6	1.230"	2.000"	1.812"
1" BSP	H8	1.550"	2.380"	2.180"
1 1/4" BSP	H10	1.920"	3.000"	2.625"
1 1/2" BSP	H12	2.250"	3.090"	2.900"
2" BSP	H16	2.780"	3.150"	3.625"

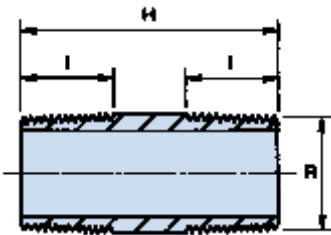
Hexagon backnut 150lb class



thread size G	part number	F	hex A/F
1/8" BSP	HBN1	0.250"	0.562"
1/4" BSP	HBN2	0.250"	0.750"
3/8" BSP	HBN3	0.312"	0.875"
1/2" BSP	HBN4	0.312"	1.125"
3/4" BSP	HBN6	0.375"	1.500"
1" BSP	HBN8	0.375"	1.670"
1 1/4" BSP	HBN10	0.437"	2.050"
1 1/2" BSP	HBN12	0.500"	2.500"
2" BSP	HBN16	0.532"	2.750"

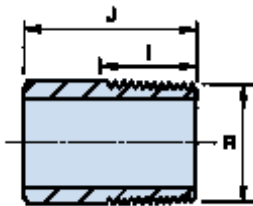
BSP screwed pipe fittings

Barrel nipple 150lb class



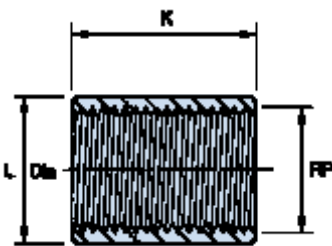
thread size R	part number	H	I
1/8" BSPT	BN1	1.375"	0.375"
1/4" BSPT	BN2	1.500"	0.500"
3/8" BSPT	BN3	1.500"	0.500"
1/2" BSPT	BN4	1.875"	0.625"
3/4" BSPT	BN6	2.250"	0.750"
1" BSPT	BN8	2.625"	0.812"
1 1/4" BSPT	BN10	3.188"	0.937"
1 1/2" BSPT	BN12	3.188"	0.937"
2" BSPT	BN16	4.000"	1.125"
3" BSPT	BN24	4.500"	1.312"

Weld nipple 150lb class



thread size R	part number	J	I
1/8" BSPT	WN1	0.687"	0.375"
1/4" BSPT	WN2	0.750"	0.500"
3/8" BSPT	WN3	0.812"	0.500"
1/2" BSPT	WN4	1.000"	0.625"
3/4" BSPT	WN6	1.125"	0.750"
1" BSPT	WN8	1.250"	0.812"
1 1/4" BSPT	WN10	1.500"	0.937"
1 1/2" BSPT	WN12	1.625"	0.937"
2" BSPT	WN16	2.000"	1.125"
3" BSPT	WN24	2.250"	1.312"

Equal socket 150lb class

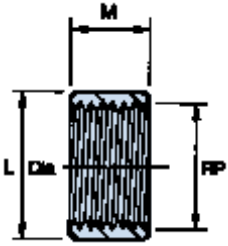


thread size G	part number	K	L dia
1/8" BSP	ES1	0.800"	0.625"
1/4" BSP	ES2	1.000"	0.750"
3/8" BSP	ES3	1.125"	0.875"
1/2" BSP	ES4	1.500"	1.125"
3/4" BSP	ES6	1.562"	1.375"
1" BSP	ES8	1.750"	1.625"
1 1/4" BSP	ES10	2.000"	2.000"
1 1/2" BSP	ES12	2.000"	2.250"
2" BSP	ES16	2.375"	2.800"
2 1/4" BSP	ES18	2.500"	3.250"
2 1/2" BSP	ES20	2.750"	3.500"
3" BSP	ES24	3.000"	4.000"

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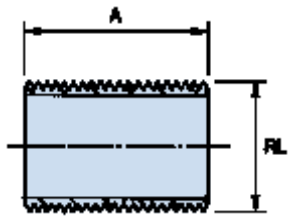
BSP screwed pipe fittings

Half socket 150lb class



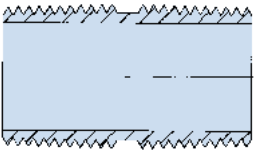
thread size G	part number	M	L dia
1/8" BSP	HS1	0.400"	0.625"
1/4" BSP	HS2	0.500"	0.750"
3/8" BSP	HS3	0.562"	0.875"
1/2" BSP	HS4	0.750"	1.125"
3/4" BSP	HS6	0.783"	1.375"
1" BSP	HS8	0.875"	1.625"
1 1/4" BSP	HS10	1.000"	2.000"
1 1/2" BSP	HS12	1.000"	2.250"
2" BSP	HS16	1.188"	2.800"
2 1/4" BSP	HS18	1.250"	3.250"
2 1/2" BSP	HS20	1.375"	3.500"
3" BSP	HS24	1.500"	4.000"

Equal nipple 150lb class



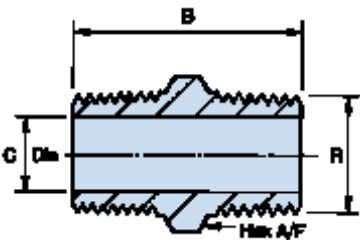
thread size RL	part number	A
1/4" BSP	EN2	1.000"
3/8" BSP	EN3	1.250"
1/2" BSP	EN4	1.281"
3/4" BSP	EN6	1.312"
1" BSP	EN8	1.375"
1 1/4" BSP	EN10	1.625"
1 1/2" BSP	EN12	1.750"
2" BSP	EN16	2.375"

Close taper nipple 150lb class



thread size R	part number	A
1/4"	CTN2	0.984"
3/8"	CTN3	1.024"
1/2"	CTN4	1.339"
3/4"	CTN6	1.457"
1"	CTN8	1.811"
1 1/2"	CTN12	1.850"
2"	CTN16	2.204"

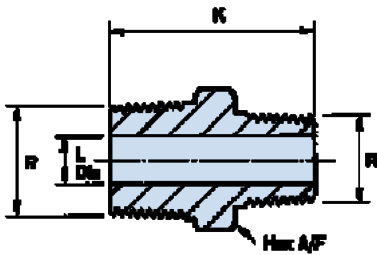
Hexagon nipple 3000lb class



thread size R	part number	B	C	hex A/F
3000lb class				
1/8" BSPT	N1	1.018"	0.197"	0.437"
1/4" BSPT	N2	1.250"	0.250"	0.562"
3/8" BSPT	N3	1.375"	0.375"	0.750"
1/2" BSPT	N4	1.687"	0.500"	0.875"
3/4" BSPT	N6	1.875"	0.687"	1.125"
1" BSPT	N8	2.125"	0.875"	1.375"
150lb class				
1 1/4" BSPT	N10	2.250"	1.125"	1.750"
1 1/2" BSPT	N12	2.312"	1.375"	2.050"
2" BSPT	N16	2.562"	1.875"	2.500"

BSP screwed pipe fittings

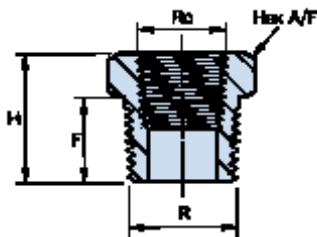
Hexagon reducing nipple



thread size R		part number	K	L dia	hex A/F
3000lb class					
1/4" BSPT	1/8" BSPT	RN2x1/8	1.118"	0.197"	0.562"
3/8" BSPT	1/8" BSPT	RN3x1/8	1.187"	0.197"	0.750"
3/8" BSPT	1/4" BSPT	RN3x1/4	1.312"	0.250"	0.750"
1/2" BSPT	1/4" BSPT	RN4x1/4	1.500"	0.250"	0.875"
1/2" BSPT	3/8" BSPT	RN4x3/8	1.500"	0.375"	0.875"
3/4" BSPT	1/4" BSPT	RN6x1/4	1.625"	0.250"	1.125"
3/4" BSPT	3/8" BSPT	RN6x3/8	1.687"	0.375"	1.125"
3/4" BSPT	1/2" BSPT	RN6x1/2	1.812"	0.500"	1.125"
1" BSPT	1/2" BSPT	RN8x1/2	1.937"	0.500"	1.375"
1" BSPT	3/4" BSPT	RN8x3/4	2.000"	0.687"	1.375"

150lb class					
1 1/4" BSPT	3/4" BSPT	RN10x3/4	2.093"	0.687"	1.750"
1 1/4" BSPT	1" BSPT	RN10x1	2.218"	0.875"	1.750"
1 1/2" BSPT	3/4" BSPT	RN12x3/4	2.124"	0.687"	2.050"
1 1/2" BSPT	1" BSPT	RN12x1	2.250"	0.875"	2.050"
1 1/2" BSPT	1 1/4" BSPT	RN12x11/4	2.375"	1.125"	2.050"
2" BSPT	1" BSPT	RN16x1	2.375"	0.875"	2.500"
2" BSPT	1 1/4" BSPT	RN16x11/4	2.375"	1.125"	2.500"
2" BSPT	1 1/2" BSPT	RN16x11/2	2.437"	1.375"	2.500"

Hexagon reducing bush 3000lb class

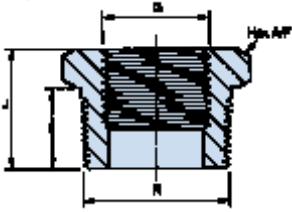


thread size R	thread size Rc	part number	F	H	hex A/F
1/4" BSPT	1/8" BSPT	RB2x1/8T	0.500"	0.750"	0.562"
3/8" BSPT	1/4" BSPT	RB3x1/4T	0.562"	0.812"	0.750"
1/2" BSPT	1/4" BSPT	RB4x1/4T	0.687"	1.000"	0.875"
1/2" BSPT	3/8" BSPT	RB4x3/8T	0.687"	1.000"	0.875"
3/4" BSPT	1/4" BSPT	RB6x1/4T	0.750"	1.125"	1.125"
3/4" BSPT	3/8" BSPT	RB6x3/8T	0.750"	1.125"	1.125"
3/4" BSPT	1/2" BSPT	RB6x1/2T	0.750"	1.125"	1.125"
1" BSPT	1/4" BSPT	RB8x1/4T	0.875"	1.250"	1.375"
1" BSPT	3/8" BSPT	RB8x3/8T	0.875"	1.250"	1.375"
1" BSPT	1/2" BSPT	RB8x1/2T	0.875"	1.250"	1.375"
1" BSPT	3/4" BSPT	RB8x3/4T	0.875"	1.250"	1.375"

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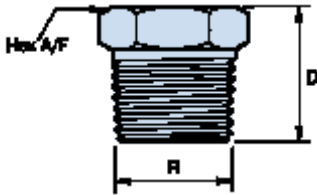
BSP screwed pipe fittings

Hexagon reducing bush 150lb class



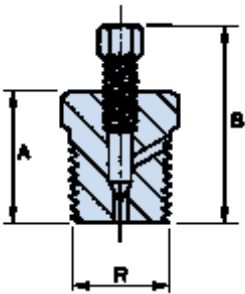
thread size R	thread size G	part number	I	J	hex A/F
1 1/4" BSPT	1/2" BSP	RB10x1/2	0.906"	1.343"	1.750"
1 1/4" BSPT	3/4" BSP	RB10x3/4	0.906"	1.343"	1.750"
1 1/4" BSPT	1" BSP	RB10x1	0.906"	1.343"	1.750"
1 1/2" BSPT	3/4" BSP	RB12x3/4	0.937"	1.375"	2.050"
1 1/2" BSPT	1" BSP	RB12x1	0.937"	1.375"	2.050"
1 1/2" BSPT	1 1/4" BSP	RB12x1 1/4	0.937"	1.375"	2.050"
2" BSPT	1/2" BSP	RB16x1/2	1.062"	1.500"	2.500"
2" BSPT	3/4" BSP	RB16x3/4	1.062"	1.500"	2.500"
2" BSPT	1" BSP	RB16x1	1.062"	1.500"	2.500"
2" BSPT	1 1/4" BSP	RB16x1 1/4	1.062"	1.500"	2.500"
2" BSPT	1 1/2" BSP	RB16x1 1/2	1.062"	1.500"	2.500"

Hexagon plug 3000lb class



thread size R	part number	D	hex A/F
1/8" BSPT	TP1	0.618"	0.437"
1/4" BSPT	TP2	0.750"	0.562"
3/8" BSPT	TP3	0.812"	0.750"
1/2" BSPT	TP4	1.000"	0.875"
3/4" BSPT	TP6	1.125"	1.125"
1" BSPT	TP8	1.250"	1.375"
1 1/4" BSPT	TP10	1.343"	1.750"
1 1/2" BSPT	TP12	1.375"	2.050"
2" BSPT	TP16	1.500"	2.500"

Vented plug 6000lb class



thread size R	part number	A	B
1/4" BSPT	VP2	0.812"	1.312"
1/2" BSPT	VP4	1.125"	1.625"
3/8" BSP	VP3P	0.937"	1.437"

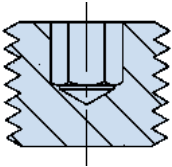
Square head plug 3000lb class



thread size R	part number	E	square A/F
1/8" BSPT	SH1	0.562"	0.281"
1/4" BSPT	SH2	0.750"	0.375"
3/8" BSPT	SH3	0.750"	0.375"
1/2" BSPT	SH4	1.000"	0.562"
3/4" BSPT	SH6	1.125"	0.562"
1" BSPT	SH8	1.200"	0.687"
1 1/4" BSPT	SH10	1.375"	0.875"
1 1/2" BSPT	SH12	1.375"	1.062"
2" BSPT	SH16	1.700"	1.250"

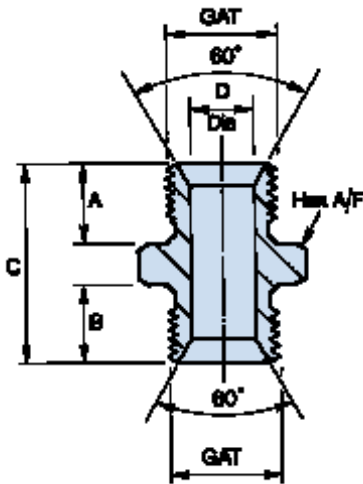
60° hose components

Socket head plug 3000lb class



thread size R	part number	F
1/8" BSPT	SHP1T	0.276"
1/4" BSPT	SHP2T	0.433"
3/8" BSPT	SHP3T	0.449"
1/2" BSPT	SHP4T	0.591"

BSP – BSPP male union 3000lb class

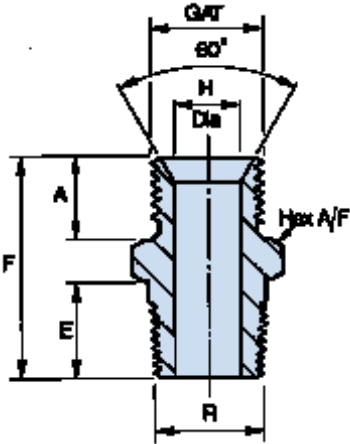


thread size GAT		part number	A	B	C	D dia	hex A/F
1/8" BSP	1/8" BSP	U1	0.450"	0.450"	1.150"	0.125"	0.562"
1/4" BSP	1/8" BSP	U2R	0.450"	0.450"	1.150"	0.125"	0.750"
1/4" BSP	1/4" BSP	U2	0.450"	0.450"	1.150"	0.250"	0.750"
3/8" BSP	1/8" BSP	U3R/1	0.530"	0.450"	1.230"	0.125"	0.875"
3/8" BSP	1/4" BSP	U3R	0.530"	0.450"	1.230"	0.250"	0.875"
3/8" BSP	3/8" BSP	U3	0.530"	0.530"	1.312"	0.375"	0.875"
1/2" BSP	1/4" BSP	U4R/2	0.600"	0.450"	1.362"	0.250"	1.125"
1/2" BSP	3/8" BSP	U4R	0.600"	0.530"	1.442"	0.375"	1.125"
1/2" BSP	1/2" BSP	U4	0.600"	0.600"	1.512"	0.500"	1.125"
5/8" BSP	5/8" BSP	U5	0.625"	0.625"	1.562"	0.531"	1.125"
3/4" BSP	3/8" BSP	U6R/3	0.750"	0.530"	1.655"	0.375"	1.300"
3/4" BSP	1/2" BSP	U6R	0.750"	0.600"	1.725"	0.500"	1.300"
3/4" BSP	5/8" BSP	U6R/5	0.750"	0.625"	1.750"	0.531"	1.300"
3/4" BSP	3/4" BSP	U6	0.750"	0.750"	1.875"	0.687"	1.300"
1" BSP	3/8" BSP	U8R/3	0.800"	0.530"	1.705"	0.375"	1.670"
1" BSP	1/2" BSP	U8R/4	0.800"	0.600"	1.775"	0.500"	1.670"
1" BSP	3/4" BSP	U8R	0.800"	0.750"	1.925"	0.687"	1.670"
1" BSP	1" BSP	U8	0.800"	0.800"	1.975"	0.875"	1.670"
1 1/4" BSP	1" BSP	U10R	0.800"	0.800"	2.037"	0.875"	2.050"
1 1/4" BSP	1 1/4" BSP	U10	0.800"	0.800"	2.037"	1.125"	2.050"
1 1/2" BSP	3/4" BSP	U12R/6	0.900"	0.750"	2.087"	0.687"	2.220"
1 1/2" BSP	1" BSP	U12R/8	0.900"	0.800"	2.137"	0.875"	2.220"
1 1/2" BSP	1 1/4" BSP	U12R	0.900"	0.800"	2.137"	1.125"	2.220"
1 1/2" BSP	1 1/2" BSP	U12	0.900"	0.900"	2.237"	1.375"	2.220"
2" BSP	1" BSP	U16R/8	1.000"	0.800"	2.237"	0.875"	2.750"
2" BSP	1 1/4" BSP	U16R/10	1.000"	0.800"	2.237"	1.125"	2.750"
2" BSP	1 1/2" BSP	U16R	1.000"	0.900"	2.337"	1.375"	2.750"
2" BSP	2" BSP	U16	1.000"	1.000"	2.437"	1.750"	2.750"

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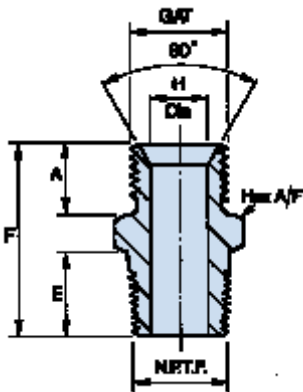
60° hose components

BSP – BSPT male union 3000lb class



thread size GAT	thread size R	part number	A	E	F	H dia	hex A/F
1/8" BSP	1/8" BSPT	U1/N1	0.450"	0.375"	1.075"	0.125"	0.562"
1/4" BSP	1/8" BSPT	U2/N1	0.450"	0.375"	1.075"	0.197"	0.750"
1/4" BSP	1/4" BSPT	U2/N2	0.450"	0.500"	1.200"	0.250"	0.750"
1/4" BSP	3/8" BSPT	U2/N3	0.450"	0.562"	1.262"	0.250"	0.875"
1/4" BSP	1/2" BSPT	U2/N4	0.450"	0.687"	1.324"	0.250"	1.125"
3/8" BSP	1/8" BSPT	U3/N1	0.530"	0.375"	1.155"	0.197"	0.875"
3/8" BSP	1/4" BSPT	U3/N2	0.530"	0.500"	1.280"	0.250"	0.875"
3/8" BSP	3/8" BSPT	U3/N3	0.530"	0.562"	1.342"	0.375"	0.875"
3/8" BSP	1/2" BSPT	U3/N4	0.530"	0.687"	1.529"	0.375"	1.125"
1/2" BSP	1/4" BSPT	U4/N2	0.600"	0.500"	1.412"	0.250"	1.125"
1/2" BSP	3/8" BSPT	U4/N3	0.600"	0.562"	1.474"	0.375"	1.125"
1/2" BSP	1/2" BSPT	U4/N4	0.600"	0.687"	1.599"	0.500"	1.125"
1/2" BSP	3/4" BSPT	U4/N6	0.600"	0.750"	1.725"	0.500"	1.125"
1/2" BSP	1" BSPT	U4/N8	0.600"	0.875"	1.850"	0.500"	1.375"
3/4" BSP	1/2" BSPT	U6/N4	0.750"	0.687"	1.812"	0.500"	1.300"
3/4" BSP	3/4" BSPT	U6/N6	0.750"	0.750"	1.875"	0.687"	1.300"
3/4" BSP	1" BSPT	U6/N8	0.750"	0.875"	2.000"	0.687"	1.375"
1" BSP	1/2" BSPT	U8/N4	0.800"	0.687"	1.862"	0.500"	1.670"
1" BSP	3/4" BSPT	U8/N6	0.800"	0.750"	1.925"	0.687"	1.670"
1" BSP	1" BSPT	U8/N8	0.800"	0.875"	2.050"	0.875"	1.670"
1 1/4" BSP	1 1/4" BSPT	U10/N10	0.800"	0.906"	2.143"	1.125"	2.050"
1 1/2" BSP	1 1/2" BSPT	U12/N12	0.900"	0.937"	2.274"	1.375"	2.220"
2" BSP	2" BSPT	U16/N16	1.000"	1.062"	2.499"	1.750"	2.750"

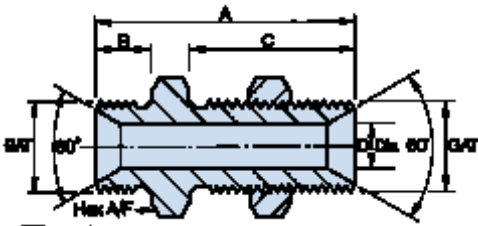
BSP – NPTF male union 3000lb class



thread size GAT	thread size NPTF	part number	A	E	F	H dia	hex A/F
1/8" BSP	1/8" NPTF	U1/N1N	0.450"	0.375"	1.075"	0.125"	0.562"
1/4" BSP	1/8" NPTF	U2/N1N	0.450"	0.375"	1.075"	0.125"	0.562"
1/4" BSP	1/4" NPTF	U2/N2N	0.450"	0.500"	1.200"	0.250"	0.750"
1/4" BSP	3/8" NPTF	U2/N3N	0.450"	0.562"	1.262"	0.250"	0.750"
1/4" BSP	1/2" NPTF	U2/N4N	0.450"	0.687"	1.449"	0.250"	0.875"
3/8" BSP	1/8" NPTF	U3/N1N	0.530"	0.375"	1.155"	0.125"	0.875"
3/8" BSP	1/4" NPTF	U3/N2N	0.530"	0.500"	1.280"	0.250"	0.875"
3/8" BSP	3/8" NPTF	U3/N3N	0.530"	0.562"	1.342"	0.375"	0.875"
1/2" BSP	1/4" NPTF	U4/N2N	0.600"	0.500"	1.412"	0.250"	1.125"
1/2" BSP	3/8" NPTF	U4/N3N	0.600"	0.562"	1.474"	0.375"	1.125"
1/2" BSP	1/2" NPTF	U4/N4N	0.600"	0.687"	1.599"	0.500"	1.125"
1/2" BSP	3/4" NPTF	U4/N6N	0.600"	0.750"	1.725"	0.500"	1.300"
1/2" BSP	1" NPTF	U4/N8N	0.600"	0.875"	1.850"	0.500"	1.375"
3/4" BSP	1/2" NPTF	U6/N4N	0.750"	0.687"	1.812"	0.500"	1.300"
3/4" BSP	3/4" NPTF	U6/N6N	0.750"	0.750"	1.875"	0.687"	1.300"
1" BSP	1/2" NPTF	U8/N4N	0.800"	0.687"	1.862"	0.500"	1.670"
1" BSP	3/4" NPTF	U8/N6N	0.800"	0.750"	1.925"	0.687"	1.670"
1" BSP	1" NPTF	U8/N8N	0.800"	0.875"	2.050"	0.875"	1.670"
1 1/4" BSP	1 1/4" NPTF	U10/N10N	0.800"	0.906"	2.143"	1.125"	2.050"
1 1/2" BSP	1 1/2" NPTF	U12/N12N	0.900"	0.937"	2.274"	1.375"	2.220"
2" BSP	2" NPTF	U16/N16N	1.000"	1.062"	2.500"	1.500"	2.750"

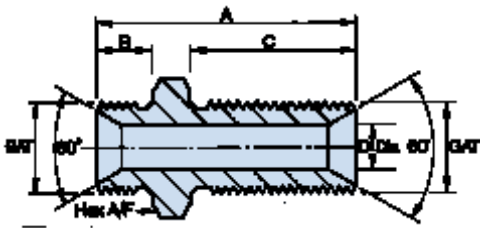
60° hose components

BSPB – bulkhead union 3000lb class with hexagon back nut



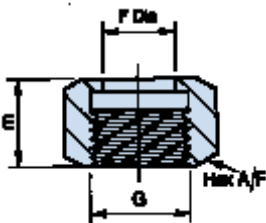
thread size GAT	part number	A	B	C	D dia	hex A/F	bulkhead bore dia
1/4"	BU2 BN	2.125"	0.450"	1.400"	0.250"	0.750"	0.520"
3/8"	BU3 BN	2.192"	0.550"	1.410"	0.375"	0.875"	0.656"
1/2"	BU4 BN	2.350"	0.600"	1.500"	0.510"	1.125"	0.828"
3/4"	BU6 BN	2.875"	0.750"	1.750"	0.760"	1.300"	1.032"
1"	BU8 BN	2.975"	0.800"	1.800"	0.875"	1.670"	1.312"
1 1/2"	BU12 BN	3.310"	0.900"	1.900"	1.310"	2.220"	1.990"

BSPB – bulkhead union 3000lb class without back nut



thread size GAT	part number	A	B	C	D dia	hex A/F	bulkhead bore dia
1/4"	BU2	2.125"	0.450"	1.400"	0.250"	0.750"	0.520"
3/8"	BU3	2.192"	0.550"	1.410"	0.375"	0.875"	0.656"
1/2"	BU4	2.350"	0.600"	1.500"	0.510"	1.125"	0.828"
3/4"	BU6	2.875"	0.750"	1.750"	0.760"	1.300"	1.032"
1"	BU8	2.975"	0.800"	1.800"	0.875"	1.670"	1.312"
1 1/2"	BU12	3.310"	0.900"	1.900"	1.310"	2.220"	1.990"

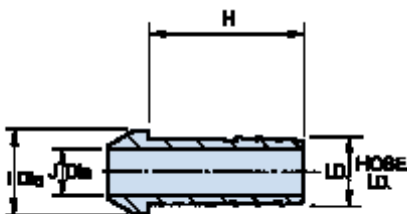
BSPB – union nut 3000lb class



thread size G	part number	E	F dia	hex A/F
1/8" BSP	UN1	0.500"	0.250"	0.562"
1/4" BSP	UN2	0.500"	0.365"	0.750"
3/8" BSP	UN3	0.593"	0.490"	0.875"
1/2" BSP	UN4	0.750"	0.610"	1.125"
3/4" BSP	UN6	0.750"	0.870"	1.300"
1" BSP	UN8	0.937"	1.100"	1.670"
1 1/4" BSP	UN10	1.000"	1.390"	2.050"
1 1/2" BSP	UN12	1.125"	1.650"	2.220"
2" BSP	UN16	1.375"	2.125"	2.750"

Hose adaptor 60° cone

For use with BSP union nut above



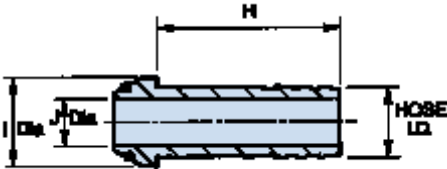
hose ID	part number	H	I dia	J dia
1/4"	HA2	1.000"	0.437"	0.188"
3/8"	HA3	1.125"	0.576"	0.312"
1/2"	HA4	1.312"	0.730"	0.406"
3/4"	HA6	1.500"	0.950"	0.640"
1"	HA8	1.562"	1.188"	0.875"
1 1/4"	HA10	1.750"	1.500"	1.000"
1 1/2"	HA12	2.125"	1.750"	1.281"
2"	HA16	2.250"	2.200"	1.750"

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60° hose components

Finger tight hose adaptor

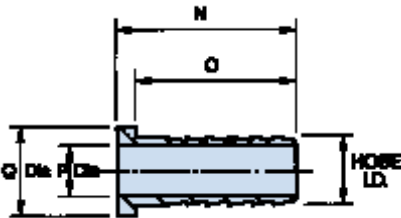
Supplied with nitrile or PTFE O-ring seal
For use with BSP union nut on previous page



hose ID	part number	H	I dia	J dia
1/4"	FHA2	1.000"	0.437"	0.188"
3/8"	FHA3	1.125"	0.576"	0.312"
1/2"	FHA4	1.312"	0.730"	0.406"
3/4"	FHA6	1.500"	0.950"	0.640"
1"	FHA8	1.562"	1.188"	0.875"

Square hose adaptor

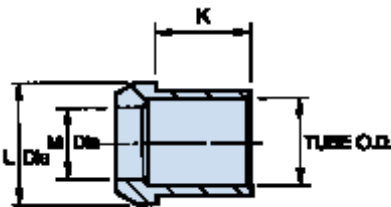
For use with BSP union nut on previous page



hose ID	part number	N	O	P dia	Q dia
1/4"	SHA2	1.100"	1.000"	0.188"	0.437"
3/8"	SHA3	1.225"	1.125"	0.312"	0.576"
1/2"	SHA4	2.000"	1.812"	0.406"	0.730"
3/4"	SHA6	2.000"	1.812"	0.640"	0.950"
1"	SHA8	2.000"	1.812"	0.800"	1.188"
1 1/4"	SHA10	1.900"	1.750"	1.000"	1.500"
1 1/2"	SHA12	2.275"	2.125"	1.281"	1.750"
2"	SHA16	2.475"	2.250"	1.750"	2.200"

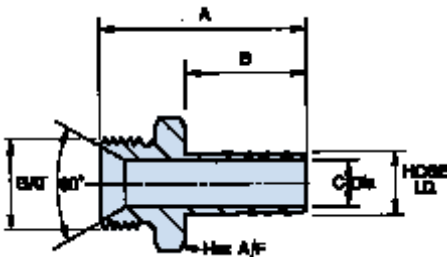
Tube nipple 60° cone

For use with union nut on previous page
To be used for brazing or welding, supplied with O-ring to order



tube OD	part number	K	L dia	M dia
1/8"	TN1	0.250"	0.330"	0.093"
1/4"	TN2	0.320"	0.437"	0.180"
3/8"	TN3	0.400"	0.570"	0.300"
1/2"	TN4	0.550"	0.730"	0.420"
3/4"	TN6	0.790"	0.940"	0.680"
1"	TN8	1.000"	1.180"	0.930"
1 1/4"	TN10	1.250"	1.500"	1.180"
1 1/2"	TN12	1.500"	1.750"	1.420"
2"	TN16	1.650"	2.220"	1.900"

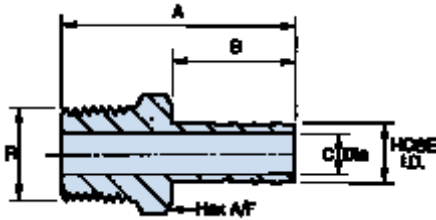
BSP male hose adaptor



thread size GAT	hose ID	part number	A	B	C dia	hex A/F
1/8" BSP	1/4"	MH2/1	1.700"	1.000"	0.125"	0.750"
1/4" BSP	1/4"	MH2	1.700"	1.000"	0.188"	0.750"
1/4" BSP	3/8"	MH3/2	1.700"	1.000"	0.188"	0.750"
3/8" BSP	3/8"	MH3	1.780"	1.000"	0.312"	0.875"
1/4" BSP	1/2"	MH4/2	1.825"	1.125"	0.188"	0.750"
3/8" BSP	1/2"	MH4/3	1.905"	1.125"	0.312"	0.875"
1/2" BSP	1/2"	MH4	2.000"	1.125"	0.406"	1.125"
1/2" BSP	3/4"	MH6/4	2.412"	1.500"	0.437"	1.125"
3/4" BSP	3/4"	MH6	2.625"	1.500"	0.640"	1.300"
3/4" BSP	1"	MH8/6	2.687"	1.562"	0.687"	1.300"
1" BSP	1"	MH8	2.737"	1.562"	0.875"	1.670"
1 1/4" BSP	1 1/4"	MH10	2.987"	1.750"	1.093"	2.050"
1 1/2" BSP	1 1/2"	MH12	3.375"	2.125"	1.275"	2.220"
2" BSP	2"	MH16	3.687"	2.250"	1.812"	2.750"

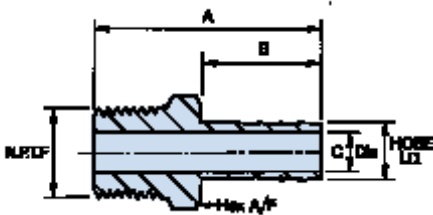
60° hose components

BSPT male hose adaptor



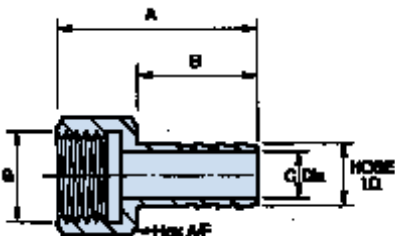
thread size R	hose ID	part number	A	B	C dia	hex A/F
1/8" BSPT	1/4"	MH2/1T	1.625"	1.000"	0.188"	0.437"
1/4" BSPT	1/4"	MH2T	1.750"	1.000"	0.188"	0.562"
1/4" BSPT	3/8"	MH3/2T	1.812"	1.062"	0.188"	0.562"
3/8" BSPT	3/8"	MH3T	1.875"	1.062"	0.312"	0.750"
1/4" BSPT	1/2"	MH4/2T	1.875"	1.125"	0.188"	0.562"
3/8" BSPT	1/2"	MH4/3T	1.937"	1.125"	0.312"	0.750"
1/2" BSPT	1/2"	MH4T	2.125"	1.125"	0.406"	0.875"
1/2" BSPT	3/4"	MH6/4T	2.499"	1.500"	0.406"	0.875"
3/4" BSPT	3/4"	MH6T	2.625"	1.500"	0.640"	1.125"
1/2" BSPT	1"	MH8/4T	2.561"	1.562"	0.406"	1.125"
1" BSPT	1"	MH8T	2.812"	1.562"	0.800"	1.375"
1 1/4" BSPT	1 1/4"	MH10T	3.093"	1.750"	1.050"	1.750"
1 1/2" BSPT	1 1/2"	MH12T	3.374"	2.000"	1.281"	2.050"
2" BSPT	2"	MH16T	3.749"	2.250"	1.750"	2.500"

NPTF male hose adaptor



thread size NPTF	hose ID	part number	A	B	C dia	hex A/F
1/8" NPTF	1/4"	MH2/1N	1.625"	1.000"	0.188"	0.437"
1/4" NPTF	1/4"	MH2N	1.750"	1.000"	0.188"	0.562"
1/4" NPTF	3/8"	MH3/2N	1.812"	1.062"	0.188"	0.562"
3/8" NPTF	3/8"	MH3N	1.875"	1.062"	0.312"	0.750"
1/4" NPTF	1/2"	MH4/2N	1.875"	1.125"	0.188"	0.562"
3/8" NPTF	1/2"	MH4/3N	1.937"	1.125"	0.312"	0.750"
1/2" NPTF	1/2"	MH4N	2.125"	1.125"	0.406"	0.875"
3/4" NPTF	3/4"	MH6N	2.625"	1.500"	0.640"	1.125"
1" NPTF	1"	MH8N	2.812"	1.562"	0.800"	1.375"
1 1/4" NPTF	1 1/4"	MH10N	3.093"	1.750"	1.050"	1.750"
1 1/2" NPTF	1 1/2"	MH12N	3.374"	2.000"	1.281"	2.050"
2" NPTF	2"	MH16N	3.749"	2.250"	1.750"	2.500"

BSPP female hose adaptor

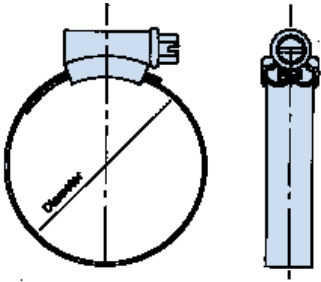


thread size G	hose ID	part number	A	B	C dia	hex A/F
1/4" BSP	1/4"	FH2	1.687"	1.000"	0.188"	0.750"
3/8" BSP	3/8"	FH3	1.750"	1.000"	0.312"	0.875"
1/2" BSP	1/2"	FH4	2.000"	1.125"	0.406"	1.125"

5

60° hose components

Hose clips 304 stainless steel



part number	diameter inches
JC 3/4	3/8" - 1/2"
JC 4/6	1/2" - 3/4"
JC 6/8	3/4" - 1"
JC 8/10	1" - 1 1/4"
JC 10/12	1 1/4" - 1 1/2"
JC 12/16	1 1/2" - 2"

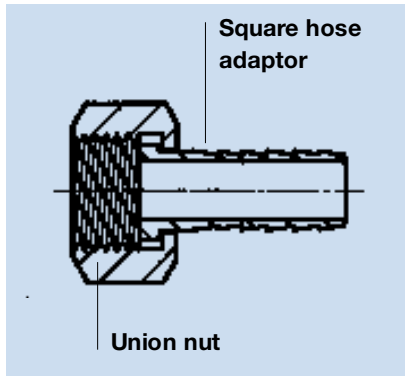
60° hose components

Square hose adaptors
page 5.10

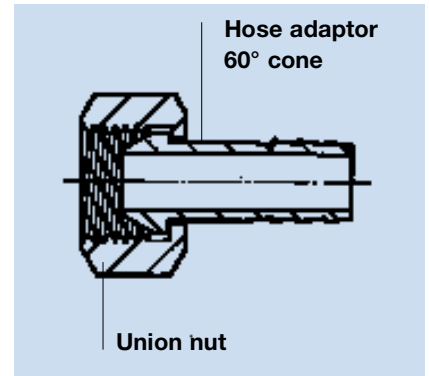
Hose adaptor 60° cone
page 5.09

Union nut
page 5.09

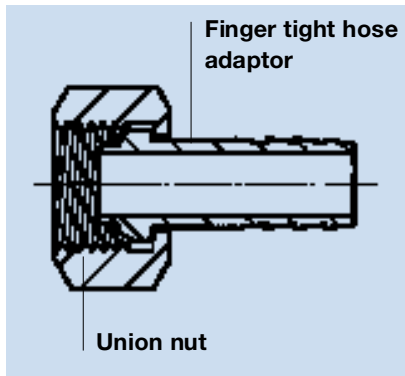
Female hose union assembly



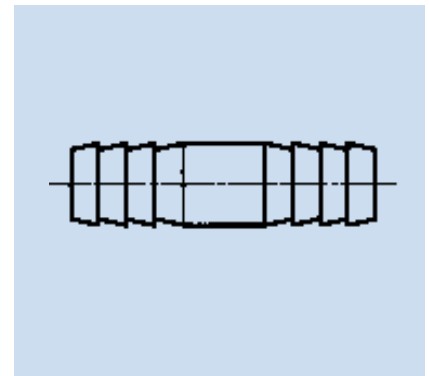
Female hose union assembly 60° cone



Female hose union assembly finger tight

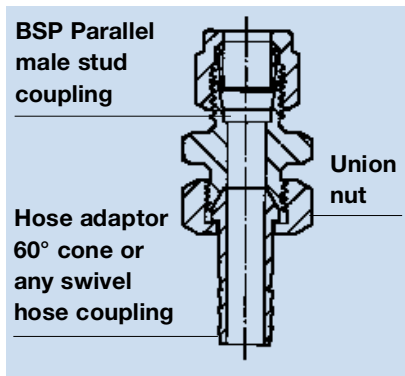


Hose to hose connector

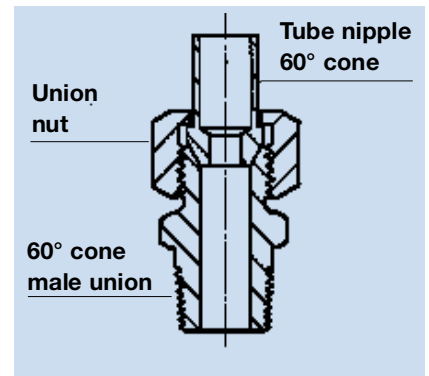


Finger tight hose adaptor
page 5.10

OD tube to hose coupling



Male tube union assembly



BSP parallel male stud coupling single or double ferrule option
section 1

Tube nipple 60° cone
page 5.09

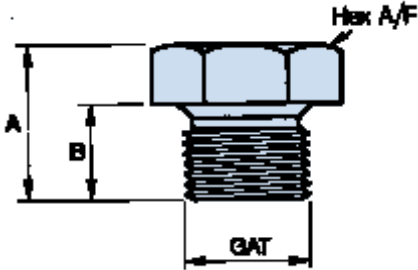
60° cone male union
page 5.07, 5.09

Hose adaptor 60° cone
page 5.09

5

Plugs, bushes and seals

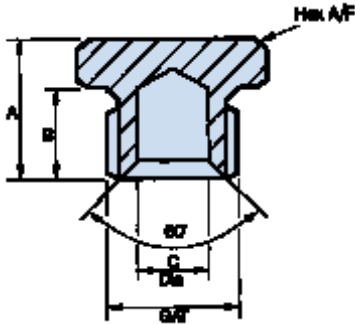
**BSP parallel hexagon plug
3000lb class**



thread size GAT	part number	A	B	hex A/F
1/8" BSP	P1	0.570"	0.350"	0.562"
1/4" BSP	P2	0.700"	0.450"	0.750"
3/8" BSP	P3	0.780"	0.530"	0.875"
1/2" BSP	P4	1.000"	0.625"	1.125"
3/4" BSP	P6	1.125"	0.750"	1.300"
1" BSP	P8	1.175"	0.800"	1.670"
1 1/4" BSP	P10	1.237"	0.800"	2.050"
1 1/2" BSP	P12	1.287"	0.900"	2.220"
2" BSP	P16	1.437"	1.000"	2.750"

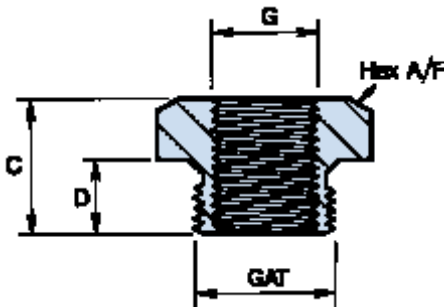
BSP Parallel Plugs can be drilled and tapped to convert into Screwed Bushes to order

**BSP parallel plug coned
3000lb class**



thread size GAT	part number	A	B	C dia	hex A/F
1/8" BSP	P1 coned	0.570"	0.350"	0.125"	0.562"
1/4" BSP	P2 coned	0.700"	0.450"	0.250"	0.750"
3/8" BSP	P3 coned	0.780"	0.530"	0.375"	0.875"
1/2" BSP	P4 coned	1.000"	0.625"	0.500"	1.125"

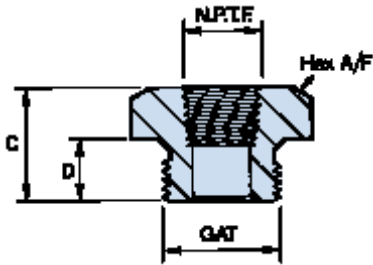
**BSP parallel screwed bush
150lb class**



thread size external GAT	internal G	part number	C	D	hex A/F
1/4" BSP	1/8" BSP	SB2	0.700"	0.450"	0.750"
3/8" BSP	1/8" BSP	SB3/1	0.780"	0.530"	0.875"
3/8" BSP	1/4" BSP	SB3	0.780"	0.530"	0.875"
1/2" BSP	1/8" BSP	SB4/1	1.000"	0.625"	1.125"
1/2" BSP	1/4" BSP	SB4/2	1.000"	0.625"	1.125"
1/2" BSP	3/8" BSP	SB4	1.000"	0.625"	1.125"
3/4" BSP	1/8" BSP	SB6/1	1.125"	0.750"	1.300"
3/4" BSP	1/4" BSP	SB6/2	1.125"	0.750"	1.300"
3/4" BSP	3/8" BSP	SB6/3	1.125"	0.750"	1.300"
3/4" BSP	1/2" BSP	SB6	1.125"	0.750"	1.300"
1" BSP	1/4" BSP	SB8/2	1.175"	0.800"	1.670"
1" BSP	3/8" BSP	SB8/3	1.175"	0.800"	1.670"
1" BSP	1/2" BSP	SB8/4	1.175"	0.800"	1.670"
1" BSP	3/4" BSP	SB8	1.175"	0.800"	1.670"
1 1/4" BSP	3/4" BSP	SB10/6	1.237"	0.800"	2.050"
1 1/4" BSP	1" BSP	SB10	1.237"	0.800"	2.050"
1 1/2" BSP	1" BSP	SB12/8	1.287"	0.900"	2.220"
1 1/2" BSP	1 1/4" BSP	SB12	1.287"	0.900"	2.220"
2" BSP	1" BSP	SB16/8	1.437"	1.000"	2.750"
2" BSP	1 1/2" BSP	SB16	1.437"	1.000"	2.750"

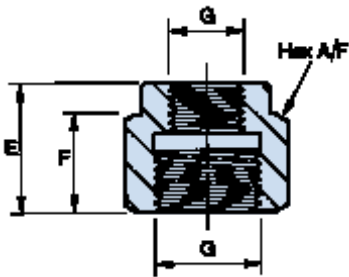
Plugs, bushes and seals

BSP parallel – NPTF screwed bush 150lb class



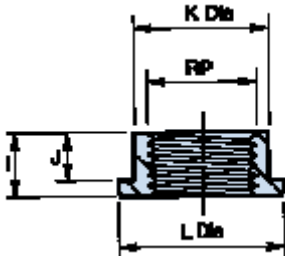
thread size external GAT	internal NPTF	part number	C	D	hex A/F
1/4" BSP	1/8" NPTF	SB2/1N	0.700"	0.450"	0.750"
3/8" BSP	1/8" NPTF	SB3/1N	0.780"	0.530"	0.875"
3/8" BSP	1/4" NPTF	SB3/2N	0.780"	0.530"	0.875"
1/2" BSP	1/8" NPTF	SB4/1N	1.000"	0.625"	1.125"
1/2" BSP	1/4" NPTF	SB4/2N	1.000"	0.625"	1.125"
1/2" BSP	3/8" NPTF	SB4/3N	1.000"	0.625"	1.125"
3/4" BSP	1/4" NPTF	SB6/2N	1.125"	0.750"	1.300"
3/4" BSP	3/8" NPTF	SB6/3N	1.125"	0.750"	1.300"
3/4" BSP	1/2" NPTF	SB6/4N	1.125"	0.750"	1.300"
1" BSP	1/4" NPTF	SB8/2N	1.175"	0.800"	1.670"
1" BSP	3/8" NPTF	SB8/3N	1.175"	0.800"	1.670"
1" BSP	1/2" NPTF	SB8/4N	1.175"	0.800"	1.670"
1" BSP	3/4" NPTF	SB8/6N	1.175"	0.800"	1.670"

BSP parallel reducing socket 150lb class



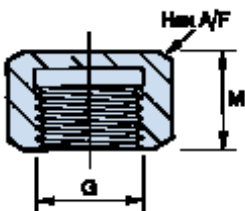
thread size G	part number	E	F	hex A/F	
1/4" BSP	1/8" BSP	RS2	0.900"	0.700"	0.750"
3/8" BSP	1/4" BSP	RS3	0.980"	0.780"	0.875"
1/2" BSP	1/4" BSP	RS4/2	1.050"	0.850"	1.125"
1/2" BSP	3/8" BSP	RS4	1.130"	0.850"	1.125"
3/4" BSP	1/2" BSP	RS6	1.350"	1.000"	1.300"
1" BSP	1/2" BSP	RS8/4	1.400"	1.000"	1.670"
1" BSP	3/4" BSP	RS8	1.550"	1.050"	1.670"
1 1/4" BSP	1" BSP	RS10	1.600"	1.050"	2.050"
1 1/2" BSP	1 1/4" BSP	RS12	1.700"	1.150"	2.220"
2" BSP	1 1/2" BSP	RS16	1.900"	1.250"	2.750"

BSP parallel welding boss 150lb class



thread size G	part number	I	J	K Dia	L Dia
1/8" BSP	B1	0.312"	0.325"	0.532"	0.625"
1/4" BSP	B2	0.450"	0.325"	0.750"	0.875"
3/8" BSP	B3	0.530"	0.405"	0.875"	1.062"
1/2" BSP	B4	0.600"	0.475"	1.000"	1.125"
3/4" BSP	B6	0.625"	0.562"	1.250"	1.500"
1" BSP	B8	0.800"	0.550"	1.750"	2.000"

BSP parallel hexagon cap 3000lb class

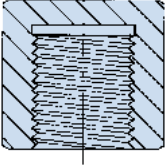


thread size G	part number	M	Hex A/F
1/8" BSP	HC1	0.500"	0.562"
1/4" BSP	HC2	0.500"	0.750"
3/8" BSP	HC3	0.593"	0.875"
1/2" BSP	HC4	0.750"	1.125"
3/4" BSP	HC6	0.870"	1.300"
1" BSP	HC8	0.937"	1.670"
1 1/2" BSP	HC12	1.500"	2.220"

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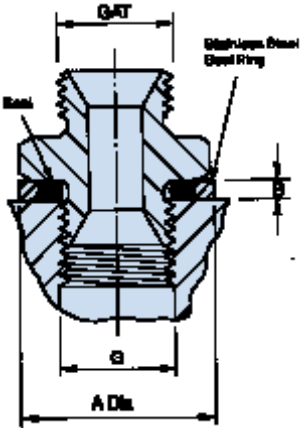
Plugs, bushes and seals

BSP parallel round end cap 150lb class



thread size RP	part number	N	P dia
1/4" BSP	EC2	0.812"	0.625"
3/8" BSP	EC3	0.812"	0.750"
1/2" BSP	EC4	1.000"	1.125"
3/4" BSP	EC6	1.125"	1.375"
1" BSP	EC8	1.375"	1.625"
1 1/4" BSP	EC10	1.500"	2.000"
1 1/2" BSP	EC12	1.500"	2.250"
2" BSP	EC16	1.620"	2.750"

BSP parallel screw seal assembly 3000lb class



Stainless seal ring with PTFE seal

thread size GAT/G	part number	A dia	B
1/8" BSP	SR1PT	0.625"	0.056"
1/4" BSP	SR2PT	0.875"	0.056"
3/8" BSP	SR3PT	1.000"	0.056"
1/2" BSP	SR4PT	1.250"	0.086"
3/4" BSP	SR6PT	1.500"	0.086"
1" BSP	SR8PT	1.750"	0.086"
1 1/4" BSP	SR10PT	2.375"	0.115"
1 1/2" BSP	SR12PT	2.525"	0.115"
2" BSP	SR16PT	3.125"	0.115"

Stainless seal ring with nitrile seal

thread size GAT/G	part number	A dia	B
1/8" BSP	SR1NT	0.625"	0.056"
1/4" BSP	SR2NT	0.875"	0.056"
3/8" BSP	SR3NT	1.000"	0.056"
1/2" BSP	SR4NT	1.250"	0.086"
3/4" BSP	SR6NT	1.500"	0.086"
1" BSP	SR8NT	1.750"	0.086"
1 1/4" BSP	SR10NT	2.375"	0.115"
1 1/2" BSP	SR12NT	2.525"	0.115"
2" BSP	SR16NT	3.125"	0.115"

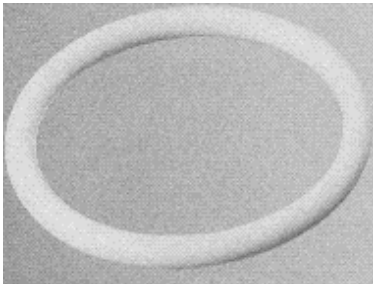
Plugs, bushes and seals

Stainless seal rings only



thread size	part number
1/8" BSP	SR1
1/4" BSP	SR2
3/8" BSP	SR3
1/2" BSP	SR4
3/4" BSP	SR6
1" BSP	SR8
1 1/4" BSP	SR10
1 1/2" BSP	SR12
2" BSP	SR16

PTFE seals only



thread size	part number
1/8" BSP	OR1PT
1/4" BSP	OR2PT
3/8" BSP	OR3PT
1/2" BSP	OR4PT
3/4" BSP	OR6PT
1" BSP	OR8PT
1 1/4" BSP	OR10PT
1 1/2" BSP	OR12PT
2" BSP	OR16PT

Nitrile seals only

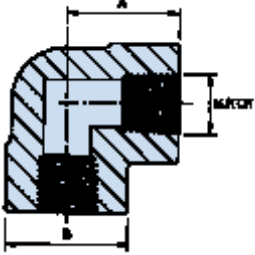


thread size	part number
1/8" BSP	OR1
1/4" BSP	OR2
3/8" BSP	OR3
1/2" BSP	OR4
3/4" BSP	OR6
1" BSP	OR8
1 1/4" BSP	OR10
1 1/2" BSP	OR12
2" BSP	OR16

5

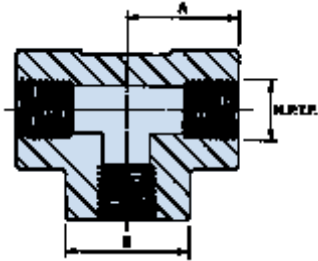
NPT screwed pipe couplings

90° elbow 3000lb class



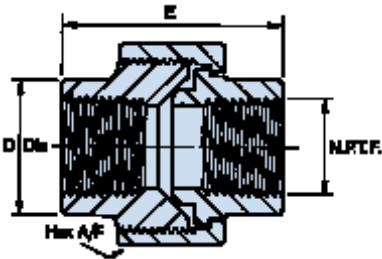
thread size NPTF	part number	A	B
1/4" NPTF	E2NPT	1.000"	1.062"
3/8" NPTF	E3NPT	1.125"	1.312"
1/2" NPTF	E4NPT	1.375"	1.562"
3/4" NPTF	E6NPT	1.500"	1.812"
1" NPTF	E8NPT	1.750"	2.250"
1 1/4" NPTF	E10NPT	2.000"	2.437"
1 1/2" NPTF	E12NPT	2.375"	3.000"
2" NPTF	E16NPT	2.500"	3.313"

Equal tee 3000lb class



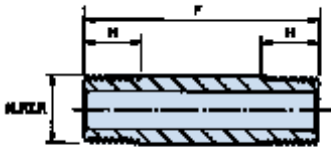
thread size NPTF	part number	A	B
1/4" NPTF	T2NPT	1.000"	1.062"
3/8" NPTF	T3NPT	1.125"	1.312"
1/2" NPTF	T4NPT	1.375"	1.562"
3/4" NPTF	T6NPT	1.500"	1.812"
1" NPTF	T8NPT	1.750"	2.250"
1 1/4" NPTF	T10NPT	2.000"	2.437"
1 1/2" NPTF	T12NPT	2.375"	3.000"
2" NPTF	T16NPT	2.500"	3.313"

Hexagon union 3000lb class



thread size NPTF	part number	D dia	E	hex A/F
1/4" NPTF	H2NPT	0.750"	1.687"	1.250"
3/8" NPTF	H3NPT	0.875"	1.875"	1.500"
1/2" NPTF	H4NPT	1.250"	2.000"	1.750"
3/4" NPTF	H6NPT	1.437"	2.250"	2.000"
1" NPTF	H8NPT	1.625"	2.500"	2.375"
1 1/4" NPTF	H10NPT	2.000"	2.750"	2.750"
1 1/2" NPTF	H12NPT	2.375"	3.125"	3.000"
2" NPTF	H16NPT	2.750"	3.500"	3.750"

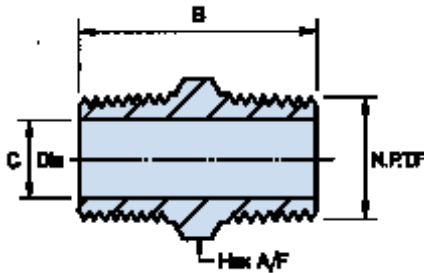
Barrel nipple 3000lb class



thread size NPTF	part number	F	H
1/4" NPTF	BN2NPT	2.000"	0.500"
3/8" NPTF	BN3NPT	2.000"	0.500"
1/2" NPTF	BN4NPT	3.000"	0.625"
3/4" NPTF	BN6NPT	3.000"	0.750"
1" NPTF	BN8NPT	3.000"	0.813"
1 1/2" NPTF	BN12NPT	3.000"	0.937"

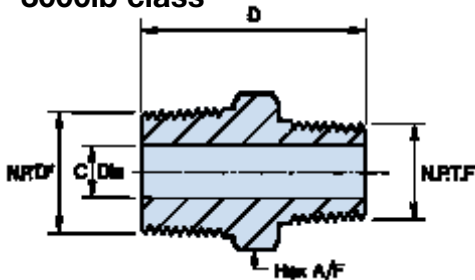
NPT screwed pipe couplings

Hexagon nipple 3000lb class



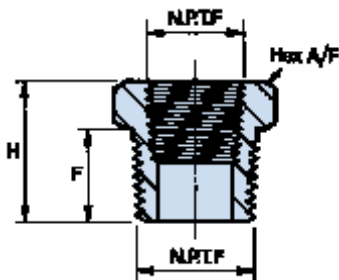
thread size NPTF	part number	B	C dia	hex A/F
1/8" NPTF	N1NPT	1.018"	0.197"	0.437"
1/4" NPTF	N2NPT	1.250"	0.250"	0.562"
3/8" NPTF	N3NPT	1.375"	0.375"	0.750"
1/2" NPTF	N4NPT	1.687"	0.500"	0.875"
3/4" NPTF	N6NPT	1.875"	0.687"	1.125"
1" NPTF	N8NPT	2.125"	0.875"	1.375"
1 1/4" NPTF	N10NPT	2.250"	1.125"	1.750"
1 1/2" NPTF	N12NPT	2.312"	1.375"	2.050"
2" NPTF	N16NPT	2.562"	1.875"	2.500"

Hexagon reducing nipple 3000lb class



thread Size NPTF	part number	C dia	D	hex A/F
1/4" NPTF 1/8" NPTF	RN2x1/8NPT	0.197"	1.125"	0.562"
3/8" NPTF 1/4" NPTF	RN3x1/4NPT	0.250"	1.312"	0.750"
1/2" NPTF 1/4" NPTF	RN4x1/4NPT	0.250"	1.500"	0.875"
1/2" NPTF 3/8" NPTF	RN4x3/8NPT	0.375"	1.562"	0.875"
3/4" NPTF 1/2" NPTF	RN6x1/2NPT	0.500"	1.812"	1.125"
1" NPTF 1/2" NPTF	RN8x1/2NPT	0.875"	1.937"	1.375"
1" NPTF 3/4" NPTF	RN8x3/4NPT	0.875"	2.000"	1.375"
1 1/2" NPTF 1" NPTF	RN12x1NPT	1.375"	2.249"	2.050"

Hexagon reducing bush 3000lb class

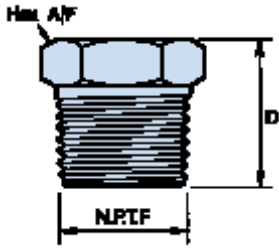


thread size NPTF	part number	F	H	hex A/F
1/4" NPTF 1/8" NPTF	RB2x1/8NPT	0.500"	0.750"	0.562"
3/8" NPTF 1/8" NPTF	RB3x1/8NPT	0.562"	0.812"	0.750"
3/8" NPTF 1/4" NPTF	RB3x1/4NPT	0.562"	0.812"	0.750"
1/2" NPTF 1/4" NPTF	RB4x1/4NPT	0.687"	1.000"	0.875"
1/2" NPTF 3/8" NPTF	RB4x3/8NPT	0.687"	1.000"	0.875"
3/4" NPTF 1/4" NPTF	RB6x1/4NPT	0.750"	1.125"	1.125"
3/4" NPTF 3/8" NPTF	RB6x3/8NPT	0.750"	1.125"	1.125"
3/4" NPTF 1/2" NPTF	RB6x1/2NPT	0.750"	1.125"	1.125"
1" NPTF 1/2" NPTF	RB8x1/2NPT	0.875"	1.250"	1.375"
1" NPTF 3/4" NPTF	RB8x3/4NPT	0.875"	1.250"	1.375"
1 1/4" NPTF 3/4" NPTF	RB10x3/4NPT	0.906"	1.343"	1.750"
1 1/4" NPTF 1" NPTF	RB10x1NPT	0.906"	1.343"	1.750"
1 1/2" NPTF 3/4" NPTF	RB12x3/4NPT	0.937"	1.374"	2.050"
2" NPTF 1/2" NPTF	RB16x1/2NPT	1.062"	1.499"	2.500"
2" NPTF 1" NPTF	RB16x1NPT	1.062"	1.499"	2.500"

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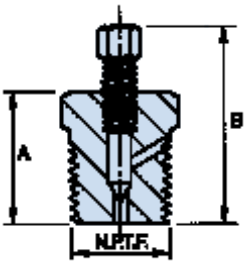
NPT screwed pipe couplings

Hexagon plug 3000lb class



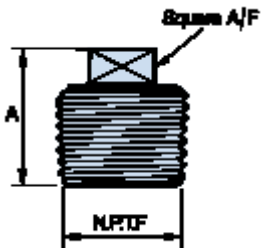
thread size NPTF	part number	D	hex A/F
1/8" NPTF	TP1NPT	0.625"	0.437"
1/4" NPTF	TP2NPT	0.750"	0.562"
3/8" NPTF	TP3NPT	0.812"	0.750"
1/2" NPTF	TP4NPT	1.000"	0.875"
3/4" NPTF	TP6NPT	1.125"	1.125"
1" NPTF	TP8NPT	1.250"	1.375"
1 1/4" NPTF	TP10NPT	1.343"	1.750"
1 1/2" NPTF	TP12NPT	1.375"	2.050"
2" NPTF	TP16NPT	1.500"	2.500"

Vent plug 6000lb class



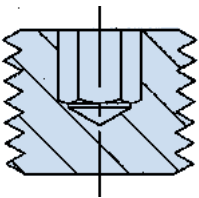
thread size NPTF	part number	A	B
1/4" NPTF	VP2NPT	0.812"	1.312"
1/2" NPTF	VP4NPT	1.125"	1.625"

Square head plug 3000lb class



thread size NPTF	part number	A	square A/F
1/8" NPTF	SH1NPT	0.625"	0.275"
1/4" NPTF	SH2NPT	0.690"	0.375"
3/8" NPTF	SH3NPT	0.812"	0.437"
1/2" NPTF	SH4NPT	1.000"	0.532"
3/4" NPTF	SH6NPT	1.125"	0.625"
1" NPTF	SH8NPT	1.375"	0.812"

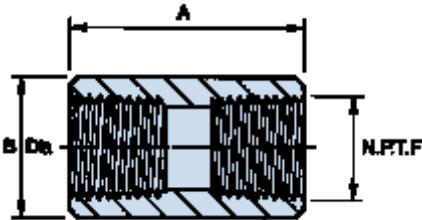
Socket head plug 3000lb class



thread size NPTF	part number	A
1/8" NPTF	SHP1N	0.276"
1/4" NPTF	SHP2N	0.433"
3/8" NPTF	SHP3N	0.449"
1/2" NPTF	SHP4N	0.591"

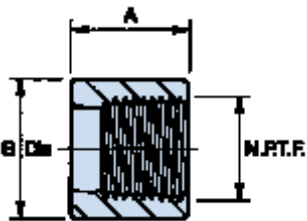
NPT screwed pipe couplings

Full coupling 3000lb class



thread size NPTF	part number	A	B dia
1/8" NPTF	FC1NPT	1.250"	0.625"
1/4" NPTF	FC2NPT	1.375"	0.750"
3/8" NPTF	FC3NPT	1.500"	0.875"
1/2" NPTF	FC4NPT	1.875"	1.125"
3/4" NPTF	FC6NPT	2.000"	1.375"
1" NPTF	FC8NPT	2.375"	1.750"
1 1/4" NPTF	FC10NPT	2.625"	2.250"
1 1/2" NPTF	FC12NPT	3.125"	2.500"
2" NPTF	FC16NPT	3.375"	3.000"

Half full coupling 3000lb class



thread size NPTF	part number	A	B dia
1/8" NPTF	HCP1NPT	0.625"	0.625"
1/4" NPTF	HCP2NPT	0.687"	0.750"
3/8" NPTF	HCP3NPT	0.750"	0.875"
1/2" NPTF	HCP4NPT	0.937"	1.125"
3/4" NPTF	HCP6NPT	1.000"	1.375"
1" NPTF	HCP8NPT	1.188"	1.750"
1 1/4" NPTF	HCP10NPT	1.312"	2.250"
1 1/2" NPTF	HCP12NPT	1.562"	2.500"
2" NPTF	HCP16NPT	1.687"	3.000"

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Precision pipe fittings

The Precision pipe fitting range offers a fitting that couples high integrity with strength.

Manufactured from 316 Stainless Steel each fitting benefits from a Cast Coded system enabling easy traceability even after many years in service.

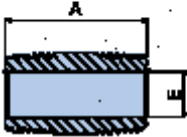
Features

Quality engineered for instrumentation applications
Plastic capped for thread protection and cleanliness
All threads NPT to ANS1/ASME B1.20.1.1983
Also available BSPT to BS21.BSPP to BS2779
Working pressures in accordance with Piping Code ANS1 B31.1 and Refinery Piping Code ANS1 B31.3
Material-316 Stainless Steel (other materials, available to order)
Size range from 1/8"-1"
All fittings are cast coded for complete traceability
All materials conform to ASTM Specifications
High Quality Precision forgings used throughout the range

Precision pipe fittings

Close nipple

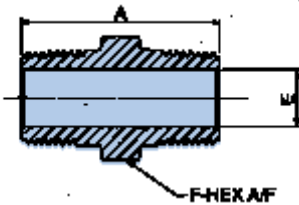
Threaded male NPT at both ends. Used to make a close straight connection between two female threaded components



male pipe size	part number	A	E min	working pressure (psig) 316
1/8"	ONC 1	3/4"	3/16"	6000
1/4"	ONC 2	1 1/8"	9/32"	6000
3/8"	ONC 3	1 1/8"	13/32"	6000
1/2"	ONC 4	1 1/8"	1/2"	6000
3/4"	ONC 6	1 1/2"	23/32"	6000
1"	ONC 8	1 7/8"	7/8"	5000

Hexagon nipple

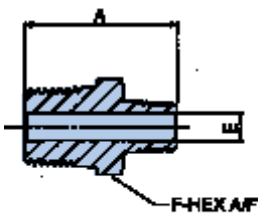
Threaded male NPT at both ends. Used to make a straight connection between two female threaded components
Hexagon Flats to ease assembly and re-use



male pipe size	part number	A	E min	F	working pressure (psig) 316
1/8"	ONH 1	1"	3/16"	7/16"	6000
1/4"	ONH 2	1 3/8"	9/32"	9/16"	6000
3/8"	ONH 3	1 13/32"	13/32"	1 1/16"	6000
1/2"	ONH 4	1 13/16"	1/2"	7/8"	6000
3/4"	ONH 6	1 7/8"	23/32"	1 1/8"	6000
1"	ONH 8	2 1/4"	7/8"	1 1/2"	5000

Hexagon reducing nipple

Threaded male NPT to reduced male NPT. Used to make a reduced straight connection between two dissimilar sized female threads



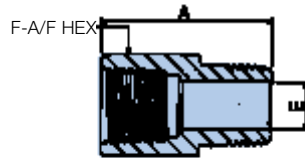
male pipe size	red male pipe	part number	A	E min	F	working pressure (psig) 316
1/4"	1/8"	ONRH 21	1 3/16"	3/16"	9/16"	6000
3/8"	1/4"	ONRH 32	1 13/32"	9/32"	1 1/16"	6000
1/2"	1/4"	ONRH 42	1 19/32"	9/32"	7/8"	6000
1/2"	3/8"	ONRH 43	1 5/8"	13/32"	7/8"	6000
3/4"	1/4"	ONRH 62	1 5/8"	9/32"	1 1/8"	6000
3/4"	1/2"	ONRH 64	1 13/16"	1/2"	1 1/8"	6000
1"	1/2"	ONRH 84	2 3/32"	1/2"	1 1/2"	5000
1"	3/4"	ONRH 86	2 3/32"	23/32"	1 1/2"	5000

5

Precision pipe fittings

Adaptor

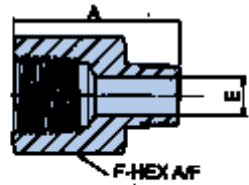
Threaded female NPT to male NPT



male pipe size	part number	A	E min	F	working pressure (psig) 316
1/4"	OA 2	1 5/16"	9/32"	3/4"	6000
3/8"	OA 3	1 3/8"	3/8"	7/8"	5000
1/2"	OA 4	1 5/16"	15/32"	1 1/16"	4500
3/4"	OA 6	2"	5/8"	1 1/4"	3300
1"	OA 8	2 9/32"	7/8"	1 11/16"	4000

Reducing adaptor

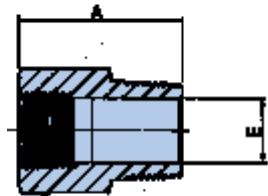
Threaded female NPT to reduce male NPT



female pipe size	male pipe size	part number	A	E min	F	working pressure (psig) 316
1/4"	1/8"	OAR 21	1 1/4"	3/16"	3/4"	6000
3/8"	1/4"	OAR 32	1 1/2"	9/32"	7/8"	5000
1/2"	3/8"	OAR 43	1 3/4"	13/32"	1 1/16"	4500
3/4"	1/2"	OAR 64	2 1/16"	7/16"	1 1/4"	3300
1"	3/4"	OAR 86	2 3/16"	5/8"	1 11/16"	4000

Reducing bush

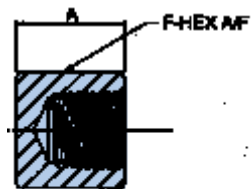
Threaded male NPT to reduce female NPT



male pipe size	female pipe size	part number	A	E min	F	working pressure (psig) 316
1/4"	1/8"	OBR 21	1 1/4"	1/8"	3/4"	6000
3/8"	1/4"	OBR 32	1 1/8"	1/4"	3/4"	6000
1/2"	1/4"	OBR 42	1 3/32"	27/64"	7/8"	5500
1/2"	3/8"	OBR 43	1 13/32"	17/32"	7/8"	4500
3/4"	1/4"	OBR 62	1 3/32"	27/34"	1 1/8"	6000
3/4"	3/8"	OBR 63	1 3/32"	9/16"	1 1/8"	6000
3/4"	1/2"	OBR 64	1 5/8"	5/8"	1 1/8"	5000
1"	1/2"	OBR 84	1 3/8"	11/16"	1 1/2"	5000

Pipe cap

Threaded female NPT. Used to cap a pipe or male threaded component

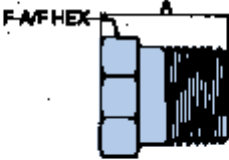


male pipe size	part number	A	F	working pressure (psig) 316
1/8"	OCP 1	17/32"	9/16"	6000
1/4"	OCP 2	3/4"	3/4"	6000
3/8"	OCP 3	7/8"	7/8"	5000
1/2"	OCP 4	1 1/32"	1 9/16"	4500
3/4"	OCP 6	1 1/8"	1 5/16"	3300
1"	OCP 8	1 1/4"	1 11/16"	4000

Precision pipe fittings

Hexagon plug

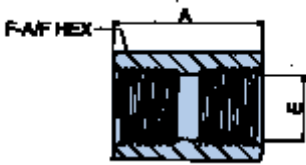
Threaded male NPT. Used to plug a female threaded component



male pipe size	part number	A	F
1/8"	OPH 1	5/8"	7/16"
1/4"	OPH 2	13/16"	9/16"
3/8"	OPH 3	7/8"	11/16"
1/2"	OPH 4	1 1/16"	7/8"
3/4"	OPH 6	1 1/8"	1 1/8"
1"	OPH 8	1 3/8"	1 1/2"

Hexagon coupling

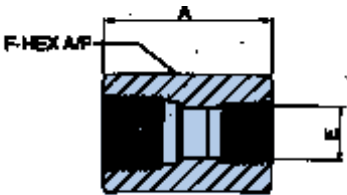
Threaded female NPT both ends. Used to make a straight connection to two male components



female pipe size	part number	A	E min	F	working pressure (psig) 316
1/4"	OCH 2	1 3/16"	27/64"	3/4"	6000
3/8"	OCH 3	1 5/16"	9/16"	7/8"	5000
1/2"	OCH 4	1 9/16"	11/16"	1 1/16"	4500
3/4"	OCH 6	1 5/8"	57/64"	1 5/16"	3300
1"	OCH 8	2"	1 1/8"	1 11/16 "	4000

Hexagon reducing coupling

Threaded female NPT to reduced female NPT. Used to make a straight line connection between male threads of dissimilar size



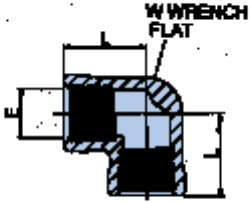
female pipe size	female pipe size	part number	A	E min	F	working pressure (psig) 316
1/4"	1/8"	OCRH 21	1 1/4"	11/32"	3/4"	6000
3/8"	1/4"	OCRH 32	1 3/8"	27/64"	7/8"	5000
1/2"	1/4"	OCRH 42	1 3/4"	27/64"	1 1/16"	4500
1/2"	3/8"	OCRH 43	1 25/32"	9/16"	1 1/16"	4500
3/4"	1/4"	OCRH 62	1 13/16"	27/64"	1 5/16"	3300
3/4"	3/8"	OCRH 63	1 15/16"	9/16"	1 5/16"	3300
3/4"	1/2"	OCRH 64	2 1/16"	11/16"	1 5/16"	3300
1"	1/2"	OCRH 84	2 3/16"	11/16"	1 11/16"	4000
1"	3/4"	OCRH 86	2 1/4"	57/64"	1 11/16"	4000

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Precision pipe fittings

Female elbow

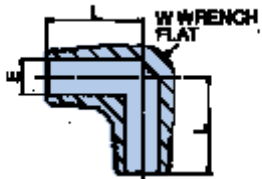
Threaded female NPT both ends. Used to install male NPT pipe or components at a 90° angle



female pipe size	part number	L	E min	W	working pressure (psig) 316
1/8"	OEF 1	27/32"	0.321"	1/2"	6000
1/4"	OEF 2	27/32"	0.421"	5/8"	6000
3/8"	OEF 3	1"	0.562"	13/16"	6000
1/2"	OEF 4	1 1/8"	0.687"	1 1/16"	5000
3/4"	OEF 6	1 7/16"	0.890"	1 3/8"	5000
1"	OEF 8	1 5/8"	1.125"	1 11/16"	5000

Male elbow

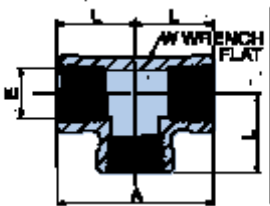
Threaded male NPT both ends. Used to assemble female components at a 90° angle especially if space is limited



female pipe size	part number	L	E min	W	working pressure (psig) 316
1/8"	OEM 1	3/4"	3/16"	1/2"	6000
1/4"	OEM 2	1"	9/32"	5/8"	6000
3/8"	OEM 3	1 1/16"	13/32"	13/16"	6000
1/2"	OEM 4	1 7/16"	1/2"	1 1/16"	5000
3/4"	OEM 6	1 7/16"	23/32"	1 1/16"	5000
1"	OEM 8	1 7/8"	1"	1 11/16"	5000

Female tee

Threaded female NPT on all ports. Used to make a three way connection of male threaded pipework or components

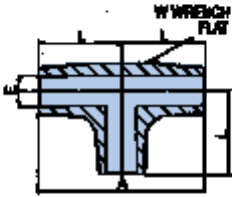


female pipe size	part number	A	L	E min	W	working pressure (psig) 316
1/8"	OTF 1	1 11/16"	27/32"	0.328"	1/2"	6000
1/4"	OTF 2	1 11/16"	27/32"	0.421"	5/8"	6000
3/8"	OTF 3	2"	1"	0.562"	13/16"	6000
1/2"	OTF 4	2 1/4"	1 1/8"	0.687"	1 1/16"	5000
3/4"	OTF 6	2 7/8"	1 7/16"	0.890"	1 1/16"	5000
1"	OTF 8	3 1/4"	1 5/8"	1.125"	1 11/16"	5000

Precision pipe fittings

Male tee

Threaded male NPT on all ports. Used to make a three way connection of female threaded components



female pipe size	part number	A	L	E min	W	working pressure (psig) 316
1/8"	OTM 1	1 1/2"	3/4"	3/16"	1/2"	6000
1/4"	OTM 2	2"	1"	9/32"	5/8"	6000
3/8"	OTM 3	2 1/8"	1 1/16"	1 1/32"	13/16"	6000
1/2"	OTM 4	2 7/8"	1 7/16"	1/2"	1 1/16"	5000
3/4"	OTM 6	2 7/8"	1 7/16"	23/32"	1 1/16"	5000
1"	OTM 8	3 3/4"	1 7/8"	1"	1 11/16"	5000

Cross

Threaded female NPT on all ports. Used to provide a four way connection of male threaded pipework or components



female pipe size	part number	A	L	E min	W	working pressure (psig) 316
1/8"	OC 1	1 11/16"	27/32"	0.328"	1/2"	6000
1/4"	OC 2	1 11/16"	27/32"	0.421"	5/8"	6000
3/8"	OC 3	2"	1"	0.562"	13/16"	6000
1/2"	OC 4	2 1/4"	1 1/8"	0.687"	1 1/16"	5000

5

Weld fittings

Waverley weld fittings have been designed not only to produce a permanent welded system, but also to be used with the Waverley compression and screwed connections, allowing easy dis-assembly of joints.

The Waverley weld fitting range offers a fitting that couples high integrity with strength, the fittings are manufactured from 316 stainless steel. Component materials are traceable, even after many years in service due to the Waverley cast code system.

Features

Tapered tube socket design, enables you to lock the system together prior to welding (tack welding not required).

Fittings are manufactured to close tolerances for correct installation alignment.

Butt weld ends are produced with standard weld preparation for consistency of welded joints.

Waverley compression/weld fittings enable a component to be easily removed if required.

Sizes range from 1/4" - 1" welded, screwed, single and twin ring compression connections.

High quality bar and forged materials used throughout the range.

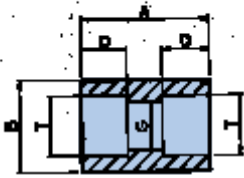
All materials conform to ASTM specifications.

Working pressures in accordance with piping code ANS1 B31.1 and refinery piping code ANS1 B31.3.

All threads NPT to ANS1 ASME B1.20.1.1983. Other connection threads available on request.

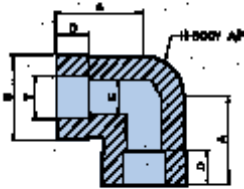
Weld fittings

Tube socket union



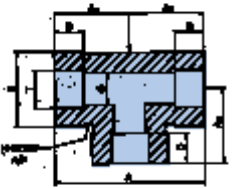
T tube OD	part number	A	B	D	G min	working pressure
1/4"	WTSU-2-SS	0.75"	0.50"	0.28"	0.18"	10241
3/8"	WTSU-3-SS	0.87"	0.62"	0.31"	0.28"	7760
1/2"	WTSU-4-SS	1.06"	0.75"	0.37"	0.40"	6391
3/4"	WTSU-6-SS	1.31"	1.06"	0.43"	0.62"	5521
1"	WTSU-8-SS	1.44"	1.37"	0.62"	0.87"	5055

Tube socket elbow



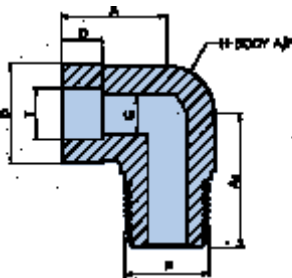
T tube OD	part number	A	B	D	G min	H A/F	working pressure
1/4"	WTSE-2-SS	0.84"	0.62"	0.28"	0.18"	0.50"	12728
3/8"	WTSE-3-SS	0.84"	0.62"	0.31"	0.28"	0.50"	7760
1/2"	WTSE-4-SS	0.97"	0.75"	0.37"	0.40"	0.62"	6391
3/4"	WTSE-6-SS	1.46"	1.25"	0.43"	0.62"	1.06"	7870
1"	WTSE-8-SS	1.59"	1.56"	0.62"	0.87"	1.37"	6969

Tube socket tee



T tube OD	part number	A	B	D	G min	H A/H	working pressure
1/4"	WTST-2-SS	0.84"	0.62"	0.28"	0.18"	0.50"	12728
3/8"	WTST-3-SS	0.84"	0.62"	0.31"	0.28"	0.50"	7760
1/2"	WTST-4-SS	0.97"	0.75"	0.37"	0.40"	0.62"	6391
3/4"	WTST-6-SS	1.46"	1.25"	0.43"	0.62"	1.06"	7870
1"	WTSU-8-SS	1.59"	1.56"	0.62"	0.87"	1.37"	6969

Tube socket male elbow

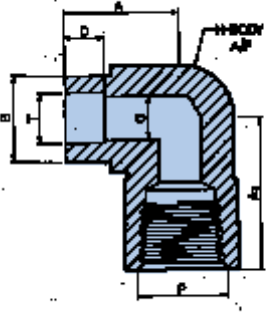


T tube OD	P pipe THRD	part number	A	AX	B	D	G min	H A/F	working pressure
1/4"	1/4"	WTSME-22-SS	0.84"	0.94"	0.62"	0.28"	0.18"	0.50"	12814
1/4"	3/8"	WTSME-23-SS	0.97"	1.13"	0.75"	0.28"	0.18"	0.62"	7587
3/8"	1/4"	WTSME-32-SS	0.84"	0.94"	0.62"	0.31"	0.28"	0.50"	7492
3/8"	3/8"	WTSME-33-SS	0.97"	1.13"	0.75"	0.31"	0.28"	0.62"	7587
1/2"	1/4"	WTSME-42-SS	0.97"	0.97"	0.75"	0.37"	0.28"	0.62"	6391
1/2"	3/8"	WTSME-43-SS	0.97"	1.13"	0.75"	0.37"	0.40"	0.62"	6352
1/2"	1/2"	WTSME-44-SS	1.09"	1.13"	0.93"	0.37"	0.40"	0.81"	9423
3/4"	1/2"	WTSME-64-SS	1.47"	1.13"	1.25"	0.43"	0.50"	1.06"	6415
3/4"	3/4"	WTSME-66-SS	1.47"	1.44"	1.25"	0.43"	0.62"	1.06"	7005
1"	3/4"	WTSME-86-SS	1.59"	1.66"	1.56"	0.62"	0.72"	1.37"	4651
1"	1"	WTSME-88-SS	1.59"	1.86"	1.56"	0.62"	0.87"	1.37"	5170

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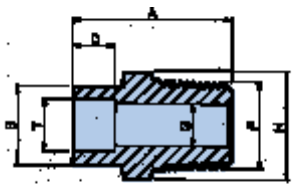
Weld fittings

Tube socket female elbow



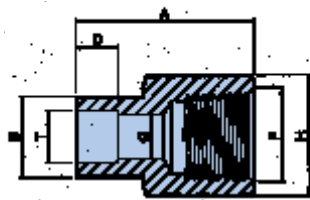
T tube OD	P pipe THRD	part number	A	AX	B	D	G min	H A/F	working pressure
1/4"	1/4"	WTSFE-22-SS	0.96"	1.19"	0.50"	0.28"	0.18"	0.62"	5941
1/4"	3/8"	WTSFE-23-SS	1.09"	1.37"	0.50"	0.28"	0.18"	0.81"	5857
3/8"	1/4"	WTSFE-32-SS	0.96"	1.19"	0.62"	0.31"	0.22"	0.62"	5941
3/8"	3/8"	WTSFE-33-SS	1.09"	1.37"	0.62"	0.31"	0.28"	0.81"	5857
1/2"	1/4"	WTSFE-42-SS	0.97"	1.19"	0.75"	0.37"	0.22"	0.62"	5941
1/2"	3/8"	WTSFE-43-SS	1.09"	1.37"	0.75"	0.37"	0.34"	0.81"	5857
1/2"	1/2"	WTSFE-44-SS	1.46"	1.63"	0.75"	0.37"	0.41"	1.06"	6391
3/4"	1/2"	WTSFE-64-SS	1.46"	1.63"	1.06"	0.43"	0.44"	1.06"	5521
3/4"	3/4"	WTSFE-66-SS	1.59"	1.94"	1.06"	0.43"	0.63"	1.37"	5521
1"	3/4"	WTSFE-86-SS	1.59"	1.94"	1.37"	0.62"	0.63"	1.37"	5055
1"	1"	WTSFE-88-SS	1.78"	2.25"	1.37"	0.62"	0.87"	1.68"	5055

Tube socket male connector



T tube OD	P pipe THRD	part number	A	B	D	G min	H A/F	working pressure
1/4"	1/4"	WTSMC-22-SS	1.19"	0.50"	0.28"	0.18"	0.56"	7492
1/4"	3/8"	WTSMC-23-SS	1.19"	0.50"	0.28"	0.18"	0.75"	4855
3/8"	3/8"	WTSMC-32-SS	1.25"	0.82"	0.31"	0.28"	0.68"	7492
3/8"	3/8"	WTSMC-33-SS	1.25"	0.82"	0.31"	0.28"	0.75"	6352
1/2"	1/4"	WTSMC-42-SS	1.37"	0.75"	0.37"	0.28"	0.87"	6391
1/2"	3/8"	WTSMC-43-SS	1.37"	0.75"	0.37"	0.40"	0.87"	6352
1/2"	1/2"	WTSMC-44-SS	1.59"	0.75"	0.37"	0.40"	0.87"	6391
3/4"	1/2"	WTSMC-64-SS	1.72"	1.06"	0.43"	0.50"	1.12"	5884
3/4"	3/4"	WTSMC-66-SS	1.72"	1.06"	0.43"	0.62"	1.12"	4651
1"	3/4"	WTSMC-86-SS	1.94"	1.37"	0.62"	0.71"	1.50"	4651
1"	1"	WTSMC-88-SS	2.12"	1.37"	0.62"	0.87"	1.50"	5170

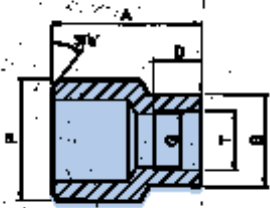
Tube socket female connector



T tube OD	P pipe THRD	part number	A	B	D	G min	H A/F	working pressure
1/4"	1/4"	WTSFC-22-SS	1.09"	0.50"	0.28"	0.18"	0.75"	5941
1/4"	3/8"	WTSFC-23-SS	1.15"	0.50"	0.28"	0.18"	0.87"	4855
3/8"	1/4"	WTSFC-32-SS	1.15"	0.62"	0.31"	0.21"	0.75"	5941
3/8"	3/8"	WTSFC-33-SS	1.21"	0.62"	0.31"	0.28"	0.87"	4855
1/2"	1/4"	WTSFC-42-SS	1.25"	0.75"	0.37"	0.21"	0.87"	5941
1/2"	3/8"	WTSFC-43-SS	1.31"	0.75"	0.37"	0.34"	0.87"	4855
1/2"	1/2"	WTSFC-44-SS	1.50"	0.75"	0.37"	0.40"	1.12"	5315
3/4"	3/4"	WTSFC-66-SS	1.62"	1.06"	0.43"	0.43"	0.12"	4200
1"	3/4"	WTSFC-86-SS	1.71"	1.37"	0.62"	0.62"	1.50"	4200
1"	1"	WTSFC-88-SS	1.90"	1.37"	0.62"	0.78"	1.68"	4660

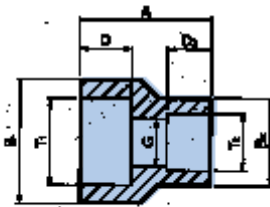
Weld fittings

Pipe to tube adaptor



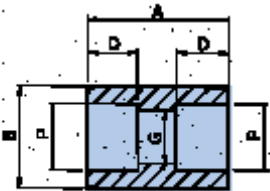
P pipe NB	T tube OD	part number	A	B	D	G	working minpressure
1/4"	1/4"	WPTA-22-SS	0.94"	0.50"	0.28"	0.18"	9731
3/8"	3/8"	WPTA-33-SS	1.00"	0.62"	0.31"	0.28"	7760
1/2"	1/2"	WPTA-44-SS	1.28"	0.75"	0.37"	0.40"	6391
3/4"	1/2"	WPTA-66-SS	1.41"	1.06"	0.43"	0.62"	5521
1"	1"	WPTA-88-SS	1.66"	1.37"	0.62"	0.87"	5055

Tube socket reducer



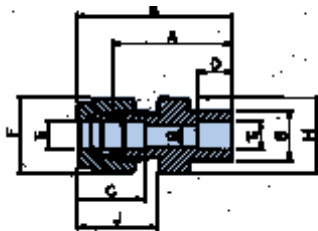
T1 tube OD	T2 tube OD	part number	A	B	Bx	D	Dx	G	working min pressure
3/8"	1/4"	WTSR-23-SS	1.82"	0.62"	0.50"	0.31"	0.28"	0.18"	7760
1/2"	1/4"	WTSR-42-SS	0.91"	0.75"	0.50"	0.31"	0.28"	0.18"	6391
1/2"	3/8"	WTSR-64-SS	0.97"	0.75"	0.62"	0.37"	0.31"	0.28"	6391
3/4"	1/2"	WTSR-84-SS	1.91"	1.06"	0.75"	0.44"	0.37"	0.40"	5521
1"	1/2"	WTSR-84-SS	1.25"	1.37"	0.75"	0.62"	0.37"	0.40"	5055
1"	3/4"	WTSR-86-SS	1.38"	1.37"	1.06"	0.62"	0.43"	0.62"	5055

Pipe socket union



P pipe NB	part number	A	B	D	G	working pressure
1/4"	WPSU-2-SS	1.06"	0.98"	0.38"	0.41"	9250
3/8"	WPSU-3-SS	1.12"	1.11"	0.44"	0.50"	7820
1/2"	WPSU-4-SS	1.12"	1.36"	0.50"	0.73"	7662
3/4"	WPSU-6-SS	1.75"	1.48"	0.62"	1.06"	5404
1"	WPSU-8-SS	1.75"	1.86"	0.62"	1.06"	5571

Tube compression to tube socket connector

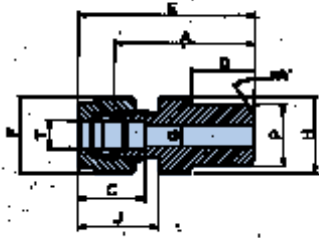


T1 tube OD	T2 tube OD	part number	A	B	C	D	E	F A/F	G min	H A/F	J
1/4"	1/4"	WRTSC-22-SS	1.00"	0.50"	0.61"	0.28"	1.30"	0.56"	0.18"	0.56"	0.70"
1/4"	3/8"	WRTSC-23-SS	1.09"	0.62"	0.61"	0.31"	1.39"	0.56"	0.18"	0.75"	0.70"
3/8"	3/8"	WRTSC-33-SS	1.16"	0.62"	0.67"	0.31"	1.45"	0.68"	0.28"	0.75"	0.76"
3/8"	1/2"	WRTSC-34-SS	1.28"	0.75"	0.67"	0.38"	1.58"	0.68"	0.28"	0.87"	0.76"
1/2"	1/2"	WRTSC-44-SS	1.28"	0.75"	0.91"	0.38"	1.69"	0.87"	0.40"	0.87"	0.87"
1/2"	3/4"	WRTSC-46-SS	1.44"	1.06"	0.91"	0.44"	1.84"	0.87"	0.40"	1.12"	0.87"
3/4"	3/4"	WRTSC-66-SS	1.44"	1.06"	0.97"	0.44"	1.84"	1.12"	0.62"	1.12"	0.87"
3/4"	1"	WRTSC-68-SS	1.65"	1.37"	0.97"	0.62"	2.06"	1.12"	0.62"	1.50"	0.87"
1"	1"	WRTSC-88-SS	1.75"	1.37"	1.27"	0.62"	2.26"	1.50"	0.87"	1.50"	1.08"

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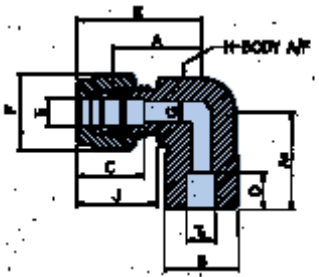
Weld fittings

Tube compression to pipe butt connector



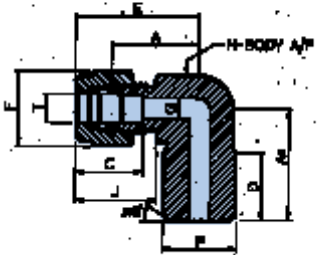
T1 tube OD	P pipe NB	part number	A	C	D	E	F A/F	G min	H A/F	J
1/4"	1/4"	WRPBC-22-SS	1.19"	0.61"	0.56"	1.52"	0.56"	0.18"	0.68"	0.70"
1/4"	3/8"	WRPBC-23-SS	1.22"	0.61"	0.56"	1.52"	0.56"	0.18"	0.75"	0.70"
3/8"	3/8"	WRPBC-33-SS	1.28"	0.67"	0.56"	1.58"	0.68"	0.28"	0.75"	0.76"
3/8"	1/2"	WRPBC-34-SS	1.50"	0.67"	0.75"	1.80"	0.68"	0.28"	0.87"	0.76"
1/2"	1/2"	WRPBC-44-SS	1.50"	0.91"	0.75"	1.19"	0.87"	0.40"	0.87"	0.87"
1/2"	3/4"	WRPBC-46-SS	1.53"	0.91"	0.75"	1.94"	0.87"	0.40"	1.12"	0.87"
3/4"	3/4"	WRPBC-66-SS	1.53"	0.97"	0.75"	1.94"	1.12"	0.62"	1.12"	0.87"
3/4"	1"	WRPBC-68-SS	1.87"	0.97"	0.94"	2.28"	1.12"	0.62"	1.50"	0.87"
1"	1"	WRPBC-88-SS	1.97"	1.27"	0.94"	2.48"	1.50"	0.87"	1.50"	1.08"

Tube compression to tube socket elbow



T1 tube OD	T2 tube OD	part number	A	Ax	B	C	D	E	F A/F	G min	H A/F	J
1/4"	1/4"	WRTSE-22-SS	0.77"	0.84"	0.62"	0.61"	0.28"	1.07"	0.56"	0.18"	0.50"	0.70"
1/4"	3/8"	WRTSE-23-SS	0.77"	0.87"	0.62"	0.61"	0.31"	1.07"	0.56"	0.18"	0.50"	0.70"
3/8"	3/8"	WRTSE-33-SS	0.91"	0.96"	0.75"	0.67"	0.31"	1.12"	0.68"	0.28"	0.62"	0.76"
3/8"	1/2"	WRTSE-34-SS	0.91"	1.00"	0.75"	0.67"	0.37"	1.12"	0.68"	0.28"	0.62"	0.76"
1/2"	1/2"	WRTSE-44-SS	1.02"	1.09"	0.93"	0.91"	0.37"	1.43"	0.87"	0.40"	0.81"	0.87"
1/2"	3/4"	WRTSE-46-SS	1.02"	1.46"	1.25"	0.91"	0.43"	1.43"	0.87"	0.40"	1.06"	0.87"
3/4"	3/4"	WRTSE-66-SS	1.17"	1.46"	1.25"	0.97"	0.43"	1.58"	1.12"	0.62"	1.06"	0.87"
3/4"	1"	WRTSE-68-SS	1.36"	1.59"	1.56"	0.97"	0.62"	1.77"	1.12"	0.62"	1.37"	1.08"
1"	1"	WRTSE-88-SS	1.45"	1.59"	1.56"	1.27"	0.62"	1.97"	1.50"	0.87"	1.37"	1.08"

Tube compression to pipe butt elbow



T1 tube OD	P pipe NB	part number	A	Ax	C	D	E	F A/F	G min	H A/F	J
1/4"	1/4"	WRPBE-22-SS	0.77"	1.00"	0.61"	0.56"	1.07"	0.56"	0.18"	0.50"	0.70"
1/4"	3/8"	WRPBE-23-SS	0.77"	1.06"	0.61"	0.56"	1.07"	0.56"	0.18"	0.62"	0.70"
3/8"	3/8"	WRPBE-34-SS	0.91"	1.06"	0.67"	0.56"	1.12"	0.68"	0.28"	0.62"	0.76"
3/8"	1/2"	WRPBE-44-SS	0.91"	1.34"	0.67"	0.75"	1.12"	0.68"	0.28"	0.81"	0.76"
1/2"	1/2"	WRPBE-44-SS	1.02"	1.34"	0.91"	0.75"	1.43"	0.87"	0.40"	0.81"	0.87"
1/2"	3/4"	WRPBE-46-SS	1.02"	1.50"	0.91"	0.75"	1.43"	0.87"	0.40"	1.06"	0.87"
3/4"	3/4"	WRPBE-66-SS	1.17"	1.50"	0.97"	0.75"	1.58"	1.12"	0.62"	1.06"	0.87"
3/4"	1"	WRPBE-68-SS	1.36"	1.90"	0.97"	0.93"	1.77"	1.12"	0.62"	1.37"	0.87"
1"	1"	WRPBE-88-SS	1.45"	1.90"	1.27"	0.93"	1.97"	1.50"	0.87"	1.37"	1.08"

Related pipeline products

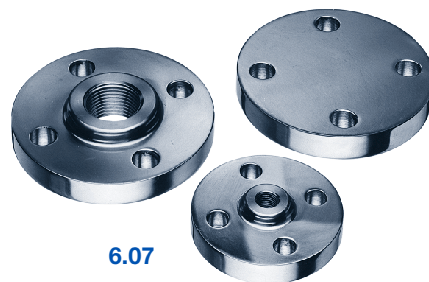
This section of our catalogue is designed to offer a selection of fittings and products that are required to complete an instrumentation system. Our wide product range offers you a single source supply of complete instrumentation packages or a one off requirement. Experience with supplying customer specials means that we can effectively source complementary products or provide your solution with our bespoke product design, development and manufacturing programme.

Related pipeline products

- 6.02 Special screwed adaptors
- 6.03 60° coned swivel adaptors
- 6.04 Pallet swage fittings
- 6.05 Butt weld fittings
- 6.06 Nominal bore piping
- 6.07 Flanges
- 6.08 Quick connect couplings
- 6.09 Gauges
- 6.10 Pipe clamps



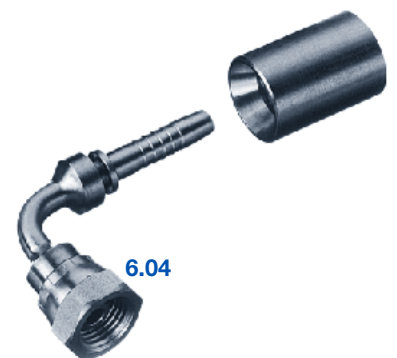
6.09



6.07



6.02



6.04

6

Special screwed adaptors

Waverley can offer a wide range of Special Screwed Adaptors with an excellent turn around on small or large quantities.

Many combinations of Male/Female hex adaptors are now stocked. Others available within a few days.

If your requirements have to be machined as a complete special then our standard delivery is two weeks.

Under special circumstances our workshops can rearrange the work load of machines to push specials through.

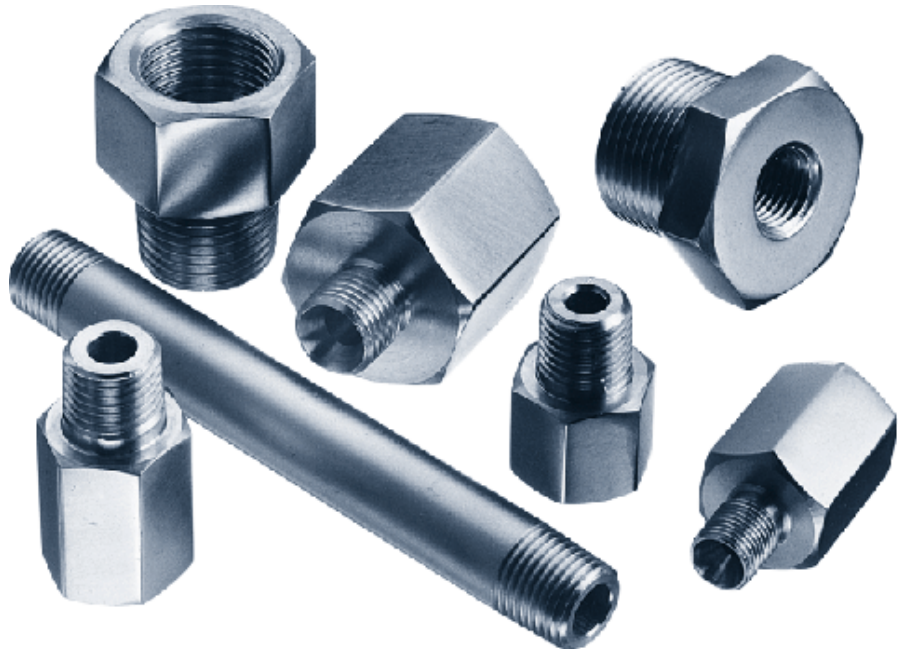
Products available

Male/Female hex adaptors, Female/Female hex adaptors and Male/Male adaptors. Any special compression fitting not shown. Special length barrel nipples and weld nipples.

NB. All special items can have any combination of threads. (eg BSPP x NPT, BSPT x NPT)

Material

316 Stainless Steel.



60° coned swivel adaptors

Waverley are able to offer a range of 60° coned seat swivel adaptors.

This range of fittings offers you the flexibility to connect any male or female thread form, to a hose or existing male 60° coned thread.

The list below shows the fittings available. Any of the ports can be fixed or swivel as required.

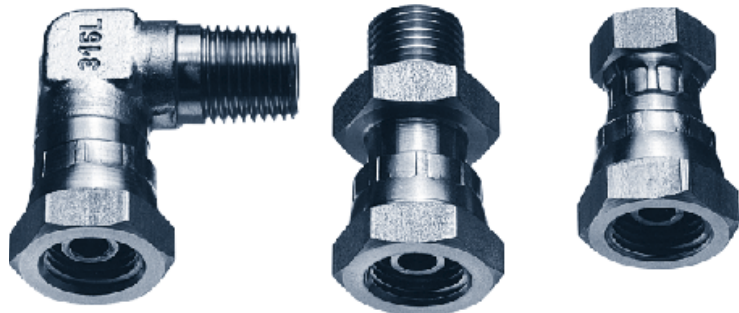
Any of the fixed threads can be BSPP, BSPT or NPT.

Products available

Swivel Female x Swivel Female
Fixed Male x Swivel Female
Fixed Female x Swivel Female
Swivel Elbows
Swivel Tees

Material

316 Stainless Steel.



6

Pallet swage fittings

Waverley offer a range of pallet swage fittings based on BS 5200.

The fittings are suitable for R1A (1 wire) and R2A (2 wire) hydraulic hoses.

Other combinations are available to order with ferrules to suit.

Size range

1/4"-1" ID HOSE

With any Male or Female threaded connections. The end connections can be screwed, BSPP, BSPT or NPT and also Female Swivel.

Material

316 Stainless Steel.



Butt weld fittings

A full range of Butt Weld fittings can be supplied by Waverley.

Butt Weld fittings are generally supplied to schedule 10, 40 and 80.

Most of the popular ranges of fittings up to 2" are kept in stock, others are available within a few days.

All other items and sizes up to 6" can be supplied within 7 days.

All dimensions to ANSI B16.9 SP43 and ASA 16-28.

Products available

90° equal elbows
(long radius and short radius)
Equal tees
Unequal tees
Concentric reducers
Eccentric reducers

Material

316 Stainless Steel (others available)



6

Nominal bore piping

Waverley offer a range of stainless steel nominal bore pipe.

The pipe is stocked in 6m randoms, but for ease of transport tube can be cut in half (random length is between 5 and 7m).

Tube can be supplied in any length at no extra cost (minimum length 1m).

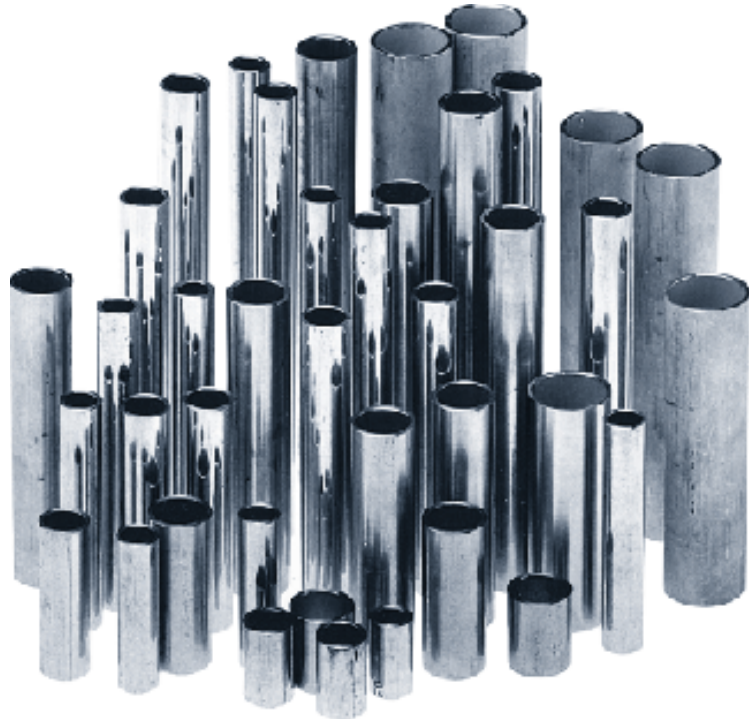
Nominal bore pipe only supplied in Schedule 10, 40 and 80.

Material

316 Stainless Steel

Sizes available

1/8"-2" schedule 10 and 40 stocked. Other sizes up to 12" schedule 10, 40 and 80 are available to order.



Flanges

Waverley can supply a full range of standard or special flanges.

All orders should be delivered in 7–10 days.

Products available

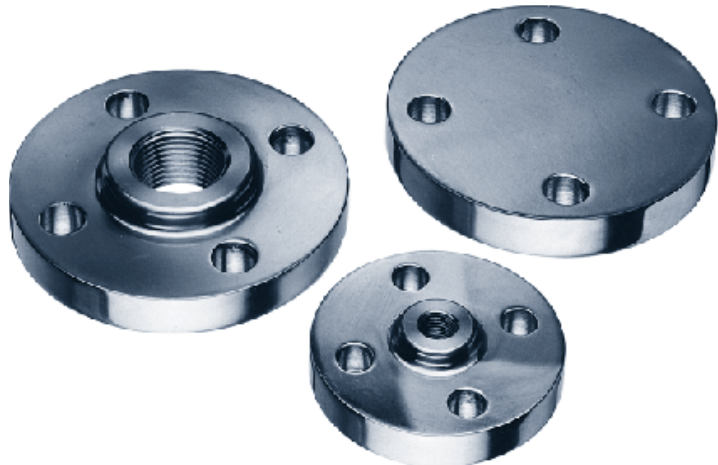
Slip On Flanges
Blind Flanges
Screwed Flanges
Weld Neck Flanges

All Flanges can be supplied to the following standards: BS 10, BS 4504 and BS1560.

If you require any special flanges these can be manufactured to your specifications or drawings.

Material

316 Stainless Steel (other grades available).



6

Quick connect couplings

Waverley are able to offer a range of quick connect couplings.

The couplings can be supplied in two ways:

- 1 Both halves valved
(when disconnected complete shut off both ways)
- 2 One half valved
(when disconnected only one way is shut off)

Safe working pressure
1050psi

Temperature range
-30°C to +210°C

Seal material
Viton

Metal parts
316 Stainless Steel

End connections and sizes available
1/4", 3/8", 1/2", 3/4" and 1" all with BSPP Female threads.



Gauges

Waverley are able to offer a range of stainless steel gauges from stock. The specifications cover the standard gauges available. Other threaded connections and pressure ranges are available on request.

Technical specifications

case	AISI 304 stainless steel
bezel	AISI 304 stainless steel bayonet fixing
window	Laminated safety glass
dial	Aluminium
pointer	Mild steel with black finish
socket	AISI 316 stainless steel
accuracy	1%
case size	2 1/2" – 63mm and 4"–100mm
thread	1/4" BSPP
connection	1/2" BSPP Male
pressure	0–160psi
range	0–1000psi 0–3000psi 0–6000psi



6

Pipe clamps

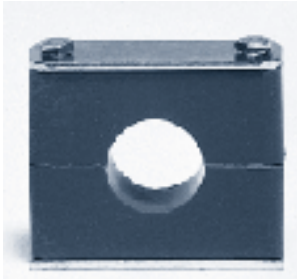
Clamp diameters range from 1/4" to 3 1/2".

Waverley's response to demand
All hardware material 316 stainless steel.

Modular design allows any combination of stacking/hanging.

Multiple mounting options for ease of installation.

Plastic blocks available in Polypropylene or Santoprene.



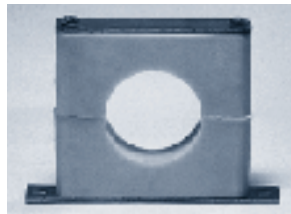
STW/standard weld plate for weld mount



Modular stacking arrangement using STB/stacking bolts



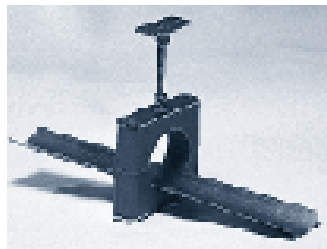
CMP/Ceiling mounting plate for bolting or welding hanging assembly



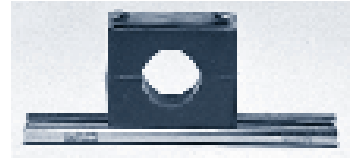
BAP/slotted base plate for bolted mount



Modular stacking arrangement using TRP/transfer plate to achieve stacking of different group numbers



8" or 16" saddles available to help support soft wall hose or tube that might otherwise sag



RAL/rail mounted for easy lateral adjustment



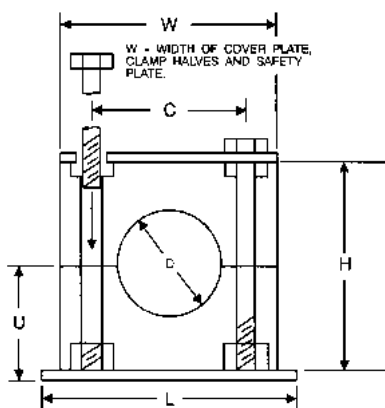
Ral/Rail mount allows for easy installation of multiple tandem runs of tube



Modular hanging arrangement, which is offset to allow tubes to run in different directions

Pipe clamps

Group no	nom size	plastic order number	D	W	H	C	L	U	K
3	1/4" T	SB 3025-**	.250	1.875	1.375	1.300	2.000	0.813	3.500
3	3/8" T	OSB 30375-**	.375	1.875	1.375	1.300	2.000	0.813	3.500
3	1/2" T	SB 3050-**	.500	1.875	1.375	1.300	2.000	0.813	3.500
3	3/4" T	SB 3075-**	.750	1.875	1.375	1.300	2.000	0.813	3.500
3	1/2" P	OSB 30840-**	.840	1.875	1.375	1.300	2.000	0.813	3.500
3	1" T	SB 3100-**	1.0000	1.875	1.375	1.300	2.000	0.813	3.500
6	1/4" T	SB 6025-**	.250	3.375	2.625	2.600	3.375	1.438	4.875
6	3/8" T	OSB 60375-**	.375	3.375	2.625	2.600	3.375	1.438	4.875
6	1/2" T	SB 6050-**	.500	3.375	2.625	2.600	3.375	1.438	4.875
6	5/8" T	OSB 60625-**	.625	3.375	2.625	2.600	3.375	1.438	4.875
6	3/4" T	SB 6075-**	.750	3.375	2.625	2.600	3.375	1.438	4.875
6	1/2" P	OSB 60840-**	.840	3.375	2.625	2.600	3.375	1.438	4.875
6	7/8" T	OSB 60875-**	.875	3.375	2.625	2.600	3.375	1.438	4.875
6	1" T	SB 6100-**	1.0000	3.375	2.625	2.600	3.375	1.438	4.875
6	3/4" P	OSB 61050-**	1.0500	3.375	2.625	2.600	3.375	1.438	4.875
6	1 1/4" T	SB 6125-**	1.2500	3.375	2.625	2.600	3.375	1.438	4.875
6	1" P	OSB 61315-**	1.3150	3.375	2.625	2.600	3.375	1.438	4.875
6	1 1/2" T	SB 6150-**	1.5000	3.375	2.625	2.600	3.375	1.438	4.875
6	1 1/4" P	OSB 61660-**	1.6600	3.375	2.625	2.600	3.375	1.438	4.875
6	1 1/2" P	OSB 61900-**	1.9000	3.375	2.625	2.600	3.375	1.438	4.875
6	2" T	SB 6200-**	2.0000	3.375	2.625	2.600	3.375	1.438	4.875
7	2" T	SB 7200-**	2.0000	5.000	4.375	4.250	5.000	2.312	6.500
7	2" P	OSB 72375-**	2.3750	5.000	4.375	4.250	5.000	2.312	6.500
7	2 1/2" T	SB 7250-**	2.5000	5.000	4.375	4.250	5.000	2.312	6.500
7	2 1/2" P	OSB 72875-**	2.8750	5.000	4.375	4.250	5.000	2.312	6.500
7	3" T	SB 7300-**	3.0000	5.000	4.375	4.250	5.000	2.312	6.500
7	3 1/2" T - 3" P	SB 7350-**	3.5000	5.000	4.375	4.250	5.000	2.312	6.500

** insert material **PP Polypropylene SP Santoprene**recommended spacing
between clamps

tube/pipe diameter	up to 3000 psi	over 3000 psi
1/4" ' 5/8"	4' - 6'	3' - 4'
5/8" ' 1"	5' - 6'	3' - 4'
1" ' 1 1/2"	6' - 7'	4' - 5'
1 1/2" ' 2 1/2"	7' - 8'	4' - 5'
2 1/2" ' 3 1/2"	8' - 9'	5' - 6'

6

Pipe clamps

Waverley clamp components can be quickly and effectively secured and are virtually maintenance free. Our modular clamp design assures greater flexibility in assembly adjustment and stacking as compared to other clamping systems. Waverley clamps offer an endless variety of application configurations to suit your every need.

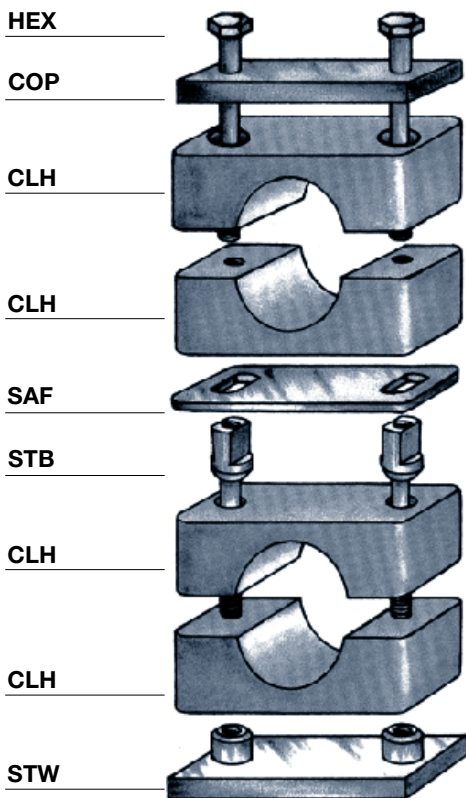
Important specifications

Polypropylene clamp halves (CLH) have a maximum operating temperature of 212°F.

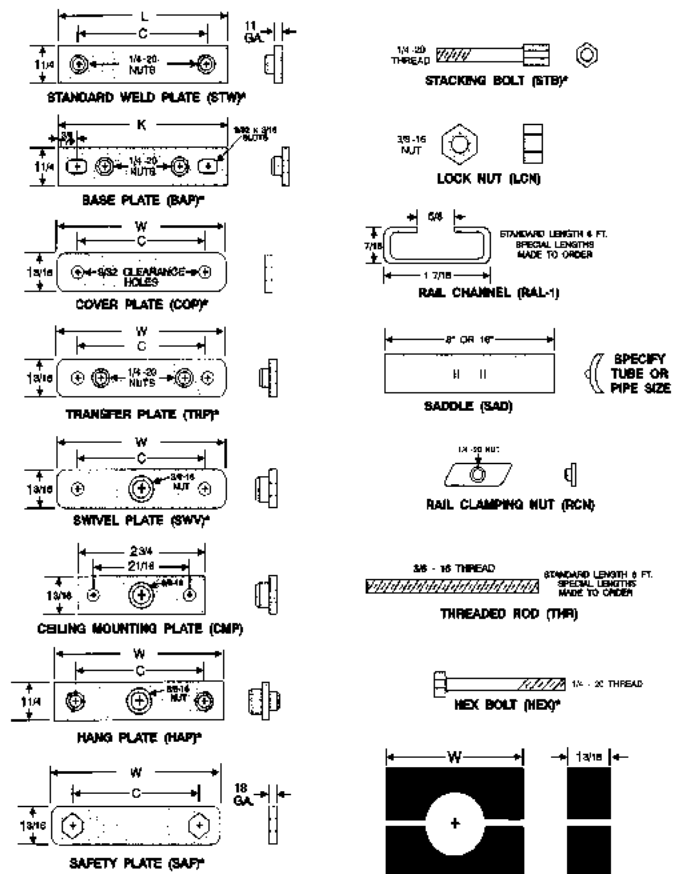
Santoprene clamp halves (CLH) have a maximum operating temperature of 302°F.

All clamp hardware is supplied in type 316 Stainless Steel.

Basic assembly stack-of-two



Ordering components



*SPECIFY GROUP NO.

CLAMP HALVES (SEE TABLE FOR PLASTICS ORDERING INFORMATION)

Technical specifications

Technical specifications

[7.02](#) Flow calculations

[7.08](#) Corrosion resistance chart

[7.10](#) Thread identification chart

[7.12](#) Tube end sizing chart

[7.13](#) Material specification chart

[7.14](#) Conditions of sale

Flow calculations

Determining liquid flow rates

Flow through valves and other components depends primarily on valve flow capacity, inlet and outlet pressures, and fluid density. Inlet and outlet pressures, fluid density and other conditions are determined by the user for each application where as valve flow capacity is given by the manufacturer as a flow coefficient (Cv) in the product literature.

Valve flow capacity is described by Cv, a constant whose value depends on the size and shape of the flow passages in the valve. The Cv for each valve design is determined by experimenting with water under low pressure and at several flow rates.

Waverley valves flow capacity's can be determined by using the Cv verses capacity charts below. The Cv of a valve is the flow coefficient expressing the rate of flow in UK gpm of water at 60°C.

To determine liquid flow rates

- 1 Locate Cv on chart X axis
Proceed from Cv point vertically
- 2 to meet the line of applicable pressure drop
- 3 Read across horizontally to flow capacity UK gpm

If the medium is other than water, multiply the gpm by the following. (SG listed on page 7.05)

$$\sqrt{\frac{1}{SG}}$$

Graphs based on the standard calculation for liquid flow:

$$Q = C_v \sqrt{\frac{\Delta P}{SG}}$$

Where

Q Flow rate in gallons per minute

Cv Valve flow coefficient.

SG Specific gravity fluid. (Water =1)

ΔP inlet - P outlet psig

Example

Flow rate for a 1/2" mini check valve (Cv = .92) - with an inlet pressure of 1000psi, outlet 500psi, medium Glycerine.

On the high pressure chart find Cv = .92 and read vertically to the 500 psi pressure drop line. Read across to 22 gpm.

$$\begin{aligned} \text{SG of Glycerine} &= 1.260 \sqrt{\frac{1}{1.260}} \\ &= 0.891 \end{aligned}$$

$$22 \times 0.891 = 19.60 \text{ gpm}$$

Flow calculations

Determining gas flow rates

To determine gas flow rates

- 1 Locate inlet pressure on chart X axis.
- 2 Proceed from Cv point vertically to meet the line of applicable pressure drop.
- 3 Read across horizontally to flow capacity in SCFM.

If the medium is other than air, multiply the SCFM by the following. (SG listed over.)

$$\sqrt{\frac{1}{SG}}$$

Graphs based on the standard calculation for gas flow:

$$Q = 1,153 \times Cv \sqrt{\frac{\Delta P(P_1 + P_2)}{SG \times Ta}}$$

Where

Q Flow rate in standard cubic feet per hour

Cv Valve flow coefficient in UK gpm

SG Specific gravity. (Air = 1)

P inlet Inlet pressure psi (abs)

P outlet Outlet pressure psi (abs)
(Max. for compressible gas)

Ta Average gas temperature °F abs

Example

Flow rate for a 1/2" mini check valve (Cv = .92) -with an inlet pressure of 500 psi, outlet 495psi, medium Nitrogen.

On the high pressure chart locate the inlet pressure on the X axis and read vertically to the 5psi pressure drop line. Read across to 60 SCFM.

Multiply this figure by the correct Cv factor from the catalogue.

$$0.92 \times 60 = 55.2 \text{ SCFM}$$

Multiply this figure by the correct SG

$$\text{S.G. of Nitrogen} = 0.967 \sqrt{\frac{1}{0.967}}$$

$$= 1.017$$

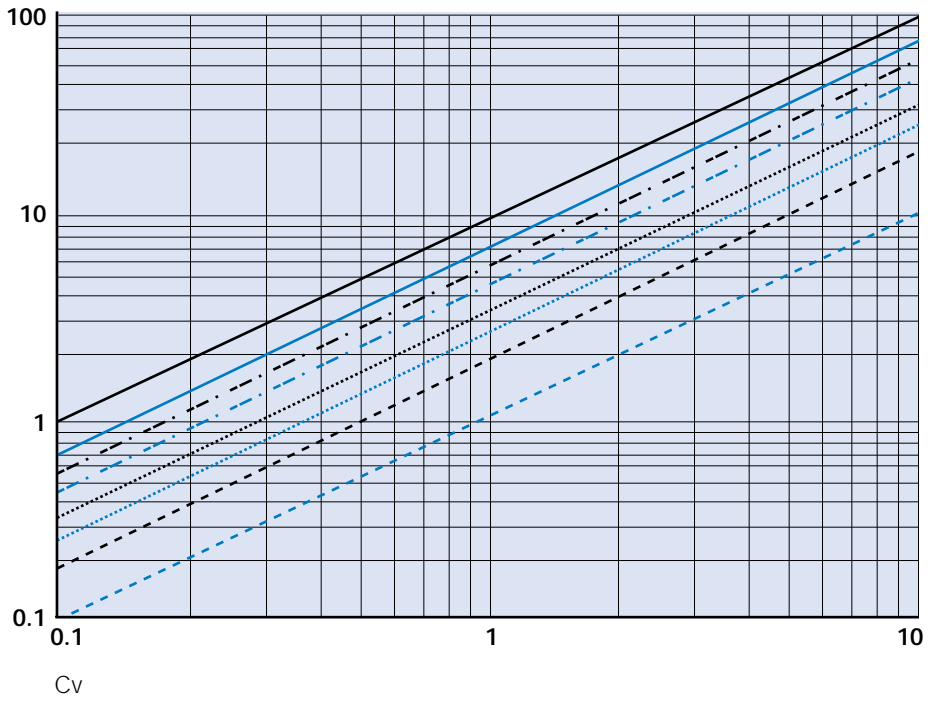
$$1.017 \times 55.2 = 56.14 \text{ SCFM}$$

Flow calculations

Water flow low pressure

flow UK
gpm

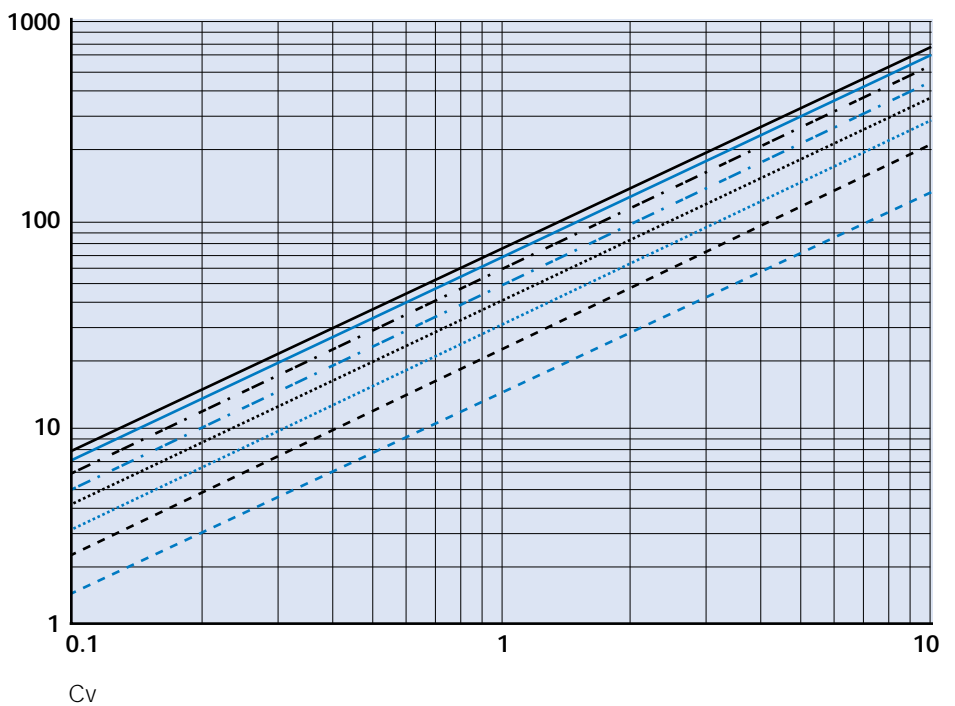
- 1 psi
- 3 psi
- 5 psi
- 10 psi
- 20 psi
- 30 psi
- 50 psi
- 100 psi



Water flow high pressure

flow UK
gpm

- 250 psi
- 500 psi
- 1000 psi
- 2000 psi
- 3000 psi
- 4000 psi
- 5000 psi
- 6000 psi

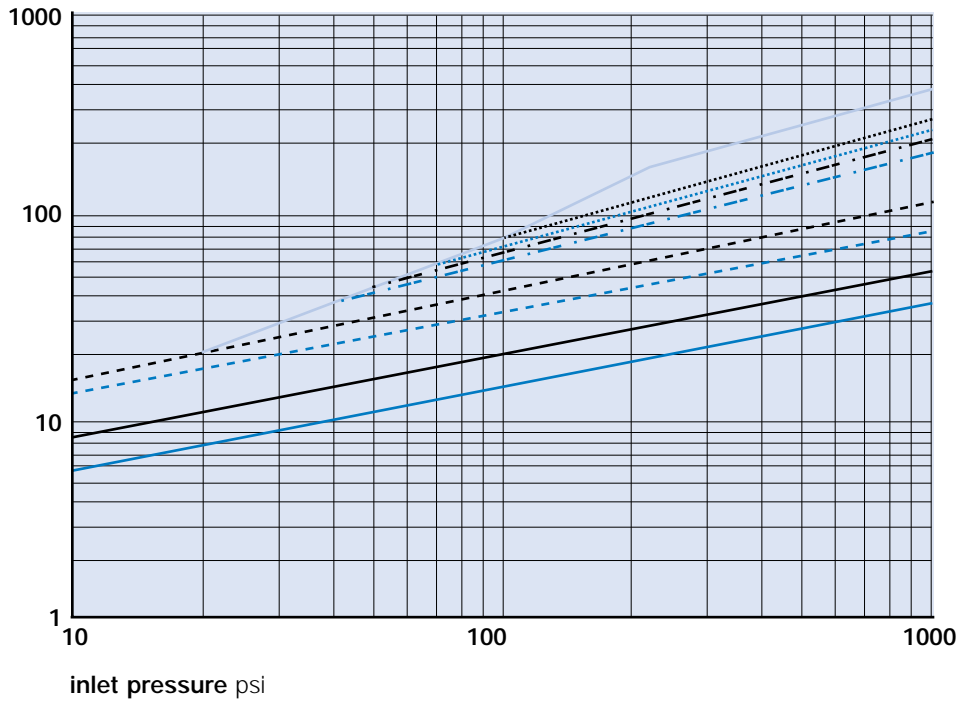


Flow calculations

Air flow low pressure Cv = 1

- - 1 psi
- - 3 psi
- 5 psi
- 10 psi
- - - 20 psi
- - - 30 psi
- 50 psi
- 100 psi

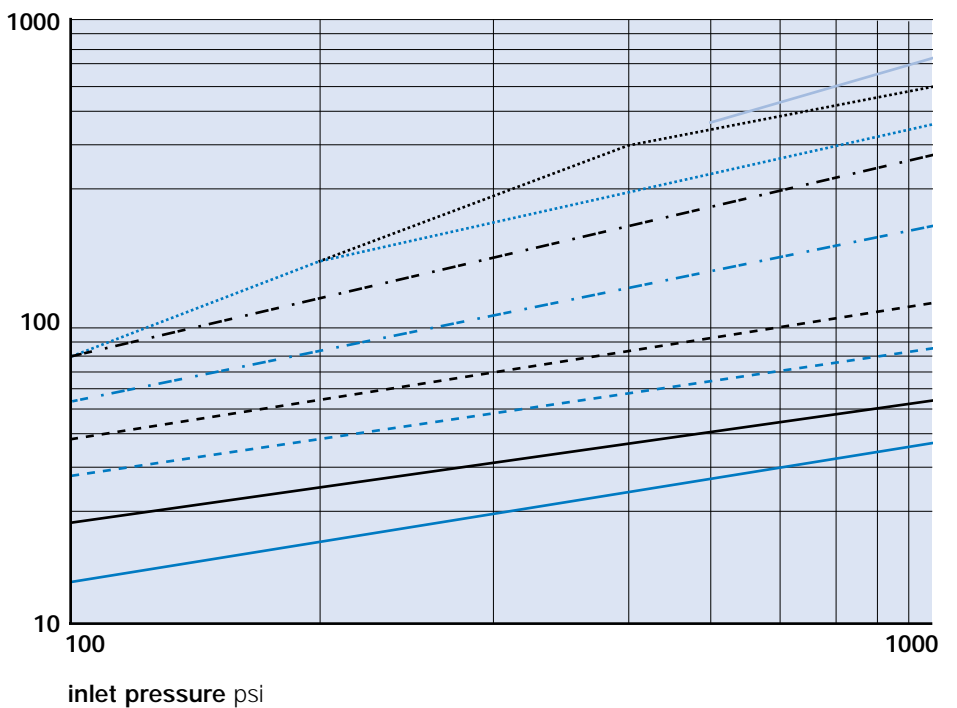
air flow
scfm



Air flow high pressure Cv = 1

- 1 psi
- 2 psi
- - 5 psi
- - 10 psi
- - - 20 psi
- - - 50 psi
- 100 psi
- 200 psi
- 500 psi

air flow
scfm



Flow calculations

Specific gravity values

Gas	SG	Gas	SG
Acetylene	0.9	Hydrogen	0.07
Air	1	Methane	0.55
Ammonia	0.6	Methyl Chloride	1.74
Argon	1.38	Nitrogen	0.97
Carbon Dioxide	1.52	Nitric Oxide	1.04
Carbon Monoxide	0.97	Nitrous Oxide	1.52
Chlorine	2.49	Oxygen	1.1
Ethylene	0.97	Sulphur Dioxide	2.21
Helium	0.13	Natural Gas (Typ)	0.6
Hydrogen Chloride	1.26		

Liquid	SG	Liquid	SG
Acetic Acid	1.04	Isopropyl Alcohol	0.94
Acetone	0.79	Linseed Oil	0.98
Acetaldehyde	0.78	Magnesium Chloride*	1.05
Alcohol, Ethyl	0.79	Mercury	1.92
Alcohol, Methyl	0.79	Methyl Bromide	1.15
Ammonium Chloride*	1.06	Naphthalene	1.03
Ammonium Hydroxide*	0.91	Nitric Acid	1.11
Ammonium Sulphate*	1.15	Oil, Vegetable	0.98
Aniline	1.02	Phosgene	1.09
Beer	1.01	Phosphoric Acid	1.16
Benzol	0.87	Potassium Carbonate*	1.06
Calcium Chloride*	1.23	Potassium Chloride*	1.04
Carbonic Acid	1.08	Potassium Hydroxide*	1.06
Carbon Disulphide	1.29	Sodium Chloride*	1.04
Carbon Tetrachloride	1.59	Sodium Hydroxide*	1.06
Chromic Acid	1.21	Sodium Sulphate*	1.06
Citric Acid	1.54	Sodium Thiosulphate*	1.05
Copper Sulphate*	1.17	Starch	1.11
Ether	0.74	Sugar Solutions*	1.02
Ferric Chloride*	1.23	Sulphuric Acid	1.16
Formic Acid	1.23	Turpentine	0.97
Furfural	1.16	Water	1
Glycerine	1.26	Water (Sea)	1.03
Glycol	1.11	Zinc Chloride*	1.06
Hydrofluoric Acid	0.92	Zinc Sulphate*	1.07

*Aqueous solution - 25% by weight of compound

Flow calculations

Pressure conversion chart

Given units	Psi (lb./in ²)	MPa (Mega Pascal)	bar (105 Pascal)	in. Hg (at 0°C)	Torr (mm Hg at °C)	ft. H ₂ O (at 4°C)	in. H ₂ O (at 4°C)	atm (AN)
Psi (lb./in ²)	1	6.8948 x 10 ⁻³	6.8947 x 10 ⁻²	2.04	51.72	2.31	27.68	6.8045 x 10 ⁻²
*MPa (Mega Pascal)	145.04	1	10	2.9350 x 10 ²	7.5006 x 10 ³	334.56	4.0147 x 10 ³	9.87
bar (105 Pascal)	14.5	0.1	1	29.53	7.50006 x 10 ²	33.46	4.0147 x 10 ²	0.99
in. Hg (at 0°C)	0.49	3.3864 x 10 ⁻³	3.3864 x 10 ⁻²	1	25.4	1.13	13.6	3.342 x 10 ⁻²
Torr (mm Hg at °C)	1.9337 x 10 ⁻²	1.3332 x 10 ⁻⁴	1.3332 x 10 ⁻³	3.9370 x 10 ⁻²	1	4.4605 x 10 ⁻²	0.54	1.3158 x 10 ⁻³
ft. Water (at 4°C)	0.43	2.9890 x 10 ⁻³	2.9890 x 10 ⁻²	0.88	22.42	1	12	2.950 x 10 ⁻²
in. Water (at 4°C)	3.6127 x 10 ⁻²	2.4908 x 10 ⁻⁴	2.4908 x 10 ⁻³	7.3554 x 10 ⁻²	1.87	8.33 x 10 ⁻²	1	2.4582 x 10 ⁻³
Atmosphere (AN)	14.7	0.1	1.01	29.92	760	33.9	406.79	1

Flow conversion chart

	cubic metre per second (m ³ /s)	litre* per minute (l/min)	cubic foot per hour ft ³ /h	UK gallon per minute UKgal/min	UK gallon per hour UKgal/h
cubic metre per second (m ³ /s)	1	60,000	127,133	13,198.1	791,889
litre* per minute (l/min)	1.66667 x 10 ⁻⁵	1	2.11888	0.219969	13.1981
cubic foot per hour ft ³ /h	7.86579 x 10 ⁻⁶	0.471947	1	0.103814	6.22883
UK gallon per minute UKgal/min	7.57682 x 10 ⁻⁵	4.54609	9.63262	1	60
UK gallon per hour UKgal/h	1.26280 x 10 ⁻⁶	0.0757682	0.160544	0.0166667	1

Exact values are displayed in bold. *The litre used here is equal to 1 decimetre cubed.

Temperature conversion chart

$$TF = (9/5 \times Tc) + 32$$

$$Tc = 5/9(TF - 32)$$

°C	°F	°C	°F	°C	°F	°C	°F
-40	-40	40	104	120	248	200	392
-35	-31	45	113	125	257	205	401
-30	-22	50	122	130	266	210	410
-25	-13	55	131	135	275	215	419
-20	-4	60	140	140	284	220	428
-15	5	65	149	145	293	225	437
-10	14	70	158	150	302	230	446
-5	23	75	167	155	311	235	455
0	32	80	176	160	320	240	464
5	41	85	185	165	329	245	473
10	50	90	194	170	338	250	482
15	59	95	203	175	347	255	491
20	68	100	212	180	356	260	500
25	77	105	221	185	365		
30	86	110	230	190	374		
35	95	115	239	195	383		

Material specification chart

material specification chart

chemical composition

maximum unless range stated

element	bar and forgings		castings	tube	pipe	
	BS970 part 1	BS970 part 1	A.I.S.I.	ASTM A351	ASTM A269	ASTM A312
	315S16	316S31	TP316	CF8MTP316	TP316	TP316L
	%	%	%	%	%	%
Carbon	0.07	0.07	0.08	0.08	0.08	0.035
Silicon	1.00	1.00	1.00	1.50	0.75	0.750
Manganese	2.00	2.00	2.00	1.50	2.00	2.00
Nickel	10.0–13.0	10.5–13.5	10.0–14.0	09.0–12.0	11.0–14.0	10.0–15.0
Chromium	16.5–18.5	16.5–18.5	16.0–18.0	18.0–21.0	16.0–18.0	16.0–18.0
Molybdenum	2.25–3.00	2.0–2.5	2.0–3.0	2.0–3.0	2.0–3.0	2.0–3.0
Sulphur	0.03	0.03	0.03	0.04	0.03	0.03
Phosphorus	0.045	0.045	0.045	0.04	0.04	0.04

Thread specifications

Detailing specification and compatibility of threads

Designations

The 1/2" thread is used as an example to demonstrate designation.

BS 2779

BSP Parallel Internal, G1/2.
BSP Parallel External Class A Truncated, G1/2 AT.

BS 21

BSP Taper External, R1/2.
BSP Taper Internal, Rc1/2.
BSP Full Form Parallel Internal, Rp1/2.
BSP Parallel External, RL1/2.

ANSI B1.20.3

NPTF Class 1 External, 1/2" NPTF-1 Ext.
NPTF Class 1 Internal, 1/2" NPTF-1 Int.

Both BS 21 and ANSI B1.20.3 specify threads where the seal is made on the thread itself.

BS 2779 specifies fastening threads, where the seal is made by either a separate seal arrangement, i.e. seal and seal ring, or by means of a cone seat machined as part of the fitting.

Assembly

It is advisable to lubricate all stainless threads prior to assembly to prevent galling, but on taper threads, i.e. BS 21 and ANSI B1.20.3, where the seal is made on the thread itself, it is essential that the threads are lubricated.

thread	R	Rc	Rp	RL	G	GAT	NPTF Int	NPTF Ext
	BSPT External (R)	×			×	×	×	×
BSPT Internal (Rc)		×	×	×	×	×	×	×
BSP Parallel Full Form Internal (Rp)	×	×	×		×	×	×	×
BSP Parallel External (RL)	×	×		×	×	×	×	×
BSP Parallel Internal (G)	×	×	×	×	×		×	×
BSP Parallel External Class A Truncated (GAT)	×	×	×	×		×	×	×
NPTF-1 Internal	×	×	×	×	×	×	×	
NPTF-1 External	×	×	×	×	×	×		×
Incompatible	×							

Conditions of sale

General

Unless otherwise agreed in writing these conditions of sale shall be deemed to be incorporated as contract for sale entered into by Waverley Components and Products LTD. (hereinafter called "the Company"). The customer's terms and conditions shall only be incorporated into the contract if:

- i) They are not inconsistent with the company's Conditions of Sale, and
- ii) They have been accepted by the company in writing.

Accounts and payment thereof

- 1 Accounts shall be opened at the discretion of the Company.
- 2 The customer shall pay for the goods by the last day of the month following that in which the goods were supplied. Payment by this date shall be Nett Monthly Account, unless otherwise agreed by writing in the parties.
- 3 A maximum amount of credit allowable shall be set upon each account and the Company reserves the right to withdraw credit facilities upon any account exceeding the said limit.
- 4 The Company reserves the right to withdraw credit facilities on all on all overdue accounts.
- 5 All goods or materials supplied by the Company are to remain the Company's property until payment is received in full for all accounts owing to the Company by the Customer. All such goods and materials are at the sole risk of the customer and in the event of the same being damaged, destroyed or lost after delivery, the Company is entitled to receive in full or for the said goods.

Prices and quotations

- 1 Typing and clerical errors are subject to correction.
- 2 All prices quoted shall be subject to "price ruling at date of supply" unless otherwise stated in writing.
- 3 Any revision in price quoted shall be made and be effective without prior notice to the customer.
- 4 The Company reserves the right to charge the Customer for any additional costs incurred in obtaining or supplying the goods where these occur either as a direct result of the Customer's instructions or where they could not reasonably have been foreseen at the time that the quotation was given.

Orders and delivery

- 1 The company reserves the right to charge the customer with all costs incurred on cancelled orders.
- 2 The time and date of delivery shall not be of the essence unless otherwise agreed in writing by the parties.
- 3 In the absence of written information to the contrary the Customer's directions will be the sole basis for manufacture.
- 4 The Company shall not be liable for any loss or damage of any kind attributable to any delay in the performance of the contract on behalf of the Company for whatever reason and the Customer will keep the Company indemnified against any such claim or demand arising from any such injury, damage or loss.

- 5 When delivery takes place at the customer's premises, the Company or Carrier, as the case may be, shall not be under any obligation to provide any plant, power or labour which in addition to the Company's or Carrier's car men is required for loading or unloading at such premises. Any assistance given beyond the usual place of collection or delivery shall be at sole risk and expense of the Customer who will keep the Company or Carrier indemnified against any action, claim or demand which could not have been made if such assistance had not been given.

Returns

The Customer if rejecting any goods shall specify the reason therefore and shall forthwith thereafter return the rejected goods to the Company at the Customer's expense unless it has been agreed in writing between the parties that the necessary replacement or repair shall be carried out by the Company at the Customer's premises. Fittings supplied cannot be returned for credit without the Company's written permission. A minimum handling charge of 25% will be made on the value of the goods returned. Specially manufactured couplings will not be accepted for credit.

Shortage and damage

- 1 The Customer shall within fourteen days of receipt notify the Company in writing of any shortage or damage to goods supplied.
- 2 The Customer shall ensure that a duty authorised person is in attendance to receive goods being delivered and that he shall sign for the aforesaid.
- 3 It shall be deemed that where a Customer fails to comply with both 1 and 2 above that all goods have been received are the correct amount and in good condition.

Quality assurance

The Company operates a Quality Assurance system in accordance with BS EN ISO 9001 and listed in the BSI Register of Firms Assessed Quality under Certificate of Registration No FM 1388.

Items asterisked * in the index and individual sections of this catalogue are not included within the scope of certificate of registration issued by The British Standards Institution against the requirements of BS EN ISO 9001. Although components are manufactured by companies approved by Waverley Components and Products LTD., the individual manufacturer may not necessarily be approved by British Standards.

The Company is continually updating its designs from both a material and design aspect and it reserves the right to change specifications without prior notice.

Whilst every care has been taken in the preparation of the details in this catalogue, which are believed to be correct, the Company does not give any guarantee in this respect.