

RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS



Waverley brownall



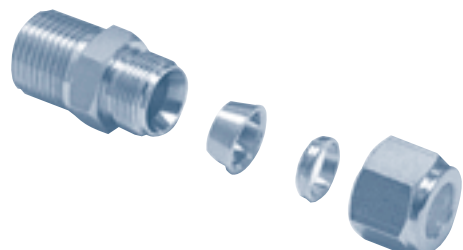
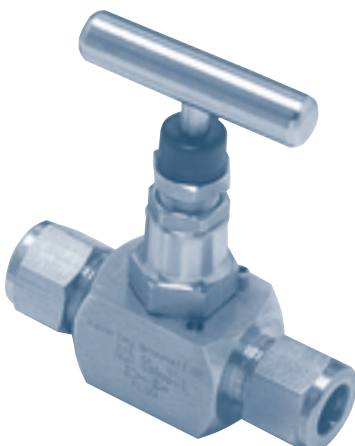
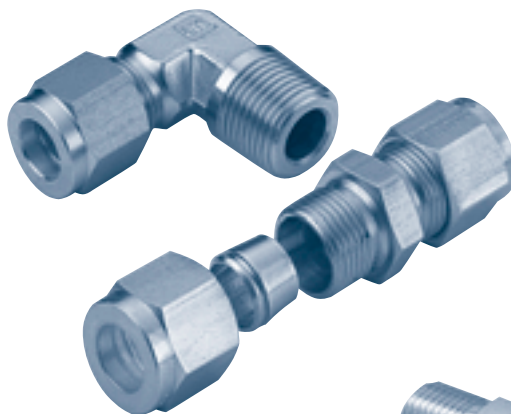
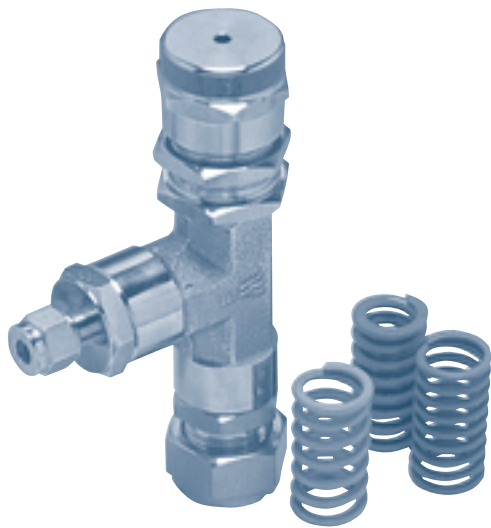
THE COMPANY

Waverley brownall has progressed to become a leading supplier of pipeline components, valves and instrumentation products; providing solutions for the most demanding applications.

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

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

A range of over 2000 standard products, manufactured in the UK or sourced from approved suppliers, are available ex-stock to assure you of immediate delivery whilst our engineers provide complete technical support and can assist in the design and development of custom-made solutions.



APPROVALS

Our dedication to quality has led to us being awarded and maintaining BS EN ISO 9001 since 1986.

We also hold certificates of product conformance and approvals which include:

LLOYDS type approval to BS part 4

LLOYDS general approval for classified installations

TUV type approval

CONOCOPHILLIPS approved supplier

AF KONTROLL design approval

BRITISH GAS approved supplier

BRITISH PETROLEUM approved supplier

BRITISH NUCLEAR FUELS approved supplier

SHELL approved supplier

TEXACO approved supplier

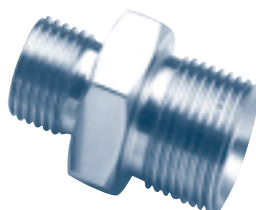
CEGB approval

POWERGEN approved supplier

EUROPEAN GAS TURBINES approved supplier

AMERICAN BUREAU OF SHIPPING type approval

B.O.L. approved supplier

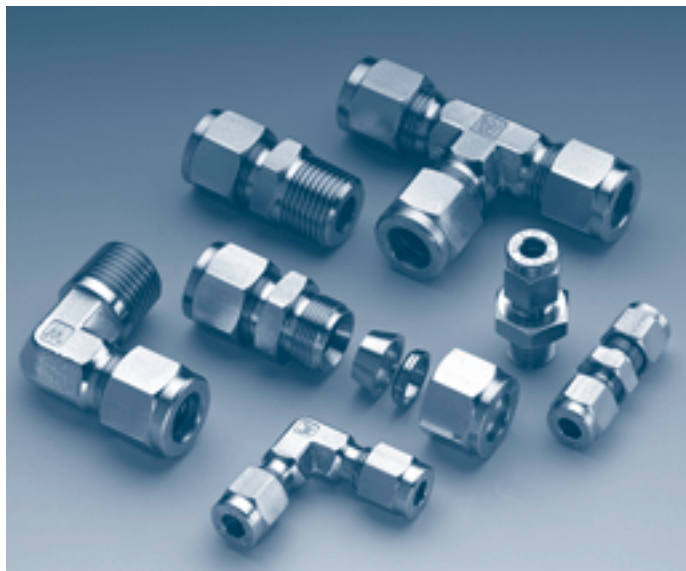


UK Sales

Waverley brownall Ltd
46, The Vintners, Temple Farm Industrial Estate
Southend-on-Sea, Essex SS2 5RZ
Tel: +44 (0)1702 600014
Fax: +44 (0)1702 613600
email: sales@waverleybrownall.co.uk
www.waverleybrownall.co.uk

Waverley brownall Scotland
Tel: +44 (0)1224 877323

RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS



INTRODUCTION	PAGE 5
FEATURES & BENEFITS	PAGE 6
GUAGING	PAGE 7
ASSEMBLY	PAGE 8 & 9
ADAPTORS	PAGE 10
TUBE SELECTION	PAGE 11
HOW TO ORDER	PAGE 12
PRODUCT INDEX	PAGE 13
PRODUCT DETAILS	PAGE 14 TO 39

FLANGE FITTINGS



INTRODUCTION	PAGE 40
FLANGE CONNECTORS	PAGE 41
KIDNEY FLANGES	PAGE 42
LAPPED JOINT	PAGE 43

RELATED PIPELINE PRODUCTS

INTRODUCTION	PAGE 44
SPECIAL SCREWED ADAPTORS	PAGE 45
TUBING	PAGE 46
FLANGES	PAGE 47
GAUGES	PAGE 48
QUICK CONNECT COUPLINGS	PAGE 49
PIPE CLAMPS	PAGE 50 TO 52

OTHER WAVERLEY BROWNALL PRODUCTS

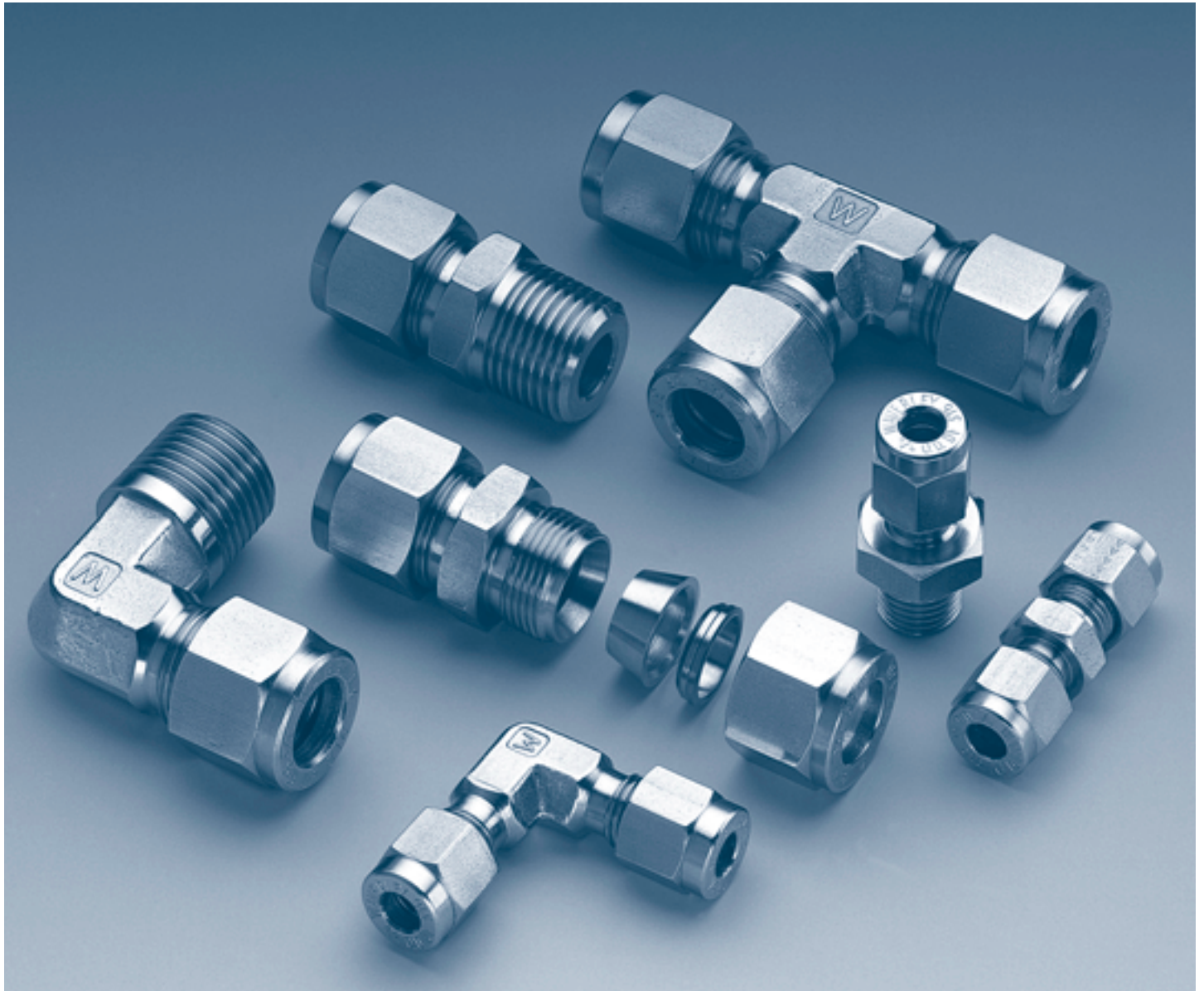
DUOLOC SINGLE FERRULE OD COMPRESSION FITTINGS	PAGE 53
BALL VALVES	PAGE 54
CHECK VALVES	PAGE 55
RELIEF VALVES & STRAINERS	PAGE 56
NEEDLE VALVES	PAGE 57
MANIFOLD VALVES	PAGE 58
HIGH PRESSURE PRECISION PIPE FITTINGS	PAGE 59
HOSE COMPONENTS & UNIONS	PAGE 59
LOW PRESSURE CAST RANGE OF PIPE FITTINGS	PAGE 60
PLUGS, BUSHES & SEALS	PAGE 60

RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

Waverley brownall offer one of the widest ranges of twin ferrule stainless steel O.D. compression fittings in the World. The Ringlok twin ferrule fittings were developed to satisfy the stringent needs of the oil, gas, petrochemical, refining, power 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 OD compression fittings are available in a full range of metric and imperial sizes and thread forms. They are manufactured and stocked in 316 stainless steel, Monel 400 alloy and a large range of other exotic materials including Incoloy and Inconel.



RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

Ringlok Design Benefits and Features

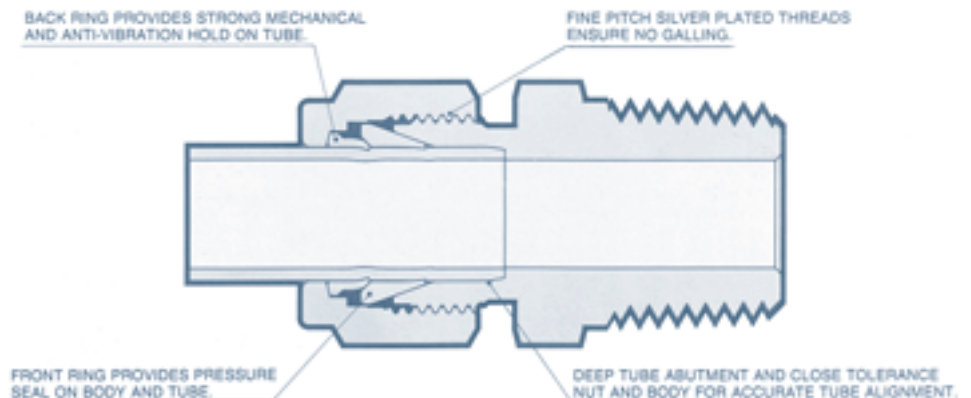
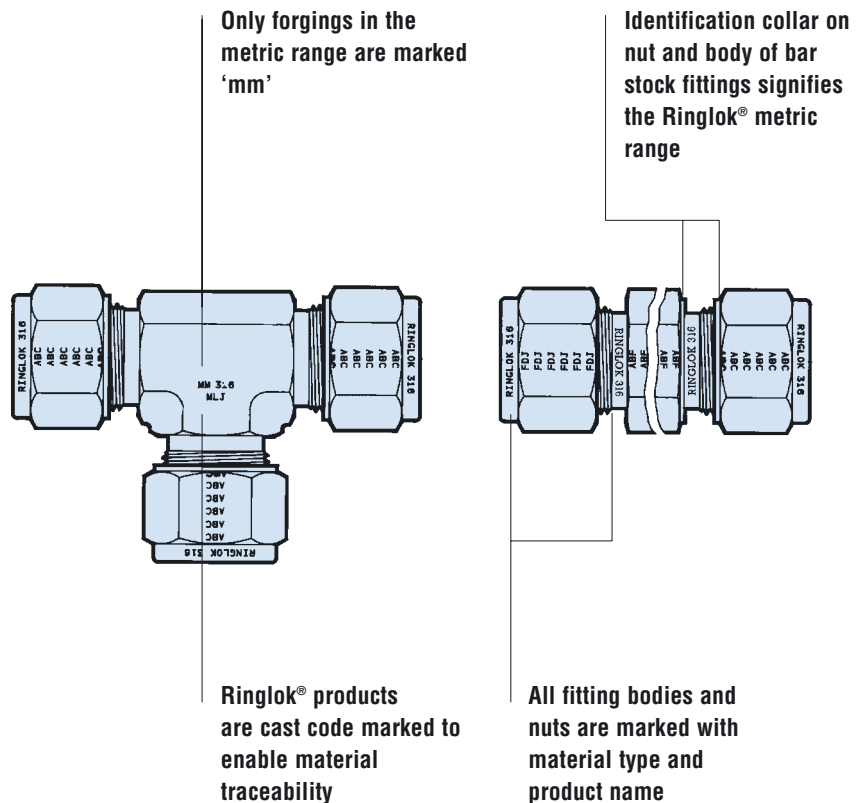
Features

- 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

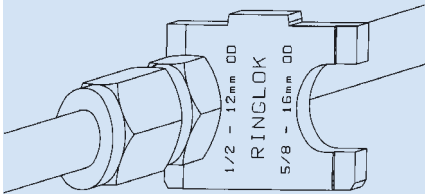
- Easy make-up of joint
- No stress transmitted to tube
- No galling of the threads during assembly
- Provides repeated break and re-make of the fitting without thread damage
- Prevention of thread damage and instant recognition of connecting end type
- Consistent product quality from a quality assured 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

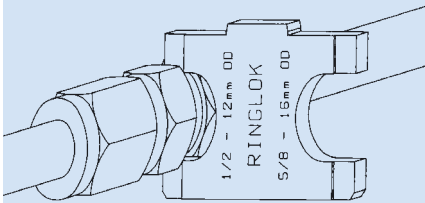


Gaugeability

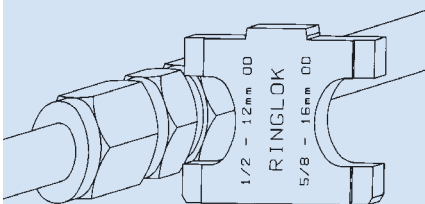
Undertight assembly



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

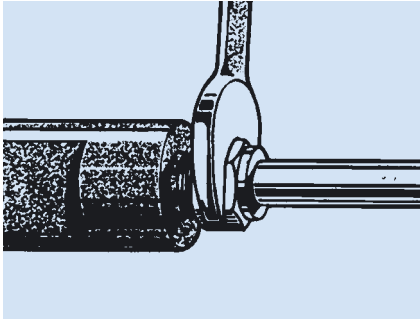
In this condition the joint has been overtightened more than 1 1/4 turns. Overtightened joints generally function correctly and in most cases do not need to be replaced.

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.

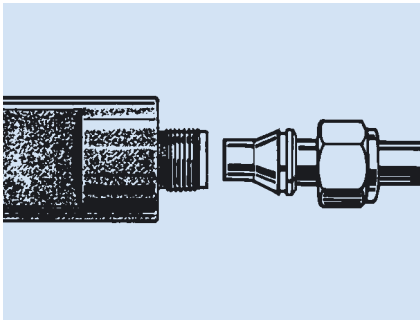
During the installation the tube is marked using a gauge as a guide. On insertion of the tube into the fitting, the mark will be 1.5mm from the back of the nut when the joint is correctly assembled.

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.

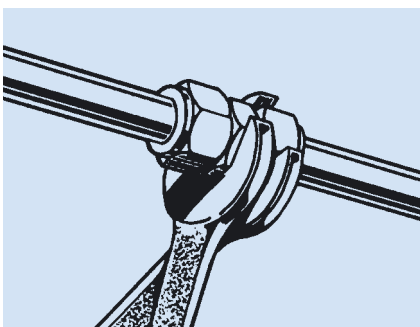
Pre-assembly instructions



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.

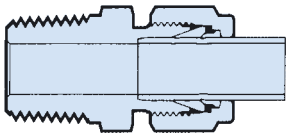
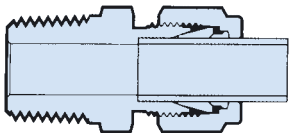
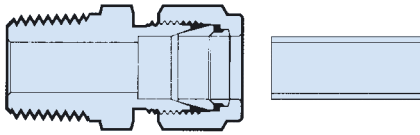
To reduce installation stresses when tube sizes exceed 1/2" (12mm) OD.

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.

RINGLOK TWIN 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.

Caution

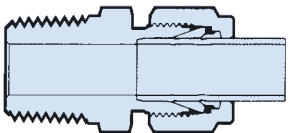
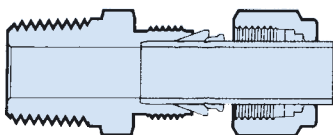
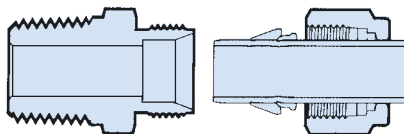
Mixing components may not provide reliable joint assemblies and leakage could occur. Use only Ringlok® components for safety and reliability.

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

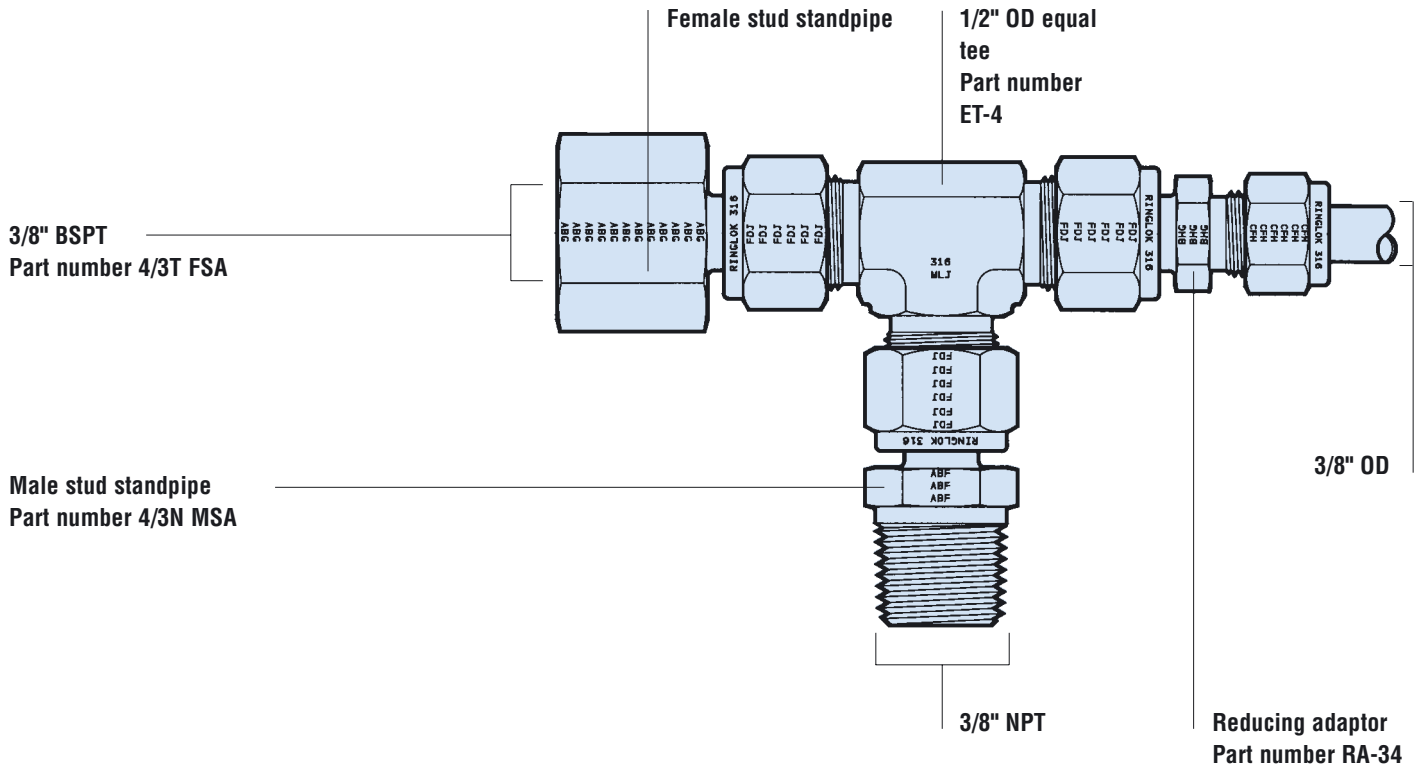
Ringlok® fittings can be disassembled and re-assembled many times without impairing the function and efficiency of the joints.



- 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 sealrings 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.

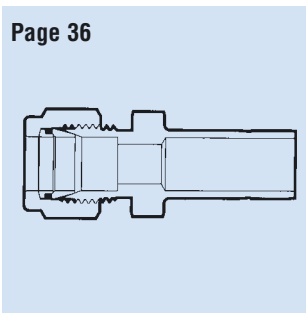
RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

Application of adaptors

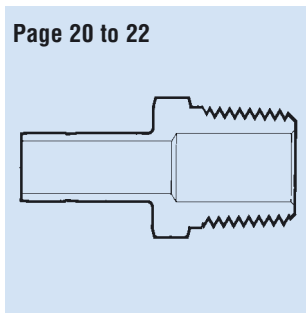


Male and female standpipe adaptors are available with NPT, BSPP and BSPT threads.

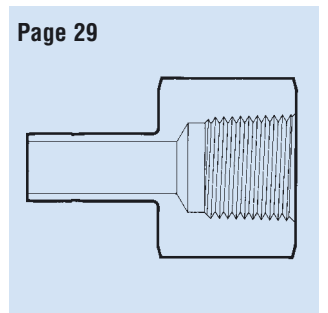
Page 36



Page 20 to 22



Page 29



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 work pressures can be obtained from our Technical Department.

Stainless steel tubing

Stainless steel tube 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 75,000 psi minimum U.T.S. an allowable working stress of 20,000 psi as specified in ANSI B31.3 1987, for a temperature range of -29°C to +38°C.

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

Tube OD inch	Tube wall thickness (inches)											
	.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

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 metric	Tube wall thickness (millimetres)						
	.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).

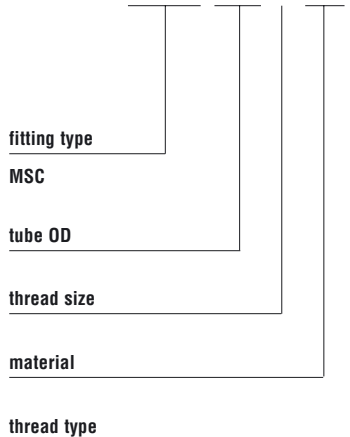
Tube OD metric	Tube wall thickness (millimetres)				
	.6	.8	1.0	1.5	2.0
6	229	304	396		
8		294	289		
10			228	359	
12			188	295	408

How to order

Metric ordering example

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

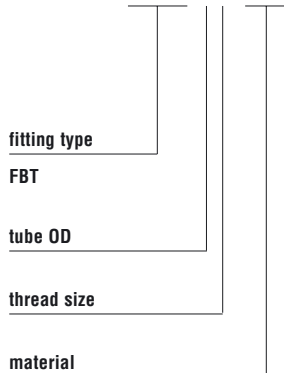
MSC-M6-2-SSR



Imperial ordering example

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

FBT-43-SS



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.

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
Inconel 625	IL

Other materials

TUBE TO MALE THREAD

Male Stud
Coupling



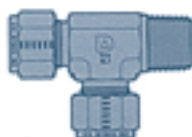
Page 14 To 16

Male Bulkhead
Coupling



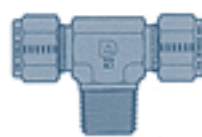
Page 17

Male Run Tee



Page 17 & 18

Male Branch Tee



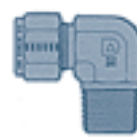
Page 18

Male Stud
Standpipe



Page 20 To 22

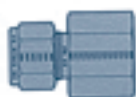
Male Stud Elbow



Page 19

TUBE TO FEMALE THREAD

Female Stud
Coupling



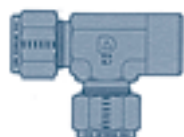
Page 23 To 25

Female Bulkhead
Coupling



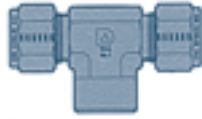
Page 26

Female Run Tee



Page 26

Female Branch
Tee



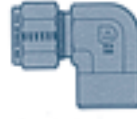
Page 27

Female Stud
Standpipe



Page 29 & 30

Female Stud
Elbow



Page 28

TUBE TO TUBE

Straight
Coupling



Page 31

Bulkhead
Coupling



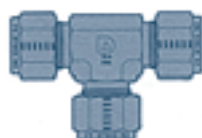
Page 31

Equal Elbow



Page 32

Equal Tee



Page 32

Reducing
Coupling



Page 33

Equal Cross



Page 34

ALTERNATIVE CONNECTIONS

Ringlok to AN
Straight Connector



Page 34

Ringlok Bulkhead
to AN Connector



Page 34

Thermo Coupling



Page 35

Reducing
Adaptor



Page 36 & 37

Union Connector



Page 35

ACCESSORIES

Blanking Plug



Page 37

Blanking End



Page 37 & 38

Compression Nut



Page 38

Front/Back &
Unilok Rings



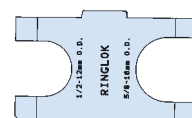
Page 38

Pre-Assembly
Tool



Page 39

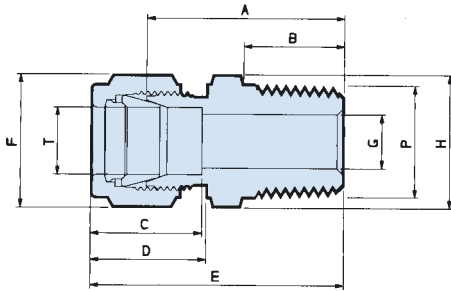
Check Gauge
Tool



Page 39

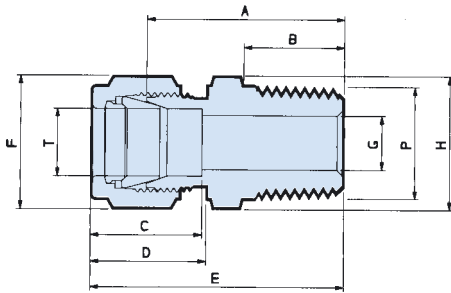
RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

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"

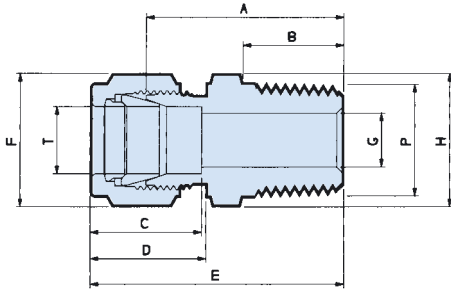
Male stud coupling NPT metric



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-M25-6-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

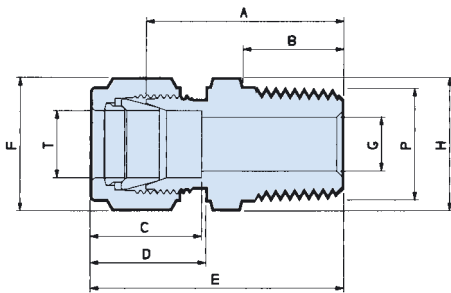
'G' dimension is minimum opening, some fittings may be back-drilled with a larger bore from the pipe thread end

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"

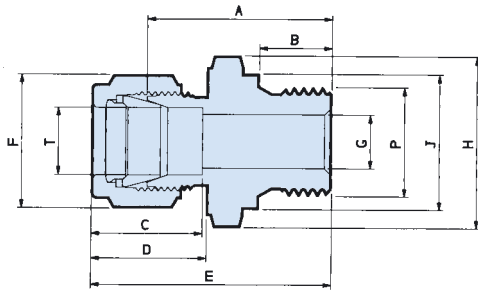
Male stud coupling BSPT metric



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

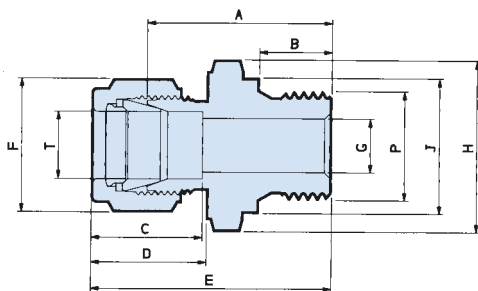
'G' dimension is minimum opening, some fittings may be back-drilled with a larger bore from the pipe thread end

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"	0.88"	1.71"	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"

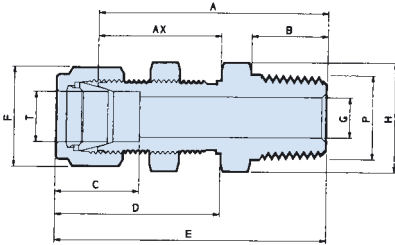
Male stud coupling BSPP metric



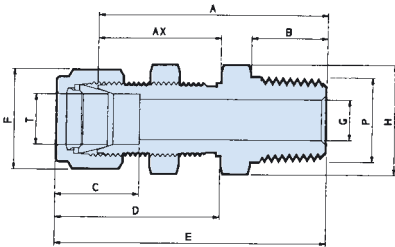
T tube OD	P BSPP pipe	part number	A	B	C	D	E	F hex	H hex	G min	J
3mm	1/8"	MSC-M3-1-SSG	23.5mm	8.1mm	13.4mm	15.7mm	30.8mm	7/16"	9/16"	2.3mm	14.0mm
3mm	1/4"	MSC-M3-2-SSG	28.9mm	11.9mm	13.4mm	15.7mm	35.9mm	7/16"	3/4"	2.3mm	18.0mm
4mm	1/8"	MSC-M4-1-SSG	24.6mm	8.1mm	14.2mm	16.5mm	31.6mm	1/2"	9/16"	2.7mm	14.0mm
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

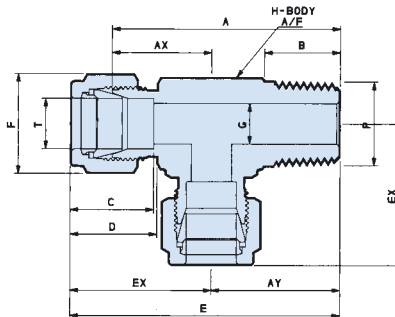
Male bulkhead coupling NPT



Male bulkhead coupling NPT metric



Male run tee NPT

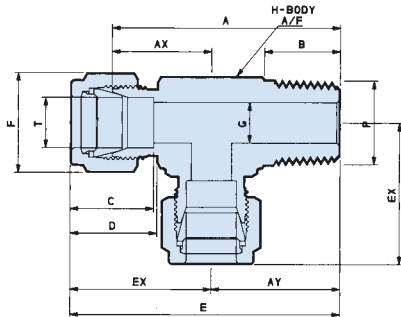


T tube OD	P NPT pipe	part number	A	AX	B	C	D	E	F hex	H hex	G min	panel hole drill size	panel thick- ness max
1/8"	1/8"	MBC-11-SS	1.53"	0.97"	0.38"	0.52"	1.24"	1.81"	7/16"	1/2"	0.09"	21/64"	0.44"
1/4"	1/8"	MBC-21-SS	1.66"	1.03"	0.38"	0.52"	1.24"	1.81"	7/16"	1/2"	0.09"	29/64"	0.50"
1/4"	1/4"	MBC-22-SS	1.84"	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"

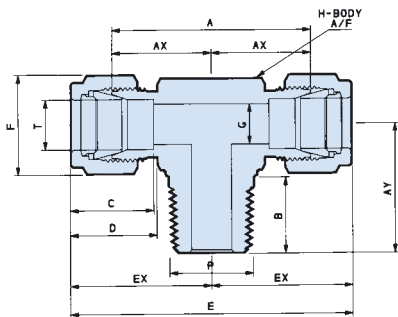
T tube OD	P NPT pipe	part number	A	AX	B	C	D	E	F hex	H hex	G min	panel hole drill size	panel thick- ness max
3mm	1/8"	MBC-M3-1-SS	39.7mm	24.6mm	9.6mm	13.4mm	31.6mm	46.7mm	7/16"	9/16"	2.3mm	8.3mm	11.1mm
6mm	1/8"	MBC-M6-1-SS	42.0mm	26.1mm	9.6mm	16.0mm	34.0mm	49.9mm	9/16"	11/16"	4.8mm	11.5mm	12.7mm
6mm	1/4"	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	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"

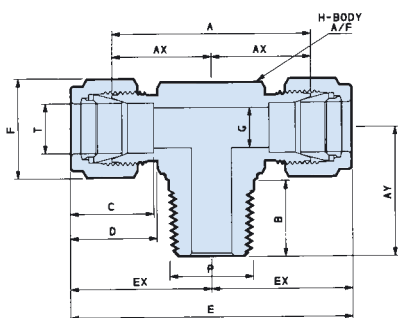
Male run tee NPT metric



Male branch tee NPT



Male branch tee NPT metric



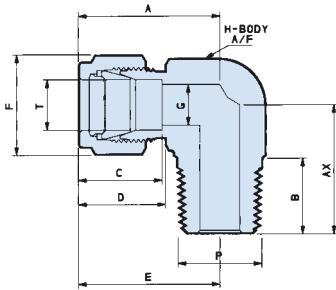
T tube OD	P NPT pipe	part number	A	Ax	Ay	B	C	D	E	Ex	F hex	H hex	G min
3mm	1/8"	MRT-M3-1-SS	33.8mm	15.7mm	17.3mm	9.6mm	13.4mm	15.7mm	40.4mm	22.7mm	7/16"	3/8"	2.3mm
3mm	1/4"	MRT-M3-2-SS	41.4mm	18.0mm	23.4mm	14.2mm	13.4mm	15.7mm	48.4mm	25.0mm	7/16"	1/2"	2.3mm
4mm	1/8"	MRT-M4-1-SS	37.6mm	18.8mm	18.8mm	9.6mm	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

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"

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	117.5mm	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

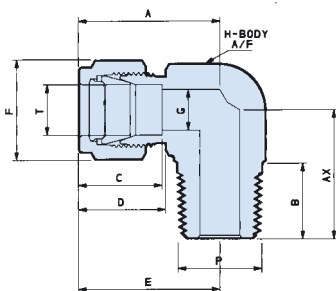
RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

Male stud elbow NPT



T	P	part number	A	Ax	B	C	D	E	F	H	G
min	tube	NPT								hex	hex
OD	pipe										
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-0111-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"

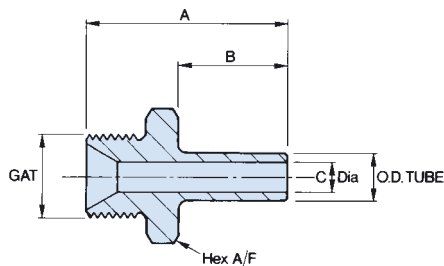
Male stud elbow NPT metric



T	P	part number	A	Ax	B	C	D	E	F	H	G
min	tube	NPT								hex	hex
OD	pipe										
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 1/6"	12.7mm
16mm	3/4"	MSE-M16-6-SS	29.7mm	36.6mm	19.0mm	24.6mm	22.3mm	40.1mm	1"	1/16"	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 TWIN FERRULE OD COMPRESSION FITTINGS

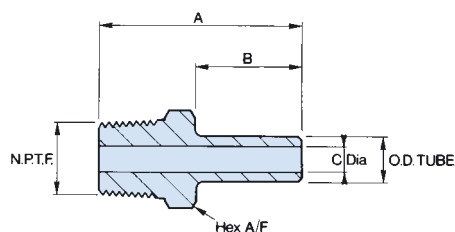
BSP parallel male standpipe adaptor



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

RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

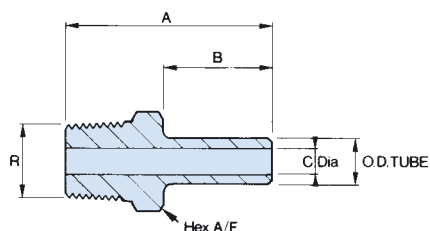
NPTF male standpipe adaptor



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

RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

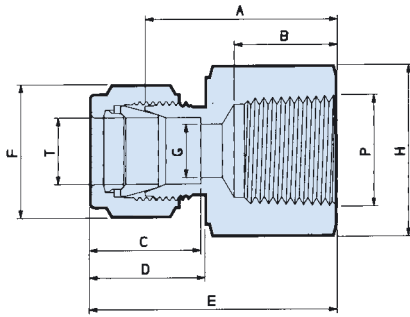
BSPT parallel male standpipe adaptor



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

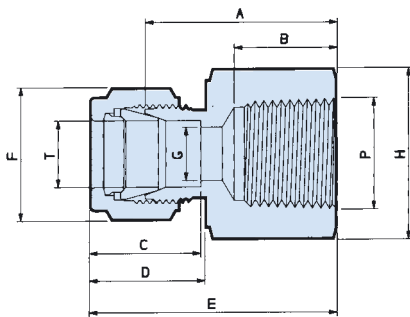
RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

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"	1.60"	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"

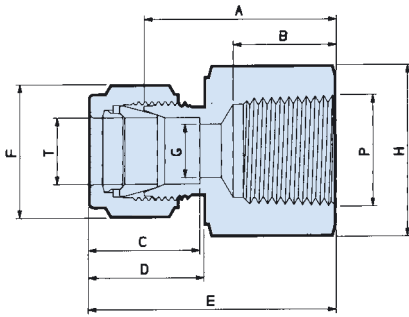
Female stud coupling NPT metric



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

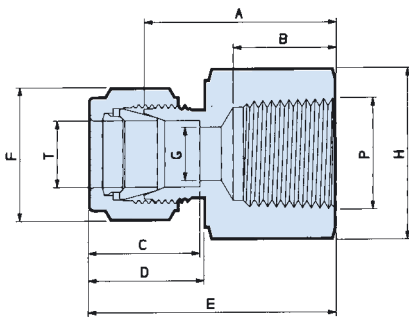
RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

Female stud coupling BSPT



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-SSR	0.83"	0.39"	0.35"	0.47"	0.99"	5/16"	7/16"	0.05"
1/16"	1/8"	FSC-011-SSR	0.84"	0.39"	0.35"	0.47"	1.00"	5/16"	9/16"	0.05"
1/8"	1/8"	FSC-11-SSR	0.86"	0.39"	0.52"	0.62"	1.14"	7 1/6"	9/16"	0.09"
1/8"	1/4"	FSC-12-SSR	1.09"	0.59"	0.52"	0.62"	1.37"	7/16"	3/4"	0.09"
3/16"	1/8"	FSC-031-SSR	0.89"	0.39"	0.55"	0.65"	1.17"	1/2"	9/16"	0.13"
3/16"	1/4"	FSC-032-SSR	1.09"	0.59"	0.55"	0.65"	1.37"	1/2"	3/4"	0.13"
1/4"	1/8"	FSC-21-SSR	0.92"	0.39"	0.63"	0.72"	1.23"	9/16"	9/16"	0.19"
1/4"	1/4"	FSC-22-SSR	1.12"	0.59"	0.63"	0.72"	1.43"	9/16"	3/4"	0.19"
1/4"	3/8"	FSC-23-SSR	1.19"	0.59"	0.63"	0.72"	1.50"	9/16"	7/8"	0.19"
1/4"	1/2"	FSC-24-SSR	1.38"	0.78"	0.63"	0.72"	1.69"	9/16"	1 1/8"	0.19"
3/8"	1/4"	FSC-32-SSR	1.19"	0.59"	0.69"	0.78"	1.50"	11/16"	3/4"	0.28"
3/8"	3/8"	FSC-33-SSR	1.25"	0.59"	0.69"	0.78"	1.56"	11/16"	7/8"	0.28"
3/8"	1/2"	FSC-34-SSR	1.44"	0.78"	0.69"	0.78"	1.75"	11/16"	1 1/8"	0.28"
1/2"	1/4"	FSC-42-SSR	1.19"	0.59"	0.91"	0.88"	1.60"	7/8"	7/8"	0.41"
1/2"	3/8"	FSC-43-SSR	1.25"	0.59"	0.91"	0.88"	1.66"	7/8"	7/8"	0.41"
1/2"	1/2"	FSC-44-SSR	1.46"	0.78"	0.91"	0.88"	1.87"	7/8"	1 1/8"	0.41"
1/2"	3/4"	FSC-46-SSR	1.55"	0.81"	0.91"	0.88"	1.96"	7/8"	15/16"	0.41"
5/8"	3/8"	FSC-53-SSR	1.25"	0.59"	0.97"	0.88"	1.66"	1"	15/16"	0.50"
5/8"	1/2"	FSC-54-SSR	1.50"	0.78"	0.97"	0.88"	1.91"	1"	1 1/8"	0.50"
3/4"	1/2"	FSC-64-SSR	1.46"	0.78"	0.97"	0.88"	1.87"	1 1/8"	1 1/8"	0.63"
3/4"	3/4"	FSC-66-SSR	1.55"	0.81"	0.97"	0.88"	1.96"	1 1/8"	15/16"	0.63"
1"	3/4"	FSC-86-SSR	1.66"	0.81"	1.23"	1.05"	2.15"	1 1/2"	1 1/2"	0.88"
1"	1"	FSC-88-SSR	1.92"	1.00"	1.23"	1.05"	2.41"	1 1/2"	1 11/16"	0.88"

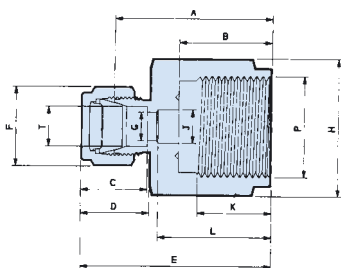
Female stud coupling BSPT metric



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

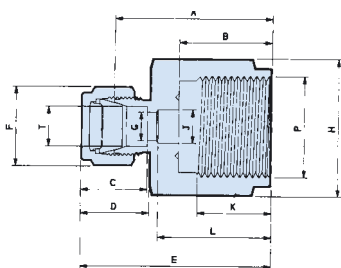
RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

Female stud coupling BSPP



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"	FSC-11-SSG	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"	FSC-22-SSG	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"	FSC-23-SSG	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"	FSC-33-SSG	1.41"	0.63"	0.69"	0.78"	1.72"	11/16"	7/8"	0.24"	0.24"	0.47"	—
3/8"	1/2"	FSC-34-SSG	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"	FSC-44-SSG	1.53"	0.75"	0.91"	0.88"	1.94"	7/8"	1 1/8"	0.28"	0.28"	0.57"	—

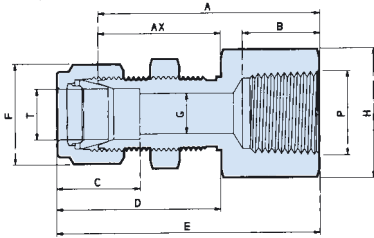
Female stud coupling BSPP metric



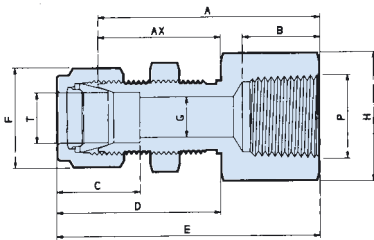
T tube OD	P BSPP pipe	part number	A	B	C	D	E	F hex	H hex	G min	J	K min	L
3mm	1/8"	FSC-M3-1-SSG	23.8mm	9.9mm	13.4mm	15.7mm	30.8mm	7/16mm	9/16mm	2.3mm	4.5mm	7.5mm	13.0mm
6mm	1/4"	FSC-M6-2-SSG	29.4mm	12.9mm	16.0mm	18.2mm	37.3mm	9/16mm	3/4mm	4.8mm	5.5mm	9.5mm	16.5mm
6mm	3/8"	FSC-M6-3-SSG	34.0mm	16.0mm	16.0mm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

RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

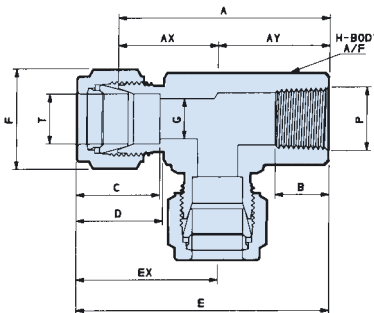
Female bulkhead coupling NPT



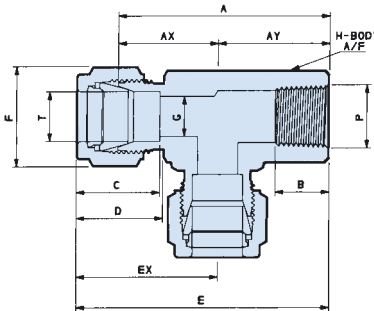
Female bulkhead coupling NPT metric



Female run tee NPT



Female run tee 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 thick- ness 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"

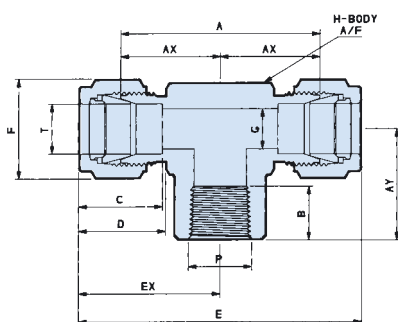
T tube OD	P NPT pipe	part number	A	Ax	B	C	D	E	F hex	H hex	G min	panel hole drill size	panel thick- ness max
3mm	1/8"	FBC-M3-1-SS	37.7mm	24.6mm	9.9mm	13.4mm	31.6mm	44.7mm	7/16mm	9/16mm	2.3mm	8.3mm	11.1mm
6mm	1/8"	FBC-M6-1-SS	44.3mm	26.1mm	15.0mm	16.0mm	34.0mm	52.2mm	9/16mm	3/4mm	4.8mm	11.5mm	12.7mm
10mm	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

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"

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

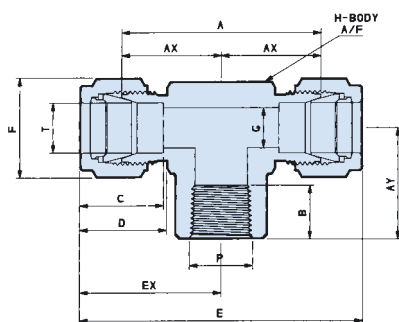
RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

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"

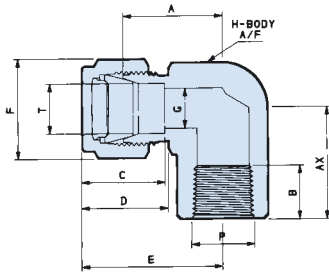
Female branch tee NPT metric



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
10mm	3/8"	FBT-M10-3-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 1/16"	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

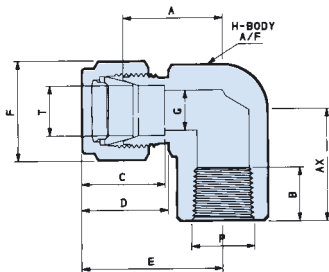
RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

Female stud elbow NPT



T	P	part number	A	Ax	B	C	D	E	F	H	G
min	tube	NPT								hex	hex
OD	pipe										
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"	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"

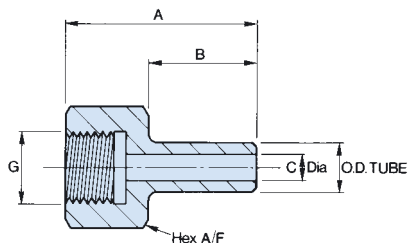
Female stud elbow NPT metric



T	P	part number	A	Ax	B	C	D	E	F	H	G
min	tube	NPT								hex	hex
OD	pipe										
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

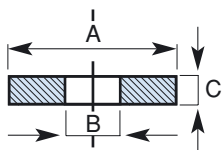
RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

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

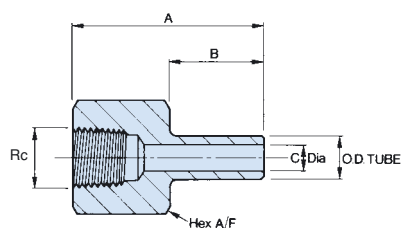
BSP parallel gauge washer PTFE



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"

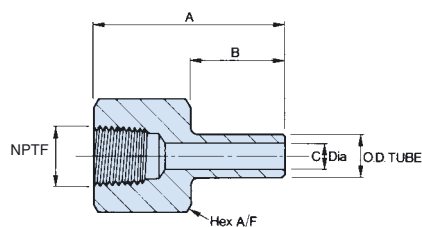
RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

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

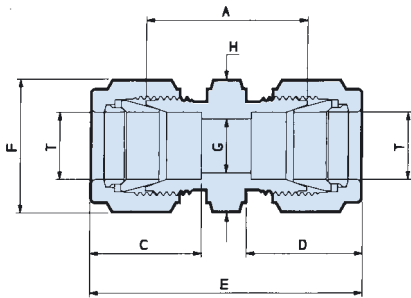
NPTF female standpipe adaptors



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

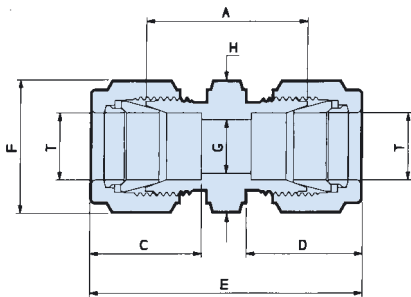
RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

Straight coupling



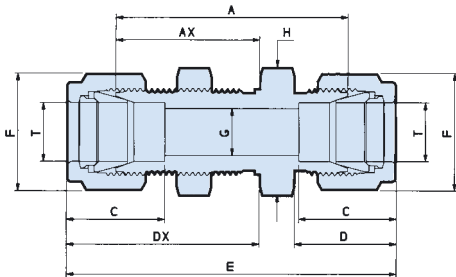
T tube OD	part numberA	C	D	E	F	H hex	G hex	min
1/16"	SC-01-SS	0.81"	0.35"	0.47"	1.13"	5/16"	5/16"	0.05"
1/8"	SC-1-SS	0.88"	0.52"	0.62"	1.43"	7/16"	7/16"	0.09"
3/16"	SC-03-SS	0.94"	0.55"	0.65"	1.49"	1/2"	1/2"	0.13"
1/4"	SC-2-SS	1.03"	0.63"	0.72"	1.66"	9/16"	9/16"	0.19"
3/8"	SC-3-SS	1.19"	0.69"	0.78"	1.81"	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"	1 1/2"	1 1/2"	0.88"

Straight coupling metric



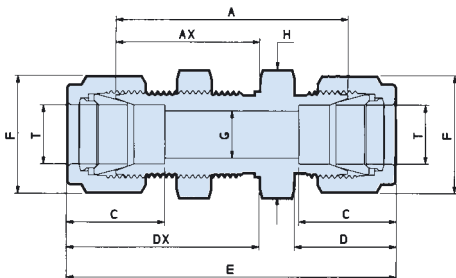
T tube OD	part numberA	C	D	E	F	H hex	G hex	min
3mm	SC-M3-SS	22.3mm	13.4mm	15.7mm	36.3mm	7/16"	7/16"	2.3mm
4mm	SC-M4-SS	23.8mm	14.2mm	16.5mm	37.8mm	1/2"	7/16"	2.7mm
6mm	SC-M6-SS	26.1mm	16mm	18.2mm	41.9mm	9/16"	9/16"	4.8mm
8mm	SC-M8-SS	27.6mm	16.7mm	19mm	43.4mm	11/16"	9/16"	6.3mm
10mm	SC-M10-SS	30.2mm	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	1 1/2"	1 1/2"	22.3mm

Bulkhead coupling



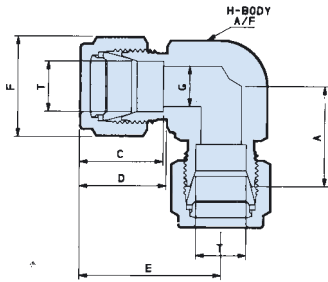
T tube OD	part numberA	Ax	C	D	Dx	E	F	H hex	G hex	panel min	panel hole drill size	thick- ness max
1/16"	BC-01-SS	0.97"	0.53"	0.35"	0.47"	0.69"	1.29"	5/16"	5/16"	0.05"	13/64"	0.13"
1/8"	BC-1-SS	1.5"	0.97"	0.52"	0.62"	1.24"	2.06"	7/16"	1/2"	0.09"	21/64"	0.44"
3/16"	BC-03-SS	1.59"	1"	0.55"	0.65"	1.27"	2.15"	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



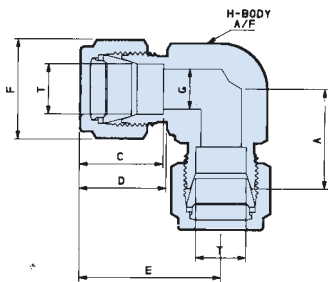
T tube OD	part numberA	Ax	C	D	Dx	E	F	H hex	G hex	panel min	panel hole drill size	thick- ness max
3mm	BC-M3-SS	38.8mm	24.6mm	13.4mm	15.7mm	31.6mm	52.8mm	7/16"	9/16"	2.3mm	8.3mm	11.1mm
4mm	BC-M4-SS	40.5mm	25.4mm	14.2mm	16.5mm	32.4mm	54.5mm	1/2"	9/16"	2.7mm	9.9mm	12.7mm
6mm	BC-M6-SS	42.8mm	26.1mm	16mm	18.2mm	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

Equal elbow



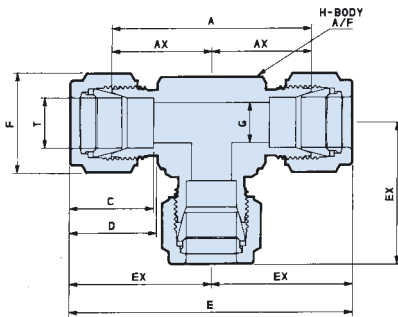
T tube OD	part numberA	C	D	E	F	H hex	G hex	min
1/16"	EE-01-SS	0.59"	0.35"	0.47"	0.75"	5/16"	3/8"	0.05"
1/8"	EE-1-SS	0.62"	0.52"	0.62"	0.9"	7/16"	3/8"	0.09"
3/16"	EE-03-SS	0.74"	0.55"	0.65"	1.02"	1/2"	1/2"	0.13"
1/4"	EE-2-SS	0.77"	0.63"	0.72"	1.08"	9/16"	1/2"	0.19"
3/8"	EE-3-SS	0.91"	0.69"	0.78"	1.22"	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"

Equal elbow metric



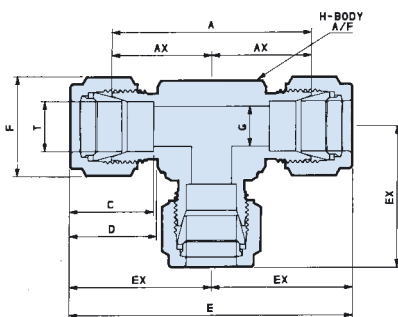
T tube OD	part numberA	C	D	E	F	H hex	G hex	min
3mm	EE-M3-SS	15.7mm	13.4mm	15.7mm	22.7mm	7/16"	3/8"	2.3mm
4mm	EE-M4-SS	18.8mm	14.2mm	16.5mm	25.8mm	1/2"	1/2"	2.7mm
6mm	EE-M6-SS	19.5mm	16mm	18.2mm	27.4mm	9/16"	1/2"	4.8mm
8mm	EE-M8-SS	22.3mm	16.7mm	19mm	30.2mm	11/16"	5/8"	6.3mm
10mm	EE-M10-SS	25.9mm	17.5mm	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

Equal tee



T tube OD	part numberA	Ax	C	D	E	Ex	F	H hex	G hex	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"

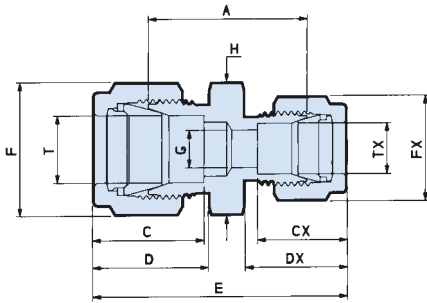
Equal tee metric



T tube OD	part numberA	Ax	C	D	E	Ex	F	H hex	G hex	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

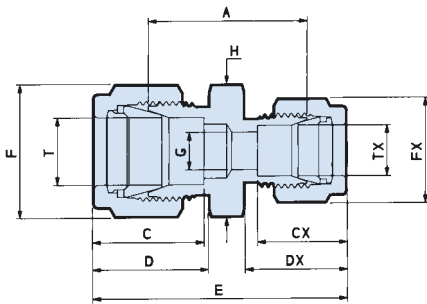
RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

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"

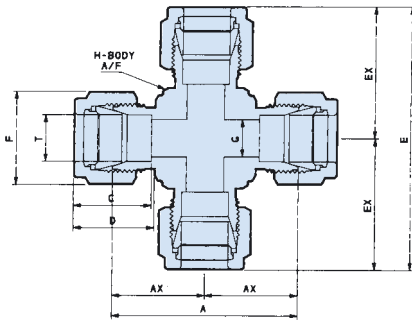
Reducing coupling metric



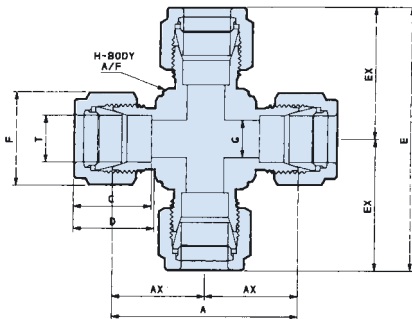
T tube OD	Tx tube OD	part number	A	C	Cx	D	Dx	E	F hex	Fx hex	H hex	G min
4mm	3mm	RC-M4-M3-SS	23.1mm	14.2mm	13.4mm	16.5mm	15.7mm	37.1mm	1/2"	7/16"	7/16"	2.3mm
6mm	3mm	RC-M6-M4-SS	23.8mm	16.0mm	13.4mm	18.2mm	15.7mm	38.7mm	9/16"	7/16"	1/2"	2.3mm
6mm	3mm	RC-M6-M4-SS	24.6mm	16.0mm	14.2mm	18.2mm	16.5mm	39.5mm	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 TWIN FERRULE OD COMPRESSION FITTINGS

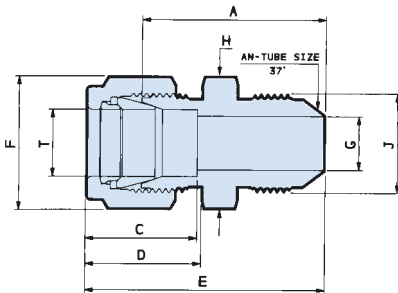
Equal cross



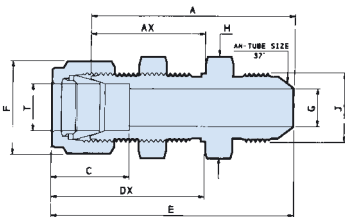
Equal cross metric



Ringlok to AN straight connector



Ringlok bulkhead to AN connector



T tube OD	part number	Ax	C	D	E	Ex	F	H hex	G hex	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"

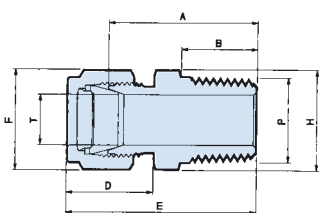
T tube OD	part number	Ax	C	D	E	Ex	F	H hex	G hex	min
3mm	EC-M3-SS	36mm	18mm	13.4mm	15.7mm	50mm	25mm	7/16"	1/2"	2.3"
4mm	EC-M4-SS	37.6mm	18.8mm	14.2mm	16.5mm	51.6mm	25.8mm	1/2"	1/2"	2.7"
6mm	EC-M6-SS	39mm	19.5mm	16mm	18.2mm	54.8mm	27.4mm	9/16"	1/2"	4.8"
8mm	EC-M8-SS	50.2mm	25.1mm	16.7mm	19mm	66mm	33mm	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"	11/16"	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 drill 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"

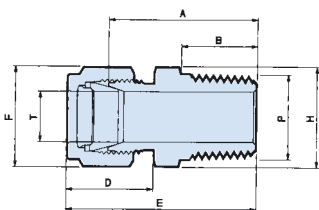
RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

Thermocoupling NPT



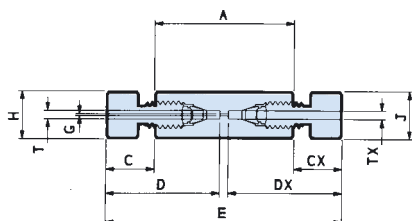
T tube OD	P NPT pipe	part number	A	B	D	E	F hex	H hex
1/8"	1/8"	MTC-11-SS	0.91"	0.38"	0.62"	1.19"	7/16"	7/16"
3/16"	1/8"	MTC-031-SS	0.94"	0.38"	0.65"	1.22"	1/2"	7/16"
1/4"	1/4"	MTC-22-SS	1.19"	0.56"	0.72"	1.50"	9/16"	1/2"
1/4"	3/8"	MTC-23-SS	1.22"	0.56"	0.72"	1.53"	9/16"	3/4"
3/8"	3/8"	MTC-33-SS	1.28"	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	38.9mm	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"

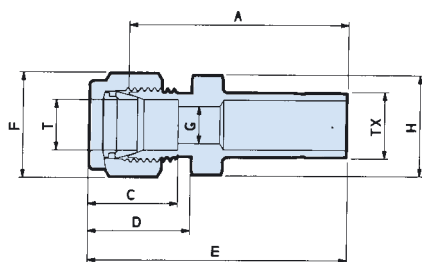
Union connector



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 TWIN FERRULE OD COMPRESSION FITTINGS

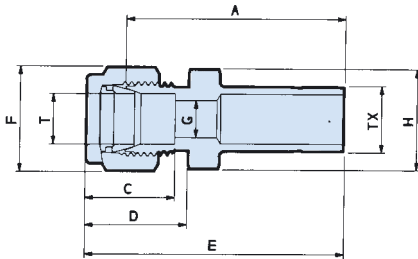
Reducing adaptor



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"

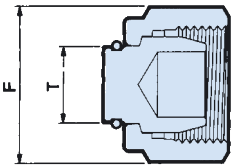
RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

Reducing adaptor metric



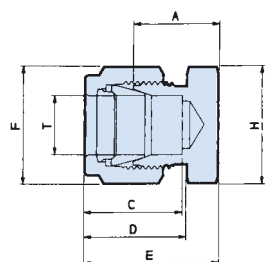
T tube OD	Tx tube dia	part number	A	C	D	E	F hex	H hex	G min
3mm	4mm	RA-M3-M4-SS	27.6mm	13.4mm	15.7mm	34.6mm	7/16"	7/16"	2.3mm
3mm	6mm	RA-M3-M6-SS	30.2mm	13.4mm	15.7mm	37.2mm	7/16"	7/16"	2.3mm
4mm	3mm	RA-M4-M3-SS	27.7mm	14.2mm	16.5mm	34.7mm	1/2"	7/16"	1.8mm
4mm	6mm	RA-M4-M6-SS	31.0mm	14.2mm	16.5mm	38.0mm	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"

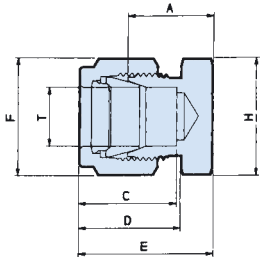
Blanking end



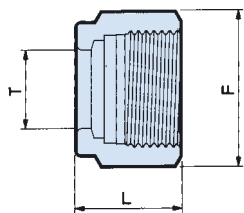
T tube OD	part number	A	C	D	E	F hex	H hex
1/16"	BE-01-SS	0.5"	0.35"	0.47"	0.66"	5/16"	5/16"
1/8"	BE-1-SS	0.53"	0.52"	0.62"	0.81"	7/16"	7/16"
3/16"	BE-03-SS	0.56"	0.55"	0.65"	0.84"	1/2"	7/16"
1/4"	BE-2-SS	0.63"	0.63"	0.72"	0.94"	9/16"	9/16"
3/8"	BE-3-SS	0.72"	0.69"	0.78"	1.03"	11/16"	11/16"
1/2"	BE-4-SS	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 TWIN FERRULE OD COMPRESSION FITTINGS

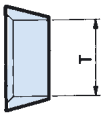
Blanking end metric



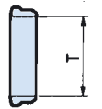
Compression nut



Front sealing



Back sealing



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

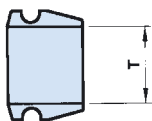
T tube OD	part number	L	F hex	T tube OD	part number	L	F hex
1/16"	CN-01-SS		0.31"	5/16"	3mm	CN-M3-SS	12mm 7/16"
1/8"	CN-1-SS		0.47"	7/16"	4mm	CN-M4-SS	12mm 1/2"
3/16"	CN-03-SS		0.47"	1/2"	6mm	CN-M6-SS	12.7mm 9/16"
1/4"	CN-2-SS		0.5"	9/16"	8mm	CN-M8-SS	13.4mm 11/16"
3/8"	CN-3-SS		0.56"	11/16"	10mm	CN-M10-SS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

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

RINGLOK TWIN FERRULE OD COMPRESSION FITTINGS

Unilok searling



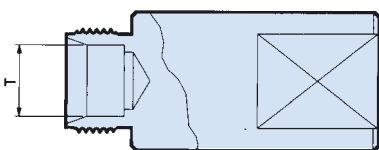
T tube OD part number

1/16"	UR-01
1/8"	UR-1
3/16"	UR-03
1/4"	UR-2
3/8"	UR-3
1/2"	UR-4
5/8"	UR-5
3/4"	UR-6
1"	UR-8

T tube OD part number

3mm	UR-M3
4mm	UR-M4
6mm	UR-M6
8mm	UR-M8
10mm	UR-M10
12mm	UR-M12
16mm	UR-M16
20mm	UR-M20
25mm	UR-M25

Pre-assembly tools



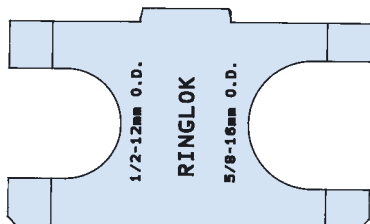
T tube OD part number

1/8"	PA-1
3/16"	PA-03
1/4"	PA-2
3/8"	PA-3
1/2"	PA-4
5/8"	PA-5
3/4"	PA-6
1"	PA-8

T tube OD part number

3mm	PA-M3
4mm	PA-M4
6mm	PA-M6
8mm	PA-M8
10mm	PA-M10
12mm	PA-M12
16mm	PA-M16
20mm	PA-M20
25mm	PA-M25

Check gauge



T tube OD part number

1/4"	RACG-1
3/8"	RACG-2
1/2"	RACG-3
5/8"	RACG-4
3/4"	RACG-5
1"	RACG-6

T tube OD part number

6mm	RACG-1
8mm	RACG-1
10mm	RACG-2
12mm	RACG-3
16mm	RACG-3
20mm	RACG-4
25mm	RACG-5

Waverley brownall 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 adapter (kidney type) provides a direct connection of tube OD compression couplings for instrument transmitters.

Quality engineered for instrumentation and process applications.

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

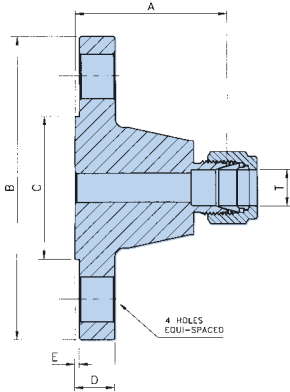
Material 316 stainless steel other materials and NACE hardness available to order.

All fittings are cast coded for complete traceability.

All materials conform to ASTM specifications.



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

OD size

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

NB size

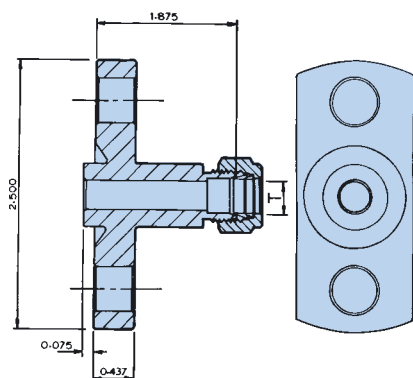
1/2" 15mm
3/4" 20mm
1" 25mm

face finish

R rough
S smooth

larger OD sizes are available

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

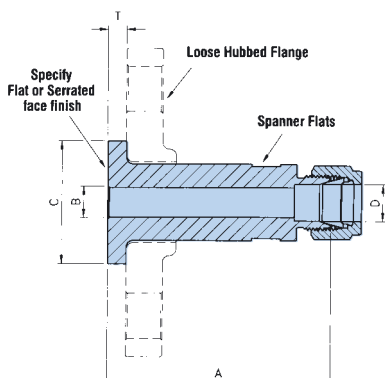
2 1/4"
3 3/8"
4 1/2"
M6 6mm
M8 8mm
M10 10mm
M12 12mm

Duoloc® or Ringlok®

D Duoloc®
R Ringlok®

larger OD sizes are available

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 Waverly 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®

NB size

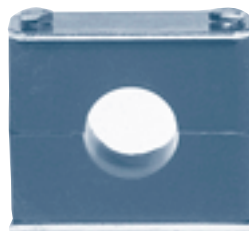
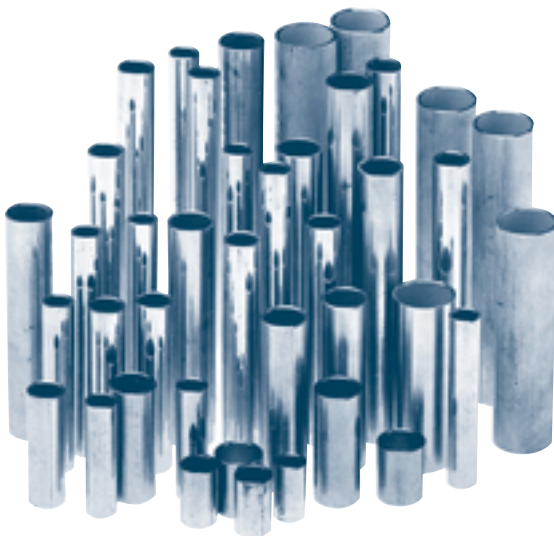
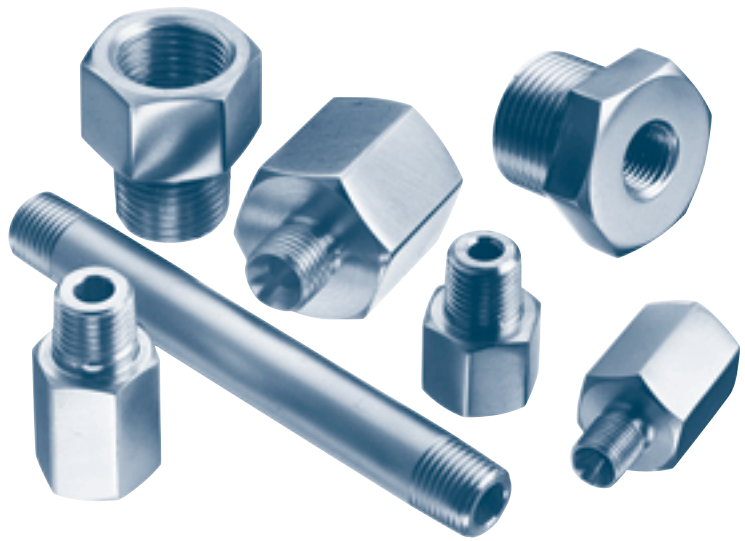
15 1/2"
20 3/4"
25 1"

larger OD sizes are available

This section of the brochure is designed to offer a selection of products that are required to complete an instrumentation system.

Our wide product range offers 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 to provide your solution with our bespoke product design, development and manufacturing programme.



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.

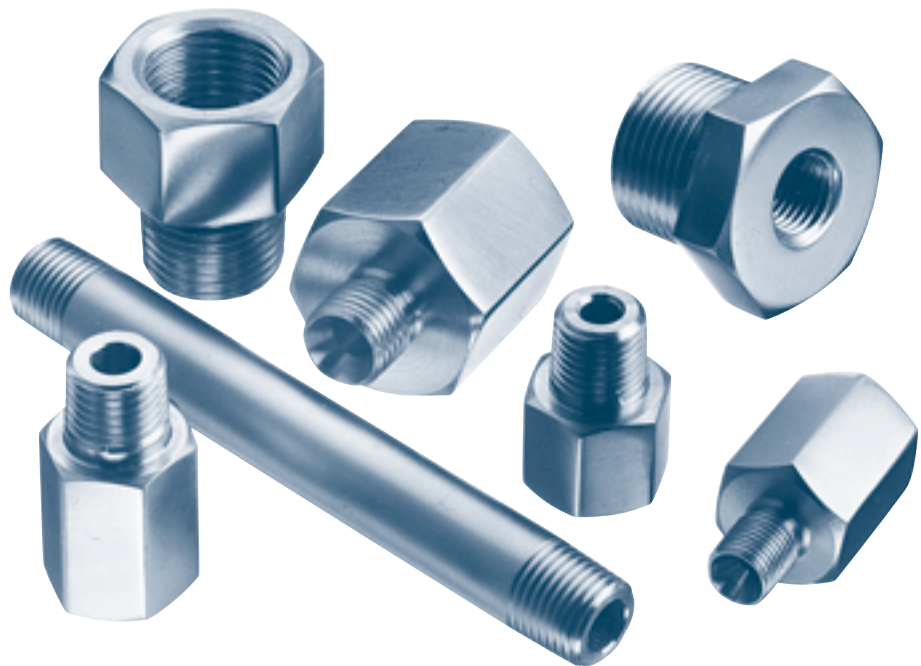
Products available

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.



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).

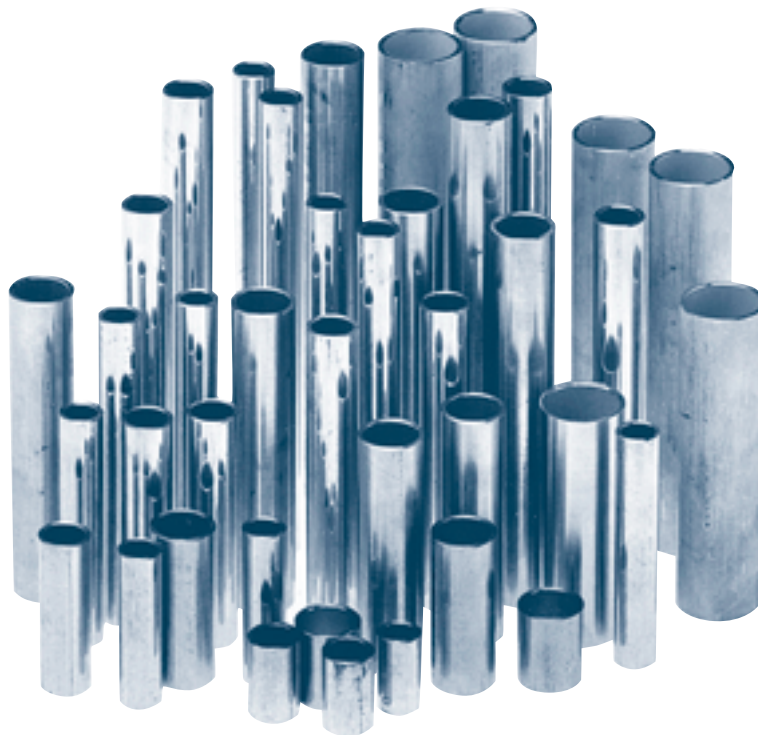
Nominal bore pipe only supplied in Schedule 10, 40 and 80.

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

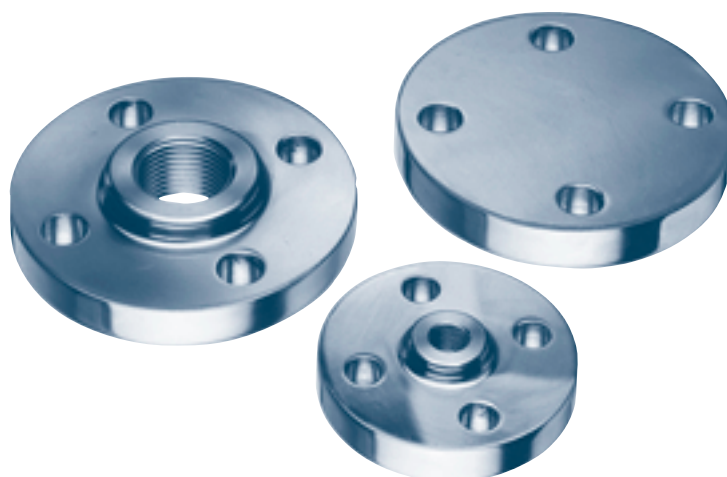
Slip On Flanges
Blind Flanges
Screwed Flanges
Weld Neck Flanges

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).



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



Quick connect couplings

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

The couplings can be supplied in two ways:

Both halves valved
(when disconnected complete shut off both ways)

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.



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



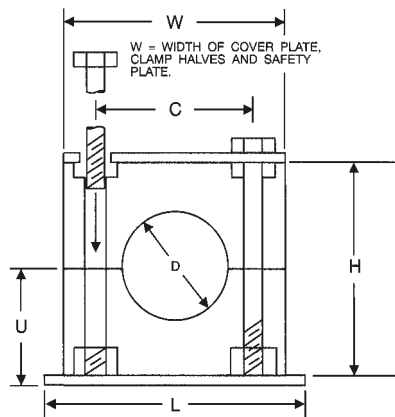
Modular hanging
arrangement,
which is
offset to allow
tubes to run
in different
directions

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

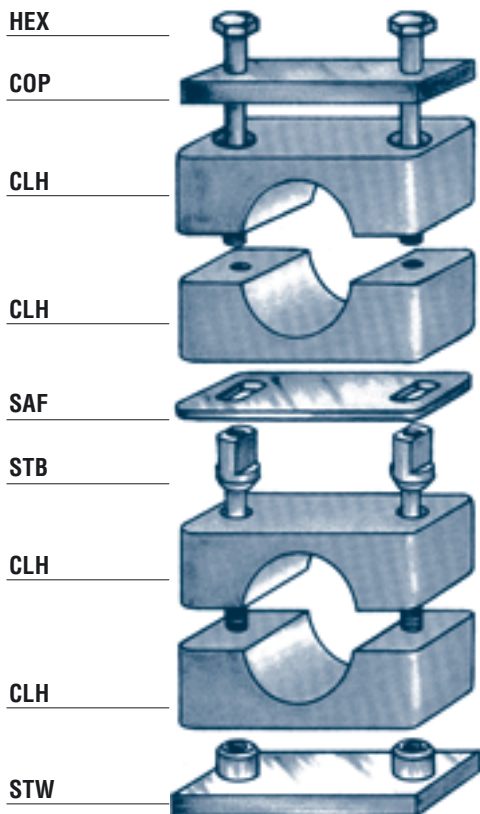
recommended spacing between clamps



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'

Pipe clamps

Basic assembly stack-of-two



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.

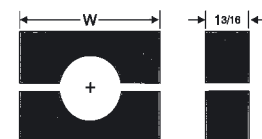
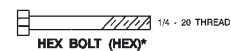
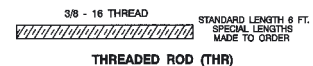
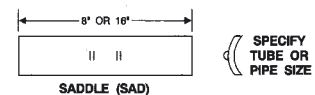
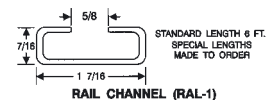
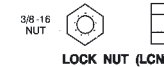
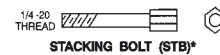
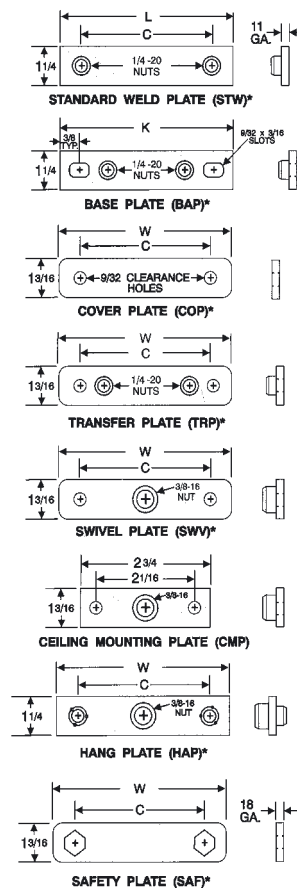
Important specifications

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.

Ordering components



CLAMP HALVES (SEE TABLE FOR PLASTICS ORDERING INFORMATION)

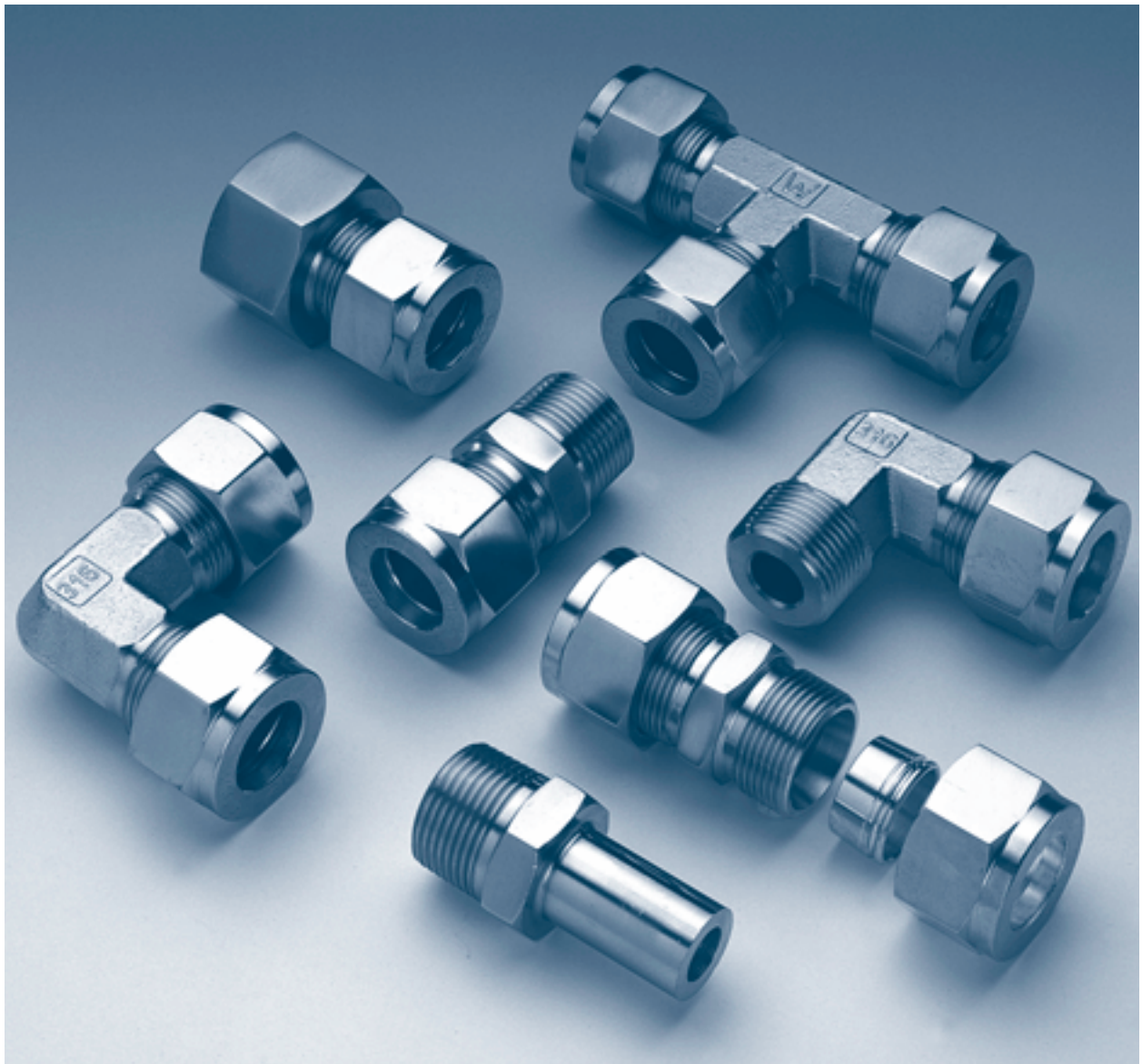
*SPECIFY GROUP NO.

DUOLOC SINGLE FERRULE OD COMPRESSION FITTINGS

Duoloc single ferrule OD compression fittings are designed to be robust, yet quick and easy to assemble and have been extensively used for onshore applications for over 35 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 Duoloc product is available in 316 stainless steel and a comprehensive range of metric and imperial sizes and thread forms. Most Duoloc fittings can be adapted to work with glass or PVC tube and can be modified to suit thermocoupling applications.

The Duoloc product is produced within the control systems approved by BSEN ISO 9001, and in accordance with BS4368



BALL VALVES

The Waverley brownall range of 316 stainless steel Ball Valves are available in 1000lb, 3000lb or 6000lb class with probably the most comprehensive range of thread forms and end connections in the World.

The BV series 316 bar stock valves are designed to be compact and reliable, and are manufactured in the UK to the most exacting standards. The size range extends from 1/4" (6mm) to 1" (25mm) in BSP, BSPT and NPT thread form plus either single (Duoloc) or twin (Ringlok) ferrule compression ends.

The Waverley brownall low cost range of cast 316 Ball Valves are rated to 1000psi and are available in single piece reduced bore or two and three piece full bore models. The size range extends from 1/4" to 2" in all body types.



CHECK VALVES

The Waverley brownall range of stainless steel check valves is one of the most comprehensive in the World.

Our standard valve is the CV series which is 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 pressures of 3000 psi. The CV series is available in a wide range of inlet and outlet port connections from 1/4" to 1 1/2".

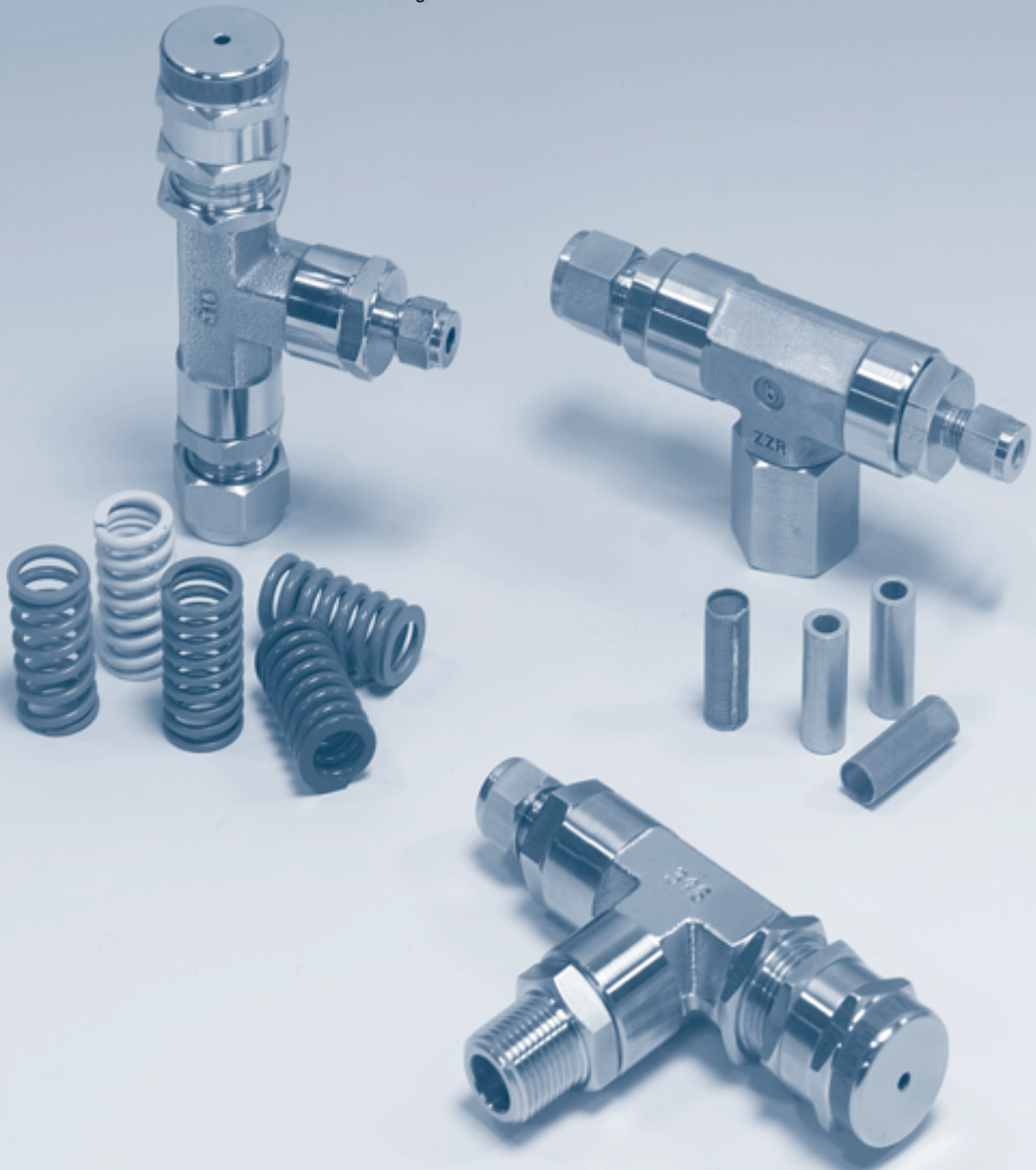
The Waverley brownall mini valve is the MCV and ACV series which are miniature, compact one piece body check valves for unidirectional control of flow up to pressures of 6000 psi. The MCV is our standard pre-set Mini valve while the ACV series valve comes with an adjustable spring to give a variable cracking pressure.



RELIEF VALVES & STRAINERS

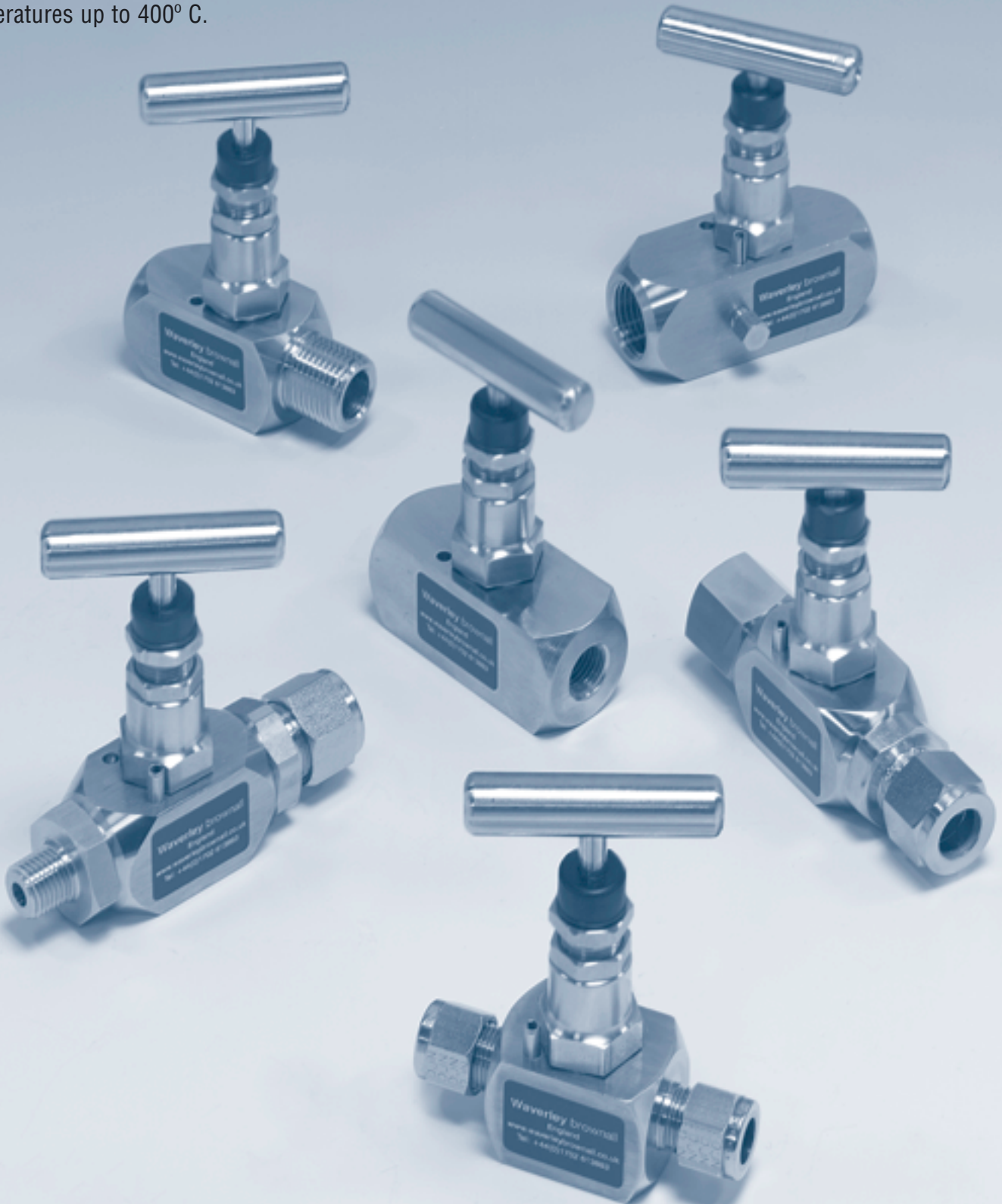
The Waverley brownall Manifold range of Precision Relief Valves and Strainers are manufactured to a very high standard in our own UK factory from top quality 316 stainless steel. Both products have a safe working pressure of 6000 psi and come in a wide range of inlet and outlet end connections from 1/8" to 1" in a variety of thread forms, including Ringlok and Duoloc compression ends.

The Relief Valve design features a range of colour coded springs to give the user the flexibility of choosing the relief pressure to exactly suit your application. The strainer or Inline Tee Filter is designed for liquid or gas applications and can be ordered with a wide range of different mesh or sintered size elements.



PRECISION NEEDLE VALVES

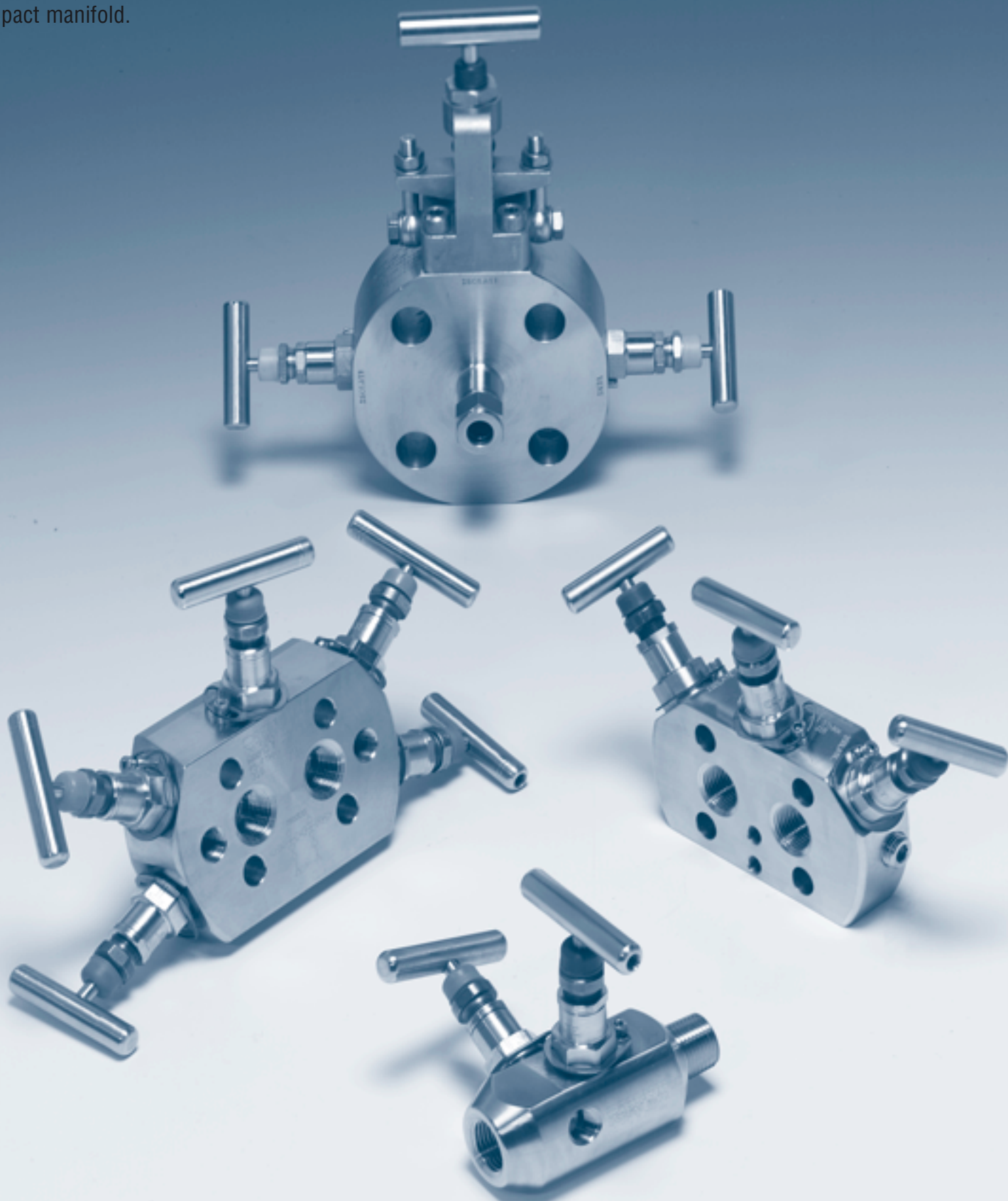
The World's most comprehensive range of instrumentation Needle valves. The Waverley brownall Needle valve range is designed and manufactured to the highest standards to meet the requirements of the severe applications anticipated for these valves. They have a split stem design, which ensures accurate seating, and a bubble tight seal. They are general-purpose valves for use on liquid or gas applications where the isolation of flow, equalisation and venting of pressure are the main criteria. The Waverley brownall Needle valve is available ex stock with a variety of end connections from $\frac{1}{4}$ " to $\frac{3}{4}$ ", giving any combination of ends from NPT, BSPP, BSPT, Single and Twin ferrule OD compression. They are available for applications up to 10,000 psi and temperatures up to 400° C.



MANIFOLD VALVES

The Waverley brownall Manifold range is produced to the highest standards in line with BS EN ISO 9001 requisites. They are designed to provide reliability under demanding conditions, repeatedly giving bubble tight shut off. They are available in 2 way, 3 way and 5 way direct or remote formats.

The Waverley brownall Monoflange Manifold Valves are designed to replace multi valve assemblies with one compact manifold.





HIGH PRESSURE PRECISION PIPE FITTINGS

Manufactured from high quality 316 stainless steel bar and forgings.

Available in NPT and BSPT for pressures up to 10,000psi.

HOSE COMPONENTS AND UNIONS

Waverley brownall offer an extensive range of Hose connectors and Unions with BSP, BSPT and NPT thread sizes up to 2". This product is entirely manufactured in our UK factory from the highest quality 316 stainless steel.



OTHER WAVERLEY BROWNALL PRODUCTS



PLUGS, BUSHES AND SEALS

The Waverley brownall range of BSP plugs, bushes and caps manufactured from large size hexagons to allow for the use of seals. Screw seal assemblies are stocked to suit all threads from 1/8" to 2" BSP suitable for a safe working pressure of 3000psi.

LOW PRESSURE CAST RANGE OF PIPE FITTINGS

These BSP and BSPT fittings are available ex stock in sizes ranging from 1/8" to 2" and have a safe working pressure of 150psi.





Compact Product Catalogue

Gives a complete overview of our entire range.

Pipe Fitting Catalogue

Shows our complete pipe fitting range including High Pressure Precision Fittings, Plugs, Bushes and Hose Components. Plus our Low Pressure Cast Range and Weld Fittings.



Duoloc Single Ferrule OD Compression Fitting Catalogue

This covers in details our complete range of single ferrule fittings.





Ring Binder Book

The complete Waverley brownall range is also shown in detail in a ring binder for ease of reference.



Electronic Catalogue

The Waverley brownall electronic catalogue offers you a fast and accurate means of selecting the right 316 stainless steel fittings and valves for your instrumentation applications.



Precision Valve Catalogue

Shows the complete Waverley Brownall valve range including Ball Valves, Check Valves, Needle Valves and Manifolds.



1, Rue Marcelin Berthelot
78270 Bonnières sur Seine
Tél : 01.30.93.35.13
Fax : 01.30.42.21.15
<http://www.e2i-france.fr/>



Providing Solutions

Waverley brownall Ltd
46, The Vintners, Temple Farm Industrial Estate
Southend-on-Sea, Essex SS2 5RZ
Tel: +44 (0)1702 600014
Fax: +44 (0)1702 613600
email: sales@waverleybrownall.co.uk
www.waverleybrownall.co.uk
Waverley brownall Scotland
Tel: +44 (0)1224 877323