

Adaptors

Technical Information	6
Adaptors	27
AKB - BSP BULKHEAD LOCKNUT	29
ALB - UNO BULKHEAD LOCKNUT	29
MLLN - MET EXTRA LIGHT TUBE NUT	30
MLN - MET LIGHT TUBE NUT	30
MSN - MET HEAVY TUBE NUT	31
TJN - JIC TUBE NUT	32
TJS - JIC FEMALE TUBE SLEEVE	33
TJNV - JIC TUBE NUT	33
TJSV - JIC FEMALE COMPRESSION SLEEVE	34
OTN - ORFS TUBE NUT	34
OTS - TUBEWELD X ORFS FEMALE	35
TCM - MET TUBE CUTTING RING	36
A - BSPT MALE	37
A-INT - BSPT MALE	37
B - BSP MALE	38
B-INT - BSP MALE	38
C - BSP FEMALE	39
G - JIC MALE	40
AG - JIC FEMALE	41
L - NPTF MALE	42
N - UNO MALE	43
R - ORFS MALE	44
T - ORFS FEMALE	44
MLL - MET LIGHT MALE TUBE PLUG	45
ML - MET LIGHT MALE TUBE PLUG	45
MS - MET HEAVY MALE TUBE PLUG	46
UL - MET LIGHT FEMALE PLUG	46
US - MET HEAVY FEMALE PLUG	47
MX - MET MALE	47
MY - JIS MET MALE	48
UY - JIS MET FEMALE	48
AX - JIS BSP MALE	49
VBO - SAE C61	49
VHBO - SAE C62	50
VBC - SAE C61	50
VHBC - SAE C62	51
VP - SAE C61	51
VHP - SAE C62	52
A-A - BSPT MALE X BSPT MALE	53
A-B - BSPT MALE X BSP MALE	55

A-C - BSPT MALE X BSP FEMALE	56
A-E - BSPT MALE X BSPT FEMALE	57
A-G - BSPT MALE X JIC MALE	59
A-J - BSPT MALE X JIC FEMALE	59
A-L - BSPT MALE X NPTF MALE	60
A-N - BSPT MALE X UNO MALE	61
A-Q - BSPT MALE X UNO FEMALE	62
A-AA - BSPT MALE X SAE MALE	62
A-AX - BSPT MALE X JIS BSP MALE	63
A-ML - BSPT MALE X MET LIGHT MALE	64
A-MS - BSPT MALE X MET HEAVY MALE	65
A-MX - BSPT MALE X MET MALE	66
A-MY - BSPT MALE X JIS MET MALE	67
B-B - BSP MALE X BSP MALE	68
B-B EXT - BSP MALE X BSP MALE	69
B-C - BSP MALE X BSP FEMALE	70
B-F - BSP MALE X BSP FEMALE	71
B-G - BSP MALE X JIC MALE	73
B-J - BSP MALE X JIC FEMALE	73
B-L - BSP MALE X NPTF MALE	74
B-N - BSP MALE X UNO MALE	75
B-R - BSP MALE X ORFS MALE	76
B-RK - BSP MALE X ORFS BULKHEAD	77
B-AX - BSP MALE X JIS BSP MALE	77
B-BK - BSP MALE X BSP BULKHEAD	78
B-GK - BSP MALE X JIC BULKHEAD	78
B-ML - BSP MALE X MET LIGHT MALE	79
B-MS - BSP MALE X MET HEAVY MALE	80
C-C - BSP FEMALE X BSP FEMALE	81
B-MX - BSP MALE X MET MALE	82
C-E - BSP FEMALE X BSPT FEMALE	83
C-N - BSP FEMALE X UNO MALE	83
E-E - BSPT FEMALE X BSPT FEMALE	84
E-G - BSPT FEMALE X JIC MALE	85
E-N - BSPT FEMALE X UNO MALE	86
F-F - BSP FEMALE X BSP FEMALE	86
F-V - BSP FEMALE X SAE C61	87
F-VH - BSP FEMALE X SAE C62	87
F-ML - BSP FEMALE X MET LIGHT MALE	88
F-MS - BSP FEMALE X MET HEAVY MALE	89
G-G - JIC MALE X JIC MALE	90
G-J - JIC MALE X JIC FEMALE	91
G-L - JIC MALE X NPTF MALE	92
G-M - JIC MALE X MET MALE	93
G-N - JIC MALE X UNO MALE	94

G-T - JIC MALE X ORFS FEMALE	95
G-BX - JIC MALE X BSP MALE	96
G-GK - JIC MALE X JIC BULKHEAD	97
J-L - JIC FEMALE X NPTF MALE	97
L-L - NPTF MALE X NPTF MALE	98
L-N - NPTF MALE X UNO MALE	99
L-AA - NPTF MALE X SAE MALE	99
L-AC - NPTF MALE X NPTF FEMALE	100
N-R - UNO MALE X ORFS MALE	101
N-ML - UNO MALE X METRIC LIGHT MALE	102
N-MS - UNO MALE X METRIC HEAVY MALE	103
R-R - ORFS MALE X ORFS MALE	104
R-T - ORFS MALE X ORFS FEMALE	105
R-RK - ORFS MALE X ORFS BULKHEAD	106
T-BX - ORFS FEMALE X BSPP MALE	107
AC-AC - NPTF FEMALE X NPTF FEMALE	108
BX-MLK - BSP MALE X MET LIGHT BULKHEAD	108
BX-ML - BSP STUD X MET LIGHT MALE	109
BX-MS - BSP STUD X MET HEAVY MALE	110
BX-UL - BSP STUD X MET LIGHT FEMALE	111
BX-US - BSP STUD X MET HEAVY FEMALE	112
ML-ML - MET LIGHT MALE X MET LIGHT MALE	113
ML-MLK - MET LIGHT MALE X MET LIGHT B/HEAD	114
ML-UL - MET LIGHT MALE X MET LIGHT F/M	115
MS-MS - MET HEAVY MALE X MET HEAVY MALE	116
MS-MSK - MET HEAVY MALE X MET HEAVY B/HEAD	117
MS-US - MET HEAVY MALE X MET HEAVY F/M	119
SJS - JIC MALE X JIC FEMALE	119
TK - JIC MALE X JIC FEMALE	120
TW-A - TUBEWELD X BSPT MALE	121
TW-B - TUBEWELD X BSP MALE	122
TW-C - TUBEWELD X BSP FEMALE	123
TW-G - TUBEWELD X JIC MALE	124
TW-J - TUBEWELD X JIC FEMALE	125
TW-R - TUBEWELD X ORFS MALE	126
TWS-B - PIPEWELD X BSP MALE	126
TWS-C - PIPEWELD X BSP FEMALE	127
TWS-G - PIPEWELD X JIC MALE	127
TWS-R - PIPEWELD X ORFS MALE	128
UL-UL - MET LIGHT FEMALE X MET LIGHT FEMALE	129
US-US - MET HEAVY FEMALE X MET HEAVY FEMALE	130
A-A-45 - BSPT MALE X BSPT MALE	131
A-C-45 - BSPT MALE X BSP FEMALE	132
A-G-45 - BSPT MALE X JIC MALE	133
A-BP-45 - BSPT MALE X BSP ADJUSTABLE	134

B-BP-45 - BSP MALE X BSP ADJUSTABLE	134
G-J-45 - JIC MALE X JIC FEMALE	135
G-BP-45 - JIC MALE X BSP ADJUSTABLE	136
G-NP-45 - JIC MALE X UNO ADJUSTABLE	137
R-T-45 - ORFS MALE X ORFS FEMALE	138
R-BP-45 - ORFS MALE X BSP ADJUSTABLE	138
R-NP-45 - ORFS MALE X UNO ADJUSTABLE	139
A-A-90 - BSPT MALE X BSPT MALE	140
A-C-90 - BSPT MALE X BSP FEMALE	141
A-E-90 - BSPT MALE X BSPT FEMALE	142
A-G-90 - BSPT MALE X JIC MALE	143
A-J-90 - BSPT MALE X JIC FEMALE	144
A-BP-90 - BSPT MALE X BSP ADJUSTABLE	145
A-ML-90 - BSPT MALE X MET LIGHT MALE	146
A-MS-90 - BSPT MALE X MET HEAVY MALE	147
A-NP-90 - BSPT MALE X UNO ADJUSTABLE	148
B-C-90 - BSP MALE X BSP FEMALE	148
B-BP-90 - BSP MALE X BSP ADJUSTABLE	149
C-BP-90 - BSP FEMALE X BSP ADJUSTABLE	150
C-NP-90 - BSP FEMALE X UNO ADJUSTABLE	151
E-E-90 - BSPT FEMALE X BSPT FEMALE	152
F-F-90 - BSP FEMALE X BSP FEMALE	152
G-G-90 - JIC MALE X JIC MALE	153
G-J-90 - JIC MALE X JIC FEMALE	154
G-L-90 - JIC MALE X NPTF MALE	155
G-BP-90 - JIC MALE X BSP ADJUSTABLE	157
G-GK-90 - JIC MALE X JIC BULKHEAD	157
G-NP-90 - JIC MALE X UNO ADJUSTABLE	159
L-L-90 - NPTF MALE X NPTF MALE	159
L-AC-90 - NPTF MALE X NPTF FEMALE	160
R-R-90 - ORFS MALE X ORFS MALE	160
R-T-90 - ORFS MALE X ORFS FEMALE	161
R-BP-90 - ORFS MALE X BSP ADJUSTABLE	162
R-NP-90 - ORFS MALE X UNO ADJUSTABLE	163
ML-ML-90 - MET LIGHT MALE X MET LIGHT MALE	164
ML-UL-90 - MET LIGHT MALE X MET LIGHT F/M	165
MS-MS-90 - MET HEAVY MALE X MET HEAVY MALE	166
MS-US-90 - MET HEAVY MALE X MET HEAVY F/M	167
SJ90 - JIC MALE X JIC MALE	167
TW-G-90 - TUBEWELD X JIC MALE 90° ELBOW	168
A-A-A - BSPT MALE X BSPT MALE X BSPT MALE	169
A-A-C - BSPT MALE X BSPT MALE X BSP FEMALE	170
A-C-A - BSPT MALE X BSP FEMALE X BSPT MALE	171
A-E-E - BSPT MALE X BSPT FEMALE X BSPT FEMALE	172
A-G-G - BSPT MALE X JIC MALE X JIC MALE	173

B-B-B - BSP MALE X BSP MALE X BSP MALE	173
B-B-C - BSP MALE X BSP MALE X BSP FEMALE	174
B-C-B - BSP MALE X BSP FEMALE X BSP MALE	174
E-E-E - BSPT FEMALE X BSPT FEMALE X BSPT FEMALE	175
F-F-F - BSP FEMALE X BSP FEMALE X BSP FEMALE	176
G-G-A - JIC MALE X JIC MALE X BSPT MALE	177
G-G-G - JIC MALE X JIC MALE X JIC MALE	178
G-G-J - JIC MALE X JIC MALE X JIC FEMALE	179
G-G-BP - JIC MALE X JIC MALE X BSP ADJUSTABLE	180
G-G-GK - JIC MALE X JIC MALE X JIC BULKHEAD	180
G-G-NP - JIC MALE X JIC MALE X UNO ADJUSTABLE	181
G-J-G - JIC MALE X JIC FEMALE X JIC MALE	182
G-BP-G - JIC MALE X BSP ADJUSTABLE X JIC MALE	183
G-NP-G - JIC MALE X UNO ADJUSTABLE X JIC MALE	184
R-R-R - ORFS MALE X ORFS MALE X ORFS MALE	184
R-R-T - ORFS MALE X ORFS MALE X ORFS FEMALE	185
R-T-R - ORFS MALE X ORFS FEMALE X ORFS MALE	186
AC-AC-AC - NPTF FEMALE X NPTF FEMALE X NPTF FEMALE	187
AX-UX-AX - JIS BSP MALE X JIS BSP FEMALE X JIS BSP MALE	187
ML-ML-ML - MET LIGHT MALE TEE	188
ML-ML-UL - MET LIGHT MALE X MET LIGHT F/M	189
ML-UL-ML - MET LIGHT MALE X MET LIGHT F/M	190
MS-MS-MS - MET HEAVY MALE TEE	191
MS-MS-US - MET HEAVY MALE X MET HEAVY F/M	192
MS-US-MS - MET HEAVY MALE X MET HEAVY F/M	193

Technical Information

Section 1



GENERAL INFORMATION

An essential step in ensuring that a hydraulic system is safe and delivers optimum performance and service life is selecting the correct fluid conveying components.

Although a lot of the work undertaken in this industry is the replacement of existing components with a duplicate it is still good practice to check the product against the application especially if the service life of the product to be replaced was not acceptable or when fault finding on an existing system.

In some cases a problem with a hose assembly or other fluid conveying products can point to an underlying problem with the system itself or possibly the products have been incorrectly specified originally.

A simple method to assist in remembering the key selection criteria is the anagram:

F.A.C.T.O.R.S.

F = Fluid

A = Application

C = Connections

T = Temperature

O = Operating Pressures

R = Rate(s) of Flow

S = Size

F - FLUID

The materials in the products selected must be compatible with the fluid that is to be conveyed.

Compatibility considerations will vary between products depending on the fluid in question.

When checking product fluid compatibility the following should be taken into account;

Hose; where the application requires the use of chemicals or special oils it is advisable to ensure that the cover is also resistant. For gaseous applications it is possible that permeation could occur. Permeation, sometimes referred to as effusion, is the migration of fluid through the pores of the tube polymer resulting in gradual fluid loss. Where permeation occurs it is important to ensure that as well as the hose tube the reinforcement and cover are compatible. When conveying gaseous liquids it is advisable to pin-prick the cover to prevent fluid build-up under the cover causing blistering. Continual build-up of fluid in this blistering could eventually cause the cover to split resulting in potential hazards such as the release of toxic fumes, fire or even explosions.

Couplings & other products; As well ensuring the body material is compatible any seals in hose connectors, positional adaptors, quick release couplings, ball Valves, live swivels etc are also compatible.

A - APPLICATION

When selecting products it is important to check how and where they are going to be used as this will help to assess the likely demands that will be placed on the products.

Some of the aspects to consider are;

- Is the product going to be installed on mobile equipment or industrial plant?
- Is the application static or dynamic?
- Any installation constraints?
- Any mechanical loadings? Care should be taken not subject products to tension or torsional loads.
- Will it be subjected to constant impulsing?
- What fluid lines best suit the application? Flexible or rigid?
 - ❖ Flexible (hose). Hose has advantages such as;
 - *Easier to route around obstacles*
 - *Helps to dampen sound*
 - *Can absorb pressure spikes*
 - *Less prone to damage from vibration or movement*
 - *Generally easier to replace in the field*
 - ❖ Rigid (pipe or tube). Advantages of rigid lines;
 - *Less susceptible to mechanical damage*
 - *Good heat dissipation*
 - *Tube can be bent to tight radii*
 - *Does not breakdown through ageing*
- If selecting hose consider the following:
 - ❖ Does the cover need to be abrasion resistant?
 - ❖ Does it need to be non-conductive?
 - ❖ Any requirement for the hose to meet any specific Industry specifications? Such as mining, marine, military etc.
 - ❖ O.D of hose if it to run over pulleys (forklift application)
 - ❖ Composition of hose, rubber or thermoplastic? Note; Thermoplastic hose types are excellent for use in the marine and food industries.

Taking the time to get a good overview of the application will help when considering other aspects in the selection process, some of which are interrelated (such as pressure, flow & size).

Some accessory products such as Quick Release Couplings & Ball valves have specific selection requirements that need to be considered. These are discussed in detail in the relevant training modules.

C - CONNECTIONS

When replacing an existing hose assembly match the existing end connections with the new ones.

If a new assembly is being specified consider what interface (thread/sealing face) type would best suit the application. In most cases the type of connection is determined by the exit thread of the adaptor fitted to the port machined into the component to which the assembly is being fitted.

Confirm what style of hose connection is required (or preferred by the customer), where wire braided hose is being used it is possible to fit either Crimp or Re-usable (field attachable) and in low pressure applications a Push-On.

For 90° hose connections check the configuration required e.g. compact or swept bend style.

Rigid lines: pipe or tube

For pipe the most common connection is the welded type, this can be either a socket or butt weld style. Of these the butt weld should be preferred for high pressure however the socket style is the most commonly used due to the ease of assembly.

For tube there are three main options;

1. Flareless type
2. Flare type
3. Socket weld

T - TEMPERATURE

Two aspects of temperature must be considered when selecting products;

1. Fluid temperature; Check capability of product to withstand system fluid temperature, both minimum and maximum. Hydraulic systems can generate heat but this should not be excessive in well designed systems. The most common causes of excessive heat are undersized components or flow restrictions within the system.

2. Ambient temperature;

The exposure to high or low ambient temperatures should also be considered. Generally there are not many issues associated with this.

Hose is most likely to be affected, some situations where a problem could occur are;

When an installation requires hose to be run near a hot manifold it may be advisable to use a heat shield or sleeving.

Where a hose is subjected to a high ambient temperature in conjunction with an elevated fluid temperature the service life may be reduced.

Hose used in a cold environment, such as hoses on a forklift working in a coolstore, may have exhibit cracking on the cover.

Notes;

1. The viscosity rating of most hydraulic oils is set at a temperature of 40° Celsius.
2. Rubber polymers are affected differently by hot air than hot oil.
3. Rubber stores heat

O - OPERATING PRESSURES

Determine maximum system or circuit pressures, this may vary depending on the circuit function. Always take into account the possibility of pressure spikes when establishing the maximum pressures that could be generated in a system.

Remember to look at the application or function, this will help to visualise the possible loadings on the product.

For example, the crowd cylinder circuit on an excavator is more likely to be subjected to spike pressure than the slew circuit.

Always ensure that the product is working within a 4:1 safety factor. That is; the maximum pressure the product will be exposed to is less than 25% of the products minimum burst pressure. Where pressure spikes or impulsing can occur it is good practice, where this is possible, to specify a product that will be working at 75% of its pressure rating for normal system pressure, this will give a safety buffer to absorb spikes.

Note;

Any product fitted between the pump and valve will always be exposed to the highest pressures of the system.

R - RATES OF FLOW

There are two areas to look at with regards to fluid flow.

Volume;

This is the amount of fluid that will be flowing through the product in a given time. When selecting product it is best to look at the maximum flow that is to be conveyed. Maximum pump output is a good starting point but consideration should also be given to return flow from the piston side of cylinders, this can be high depending on the bore to annulus ratio of the cylinder.

Volume is usually measured in Gallons (imperial) or Litres (metric) per minute.

Velocity;

This is the speed of the fluid through the product and is directly related to the fluid volume and the product size. Fluid speed is a key factor in determining pressure drops and heat build up in systems.

Velocity is stated as; feet per second (imperial) or metres per second (metric)

S - SIZE

The size (flow area) of the product is key part in ensuring the system functions efficiently.

The flow area of the product and the volume of fluid determines the velocity of the fluid in the system. If the fluid velocity is too high then in some cases excessive pressure drop or heat generation can occur. A Nomograph is the easiest method of determining fluid velocity for any given volume versus product size.

Notes;

The potential service life of products can be significantly reduced if they are constantly operating at maximum limits.

Some areas of the selection process are interrelated however the key to correct product selection is the understanding of the application and what is required of the product.

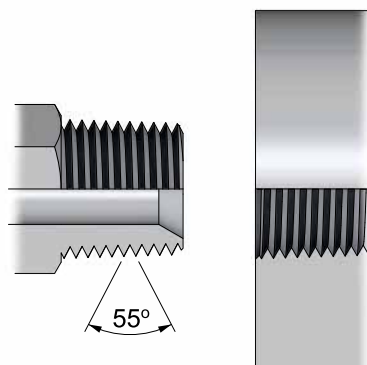
B.S.P.T. - BRITISH STANDARD PIPE TAPER

Taper: 1 in 16 by diameter

Thread Angle: 55°

The BSPT (British Standard Pipe Taper) male is intended to mate with the BSPT female only. Although the taper male will screw into BSP Parallel fixed female sockets, this is not recommended practice where avoidable as a reliable seal cannot be guaranteed.

While many BSPT males are coned 30° and will mate with BSP Parallel swivel nut females, this is not recommended practice as the taper form can deform the parallel thread and reduce the integrity of the seal.



Thread Size & TPI	Male Thread O.D. BSPT*	Female Thread I.D. BSPT
1/8-28	9.7	8.5
1/4-19	13.1	11.4
3/8-19	16.6	14.9
1/2-14	20.9	18.6
5/8-14	22.9	20.6
3/4-14	26.4	24.1
1-11	33.2	30.2
1.1/4-11	41.9	38.9
1.1/2-11	47.8	44.8
2-11	59.6	56.6

*Basic gauge plane diameter at basic gauge depth

THREAD IDENTIFICATION

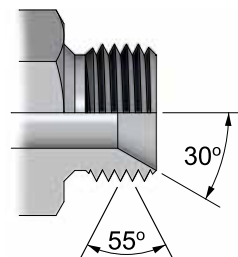
B.S.P.P. - BRITISH STANDARD PIPE PARALLEL

Thread Angle: 55°

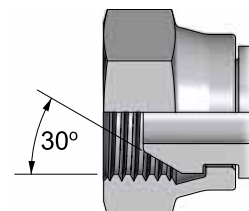
The British Standard Pipe Parallel (BSPP) male is typically coned 30° and will mate with either a BSPP swivel nut female or a BSPP female port.

BSPP female ports are normally spot faced, sealing is by either a soft metal washer, a bonded seal or a captive "O" ring.

In some cases, the port is chamfered to accept an "O" ring seal. (Similar to the U.N.O. style).

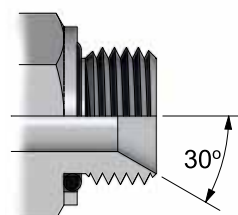


BSPP male



BSPP swivel nut female

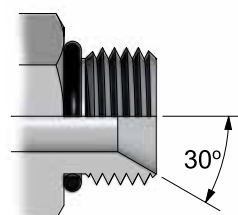
Thread Size & TPI	Male Thread O.D. BSPP	Female Thread I.D. BSPP	Torque Settings BSPP nuts
1/8-28	9.7	8.5	12 Nm
1/4-19	13.1	11.4	26 Nm
3/8-19	16.6	14.9	47 Nm
1/2-14	20.9	18.6	79 Nm
5/8-14	22.9	20.6	104 Nm
3/4-14	26.4	24.1	128 Nm
1-11	33.2	30.2	160 Nm
1.1/4-11	41.9	38.9	200 Nm
1.1/2-11	47.8	44.8	270 Nm
2-11	59.6	56.6	350 Nm



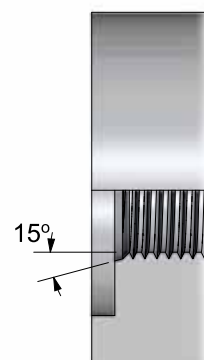
BSPP male with captive o-ring seal



BSPP female port (spot-faced)



BSPP male with o-ring seal



BSPP female port (chamfered)

N.B. Torque values are nominal and supplied as a guide only.

N.P.T. - NATIONAL PIPE THREAD

N.P.T.F.; National Pipe Taper Fuel

N.P.S.M.; National Pipe Straight Mechanical

N.P.S.F.; National Pipe Straight Fuel

Taper: 1 in 16 by diameter.

Thread Angle: 60°

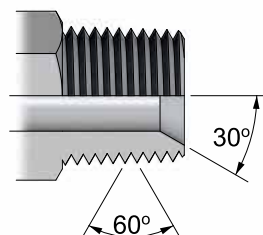
The National Pipe Taper Fuel (NPTF) male is coned 30° and will mate with the NPTF female port (taper), the National Pipe Straight Mechanical (NPSM) female (swivel nut female with 30° sealing cone), or the National Pipe Straight Fuel (NPSF) female port (parallel).

As NPTF is a “dryseal” thread, no sealing medium is required. However a sealing medium can be used to prevent thread galling.

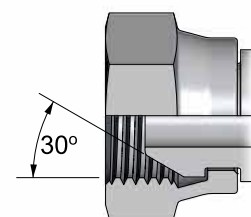
Thread Size & TPI	Male Thread O.D. NPTF	Female Thread I.D.	
		NPTF	NPSF/SM
1/8-27	10.0	8.6	8.7
1/4-18	13.3	11.2	11.4
3/8-18	16.7	14.7	14.9
1/2-14	20.8	18.2	18.8
3/4-14	26.1	23.5	23.9
1-11.1/2	32.7	29.5	30.2
1.1/4-11.1/2	41.4	38.3	39.1
1.1/2-11.1/2	47.5	44.4	45
2-11.1/2	59.3	56.2	57



**NPTF female
port (taper)**



**NPTF male
(taper)**



**NPSM swivel
nut female**



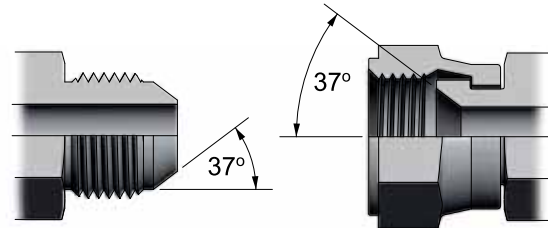
**NPSF female
port (parallel)**

J.I.C / U.N. O-RING THREAD

J.I.C. and U.N. "O"-Ring threads are both of the Unified National Form.

J.I.C. refers to the 37° flare type sealing face. The J.I.C. female is usually a swivel nut, but can also be a fixed socket (port) with a 37° sealing face in the base of the socket.

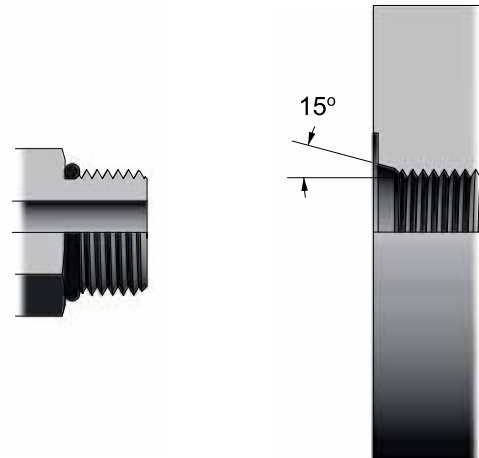
U.N. "O"-Ring refers to the thread type and "O"-Ring for sealing. The female U.N.O port has a chamfer to accept the o-ring.



JIC male

**JIC swivel
nut female**

Thread Size & TPI	Female Thread I.D.	Tube O.D.	Torque Settings	
			JIC	UN"O"
7/16 x 20 UNF	9.8	1/4"	14 Nm	21 Nm
1/2 x 20 UNF	11.5	5/16"	19 Nm	25 Nm
9/16 x 18 UNF	13.0	3/8"	30 Nm	34 Nm
3/4 x 16 UNF	17.4	1/2"	50 Nm	72 Nm
7/8 x 14 UNF	20.3	5/8"	80 Nm	100 Nm
1 1/16 x 12 UN	24.8	3/4"	130 Nm	176 Nm
1 3/16 x 12 UN	28.2	7/8"	140 Nm	220 Nm
1 5/16 x 12 UN	31.2	1"	156 Nm	290 Nm
1 5/8 x 12 UN	39.2	1.1/4"	188 Nm	350 Nm
1 7/8 x 12 UN	45.5	1.1/2"	268 Nm	460 Nm
2 1/2 x 12 UN	61.5	2"	346 Nm	540 Nm



UNO male

**UNO female
port
(chamfered)**

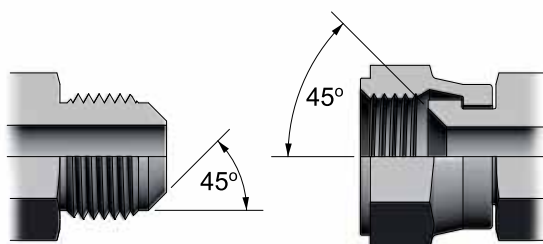
N.B. Torque values are nominal and supplied as a guide only.

THREAD IDENTIFICATION

S.A.E. - SOCIETY OF AUTOMOTIVE ENGINEERS O.R.F.S. - O-RING FACE SEAL

This system utilises the U.N. thread series and a 45° flare sealing face. Primarily used in the automotive and refrigeration industries.

This system uses an "O"-Ring for sealing. The "O"-Ring is housed in the face of the male and is compressed by the face of the female on connection. Connecting threads are U.N. form.

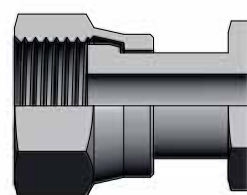


SAE male

**SAE swivel
nut female**



ORFS male



**ORFS swivel
nut female**

Thread Size & TPI	Tube O.D.	Female Thread I.D.
7/16-20	1/4"	9.8
1/2-20	5/16"	11.4
5/8-18	3/8"	14.3
11/16-16	7/16"	16
3/4-16	1/2"	17.5
7/8-14	5/8"	20.5
1.1/16-14	3/4"	24.8
1.1/4-12	7/8"	30.1
1.3/8-12	1"	33.2

Thread Size & TPI	Female Thread I.D.	Tube O.D.	"O"-ring size	Torque Settings *
9/16-18 UNF	12.8	1/4"	5/16x1/16	14-16 Nm
11/16-16 UN	16.0	3/8"	3/8x1/16	24-27 Nm
13/16-16 UN	19.1	1/2"	1/2x1/16	43-47 Nm
1-14 UN	23.5	5/8"	5/8x1/16	60-69 Nm
1.3/16-12UN	26.1	3/4"	3/4x1/16	90-95 Nm
1.7/16-12 UN	34.2	1"	15/16x1/16	125-135 Nm
1.11/16-12 UN	40.6	1.1/4"	1.3/16x1/16	170-190 Nm
2-12 UN	48.0	1.1/2"	1.1/2x1/16	200-225 Nm

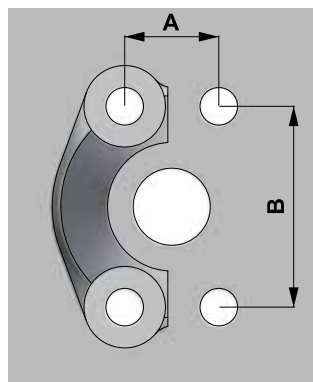
N.B. Torque values are nominal and supplied as a guide only.

S.A.E. O-RING FLANGES (SAE - J518)

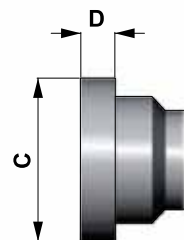
These connections utilise an “O”-Ring for sealing and are widely used for connecting to pump and motor parts as well as end terminations for pipe runs.

The “O”-Ring is housed in the flange head face and seals on a flat face female port, the flange is held in place by two clamp halves (or a one piece clamp) which are secured by four bolts.

SAE flanges are available in two pressure classes: **Standard Series, Code 61**, which goes to 5000 psi (dependent on size), and the **High Pressure Series, Code 62**, which is rated to 6000 psi for all sizes.



**SAE flange
clamp / port
bolt spacing**



**SAE flange
head
dimensions**

Nominal Flange Size	A (mm)		B (mm)		C (mm)		D (mm)	
	Code 61	Code 62	Code 61	Code 62	Code 61	Code 62	Code 61	Code 62
1/2	17.48	18.24	38.1	40.49	30.18	31.75	6.75	7.75
*5/8	19.8	-	42.90	-	34.0	-	6.73	-
3/4	22.23	23.80	47.63	50.80	38.10	41.28	6.73	8.76
1	26.19	27.76	52.37	57.15	44.45	47.63	8.0	9.53
1.1/4	30.18	31.75	58.72	66.68	50.80	53.98	8.0	10.29
1.1/2	35.71	36.50	69.85	79.38	60.33	63.50	8.0	12.57
2	42.88	44.45	77.77	96.82	71.42	79.38	9.53	12.57

Nominal Flange Size	Pressure Rating		"O"-ring size		UNC Bolt size		Bolt torque	
	Code 61	Code 62	Code 61 and 62	AS568A number	Code 61	Code 62	Code 61	Code 62
1/2	5000 psi	6000 psi	3/4x1/8	210	5/16x1.1/4	5/16x1.1/4	20-25 Nm	20-25 Nm
3/4	5000 psi	6000 psi	1x1/8	214	3/8x1.1/4	3/8x1.1/2	28-40 Nm	34-45 Nm
1	5000 psi	6000 psi	1.5/16x1/8	219	3/8x1.1/4	7/16x1.3/4	37-48 Nm	56-68 Nm
1.1/4	4000 psi	6000 psi	1.1/2x1/8	222	7/16x1.1/2	1/2x1.3/4	48-62 Nm	85-102 Nm
1.1/2	3000 psi	6000 psi	1.7/8x1/8	225	1/2x1.1/2	5/8x2.1/4	62-79 Nm	158-181 Nm
2	3000 psi	6000 psi	2.1/4x1/8	228	1/2x1.1/2	3/4x2.3/4	73-90 Nm	271-294 Nm

**The 5/8* size flange is not part of the SAE standard. It is included in the J.I.S. standards and is used by Komatsu and other O.E.M's.*

N.B. Torque values are nominal and supplied as a guide only

Caterpillar flanges used on XT3 hose are the same as the SAE Code 61, XT5 flanges have the same diameter as the SAE Code 62 but are thicker in the flange head.

French Gaz (Poclain) flanges are completely different to, and will not interchange with the SAE flanges.

J.I.S. - JAPANESE INDUSTRIAL STANDARDS

Japanese Industrial Standards (J.I.S.) incorporate B.S.P. and metric threads as well as flanges in their connection standards.

Taper Threads:

Type R; BSPT Male (*Identical to BSP standard*)

Parallel Threads:

Type G; BSPP Male (*Identical to BSP standard*)

Type C; BSPP Swivel Nut Female (*Identical to BSP standard - for thread data please refer to BSPP section*)

Type F; BSPP Swivel Nut Female, 30° Flare Seat

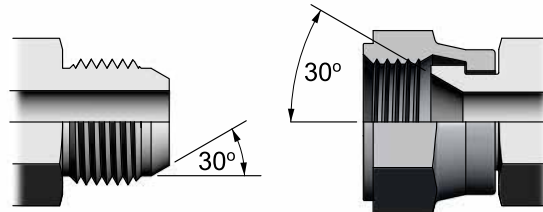
Type M; Metric, Male, 30° Cone

Type MF; Metric, Swivel Nut Female, 30° Flare Seat

“O”-Ring Flanges:

Type I; Equivalent to Code 61 (*Identical to SAE standard*)

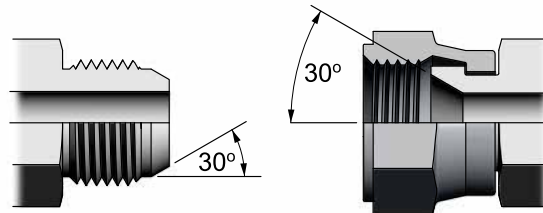
Type II; Equivalent to Code 62 (*Identical to SAE standard*)



Type F JIS male

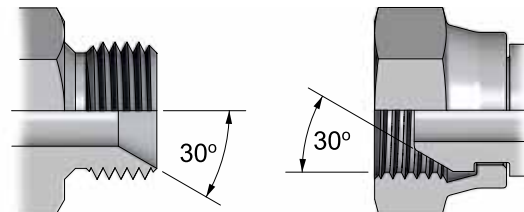
For thread data please refer to BSPP section

Type F JIS swivel nut female



Type MF JIS male

Type MF JIS swivel nut female



Type M JIS male

Type M JIS swivel nut female

THREAD SPECIFICATIONS			
Metric Threads (J.I.S.)		Komatsu Threads (Metric)	
14-1.5*	12.5	14-1.5*	12.5
18-1.5*	16.5	18-1.5*	16.5
22-1.5*	20.5	22-1.5*	20.5
27-2.0	25	24-1.5	22.5
33-2.0	31	30-1.5	28.5
42-2.0	40	33-1.5	31.5
50-2.0	48	36-1.5	34.5
60-2.0	58	42-1.5	40.5

* denotes interchange sizes between JIS and Komatsu.

D.I.N. METRICS 24° CONE SYSTEM

The D.I.N. System allows for the connection of hose assemblies and tube in three main pressure series:

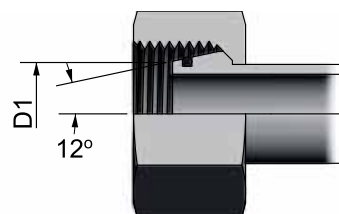
Series LL;	Extra Light, up to 100 bar
Series L;	Light up to 250 bar
Series S;	Heavy up to 640 bar

The pressure ranges are determined by the tube O.D. and the thread size e.g. a 12mm light coupling has an 18mm thread O.D. whereas a 12mm heavy coupling has a 20mm O.D. thread.

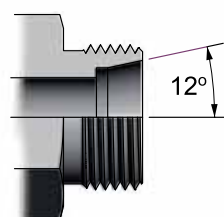
N.B: Rated coupling pressures are subject to the design pressures of the tube or hose being used.

Tubing is connected to the D.I.N. Male by the use of a cutting ring and nut. Hose assemblies can be connected by swivel nut females having either a spherical seal, 24° cone seal (can be fitted with "O"-Ring), or a standpipe with cutting ring and nut. Hose can also be connected directly to tube by use of a hose tail with the D.I.N. Male form

The male form will accept all three female styles shown (right).



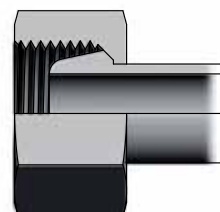
DIN 24° cone female with o-ring



DIN 24° cone male



DIN cutting ring and nut on tube



DIN female swivel nut with spherical seat

THREAD SPECIFICATIONS LIGHT (L) SERIES			
Thread O.D. & Pitch	Female Thread I.D.	Diameter D1 (mm)	Tube O.D.(mm)
M12-1.5	10.5	7.2	6
M14-1.5	12.5	9.2	8
M16-1.5	14.5	11.6	10
M18-1.5	16.5	13.8	12
M22-1.5	20.5	16.8	15
M26-1.5	24.5	19.8	18
M30-2.0	28	23.8	22
M36-2.0	34	29.8	28
M45-2.0	43	37.2	35
M52-2.0	50	44.2	42

THREAD SPECIFICATIONS HEAVY (S) SERIES			
Thread O.D. & Pitch	Female Thread I.D.	Diameter D1 (mm)	Tube O.D.(mm)
M14-1.5	12.5	7.2	6
M16-1.5	14.5	9.2	8
M18-1.5	16.5	11.6	10
M20-1.5	18.5	13.8	12
M22-1.5	20.5	15.8	14
M24-1.5	22.5	17.8	16
M30-2.0	28	22	20
M36-2.0	34	27	25
M42-2.0	40	32	30
M52-2.0	50	40	38

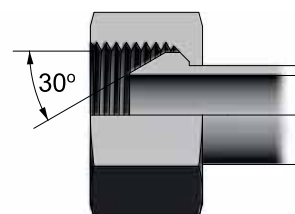
* N.B. Diameter D1 is nominal and may vary between manufacturers.

D.I.N. METRICS 60° CONE SYSTEM

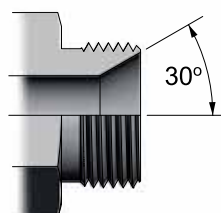
This series utilises a 60° cone seating angle and is used for the connection of hose assemblies and tube. It differs from the 24° series in that the threads are predominately 1.5mm pitch and there is no light or heavy pressure ranges.

The D.I.N. 60° male will accept the universal (spherical seat) female, a 60° coned female and tube fitted with a cutting ring and nut.

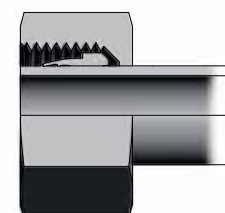
THREAD SPECIFICATIONS		
Thread O.D. & Pitch	Female Thread I.D.	Tube O.D.(mm)
M10-1.0	9.0	5
M12-1.5	10.5	6
M14-1.5	12.5	8
M16-1.5	14.5	10
M18-1.5	16.5	12
M22-1.5	20.5	15
M26-1.5	24.5	18
M30-1.5	28.5	22
M38-1.5	36.5	28
M45-1.5	43.5	35
M52-2.0	56.5	42



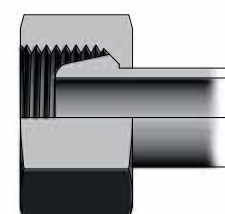
DIN 60° cone female



DIN 60° cone male



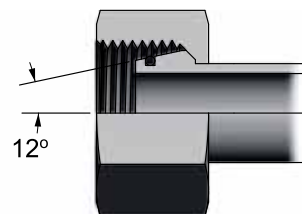
DIN cutting ring and nut on tube



DIN female swivel nut with spherical seat

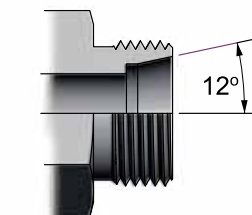
I.S.O. METRICS (INTERNATIONAL STANDARDS ORGANISATION)

The I.S.O. series of couplings is similar to the D.I.N. light and heavy in function. The male has a 24° included angle sealing cone and a recessed counter bore for locating the tube when used in conjunction with a cutting ring and nut. The male will also accept a swivel nut female with either a cone or a spherical seal.

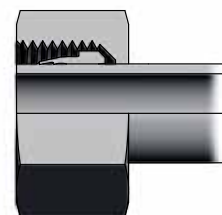


**ISO (24° cone)
female with o-ring**

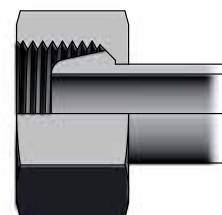
THREAD SPECIFICATIONS		
Thread O.D. & Pitch	Female Thread I.D.	Tube O.D.(mm)
M12-1.0	11.0	6
M14-1.5*	12.5	8
M16-1.5*	14.5	10
M18-1.5*	16.5	12
M20-1.5	18.5	14
M22-1.5*	20.5	15
M24-1.5**	22.5	16
M27-1.5	25.5	18
M30-1.5	28.5	22
M33-1.5	31.5	25
M36-1.5	34.5	28
M39-1.5	37.5	30
M42-1.5	40.5	32
M45-1.5	43.5	35
M48-1.5	46.5	38
M52-1.5	50.5	40



**ISO (24° cone)
male**



**ISO cutting ring and
nut on tube**



**ISO female swivel
nut with spherical
seat**

* Interchange with D.I.N. Light

** Interchange with D.I.N. Heavy

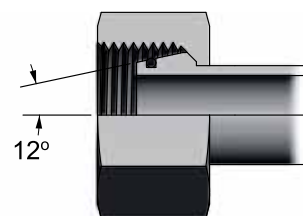
FRENCH METRICS (GAZ & MILLIMETRIQUE SERIES)

The series are similar to the D.I.N. 24° type where the male has a 24° included angle sealing cone and a recessed counterbore for locating the tube.

The male will accept a cutting ring and nut for use with tube or a swivel nut female with either a cone or spherical seal.

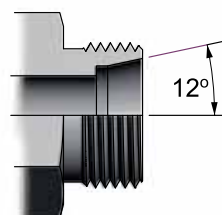
The Gaz and Millimetrique series are identical in all respects except for the O.D. of the tube:

- Gaz series uses fractional number O.D. metric tubing.
- Millimetrique series uses whole number O.D. metric tubing.

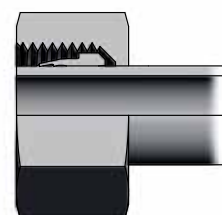


French 24° cone female with o-ring

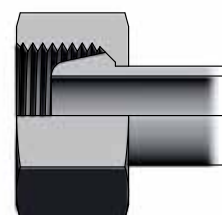
THREAD SPECIFICATIONS LIGHT (L) SERIES			
Thread O.D. & Pitch	Female Thread I.D.	Diameter	
		GAZ	Millimetrique
M12-1.0	11.0	-	6
M14-1.5	12.5	-	8
M16-1.5	14.5	-	10
M18-1.5	16.5	-	12
M20-1.5	18.5	13.25	14
M22-1.5	20.5	-	15
M24-1.5	22.5	16.75	16
M27-1.5	25.5	-	18
M30-1.5	28.5	21.25	22
M33-1.5	31.5	-	25
M36-1.5	34.5	26.75	28
M39-1.5	37.5	-	30
M42-1.5	40.5	-	32
M45-1.5	43.5	33.5	35
M48-1.5	46.5	-	38
M52-1.5	50.5	42.25	40
M54-2.0	52.0	-	45
M58-2.0	56.0	48.25	-



French 24° cone male



Cutting ring and nut on tube

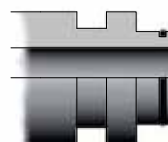


French female swivel nut with spherical seat

STAPLE-LOK COUPLINGS

Originally designed in Germany for underground mining equipment, the Staple-lok requires no spanners for connection or disconnection. The male and female are pushed together and held with a retaining staple or "U" clip.

Sealing is achieved by the captive "O"-Ring located on the male spigot. The female can either be fixed or swivel type. The coupling is not designed to swivel under pressure.

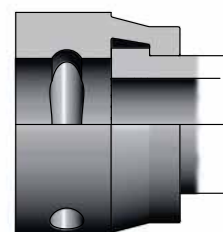


Staple-lok male



Staple-lok fixed female

Coupling Dash Size	Imperial Size	Male O.D.		Female I.D.	
		inch	mm	inch	mm
-4	1/4	0.58	14.8	.59	15.0
-6	3/8	0.78	19.8	.79	20.0
-8	1/2	0.94	23.9	.95	24.1
-12	3/4	1.13	28.8	1.14	29.0
-16	1	1.53	38.9	1.54	39.1
-20	1.1/4	1.80	45.7	1.81	46.0
-24	1.1/2	2.16	54.9	2.17	55.1
-32	2	2.52	64.0	2.53	64.3



Staple-lok swivel female

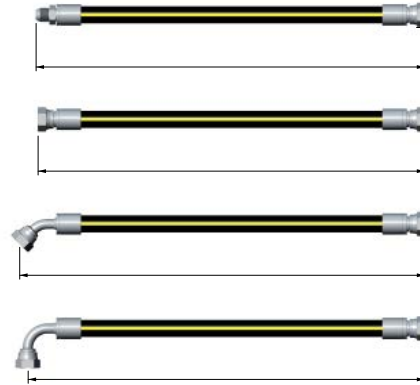


Staple-lok staple

STRAIGHT HOSE ASSEMBLY LENGTH

Overall hose assembly lengths are determined by measuring the centreline length between the coupling end faces for straight couplings, or through the sealing face centreline for angled couplings (examples to right).

Sufficient length allowance should be made to compensate for hose contraction and expansion under operating procedures.



BENT HOSE ASSEMBLY LENGTH

For installations that require a 180° bend in the hose assembly, the overall length can be calculated as follows:

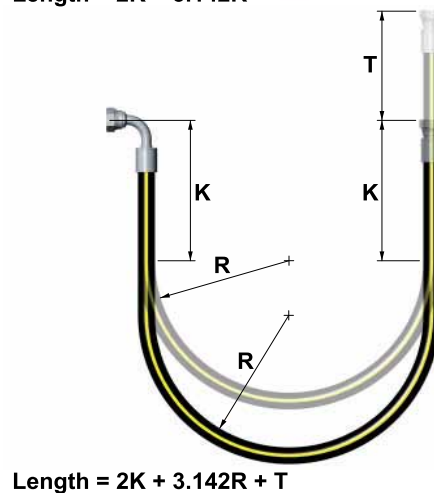
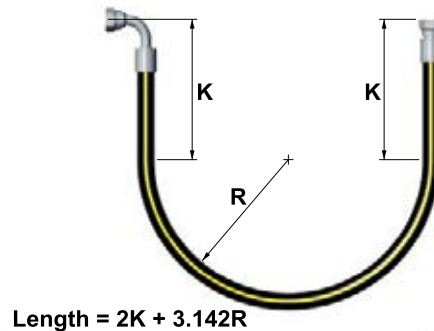
Static Installations

To avoid localised concentration of bending strain on the hose couplings, a free distance (K) of hose should be designed into the length of each assembly. Distance "K" includes length of coupling and adaptor (if used). Dimension "R" should not be less than the manufacturer's recommended bend radius for the hose used. Refer to chart below for "K" dimensions of hoses with I.D. from 3/16" to 2".

Hose I.D.	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1	1.1/4	1.1/2	2
K (mm)	110	130	130	160	180	210	210	260	260	260	310

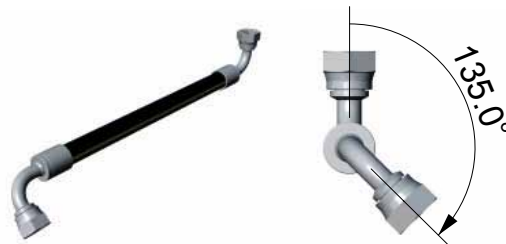
Dynamic Installations

When a hose assembly is subjected to relative motion between the two end couplings, additional hose length is required to accommodate the travel distance. In the diagram (right) "T" represents the amount of travel.



Off-Set Angle Measurement

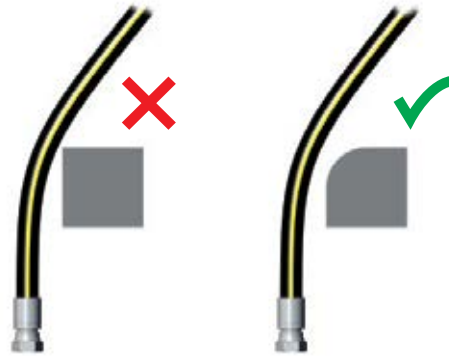
Place hose assembly in line of sight position with coupling furthest away facing upwards. Determine off-set angle by comparing relative position of closest coupling to the far coupling in a clockwise direction.



1. Hose Protection

Protect the hose cover from damage such as abrasion, erosion, snagging, and cutting. Where possible, route hose to reduce abrasion from hose rubbing other hose or objects that may abrade it (Fig. 1). Special abrasion-resistant hoses and hose guards are available for additional protection. Special consideration may also need to be given to hose assemblies near heat sources.

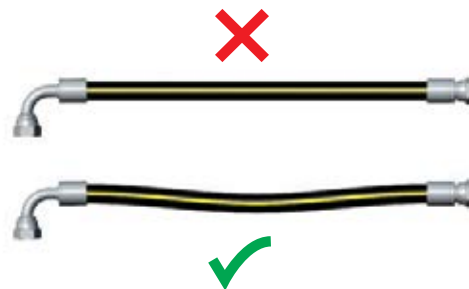
Fig. 1



2. Hose And Machine Tolerances

Avoid tension on hose assemblies and adaptors. Design hose to allow for changes in length due to machine motion and tolerances (Fig. 2). Failure to do so may result in seal or assembly failure.

Fig. 2



3. Torsional Twist

Do not transfer torque to hose while installing. This transfer of torque can result in torsional twist, which may result in premature hose assembly failure. Use swivel type couplings or adaptors for ease of alignment as needed to prevent twisting during installation. Use the brand lay-line as a guide to ensure the hose is not pre-loaded with torsional twist when installed (Fig. 3).

Fig. 3



4. Minimum Bend Radius

The minimum bend radius for hose supplied by Hydraulink is detailed in this catalogue. Routing at less than minimum bend radius is not recommended and may reduce hose life.

Prevent sharp bending at the hose/fitting juncture (Fig. 4a). Unnecessary stress at this point may result in leaking, hose rupturing, or the hose assembly blowing apart.

Stress at this point can be minimised by ensuring adequate hose length (Fig. 4b), or by use of angled adaptors and couplings (Fig 4c).

Fig. 4a

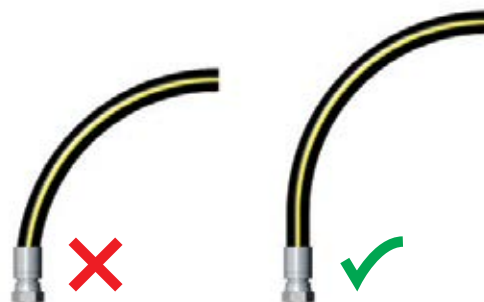


Fig. 4b

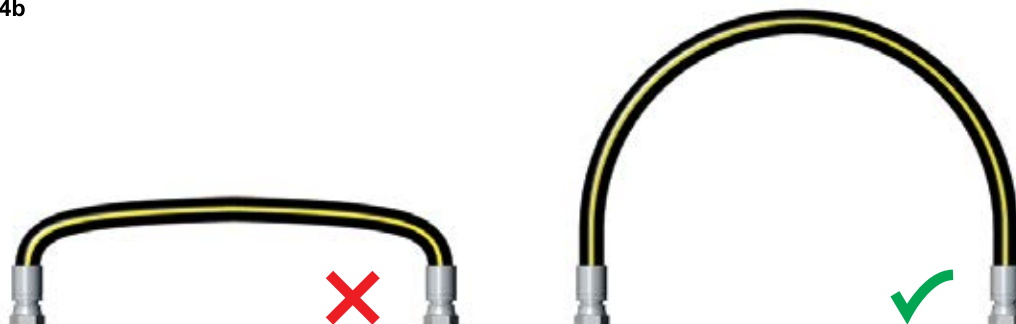


Fig. 4c

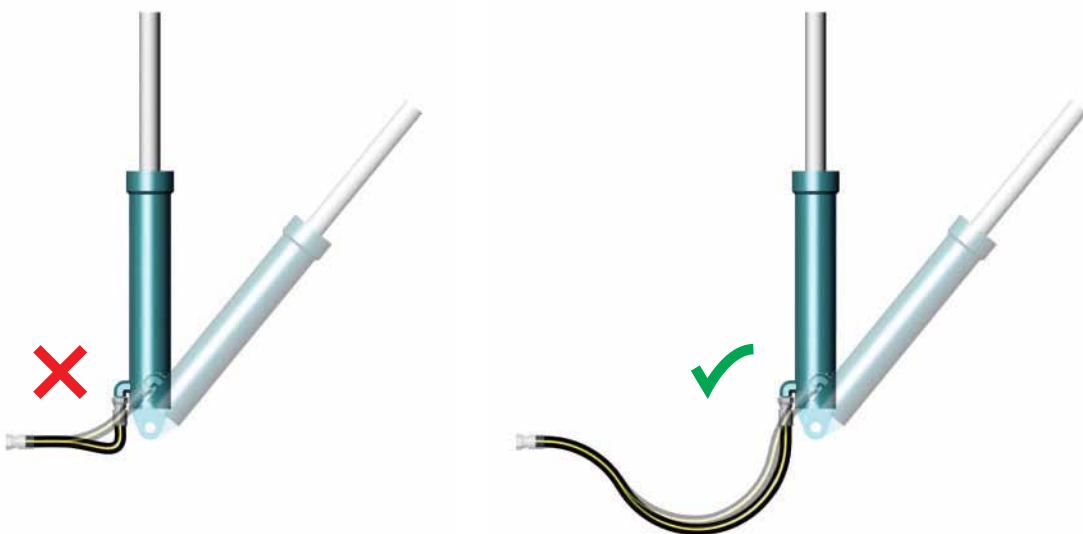


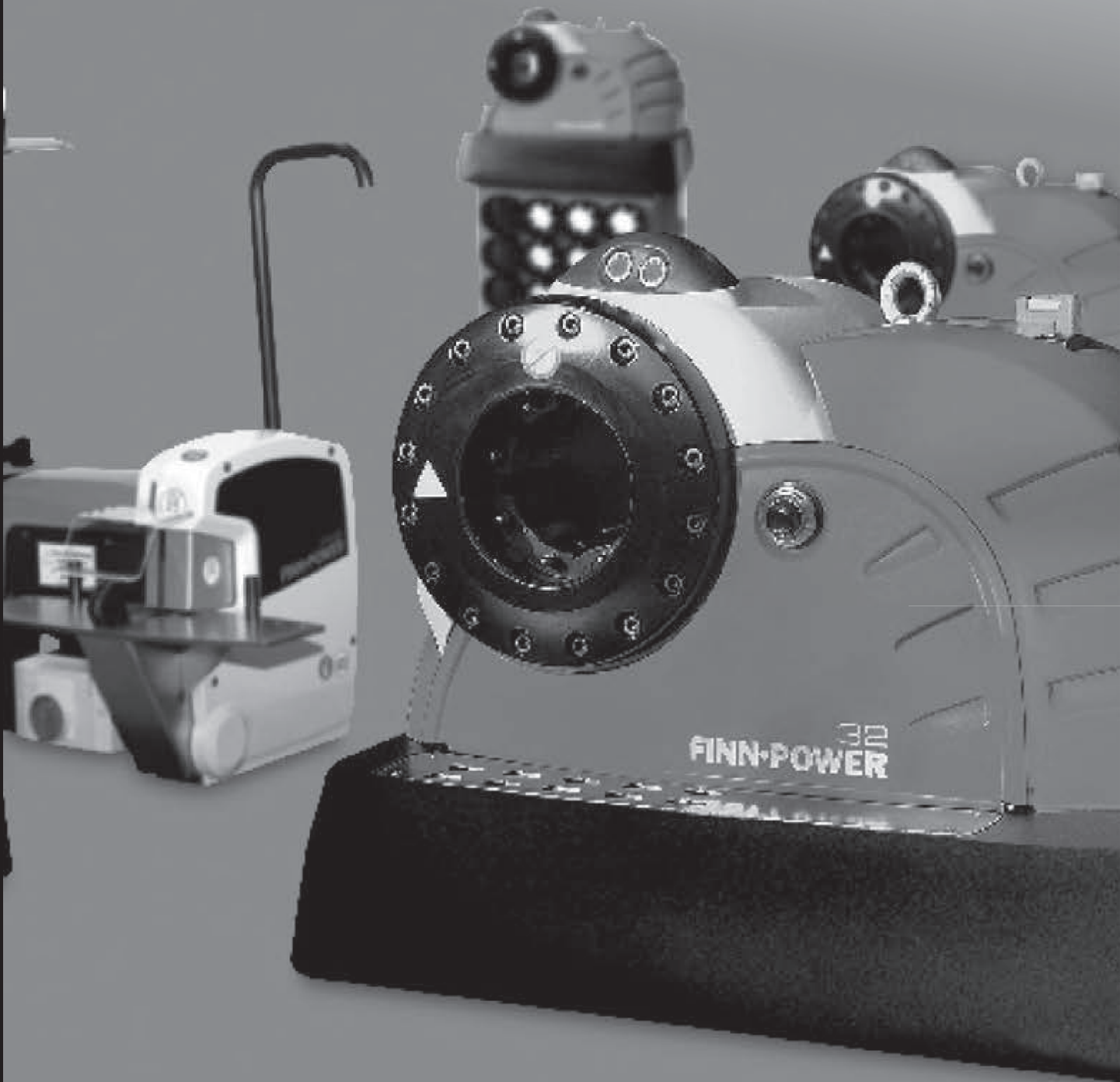
5. Hose Length Change

Hydraulic hose can expand longitudinally when pressurised, and this hose length change must be considered when specifying or installing hose assemblies (Fig. 5) When clamping hose lengths, always place clamps to avoid stressing the fitting end.

Fig. 5**6. Relative Movement**

When specifying or installing hoses that have movement relative to each other, provide adequate hose length to absorb the required movement and prevent bends occurring that are smaller than the minimum bend radius (Fig. 6a).

Fig. 6a



GENERAL INFORMATION

Hydraulink Fluid Connectors Ltd. are authorised distributors for Finn-Power swagers and cut-off saws. Finn-Power produce high-quality, extremely durable machines that are compact and ergonomically designed.

The swagers available through Hydraulink range from hand-operated portable machines for hoses up to 1" I.D. to large-scale production models with capacity up to 190mm. For more information regarding Finn-Power swagers not detailed in this section, visit <http://www.lillbacka.com/powerco/> or contact Hydraulink.

The most common machines are listed in this section, and the larger models are typically available in one of three control solutions, dependent upon the main type of application. Also listed are tool bases and die-change racks that further improve the ergonomics of the machines and can make them more productive.

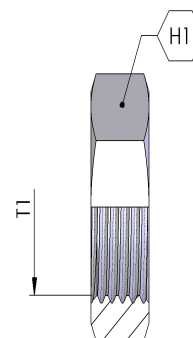
Also included in this section are Finn-Power hose cut-off saws, which are manufactured to the same high standards as their swagers.

Our product range is constantly evolving and Hydraulink reserve the right to change technical specifications without notice

NUTS AND CUTTING RINGS

AKB

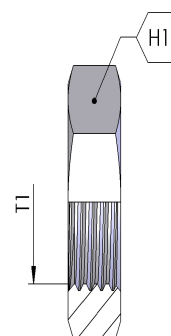
BSP BULKHEAD LOCKNUT



Part Number	T1
AKB-04	1/4-19
AKB-06	3/8-19
AKB-08	1/2-14
AKB-12	3/4-14
AKB-16	1-11
AKB-20	1 1/4-11
AKB-24	1 1/2-11

ALB

UNO BULKHEAD LOCKNUT



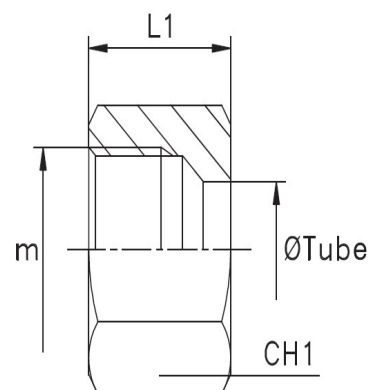
Part Number	T1
ALB-07	7/16-20
ALB-14	7/8-14
ALB-16	1-12
ALB-17	1.1/16-12
ALB-19	1.3/16-12
ALB-21	1.5/16-12

MLLN

MET EXTRA LIGHT TUBE NUT

METRIC 24° CONE EXTRA LIGHT TUBE NUT

- ISO 8434-1



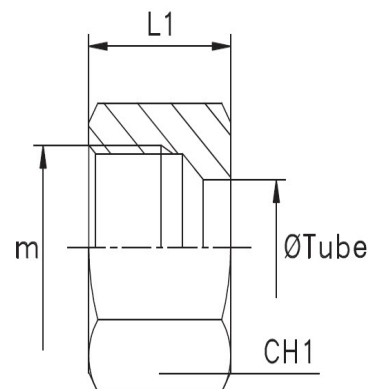
Part Number	Metric Female Thread (m)	Suits Tube Diameter	L1 - mm	Hex A/F (CH1)
MLLN-10	M10-1	6	11.5	12
MLLN-12	M12-1	8	12	14

MLN

MET LIGHT TUBE NUT

METRIC 24° CONE LIGHT TUBE NUT

- ISO 8434-1



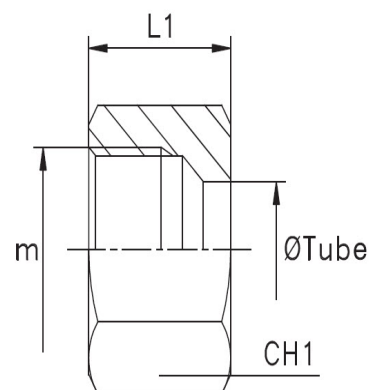
Part Number	Metric Female Thread (m)	Suits Tube Diameter	L1 - mm	Hex A/F (CH1)
MLN-12	M12-1.5	6	15	14
MLN-14	M14-1.5	8	15	17
MLN-16	M16-1.5	10	16	19
MLN-18	M18-1.5	12	16	22
MLN-22	M22-1.5	15	17	27
MLN-26	M26-1.5	18	18	32
MLN-30	M30-2	22	20	36
MLN-36	M36-2	28	21	41
MLN-45	M45-2	35	24	50
MLN-52	M52-2	42	24	60

MSN

MET HEAVY TUBE NUT

METRIC 24° CONE HEAVY TUBE NUT

- ISO 8434-1



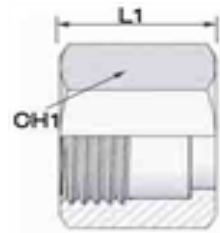
Part Number	Metric Female Thread (m)	Suits Tube Diameter	L1 - mm	Hex A/F (CH1)
MSN-14	M14-1.5	6	17	17
MSN-16	M16-1.5	8	17	19
MSN-18	M18-1.5	10	18	22
MSN-20	M20-1.5	12	18	24
MSN-22	M22-1.5	14	21	27
MSN-24	M24-1.5	16	21	30
MSN-30	M30-2	20	24	36
MSN-36	M36-2	25	27	46
MSN-42	M42-2	30	29	50
MSN-52	M52-2	38	33	60

TJN

JIC TUBE NUT

JIC 37° FLARE TUBE NUT

- USE WITH TJS TUBE SLEEVE



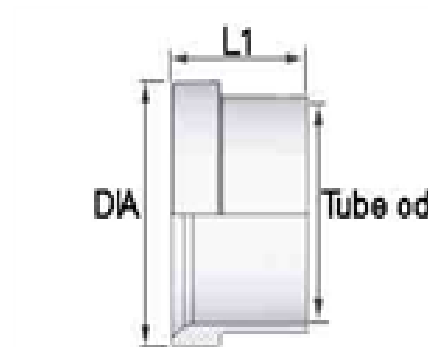
Part Number	suits tube	JIC Female Thread	L1 - mm	Hex A/F (CH1)
TJN-07	1/4	7/16-20	15	14
TJN-08	5/16	1/2-20	17	16
TJN-09	3/8	9/16-18	18	18
TJN-12	1/2	3/4-16	21	22
TJN-14	5/8	7/8-14	25	25
TJN-17	3/4	1.1/16-12	26	32
TJN-19	7/8	1.3/16-12	27	35
TJN-21	1	1.5/16-12	28	38
TJN-26	1.1/4	1.5/8-12	31	51
TJN-30	1.1/2	1.7/8-12	36	32

TJS

JIC FEMALE TUBE SLEEVE

JIC 37° FLARE IMPERIAL TUBE SUPPORT SLEEVE

- USE WITH TJN TUBE NUT



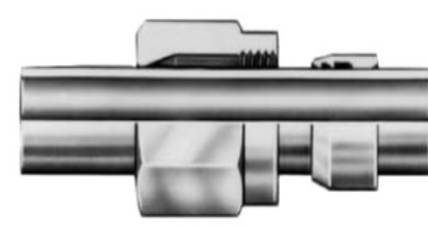
Part Number	suits tube	L1 - mm	Diameter - mm
TJS-04	1/4	10	10
TJS-05	5/16	11	11
TJS-06	3/8	13	13
TJS-08	1/2	14	17
TJS-10	5/8	17	20
TJS-12	3/4	17	25
TJS-14	7/8	19	28
TJS-16	1	20	31
TJS-20	1.1/4	23	39
TJS-24	1.1/2	28	45

TJNV

JIC TUBE NUT

JIC 37° FEMALE FLARELESS TUBE NUT

- USE WITH TJSV TUBE SLEEVE

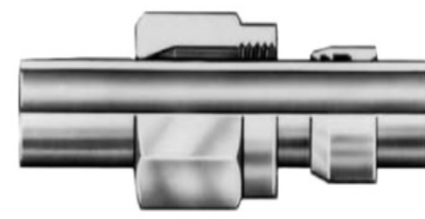


Part Number	suits tube	JIC Female Thread	L1 - mm	Hex A/F (CH1)
TJNV-07	1/4	7/16-20	21	14
TJNV-09	3/8	9/16-18	22	17
TJNV-12	1/2	3/4-16	27	22
TJNV-14	5/8	7/8-14	29	25
TJNV-17	3/4	1.1/16-12	35	32
TJNV-21	1	1.5/16-12	36	38
TJNV-26	1.1/4	1.5/8-12	46	51

TJSV

JIC FEMALE COMPRESSION SLEEVE
JIC 37° FEMALE FLARELESS TUBE COMPRESSION
(BITE TYPE) SLEEVE

- USE WITH TJNV TUBE NUT

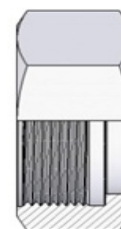


Part Number	suits tube	Overall Length	Diameter - mm
TJSV-04	1/4	11	9
TJSV-06	3/8	12	12
TJSV-08	1/2	14	17
TJSV-10	5/8	15	20
TJSV-12	3/4	17	25
TJSV-16	1	20	31
TJSV-20	1.1/4	23	39

OTN

ORFS TUBE NUT
ORFS TUBE NUT

- USE WITH OTS TUBE WELD



Part Number	suits tube	SAE Female Thread (A)	L1 - mm	Hex A/F (CH1)
OTN-09	1/4	9/16-18	15	18
OTN-11	3/8	11/16-16	17	21
OTN-13	1/2	13/16-16	21	24
OTN-16	5/8	1-14	24	29
OTN-19	3/4	1.3/16-12	26	35
OTN-23	1	1.7/16-12	28	41
OTN-27	1.1/4	1 11/16-12	28	48

OTS

TUBEWELD X ORFS FEMALE

IMPERIAL TUBE WELD SOCKET X ORFS FEMALE

- USE WITH OTN TUBE NUT



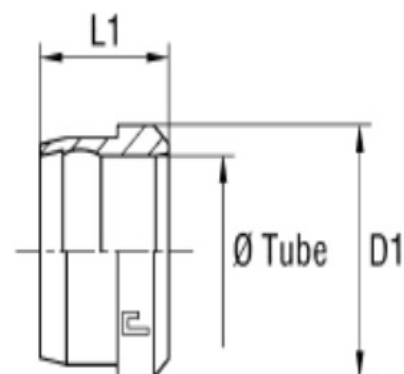
Part Number	suits tube	L1 - mm	Diameter - mm
OTS-04	1/4	9	13
OTS-06	3/8	9	16
OTS-08	1/2	9	19
OTS-10	5/8	10	23
OTS-12	3/4	14	28
OTS-16	1	15	34
OTS-20	1.1/4	15	41

TCM

MET TUBE CUTTING RING

METRIC TUBE 24° CONE CUTTING RING

- ISO 8434-1



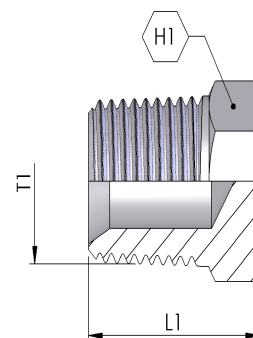
Part Number	Suits Light DIN Metric Male	Suits Heavy DIN Metric Male	Suits Tube Diameter (mm)	L1 (mm)	D1 (mm)
TCM-6LL	M10-1		6	6	8
TCM-6L/S	M12-1.5	M14-1.5	6	10	10
TCM-8L/S	M14-1.5	M16-1.5	8	9.5	12
TCM-10L/S	M16-1.5	M18-1.5	10	10	14
TCM-12L/S	M18-1.5	M20-1.5	12	10	16
TCM-15L	M22-1.5		15	10	19
TCM-18L	M26-1.5		18	10	23
TCM-22L	M30-2		22	11	27
TCM-28L	M36-2		28	11	33
TCM-35L	M45-2		35	13	41
TCM-42L	M52-2		42	13	48
TCM-14S		M22-1.5	14	10	19
TCM-16S		M24-1.5	16	11	21
TCM-20S		M30-2.0	20	12	26
TCM-25S		M36-2.0	25	12	32
TCM-30S		M42-2.0	30	13	36
TCM-38S		M52-2.0	38	13	44

PLUGS/CAPS/FLANGE PLATES

A

BSPT MALE

BSPT MALE PLUG

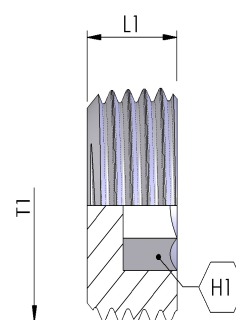


Part Number	Short Code	T1	H1	L1	PN (bar)
A-02	AAA	1/8-28	12	15	345
A-04	AAC	1/4-19	14	21	275
A-06	AAF	3/8-19	19	22	210
A-08	AAH	1/2-14	22	27	210
A-12	AAK	3/4-14	27	30	170
A-16	AAM	1-11	36	35	140
A-20	AAO	1.1/4-11	46	38	80
A-24	AAP	1.1/2-11	50	40	70
A-32	AAQ	2-11	65	45	70

A-INT

BSPT MALE

BSPT MALE PLUG INTERNAL HEX

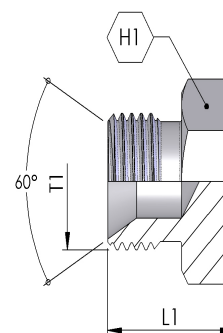


Part Number	T1	L1 (mm)	H1 (mm)
A-02INT	1/8-29	8	5
A-04INT	1/4-19	10	7
A-06INT	3/8-19	10	8
A-08INT	1/2-14	10	10
A-12INT	3/4-14	12	12

B

BSP MALE

BSP 60° CONE MALE PLUG

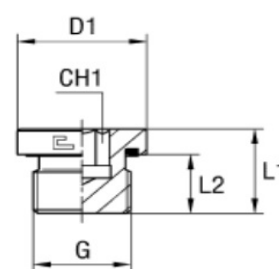


Part Number	Short Code	T1	H1	L1	PN (bar)
B-02	AYA	1/8-28	14	14	400
B-04	AYC	1/4-19	19	19	400
B-06	AYE	3/8-19	22	20	400
B-08	AYG	1/2-14	27	24	350
B-12	AYI	3/4-14	32	28	315
B-16	AYL	1-11	41	32	250
B-20	AYN	1.1/4-11	50	35	200
B-24	AYO	1.1/2-11	55	40	160
B-32	AYQ	2-11	70	45	125

B-INT

BSP MALE

BSP STUD CAPTIVE SEAL PLUG INTERNAL HEX

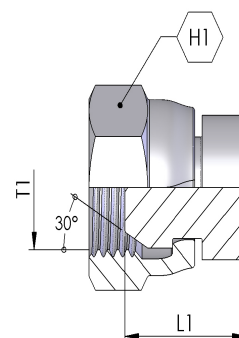


Part Number	G	D1	L1	L2	CH1
B-02INT	1/8-28	14	8	12	5
B-04INT	1/4-19	19	12	17	6
B-06INT	3/8-19	22	12	17	8
B-08INT	1/2-14	27	14	19	10
B-12INT	3/4-14	32	16	21	12
B-16INT	1-11	40	16	23	17

C

BSP FEMALE

BSP 60° CONE FEMALE SWIVEL NUT CAP



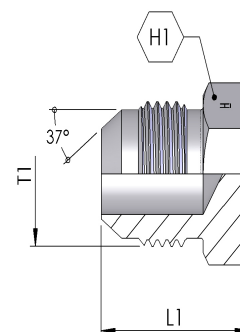
Part Number	Short Code	T1	H1	L1	PN (bar)
C-02	BQM	1/8-28	14	17	400
C-04	BQN	1/4-19	19	18	400
C-06	BQO	3/8-19	22	20	400
C-08	BQP	1/2-14	27	23	350
C-10		5/8-14		23	
C-12	BQR	3/4-14	32	25	315
C-16	BQS	1-11	41	27	250
C-20	BQT	1.1/4-11	50	30	200
C-24	BQU	1.1/2-11	55	32	160
C-32	BQY	2-11	70	33	125

G

JIC MALE

JIC 37° FLARE MALE PLUG

- ISO 8434-2



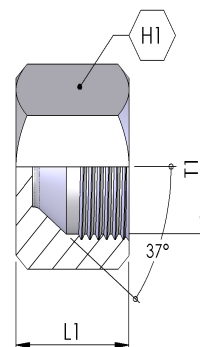
Part Number	Short Code	T1	H1	L1	PN (bar)
G-07	BXT	7/16-20	12	21	350
G-08		1/2-20	14	14	
G-09	BXV	9/16-18	17	22	350
G-12	BXW	3/4-16	22	24	310
G-14	BXX	7/8-14	24	28	240
G-17	BXY	1.1/16-12	30	33	240
G-19		1.3/16-12	32	23	
G-21	BYA	1.5/16-12	36	34	210
G-26	BYB	1.5/8-12	46	37	170
G-30	BYC	1.7/8-12	50	42	140

AG

JIC FEMALE

JIC 37° FLARE FIXED FEMALE CAP

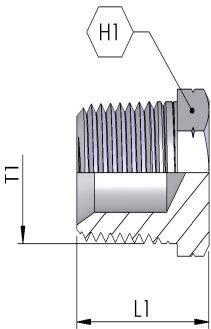
- ISO 8434-2



Part Number	Short Code	T1	H1	L1	PN (bar)
AG-07	AMT	7/16-20	14	15	350
AG-08		1/2-20	16	15	
AG-09	ANB	9/16-18	19	16	350
AG-12	ANC	3/4-16	22	19	310
AG-14	ANJ	7/8-14	27	21	240
AG-17	ANQ	1.1/16-12	32	23	240
AG-19		1.3/16-12	35	25	
AG-21	ANW	1.5/16-12	41	26	210
AG-26	AOB	1.5/8-12	50	27	170
AG-30	AOC	1.7/8-12	60	30	140
AG-40		2.1/2-12	73	37	

L
NPTF MALE
NPTF MALE PLUG

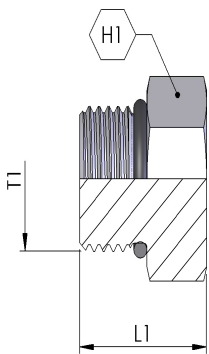
- SAE J531



Part Number	Short Code	T1	H1	L1	PN (bar)
L-02	DBU	1/8-27	12	15	345
L-04	DBV	1/4-18	14	19	275
L-06	DBX	3/8-18	19	20	210
L-08	DBY	1/2-14	22	25	210
L-12	DBZ	3/4-14	27	27	170
L-16	DCA	1-11.1/2	36	32	140
L-20	DCC	1.1/4-11.1/2	46	37	80
L-24	DCD	1.1/2-11.1/2	50	40	70
L-32	DCE	2-11.1/2	65	45	70

N
UNO MALE
UNO FIXED STUD PLUG

- SAE J514

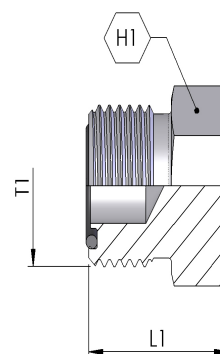


Part Number	Short Code	T1	H1	L1	PN (bar)
N-07	DIW	7/16-20	14	17	315
N-08	DIX	1/2-20	17	17	315
N-09	DIZ	9/16-18	17	19	315
N-12	DJB	3/4-16	22	20	315
N-14	DJD	7/8-14	27	24	250
N-17	DJF	1.1/16-12	32	28	250
N-19	DJH	1.3/16-12	36	28	200
N-21	DJI	1.5/16-12	41	29	200
N-26	DJK	1.5/8-12	50	31	160
N-30	DJL	1.7/8-12	55	32	160

R

ORFS MALE ORFS MALE PLUG

- ISO 8434-3

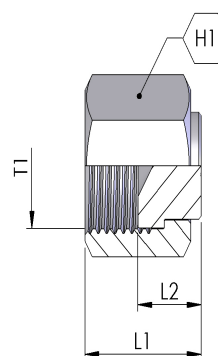


Part Number	Short Code	T1	H1	L1	PN (bar)
R-09	DRV	9/16-18	17	16.5	630
R-11	DRW	11/16-16	19	19	630
R-13	DRX	13/16-16	22	22	630
R-16	DSZ	1-14	27	26	400
R-19	DTY	1.3/16-12	32	28	400
R-23	DUA	1.7/16-12	41	28	400
R-27	DUL	1.11/16-12	46	28	250

T

ORFS FEMALE ORFS FEMALE SWIVEL NUT CAP

- ISO 8434-3

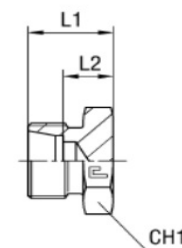


Part Number	Short Code	T1	H1	L1	L2	PN (bar)
T-09	GUD	9/16-18	17	17	9	630
T-11	GUE	11/16-16	22	19	11	630
T-13	GUF	13/16-16	24	22	12	630
T-16	GUG	1-14	30	26	14	400
T-19	GUH	1.3/16-12	36	29	15	400
T-23	GUI	1.7/16-12	41	30	16	400
T-27	GUJ	1.11/16-12	50	30	16	250

MLL

MET LIGHT MALE TUBE PLUG
METRIC 24° CONE EXTRA LIGHT MALE TUBE END
PLUG

- ISO 8434-1

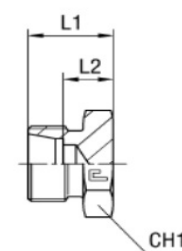


Part Number	A	Suits tube	PN (bar)
MLL-10	M10-1	6	315

ML

MET LIGHT MALE TUBE PLUG
METRIC 24° CONE LIGHT MALE TUBE END PLUG

- ISO 8434-1



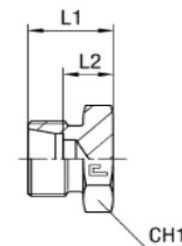
Part Number	A	Suits tube	L1	L2	CH1	PN (bar)
ML-12	M12-1.5	6	14	7	12	315
ML-14	M14-1.5	8	15	8	14	315
ML-16	M16-1.5	10	16	9	17	315
ML-18	M18-1.5	12	17	10	19	315
ML-22	M22-1.5	15	18	11	24	315
ML-26	M26-1.5	18	19	12	27	315
ML-30	M30-2	22	21	14	32	160
ML-36	M36-2	28	22	15	41	160
ML-45	M45-2	35	25	15	46	160
ML-52	M52-2	42	27	16	55	160

MS

MET HEAVY MALE TUBE PLUG

METRIC 24° CONE HEAVY MALE TUBE END PLUG

- ISO 8434-1



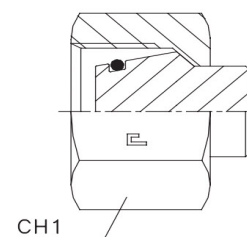
Part Number	A	Suits tube	L1	L2	CH1	PN (bar)
MS-14	M14-1.5	6	18	11	14	630
MS-16	M16-1.5	8	20	13	17	630
MS-18	M18-1.5	10	20	13	19	630
MS-20	M20-1.5	12	22	15	22	630
MS-22	M22-1.5	14	24	16	24	630
MS-24	M24-1.5	16	24	16	27	400
MS-30	M30-2	20	28	18	32	400
MS-36	M36-2	25	32	20	41	400
MS-42	M42-2	30	34	21	46	400
MS-52	M52-2	38	39	23	55	315

UL

MET LIGHT FEMALE PLUG

METRIC 24° CONE LIGHT BLANKING PLUG WITH O RING AND NUT

- ISO 8434-1

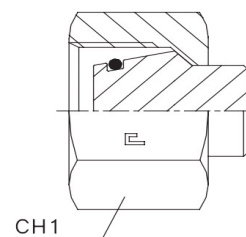


Part Number	Metric Female Thread	Suits Tube - D1	Overall L1	PN (bar)
UL-12	M12-1.5	6	17	315
UL-14	M14-1.5	8	17	315
UL-16	M16-1.5	10	20	315
UL-18	M18-1.5	12	21	315
UL-22	M22-1.5	15	21	315
UL-26	M26-1.5	18	23	315
UL-30	M30-2	22	23	160
UL-36	M36-2	28	25	160
UL-45	M45-2	35	29	160
UL-52	M52-2	42	30	160

US

MET HEAVY FEMALE PLUG
METRIC 24° CONE HEAVY BLANKING PLUG WITH O
RING AND NUT

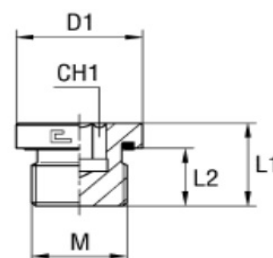
- ISO 8434-1



Part Number	Metric Female Thread	Suits Tube - D1	Overall L1	PN (bar)
US-14	M14-1.5	6	17	630
US-16	M16-1.5	8	17	630
US-18	M18-1.5	10	20	630
US-20	M20-1.5	12	21	630
US-22	M22-1.5	14	23	630
US-30	M30-2	20	28	400
US-36	M36-2	25	31	400
US-42	M42-2	30	34	400
US-52	M52-2	38	38	315

MX

MET MALE
METRIC STUD CAPTIVE SEAL PLUG INTERNAL HEX

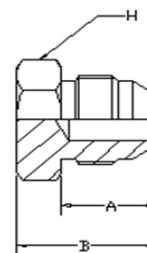


Part Number	M	D1	L1	L2	CH1
MX-10	M10-1	14	12	8	5
MX-12	M12-1.5	17	17	12	6
MX-14	M14-1.5	19	17	12	6
MX-16	M16-1.5	22	17	12	8
MX-18	M18-1.5	24	17	12	8
MX-20	M20-1.5	26	19	14	10
MX-22	M22-1.5	27	19	14	10
MX-26	M26-1.5	32	21	16	12

MY

JIS MET MALE

JIS MET KOMATSU STYLE 30° FLARE MALE PLUG



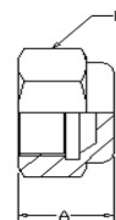
Part Number	Metric Male Thread	A	B	H
MY-14	M14-1.5	15	22	16
MY-16	M16-1.5	16	24	19
MY-18	M18-1.5	18	26	22
MY-20	M20-1.5			
MY-22	M22-1.5	20	29	25
MY-24	M24-1.5	22	32	27
MY-30	M30-1.5			
MY-33	M33-1.5			
MY-36	M36-2			

UY

JIS MET FEMALE

JIS MET KOMATSU STYLE 30° FLARE FEMALE CAP

- JIS B 8363

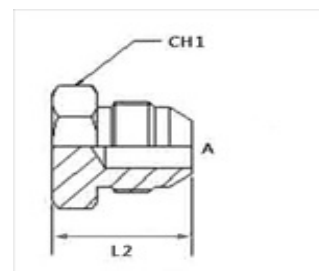


Part Number	Metric Female Thread	A	H
UY-14	M14-1.5	24	19
UY-16	M16-1.5	23	22
UY-18	M18-1.5	24	22
UY-20	M20-1.5	23	26
UY-22	M22-1.5	30	27
UY-24	M24-1.5		
UY-30	M30-1.5		
UY-33	M33-1.5		

AX

JIS BSP MALE

JIS BSP 30° FLARE MALE PLUG

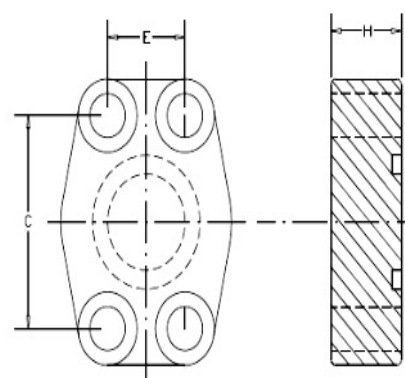


Part Number	A
AX-04	1/4-19
AX-06	3/8-19

VBO

SAE C61

SAE CODE 61 FLANGE PORT BLANKING PLATE

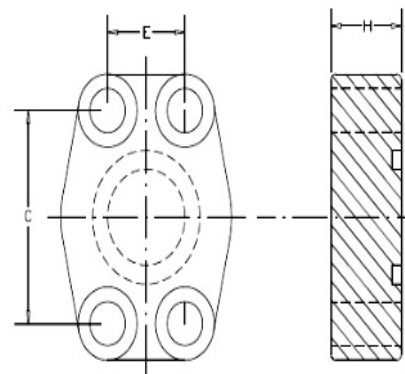


Part Number	Nominal SAE Size Flange	C	E	H	Suits metric bolts	Suits imperial bolts
VBO-08	1/2	38	17	16	M8x30	5/16x1.1/4
VBO-12	3/4	48	22	18	M10x35	3/8x1.1/2
VBO-16	1	52	26	19	M10x35	3/8x1.1/2
VBO-20	1.1/4	59	30	18	M10x40	7/16x1.3/4
VBO-24	1.1/2	70	36	20	M12x45	1/2x1.3/4
VBO-32	2	78	43	20	M12x45	1/2x1.3/4

VHBO

SAE C62

SAE CODE 62 FLANGE PORT BLANKING PLATE

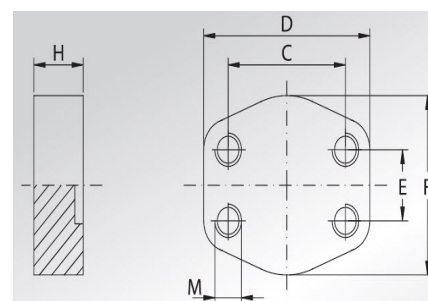


Part Number	Nominal SAE Size Flange	C	E	H	Suits metric bolts	Suits imperial bolts
VHBO-12	3/4	51	24	19	M10x35	3/8x1.1/2
VHBO-16	1	57	28	24	M12x45	7/16x1.3/4
VHBO-20	1.1/4	67	32	27	M14x45	1/2x1.3/4
VHBO-24	1.1/2	79	37	30	M16x50	5/8x2
VHBO-32	2	97	44	30	M20x60	3/4x2.1/2

VBC

SAE C61

SAE CODE 61 COMPANION BLANKING PLATE

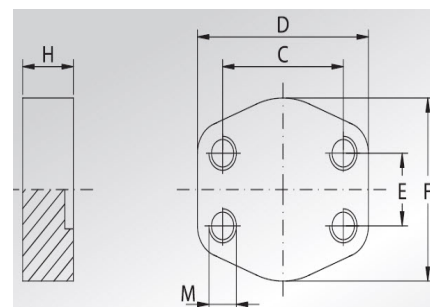


Part Number	NOMINAL SAE FLANGE SIZE	C	E	H	SUITS METRIC BOLTS
VBC-12	3/4	47.6	22.2	18	M10-1.5 x 35
VBC-16	1	52.4	26.2	19	M10-1.5 x 35
VBC-20	1.1/4	58.7	30.2	18	M10-1.5 x 40

VHBC

SAE C62

SAE CODE 62 COMPANION BLANKING PLATE



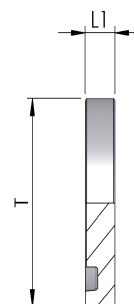
Part Number	NOMINAL SAE FLANGE SIZE	C	E	H	SUITS METRIC BOLTS
VHBC-12	3/4	50.8	23.8	19	M10-1.5 x 35
VHBC-16	1	57.2	27.8	24	M12-1.5 x 45
VHBC-20	1.1/4	66.7	31.8	27	M14-1.5 x 45

VP

SAE C61

SAE CODE 61 BLANKING DISC

- Recommended for temporary blanking of flange ports and connectors during servicing and repairs.
- Use VBO or VBC series for permanent installations.



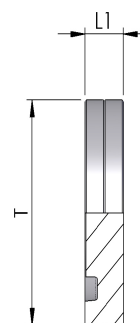
Part Number	NOMINAL SAE FLANGE SIZE	T	L1
VP-08	1/2	30.2	6.73
VP-12	3/4	38.1	6.73
VP-16	1	44.4	8.00
VP-20	1.1/4	50.8	8.00
VP-24	1.1/2	60.3	8.00
VP-32	2	71.4	9.53

VHP

SAE C62

SAE CODE 62 BLANKING DISC

- Recommended for temporary blanking of flange ports and connectors during servicing and repairs.
- Use VHBO or VHBC series for permanent installations.



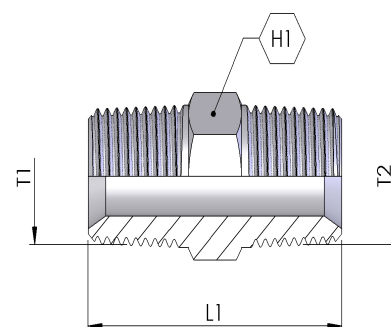
Part Number	NOMINAL SAE FLANGE SIZE	T	L1
VHP-12	3/4	41.3	8.76
VHP-16	1	47.6	9.53
VHP-20	1.1/4	54.0	10.29
VHP-24	1.1/2	63.5	12.57
VHP-32	2	79.4	12.57

STRAIGHT ADAPTORS

A-A

BSPT MALE X BSPT MALE

BSPT MALE X BSPT MALE STRAIGHT

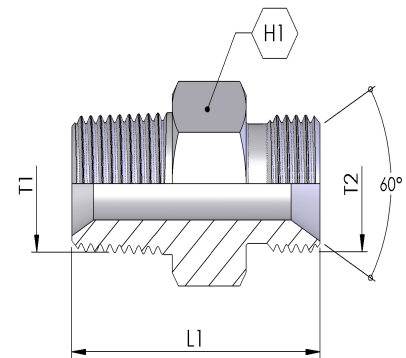


Part Number	Short Code	T1	T2	H1	L1	PN (bar)
A-A-0202	AAR	1/8-28	1/8-28	12	27	345
A-A-0204	AAS	1/8-28	1/4-19	14	32	275
A-A-0206	AAT	1/8-28	3/8-19	19	32	210
A-A-0404	AAW	1/4-19	1/4-19	14	37	275
A-A-0406	AAX	1/4-19	3/4-14	19	37	210
A-A-0408	AAZ	1/4-19	1/2-14	22	43	210
A-A-0412	AAZ	1/4-19	3/4-14	27	45	170
A-A-0606	ABB	3/8-19	3/8-19	19	37	210
A-A-0608	ABC	3/8-19	1/2-14	22	43	210
A-A-0612	ABD	3/8-19	3/4-14	27	45	170
A-A-0616		3/8-19	1-11			
A-A-0808	ABF	1/2-14	1/2-14	22	48	210
A-A-0810		1/2-14	5/8-14	25	45	
A-A-0812	ABI	1/2-14	3/4-14	27	50	170
A-A-0816	ABJ	1/2-14	1-11	36	55	140
A-A-1010		5/8-14	5/8-14	29	50	
A-A-1012		5/8-14	3/4-14			
A-A-1212	ABM	3/4-14	3/4-14	27	50	170
A-A-1216	ABO	3/4-14	1-11	36	55	140
A-A-1220	ABP	3/4-14	1.1/4-11	46	57	80
A-A-1224	ABQ	3/4-14	1.1/2-11	50	60	70
A-A-1616	ABR	1-11	1-11	36	59	140
A-A-1620	ABS	1-11	1.1/4-11	46	62	80
A-A-1624	ABT	1-11	1.1/2-11	50	65	70
A-A-2020	ABU	1.1/4-11	1.1/4-11	46	63	80
A-A-2024	ABV	1.1/4-11	1.1/2-11	50	65	70
A-A-2032	ABW	1.1/4-11	2-11	65	70	70
A-A-2424	ABX	1.1/2-11	1.1/2-11	50	66	70
A-A-2432	ABY	1.1/2-11	2-11	65	71	70
A-A-3232	ACA	2-11	2-11	65	72	70

A-B

BSPT MALE X BSP MALE

BSPT MALE X BSP 60° CONE MALE STRAIGHT



Part Number	Short Code	T1	T2	H1	L1	PN (bar)
A-B-0202	AEO	1/8-28	1/8-28	14	23	345
A-B-0204	AEP	1/8-28	1/4-19	19	29	345
A-B-0402	AEQ	1/4-19	1/8-28	14	28	275
A-B-0404	AER	1/4-19	1/4-19	19	33	275
A-B-0406	AET	1/4-19	1/8-28	22	37	275
A-B-0408	AEU	1/4-19	1/2-14	27	42	275
A-B-0604	AEV	3/8-19	1/4-19	19	33	210
A-B-0606	AEW	3/8-19	3/8-19	22	37	210
A-B-0608	AEX	3/8-19	1/2-14	27	42	210
A-B-0612	AEY	3/8-19	3/4-14	32	45	210
A-B-0804	AEZ	1/2-14	1/4-19	22	41	210
A-B-0806	AFA	1/2-14	3/8-19	22	42	210
A-B-0808	AFB	1/2-14	1/2-14	27	47	210
A-B-0810	AFC	1/2-14	5/8-14	30	46	210
A-B-0812	AFD	1/2-14	3/4-14	32	50	210
A-B-0816	AFE	1/2-14	1-11	41	53	210
A-B-1010		5/8-14	5/8-14			
A-B-1206	AFG	3/4-14	3/8-19	27	45	170
A-B-1208	AFH	3/4-14	1/2-14	27	47	170
A-B-1212	AFI	3/4-14	3/4-14	32	50	170
A-B-1216	AFJ	3/4-14	1-11	41	53	170
A-B-1220	AFK	3/4-14	1.1/4-11	50	57	170
A-B-1608	AFL	1-11	1/2-14	36	53	140
A-B-1612	AFM	1-11	3/4-14	36	55	140
A-B-1616	AFN	1-11	1-11	41	58	140
A-B-1620	AFO	1-11	1.1/4-11	50	62	140
A-B-1624		1-11	1.1/2-11	55	62	
A-B-2012	AFQ	1.1/4-11	3/4-14	46	59	80
A-B-2016	AFR	1.1/4-11	1-11	46	62	80
A-B-2020	AFS	1.1/4-11	1.1/4-11	50	63	80

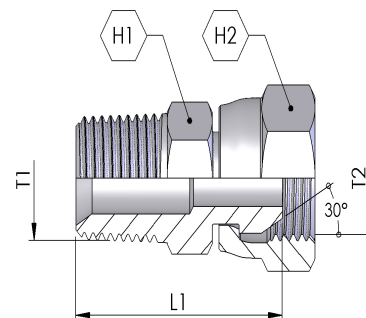
A-B-2024	AFT	1.1/4-11	1.1/2-11	55	65	80
A-B-2416	AFU	1.1/2-11	1-11	50	62	70
A-B-2420	AFV	1.1/2-11	1.1/4-11	50	63	70
A-B-2424	AFW	1.1/2-11	1.1/2-11	55	65	70
A-B-2432		1.5	2			
A-B-3220		2-11	1.1/4-11			
A-B-3232	AGA	2-11	2-11	70	71	70

A-C

BSPT MALE X BSP FEMALE

BSPT MALE X BSP 60° CONE FEMALE SWIVEL NUT

STRAIGHT

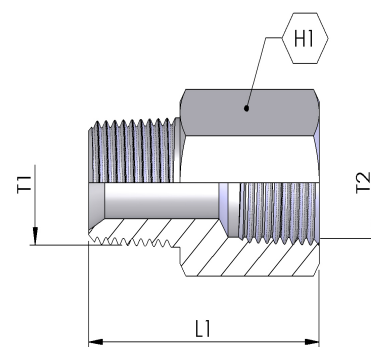


Part Number	Short Code	T1	T2	H1	H2	L1	PN (bar)
A-C-0202	AGU	1/8-28	1/8-28	12	14	26	345
A-C-0204	AGV	1/8-28	1/4-19	17	19	28	345
A-C-0404	AGX	1/4-19	1/4-19	17	19	32	275
A-C-0406	AGY	1/4-19	3/8-19	19	22	34	275
A-C-0408	AGZ	1/4-19	1/2-14	22	27	38	275
A-C-0604	AHA	3/8-19	1/4-19	19	19	33	210
A-C-0606	AHB	3/8-19	3/8-19	19	22	34	210
A-C-0608	AHC	3/8-19	1/2-14	22	27	38	210
A-C-0806	AHE	1/2-14	3/8-19	22	22	41	210
A-C-0808	AHF	1/2-14	1/2-14	22	27	43	210
A-C-0812	AHG	1/2-14	3/4-14	30	32	46	210
A-C-1208	AHH	3/4-14	1/2-14	27	27	43	170
A-C-1212	AHI	3/4-14	3/4-14	30	32	46	170
A-C-1216	AHJ	3/4-14	1-11	36	41	48	170
A-C-1612	AHK	1-11	3/4-14	36	32	52	140
A-C-1616	AHL	1-11	1-11	36	41	53	140
A-C-1620	AHM	1-11	1.1/4-11	46	50	56	140
A-C-2012		1.1/4-11	3/4-14				
A-C-2016	AHO	1.1/4-11	1-11	41	46	55	80
A-C-2020	AHP	1.1/4-11	1.1/4-11	46	50	57	80
A-C-2024	AHQ	1.1/4-11	1.1/2-11	50	55	58	80
A-C-2420	AHR	1.1/2-11	1.1/4-11	50	50	58	70
A-C-2424	AHS	1.1/2-11	1.1/2-11	50	55	59	70
A-C-3232	AHT	2-11	2-11	65	70	63	70

A-E

BSPT MALE X BSPT FEMALE

BSPT MALE X BSPT FIXED FEMALE STRAIGHT

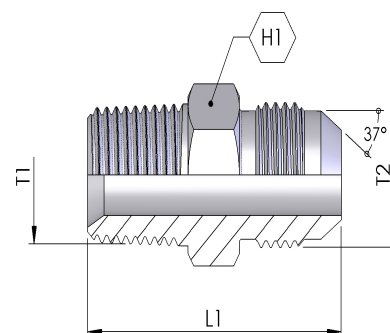


Part Number	Short Code	T1	T2	H1	L1	PN (bar)
A-E-0202	AKB	1/8-28	1/8-28	14	26	345
A-E-0204		1/8-28	1/4-19	19	10	
A-E-0402	AKD	1/4-19	1/8-28	14	22	275
A-E-0404	AKE	1/4-19	1/4-19	19	35	275
A-E-0406	AKF	1/4-19	3/8-19	22	37	210
A-E-0602	AKH	3/8-19	1/8-28	19	22	210
A-E-0604	AKI	3/8-19	1/4-19	19	22	210
A-E-0606	AKL	3/8-19	3/8-19	22	37	210
A-E-0608	AKM	3/8-19	1/2-14	27	43	210
A-E-0802	AKN	1/2-14	1/8-28	22	28	210
A-E-0804	AKO	1/2-14	1/4-19	22	28	210
A-E-0806	AKP	1/2-14	3/8-19	22	28	210
A-E-0808	AKQ	1/2-14	1/2-14	27	48	210
A-E-0812		1/2-14	3/4-14			
A-E-1204	AKS	3/4-14	1/4-19	27	30	170
A-E-1206	AKT	3/4-14	3/8-19	27	30	170
A-E-1208	AKU	3/4-14	1/2-14	27	30	170
A-E-1212	AKV	3/4-14	3/4-14	36	49	170
A-E-1606	AKW	1-11	3/8-19	36	35	140
A-E-1608	AKX	1-11	1/2-14	36	35	140
A-E-1612	AKY	1-11	3/4-14	36	35	140
A-E-2008	ALA	1.1/4-11	1/2-14	46	38	80
A-E-2012	ALB	1.1/4-11	3/4-14	46	38	80
A-E-2016	ALC	1.1/4-11	1-11	46	38	80
A-E-2020		1 1/4-11	1 1/4-11			
A-E-2412	ALE	1.1/2-11	3/4-14	50	40	70
A-E-2416	ALF	1.1/2-11	1-11	50	40	70
A-E-2420	ALG	1.1/2-11	1.1/4-11	50	40	70
A-E-3216	ALH	2-11	1-11	65	45	70
A-E-3220	ALI	2-11	1.1/4-11	65	45	70
A-E-3224	ALJ	2-11	1.1/2-11	65	45	70

A-G

BSPT MALE X JIC MALE

BSPT MALE X JIC 37° FLARE MALE STRAIGHT



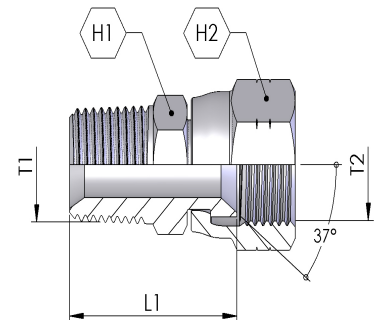
Part Number	Short Code	T1	T2	H1	L1	PN (bar)
A-G-0207	AMG	1/8-28	7/16-20	12	31	345
A-G-0208	AMH	1/8-28	1/2-20	14	31	345
A-G-0209	AMI	1/8-28	9/16-18	17	32	345
A-G-0407	AMJ	1/4-19	7/16-20	14	36	275
A-G-0408	AMK	1/4-19	1/2-20	14	36	275
A-G-0409	AML	1/4-19	9/16-18	17	36	275
A-G-0412	AMM	1/4-19	3/4-16	22	39	275
A-G-0607	AMN	3/8-19	7/16-20	19	36	210
A-G-0608	AMO	3/8-19	1/2-20	19	36	210
A-G-0609	AMP	3/8-19	9/16-18	19	36	210
A-G-0612	AMQ	3/8-19	3/4-16	22	39	210
A-G-0614	AMR	3/8-19	7/8-14	24	43	210
A-G-0617	AMS	3/8-19	1.1/16-12	30	48	210
A-G-0807	AMV	1/2-14	7/16-20	22	43	210
A-G-0809	AMW	1/2-14	9/16-18	22	43	210
A-G-0812	AMX	1/2-14	3/4-16	22	45	210
A-G-0814	AMY	1/2-14	7/8-14	24	48	210
A-G-0817	AMZ	1/2-14	1.1/16-12	30	52	210
A-G-1209	AND	3/4-14	9/16-18	27	45	170
A-G-1212	ANE	3/4-14	3/4-16	27	47	170
A-G-1214	ANF	3/4-14	7/8-14	27	50	170
A-G-1217	ANG	3/4-14	1.1/16-12	30	52	170
A-G-1219		3/4-14	1.3/16-12	32	55	
A-G-1221	ANI	3/4-14	1.5/16-12	36	54	170
A-G-1612	ANK	1-11	3/4-16	36	52	140
A-G-1614	ANL	1-11	7/8-14	36	55	140
A-G-1617	ANM	1-11	1.1/16-12	36	57	140
A-G-1619	ANN	1-11	1.3/16-12	36	58	140
A-G-1621	ANO	1-11	1.5/16-12	36	58	140
A-G-1626	ANP	1-11	1.5/8-12	46	61	140

A-G-2017	ANS	1.1/4-11	1.1/16-12	46	60	80
A-G-2021	ANT	1.1/4-11	1.5/16-12	46	61	80
A-G-2026	ANU	1.1/4-11	1.5/8-12	46	62	80
A-G-2030	ANV	1.1/4-11	1.7/8-12	50	67	80
A-G-2421	ANX	1.1/2-11	1.5/16-12	50	64	70
A-G-2426	ANY	1.1/2-11	1.5/8-12	50	65	70
A-G-2430		1.1/2-11	1.7/8-12	50	71	
A-G-2440	AOA	1.1/2-11	2.1/2-12	65	78	70
A-G-3230	AOD	2-11	1.7/8-12	65	73	70
A-G-3240	AOE	2-11	2.1/2-12	65	79	70

A-J

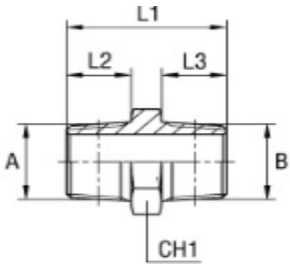
BSPT MALE X JIC FEMALE

BSPT MALE X JIC 37° FLARE FEMALE SWIVEL NUT
STRAIGHT



Part Number	Short Code	T1	T2	H1	H2	L1	PN (bar)
A-J-0207	AQT	1/8-28	7/16-20	12	14	23	345
A-J-0208		1/8-28	1/2-20				
A-J-0407	AQV	1/4-19	7/16-20	14	14	28	275
A-J-0408		1/4-19	1/2-20	14	17	29	
A-J-0409	AQX	1/4-19	9/16-18	14	19	29	275
A-J-0609	AQZ	3/8-19	9/16-18	19	19	30	210
A-J-0612	ARA	3/8-19	3/4-16	19	22	32	210
A-J-0614	ARB	3/8-19	7/8-14	22	27	34	210
A-J-0812	ARC	1/2-14	3/4-16	22	22	38	210
A-J-0814	ARD	1/2-14	7/8-14	22	27	38	210
A-J-0817		1/2	1 1/16	27	32	43	170
A-J-1217	ARF	3/4-14	1.1/16-12	27	32	43	170
A-J-1221		3/4-14	1.5/16-12				
A-J-1621	ARH	1-11	1.5/16-12	36	41	51	140
A-J-2026	ARI	1.1/4-11	1.5/8-12	46	50	57	80

A-L
BSPT MALE X NPTF MALE
BSPT MALE X NPTF MALE STRAIGHT

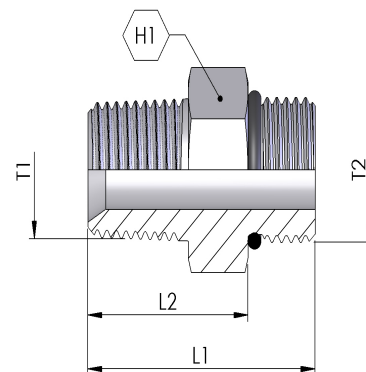


Part Number	A	B	L1	L2	L3	CH1
A-L-0404	1/4-19	1/4-18				
A-L-0606	3/8-19	3/8-18				
A-L-1212	3/4-16	3/4-16				
A-L-1616	1-11	1-11.5	60	23	24	35
A-L-2424	1.1/2-11	1.1/2-11				

A-N

BSPT MALE X UNO MALE

BSPT MALE X UNO FIXED STUD STRAIGHT

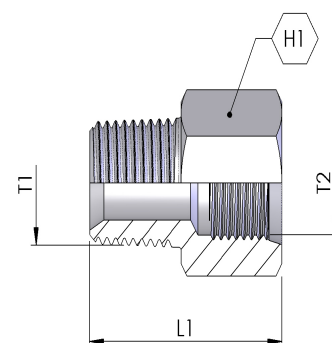


Part Number	Short Code	T1	T2	H1	L1	L2	PN (bar)
A-N-0207		1/8-28	7/16-20	16	27	12	
A-N-0407	AVW	1/4-19	7/16-20	14	31	22	275
A-N-0408	AVX	1/4-19	1/2-20	17	31	22	275
A-N-0409	AVY	1/4-19	9/16-18	17	33	23	275
A-N-0412	AVZ	1/4-19	3/4-16	22	35	24	275
A-N-0414	AWA	1/4-19	7/8-14	27	38	25	250
A-N-0609	AWB	3/8-19	9/16-18	19	33	23	210
A-N-0612	AWC	3/8-19	3/4-16	22	35	24	210
A-N-0614	AWD	3/8-19	7/8-14	27	38	25	210
A-N-0809		1/2-14	9/16-18	22	39	19	
A-N-0812	AWF	1/2-14	3/4-16	22	40	29	210
A-N-0814	AWG	1/2-14	7/8-14	27	43	30	210
A-N-0817	AWH	1/2-14	1.1/16-12	32	47	32	210
A-N-1212		3/4-14	3/4-16				
A-N-1214	AWJ	3/4-14	7/8-14	27	43	30	170
A-N-1217	AWK	3/4-14	1.1/16-12	32	47	32	170
A-N-1221	AWL	3/4-14	1.5/16-12	41	48	33	170
A-N-1617	AWM	1-11	1.1/16-12	36	54	39	140
A-N-1621	AWN	1-11	1.5/16-12	41	53	38	140
A-N-1626	AWO	1-11	1.5/8-12	50	55	40	140
A-N-2021		1.1/4-11	1.5/16-12	44	56	25	
A-N-2026		1.1/4-11	1.5/8-12				
A-N-2030		1.1/4-11	1.7/8-12	55	57	25	
A-N-2426		1.1/2-11	1.5/8-12	35	53	24	
A-N-2430		1.1/2-11	1.7/8-12	55	57	28	

A-Q

BSPT MALE X UNO FEMALE

BSPT MALE X UNO PORT STRAIGHT

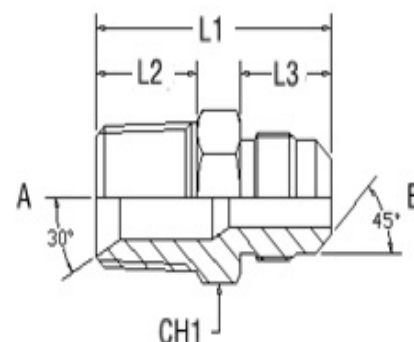


Part Number	BSPT Male Thread	UNF Female Thread	A	B	H
A-Q-0612	3/8-19	3/4-16			
A-Q-0812	1/2-14	3/4-16	19	29	27

A-AA

BSPT MALE X SAE MALE

BSPT MALE X SAE 45° FLARE MALE STRAIGHT

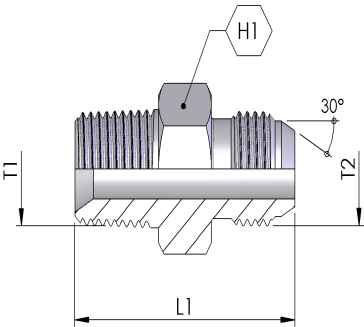


Part Number	A	B	L1	L2	L3	CH1
A-AA-0410	1/4-19	5/8-18	36	14	16	19
A-AA-0610	3/8-19	5/8-18	38	15	16	19
A-AA-0810	1/2-14	5/8-18	42	19	16	22

A-AX

BSPT MALE X JIS BSP MALE
BSPT MALE X JIS BSP 30° FLARE MALE STRAIGHT

- JIS B 8363



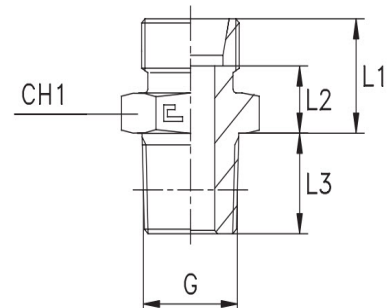
Part Number	A	B	L1	L2	L3	CH1
A-AX-0404	1/4-19	1/4-19				
A-AX-0606	3/8-19	3/8-19				
A-AX-0808	1/2-14	1/2-14				
A-AX-1212	3/4-14	3/4-14	53	20	21	29

A-ML

BSPT MALE X MET LIGHT MALE

BSPT MALE X METRIC 24° CONE LIGHT MALE

STRAIGHT



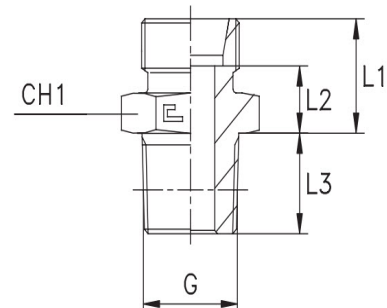
Part Number	A	B	L1	L2	L3	Suits tube	CH1
A-ML-0412	1/4-19	M12-1.5	15	8	12	6	14
A-ML-0414	1/4-19	M14-1.5	15	8	12	8	17
A-ML-0416	1/4-19	M16-1.5	16	9	12	10	17
A-ML-0418	1/4-19	M18-1.5	17	10	12	12	19
A-ML-0612	3/8-19	M12-1.5				6	
A-ML-0614	3/8-19	M14-1.5	16	9	12	8	19
A-ML-0616	3/8-19	M16-1.5	17	10	12	10	19
A-ML-0618	3/8-19	M18-1.5	17	10	12	12	19
A-ML-0622	3/8-19	M22-1.5	18	11	12	15	24
A-ML-0816	1/2-14	M16-1.5	17	10	14	10	22
A-ML-0818	1/2-14	M18-1.5	17	10	14	12	22
A-ML-0822	1/2-14	M22-1.5	18	11	14	15	24
A-ML-0826	1/2-14	M26-1.5	19	12	14	18	27
A-ML-0830	1/2-14	M30-2				22	
A-ML-1222	3/4-14	M22-1.5				15	
A-ML-1226	3/4-14	M26-1.5	19	12	16	18	32
A-ML-1230	3/4-14	M30-2	21	14	16	22	32
A-ML-1236	3/4-14	M36-2				28	
A-ML-1636	1-11	M36-2	22	15	18	28	41
A-ML-1645	1-11	M45-2				35	

A-MS

BSPT MALE X MET HEAVY MALE

BSPT MALE X METRIC 24° CONE HEAVY MALE

STRAIGHT



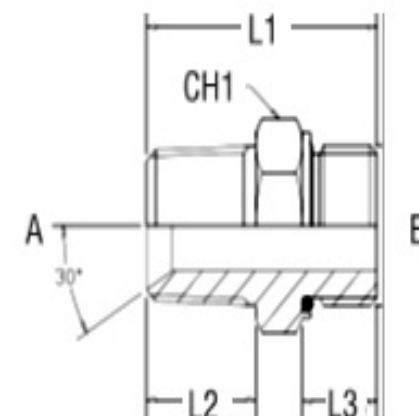
Part Number	A	B	L1	L2	L3	Suits tube	CH1
A-MS-0414	1/4-19	M14-1.5	18	11	12	6	17
A-MS-0416	1/4-19	M16-1.5	20	13	12	8	17
A-MS-0418	1/4-19	M18-1.5				10	
A-MS-0614	3/8-19	M14-1.5				6	
A-MS-0616	3/8-19	M16-1.5	20	13	14	8	19
A-MS-0618	3/8-19	M18-1.5	20	13	12	10	19
A-MS-0620	3/8-19	M20-1.5	22	15	12	12	22
A-MS-0622	3/8-19	M22-1.5	24	16	12	14	24
A-MS-0624	3/8-19	M24-1.5	24	16	12	16	27
A-MS-0816	1/2-14	M16-1.5	20	13	17	8	22
A-MS-0818	1/2-14	M18-1.5	20	13	18	10	22
A-MS-0820	1/2-14	M20-1.5	22	15	14	12	22
A-MS-0822	1/2-14	M22-1.5	24	16	14	14	24
A-MS-0824	1/2-14	M24-1.5	24	16	14	16	27
A-MS-0830	1/2-14	M30-2	28	18	14	20	32
A-MS-1224	3/4-14	M24-1.5				16	
A-MS-1230	3/4-14	M30-2	28	18	16	20	32
A-MS-1236	3/4-14	M36-2	32	20	16	25	41
A-MS-1636	1-11	M36-2	32	20	18	25	41
A-MS-1642	1-11	M42-2	34	20.5	18	30	46
A-MS-2042	1.1/4-11	M42-2	34	20.5	20	30	46
A-MS-2052	1.1/4-11	M52-2				38	

A-MX

BSPT MALE X MET MALE

BSPT MALE X METRIC STUD CAPTIVE SEAL

STRAIGHT



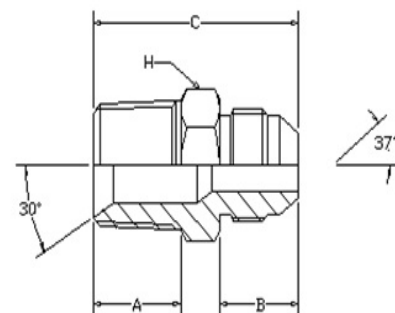
Part Number	A	B	L1	L2	L3	CH1
A-MX-0410	1/4-19	M10-1	29	12	8	16
A-MX-0412	1/4-19	M12-1.5	35	12	11	17
A-MX-0414	1/4-19	M14-1.5				
A-MX-0416	1/4-19	M16-1.5				
A-MX-0418	1/4-19	M18-1.5				
A-MX-0612	3/8-19	M12-1.5	35	14	11	19
A-MX-0614	3/8-19	M14-1.5				
A-MX-0616	3/8-19	M16-1.5	35	14	11	22
A-MX-0618	3/8-19	M18-1.5	36	14	12	25
A-MX-0620	3/8-19	M20-1.5				
A-MX-0622	3/8-19	M22-1.5				
A-MX-0816	1/2-14	M16-1.5				
A-MX-0818	1/2-14	M18-1.5				
A-MX-0820	1/2-14	M20-1.5				
A-MX-0822	1/2-14	M22-1.5	42	17	14	27
A-MX-0824	1/2-14	M24-1.5				
A-MX-0826	1/2-14	M26-1.5				
A-MX-0827	1/2-14	M27-2				
A-MX-0830	1/2-14	M30-2				
A-MX-1216	3/4-11	M16-1.5				
A-MX-1222	3/4-11	M22-1.5				
A-MX-1226	3/4-11	M26-1.5				
A-MX-1227	3/4-11	M27-2				
A-MX-1233	3/4-11	M33-2				
A-MX-1633	1-11	M33-2				

A-MY

BSPT MALE X JIS MET MALE

BSPT MALE X JIS MET KOMATSU STYLE 30° FLARE

MALE STRAIGHT



Part Number	BSPT Male Thread	Metric Male Thread	C	A	B	H
A-MY-0414	1/4-19	M14-1.5	35	14	16	16
A-MY-0616	3/8-19	M16-1.5	40	15	17	19
A-MY-0618	3/8-19	M18-1.5	40	15	17	22
A-MY-0818	1/2-14	M18-1.5				
A-MY-0820	1/2-14	M20-1.5				
A-MY-0822	1/2-14	M22-1.5	48	19	21.5	25
A-MY-0824	1/2-14	M24-1.5	49	19	23	25
A-MY-1224	3/4-14	M24-1.5				
A-MY-1230	3/4-14	M30-1.5	60	20	28	32

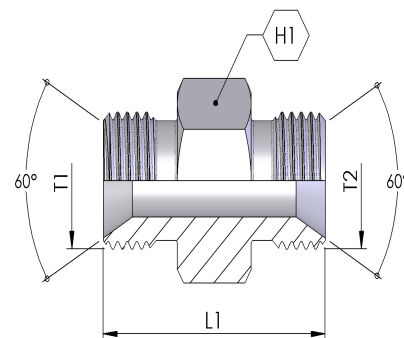
B-B

BSP MALE X BSP MALE

BSP 60° CONE MALE X BSP 60° CONE MALE

STRAIGHT

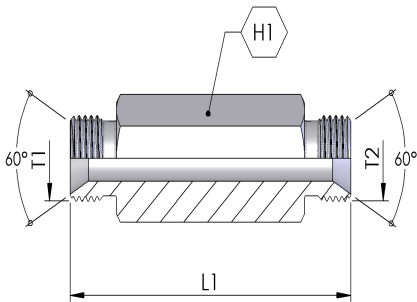
- ISO 8434-6



Part Number	Short Code	T1	T2	H1	L1	PN (bar)
B-B-0202	AYY	1/8-28	1/8-28	14	21	400
B-B-0204	AYZ	1/8-28	1/4-19	19	27	400
B-B-0404	AZA	1/4-19	1/4-19	19	30	400
B-B-0406	AZD	1/4-19	3/8-19	22	34	400
B-B-0408	AZF	1/4-19	1/2-14	27	39	350
B-B-0412		1/4-19	3/4-14			
B-B-0416		1/4-19	1-11			
B-B-0606	AZI	3/8-19	3/8-19	22	35	400
B-B-0608	AZL	3/8-19	1/2-14	27	40	350
B-B-0612	AZN	3/8-19	3/4-14	32	43	315
B-B-0616		3/8-19	1-11			
B-B-0808	AZO	1/2-14	1/2-14	27	42	350
B-B-0810		1/2-14	5/8-14			
B-B-0812	AZR	1/2-14	3/4-14	32	45	315
B-B-0816	AZS	1/2-14	1-11	41	48	250
B-B-0820		1/2-14	1.1/4-11	50	52	200
B-B-1212	AZT	3/4-14	3/4-14	32	47	315
B-B-1216	AZV	3/4-14	1-11	41	50	250
B-B-1220	AZW	3/4-14	1.1/4-11	50	54	200
B-B-1224		3/4-14	1.1/2-11			
B-B-1616	AZX	1-11	1-11	41	53	250
B-B-1620	AZY	1-11	1.1/4-11	50	57	200
B-B-1624	AZZ	1-11	1.1/2-11	55	59	160
B-B-2020	BAA	1.1/4-11	1.1/4-11	50	58	200
B-B-2024	BAB	1.1/4-11	1.1/2-11	55	60	160
B-B-2032		1.1/4-11	2-11			
B-B-2424	BAD	1.1/2-11	1.1/2-11	55	62	160
B-B-2432	BAE	1.1/2-11	2-11	70	67	125
B-B-3232	BAF	2-11	2-11	70	70	125

B-B EXT

BSP MALE X BSP MALE
BSP 60° CONE MALE X BSP 60° CONE MALE
STRAIGHT EXTENDED



Part Number	Short Code	T1	T2	H1	L1	PN (bar)
B-B-0404EXT		1/4-19	1/4-19			
B-B-0606EXT	AZJ	3/8-19	3/8-19	22	75	400
B-B-0608EXT	AZM	3/8-19	1/2-14	27	90	350
B-B-0808EXT	AZP	1/2-14	1/2-14	27	85	350
B-B-1212EXT		3/4-14	3/4-14			

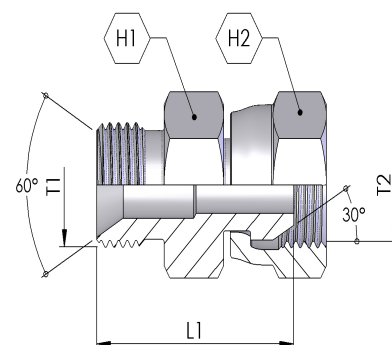
B-C

BSP MALE X BSP FEMALE

BSP 60° CONE MALE X BSP 60° CONE FEMALE

SWIVEL NUT STRAIGHT

- ISO 8434-6



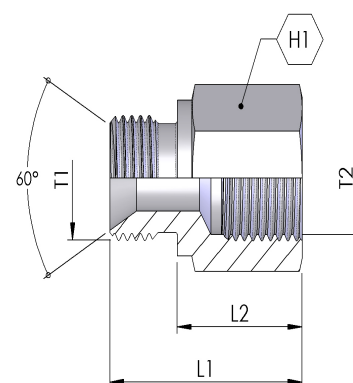
Part Number	Short Code	T1	T2	H1	H2	L1	PN (bar)
B-C-0404	BBY	1/4-19	1/4-19	19	19	31	400
B-C-0406		1/4-19	3/8-19	22		37	
B-C-0604		3/8-19	1/4-19	19		38	
B-C-0606	BCB	3/8-19	3/8-19	22	22	35	400
B-C-0608		3/8-19	1/2-14	27		42	
B-C-0806		1/2-14	3/8-19	22		42	
B-C-0808	BCE	1/2-14	1/2-14	27	27	41	350
B-C-0812		1/2-14	3/4-14	32		49	
B-C-0816		1/2-14	1-11				
B-C-0820		1/2-14	1.1/4-11				
B-C-1208		3/4-14	1/2-14				
B-C-1212	BCK	3/4-14	3/4-14	32	32	45	315
B-C-1216		3/4-14	1-11				
B-C-1612		1-11	3/4-14				
B-C-1616	BCN	1-11	1-11	41	41	51	250
B-C-1620		1-11	1.1/4-11				
B-C-2020	BCQ	1.1/4-11	1.1/4-11	50	50	55	200
B-C-2424	BCR	1.1/2-11	1.1/2-11	55	55	64	160

B-F

BSP MALE X BSP FEMALE

BSP 60° CONE MALE X BSP FIXED FEMALE

STRAIGHT



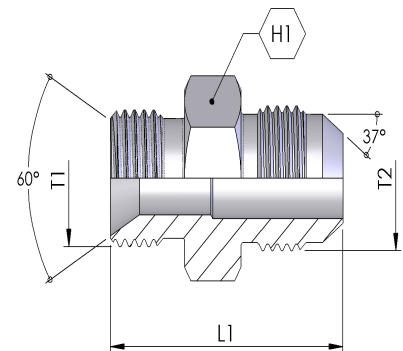
Part Number	Short Code	T1	T2	H1	L1	L2	PN (bar)
B-F-0204		1/8-28	1/4-19				
B-F-0402	BDF	1/4-19	1/8-28	19	27	16	400
B-F-0404	BDG	1/4-19	1/4-19	19	32	21	400
B-F-0406		1/4-19	3/8-19				
B-F-0408		1/4-19	1/2-14				
B-F-0604	BDI	3/8-19	1/4-19	22	33	21	400
B-F-0606	BDJ	3/8-19	3/8-19	22	33	21	400
B-F-0608		3/8-19	1/2-14				
B-F-0612		3/8-19	3/4-14				
B-F-0804	BDN	1/2-14	1/4-19	27	36	22	350
B-F-0806	BDO	1/2-14	3/8-19	27	36	22	350
B-F-0808	BDP	1/2-14	1/2-14	27	40	26	350
B-F-0812		1/2-14	3/4-14	38	32		
B-F-1206	BDU	3/4-14	3/8-19	32	31	15	315
B-F-1208	BDV	3/4-14	1/2-14	32	42	26	315
B-F-1212	BDX	3/4-14	3/4-14	36	48	32	315
B-F-1216	BDY	3/4-14	1-11	41	51	35	250
B-F-1606	1-11	1-11	3/8-19	40	41		
B-F-1608	BEA	1-11	1/2-14	41	34	15	250
B-F-1612	BEB	1-11	3/4-14	41	47	28	250
B-F-1616	BEC	1-11	1-11	41	54	35	250
B-F-1620	BED	1-11	1.1/4-11	50	58	39	200
B-F-2008		1.1/4-11	1/2-14				
B-F-2012	BEF	1.1/4-11	3/4-14	50	38	18	200
B-F-2016	BEG	1.1/4-11	1-11	50	50	30	200
B-F-2020		1.1/4-11	1.1/4-11				
B-F-2416	BEH	1.1/2-11	1-11	55	40	18	160
B-F-2420	BEI	1.1/2-11	1.1/4-11	55	58	36	160
B-F-3220	BEJ	2-11	1.1/4-11	70	45	20	125
B-F-3224	BEK	2-11	1.1/2-11	70	54	29	125

B-G

BSP MALE X JIC MALE

BSP 60° CONE MALE X JIC 37° FLARE MALE

STRAIGHT



Part Number	Short Code	T1	T2	H1	L1	PN (bar)
B-G-0207	BEL	1/8-28	7/16-20	14	29	350
B-G-0208	BEM	1/8-28	1/2-20	14	29	350
B-G-0209	BEN	1/8-28	9/16-18	17	29	350
B-G-0407	BEO	1/4-19	7/16-20	19	32	350
B-G-0408	BEQ	1/4-19	1/2-20	19	32	350
B-G-0409	BER	1/4-19	9/16-18	19	32	350
B-G-0412	BEU	1/4-19	3/4-16	22	35	310
B-G-0607	BEV	3/8-19	7/16-20	22	34	350
B-G-0609	BEW	3/8-19	9/16-18	22	34	350
B-G-0612	BFA	3/8-19	3/4-16	22	36	310
B-G-0614	BFD	3/8-19	7/8-14	24	42	240
B-G-0617		3/8-19	1 1/16-12			
B-G-0807		1/2-14	7/16-20	27	38	
B-G-0809	BFG	1/2-14	9/16-18	27	39	350
B-G-0812	BFI	1/2-14	3/4-16	27	42	310
B-G-0814	BFJ	1/2-14	7/8-14	27	44	240
B-G-0817	BFK	1/2-14	1.1/16-12	30	46	240
B-G-0821		1/2-14	1.5/16-12			
B-G-1209	BFM	3/4-14	9/16-18	32	40	315
B-G-1212	BFO	3/4-14	3/4-16	32	44	310
B-G-1214	BFP	3/4-14	7/8-14	32	46	240
B-G-1217	BFQ	3/4-14	1.1/16-12	32	49	240
B-G-1219		3/4-14	1.3/16-12			
B-G-1221	BFT	3/4-14	1.5/16-12	36	50	210
B-G-1612		1-11	3/4-16	41	53	
B-G-1614		1-11	7/8-14	41	53	
B-G-1617	BFW	1-11	1.1/16-12	41	52	240
B-G-1621	BFY	1-11	1.5/16-12	41	54	210
B-G-1626	BFZ	1-11	1.5/8-12	46	56	170
B-G-2017	BGA	1.1/4-11	1.1/16-12	50	56	200

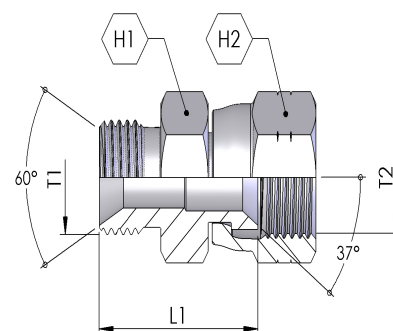
B-G-2021	BGB	1.1/4-11	1.5/16-12	50	57	200
B-G-2026	BGD	1.1/4-11	1.5/8-12	50	58	170
B-G-2030	BGE	1.1/4-11	1.7/8-12	50	61	140
B-G-2417		1.1/2-11	1.1/16-12			
B-G-2421	BGG	1.1/2-11	1.5/16-12	55	60	160
B-G-2426	BGH	1.1/2-11	1.5/8-12	55	61	160
B-G-2430	BGI	1.1/2-11	1.7/8-12	55	65	140
B-G-3230		2-11	1.7/8-12			
B-G-3240	BGK	2-11	2.1/2-12	70	78	105

B-J

BSP MALE X JIC FEMALE

BSP 60° CONE MALE X JIC 37° FLARE FEMALE

SWIVEL NUT STRAIGHT

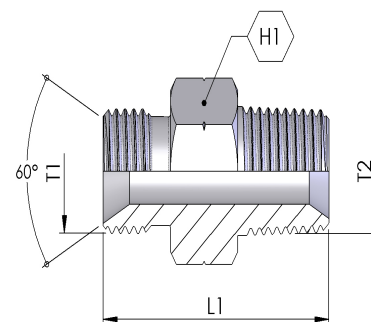


Part Number	Short Code	T1	T2	H1	H2	L1	PN (bar)
B-J-0207		1/8-28	7/16-20				
B-J-0407	BGS	1/4-19	7/16-20	19	14	26	350
B-J-0409	BGU	1/4-19	9/16-18	19	19	27	350
B-J-0609	BGV	3/8-19	9/16-18	22	19	29	350
B-J-0612	BGW	3/8-19	3/4-16	22	22	31	310
B-J-0614		3/8-19	7/8-14				
B-J-0809		1/2-14	9/16-18				
B-J-0812	BGZ	1/2-14	3/4-16	27	22	36	310
B-J-0814	BHA	1/2-14	7/8-14	27	27	36	240
B-J-0817	BHB	1/2-14	1.1/16-12	27	32	38	240
B-J-1214		3/4-14	7/8-14				
B-J-1217	BHD	3/4-14	1.1/16-12	32	32	41	240
B-J-1621	BHF	1-11	1.5/16-12	41	41	48	210
B-J-2026		1.1/4-11	1.5/8-12				

B-L

BSP MALE X NPTF MALE

BSP 60° CONE MALE X NPTF MALE STRAIGHT

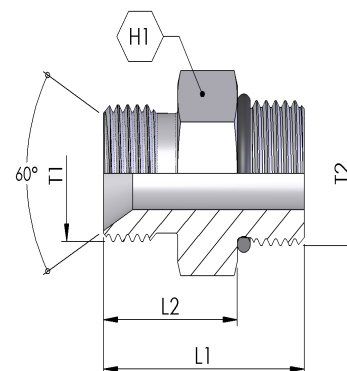


Part Number	Short Code	T1	T2	H1	L1	PN (bar)
B-L-0404		1/4-19	1/4-19			
B-L-0406		1/4-19	3/8-18			
B-L-0606	BJC	3/8-19	3/8-18	22	37	210
B-L-0608		3/8-19	1/2-14	12	19	
B-L-0806		1/2-14	3/8-18			
B-L-0808		1/2-14	1/2-14	14	19	
B-L-0812	BJG	1/2-14	3/4-14	27	47	170
B-L-1208		3/4-14	1/2-14			
B-L-1212		3/4-14	3/4-14	16	19	
B-L-1616		1-11	1-11.5			
B-L-2020	BJL	1.1/4-11	1.1/4-11.1/2	50	62	80

B-N

BSP MALE X UNO MALE

BSP 60° CONE MALE X UNO FIXED STUD STRAIGHT

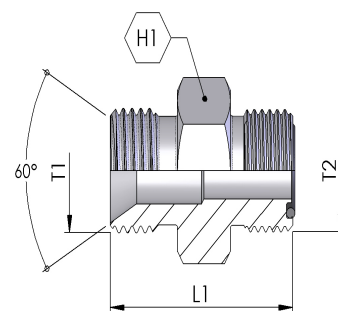


Part Number	Short Code	T1	T2	H1	L1	L2	PN (bar)
B-N-0407	BML	1/4-19	7/16-20	19	29	20	315
B-N-0408		1/4-19	1/2-20	9	28	11	
B-N-0409	BMN	1/4-19	9/16-18	19	30	20	315
B-N-0412		1/4-19	3/4-16	11	30	11	
B-N-0607		3/8-19	7/16-20	9	29	12	
B-N-0608		3/8-19	1/2-20	9	29	12	
B-N-0609	BMR	3/8-19	9/16-18	22	32	22	315
B-N-0612	BMS	3/8-19	3/4-16	22	33	22	315
B-N-0614		3/8-19	7/8-14	13	35	12	
B-N-0617		3/8-19	1 1/16-12				
B-N-0809		1/2-14	9/16-18	10	37	14	
B-N-0812	BMW	1/2-14	3/4-16	27	37	25	315
B-N-0814	BMX	1/2-14	7/8-14	27	38	25	250
B-N-0817		1/2-14	1.1/16-12	15	41	14	
B-N-1212		3/4-14	3/4-16	11	39	16	
B-N-1214	BNA	3/4-14	7/8-14	32	42	29	250
B-N-1217	BNB	3/4-14	1.1/16-12	32	44	29	250
B-N-1219	BNC	3/4-14	1.3/16-12	36	44	29	200
B-N-1221		3/4-14	1.5/16-12	15	45	16	
B-N-1226		3/4-14	1 5/8-12				
B-N-1614		1-11	7/8-14				
B-N-1617	BNF	1-11	1.1/16-12	41	48	33	250
B-N-1619		1-11	1.3/16-12				
B-N-1621	BNH	1-11	1.5/16-12	41	48	33	200
B-N-1626	BNI	1-11	1.5/8-12	50	50	35	160
B-N-2021		1.1/4-11	1.5/16-12				
B-N-2026		1.1/4-11	1.5/8-12				
B-N-2430		1.1/2-11	1.7/8-12				

B-R

BSP MALE X ORFS MALE

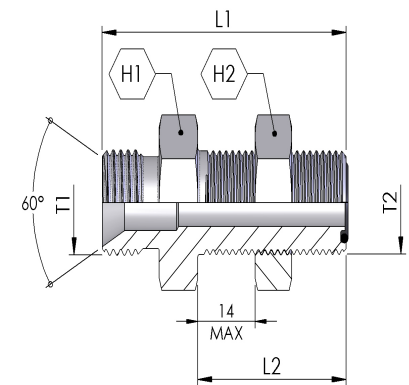
BSP 60° CONE MALE X ORFS MALE STRAIGHT



Part Number	Short Code	T1	T2	H1	L1	PN (bar)
B-R-0209		1/8-28	9/16-18			
B-R-0409	BNQ	1/4-19	9/16-18	19	28	400
B-R-0411	BNR	1/4-19	11/16-16	19	29	400
B-R-0413	BNS	1/4-19	13/16-16	22	32	400
B-R-0609	BNT	3/8-19	9/16-18	22	30	400
B-R-0611	BNU	3/8-19	11/16-16	22	31	400
B-R-0613	BNV	3/8-19	13/16-16	22	33	400
B-R-0809		1/2-14	9/16-18			
B-R-0811		1/2-14	11/16-16	12	24	
B-R-0813	BNZ	1/2-14	13/16-16	27	38	350
B-R-0816	BOC	1/2-14	1-14	27	41	350
B-R-0819	BOD	1/2-14	1.3/16-12	32	43	350
B-R-1213	BOF	3/4-14	13/16-16	32	41	315
B-R-1216	BOG	3/4-14	1-14	32	44	315
B-R-1219	BOH	3/4-14	1.3/16-12	32	45	315
B-R-1223	BOI	3/4-14	1.7/16-12	41	47	315
B-R-1619	BOJ	1-11	1.3/16-12	41	50	250
B-R-1623	BOK	1-11	1.7/16-12	41	50	250
B-R-1627	BOM	1-11	1.11/16-12	46	52	250
B-R-2023	BON	1.1/4-11	1.7/16-12	50	53	200
B-R-2027	BOO	1.1/4-11	1.11/16-12	50	53	200
B-R-2423		1.1/2-11	1.7/16-12	22	34	
B-R-2427		1 1/2-11	1 11/16-12			
B-R-2432	BOR	1.1/2-11	2-12	55	55	160

B-RK

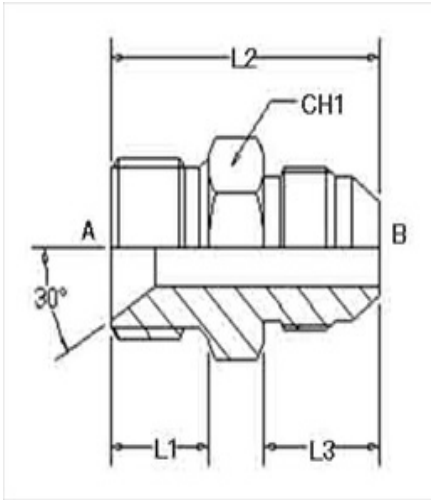
BSP MALE X ORFS BULKHEAD
BSP 60° CONE MALE X ORFS BULKHEAD STRAIGHT



Part Number	T1	T2
B-RK-0813	1/2-14	13/16-16
B-RK-0816	1/2-14	1-14

B-AX

BSP MALE X JIS BSP MALE
BSP 60° CONE MALE X JIS BSP 30° FLARE MALE
STRAIGHT



Part Number	A	B
B-AX-0808	1/2-14	1/2-14

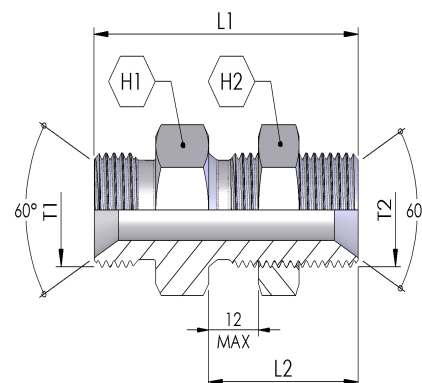
B-BK

BSP MALE X BSP BULKHEAD

BSP 60° CONE MALE X BSP 60° CONE BULKHEAD

STRAIGHT

- ISO 8434-6



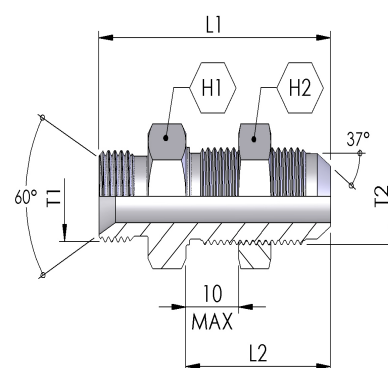
Part Number	Short Code	T1	T2	H1	H2	L1	L2	PN (bar)
B-BK-0202		1/8-28	1/8-28					
B-BK-0404	BAU	1/4-19	1/4-19	19	19	47	29	400
B-BK-0606	BAV	3/8-19	3/8-19	22	22	52	31	400
B-BK-0806		1/2-14	3/8-19					
B-BK-0808	BAX	1/2-14	1/2-14	27	27	60	34	350
B-BK-1212	BAZ	3/4-14	3/4-14	32	32	66	37	315
B-BK-1616	BBB	1-11	1-11	41	41	74	41	250
B-BK-2020	BBC	1.1/4-11	1.1/4-11	50	50	81	45	200
B-BK-2424	BBD	1.1/2-11	1.1/2-11	55	55	88	49	160

B-GK

BSP MALE X JIC BULKHEAD

BSP 60° CONE MALE X JIC 37° FLARE BULKHEAD

STRAIGHT



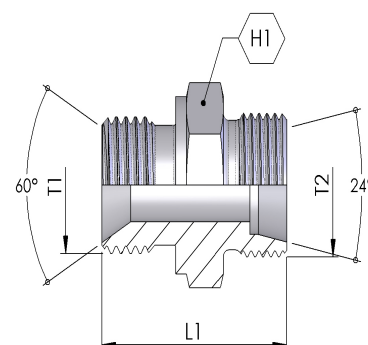
Part Number	T1	T2	L1 (mm)	L2 (mm)	H1 (mm)	H2 (mm)
B-GK-0407	1/4-19	7/16-20				
B-GK-0609	3/8-19	9/16-18	53	33	22	19
B-GK-0812	1/2-14	3/4-16	59	37	27	22
B-GK-0814	1/2-14	7/8-14	64	40	27	27
B-GK-1217	3/4-14	1.1/16-12	73	44	36	36

B-ML

BSP MALE X MET LIGHT MALE

BSP 60° CONE MALE X METRIC 24° CONE LIGHT
MALE STRAIGHT

- For BSP Stud Ends Refer BX-ML series



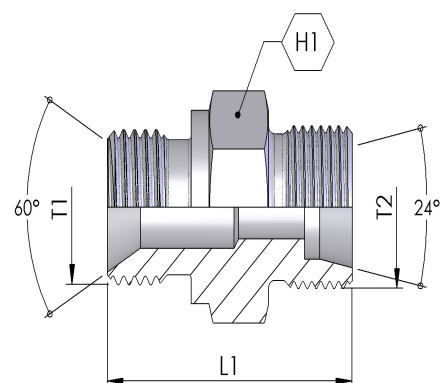
Part Number	Suits Tube	T1	T2	L1 (mm)	H1 (mm)	Working Pressure - bar
B-ML-0412	6	1/4-19	M12-1.5	29	19	315
B-ML-0414	8	1/4-19	M14-1.5	29	19	315
B-ML-0416	10	1/4-19	M16-1.5	30	19	315
B-ML-0614	8	3/8-19	M14-1.5	30.5	22	315
B-ML-0616	10	3/8-19	M16-1.5	31.5	22	315
B-ML-0618	12	3/8-19	M18-1.5	31.5	22	315
B-ML-0622	15	3/8-19	M22-1.5	31.5	22	315
B-ML-0814	8	1/2-14	M14-1.5	33	27	315
B-ML-0816	10	1/2-14	M16-1.5	34	27	315
B-ML-0818	12	1/2-14	M18-1.5	34	27	315
B-ML-0822	15	1/2-14	M22-1.5	35	27	315
B-ML-0826	18	1/2-14	M26-1.5	36	27	315
B-ML-1218	12	3/4-14	M18-1.5	39	32	315
B-ML-1222	15	3/4-14	M22-1.5	38	32	160
B-ML-1226	18	3/4-14	M26-1.5	38	32	160
B-ML-1230	22	3/4-14	M30-2	40	32	160
B-ML-1636	28	1-11	M36-2	43	41	160

B-MS

BSP MALE X MET HEAVY MALE

BSP 60° CONE MALE X METRIC 24° CONE HEAVY
MALE STRAIGHT

- For BSP Stud Ends Refer BX-MS series



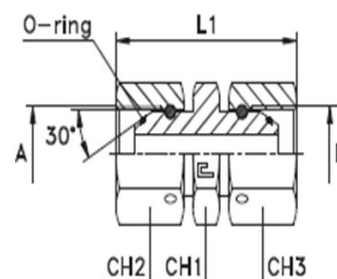
Part Number	Suits Tube	T1	T2	L1 (mm)	H1 (mm)	Working Pressure - bar
B-MS-0414	6	1/4-19	M14-1.5	32	19	630
B-MS-0416	8	1/4-19	M16-1.5	34	19	630
B-MS-0614	6	3/8-19	M14-1.5	35	22	630
B-MS-0616	8	3/8-19	M18-1.5	34.5	22	630
B-MS-0618	10	3/8-19	M18-1.5	34.5	22	630
B-MS-0620	12	3/8-19	M20-1.5	36.5	22	630
B-MS-0622	14	3/8-19	M22-1.5	38.5	24	630
B-MS-0818	10	1/2-14	M18-1.5	39	27	630
B-MS-0820	12	1/2-14	M20-1.5	39	27	630
B-MS-0822	14	1/2-14	M22-1.5	41	27	630
B-MS-0824	16	1/2-14	M24-1.5	41	27	400
B-MS-1230	20	3/4-14	M30-2	47	32	400
B-MS-1236	25	3/4-14	M36-2	51	41	400
B-MS-1636	25	1-11	M36-2	53	41	400
B-MS-1642	30	1-11	M36-2	55	41	400

C-C

BSP FEMALE X BSP FEMALE

BSP 60° CONE FEMALE SWIVEL NUT X BSP 60°

CONE FEMALE SWIVEL NUT STRAIGHT

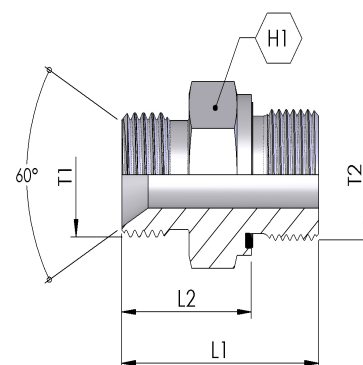


Part Number	A	L1	CH1	CH2	CH3
C-C-0404	1/4 - 19	40.5	19	19	19
C-C-0606	3/8 - 19	42.5	22	22	22
C-C-0808	1/2 - 14	49.5	27	27	27
C-C-1212	3/4 - 14	59	32	32	32

B-MX

BSP MALE X MET MALE

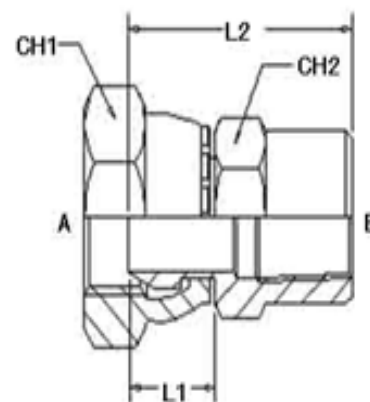
BSP 60° CONE MALE X METRIC STUD CAPTIVE
SEAL



Part Number	T1	T2
B-MX-0412	1/4-19	M12-1.5
B-MX-0414	1/4-19	M14-1.5
B-MX-0612	3/8-19	M12-1.5
B-MX-0614	3/8-19	M14-1.5
B-MX-0616	3/8-19	M16-1.5
B-MX-0618	3/8-19	M18-1.5
B-MX-0622	3/8-19	M22-1.5
B-MX-0814	1/2-14	M14-1.5
B-MX-0816	1/2-14	M16-1.5
B-MX-0818	1/2-14	M18-1.5
B-MX-0820	1/2-14	M20-1.5
B-MX-0822	1/2-14	M22-1.5
B-MX-0824	1/2-14	M24-1.5
B-MX-1222	3/4-14	M22-1.5
B-MX-1226	3/4-14	M26-1.5
B-MX-1227	3/4-14	M27-2
B-MX-1230	3/4-14	M30-2

C-E

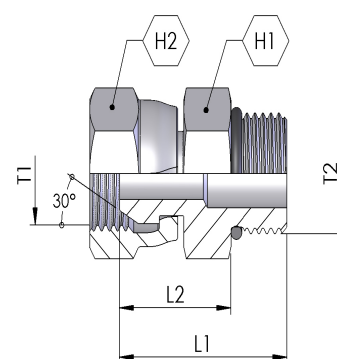
BSP FEMALE X BSPT FEMALE
BSP 60° CONE FEMALE SWIVEL NUT X BSPT FIXED
FEMALE STRAIGHT



Part Number	A	B	L1	L2	L3	CH1	CH2
C-E-0404	1/4-19	1/4-19	11	29	10	19	19
C-E-0606	3/8-19	3/8-19	13	32	11	25	22
C-E-0808	1/2-14	1/2-14	15	41	16	27	27
C-E-1212	3/4-14	3/4-14	17	45	16	35	32
C-E-1616	1-11	1-11	18	51	19	41	41

C-N

BSP FEMALE X UNO MALE
BSP 60° CONE FEMALE SWIVEL NUT X UNO FIXED
STUD STRAIGHT



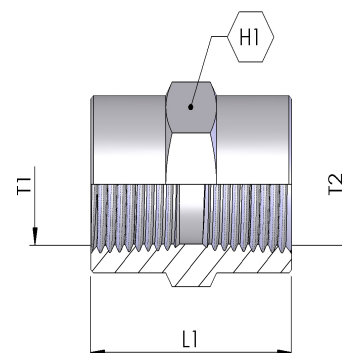
Part Number	Short Code	T1	T2	H1	L1	L2	PN (bar)
C-N-0612		3/8-19	3/4-16	13	11	55	22
C-N-0614	BSB	3/8-19	7/8-14	27	36	23	250
C-N-0812		1/2-14	3/4-16	15	11	22	27
C-N-0814		1/2-14	7/8-14	15	13	25	27
C-N-1217		3/4-14	1.1/16-12	17	15	32	32
C-N-1621		1-11	1.5/16-12				

E-E

BSPT FEMALE X BSPT FEMALE

BSPT FIXED FEMALE X BSPT FIXED FEMALE

STRAIGHT



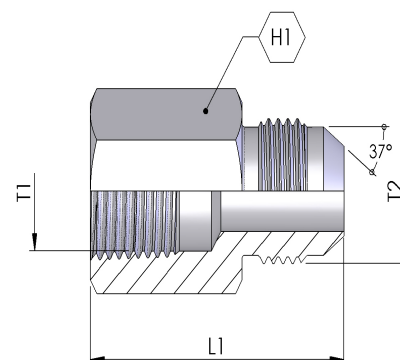
Part Number	Short Code	T1	T2	H1	L1	PN (bar)
E-E-0202	BST	1/8-28	1/8-28	14	20	345
E-E-0204	BSU	1/8-28	1/4-19	19	24	275
E-E-0404	BSV	1/4-19	1/4-19	19	30	275
E-E-0406	BSW	1/4-19	3/8-19	22	30	210
E-E-0408		1/4-19	1/2-14	27	34	
E-E-0606	BSY	3/8-19	3/8-19	22	30	210
E-E-0608	BSZ	3/8-19	1/2-14	27	35	210
E-E-0808	BTA	1/2-14	1/2-14	27	38	210
E-E-0812	BTB	1/2-14	3/4-14	36	40	170
E-E-1212	BTC	3/4-14	3/4-14	36	40	170
E-E-1216	BTD	3/4-14	1-11	41	45	140
E-E-1616	BTE	1-11	1-11	41	48	140
E-E-1620	BTF	1-11	1.1/4-11	50	50	80
E-E-2020	BTG	1.1/4-11	1.1/4-11	50	50	80
E-E-2024		1.1/4-11	1.1/2-11			
E-E-2424	BTI	1.1/2-11	1.1/2-11	60	50	70
E-E-3232	BTJ	2-11	2-11	74	60	70

E-G

BSPT FEMALE X JIC MALE

BSPT FIXED FEMALE X JIC 37° FLARE MALE

STRAIGHT

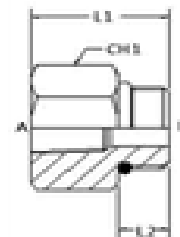


Part Number	Short Code	T1	T2	H1	L1	PN (bar)
E-G-0207	BUI	1/8-28	7/16-20	14	30	345
E-G-0407	BUJ	1/4-19	7/16-20	19	35	275
E-G-0408		1/4-19	1/2-20			
E-G-0409	BUL	1/4-19	9/16-18	19	35	275
E-G-0609	BUM	3/8-19	9/16-18	22	37	210
E-G-0612	BUN	3/8-19	3/4-16	22	39	210
E-G-0809	BUO	1/2-14	9/16-18	27	43	210
E-G-0812	BUP	1/2-14	3/4-16	27	46	210
E-G-0814	BUQ	1/2-14	7/8-14	27	48	210
E-G-1217	BUR	3/4-14	1.1/16-12	36	52	170
E-G-1621	BUS	1-11	1.5/16-12	41	60	140
E-G-2026		1.1/4-11	1.5/8-12			

E-N

BSPT FEMALE X UNO MALE

BSPT FIXED FEMALE X UNO FIXED STUD STRAIGHT

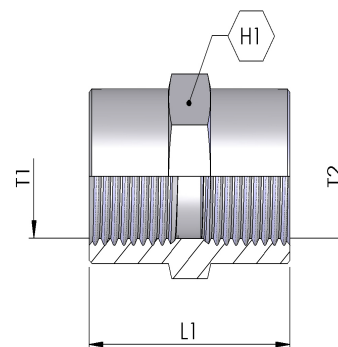


Part Number	A	B	L1	L2	CH1
E-N-0212	1/8-28	3/4-16	19	11	22
E-N-0409	1/4-19	9/16-18	28	10	19
E-N-0412	1/4-19	3/4-16	27	11	22
E-N-0414	1/4-19	7/8-14	25	13	25
E-N-0417	1/4-19	1.1/16-12	29	15	32
E-N-0617	3/8-19	1.1/16-12	33	15	32
E-N-0812	1/2-14	3/4-16	39	11	27
E-N-0814	1/2-14	7/8-14	33	13	27

F-F

BSP FEMALE X BSP FEMALE

BSP FIXED FEMALE X BSP FIXED FEMALE
STRAIGHT

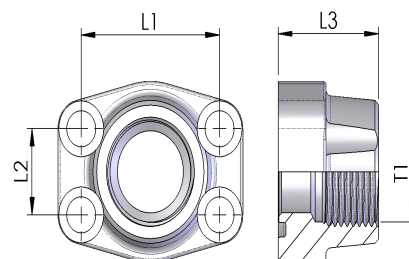


Part Number	Short Code	T1	T2	H1	L1	PN (bar)
F-F-0404	BVV	1/4-19	1/4-19	19	30	400
F-F-0606	BVX	3/8-19	3/8-19	24	30	400
F-F-0808	BVY	1/2-14	1/2-14	27	38	350
F-F-1212	BWA	3/4-14	3/4-14	36	40	315
F-F-1616	BWB	1-11	1-11	41	48	250
F-F-2020	BWC	1.1/4-11	1.1/4-11	55	50	200
F-F-2424	BWE	1.1/2-11	1.1/2-11	60	50	160

F-V

BSP FEMALE X SAE C61

BSP FIXED FEMALE X SAE CODE 61 FLANGE BLOCK

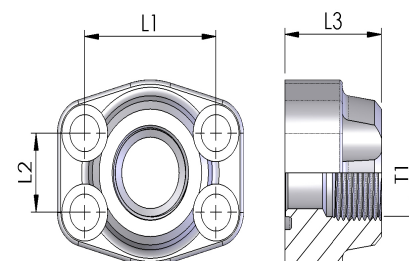


Part Number	T1	Nominal SAE Flange Size	L1 (mm)	L2 (mm)	L3 - mm	Suits metric bolts	Suits imperial bolts
F-V-0808	1/2-14	1/2	38.1	17.48	36	M8x30	5/16x1.1/4
F-V-1212	3/4-14	3/4	47.6	22.23	36	M10x35	3/8x1.1/2
F-V-1616	1-11	1	52.37	26.19	38	M10x35	3/8x1.1/2
F-V-2020	1.1/4-11	1.1/4	58.72	30.18	40	M10x40	7/16x1.3/4
F-V-2424	1.1/2-11	1.1/2	69.85	35.71	45	M12x45	1/2x1.3/4
F-V-3232	2-11	2	77.77	42.88	45	M12x45	1/2x1.3/4

F-VH

BSP FEMALE X SAE C62

BSP FIXED FEMALE X SAE CODE 62 FLANGE BLOCK

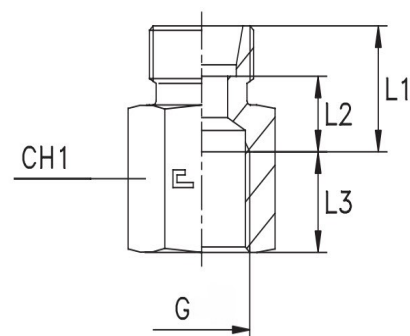


Part Number	T1	Nominal SAE Flange Size	L1 (mm)	L2 (mm)	L3 - mm	Suits metric bolts	Suits imperial bolts
F-VH-0808	1/2-14	1/2	40.49	18.24	36	M8x30	5/16x1.1/4
F-VH-1212	3/4-14	3/4	50.8	23.8	36	M10x35	3/8x1.1/2
F-VH-1616	1-11	1	57.15	27.76	42	M10x35	3/8x1.1/2
F-VH-2020	1.1/4-11	1.1/4	66.68	31.75	45	M10x40	7/16x1.3/4
F-VH-2424	1.1/2-11	1.1/2	79.38	36.5	50	M12x45	1/2x1.3/4
F-VH-3232	2-11	2	96.82	44.45	65	M12x45	1/2x1.3/4

F-ML

BSP FEMALE X MET LIGHT MALE

BSP SOLID FEMALE X METRIC 24° CONE LIGHT
MALE STRAIGHT



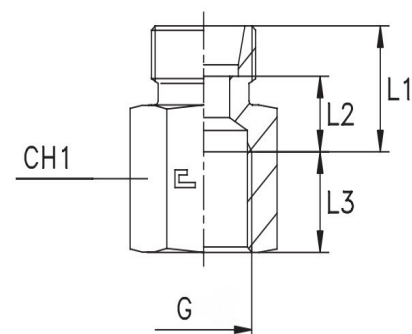
Part Number	BSPP Male Thread	Metric Male Thread	Suits Tube	L1 - mm	L2 - mm	L3 - mm	Hex A/F (CH1)	NP (bar)
F-ML-0414	1/4-19	M14-1.5	8	17	10	14	19	315
F-ML-0416	1/4-19	M16-1.5	10	18	11	14	19	315
F-ML-0418	1/4-19	M18-1.5	12	18	12	14	19	315
F-ML-0618	3/8-19	M18-1.5	12	19	12	14	24	315
F-ML-0822	1/2-14	M22-1.5	15	21	14	17	27	315
F-ML-1230	3/4-14	M30-2	22	24	16	19	36	160
F-ML-1636	1-11	M36-2	28	23.5	16	21.5	41	160

F-MS

BSP FEMALE X MET HEAVY MALE

BSP SOLID FEMALE X METRIC 24° CONE HEAVY

MALE STRAIGHT



Part Number	BSPP Male Thread	Metric Male Thread	Suits Tube	L1 - mm	L2 - mm	L3 - mm	Hex A/F (CH1)	NP (bar)
F-MS-0620	3/8-19	M20-1.5	12	20	13	14	24	630
F-MS-0822	1/2-14	M22-1.5	14	23	15	17	30	630
F-MS-0824	1/2-14	M24-1.5	16	23	15	17	30	400
F-MS-1230	3/4-12	M30-2	20	26	16	19	36	400
F-MS-1636	1-11	M36-2	25	27.5	16	21.5	41	400
F-MS-2042	1.1/4-11	M42-2	30	32.5	19	23.5	55	400
F-MS-2452	1.1/2-11	M52-2	38	34.5	19	25.5	60	315

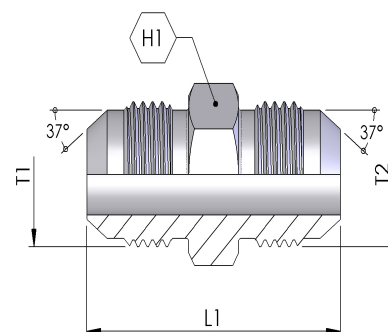
G-G

JIC MALE X JIC MALE

JIC 37° FLARE MALE X JIC 37° FLARE MALE

STRAIGHT

- ISO 8434-2



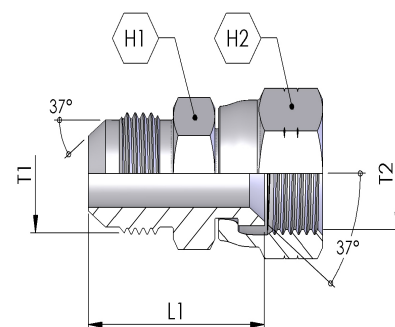
Part Number	Short Code	T1	T2	H1	L1	PN (bar)
G-G-0707	CBR	7/16-20	7/16-20	12	35	350
G-G-0709		7/16-20	9/16-18	17	36	
G-G-0808		1/2-20	1/2-20	14	35	
G-G-0809		1/2-20	9/16-18	16	36	
G-G-0909	CBZ	9/16-18	9/16-18	17	36	350
G-G-0912		9/16-18	3/4-16	22	39	
G-G-0917		9/16-18	1.1/16-12			
G-G-1212	CCE	3/4-16	3/4-16	22	41	310
G-G-1214		3/4-16	7/8-14	24	46	
G-G-1217		3/4-16	1.1/16-12	30	50	
G-G-1414	CCH	7/8-14	7/8-14	24	48	240
G-G-1417		7/8-14	1.1/16-12	30	53	
G-G-1421		7/8-14	1.5/16-12	35	53	
G-G-1717	CCK	1.1/16-12	1.1/16-12	30	55	240
G-G-1721		1.1/16-12	1.5/16-12	36	56	
G-G-1919		1.3/16-12	1.3/16-12			
G-G-2121	CCP	1.5/16-12	1.5/16-12	36	57	210
G-G-2126		1.5/16-12	1.5/8-12			
G-G-2626	CCR	1.5/8-12	1.5/8-12	46	62	170
G-G-3030		1.7/8-12	1.7/8-12	50	70	
G-G-4040	CCT	2.1/2-12	2.1/2-12	65	87	105

G-J

JIC MALE X JIC FEMALE

JIC 37° FLARE MALE X JIC 37° FLARE FEMALE

SWIVEL NUT STRAIGHT



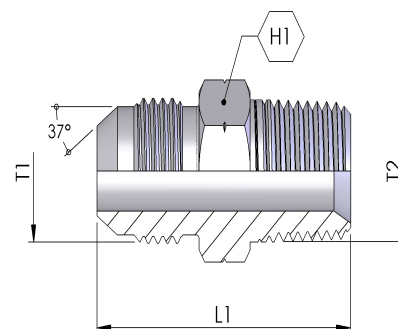
Part Number	Short Code	T1	T2	H1	H2	L1	PN (bar)
G-J-0707	CHG	7/16-20	7/16-20	12	14	29	350
G-J-0909	CHM	9/16-18	9/16-18	17	19	31	350
G-J-1212	CHN	3/4-16	3/4-16	22	22	35	310
G-J-1414	CHR	7/8-14	7/8-14	24	27	40	240
G-J-1417		7/8-14	1.1/16-12	27	32	44	
G-J-1717	CHT	1.1/16-12	1.1/16-12	30	32	46	240
G-J-2121		1.5/16-12	1.5/16-12	35	38	48	

G-L

JIC MALE X NPTF MALE

JIC 37° FLARE MALE X NPTF MALE STRAIGHT

- SAE J514

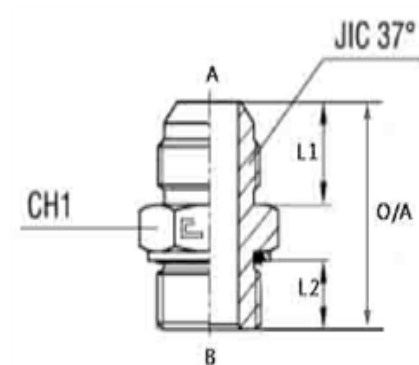


Part Number	Short Code	T1	T2	H1	L1	PN (bar)
G-L-0702	CLJ	7/16-20	1/8-27	12	31	345
G-L-0704	CLK	7/16-20	1/4-18	14	36	275
G-L-0802	CLM	1/2-20	1/8-27	14	31	345
G-L-0804	CLN	1/2-20	1/4-18	14	36	275
G-L-0806	CLO	1/2-20	3/8-18	19	36	210
G-L-0902	CLP	9/16-18	1/8-27	17	32	345
G-L-0904	CLQ	9/16-18	1/4-18	17	36	275
G-L-0906	CLR	9/16-18	3/8-18	19	37	210
G-L-0908	CLS	9/16-18	1/2-14	22	43	210
G-L-1204	CLU	3/4-16	1/4-18	22	39	275
G-L-1206	CLV	3/4-16	3/8-18	22	39	210
G-L-1208	CLW	3/4-16	1/2-14	22	46	210
G-L-1212	CLX	3/4-16	3/4-14	27	47	170
G-L-1408	CLZ	7/8-14	1/2-14	24	48	210
G-L-1412	CMA	7/8-14	3/4-14	27	50	170
G-L-1416	CMB	7/8-14	1-11.1/2	36	55	140
G-L-1708	CMD	1.1/16-12	1/2-14	30	52	210
G-L-1712	CME	1.1/16-12	3/4-14	30	52	170
G-L-1720	CMG	1.1/16-12	1.1/4-11.1/2	46	60	80
G-L-2112	CMJ	1.5/16-12	3/4-14	36	54	170
G-L-2116	CMK	1.5/16-12	1-11.1/2	36	58	140
G-L-2120	CML	1.5/16-12	1.1/4-11.1/2	46	61	80
G-L-2616	CMM	1.5/8-12	1-11.1/2	46	61	140
G-L-2620	CMN	1.5/8-12	1.1/4-11.1/2	46	62	80
G-L-2624	CMO	1.5/8-12	1.1/2-11.1/2	50	65	70
G-L-3020	CMP	1.7/8-12	1.1/4-11.1/2	50	67	80
G-L-3024	CMQ	1.7/8-12	1.1/2-11.1/2	50	68	70

G-M

JIC MALE X MET MALE

JIC 37° FLARE MALE X METRIC MALE STRAIGHT



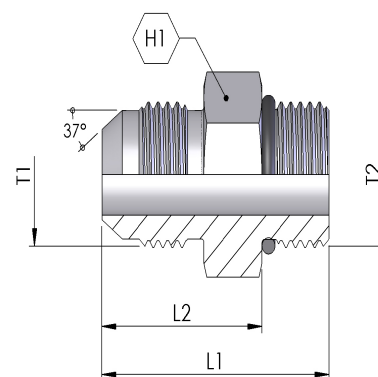
Part Number	A	B	O/A	L1	L2	CH1
G-M-0710	7/16-20	M10-1	23	8	14	14
G-M-0912	9/16-18	M12-1.5	21	12	14	17
G-M-0914	9/16-18	M14-1.5	22	10	14	19
G-M-0916	9/16-18	M16-1.5	24	11	14	22
G-M-0918	9/16-18	M18-1.5	23	12	15	22
G-M-0922	9/16-18	M22-1.5				
G-M-1218	3/4-16	M18-1.5	27	13	17	24
G-M-1220	3/4-16	M20-1.5				
G-M-1222	3/4-16	M22-1.5	24	14	17	27
G-M-1422	7/8-14	M22-1.5	31	14	19	27

G-N

JIC MALE X UNO MALE

JIC 37° FLARE MALE X UNO FIXED STUD STRAIGHT

- ISO 8434-2

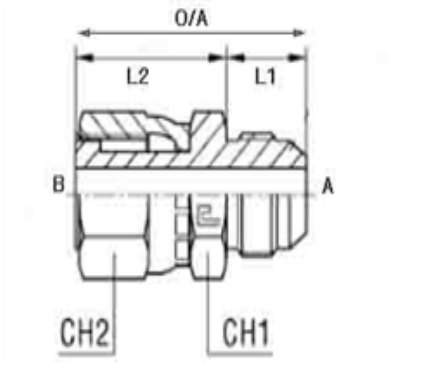


Part Number	Short Code	T1	T2	H1	L1	L2	PN (bar)
G-N-0707	CPZ	7/16-20	7/16-20	14	31	22	315
G-N-0709	CQA	7/16-20	9/16-18	17	33	23	315
G-N-0712		7/16-20	3/4-16	22	35	14	
G-N-0807		1/2-20	7/16-20	14	33	14	

G-N-0808		1/2-20	1/2-20				
G-N-0809		1/2-20	9/16-18	18	33	14	
G-N-0812		1/2-20	3/4-16				
G-N-0814		1/2-20	7/8-14				
G-N-0907		9/16-18	7/16-20	16	32	14	
G-N-0908		9/16-18	1/2-20	16	32	14	
G-N-0909	CQK	9/16-18	9/16-18	17	33	23	315
G-N-0912	CQM	9/16-18	3/4-16	22	35	24	315
G-N-0914		9/16-18	7/8-14	25	38	14	
G-N-0917		9/16-18	1.1/16-12	32	42	14	
G-N-1209		3/4-14	9/16-18	21	37	17	
G-N-1212	CQS	3/4-16	3/4-16	22	38	27	310
G-N-1214	CQT	3/4-16	7/8-14	27	41	28	250
G-N-1217		3/4-14	1.1/16-12	32	45	17	
G-N-1219		3/4-14	1.3/16-12				
G-N-1221		3/4-14	1.5/16-12	38	45	17	
G-N-1409		7/8-14	9/16-18				
G-N-1412		7/8-14	3/4-16	24	42	19	
G-N-1414	CQZ	7/8-14	7/8-14	27	43	30	240
G-N-1417		7/8-14	1.1/16-12	32	47	19	
G-N-1421		7/8-14	1.5/16-12	38	48	19	
G-N-1712		1.1/16-12	3/4-16	29	49	22	
G-N-1714		1.1/16-12	7/8-14	29	48	22	
G-N-1717	CRF	1.1/16-12	1.1/16-12	32	50	35	240
G-N-1719		1.1/16-12	1.3/16-12				
G-N-1721		1.1/16-12	1.5/16-12	38	51	22	
G-N-1726		1.1/16-12	1.5/8-12	48	53	22	
G-N-1917		1.3/16-12	1.1/16-12				
G-N-1919		1.3/16-12	1.3/16-12				
G-N-2117		1.5/16-12	1.1/16-12	35	52	23	
G-N-2119		1.5/16-12	1.3/16-12				
G-N-2121		1.5/16-12	1.5/16-12	38	52	23	
G-N-2126		1.5/16-12	1.5/8-12	48	54	23	
G-N-2621		1.5/8-12	1.5/16-12	43	59	24	
G-N-2626		1.5/8-12	1.5/8-12	48	55	24	
G-N-2630		1.5/8-12	1.7/8-12	54	57	24	
G-N-3026		1.7/8-12	1.5/8-12	51	64	28	
G-N-3030		1.7/8-12	1.7/8-12				

G-T

JIC MALE X ORFS FEMALE
JIC 37° FLARE MALE X ORFS FEMALE SWIVEL NUT
STRAIGHT



Part Number	A	B	O/A	L1	L2	CH1
G-T-0709	7/16-20	9/16-18	32	10	14	17
G-T-0911	9/16-18	11/16-16	27	14	22	22
G-T-1213	3/4-16	13/16-16	30	17	24	24
G-T-1719	1.1/16-12	1.3/16-12	41	22	36	36
G-T-2623	1.5/8-12	1.7/16-12				

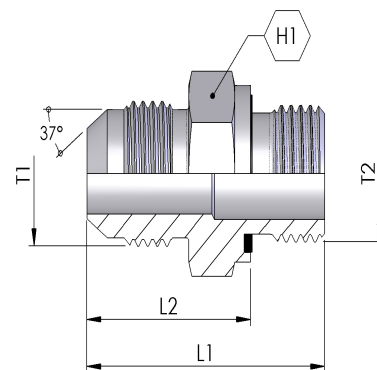
G-BX

JIC MALE X BSP MALE

JIC 37° FLARE MALE STRAIGHT X BSP STUD

CAPTIVE SEAL STRAIGHT

- ISO 8434-2



Part Number	Short Code	T1	T2	H1	L1	L2	PN (bar)
G-BX-0704	CAT	7/16-20	1/4-19	19	35	23	350
G-BX-0706	CAU	7/16-20	3/8-19	22	36	24	350
G-BX-0904	CAV	9/16-18	1/4-19	19	35	23	350
G-BX-0906	CAW	9/16-18	3/8-19	22	36	24	350
G-BX-0908	CAX	9/16-18	1/2-14	27	40	26	350
G-BX-1206	CAY	3/4-16	3/8-19	22	39	27	310
G-BX-1208	CAZ	3/4-16	1/2-14	27	42	28	310
G-BX-1212	CBA	3/4-16	3/4-14	32	46	30	310
G-BX-1408	CBB	7/8-14	1/2-14	27	45	31	240
G-BX-1412	CBC	7/8-14	3/4-14	32	48	32	240
G-BX-1708	CBD	1.1/16-12	1/2-14	30	49	35	240
G-BX-1712	CBE	1.1/16-12	3/4-14	32	51	35	240
G-BX-1716	CBF	1.1/16-12	1-11	41	54	36	240
G-BX-1720	CBG	1.1/16-12	1.1/4-11	50	58	38	240
G-BX-2112	CBH	1.5/16-12	3/4-14	36	53	37	210
G-BX-2116	CBI	1.5/16-12	1-11	41	55	37	210
G-BX-2120	CBJ	1.5/16-12	1.1/4-11	50	60	40	210
G-BX-2616	CBK	1.5/8-12	1-11	46	58	40	170
G-BX-2620	CBL	1.5/8-12	1.1/4-11	50	60	40	170
G-BX-2624	CBM	1.5/8-12	1.1/2-11	55	64	42	170

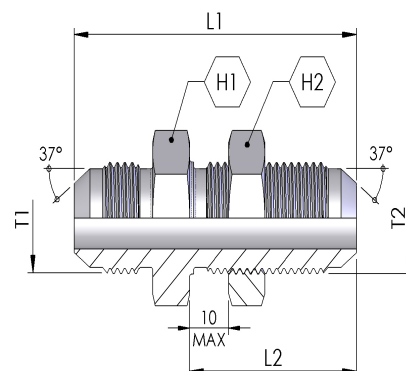
G-GK

JIC MALE X JIC BULKHEAD

JIC 37° FLARE MALE X JIC 37° FLARE BULKHEAD

STRAIGHT

- ISO 8434-2



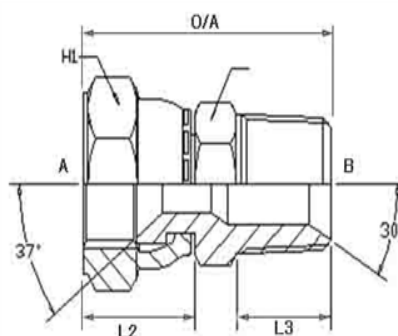
Part Number	Short Code	T1	T2	H1	H2	L1	L2	PN (bar)
G-GK-0707	CFR	7/16-20	7/16-20	17	17	53	32	350
G-GK-0909	CFT	9/16-18	9/16-18	22	22	56	34	350
G-GK-1212	CFU	3/4-16	3/4-16	24	24	62	38	310
G-GK-1414	CFV	7/8-14	7/8-14	30	30	70	41	240
G-GK-1717	CFW	1.1/16-12	1.1/16-12	36	36	79	45	240
G-GK-2121	CFY	1.5/16-12	1.5/16-12	41	41	80	45	210
G-GK-2626	CFZ	1.5/8-12	1.5/8-12	50	50	84	47	170

J-L

JIC FEMALE X NPTF MALE

JIC 37° FLARE FEMALE SWIVEL NUT X NPTF MALE

STRAIGHT



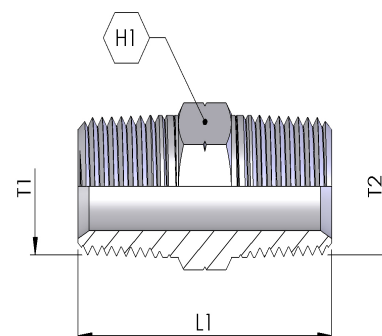
Part Number	A	B	O/A	L1	L2	H1	H2
J-L-1406	7/8-14	3/8-18	36	13	14	22	25
J-L-1408	7/8-14	1/2-14	45	13	19	24	25
J-L-1708	1.1/16-12	1/2-14	43	13	19	29	32
J-L-2112	1.5/16-12	3/4-14	44	15	19	32	40

L-L

NPTF MALE X NPTF MALE

NPTF MALE X NPTF MALE STRAIGHT

- SAE J514

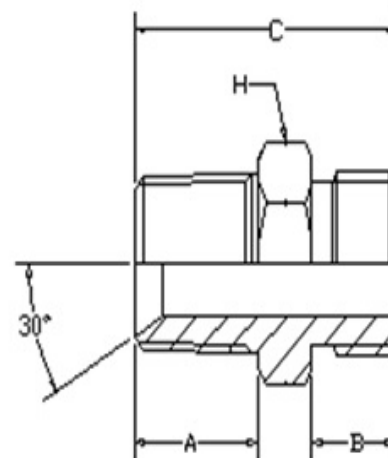


Part Number	Short Code	T1	T2	H1	L1	PN (bar)
L-L-0202	DEB	1/8-27	1/8-27	12	27	345
L-L-0204	DEC	1/8-27	1/4-18	14	32	275
L-L-0404	DED	1/4-18	1/4-18	14	37	275
L-L-0406	DEE	1/4-18	3/8-18	19	37	210
L-L-0408	DEF	1/4-18	1/2-14	22	43	210
L-L-0606	DEG	3/8-18	3/8-18	19	37	210
L-L-0608	DEH	3/8-18	1/2-14	22	43	210
L-L-0808	DEI	1/2-14	1/2-14	22	48	210
L-L-0812	DEK	1/2-14	3/4-14	27	50	170
L-L-1212	DEM	3/4-14	3/4-14	27	50	170
L-L-1216	DEN	3/4-14	1-11.1/2	36	54	140
L-L-1616	DEO	1-11.1/2	1-11.1/2	36	59	140
L-L-1620	DEP	1-11.1/2	1.1/4-11.1/2	46	62	80
L-L-2020	DEQ	1.1/4-11.1/2	1.1/4-11.1/2	46	63	80
L-L-3232	DET	2-11.1/2	2-11.1/2	65	72	70

L-N

NPTF MALE X UNO MALE

NPTF MALE X UNO FIXED STUD STRAIGHT



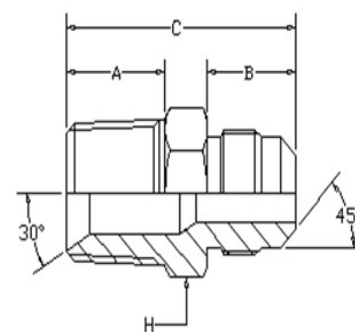
Part Number	NPTF Male Thread	UNF Male Thread	A	B	C	H
L-N-0612	3/8-18	3/4-14	35	14	11	22
L-N-0812	1/2-14	3/4-16	39	19	11	22

L-AA

NPTF MALE X SAE MALE

NPTF MALE X SAE 45° FLARE MALE STRAIGHT

- SAE J513



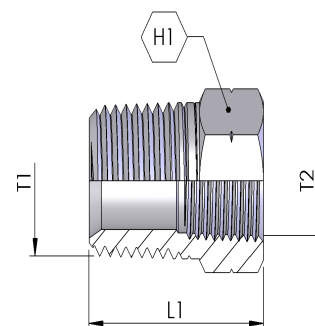
Part Number	NPTF Male Thread	SAE Male Thread	A	B	C	H
L-AA-0810	1/2-14	5/8-16	43	18	16	22
L-AA-0812	1/2-14	3/4-16	45	18	17	22
L-AA-1217	3/4-14	1.1/16-14	57	19	25	29

L-AC

NPTF MALE X NPTF FEMALE

NPTF MALE X NPTF FIXED FEMALE STRAIGHT

- SAE J514



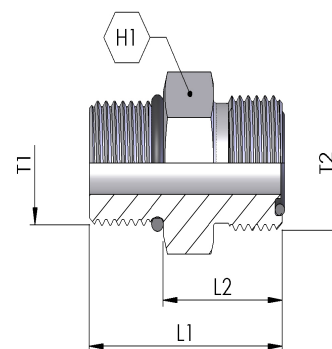
Part Number	Short Code	T1	T2	H1	L1	PN (bar)
L-AC-0202		1/8-27	1/8-27		16	
L-AC-0402	DCL	1/4-18	1/8-27	14	22	275
L-AC-0602	DCM	3/8-18	1/8-27	19	22	210
L-AC-0604	DCN	3/8-18	1/4-18	19	22	210
L-AC-0606		3/8-18	3/8-18			
L-AC-0802	DCQ	1/2-14	1/8-27	22	30	210
L-AC-0804	DCR	1/2-14	1/4-18	22	30	210
L-AC-0806	DCS	1/2-14	3/8-18	22	30	210
L-AC-0808		1/2-14	1/2-14			
L-AC-1206	DCW	3/4-14	3/8-18	27	30	170
L-AC-1208	DCX	3/4-14	1/2-14	27	30	170
L-AC-1608	DDA	1-11.1/2	1/2-14	36	35	140
L-AC-1612	DDB	1-11.1/2	3/4-14	36	35	140
L-AC-2012	DDC	1.1/4-11.1/2	3/4-14	46	37	80
L-AC-2016	DDD	1.1/4-11.1/2	1-11.1/2	46	37	80
L-AC-2416	DDF	1.1/2-11.1/2	1-11.1/2	50	40	70
L-AC-3224	DDI	2-11.1/2	1.1/2-11.1/2	65	45	70

N-R

UNO MALE X ORFS MALE

UNO FIXED STUD X ORFS MALE STRAIGHT

- SAE J1453



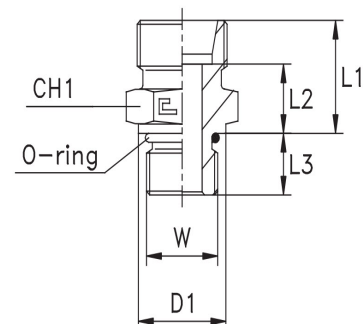
Part Number	Short Code	T1	T2	H1	L1	L2	PN (bar)
N-R-0709	DKD	7/16-20	9/16-18	17	29	18	630
N-R-0711		7/16-20	11/16-16	19	34	9	
N-R-0909	DKF	9/16-18	9/16-18	19	31	19	630
N-R-0911	DKG	9/16-18	11/16-16	19	32	20	630
N-R-0913	DKH	9/16-18	13/16-16	22	38	26	630
N-R-1209		3/4-16	9/16-18	22	29	11	
N-R-1211	DKJ	3/4-16	11/16-16	24	35	21	630
N-R-1213	DKK	3/4-16	13/16-16	24	37	23	630
N-R-1216	DKL	3/4-16	1-14	27	45	31	400
N-R-1413	DKM	7/8-14	13/16-16	27	41	25	630
N-R-1416	DKN	7/8-14	1-14	27	43	27	400
N-R-1713		1.1/16-12	13/16-16				
N-R-1716	DKQ	1.1/16-12	1-14	32	47	29	400
N-R-1719	DKR	1.1/16-12	1.3/16-12	32	49	30	400
N-R-1723		1.1/16-12	1.7/16-12				
N-R-2119		1.5/16-12	1.3/16-12				
N-R-2123	DKU	1.5/16-12	1.7/16-12	41	50	32	400
N-R-2623		1.5/8-12	1.7/16-12				
N-R-2627	DKW	1.5/8-12	1.11/16-12	50	53	34	250
N-R-3027		1.7/8-12	1.11/16-12				

N-ML

UNO MALE X METRIC LIGHT MALE

UNO FIXED STUD X METRIC 24° CONE LIGHT MALE

STRAIGHT



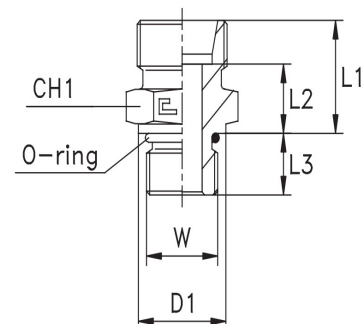
Part Number	W	Metric Male Thread	Suits Tube	D1 - mm	L1 - mm	L2 - mm	L3 - mm	CH1 (mm)
N-ML-0714	7/16-20	M14-1.5	8					
N-ML-0716	7/16-20	M16-1.5	10	13.8	17.9	10.9	9.1	17
N-ML-0814	1/2-20	M14-1.5	8					
N-ML-0914	9/16-18	M14-1.5	8					
N-ML-0916	9/16-18	M16-1.5	10					
N-ML-0918	9/16-18	M18-1.5	12	18.8	18	11	10	19
N-ML-1218	3/4-16	M18-1.5	12	21.8	19.9	12.9	11.1	22
N-ML-1222	3/4-16	M22-1.5	15	21.8	20.9	13.9	11.1	24
N-ML-1226	3/4-16	M26-1.5	18	21.8	21.9	14.4	11.1	27
N-ML-1418	7/8-14	M18-1.5	12	26.8	21.3	14.3	12.7	27
N-ML-1422	7/8-14	M22-1.5	15					
N-ML-1426	7/8-14	M26-1.5	18					
N-ML-1726	1.1/16-12	M26-1.5	18					
N-ML-1730	1.1/16-12	M30-2	22					
N-ML-2136	1.5/16-12	M36-2	28	40.8	24.9	17.4	15.1	41

N-MS

UNO MALE X METRIC HEAVY MALE

UNO FIXED STUD X METRIC 24° CONE HEAVY

MALE STRAIGHT

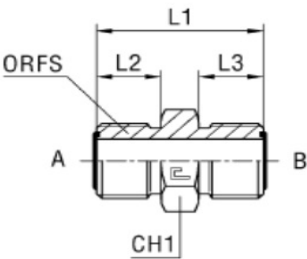


Part Number	W	Metric Male Thread	Suits Tube	D1 - mm	L1 - mm	L2 - mm	L3 - mm	CH1 (mm)
N-MS-0714	7/16-20	M14-1.5	6					
N-MS-0916	9/16-18	M16-1.5	8					
N-MS-0918	9/16-18	M18-1.5	10	18.8	22	14.5	10	19
N-MS-0920	9/16-18	M20-1.5	12					
N-MS-1220	3/4-16	M20-1.5	12	21.8	24.9	17.4	11.1	22
N-MS-1222	3/4-16	M22-1.5	14	21.8	23.9	15.9	11.1	24
N-MS-1224	3/4-16	M24-1.5	16	21.8	23.9	15.4	11.1	27
N-MS-1424	7/8-14	M24-1.5	16	26.8	27.3	18.8	12.7	27
N-MS-1430	7/8-14	M30-2	20	26.8	31.3	20.8	12.7	32
N-MS-1730	1.1/16-12	M30-2	20	31.8	30.9	20.4	15.1	32
N-MS-1736	1.1/16-12	M36-2	25	31.8	34.9	22.9	15.1	36
N-MS-2136	1.5/16-12	M36-2	25	40.8	34.9	22.9	15.1	41
N-MS-2642	1.5/8-12	M42-2	30	49.8	36.9	23.4	15.1	50

R-R

ORFS MALE X ORFS MALE
ORFS MALE X ORFS MALE STRAIGHT

- ISO 8434-3



Part Number	A	B	L1	L2	L3	CH1
R-R-0909	9/16-18	9/16-18	28	10	10	17
R-R-1111	11/16-16	11/16-16	31	11	11	19
R-R-1313	13/16-16	13/16-16	36	13	13	22
R-R-1616	1-14	1-14	43	16	16	27
R-R-1619	1-14	1.3/16-12	46	17	16	32
R-R-1919	1.3/16-12	1.3/16-12	47	17	17	32
R-R-2323	1.7/16-12	1.7/16-12	50	18	18	41

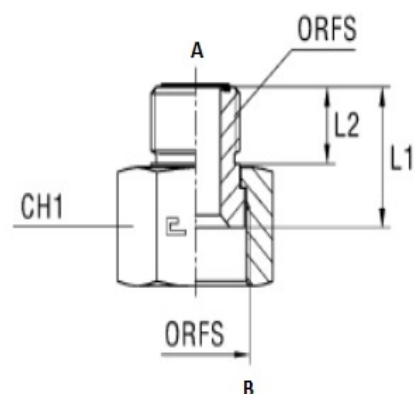
R-T

ORFS MALE X ORFS FEMALE

ORFS MALE X ORFS FEMALE SWIVEL NUT

STRAIGHT

- ISO 8434-3



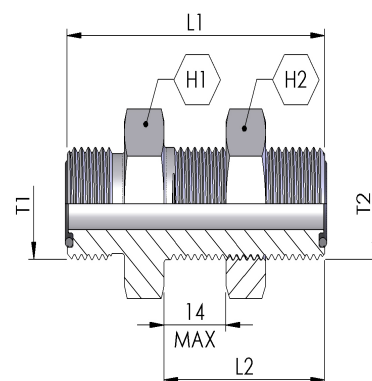
Part Number	A	B	L1	L2	CH1
R-T-0911	9/16-18	11/16-16			
R-T-0913	9/16-18	13/16-16			
R-T-1111	11/16-16	11/16-16	47	11	18
R-T-1311	13/16-16	11/16-16			
R-T-1313	13/16-16	13/16-16	44	14	24
R-T-1319	13/16-16	1 3/16-12	28	13	36
R-T-1323	13/16-16	1.7/16-12	29	13	41
R-T-1619	1-14	1.3/16-12			
R-T-1919	1.3/16-12	1.3/16-12			
R-T-1923	1.3/16-12	1.7/16-12	33	17	41
R-T-2319	1.7/16-12	1.3/16-12	69	18	32
R-T-2323	1.7/16-12	1.7/16-12			
R-T-2327	1.7/16-12	1.11/16-12	34	18	50

R-RK

ORFS MALE X ORFS BULKHEAD

ORFS MALE X ORFS BULKHEAD STRAIGHT

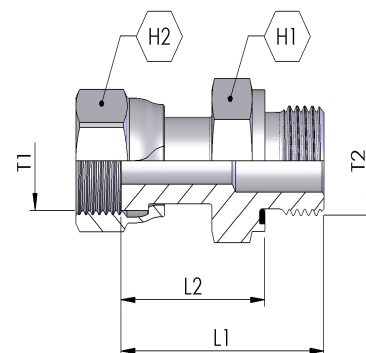
- ISO 8434-3



Part Number	T1	L1 (mm)	L2 (mm)	H1 (mm)	H2 (mm)
R-RK-0909	9/16-18	32	10	22	22
R-RK-1111	11/16-16	34	11	27	27
R-RK-1313	13/16-16	37	13	30	30
R-RK-1616	1-14	41	16	36	36
R-RK-1919	1.3/16-12	42	17	41	41
R-RK-2323	1.7/16-12	42	18	46	46
R-RK-2727	1.11/16-12	42	18	50	50
R-RK-3232	2-12	42	18	60	60

T-BX

ORFS FEMALE X BSPP MALE
WITH ENCAPSULATED SEAL



Part Number	T1	T2	H1	H2	L1	L2	PN (bar)
T-BX-0904	9/16-18	1/4-19	19	19	26.5	12	630
T-BX-1104	11/16-16	1/4-19	19	22	28.5	12	630
T-BX-1106	11/16-16	3/8-19	22	22	32.5	12	630
T-BX-1306	13/16-16	3/8-19	22	24	35.5	12	630
T-BX-1308	13/16-16	1/2-14	27	24	34	14	630
T-BX-1608	1-14	1/2-14	27	30	38	14	420
T-BX-1912	1.3/16-12	3/4-14	32	36	41.5	16	420
T-BX-2316	1.7/16-12	1-11	41	46	49	18	420

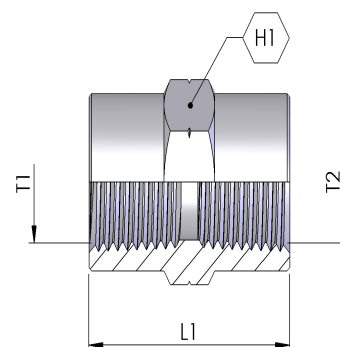
AC-AC

NPTF FEMALE X NPTF FEMALE

NPTF FIXED FEMALE X NPTF FIXED FEMALE

STRAIGHT

- SAE J514



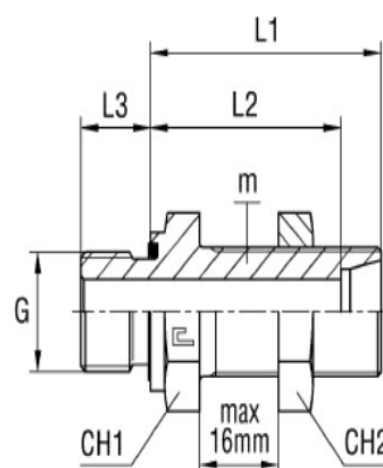
Part Number	Short Code	T1	T2	H1	L1	PN (bar)
AC-AC-0202	AIY	1/8-27	1/8-27	14	19	345
AC-AC-0404	AIZ	1/4-18	1/4-18	19	29	275
AC-AC-0606	AJA	3/8-18	3/8-18	22	29	210
AC-AC-0808	AJB	1/2-14	1/2-14	27	38	210
AC-AC-1212	AJC	3/4-14	3/4-14	36	39	170
AC-AC-1616	AJD	1-11.1/2	1-11.1/2	41	48	140
AC-AC-2020	AJE	1.1/4-11.1/2	1.1/4-11.1/2	50	49	80
AC-AC-2424	AJF	1.1/2-11.1/2	1.1/2-11.1/2	60	49	70
AC-AC-3232		2-11	2-11			

BX-MLK

BSP MALE X MET LIGHT BULKHEAD

BSP STUD CAPTIVE SEAL X METRIC 24° CONE

LIGHT BULKHEAD STRAIGHT



Part Number	G	M	L1	L2	L3	CH1	CH2
BX-MLK-0818	1/2	M18 - 1.5	43	36	14	27	23.8
BX-MLK-0822	1/2	M22 - 1.5	48	41	14	27	30

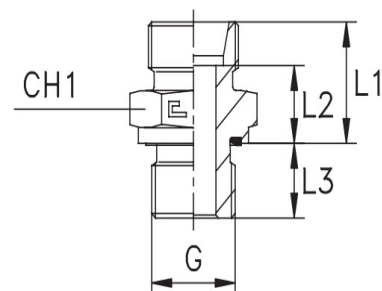
BX-ML

BSP STUD X MET LIGHT MALE

BSP STUD CAPTIVE SEAL X METRIC 24° CONE

LIGHT MALE STRAIGHT

- ISO 8434-1



Part Number	BSPP Male Thread	Metric Male Thread	Suits Tube	L1 - mm	L2 - mm	L3 - mm	Hex A/F (CH1)	PN (bar)
BX-ML-0212	1/8-28	M12-1.5	6	15.5	8.5	8	14	315
BX-ML-0214	1/8-28	M14-1.5	8	16.5	9.5	8	14	315
BX-ML-0414	1/4-19	M14-1.5	8	17	10	12	19	315
BX-ML-0416	1/4-19	M16-1.5	10	18	11	12	19	315
BX-ML-0418	1/4-19	M18-1.5	12	19	12	12	19	315
BX-ML-0614	3/8-19	M14-1.5	8	18.5	11.5	12	22	315
BX-ML-0616	3/8-19	M16-1.5	10	22.5	15	12	22	315
BX-ML-0618	3/8-19	M18-1.5	12	24.5	17	12	22	315
BX-ML-0622	3/8-19	M22-1.5	15	20.5	13.5	12	24	315
BX-ML-0818	1/2-14	M18-1.5	12	20	13	14	27	315
BX-ML-0822	1/2-14	M22-1.5	15	21	14	14	27	315
BX-ML-0830	1/2-14	M30-2	22	24	16.5	14	32	160
BX-ML-1222	3/4-14	M22-1.5	15	22	15	16	32	315
BX-ML-1230	3/4-14	M30-2	22	24	16.5	16	32	160
BX-ML-1236	3/4-14	M36-2	28	25	17.5	16	41	160
BX-ML-1636	1-11	M36-2	28	25	17.5	18	41	160
BX-ML-2452	1.1/2-11	M52-2	42	30	19	22	55	160

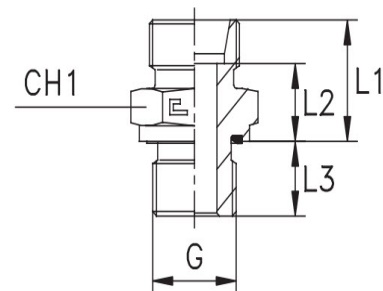
BX-MS

BSP STUD X MET HEAVY MALE

BSP STUD CAPTIVE SEAL X METRIC 24° CONE

HEAVY MALE STRAIGHT

- ISO 8434-1



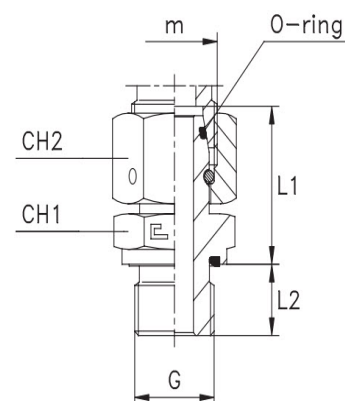
Part Number	BSP Male Thread	Metric Male Thread	Suits Tube	L1 - mm	L2 - mm	L3 - mm	Hex A/F (CH1)	NP (bar)
BX-MS-0414	1/4-19	M14-1.5	6	20	13	12	19	630
BX-MS-0416	1/4-19	M16-1.5	8	17	10	12	19	630
BX-MS-0418	1/4-19	M18-1.5	10	18	11	12	19	630
BX-MS-0420	1/4-19	M20-1.5	12	19	12	12	22	630
BX-MS-0618	3/8-19	M18-1.5	10	22.5	15	12	22	630
BX-MS-0620	3/8-19	M20-1.5	12	24.5	17	12	22	630
BX-MS-0624	3/8-19	M24-1.5	16	26.5	18	12	27	400
BX-MS-0818	1/2-14	M18-1.5	10	20	13	14	27	630
BX-MS-0820	1/2-14	M20-1.5	12	20	13	14	27	630
BX-MS-0822	1/2-14	M22-1.5	14	27	19	14	27	630
BX-MS-0824	1/2-14	M24-1.5	16	27	18.5	14	27	400
BX-MS-0830	1/2-14	M30-2	20	31	20.5	14	32	400
BX-MS-1224	3/4-14	M24-1.5	16	29	20.5	16	32	400
BX-MS-1230	3/4-14	M30-2	20	31	20.5	16	32	400
BX-MS-1236	3/4-14	M36-2	25	35	23	16	41	400
BX-MS-1636	1-11	M36-2	25	35	23	18	41	400
BX-MS-1642	1-11	M42-2	30	37	23.5	18	46	400
BX-MS-2042	1.1/4-11	M42-2	30	37	23.5	20	50	400
BX-MS-2052	1.1/4-11	M52-2	38	42	26	20	55	315
BX-MS-2452	1.1/2-11	M52-2	38	42	26	22	55	315

BX-UL

BSP STUD X MET LIGHT FEMALE

BSP STUD CAPTIVE SEAL X METRIC 24° CONE

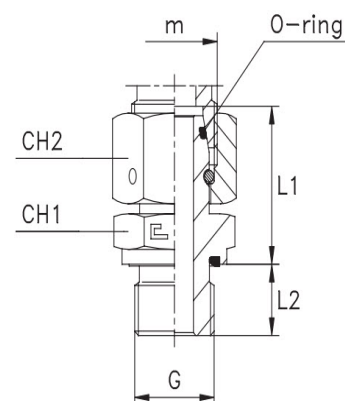
LIGHT FEMALE SWIVEL NUT STRAIGHT



Part Number	G	m	Suits Tube	L1	L2	CH1	CH2	NP (bar)
BX-UL-0212	1/8-28	M12-1.5	6	25	8	14	14	315
BX-UL-0414	1/4-19	M14-1.5	8	30	12	19	17	315
BX-UL-0416	1/4-19	M16-1.5	10	28	12	19	19	315
BX-UL-0618	3/8-19	M18-1.5	12	34	12	22	22	315
BX-UL-0822	1/2-14	M22-1.5	15	32	14	27	27	315
BX-UL-0826	1/2-14	M26-1.5	18	32	14	27	32	315
BX-UL-1230	3/4-14	M30-2	22	33	16	32	36	160
BX-UL-1636	1-11	M36-2	28	35	18	41	41	160

BX-US

BSP STUD X MET HEAVY FEMALE
BSP STUD CAPTIVE SEAL X METRIC 24° CONE
HEAVY FEMALE SWIVEL NUT STRAIGHT

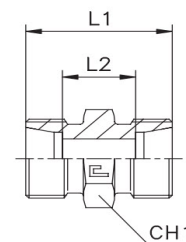


Part Number	G	m	Suits Tube	L1	L2	CH1	CH2	NP (bar)
BX-US-0414	1/4-19	M14-1.5	6	27	12	19	17	630
BX-US-0416	1/4-19	M16-1.5	8	30	12	19	19	630
BX-US-0618	3/8-19	M18-1.5	10	32	12	22	22	630
BX-US-0620	3/8-19	M20-1.5	12	34	12	22	24	630
BX-US-0820	1/2-14	M20-1.5	12					630
BX-US-0822	1/2-14	M22-1.5	14	37	14	27	27	630
BX-US-0824	1/2-14	M24-1.5	16	37	14	27	30	400
BX-US-1230	3/4-14	M30-2	20	43	16	32	36	400
BX-US-1636	1-11	M36-2	25	48	18	41	46	400
BX-US-2042	1.1/4-11	M42-1.5	30	51	20	50	50	400

ML-ML

MET LIGHT MALE X MET LIGHT MALE
METRIC 24° CONE LIGHT MALE X METRIC 24°
CONE LIGHT MALE STRAIGHT

- ISO 8434-1

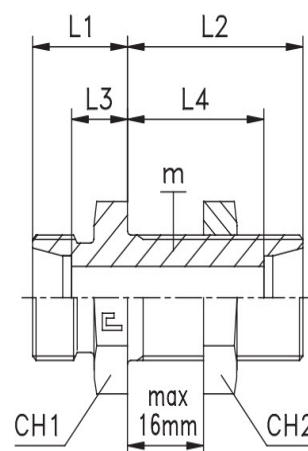


Part Number	Metric Male Thread	suits tube	L1 - mm	L2 - mm	Hex A/F (CH1)	Hex A/F (CH2)	PN (bar)
ML-ML-1212	M12-1.5	6	24	10	12	14	315
ML-ML-1414	M14-1.5	8	25	11	14	17	315
ML-ML-1616	M16-1.5	10	27	13	17	19	315
ML-ML-1818	M18-1.5	12	28	14	19	22	315
ML-ML-2222	M22-1.5	15	30	16	24	27	315
ML-ML-2626	M26-1.5	18	31	16	27	32	315
ML-ML-3030	M30-2	22	35	20	32	36	160
ML-ML-3636	M36-2	28	36	21	41	41	160
ML-ML-4545	M45-2	35	41	20	46	50	160
ML-ML-5252	M52-2	42	43	21	55	60	160

ML-MLK

MET LIGHT MALE X MET LIGHT B/HEAD
METRIC 24° CONE LIGHT MALE X METRIC 24°
CONE LIGHT BULKHEAD STRAIGHT

- ISO 8434-1



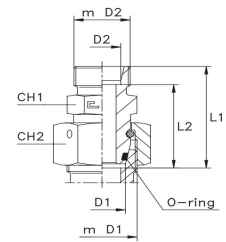
Part Number	Metric Male Thread	suits tube	L1 - mm	L2 - mm	L3 - mm	L4 - mm	Hex A/F (CH1)	Hex A/F (CH2)	NP (bar)
ML-MLK-1212	M12-1.5	6	14	34	7	27	17	17	315
ML-MLK-1414	M14-1.5	8	15	34	8	27	19	19	315
ML-MLK-1616	M16-1.5	10	17	35	10	28	22	22	315
ML-MLK-1818	M18-1.5	12	17	36	10	29	24	24	315
ML-MLK-2222	M22-1.5	15	19	38	12	31	27	30	315
ML-MLK-2626	M26-1.5	18	21	40	14	33	32	36	315
ML-MLK-3030	M30-2	22	24	42	17	35	36	41	160
ML-MLK-3636	M36-2	28	26	43	19	36	41	46	160

ML-UL

MET LIGHT MALE X MET LIGHT F/M

METRIC 24° CONE LIGHT MALE X METRIC 24°

CONE LIGHT FEMALE SWIVEL NUT STRAIGHT

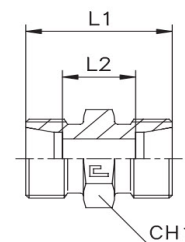


Part Number	Metric Male Thread - m D2	Metric Female Thread - m D1	D1 - mm	D2 - mm	L1-mm	L2 - mm	Hex A/F (CH1)	Hex A/F (CH2)	NP (bar)
ML-UL-1214	M12-1.5	M14-1.5	8	6	31	24	12	17	315
ML-UL-1216	M12-1.5	M16-1.5	10	6	32.5	25.5	14	19	315
ML-UL-1414	M14-1.5	M14-1.5	8	8					
ML-UL-1416	M14-1.5	M16-1.5	10	8	32.5	25.5	14	19	315
ML-UL-1418	M14-1.5	M18-1.5	12	8	32.5	25.5	17	22	315
ML-UL-1616	M16-1.5	M16-1.5	10	10					
ML-UL-1618	M16-1.5	M18-1.5	12	10	33.5	26.5	17	22	315
ML-UL-1622	M16-1.5	M22-1.5	15	10	36.5	29.5	19	27	315
ML-UL-1626	M16-1.5	M26-1.5	18	10					
ML-UL-1818	M18-1.5	M18-1.5	12	12					
ML-UL-1822	M18-1.5	M22-1.5	15	12	36.5	29.5	19	27	315
ML-UL-1826	M18-1.5	M26-1.5	18	12	37.5	30.5	24	32	315
ML-UL-2222	M22-1.5	M22-1.5	15	15					
ML-UL-2226	M22-1.5	M26-1.5	18	15	38.5	31.5	24	32	315
ML-UL-2230	M22-1.5	M30-2	22	15	39.5	32.5	27	36	160
ML-UL-2236	M22-1.5	M36-2	28	15					
ML-UL-2626	M26-1.5	M26-1.5	18	18					
ML-UL-2630	M26-1.5	M30-2	22	18	40.5	33	27	36	160
ML-UL-2636	M26-1.5	M36-2	28	18					
ML-UL-3030	M30-2	M30-2	22	22					
ML-UL-3036	M30-2	M36-2	28	22	43.5	36	32	41	160
ML-UL-3045	M30-2	M45-2	35	22					
ML-UL-3052	M30-2	M52-2	42	22					
ML-UL-3622	M36-2	M22-1.5	15	28					
ML-UL-3636	M36-2	M36-2	28	28					
ML-UL-3645	M36-2	M45-2	35	28					
ML-UL-3652	M36-2	M52-2	42	28					
ML-UL-4545	M45-2	M45-2	35	35					
ML-UL-4552	M45-2	M52-2	42	35					
ML-UL-5252	M52-2	M52-2	42	42					

MS-MS

MET HEAVY MALE X MET HEAVY MALE
METRIC 24° CONE HEAVY MALE X METRIC 24°
CONE HEAVY MALE STRAIGHT

- ISO 8434-1

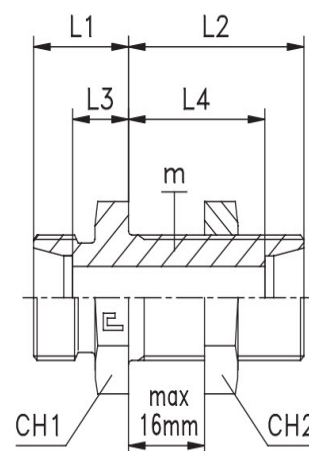


Part Number	Metric Male Thread	Metric Male Thread	suits tube (D1)	Suits Tube-D2	L1 - mm	L2 - mm	L3 - mm	Hex A/F (CH1)	PN (bar)
MS-MS-1414	M14-1.5	M14-1.5	6	6	30	16	45	14	800
MS-MS-1416	M16-1.5	M14-1.5	8	6	32	18	48	17	800
MS-MS-1616	M16-1.5	M16-1.5	8	8	32	18	47	17	800
MS-MS-1618	M18-1.5	M16-1.5	10	8	32	18	49	19	800
MS-MS-1818	M18-1.5	M18-1.5	10	10	32	17	49	19	800
MS-MS-1820	M20-1.5	M18-1.5	12	10	34	19	51	22	630
MS-MS-2020	M20-1.5	M20-1.5	12	12	34	19	51	22	630
MS-MS-2022	M22-1.5	M20-1.5	14	12	36	21	55	24	630
MS-MS-2222	M22-1.5	M22-1.5	14	14	38	22	57	24	630
MS-MS-2224	M24-1.5	M22-1.5	16	14	38	22	58	27	630
MS-MS-2424	M24-1.5	M24-1.5	16	16	38	21	57	27	630
MS-MS-2430	M30-2	M24-1.5	20	16	42	23	63	32	420
MS-MS-3030	M30-2	M30-2	20	20	44	23	66	32	420
MS-MS-3036	M36-2	M30-2	25	20	48	26	71	41	420
MS-MS-3636	M36-2	M36-2	25	25	50	26	74	41	420
MS-MS-3642	M42-2	M36-2	30	25	52	27	77	46	420
MS-MS-4242	M42-2	M42-2	30	30	54	27	80	46	420
MS-MS-4252	M52-2	M42-2	38	30	59	30	87	55	420
MS-MS-5252	M52-2	M52-2	38	38	61	29	90	55	420

MS-MSK

MET HEAVY MALE X MET HEAVY B/HEAD
METRIC 24° CONE HEAVY MALE X METRIC 24°
CONE HEAVY BULKHEAD STRAIGHT

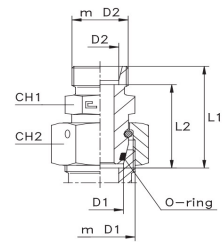
- ISO 8434-1



Part Number	Metric Male Thread	suits tube	L1 - mm	L2 - mm	L3 - mm	L4 - mm	Hex A/F (CH1)	Hex A/F (CH2)	PN (bar)
MS-MSK-2020	M20-1.5	12	22	38	15	31	27	27	630
MS-MSK-2222	M22-1.5	14	25	40	17	32	30	30	630
MS-MSK-2424	M24-1.5	16	25	40	17	32	32	32	400
MS-MSK-3030	M30-2	20	28	44	18	34	41	41	400
MS-MSK-3636	M36-2	25	32	47	20	35	46	46	400
MS-MSK-4242	M42-2	30	35	51	22	38	50	50	400
MS-MSK-5252	M52-2	38	38	53	22	37	65	65	315

MS-US

MET HEAVY MALE X MET HEAVY F/M
METRIC 24° CONE HEAVY MALE X METRIC 24°
CONE HEAVY FEMALE SWIVEL NUT STRAIGHT



Part Number	Metric Male Thread	Metric Female Thread - m D1	D2 - mm	D1 - mm	L1-mm	L2 - mm	Hex A/F (CH1)	Hex A/F (CH2)	PN (bar)
MS-US-1414	M14-1.5	M14-1.5	6	6					
MS-US-1416	M14-1.5	M16-1.5	6	8	36	29	14	19	630
MS-US-1418	M14-1.5	M18-1.5	6	10	39	32	17	22	630
MS-US-1616	M16-1.5	M14-1.5	8	8					
MS-US-1618	M16-1.5	M18-1.5	8	10	38.5	31.5	17	22	630
MS-US-1620	M16-1.5	M20-1.5	8	12	38.5	31.5	17	24	630
MS-US-1818	M18-1.5	M18-1.5	10	10					
MS-US-1820	M18-1.5	M20-1.5	10	10	38.5	31	19	24	630
MS-US-1822	M18-1.5	M22-1.5	10	12	41	33.5	19	27	630
MS-US-1824	M18-1.5	M24-1.5	10	16					
MS-US-2020	M20-1.5	M20-1.5	12	12					
MS-US-2022	M20-1.5	M22-1.5	12	14	43	35.5	22	27	630
MS-US-2024	M20-1.5	M24-1.5	12	16	45.5	38	22	30	400
MS-US-2030	M20-1.5	M30-2	12	20					
MS-US-2036	M20-1.5	M36-2	12	25					
MS-US-2042	M20-1.5	M42-2	12	30					
MS-US-2222	M22-1.5	M22-1.5	14	14					
MS-US-2224	M22-1.5	M24-1.5	14	16	47.5	39.5	24	30	400
MS-US-2230	M22-1.5	M30-2	14	20	50	42	27	36	400
MS-	M24-1.5	M24-1.5	16	16					

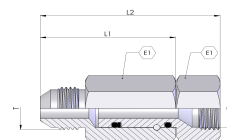
US-2424									
MS-US-2430	M24-1.5	M30-2	16	20	50	41.5	27	36	400
MS-US-2436	M24-1.5	M36-2	16	25	54.5	46	32	46	400
MS-US-2442	M24-1.5	M42-2	16	30	59	50.5	41	50	400
MS-US-3030	M30-2	M30-2	20	20					
MS-US-3036	M30-2	M36-2	20	25	56.5	46	32	46	400
MS-US-3042	M30-2	M42-2	20	30	61	50.5	41	50	400
MS-US-3636	M36-2	M36-2	25	25					
MS-US-3642	M36-2	M42-2	25	30	63	51	41	50	400
MS-US-3652	M36-2	M52-2	25	38					315
MS-US-4242	M42-2	M42-2	30	30					
MS-US-4252	M42-2	M52-2	30	38					
MS-US-5252	M52-2	M52-2	38	38					

SJS

JIC MALE X JIC FEMALE

JIC 37° FLARE MALE X JIC 37° FLARE FIXED

FEMALE STRAIGHT SWIVEL



Part Number	Body thread	Stem thread	Seal kit
SJS-GJF0909V/H	9/16	9/16	RKSJ-9S6V
SJS-GJF1212V/H	3/4	3/4	RKSJ-9S6V
SJS-GJF1717V/H	1-1/16	1-1/16	RKSJ-9S12V
SJS-GJF2121V/H	1-5/16	1-5/16	RKSJ-9S16V

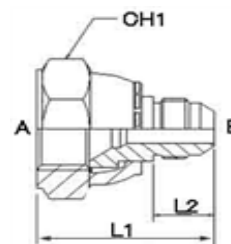
TK

JIC MALE X JIC FEMALE

JIC 37° FLARE MALE X JIC 37° FLARE FEMALE

SWIVEL NUT REDUCER

- SAE J514

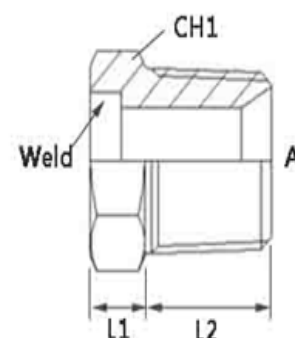


Part Number	B	A	L1	L2	CH1
TK-0907	9/16-18	7/16-20	25	14	18
TK-1207	3/4-16	7/16-20	25	14	22
TK-1209	3/4-16	9/16-18	25	14	22
TK-1407	7/8-14	7/16-20	26	14	25
TK-1409	7/8-14	9/16-18	26	14	25
TK-1412	7/8-14	3/4-16	36	17	25
TK-1707	1.1/16-12	7/16-20	28	14	32
TK-1709	1.1/16-12	9/16-18	28	14	32
TK-1712	1.1/16-12	3/4-16	30	17	32
TK-1714	1.1/16-12	7/8-14	42	19	32
TK-2112	1.5/16-12	3/4-16	33	17	38
TK-2114	1.5/16-12	7/8-14	35	19	38
TK-2117	1.5/16-12	1.1/16-12	37	22	38
TK-2617	1.5/8-12	1.1/16-12	38	22	51
TK-2621	1.5/8-12	1.5/16-12	39	23	51

TW-A

TUBEWELD X BSPT MALE

IMPERIAL TUBE WELD SOCKET X BSPT MALE



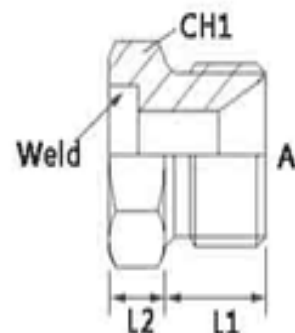
Part Number	suits tube	BSPT Male Thread (A)	Weld Socket	L2 - mm	L1 - mm	Hex A/F (CH1)
TW-A-0404	1/4	1/4-19	6.5 x 5	20	14	16
TW-A-0406	1/4	3/8-19	6.5 x 5	23	15	19
TW-A-0604	3/8	1/4-19	9.7 x 5	20	14	16
TW-A-0606	3/8	3/8-19	9.7 x 5	23	15	19
TW-A-0804	1/2	1/4-19	12.9 x 6	22	14	16
TW-A-0806	1/2	3/8-19	12.9 x 6	23	15	19
TW-A-0808	1/2	1/2-14	12.9 x 6	27	19	22
TW-A-1008	5/8	1/2-14	16 x 6	27	19	22
TW-A-1208	3/4	1/2-14	19.2 x 6	27	19	22
TW-A-1212	3/4	3/4-14	19.2 x 7	32	20	29
TW-A-1612	1	3/4-14	25.5 x 7	32	20	29
TW-A-1616	1	1-11	25.5 x 8	36	24	35
TW-A-2016	1.1/4	1-11	32 x 8	38	24	38
TW-A-2020	1.1/4	1.1/4-11	32 x 8	41	25	45
TW-A-2420	1.1/2	1.1/4-11	38.3 x 10	41	25	45
TW-A-2424	1.1/2	1.1/2-11	38.3 x 10	41	25	50

TW-B

TUBEWELD X BSP MALE

IMPERIAL TUBE WELD SOCKET X BSP 60° CONE

MALE



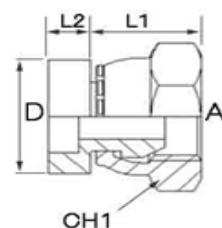
Part Number	suits tube	BSPP Male Thread (A)	Weld Socket	L1 - mm	L2 - mm	Hex A/F (CH1)
TW-B-0404	1/4	1/4-19	6.5 x 5	18	11	19
TW-B-0604	3/8	1/4-19	9.7 x 5	18	11	19
TW-B-0606	3/8	3/8-19	9.7 x 5	20	12	22
TW-B-0806	1/2	3/8-19	12.9 x 6	20	12	22
TW-B-0808	1/2	1/2-14	12.9 x 6	24	14	27
TW-B-1008	5/8	1/2-14	16 x 5	24	14	27
TW-B-1208	3/4	1/2-14	19.2 x 7	24	14	27
TW-B-1212	3/4	3/4-14	19.2 x 7	28	16	32
TW-B-1612	1	3/4-14	25.5 x 8	28	16	32
TW-B-1616	1	1-11	25.5 x 8	33	19	41
TW-B-2012	1.1/4	1.1/4-11	32 x 14	16	38	46
TW-B-2016	1.1/4	1-11	32 x 8	33	19	41
TW-B-2020	1.1/4	1.1/4-11	32 x 8	36	20	50
TW-B-2024	1.1/4	1.1/2-11	32 x 8	38	22	55
TW-B-2420	1.1/2	1.1/4-11	38.3 x 10	36	20	50
TW-B-2424	1.1/2	1.1/2-11	38.3 x 10	38	22	55
TW-B-3232	2	2-11	50.9 x 10	45	25	73

TW-C

TUBEWELD X BSP FEMALE

IMPERIAL TUBE WELD SOCKET X BSP 60° CONE

FEMALE SWIVEL NUT



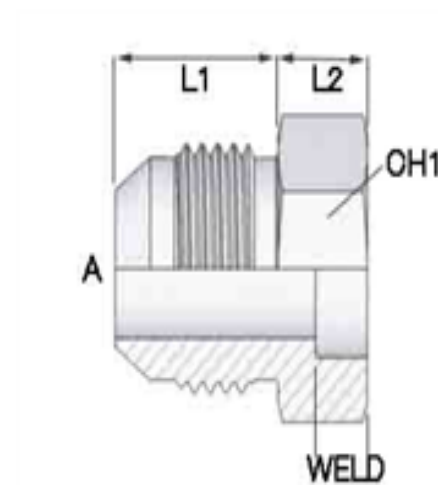
Part Number	suits tube	BSPP Female Thread (A)	Weld Socket	L1 - mm	L2 - mm	Diameter - mm	Hex A/F (CH1)
TW-C-0404	1/4	1/4-19	6.5 x 5	18	11	13	19
TW-C-0604	3/8	1/4-19	9.7 x 5	18	11	13	19
TW-C-0606	3/8	3/8-19	12.9 x 6	20	13	16	22
TW-C-0806	1/2	3/8-19	12.9 x 6	21	13	16	22
TW-C-0808	1/2	1/2-14	12.9 x 6	24	15	22	27
TW-C-1008	5/8	1/2-14	16 x 6	25	15	22	27
TW-C-1010	5/8	5/8-14	16 x 6	24	14	22	30
TW-C-1208	3/4	1/2-14	19.2 x 6.5	25	15	25	27
TW-C-1212	3/4	3/4-14	19.2 x 6.5	27	17	25	32
TW-C-1612	1	3/4-14	25.5 x 8	29	17	30	32
TW-C-1616	1	1-11	25.5 x 8	30	18	35	38
TW-C-2020	1.1/4	1.1/4-11	32 x 8	35	23	41	51
TW-C-2424	1.1/2	1.1/2-11	32 x 8	33	21	51	55
TW-C-3232	2	2-11	51 x 10	37	22	64	70

TW-G

TUBEWELD X JIC MALE

IMPERIAL TUBE WELD SOCKET X JIC 37° FLARE

MALE



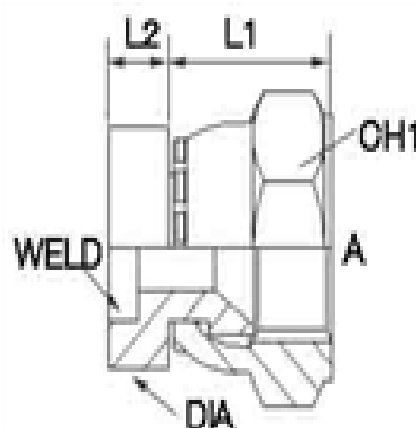
Part Number	suits tube	JIC Male Thread (A)	Weld Socket	L1 - mm	L2 - mm	Hex A/F (CH1)
TW-G-0407	1/4	7/16-20	6.5 x 5	21	15	16
TW-G-0409	1/4	9/16-18	6.5 x 5	21	15	16
TW-G-0609	3/8	9/16-18	9.7 x 5	22	14	16
TW-G-0809	1/2	9/16-18	12.9 x 6	23	15	16
TW-G-0812	1/2	3/4-16	12.9 x 6	25	17	22
TW-G-0814	1/2	7/8-14	12.9 x 6	30	20	25
TW-G-1012	5/8	3/4-16	16 x 6	27	17	25
TW-G-1014	5/8	7/8-14	16 x 6	30	20	25
TW-G-1212	3/4	3/4-16	19.2 x 7	29	17	29
TW-G-1214	3/4	7/8-14	19.2 x 7	32	20	29
TW-G-1217	3/4	1.1/16-12	19.2 x 7	34	22	29
TW-G-1219	3/4	1.3/16-12	19.2 x 7	35	23	32
TW-G-1614	1	7/16 - 20	25.5 x 8	33	19.3	1-3/8
TW-G-1617	1	1.1/16-12	25.5 x 8	36	22	35
TW-G-1621	1	1.5/16-12	25.5 x 8	37	23	35
TW-G-2021	1.1/4	1.5/16-12	32 x 8	37	23	41
TW-G-2026	1.1/4	1.5/8-12	32 x 8	40	24	44
TW-G-2430	1.1/2	1.7/8-12	38.3 x 10	44	28	51

TW-J

TUBEWELD X JIC FEMALE

IMPERIAL TUBE WELD SOCKET X JIC 37° FLARE

FEMALE SWIVEL NUT

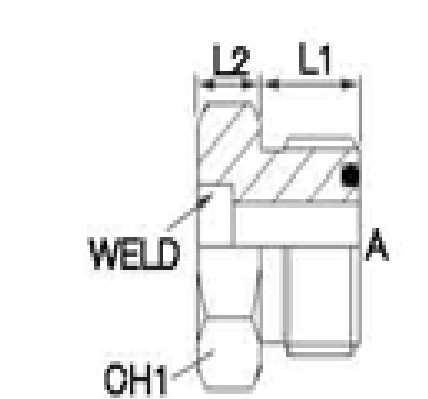


Part Number	suits tube	JIC Female Thread (A)	Weld Socket	L1 - mm	L2 - mm	Diameter - mm	Hex A/F (CH1)
TW-J-0407	1/4	7/16-20	6.5 x 5	14	7	13	15
TW-J-0409	1/4	9/16-18	6.5 x 5	15	9	13	19
TW-J-0609	3/8	9/16-18	9.7 x 5	16	9	16	19
TW-J-0612	3/8	3/4-12	9.7 x 6	18	10	19	24
TW-J-0809	1/2	9/16-18	12.9 x 4	20	10	19**	19
TW-J-0812	1/2	3/4-16	12.9 x 6	19	10	19	24
TW-J-0814	1/2	7/8-14	12.9 x 6	20	11	22	27
TW-J-1014	5/8	7/8-14	16 x 6	20	11	22	27
TW-J-1214	3/4	7/8-14	19.2 x 6.5	21	11	25	27
TW-J-1217	3/4	1.1/16-12	16.2 x 6.5	23	13	25	32
TW-J-1617	1	1.1/16-12	25.5 x 8	25	13	32	32
TW-J-1621	1	1.5/16-12	25.5 x 8	27	15	35	38
TW-J-2026	1.1/4	1.5/8-12	32 x 8	29	17	41	51
TW-J-2430	1.1/2	1.7/8-12	38.3 x 10	28	16	51	57
TW-J-3240	2	2.1/2-12	51 x 10	34	19	64	70

TW-R

TUBEWELD X ORFS MALE

IMPERIAL TUBE WELD SOCKET X ORFS MALE

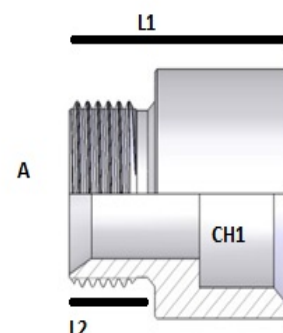


Part Number	suits tube	UNF Male Thread (A)	Weld Socket	L1 - mm	L2 - mm	Hex A/F (CH1)
TW-R-0609	3/8	9/16-18	9.7 x 5	19	10	19
TW-R-0611	3/8	11/16-16	9.7 x 5	20	11	19
TW-R-0813	1/2	13/16-16	12.9 x 6	22	13	22
TW-R-1016	5/8	1-14	16 X 6	24	14	27
TW-R-1219	3/4	1.3/16-12	19.2 x 7	28	17	32
TW-R-1619	1	1.3/16-12	25.5 x 7	29	17	35
TW-R-1623	1	1.7/16-12	25.5 x 8	33	18	38
TW-R-2023	1.1/4	1.7/16-12	32 x 8	33	18	38

TWS-B

PIPEWELD X BSP MALE

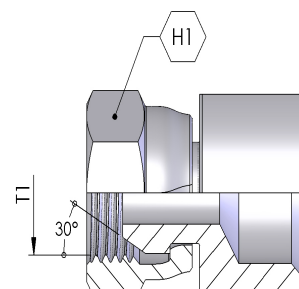
SCHEDULE PIPE WELD SOCKET X BSP 60° CONE MALE



Part Number	Suits Schedule Pipe	BSPP Male Thread (A)	Weld Socket	L1 - mm	L2 - mm	Hex A/F (CH1)
TWS-B-0808	1/2	1/2-14	21.6 x 12.6	34	14	32
TWS-B-1212	3/4	3/4-14	26.9 x 15.6	41	16	38
TWS-B-1616	1	1-11	33.5 x 20	49	19	45
TWS-B-2016	1.1/4	1-11	0	0	0	0
TWS-B-2020	1.1/4	1.1/4-11	42.3 x 20	50	20	57

TWS-C

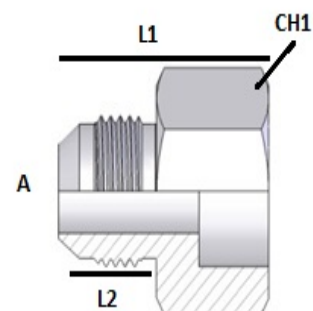
PIPEWELD X BSP FEMALE
SCHEDULE PIPE WELD SOCKET X BSP 60° CONE
FEMALE SWIVEL NUT



Part Number	Suits Schedule Pipe	BSPP Female Thread (T1)	Weld Socket	L1 - mm	L2 - mm	Hex A/F (H1)
TWS-C-0808	1/2	1/2-14	21.5 x 13	35	15	27
TWS-C-1212	3/4	3/4-14	26.8 x 16	42	17	32
TWS-C-1616	1	1-11	33.5 x 20	48	18	38
TWS-C-2020	1.1/4	1.1/4-11				
TWS-C-2424	1.1/2	1.1/2-11				

TWS-G

PIPEWELD X JIC MALE
SCHEDULE PIPE WELD SOCKET X JIC 37° FLARE
MALE

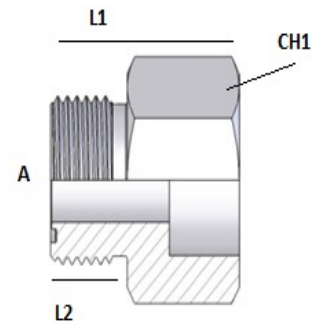


Part Number	Suits Schedule Pipe	JIC Male Thread (A)	Weld Socket	L1 - mm	L2 - mm
TWS-G-0812	1/2	3/4-16	21.5 x 13	37	17
TWS-G-0814	1/2	7/8-14	21.6 x 12.6	40	20
TWS-G-1212	3/4	3/4-16	26.8 x 16	42	17
TWS-G-1214	3/4	7/8-14	26.9 x 15.6	45	20
TWS-G-1217	3/4	1.1/16-12	26.8 x 16	46	22
TWS-G-1617	1	1.1/16-12	33.5 x 20	52	22
TWS-G-1621	1	1.5/16-12			
TWS-G-2026	1 1/4	1.5/8-12	42.3 x 20	55	24
TWS-G-2430	1 1/2	1.7/8-12	48.5 x 25	60	28

TWS-R

PIPEWELD X ORFS MALE

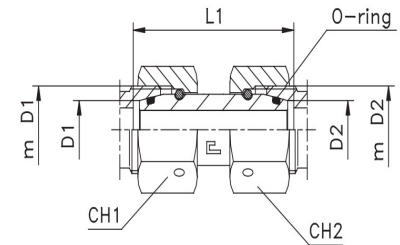
SCHEDULE PIPE WELD SOCKET X ORFS MALE



Part Number	Suits Schedule Pipe	ORFS Male Thread (A)	Weld Socket	L1 - mm	L2 - mm	Hex A/F (CH1)
TWS-R-1219	3/4	1.3/16-12	26.9 x 15.6	42	17	38
TWS-R-1619	1	1 3/16-14	33.5 x 20	48	17	
TWS-R-1623	1	1.7/16-12	33.5 x 20	48	18	44
TWS-R-2023	1.1/4	1.7/16-12	42.3 x 20	48	18	51
TWS-R-2027	1.1/4	1.11/16-12	42.3 x 20	48	18	57

UL-UL

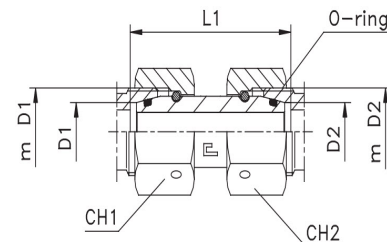
MET LIGHT FEMALE X MET LIGHT FEMALE
METRIC 24° CONE LIGHT FEMALE SWIVEL NUT X
METRIC 24° CONE LIGHT FEMALE SWIVEL NUT
STRAIGHT



Part Number	Metric Female Thread - m D2	Metric Female Thread - m D1	D2 - mm	D1 - mm	L1-mm	Hex A/F (CH1)	Hex A/F (CH2)	PN (bar)
UL-UL-1212	M12-1.5	M12-1.5	6	6	40	14	14	500
UL-UL-1214	M12-1.5	M14-1.5	6	8	37	17	14	500
UL-UL-1414	M14-1.5	M14-1.5	8	8	40	17	17	500
UL-UL-1416	M14-1.5	M16-1.5	8	10	37	19	17	500
UL-UL-1616	M16-1.5	M16-1.5	10	10	40	19	19	500
UL-UL-1618	M16-1.5	M18-1.5	10	12	36	22	19	400
UL-UL-1622	M16-1.5	M22-1.5	10	15	40	27	19	400
UL-UL-1818	M18-1.5	M18-1.5	12	12	40	22	22	400
UL-UL-1822	M18-1.5	M22-1.5	12	15	40	27	22	400
UL-UL-1826	M18-1.5	M26-1.5	12	18	40	34	22	400
UL-UL-2222	M22-1.5	M22-1.5	15	15	44	27	27	400
UL-UL-2226	M22-1.5	M26-1.5	15	18	44	32	27	400
UL-UL-2626	M26-1.5	M26-1.5	18	18	43	32	32	400
UL-UL-2630	M26-1.5	M30-2	18	22	46	36	32	250
UL-UL-2636	M26-1.5	M36-2	18	28	47	41	32	250
UL-UL-3030	M30-2	M30-2	22	22	50	36	36	250
UL-UL-3036	M30-2	M36-2	22	28	50	41	36	250
UL-UL-3636	M36-2	M36-2	28	28	51	41	41	250

US-US

MET HEAVY FEMALE X MET HEAVY FEMALE
METRIC 24° CONE HEAVY FEMALE SWIVEL NUT X
METRIC 24° CONE HEAVY FEMALE SWIVEL NUT
STRAIGHT



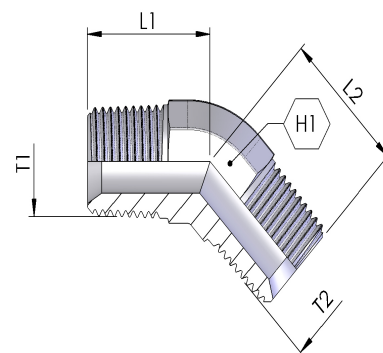
Part Number	Metric Female Thread - m D2	Metric Female Thread - m D1	D2 - mm	D1 - mm	L1-mm	Hex A/F (CH1)	Hex A/F (CH2)	PN (bar)
US-US-1418	M14-1.5	M18-1.5	6	10	38	22	17	800
US-US-1616	M16-1.5	M16-1.5	8	8	41	19	19	800
US-US-1820	M18-1.5	M20-1.5	10	12	40	24	22	630
US-US-2020	M20-1.5	M20-1.5	12	12	45	24	24	630
US-US-2222	M22-1.5	M22-1.5	14	14	49	27	27	630
US-US-3036	M30-2	M36-2	20	25	60	46	36	420
US-US-5252	M52-2	M52-2	38	38	83	60	60	420

45 DEGREE ADAPTORS

A-A-45

BSPT MALE X BSPT MALE

BSPT MALE X BSPT MALE 45° ELBOW



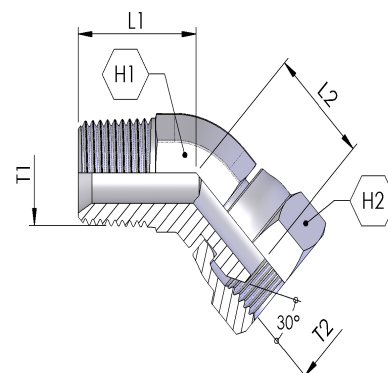
Part Number	Short Code	T1	T2	H1	L1	L2	PN (bar)
A-A-45-0202		1/8-28	1/8-28				
A-A-45-0204		1/8-28	1/4-19				
A-A-45-0404	ACD	1/4-19	1/4-19	14	22	22	275
A-A-45-0406		1/4-19	3/8-19				
A-A-45-0606	ACF	3/8-19	3/8-19	19	27	27	210
A-A-45-0608	ACG	3/8-19	1/2-14	22	24	29	210
A-A-45-0808	ACH	1/2-14	1/2-14	22	29	29	210
A-A-45-0812	ACI	1/2-14	3/4-14	27	32	32	170
A-A-45-1212	ACJ	3/4-14	3/4-14	27	32	32	170
A-A-45-1216	ACK	3/4-14	1-11	35	38	43	140
A-A-45-1616	ACL	1-11	1-11	35	43	43	140
A-A-45-2020		1 1/4-11	1 1/4-11				
A-A-45-2424		1 1/2-11	1 1/2-11				

A-C-45

BSPT MALE X BSP FEMALE

BSPT MALE X BSP 60° CONE FEMALE SWIVEL NUT

45° ELBOW

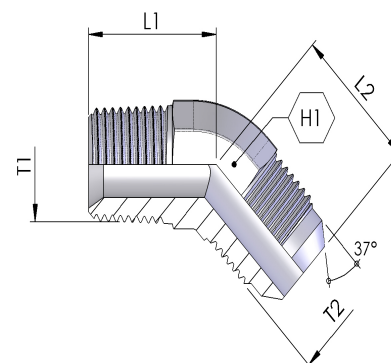


Part Number	Short Code	T1	T2	H1	H2	L1	L2	PN (bar)
A-C-45-0202	AHU	1/8-28	1/8-28	14	14	17	17	345
A-C-45-0404	AHV	1/4-19	1/4-19	14	19	22	20	275
A-C-45-0606	AHW	3/8-19	3/8-19	19	22	27	24	210
A-C-45-0808	AHX	1/2-14	1/2-14	22	27	29	24	210
A-C-45-1212	AHY	3/4-14	3/4-14	27	32	32	29	170
A-C-45-1616	AHZ	1-11	1-11	35	41	40	33	140
A-C-45-2020		1.1/4-11	1.1/4-11					
A-C-45-2424		1.1/2-11	1.1/2-11					

A-G-45

BSPT MALE X JIC MALE

BSPT MALE X JIC 37° FLARE MALE 45° ELBOW

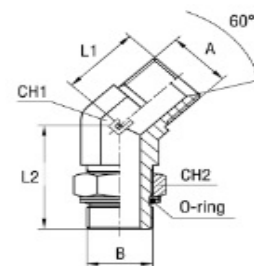


Part Number	Short Code	T1	T2	H1	L1	L2	PN (bar)
A-G-45-0207	AOG	1/8-28	7/16-20	14	17	20	345
A-G-45-0209		1/8-28	9/16-18	22			
A-G-45-0407	AOJ	1/4-19	7/16-20	14	22	20	275
A-G-45-0408	AOK	1/4-19	1/2-20	14	22	20	275
A-G-45-0409	AOL	1/4-19	9/16-18	14	22	21	275
A-G-45-0412	AOM	1/4-19	3/4-16	19	24	25	275
A-G-45-0609	AON	3/8-19	9/16-18	19	24	22	210
A-G-45-0612	AOP	3/8-19	3/4-16	19	24	25	210
A-G-45-0614	AOQ	3/8-19	7/8-14	22	27	28	210
A-G-45-0809	AOR	1/2-14	9/16-18	22	29	23	210
A-G-45-0812	AOS	1/2-14	3/4-16	22	29	25	210
A-G-45-0814	AOT	1/2-14	7/8-14	22	29	28	210
A-G-45-0817	AOU	1/2-14	1.1/16-12	27	31	32	210
A-G-45-1212	AOV	3/4-14	3/4-16	27	31	27	170
A-G-45-1214	AOW	3/4-14	7/8-14	27	31	30	170
A-G-45-1217	AOX	3/4-14	1.1/16-12	27	31	32	170
A-G-45-1221	AOY	3/4-14	1.5/16-12	35	33	38	170
A-G-45-1621	AOZ	1-11	1.5/16-12	35	38	38	140
A-G-45-2026	APA	1.1/4-11	1.5/8-12	44	43	41	80

A-BP-45

BSPT MALE X BSP ADJUSTABLE

BSPT MALE X BSP ADJUSTABLE STUD 45° ELBOW

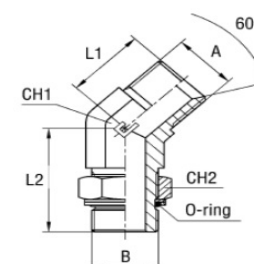


Part Number	A	B	L1	L2	CH1	CH2
A-BP-45-0404	1/4-19	1/4-19				
A-BP-45-0606	3/8-19	3/8-19				
A-BP-45-0808	1/2-14	1/2-14	30	37	22	27
A-BP-45-1212	3/4-14	3/4-14	38	48	27	32
A-BP-45-1616	1-11	1-11	39	50	35	41
A-BP-45-2020	1.1/4-11	1.1/4-11	44	55	45	51

B-BP-45

BSP MALE X BSP ADJUSTABLE

BSP 60° CONE MALE X BSP ADJUSTABLE STUD 45° ELBOW



- ISO 8434-6

Part Number	A	B	L1	L2	CH1	CH2
B-BP-45-0404	1/4-19	1/4-19	21	29	14	19
B-BP-45-0606	3/8-19	3/8-19	24	33	19	22
B-BP-45-0808	1/2-14	1/2-14	26	39	22	30
B-BP-45-1212	3/4-14	3/4-14	32	44	27	36
B-BP-45-1616	1-11	1-11	37	47	33	46
B-BP-45-2020	1.1/4-11	1.1/4-11	39	48	41	50

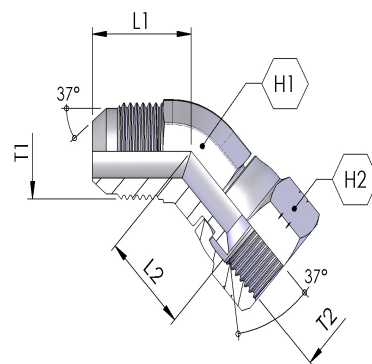
G-J-45

JIC MALE X JIC FEMALE

JIC 37° FLARE MALE X JIC 37° FLARE FEMALE

SWIVEL NUT 45° ELBOW

- ISO 8434-2



Part Number	Short Code	T1	T2	H1	H2	L1	L2	PN (bar)
G-J-45-0707	CHZ	7/16-20	7/16-20	14	14	20	15	350
G-J-45-0909	CIB	9/16-18	9/16-18	14	19	21	19	350
G-J-45-1212	CIC	3/4-16	3/4-16	19	22	25	22	310
G-J-45-1414	CID	7/8-14	7/8-14	22	27	28	24	240
G-J-45-1717	CIE	1.1/16-12	1.1/16-12	27	32	32	24	240
G-J-45-2121	CIF	1.5/16-12	1.5/16-12	35	41	38	29	210
G-J-45-2626		1.5/8-12	1.5/8-12	41	50	40	51	

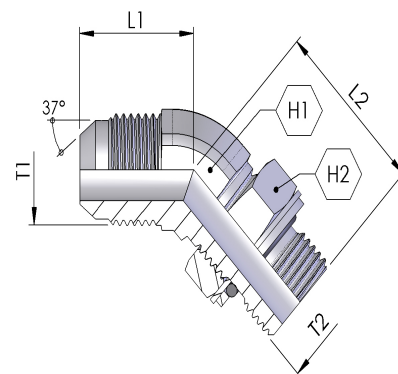
G-BP-45

JIC MALE X BSP ADJUSTABLE

JIC 37° FLARE MALE X BSP ADJUSTABLE STUD 45°

ELBOW

- ISO 8434-2



Part Number	Short Code	T1	T2	H1	H2	L1	L2	PN (bar)
G-BP-45-0704		7/16-20	1/4-19					
G-BP-45-0904	BYT	9/16-18	1/4-19	14	19	21	28	200
G-BP-45-0906	BYU	9/16-18	3/8-19	19	22	22	33	200
G-BP-45-0908		9/16-18	1/2-14					
G-BP-45-1206	BYW	3/4-16	3/8-19	19	22	25	33	200
G-BP-45-1208	BYX	3/4-16	1/2-14	22	27	25	37	200
G-BP-45-1212		3/4-16	3/4-14					
G-BP-45-1408	BYZ	7/8-14	1/2-14	22	27	28	37	200
G-BP-45-1712	BZC	1.1/16-12	3/4-14	27	36	32	42	200
G-BP-45-2116	BZD	1.5/16-12	1-11	35	41	37.5	47	200
G-BP-45-2616		1.5/8-12	1-11					

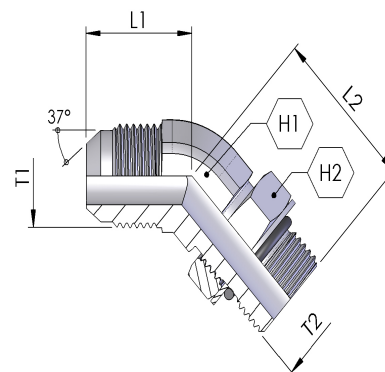
G-NP-45

JIC MALE X UNO ADJUSTABLE

JIC 37° FLARE MALE X UNO ADJUSTABLE STUD 45°

ELBOW

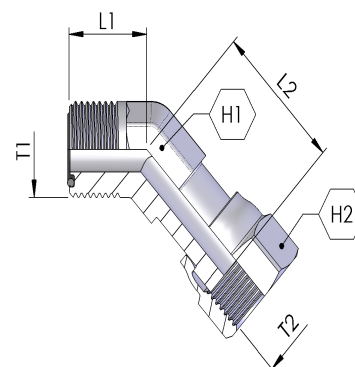
- ISO 8434-2



Part Number	Short Code	T1	T2	H1	H2	L1	L2	PN (bar)
G-NP-45-0707	CRY	7/16-20	7/16-20	14	14	20	27	315
G-NP-45-0808	CSA	1/2-20	1/2-20	14	16	20	27	315
G-NP-45-0909	CSB	9/16-18	9/16-18	14	17	21	28	250
G-NP-45-0912	CSC	9/16-18	3/4-16	19	22	22	32	250
G-NP-45-1212	CSE	3/4-16	3/4-16	19	22	25	32	250
G-NP-45-1214	CSF	3/4-16	7/8-14	22	27	25	37	250
G-NP-45-1414	CSI	7/8-14	7/8-14	22	27	28	37	200
G-NP-45-1717	CSM	1.1/16-12	1.1/16-12	27	32	32	42	200
G-NP-45-1721	CSN	1.1/16-12	1.5/16-12	35	41	36	47	160
G-NP-45-2121	CSQ	1.5/16-12	1.5/16-12	35	41	38	47	160
G-NP-45-2626	CSS	1.5/8-12	1.5/8-12	44	50	41	49	125

R-T-45

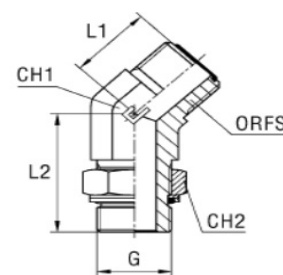
ORFS MALE X ORFS FEMALE
ORFS MALE X ORFS FEMALE SWIVEL NUT 45°
ELBOW



Part Number	T1	T2	L1 (mm)	L2 (mm)	H1 (mm)	H2 (mm)
R-T-45-0909	9/16-18	9/16-18	16	27	14	17
R-T-45-1111	11/16-16	11/16-16	19	29	19	22
R-T-45-1313	13/16-16	13/16-16	21	38	19	24
R-T-45-1616	1-14	1-14	24	41	27	30
R-T-45-1919	1.3/16-12	1.3/16-12	26	47	30	36
R-T-45-2323	1.7/16-12	1.7/16-12	30	54	36	41
R-T-45-2727	1.11/16-12	1.11/16-12	32	58	41	50

R-BP-45

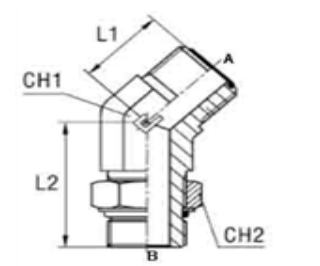
ORFS MALE X BSP ADJUSTABLE
ORFS MALE X BSP ADJUSTABLE STUD 45° ELBOW



Part Number	A	G	L1	L2	CH1	CH2
R-BP-45-1912	1.3/16-12	3/4-14	26	47	30	36
R-BP-45-2316	1.7/16-12	1-11				

R-NP-45
ORFS MALE X UNO ADJUSTABLE
ORFS MALE X UNO ADJUSTABLE STUD 45° ELBOW

- SAE J1453



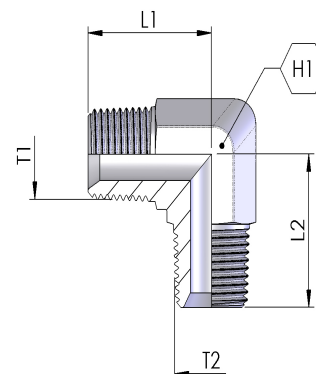
Part Number	A	B	L1	L2	CH1	CH2
R-NP-45-0907	9/16-18	7/16-20	16	30	14	14
R-NP-45-1109	11/16-16	9/16-18	19	33	19	17
R-NP-45-1312	13/16-16	3/4-16	21	37	19	22
R-NP-45-1314	13/16-16	7/8-14	21	45	22	27
R-NP-45-1614	1-14	7/8-14	24	45	27	27
R-NP-45-1917	1.3/16-12	1.1/16-12	26	50	30	32
R-NP-45-2321	1.7/16-12	1.5/16-12	30	53	36	41

90 DEGREE ADAPTORS

A-A-90

BSPT MALE X BSPT MALE

BSPT MALE X BSPT MALE 90° ELBOW



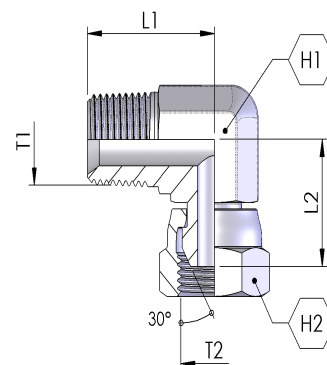
Part Number	Short Code	T1	T2	H1	L1	L2	PN (bar)
A-A-90-0202	ACO	1/8-28	1/8-28	12	20	20	345
A-A-90-0204	ACP	1/8-28	1/4-19	14	20	25	275
A-A-90-0404	ACQ	1/4-19	1/4-19	14	25	25	275
A-A-90-0406	ACR	1/4-19	3/8-19	19	28	31	210
A-A-90-0408	ACS	1/4-19	1/2-14	22	30	35	210
A-A-90-0606	ACU	3/8-19	3/8-19	19	31	31	210
A-A-90-0608	ACV	3/8-19	1/2-14	22	30	35	210
A-A-90-0808	ACW	1/2-14	1/2-14	22	35	35	210
A-A-90-0812	ACX	1/2-14	3/4-14	27	40	40	170
A-A-90-1212	ACY	3/4-14	3/4-14	27	40	40	170
A-A-90-1216	ADA	3/4-14	1-11	35	43	48	140
A-A-90-1616	ACZ	1-11	1-11	35	48	48	140
A-A-90-1620	ADB	1-11	1.1/4-11	41	54	55	80
A-A-90-2020	ADC	1.1/4-11	1.1/4-11	41	55	55	80
A-A-90-2424	ADD	1.1/2-11	1.1/2-11	50	60	60	70
A-A-90-3232	ADE	2-11	2-11	65	74	74	70

A-C-90

BSPT MALE X BSP FEMALE

BSPT MALE X BSP 60° CONE FEMALE SWIVEL NUT

90° ELBOW

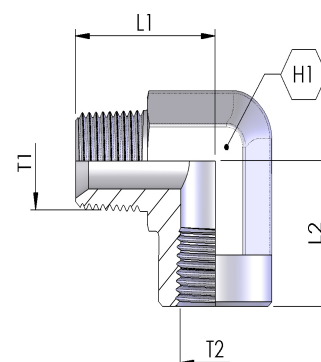


Part Number	Short Code	T1	T2	H1	H2	L1	L2	PN (bar)
A-C-90-0202	AIC	1/8-28	1/8-28	12	14	22	19	345
A-C-90-0404	AID	1/4-19	1/4-19	14	19	26	23	275
A-C-90-0406	AIE	1/4-19	3/8-19	19	22	32	26	275
A-C-90-0604	AIF	3/8-19	1/4-19	19	19	32	25	210
A-C-90-0606	AIG	3/8-19	3/8-19	19	22	32	26	210
A-C-90-0608	AIH	3/8-19	1/2-14	22	27	32	29	210
A-C-90-0806	AIL	1/2-14	3/8-19	22	22	36	27	210
A-C-90-0808	AIJ	1/2-14	1/2-14	22	27	36	29	210
A-C-90-0812	AIK	1/2-14	3/4-14	27	32	43	35	210
A-C-90-1208	AIL	3/4-14	1/2-14	27	27	43	33	170
A-C-90-1212	AIM	3/4-14	3/4-14	27	32	43	35	170
A-C-90-1216	AIN	3/4-14	1-11	35	41	45	40	170
A-C-90-1612	AIO	1-11	3/4-14	35	32	48	39	140
A-C-90-1616	AIP	1-11	1-11	35	41	48	40	140
A-C-90-1620		1-11	1.1/4-11					
A-C-90-2020	AIQ	1.1/4-11	1.1/4-11	41	48	57	47	80
A-C-90-2424	AIR	1.1/2-11	1.1/2-11	50	58	65	53	70

A-E-90

BSPT MALE X BSPT FEMALE

BSPT MALE X BSPT FIXED FEMALE 90° ELBOW

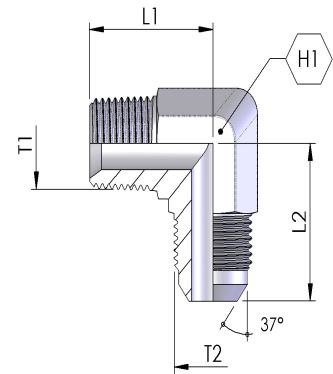


Part Number	Short Code	T1	T2	H1	L1	L2	PN (bar)
A-E-90-0202	ALN	1/8-28	1/8-28	14	20	17	345
A-E-90-0404	ALO	1/4-19	1/4-19	19	28	22	275
A-E-90-0606	ALQ	3/8-19	3/8-19	22	30	26	210
A-E-90-0806	ALT	1/2-14	3/8-19	22	35	26	210
A-E-90-0808	ALU	1/2-14	1/2-14	27	37	31	210
A-E-90-0812	ALV	1/2-14	3/4-14	35	42	35	170
A-E-90-1212	ALW	3/4-14	3/4-14	35	42	35	170
A-E-90-1616	ALX	1-11	1-11	41	50	41	140
A-E-90-2020	ALY	1.1/4-11	1.1/4-11	50	61	43	80
A-E-90-2424		1.1/4-11	1.1/4-11				

A-G-90

BSPT MALE X JIC MALE

BSPT MALE X JIC 37° FLARE MALE 90° ELBOW



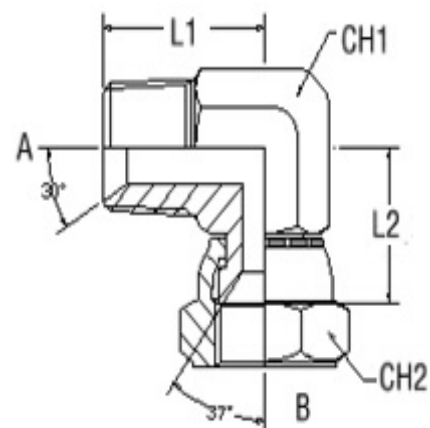
Part Number	Short Code	T1	T2	H1	L1	L2	PN (bar)
A-G-90-0207	APB	1/8-28	7/16-20	14	20	24	345
A-G-90-0208	APC	1/8-28	1/2-20	14	20	24	345
A-G-90-0209	APD	1/8-28	9/16-18	14	20	26	345
A-G-90-0407	APE	1/4-19	7/16-20	14	25	24	275
A-G-90-0408	APF	1/4-19	1/2-20	14	25	24	275
A-G-90-0409	APG	1/4-19	9/16-18	14	25	26	275
A-G-90-0412	APH	1/4-19	3/4-16	19	28	32	275
A-G-90-0607	API	3/8-19	7/16-20	19	31	29	210
A-G-90-0609	APK	3/8-19	9/16-18	19	31	29	210
A-G-90-0612	APL	3/8-19	3/4-16	19	31	32	210
A-G-90-0614	APM	3/8-19	7/8-14	22	30	36	210
A-G-90-0807	APN	1/2-14	7/16-20	22	35	31	210
A-G-90-0809	APO	1/2-14	9/16-18	22	35	31	210
A-G-90-0812	APP	1/2-14	3/4-16	22	35	34	210
A-G-90-0814	APQ	1/2-14	7/8-14	22	35	36	210
A-G-90-0817	APR	1/2-14	1.1/16-12	27	40	42	210
A-G-90-1212	APT	3/4-14	3/4-16	27	40	36	170
A-G-90-1214	APU	3/4-14	7/8-14	27	40	39	170
A-G-90-1217	APV	3/4-14	1.1/16-12	27	40	42	170
A-G-90-1221	APX	3/4-14	1.5/16-12	35	43	47	170
A-G-90-1617	APY	1-11	1.1/16-12	35	48	46	140
A-G-90-1621	APZ	1-11	1.5/16-12	35	48	47	140
A-G-90-1626	AQA	1-11	1.5/8-12	41	54	53	140
A-G-90-2017	AQB	1.1/4-11	1.1/16-12	41	55	51	80
A-G-90-2021	AQC	1.1/4-11	1.5/16-12	41	55	53	80
A-G-90-2026	AQD	1.1/4-11	1.5/8-12	41	55	53	80
A-G-90-2426		1.1/2-11	1.5/8-12	60	65	59	
A-G-90-2430	AQF	1.1/2-11	1.7/8-12	50	60	59	70

A-J-90

BSPT MALE X JIC FEMALE

BSPT MALE X JIC 37° FLARE FEMALE SWIVEL NUT

90° ELBOW

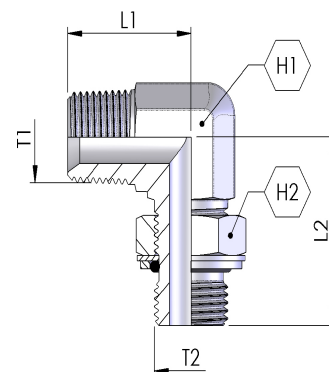


Part Number	A	B	L1	L2	CH1	CH2
A-J-90-0207	1/8-28	7/16-20	24	19	14	15
A-J-90-0407	1/4-19	7/16-20	24	19	14	15
A-J-90-0609	3/8-19	9/16-18	27	23	19	19
A-J-90-0812	1/2-14	3/4-16	35	27	22	24
A-J-90-0814	1/2-14	7/8-14	35	29	22	27
A-J-90-1217	3/4-14	1.1/16-12	40	30	27	32
A-J-90-1621	1-11	1.5/16-12				

A-BP-90

BSPT MALE X BSP ADJUSTABLE

BSPT MALE X BSP ADJUSTABLE STUD 90° ELBOW



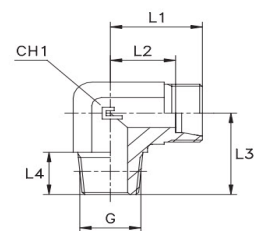
Part Number	Short Code	T1	T2	H1	H2	L1	L2	PN (bar)
A-BP-90-0404		1/4-19	1/4-19					
A-BP-90-0406		1/4-19	3/8-19					
A-BP-90-0606		3/8-19	3/8-19	24	31	39		
A-BP-90-0608		3/8-19	1/2-14					
A-BP-90-0808	AGP	1/2-14	1/2-14	22	27	35	43	200
A-BP-90-0812		1/2-14	3/4-14					
A-BP-90-1212	AGR	3/4-14	3/4-14	27	36	40	47	170
A-BP-90-1616	AGS	1-11	1-11	35	41	47	53	140

A-ML-90

BSPT MALE X MET LIGHT MALE

BSPT MALE X METRIC 24° CONE LIGHT MALE 90°

ELBOW



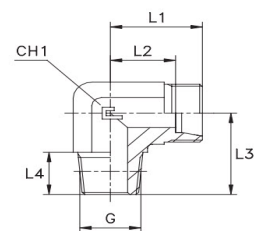
Part Number	Metric Male Thread	BSPT Male Thread (G)	Working Pressure (bar)	suits tube	L1 - mm	L2 - mm	L3 - mm	L4 - mm	Hex A/F (CH1)
A-ML-90-0212	M12-1.5	1/8-28	315	6	19	12	20	8	12
A-ML-90-0412	M12-1.5	1/4-19	315	6	21	14	26	12	12
A-ML-90-0414	M14-1.5	1/4-19	315	8	21	14	26	12	12
A-ML-90-0416	M16-1.5	1/4-19	315	10	22	15	27	12	14
A-ML-90-0616	M16-1.5	3/8-19	315	10	24	17	28	12	17
A-ML-90-0618	M18-1.5	3/8-19	315	12	24	17	28	12	17
A-ML-90-0822	M22-1.5	1/2-14	315	15	28	21	34	14	19
A-ML-90-0826	M26-1.5	1/2-14	315	18	31	24	36	14	24
A-ML-90-1230	M30-2	3/4-14	160	22	35	28	42	16	27

A-MS-90

BSPT MALE X MET HEAVY MALE

BSPT MALE X METRIC 24° CONE HEAVY MALE 90°

ELBOW

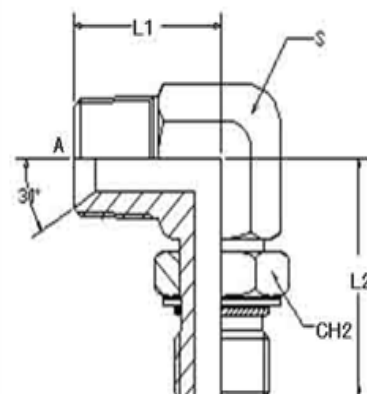


Part Number	Metric Male Thread	BSPT Male Thread (G)	Working Pressure (bar)	suits tube	L1 - mm	L2 - mm	L3 - mm	L4 - mm	Hex A/F (CH1)
A-MS-90-0414	M14-1.5	1/4-19	630	6	23	16	26	12	12
A-MS-90-0416	M16-1.5	1/4-19	630	8	24	17	27	12	14
A-MS-90-0618	M18-1.5	3/8-19	630	10	25	18	28	12	17
A-MS-90-0620	M20-1.5	3/8-19	630	12	29	22	28	12	17
A-MS-90-0820	M20-1.5	1/2-14	630	12	28	21	32	14	19
A-MS-90-0822	M22-1.5	1/2-14	630	14	30	22	32	14	19
A-MS-90-0824	M24-1.5	1/2-14	400	16	33	25	32	14	24
A-MS-90-1230	M30-2	3/4-14	400	20	37	27	42	16	27
A-MS-90-1636	M36-2	1-11	400	25	42	30	48	18	36
A-MS-90-2042	M42-2	1.1/4-11	400	30	49	36	54	20	41

A-NP-90

BSPT MALE X UNO ADJUSTABLE

BSPT MALE X UNO ADJUSTABLE STUD 90° ELBOW



Part Number	A	B	L1	L2	S	CH2
A-NP-90-0407	1/4-19	7/16-20	25	31	14	16
A-NP-90-0409	1/4-19	9/16-18	25	32	14	19
A-NP-90-0412	1/4-19	3/4-16	27	37	19	24
A-NP-90-0609	3/8-19	9/16-18	31	35	19	19
A-NP-90-0612	3/8-19	3/4-16	29	37	19	24
A-NP-90-0614	3/8-19	7/8-14	28	39	22	27
A-NP-90-0812	1/2-14	3/4-16	35	39	22	24
A-NP-90-0814	1/2-14	7/8-14	33	44	22	27
A-NP-90-0817	1/2-14	1.1/16-12	44	49	27	32
A-NP-90-1214	3/4-14	7/8-14	40	49	27	27
A-NP-90-1217	3/4-14	1.1/16-12	38	49	27	32
A-NP-90-1621	1-11	1.5/16-12	45	52	35	38

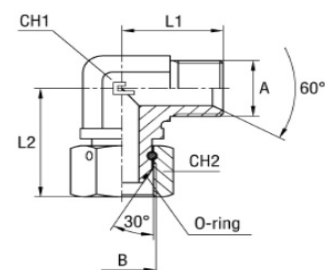
B-C-90

BSP MALE X BSP FEMALE

BSP 60° CONE MALE X BSP 60° CONE FEMALE

SWIVEL NUT 90° ELBOW

- ISO 8434-6



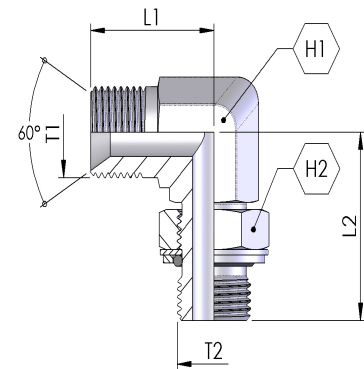
Part Number	A	B	L1	L2	CH1	CH2
B-C-90-0404	1/4-19	1/4-19	26	33	14	19
B-C-90-0606	3/8-19	3/8-19				
B-C-90-0808	1/2-14	1/2-14	34	43	22	27
B-C-90-1212	3/4-14	3/4-14				
B-C-90-1616	1-11	1-11	45	61	33	41

B-BP-90

BSP MALE X BSP ADJUSTABLE

BSP 60° CONE MALE X BSP ADJUSTABLE STUD 90°
ELBOW

- ISO 8434-6

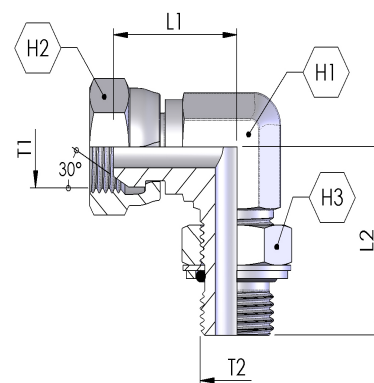


Part Number	Short Code	T1	T2	H1	H2	L1	L2	PN (bar)
B- BP-90-0404	BBL	1/4-19	1/4-19	14	19	26	32	200
B- BP-90-0406		1/4-19	3/8-19					
B- BP-90-0604		3/8-19	1/4-19					
B- BP-90-0606	BBO	3/8-19	3/8-19	19	22	30	36	200
B- BP-90-0608		3/8-19	1/2-14					
B- BP-90-0806		1/2-14	3/8-19					
B- BP-90-0808	BBR	1/2-14	1/2-14	22	27	35	43	200
B- BP-90-0812		1/2-14	3/4-14					
B- BP-90-1208		3/4-14	1/2-14					
B- BP-90-1212	BBU	3/4-14	3/4-14	27	36	41	47	200
B- BP-90-1612		1-11	3/4-14					
B- BP-90-1616	BBW	1-11	1-11	35	41	47	53	200
B- BP-90-2020		1.1/4-11	1.1/4-11					

C-BP-90

BSP FEMALE X BSP ADJUSTABLE
BSP 60° CONE FEMALE SWIVEL NUT X BSP
ADJUSTABLE STUD 90° ELBOW

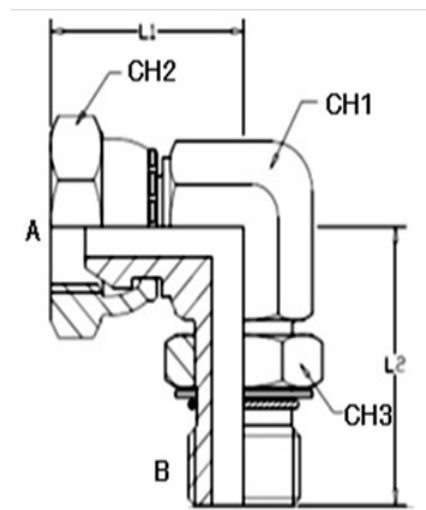
- ISO 8434-6



Part Number	Short Code	T1	T2	H1	H2	H3	L1	L2	PN (bar)
C-BP-90-0404	BRA	1/4-19	1/4-19	19	19		26	32	200
C-BP-90-0606	BRC	3/8-19	3/8-19	19	22	22	30	36	200
C-BP-90-0808	BRD	1/2-14	1/2-14	22	27		35	43	200
C-BP-90-1212	BRF	3/4-14	3/4-14	27	32	36	41	47	200
C-BP-90-1616	BRG	1-11	1-11	35	41	41	44	53	200
C-BP-90-2020		1.1/4-11	1.1/4-11	41	50	50	64	58	

C-NP-90

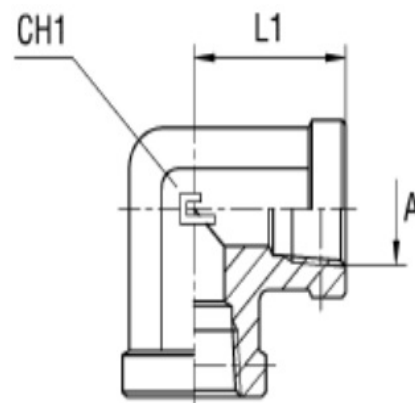
BSP FEMALE X UNO ADJUSTABLE
BSP 60° CONE FEMALE SWIVEL NUT X UNO
ADJUSTABLE STUD 90° ELBOW



Part Number	A	B	L1	L2	CH1	CH2	CH3
C-NP-90-0609	3/8-19	9/16-18	31	33	19	19	22
C-NP-90-0612	3/8-19	3/4-16	31	35	19	24	22
C-NP-90-0812	1/2-14	3/4-16					
C-NP-90-0814	1/2-14	7/8-14	33	41	25	25	25
C-NP-90-1217	3/4-14	1 1/16-12					
C-NP-90-1621	1-11	1 5/16-12					

E-E-90

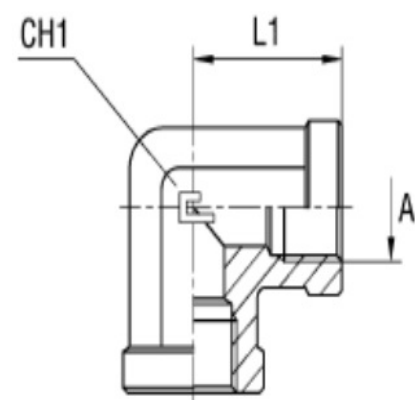
BSPT FEMALE X BSPT FEMALE
BSPT FIXED FEMALE X BSPT FIXED FEMALE 90°
ELBOW



Part Number	A	L1	CH1
E-E-90-0202	1/8-28	22	17
E-E-90-0404	1/4-19	23	23
E-E-90-0606	3/8-19	25	27
E-E-90-0808	1/2-14	29	33
E-E-90-1212	3/4-14	34	39
E-E-90-1616	1-11	40	47
E-E-90-2020	1.1/4-11	45	57
E-E-90-2424	1.1/2-11	51	63
E-E-90-3232	2-11	60	76

F-F-90

BSP FEMALE X BSP FEMALE
BSP FIXED FEMALE X BSP FIXED FEMALE 90°
ELBOW



Part Number	A	L1	CH1
F-F-90-0202	1/8-28		
F-F-90-0404	1/4-19		
F-F-90-0606	3/8-19	26	22
F-F-90-0808	1/2-14	31	27
F-F-90-1212	3/4-14	35	33
F-F-90-1616	1-11	41	41

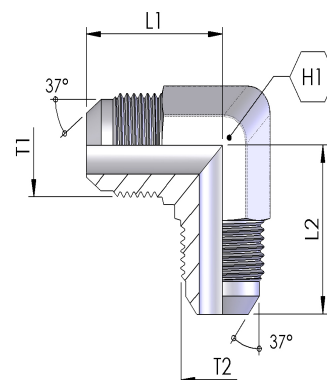
G-G-90

JIC MALE X JIC MALE

JIC 37° FLARE MALE X JIC 37° FLARE MALE 90°

ELBOW

- ISO 8434-2



Part Number	Short Code	T1	T2	H1	L1	L2	PN (bar)
G-G-90-0707	CCU	7/16-20	7/16-20	14	24	24	350
G-G-90-0808	CCW	1/2-20	1/2-20	14	24	24	350
G-G-90-0909	CCX	9/16-18	9/16-18	14	26	26	350
G-G-90-0912	CDA	9/16-18	3/4-16	19	29	32	310
G-G-90-1212	CDB	3/4-16	3/4-16	19	32	32	310
G-G-90-1214	CDC	3/4-16	7/8-14	22	33	36	240
G-G-90-1414	CDD	7/8-14	7/8-14	22	36	36	240
G-G-90-1417	CDE	7/8-14	1.1/16-12	27	39	42	240
G-G-90-1717	CDF	1.1/16-12	1.1/16-12	27	40	40	240
G-G-90-1721		1.1/16-12	1.5/16-12				
G-G-90-2121	CDH	1.5/16-12	1.5/16-12	35	48	47	210
G-G-90-2626	CDI	1.5/8-12	1.5/8-12	41	53	53	170

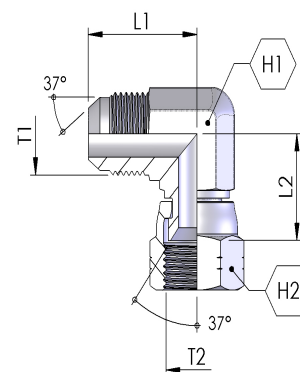
G-J-90

JIC MALE X JIC FEMALE

JIC 37° FLARE MALE X JIC 37° FLARE FEMALE

SWIVEL NUT 90° ELBOW

- ISO 8434-2



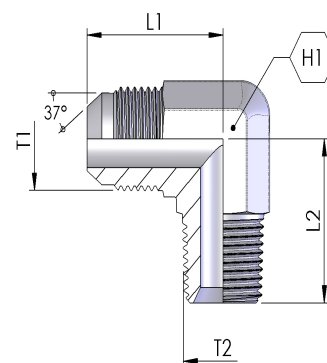
Part Number	Short Code	T1	T2	H1	H2	L1	L2	PN (bar)
G-J-90-0707	CIJ	7/16-20	7/16-20	14	14	24	17	350
G-J-90-0808		1/2-20	1/2-20					
G-J-90-0909	CIL	9/16-18	9/16-18	14	19	26	22	350
G-J-90-1212	CIN	3/4-16	3/4-16	19	22	32	24	310
G-J-90-1414	CIP	7/8-14	7/8-14	22	27	36	28	240
G-J-90-1717	CIR	1.1/16-12	1.1/16-12	27	32	42	30	240
G-J-90-2121	CIS	1.5/16-12	1.5/16-12	35	41	46	36	210
G-J-90-2626	CIT	1.5/8-12	1.5/8-12	41	50	53	43	170
G-J-90-3030		1.7/8-12	1.7/8-12					

G-L-90

JIC MALE X NPTF MALE

JIC 37° FLARE MALE X NPTF MALE 90° ELBOW

- SAE J514



Part Number	Short Code	T1	T2	H1	L1	L2	PN (bar)
G-L-90-0702	CMZ	7/16-20	1/8-27	12	22	20	345
G-L-90-0704		7/16-20	1/4-18	14	24	28	
G-L-90-0706		7/16-20	3/8-18	19	28	31	
G-L-90-0802		1/2-20	1/8-27	14	24	20	
G-L-90-0904		9/16-18	1/4-18	14	28	28	
G-L-90-0906		9/16-18	3/8-18	19	29	31	
G-L-90-0908		9/16-18	1/2-14	22	29	37	
G-L-90-1204		3/4-16	1/4-18	19	32	31	
G-L-90-1206		3/4-16	3/8-18	19	32	31	
G-L-90-1208		3/4-16	1/2-14	22	34	37	
G-L-90-1212		3/4-16	3/4-14	27	36	40	
G-L-90-1406		7/8-14	3/8-18	22	37	33	
G-L-90-1408		7/8-14	1/2-14	22	37	37	
G-L-90-1412		7/8-14	3/4-14	27	39	40	
G-L-90-1712		1.1/16-12	3/4-14	27	42	40	
G-L-90-1716		1.1/16-12	1-11.5	33	45	50	
G-L-90-2620		1.5/8-12	1.1/4-11.5	41	52	60	

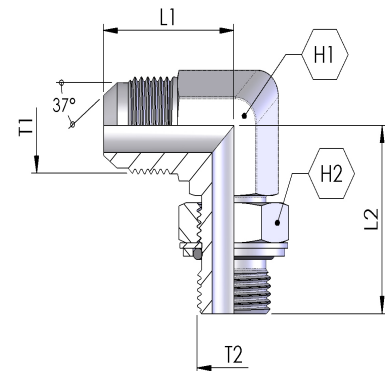
G-BP-90

JIC MALE X BSP ADJUSTABLE

JIC 37° FLARE MALE X BSP ADJUSTABLE STUD 90°

ELBOW

- ISO 8434-2



Part Number	Short Code	T1	T2	H1	H2	L1	L2	PN (bar)
G-BP-90-0702	BZI	7/16-20	1/8-28	14	14	24	27	200
G-BP-90-0704	BZJ	7/16-20	1/4-19	14	19	24	32	200
G-BP-90-0706		7/16-20	3/8-19	19	22	29	37	
G-BP-90-0708		7/16-20	1/2-14	22	27	31	43	
G-BP-90-0804		1/2-20	1/4-19					
G-BP-90-0902		9/16-18	1/8-28					
G-BP-90-0904	BZO	9/16-18	1/4-19	14	19	27	32	200
G-BP-90-0906	BZP	9/16-18	3/8-19	19	22	29	37	200
G-BP-90-0908	BZQ	9/16-18	1/2-14	22	27	31	43	200
G-BP-90-1204		3/4-16	1/4-19					
G-BP-90-1206	BZS	3/4-16	3/8-19	19	22	32	37	200
G-BP-90-1208	BZT	3/4-16	1/2-14	22	27	34	43	200
G-BP-90-1212		3/4-16	3/4-14	27	36	36	49	
G-BP-90-1406		7/8-14	3/8-19	22	22	37	38	
G-BP-90-1408	BZW	7/8-14	1/2-14	22	27	37	43	200
G-BP-90-1412	BZX	7/8-14	3/4-14	27	36	39	50	200
G-BP-90-1708	BZY	1.1/16-12	1/2-14	27	27	41	47	200
G-BP-90-1712	BZZ	1.1/16-12	3/4-14	27	36	41	50	200
G-	CAA	1.1/6-12	1-11	35	41	46	52	200

BP-90-1716								
G- BP-90-2112		1.5/16-12	3/4-14	33	36	46	50	
G- BP-90-2116	CAC	1.5/6-12	1-11	35	41	47	52	200
G- BP-90-2120		1.5/16-12	1.1/4-11					
G- BP-90-2616		1.5/8-12	1-11	41	41	53	58	
G- BP-90-2620		1.5/8-12	1.1/4-11	41	50	53	58	
G- BP-90-3020		1.7/8-12	1.1/4-11					
G- BP-90-3024		1.7/8-12	1.1/2-11	48	55	59	60	

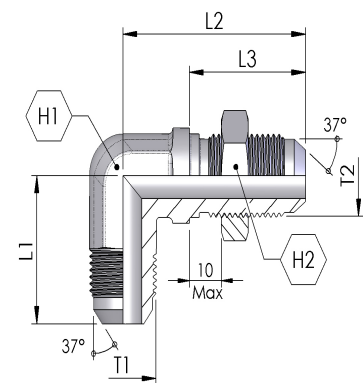
G-GK-90

JIC MALE X JIC BULKHEAD

JIC 37° FLARE MALE X JIC 37° FLARE BULKHEAD

90° ELBOW

- ISO 8434-2



Part Number	Short Code	T1	T2	H1	H2	L1	L2	L3	PN (bar)
G- GK-90-0707	CGF	7/16-20	7/16-20	11.1	17	25	41	28	350
G- GK-90-0909	CGG	9/16-18	9/16-18	14.3	22	28	46	30	350
G- GK-90-1212	CGH	3/4-16	3/4-16	19	24	35	54	35	310
G- GK-90-1414	CGI	7/8-14	7/8-14	22	30	40	61	39	240
G- GK-90-1717	CGJ	1.1/16-12	1.1/16-12	27	36	45	68	43	240
G- GK-90-2121		1.5/16-12	1.5/16-12	33	41	49.5	71	43	290

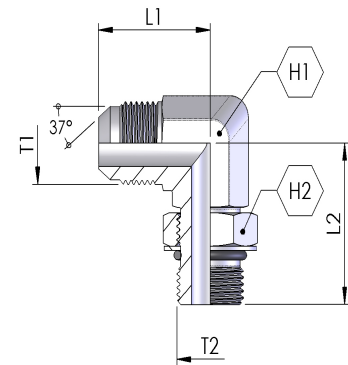
G-NP-90

JIC MALE X UNO ADJUSTABLE

JIC 37° FLARE MALE X UNO ADJUSTABLE STUD 90°

ELBOW

- ISO 8434-2



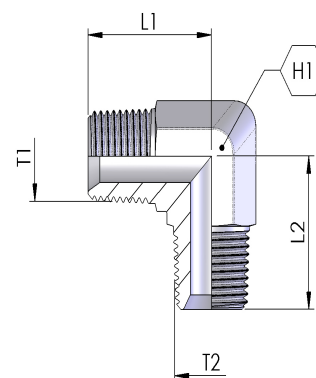
Part Number	Short Code	T1	T2	H1	H2	L1	L2	PN (bar)
G-NP-90-0707	CST	7/16-20	7/16-20	14	14	24	28	315
G-NP-90-0709		7/16-20	9/16-18	14	18	27	32	
G-NP-90-0808		1/2-20	1/2-20					
G-NP-90-0809		1/2-20	9/16-18					
G-NP-90-0907		9/16-18	7/16-20	14	14	27	30	
G-NP-90-0908		9/16-18	1/2-20					
G-NP-90-0909	CTB	9/16-18	9/16-18	14	17	27	31	250
G-NP-90-0912	CTC	9/16-18	3/4-16	19	22	29	37	250
G-NP-90-0914		9/16-18	7/8-14					
G-NP-90-1212	CTG	3/4-16	3/4-16	19	22	32	37	250
G-NP-90-1214	CTH	3/4-16	7/8-14	22	27	34	43	200
G-NP-90-1217		3/4-16	1.1/16-12					
G-NP-90-1221		3/4-16	1.5/16-12					
G-NP-90-1412		7/8-14	3/4-16	22	22	37	40	
G-NP-90-1414	CTL	7/8-14	7/8-14	22	27	37	43	200
G-NP-90-1417	CTM	7/8-14	1.1/16-12	27	32	39	50	200
G-NP-90-1712		1.1/16-12	3/4-16	27	22	42	42	
G-NP-90-1714		1.1/16-12	7/8-14	27	25	42	45	
G-	CTP	1.1/16-12	1.1/16-12	27	32	41	50	200

NP-90-1717								
G- NP-90-1721		1.1/16-12	1.5/16-12	33	38	45	52	
G- NP-90-2117		1.5/16-12	1.1/16-12					
G- NP-90-2121	CTT	1.5/16-12	1.5/16-12	35	41	47	52	160
G- NP-90-2126		1.5/16-12	1.5/8-12					
G- NP-90-2621		1.5/8-12	1.5/16-12					
G- NP-90-2626		1.5/8-12	1.5/8-12	41	48	52	57	
G- NP-90-3030		1.7/8-12	1.7/8-12					

L-L-90

NPTF MALE X NPTF MALE

NPTF MALE X NPTF MALE 90° ELBOW



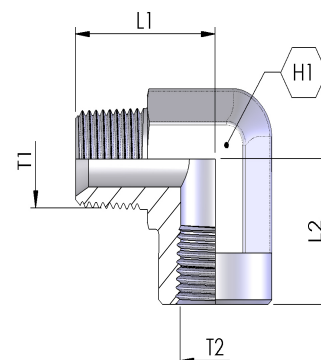
Part Number	T1	T2	L1 (mm)	L2 (mm)	H1 (mm)
L-L-90-0202	1/8-27	1/8-27	20	20	13
L-L-90-0404	1/4-18	1/4-18	28	28	16
L-L-90-0406	1/4-18	3/8-18	30	31	21
L-L-90-0606	3/8-18	3/8-18	31	31	21
L-L-90-0608	3/8-18	1/2-14	33	37	24
L-L-90-0808	1/2-14	1/2-14	37	37	24
L-L-90-1212	3/4-14	3/4-14	40	40	29
L-L-90-1616	1-11.5	1-11.5	50	50	35

L-AC-90

NPTF MALE X NPTF FEMALE

NPTF MALE X NPTF FIXED FEMALE 90° ELBOW

- SAE J514



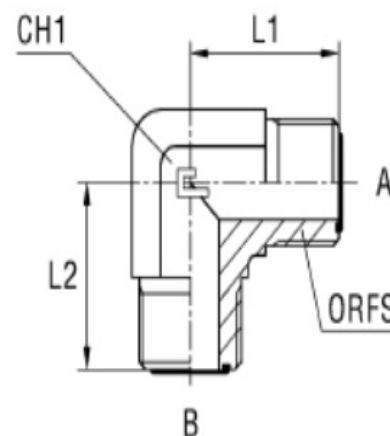
Part Number	T1	T2	L1 (mm)	L2 (mm)	H1 (mm)
L-AC-90-0202	1/8-27	1/8-27	20	17	14
L-AC-90-0404	1/4-18	1/4-18	28	23	19
L-AC-90-0606	3/8-18	3/8-18	31	26	22
L-AC-90-0808	1/2-14	1/2-14	37	31	27
L-AC-90-1212	3/4-14	3/4-14	40	35	33

R-R-90

ORFS MALE X ORFS MALE

ORFS MALE X ORFS MALE 90° ELBOW

- ISO 8434-3



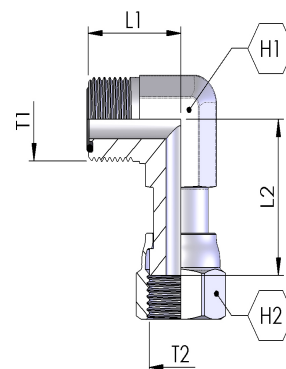
Part Number	A	B	L1	L2	CH1
R-R-90-0909	9/16-18	9/16-18	22	22	14
R-R-90-1111	11/16-16	11/16-16	25	25	19
R-R-90-1313	13/16-16	13/16-16	28	28	19
R-R-90-1616	1-14	1-14	34	34	27
R-R-90-1919	1.3/16-12	1.3/16-12	38	38	30
R-R-90-2323	1.7/16-12	1.7/16-12	42	42	36

R-T-90

ORFS MALE X ORFS FEMALE

ORFS MALE X ORFS FEMALE SWIVEL NUT 90°
ELBOW

- ISO 8434-3

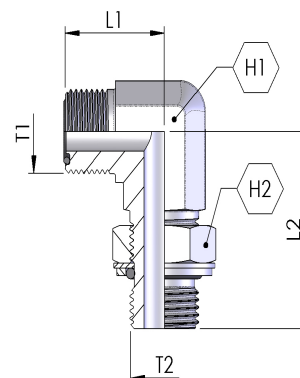


Part Number	ORFS Male Thread (A)	ORFS Female Thread (B)	L1 - mm	L2 - mm	Hex A/F (CH1)	Hex A/F (CH2)
R-T-90-0909	9/16-18	9/16-18	22	27	14	17
R-T-90-1111	11/16-16	11/16-16	25	29	19	22
R-T-90-1313	13/16-16	13/16-16	28	38	19	24
R-T-90-1616	1-14	1-14	34	41	27	30
R-T-90-1919	1.3/16-12	1.3/16-12	38	47	30	36
R-T-90-2323	1.7/16-12	1.7/16-12	42	54	36	41
R-T-90-2727	1.11/16-12	1.11/16-12	45	58	41	50

R-BP-90

ORFS MALE X BSP ADJUSTABLE

ORFS MALE X BSP ADJUSTABLE STUD 90° ELBOW



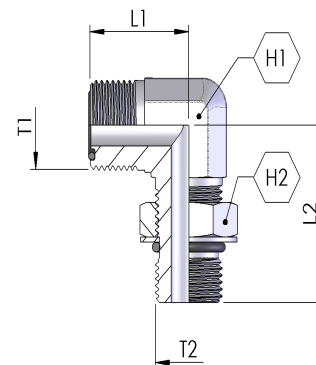
Part Number	Short Code	T1	T2	H1	H2	L1	L2	PN (bar)
R-BP-90-0904	DZR	9/16-18	1/4-19	14	19	22	35	200
R-BP-90-1106	DZU	11/16-16	3/8-19	19	22	25	38	200
R-BP-90-1306	DZV	13/16-16	3/8-19	19	22	28	38	200
R-BP-90-1308	DZW	13/16-16	1/2-14	22	27	30	48	200
R-BP-90-1608	DZX	1-14	1/2-14	27	27	34	48	200
R-BP-90-1612	DZY	1-14	3/4-14	27	36	34	51	200
R-BP-90-1912	DZZ	1.3/16-12	3/4-14	30	36	38	52	200
R-BP-90-1916	EAA	1.3/16-12	1-11	36	41	42	59	200
R-BP-90-2316	EAC	1.7/16-12	1-11	36	41	42	59	200

R-NP-90

ORFS MALE X UNO ADJUSTABLE

ORFS MALE X UNO ADJUSTABLE STUD 90° ELBOW

- SAE J1453

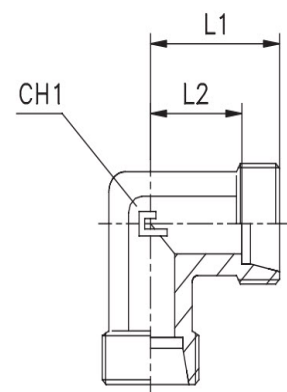


Part Number	Short Code	T1	T2	H1	H2	L1	L2	PN (bar)
R-NP-90-0907	EBM	9/16-18	7/16-20	14	17	22	32	400
R-NP-90-0909	EBN	9/16-18	9/16-18	17	19	24	36	400
R-NP-90-1107		11/16-16	7/16-20					
R-NP-90-1109	EBQ	11/16-16	9/16-18	17	19	25	36	400
R-NP-90-1112	EBR	11/16-16	3/4-16	19	24	27	41	400
R-NP-90-1309	EBS	13/16-16	9/16-18	19	19	28	37	400
R-NP-90-1312	EBT	13/16-16	3/4-16	19	24	28	41	400
R-NP-90-1314		13/16-16	7/8-14	24	27	31	50	
R-NP-90-1612	EBW	1-14	3/4-16	24	24	34	46	400
R-NP-90-1614	EBX	1-14	7/8-14	24	27	34	50	400
R-NP-90-1917	ECA	1.3/16-12	1.1/16-12	30	36	38	55	400
R-NP-90-2321	ECD	1.7/16-12	1.5/16-12	36	41	42	60	315
R-NP-90-2726	ECE	1.11/16-12	1.5/8-12	41	50	45	62	250

ML-ML-90

MET LIGHT MALE X MET LIGHT MALE
METRIC 24° CONE LIGHT MALE X METRIC 24°
CONE LIGHT MALE 90° ELBOW

- ISO 8434-1



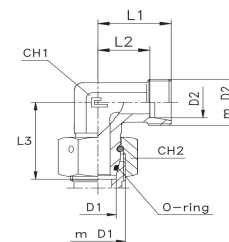
Part Number	Metric Male Thread	suits tube	L1 - mm	L2 - mm	Hex A/F (CH1)	PN (bar)
ML-ML-90-1212	M12-1.5	6	19	12	12	315
ML-ML-90-1414	M14-1.5	8	21	14	12	315
ML-ML-90-1616	M16-1.5	10	22	15	14	315
ML-ML-90-1818	M18-1.5	12	24	17	17	315
ML-ML-90-2222	M22-1.5	15	28	21	19	315
ML-ML-90-2626	M26-1.5	18	31	24	24	315
ML-ML-90-3030	M30-2	22	35	28	27	160
ML-ML-90-3636	M36-2	28	38	31	36	160
ML-ML-90-4545	M45-2	35	45	35	41	160
ML-ML-90-5252	M52-2	42	51	40	50	160

ML-UL-90

MET LIGHT MALE X MET LIGHT F/M

METRIC 24° CONE LIGHT MALE X METRIC 24°

CONE LIGHT FEMALE SWIVEL NUT 90° ELBOW

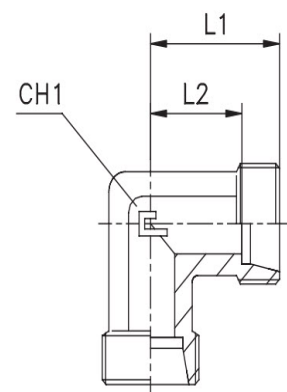


Part Number	Metric Male Thread	Metric Female Thread	suits tube	L1 - mm	L2 - mm	L3 - mm	Hex A/F (CH1)	Hex A/F (CH2)	NP (bar)
ML-UL-90-1212	M12-1.5	M12-1.5	6	19	12	26	12	14	315
ML-UL-90-1414	M14-1.5	M14-1.5	8	21	14	28	12	17	315
ML-UL-90-1616	M16-1.5	M16-1.5	10	22	15	29	14	19	315
ML-UL-90-1818	M18-1.5	M18-1.5	12	24	17	30	17	22	315
ML-UL-90-2222	M22-1.5	M22-1.5	15	28	21	33	19	27	315
ML-UL-90-2626	M26-1.5	M26-1.5	18	31	24	36	24	32	315
ML-UL-90-3030	M30-2	M30-2	22	35	28	39	27	36	160
ML-UL-90-3636	M36-2	M36-2	28	38	31	42	36	41	160
ML-UL-90-4545	M45-2	M45-2	35	45	35	42	41	50	160
ML-UL-90-5252	M52-2	M52-2	42	51	40	56	50	60	160

MS-MS-90

MET HEAVY MALE X MET HEAVY MALE
METRIC 24° CONE HEAVY MALE X METRIC 24°
CONE HEAVY MALE 90° ELBOW

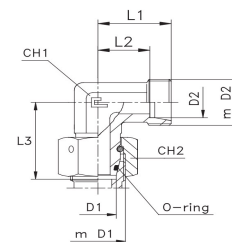
- ISO 8434-1



Part Number	Metric Male Thread	suits tube	L1 - mm	L2 - mm	Hex A/F (CH1)	DN (bar)
MS-MS-90-1414	M14-1.5	6	23	16	12	630
MS-MS-90-1616	M16-1.5	8	24	17	14	630
MS-MS-90-1818	M18-1.5	10	25	18	17	630
MS-MS-90-2020	M20-1.5	12	29	22	17	630
MS-MS-90-2222	M22-1.5	14	30	22	19	630
MS-MS-90-2424	M24-1.5	16	33	25	24	400
MS-MS-90-3030	M30-2	20	37	27	27	400
MS-MS-90-3636	M36-2	25	42	30	36	400
MS-MS-90-4242	M42-2	30	49	36	41	400
MS-MS-90-5252	M52-2	38	57	41	50	315

MS-US-90

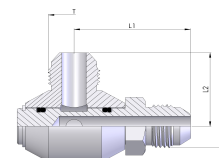
MET HEAVY MALE X MET HEAVY F/M
METRIC 24° CONE HEAVY MALE X METRIC 24°
CONE HEAVY FEMALE SWIVEL NUT 90° ELBOW



Part Number	Metric Male Thread	Metric Female Thread	suits tube	L1 - mm	L2 - mm	L3 - mm	Hex A/F (CH1)	Hex A/F (CH2)	NP (bar)
MS-US-90-1414	M14-1.5	M14-1.5	6	23	16	27	12	17	315
MS-US-90-1616	M16-1.5	M16-1.5	8	24	17	28	14	19	315
MS-US-90-1818	M18-1.5	M18-1.5	10	25	18	30	17	22	315
MS-US-90-2020	M20-1.5	M20-1.5	12	29	22	31	17	24	315
MS-US-90-2222	M22-1.5	M22-1.5	14	30	22	35	19	27	315
MS-US-90-2424	M24-1.5	M24-1.5	16	33	25	37	24	30	315
MS-US-90-3030	M30-2	M30-2	20	37	27	45	27	36	160
MS-US-90-3636	M36-2	M36-2	25	42	30	50	36	46	160
MS-US-90-4242	M42-2	M42-2	30	49	36	56	41	50	160
MS-US-90-5252	M52-2	M52-2	38	57	41	63	50	60	160

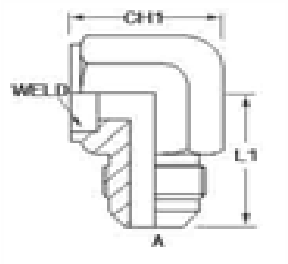
SJ90

JIC MALE X JIC MALE
JIC 37° FLARE MALE X JIC 37° FLARE MALE 90°
ELBOW SWIVEL



Part Number	Body thread	Stem thread	Seal kit
SJ90-GG0909V/H	9/16	9/16	RKSJ-9S6V

TW-G-90
TUBEWELD X JIC MALE 90° ELBOW
IMPERIAL TUBE WELD SOCKET X JIC 37° FLARE
MALE 90° ELBOW

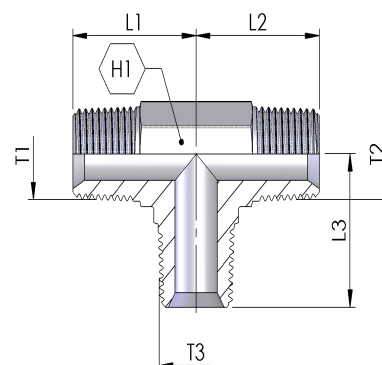


Part Number	suits tube	JIC Male Thread (A)	Weld Socket	L2 - mm	L1 - mm	Hex A/F (CH1)
TW-G-90-0609	3/8	9/16-18	9.7 x 5	8	23	16
TW-G-90-1012	5/8	3/4-16	16 x 6	13	30	25
TW-G-90-1014	5/8	7/8-14	16 x 6	13	33	25
TW-G-90-1217	3/4	1.1/16-12	19.2 x 6	14	36	29

TEE ADAPTORS

A-A-A

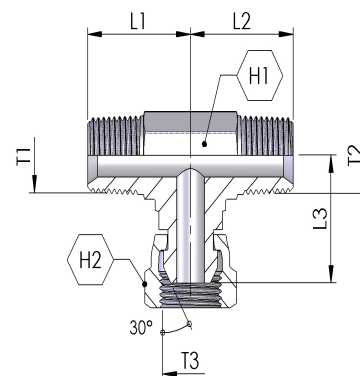
BSPT MALE X BSPT MALE X BSPT MALE
BSPT MALE X BSPT MALE X BSPT MALE TEE



Part Number	Short Code	T1	T2	T3	H1	L1	L2	L3	PN (bar)
A-A-A-020202	ADF	1/8-28	1/8-28	1/8-28	12	20	20	20	345
A-A-A-040404	ADG	1/4-19	1/4-19	1/4-19		25	25	25	275
A-A-A-060606	ADK	3/8-19	3/8-19	3/8-19		31	31	31	210
A-A-A-080808	ADM	1/2-14	1/2-14	1/2-14	22	35	35	35	210
A-A-A-121212	ADQ	3/4-14	3/4-14	3/4-14	27	40	40	40	170
A-A-A-161616	ADR	1-11	1-11	1-11	35	47	47	47	140
A-A-A-202020	ADS	1.1/4-11	1.1/4-11	1.1/4-11	41	55	55	55	80
A-A-A-242424	ADT	1.1/2-11	1.1/2-11	1.1/2-11	50	60	60	60	70
A-A-A-323232	ADU	2-11	2-11	2-11	65	76	76	76	70

A-A-C

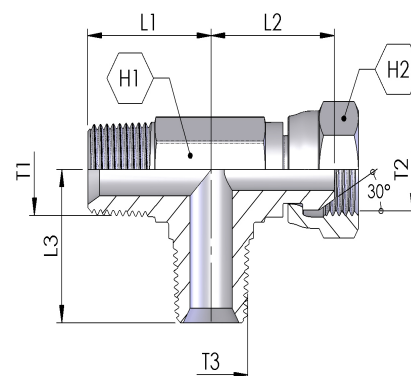
BSPT MALE X BSPT MALE X BSP FEMALE
 BSPT MALE X BSPT MALE X BSP 60° CONE FEMALE
 SWIVEL NUT BRANCH TEE



Part Number	Short Code	T1	T2	T3	H1	H2	L1	L2	L3
A-A-C-040404	ADY	1/4-19	1/4-19	1/4-19	14	19	25	25	20
A-A-C-060606	ADZ	3/8-19	3/8-19	3/8-19	19	22	31	31	30
A-A-C-080808	AEA	1/2-14	1/2-14	1/2-14	22	27	35	35	35
A-A-C-121212		3/4-14	3/4-14	3/4-14	27	32	40	40	37
A-A-C-161616		1-11	1-11	1-11	35	41	46	46	42

A-C-A

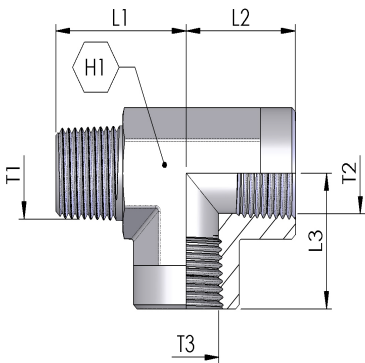
BSPT MALE X BSP FEMALE X BSPT MALE
BSPT MALE X BSP 60° CONE FEMALE SWIVEL NUT
X BSPT MALE RUN TEE



Part Number	Short Code	T1	T2	T3	H1	H2	L1	L2	L3
A-C-A-040404	AIS	1/4-19	1/4-19	1/4-19	14	19	25	20	25
A-C-A-060606	AIT	3/8-19	3/8-19	3/8-19	19	22	31	30	31
A-C-A-080808	AIU	1/2-14	1/2-14	1/2-14	22	27	35	35	35
A-C-A-121212	AIV	3/4-14	3/4-14	3/4-14	27	32	40	42	40
A-C-A-161616	AIW	1-11	1-11	1-11	35	41	47	47	47
A-C-A-202020	AIX	1.1/4-11	1.1/4-11	1.1/4-11	41	50	55	54	55

A-E-E

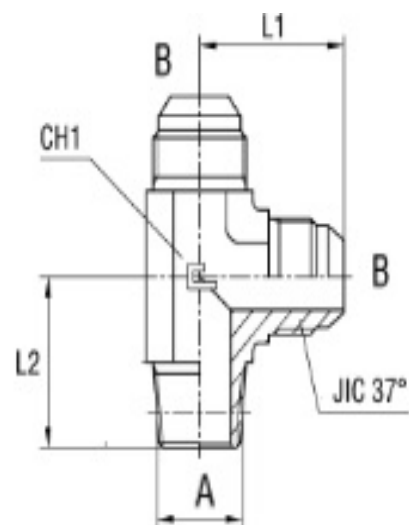
BSPT MALE X BSPT FEMALE X BSPT FEMALE
BSPT MALE X BSPT FIXED FEMALE X BSPT FIXED
FEMALE RUN TEE



Part Number	Short Code	T1	T2	T3	H1	L1	L2	L3	PN (bar)
A-E-E-040404	AMA	1/4-19	1/4-19	1/4-19	19	28	22	22	275
A-E-E-060606	AMB	3/8-19	3/8-19	3/8-19	22	31	26	26	210
A-E-E-080808	AMC	1/2-14	1/2-14	1/2-14	27	37	31	31	210
A-E-E-121212		3/4-14	3/4-14	3/4-14	35	44	34		
A-E-E-161616		1-11	1-11	1-11	41	52	42		

A-G-G

BSPT MALE X JIC MALE X JIC MALE
BSPT MALE X JIC 37° FLARE MALE X JIC 37° FLARE
MALE RUN TEE

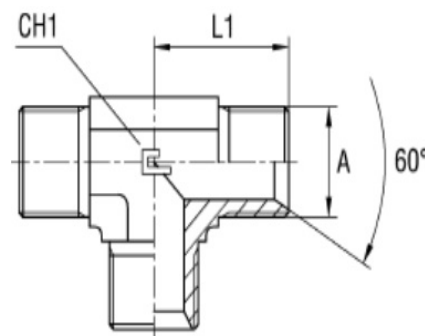


Part Number	A	B	L1	L2	CH1
A-G-G-020707	1/8-28	7/16-20	23	20	14
A-G-G-040707	1/4-19	7/16-20	24	28	14
A-G-G-040909	1/4-19	9/16-18	28	28	14
A-G-G-061212	3/8-19	3/4-16	32	31	19
A-G-G-081212	1/2-14	3/4-16	34	38	22
A-G-G-121717	3/4-14	1.1/16-12	42	40	27

B-B-B

BSP MALE X BSP MALE X BSP MALE
BSP 60° CONE MALE X BSP 60° CONE MALE X BSP
60° CONE MALE TEE

- ISO 8434-6

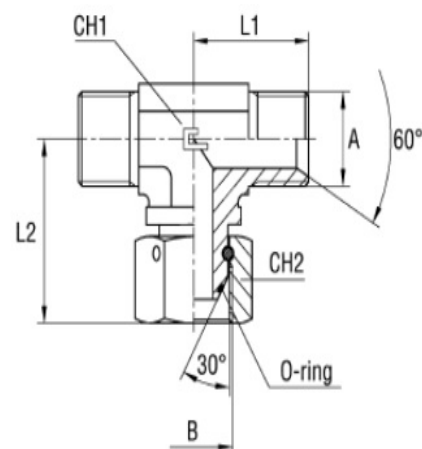


Part Number	A	L1	CH1
B-B-B-040404	1/4-19	26	14
B-B-B-060606	3/8-19		
B-B-B-080808	1/2-14		

B-B-C

BSP MALE X BSP MALE X BSP FEMALE
BSP 60° CONE MALE X BSP 60° CONE MALE X BSP
60° CONE FEMALE SWIVEL NUT BRANCH TEE

- ISO 8434-6

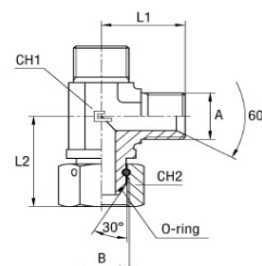


Part Number	A	B	L1	L2	CH1	CH2
B-B-C-040404	1/4-19	1/4-19	26	33	14	19
B-B-C-060606	3/8-19	3/8-19	29	37	19	22
B-B-C-080808	1/2-14	1/2-14	34	43	22	27
B-B-C-121212	3/4-14	3/4-14	41	54	27	32
B-B-C-202020	1.1/4-11	1.1/4-11	57	64	41	50

B-C-B

BSP MALE X BSP FEMALE X BSP MALE
BSP 60° CONE MALE X BSP 60° CONE FEMALE
SWIVEL NUT X BSP 60° CONE MALE RUN TEE

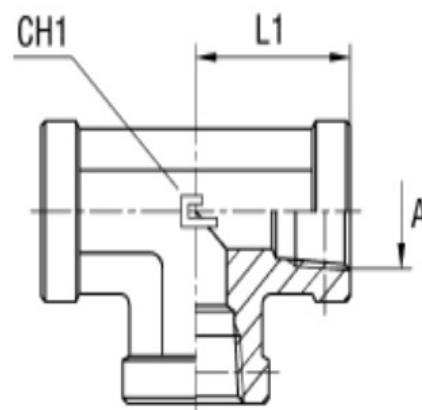
- ISO 8434-6



Part Number	A	B	L1	L2	CH1	CH2
B-C-B-040404	1/4-19	1/4-19	26	33	14	19
B-C-B-060606	3/8-19	3/8-19	29	37	19	22
B-C-B-080808	1/2-14	1/2-14	34	43	22	27
B-C-B-121212	3/4-14	3/4-14	41	54	27	32
B-C-B-161616	1-11	1-11	45	61	33	41
B-C-B-202020	1.1/4-11	1.1/4-11	57	64	41	50
B-C-B-242424	1.1/2-11	1.1/2-11	59	73	48	55

E-E-E

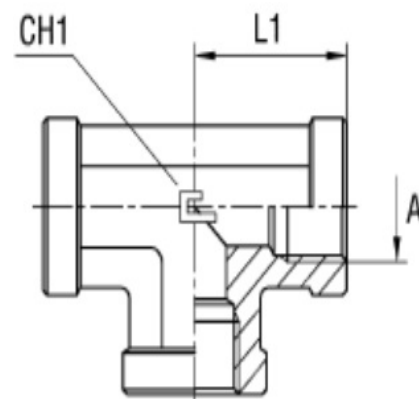
BSPT FEMALE X BSPT FEMALE X BSPT FEMALE
BSPT FIXED FEMALE X BSPT FIXED FEMALE X BSPT
FIXED FEMALE TEE



Part Number	A	L1	CH1
E-E-E-020202	1/8-28	17	14
E-E-E-040404	1/4-19	23	23
E-E-E-060606	3/8-19	25	27
E-E-E-080808	1/2-14	29	33
E-E-E-121212	3/4-14	34	39
E-E-E-161616	1-11	38	47
E-E-E-202020	1.1/4-11	45	53
E-E-E-242424	1.1/2-11	51	63

F-F-F

BSP FEMALE X BSP FEMALE X BSP FEMALE
BSP FIXED FEMALE X BSP FIXED FEMALE X BSP
FIXED FEMALE TEE

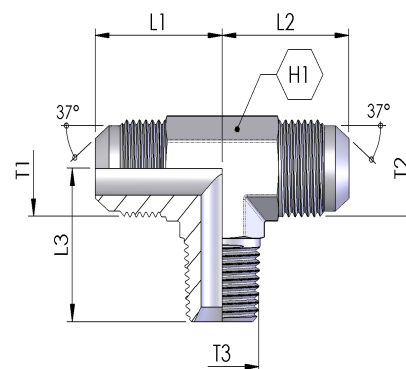


Part Number	A	L1	CH1
F-F-F-020202	1/8-28	17	14
F-F-F-040404	1/4-19	23	19
F-F-F-060606	3/8-19	26	22
F-F-F-080808	1/2-14	31	27
F-F-F-121212	3/4-14	35	33
F-F-F-161616	1-11	41	41
F-F-F-202020	1.1/4-11	43	48

G-G-A

JIC MALE X JIC MALE X BSPT MALE

JIC 37° FLARE MALE X JIC 37° FLARE MALE X BSPT
MALE BRANCH TEE



Part Number	Short Code	T1	T2	T3	H1	L1	L2	L3	PN (bar)
G-G-A-070702	CDK	7/16-20	7/16-20	1/8-28	12	23	23	20	345
G-G-A-070704	CDL	7/16-20	7/16-20	1/4-19	14	27	27	27	275
G-G-A-090906	CDN	9/16-18	9/16-18	3/8-19	19	29	29	31	210
G-G-A-121206	CDO	3/4-16	3/4-16	3/8-19	19	32	32	31	210
G-G-A-121208	CDP	3/4-16	3/4-16	1/2-14	22	34	34	35	210
G-G-A-141408	CDR	7/8-14	7/8-14	1/2-14	22	36	36	35	210
G-G-A-171712	CDT	1.1/16-12	1.1/16-12	3/4-14	27	42	42	40	170
G-G-A-212116	CDU	1.5/16-12	1.5/16-12	1-11	35	46	46	47	140

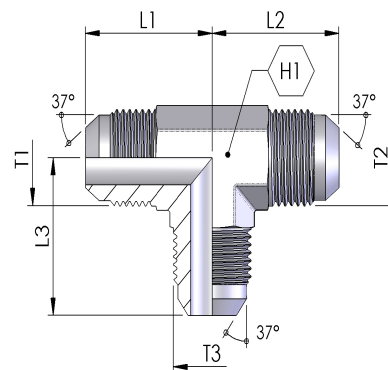
G-G-G

JIC MALE X JIC MALE X JIC MALE

JIC 37° FLARE MALE X JIC 37° FLARE MALE X JIC

37° FLARE MALE

- ISO 8434-2

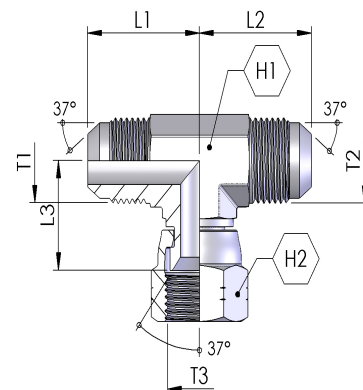


Part Number	Short Code	T1	T2	T3	H1	L1	L2	L3	PN (bar)
G-G-G-070707		7/16-20	7/16-20	7/16-20	11	23			
G-G-G-080808		1/2-20	1/2-20	1/2-20	14	24			
G-G-G-090909	CEJ	9/16-18	9/16-18	9/16-18	14	27	27	27	350
G-G-G-121212	CEK	3/4-16	3/4-16	3/4-16	19	32	32	32	310
G-G-G-141414	CEO	7/8-14	7/8-14	7/8-14	22	36	36	36	240
G-G-G-141417		7/8-14	7/8-14	1.1/16-12					
G-G-G-171717	CEQ	1.1/16-12	1.1/16-12	1.1/16-12	27	42	42	42	240
G-G-G-191919		1.3/16-12	1.3/16-12	1.3/16-12	32	46			
G-G-G-212117		1.5/16-12	1.5/16-12	1.1/16-12					
G-G-G-212121		1.5/16-12	1.5/16-12	1.5/16-12	33	46			
G-G-G-262626		1.5/8-12	1.5/8-12	1.5/8-12	41	53			
G-G-G-303030		1.7/8-12	1.7/8-12	1.7/8-12	48	59			

G-G-J

JIC MALE X JIC MALE X JIC FEMALE
JIC 37° FLARE MALE X JIC 37° FLARE MALE X JIC
37° FLARE FEMALE SWIVEL NUT BRANCH TEE

- ISO 8434-2

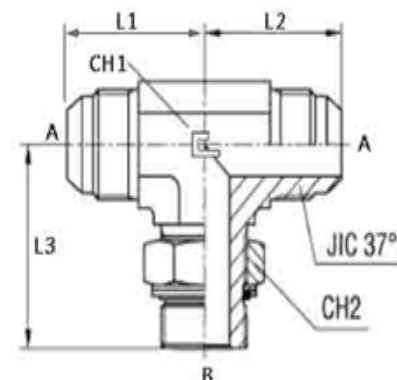


Part Number	Short Code	T1	T2	T3	H1	H2	L1	L2	L3
G-G-J-070707	CFH	7/16-20	7/16-20	7/16-20	12	14	23	23	17
G-G-J-080808		1/2-20	1/2-20	1/2-20					
G-G-J-090909	CFJ	9/16-18	9/16-18	9/16-18	14	19	27	27	22
G-G-J-121212	CFK	3/4-16	3/4-16	3/4-16	19	22	32	32	24
G-G-J-141414	CFL	7/8-14	7/8-14	7/8-14	22	27	36	36	28
G-G-J-171717	CFM	1.1/16-12	1.1/16-12	1.1/16-12	27	32	42	42	30
G-G-J-212121	CFO	1.5/16-12	1.5/16-12	1.5/16-12	35	41	46	46	36
G-G-J-262626	CFP	1.5/16-12	1.5/16-12	1.5/16-12	41	50	53	53	43
G-G-J-303030		1.7/8-12	1.7/8-12	1.7/8-12					

G-G-BP

JIC MALE X JIC MALE X BSP ADJUSTABLE
JIC 37° FLARE MALE X JIC 37° FLARE MALE X BSP
ADJUSTABLE STUD BRANCH TEE

- ISO 8434-2

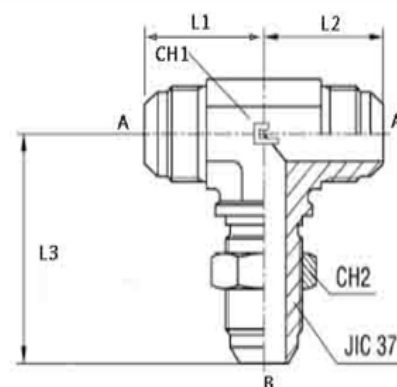


Part Number	A	B	L1	L2	CH1	CH2
G-G-BP-070702	7/16-20	1/8-28	23	26	11	14
G-G-BP-090904	9/16-18	1/4-19	27.5	32	14	19
G-G-BP-121206	3/4-16	3/8-19	32	37	19	22
G-G-BP-121208	3/4-16	1/2-14	34	43	22	27
G-G-BP-171712	1.1/16-12	3/4-14	42	49	27	36
G-G-BP-212116	1.5/16-12	1-11	46	52	33	41

G-G-GK

JIC MALE X JIC MALE X JIC BULKHEAD
JIC 37° FLARE MALE X JIC 37° FLARE MALE X JIC
37° FLARE BULKHEAD BRANCH TEE

- ISO 8434-2

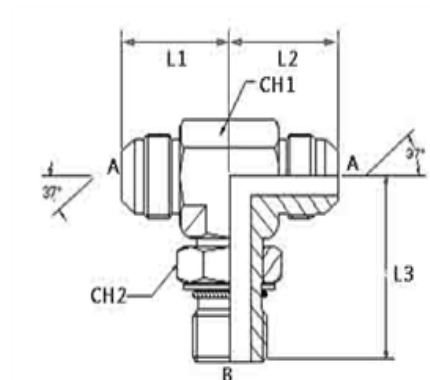


Part Number	A	L1	L2	L3	CH1	CH2
G-G-GK-090909	9/16-18	28	46	30	16	21
G-G-GK-121212	3/4-16	35	54	35	21	25
G-G-GK-171717	1.1/16-12	45	68	43	29	35

G-G-NP

JIC MALE X JIC MALE X UNO ADJUSTABLE
JIC 37° FLARE MALE X JIC 37° FLARE MALE X UNO
ADJUSTABLE STUD BRANCH TEE

- ISO 8434-2

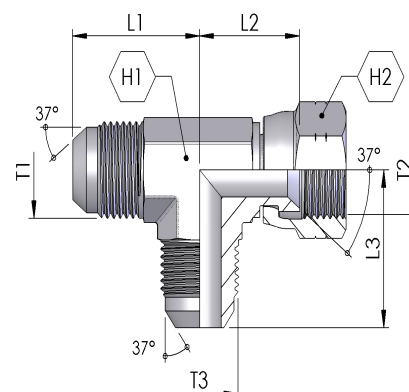


Part Number	A	B	L1	L2	CH1	CH2
G-G-NP-070707	7/16-20	7/16-20	23	26	11	14
G-G-NP-090909	9/16-18	9/16-18	27	32	14	18
G-G-NP-121212	3/4-16	3/4-16	32	37	19	22
G-G-NP-141414	7/8-14	7/8-14	37	43	22	25
G-G-NP-171717	1.1/16-12	1.1/16-12	42	49	27	32
G-G-NP-212121	1.5/16-12	1.5/16-12	46	52	33	38

G-J-G

JIC MALE X JIC FEMALE X JIC MALE
JIC 37° FLARE MALE X JIC 37° FLARE FEMALE
SWIVEL NUT X JIC 37° FLARE MALE RUN TEE

- ISO 8434-2

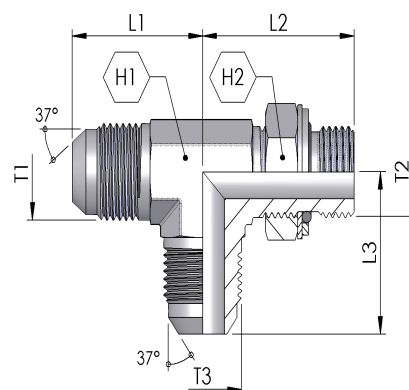


Part Number	Short Code	T1	T2	T3	H1	H2	L1	L2	L3
G-J-G-070707	CKR	7/16-20	7/16-20	7/16-20	12	14	23	17	23
G-J-G-080808		1/2-20	1/2-20	1/2-20					
G-J-G-090909	CKU	9/16-18	9/16-18	9/16-18	14	19	27	22	27
G-J-G-121212	CKV	3/4-16	3/4-16	3/4-16	19	22	32	24	32
G-J-G-141414	CKX	7/8-14	7/8-14	7/8-14	22	27	36	28	36
G-J-G-171717	CKY	1.1/16-12	1.1/16-12	1.1/16-12	27	32	42	30	42
G-J-G-191919		1.3/16-12	1.3/16-12	1.3/16-12					
G-J-G-212121	CLC	1.5/16-12	1.5/16-12	1.5/16-12	35	41	46	36	46
G-J-G-262626		1.5/8-12	1.5/8-12	1.5/8-12					
G-J-G-303030		1.7/8-12	1.7/8-12	1.7/8-12					

G-BP-G

JIC MALE X BSP ADJUSTABLE X JIC MALE
 JIC 37° FLARE MALE X BSP ADJUSTABLE STUD X
 JIC 37° FLARE MALE RUN TEE

- ISO 8434-2

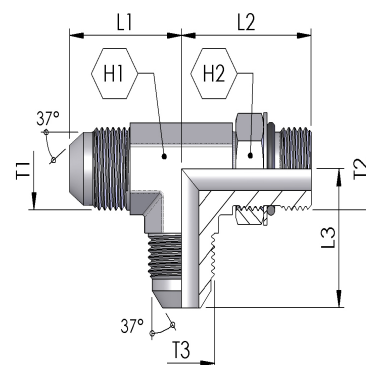


Part Number	A	T1	T2	T3	H1	H2	L1	L2	L3
G-BP-G-090409	CAK	9/16-18	1/4-19	9/16-18	14	19	26	32	26
G-BP-G-120612	CAM	3/4-16	3/8-19	3/4-16	19	22	31	37	31
G-BP-G-120812	CAN	3/4-16	1/2-14	3/4-16	22	27	34	43	34
G-BP-G-140814	CAO	7/8-14	1/2-14	7/8-14	22	27	37	43	37
G-BP-G-171217	CAP	1.1/16-12	3/4-14	1.1/16-12	27	36	42	50	42
G-BP-G-211621	CAQ	1.5/16-12	1-11	1.5/16-12	36	41	46	55	46
G-BP-G-262026		1.5/8-12	1.1/4-11	1.5/8-12	41	50	53		58

G-NP-G

JIC MALE X UNO ADJUSTABLE X JIC MALE
JIC 37° FLARE MALE X UNO ADJUSTABLE STUD X
JIC 37° FLARE MALE RUN TEE

- ISO 8434-2

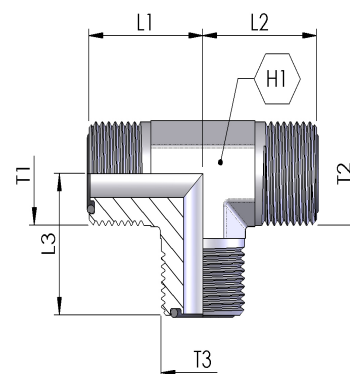


Part Number	T1	T2	L1 (mm)	L2 (mm)	L3 (mm)	H1 (mm)	H2 (mm)
G-NP-G-070707	7/16-20	7/16-12	22.6	26.2	22.6	11	14
G-NP-G-090909	9/16-18	9/16-18	26.9	31.7	26.9	14	18
G-NP-G-121212	3/4-16	3/4-16	31.7	36.9	31.7	19	22
G-NP-G-141414	7/8-14	7/8-14	36.9	43.2	36.9	22	25
G-NP-G-171717	1.1/16-12	1.1/16-12	42.2	45.2	42.2	27	32

R-R-R

ORFS MALE X ORFS MALE X ORFS MALE
ORFS MALE X ORFS MALE X ORFS MALE TEE

- ISO 8434-3

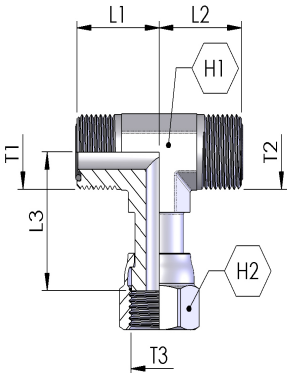


Part Number	T1/T2/T3	L1/L2/L3 (mm)	H1 (mm)
R-R-R-090909	9/16-18	22	14
R-R-R-111111	11/16-16	25	19
R-R-R-131313	13/16-16	28	19
R-R-R-161616	1-14	33	27
R-R-R-191919	1.3/16-12	38	30
R-R-R-232323	1.7/16-12	42	36

R-R-T

ORFS MALE X ORFS MALE X ORFS FEMALE
ORFS MALE X ORFS MALE X ORFS FEMALE SWIVEL
NUT BRANCH TEE

- ISO 8434-3

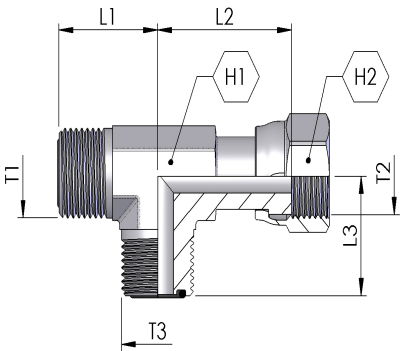


Part Number	T1/T2	T3	L1/L2 (mm)	L3 (mm)	H1 (mm)	H2 (mm)
R-R-T-090909	9/16-18	9/16-18	22	27	14	17
R-R-T-111111	11/16-16	11/16-16	25	29	19	22
R-R-T-131313	13/16-16	13/16-16	28	38	19	24
R-R-T-161616	1-14	1-14	34	41	27	30
R-R-T-191919	1.3/16-12	1.3/16-12	38	47	30	36
R-R-T-232323	1.7/16-12	1.7/16-12	42	54	36	41
R-R-T-272727	1.11/16-12	1.11/16-12	45	58	41	50

R-T-R

ORFS MALE X ORFS FEMALE X ORFS MALE
ORFS MALE X ORFS FEMALE SWIVEL NUT X ORFS
MALE RUN TEE

- ISO 8434-3

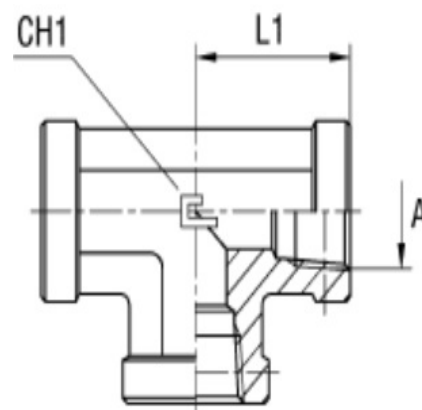


Part Number	T1	T2	T3	L1	L2	L3	H1	H2	H3
R-T-R-090909	9/16-18	9/16-18	9/16-18	22	27	14	14	17	
R-T-R-111111	11/16-16	11/16-16	11/16-16	25	29	19	19	22	
R-T-R-131313	13/16-16	13/16-16	13/16-16	28	38	19	19	24	
R-T-R-161616	1-14	1-14	1-14	34	41	27	27	30	
R-T-R-191919	1.3/16-12	1.3/16-12	1.3/16-12	38	47	30	30	36	
R-T-R-232323	1.7/16-12	1.7/16-12	1.7/16-12	42	54	36	36	41	
R-T-R-272727	1.11/16-12	1.11/16-12	1.11/16-12	45	58	41	41	50	

AC-AC-AC

NPTF FEMALE X NPTF FEMALE X NPTF FEMALE
NPTF FIXED FEMALE X NPTF FIXED FEMALE X NPTF
FIXED FEMALE TEE

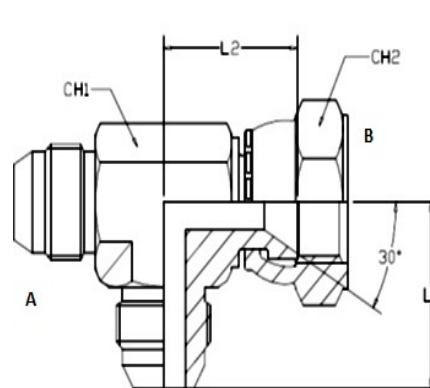
- SAE J514



Part Number	A	L1	CH1
AC-AC-AC-020202	1/8-27	16.76	16
AC-AC-AC-040404	1/4-18	22.35	19
AC-AC-AC-060606	3/8-18	25.91	22
AC-AC-AC-080808	1/2-14	31.24	29
AC-AC-AC-121212	3/4-14	34.54	35

AX-UX-AX

JIS BSP MALE X JIS BSP FEMALE X JIS BSP MALE
JIS BSP 30° FLARE MALE X JIS BSP 30° FLARE
FEMALE SWIVEL NUT X JIS BSP 30° FLARE MALE
RUN TEE



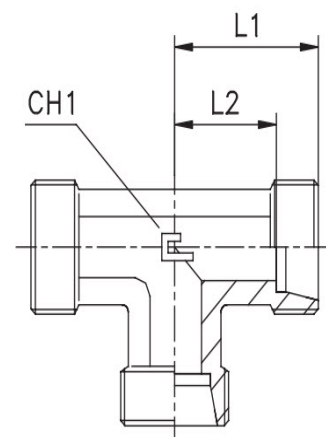
Part Number	A	B	L1	L2	CH1	CH2
AX-UX-AX-040404	1/4-19	1/4-19				
AX-UX-AX-060606	3/8-19	3/8-19	29	20	19	22
AX-UX-AX-080808	1/2-14	1/2-14				

ML-ML-ML

MET LIGHT MALE TEE

METRIC 24° CONE LIGHT MALE TEE

- ISO 8434-1



Part Number	Metric Male Thread	suits tube	L1 - mm	L2 - mm	Hex A/F (CH1)	PN (bar)
ML-ML-ML-121212	M12-1.5	6	19	12	12	315
ML-ML-ML-141414	M14-1.5	8	21	14	12	315
ML-ML-ML-161616	M16-1.5	10	22	15	14	315
ML-ML-ML-181818	M18-1.5	12	24	17	17	315
ML-ML-ML-222222	M22-1.5	15	28	21	19	315
ML-ML-ML-262626	M26-1.5	18	31	24	24	315
ML-ML-ML-303030	M30-2	22	35	28	27	160
ML-ML-ML-363636	M36-2	28	38	31	36	160
ML-ML-ML-454545	M45-2	35	45	35	41	160
ML-ML-ML-525252	M52-2	42	51	40	50	160

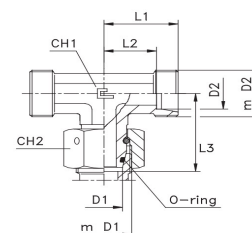
ML-ML-UL

MET LIGHT MALE X MET LIGHT F/M

METRIC 24° CONE LIGHT MALE X METRIC 24°

CONE LIGHT FEMALE SWIVEL NUT BRANCH TEE

- ISO 8434-1



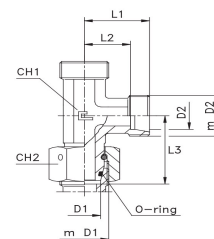
Part Number	Metric Male Thread	Metric Female Thread	suits tube	L1 - mm	L2 - mm	L3 - mm	Hex A/F (CH1)	PN (bar)
ML-ML-UL-121212	M12-1.5	M12-1.5	6	19	12	26	12	315
ML-ML-UL-141414	M14-1.5	M14-1.5	8	21	14	28	12	315
ML-ML-UL-161616	M16-1.5	M16-1.5	10	22	15	29	14	315
ML-ML-UL-181818	M18-1.5	M18-1.5	12	24	17	30	17	315
ML-ML-UL-222222	M22-1.5	M22-1.5	15	28	21	33	19	315
ML-ML-UL-262626	M26-1.5	M26-1.5	18	31	24	36	24	315
ML-ML-UL-303030	M30-2	M30-2	22	35	28	39	27	160

ML-UL-ML

MET LIGHT MALE X MET LIGHT F/M

METRIC 24° CONE LIGHT MALE X METRIC 24°

CONE LIGHT FEMALE SWIVEL NUT RUN TEE

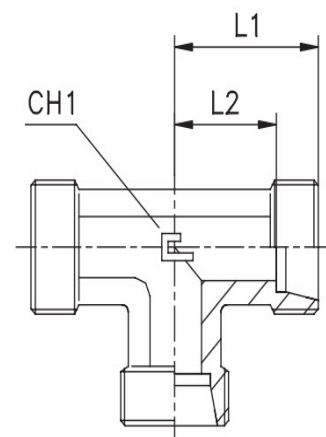


Part Number	Metric Male Thread - D2	Metric Female Thread - D1	suits tube	L1 - mm	L2 - mm	L3 - mm	Hex A/F (CH1)	Hex A/F (CH2)	NP (bar)
ML-UL-ML-121212	M12-1.5	M12-1.5	6	19	12	26	12	14	315
ML-UL-ML-141414	M14-1.5	M14-1.5	8	21	14	28	12	17	315
ML-UL-ML-161616	M16-1.5	M16-1.5	10	22	15	29	14	19	315
ML-UL-ML-181818	M18-1.5	M18-1.5	12	24	17	30	17	22	315
ML-UL-ML-222222	M22-1.5	M22-1.5	15	28	21	33	19	27	315
ML-UL-ML-262626	M26-1.5	M26-1.5	18	31	24	36	24	32	315
ML-UL-ML-303030	M30-2	M30-2	22	35	28	39	27	36	160
ML-UL-ML-363636	M36-2	M36-2	28	38	31	42	36	41	160

MS-MS-MS

MET HEAVY MALE TEE

METRIC 24° CONE HEAVY MALE TEE



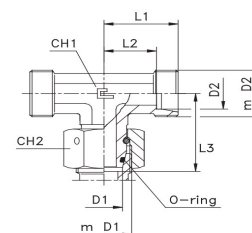
Part Number	Metric Male Thread	suits tube	L1 - mm	L2 - mm	L3 - mm	Hex A/F (CH1)	Working Pressure (bar)
MS-MS-MS-141414	M14-1.5	6	23	16	31	12	630
MS-MS-MS-161616	M16-1.5	8	24	17	32	14	630
MS-MS-MS-181818	M18-1.5	10	25	18	34	17	630
MS-MS-MS-202020	M20-1.5	12	29	22	38	17	630
MS-MS-MS-222222	M22-1.5	14	30	22	40	19	630
MS-MS-MS-242424	M24-1.5	16	33	25	43	24	400
MS-MS-MS-303030	M30-2	20	37	27	48	27	400
MS-MS-MS-363636	M36-2	25	42	30	54	36	400
MS-MS-MS-424242	M42-2	30	49	36	62	41	400
MS-MS-MS-525252	M52-2	38	57	41	72	50	315

MS-MS-US

MET HEAVY MALE X MET HEAVY F/M

METRIC 24° CONE HEAVY MALE X METRIC 24°

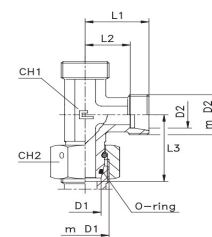
CONE HEAVY FEMALE SWIVEL NUT BRANCH TEE



Part Number	Metric Male Thread	Metric Female Thread	suits tube	L1 - mm	L2 - mm	L3 - mm	Hex A/F (CH1)	PN (bar)
MS-MS-US-141414	M14-1.5	M14-1.5	6	23	16	27	12	315
MS-MS-US-161616	M16-1.5	M16-1.5	8	24	17	28	14	315
MS-MS-US-181818	M18-1.5	M18-1.5	10	25	18	30	17	315
MS-MS-US-202020	M20-1.5	M20-1.5	12	29	22	31	17	315
MS-MS-US-222222	M22-1.5	M22-1.5	14	30	22	35	19	315
MS-MS-US-242424	M24-1.5	M24-1.5	16	33	25	37	24	315
MS-MS-US-303030	M30-2	M30-2	20	37	27	45	27	160
MS-MS-US-363636	M36-2	M36-2	25	42	30	50	36	160
MS-MS-US-424242	M42-2	M42-2	30	49	36	56	41	160
MS-MS-US-525252	M52-2	M52-2	38	57	41	63	50	160

MS-US-MS

MET HEAVY MALE X MET HEAVY F/M
METRIC 24° CONE HEAVY MALE X METRIC 24°
CONE HEAVY FEMALE SWIVEL NUT RUN TEE



Part Number	Metric Male Thread	Metric Female Thread	suits tube	L1 - mm	L2 - mm	L3 - mm	Hex A/F (CH1)	Hex A/F (CH2)	PN (bar)
MS-US-MS-181818	M18-1.5	M18-1.5	10	25	18	31	17	22	315
MS-US-MS-202020	M20-1.5	M20-1.5	12	29	22	31	17	24	315
MS-US-MS-222222	M22-1.5	M22-1.5	14	30	22	35	19	27	315
MS-US-MS-242424	M24-1.5	M24-1.5	16	33	25	37	24	30	315
MS-US-MS-303030	M30-2	M30-2	20	37	27	45	27	36	160
MS-US-MS-363636	M36-2	M36-2	25	42	30	50	36	46	160
MS-US-MS-424242	M42-2	M42-2	30	49	36	56	41	50	160
MS-US-MS-525252	M52-2	M52-2	38	57	41	63	50	60	160