

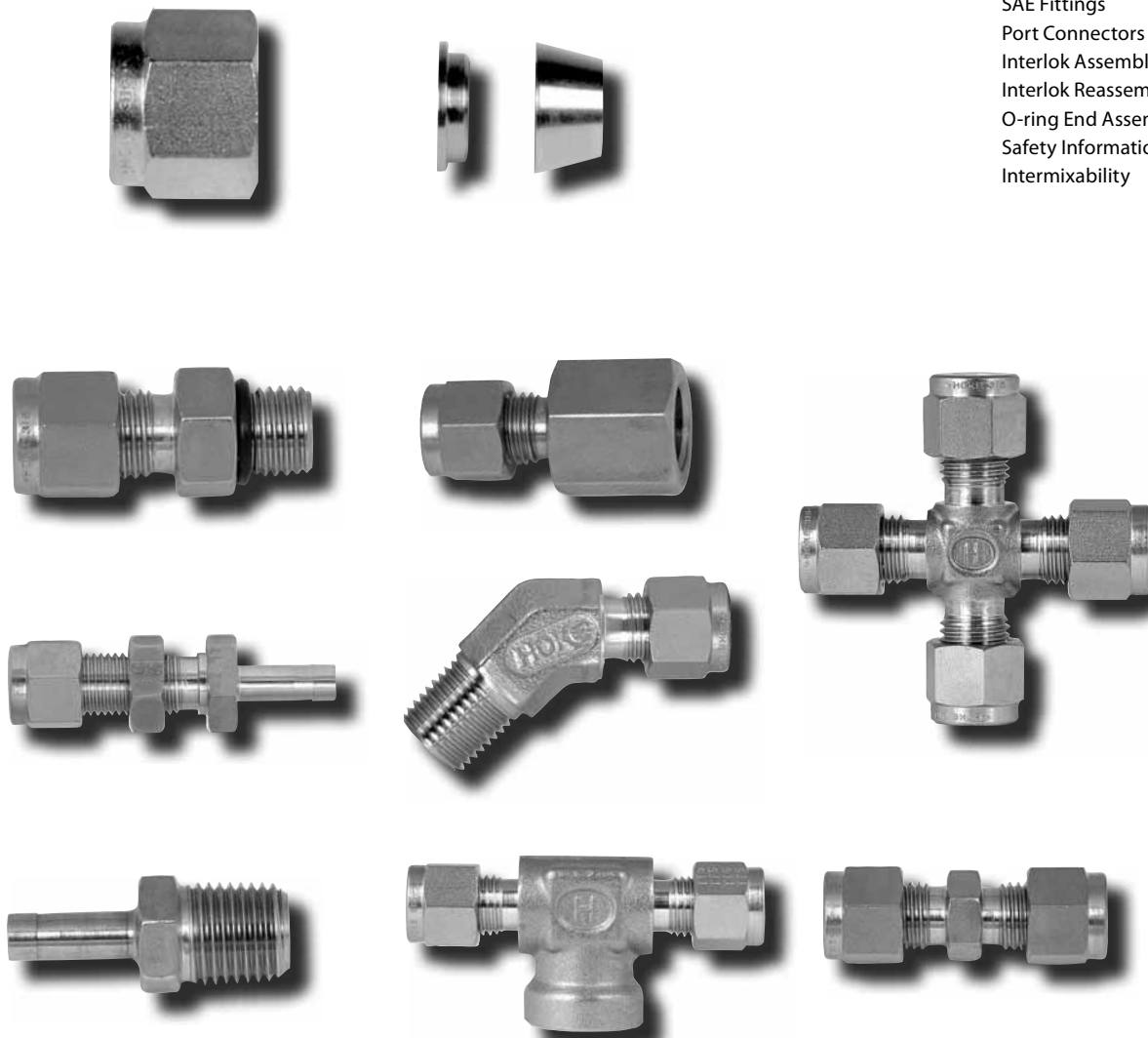


Interlok® Tube Fittings

Interlok Fitting Locator	2
Interlok Features & Benefits	4
Interlok Fitting Overview	5
How to Order	6
Pipe Thread Information	7
SAE Fittings Information	7
Interlok Fitting Dimensional & Application Tables	8
Replacement Parts	28
Dielectric Fittings	32
Tools and Accessories	33

Installation Instructions

SAE Fittings	7
Port Connectors	22
Interlok Assembly	34
Interlok Reassembly	34
O-ring End Assembly	35
Safety Information	36
Intermixability	36



interlok®



Fitting Locator

To connect tubing to a female thread, use:



CM Male Connector
fractional tube to
• NPT/RT threads
Page 8



BCM Bulkhead Connector, Male
fractional tube to
• NPT Thread
Page 8



CMS Male Connector, SAE
fractional tube to
• SAE/MS straight thread
Page 8



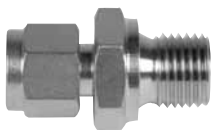
LCMS Long Male Connector, SAE
fractional tube to
• SAE/MS straight thread
Page 9



COS O-ring Straight Connector
fractional tube to
• O-ring straight thread
Page 9



COM O-ring Male Connector
fractional tube to
• Female pipe thread
Page 10



CM/EA, CM/EB Male Connector
fractional tube to
• RP/RS threads
Page 10



LM Male Elbow
fractional tube to
• NPT thread
• RT/RS/RP thread
Pages 10



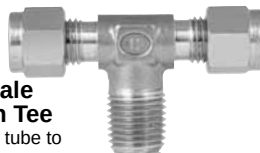
LMF 45° Male Elbow
fractional tube to
• NPT thread
Page 11



LMFS 45° Positionable Male Elbow
fractional tube to
• SAE/MS straight thread
Page 11



LMS Positionable Male Elbow
fractional tube to
• SAE/MS straight thread
Page 11



TTM Male Branch Tee
fractional tube to
• NPT thread
Page 12



TMT Male Run Tee
fractional tube to
• NPT thread
Page 12



TST Positionable Male Run Tee
fractional tube to
• SAE/MS straight thread
Page 12



TTS Positionable Male Branch Tee
fractional tube to
• SAE/MS straight thread
Page 13

To connect tubing to a male thread, use:



CF Female Connector
fractional tube to
• NPT thread
• RT/RG threads
Pages 13



BCF Bulkhead Connector, Female
fractional tube to
• NPT thread
Page 14



LF Female Elbow
fractional tube to
• NPT thread
• RT thread
Page 14



TFT Female Run Tee
fractional tube to
• NPT thread
Page 14



TTF Female Branch Tee
fractional tube to
• NPT thread
Page 15

To connect two or more tubes together, use:



U Union
fractional tube
Page 15



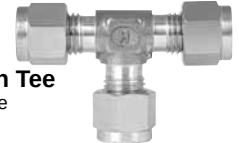
RU Reducing Union
fractional tube
Pages 15



BU Bulkhead Union
fractional tube
Page 15



LU Union Elbow
fractional tube
Page 16



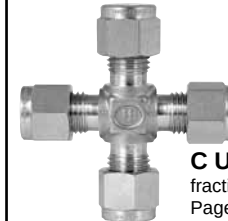
TTT Union Tee
fractional tube
Page 16



TTT_BR Reducing Run, Branch Tee
fractional tube
Page 16



TTTB Reducing, Branch Tee
fractional tube
Page 16



C Union Cross
fractional tube
Page 17

To connect tubing to a 37° flare, use:



UAN Union, AN
fractional tube to AN
• flared tube
Page 17



UANO Union, AN O-ring
fractional tube to O-ring AN
• flared tube
Page 17



BUAN Bulkhead Union, AN
fractional tube to AN
• flared tube
Page 18



AAN Adapter, AN
AN to Interlok port
• flared tube
Page 18

To connect tubing to a welded system, use:



CW Tube Socket Weld Connector
fractional tube
Page 18



LW Tube Socket Weld Elbow
fractional tube
Page 19



CBW Butt Weld Connector
fractional tube to pipe
Page 19



LBW Butt Weld Elbow
fractional tube to pipe
Page 19

To reduce fitting size, use:



R Reducer
fractional tube
Pages 20

To connect tube fittings together, use:



PC Port Connector
fractional tube
Page 21



PC Reducing Port Connector
fractional tube
Page 21

To cap a tube or plug a fitting, use:

CP Cap
fractional tube
Page 22



P Plug
fractional tube
Page 22



As spare parts, use:



FR & FF Rear and Front Ferrules
fractional tube
Page 27

N Nut
fractional tube
Page 27



KN Knurled Nut
fractional tube
Page 28



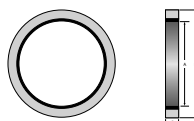
BN Bulkhead Nut
fractional tube
Page 27



SCNF Safety Changer Nut & Ferrule Sets
fractional
Page 28



SCF Safety Changer Ferrule Sets
fractional
Page 28



Hoke RS Bonded Gasket
RSG for use with DIN 3852.
• type A parallel thread
Page 28

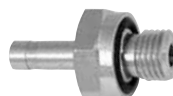
Tube Stub Adapters



AM/ Male Adapter
fractional tube stub to
• NPT thread
• RT thread
Page 24



AM/ EA Adapter
fractional tube stub to
• RS thread
Page 25



AOS O-ring Straight Adapter
fractional tube stub to
• female straight thread
Page 25

For specific applications, use:



CMT Male Thermocouple Connector
Page 22



XT Heat Exchanger Tee
Page 23



TI Tube Inserts
fractional
Page 29



PST Pre-setting Tool
Page 32



HPST Hydraulic Pre-set Tool
Page 33



AMS Adapter, SAE
fractional tube stub to
• SAE/MS straight thread
Page 25



BA Bulkhead Adapter
fractional tube to: tube stub
Page 20



AOM Male Adapter
fractional tube stub to
• female pipe thread
Page 25



AF Female Adapter
fractional tube stub to
• NPT thread
• RT, RG threads
Pages 26, 27



Calibration Fitting
Page 30



CLF Lapped Joint Flange Connector
fractional tube
Page 30



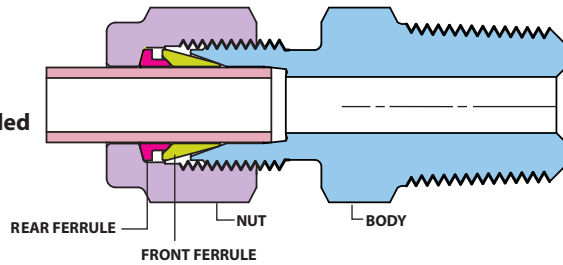
DU, DCM Dielectric Fittings
fractional tube
Page 31



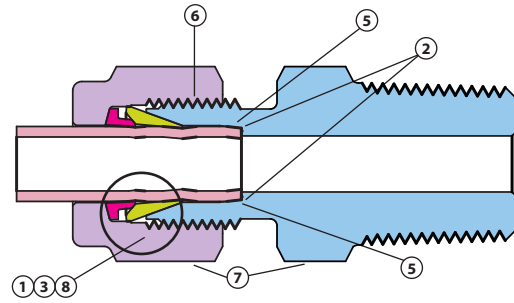
LD Leak Detective
Page 32

Interlok Features & Benefits

Hand Assembled



Hand Assembled



Fully Assembled Fitting & Tube

Fully Assembled Fitting & Tube

FEATURES	EXPLANATION	BENEFITS
1. COMPONENT INTERMIXABILITY	Interlok's wedge-based ferrule design allows HOKE to guarantee either interchangeability or even component-for-component intermixability with certain other brands of tube fittings, most notably Swagelok® and Parker A-Lok®.	Safety and peace of mind when converting to HOKE Interlok.
2. BUTT SEAL	Provides a secondary seal and eliminates dead space.	Maximizes fitting leak integrity and user safety. Can seal with scratched tubing. Increases accuracy in sampling applications. Reduces pump-down time in vacuum applications.
3. HOKE VALVES WITH INTEGRAL HOKE INTERLOK END FITTINGS	Eliminates a possible leak path and extends valve life.	Safety and economy.
4. INTERLOK SAFETY CHANGER NUT AND FERRULE SETS	Nut and ferrule sets supplied on rods, already correctly oriented. (Not necessary to handle ferrules when replacing components.)	Safest, simplest device for component replacement.
5. SIZING ANGLE	Slight taper in the base of the tube socket reduces possibility of tube sticking	Less tube sticking during disassembly saves time and money
6. SILVER-PLATED NUT THREADS	Silver-plating extends fitting life by preventing galling, up to 1200° F.	Extended product life at extreme temperatures.
7. MATERIAL TRACEABILITY ON FITTING BODY AND NUT	Bodies and nuts made of 316 Stainless Steel are heat code traceable to Certified Material Test Reports.	Traceability provides added safety. Certified Material Test Reports are available for review and verification.
8. STAINLESS STEEL FERRULE MANUFACTURE:	Front ferrules—no surface treatment in sizes 1" and under. Sizes larger than 1" are PFA coated. Rear ferrules—All sizes are surface treated.	Increased resistance to media and atmospheric corrosion.

The HOKE Interlok Fitting Overview

HOKE Interlok Tube Fittings have been carefully designed and manufactured to provide outstanding leak-tight integrity in a wide range of applications.

Materials

HOKE Interlok fittings are available in 316 Stainless Steel:

316 Stainless Steel: 316

316 Stainless Steel Forgings: ASTM A-182

316/316L/316H SS Barstock: ASTM A-479/SA479

Contact your local HOKE distributor for further information.

Certified Material Text Reports (CMTRs)

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

Pressure Rating

HOKE Interlok fitting ends are rated for working pressures higher than the tubing recommended for use with HOKE Interlok. Tubing should not be utilized at pressures above its maximum allowable working pressure. Check the HOKE Tubing Data Charts for specific information. If no pressure is identified for a given size and wall thickness of tubing, that tubing is not considered suitable for use with tube fittings. Pressure ratings may vary for the other fitting ends, such as NPT or O-Ring Seal. Contact your local distributor, or HOKE directly, for more information.

PFA Coating

Stainless steel front ferrules larger than 1" are PFA coated.

Vacuum Rating

HOKE Interlok offers deep vacuum capability. With good quality tubing, HOKE Interlok fittings will be leak-tight at vacuum levels of 10^{-9} torr while tested with a leakage sensitivity of 10^{-9} sccs.

Temperature

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

316 Stainless Steel: -325° F to +800° F
(-200° C to +426° C)*

Stainless steel front ferrules larger than 1" are PFA coated. Over 1" fitting applications above 450° F (232° C) require silver-plated front ferrules. To order extended temperature fittings in this size range, add -HT to the basic part number.

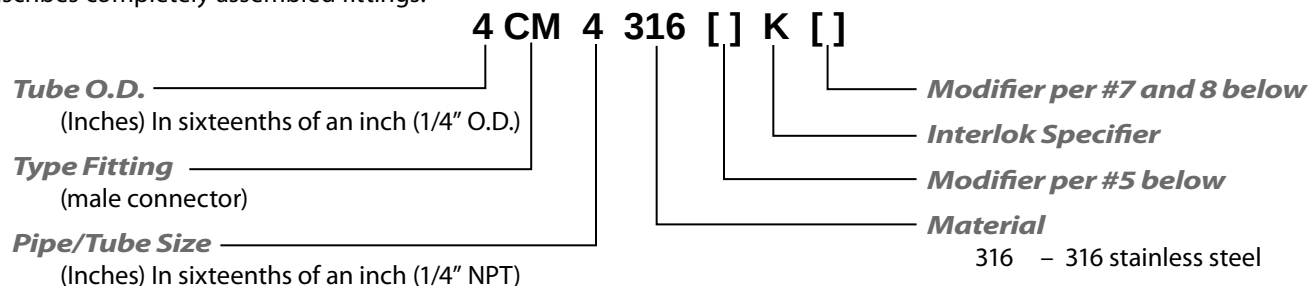
* CAUTION: (for Stainless Steel):

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

General Information

How to Order

The HOKE Interlok numbering system is a completely descriptive system that's easy to understand. Each part number describes completely assembled fittings.



1. The first number (4) identifies the tube O.D. size in 1/16" increments. For example, 4 = 4/16" for fractional fittings.
2. The letter group, (CM) identifies the type of fitting (Male Connector). See fitting locator, pages 2 and 3.
3. The third group, a number (4), is only necessary if the second tube connection size is different from the first tube O.D. size. For pipe sizes, a number is always required.
4. Material is identified in the fourth group.
5. With the exception of reducing branch tees, the fifth group, if present, contains two letter codes. The first letter designates the unit of measure for the first number in the part number—i.e, E for fractional. The second letter indicates the thread type, for the second number in the part number when it is other than NPT or SAE. As noted within this catalog, this position may also specify O-Ring material where applicable.

Examples:

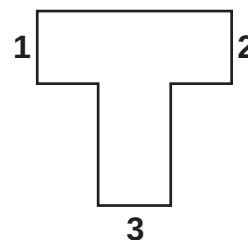
4CM4 316K = 1/4 tube x 1/4 NPT male connector, 316 stainless steel

8LM4 316 ECK = 1/2 tube x 1/4 male RT, male elbow, 316 stainless steel

Unit of measure/end connector codes:

A = RS male ends	E = fractional unit of measure in 1/16 th of an inch
B = RP male ends	X = RS/RP female ends
C = RT ends	Z = RG female ends

6. Tee part numbering: TEES are described by first the run (1 and 2) and next the branch (3), for example:
TTM describes a tee that has tube connections at 1 and 2 and a male pipe thread at position 3.
TFT describes a tee that has tube connections at 1 and 3 and a female pipe thread at position 2.



7. Fittings cleaned for oxygen service: To order, add HPS 18 to the basic fitting part number.
Example: 4CM4 316K HPS 18
8. Fittings cleaned for nuclear service: To order, add HPS 90 to the end of basic fitting part number.
Example: 4CM4 316K HPS 90

Thread Connections Available with Interlok Fittings

Pipe Thread Information

HOKE Interlok tube fittings are available with NPT (National Pipe Taper), BSP/ISO (British Standard Pipe/International Standards Organization), SAE or unified screw threads.

Tapered Threads

Specifications	Type	Part Number or Suffix Designation	Sealing Method
NPT	M/F	Fitting type ends in M or F, as in CM or CF	Seal is made on the thread. Thread sealant is required.
RT to ISO 7/1 • BS 21 • JIS B0203 • DIN 2999	M/F	Modifier is C, following the unit of measure for fractional (E), as in 6CM4316ECK	Seal is made on the thread. Thread sealant is required. The BSP/ISO thread utilizes a different angle and the number of threads per inch may differ from NPT. Reference DIN 3852, Form C.
	M/F		
	M/F		
	Male		

FOR YOUR SAFETY

IT IS SOLELY THE RESPONSIBILITY OF THE SYSTEM DESIGNER AND USER TO SELECT PRODUCTS SUITABLE FOR THEIR SPECIFIC APPLICATION REQUIREMENTS AND TO ENSURE PROPER INSTALLATION, OPERATION AND MAINTENANCE OF THESE PRODUCTS. MATERIAL COMPATIBILITY, PRODUCT RATINGS AND APPLICATION DETAILS SHOULD BE CONSIDERED IN THE SELECTION. IMPROPER SELECTION OR USE OF PRODUCTS DESCRIBED HEREIN CAN CAUSE PERSONAL INJURY OR PROPERTY DAMAGE.

Straight and Parallel Threads

Specifications	Type	Part Number or Suffix Designation	Sealing Method
American Standard unified screw threads	Male	Fitting type ends in S, as in COS or AOS.	Generally utilizes an elastomer o-ring to provide sealing. ¹
RP to ISO 228/1 • BS 2779 • JIS B0202	Male	Modifier is B, following the unit of measure for fractional (E), as in 6CM4316EBK	Metal to metal sealing to DIN 3852, Form B.
RS to ISO 228/1 • BS 2779 • JIS B0202	Male	Modifier is A, following the unit of measure for fractional (E), as in 6CM4316EAK	Utilizes a sealing washer to provide sealing. ² Reference DIN 3852, Form A.
RG to ISO 228/1 • BS 2779 • JIS B0202	Female	Modifier is Z, following the unit of measure for fraction (E), as in 6CM4316EZK	Sealing form meets DIN 16288, Form Z.

1 See page 34 for installation instructions.

2 See page 28 for RS Bonded Gaskets.

HOKE Interlok Fittings with SAE Ends

SAE Straight Thread O-Ring Seal Fittings

HOKE Interlok's SAE Straight Thread O-Ring Seal Fittings are designed and manufactured to SAE standards defined below for use in many different applications including hydraulics and natural gas vehicles.

Fittings available include: Tube to SAE straight connectors, positionable SAE elbows and tees, and SAE reducers.

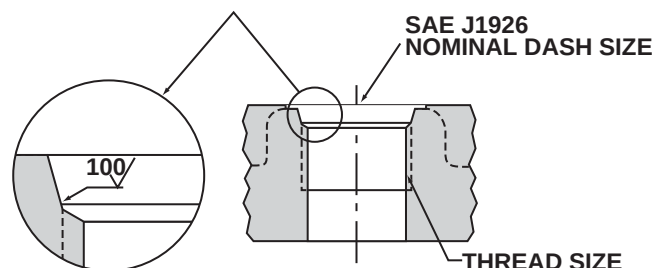
SAE Specifications

HOKE's SAE Straight Thread O-Ring Seal Fittings are designed and manufactured to meet SAE Standards as follows:

- Male or External Fitting End Dimensions: SAE J514
- Straight Threads: SAE J475 (equivalent to ANSI B1.1 or ISO R725)
- Female or Internal Straight Thread Boss: SAE J1926 (see diagram below)

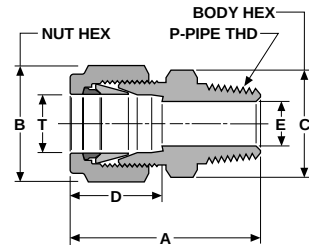
Thread and O-ring Sizes

Nominal Tube O.D.	Port Size	Thread Size	O-ring Size #
1/8	2	5/16 - 24	902
1/4	4	7/16 - 20	904
3/8	6	9/16 - 18	906
1/2	8	3/4 - 16	908
5/8	10	7/8 - 14	910
3/4	12	1 1/16 - 12	912
1	16	1 5/16 - 12	916



Male Connector: CM, CM/EC

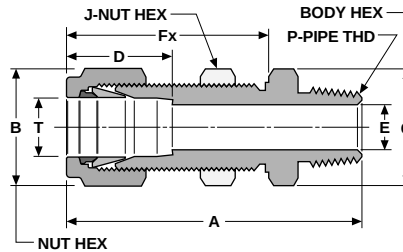
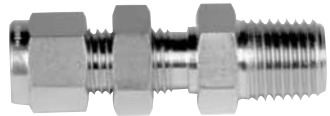
connects **fractional** tube to female NPT or RT thread



Part Number		T	P	A	B	C	D	E
NPT Threads	RT Threads	Tube O.D.	Male Pipe Thread		Hex Flat	Hex Flat		(min.)
1CM1{ }K		1/16	1/16	0.97	5/16	5/16	0.41	0.05
1CM2{ }K		1/16	1/8	1.11	5/16	7/16	0.41	0.05
1CM4{ }K		1/16	1/4	1.30	5/16	9/16	0.41	0.05
2CM1{ }K		1/8	1/16	1.13	7/16	7/16	0.50	0.09
2CM2{ }K	2CM2{ }ECK	1/8	1/8	1.23	7/16	7/16	0.50	0.09
2CM4{ }K	2CM4{ }ECK	1/8	1/4	1.42	7/16	9/16	0.50	0.09
4CM1{ }K		1/4	1/16	1.31	9/16	1/2	0.60	0.09
4CM2{ }K	4CM2{ }ECK	1/4	1/8	1.34	9/16	1/2	0.60	0.19
4CM4{ }K	4CM4{ }ECK	1/4	1/4	1.53	9/16	9/16	0.60	0.19
4CM6{ }K	4CM6{ }ECK	1/4	3/8	1.56	9/16	11/16	0.60	0.19
4CM8{ }K	4CM8{ }ECK	1/4	1/2	1.75	9/16	7/8	0.60	0.19
4CM12{ }K		1/4	3/4	1.78	9/16	1 1/16	0.60	0.19
6CM2{ }K	6CM2{ }ECK	3/8	1/8	1.38	11/16	5/8	0.66	0.19
6CM4{ }K	6CM4{ }ECK	3/8	1/4	1.56	11/16	5/8	0.66	0.28
6CM6{ }K	6CM6{ }ECK	3/8	3/8	1.60	11/16	11/16	0.66	0.28
6CM8{ }K	6CM8{ }ECK	3/8	1/2	1.79	11/16	7/8	0.66	0.28
6CM12{ }K		3/8	3/4	1.82	11/16	1 1/16	0.66	0.28
8CM2{ }K		1/2	1/8	1.48	7/8	13/16	0.89	0.19
8CM4{ }K	8CM4{ }ECK	1/2	1/4	1.71	7/8	13/16	0.89	0.28
8CM6{ }K	8CM6{ }ECK	1/2	3/8	1.71	7/8	13/16	0.89	0.38
8CM8{ }K	8CM8{ }ECK	1/2	1/2	1.90	7/8	7/8	0.89	0.42
8CM12{ }K	8CM12{ }ECK	1/2	3/4	1.92	7/8	1 1/16	0.89	0.42
8CM16{ }K		1/2	1	2.19	7/8	1 3/8	0.89	0.42
10CM6{ }K		5/8	3/8	1.73	1	15/16	0.95	0.38
10CM8{ }K	10CM8{ }ECK	5/8	1/2	1.92	1	15/16	0.95	0.50
10CM12{ }K		5/8	3/4	1.95	1	1 1/16	0.95	0.50
12CM8{ }K		3/4	1/2	2.03	1 1/8	1 1/16	0.95	0.50
12CM12{ }K		3/4	3/4	2.03	1 1/8	1 1/16	0.95	0.63
12CM16{ }K		3/4	1	2.26	1 1/8	1 3/8	0.95	0.66
16CM8{ }K		1	1/2	2.33	1 1/2	1 3/8	1.23	0.50
16CM12{ }K		1	3/4	2.27	1 1/2	1 3/8	1.23	0.72
16CM16{ }K		1	1	2.46	1 1/2	1 3/8	1.23	0.88
20CM16{ }K		1 1/4	1	3.04	1 7/8	1 3/4	1.62	0.88
20CM20{ }K		1 1/4	1 1/4	3.04	1 7/8	1 3/4	1.62	1.09
24CM24{ }K		1 1/2	1 1/2	3.51	2 1/4	2 1/4	1.98	1.34
32CM32{ }K		2	2	4.51	3	3	2.64	1.80

Bulkhead Connector, Male: BCM

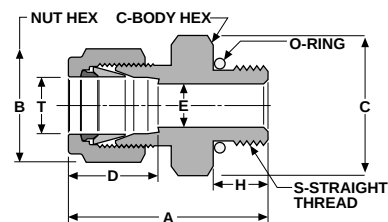
connects **fractional** tube to female NPT thread



Part Number		T	P	A	B	C	D	E	Fx	J	Panel Hole	Max Panel
		Tube O.D.	Male Pipe Thread		Hex Flat	Hex Flat		(min.)		Hex Flat	Diameter	Thickness
2BCM2{ }K		1/8	1/8	1.81	7/16	7/16	0.50	0.09	1.22	1/2	0.33	0.44
2BCM4{ }K		1/8	1/4	2.03	7/16	9/16	0.50	0.09	1.22	1/2	0.33	0.44
4BCM2{ }K		1/4	1/8	1.94	9/16	1/2	0.60	0.19	1.31	5/8	0.45	0.47
4BCM4{ }K		1/4	1/4	2.12	9/16	9/16	0.60	0.19	1.31	5/8	0.45	0.47
6BCM4{ }K		3/8	1/4	2.25	11/16	5/8	0.66	0.28	1.44	3/4	0.58	0.53
6BCM6{ }K		3/8	3/8	2.25	11/16	11/16	0.66	0.28	1.44	3/4	0.58	0.53
6BCM8{ }K		3/8	1/2	2.47	11/16	7/8	0.66	0.28	1.44	3/4	0.58	0.53
8BCM6{ }K		1/2	3/8	2.48	7/8	13/16	0.89	0.41	1.64	15/16	0.77	0.59
8BCM8{ }K		1/2	1/2	2.67	7/8	7/8	0.89	0.42	1.64	15/16	0.77	0.59

Male Connector, SAE: CMS

connects **fractional** tube to SAE straight thread boss

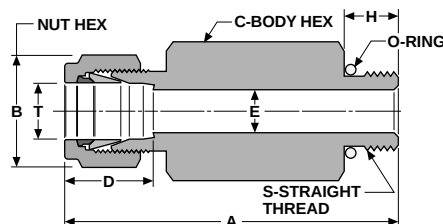


Part Number		T	S	A	B	C	D	E	H	O-ring
		Tube O.D.	Straight Thread		Hex Flat	Hex Flat		(min.)		Uniform Size
2CMS2{ }K{ }		1/8	5/16-24	1.19	7/16	7/16	0.50	0.09	0.30	902
4CMS4{ }K{ }		1/4	7/16-24	1.36	9/16	9/16	0.60	0.19	0.36	904
4CMS6{ }K{ }		1/4	9/16-18	1.42	9/16	11/16	0.60	0.19	0.39	906
4CMS8{ }K{ }		1/4	3/4-16	1.50	9/16	7/8	0.60	0.19	0.44	908
4CMS10{ }K{ }		1/4	7/8-14	1.62	9/16	1	0.60	0.19	0.50	910
6CMS4{ }K{ }		3/8	7/16-20	1.52	11/16	3/4	0.66	0.28	0.36	904
6CMS6{ }K{ }		3/8	9/16-18	1.46	11/16	3/4	0.66	0.28	0.39	906
6CMS8{ }K{ }		3/8	3/4-16	1.54	11/16	7/8	0.66	0.28	0.44	908
6CMS10{ }K{ }		3/8	7/8-14	1.66	11/16	1	0.66	0.28	0.50	910
8CMS6{ }K{ }		1/2	9/16-18	1.64	7/8	13/16	0.89	0.28	0.39	906
8CMS8{ }K{ }		1/2	3/4-16	1.63	7/8	7/8	0.89	0.42	0.44	908
8CMS12{ }K{ }		1/2	1 1/16-12	1.91	7/8	1 1/4	0.89	0.42	0.59	912
10CMS10{ }K{ }		5/8	7/8-14	1.78	1	1	0.95	0.50	0.50	910
12CMS8{ }K{ }		3/4	3/4-16	1.85	1 1/8	1 1/16	0.95	0.42	0.44	908
12CMS12{ }K{ }		3/4	1 1/16-12	1.98	1 1/8	1 1/4	0.95	0.66	0.59	912
16CMS12{ }K{ }		1	1 1/16-12	2.11	1 1/2	1 3/8	1.23	0.66	0.59	912
16CMS16{ }K{ }		1	1 5/16-12	2.18	1 1/2	1 1/2	1.23	0.88	0.59	916
20CMS20{ }K{ }		1 1/4	1 5/8-12	2.69	1 7/8	1 7/8	1.62	1.09	0.59	920
24CMS24{ }K{ }		1 1/2	1 7/8-12	3.07	2 1/4	2 1/8	1.97	1.34	0.59	924
32CMS32{ }K{ }		2	2 1/2-12	3.98	3	2 3/4	2.66	1.81	0.59	932

* { } see page 5 for material specifications. A second { } reference in part number specifies o-ring: 23-Buna N, 45-Viton.

Long Male Connector, SAE: LCMS

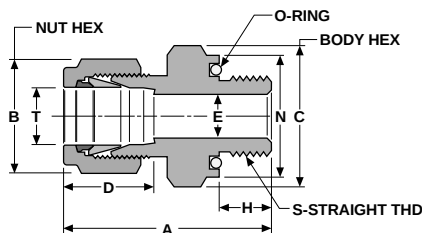
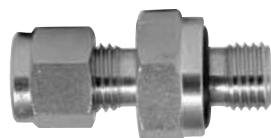
connects **fractional** tube to SAE straight thread boss



Part Number	T	S	A	B	C	D	E	H	O-ring
	Tube O.D.	Straight Thread		Hex Flat	Hex Flat		(min.)		Uniform Size
4LCMS4{ }K{ }	1/4	7/16-20	2.25	9/16	9/16	0.60	0.19	0.36	904
6LCMS6{ }K{ }	3/8	9/16-18	2.47	11/16	3/4	0.66	0.28	0.39	906
8LCMS8{ }K{ }	1/2	3/4-16	2.97	7/8	7/8	0.89	0.42	0.44	908
12LCMS12{ }K{ }	3/4	1 1/16-12	3.87	1 1/8	1 1/4	0.95	0.66	0.59	912
16LCMS16{ }K{ }	1	1 5/16-12	4.35	1 1/2	1 1/2	1.23	0.88	0.59	916

O-ring Straight Connector: COS

connects **fractional** tube to female straight thread

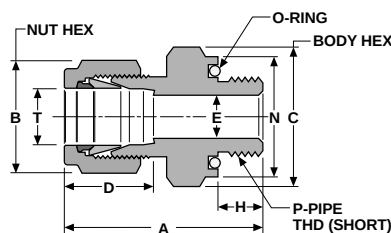


Part Number	T	S	A	B	C	D	E	H	N	O-ring
	Tube O.D.	Straight Thread		Hex Flat	Hex Flat		(min.)			Uniform Size
1COS{ }K	1/16	5/16-24	1.13	5/16	9/16	0.41	0.05	0.34	0.55	902
2COS{ }K	1/8	5/16-24	1.28	7/16	9/16	0.50	0.09	0.34	0.55	902
4COS{ }K	1/4	7/16-20	1.52	9/16	3/4	0.60	0.19	0.41	0.74	904
6COS{ }K	3/8	9/16-18	1.65	11/16	15/16	0.66	0.28	0.47	0.92	906
8COS6{ }K	1/2	9/16-18	1.80	7/8	15/16	0.89	0.30	0.47	0.92	906
8COS{ }K	1/2	3/4-16	1.80	7/8	1 1/8	0.89	0.42	0.47	1.11	908
10COS{ }K	5/8	7/8-14	1.89	1	1 5/16	0.95	0.50	0.47	1.30	910
12COS{ }K	3/4	1 1/16-12	2.04	1 1/8	1 1/2	0.95	0.66	0.56	1.49	912
16COS{ }K	1	1 5/16-12	2.30	1 1/2	1 3/4	1.23	0.88	0.56	1.74	916

Buna-N o-ring standard in COS fittings.

O-ring Male Connector: COM

connects **fractional** tube to female NPT thread



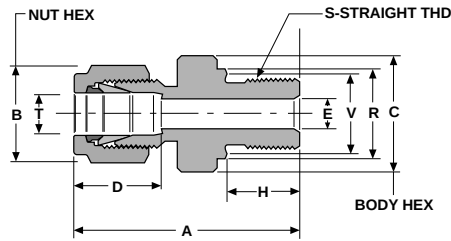
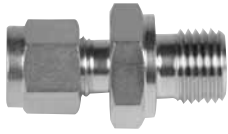
Part Number	T	P	A	B	C	D	E	H	N
	Tube O.D.	Male Pipe Thread		Hex Flat	Hex Flat		(min.)		
1COM2{ }K	1/16	1/8	1.06	5/16	3/4	0.41	0.05	0.29	0.74
2COM2{ }K	1/8	1/8	1.28	7/16	3/4	0.50	0.09	0.29	0.74
2COM4{ }K	1/8	1/4	1.41	7/16	15/16	0.50	0.09	0.38	0.92
4COM2{ }K	1/4	1/8	1.37	9/16	3/4	0.60	0.19	0.29	0.74
4COM4{ }K	1/4	1/4	1.50	9/16	15/16	0.60	0.19	0.38	0.92
4COM6{ }K	1/4	3/8	1.56	9/16	1 1/8	0.60	0.19	0.41	1.11
6COM2{ }K	3/8	1/8	1.44	11/16	3/4	0.66	0.19	0.29	0.74
6COM4{ }K	3/8	1/4	1.56	11/16	15/16	0.66	0.28	0.38	0.92
6COM6{ }K	3/8	3/8	1.62	11/16	1 1/8	0.66	0.28	0.41	1.11
6COM8{ }K	3/8	1/2	1.84	11/16	1 5/16	0.66	0.28	0.54	1.29
8COM4{ }K	1/2	1/4	1.67	7/8	15/16	0.89	0.28	0.38	0.92
8COM6{ }K	1/2	3/8	1.73	7/8	1 1/8	0.89	0.41	0.41	1.11
8COM8{ }K	1/2	1/2	1.95	7/8	1 5/16	0.89	0.41	0.54	1.29
10COM8{ }K	5/8	1/2	1.95	1	1 5/16	0.95	0.50	0.54	1.29
10COM12{ }K	5/8	3/4	2.05	1	1 1/2	0.95	0.50	0.57	1.49
12COM8{ }K	3/4	1/2	2.00	1 1/8	1 5/16	0.95	0.55	0.54	1.29
12COM12{ }K	3/4	3/4	2.05	1 1/8	1 1/2	0.95	0.63	0.57	1.49
16COM12{ }K	1	3/4	2.24	1 1/2	1 1/2	1.23	0.63	0.57	1.49
16COM16{ }K	1	1	2.40	1 1/2	1 3/4	1.23	0.88	0.66	1.74

Buna-N o-ring standard in COM fittings.

* { } see page 5 for material specifications. A second { } reference in part number specifies o-ring: 23-Buna N, 45-Viton.

Male Connector: CM/EB

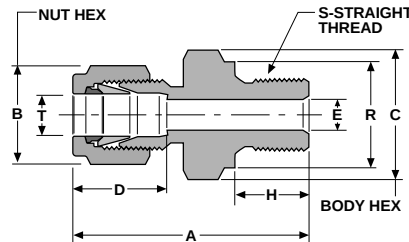
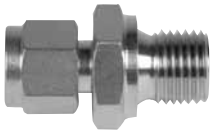
connects **fractional** tube with RP parallel thread



Part Number	T Tube O.D.	S RP Str. Thread	A	B Hex Flat	C Hex Flat	D	E (min.)	H	R	V
2CM2{ }EBK	1/8	1/8	1.21	7/16	5/8	0.50	0.09	0.32	0.55	0.51
2CM4{ }EBK	1/8	1/4	1.39	7/16	3/4	0.50	0.09	0.47	0.71	0.67
4CM2{ }EBK	1/4	1/8	1.32	9/16	5/8	0.60	0.19	0.32	0.55	0.51
4CM4{ }EBK	1/4	1/4	1.50	9/16	3/4	0.60	0.19	0.47	0.71	0.67
4CM6{ }EBK	1/4	3/8	1.49	9/16	15/16	0.60	0.19	0.47	0.87	0.82
4CM8{ }EBK	1/4	1/2	1.62	9/16	1 1/16	0.60	0.19	0.55	1.02	0.98
6CM4{ }EBK	3/8	1/4	1.56	11/16	3/4	0.66	0.23	0.47	0.71	0.67
6CM6{ }EBK	3/8	3/8	1.54	11/16	15/16	0.66	0.28	0.47	0.87	0.82

Male Connector: CM/EA

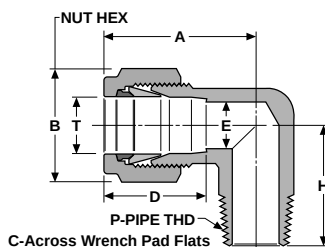
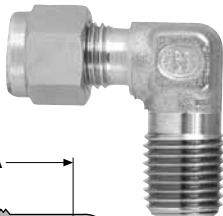
connects **fractional** tube with RS parallel thread



Part Number	T Tube O.D.	S RS Str. Thread	A	B Hex Flat	C Hex Flat	D	E (min.)	H	R
2CM2{ }EAK	1/8	1/8	1.21	7/16	9/16	0.50	0.09	0.32	0.55
2CM4{ }EAK	1/8	1/4	1.39	7/16	3/4	0.50	0.09	0.47	0.71
2CM6{ }EAK	1/8	3/8	1.38	7/16	7/8	0.50	0.09	0.47	0.87
4CM2{ }EAK	1/4	1/8	1.32	9/16	9/16	0.60	0.19	0.32	0.55
4CM4{ }EAK	1/4	1/4	1.50	9/16	3/4	0.60	0.19	0.47	0.71
4CM6{ }EAK	1/4	3/8	1.50	9/16	7/8	0.60	0.19	0.47	0.87
4CM8{ }EAK	1/4	1/2	1.62	9/16	1 1/16	0.60	0.19	0.55	1.02
6CM4{ }EAK	3/8	1/4	1.54	11/16	3/4	0.66	0.23	0.47	0.71
6CM6{ }EAK	3/8	3/8	1.57	11/16	7/8	0.66	0.28	0.47	0.87
6CM8{ }EAK	3/8	1/2	1.68	11/16	1 1/16	0.66	0.28	0.55	1.02
8CM4{ }EAK	1/2	1/4	1.71	7/8	13/16	0.89	0.23	0.47	0.71
8CM6{ }EAK	1/2	3/8	1.72	7/8	7/8	0.89	0.31	0.47	0.87
8CM8{ }EAK	1/2	1/2	1.75	7/8	1 1/16	0.89	0.42	0.55	1.02
12CM8{ }EAK	3/4	1/2	1.82	1 1/8	1 1/16	0.95	0.50	0.55	1.02
12CM12{ }EAK	3/4	3/4	2.03	1 1/8	1 5/16	0.95	0.63	0.63	1.26
16CM8{ }EAK	1	1/2	2.25	1 1/2	1 3/8	1.23	0.50	0.55	1.02
16CM16{ }EAK	1	1	2.35	1 1/2	1 5/8	1.23	0.72	0.71	1.54

Male Elbow: LM, LM/EC

connects **fractional** tube to female
NPT or RT thread

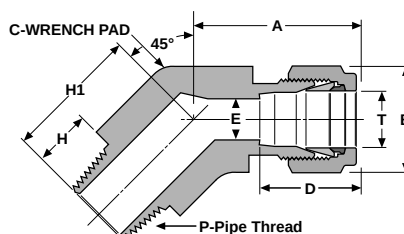


Part Number	T Tube O.D.	P Male Pipe Thread	A	B Hex Flat	C Body Flat	D	E (min.)	H
1LM1{ }JK	1/16	1/16	0.79	5/16	7/16	0.41	0.05	0.72
1LM2{ }JK	1/16	1/8	0.75	5/16	7/16	0.41	0.05	0.72
2LM1{ }JK	1/8	1/16	0.90	7/16	7/16	0.50	0.09	0.72
2LM2{ }JK	1/8	1/8	0.90	7/16	7/16	0.50	0.09	0.72
2LM4{ }JK	1/8	1/4	1.03	7/16	1/2	0.50	0.09	0.94
4LM2{ }JK	1/4	1/8	1.05	9/16	7/16	0.60	0.19	0.78
4LM4{ }JK	1/4	1/4	1.06	9/16	1/2	0.60	0.19	1.00
4LM6{ }JK	1/4	3/8	1.16	9/16	11/16	0.60	0.19	1.13
4LM8{ }JK	1/4	1/2	1.28	9/16	13/16	0.60	0.19	1.25
6LM2{ }JK	3/8	1/8	1.12	11/16	1/2	0.66	0.19	0.87
6LM4{ }JK	3/8	1/4	1.12	11/16	1/2	0.66	0.28	1.00
6LM6{ }JK	3/8	3/8	1.22	11/16	11/16	0.66	0.28	1.13
6LM8{ }JK	3/8	1/2	1.31	11/16	13/16	0.66	0.28	1.31
8LM4{ }JK	1/2	1/4	1.36	7/8	11/16	0.89	0.30	1.13
8LM6{ }JK	1/2	3/8	1.36	7/8	11/16	0.89	0.41	1.13
8LM8{ }JK	1/2	1/2	1.42	7/8	13/16	0.89	0.42	1.31
8LM12{ }JK	1/2	3/4	1.52	7/8	1	0.89	0.42	1.50
10LM6{ }JK	5/8	3/8	1.42	1	13/16	0.95	0.50	1.25
10LM8{ }JK	5/8	1/2	1.42	1	13/16	0.95	0.50	1.38
12LM8{ }JK	3/4	1/2	1.55	1 1/8	1	0.95	0.66	1.50
12LM12{ }JK	3/4	3/4	1.55	1 1/8	1	0.95	0.66	1.50
16LM12{ }JK	1	3/4	1.80	1 1/2	1 1/4	1.23	0.72	1.63
16LM16{ }JK	1	1	1.80	1 1/2	1 1/4	1.23	0.88	1.84
20LM20{ }JK	1 1/4	1 1/4	2.62	1 7/8	1 11/16	1.62	1.09	1.88
24LM24{ }JK	1 1/2	1 1/2	3.08	2 1/4	2	1.98	1.34	2.38
32LM32{ }JK	2	2	4.20	3	2 3/4	2.64	1.81	2.78

* { } see page 5 for material specifications. A second { } reference in part number specifies o-ring: 23-Buna N, 45-Viton.

45° Male Elbow: LMF

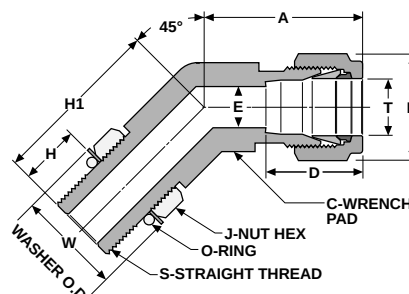
connects **fractional** tube to female NPT thread



Part Number	T	P	A	B	C	D	E	H	H1
	Tube O.D.	Pipe Thread		Hex Flat	Body Flat		(min.)		
4LMF2{ }K{ }	1/4	1/8	1.00	9/16	1/2	0.60	0.19	0.38	0.78
4LMF4{ }K{ }	1/4	1/4	1.06	9/16	5/8	0.60	0.19	0.56	1.00
6LMF2{ }K{ }	3/8	1/2	1.12	9/16	5/8	0.66	0.19	0.38	0.87
6LMF4{ }K{ }	3/8	1/4	1.12	11/16	5/8	0.66	0.28	0.56	1.00
6LMF6{ }K{ }	3/8	3/8	1.22	11/16	13/16	0.66	0.28	0.56	1.13
8LMF6{ }K{ }	1/2	3/8	1.36	7/8	13/16	0.89	0.41	0.56	1.13
8LMF8{ }K{ }	1/2	1/2	1.42	7/8	15/16	0.89	0.42	0.75	1.38

45° Male Elbow, SAE, Positionable: LMFS

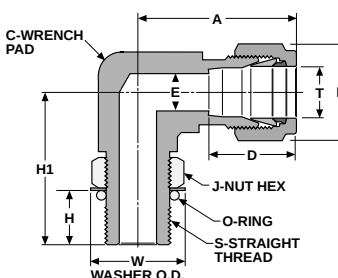
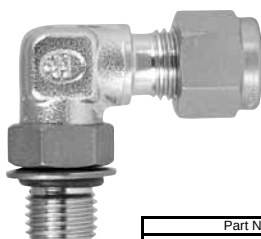
connects **fractional** tube to SAE straight thread boss



Part Number	T	S	A	B	C	D	E	H	H1	J	W	O-ring
	Tube O.D.	Straight Thread		Hex Flat	Body Flat		(min.)			Hex Flat		Uniform Size
4LMFS4{ }K{ }	1/4	7/16-20	1.06	9/16	1/2	0.60	0.19	0.39	1.05	9/16	0.66	904
6LMFS6{ }K{ }	3/8	9/16-18	1.12	11/16	5/8	0.66	0.28	0.44	1.14	11/16	0.80	906
8LMFS8{ }K{ }	1/2	3/4-16	1.36	7/8	13/16	0.89	0.42	0.50	1.30	7/8	1.02	908
12LMFS12{ }K{ }	3/4	1 1/16-12	1.55	1 1/8	1 1/8	0.95	0.66	0.66	1.73	1 1/4	1.44	912
16LMFS16{ }K{ }	1	1 5/16-12	1.80	1 1/2	1 7/8	1.23	0.88	0.66	1.86	1 1/2	1.73	916

Male Elbow, SAE, Positionable: LMS

connects **fractional** tube to SAE straight thread boss

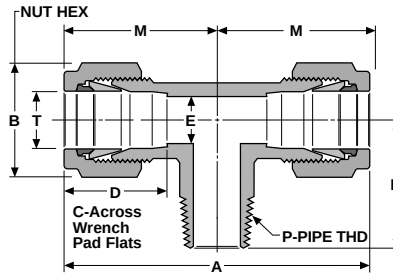


Part Number	T	S	A	B	C	D	E	H	H1	J	W	O-ring
	Tube O.D.	Straight Thread		Hex Flat	Body Flat		(min.)			Hex Flat		Uniform Size
4LMS4{ }K{ }	1/4	7/16-20	1.12	9/16	1/2	0.60	0.19	0.39	1.03	9/16	0.66	904
4LMS6{ }K{ }	1/4	9/16-18	1.26	9/16	13/16	0.60	0.19	0.44	1.25	11/16	0.80	906
6LMS6{ }K{ }	3/8	9/16-18	1.31	11/16	13/16	0.66	0.28	0.44	1.25	11/16	0.80	906
6LMS8{ }K{ }	3/8	3/4-16	1.34	11/16	1	0.66	0.28	0.50	1.48	7/8	1.02	908
8LMS8{ }K{ }	1/2	3/4-16	1.51	7/8	1	0.89	0.42	0.50	1.45	7/8	1.02	908
12LMS12{ }K{ }	3/4	1 1/16-12	1.64	1 1/8	1 1/4	0.95	0.66	0.66	1.94	1 1/4	1.44	912
16LMS16{ }K{ }	1	1 5/16-12	1.80	1 1/2	1 1/2	1.23	0.88	0.66	2.05	1 1/2	1.73	916
20LMS20{ }K{ }	1 1/4	1 5/8-12	2.67	1 7/8	1 11/16	1.62	1.09	0.66	2.29	1 7/8	2.16	920
24LMS24{ }K{ }	1 1/2	1 7/8-12	3.08	2 1/4	2	1.98	1.34	0.66	2.38	2 1/8	2.45	924

* { } see page 5 for material specifications. A second { } reference in part number specifies o-ring: 23-Buna N, 45-Viton.

Male Branch Tee: TTM

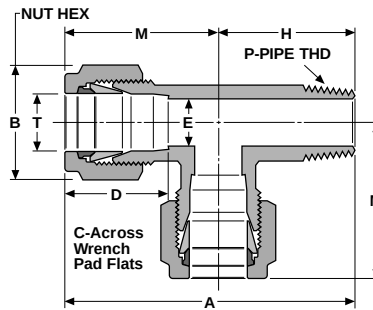
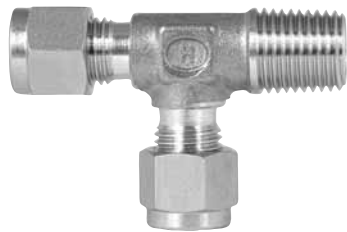
connects **fractional** tube to female NPT thread



Part Number	T Tube O.D.	P Male Pipe Thread	A	B Hex Flat	C Body Flat	D	E (min.)	H	M
1TTM1(J)K	1/16	1/16	1.56	5/16	7/16	0.41	0.05	0.72	0.78
2TTM2(J)K	1/8	1/8	1.81	7/16	7/16	0.50	0.09	0.72	0.91
2TTM4(J)K	1/8	1/4	1.87	7/16	1/2	0.50	0.09	1.00	0.94
4TTM2(J)K	1/4	1/8	2.06	9/16	7/16	0.60	0.19	0.78	1.03
4TTM4(J)K	1/4	1/4	2.12	9/16	1/2	0.60	0.19	1.00	1.06
6TTM4(J)K	3/8	1/4	2.24	1 1/16	1/2	0.66	0.28	1.00	1.12
6TTM6(J)K	3/8	3/8	2.44	1 1/16	1 1/16	0.66	0.28	1.13	1.22
6TTM8(J)K	3/8	1/2	2.06	1 1/16	13/16	0.66	0.28	1.31	1.03
8TTM4(J)K	1/2	1/4	2.72	7/8	1 1/16	0.89	0.42	1.00	1.36
8TTM6(J)K	1/2	3/8	2.72	7/8	1 1/16	0.89	0.41	1.13	1.36
8TTM8(J)K	1/2	1/2	2.84	7/8	13/16	0.89	0.42	1.31	1.42
10TTM6(J)K	5/8	3/8	2.83	1	13/16	0.95	0.41	1.38	1.42
10TTM8(J)K	5/8	1/2	2.83	1	13/16	0.95	0.50	1.38	1.42
12TTM8(J)K	3/4	1/2	3.09	1 1/8	1	0.95	0.66	1.50	1.55
12TTM12(J)K	3/4	3/4	3.09	1 1/8	1	0.95	0.66	1.50	1.55
16TTM12(J)K	1	3/4	3.59	1 1/2	1 1/4	1.23	0.72	1.66	1.80
16TTM16(J)K	1	1	3.59	1 1/2	1 1/4	1.23	0.88	1.84	1.80

Male Run Tee: TMT

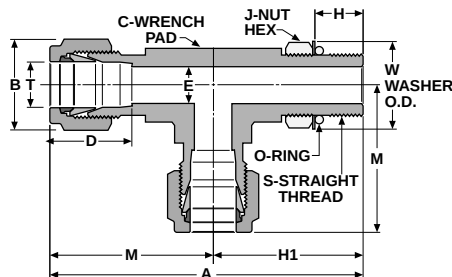
connects **fractional** tube to female NPT thread



Part Number	T Tube O.D.	P Male Pipe Thread	A	B Hex Flat	C Body Flat	D	E (min.)	H	M
1TMT1(J)K	1/16	1/16	1.50	5/16	7/16	0.41	0.05	0.72	0.78
2TMT2(J)K	1/8	1/8	1.63	7/16	7/16	0.50	0.09	0.72	0.91
4TMT2(J)K	1/4	1/8	1.78	9/16	7/16	0.60	0.19	0.78	1.00
4TMT4(J)K	1/4	1/4	2.06	9/16	1/2	0.60	0.19	1.00	1.06
6TMT4(J)K	3/8	1/4	2.12	1 1/16	1/2	0.66	0.28	1.00	1.12
6TMT6(J)K	3/8	3/8	2.35	1 1/16	1 1/16	0.66	0.28	1.13	1.22
8TMT6(J)K	1/2	3/8	2.49	7/8	1 1/16	0.89	0.42	1.13	1.36
8TMT8(J)K	1/2	1/2	2.73	7/8	13/16	0.89	0.42	1.31	1.42
10TMT8(J)K	5/8	1/2	2.80	1	13/16	0.95	0.50	1.38	1.42
12TMT12(J)K	3/4	3/4	3.05	1 1/8	1	0.95	0.66	1.50	1.55
16TMT12(J)K	1	3/4	3.46	1 1/2	1 1/4	1.23	0.72	1.66	1.80
16TMT16(J)K	1	1	3.64	1 1/2	1 1/4	1.23	0.88	1.84	1.80

Tee, SAE Run, Positionable: TST

connects **fractional** tube to SAE straight thread boss

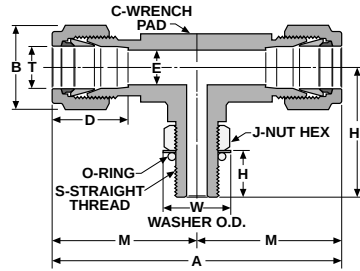


Part Number	T Tube O.D.	S Straight Thread	A	B Hex Flat	C Body Flat	D	E (min.)	H	H1	J Hex Flat	M	W	O-ring Uniform Size
4TST4(J)K	1/4	7/16-20	2.09	9/16	1/2	0.60	0.19	0.39	1.03	9/16	1.06	0.66	904
6TST6(J)K	3/8	9/16-18	2.56	1 1/16	13/16	0.66	0.28	0.44	1.25	1 1/16	1.31	0.80	906
8TST8(J)K	1/2	3/4-16	2.57	7/8	1	0.89	0.42	0.50	1.45	7/8	1.12	1.02	908
12TST12(J)K	3/4	1 1/16-12	3.58	1 1/8	1 1/4	0.95	0.66	0.66	1.94	1 1/4	1.64	1.44	912
16TST16(J)K	1	1 5/16-12	3.85	1 1/2	1 1/4	1.23	0.88	0.66	2.05	1 1/2	1.80	1.73	916

* {} see page 5 for material specifications. A second {} reference in part number specifies o-ring: 23-Buna N, 45-Viton.

Tee, SAE Branch, Positionable: TTS

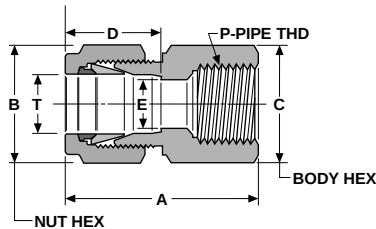
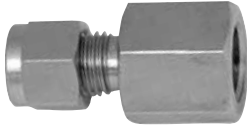
connects **fractional** tube to SAE straight thread boss



Part Number		T	S	A	B	C	D	E	H	H1	J	M	W	O-ring
		Tube O.D.	Straight Thread		Hex Flat	Body Flat		(min.)			Hex Flat			Uniform Size
4TTS4{ }K{ }		1/4	7/16-20	2.12	9/16	1/2	0.60	0.19	0.39	1.03	9/16	1.06	0.66	904
6TTS6{ }K{ }		3/8	9/16-18	2.62	11/16	13/16	0.66	0.28	0.44	1.25	11/16	1.31	0.80	906
8TTS8{ }K{ }		1/2	3/4-16	2.24	7/8	1	0.89	0.42	0.50	1.45	7/8	1.12	1.02	908
12TTS12{ }K{ }		3/4	1 1/16-12	3.27	1 1/8	1 1/4	0.95	0.66	0.66	1.94	1 1/4	1.64	1.44	912
16TTS16{ }K{ }		1	1 5/16-12	3.59	1 1/2	1 1/4	1.23	0.88	0.66	2.05	1 1/2	1.80	1.73	916

Female Connector: CF, CF/EC

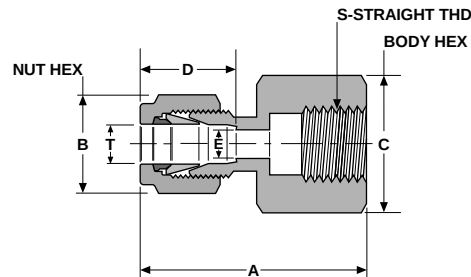
connects **fractional** tube to male NPT or RT thread



Part Number		T	P	A	B	C	D	E
		Tube O.D.	Female Pipe Thread		Hex Flat	Hex Flat		(min.)
NPT Threads	RT Threads							
1CF1{ }K		1/16	1/16	1.00	5/16	7/16	0.41	0.05
1CF2{ }K		1/16	1/8	1.03	5/16	9/16	0.41	0.05
2CF2{ }K		1/8	1/8	1.13	7/16	9/16	0.50	0.09
2CF4{ }K		1/8	1/4	1.38	7/16	3/4	0.50	0.09
4CF2{ }K	4CF2{ }JECK	1/4	1/8	1.22	9/16	9/16	0.60	0.19
4CF4{ }K	4CF4{ }JECK	1/4	1/4	1.47	9/16	3/4	0.60	0.19
4CF6{ }K	4CF6{ }JECK	1/4	3/8	1.50	9/16	7/8	0.60	0.19
4CF8{ }K	4CF8{ }JECK	1/4	1/2	1.66	9/16	1 1/16	0.60	0.19
6CF2{ }K		3/8	1/8	1.28	11/16	5/8	0.66	0.28
6CF4{ }K	6CF4{ }JECK	3/8	1/4	1.51	11/16	3/4	0.66	0.28
6CF6{ }K	6CF6{ }JECK	3/8	3/8	1.53	11/16	7/8	0.66	0.28
6CF8{ }K	6CF8{ }JECK	3/8	1/2	1.72	11/16	1 1/16	0.66	0.28
6CF12{ }K		3/8	3/4	1.84	11/16	1 1/4	0.66	0.28
8CF4{ }K	8CF4{ }JECK	1/2	1/4	1.64	7/8	13/16	0.89	0.42
8CF6{ }K	8CF6{ }JECK	1/2	3/8	1.64	7/8	7/8	0.89	0.42
8CF8{ }K	8CF8{ }JECK	1/2	1/2	1.83	7/8	1 1/16	0.89	0.42
8CF12{ }K		1/2	3/4	1.98	7/8	1 1/4	0.89	0.42
8CF16{ }K		1/2	1	2.33	7/8	1 5/8	0.89	0.42
10CF6{ }K		5/8	3/8	1.64	1	15/16	0.95	0.50
10CF8{ }K	10CF8{ }JECK	5/8	1/2	1.86	1	1 1/16	0.95	0.50
12CF8{ }K		3/4	1/2	1.89	1 1/8	1 1/16	0.95	0.66
12CF12{ }K		3/4	3/4	1.95	1 1/8	1 1/4	0.95	0.66
16CF12{ }K		1	3/4	2.11	1 1/2	1 3/8	1.23	0.88
16CF16{ }K		1	1	2.58	1 1/2	1 5/8	1.23	0.88
20CF20{ }K		1 1/4	1 1/4	2.94	1 7/8	2 1/8	1.62	1.09
24CF24{ }K		1 1/2	1 1/2	3.29	2 1/4	2 3/8	1.98	1.34
32CF32{ }K		2	2	3.98	3	2 7/8	2.64	1.81

Female Connector: CF/EZ

connects **fractional** tube with RG parallel thread

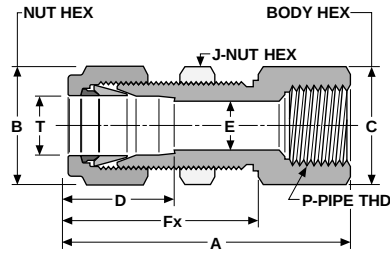
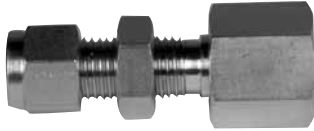


Part Number		T	S	A	B	C	D	E
		Tube O.D.	RG Str. Thread		Hex Flat	Hex Flat		(min.)
2CF2{ }JEZK		1/8	1/8	1.26	7/16	5/8	0.50	0.09
2CF4{ }JEZK		1/8	1/4	1.40	7/16	3/4	0.50	0.09
4CF4{ }JEZK		1/4	1/4	1.45	9/16	3/4	0.60	0.19
4CF8{ }JEZK		1/4	1/2	1.70	9/16	1 1/16	0.60	0.19
6CF4{ }JEZK		3/8	1/4	1.49	11/16	3/4	0.66	0.28
6CF8{ }JEZK		3/8	1/2	1.86	11/16	1 1/16	0.66	0.28
8CF4{ }JEZK		1/2	1/4	1.72	7/8	13/16	0.89	0.42
8CF8{ }JEZK		1/2	1/2	1.96	7/8	1 1/16	0.89	0.42

* { } see page 5 for material specifications. A second { } reference in part number specifies o-ring: 23-Buna N, 45-Viton.

Bulkhead Connector, Female: BCF

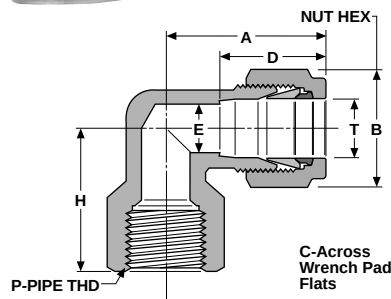
connects **fractional** tube to male NPT thread



Part Number		T	P	A	B	C	D	E	Fx	J	Panel Hole	Max Panel
		Tube O.D.	Female Pipe Thread		Hex Flat	Hex Flat		(min.)		Hex Flat	Diameter	Thickness
2BCF2{ }K		1/8	1/8	1.72	7/16	9/16	0.50	0.09	1.19	1/2	0.33	0.44
4BCF2{ }K		1/4	1/8	1.81	9/16	5/8	0.60	0.19	1.28	5/8	0.45	0.47
4BCF4{ }K		1/4	1/4	2.00	9/16	3/4	0.60	0.19	1.28	5/8	0.45	0.47
6BCF2{ }K		3/8	1/8	2.16	11/16	3/4	0.66	0.28	1.44	3/4	0.58	0.53
6BCF4{ }K		3/8	1/4	2.16	11/16	3/4	0.66	0.28	1.44	3/4	0.58	0.53
6BCF6{ }K		3/8	3/8	2.22	11/16	7/8	0.66	0.28	1.44	3/4	0.58	0.53
8BCF4{ }K		1/2	1/4	2.36	7/8	15/16	0.89	0.42	1.64	15/16	0.77	0.59
8BCF6{ }K		1/2	3/8	2.42	7/8	15/16	0.89	0.42	1.64	15/16	0.77	0.59
8BCF8{ }K		1/2	1/2	2.61	7/8	1 1/16	0.89	0.42	1.64	15/16	0.77	0.59
10BCF8{ }K		5/8	1/2	2.64	1	1 1/16	0.95	0.50	1.66	1 1/16	0.89	0.56

Female Elbow: LF

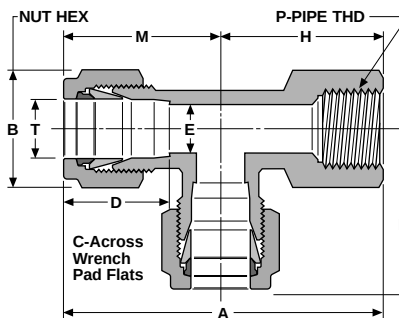
connects **fractional** tube to male NPT thread



Part Number		T	P	A	B	C	D	E	H
		Tube O.D.	Female Pipe Thread		Hex Flat	Body Flat		(min.)	
1LF1{ }K		1/16	1/16	0.78	5/16	7/16	0.41	0.05	0.75
1LF2{ }K		1/16	1/8	0.85	5/16	1/2	0.41	0.05	0.75
2LF2{ }K		1/8	1/8	0.94	7/16	1/2	0.50	0.09	0.75
2LF4{ }K		1/8	1/4	1.11	7/16	11/16	0.50	0.09	0.84
4LF2{ }K		1/4	1/8	1.06	9/16	1/2	0.60	0.19	0.81
4LF4{ }K		1/4	1/4	1.19	9/16	11/16	0.60	0.19	0.84
4LF6{ }K		1/4	3/8	1.28	9/16	13/16	0.60	0.19	0.84
4LF8{ }K		1/4	1/2	1.41	9/16	1	0.60	0.19	1.13
6LF2{ }K		3/8	1/8	1.12	11/16	1/2	0.66	0.28	0.69
6LF4{ }K		3/8	1/4	1.22	11/16	11/16	0.66	0.28	0.84
6LF6{ }K		3/8	3/8	1.31	11/16	13/16	0.66	0.28	0.84
6LF8{ }K		3/8	1/2	1.41	11/16	1	0.66	0.28	1.13
8LF4{ }K		1/2	1/4	1.36	7/8	11/16	0.89	0.42	0.91
8LF6{ }K		1/2	3/8	1.42	7/8	13/16	0.89	0.42	0.91
8LF8{ }K		1/2	1/2	1.52	7/8	1	0.89	0.42	1.13
8LF12{ }K		1/2	3/4	1.58	7/8	1 1/4	0.89	0.42	1.25
10LF6{ }K		5/8	3/8	1.42	1	13/16	0.95	0.50	0.91
10LF8{ }K		5/8	1/2	1.52	1	1	0.95	0.50	1.13
12LF8{ }K		3/4	1/2	1.55	1 1/8	1	0.95	0.66	1.13
12LF12{ }K		3/4	3/4	1.64	1 1/8	1 1/4	0.95	0.66	1.25
16LF12{ }K		1	3/4	1.98	1 1/2	1 1/4	1.23	0.88	1.25
16LF16{ }K		1	1	1.99	1 1/2	1 5/8	1.23	0.88	1.50

Female Run Tee: TFT

connects **fractional** tube to male NPT thread

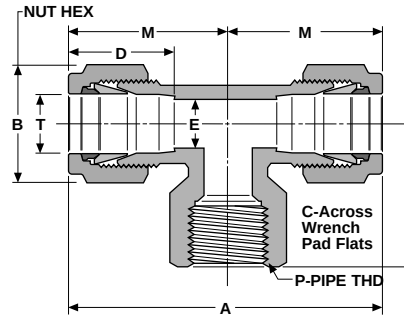


Part Number		T	P	A	B	C	D	E	H	M
		Tube O.D.	Male Pipe Thread		Hex Flat	Body Flat		(min.)		
1TFT1	{ }K	1/16	1/16	1.53	5/16	7/16	0.41	0.05	0.75	0.78
2TFT2	{ }K	1/8	1/8	1.69	7/16	1/2	0.50	0.09	0.75	0.94
4TFT2	{ }K	1/4	1/8	1.78	9/16	1/2	0.60	0.19	0.75	1.03
4TFT4	{ }K	1/4	1/4	2.03	9/16	11/16	0.60	0.19	0.84	1.19
6TFT4	{ }K	3/8	1/4	2.06	11/16	11/16	0.66	0.28	0.84	1.22
6TFT6	{ }K	3/8	3/8	2.22	11/16	13/16	0.66	0.28	0.91	1.31
8TFT4	{ }K	1/2	1/4	2.27	7/8	11/16	0.89	0.42	0.91	1.36
8TFT6	{ }K	1/2	3/8	2.33	7/8	13/16	0.89	0.42	0.91	1.42
8TFT8	{ }K	1/2	1/2	2.61	7/8	1	0.89	0.42	1.13	1.48
10TFT8	{ }K	5/8	1/2	2.65	1	1	0.95	0.50	1.13	1.52
12TFT8	{ }K	3/4	1/2	2.68	1 1/8	1	0.95	0.66	1.13	1.55
12TFT12	{ }K	3/4	3/4	2.89	1 1/8	1 1/4	0.95	0.66	1.25	1.64
16TFT12	{ }K	1	3/4	2.56	1 1/2	1 1/4	1.23	0.88	1.25	1.31
16TFT16	{ }K	1	1	3.49	1 1/2	1 11/16	1.23	0.88	1.50	1.99

* { } see page5 for material specifications.

Female Branch Tee: TTF

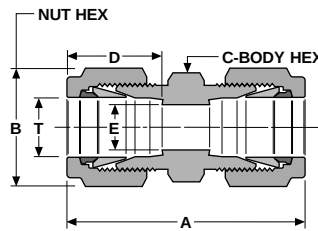
connects **fractional** tube to male NPT thread



Part Number	T Tube O.D.	P Female Pipe Thread	A	B Hex Flat	C Body Flat	D	E (min.)	H	M
1TTF1{ }K	1/16	1/16	1.56	5/16	7/16	0.41	0.05	0.75	0.78
2TTF2{ }K	1/8	1/8	1.87	7/16	1/2	0.50	0.09	0.75	0.94
4TTF4{ }K	1/4	1/8	2.16	9/16	1/2	0.60	0.19	0.75	1.08
4TTF4{ }K	1/4	1/4	2.38	9/16	11/16	0.60	0.19	0.84	1.19
6TTF6{ }K	3/8	1/4	2.44	11/16	11/16	0.66	0.28	0.84	1.22
6TTF6{ }K	3/8	3/8	2.62	11/16	13/16	0.66	0.28	0.91	1.31
6TTF8{ }K	3/8	1/2	2.76	11/16	1	0.66	0.28	1.13	1.38
8TTF4{ }K	1/2	1/4	2.72	7/8	11/16	0.89	0.42	0.91	1.36
8TTF6{ }K	1/2	3/8	2.84	7/8	13/16	0.89	0.42	0.91	1.42
8TTF8{ }K	1/2	1/2	2.90	7/8	1	0.89	0.42	1.13	1.45
10TTF8{ }K	5/8	1/2	3.03	1	1	0.95	0.50	1.13	1.52
12TTF8{ }K	3/4	1/2	3.09	1 1/8	1	0.95	0.66	1.13	1.55
12TTF12{ }K	3/4	3/4	3.27	1 1/8	1 1/4	0.95	0.66	1.25	1.64
16TTF12{ }K	1	3/4	3.59	1 1/2	1 1/4	1.23	0.88	1.25	1.80
16TTF16{ }K	1	1	3.97	1 1/2	1 11/16	1.23	0.88	1.50	1.99

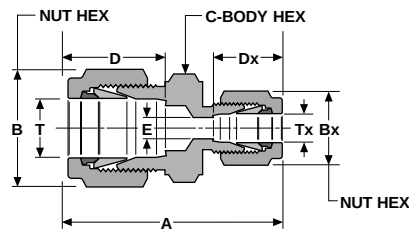
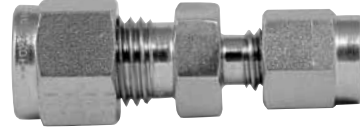
Union: U

connects **fractional** tube



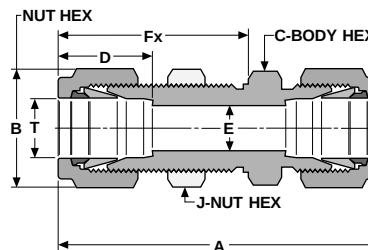
Part Number	T Tube O.D.	A	B Hex Flat	C Hex Flat	D	E (min.)
1U{ }K	1/16	1.13	5/16	5/16	0.41	0.05
2U{ }K	1/8	1.37	7/16	7/16	0.50	0.09
4U{ }K	1/4	1.65	9/16	1/2	0.60	0.19
6U{ }K	3/8	1.76	11/16	5/8	0.66	0.28
8U{ }K	1/2	2.00	7/8	13/16	0.89	0.42
10U{ }K	5/8	2.05	1	15/16	0.95	0.50
12U{ }K	3/4	2.18	1 1/8	1 1/16	0.95	0.66
16U{ }K	1	2.56	1 1/2	1 3/8	1.23	0.88
20U{ }K	1 1/4	3.63	1 7/8	1 3/4	1.62	1.09
24U{ }K	1 1/2	4.27	2 1/4	2 1/8	1.98	1.34
32U{ }K	2	5.84	3	2 3/4	2.64	1.81

Reducing Union: RU connects fractional tube



Part Number	T Tube O.D.	Tx Tube O.D.	A	B Hex Flat	Bx Hex Flat	C Hex Flat	D	Dx	E (min.)
2RU1{ }K	1/8	1/16	1.25	7/16	5/16	7/16	0.50	0.41	0.05
4RU1{ }K	1/4	1/16	1.44	9/16	5/16	1/2	0.60	0.41	0.05
4RU2{ }K	1/4	1/8	1.55	9/16	7/16	1/2	0.60	0.50	0.09
6RU1{ }K	3/8	1/16	1.43	11/16	5/16	5/8	0.66	0.41	0.05
6RU2{ }K	3/8	1/8	1.62	11/16	7/16	5/8	0.66	0.50	0.09
6RU4{ }K	3/8	1/4	1.72	11/16	9/16	5/8	0.66	0.60	0.19
8RU2{ }K	1/2	1/8	1.79	7/8	7/16	13/16	0.89	0.50	0.09
8RU4{ }K	1/2	1/4	1.87	7/8	9/16	13/16	0.89	0.60	0.19
8RU6{ }K	1/2	3/8	1.91	7/8	11/16	13/16	0.89	0.66	0.28
10RU6{ }K	5/8	3/8	1.92	1	11/16	15/16	0.95	0.66	0.28
10RU8{ }K	5/8	1/2	2.03	1	7/8	15/16	0.95	0.89	0.42
12RU4{ }K	3/4	1/4	1.99	1 1/8	9/16	1 1/16	0.95	0.60	0.19
12RU6{ }K	3/4	3/8	2.08	1 1/8	11/16	1 1/16	0.95	0.66	0.28
12RU8{ }K	3/4	1/2	2.11	1 1/8	7/8	1 1/16	0.95	0.89	0.42
12RU10{ }K	3/4	5/8	2.14	1 1/8	1	1 1/16	0.95	0.95	0.50
16RU8{ }K	1	1/2	2.43	1 1/2	7/8	1 3/8	1.23	0.89	0.42
16RU12{ }K	1	3/4	2.40	1 1/2	1 1/8	1 3/8	1.23	0.95	0.66
32RU24{ }K	2	1 1/2	5.18	3	2 1/4	2 3/4	2.64	1.98	1.33

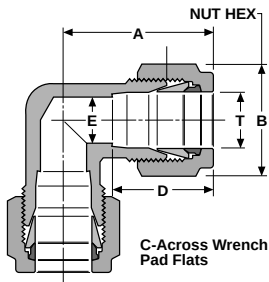
Bulkhead Union: BU connects fractional tube



Part Number	T Tube O.D.	A	B Hex Flat	C Hex Flat	D	E (min.)	Fx	J Hex Flat	Panel Hole Diameter	Max Panel Thickness
1BU{ }K	1/16	1.50	5/16	7/16	0.41	0.05	0.91	3/8	0.20	11/32
2BU{ }K	1/8	1.99	7/16	1/2	0.50	0.09	1.22	1/2	0.33	7/16
4BU{ }K	1/4	2.25	9/16	5/8	0.60	0.19	1.31	5/8	0.45	15/32
6BU{ }K	3/8	2.44	11/16	3/4	0.66	0.28	1.44	3/4	0.58	17/32
8BU{ }K	1/2	2.79	7/8	15/16	0.89	0.42	1.64	15/16	0.77	19/32
10BU{ }K	5/8	2.83	1	1 1/16	0.95	0.50	1.67	1 1/16	0.89	9/16
12BU{ }K	3/4	3.08	1 1/8	1 3/16	0.95	0.66	1.86	1 3/16	1.02	21/32
16BU{ }K	1	3.78	1 1/2	1 9/16	1.23	0.88	2.27	1 9/16	1.33	1 1/32
24BU{ }K	1 1/2	5.50	2 1/4	2 1/4	1.97	1.33	3.02	2 1/4	1.95	3/4
32BU{ }K	2	7.06	3	2 7/8	2.66	1.81	3.67	3	2.64	3/4

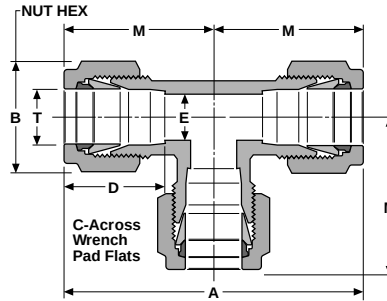
* { } see page 5 for material specifications.

Union Elbow: LU connects fractional tube



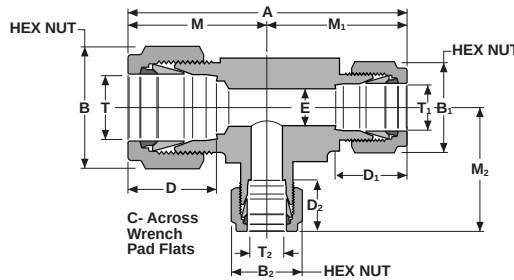
Part Number		T Tube O.D.	A	B Hex Flat	C Body Flat	D	E (min.)
1LU(JK)		1/16	0.79	5/16	7/16	0.41	0.05
2LU(JK)		1/8	0.91	7/16	7/16	0.50	0.09
4LU(JK)		1/4	1.00	9/16	7/16	0.60	0.19
6LU(JK)		3/8	1.12	11/16	1/2	0.66	0.28
8LU(JK)		1/2	1.36	7/8	11/16	0.89	0.42
10LU(JK)		5/8	1.42	1	13/16	0.95	0.50
12LU(JK)		3/4	1.55	1 1/8	1	0.95	0.66
16LU(JK)		1	1.81	1 1/2	1 1/4	1.23	0.88
20LU(JK)		1 1/4	2.62	1 7/8	1 11/16	1.62	1.12
24LU(JK)		1 1/2	3.08	2 1/4	2	1.98	1.34
32LU(JK)		2	4.20	3	2 3/4	2.64	1.81

Union Tee: TTT connects fractional tube



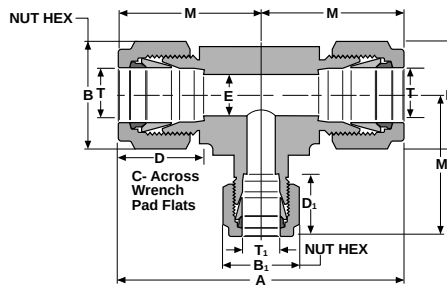
Part Number		T Tube O.D.	A	B Hex Flat	C Body Flat	D	E (min.)	M
1TTT(JK)		1/16	1.58	5/16	7/16	0.41	0.05	0.79
2TTT(JK)		1/8	1.81	7/16	7/16	0.50	0.09	0.91
4TTT(JK)		1/4	2.00	9/16	7/16	0.60	0.19	1.00
6TTT(JK)		3/8	2.24	11/16	1/2	0.66	0.28	1.12
8TTT(JK)		1/2	2.72	7/8	11/16	0.89	0.42	1.36
10TTT(JK)		5/8	2.83	1	13/16	0.95	0.50	1.42
12TTT(JK)		3/4	3.09	1 1/8	1	0.95	0.66	1.55
16TTT(JK)		1	3.59	1 1/2	1 3/8	1.23	0.88	1.80
20TTT(JK)		1 1/4	5.24	1 7/8	1 11/16	1.62	1.12	2.62
24TTT(JK)		1 1/2	6.16	2 1/4	2	1.98	1.34	3.08
32TTT(JK)		2	8.40	3	2 3/4	2.64	1.81	4.20

Reducing Run Branch Tee: TTT_BR connects fractional tube



Part Number	T Tube O.D.	T1 (Run) Tube O.D.	T2 (Branch) Tube O.D.	A	B Hex Flat	B1 Hex Flat	B2 Hex Flat	C Body Flat	D	D1	D2	E (min.)	M	M1	M2
10TTTB8R6(JK)	5/8	1/2	3/8	2.81	1	7/8	11/16	13/16	0.95	0.89	0.66	0.28	1.42	1.39	1.30
12TTT10BR6(JK)	3/4	5/8	3/8	3.05	1 1/8	1	11/16	1	0.95	0.95	0.66	0.28	1.55	1.51	1.39
12TTT10BR8(JK)	3/4	5/8	1/2	3.05	1 1/8	1	7/8	1	0.95	0.89	0.42	0.28	1.55	1.51	1.48
16TTT10BR6(JK)	1	5/8	3/8	3.47	1 1/2	1	11/16	1 1/4	1.23	0.95	0.66	0.28	1.80	1.68	1.56
16TTT10BR8(JK)	1	5/8	1/2	3.47	1 1/2	1	7/8	1 1/4	1.23	0.95	0.89	0.42	1.80	1.68	1.65
16TTT12BR6(JK)	1	3/4	3/8	3.49	1 1/2	1 1/8	11/16	1 1/4	1.23	0.95	0.66	0.28	1.80	1.70	1.56

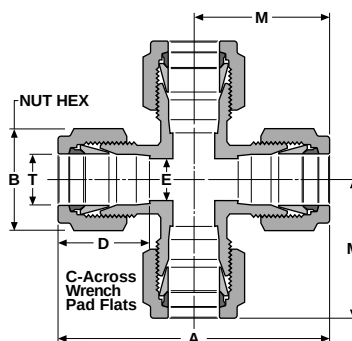
Reducing Branch Tee: TTTB connects fractional tube



Part Number	T Tube O.D.	T1 (Branch) Tube O.D.	A	B Hex Flat	B1 Hex Flat	B2 Hex Flat	C Body Flat	D	D1	E (min.)	M	M1
6TTTB8(JK)	3/8	1/2	2.44	11/16	11/16	7/8	11/16	0.66	0.89	0.28	1.22	1.36
8TTTB6(JK)	1/2	3/8	2.72	7/8	7/8	11/16	11/16	0.89	0.66	0.28	1.36	1.27
10TTTB6(JK)	5/8	3/8	2.83	1	1	11/16	13/16	0.95	0.66	0.28	1.42	1.30
10TTTB8(JK)	5/8	1/2	2.83	1	1	7/8	13/16	0.95	0.89	0.42	1.42	1.39
12TTTB6(JK)	3/4	3/8	3.09	1 1/8	1 1/8	11/16	1	0.95	0.66	0.28	1.55	1.39
12TTTB8(JK)	3/4	1/2	3.09	1 1/8	1 1/8	7/8	1	0.95	0.89	0.42	1.55	1.47
16TTTB6(JK)	1	3/8	3.59	1 1/2	1 1/2	11/16	1 1/4	1.23	0.66	0.28	1.80	1.56
16TTTB8(JK)	1	1/2	3.59	1 1/2	1 1/2	7/8	1 1/4	1.23	0.89	0.42	1.80	1.65
20TTTB16(JK)	1 1/4	1	5.24	1 7/8	1 7/8	1 1/2	1 3/4	1.62	1.23	0.88	2.62	2.18
24TTTB16(JK)	1 1/2	1	6.16	2 1/4	2 1/4	1 1/2	2	1.98	1.23	0.88	3.08	2.37
32TTTB16(JK)	2	1	8.40	3	3	1 1/2	2 3/4	2.64	1.23	0.88	4.20	2.80
32TTTB24(JK)	2	1 1/2	8.40	3	3	2 1/4	2 3/4	2.64	1.98	1.34	4.20	3.83

* {} see page 5 for material specifications.

Union Cross: C connects fractional tube

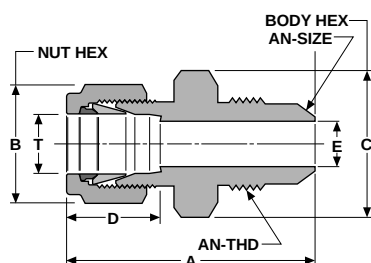


Part Number	T Tube O.D.	A	B Hex Flat	C Body Flat	D	E (min.)	M
1C{ }K	1/16	1.58	5/16	1/2	0.41	0.05	0.79
2C{ }K	1/8	1.81	7/16	1/2	0.50	0.09	0.91
4C{ }K	1/4	2.00	9/16	1/2	0.60	0.19	1.00
6C{ }K	3/8	2.24	11/16	5/8	0.66	0.28	1.12
8C{ }K	1/2	2.72	7/8	13/16	0.89	0.42	1.36
10C{ }K	5/8	2.83	1	1 1/16	0.95	0.50	1.42
12C{ }K	3/4	3.09	1 1/8	1 1/16	0.95	0.66	1.55
16C{ }K	1	3.59	1 1/2	1 3/8	1.23	0.88	1.80

AN Fittings

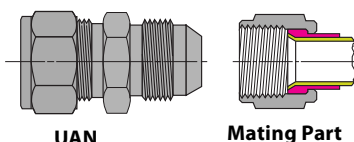
Union, AN: UAN

connects fractional tube to flared tube



UAN Application:

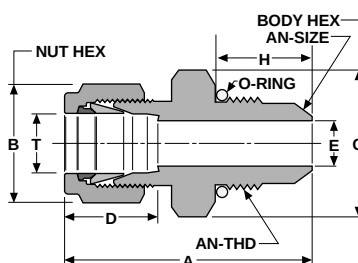
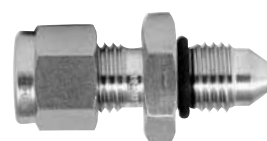
HOKE Interlok with AND 10056 or MS 33656, 37° flare connections for use with flared tubing.



Part Number	T Tube O.D.	AN Size	AN Thread	A	B Hex Flat	C Hex Flat	D	E (min.)
1UAN4{ }K	1/16	1/4	7/16-20	1.22	5/16	1/2	0.41	0.05
2UAN2{ }K	1/8	1/8	5/16-24	1.22	7/16	7/16	0.50	0.06
2UAN4{ }K	1/8	1/4	7/16-20	1.38	7/16	1/2	0.50	0.09
4UAN4{ }K	1/4	1/4	7/16-20	1.49	9/16	1/2	0.60	0.18
6UAN4{ }K	3/8	1/4	7/16-20	1.56	11/16	5/8	0.66	0.17
6UAN6{ }K	3/8	3/8	9/16-18	1.56	11/16	5/8	0.66	0.28
8UAN8{ }K	1/2	1/2	3/4-16	1.80	7/8	13/16	0.89	0.39
10UAN10{ }K	5/8	5/8	7/8-14	1.92	1	15/16	0.95	0.49
12UAN12{ }K	3/4	3/4	1 1/16-12	2.11	1 1/8	1 1/8	0.95	0.61
16UAN16{ }K	1	1	1 5/16-12	2.43	1 1/2	1 3/8	1.23	0.85

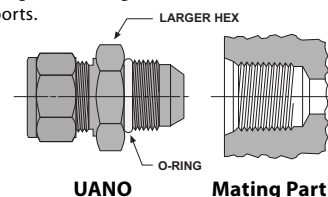
Union, AN O-ring: UANO

connects fractional tube to flared tube



UANO Application:

HOKE Interlok with AND 10056 or MS 33656 for gasket sealing with AND 10050 or MS 16142 ports.

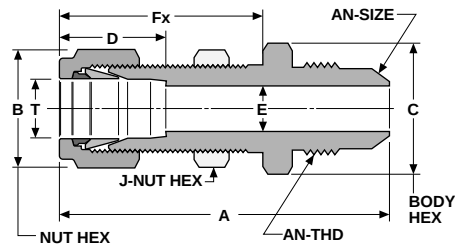


Part Number	T Tube O.D.	AN Size	AN Thread	A	B Hex Flat	C Hex Flat	D	E (min.)	H	O-ring Uniform Size
2UANO2{ }K	1/8	1/8	5/16-24	1.22	7/16	9/16	0.50	0.06	0.45	902
2UANO4{ }K	1/8	1/4	7/16-20	1.38	7/16	11/16	0.50	0.09	0.55	904
4UANO4{ }K	1/4	1/4	7/16-20	1.47	9/16	11/16	0.60	0.17	0.55	904
4UANO6{ }K	1/4	3/8	9/16-18	1.53	9/16	13/16	0.60	0.19	0.56	906
6UANO4{ }K	3/8	1/4	7/16-20	1.56	11/16	11/16	0.66	0.17	0.55	904
6UANO6{ }K	3/8	3/8	9/16-18	1.56	11/16	13/16	0.66	0.28	0.56	906
8UANO8{ }K	1/2	1/2	3/4-16	1.80	7/8	1	0.89	0.39	0.66	908

* { } see page 5 for material specifications. A second { } reference in part number specifies o-ring: 23-Buna N, 45-Viton.

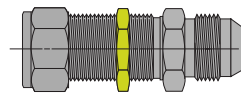
Bulkhead Union, AN: BUAN

connects **fractional** tube to flared tube

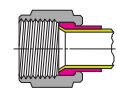


BUAN Application:

HOKE Interlok bulkhead configuration and AND 10056 or MS 33656, 37° flare connection for use with flared tubing.



BUAN

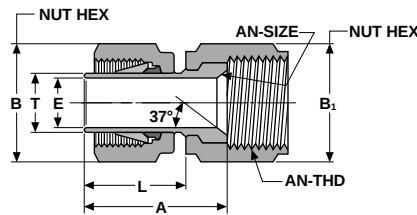


Mating Part

Part Number	T Tube O.D.	AN Size	AN Thread	A	B Hex Flat	C Hex Flat	D	E (min.)	Fx	J Hex Flat	Panel Hole Diameter	Max Panel Thickness
2BUAN2{ }K	1/8	1/8	5/16-24	1.86	7/16	1/2	0.50	0.06	1.22	1/2	0.33	7/16
2BUAN4{ }K	1/8	1/4	7/16-20	2.02	7/16	1/2	0.50	0.09	1.22	1/2	0.33	7/16
4BUAN4{ }K	1/4	1/4	7/16-20	2.11	9/16	5/8	0.60	0.17	1.31	5/8	0.45	15/32
6BUAN4{ }K	3/8	1/4	7/16-20	2.25	11/16	3/4	0.66	0.17	1.44	3/4	0.58	17/32
6BUAN6{ }K	3/8	3/8	9/16-18	2.25	11/16	3/4	0.66	0.28	1.44	3/4	0.58	17/32
8BUAN8{ }K	1/2	1/2	3/4-16	2.58	7/8	15/16	0.89	0.39	1.64	15/16	0.77	19/32
10BUAN10{ }K	5/8	5/8	7/8-14	2.74	1	1 1/16	0.95	0.48	1.67	1 1/16	0.89	9/16
12BUAN12{ }K	3/4	3/4	1 1/16-12	3.09	1 1/8	1 3/16	0.95	0.61	1.86	1 3/16	1.33	21/32
16BUAN16{ }K	1	1	1 5/16-12	3.65	1 1/2	1 9/16	1.23	0.84	2.27	1 9/16	1.33	1 1/32

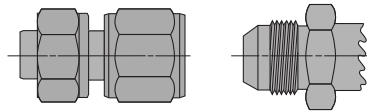
Adapter, AN: AAN

connects **fractional** Interlok port to flare fitting



AAN Application:

HOKE Interlok tube stub with ferrules pre-set with 37° flare connection for use with AND 10056 or MS 33656 ends.



AAN

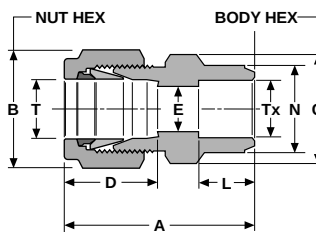
Mating Part

Note: The tube stub end comes with pre-set HOKE Interlok ferrules. To assemble, follow HOKE Interlok remake instructions, page 34.

Part Number	T Tube O.D.	AN Size	AN Thread	A	B Hex Flat	B1 Hex Flat	L	E (min.)
2AAN2{ }K	1/8	1/8	5/16-24	0.94	7/16	3/8	0.63	0.09
2AAN4{ }K	1/8	1/4	7/16-20	0.92	7/16	9/16	0.63	0.09
4AAN4{ }K	1/4	1/4	7/16-20	0.98	9/16	9/16	0.68	0.17
6AAN6{ }K	3/8	3/8	9/16-18	1.17	11/16	11/16	0.78	0.28
8AAN8{ }K	1/2	1/2	3/4-16	1.42	7/8	7/8	0.97	0.39
10AAN10{ }K	5/8	5/8	7/8-14	1.51	1	1	1.07	0.50
12AAN12{ }K	3/4	3/4	1 1/16-12	1.53	1 1/8	1 1/4	1.14	0.59
16AAN16{ }K	1	1	1 5/16-12	1.91	1 1/2	1 1/2	1.38	0.80

Tube Socket Weld Connector: CW

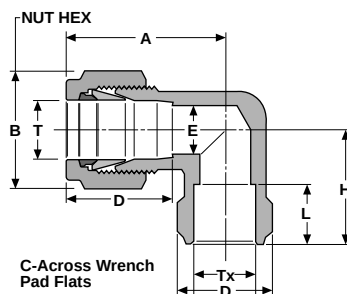
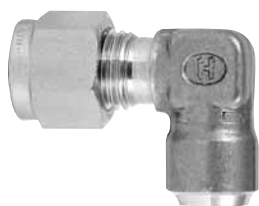
connects **fractional** tubes



Part Number	T Tube O.D.	Tx Tube O.D.	A	B Hex Flat	C Hex Flat	D	E (min.)	L	N
2CW2{ }K	1/8	1/8	1.11	7/16	7/16	0.50	0.09	0.25	0.31
4CW4{ }K	1/4	1/4	1.31	9/16	1/2	0.60	0.19	0.31	0.44
4CW6{ }K	1/4	3/8	1.37	9/16	5/8	0.60	0.19	0.38	0.61
6CW6{ }K	3/8	3/8	1.48	11/16	3/4	0.66	0.28	0.38	0.61
8CW6{ }K	1/2	3/8	1.61	7/8	13/16	0.89	0.30	0.38	0.61
8CW8{ }K	1/2	1/2	1.62	7/8	13/16	0.89	0.42	0.50	0.75
10CW10{ }K	5/8	5/8	1.64	1	15/16	0.95	0.50	0.56	0.88
12CW12{ }K	3/4	3/4	1.70	1 1/8	1 1/16	0.95	0.66	0.56	1.06
16CW16{ }K	1	1	2.08	1 1/2	1 3/8	1.23	0.88	0.75	1.31

Tube Socket Weld Elbow: LW

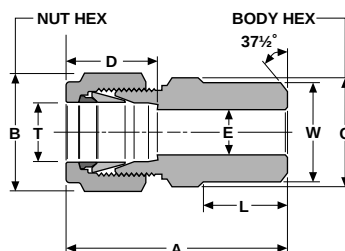
connects **fractional** tube



Part Number	T	Tx	A	B	C	D	E	H	L
	Tube O.D.	Tube O.D.		Hex Flat	Hex Flat		(min.)		
2LW2{ }K	1/8	1/8	0.91	7/16	7/16	0.50	0.09	0.66	0.25
4LW4{ }K	1/4	1/4	1.00	9/16	7/16	0.60	0.19	0.72	0.31
6LW6{ }K	3/8	3/8	1.12	11/16	1/2	0.66	0.28	0.84	0.38
8LW8{ }K	1/2	1/2	1.36	7/8	11/16	0.89	0.42	0.97	0.50
10LW10{ }K	5/8	5/8	1.42	1	13/16	0.95	0.50	1.03	0.56
12LW12{ }K	3/4	3/4	1.55	1 1/8	1	0.95	0.66	1.16	0.56
16LW16{ }K	1	1	1.80	1 1/2	1 1/4	1.23	0.88	1.31	0.75

Butt Weld Connector: CBW

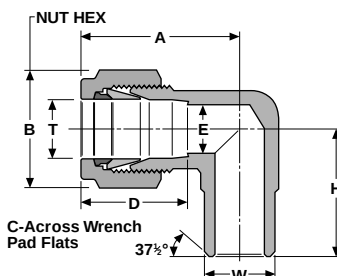
connects **fractional** tube to pipe



Part Number	T	W	Nominal	A	B	C	D	E	L
	Tube O.D.	Butt Weld O.D.	Pipe Size		Hex Flat	Hex Flat		(min.)	
2CBW2{ }K	1/8	0.41	1/8	1.14	7/16	7/16	0.50	0.09	0.38
4CBW2{ }K	1/4	0.41	1/8	1.28	9/16	1/2	0.60	0.19	0.38
4CBW4{ }K	1/4	0.54	1/4	1.47	9/16	9/16	0.60	0.19	0.56
6CBW4{ }K	3/8	0.54	1/4	1.57	11/16	5/8	0.66	0.28	0.56
6CBW6{ }K	3/8	0.68	3/8	1.57	11/16	11/16	0.66	0.28	0.56
6CBW8{ }K	3/8	0.84	1/2	1.78	11/16	7/8	0.66	0.28	0.75
8CBW4{ }K	1/2	0.54	1/4	1.71	7/8	13/16	0.89	0.30	0.56
8CBW6{ }K	1/2	0.68	3/8	1.71	7/8	13/16	0.89	0.42	0.56
8CBW8{ }K	1/2	0.84	1/2	1.89	7/8	7/8	0.89	0.42	0.75
10CBW8{ }K	5/8	0.84	1/2	1.92	1	15/16	0.95	0.50	0.75
12CBW12{ }K	3/4	1.05	3/4	2.03	1 1/8	1 1/16	0.95	0.66	0.75
16CBW16{ }K	1	1.32	1	2.46	1 1/2	1 3/8	1.23	0.88	0.94
20CBW20{ }K	1 1/4	1.66	1 1/4	3.04	2	1 3/4	1.62	1.09	0.94
24CBW24{ }K	1 1/2	1.90	1 1/2	3.51	2 1/4	2 1/8	1.98	1.34	1.03
32CBW32{ }K	2	2.38	2	4.45	3	2 3/4	2.64	2.38	1.06

Butt Weld Elbow: LBW

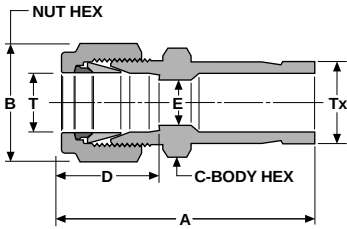
connects **fractional** tube to pipe



Part Number	T	W	Nominal	A	B	C	D	E	H
	Tube O.D.	Butt Weld O.D.	Pipe Size		Hex Flat	Body Flat		(min.)	
2LBW2{ }K	1/8	0.41	1/8	0.91	7/16	7/16	0.50	0.09	0.72
4LBW2{ }K	1/4	0.41	1/8	1.00	9/16	7/16	0.60	0.19	0.78
4LBW4{ }K	1/4	0.54	1/4	1.06	9/16	1/2	0.60	0.19	0.94
6LBW4{ }K	3/8	0.54	1/4	1.12	11/16	1/2	0.66	0.28	1.00
8LBW6{ }K	1/2	0.68	3/8	1.36	7/8	11/16	0.89	0.42	1.12
8LBW8{ }K	1/2	0.84	1/2	1.40	7/8	13/16	0.89	0.42	1.31
10LBW8{ }K	5/8	0.84	1/2	1.42	1	13/16	0.95	0.50	1.38
12LBW12{ }K	3/4	1.05	3/4	1.55	1 1/8	1	0.95	0.66	1.50
16LBW12{ }K	1	1.05	3/4	1.80	1 1/2	1 1/4	1.23	0.74	1.66
16LBW16{ }K	1	1.32	1	1.80	1 1/2	1 1/4	1.23	0.88	1.84

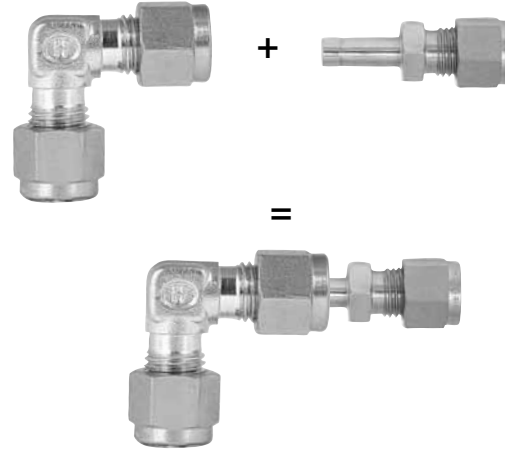
* { } see page 5 for material specifications.

Reducer: R connects fractional tube to fractional port



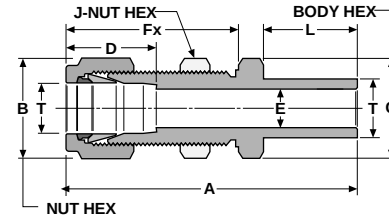
Reducing Assemblies Made With HOKE Interlok Fittings

Use the HOKE Interlok Reducer to reduce the size of an existing fitting, thereby providing more flexibility in a variety of installations. It comes with a HOKE Interlok fitting on one end and a machined tube stub on the other.



Part Number	T	Tx	A	B	C	D	E
	Tube O.D.	Tube O.D.		Hex Flat	Hex Flat		(min.)
1R2{ }K	1/16	1/8	1.27	5/16	5/16	0.41	0.05
1R4{ }K	1/16	1/4	1.35	5/16	5/16	0.41	0.05
2R4{ }K	1/8	1/4	1.45	7/16	7/16	0.50	0.09
2R6{ }K	1/8	3/8	1.55	7/16	7/16	0.50	0.09
2R8{ }K	1/8	1/2	1.78	7/16	9/16	0.50	0.09
4R2{ }K	1/4	1/8	1.53	9/16	1/2	0.60	0.09
4R4{ }K	1/4	1/4	1.59	9/16	1/2	0.60	0.19
4R6{ }K	1/4	3/8	1.69	9/16	1/2	0.60	0.19
4R8{ }K	1/4	1/2	1.90	9/16	9/16	0.60	0.19
4R10{ }K	1/4	5/8	2.00	9/16	11/16	0.60	0.19
4R12{ }K	1/4	3/4	2.10	9/16	13/16	0.60	0.19
6R4{ }K	3/8	1/4	1.69	11/16	5/8	0.66	0.19
6R6{ }K	3/8	3/8	1.79	11/16	5/8	0.66	0.28
6R8{ }K	3/8	1/2	1.97	11/16	5/8	0.66	0.28
6R10{ }K	3/8	5/8	2.06	11/16	11/16	0.66	0.28
6R12{ }K	3/8	3/4	2.16	11/16	13/16	0.66	0.28
6R16{ }K	3/8	1	2.44	11/16	1 1/16	0.66	0.28
8R4{ }K	1/2	1/4	1.83	7/8	13/16	0.89	0.19
8R6{ }K	1/2	3/8	1.86	7/8	13/16	0.89	0.28
8R8{ }K	1/2	1/2	2.12	7/8	13/16	0.89	0.39
8R10{ }K	1/2	5/8	2.20	7/8	13/16	0.89	0.42
8R12{ }K	1/2	3/4	2.27	7/8	13/16	0.89	0.42
8R16{ }K	1/2	1	2.48	7/8	1 1/16	0.89	0.42
10R12{ }K	5/8	3/4	2.27	1	15/16	0.95	0.50
10R16{ }K	5/8	1	2.58	1	1 1/16	0.95	0.50
12R16{ }K	3/4	1	2.65	1 1/8	1 1/16	0.95	0.66
16R24{ }K	1	1 1/2	3.52	1 1/2	1 5/8	1.23	0.88
20R24{ }K	1 1/4	1 1/2	4.10	2 1/4	1 7/8	1.62	1.09
20R32{ }K	1 1/4	2	4.93	3	2 1/4	1.62	1.09
24R32{ }K	1 1/2	2	5.18	3	2 1/4	1.98	1.34

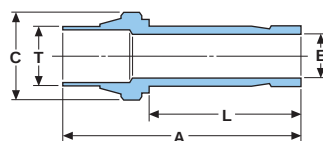
Bulkhead Adapter: BA connects fractional tube to fractional port



Part Number	T	T, Tube Stub	A	B	C	D	E	Fx	J	Panel Hole	Max Panel
	Tube O.D.	O.D.		Hex Flat	Hex Flat		(min.)		Hex Flat	Diameter	Thickness
2BA2{ }K	1/8	1/8	2.03	7/16	1/2	0.50	0.09	1.22	1/2	0.33	7/16
4BA4{ }K	1/4	1/4	2.22	9/16	5/8	0.60	0.19	1.31	5/8	0.45	15/32
6BA6{ }K	3/8	3/8	2.44	11/16	3/4	0.66	0.28	1.44	3/4	0.58	17/32
8BA8{ }K	1/2	1/2	2.91	7/8	15/16	0.89	0.39	1.64	15/16	0.77	19/32
10BA10{ }K	5/8	5/8	3.05	1	1 1/16	0.95	0.50	1.67	1 1/16	0.89	9/16
12BA12{ }K	3/4	3/4	3.33	1 1/8	1 3/16	0.95	0.59	1.86	1 3/16	1.02	21/32
16BA16{ }K	1	1	4.07	1 1/2	1 9/16	1.23	0.80	2.27	1 9/16	1.33	1 1/32

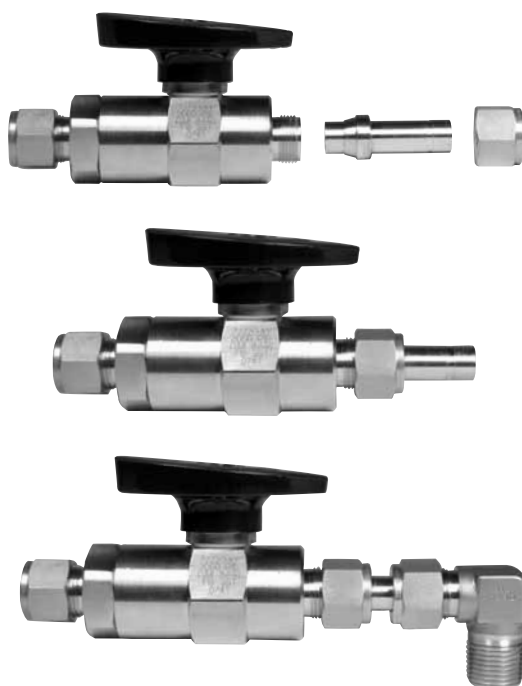
Port Connector: PC

connects two fractional ports



Part Number		T	A	C	E	L
		Tube O.D.			(min.)	
1PC{ }		1/16	0.73	0.13	0.03	.55
2PC{ }		1/8	1.00	0.25	0.06	.63
4PC{ }		1/4	1.16	0.38	0.13	.78
6PC{ }		3/8	1.31	0.50	0.25	.86
8PC{ }		1/2	2.00	0.69	0.33	1.30
12PC{ }		3/4	1.83	0.94	0.53	1.13

HOKE Interlok ended ball valve using port connector for close connection to another port.



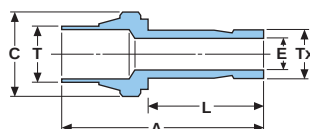
Installation Instructions

For Port Connector and Reducing Port Connector:

1. Firmly insert machined ferrule end into fitting body.
2. Place nut only (no ferrules) over the machined ferrule. Finger-tighten.
3. Using wrench, turn nut until sharp rise in torque is felt, approximately 1/4 turn. Snug tight. (Do not tighten 1/4 turns. No ferrules to set.)
4. Insert tube stub end into HOKE Gyrolok assembly. Follow standard HOKE Gyrolok assembly instructions, page 34.

Reducing Port Connector: PC

connects two fractional ports

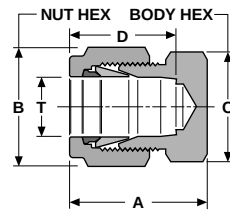


Part Number		T	Tx	A	C	E	L
		Tube O.D.	Tube O.D.			(min.)	
2PC1{ }		1/8	1/16	0.84	0.25	0.03	0.47
4PC1{ }		1/4	1/16	0.95	0.38	0.03	0.56
4PC2{ }		1/4	1/8	1.06	0.38	0.06	0.66
6PC2{ }		3/8	1/8	1.16	0.50	0.09	0.70
6PC4{ }		3/8	1/4	1.22	0.50	0.13	0.78
8PC4{ }		1/2	1/4	1.47	0.69	0.13	0.77
8PC6{ }		1/2	3/8	1.55	0.69	0.25	0.83
12PC8{ }		3/4	1/2	2.00	0.94	0.33	1.14

* { } see page 5 for material specifications.

Cap: CP

caps end of **fractional** tube



Part Number	T	A	B	C	D
	Tube O.D.		Hex Flat	Body Flat	
1CP{ }K	1/16	0.66	5/16	5/16	0.41
2CP{ }K	1/8	0.78	7/16	7/16	0.50
4CP{ }K	1/4	0.91	9/16	1/2	0.60
6CP{ }K	3/8	1.00	11/16	5/8	0.66
8CP{ }K	1/2	1.22	7/8	13/16	0.89
10CP{ }K	5/8	1.31	1	15/16	0.95
12CP{ }K	3/4	1.33	1 1/8	1 1/16	0.95
16CP{ }K	1	1.69	1 1/2	1 3/8	1.23
20CP{ }K	1 1/4	2.10	1 7/8	1 3/4	1.62
24CP{ }K	1 1/2	2.55	2 1/4	2 1/8	1.98
32CP{ }K	2	3.39	3	2 3/4	2.64

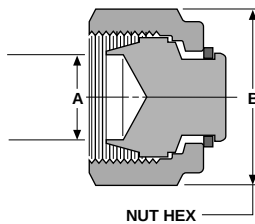


Cap Assembled to Tubing

Assembly Instructions:

1. Insert tube into cap.
2. Follow standard HOKE Interlok assembly instructions, page 34.

Plug: P fractional for Interlok ports



Part Number	A	B
	Fitting Size	Hex Flat
1P{ }K	1/16	5/16
2P{ }K	1/8	7/16
4P{ }K	1/4	9/16
6P{ }K	3/8	11/16
8P{ }K	1/2	7/8
10P{ }K	5/8	1
12P{ }K	3/4	1 1/8
16P{ }K	1	1 1/2
20P{ }K	1 1/4	1 7/8
24P{ }K	1 1/2	2 1/4
32P{ }K	2	3

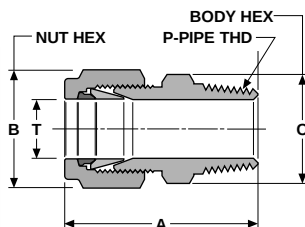
Usage Instructions:

1. Remove nut and ferrules from body.
2. Place plug assembly onto HOKE Interlok fitting body. Tighten to hand-tight condition.
3. Turn nut with wrench until sharp rise in torque, approximately 1/4 turn. Then snug tight. (Do not tighten 1 1/4 turns. No ferrules to set).



Plug Assembled to HOKE Interlok Body

Male Thermocouple Connector: CMT (Fractional)



Part Number	T	P	A	B	C
	Tube O.D.	Male Pipe Thread		Hex Flat	Hex Flat
1CMT1{ }K	1/16	1/16	0.97	5/16	5/16
1CMT2{ }K	1/16	1/8	1.11	5/16	7/16
1CMT4{ }K	1/16	1/4	1.22	5/16	9/16
2CMT2{ }K	1/8	1/8	1.23	7/16	7/16
2CMT4{ }K	1/8	1/4	1.38	7/16	9/16
4CMT2{ }K	1/4	1/8	1.34	9/16	1/2
4CMT4{ }K	1/4	1/4	1.53	9/16	9/16
4CMT6{ }K	1/4	3/8	1.56	9/16	11/16
4CMT8{ }K	1/4	1/2	1.75	9/16	7/8
6CMT4{ }K	3/8	1/4	1.56	11/16	5/8
6CMT6{ }K	3/8	3/8	1.60	11/16	11/16
6CMT8{ }K	3/8	1/2	1.79	11/16	7/8
8CMT8{ }K	1/2	1/2	1.88	7/8	7/8
12CMT12{ }K	3/4	3/4	2.03	1 1/8	1 1/16
20CMT20{ }K	1 1/4	1 1/4	3.04	1 7/8	1 7/8

The CMT body does not contain a sizing angle or butt seal. As a result, the thermocouple can be extended beyond the fitting's NPT thread end.

Example: HOKE Interlok CMT assembled to thermocouple.



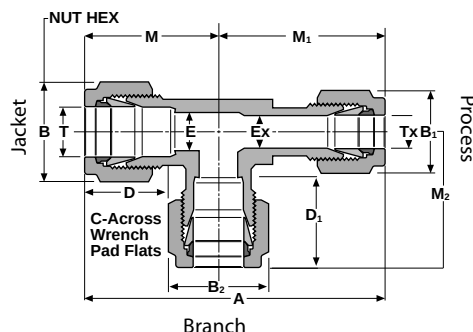
Assembly Instruction:

Because the thermocouple is not bottomed out within the fitting body, follow these simple steps before carrying out HOKE Interlok assembly instructions on page 34.

1. Position the length of the thermocouple to extend past the fitting's NPT end.
2. Once correctly positioned, carefully hold thermocouple in place to prevent shifting during assembly

* {} see page 5 for material specifications.

Heat Exchanger Tee: XT



Part Number	T Tube O.D.	T1 (Run) Tube O.D.	T2 (Branch) Tube O.D.	A	B Hex Flat	B1 Hex Flat	B2 Hex Flat	C Body Flat	D	D1	E (min.)	M	M1	M2
4XT2[]BR4K	1/4	1/8	1/4	1.91	9/16	7/16	9/16	7/16	0.60	0.60	0.13	1.00	0.91	1.00
8XT4[]BR4K	1/2	1/4	1/4	2.61	7/8	9/16	9/16	11/16	0.89	0.60	0.26	1.36	1.25	1.25
8XT4[]BR8K	1/2	1/4	1/2	2.55	7/8	9/16	7/8	11/16	0.89	0.89	0.42	1.36	1.19	1.36

Special Ordering Instructions:

Heat Exchanger Tees are available in other fractional and metric sizes by special order. Ask your HOKE distributor for price and availability information. Specify "Heat Exchanger Tee" followed by quantity and the desired tube connection sizes.

Example

8XT4[]BR8K

1. Jacket and tubing O.D.
2. Process tubing O.D.
3. Specify material
4. Branch tubing O.D.

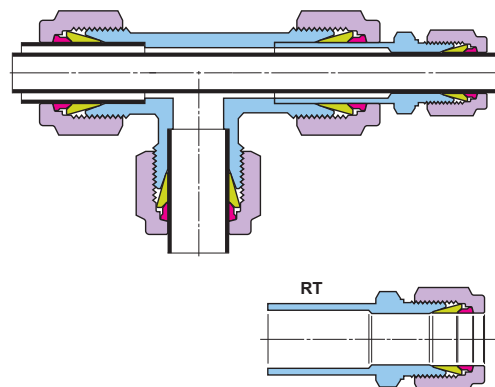
Sizes

- 1/2"
- 1/4"
- *
- 1/2"

Heat Exchanger Tee Made With HOKE Interlok Tube Fittings



Assembly of Heat Exchanger Tee Made From Union Tee With Full Port Reducer



Heat exchanger tees made with HOKE Interlok tube fittings can provide additional flexibility as well as reduce costly fitting inventories.

Ordering Instructions

Heat Exchanger Tees can be created with standard union tees and full port reducers to allow process tubing to be inserted into and through the jacket tubing.

To order a full port reducer, add the letter "T" to the core reducer part number.

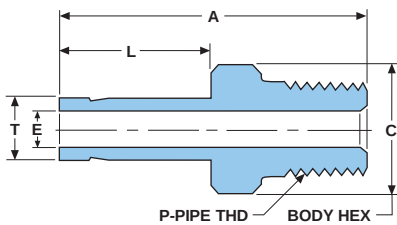
Example: 8RT12 316K

* [] see page 5 for material specifications.

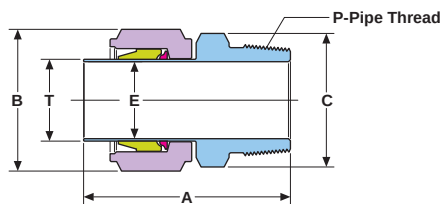
Male Adapter: AM (Fractional)



1" and under sizes



Over 1": 20AM20[] shown



Over 1 inch and over 25 mm Male Adapters feature pre-set ferrules.
Follow HOKE Interlok Reassembly instructions, page 34.

Part Number		T	P	A	B	C	E	L
NPT Threads	RT Threads	Tube O.D.	Male Pipe Thread			Hex Flat	(min.)	
1AM1[]		1/16	1/16	1.00		5/16	0.03	0.47
1AM2[]		1/16	1/8	1.00		7/16	0.03	0.47
2AM2[]		1/8	1/8	1.16		7/16	0.09	0.63
2AM4[]		1/8	1/4	1.34		9/16	0.09	0.63
4AM2[]	4AM2[] JEC	1/4	1/8	1.25		7/16	0.19	0.69
4AM4[]	4AM4[] JEC	1/4	1/4	1.44		9/16	0.19	0.69
4AM6[]		1/4	3/8	1.47		11/16	0.19	0.69
4AM8[]		1/4	1/2	1.69		7/8	0.19	0.69
6AM2[]		3/8	1/8	1.38		7/16	0.28	0.78
6AM4[]	6AM4[] JEC	3/8	1/4	1.56		9/16	0.28	0.78
6AM6[]	6AM6[] JEC	3/8	3/8	1.56		11/16	0.28	0.78
6AM8[]	6AM8[] JEC	3/8	1/2	1.78		7/8	0.28	0.78
8AM4[]		1/2	1/4	1.75		9/16	0.39	0.97
8AM6[]		1/2	3/8	1.75		11/16	0.39	0.97
8AM8[]	8AM8[] JEC	1/2	1/2	1.97		7/8	0.39	0.97
8AM12[]		1/2	3/4	1.98		1 1/16	0.39	0.97
10AM6[]		5/8	3/8	1.89		11/16	0.50	1.08
10AM8[]		5/8	1/2	2.08		7/8	0.50	1.08
10AM12[]		5/8	3/4	2.14		1 1/16	0.50	1.08
12AM8[]		3/4	1/2	2.13		7/8	0.59	1.13
12AM12[]		3/4	3/4	2.16		1 1/16	0.59	1.13
12AM16[]		3/4	1	2.31		1 3/8	0.59	1.13
16AM12[]		1	3/4	2.39		1 1/16	0.80	1.38
16AM16[]		1	1	2.61		1 3/8	0.80	1.38
20AM20[]		1 1/4	1 1/4	3.16	1 7/8	1 3/4	1.09	1.72
24AM24[]		1 1/2	1 1/2	3.72	2 1/4	2 1/8	1.31	2.06
32AM32[]		2	2	4.70	3	2 3/4	1.75	2.76

Eliminate Alignment Problems—Use Adapters

Female Pipe Port



Example: Need to join tubing and a female NPT port at 90° angle to one another.

Male Elbow



Problem: With the NPT end properly torqued, the tube fitting end of a male elbow may not properly line up with the tubing.

Male Adapter



Solution: Use a male adapter and union elbow. Tighten pipe thread of male adapter to convert the female port into a tube stub end.

Assembly:

1. To connect union elbow to adapter, hold elbow pointing in desired direction and follow standard HOKE Interlok assembly Instructions on page 34.

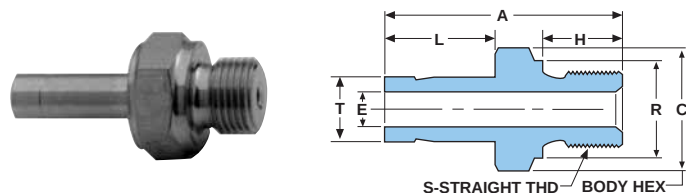
Union Elbow



2. Insert tubing into other end of the union elbow and properly connect tubing.

Male Adapter: AM/EA

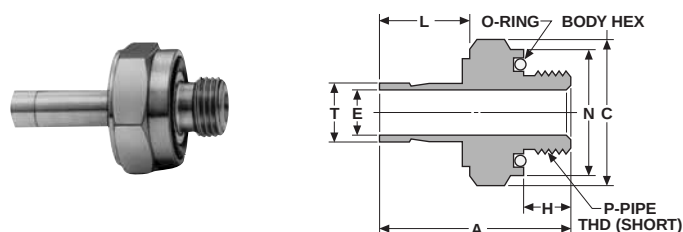
connects **fractional** port to female RS parallel thread



Part Number	T Tube O.D.	S RS Str. Thread	A	C Hex Flat	E (min.)	H	L	R
4AM2{ }EA	1/4	1/8	1.31	5/8	0.19	0.31	0.69	0.55
4AM4{ }EA	1/4	1/4	1.39	3/4	0.19	0.47	0.69	0.70
6AM6{ }EA	3/8	3/8	1.53	15/16	0.28	0.47	0.78	0.86
8AM8{ }EA	1/2	1/2	1.86	1 3/32	0.39	0.55	0.97	1.03

O-ring Male Adapter: AOM

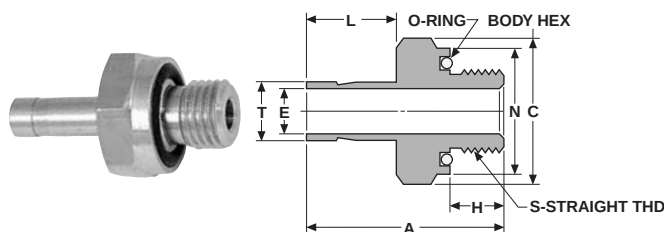
connects **fractional** port to female NPT thread



Part Number	T Tube O.D.	P Male Pipe Thread	A	C Hex Flat	E (min.)	H	L	N
1AOM2{ }	1/16	1/8	1.03	3/4	0.03	0.28	0.47	0.75
2AOM2{ }	1/8	1/8	1.23	3/4	0.09	0.28	0.63	0.75
2AOM4{ }	1/8	1/4	1.36	15/16	0.09	0.38	0.63	0.94
4AOM2{ }	1/4	1/8	1.31	3/4	0.13	0.28	0.69	0.75
4AOM4{ }	1/4	1/4	1.44	15/16	0.19	0.38	0.69	0.94
4AOM6{ }	1/4	3/8	1.50	1 1/8	0.19	0.41	0.69	1.13
6AOM2{ }	3/8	1/8	1.38	3/4	0.25	0.28	0.78	0.75
6AOM4{ }	3/8	1/4	1.52	15/16	0.28	0.38	0.78	0.94

O-ring Straight Adapter: AOS

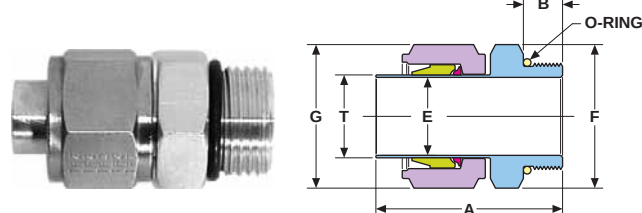
connects **fractional** port to female O-ring straight thread



Part Number	T Tube O.D.	S Straight Thread	A	C Hex Flat	E (min.)	H	L	N
1AOS{ }	1/16	5/16-24	1.06	9/16	0.03	0.34	0.47	0.56
2AOS{ }	1/8	5/16-24	1.25	9/16	0.09	0.34	0.63	0.56
4AOS{ }	1/4	7/16-20	1.44	3/4	0.19	0.41	0.69	0.75
6AOS{ }	3/8	9/16-18	1.61	15/16	0.28	0.47	0.78	0.94
8AOS{ }	1/2	3/4-16	1.84	1 1/8	0.39	0.47	0.97	1.13

Male SAE Adapter: AMS

connects **fractional** port to SAE/MS straight thread boss



Part Number	T Tube O.D.	S	A	B	E	F	O-ring
20AMS20316	1 1/4	1 5/8-12	2.81	1.88	1.17	1 7/8	-920
24AMS24316	1 1/2	1 7/8-12	3.28	2.25	1.30	2 1/8	-924
32AMS32316	2	2 1/2-12	4.24	3	1.75	2 3/4	-932

* { } see page 5 for material specifications.

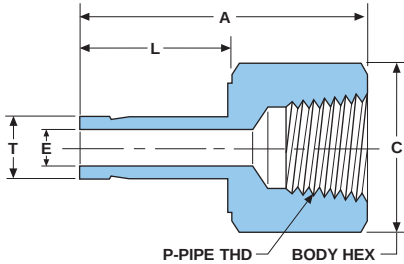
Follow the HOKE Gyrolok remake instructions, page 8.

Female Adapter: AF, AF/EC

connects **fractional** port to male NPT or RT thread



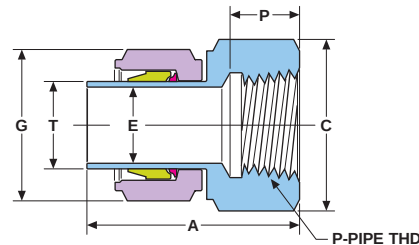
1" and under sizes



Part Number		T	P	A	B	C	E	L
NPT Threads	RT Threads	Tube O.D.	Male Pipe Thread	Hex Flat	Hex Flat	Hex Flat	(min.)	
2AF2{ }		1/8	1/8	1.14		9/16	0.09	0.63
2AF4{ }		1/8	1/4	1.31		3/4	0.09	0.63
4AF2{ }	4AF2{ }EC	1/4	1/8	1.22		9/16	0.19	0.69
4AF4{ }	4AF4{ }EC	1/4	1/4	1.41		3/4	0.19	0.69
4AF6{ }		1/4	3/8	1.44		7/8	0.19	0.69
4AF8{ }		1/4	1/2	1.63		1 1/16	0.19	0.69
6AF2{ }		3/8	1/8	1.31		9/16	0.28	0.78
6AF4{ }		3/8	1/4	1.50		3/4	0.28	0.78
6AF6{ }	6AF6{ }EC	3/8	3/8	1.53		7/8	0.28	0.78
6AF8{ }		3/8	1/2	1.72		1 1/16	0.28	0.78
8AF4{ }		1/2	1/4	1.69		3/4	0.39	0.97
8AF6{ }		1/2	3/8	1.72		7/8	0.39	0.97
8AF8{ }	8AF8{ }EC	1/2	1/2	1.91		1 1/16	0.39	0.97
10AF6{ }		5/8	3/8	1.81		7/8	0.50	1.08
10AF8{ }		5/8	1/2	2.00		1 1/16	0.50	1.08
10AF12{ }		5/8	3/4	2.09		1 1/4	0.50	1.08
12AF8{ }		3/4	1/2	2.06		1 1/16	0.59	1.13
12AF12{ }		3/4	3/4	2.13		1 1/4	0.59	1.13
12AF16{ }		3/4	1	2.44		1 5/8	0.59	1.13
16AF8{ }		1	1/2	2.28		1 1/16	0.80	1.38
16AF12{ }		1	3/4	2.38		1 1/4	0.80	1.38
16AF16{ }		1	1	2.63		1 5/8	0.80	1.38
20AF20{ }		1 1/4	1 1/4	3.06	1 3/4	2 1/8	1.09	
24AF24{ }		1 1/2	1 1/2	3.50	2 1/8	2 3/8	1.31	
32AF32{ }		2	2	4.53	2 3/4	2 7/8	1.75	

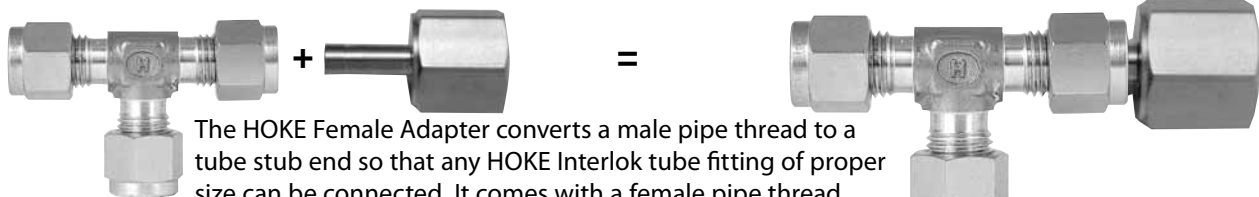


Over 1": 20AF20{ } shown



Over 1 inch and over 25 mm Female Adapters feature pre-set ferrules. Use the HOKE Interlok remake instructions, page 34.

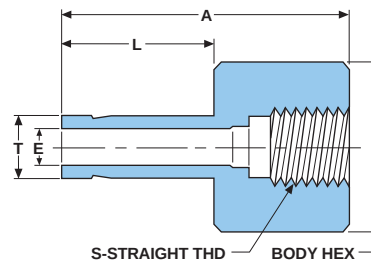
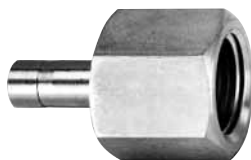
Union Tee Plus Adapter Assemblies Help Eliminate Costly Inventory



The HOKE Female Adapter converts a male pipe thread to a tube stub end so that any HOKE Interlok tube fitting of proper size can be connected. It comes with a female pipe thread on one end and a machined tube stub on the other. By using adapters with union tees, you'll need fewer male or female branch tees and run tees.

Female Adapter: AF/EZ

connects **fractional** port to male RG parallel thread (gauge)

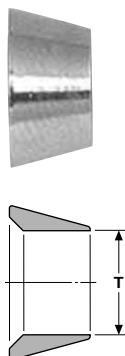


Part Number		T	S	A	C	E	L
		Tube O.D.	RG Str. Thread	Hex Flat	Hex Flat	(min.)	
4AF4{ }EZ		1/4	1/4	1.42	3/4	0.19	0.69
4AF8{ }EZ		1/4	1/2	1.83	1 1/16	0.19	0.69
8AF4{ }EZ		1/2	3/4	1.53	3/4	0.22	0.97
8AF8{ }EZ		1/2	1/2	2.00	1 1/16	0.28	0.97

*{ } see page 5 for material specifications.

Front Ferrule: FF (Fractional)

Part Number	T Tube O.D.
1FF()K	1/16
2FF()K	1/8
4FF()K	1/4
6FF()K	3/8
8FF()K	1/2
10FF()K	5/8
12FF()K	3/4
16FF()K	1
20FF()K	1 1/4
24FF()K	1 1/2
32FF()K	2



Rear Ferrule: FR (Fractional)

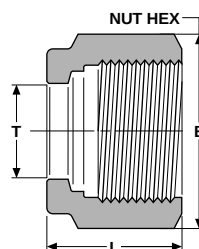
Part Number	T Tube O.D.
1FR()K	1/16
2FR()K	1/8
4FR()K	1/4
6FR()K	3/8
8FR()K	1/2
10FR()K	5/8
12FR()K	3/4
16FR()K	1
20FR()K	1 1/4
24FR()K	1 1/2
32FR()K	2



Note: Stainless steel front ferrules larger than 1" are PFA coated.

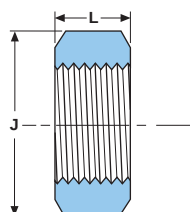
Nut: N (Fractional)

Part Number	T Tube O.D.	B Hex Flat	L
1N()K	1/16	5/16	0.31
2N()K	1/8	7/16	0.47
4N()K	1/4	9/16	0.50
6N()K	3/8	11/16	0.56
8N()K	1/2	7/8	0.69
10N()K	5/8	1	0.69
12N()K	3/4	1 1/8	0.69
16N()K	1	1 1/2	0.81
20N()K	1 1/4	1 7/8	1.25
24N()K	1 1/2	2 1/4	1.50
32N()K	2	3	2.06



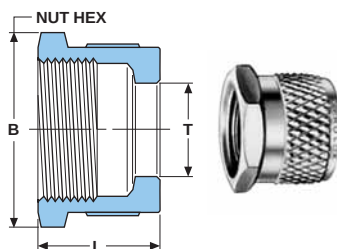
Bulkhead Nut: BN (Fractional)

Part Number*	Dimensions—Inches	
	L	J
1BN[]	1/8	3/8
2BN[]	7/32	1/2
4BN[]	1/4	5/8
6BN[]	17/64	3/4
8BN[]	5/16	15/16
10BN[]	23/64	1 1/16
12BN[]	13/32	1 1/16
16BN[]	13/32	1 9/16
24BN[]	1/2	2 1/4
32BN[]	1/2	2 3/4



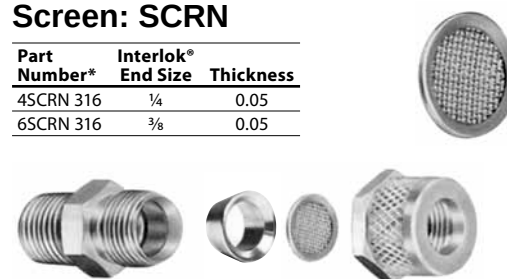
Knurled Nut: KN (Fractional)

Part Number*	T Tube O.D.	Dimensions—Inches	
		B	L
1KN[]	1/16	5/16	0.36
2KN[]	1/8	7/16	0.52
4KN[]	1/4	9/16	0.53
6KN[]	3/8	1 1/16	0.59
8KN[]	1/2	7/8	0.70
10KN[]	5/8	1	0.70
12KN[]	3/4	1 1/8	0.72
16KN[]	1	1 1/2	0.78



Screen: SCRIN

Part Number*	Interlok® End Size	Thickness
4SCRN 316	1/4	0.05
6SCRN 316	3/8	0.05



Use to prevent insects from entering open vent lines.

Usage Instructions:

1. Substitute screen for rear ferrule in an open HOKE Interlok-ended line. (No tubing connected.)
2. Finger-tighten nut.

HOKE Interlok Fittings are available with knurled nuts and nylon ferrules for use with polyethylene tubing. Hand-tightening allows for quick, easy assembly and disassembly, while providing a leak-tight seal, ideally suited for laboratory hookups. Use such fittings with glass and other hard wall tubing materials.

* { } see page 5 for material specifications.

Safety Changer Nut & Ferrule Sets: SCNF

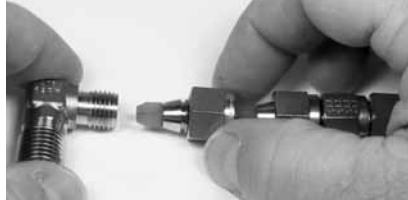


Each SCNF contains 5 nut and ferrule sets. A nut and ferrule set consists of 1 nut, 1 front ferrule and 1 rear ferrule.

Provides a safe, easy, correct way to reuse existing fittings and valves with new HOKE Interlok components.

Fractional

Part Number	T Tube O.D.
1SCNF{ }K	1/16
2SCNF{ }K	1/8
4SCNF{ }K	1/4
6SCNF{ }K	3/8
8SCNF{ }K	1/2
10SCNF{ }K	5/8
12SCNF{ }K	3/4
16SCNF{ }K	1



How to Order

Add designated material to part number. For example:
316 Stainless Steel = 316

Example: 2SCNF 316K (5 Interlok nut and ferrule sets for 1/8" tubing in 316 Stainless Steel.)

Safety Changer Ferrule Sets: SCF



Each SCF contains 10 ferrule sets as noted. A ferrule set consists of 1 front ferrule and 1 rear ferrule.

Fractional

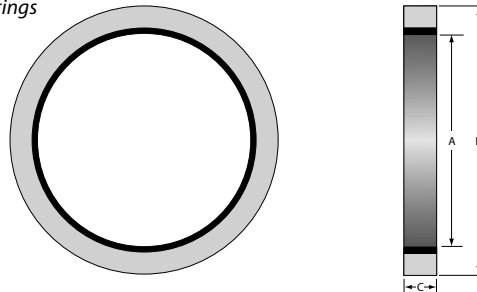
Part Number	T Tube O.D.
1SCF{ }K	1/16
2SCF{ }K	1/8
4SCF{ }K	1/4
6SCF{ }K	3/8
8SCF{ }K	1/2
10SCF{ }K	5/8
12SCF{ }K	3/4
16SCF{ }K	1

HOKE RS Bonded Seals

RS Bonded Seals

RS bonded gaskets create a seal with DIN 3852, Type A (RS) parallel threads. Gasket outer rings are available in both 316 stainless steel and zinc plated carbon steel. The inner ring, bonded to the outer ring, consists of either Buna-N or fluorocarbon FKM. To order, specify pipe size, outer ring, and inner ring material.

Note: For use only with Hoke RS fittings



BSP PIPE SIZE	DIMENSIONS (INCHES)		
	A	B	C
1/8"	0.41	0.63	0.08
1/4"	0.54	0.81	0.08
3/8"	0.68	0.94	0.08
1/2"	0.85	1.13	0.09
3/4"	1.06	1.38	0.09
1"	1.33	1.69	0.09

How to Order

[8] – RSG – [316] [B]

Inner Ring

B Buna-N
V Fluoroelastomer

Outer Ring

316 316 stainless steel
CS Carbon steel, zinc plated

BSP / Metric* Pipe Sizes

2 G 1/8" A
4 G 1/4" A
6 G 3/8" A
8 G 1/2" A
12 G 3/4" A
16 G 1" A

FOR YOUR SAFETY

IT IS SOLELY THE RESPONSIBILITY OF THE SYSTEM DESIGNER AND USER TO SELECT PRODUCTS SUITABLE FOR THEIR SPECIFIC APPLICATION REQUIREMENTS AND TO ENSURE PROPER INSTALLATION, OPERATION AND MAINTENANCE OF THESE PRODUCTS. MATERIAL COMPATIBILITY, PRODUCT RATINGS AND APPLICATION DETAILS SHOULD BE CONSIDERED IN THE SELECTION. IMPROPER SELECTION OR USE OF PRODUCTS DESCRIBED HEREIN CAN CAUSE PERSONAL INJURY OR PROPERTY DAMAGE.

* { } see page 5 for material specifications.

Tube Inserts

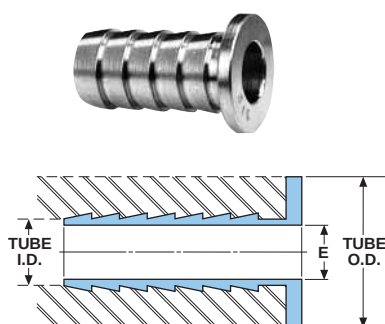
HOKE Interlok tube fittings may be used with various types of plastic tube material without any special preparation. Use tube inserts to support soft types of tubing, such as Tygon or polyvinyl chloride, prior to insertion into a HOKE Interlok end. See chart at lower right for recommendations.

Usage Instructions

1. Fully insert Tube Insert into plastic tubing, where appropriate.
2. Follow standard HOKE Interlok assembly instructions, page 34.

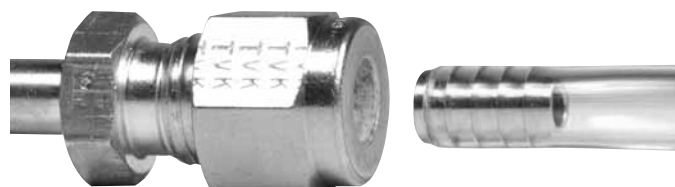
Example:

4	TI	2	[]
Tube O.D. in sixteenths of an inch — 1/4"	Type Fitting (Tube Insert)	Tube I.D. in sixteenths of an inch — 1/8" (Except .170 I.D.)	Material



Tube Insert: TI (Fractional)

Part Number*	Tube O.D.	Pipe Size	E
4TI2 []	1/4	1/8	.09
4TI170 []	1/4	.170	.11
4TI3 []	1/4	3/16	.13
6TI3 []	3/8	3/16	.13
6TI4 []	3/8	1/4	.19
8TI4 []	1/2	1/4	.19
8TI6 []	1/2	3/8	.28
10TI6 []	5/8	3/8	.28
10TI8 []	5/8	1/2	.42
12TI8 []	3/4	1/2	.42
12TI10 []	3/4	5/8	.50
16TI12 []	1	3/4	.66
16TI14 []	1	7/8	.72



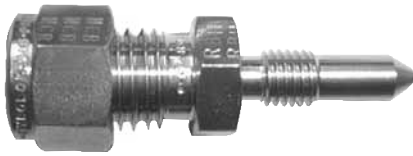
HOKE Interlok Used With Plastic Tubing and Tube Insert

Tubing Material	Front Ferrule	Rear Ferrule	Tube Insert Usage
Polyethylene	Metal Nylon	Metal Nylon	Not normally required
Nylon	Metal Nylon	Metal Nylon	Not normally required
Teflon®	Metal Teflon	Metal Teflon or Metal	Not normally required
Rigid PVC	Metal Teflon*	Metal Teflon*	None
Soft Polyvinyl Chloride or Tygon	Metal Nylon	Metal Nylon	Recommended

* Limited gripping, metal provides tighter grip for higher pressures.

* { } see page 5 for material specifications.

HOKE Interlok Calibration Fittings



HOKE Interlok Calibration Fittings save time and money by reducing the time required to calibrate differential pressure transmitters. HOKE's calibration fittings, constructed of 316 Stainless Steel, combine a straight thread and conical metal-to-metal sealing surface on one end with a 1/4" Interlok tube fitting on the other. This design allows the technician to easily calibrate the transmitter – in place – without removing the pipe plug/bleed port tap assemblies. No TFE tape is required.

Features

Straight Thread/Metal-to-Metal Sealing:

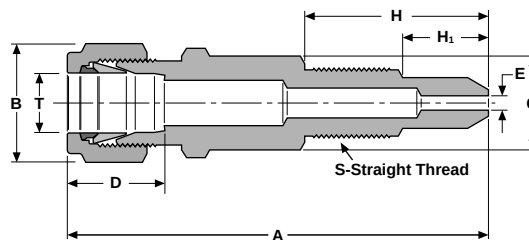
Butt Seal:

Sizing Angle:

Nut and Ferrule Safety Changer:

Benefits

- Ease of installation
- Maximizes seal integrity and user safety
- Reduces tube sticking
- Safe, simple component replacement

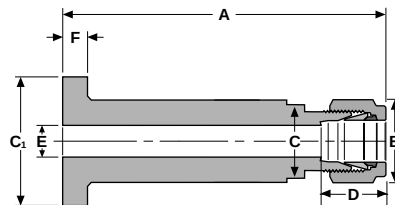


Part Number	T Tube O.D.	S Straight Thread	A	B Hex Flat	C Hex Flat	D	E (min.)	H	H1
CM005K	1/4	1/4-28 UNF-2A	1.68	9/16	1/2	0.60	0.07	0.78	0.43
CM009K	1/4	5/16-24 UNF-3A	2.31	9/16	1/2	0.60	0.07	1.00	0.40

CM005 – For use with Honeywell transmitters

CM009 – For use with Rosemount or Foxboro transmitters

Lapped Flange Connector



Lapped Flange Connector: CLF (Fractional)

Part Number	T Tube O.D.	Flange Seal Type and Finish	A	B Hex Flat	C Body Hex	C1 Diameter	D	E (min.)	F
4CLFA{ }K	1/4	A: 3.2-6.3 (Ra)	3.25	9/16	3/4	1 3/8	0.60	0.19	0.25
4CLFB{ }K	1/4	B: 6.3-12.5 (Ra)	3.25	9/16	13/16	1 3/8	0.60	0.19	0.25
6CLFA{ }K	3/8	A: 3.2-6.3 (Ra)	3.29	11/16	13/16	1 3/8	0.66	0.30	0.25
6CLFB{ }K	3/8	B: 6.3-12.5 (Ra)	3.29	11/16	13/16	1 3/8	0.66	0.30	0.25
8CLFA{ }K	1/2	A: 3.2-6.3 (Ra)	3.38	7/8	13/16	1 3/8	0.89	0.42	0.25
8CLFB{ }K	1/2	B: 6.3-12.5 (Ra)	3.38	7/8	13/16	1 3/8	0.89	0.42	0.25

Flange Seal A

Flange Seal B



Smooth



Serrated / Concentric

The Lapped Flange Connector is used to allow safe and easy connections between process lines and instruments. The basic, one-piece unit consists of a HOKE Interlok tube connection end and a 1/2" lap joint pipe flange. The flange end is dimensioned to meet "ANSI 2500" flange specifications. Available in "Smooth" or "Serrated/Concentric" seal faces, and in 316 Stainless Steel.

* { } see page 5 for material specifications.

HOKE Dielectric Tube Fittings



The HOKE Interlok Dielectric Tube Fittings are for use in applications where electrical current flowing through a pipe or tube line must be interrupted to protect vital instrumentation and metering equipment.

Technical Data

Body Construction Materials:	• 316 Stainless Steel
Insulator:	• Molded Thermoplastic
O-ring Material:	• 90 Durometer Viton
Back-up Washer:	• Virgin TFE

Design

The Dielectric Tube Fitting must perform three primary functions:

1. Electrical insulation
2. Reliable fluid containment
3. Appropriate flow for line size

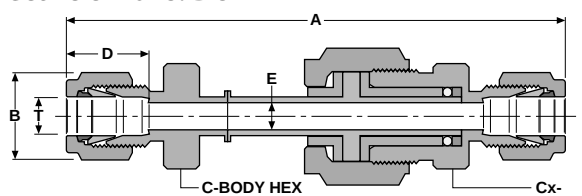
In the HOKE design, the insulation function is performed by thermoplastic insulators which provide performance unequaled by any similar product.

A Viton O-ring and TFE back up ring provide the containment function within the fitting. Interlok's 2-ferrule system provides sealing with the impulse line tubing.

Appropriate flow for line size is achieved by providing the appropriate inside diameter for tubing size. See "E" dimensions in Dimensional Table.

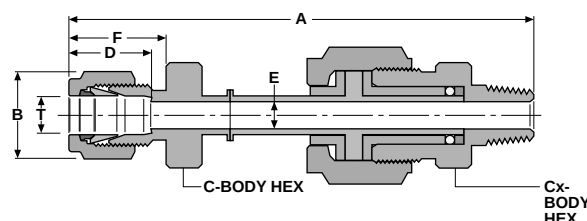
WARNING: A "NO WRENCHING" label is placed on the hex of the nut in the insulation sections. Do not disconnect at this point. Instructions are provided with every HOKE Dielectric fitting.

Dielectric Unions: DU

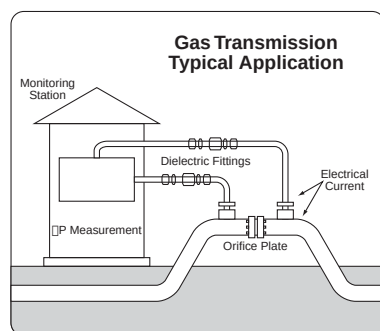


Part Number	T Tube O.D.	A	B Hex Flat	C Hex Flat	C1 Hex Flat	D	E (min.)
4DU316K	1/4	3.67	9/16	1/2	11/16	0.60	0.19
6DU316K	3/8	3.69	11/16	5/8	13/16	0.66	0.28
8DU316K	1/2	3.98	7/8	13/16	15/16	0.89	0.42

Dielectric Male Connectors: DCM



Part Number	T Tube O.D.	P Male Pipe Thread	A	B Hex Flat	C Hex Flat	C1 Hex Flat	D	E (min.)
6DCM4316K	3/8	1/4	3.59	11/16	5/8	13/16	0.66	0.28



* { } see page 5 for material specifications.

Features

Thermoplastic Insulators with:

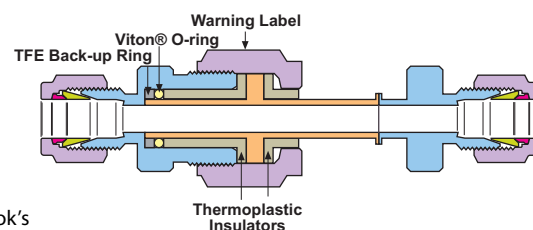
- Resistance in excess of 10^8 ohms at 70° F (21° C) and 50% relative humidity.
- Resistance in excess of 10^6 ohms at 100° F (38° C) and 90% relative humidity.

Metal components made of 316 Stainless Steel:

Appropriate orifice for fitting size (e.g. .422" orifice in 1/2" fitting):

Benefits

- Maximum safety and protection to critical monitoring station instrumentation.
- Long component life in rugged environment.
- Maximum flow capability provided by all sizes of HOKE Interlok Dielectric tube fittings.



Application

Commonly used in the Natural Gas Transmission industry, the Dielectric Fitting will prevent current flow resulting from Impressed Current Cathodic Protection Systems, static electricity or even lightning strikes, from reaching sensitive monitoring station equipment.

Impressed Current Cathodic Protection Systems involve the application of a low voltage, low amperage direct current to a pipeline and eventual transfer of corrosive effects to a typically underground anode bed.

If the current flow is not interrupted before reaching the monitoring station critical equipment could be damaged or rendered inaccurate.

By installing HOKE's Interlok Dielectric Tube Fitting on impulse lines between the pipeline and the monitoring station, current flow is interrupted while full fluid flow is permitted.

Leak Detective Products



HOKE's Leak Detective products are used to detect leaks in pressurized gas systems. Use the Leak Detective to locate fugitive gas emissions in compressed air, oxygen, helium, hydrogen, nitrogen, natural gas, acetylene, and propane systems.

The Leak Detective is manufactured to meet specification MIL-L-25567D and is available in two types. Type 1 is for regular temperature applications 27° F to 200° F (-3° C to 95° C) while Type 2 is for colder application from -65° F to 200° F (-55° C to 95° C). The Leak Detective is packaged as standard in 8 ounce (230 ml) bottles or 1 gallon (4 liter) containers. A tracer tube is provided with each small bottle. 5 gallon containers and 55 gallon drums can also be provided upon request.

FOR YOUR SAFETY

IT IS SOLELY THE RESPONSIBILITY OF THE SYSTEM DESIGNER AND USER TO SELECT PRODUCTS SUITABLE FOR THEIR SPECIFIC APPLICATION REQUIREMENTS AND TO ENSURE PROPER INSTALLATION, OPERATION AND MAINTENANCE OF THESE PRODUCTS. MATERIAL COMPATIBILITY, PRODUCT RATINGS AND APPLICATION DETAILS SHOULD BE CONSIDERED IN THE SELECTION. IMPROPER SELECTION OR USE OF PRODUCTS DESCRIBED HEREIN CAN CAUSE PERSONAL INJURY OR PROPERTY DAMAGE.



Benefits

- Safety:**
- Oxygen compatible and manufactured in accordance with MIL-L-25567D
 - Meets requirements of ASME Section V for composition and purity
- Certifications:**
- Material Safety Data Sheets (MSDS) available
- Helps eliminate fugitive emissions:**
- Verifies leak-tight systems
- Cleanliness:**
- Leaves virtually no residue

Technical Data

Specification

- Complies with MIL-L-25567D

Operating Temperatures

- Type 1: 27° F to 200° F (-3° C to 95° C)
- Type 2: -65° F to 200° F (-55° C to 95° C)

Fluids

- For use on pressurized gas systems

Usage Instructions

1. Extend 12" tracer tube
2. Direct solution
3. Squeeze bottle
4. Inspect system for foaming that indicates leakage

Ordering Information

PARTNUMBER	TYPE	LABEL LANGUAGE	SIZE
1LDE8OZ	1	English	8 ounce
1LDE1G	1	English	1 gallon
2LDE8OZ	2	English	8 ounce
2LDE1G	2	English	1 gallon
1LDEF230	1	English/French	230 ml
1LDEF4L	1	English/French	4 liter
2LDEF230	2	English/French	230 ml
2LDEF4L	2	English/French	4 liter
1LDS230	1	Spanish	230 ml
1LDS4L	1	Spanish	4 liter
2LDS230	2	Spanish	230 ml
2LDS4L	2	Spanish	4 liter

Packaging

Standard

8 ounce
1 gallon
230 ml
4 liter

Options

2 ounce
5 gallon
55 gallon drum

Pre-setting Tool: PST

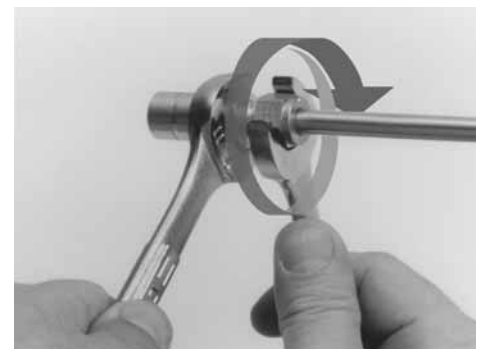
Used strictly for pre-assembling ferrules to tubing.
Fractional

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



Usage Instructions

1. Place PST in vise.
2. Loosely assemble nut and ferrules to PSI. Use HOKE Interlok Safety Changer Nut & Ferrule Sets.
3. Follow standard HOKE Interlok assembly instructions to set ferrules onto tubing, see page 34.
4. Loosen nut and remove tubing with pre-set ferrules and nut.
5. With pre-set ferrules and nut in permanent location, reassemble tubing by following HOKE Interlok reassembly instructions on page 34.



Note: Threads of pre-setting tools should be lubricated the very first time and relubricated every tenth time thereafter.

* {} see page 5 for material specifications.

Hydraulic Pre-Setting Tool



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

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

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

Features

One basic pre-setting head for all sizes:

Interchangeable die sets:

10,000 PSI hydraulic pump:

Carrying case:

Benefits

- Provides versatility and value by covering sizes from 1/2" through 2" and 12mm through 50mm.
- Allows easy conversion from one tube and fitting size to another.
- Provides the force necessary for consistent, fast, and simple fitting assembly.
- Rugged steel carrying case offers easy transportation as well as a single storage location for all tool components.

How It Works



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



Pre-set tube assembly is ready for installation using standard Interlok remake instructions

How to Order

HOKE's Hydraulic Pre-Setting Tool, Pump and Ram Assembly.

Carrying case is included. Carrying case has room for 6 die sets.

Standard Fractional Kits

2HPSTSF ≤1" FRACTIONAL PACKAGE CONTAINS:

- **2HPST** Basic kit
- **2DJS-8** 1/2" die set
- **2DJS-12** 3/4" die set
- **2DJS-16** 1" die set

2HPSTLF >1" FRACTIONAL PACKAGE CONTAINS:

- **2HPST** Basic kit
- **2DJS-20** 1 1/4" die set
- **2DJS-24** 1 1/2" die set
- **2DJS-32** 2" die set



2HPST LF

TYPE OF PRODUCT

- SF Small fractional package
- LF Large fractional package

FRACTIONAL TUBE SIZE	PART NUMBER
1/2"	2DJS-8
5/8"	2DJS-10
3/4"	2DJS-12
1"	2DJS-16
1-1/4"	2DJS-20
1-1/2"	2DJS-24
2"	2DJS-32

Die Sets - Consists of one die and one jig for an individual tube size.



Jig



Die

2DJS - 12

TUBE SIZE

Tube O.D. in 1/16"

FOR YOUR SAFETY

IT IS SOLELY THE RESPONSIBILITY OF THE SYSTEM DESIGNER AND USER TO SELECT PRODUCTS SUITABLE FOR THEIR SPECIFIC APPLICATION REQUIREMENTS AND TO ENSURE PROPER INSTALLATION, OPERATION AND MAINTENANCE OF THESE PRODUCTS. MATERIAL COMPATIBILITY, PRODUCT RATINGS AND APPLICATION DETAILS SHOULD BE CONSIDERED IN THE SELECTION. IMPROPER SELECTION OR USE OF PRODUCTS DESCRIBED HEREIN CAN CAUSE PERSONAL INJURY OR PROPERTY DAMAGE.

* { } see page 5 for material specifications.



Interlok®

HOKE Interlok® Assembly Instructions



Initial Setting of Ferrules

Manual Assembly

Use the following instructions when initially setting ferrules onto either tubing or the tube stub end of certain fittings (e.g. adapters, port connectors, and reducers). **Note that for tubing sizes above ½", the use of a presetting tool, either manual or hydraulic, may apply. See further details in the Section titled, "Presetting Tool Assembly."**

1. Loosen the fitting nut then firmly insert the tubing into the fitting assembly. Proper assembly requires that the tubing be fully bottomed in the fitting body. (Note: Use of the Interlok® Depth Marking Tool, explained below, will allow the assembler to confirm proper tube insertion.)
2. Establish a consistent starting point for wrench-tightening.
 - For sizes under ½", finger-tightening of the fitting nut is sufficient.
 - For applications requiring high-pressure, high-safety factor or severe service as well as for all sizes ½" and above, tighten the fitting nut until the tubing will not rotate. If it is not possible to determine tubing rotation then, while supporting the body with a backup wrench, use a wrench to tighten the fitting nut an additional ¼ turn past finger-tight.
3. Once the appropriate starting point has been established, mark both the fitting body and nut at the 12:00 position with a readily visible marking.
4. While supporting the body with a backup wrench, tighten the nut with a wrench as appropriate for size:
 - For sizes less than ¼", tighten the nut ¾ turns, by going from the 12:00 position to the 9:00 position.
 - For sizes ¼" and larger, tighten 1 ¼ turns by going completely around past the 12:00 position to the 3:00 position.

Note that if a Depth Marking Tool is used, the mark made on the tubing will become visible at the back of the nut when the nut has been sufficiently tightened.

Presetting Tool Assembly

Due to the inherent strength of large diameter heavy wall tubing, Hoke recommends the use of a presetting tool, either manual or hydraulic, for all installations involving tubing sizes from ⅝" and above, regardless of application.

Manual Presetting Tool

When the tubing wall thickness being utilized is less than 0.065", a manual presetting tool is sufficient. The use of manual presetting tools is also suggested for smaller size fittings and tubing when the actual installation is in a hard-to-reach location, making it difficult to count turns. Use manual presetting tools by following the instructions for initially setting ferrules. By presetting the ferrules in the presetting tool, installation in place simply requires following applicable remake instructions.

Hydraulic Presetting Tool

The Hydraulic Presetting tool is available for use for all sizes ½" and larger. **The use of the Hydraulic Presetting Tool is required for sizes larger than 1", regardless of tubing wall thickness, and for sizes ⅝"-1" when tubing wall thickness is 0.065" or greater.**

A Hydraulic Presetting Tool is designed to set the ferrules on the tubing prior to installation into a fitting body. Each Hydraulic Presetting Tool is supplied with its own set of instructions. Note that lubricant is supplied to allow the periodic lubricating of the cone angle and threads of the Presetting Tool die-set (prior to first make-up and approximately every fifth fitting thereafter) and extend product life.

Once ferrules have been set, installation in place is achieved by simply following the Remake Instructions below.

Note: Tube stub adapters with tube stub end over 1" are supplied with preset nut & ferrule. Follow remake instructions below in this case.

Installations that do not involve setting of ferrules

Assembly instructions differ when installing fitting ends that do not involve setting ferrules, such as a plug (P), or the machined ferrule end of a port connector (PC), as well as for threaded ends such as NPT or SAE, for which appropriate standards should be used.

When assembling an Interlok® plug onto an Interlok body:

1. Remove nut and ferrules from fitting body.
2. Place plug assembly onto fitting body. Tighten plug nut to a hand-tight condition.
3. While supporting fitting body with a backup wrench, tighten plug nut with a wrench until a sharp rise in torque is felt, (approximately ¼ turn on initial makeup, less on reconnections) then simply snug.

When initially assembling the machined ferrule end of a Hoke port connector:

1. Remove nut and ferrules from fitting body/end.
2. Firmly insert machined ferrule end of port connector into fitting end.
3. Slide nut over tube stub end of port connector, then over the machined ferrule end and finger-tighten to fitting body.
4. While supporting fitting body with a backup wrench, tighten nut with a wrench until a sharp rise in torque is felt (approximately ¼ turn on initial makeup, less on reconnections), then simply snug.

Remake Instructions

For use when remaking a fitting end, assembling a fitting body to tubing with preset ferrules, or remaking a plug or machined ferrule end of a port connector.

1. Firmly insert the end with the previously set ferrules into the fitting body and tighten the nut to a finger-tight condition.
2. While supporting the body with a backup wrench, tighten the nut with a wrench until a sharp rise in torque is felt, then simply snug tight.

HOKE Depth Marking Tool Assembly and Inspection Tool

Use the Interlok® Depth Marking Tool to perform step-by-step inspections during the initial assembly process. Each Interlok® Depth Marking Tool is supplied with instructions, allowing the user to:

1. Ensure proper insertion of the tubing into the fitting.
2. Confirm sufficient tightening of the fitting nut.

AOM, COM, AOS, and COS Installation Instructions

HOKE Interlok O-ring seal fittings are used for direct connection to existing pipe thread or straight thread ports—which have a smooth, flat surface perpendicular to the threaded port. O-ring seal fittings provide leak-tight sealing on both vacuum and high pressure systems. In the pipe thread version, a special short thread insures against thread interference.

The standard Buna N o-ring in these fittings is completely contained in a precision groove, to prevent o-ring extrusion at high pressure. The precision groove also provides a controlled squeeze for a vacuum-tight seal.

The chart lists pertinent dimensions useful with o-ring seal connectors and adapters.

Note:

When installing an o-ring port:

1. Hand-thread until the o-ring compresses on the port end.
2. Snug the fitting to the port with a wrench to completely compress the o-ring.
3. Always use a back-up wrench to hold the o-ring seal fitting body, when connecting or disconnecting a HOKE Interlok end.

Positionable End Connections, including SAE (e.g. LMS, LMFS)

1. Assure that the locknut is fully raised.
2. Turn the external straight thread end clockwise into the internal boss until the metal washer is in contact with the boss.
3. Orient the Interlok end to the proper direction by now turning the fitting *counterclockwise* up to a *maximum* of 1 turn.
4. While supporting the body wrench pad with a backup wrench, tighten the locknut until the washer is snug against the face of the boss.

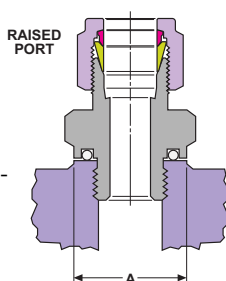


Fig. 1

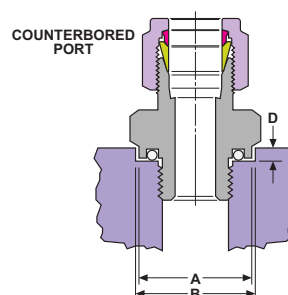


Fig. 2

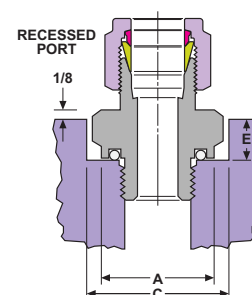


Fig. 3

Mounting Dimensions For O-ring Seal Connectors and Adapters

Threads		Diameter			Depth	
Straight Thread Size*	Pipe Thread Size**	A Min. Flat for Sealing	B Min. for Clearance (Fig. 2)	C Min. for Clearance (Fig. 3)	D Max. (Fig. 2)	E Max. for Adapter (Fig. 3)
5/16-24	—	1/2	9/16	21/32	3/32	3/32
3/8-24	—	17/32	21/32	3/4	3/32	1/8
7/16-20	—	11/16	25/32	7/8	3/32	5/32
1/2-20	—	3/4	29/32	1 1/32	3/32	11/64
9/16-18	—	13/16	31/32	1 3/32	3/32	11/64
3/4-16	—	1	1 5/32	1 5/16	3/32	7/32
7/8-14	—	1 7/32	1 11/32	1 17/32	3/32	5/16
1 1/16-12	—	1 13/32	1 17/32	1 3/4	3/32	11/32
1 5/16-12	—	1 11/16	1 25/32	2 1/32	3/32	7/16
—	1/8 NPT	11/16	25/32	7/8	3/32	9/64
—	1/4 NPT	13/16	31/32	1 3/32	3/32	11/64
—	3/8 NPT	1	1 5/32	1 5/16	3/32	3/16
—	1/2 NPT	1 7/32	1 11/32	1 17/32	3/32	5/16
—	3/4 NPT	1 13/32	1 17/32	1 3/4	3/32	3/8
—	1 NPT	1 11/16	1 25/32	2 1/32	3/32	27/64

Dimensions for reference only, subject to change.

Safety Information

Count on HOKE Safety

We pride ourselves on our commitment to safety. HOKE products are machined with total precision, for a long life and maximum performance. Available materials include 316 stainless steel, brass, Monel, Hastelloy® C-276, Inconel, titanium, 254 SMO, Duplex 2205 and Super Duplex 2507*. Each product is manufactured to resist the detrimental effects of corrosives, and to withstand extreme pressures or vacuum conditions, as well as temperatures ranging from cryogenic -325° F to +1200° F (-198° C to +648° C).

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

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

If you have any questions about the design specifications of HOKE products, please contact your local HOKE distributor. Our worldwide network of distributors is specially trained to assist you in your selection of any HOKE product.

HOKE Interlok Safety Instructions

1. **Make sure the system is not pressurized when tightening or loosening a fitting or valve connection.**
2. **When relieving or bleeding system pressure**, do not loosen the HOKE Interlok nut or any product component.
3. **Do not exceed temperature specifications stated on page 5.**
4. **Do not exceed maximum allowable working pressure/temperature combinations for tubing** when using HOKE Interlok. Check the HOKE Tubing Data Charts for specific information. Note that if no pressure is identified for a given size and wall thickness of tubing, that tubing is not suitable for use with tube fittings.
5. **When the application involves use of a toxic or hazardous fluid**, exercise extra caution during operation and maintenance.
6. **When assembling new, unused HOKE Interlok tube fitting ends**, loosen the HOKE Interlok nut before inserting the tube to allow full insertion of the tube into the base of the body bore.
7. **Always use tubing that is compatible with the fitting or valve material.** Tubing appropriate for use with HOKE Interlok fittings is described in the HOKE Tubing Data Charts (e.g. use 316 Stainless Steel fittings with 316 Stainless Steel tubing).
8. **Always leave a length of straight tube between the tube bend and the fitting.** A tube bent too close to the fitting connection may be a source of leakage.
9. **During assembly of the HOKE Interlok tube end**, always hold the fitting or valve body with one wrench while separately wrench-tightening the HOKE Interlok nut. Follow the same precaution when disassembling.
10. **Always use a HOKE Tube Insert** when assembling a HOKE Interlok Fitting to soft, pliable plastic tubing (see page 29).
11. **Always use proper thread lubricants or sealants on tapered pipe threads.** Note that thread sealants may have different temperature ratings than the basic fitting.
12. **NPT threads should be torqued in accordance with an industry standard**, such as Underwriter's Laboratory UL842. Note that previously assembled threads may require additional tightening.
13. **When installing an NPT ended valve**, hold the valve body near the connection with one wrench, while separately wrench-tightening the mating pipe. Turn the pipe, not the valve. Follow the same precaution when disconnecting.
14. **Do not hold the valve handle when tightening an end connection.**
15. **For proper installation**, request a Safety Installation Training Program today! Ask your HOKE distributor for details.

The Issue of Intermixability

Feature

Interlok's wedge-based ferrule design allows Hoke to guarantee either interchangeability or even component-for component intermixability with certain other brands of tube fittings, most notably Swagelok® and Parker A-Lok®.

Benefit

Safety and peace of mind when converting to Hoke Interlok

*Interlok is initially only available as standard in 316 stainless steel.

The following are trademarks of their respective companies:

Interlok and Gyrogage are registered trademarks of HOKE Incorporated.

Monel and Inconel are registered trademarks of Special Metals Corporation.

Viton is a registered trademark of DuPont Dow Elastomers.

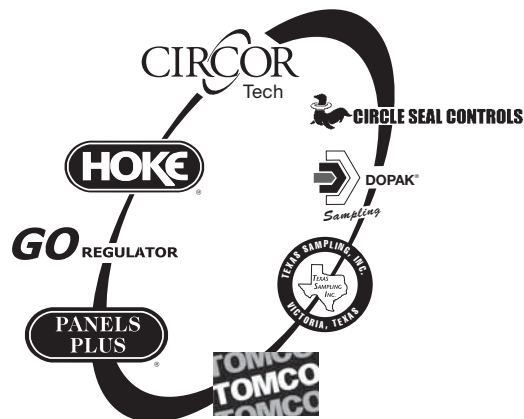
Teflon is a registered trademark of DuPont.

Hastelloy is a registered trademark of Haynes International, Inc.

Swagelok is a registered trademark of Swagelok Company.

A-LOK® is a registered trademark and CPI™ is a trademark of Parker Hannifin Corporation.

Tygon is a registered trademark of Norton Performance Plastics Corporation.



Hoke • GO Regulator • Tomco • CIRCOR Tech

405 Centura Court • PO Box 4866 (29305)

Spartanburg, SC 29303

Tel (864) 574-7966 • Fax (864) 587-5608

www.circortechnologies.com

Hoke Controls / Panels Plus

2054 Francis St.

Ontario, CA 91761

Tel (909) 923-3770

Fax (909) 923-2550

www.circor-panelsplus.com

Dopak Inc.

9572 Kempwood

Houston, Texas 77080

Tel (713) 460-8311

Fax (713) 460-8578

www.dopak.com

Texas Sampling, Inc

3706 Rio Grande

Victoria, Texas 77901

Tel (361) 575-8087

Fax (361) 575-8157

www.texassampling.com

Circle Seal Controls

2301 Wardlow Circle

Corona, CA 92880

Tel (951) 270-6200

Fax (951) 270-6201

www.circlesealcontrols.com

CIRCOR Instrumentation

Technologies

Central Europe

Leeuwenhoekweg 24

2661 CZ Bergschenhoek

The Netherlands

Tel +31 10 4206011 • Fax +31 10 4566774

www.circortechnologies.com

Hoke GmbH

Weitzesweg 11

Postfach 1541

D-61118 Bad Vilbel-Dortelweil

Germany

Tel +49 6101 82 56 0

Fax +49 6101 82 56 40

www.hoke.de

CIRCOR Instrumentation Technologies

CIRCOR Instrumentation Technologies (CIT) is a product group of CIRCOR International (NYSE: CIR), specializing in fluid process control solutions with orifice sizes typically up to 1". Our main product lines include ball, needle, packless, diaphragm, solenoid, and metering valves, pressure regulators, quick couplers, Gyrolok® compression tube fittings, and fully integrated sampling systems.

CIT markets primarily to the petrochemical, refining, power generation, food and beverage, semiconductor, and pharmaceutical industries, and to OEM's. CIT separates itself from the competition by offering highly engineered components manufactured to exacting standards and a variety of custom options.