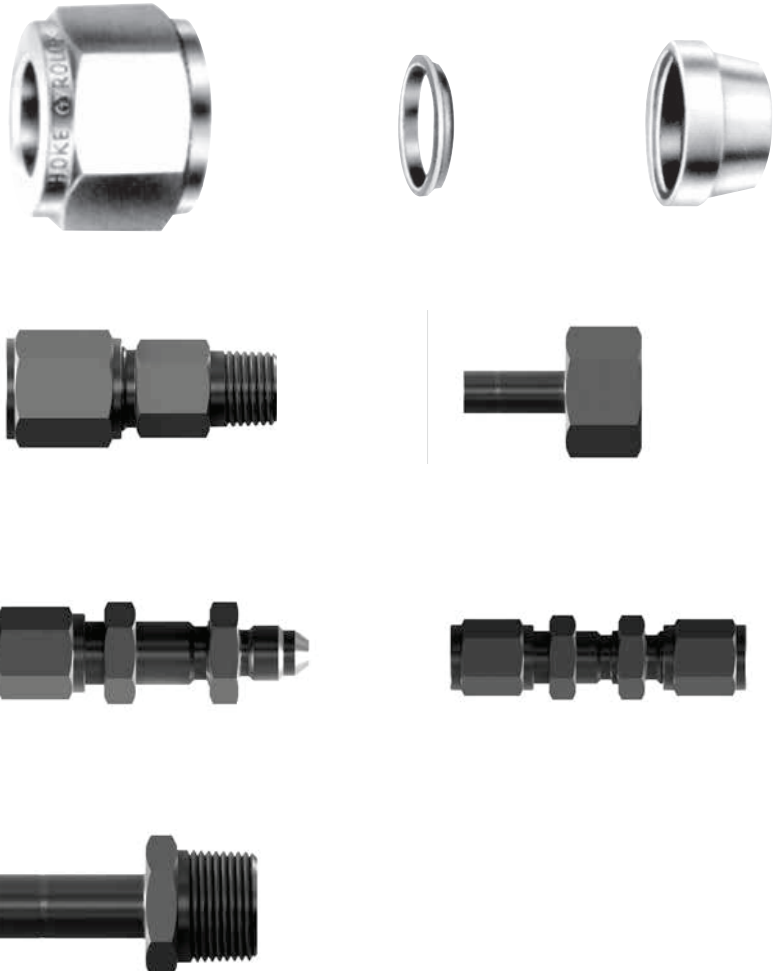
GYROLOK$^{XP®}$ **Tube Fittings**



Index

GYROLOK$^{XP®}$

CRANE Instrumentation & Sampling, HOKE®
PO Box 4866 • Spartanburg, SC 29305-4866
(864) 574-7966 • www.hoke.com

For Your Safety

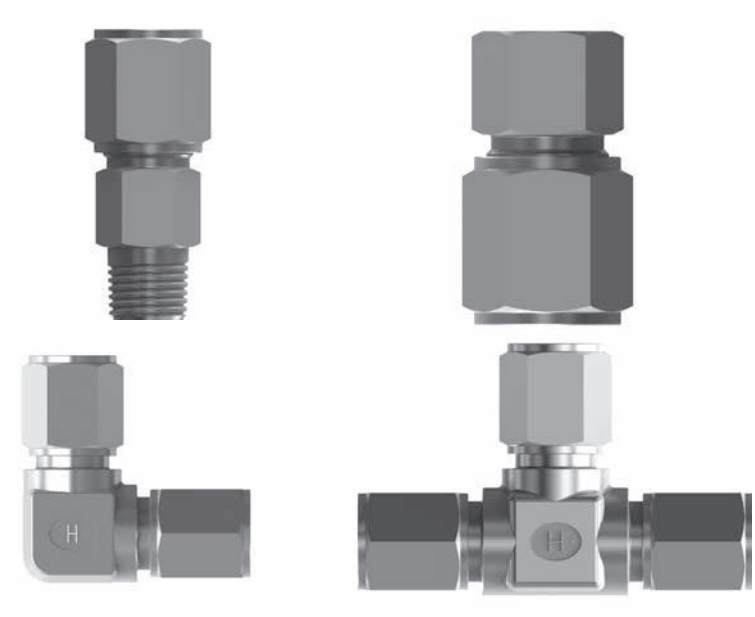
It is solely the responsibility of the system designer and user to select products suitable for their specific application requirements and to ensure proper installation, operation, and maintenance of these products. When selecting products, the total system design must be considered to ensure safe, trouble-free performance. 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.

Contact your authorized HOKE® sales and service representative for information about additional sizes and special alloys.

SAFETY WARNING:

HOKE® products are designed for installation only by professional suitably qualified licensed system installers experienced in the applications and environments for which the products are intended. These products are intended for integration into a system. Where these products are to be used with flammable or hazardous media, precautions must be taken by the system designer and installer to ensure the safety of persons and property. Flammable or hazardous media pose risks associated with fire or explosion, as well as burning, poisoning or other injury or death to persons and/or destruction of property. The system designer and installer must provide for the capture and control of such substances from any vents in the product(s). The system installer must not permit any leakage or uncontrolled escape of hazardous or flammable substances. The system operator must be trained to follow appropriate precautions and must inspect and maintain the system and its components including the product(s) and at regular intervals in accordance with timescales recommended by the supplier to prevent unacceptable wear or failure.

GYROLOK$^{XP®}$ **Tube Fittings**



Decades of Product Excellence

- Samuel W. HOKE began manufacturing small gas flow control valves for jewelers' torches in 1925. At the same time, he also laid the foundation for a top international fluid control products company, HOKE® Incorporated.
- In the early 1940's, S.W. HOKE produced the forerunners of today's HOKE® valves, masterfully crafted with the highest quality materials.
- In the early 1960's, HOKE® Incorporated (HOKE®) took the industry by storm, introducing the GYROLOK® Tube Fitting. To this day, no other manufacturer has been able to improve upon its unique design.
- In the mid 2010's, HOKE® introduced GYROLOK$^{XP®}$, an upgraded fitting class which has all of the benefits of standard GYROLOK® Tube Fittings while allowing for higher pressures and an alternative to some medium pressure Cone & Thread applications
- Over the years, HOKE® built a first-class reputation for designing and manufacturing state-of-the-art products. In striving for maximum quality and value, HOKE® set the industry standards for product safety, operability, durability and reliability.
- CRANE continues this product excellence for all global customers.

Training and Engineering Support

- CRANE offers extensive training designed to ensure that your craftspeople thoroughly understand how a GYROLOK® fitting functions. By teaching proper tubing preparation and installation procedures, maximum performance is assured.
- CRANE will take the time to assist our customers in finding the GYROLOK® fitting that is right for their specific needs.
- Ask your HOKE® distributor for details regarding HOKE®'s valve and fitting installation workshop and additional support materials.

GYROLOK$^{XP®}$

Fitting Locator

To connect tubing to a female thread, use:

PROFILE	PART NUMBER - DESCRIPTION	TUBE OPTIONS	THREAD CONNECTION	PAGE LOCATION
	**CM-XP** - Male Connector	Fractional or metric tube	NPT threads	9, 10
	**LM-XP** - Male Elbow	Fractional or metric tube	NPT threads	11, 12

To connect tubing to a male thread, use:

PROFILE	PART NUMBER - DESCRIPTION	TUBE OPTIONS	THREAD CONNECTION	PAGE LOCATION
	**CF-XP** - Female Connector	Fractional or metric tube	NPT threads	13, 14

To connect two or more tubes together, use:

PROFILE	PART NUMBER - DESCRIPTION	TUBE OPTIONS	THREAD CONNECTION	PAGE LOCATION
	**U-XP** - Union	Fractional or metric tube	—	15
	**RU-XP** - Reducing Union	Fractional or metric tube	—	15, 16
	**BU-XP** - Bulkhead Union	Fractional or metric tube	—	16
	**LU-XP** - Union Elbow	Fractional or metric tube	—	17
	**TTT-XP** - Union Tee	Fractional or metric tube	—	17

To connect tubing to a 37° flare, use:

PROFILE	PART NUMBER - DESCRIPTION	TUBE OPTIONS	THREAD CONNECTION	PAGE LOCATION
	**BUAN-XP** - Bulkhead Union, AN	Fractional tube	Flared tube	18
	**AAN-XP** - Adapter, AN	AN to GYROLOK[XP®] port	Flared tube	19

Dimensions for reference only. Subject to change.

To connect tubing to a welding system, use:

PROFILE	PART NUMBER - DESCRIPTION	TUBE OPTIONS	THREAD CONNECTION	PAGE LOCATION
	**CBW-XP** - Butt Weld Connector	Fractional or metric tube to pipe	—	20

To reduce fitting size, use:

PROFILE	PART NUMBER - DESCRIPTION	TUBE OPTIONS	THREAD CONNECTION	PAGE LOCATION
	**R-XP** - Reducer	Fractional or metric tube to port	—	21, 22

To cap a tube, use:

PROFILE	PART NUMBER - DESCRIPTION	TUBE OPTIONS	THREAD CONNECTION	PAGE LOCATION
	**CP-XP** - Cap	Fractional or metric tube	—	23

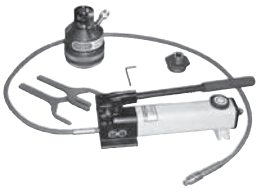
GYROLOK[XP®] Adapters, use:

PROFILE	PART NUMBER - DESCRIPTION	TUBE OPTIONS	THREAD CONNECTION	PAGE LOCATION
	**AM-XP** - Male Adapter	Fractional or metric tube	NPT threads	24
	**AF-XP** - Female Adapter	Fractional or metric tube	NPT threads	25

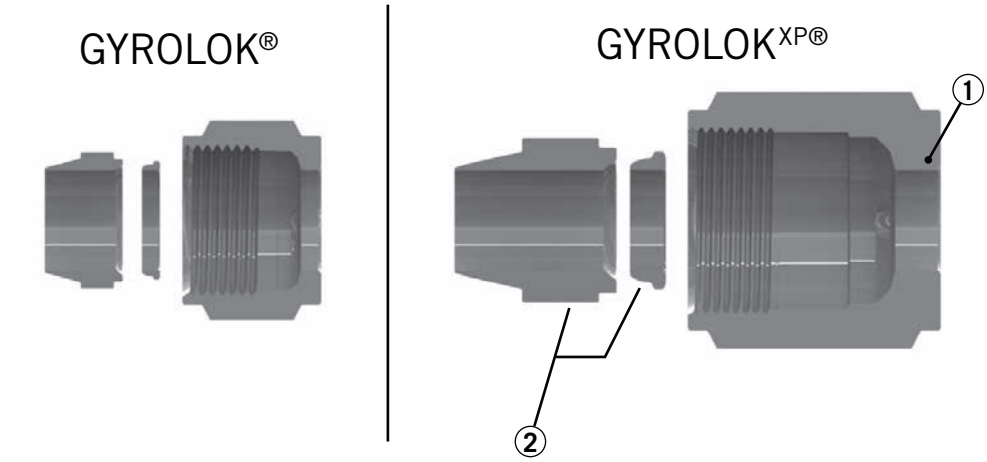
As spare parts, use:

PROFILE	PART NUMBER - DESCRIPTION	TUBE OPTIONS	THREAD CONNECTION	PAGE LOCATION
	**FR-XP** - Rear Ferrules	Fractional or metric tube	—	26
	**FF-XP** - Front Ferrules	Fractional or metric tube	—	26
	**N-XP** - Nut	Fractional or metric tube	—	26
	**SCNF-XP** - Safety Changer Nut & Ferrule Sets	Fractional or metric tube	—	27
	**SCF-XP** - Safety Changer Ferrule Sets	Fractional or metric tube	—	27

Tools & Accessories, use:

PROFILE	PART NUMBER - DESCRIPTION	TUBE OPTIONS	THREAD CONNECTION	PAGE LOCATION
	**LD** - Leak Detective	—	—	28
	**PST-XP** - Pre-setting Tool	—	—	29
	**GMT-XP** - GYROLOK® Marking Tool	Fractional or metric tube	—	29
	**HPST** - Hydraulic Pre-set Tool	Fractional or metric tube	—	30

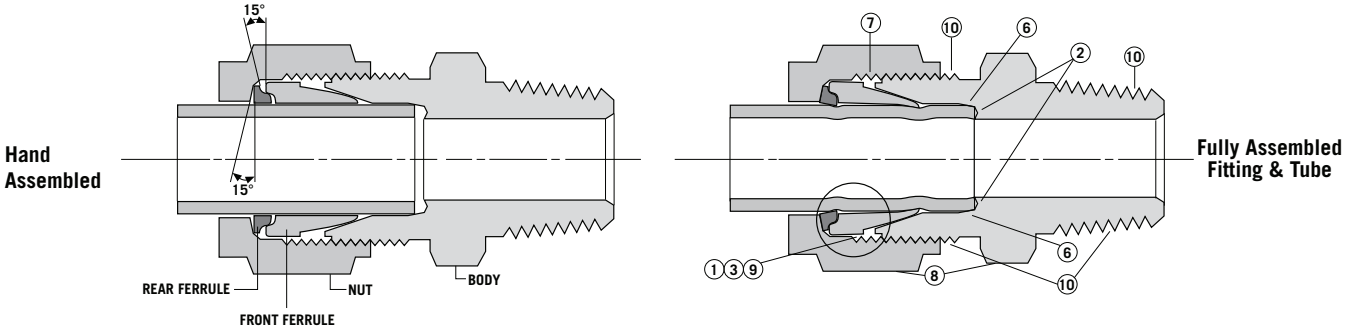
GYROLOK[XP®] **Features & Benefits**



GYROLOK[XP®] FEATURES	EXPLANATION	BENEFITS
1. FORTIFIED XP NUT	Compared to standard GYROLOK®, THE GYROLOK[XP®] nut features an increased wall thickness on the end of the nut and, generally, an overall larger hex size for fratctional sizes.	The increased wall thickness on the back of the nut provides the necessary support to withstand the makeup and provide stability at pressures greater than Standard GYROLOK® and for Medium Pressure application.
2. FORTIFIED XP FERRULES	Compared to standard GYROLOK®, THE GYROLOK[XP®] front and rear ferrules are substantially larger.	With the front and rear ferrules being substantially larger, the front ferrule is able to provide optimum sealing without negatively distorting under the increased pressure. The larger rear ferrule successfully bites into thick-walled tube, while resisting vibration.

These features combined, result in the ability for GYROLOK[XP®] Tube Fittings to withstand HIGHER pressure ratings, when compared to GYROLOK®, as well as utilize thick-walled tubing at pressures greater than the Standard GYROLOK® and for Medium Pressure applications.

GYROLOK® **Features & Benefits**



GYROLOK[XP®] still includes all of the innovative features found in Standard GYROLOK®:
All of the features, but at pressures greater than Standard GYROLOK® and Medium Pressure applications - the best of both worlds!

FEATURES	EXPLANATION	BENEFITS
1. CONTROLLED FERRULE DRIVE	The gyration action of the rear ferrule during fitting makeup closes the 15° angles between the rear ferrule and nut, and between the rear ferrule and front ferrule. Preventing overstressing of tubing or excessively reducing tubing inside diameter. The front ferrule shoulder prevents over-tightening which eliminates body expansion and nut binding.	Provides maximum user safety under high pressure/ vibration conditions. Prevents overstressing, which causes tubing failure and possible injury. System efficiency is improved by maximizing flow. Provides unmatched remake life and maximizes value and economy.
2. BUTT SEAL	The abutment seat or "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.
3. SIZING ANGLE	Slight taper in the base of the tube socket reduces possibility of tube sticking.	Reduced tube sticking during disassembly and resassembly saves time and costly replacements.
4. SILVER PLATED NUT THREADS	Silver plating prevents galling during installation and extends fitting life with Gyrolok®'s unmatched remakeability at temperatures up to 1200 °F.	Silver plated nut threads are essential with GYROLOK® fittings which can be remade 100's of times without galling.
5. HIGH TOLERANCE NPT THREAD	ANSI Standard B1.20.1 - Thread Form with a tolerance 63% more restrictive than ANSI standard.	Provides a safer and more robust connection which provides up to 6 threads of engagement.
6. PFA FERRULE COATING	Front ferrules - Sizes larger than 1" (25mm) are PFA coated.	PFA coating aids the assembly process and improves the coining of the cone angle of the body and ferrule for greater sealing performance.
7. GMT	Used to apply a reliable line witness mark on the tubing to show that tubing has been fully inserted into the fitting, ferrule orientation is correct and the fitting has been properly tightened.	Ensures product installation safety with a visual indication of proper tube insertion, ferrule orientation and proper tightening without the use of gage.
8. MATERIAL TRACEABILITY	Bodies and nuts of GYROLOK[XP®] fittings in all materials are heat coded traceable to Certified Material Test Reports.	Traceability provides added safety. Certified Material Test Reports are available for review and verification.
9. GYROLOK® SAFETY CHANGER	Nut and ferrule sets correctly oriented on a plastic install rod for easy installation.	Eliminates the need to handle ferrules and nuts during replacement, making replacements safe and reliable.
10. GYROLOK® END FITTINGS HOKE® VALVES	Controlled ferrule drive prevents end connection expansion, thus prolonging valve life and eliminating the need to use female-ended valves with separate fittings.	Eliminating the need for female threads prevents possible leak path and extends valve life, maximizing operational safety and extended product life.

Dimensions for reference only. Subject to change.

The GYROLOK[XP®] **Design**

GYROLOK[XP®] Tube Fittings have been carefully designed and manufactured to provide outstanding leak-tight integrity in a wide range of applications at higher pressures than standard GYROLOK® Tube Fittings and for Medium Pressure applications.

MATERIALS	
GYROLOK[XP®] fittings are available in:	
316/316 Stainles Steel:	**316**
Alloy 6MO:	**6MO**
Super Duplex 2507:	**D50**
316/316L SS Forgings:	**ASTM A182**
316/316L SS Bar Stock:	**ASTM A479**
Alloy 6MO Forgings:	**ASTM A182**
Alloy 6MO Bar Stock:	**ASTM A479**
Super Duplex Forgings:	**ASTM A182**
Super Duplex Bar Stock:	**ASTM A479**

HOKE® reserves the right to substitute to bar stock on lower quantity orders. Bar stock part numbers will end in "-B". Contact your local HOKE® distributor for further information.

Certified Material Text Reports (CMTRs)
Bodies, ferrules, and nuts of GYROLOK[XP®] fittings are heat code traceable. To obtain CMTRs for these components, place separate orders for such items and specify "CMTR's required on all items".

Pressure Rating
GYROLOK[XP®] fitting ends are rated for working pressures higher than the tubing recommended for use with GYROLOK®. Under no circumstances should tubing be utilized at pressures above its maximum allowable working pressure. Refer to the GYROLOK® Tubing Data Charts for common size tubing pressure data. If no pressure is identified for a given tube size and wall thickness, consult your local HOKE® distributor, the HOKE® factory can perform testing upon request.

Pressure ratings may vary for the other fitting end if it is not GYROLOK[XP®] (i.e. NPT). For GYROLOK[XP®] NPT pressure ratings, refer to the GYROLOK[XP®] NPT table in this document. The user must determine whether both the GYROLOK[XP®] end and the non-GYROLOK[XP®] end working pressure ratings are suitable with the system design working pressure.

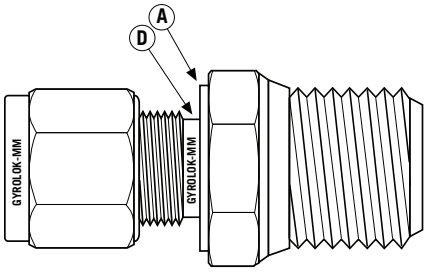
Vacuum Rating
GYROLOK[XP®] offers deep vacuum capability. With good quality tubing, GYROLOK[XP®] fittings will be leak-tight at vacuum levels of 10^{-6} torr while tested with a leakage sensitivity of 10^{-9} scc.

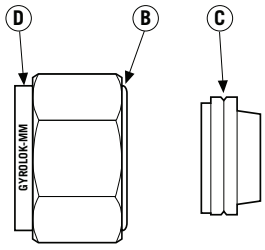
Temperature
GYROLOK[XP®] fittings provide safe, reliable performance from cryogenic temperatures to high temperature with no pressure derating on based alloy. Temperature derating tables can be found with GYROLOK[XP®] Tubing Data Charts.

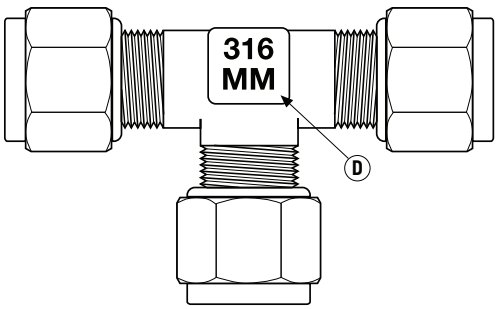
316 Stainless Steel	-325°F to +300°F
Alloy 6MO	-325°F to +200°F
Super Duplex 2507	-60°F to +100°F

PFA Coating
Front ferrules larger than 1"/25mm are PFA coated.

Identifying Metric GYROLOK[XP®] **Products**







Metric GYROLOK[XP®] **products have certain features which allow you to identify them from fractional products.**

A. Step Machined on Body Hex
Straight bodies with a metric GYROLOK[XP®] end have a step on the tube fitting side of the hex.

B. Short Shank on Nut
Metric nuts have a short shank (0.035"/.9MM) on the threaded end.

C. Groove in Front Ferrule
Metric front ferrules have a groove in the shoulder.

D. MM Marking
The metric designation "MM" is stamped on:
- metric nuts and straight bodies—after the GYROLOK[XP®] trademark
- metric elbows, tees and crosses—on the side opposite the HOKE® logo
- front and rear ferrules are stamped or laser marked after material identification.

E. Color Coding
Blue boxes designate metric parts and accessories, including Safety Changer packaging.

General Information

How to Order

The GYROLOK[XP®] numbering system is a completely descriptive system that's easy to understand. Each part number describes completely assembled fittings.

4 CM 4 316 [ ] - XP

Tube O.D.
(Inches) In sixteenths of an inch
(1/4" O.D.)(Metric) In millimeters

Type Fitting
(male connector)

Pipe/Tube Size
(Inches) In sixteenths of an inch (1/4" NPT)
(Metric) In millimeters

Modifier per #5, 7, 8 (below)

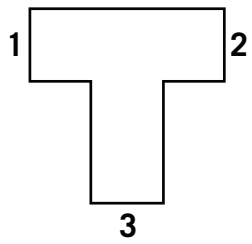
Material
316 – 316 stainless steel
D50 – Super Duplex 2507
6M0 – Alloy 6MO

1. The first number (4) identifies the tube O.D. size. For example, **4** = 4/16" for fractional fittings. **4** = 4mm for metric fittings. If there is no 5th group, sizes are fractional.
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 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, **M** for metric. The second letter indicates the unit of measure (E or M), or thread type, for the second number in the part number. If there is no 5th group, all sizes are fractional.

   Examples:
   4CM4 316-XP = 1/4 tube x 1/4 NPT male -XP connector, 316 stainless steel
   6RU3 6M0 ME-XP= 6mm tube x 3/16 tube -XP reducing union, 6MO
   10LM4 316 ME-XP = 10mm tube x 1/4 male NPT, -XP male elbow, 316 stainless steel

Unit of measure/end connector codes:
M = Metric tube, in millimeters
E = fractional unit of measure in 1/16th of an inch

6. Fittings cleaned for oxygen service: To order, add **HPS18** to the end of basic fitting part number.
   Example: **4CM4316HPS18-XP**
7. Fittings cleaned for nuclear service: To order, add **HPS90** to the end of basic fitting part number.
   Example: **4CM4316HPS90-XP**
8. O-ring designator - Viton® (45) is standard for SAE fittings. In the event no material is specified, Viton will be silicone (01), and Buna-N (23). Example **6CMS631623**



Thread Connections Available with GYROLOK[XP®] Fittings

Pipe Thread Information

GYROLOK[XP®] tube fittings are available with NPT (National Pipe Taper) ends, In similar fashion to standard GYROLOK®, the NPT end on a GYROLOK[XP®] fitting has been designed with tighter tolerances than ASME B1.20, which results in additional thread engagement. The wall thickness in the NPT end has been increased. For GYROLOK[XP®] NPT pressure ratings, refer to the GYROLOK[XP®] NPT Table below.

MALE NPT		MATERIAL		
		316	6MO	D50
NPS	Bore	MAWP [psig]		
1/4	0.15	15000	15000	15000
3/8	0.19	15000	15000	15000
1/2	0.26	15000	15000	15000
3/4	0.51	10300	13900	15000
1	0.64	10400	14100	15000
1 1/4	0.81	9600	13000	15000
1 1/2	0.98	8200	11200	15000

FEMALE NPT		MATERIAL		
		316	6MO	D50
NPS	OD/HSS	MAWP [psig]		
1/4	1.44	15000	15000	15000
3/8	1.81	15000	15000	15000
1/2	2.00	14200	15000	15000
3/4	1.81	10200	13900	15000
1	2.00	8200	11200	15000
1 1/4	2.00	3900	5400	7700

Dimensions for reference only. Subject to change.

304 & 316 Stainless Steel Annealed Seamless Tubing

ASTM A-269 UNS S31600 or Equal, Recommended Max Hardness HRB 90

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable Stress = 20,000 psi between -20°F and 100°F

	Wall Thickness (Inches)	Working Pressure psig (bar)
1/4	0.095	15000 (1034)
3/8	0.134	14400 (965)
1/2	0.188	15000 (1034)
3/4	0.156	8100 (558)
1	0.188	7700 (531)

2507 Super Duplex Stainless Steel Solution Treated Seamless Tubing

ASTM A789 UNS S32750 or Equal, Recommended Max Hardness HRC 32

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable Stress = 36,300 psi between -20°F and 100°F

	Wall Thickness (Inches)	Working Pressure psig (bar)
1/4	0.065	15000 (1034)
3/8	0.065	12700 (875)
1/2	0.083	12900 (890)
3/4	0.120	12500 (862)
1	0.083	6100 (420)

Alloy 6MO Stainless Steel Annealed Seamless Tubing

ASTM A-269 UNS S31254 or Equal, Recommended Max Hardness HRB 90

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable Stress = 27,100 psi between -20°F and 100°F

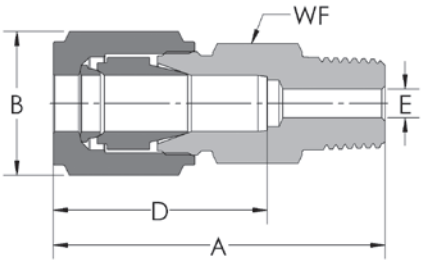
	Wall Thickness (Inches)	Working Pressure psig (bar)
1/4	0.065	15000 (1034)
3/8	0.083	12300 (848)
1/2	0.083	9000 (620)
3/4	0.083	5800 (400)
1	0.109	5700 (393)

Cold-Drawn 1/8-Hard 316 Stainless Steel Tubing

Recommended Max Hardness 30 HRC

Allowable working pressures are calculated based on equations from ASME B31.1 and ASME B31.3 for a maximum allowable Stress = 35,000 psi between -20°F and 100°F

	Wall Thickness (Inches)	Working Pressure psig (bar)
1/4	0.065	15000 (1034)
3/8	0.083	15000 (1034)
9/16	0.124	15000 (1034)



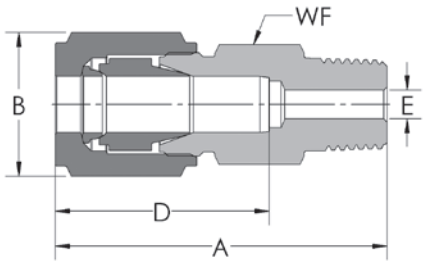
Imperial Fitting Shown

Male Connector: CM-XP

connects fractional tube to female NPT

Tube OD (Inches)	Nominal Pipe Size	Basic Order Number*	Dimensions (Inches)				
			A	D	E	WF (Wrench Flat)	B
1/4	1/4	4CM4[]-XP	1.73	0.85	0.15	5/8	5/8
1/4	3/8	4CM6[]-XP	1.76	0.85	0.19	3/4	5/8
1/4	1/2	4CM8[]-XP	1.98	0.85	0.19	15/16	5/8
1/4	3/4	4CM12[]-XP	2.07	0.85	0.19	1 1/8	5/8
1/4	1	4CM16[]-XP	2.34	0.85	0.19	1 7/16	5/8
1/4	1 1/4	4CM20[]-XP	2.39	0.85	0.19	1 3/4	5/8
1/4	1 1/2	4CM24[]-XP	2.48	0.85	0.19	2	5/8
3/8	1/4	6CM4[]-XP	2.27	1.42	0.15	3/4	1
3/8	3/8	6CM6[]-XP	2.27	1.42	0.19	3/4	1
3/8	1/2	6CM8[]-XP	2.46	1.42	0.26	15/16	1
3/8	3/4	6CM12[]-XP	2.62	1.42	0.28	1 1/8	1
3/8	1	6CM16[]-XP	2.89	1.42	0.28	1 7/16	1
3/8	1 1/4	6CM20[]-XP	2.67	1.42	0.28	1 3/4	1
3/8	1 1/2	6CM24[]-XP	2.96	1.42	0.28	2	1
1/2	1/4	8CM4[]-XP	2.80	1.94	0.15	15/16	1 1/8
1/2	3/8	8CM6[]-XP	2.82	1.94	0.19	15/16	1 1/8
1/2	1/2	8CM8[]-XP	3.01	1.94	0.26	15/16	1 1/8
1/2	3/4	8CM12[]-XP	3.02	1.94	0.42	1 1/8	1 1/8
1/2	1	8CM16[]-XP	3.28	1.94	0.42	1 7/16	1 1/8
1/2	1 1/4	8CM20[]-XP	3.44	1.94	0.42	1 3/4	1 1/8
1/2	1 1/2	8CM24[]-XP	3.07	1.94	0.42	2	1 1/8
9/16	1/4	9CM4[]-XP	2.72	1.86	0.15	1 1/8	1 1/4
9/16	3/8	9CM6[]-XP	2.75	1.86	0.19	1 1/8	1 1/4
9/16	1/2	9CM8[]-XP	2.94	1.86	0.26	1 1/8	1 1/4
9/16	3/4	9CM12[]-XP	2.88	1.86	0.49	1 1/8	1 1/4
9/16	1	9CM16[]-XP	3.14	1.86	0.49	1 7/16	1 1/4
9/16	1 1/4	9CM20[]-XP	3.31	1.86	0.49	1 3/4	1 1/4
9/16	1 1/2	9CM24[]-XP	3.14	1.86	0.49	2	1 1/4
3/4	1/4	12CM4[]-XP	2.76	1.70	0.15	1 3/16	1 3/8
3/4	3/8	12CM6[]-XP	2.69	1.70	0.19	1 3/16	1 3/8
3/4	1/2	12CM8[]-XP	2.91	1.70	0.26	1 3/16	1 3/8
3/4	3/4	12CM12[]-XP	2.82	1.70	0.51	1 3/16	1 3/8
3/4	1	12CM16[]-XP	2.91	1.70	0.64	1 7/16	1 3/8
3/4	1 1/4	12CM20[]-XP	3.09	1.70	0.66	1 3/4	1 3/8
3/4	1 1/2	12CM24[]-XP	3.33	1.70	0.66	2	1 3/8
1	1/4	16CM4[]-XP	4.36	3.21	0.15	1 11/16	2
1	3/8	16CM6[]-XP	4.41	3.21	0.19	1 11/16	2
1	1/2	16CM8[]-XP	4.64	3.21	0.26	1 11/16	2
1	3/4	16CM12[]-XP	4.45	3.21	0.51	1 11/16	2
1	1	16CM16[]-XP	4.64	3.21	0.64	1 11/16	2
1	1 1/4	16CM20[]-XP	4.55	3.21	0.81	1 3/4	2
1	1 1/2	16CM24[]-XP	4.70	3.21	0.88	2	2

* [ ] see page 7 for material specifications.



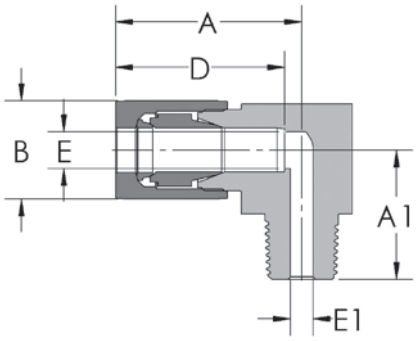
Imperial Fitting Shown

Male Connector: CM/ME-XP

connects metric tube with female NPT

Tube OD (MM)	Nominal Pipe Size	Basic Order Number*	Dimensions (Inches)				
			A	D	E	WF (Wrench Flat)	B
6	1/4	6CM4[]ME-XP	1.75	0.78	0.15	5/8	5/8
6	3/8	6CM6[]ME-XP	1.78	0.78	0.16	3/4	5/8
6	1/2	6CM8[]ME-XP	2.00	0.78	0.16	15/16	5/8
6	3/4	6CM12[]ME-XP	2.03	0.78	0.16	1 1/8	5/8
6	1	6CM16[]ME-XP	2.31	0.78	0.16	1 7/16	5/8
6	1 1/4	6CM20[]ME-XP	2.46	0.78	0.16	1 3/4	5/8
6	1 1/2	6CM24[]ME-XP	2.67	0.78	0.16	2	5/8
10	1/4	10CM4[]ME-XP	1.77	0.84	0.15	11/16	3/4
10	3/8	10CM6[]ME-XP	1.79	0.84	0.19	3/4	3/4
10	1/2	10CM8[]ME-XP	2.01	0.84	0.26	15/16	3/4
10	3/4	10CM12[]ME-XP	2.04	0.84	0.32	1 1/8	3/4
10	1	10CM16[]ME-XP	2.29	0.84	0.32	1 7/16	3/4
10	1 1/4	10CM20[]ME-XP	2.40	0.84	0.32	1 3/4	3/4
10	1 1/2	10CM24[]ME-XP	2.62	0.84	0.32	2	3/4
12	1/4	12CM4[]ME-XP	1.99	1.10	0.15	13/16	7/8
12	3/8	12CM6[]ME-XP	2.01	1.10	0.19	13/16	7/8
12	1/2	12CM8[]ME-XP	2.19	1.10	0.26	15/16	7/8
12	3/4	12CM12[]ME-XP	2.19	1.10	0.39	1 1/8	7/8
12	1	12CM16[]ME-XP	2.50	1.10	0.39	1 7/16	7/8
12	1 1/4	12CM20[]ME-XP	2.66	1.10	0.39	1 3/4	7/8
12	1 1/2	12CM24[]ME-XP	2.88	1.10	0.39	2	7/8
18	1/4	18CM4[]ME-XP	2.29	1.16	0.15	1 1/16	1 1/8
18	3/8	18CM6[]ME-XP	2.15	1.16	0.19	1 1/16	1 1/8
18	1/2	18CM8[]ME-XP	2.37	1.16	0.26	1 1/16	1 1/8
18	3/4	18CM12[]ME-XP	2.27	1.16	0.51	1 1/8	1 1/8
18	1	18CM16[]ME-XP	2.48	1.16	0.63	1 7/16	1 1/8
18	1 1/4	18CM20[]ME-XP	2.58	1.16	0.63	1 3/4	1 1/8
18	1 1/2	18CM24[]ME-XP	2.82	1.16	0.63	2	1 1/8
20	1/4	20CM4[]ME-XP	2.28	1.34	0.15	1 3/16	1 1/4
20	3/8	20CM6[]ME-XP	2.21	1.34	0.19	1 3/16	1 1/4
20	1/2	20CM8[]ME-XP	2.44	1.34	0.26	1 3/16	1 1/4
20	3/4	20CM12[]ME-XP	2.34	1.34	0.51	1 3/16	1 1/4
20	1	20CM16[]ME-XP	2.55	1.34	0.64	1 7/16	1 1/4
20	1 1/4	20CM20[]ME-XP	2.61	1.34	0.66	1 3/4	1 1/4
20	1 1/2	20CM24[]ME-XP	2.86	1.34	0.66	2	1 1/4
25	1/4	25CM4[]ME-XP	2.52	1.37	0.15	1 3/8	1 1/2
25	3/8	25CM6[]ME-XP	2.57	1.37	0.19	1 3/8	1 1/2
25	1/2	25CM8[]ME-XP	2.81	1.37	0.26	1 3/8	1 1/2
25	3/4	25CM12[]ME-XP	2.51	1.37	0.51	1 3/8	1 1/2
25	1	25CM16[]ME-XP	2.70	1.37	0.64	1 7/16	1 1/2
25	1 1/4	25CM20[]ME-XP	2.60	1.37	0.81	1 3/4	1 1/2
25	1 1/2	25CM24[]ME-XP	2.78	1.37	0.86	2	1 1/2

* [ ] see page 7 for material specifications.



Male Elbow: LM-XP

connects fractional tube to female NPT thread

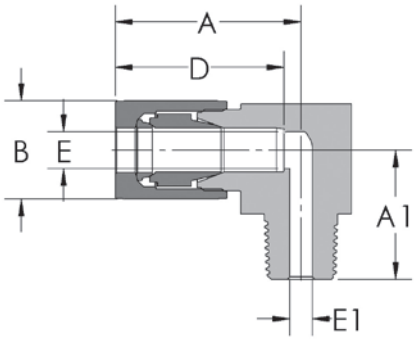
Tube OD (Inches)	Nominal Pipe Size	Basic Order Number*	Dimensions (Inches)					
			A	D	E	E1	A1	B
1/4	1/4	4LM4[]-XP	1.52	0.85	0.19	0.15	1.16	5/8
1/4	3/8	4LM6[]-XP	1.52	0.85	0.19	0.19	1.16	5/8
1/4	1/2	4LM8[]-XP	1.64	0.85	0.19	0.19	1.48	5/8
3/8	1/4	6LM4[]-XP	1.80	1.42	0.28	0.15	1.16	1
3/8	3/8	6LM6[]-XP	1.80	1.42	0.28	0.19	1.16	1
3/8	1/2	6LM8[]-XP	1.92	1.42	0.28	0.26	1.48	1
1/2	1/4	8LM4[]-XP	2.14	1.94	0.42	0.15	1.29	1 1/8
1/2	3/8	8LM6[]-XP	2.14	1.94	0.42	0.19	1.29	1 1/8
1/2	1/2	8LM8[]-XP	2.14	1.94	0.42	0.26	1.48	1 1/8
9/16	1/4	9LM4[]-XP	2.25	1.86	0.49	0.15	1.39	1 1/4
9/16	3/8	9LM6[]-XP	2.25	1.86	0.49	0.19	1.39	1 1/4
9/16	1/2	9LM8[]-XP	2.25	1.86	0.49	0.28	1.58	1 1/4
3/4	3/4	12LM12[]-XP	2.17	1.70	0.66	0.51	1.58	1 3/8
3/4	1	12LM16[]-XP	2.83	1.70	0.66	0.64	2.04	1 3/8
3/4	1 1/4	12LM20[]-XP	2.83	1.70	0.66	0.66	2.04	1 3/8
3/4	1 1/2	12LM24[]-XP	3.11	1.70	0.66	0.66	2.33	1 3/8
1	3/4	16LM12[]-XP	3.84	3.21	0.88	0.51	2.05	2
1	1	16LM16[]-XP	3.84	3.21	0.88	0.64	2.24	2
1	1 1/4	16LM20[]-XP	3.84	3.21	0.88	0.81	2.24	2
1	1 1/2	16LM24[]-XP	3.84	3.21	0.88	0.88	2.33	2

Hoke® reserves the right to substitute to bar stock on lower quantity orders. Bar stock part numbers will end in -B. Contact your local Hoke® distributor for further information.

* [ ] see page 7 for material specifications.

Male Elbow: LM/ME-XP

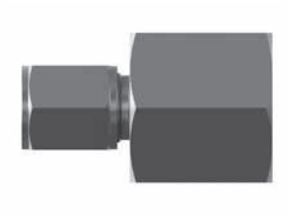
connects metric tube to female NPT thread

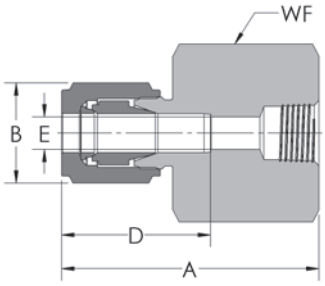


Tube OD (MM)	Nominal Pipe Size	Basic Order Number*	Dimensions (Inches)					
			A	D	E	E1	A1	B
6	1/4	6LM4[]ME-XP	1.50	0.78	0.16	0.15	1.16	5/8
6	3/8	6LM6[]ME-XP	1.50	0.78	0.16	0.16	1.16	5/8
6	1/2	6LM8[]ME-XP	1.62	0.78	0.16	0.16	1.48	5/8
10	1/4	10LM4[]ME-XP	1.54	0.84	0.32	0.15	1.16	3/4
10	3/8	10LM6[]ME-XP	1.54	0.84	0.32	0.19	1.16	3/4
10	1/2	10LM8[]ME-XP	1.66	0.84	0.32	0.26	1.48	3/4
12	1/4	12LM4[]ME-XP	1.67	1.10	0.39	0.15	1.16	7/8
12	3/8	12LM6[]ME-XP	1.67	1.10	0.39	0.19	1.16	7/8
12	1/2	12LM8[]ME-XP	1.79	1.10	0.39	0.26	1.48	7/8
18	3/4	18LM12[]ME-XP	1.94	1.16	0.63	0.51	1.58	1 1/8
18	1	18LM16[]ME-XP	2.60	1.16	0.63	0.63	2.04	1 1/8
18	1 1/4	18LM20[]ME-XP	2.60	1.16	0.63	0.63	2.04	1 1/8
18	1 1/2	18LM24[]ME-XP	2.88	1.16	0.63	0.63	2.33	1 1/8
20	3/4	20LM12[]ME-XP	2.01	1.34	0.66	0.51	1.58	1 1/4
20	1	20LM16[]ME-XP	2.67	1.34	0.66	0.64	2.04	1 1/4
20	1 1/4	20LM20[]ME-XP	2.67	1.34	0.66	0.66	2.04	1 1/4
20	1 1/2	20LM24[]ME-XP	2.95	1.34	0.66	0.66	2.33	1 1/4
25	3/4	25LM12[]ME-XP	2.63	1.37	0.86	0.51	1.85	1 1/2
25	1	25LM16[]ME-XP	2.63	1.37	0.86	0.64	2.04	1 1/2
25	1 1/4	25LM20[]ME-XP	2.63	1.37	0.86	0.81	2.04	1 1/2
25	1 1/2	25LM24[]ME-XP	2.91	1.37	0.86	0.86	2.33	1 1/2

Hoke® reserves the right to substitute to bar stock on lower quantity orders. Bar stock part numbers will end in -B. Contact your local Hoke® distributor for further information.

* [ ] see page 7 for material specifications.





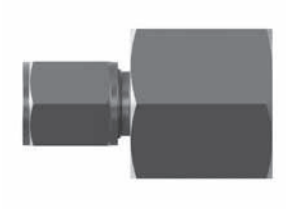
Fractional Fitting Shown

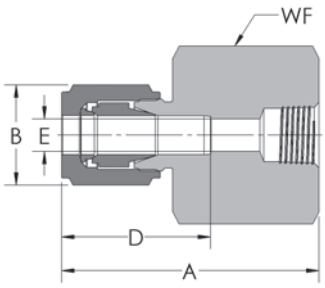
Female Connector: CF-XP

connects fractional tube to male NPT threads

Tube OD (Inches)	Nominal Pipe Size	Basic Order Number*	Dimensions (Inches)				
			A	D	E	WF (Wrench Flat)	B
1/4	1/4	4CF4[]-XP	1.92	0.85	0.19	1 7/16	5/8
1/4	3/8	4CF6[]-XP	2.09	0.85	0.19	1 13/16	5/8
1/4	1/2	4CF8[]-XP	2.25	0.85	0.19	2	5/8
1/4	3/4	4CF12[]-XP	2.15	0.85	0.19	1 13/16	5/8
1/4	1	4CF16[]-XP	2.61	0.85	0.19	2	5/8
1/4	1 1/4	4CF20[]-XP	2.82	0.85	0.19	2	5/8
3/8	1/4	6CF4[]-XP	2.53	1.42	0.28	1 7/16	1
3/8	3/8	6CF6[]-XP	2.70	1.42	0.28	1 13/16	1
3/8	1/2	6CF8[]-XP	2.86	1.42	0.28	2	1
3/8	3/4	6CF12[]-XP	2.76	1.42	0.28	1 13/16	1
3/8	1	6CF16[]-XP	3.01	1.42	0.28	2	1
3/8	1 1/4	6CF20[]-XP	2.87	1.42	0.28	2	1
1/2	1/4	8CF4[]-XP	3.02	1.94	0.42	1 7/16	1 1/8
1/2	3/8	8CF6[]-XP	3.19	1.94	0.42	1 13/16	1 1/8
1/2	1/2	8CF8[]-XP	3.35	1.94	0.42	2	1 1/8
1/2	3/4	8CF12[]-XP	3.25	1.94	0.42	1 13/16	1 1/8
1/2	1	8CF16[]-XP	3.50	1.94	0.42	2	1 1/8
1/2	1 1/4	8CF20[]-XP	3.36	1.94	0.42	2	1 1/8
9/16	1/4	9CF4[]-XP	2.93	1.86	0.43	1 7/16	1 1/4
9/16	3/8	9CF6[]-XP	3.10	1.86	0.49	1 13/16	1 1/4
9/16	1/2	9CF8[]-XP	3.26	1.86	0.49	2	1 1/4
9/16	3/4	9CF12[]-XP	3.16	1.86	0.49	1 13/16	1 1/4
9/16	1	9CF16[]-XP	3.41	1.86	0.49	2	1 1/4
9/16	1 1/4	9CF20[]-XP	3.27	1.86	0.49	2	1 1/4
3/4	1/4	12CF4[]-XP	2.85	1.70	0.43	1 7/16	1 3/8
3/4	3/8	12CF6[]-XP	3.02	1.70	0.56	1 13/16	1 3/8
3/4	1/2	12CF8[]-XP	3.18	1.70	0.66	2	1 3/8
3/4	3/4	12CF12[]-XP	3.08	1.70	0.66	1 13/16	1 3/8
3/4	1	12CF16[]-XP	3.33	1.70	0.66	2	1 3/8
3/4	1 1/4	12CF20[]-XP	3.19	1.70	0.66	2	1 3/8
1	1/4	16CF4[]-XP	4.41	3.21	0.43	1 11/16	2
1	3/8	16CF6[]-XP	4.58	3.21	0.56	1 13/16	2
1	1/2	16CF8[]-XP	4.74	3.21	0.69	2	2
1	3/4	16CF12[]-XP	4.64	3.21	0.88	1 13/16	2
1	1	16CF16[]-XP	3.89	3.21	0.88	2	2
1	1 1/4	16CF20[]-XP	4.75	3.21	0.88	2	2

* [ ] see page 7 for material specifications.





Fractional Fitting Shown

Female Connector: CF/ME-XP

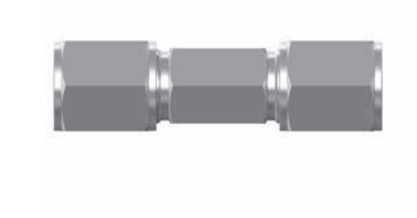
connects metric tube to male NPT threads

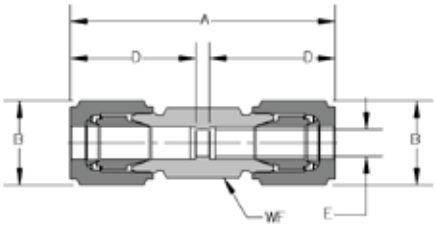
Tube OD (MM)	Nominal Pipe Size	Basic Order Number*	Dimensions (Inches)				
			A	D	E	WF (Wrench Flat)	B
6	1/4	6CF4[]ME-XP	1.86	0.78	0.16	1 7/16	5/8
6	3/8	6CF6[]ME-XP	2.04	0.78	0.16	1 13/16	5/8
6	1/2	6CF8[]ME-XP	2.20	0.78	0.16	2	5/8
6	3/4	6CF12[]ME-XP	2.27	0.78	0.16	1 13/16	5/8
6	1	6CF16[]ME-XP	2.67	0.78	0.16	2	5/8
6	1 1/4	6CF20[]ME-XP	2.67	0.78	0.16	2	5/8
10	1/4	10CF4[]ME-XP	1.91	0.84	0.32	1 7/16	3/4
10	3/8	10CF6[]ME-XP	2.08	0.84	0.32	1 13/16	3/4
10	1/2	10CF8[]ME-XP	2.24	0.84	0.32	2	3/4
10	3/4	10CF12[]ME-XP	2.31	0.84	0.32	1 13/16	3/4
10	1	10CF16[]ME-XP	2.71	0.84	0.32	2	3/4
10	1 1/4	10CF20[]ME-XP	2.71	0.84	0.32	2	3/4
12	1/4	12CF4[]ME-XP	2.21	1.10	0.39	1 7/16	7/8
12	3/8	12CF6[]ME-XP	2.39	1.10	0.39	1 13/16	7/8
12	1/2	12CF8[]ME-XP	2.55	1.10	0.39	2	7/8
12	3/4	12CF12[]ME-XP	2.44	1.10	0.39	1 13/16	7/8
12	1	12CF16[]ME-XP	2.74	1.10	0.39	2	7/8
12	1 1/4	12CF20[]ME-XP	2.79	1.10	0.39	2	7/8
18	1/4	18CF4[]ME-XP	2.31	1.16	0.43	1 7/16	1 1/8
18	3/8	18CF6[]ME-XP	2.49	1.16	0.56	1 13/16	1 1/8
18	1/2	18CF8[]ME-XP	2.65	1.16	0.63	2	1 1/8
18	3/4	18CF12[]ME-XP	2.54	1.16	0.63	1 13/16	1 1/8
18	1	18CF16[]ME-XP	2.80	1.16	0.63	2	1 1/8
18	1 1/4	18CF20[]ME-XP	2.79	1.16	0.63	2	1 1/8
20	1/4	20CF4[]ME-XP	2.37	1.34	0.43	1 7/16	1 1/4
20	3/8	20CF6[]ME-XP	2.55	1.34	0.56	1 13/16	1 1/4
20	1/2	20CF8[]ME-XP	2.71	1.34	0.66	2	1 1/4
20	3/4	20CF12[]ME-XP	2.60	1.34	0.66	1 13/16	1 1/4
20	1	20CF16[]ME-XP	2.86	1.34	0.66	2	1 1/4
20	1 1/4	20CF20[]ME-XP	2.86	1.34	0.66	2	1 1/4
25	1/4	25CF4[]ME-XP	2.47	1.37	0.43	1 7/16	1 1/2
25	3/8	25CF6[]ME-XP	2.65	1.37	0.56	1 13/16	1 1/2
25	1/2	25CF8[]ME-XP	2.81	1.37	0.69	2	1 1/2
25	3/4	25CF12[]ME-XP	2.70	1.37	0.86	1 13/16	1 1/2
25	1	25CF16[]ME-XP	2.96	1.37	0.86	2	1 1/2
25	1 1/4	25CF20[]ME-XP	2.82	1.37	0.86	2	1 1/2

* [ ] see page 7 for material specifications.

Union: U-XP

connects fractional tubes





Tube OD (Inches)	Basic Order Number*	Dimensions (Inches)				
		A	D	E	WF (Wrench Flat)	B
1/4	4U[]-XP	2.13	0.85	0.19	1/2	5/8
3/8	6U[]-XP	3.12	1.42	0.28	3/4	1
1/2	8U[]-XP	4.09	1.94	0.42	15/16	1 1/8
9/16	9U[]-XP	3.92	1.86	0.49	1 1/8	1 1/4
3/4	12U[]-XP	3.76	1.70	0.66	1 3/16	1 3/8
1	16U[]-XP	6.87	3.21	0.88	1 11/16	2

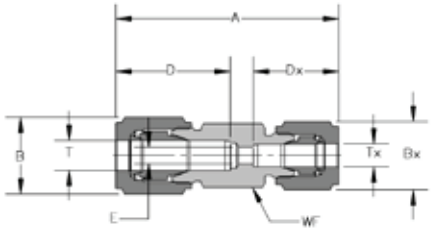
Union: U/MM-XP

connects metric tubes

Tube OD (MM)	Basic Order Number*	Dimensions (Inches)				
		A	D	E	WF (Wrench Flat)	B
6	6U[]MM-XP	2.14	0.78	0.16	9/16	5/8
10	10U[]MM-XP	2.22	0.84	0.32	11/16	3/4
12	12U[]MM-XP	2.46	1.10	0.39	13/16	7/8
18	18U[]MM-XP	2.63	1.16	0.63	1 1/8	1 1/8
20	20U[]MM-XP	2.96	1.34	0.66	1 1/4	1 1/4
25	25U[]MM-XP	3.45	1.37	0.86	1 7/16	1 1/2

Reducing Union: RU-XP connects fractional tubes

Fractional Fitting Shown

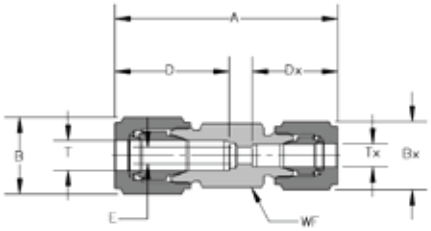


Tube OD (Inches)	Reducer Tube OD (Inches)	Basic Order Number*	Dimensions (Inches)						
			A	D	E	WF (Wrench Flat)	B	Dx	Bx
3/8	1/4	6RU4[]-XP	2.64	1.42	0.19	3/4	1	0.85	0.63
1/2	1/4	8RU4[]-XP	3.14	1.94	0.19	15/16	1 1/8	0.85	0.63
1/2	3/8	8RU6[]-XP	3.75	1.94	0.28	15/16	1 1/8	1.42	1.00
9/16	1/4	9RU4[]-XP	3.07	1.86	0.19	1 1/8	1 1/4	0.85	0.63
9/16	3/8	9RU6[]-XP	3.68	1.86	0.28	1 1/8	1 1/4	1.42	1.00
9/16	1/2	9RU8[]-XP	4.16	1.86	0.42	1 1/8	1 1/4	1.94	1.13
3/4	1/4	12RU4[]-XP	3.00	1.70	0.19	1 3/16	1 3/8	0.85	0.63
3/4	3/8	12RU6[]-XP	3.61	1.70	0.28	1 3/16	1 3/8	1.42	1.00
3/4	1/2	12RU8[]-XP	4.09	1.70	0.42	1 3/16	1 3/8	1.94	1.13
3/4	9/16	12RU9[]-XP	4.01	1.70	0.49	1 3/16	1 3/8	1.86	1.25
1	1/4	16RU4[]-XP	4.60	3.21	0.19	1 11/16	2	0.85	0.63
1	3/8	16RU6[]-XP	5.21	3.21	0.28	1 11/16	2	1.42	1.00
1	1/2	16RU8[]-XP	5.70	3.21	0.42	1 11/16	2	1.94	1.13
1	9/16	16RU9[]-XP	5.61	3.21	0.49	1 11/16	2	1.86	1.25
1	3/4	16RU12[]-XP	5.53	3.21	0.66	1 11/16	2	1.70	1.38

* [ ] see page 7 for material specifications.

Reducing Union: RU/MM-XP connects metric tubes

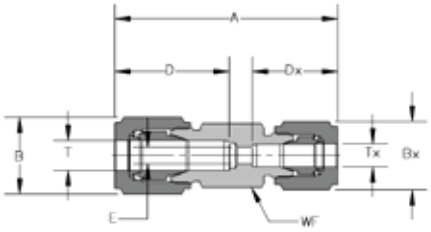
Fractional Fitting Shown



Tube OD (MM)	Reducer Tube OD (MM)	Basic Order Number*	Dimensions (Inches)						
			A	D	E	WF (Wrench Flat)	B	Dx	Bx
10	6	10RU6[]MM-XP	2.18	0.84	0.16	11/16	3/4	0.78	0.63
12	6	12RU6[]MM-XP	2.39	1.10	0.16	13/16	7/8	0.78	0.63
12	10	12RU10[]MM-XP	2.41	1.10	0.32	13/16	7/8	0.84	0.75
18	6	18RU6[]MM-XP	2.53	1.16	0.16	1 1/16	1 1/8	0.78	0.63
18	10	18RU10[]MM-XP	2.55	1.16	0.32	1 1/16	1 1/8	0.84	0.75
18	12	18RU12[]MM-XP	2.66	1.16	0.39	1 1/16	1 1/8	1.10	0.88
20	6	20RU6[]MM-XP	2.62	1.34	0.16	1 3/16	1 1/4	0.78	0.63
20	10	20RU10[]MM-XP	2.63	1.34	0.32	1 3/16	1 1/4	0.84	0.75
20	12	20RU12[]MM-XP	2.73	1.34	0.39	1 3/16	1 1/4	1.10	0.88
20	18	20RU18[]MM-XP	2.83	1.34	0.63	1 3/16	1 1/4	1.16	1.13
25	6	25RU6[]MM-XP	2.74	1.37	0.16	1 3/8	1 1/2	0.78	0.63
25	10	25RU10[]MM-XP	2.76	1.37	0.32	1 3/8	1 1/2	0.84	0.75
25	12	25RU12[]MM-XP	2.84	1.37	0.39	1 3/8	1 1/2	1.10	0.88
25	18	25RU18[]MM-XP	2.94	1.37	0.63	1 3/8	1 1/2	1.16	1.13
25	20	25RU20[]MM-XP	3.00	1.37	0.66	1 3/8	1 1/2	1.34	1.25

Reducing Union: RU/ME-XP connects metric tubes to fractional tubes

Fractional Fitting Shown

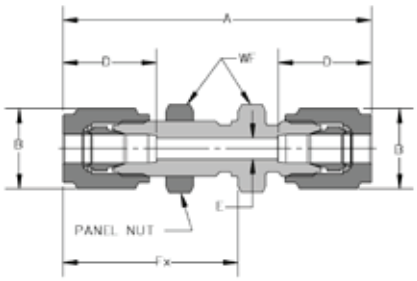


Tube OD (MM)	Reducer Tube OD (Inches)	Basic Order Number*	Dimensions (Inches)						
			A	D	E	WF (Wrench Flat)	B	Dx	Bx
18	3/8	18RU6[]ME-XP	2.71	1.16	0.28	1 1/16	1 1/8	0.78	0.63
20	3/8	20RU6[]ME-XP	2.79	1.34	0.28	1 3/16	1 1/4	0.78	0.63
25	3/8	25RU6[]ME-XP	2.90	1.37	0.28	1 3/8	1 1/2	0.78	0.63
25	3/4	25RU12[]ME-XP	3.29	1.37	0.66	1 3/8	1 1/2	1.10	0.88

Bulkhead Union: BU-XP connects fractional tubes

Fractional Fitting Shown

Tube OD (Inches)	Basic Order Number*	Dimensions (Inches)					
		A	D	E	WF (Wrench Flat)	Fx	B
1/4	4BU[]-XP	2.95	0.85	0.19	11/16	1.75	5/8
3/8	6BU[]-XP	3.66	1.42	0.28	15/16	2.13	1
1/2	8BU[]-XP	4.31	1.94	0.42	1 1/8	2.48	1 1/8
9/16	9BU[]-XP	4.10	1.86	0.49	1 1/4	2.33	1 1/4
3/4	12BU[]-XP	4.51	1.70	0.66	1 7/16	2.77	1 3/8
1	16BU[]-XP	6.86	3.21	0.88	2	4.06	2



Bulkhead Union: BU/MM-XP connects metric tubes

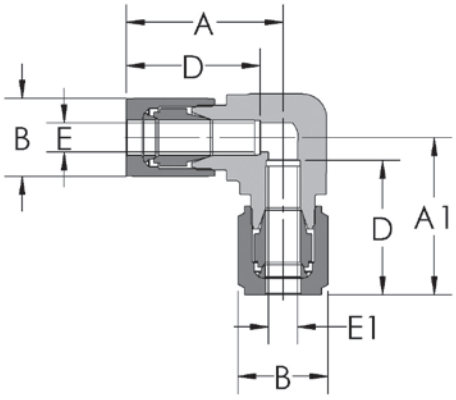
Tube OD (MM)	Basic Order Number*	Dimensions (Inches)					
		A	D	E	WF (Wrench Flat)	Fx	B
6	6BU[]MM-XP	3.05	0.78	0.16	11/16	1.84	5/8
10	10BU[]MM-XP	3.15	0.84	0.32	7/8	1.91	3/4
12	12BU[]MM-XP	3.47	1.10	0.39	15/16	2.07	7/8
18	18BU[]MM-XP	3.86	1.16	0.63	1 3/16	2.29	1 1/8
20	20BU[]MM-XP	4.11	1.34	0.66	1 5/16	2.47	1 1/4
25	25BU[]MM-XP	4.26	1.37	0.86	1 9/16	2.68	1 1/2

* [ ] see page 7 for material specifications.

Fractional Fitting Shown

Union Elbow: LU-XP connects fractional tubes

Tube OD (Inches)	Basic Order Number*	Dimensions (Inches)					
		A	D	E	E1	A1	B
3/8	6LU[]-XP	1.80	1.42	0.28	0.28	1.41	1
1/2	8LU[]-XP	2.27	1.94	0.42	0.42	1.34	1 1/8
9/16	9LU[]-XP	2.25	1.86	0.49	0.49	2.10	1 1/4
3/4	12LU[]-XP	2.15	1.70	0.66	0.66	1.34	1 3/8
1	16LU[]-XP	3.84	3.21	0.88	0.88	2.45	2

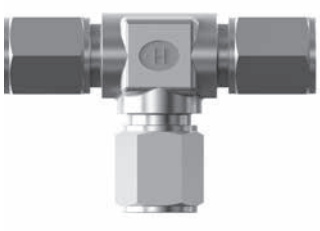


Union Elbow: LU/MM-XP connects metric tubes

Tube OD (MM)	Basic Order Number*	Dimensions (Inches)					
		A	D	E	E1	A1	B
6	6LU[]MM-XP	1.50	0.78	0.16	0.16	1.01	5/8
10	10LU[]MM-XP	1.54	0.84	0.32	0.32	1.41	3/4
12	12LU[]MM-XP	1.67	1.10	0.39	0.39	1.41	7/8
18	18LU[]MM-XP	1.94	1.16	0.63	0.63	2.10	1 1/8
20	20LU[]MM-XP	2.01	1.34	0.66	0.66	2.10	1 1/4
25	25LU[]MM-XP	2.63	1.37	0.86	0.86	2.34	1 1/2

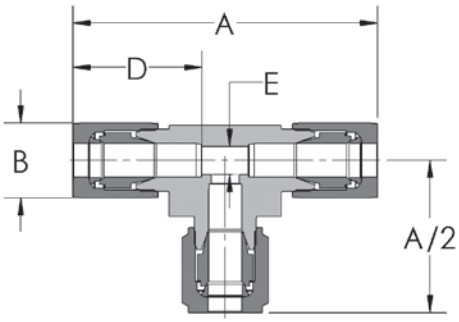
Hoke® reserves the right to substitute to bar stock on lower quantity orders. Bar stock part numbers will end in -B. Contact your local Hoke® distributor for further information

Union T: TTT-XP connects fractional tubes



Fractional Fitting Shown

Tube OD (Inches)	Basic Order Number*	Dimensions (Inches)			
		A	D	E	B
1/4	4TTT[]-XP	2.91	0.85	0.19	5/8
3/8	6TTT[]-XP	3.83	1.42	0.28	1
3/8	9TTT[]-XP	4.51	1.86	0.49	1 1/4
1/2	8TTT[]-XP	4.58	1.94	0.42	1 1/8
3/4	12TTT[]-XP	4.33	1.70	0.66	1 3/8
1	16TTT[]-XP	7.65	3.21	0.88	2



Union Tee: TTT/MM-XP connects metric tubes

Tube OD (Inches/MM)	Basic Order Number*	Dimensions (Inches)			
		A	D	E	B
6	6TTT[]MM-XP	2.86	0.78	0.16	5/8
10	10TTT[]MM-XP	3.31	0.84	0.32	3/4
12	12TTT[]MM-XP	3.89	1.10	0.39	7/8
18	18TTT[]MM-XP	3.89	1.16	0.63	1 1/8
20	20TTT[]MM-XP	4.00	1.34	0.66	1 1/4
25	25TTT[]MM-XP	5.80	1.37	0.86	1 1/2

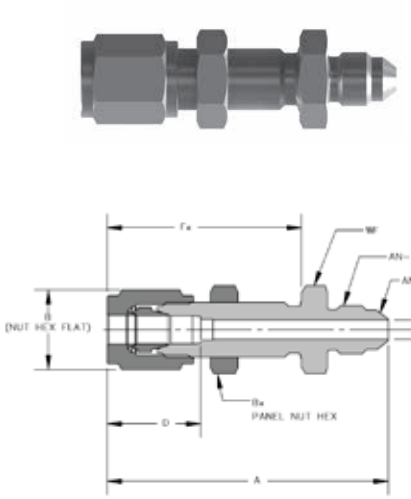
Hoke® reserves the right to substitute to bar stock on lower quantity orders. Bar stock part numbers will end in -B. Contact your local Hoke® distributor for further information

* [ ] see page 7 for material specifications.

Dimensions for reference only. Subject to change.

Bulkhead Union, AN:BUAN-XP

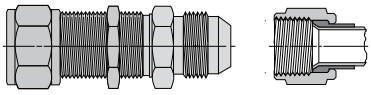
connects fractional tube to flared tube



Tube OD (Inches)	AN size (Inches)	Basic Order Number*	Dimensions (Inches)						
			A	D	E	WF (Wrench Flat)	B	Bx	Fx
1/4	1/4	4BUAN4[]-XP	2.58	0.85	0.17	11/16	5/8	0.69	1.80
1/4	3/8	4BUAN6[]-XP	2.57	0.85	0.19	13/16	5/8	0.69	1.75
1/4	1/2	4BUAN8[]-XP	2.70	0.85	0.19	1	5/8	0.69	1.75
3/8	1/4	6BUAN4[]-XP	2.99	1.42	0.17	13/16	1	0.94	2.18
3/8	3/8	6BUAN6[]-XP	2.94	1.42	0.28	13/16	1	0.94	2.13
3/8	1/2	6BUAN8[]-XP	3.07	1.42	0.28	1	1	0.94	2.13
1/2	1/4	8BUAN4[]-XP	3.32	1.94	0.17	1	1 1/8	1.13	2.48
1/2	3/8	8BUAN6[]-XP	3.33	1.94	0.30	1	1 1/8	1.13	2.48
1/2	1/2	8BUAN8[]-XP	3.43	1.94	0.39	1	1 1/8	1.13	2.48
9/16	1/4	9BUAN4[]-XP	3.19	1.86	0.17	1 1/8	1 1/4	1.25	2.33
9/16	3/8	9BUAN6[]-XP	3.21	1.86	0.30	1 1/8	1 1/4	1.25	2.34
9/16	1/2	9BUAN8[]-XP	3.31	1.86	0.39	1 1/8	1 1/4	1.25	2.34
3/4	3/4	12BUAN12[]-XP	3.99	1.70	0.61	1 3/8	1 3/8	1.44	2.77
3/4	1	12BUAN16[]-XP	4.09	1.70	0.66	1 5/8	1 3/8	1.44	2.77
3/4	1 1/4	12BUAN20[]-XP	4.17	1.70	0.66	1 7/8	1 3/8	1.44	2.77
3/4	1 1/2	12BUAN24[]-XP	4.35	1.70	0.66	2 1/8	1 3/8	1.44	2.77
1	3/4	16BUAN12[]-XP	4.84	3.21	0.61	1 3/4	2	2.00	3.54
1	1	16BUAN16[]-XP	4.88	3.21	0.85	1 3/4	2	2.00	3.54
1	1 1/4	16BUAN20[]-XP	4.95	3.21	0.88	1 7/8	2	2.00	3.54
1	1 1/2	16BUAN24[]-XP	5.13	3.21	0.88	2 1/8	2	2.00	3.54

BUAN-XP Application:

GYROLOK[XP®] bulkhead configuration AND 10056 or MS 33656, 37° flare connection for use with flared tubing, or SAE AS4395 ends.



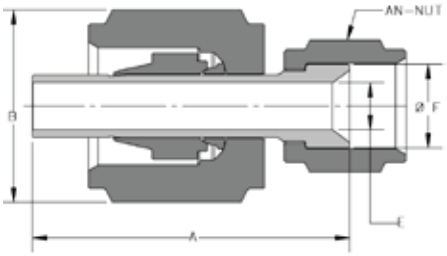
BUAN-XP **Mating Part**

Bulkhead Union, AN:BUAN/ME-XP

connects metric tube to flared tube

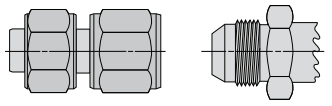
Tube OD (MM)	AN size (Inches)	Basic Order Number*	Dimensions (Inches)						
			A	D	E	WF (Wrench Flat)	B	Bx	Fx
6	1/4	6BUAN4[]ME-XP	2.63	0.78	0.16	11/16	5/8	0.69	1.79
6	3/8	6BUAN6[]ME-XP	2.65	0.78	0.16	13/16	5/8	0.69	1.79
6	1/2	6BUAN8[]ME-XP	2.78	0.78	0.16	1	5/8	0.69	1.79
10	1/4	10BUAN4[]ME-XP	2.71	0.84	0.17	7/8	3/4	0.88	1.86
10	3/8	10BUAN6[]ME-XP	2.72	0.84	0.30	7/8	3/4	0.88	1.86
10	1/2	10BUAN8[]ME-XP	2.85	0.84	0.32	1	3/4	0.88	1.86
12	1/4	12BUAN4[]ME-XP	2.92	1.10	0.17	15/16	7/8	0.94	2.02
12	3/8	12BUAN6[]ME-XP	2.93	1.10	0.30	15/16	7/8	0.94	2.02
12	1/2	12BUAN8[]ME-XP	3.01	1.10	0.39	1	7/8	0.94	2.02
18	3/4	18BUAN12[]ME-XP	3.52	1.16	0.61	1 7/16	1 1/8	1.19	2.25
18	1	18BUAN16[]ME-XP	3.61	1.16	0.63	1 5/8	1 1/8	1.19	2.25
18	1 1/4	18BUAN20[]ME-XP	3.70	1.16	0.63	1 7/8	1 1/8	1.19	2.25
18	1 1/2	18BUAN24[]ME-XP	3.96	1.16	0.63	2 1/8	1 1/8	1.19	2.25
20	3/4	20BUAN12[]ME-XP	3.71	1.34	0.61	1 7/16	1 1/4	1.31	2.43
20	1	20BUAN16[]ME-XP	3.80	1.34	0.66	1 5/8	1 1/4	1.31	2.43
20	1 1/4	20BUAN20[]ME-XP	3.88	1.34	0.66	1 7/8	1 1/4	1.31	2.43
20	1 1/2	20BUAN24[]ME-XP	4.15	1.34	0.66	2 1/8	1 1/4	1.31	2.43
25	3/4	25BUAN12[]ME-XP	3.91	1.37	0.61	1 7/16	1 1/2	1.56	2.63
25	1	25BUAN16[]ME-XP	3.99	1.37	0.85	1 5/8	1 1/2	1.56	2.63
25	1 1/4	25BUAN20[]ME-XP	4.08	1.37	0.86	1 7/8	1 1/2	1.56	2.63
25	1 1/2	25BUAN24[]ME-XP	4.35	1.37	0.86	2 1/8	1 1/2	1.56	2.63

* [ ] see page 7 for material specifications.



AAN-XP Application:

GYROLOK® tube stub with ferrules pre-set with 37° flare connection for use with AND 10056 or MS 33656 ends, or SAE AS4395 ends.



AAN-XP **Mating Part**

Note: The tube stub end comes with pre-set GYROLOK[XP®] ferrules. To assemble, follow GYROLOK[XP®] remake instructions, page 31.

Adapter, AN:AAN-XP

connects fractional tube to AN or JIC/SAE Fitting

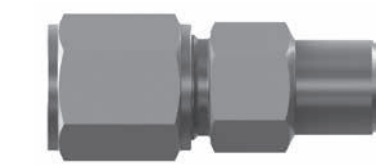
Tube OD (Inches)	AN Size (Inches)	Basic Order Number*	Dimensions (Inches)			
			A	E	ØF	B
1/4	1/4	4AAN4[]-XP	1.19	0.12	0.39	5/8
1/4	3/8	4AAN6[]-XP	1.28	0.12	0.50	5/8
1/4	1/2	4AAN8[]-XP	1.34	0.12	0.68	5/8
1/4	3/4	4AAN12[]-XP	1.34	0.12	0.97	5/8
1/4	1	4AAN16[]-XP	1.42	0.12	1.25	5/8
1/4	1 1/2	4AAN24[]-XP	2.08	0.12	1.72	5/8
3/8	3/8	6AAN6[]-XP	1.91	0.28	0.50	1
3/8	1/2	6AAN8[]-XP	1.97	0.28	0.68	1
3/8	3/4	6AAN12[]-XP	1.97	0.28	0.97	1
3/8	1	6AAN16[]-XP	2.05	0.28	1.25	1
3/8	1 1/2	6AAN24[]-XP	2.71	0.28	1.72	1
1/2	1/2	8AAN8[]-XP	2.48	0.26	0.68	1 1/8
1/2	3/4	8AAN12[]-XP	2.48	0.26	0.97	1 1/8
1/2	1	8AAN16[]-XP	2.56	0.26	1.25	1 1/8
1/2	1 1/2	8AAN24[]-XP	3.22	0.26	1.72	1 1/8
9/16	3/4	9AAN12[]-XP	2.41	0.25	0.97	1 1/4
9/16	1	9AAN16[]-XP	2.49	0.25	1.25	1 1/4
9/16	1 1/2	9AAN24[]-XP	3.15	0.25	1.72	1 1/4
3/4	3/4	12AAN12[]-XP	2.25	0.44	0.97	1 3/8
3/4	1	12AAN16[]-XP	2.33	0.44	1.25	1 3/8
3/4	1 1/2	12AAN24[]-XP	2.99	0.44	1.72	1 3/8
1	1	16AAN16[]-XP	3.85	0.62	1.25	2
1	1 1/2	16AAN24[]-XP	4.50	0.62	1.72	2

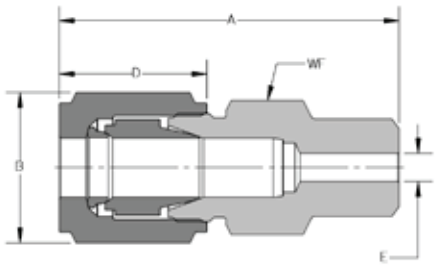
Adapter, AN:AAN/ME-XP

connects metric tube to AN or JIC/SAE Fitting

Tube OD (MM)	AN Size (Inches)	Basic Order Number*	Dimensions (Inches)			
			A	E	ØF	B
6	1/4	6AAN4[]ME-XP	1.10	0.16	0.39	5/8
6	3/8	6AAN6[]ME-XP	1.20	0.16	0.50	5/8
6	1/2	6AAN8[]ME-XP	1.25	0.16	0.68	5/8
6	3/4	6AAN12[]ME-XP	1.25	0.16	0.97	5/8
6	1 1/2	6AAN24[]ME-XP	1.99	0.16	1.72	5/8
10	3/8	10AAN6[]ME-XP	1.30	0.30	0.50	3/4
10	3/4	10AAN12[]ME-XP	1.38	0.30	0.97	3/4
10	1	10AAN16[]ME-XP	1.46	0.30	1.25	3/4
10	1 1/2	10AAN24[]ME-XP	2.11	0.30	1.72	3/4
12	1/2	10AAN8[]ME-XP	1.38	0.30	0.68	3/4
12	1/2	12AAN8[]ME-XP	1.59	0.36	0.68	7/8
12	3/4	12AAN12[]ME-XP	1.59	0.36	0.97	7/8
12	1	12AAN16[]ME-XP	1.67	0.36	1.25	7/8
12	1 1/2	12AAN24[]ME-XP	2.33	0.36	1.72	7/8
16	3/4	16AAN12[]ME-XP	1.65	0.50	0.97	1
16	1	16AAN16[]ME-XP	1.73	0.50	1.25	1
16	1 1/2	16AAN24[]ME-XP	2.39	0.50	1.72	1
18	3/4	18AAN12[]ME-XP	1.68	0.55	0.97	1 1/8
18	1	18AAN16[]ME-XP	1.76	0.55	1.25	1 1/8
18	1 1/2	18AAN24[]ME-XP	2.42	0.55	1.72	1 1/8
25	1	25AAN16[]ME-XP	2.03	0.77	1.25	1 1/2
25	1 1/2	25AAN24[]ME-XP	2.69	0.77	1.72	1 1/2

* [ ] see page 7 for material specifications.





Butt Weld Connector: CBW-XP

connects fractional tube to pipe

Tube OD (Inches)	Nominal Pipe Size	Basic Order Number*	Dimensions (Inches)				
			A	D	E	WF (Wrench Flat)	B
1/4	1/4	4CBW4[]-XP	1.73	0.85	0.15	5/8	5/8
1/4	3/8	4CBW6[]-XP	1.76	0.85	0.16	3/4	5/8
1/4	1/2	4CBW8[]-XP	1.99	0.85	0.19	1	5/8
1/4	3/4	4CBW12[]-XP	2.10	0.85	0.19	1 1/8	5/8
1/2	1/4	8CBW4[]-XP	2.91	1.94	0.15	1 1/16	1 1/8
1/2	3/8	8CBW6[]-XP	2.91	1.94	0.16	1 1/16	1 1/8
1/2	1/2	8CBW8[]-XP	2.95	1.94	0.24	1	1 1/8
1/2	3/8	8CBW12[]-XP	3.11	1.94	0.42	1 1/8	1 1/8
1/2	1	8CBW16[]-XP	3.15	1.94	0.42	1 3/8	1 1/8
3/8	1/4	6CBW4[]-XP	2.38	1.42	0.15	13/16	1
3/8	3/8	6CBW6[]-XP	2.38	1.42	0.16	13/16	1
3/8	1/2	6CBW8[]-XP	2.48	1.42	0.24	1	1
3/8	3/8	6CBW12[]-XP	2.46	1.42	0.28	1 1/8	1
9/16	1/4	9CBW4[]-XP	2.85	1.86	0.15	1 3/16	1 1/4
9/16	3/8	9CBW6[]-XP	2.85	1.86	0.16	1 3/16	1 1/4
9/16	1/2	9CBW8[]-XP	2.91	1.86	0.24	1 1/8	1 1/4
9/16	3/8	9CBW12[]-XP	3.04	1.86	0.42	1 3/16	1 1/4
3/4	3/8	12CBW12[]-XP	2.97	1.70	0.42	1 1/4	1 3/8
3/4	1	12CBW16[]-XP	2.98	1.70	0.59	1 3/8	1 3/8
3/4	1 1/4	12CBW20[]-XP	3.25	1.70	0.66	1 3/4	1 3/8
3/4	1 1/2	12CBW24[]-XP	3.08	1.70	0.66	2 1/8	1 3/8
1	3/8	16CBW12[]-XP	4.62	3.21	0.42	1 3/4	2
1	1	16CBW16[]-XP	4.59	3.21	0.59	1 3/4	2
1	1 1/4	16CBW20[]-XP	4.62	3.21	0.88	1 3/4	2
1	1 1/2	16CBW24[]-XP	4.56	3.21	0.88	2	2

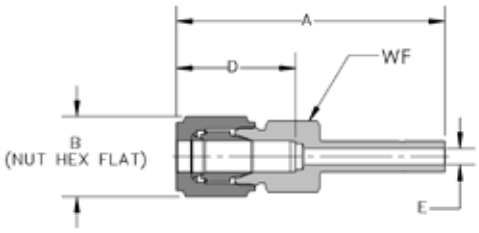
Butt Weld Connector: CBW/ME-XP

connects metric tube to pipe

Tube OD (MM)	Nominal Pipe Size	Basic Order Number*	Dimensions (Inches)				
			A	D	E	WF (Wrench Flat)	B
6	1/4	6CBW4[]ME-XP	1.75	0.78	0.15	5/8	5/8
6	3/8	6CBW6[]ME-XP	1.76	0.78	0.16	3/4	5/8
6	1/2	6CBW8[]ME-XP	1.99	0.78	0.16	7/8	5/8
6	3/4	6CBW12[]ME-XP	2.03	0.78	0.19	1 1/8	5/8
6	1	6CBW16[]ME-XP	2.26	0.78	0.42	1 3/8	5/8
6	1 1/4	6CBW20[]ME-XP	2.34	0.78	0.89	1 3/4	5/8
6	1 1/2	6CBW24[]ME-XP	2.46	0.78	1.09	2	5/8
10	1/4	10CBW4[]ME-XP	1.78	0.84	0.15	11/16	3/4
10	3/8	10CBW6[]ME-XP	1.73	0.84	0.16	3/4	3/4
10	1/2	10CBW8[]ME-XP	2.00	0.84	0.24	7/8	3/4
10	3/4	10CBW12[]ME-XP	2.04	0.84	0.28	1 1/8	3/4
10	1	10CBW16[]ME-XP	2.27	0.84	0.59	1 3/8	3/4
10	1 1/4	10CBW20[]ME-XP	2.35	0.84	0.89	1 3/4	3/4
10	1 1/2	10CBW24[]ME-XP	2.47	0.84	1.09	2	3/4
12	1/4	12CBW4[]ME-XP	2.03	1.10	0.15	13/16	7/8
12	3/8	12CBW6[]ME-XP	2.02	1.10	0.16	13/16	7/8
12	1/2	12CBW8[]ME-XP	2.21	1.10	0.24	7/8	7/8
12	3/4	12CBW12[]ME-XP	2.21	1.10	0.42	1 1/8	7/8
12	1	12CBW16[]ME-XP	2.53	1.10	0.59	1 3/8	7/8
12	1 1/4	12CBW20[]ME-XP	2.61	1.10	0.89	1 3/4	7/8
12	1 1/2	12CBW24[]ME-XP	2.73	1.10	1.09	2	7/8
18	1/4	18CBW4[]ME-XP	2.16	1.16	0.15	1 1/16	1 1/8
18	3/8	18CBW6[]ME-XP	2.17	1.16	0.16	1 1/16	1 1/8
18	1/2	18CBW8[]ME-XP	2.36	1.16	0.24	1 1/16	1 1/8
18	3/4	18CBW12[]ME-XP	2.36	1.16	0.42	1 1/8	1 1/8
18	1	18CBW16[]ME-XP	2.64	1.16	0.59	1 3/8	1 1/8
18	1 1/4	18CBW20[]ME-XP	2.72	1.16	0.89	1 3/4	1 1/8
18	1 1/2	18CBW24[]ME-XP	2.84	1.16	1.09	2	1 1/8
20	1/4	20CBW4[]ME-XP	2.26	1.34	0.15	1 3/16	1 1/4
20	3/8	20CBW6[]ME-XP	2.25	1.34	0.16	1 3/16	1 1/4
20	1/2	20CBW8[]ME-XP	2.44	1.34	0.24	1 3/16	1 1/4
20	3/4	20CBW12[]ME-XP	2.44	1.34	0.42	1 3/16	1 1/4
20	1	20CBW16[]ME-XP	2.65	1.34	0.59	1 3/8	1 1/4
20	1 1/4	20CBW20[]ME-XP	2.77	1.34	0.89	1 3/4	1 1/4
20	1 1/2	20CBW24[]ME-XP	2.89	1.34	1.09	2	1 1/4
25	1/4	25CBW4[]ME-XP	2.38	1.37	0.15	1 3/8	1 1/2
25	3/8	25CBW6[]ME-XP	2.37	1.37	0.16	1 3/8	1 1/2
25	1/2	25CBW8[]ME-XP	2.56	1.37	0.24	1 3/8	1 1/2
25	3/4	25CBW12[]ME-XP	2.56	1.37	0.42	1 3/8	1 1/2
25	1	25CBW16[]ME-XP	2.75	1.37	0.59	1 3/8	1 1/2
25	1 1/4	25CBW20[]ME-XP	2.87	1.37	0.89	1 3/4	1 1/2
25	1 1/2	25CBW24[]ME-XP	2.99	1.37	1.09	2	1 1/2

* [ ] see page 7 for material specifications.

Reducer: R-XP connects fractional tube to fractional port

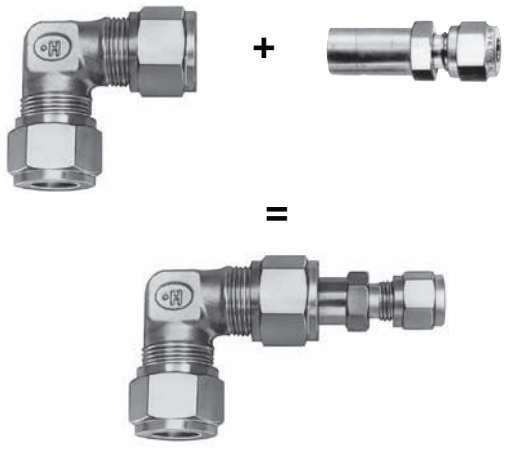


The E dimension represents the minimum nominal Inner Diameter located in the fitting body.

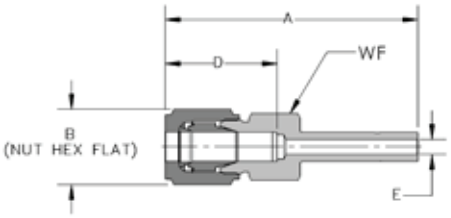
Tube OD (Inches)	Reducer OD (Inches)	Basic Order Number*	Dimensions (Inches)				
			A	D	E	WF (Wrench Flat)	B
1/4	1/4	4R4[]-XP	2.05	0.85	0.09	9/16	5/8
1/4	3/8	4R6[]-XP	2.68	0.85	0.14	9/16	5/8
1/4	1/2	4R8[]-XP	3.19	0.85	0.19	9/16	5/8
1/4	3/4	4R12[]-XP	3.16	0.85	0.19	13/16	5/8
1/4	1	4R16[]-XP	4.77	0.85	0.19	1 1/8	5/8
3/8	1/4	6R4[]-XP	2.71	1.42	0.09	13/16	1
3/8	3/8	6R6[]-XP	3.34	1.42	0.14	13/16	1
3/8	1/2	6R8[]-XP	3.85	1.42	0.18	13/16	1
3/8	3/4	6R12[]-XP	3.62	1.42	0.28	13/16	1
3/8	1	6R16[]-XP	5.18	1.42	0.28	1 1/8	1
1/2	1/4	8R4[]-XP	3.23	1.94	0.09	1	1 1/8
1/2	3/8	8R6[]-XP	3.86	1.94	0.14	1	1 1/8
1/2	1/2	8R8[]-XP	4.37	1.94	0.18	1	1 1/8
1/2	3/4	8R12[]-XP	4.14	1.94	0.42	1	1 1/8
1/2	1	8R16[]-XP	5.67	1.94	0.42	1 1/8	1 1/8
9/16	1/4	9R4[]-XP	3.16	1.86	0.09	1 1/8	1 1/4
9/16	3/8	9R6[]-XP	3.79	1.86	0.14	1 1/8	1 1/4
9/16	1/2	9R8[]-XP	4.30	1.86	0.18	1 1/8	1 1/4
9/16	3/4	9R12[]-XP	4.07	1.86	0.42	1 1/8	1 1/4
9/16	1	9R16[]-XP	5.58	1.86	0.49	1 1/8	1 1/4
3/4	1/4	12R4[]-XP	3.11	1.70	0.09	1 1/4	1 3/8
3/4	3/8	12R6[]-XP	3.74	1.70	0.14	1 1/4	1 3/8
3/4	1/2	12R8[]-XP	4.25	1.70	0.18	1 1/4	1 3/8
3/4	3/4	12R12[]-XP	4.02	1.70	0.42	1 1/4	1 3/8
3/4	1	12R16[]-XP	5.53	1.70	0.57	1 1/4	1 3/8
1	1/4	16R4[]-XP	4.76	3.21	0.09	1 3/4	2
1	3/8	16R6[]-XP	5.39	3.21	0.14	1 3/4	2
1	1/2	16R8[]-XP	5.90	3.21	0.18	1 3/4	2
1	3/4	16R12[]-XP	5.67	3.21	0.42	1 3/4	2
1	1	16R16[]-XP	7.18	3.21	0.57	1 3/4	2

Reducing Assemblies Made With GYROLOK[XP®] **Fittings**

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



* [ ] see page 7 for material specifications.



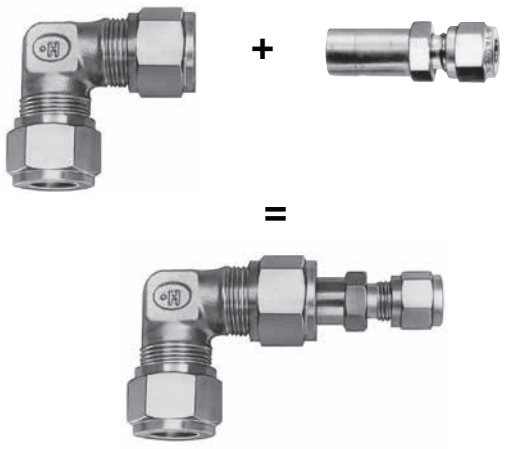
The E dimension represents the minimum nominal Inner Diameter located in the fitting body.

Reducer: R/MM-XP connects metric tube to metric port

Tube OD (MM)	Reducer OD (MM)	Basic Order Number*	Dimensions (Inches)				
			A	D	E	WF (Wrench Flat)	B
6	6	6R6[]MM-XP	2.03	0.78	0.08	1/2	5/8
6	10	6R10[]MM-XP	2.14	0.78	0.14	9/16	5/8
6	12	6R12[]MM-XP	2.38	0.78	0.16	9/16	5/8
6	18	6R18[]MM-XP	2.58	0.78	0.16	13/16	5/8
6	25	6R25[]MM-XP	2.93	0.78	0.16	1 1/16	5/8
10	6	10R6[]MM-XP	2.01	0.84	0.08	11/16	3/4
10	10	10R10[]MM-XP	2.18	0.84	0.14	11/16	3/4
10	12	10R12[]MM-XP	2.42	0.84	0.32	11/16	3/4
10	18	10R18[]MM-XP	2.57	0.84	0.32	13/16	3/4
10	25	10R25[]MM-XP	2.92	0.84	0.32	1 1/16	3/4
12	6	12R6[]MM-XP	2.19	1.10	0.08	13/16	7/8
12	10	12R10[]MM-XP	2.39	1.10	0.14	13/16	7/8
12	12	12R12[]MM-XP	2.61	1.10	0.17	13/16	7/8
12	18	12R18[]MM-XP	2.70	1.10	0.39	13/16	7/8
12	25	12R25[]MM-XP	3.00	1.10	0.39	1 1/16	7/8
18	6	18R6[]MM-XP	2.31	1.16	0.08	1 1/16	1 1/8
18	10	18R10[]MM-XP	2.53	1.16	0.14	1 1/16	1 1/8
18	12	18R12[]MM-XP	2.74	1.16	0.17	1 1/16	1 1/8
18	18	18R18[]MM-XP	2.83	1.16	0.41	1 1/16	1 1/8
18	25	18R25[]MM-XP	3.10	1.16	0.56	1 1/16	1 1/8
20	6	20R6[]MM-XP	2.35	1.34	0.08	1 3/16	1 1/4
20	10	20R10[]MM-XP	2.62	1.34	0.14	1 3/16	1 1/4
20	12	20R12[]MM-XP	2.84	1.34	0.17	1 3/16	1 1/4
20	18	20R18[]MM-XP	2.93	1.34	0.41	1 3/16	1 1/4
20	25	20R25[]MM-XP	3.20	1.34	0.56	1 3/16	1 1/4
25	6	25R6[]MM-XP	2.55	1.37	0.08	1 3/8	1 1/2
25	10	25R10[]MM-XP	2.74	1.37	0.14	1 3/8	1 1/2
25	12	25R12[]MM-XP	2.96	1.37	0.17	1 3/8	1 1/2
25	18	25R18[]MM-XP	3.05	1.37	0.41	1 3/8	1 1/2
25	25	25R25[]MM-XP	3.32	1.37	0.56	1 3/8	1 1/2

Reducing Assemblies Made With GYROLOK[XP®] **Fittings**

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



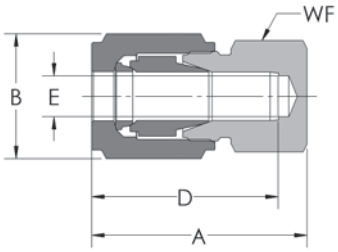
* [ ] see page 7 for material specifications.

Fractional Fitting Shown

Cap: CP-XP

caps end of fractional tube

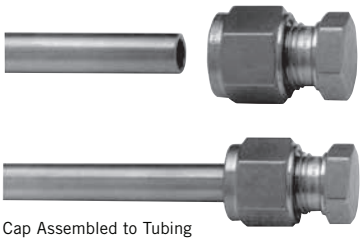
Tube OD (Inches)	Basic Order Number*	Dimensions (Inches)				
		A	D	E	WF (Wrench Flat)	B
1/4	4CP[]-XP	1.20	0.85	0.19	9/16	5/8
3/8	6CP[]-XP	1.73	1.42	0.28	7/8	1
1/2	8CP[]-XP	2.24	1.94	0.42	1	1 1/8
9/16	9CP[]-XP	2.15	1.86	0.49	1 1/4	1 1/4
3/4	12CP[]-XP	2.15	1.70	0.66	1 1/4	1 3/8
1	16CP[]-XP	3.81	3.21	0.88	1 3/4	2



Cap: CP/MM-XP

caps end of metric tube

Tube OD (MM)	Basic Order Number*	Dimensions (Inches)				
		A	D	E	WF (Wrench Flat)	B
6	6CP[]MM-XP	1.16	0.78	0.16	9/16	5/8
10	10CP[]MM-XP	1.22	0.84	0.16	11/16	3/4
12	12CP[]MM-XP	1.45	1.10	0.16	13/16	7/8
18	18CP[]MM-XP	1.64	1.16	0.16	1 1/16	1 1/8
20	20CP[]MM-XP	1.64	1.34	0.16	1 3/16	1 1/4
25	25CP[]MM-XP	1.90	1.37	0.16	1 3/8	1 1/2

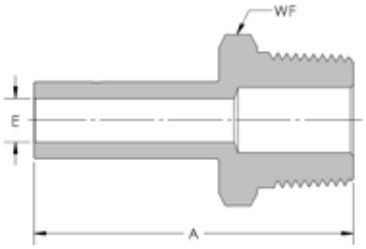


Cap Assembled to Tubing

Assembly Instructions:
1. Insert tube into cap.
2. Follow standard GYROLOK[XP®] assembly instructions, page 31.

* [ ] see page 7 for material specifications.

* [ ] see page 7 for material specifications.



Follow GYROLOK[XP®] ***Reassembly instructions, page 31.***

Male Adapter: AM-XP

connects fractional port to female NPT thread

Tube OD (Inches)	Nominal Pipe Size	Basic Order Number*	Dimensions (Inches)		
			A	E	WF (Wrench Flat)
1/4	1/4	4AM4[]-XP	1.67	0.09	5/8
1/4	3/8	4AM6[]-XP	1.70	0.09	3/4
1/4	1/2	4AM8[]-XP	1.92	0.09	15/16
3/8	1/4	6AM4[]-XP	2.30	0.14	5/8
3/8	3/8	6AM6[]-XP	2.33	0.14	3/4
3/8	1/2	6AM8[]-XP	2.55	0.14	15/16
1/2	1/4	8AM4[]-XP	2.81	0.18	5/8
1/2	3/8	8AM6[]-XP	2.84	0.18	3/4
1/2	1/2	8AM8[]-XP	3.06	0.18	15/16
9/16	1/4	9AM4[]-XP	2.75	0.21	11/16
9/16	3/8	9AM6[]-XP	2.77	0.21	3/4
9/16	1/2	9AM8[]-XP	2.99	0.21	15/16
3/4	3/4	12AM12[]-XP	2.86	0.42	1 1/8
3/4	1	12AM16[]-XP	3.11	0.42	1 7/16
3/4	1 1/4	12AM20[]-XP	3.18	0.42	1 13/16
3/4	1 1/2	12AM24[]-XP	3.33	0.42	2 1/8
1	3/4	16AM12[]-XP	4.37	0.57	1 1/8
1	1	16AM16[]-XP	4.62	0.57	1 7/16
1	1 1/4	16AM20[]-XP	4.69	0.57	1 13/16
1	1 1/2	16AM24[]-XP	4.84	0.57	2 1/8

Male Adapter: AM/ME-XP

connects metric port to female NPT thread

Tube OD (MM)	Nominal Pipe Size	Basic Order Number*	Dimensions (Inches)		
			A	E	WF (Wrench Flat)
6	1/4	6AM4[]ME-XP	1.62	0.08	5/8
6	3/8	6AM6[]ME-XP	1.65	0.08	3/4
6	1/2	6AM8[]ME-XP	1.87	0.08	15/16
10	1/4	10AM4[]ME-XP	1.75	0.14	5/8
10	3/8	10AM6[]ME-XP	1.78	0.14	3/4
10	1/2	10AM8[]ME-XP	2.00	0.14	15/16
12	1/4	12AM4[]ME-XP	1.96	0.17	5/8
12	3/8	12AM6[]ME-XP	1.99	0.17	3/4
12	1/2	12AM8[]ME-XP	2.21	0.17	15/16
18	3/4	18AM12[]ME-XP	2.33	0.41	1 1/8
18	1	18AM16[]ME-XP	2.58	0.41	1 7/16
18	1 1/4	18AM20[]ME-XP	2.64	0.41	1 3/4
18	1 1/2	18AM24[]ME-XP	2.78	0.41	2
20	3/4	20AM12[]ME-XP	2.46	0.45	1 1/8
20	1	20AM16[]ME-XP	2.71	0.45	1 7/16
20	1 1/4	20AM20[]ME-XP	2.77	0.45	1 3/4
20	1 1/2	20AM24[]ME-XP	2.91	0.45	2
25	3/4	25AM12[]ME-XP	2.60	0.56	1 1/8
25	1	25AM16[]ME-XP	2.85	0.56	1 7/16
25	1 1/4	25AM20[]ME-XP	2.91	0.56	1 3/4
25	1 1/2	25AM24[]ME-XP	3.05	0.56	2

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.

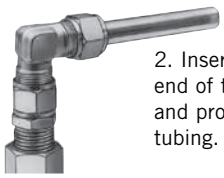
Male Adapter

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:

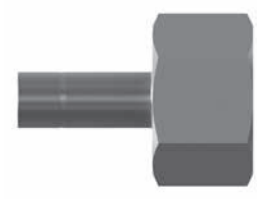
1. To connect union elbow to adapter, hold elbow pointing in desired direction and follow standard GYROLOK[XP®] assembly Instructions on page 31.

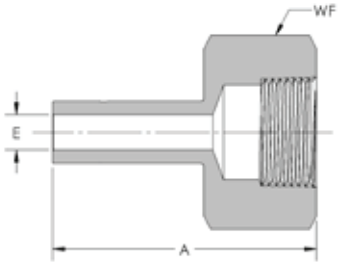
Union Elbow



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

* [ ] see page 7 for material specifications.





Follow GYROLOK[XP®] ***Reassembly instructions, page 31.***

Female Adapter: AF-XP

connects fractional port to male NPT thread

Tube OD (Inches)	Nominal Pipe Size	Basic Order Number*	Dimensions (Inches)		
			A	E	WF (Wrench Flat)
1/4	1/4	4AF4[]-XP	1.59	0.09	1 7/16
1/4	3/8	4AF6[]-XP	1.68	0.09	1 13/16
1/4	1/2	4AF8[]-XP	1.85	0.09	2
3/8	1/4	6AF4[]-XP	2.22	0.14	1 7/16
3/8	3/8	6AF6[]-XP	2.31	0.14	1 13/16
3/8	1/2	6AF8[]-XP	2.48	0.14	2
1/2	1/4	8AF4[]-XP	2.73	0.18	1 7/16
1/2	3/8	8AF6[]-XP	2.82	0.18	1 13/16
1/2	1/2	8AF8[]-XP	2.99	0.18	2
9/16	1/4	9AF4[]-XP	2.66	0.21	1 7/16
9/16	3/8	9AF6[]-XP	2.75	0.21	1 13/16
9/16	1/2	9AF8[]-XP	2.92	0.21	2
3/4	3/4	12AF12[]-XP	2.83	0.42	1 13/16
3/4	1	12AF16[]-XP	3.15	0.42	2
3/4	1 1/4	12AF20[]-XP	3.37	0.42	2
1	3/4	16AF12[]-XP	4.34	0.57	1 13/16
1	1	16AF16[]-XP	4.66	0.57	2
1	1 1/4	16AF20[]-XP	4.85	0.57	2

Female Adapter: AF/ME-XP

connects metric port to male NPT thread

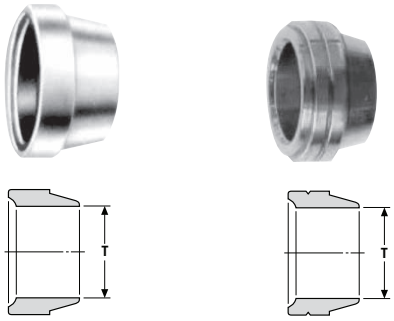
Tube OD (MM)	Nominal Pipe Size	Basic Order Number*	Dimensions (Inches)		
			A	E	WF (Wrench Flat)
6	1/4	6AF4[]ME-XP	1.54	0.08	1 7/16
6	3/8	6AF6[]ME-XP	1.63	0.08	1 13/16
6	1/2	6AF8[]ME-XP	1.80	0.08	2
10	1/4	10AF4[]ME-XP	1.67	0.14	1 7/16
10	3/8	10AF6[]ME-XP	1.76	0.14	1 13/16
10	1/2	10AF8[]ME-XP	1.93	0.14	2
12	1/4	12AF4[]ME-XP	1.88	0.17	1 7/16
12	3/8	12AF6[]ME-XP	1.97	0.17	1 13/16
12	1/2	12AF8[]ME-XP	2.14	0.17	2
18	3/4	18AF12[]ME-XP	2.30	0.41	1 13/16
18	1	18AF16[]ME-XP	2.62	0.41	2
18	1 1/4	18AF20[]ME-XP	2.84	0.41	2
20	3/4	20AF12[]ME-XP	2.43	0.45	1 13/16
20	1	20AF16[]ME-XP	2.75	0.45	2
20	1 1/4	20AF20[]ME-XP	2.96	0.45	2
25	3/4	25AF12[]ME-XP	2.57	0.56	1 13/16
25	1	25AF16[]ME-XP	2.89	0.56	2
25	1 1/4	25AF20[]ME-XP	3.08	0.56	2

* [ ] see page 7 for material specifications.

Dimensions for reference only. Subject to change.

Front Ferrule: FF-XP (Fractional)

Part Number*	T Tube O.D.—inches
4FF[ ]-XP	¼
6FF[ ]-XP	3/8
8FF[ ]-XP	½
9FF[ ]-XP	9/16
12FF[ ]-XP	¾
16FF[ ]-XP	1



Front Ferrule FF/MM-XP (Metric)

Part Number*	T Tube O.D.—mm
6FF[ ]MM-XP	6
10FF[ ]MM-XP	10
12FF[ ]MM-XP	12
18FF[ ]MM-XP	18
20FF[ ]MM-XP	20
25FF[ ]MM-XP	25

Rear Ferrule: FR-XP (Fractional)

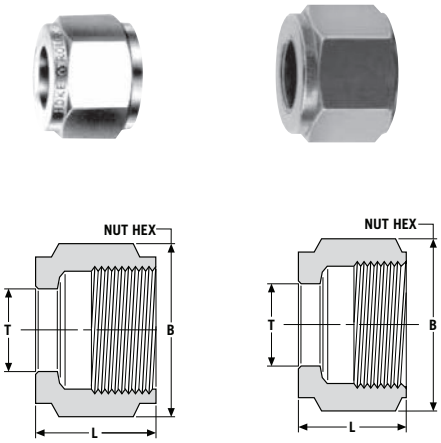
Part Number*	T Tube O.D.—inches
4FR[ ]-XP	¼
6FR[ ]-XP	3/8
8FR[ ]-XP	½
9FR[ ]-XP	5/8
12FR[ ]-XP	¾
16FR[ ]-XP	1

Rear Ferrule FR/MM-XP (Metric)

Part Number*	T Tube O.D.—mm
6FR[ ]MM-XP	6
10FR[ ]MM-XP	10
12FR[ ]MM-XP	12
18FR[ ]MM-XP	18
20FR[ ]MM-XP	20
25FR[ ]MM-XP	25

Nut: N-XP (Fractional)

Part Number*	T Tube O.D.	Dimensions—inches B	L
4N[ ]-XP	¼	9/16	0.53
6N[ ]-XP	3/8	11/16	0.59
8N[ ]-XP	½	7/8	0.70
9N[ ]-XP	5/8	1	0.70
12N[ ]-XP	¾	1 1/8	0.72
16N[ ]-XP	1	1½	0.78



Nut: N/MM-XP (Metric)

Part Number*	T Tube O.D.	Dimensions—mm B	L
6N[ ]MM-XP	6	14.3	13.4
10N[ ]MM-XP	10	19.1	15.0
12N[ ]MM-XP	12	22.2	17.9
18N[ ]MM-XP	18	28.6	18.4
20N[ ]MM-XP	20	31.8	20.0
25N[ ]MM-XP	25	38.1	21.3

* [ ] see page 7 for material specifications.

Safety Changer Nut & Ferrule Sets: SCNF-XP

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

Fractional

Part Number*	Nut & Ferrule Sets/ Changer	Tube O.D. (Inches)
4SCNF[]-XP	5	1/4
6SCNF[]-XP	5	3/8
8SCNF[]-XP	5	1/2
9SCNF[]-XP	5	9/16
12SCNF[]-XP	5	3/4
16SCNF[]-XP	5	1

Metric

Part Number*	Nut & Ferrule Sets/ Changer	Tube O.D. (MM)
6SCNF[]MM-XP	5	6
10SCNF[]MM-XP	5	10
12SCNF[]MM-XP	5	12
18SCNF[]MM-XP	5	18
20SCNF[]MM-XP	5	20
25SCNF[]MM-XP	5	25

Provides a safe, easy, correct way to reuse existing fittings and valves with new GYROLOK® components. Color coding differentiates metric and fractional parts and materials.

Color Coded Package:
Green: Fractional
Blue: Metric

How to Order
Add designated material to part number. For example:
316 Stainless Steel = **316**
Alloy 6MO = **6MO**
Super Duplex 2507 = **D50**
Example: 8SCNF316 (5 nut and ferrule sets for 1/2" tubing in 316 Stainless Steel.)

Safety Changer Ferrule Sets: SCF-XP

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

Fractional

Part Number*	Nut & Ferrule Sets/ Changer	Tube O.D. (Inches)
4SCF[ ]-XP	10	1/4
6SCF[ ]-XP	10	3/8
8SCF[ ]-XP	10	1/2
9SCF[ ]-XP	10	9/16
12SCF[ ]-XP	10	3/4
16SCF[ ]-XP	10	1

Metric

Part Number*	Nut & Ferrule Sets/ Changer	Tube O.D. (MM)
6SCF[]MM-XP	10	6
10SCF[]MM-XP	10	10
12SCF[]MM-XP	10	12
18SCF[]MM-XP	10	18
20SCF[]MM-XP	10	20
25SCF[]MM-XP	10	25

* [ ] see page 7 for material specifications.

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.

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

Packaging

Standard	Options
8 ounce	2 ounce
1 gallon	5 gallon
230 ml	55 gallon drum
4 liter	

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)

Usage Instructions

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

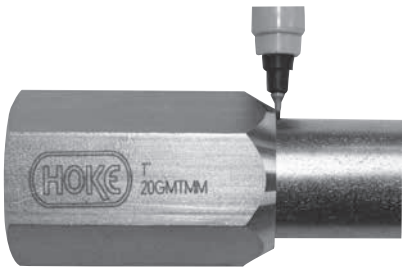
Ordering Information

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

GYROLOK[XP®] **Marking Tool**

Tube fitting users have long recognized that proper tube and tube fitting system function requires good tubing preparation followed by the use of correct installation procedures. Improper ferrule set in any flareless tube and fitting system may be the result of burrs created during the tube cutting process, improper tube insertion into the fitting, or inadequate tightening of the fitting nut. In order to maximize tube and fitting system performance and safety, HOKE® offers several tool options combined with detailed installer training. The GYROLOK® Marking Tool provides the installer with an economical means of ensuring both proper tubing insertion into the fitting and adequate nut tightening.

Usage Instructions



GMT-XP

Three-In-One **GMT-XP**
(468GMT-XP and 61012-GMTMM-XP)

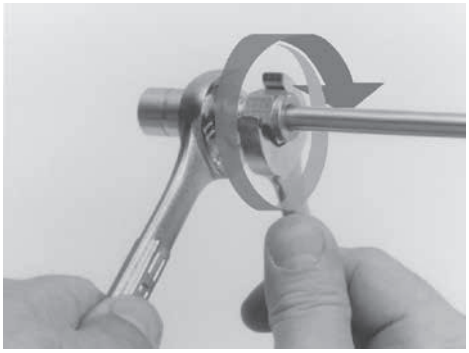
Tube OD (Inches)	PART NUMBER	Tube OD (mm)	PART NUMBER
1/4	4GMT-XP	6	6GMTMM-XP
3/8	6GMT-XP	10	10GMTMM-XP
1/2	8GMT-XP	12	12GMTMM-XP
9/16	9GMT-XP	18	18GMTMM-XP
3/4	12GMT-XP	20	20GMTMM-XP
1	16GMT-XP	25	25GMTMM-XP

Usage Instructions

1. Squarely cut tubing, preferably with a tube cutter, and then deburr both inside and outside diameters as necessary.
2. Firmly insert tubing into the tool as far as possible.
3. Mark the tubing, as shown, with a Sharpie Ultrafine Point model 37001 marker. Take care to position perpendicular to the tool as shown for correct marking position.
4. Firmly insert the marked tubing into the GYROLOK[XP®] fitting assembly to which it will be assembled. As viewed from the side, the mark should NOT be visible above the nut at this point. If not visible, continue to step 5. If any part of the mark is visible above the GYROLOK[XP®] nut after finger-tightening, the tubing is either not properly seated within the fitting or a ferrule is missing. Disassemble and determine cause.
5. If the mark is not visible after hand-tightening, continue by following appropriate GYROLOK[XP®] assembly instructions for tubing O.D. and wall thickness.

Pre-setting Tool: PST-XP

Used strictly for pre-assembling ferrules to tubing.



Fractional Metric

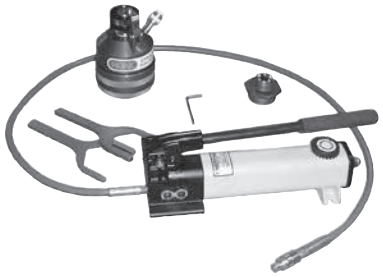
Tube OD (Inches)	PART NUMBER	Tube OD (mm)	PART NUMBER
1/4	4PST-XP	6	6PSTMM-XP
3/8	6PST-XP	10	10PSTMM-XP
1/2	8PST-XP	12	12PSTMM-XP
9/16	9PST-XP	18	18PSTMM-XP
3/4	12PST-XP	20	20PSTMM-XP
1	16PST-XP	25	25PSTMM-XP

Usage Instructions

1. Place PST-XP in vice.
2. Loosely assemble nut and ferrules to PST. Use GYROLOK[XP®] Safety Changer Nut & Ferrule Sets.
3. Follow standard GYROLOK[XP®] assembly instructions to set ferrules onto tubing, see page 31.
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 GYROLOK® reassembly instructions on page 31.

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

Hydraulic Pre-Setting Tool (HPST)



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

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

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

Features	Benefits
One basic pre-setting head for all sizes:	• Provides versatility and value by covering sizes from ½" through 2" and 12mm through 50mm.
Interchangeable die sets:	• Allows easy conversion from one tube and fitting size to another.
10,000 PSI hydraulic pump:	• Provides the force necessary for consistent, fast, and simple fitting assembly.
Carrying case:	• Rugged steel carrying case offers easy transportation as well as a single storage location for all tool components.

How It Works

GYROLOK® and GYROLOK[XP®] 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 per HOKE's published 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.

Order Part# **3HPST**, which includes:

- 3HPST assembly (see above picture)
- Silver indicator nut (use for 5/8" (14mm) thru 2" (38 mm) GYROLOK® fittings)
- Black indicator nut (use for 1/2" (12mm) GYROLOK® fittings ONLY)
- Black Case
- Enerpac Pump
- Die-Fixing bolt
- 5mm Allen Wrench
- Adjusting wrenches

NOTE: - GYROLOK[XP®] requires the Gold indicator nut. For more information, ask your local HOKE® distributor.

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

Jig

Die

2DJS - 12 MM-XP

TUBE SIZE
Tube O.D. in 1/16"
Tube O.D. in mm (with "MM" suffix)

METRIC DESIGNATION (MILLIMETERS)

Tube OD (Inches)	PART NUMBER	Tube OD (mm)	PART NUMBER
1/2	2DJS-8-XP	12	2DJS-12MM-XP
9/16	2DJS-9-XP	18	2DJS-18MM-XP
3/4	2DJS-12-XP	20	2DJS-20MM-XP
1	2DJS-16-XP	25	2DJS-25MM-XP

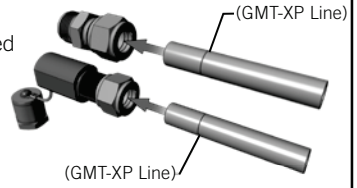
GYROLOK[XP®] Assembly Instructions

0-1/2" (12mm) **MANUAL ASSEMBLY**	½" – 3/4" (12mm-20mm) **MANUAL OR HPST ASSEMBLY** *based on installation conditions*	Above 3/4" (20 mm) **HPST ASSEMBLY REQUIRED** ***Consult factory as needed***

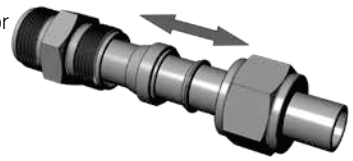
Manual Assembly Instructions

Use of a PST-XP (Manual Pre Setting Tool) is **recommended** GYROLOK® Marking Tool (GMT-XP) **is strongly recommended**.

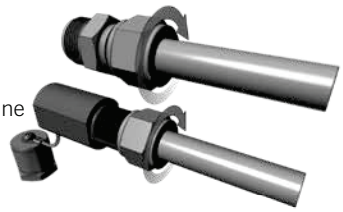
Fully insert a correctly cut, deburred tube into the PST or fitting body until the tube rests on the sizing angle.



Holding the tube in the PST-XP or Body, extract the nut and ferrules to visually ensure both ferrules are correctly oriented.

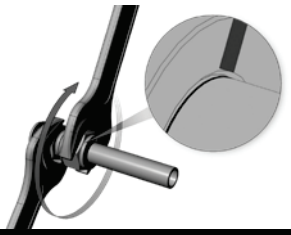


Once correct ferrule orientation is confirmed, thread & rotate the nut onto the PST-XP or Body until hand-tight. The GMT-XP witness line should **NOT** be visible.



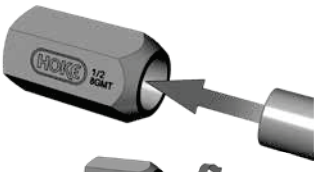
Establish a reference point for wrench tightening by marking both the fitting body and nut.

While supporting the PST-XP or fitting body, tighten the nut with a wrench 1¼ turns. The pre-set or make-up is now complete. Confirm that the GMT-XP witness line is now visible.



GYROLOK[XP®] MARKING TOOL (GMT-XP) INSTRUCTIONS

Insert the correctly cut and deburred tube into the GMT-XP as far as possible.



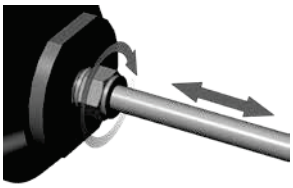
Mark the tubing as shown with an Ultra-Fine Point, Chloride-Free pen (recommended Sharpie Model 37001). Take care to position the marker perpendicular to the GMT, or insufficient ferrule set could occur.

HPST Assembly Instructions

GYROLOK[XP®] Marking Tool (GMT-XP) **is strongly recommended**.

Ensure the HPST Tooling Set is installed with the proper indicator nut. GYROLOK[XP®] uses the Gold indicator nut.

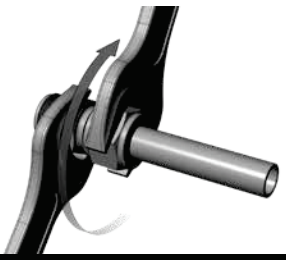
Fully insert a correctly cut, deburred tube into the HPST head. Visually ensure both ferrules are correctly oriented. Thread & rotate the nut until hand-tight.



Set the indicator arm in the operating position by rotating the Indicator Nut counter-clockwise until it stops.

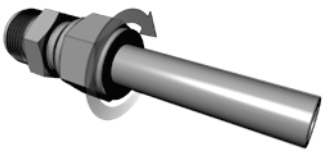
Pump the handle until the indicator arm releases. **CAUTION:** Stop pumping immediately after the arm releases, as over-pumping may cause the tube to swell and stick. Pre-setting is now complete.

Insert the end with pre-set ferrules and nut into the fitting. Thread and rotate the nut until hand-tight. While supporting the fitting body, tighten the nut with a wrench ½ turn for tubing up to 1" (25mm) inclusive. For tubing greater than 1" (25mm) ¾ turn is required. The initial fitting make-up is now complete.

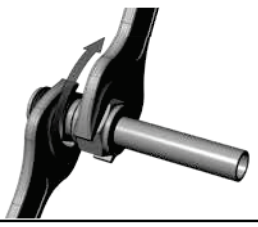


-XP REMAKE INSTRUCTIONS

Firmly insert end with the correctly set ferrules & nut into the fitting. Thread & rotate the nut until hand-tight. The GMT-XP witness line should **NOT** be visible.



While supporting the fitting body, tighten the nut with a wrench ¼ turn.



Dimensions for reference only. Subject to change.

We Care About Your Safety

WARNING

Improper selection or use of products described herein can cause Personal injury or property damage

Product information described herein is offered for use by the system designer and user.

It is solely the responsibility of the system designer and user to select products suitable for their specific application requirements and to ensure proper installation, operation and maintenance of these products. Material compatibility, product ratings, and application details should be considered in the selection.

Always contact your local HOKE® Distributor with any questions you may have before pressurizing and operating the product.

Safety Instructions

1. Do not tighten or loosen any part of a fitting or valve when the system is pressurized. Make sure the system is un-pressurized when tightening or loosening a fitting or valve connection.
2. Do not loosen GYROLOK[XP®] nut or any product component in order to relieve or bleed down system pressure.
3. Do not exceed pressure-temperature specifications stated in the appropriate catalog.
4. When the application involves use of a toxic or hazardous fluid, exercise extra caution during operation and maintenance.
5. Before assembling new, unused GYROLOK[XP®] tube fitting ends, loosen the GYROLOK® nut before inserting the tube to allow full insertion of the tube to the base of the body bore.
6. Always use tubing that is compatible with the fitting or valve material. Tubing appropriate for use with HOKE® products is described in Tubing Data Charts. For example, use 316 Stainless Steel fittings with 316 Stainless Steel tubing.
7. 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.
8. During assembly of the GYROLOK[XP®] tube end, always hold the fitting or valve body with one wrench while separately wrench tightening the GYROLOK[XP®] nut. Follow the same precaution when disassembling.
9. Always use proper thread lubricants or sealants on tapered pipe threads. Note that thread sealants may have lower temperature ratings than the basic fitting.

The Small Bore Instrumentation Specialists

We specialize in small bore instrumentation products up to 2" that deliver benchmark performance quality & safety; provide the broadest array of superior alloy offerings in the market; decades of proven success in a wide range of industries; a roster of "who's who" customers & projects globally; original "Best Solution" engineering & designs; and are focused on continuous improvement in all aspects of our business.

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