

# **Precision Pipe Fittings**







- 1/8" to 1" sizes
- 316 stainless steel, brass, and exotic materials
- NPT threads

## **Index**

Safety Warning	Inside Front	Cover
CNP-Close Nipple		3
NP-Hex Nipple		3
RNP-Hex Reducin	g Nipple	3
LNP-Hex Long Ni	pple	3
AP-Adapter		4
RAP-Reducing Ad	apter	4
RBP-Reducing Bu	shing	4
CGP-Hex Coupling	g	5
RCGP-Reducing C	Coupling	5
CPP-Cap		5
PP-Plug		5
FLP-Female Elbov	V	6
SLP-Street Elbow		6
RSLP-Reducing S	treet Elbow	6
MLP-Male Elbow		6
FTP-Female Tee		7
STP-Street Tee		7
FTBM-Male Brand	ch Tee	7
MTP-Male Tee		7
CSP-Cross		8
Disclaimers	Inside Back	Cover











#### 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.

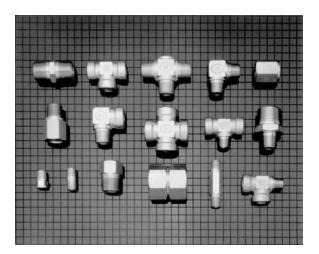
Contact your authorized HOKE® sales and service representative for information about additional sizes and special alloys.

#### 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.



HOKE® Precision Instrument Pipe Fittings are manufactured with high quality NPT tapered threads in a wide variety of configurations to provide broad application capabilities.



#### **Threads**

Threads utilized on HOKE® Precision Instrument Pipe fittings are National Pipe Taper (NPT) which exceed the requirements of ANSI B1.20.1.

#### **Pressure Ratings**

Pressure ratings for temperatures up to 100° F are identified for each individual pipe fitting in the dimensional data charts.

#### Temperature\*

Temperatures noted below apply to basic fitting capabilities. In all cases consideration must also be given to the type of thread sealant used. For example, PTFE tape has a maximum temperature rating of 450° F.

316 stainless steel: -325° F to +1200° F

 $(-198^{\circ} \text{ C to } +648^{\circ} \text{ C})$ 

Brass:  $-325^{\circ}$  F to  $+400^{\circ}$  F

 $(-198^{\circ} \text{ C to } +204^{\circ} \text{ C})$ 

#### **Materials**

HOKE® Precision Pipe Fittings are available as standard in Brass and 316 Stainless Steel. HOKE® pipe fittings can also be supplied in other materials including, MONEL®, HASTELLOY® C, INCONEL® and Titanium and in special shapes. Specifications for standard materials are:

316 Stainless Steel Forgings
316 Stainless Steel Bar Stock
Brass Forgings, Alloy 377
Brass Bar Stock, Alloy 353
Brass Bar Stock, Alloy 360

ASTM A-182
ASTM A-479
QQ-B-626
ASTM B-453
QQ-B-626

#### **Heat Traceability**

HOKE®'s 316 Stainless Steel Precision Instrument Pipe Fittings are heat code traceable. To obtain certified material test reports (CMTR'S) for these components, place separate orders for such items and specify "CMTR'S required".

 $<sup>^{\</sup>ast}$  Prolonged exposure to temperature over 800° F is not recommended.

### **HOKE®** Pipe Fitting Part Numbering

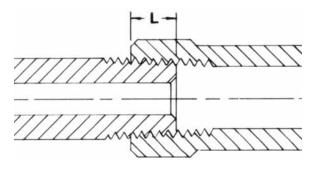
The part numbering system for HOKE® Precision Instrument Pipe Fittings is completely descriptive and easily understood.

#### Example:

PIPE SIZE IN SIXTEENTHS OF AN INCH	PIPE FITTING TYPE	PIPE SIZE (IF DIFFERENT) IN SIXTEENTHS OF AN INCH	MATERIAL Brass – Br 316 SS – 316 Example: 4rap2316
4	RAP	2	316
½ NPT	Reducing Adapter	½ NPT	316 Stainless Steel

## **Assembly Instructions**

To ensure a leak-tight seal, the use of a pipe thread sealant is recommended. One commonly utilized technique is PTFE Tape. The chart below provides information regarding the recommended tape width and the approximate number of threads which should be wrapped

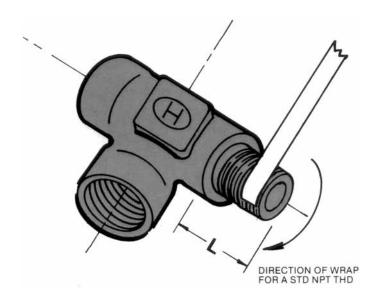


NOMINAL PIPE SIZE	RECOMMENDED TAPE WIDTH	EFFECTIVE THREAD LENGTH (EXTERNAL) L*	APPROX. # OF THREADS
1/8	1/8-1/4	1/4	7
1/4	1/4	3/8	7⅓
3/8	1/4	3/8	7½
1/2	1/4-1/2	1/2	7½
3/4	1/4-1/2	<sup>9</sup> / <sub>16</sub>	<b>7</b> %
1	1/4-1/2	11/16	8

<sup>\*</sup> ISA Handbook of Control Valves. Note: Dimensions are in inches. The Pipe Thread Sealants may have lower temperature capabilities than the basic fitting.

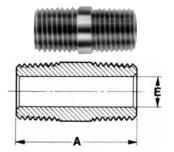
Example: For a  $\frac{1}{4}$  NPT, "L" =  $\frac{3}{8}$ "

Approximate number of threads which should be wrapped =  $7\frac{1}{3}$ 



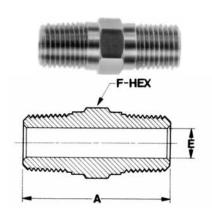
CNP Close Nipple (male NPT both ends)

	PIPE SIZE	DII	DIMENSIONS		SSURE (PSIG)
ORDER BY PART NUMBER	MALE	A	E (MIN. Opening)	BRASS	31688
4CNP - []	1/4	1.13	.28	6600	8600
6CNP - [ ]	3/8	1.13	.37	6100	8000
8CNP - []	1/2	1.50	.42	7100	9300
12CNP - [ ]	3/4	1.50	.62	5500	7300



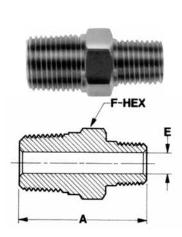
#### NP Hex Nipple (male NPT both ends)

	PIPE SIZE		IMENSION	S	WORKING PRESSURE (PSIG)		
ORDER BY PART NUMBER	MALE	Α	E MIN	F HEX	BRASS	31688	
1NP – [ ]	1/16	1.20	.09	5/16	10,900	14,200	
2NP - [ ]	1/8	1.20	.18	7/16	7900	10,300	
4NP - [ ]	1/4	1.58	.28	9/16	6600	8600	
6NP - []	3/8	1.61	.37	11/16	6100	8000	
8NP - [ ]	1/2	1.98	.46	7/8	6100	7900	
12NP - [ ]	3/4	2.01	.62	11/16	5500	7300	
16NP – [ ]	1	2.28	.87	13/8	4200	5500	



**RNP** Hex Reducing Nipple (male NPT to reduced male NPT)

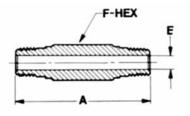
The reducing rupple (male ru i to reduced male ru i)								
	PIPE	SIZE	0	IMENSION	S	WORKING PRE	WORKING PRESSURE (PSIG)	
ORDER BY PART NUMBER	MALE	REDUCED Male	Α	E MIN	F HEX	BRASS	31688	
2RNP1 - []	1/8	1/16	1.11	.09	7/16	10,900	14,200	
4RNP2 – [ ]	1/4	1/8	1.32	.18	9/16	7900	10,300	
6RNP4 - []	3/8	1/4	1.50	.28	11/16	6600	8600	
8RNP4 – [ ]	1/2	1/4	1.69	.28	7/8	6600	8600	
8RNP6 - []	1/2	3/8	1.69	.37	7/8	6100	8000	
12RNP6 – [ ]	3/4	3/8	1.72	.37	11/16	6100	8000	
12RNP8 – [ ]	3/4	1/2	1.90	.43	11/16	6800	8900	
16RNP8 – [ ]	1	1/2	2.17	.43	13//8	6800	8900	
16RNP12 - [ ]	1	3/4	2.27	.62	13/8	5500	7300	

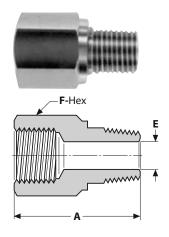


LNP Hex Long Nipple (male NPT both ends)

LINE HEX LONG MIPPLE (Male INFT DOLLI ELIUS)									
	PIPE SIZE	I	DIMENSION	S	WORKING PRE	SSURE (PSIG)			
ORDER BY PART NUMBER	MALE	Α	E MIN	F HEX	BRASS	316SS			
2LNP - [ ]/200	1/8	2.0	.18	7/16	7900	10,300			
2LNP - [ ]/250	1/8	2.5	.18	7/16	7900	10,300			
4LNP - [ ]/200	1/4	2.0	.28	9/16	6600	8600			
4LNP - [ ]/250	1/4	2.5	.28	9/16	6600	8600			
4LNP - [ ]/300	1/4	3.0	.28	9/16	6600	8600			
4LNP - [ ]/400	1/4	4.0	.28	9/16	6600	8600			
6LNP - [ ]/200	3/8	2.0	.37	11/16	6100	8000			
6LNP - [ ]/250	3/8	2.5	.37	11/16	6100	8000			
6LNP - [ ]/400	3/8	4.0	.37	11/16	6100	8000			
8LNP - [ ]/300	1/2	3.0	.46	7/8	6000	7900			
12LNP - [ ]/300	3/4	3.0	.62	11/16	5500	7300			
16LNP - [ ]/300	1	3.0	.87	13/8	4200	5500			
16LNP - [ ]/400	1	4.0	.87	13/8	4200	5500			

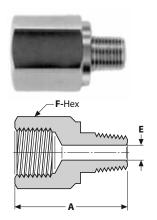






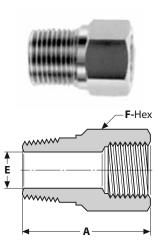
**AP** Adapter (female NPT same size male NPT)

	PIPE SIZE	D	IMENSION	S	WORKING PRESSURE (PSIG)		
ORDER BY PART NUMBER	MALE	Α	E MIN	F HEX	BRASS	316SS	
2AP - [ ]	1/8	1.00	.18	9/16	5100	6700	
4AP – [ ]	1/4	1.37	.28	3/4	5300	6900	
6AP - [ ]	3/8	1.56	.37	7/8	4200	5500	
8AP – [ ]	1/2	1.90	.46	11/16	3900	5100	
12AP – [ ]	3/4	1.96	.65	11/4	3000	3900	



RAP Reducing Adapter (female NPT to reduced male NPT)

ORDER BY PART	PIPE	SIZE	DI	MENSION	IS	WORKING PRESSURE (PSIG)		
NUMBER	FEMALE	MALE	Α	E MIN	F HEX	BRASS	316SS	
4RAP2 - []	1/4	1/8	1.25	.18	3/4	5300	6900	
6RAP2 - []	3/8	1/8	1.31	.18	7/8	4200	5500	
6RAP4 - []	3/8	1/4	1.50	.28	7/8	4200	5500	
8RAP4 - []	1/2	1/4	1.75	.28	11/16	3900	5100	
8RAP6 - []	1/2	3/8	1.75	.37	11/16	3900	5100	
12RAP4 – [ ]	3/4	1/4	1.83	.28	11/4	3000	3900	
12RAP6 - [ ]	3/4	3/8	1.83	.37	11/4	3000	3900	
12RAP8 – [ ]	3/4	1/2	2.00	.46	11/4	3000	3900	
16RAP8 – [ ]	1	1/2	2.37	.46	1%	3400	4500	
16RAP12 - [ ]	1	3/4	2.37	.62	1%	3400	4500	



**RBP** Reducing Bushing (male NPT to reduced female NPT)

ORDER BY PART	PIPE	PIPE SIZE		MENSION	NS	WORKING PRESSURE (PSIG)	
NUMBER	MALE	FEMALE	Α	E MIN	F HEX	BRASS	316SS
2RBP1 - []	1/8	1/16	1.00	.24	7/16	5500	7200
4RBP2 – [ ]	1/4	1/8	1.00	.33	9/16	4900	6400
6RBP2 - []	3/8	1/8	1.12	.33	3/4	7600	9900
6RBP4 – [ ]	3/8	1/4	1.12	.43	3/4	4700	6100
8RBP4 – [ ]	1/2	1/4	1.16	.43	7/8	6900	9100
8RBP6 – [ ]	1/2	3/8	1.16	.56	7/8	3900	5200
12RBP4 – [ ]	3/4	1/4	1.22	.43	11/16	8700	11,400
12RBP6 – [ ]	3/4	3/8	1.56	.56	11/16	6400	8400
12RBP8 - [ ]	3/4	1/2	1.56	.69	11/16	3900	5100
16RBP8 – [ ]	1	1/2	1.56	.69	1%	6900	9000
16RBP12 - [ ]	1	3/4	1.75	.90	13/8	3900	5100

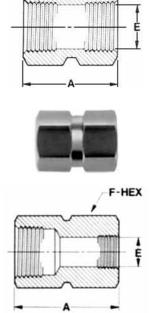
**CGP** Hex Coupling (female NPT both ends)

	PIPE SIZE		DIMENSION	S	WORKING PRESSURE (PSIG)		
ORDER BY PART NUMBER	FEMALE	Α	E MIN	F HEX	BRASS	31688	
2CGP - [ ]	1/8	.81	.33	9/16	5100	6700	
4CGP - [ ]	1/4	1.13	.43	3/4	5300	6900	
6CGP - []	3/8	1.25	.56	7/8	4200	5500	
8CGP - [ ]	1/2	1.50	.69	11/16	3900	5100	
12CGP - [ ]	3/4	1.63	.90	11/4	3000	3900	
16CGP - [ ]	1	2.00	1.13	1%	3400	4500	

# 2.00 1.13 1/8 3400 4500

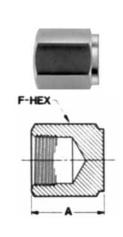
RCGP Reducing Coupling (female NPT to reduced female NPT)

	0 1 1 0 1 1 1				•					
ORDER BY PART	PIPE	SIZE	D	IMENSION	S	WORKING PRESSURE (PSIG)				
NUMBER	FEMALE	FEMALE	Α	E MIN	F HEX	BRASS	31688			
4RCGP2 - [ ]	1/4	1/8	1.13	.33	3/4	5300	6900			
6RCGP4 - [ ]	3/8	1/4	1.37	.43	7/8	4200	5500			
8RCGP4 - [ ]	1/2	1/4	1.50	.43	11/16	3900	5100			
8RCGP6 - [ ]	1/2	3/8	1.50	.56	11/16	3900	5100			
12RCGP4 - [ ]	3/4	1/4	1.72	.43	11/4	3000	3900			
12RCGP6 - [ ]	3/4	3/8	1.72	.56	11/4	3000	3900			
12RCGP8 - [ ]	3/4	1/2	1.72	.69	11/4	3000	3900			
16RCGP8 - [ ]	1	1/2	2.31	.69	1%	3400	4500			
16RCGP12 - [ ]	1	3/4	2.37	.90	1%	3400	4500			



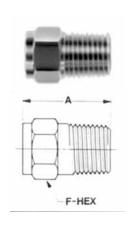
CPP Cap (female NPT)

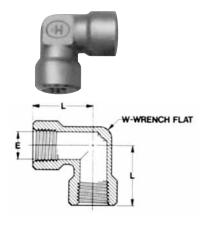
orr cap (comare in ),										
PIPE SIZE	DIMEN	SIONS	WORKING PRESSURE (PSIC							
FEMALE	Α	F HEX	BRASS	31688						
1/8	.69	9/16	5100	6700						
1/4	.88	3/4	5300	6900						
3/8	1.03	7/8	4200	5500						
1/2	1.25	11/16	3900	5100						
3/4	1.43	11/4	3000	3900						
1	1.62	1%	3400	4500						
	PIPE SIZE  FEMALE  1/8  1/4  3/8  1/2	PIPE SIZE         DIMEN           FEMALE         A           ½         .69           ¼         .88           ¾         1.03           ½         1.25           ¾         1.43	PIPE SIZE         DIMENSIONS           FEMALE         A         F HEX           ½8         .69         %6           ¼4         .88         34           ¾8         1.03         ½           ½2         1.25         1½6           ¾4         1.43         1¼4	PIPE SIZE         DIMENSIONS         WORKING PRED           FEMALE         A         F HEX         BRASS           ½         .69         %6         5100           ¼         .88         ¾         5300           ¾         1.03         ½         4200           ½         1.25         1½6         3900           ¾         1.43         1¼         3000						



#### PP Plug (male NPT)

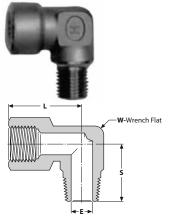
PIPE SIZE	DIMEN	SIONS
MALE	Α	F HEX
1/16	.73	5/16
1/8	.75	7/16
1/4	.94	9/16
3/8	1.00	11/16
1/2	1.25	7/8
3/4	1.31	11/16
1	1.72	13//8
	MALE 1/16 1/8 1/4 3/8 1/2 3/4	MALE         A           ½16         .73           ½8         .75           ¼4         .94           ¾6         1.00           ½2         1.25           ¾4         1.31





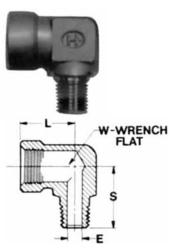
FLP Female Elbow (female NPT both ends)

ORDER BY PART	PIPE SIZE		IMENSION	S	WORKING PRESSURE (PSIG)		
NUMBER	FEMALE	L	E MIN	W	BRASS	316SS	
2FLP - [ ]	1/8	.75	.33	.50	3200	4200	
4FLP – [ ]	1/4	.84	.43	.68	4000	5300	
6FLP – [ ]	3/8	1.00	.56	.81	3200	4200	
8FLP – [ ]	1/2	1.13	.69	1.00	3100	4100	
12FLP - [ ]	3/4	1.25	.90	1.26	3000	3900	



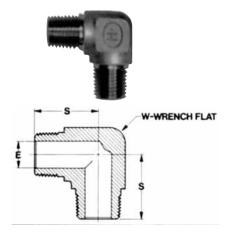
**SLP** Street Elbow (female to male NPT)

ORDER BY PART	PIPE SIZE	DIMENSIONS WORKING PRESSURE (PSIG)			DIMENSIONS					
NUMBER	FEMALE	L	S	E MIN	W	BRASS	31688			
1SLP - [ ]	1/16	.75	.71	.12	.43	5500	7200			
2SLP - [ ]	1/8	.75	.87	.18	.50	3200	4200			
4SLP - [ ]	1/4	.84	1.13	.28	.68	4000	5300			
6SLP - [ ]	3/8	.84	1.25	.37	.81	3200	4200			
8SLP - [ ]	1/2	1.13	1.50	.50	1.00	3100	4100			
12SLP - [ ]	3/4	1.25	1.56	.62	1.25	3000	3900			



RSLP Reducing Street Elbow (female NPT reduced male NPT)

	PIPE	SIZE		DIMEN	SIONS	WORKING PRESSURE (PSIG)		
ORDER BY PART NUMBER	FEMALE	REDUCED MALE	L	S	E MIN	W	BRASS	316\$\$
6RSLP4 – [ ]	3/8	1/4	.91	1.13	.28	.81	3200	4200
8RSLP4 - [ ]	1/2	1/4	1.13	1.40	.28	1.00	3100	4100
8RSLP6 - [ ]	1/2	3/8	1.13	1.25	.37	1.00	3100	4100

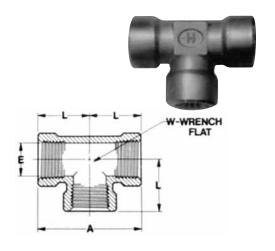


MLP Male Elbow (male NPT both ends)

	PIPE SIZE	D	IMENSION	S	WORKING PRESSURE (PSIG)		
ORDER BY PART NUMBER	MALE	S	E MIN	W	BRASS	316SS	
2MLP – [ ]	1/8	.72	.18	.43	7900	10,300	
4MLP – [ ]	1/4	1.00	.28	.68	6600	8600	
6MLP - [ ]	3/8	1.00	.37	.68	6100	8000	
8MLP – [ ]	1/2	1.18	.50	1.00	5300	7000	
12MLP – [ ]	3/4	1.50	.62	1.25	5500	7300	

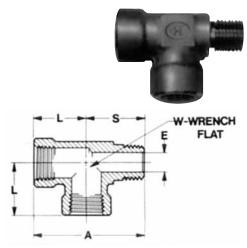
FTP Female Tee (female NPT all ports)

	PIPE SIZE		DIMI	WORKING PRESSURE (PSIG)			
ORDER BY PART Number	FEMALE	Α	L	E MIN	W	BRASS	316SS
2FTP – [ ]	1/8	1.50	.75	.33	.50	5300	6900
4FTP - [ ]	1/4	1.68	.84	.43	.68	5900	7700
6FTP - [ ]	3/8	2.00	1.00	.56	.81	4700	6200
8FTP – [ ]	1/2	2.26	1.13	.69	1.00	4700	6200
12FTP - [ ]	3/4	2.76	1.38	.90	1.38	4200	5500



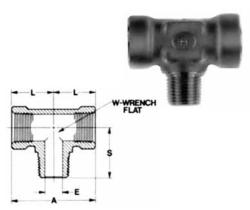
#### **STP** Street Tee (female by male run/female branch)

ORDER BY PART NUMBER PIPE SIZE		D	WORKING PRESSURE (PSIG)					
	PIPE SIZE	Α	L	S	E MIN	W	BRASS	31688
2STP - [ ]	1/8	1.53	.75	.78	.18	.50	3500	4600
4STP - []	1/4	1.86	.84	1.02	.28	.68	4000	5300
6STP - [ ]	3/8	2.13	1.00	1.13	.37	.81	3200	4200
8STP - [ ]	1/2	2.47	1.13	1.34	.50	1.00	3100	4100
12STP - [ ]	3/4	3.16	1.44	1.72	.62	1.69	6500	8500



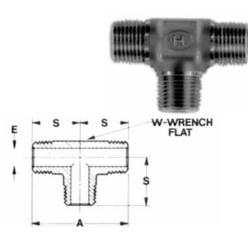
#### FTBM Male Branch Tee (female run/male branch)

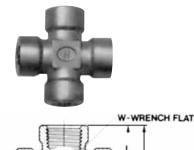
ORDER BY PART			0	IMENSION	WORKING PRESSURE (PSIG)			
NUMBER	PIPE SIZE	Α	L	S	E MIN	W	BRASS	31688
2FT/BM2 – [ ]	1/8	1.68	.84	.82	.18	.69	7100	9300
4FT/BM4 – [ ]	1/4	1.68	.84	1.00	.28	.69	4000	5300
6FT/BM6 – [ ]	3/8	2.00	1.00	1.13	.37	.81	3200	4200
8FT/BM8 – [ ]	1/2	2.25	1.13	1.39	.50	1.00	3100	4100



#### MTP Male Tee (male NPT all ports)

	PIPE SIZE		DIMENSIONS				WORKING PRESSURE (PSIG)		
ORDER BY PART NUMBER	MALE	Α	S	E MIN	W	BRASS	31688		
2MTP - [ ]	1/8	1.50	.75	.18	.43	7900	10,300		
4MTP – [ ]	1/4	2.00	1.00	.28	.68	6600	8600		
6MTP - [ ]	3/8	2.00	1.00	.37	.68	6100	8000		
8MTP – [ ]	1/2	2.44	1.22	.50	1.00	5300	7000		
12MTP – [ ]	3/4	3.00	1.50	.62	1.25	5500	7300		





**CSP** Cross

	PIPE SIZE		DIMENSIONS				WORKING PRESSURE (PSIG)		
ORDER BY PART NUMBER	FEMALE	Α	L	E MIN	W	BRASS	316SS		
2CSP - [ ]	1/8	1.50	.75	.34	.62	6200	8100		
4CSP - [ ]	1/4	1.68	.84	.44	.68	6100	8000		
6CSP - [ ]	3/8	2.00	1.00	.58	1.06	6400	8400		
8CSP - [ ]	1/2	2.25	1.13	.72	1.06	3800	5000		

## **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 not pressurized when tightening or loosening a fitting or valve connection.
- 2. Do not loosen GYROLOK® 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® 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 HOKE®'s 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® tube end, always hold the fitting or valve body with one wrench while separately wrench tightening the GYROLOK® nut. Follow the same precaution when disassembling.
- 9. Always use a HOKE® tube insert (basic part number "T1") when assembling a GYROLOK® fitting to soft, pliable plastic tubing.
- 10. Always use proper thread lubricants or sealants on tapered pipe threads. Note that thread sealants may have lower temperature ratings than the basic fitting.
- 11. 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.
- 12. Do not hold the valve handle when tightening an end connection.
- 13. Do not use excessive force to open or close a Ball Valve, e.g., Do not use a handle extension.
- 14.On initial installation, valves may require an adjustment of the packing nut due to storage variations, systems parameters, and cold flow properties of TFE.



## **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.

## **Proudly Distributed By:**



CRANE INSTRUMENTATION & SAMPLING Inc. 405 Centura Ct. Spartanburg, SC 29305, USA

Tel: 1-864-574-7966 PO Box 4866, Spartanburg, SC 29305-4866 USA Crane Co., and its subsidiaries cannot accept responsibility for possible errors in catalogues, brochures, other printed materials, and website information. Crane Co. reserves the right to alter its products without notice, including products already on order provided that such alteration can be made without changes being necessary in specifications already agreed. All trademarks in this material are the property of the Crane Co. or its subsidiaries. The Crane and Crane brands logotype (CENTER LINE®, COMPAC-NOZ®, CRANE®, DEPA® & ELRO®, DOPAK®, DUO-CHEK®, FLOWSEAL®, GYROLOK®, GO REGULATOR®, HOKE®, JENKINS®, KROMBACH®, NOZ-CHEK®, PACIFIC VALVES®, RESISTOFLEX®, REVO®, SAUNDERS®, STOCKHAM®, TEXAS SAMPLING®, TRIANGLE®, UNI-CHEK®, VALVES®, WTA®, and XOMOX®) are registered trademarks of Crane Co. All rights reserved.