



Precision Pipe Fittings

Index

CNP—Close Nipple	3
NP—Hex Nipple	3
RNP—Hex Reducing Nipple	3
LNP—Hex Long Nipple	3
AP—Adapter	4
RAP—Reducing Adapter	4
RBP—Reducing Bushing	4
CGP—Hex Coupling	5
RCGP—Reducing Coupling	5
CPP—Cap	5
PP—Plug	5
FLP—Female Elbow	6
SLP—Street Elbow	6
RSLP—Reducing Street Elbow	6
MLP—Male Elbow	6
FTP—Female Tee	7
STP—Street Tee	7
FTBM—Male Branch Tee	7
MTP—Male Tee	7
CSP—Cross	8
Safety Instructions	8



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

HOKE Incorporated

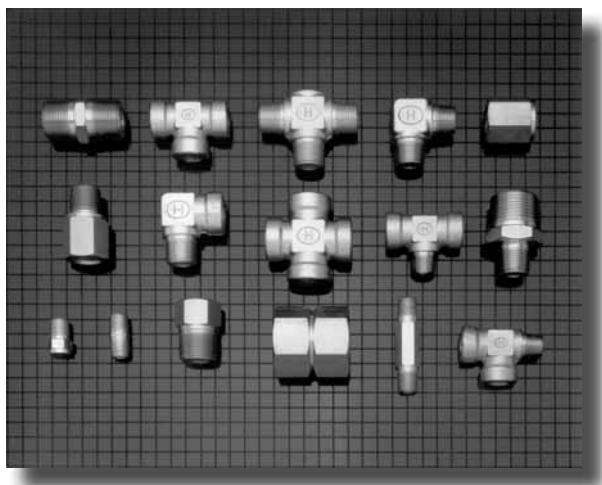
405 Centura Court • PO Box 4866 (29305) • Spartanburg, SC 29303
Phone (864) 574-7966 Fax (864) 587-5608
www.hoke.com • sales@hoke.com

precision pipe fittings



Hoke Precision Instrument Pipe Fittings

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, Teflon® tape has a maximum temperature rating of 450° F.

316 stainless steel:	–325° F to +1200° F (–198° C to +648° C)
Brass:	–325° F to +400° F (–198° C to +204° 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	ASTM A-182
316 Stainless Steel Bar Stock	ASTM A-479
Brass Forgings, Alloy 377	QQ-B-626
Brass Bar Stock, Alloy 353	ASTM B-453
Brass Bar Stock, Alloy 360	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".

** Prolonged exposure to temperature over 800° F is not recommended.*

HOKE Incorporated

405 Centura Court • PO Box 4866 (29305) • Spartanburg, SC 29303
Phone (864) 574-7966 Fax (864) 587-5608
www.hoke.com • sales@hoke.com

precision pipe fittings

Precision Instrument Pipe Fittings

Hoke Pipe Fitting Part Numbering

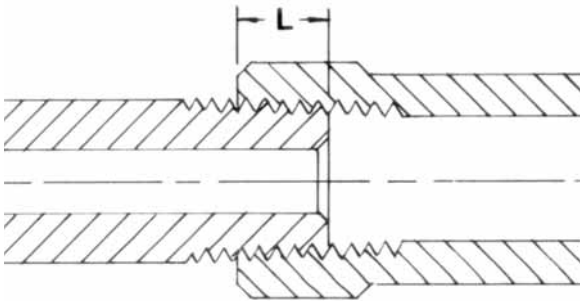
The part numbering system for Hoke Precision Instrument Pipe Fittings is completely descriptive and easily understood.

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
¼ NPT	Reducing Adapter	⅛ NPT	316 Stainless Steel

Assembly Instructions

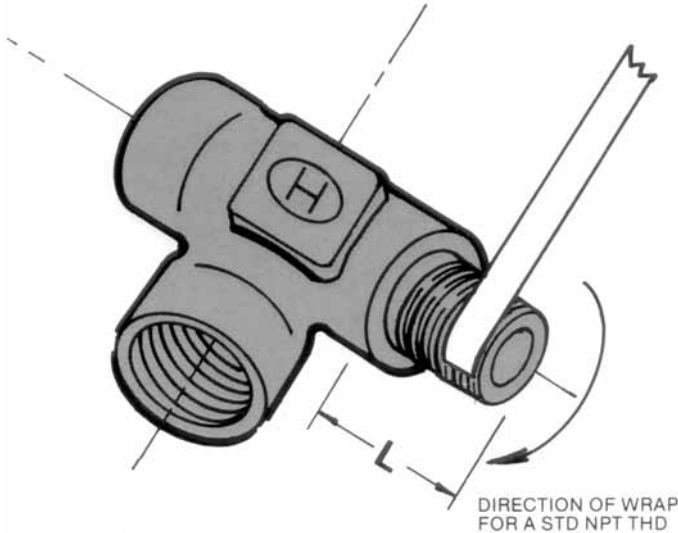
To ensure a leak-tight seal, the use of a pipe thread sealant is recommended. One commonly utilized technique is Teflon® Tape. The chart below provides information regarding the recommended tape width and the approximate number of threads which should be wrapped



NOMINAL PIPE SIZE	RECOMMENDED TAPE WIDTH	EFFECTIVE THREAD LENGTH (EXTERNAL) L*	APPROX. # OF THREADS
⅛	⅛–¼	¼	7
¼	¼	⅜	7½
⅜	¼	⅜	7½
½	¼–½	½	7½
¾	¼–½	⅝	7½
1	¼–½	1⅛	8

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

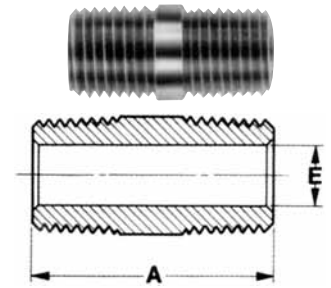
Example: For a ¼ NPT, “L” = ⅜”
Approximate number of threads which should be wrapped = 7½



Precision Instrument Pipe Fittings

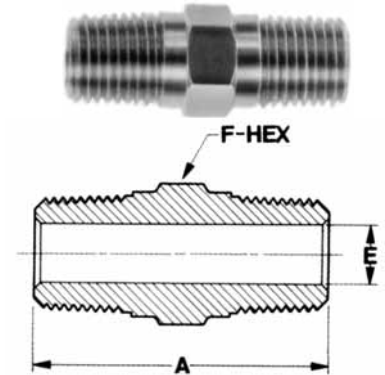
CNP Close Nipple (male NPT both ends)

ORDER BY PART NUMBER	PIPE SIZE	DIMENSIONS		WORKING PRESSURE (PSIG)	
	MALE	A	E (MIN. OPENING)	BRASS	316SS
4CNP - []	1/4	1 1/8	9/32	5700	9900
6CNP - []	3/8	1 1/8	3/8	5500	9000
8CNP - []	1/2	1 1/2	27/64	5400	8900
12CNP - []	3/4	1 1/2	5/8	4600	8300



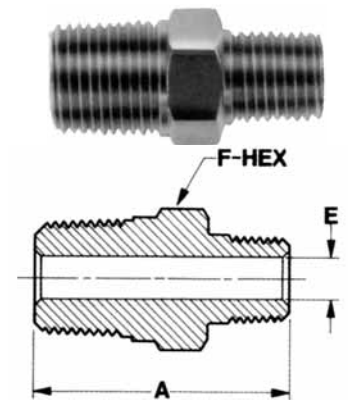
NP Hex Nipple (male NPT both ends)

ORDER BY PART NUMBER	PIPE SIZE	DIMENSIONS			WORKING PRESSURE (PSIG)	
	MALE	A	E MIN	F HEX	BRASS	316SS
1NP - []	1/16	1 3/64	1/8	5/16	7100	12,300
2NP - []	1/8	1 7/32	3/16	7/16	7100	12,300
4NP - []	1/4	1 9/32	9/32	9/16	5700	9900
6NP - []	3/8	1 5/8	3/8	1 1/16	5500	9000
8NP - []	1/2	2	15/32	7/8	5400	8900
12NP - []	3/4	2	5/8	1 1/16	4600	8300
18NP - []	1	2 1/4	7/8	1 3/8	3400	5900



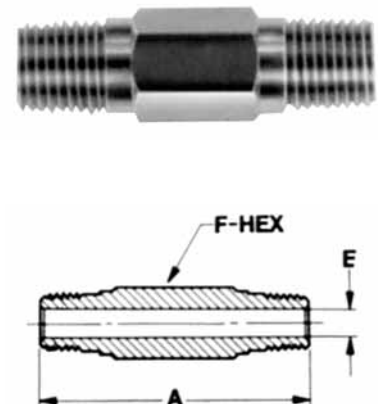
RNP Hex Reducing Nipple (male NPT to reduced male NPT)

ORDER BY PART NUMBER	PIPE SIZE		DIMENSIONS			WORKING PRESSURE (PSIG)	
	MALE	REDUCED MALE	A	E MIN	F HEX	BRASS	316SS
2RNP1 - []	1/8	1/16	1 3/16	3/32	7/16	7100	12,300
4RNP2 - []	1/4	1/8	1 9/32	3/16	9/16	7100	12,300
6RNP4 - []	3/8	1/4	1 1/2	9/32	1 1/16	5700	9900
8RNP4 - []	1/2	1/4	1 11/16	9/32	7/8	5700	9900
8RNP6 - []	1/2	3/8	1 11/16	3/8	7/8	5500	9000
12RNP6 - []	3/4	3/8	1 23/32	3/8	1 1/16	5500	9000
12RNP8 - []	3/4	1/2	1 29/32	7/16	1 1/16	6200	10,100
16RNP8 - []	1	1/2	2 9/32	7/16	1 3/8	6200	10,100
16RNP12 - []	1	3/4	2 9/32	5/8	1 3/8	4600	8300

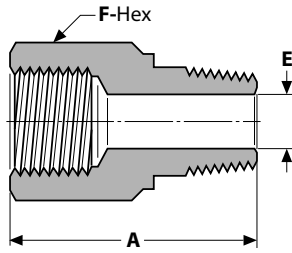
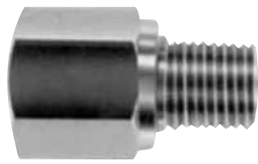


LNP Hex Long Nipple (male NPT both ends)

ORDER BY PART NUMBER	PIPE SIZE	DIMENSIONS			WORKING PRESSURE (PSIG)	
	MALE	A	E MIN	F HEX	BRASS	316SS
2LNP - []/200	1/8	2	3/16	7/16	7100	12,300
2LNP - []/250	1/8	2 1/2	3/16	7/16	7100	12,300
4LNP - []/200	1/4	2	9/32	9/16	5700	9900
4LNP - []/250	1/4	2 1/2	9/32	9/16	5700	9900
4LNP - []/300	1/4	3	9/32	9/16	5700	9900
4LNP - []/400	1/4	4	9/32	9/16	5700	9900
6LNP - []/200	3/8	2	1 1/16	1 1/16	5500	9000
6LNP - []/250	3/8	2 1/2	1 1/16	1 1/16	5500	9000
6LNP - []/400	3/8	4	1 1/16	1 1/16	5500	9000
8LNP - []/300	1/2	3	7/8	7/8	5400	8900
12LNP - []/300	3/4	3	1 1/16	1 1/16	4600	8300
16LNP - []/300	1	3	1 3/8	1 3/8	3400	5900
16LNP - []/400	1	4	1 3/8	1 3/8	3400	5900

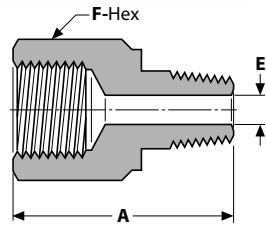


Precision Instrument Pipe Fittings



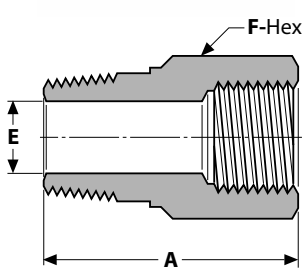
AP Adapter (female NPT same size male NPT)

ORDER BY PART NUMBER	PIPE SIZE		DIMENSIONS			WORKING PRESSURE (PSIG)	
	MALE	A	E MIN	F HEX		BRASS	316SS
2AP - []	1/8	1	3/16	9/16		4200	7300
4AP - []	1/4	1 3/8	9/32	3/4		4200	7300
6AP - []	3/8	1 9/16	3/8	7/8		3400	5500
8AP - []	1/2	1 29/32	15/32	1 1/16		2700	4900
12AP - []	3/4	1 31/32	2 1/32	1 1/4		2100	3700



RAP Reducing Adapter (female NPT to reduced male NPT)

ORDER BY PART NUMBER	PIPE SIZE		DIMENSIONS			WORKING PRESSURE (PSIG)	
	FEMALE	MALE	A	E MIN	F HEX	BRASS	316SS
4RAP2 - []	1/4	1/8	1 1/4	3/16	3/4	4200	7300
6RAP2 - []	3/8	1/8	1 5/16	3/16	7/8	3400	5500
6RAP4 - []	3/8	1/4	1 1/2	9/32	7/8	3400	5500
8RAP4 - []	1/2	1/4	1 3/4	9/32	1 1/16	2700	4900
8RAP6 - []	1/2	3/8	1 3/4	3/8	1 1/16	2700	4900
12RAP4 - []	3/4	1/4	1 13/16	9/32	1 1/4	2100	3700
12RAP6 - []	3/4	3/8	1 13/16	3/8	1 1/4	2100	3700
12RAP8 - []	3/4	1/2	2	15/32	1 1/4	2100	3700
16RAP8 - []	1	1/2	2 1/4	15/32	1 3/8	2500	4300
16RAP12 - []	1	3/4	2 1/4	5/8	1 3/8	2500	4300



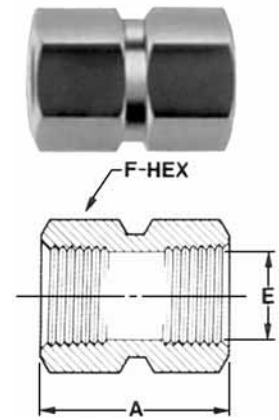
RBP Reducing Bushing (male NPT to reduced female NPT)

ORDER BY PART NUMBER	PIPE SIZE		DIMENSIONS			WORKING PRESSURE (PSIG)	
	MALE	FEMALE	A	E MIN	F HEX	BRASS	316SS
2RBP1 - []	1/8	1/16	1	3/16	7/16	7000	12,200
4RBP2 - []	1/4	1/8	1	9/32	9/16	4200	7300
6RBP2 - []	3/8	1/8	1 1/8	11/32	3/4	6600	11,400
6RBP4 - []	3/8	1/4	1 1/8	3/8	3/4	4200	7300
8RBP4 - []	1/2	1/4	1 5/32	7/16	7/8	5700	9300
8RBP6 - []	1/2	3/8	1 5/32	7/16	7/8	2900	4800
12RBP4 - []	3/4	1/4	1 7/32	7/16	1 1/16	7300	13,100
12RBP6 - []	3/4	3/8	1 9/16	37/64	1 1/16	5200	9400
12RBP8 - []	3/4	1/2	1 9/16	5/8	1 1/16	4000	7300
16RBP8 - []	1	1/2	1 9/16	23/32	1 3/8	5600	9500
16RBP12 - []	1	3/4	1 3/4	7/8	1 3/8	3200	5400

Precision Instrument Pipe Fittings

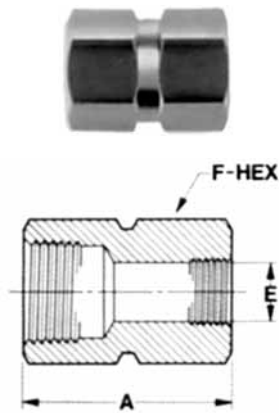
CGP Hex Coupling (female NPT both ends)

ORDER BY PART NUMBER	PIPE SIZE	DIMENSIONS			WORKING PRESSURE (PSIG)	
	FEMALE	A	E MIN	F HEX	BRASS	316SS
2CGP - []	1/8	13/16	11/32	9/16	4200	7300
4CGP - []	1/4	1 1/8	7/16	3/4	4200	7300
6CGP - []	3/8	1 1/4	37/64	7/8	3400	5500
8CGP - []	1/2	1 1/2	23/32	1 1/16	2700	4900
12CGP - []	3/4	1 9/16	59/64	1 1/4	2100	3700
16CGP - []	1	2	1 1/64	1 5/8	2500	4300



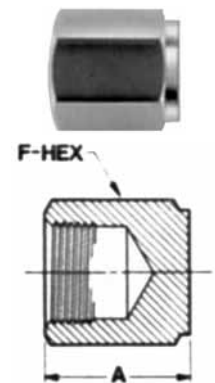
RCGP Reducing Coupling (female NPT to reduced female NPT)

ORDER BY PART NUMBER	PIPE SIZE		DIMENSIONS			WORKING PRESSURE (PSIG)	
	FEMALE	MALE	A	E MIN	F HEX	BRASS	316SS
4RCGP2 - []	1/4	1/8	1	11/32	3/4	4200	7300
6RCGP4 - []	3/8	1/4	1 3/8	7/16	7/8	3400	5500
8RCGP4 - []	1/2	1/4	1 1/2	7/16	1 1/16	2700	4900
8RCGP6 - []	1/2	3/8	1 1/2	37/64	1 1/16	2700	4900
12RCGP4 - []	3/4	1/4	1 23/32	7/16	1 1/4	2100	3700
12RCGP6 - []	3/4	3/8	2 1/16	37/64	1 1/4	2100	3700
12RCGP8 - []	3/4	1/2	2 1/16	23/32	1 1/4	2100	3700
16RCGP8 - []	1	1/2	2 3/16	23/32	1 5/8	2500	4300
16RCGP12 - []	1	3/4	2 1/4	59/64	1 5/8	2500	4200



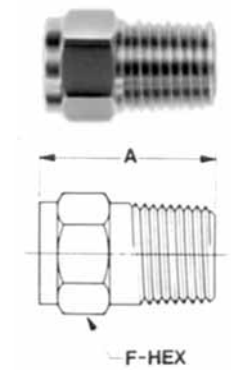
CPP Cap (female NPT)

ORDER BY PART NUMBER	PIPE SIZE	DIMENSIONS		WORKING PRESSURE (PSIG)	
	FEMALE	A	F HEX	BRASS	316SS
2CPP - []	1/8	1 1/16	9/16	4200	7300
4CPP - []	1/4	7/8	3/4	4200	7300
6CPP - []	3/8	1 1/32	7/8	3400	5500
8CPP - []	1/2	1 1/4	1 1/16	2700	4900
12CPP - []	3/4	1 7/16	1 1/4	2100	3700
16CPP - []	1	1 5/8	1 5/8	2500	4300



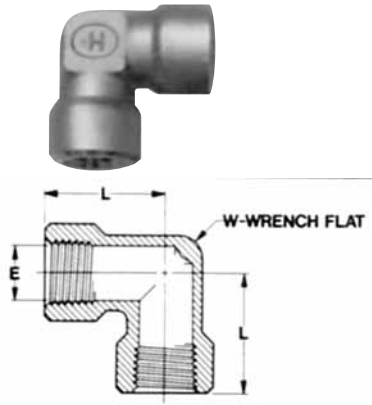
PP Plug (male NPT)

ORDER BY PART NUMBER	PIPE SIZE	DIMENSIONS	
	MALE	A	F HEX
1PP - []	1/16	47/64	5/16
2PP - []	1/8	3/4	7/16
4PP - []	1/4	1 5/16	9/16
6PP - []	3/8	1	1 1/16
8PP - []	1/2	1 1/4	7/8
12PP - []	3/4	1 5/16	1 1/16
16PP - []	1	1 11/16	1 3/8



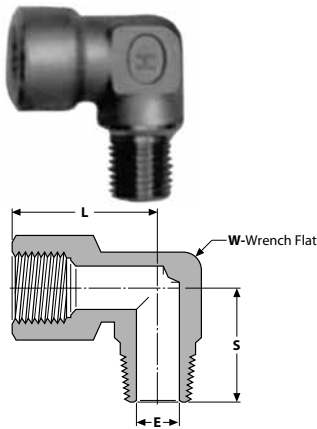
Dimensions for reference only. Subject to change.

Precision Instrument Pipe Fittings



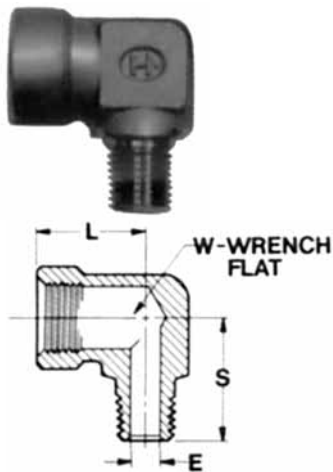
FLP Female Elbow (female NPT both ends)

ORDER BY PART NUMBER	PIPE SIZE	DIMENSIONS			WORKING PRESSURE (PSIG)	
	FEMALE	L	E MIN	W	BRASS	316SS
2FLP - []	1/8	3/4	11/32	1/2	3600	5600
4FLP - []	1/4	27/32	7/16	11/16	2900	4600
6FLP - []	3/8	1	37/64	13/16	2300	3700
8FLP - []	1/2	1 1/8	23/32	1	2200	3500
12FLP - []	3/4	1 1/4	59/64	1 1/4	2200	3400



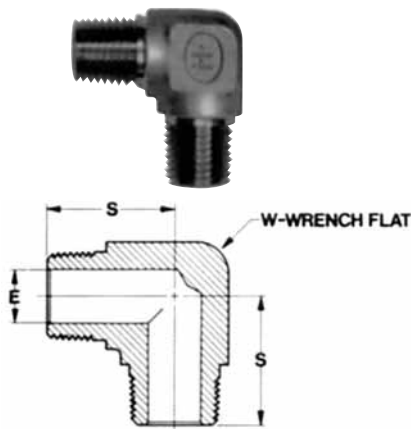
SLP Street Elbow (female to male NPT)

ORDER BY PART NUMBER	PIPE SIZE	DIMENSIONS				WORKING PRESSURE (PSIG)	
	FEMALE	L	S	E MIN	W	BRASS	316SS
1SLP - []	1/16	3/4	23/32	1/8	7/16	5000	7900
2SLP - []	1/8	3/4	25/32	3/16	1/2	3600	5600
4SLP - []	1/4	27/32	1 1/8	9/32	11/16	2900	4600
6SLP - []	3/8	1	1 1/4	3/8	13/16	2300	3700
8SLP - []	1/2	1 1/8	1 11/32	15/32	1	2200	3500
12SLP - []	3/4	1 7/16	1 1/2	5/8	1 1/4	2200	3400



RSLP Reducing Street Elbow (female NPT reduced male NPT)

ORDER BY PART NUMBER	PIPE SIZE		DIMENSIONS				WORKING PRESSURE (PSIG)	
	FEMALE	REDUCED FEMALE	L	S	E MIN	W	BRASS	316SS
6RSLP4 - []	3/8	1/4	1	1 1/8	9/32	13/16	2300	3700
8RSLP4 - []	1/2	1/4	1 1/4	1 1/8	9/32	1	2200	3500
8RSLP6 - []	1/2	3/8	1 1/2	1 5/32	13/32	1	3600	5600



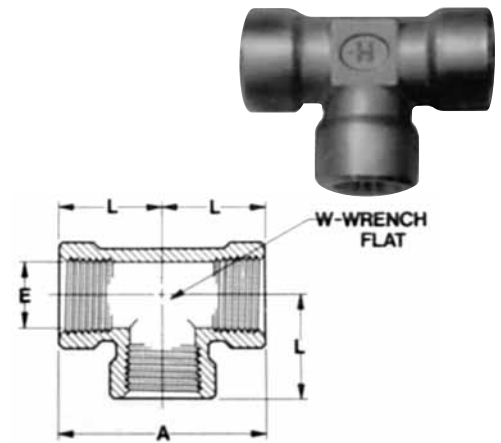
MLP Male Elbow (male NPT both ends)

ORDER BY PART NUMBER	PIPE SIZE	DIMENSIONS			WORKING PRESSURE (PSIG)	
	MALE	S	E MIN	W	BRASS	316SS
2MLP - []	1/8	23/32	3/16	7/16	6200	9700
4MLP - []	1/4	61/64	9/32	11/16	5000	7800
6MLP - []	3/8	1	3/8	11/16	4800	7500
8MLP - []	1/2	13/16	15/32	1	4700	7400
12MLP - []	3/4	1 1/2	5/8	1 1/4	4400	6900

Precision Instrument Pipe Fittings

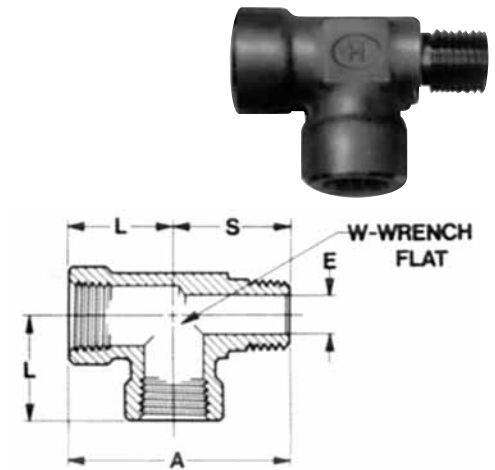
FTP Female Tee (female NPT all ports)

ORDER BY PART NUMBER	PIPE SIZE	DIMENSIONS				WORKING PRESSURE (PSIG)	
	FEMALE	A	L	E MIN	W	BRASS	316SS
2FTP - []	1/8	1 1/2	3/4	1 1/32	1/2	3600	5600
4FTP - []	1/4	1 11/16	27/32	7/16	1 1/16	2900	4600
6FTP - []	3/8	2	1	37/64	1 3/16	2300	3700
8FTP - []	1/2	2 1/4	1 1/8	23/32	1	2200	3500
12FTP - []	3/4	2 7/8	1 1/16	59/64	1 5/8	4200	7900



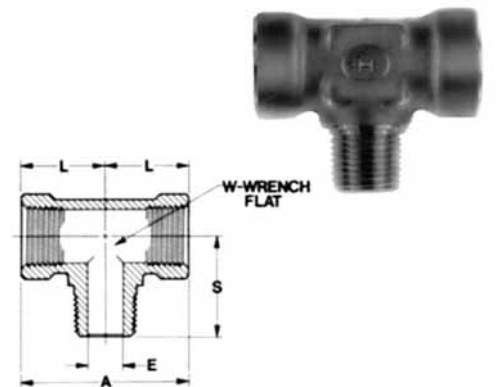
STP Street Tee (female by male run/female branch)

ORDER BY PART NUMBER	PIPE SIZE	DIMENSIONS					WORKING PRESSURE (PSIG)	
		A	L	S	E MIN	W	BRASS	316SS
2STP - []	1/8	1 17/32	3/4	25/32	3/16	1/2	3600	5600
4STP - []	1/4	1 27/32	27/32	1	9/32	1 1/16	2800	4500
6STP - []	3/8	2 1/8	1	1 1/8	3/8	1 3/16	2300	3700
8STP - []	1/2	2 15/32	1 1/8	1 11/32	15/32	1	2200	3500
12STP - []	3/4	3 3/64	1 1/16	1 5/8	5/8	1 5/8	3800	7200



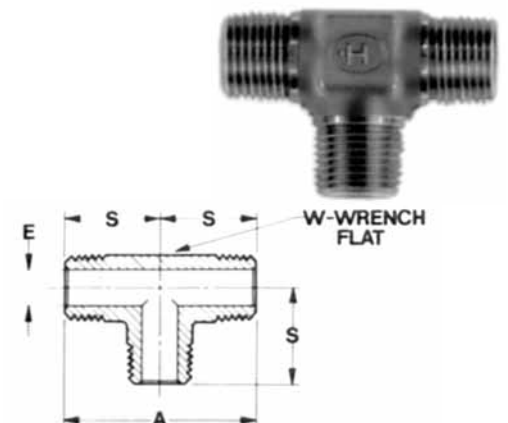
FTBM Male Branch Tee (female run/male branch)

ORDER BY PART NUMBER	PIPE SIZE	DIMENSIONS					WORKING PRESSURE (PSIG)	
		A	L	S	E MIN	W	BRASS	316SS
2FT/BM2 - []	1/8	1 11/16	27/32	27/32	3/16	1 1/16	6200	9700
4FT/BM4 - []	1/4	1 11/16	27/32	1	9/32	1 1/16	2900	4600
6FT/BM6 - []	3/8	2	1	1 1/8	3/8	1 3/16	2300	3700
8FT/BM8 - []	1/2	2 1/4	1 1/8	1 11/32	15/32	1	2200	3500



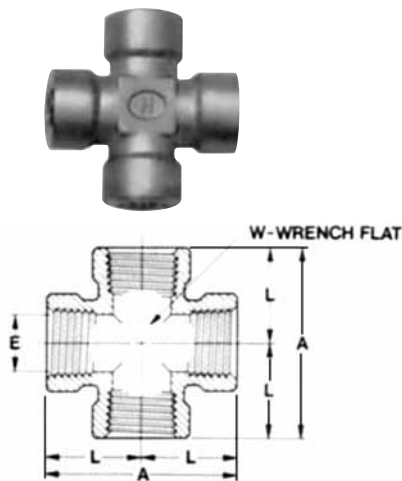
MTP Male Tee (male NPT all ports)

ORDER BY PART NUMBER	PIPE SIZE	DIMENSIONS				WORKING PRESSURE (PSIG)	
	MALE	A	S	E MIN	W	BRASS	316SS
2MTP - []	1/8	1 1/2	3/4	3/16	7/16	6200	9700
4MTP - []	1/4	2	1	9/32	1 1/16	5000	7800
6MTP - []	3/8	2	1	3/8	1 1/16	4800	7500
8MTP - []	1/2	2 17/32	1 1/64	15/32	1	4700	7400
12MTP - []	3/4	3	1 1/2	5/8	1 1/4	4400	6900



Dimensions for reference only. Subject to change.

Precision Instrument Pipe Fittings



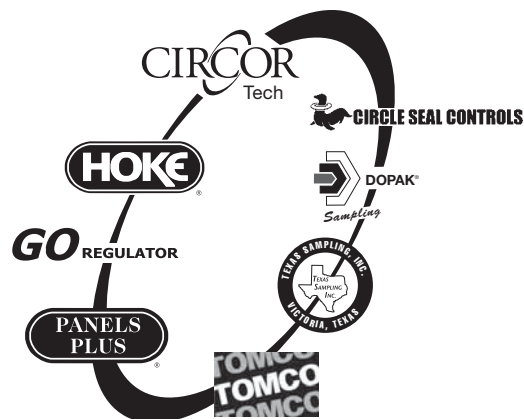
CSP Cross

ORDER BY PART NUMBER	PIPE SIZE	DIMENSIONS				WORKING PRESSURE (PSIG)	
	FEMALE	A	L	E MIN	W	BRASS	316SS
2CSP – []	1/8	1 1/16	27/32	11/32	11/16	6900	10,800
4CSP – []	1/4	1 1/16	27/32	7/16	11/16	2800	4500
6CSP – []	3/8	2	1	37/64	1	4600	7200
8CSP – []	1/2	2 1/4	1 1/8	23/32	1	2200	3500

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 Hoke 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 Hoke Gyrolok® tube fitting ends, loosen the Hoke 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 Hoke Gyrolok® tube end, always hold the fitting or valve body with one wrench while separately wrench tightening the Hoke Gyrolok® nut. Follow the same precaution when disassembling.
9. Always use a Hoke tube insert (basic part number “T1”) when assembling a Hoke 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. NPT threads should be torqued in accordance with an industry standard, such as Underwriter’s Laboratory UL842. Note that previously assembled threads may require additional tightening.
12. 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.
13. Do not hold the valve handle when tightening an end connection.
14. Do not use excessive force to open or close a Ball Valve, e.g., Do not use a handle extension.
15. On initial installation, valves may require an adjustment of the packing nut due to storage variations, systems parameters, and cold flow properties of TFE.

FOR YOUR SAFETY: It is solely the responsibility of the system designer and user to select products suitable for their specific application requirements and to ensure proper installation, operation, and maintenance of these products. Material compatibility, product ratings and application details should be considered in the selection. Improper selection or use of products described herein can cause personal injury or property damage.



Hoke • GO Regulator • Tomco • CIRCOR Tech

405 Centura Court • PO Box 4866 (29305)

Spartanburg, SC 29303

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

www.circortechnologies.com

Hoke Controls / Panels Plus

2054 Francis St.

Ontario, CA 91761

Tel (909) 923-3770

Fax (909) 923-2550

www.circor-panelsplus.com

Dopak Inc.

9572 Kempwood

Houston, Texas 77080

Tel (713) 460-8311

Fax (713) 460-8578

www.dopak.com

Texas Sampling, Inc

3706 Rio Grande

Victoria, Texas 77901

Tel (361) 575-8087

Fax (361) 575-8157

www.texassampling.com

Circle Seal Controls

2301 Wardlow Circle

Corona, CA 92880

Tel (951) 270-6200

Fax (951) 270-6201

www.circlesealcontrols.com

CIRCOR Instrumentation Technologies

Central Europe

Leeuwenhoekweg 24

2661 CZ Bergschenhoek

The Netherlands

Tel +31 10 4206011 • Fax +31 10 4566774

www.circortechnologies.com

Hoke GmbH

Weitzesweg 11

Postfach 1541

D-61118 Bad Vilbel-Dortelweil

Germany

Tel +49 6101 82 56 0

Fax +49 6101 82 56 40

www.hoke.de

CIRCOR Instrumentation Technologies

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

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