

# Instrumentation Pipe Fittings



**1CLN**  
Close Nipple

89



**1FMA**  
Female to Male  
Adapter

89



**1FPC**  
Female  
Pipe Cap

89



**1FPRU**  
Female Pipe  
Reducer Union

89



**1FPU**  
Female  
Pipe Union

90



**1HLN**  
Hex  
Long Nipple

90



**1HN**  
Hex Nipple

90



**1MPP**  
Male Pipe  
Plug

90



**1HRN**  
Hex  
Reducing Nipple

91



**1RAFM**  
Reducer Adapter -  
Female to Male

91



**1RBMF**  
Reducer Bushing -  
Male to Female

92



**2FF**  
Female Pipe  
Elbow

92



**2FM**  
Female - Male  
Pipe Elbow

92



**2FMR**  
Female - Male  
Reducer Pipe Elbow

93



**2MM**  
Male Pipe  
Elbow

93



**3FFF**  
All Female  
Pipe Elbow

93



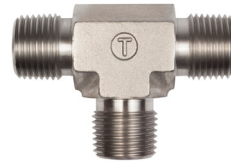
**3FFM**  
Pipe Tee - Female -  
Female - Male

94



**3FMF**  
Pipe Tee - Female -  
Male - Female

94



**3MMM**  
All Male  
Pipe Tee

94



**4FPCR**  
Female Pipe Cross

94

## Instrumentation Pipe Fittings

Tylok Instrumentation Pipe Fittings are offered in popular configurations such as reducing adapters, reducing bushings, pipe unions, elbows, tees, crosses, etc.

Fittings are manufactured to the same high quality standards as other Tylok Fittings. Each fitting is thoroughly cleaned to eliminate system contamination and features an attractive surface finish to enhance the appearance of modern scientific instrumentation and equipment.

Fittings are manufactured from materials meeting applicable ASTM or ASME specifications, with pipe threads which meet or exceed ANSI/ASME B1.20.1 requirements. Strict quality controls procedures are followed throughout production.

Pipe thread connections are very common in today's industry. They are relatively easy to work with because of the common sizes and dimensions throughout manufacturing. It is important to use a thread sealant.

These products range from pipe "dopes" to Teflon tape, all of which can be purchase through your local Tylok Distributor.

## Design/Features

Tylok Instrumentation Pipe Fittings are manufactured to the same high quality standards as other Tylok Fittings. Each fitting is thoroughly cleaned to eliminate system contamination and features an attractive surface finish to enhance the appearance of modern scientific instrumentation and equipment.

## Technical Support & Training

Tylok Instrumentation Inc. ensures all of its Distributors are trained on the proper installation of fittings and valves. Tylok Distributors are trained to provide the technical support you deserve. Additionally, our Distributors will help in finding solutions for specific applications. Contact your local Tylok Distributor for further information.

## Quality Management System

SAI Global has registered Tylok International's Quality Management System to ISO 9001. The quality system complies with the international standard ISO 9001 and its technical equivalent, ANSI/ISO/ASQ 9001. Tylok strives to continuously improve the effectiveness of the Quality Management System.



ISO 9001

# How to Order

Tylok Instrumentation Pipe Fittings are ordered as listed in this catalog by inserting the material code before the part number.

Tylok Instrumentation Pipe Fittings can be identified through the part number as to material, pipe size, configuration, and thread connection. The part number describes a complete fitting. The size nomenclature to describe a tee fitting is from left (1) to right (2) and down (3).

Special Configurations available upon request.

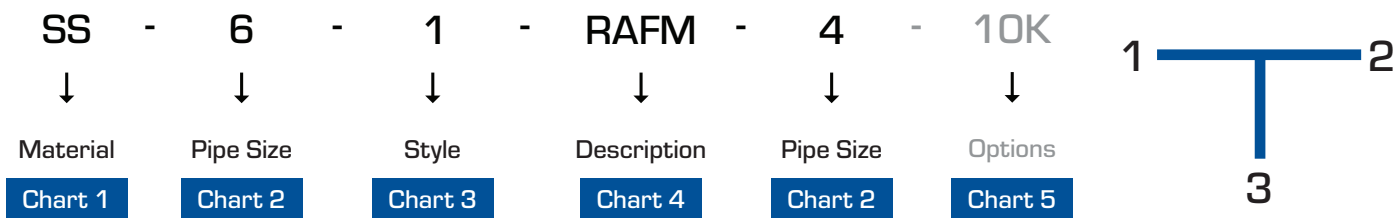


Chart 1- Material	
B	Brass
S	Steel
SS	Stainless Steel

Chart 2- Pipe Size		
Designator	Pipe Thread (NPT)	Pipe Thread BSPP/BSPT
1	1/16-27	1/16-28
2	1/8-27	1/8-28
4	1/4-18	1/4-19
6	3/8-18	3/8-19
8	1/2-14	1/2-14
12	3/4-14	3/4-14
16	10-1-11/2	10-11

Chart 3- Style	
1	Straight
2	Elbow
3	Tee
4	Cross

Chart 4- Description	
1CLN	Close Nipple
1FMA	Female to Male Adapter
1FPC	Female Pipe Cap
1FPU	Female Pipe Union
1FPRU	Female Pipe Reducer Union
1HLN	Hex Long Nipple
1HN	Hex Nipple
1HRN	Hex Reducing Nipple
1MPP	Male Pipe Plug
1RAFM	Reducer Adapter-Female to Male
1RBMF	Reducer Bushing-Male to Female
2FF	Female Pipe Elbow
2FM	Female-Male Pipe Elbow
2FMR	Female-Male Reducer Pipe Elbow
2MM	Male Pipe Elbow
3FFF	All Female Pipe Tee
3FFM	Pipe Tee-Female-Female-Male
3FMF	Pipe Tee-Female-Male-Female
3MMM	All Male Pipe Tee
4FPCR	Female Pipe Cross

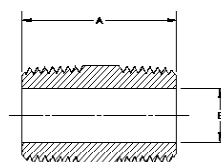
Chart 5- Options	
10K	10K Rated
RS	BSPM Male Connector
BSPT	BSPT Male Connector
BT	Bored Through
CL	Clean & Lubricated to ASTM G93 Level C
SPCL	Clean & Lubricated to CGA G-4.1-2009
NACE	NACE Compliant

# 1CLN, 1FMA, 1FPC, 1FPRU

Part No.	Interchanges With	Male Pipe Size	A	E Thru Hole
2-1CLN	2-CN	1/8	0.75	0.19
4-1CLN	4-CN	1/4	1.13	0.28
6-1CLN	6-CN	3/8	1.13	0.38
8-1CLN	8-CN	1/2	1.5	0.47
12-1CLN	12-CN	3/4	1.5	0.63
16-1CLN	16-CN	1	1.88	0.88

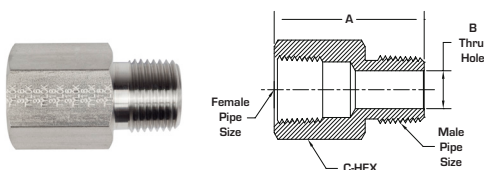
## 1CLN

### Close Nipple



## 1FMA

### Female to Male Adapter

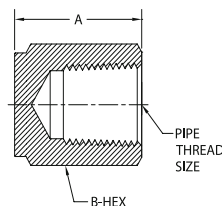
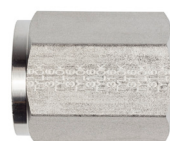


Part No.	Interchanges With	Female Pipe Size	Male Pipe Size	A	B Thru Hole	C Hex
2-1FMA	2-A	1/8	1/8	1.06	.187	9/16
4-1FMA	4-A	1/4	1/4	1.38	.281	3/4
6-1FMA	6-A	3/8	3/8	1.56	.375	7/8
8-1FMA	8-A	1/2	1/2	1.91	.468	1-1/16
12-1FMA	12-A	3/4	3/4	1.94	.625	1-5/16
16-1FMA	16-A	1	1	2.28	.875	1-5/8
1OK Fittings						
2-1FMA-1OK	-	1/4	1/8	1.10	0.19	3/4
4-1FMA-1OK	4-A-1OK	3/8	1/4	1.40	0.23	1
6-1FMA-1OK	-	1/2	1/4	1.51	0.31	1-1/4
8-1FMA-1OK	8-4-1OK	1/2	1/2	1.94	0.39	1-5/8

Part No.	Interchanges With	Pipe Thread Size	A	B Hex
2-1FPC	2-CP	1/8	.750	9/16
4-1FPC	4-CP	1/4	.906	3/4
6-1FPC	6-CP	3/8	1.03	7/8
8-1FPC	8-CP	1/2	1.34	1-1/16
12-1FPC	12-CP	3/4	1.44	1-5/16
16-1FPC	16-CP	1	1.63	1-5/8
1OK Fittings				
2-1FPC-1OK	-	1/8	0.63	3/4
4-1FPC-1OK	-	1/4	0.88	1
6-1FPC-1OK	-	3/8	1.00	1-1/4
8-1FPC-1OK	-	1/2	1.35	1-5/8

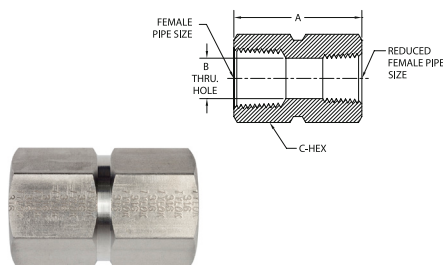
## 1FPC

### Female Pipe Cap



## 1FPRU

### Female Pipe Reducer Union



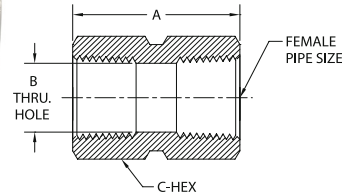
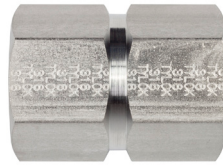
Part No.	Interchanges With	Female Pipe Size	Reduced Female Pipe Size	A	B Thru Hole	C Hex
4-1FPRU-2	4-HRCG-2	1/8	1/8	1.06	.187	9/16
6-1FPRU-4	6-HRCG-4	1/4	1/4	1.38	.281	3/4
8-1FPRU-2	8-HRCG-2	3/8	3/8	1.56	.375	7/8
8-1FPRU-4	8-HRCG-4	1/2	1/2	1.91	.468	1-1/16
8-1FPRU-6	8-HRCG-6	3/4	3/4	1.94	.625	1-5/16
12-1FPRU-4	12-HRCG-4	1	1	2.28	.875	1-5/8
12-1FPRU-8	12-HRCG-8	1/2	1/2	1.91	.468	1-1/16
16-1FPRU-8	16-HRCG-8	3/4	3/4	1.94	.625	1-5/16
16-1FPRU-12	16-HRCG-12	1	1	2.28	.875	1-5/8
1OK Fittings						
4-1FPRU-2-1OK	-	1/4	1/8	1.22	0.33	1
6-1FPRU-4-1OK	-	3/8	1/4	1.38	0.42	1-1/4
8-1FPRU-4-1OK	8-HRCG-4-1OK	1/2	1/4	1.75	0.42	1-5/8
8-1FPRU-6-1OK	-	1/2	3/8	1.78	1.78	1-5/8

# 1FPU, 1HLN, 1HN, 1MPP

Part No.	Interchanges With	Female Pipe Size	A	B Thru Hole	C Hex
2-1FPU	2-HCG	1/8	.812	.328	9/16
4-1FPU	4-HCG	1/4	1.19	.421	3/4
6-1FPU	6-HCG	3/8	1.31	.562	7/8
8-1FPU	8-HCG	1/2	1.63	.687	1-1/16
12-1FPU	12-HCG	3/4	1.69	.890	1-5/16
16-1FPU	16-HCG	1	2.00	1.13	1-5/8
1OK Fittings					
2-1FPU-1OK	-	1/8	0.81	0.33	3/4
4-1FPU-1OK	4-HCG-1OK	1/4	1.19	0.42	1
6-1FPU-1OK	-	3/8	1.31	0.42	1-1/4
8-1FPU-1OK	8-HCG-1OK	1/2	1.56	0.56	1-5/8

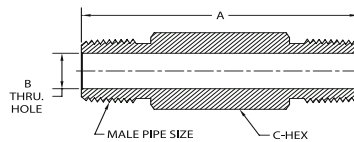
## 1FPU

### Female Pipe Union



## 1HLN

### Hex Long Nipple

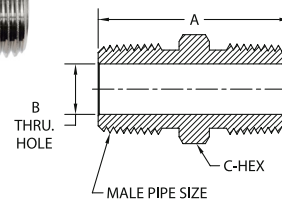
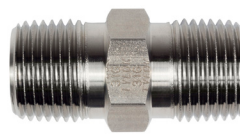


Part No.	Interchanges With	Male Pipe Size	A	B Thru Hole	C Hex
2-1HLN*	2-HLN- 2.00	1/8	* - Made to Order Specify Size	.187	7/16
4-1HLN*	4-HLN- 2.00	1/4		.281	9/16
6-1HLN*	6-HLN- 2.00	3/8		.375	1 1/16
8-1HLN*	8-HLN- 2.00	1/2		.468	7/8
12-1HLN*	12-HLN- 2.00	3/4		.625	1-1/16
16-1HLN*	16-HLN- 2.00	1		.875	1-3/8

Part No.	Interchanges With	Male Pipe Size	A	B Thru Hole	C Hex
1-1HN	1-HN	1/16	1.01	.125	3/8
2-1HN	2-HN	1/8	1.01	.187	7/16
4-1HN	4-HN	1/4	1.40	.281	9/16
6-1HN	6-HN	3/8	1.43	.375	1 1/16
8-1HN	8-HN	1/2	1.84	.468	7/8
12-1HN	12-HN	3/4	1.84	.625	1-1/16
16-1HN	16-HN	1	2.32	.875	1-3/8
1OK Fittings					
2-1HN	2-HN	1/8	1.01	11/16	7/16
4-1HN-1OK	4-HN-1OK	1/4	1.40	7/8	9/16
6-1HN-1OK	-	3/8	1.43	1-1/16	1 1/16
8-1HN-1OK	8-HN-1OK	1/2	1.84	1-3/8	7/8

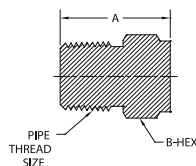
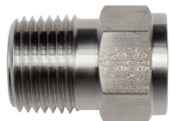
## 1HN

### Hex Nipple



## 1MPP

### Male Pipe Plug

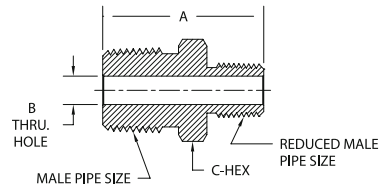
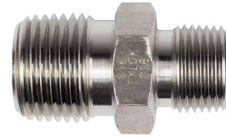


Part No.	Interchanges With	Pipe Thread Size	A	B Hex
1-1MPP	1-P	1/16	.750	3/8
2-1MPP	2-P	1/8	.750	7/16
4-1MPP	4-P	1/4	1.000	9/16
6-1MPP	6-P	3/8	1.000	1 1/16
8-1MPP	8-P	1/2	1.312	7/8
12-1MPP	12-P	3/4	1.375	1-1/16
16-1MPP	16-P	1	1.500	1-3/8

Part No.	Interchanges With	Male Pipe Size	Reduced Male Pipe Size	A	B Thru Hole	C Hex
2-1HRN-1	2-HRN-1	1/8	1/16	1.00	.125	7/16
4-1HRN-2	4-HRN-2	1/4	1/8	1.19	.187	9/16
6-1HRN-2	6-HRN-2	3/8	1/8	1.22	.1871	1/16
6-1HRN-4	6-HRN-4	3/8	1/4	1.41	.281	11/16
8-1HRN-2	8-HRN-2	1/2	1/8	1.41	.187	7/8
8-1HRN-4	8-HRN-4	1/2	1/4	1.59	.281	7/8
8-1HRN-6	8-HRN-6	1/2	3/8	1.63	.375	7/8
12-1HRN-4	12-HRN-4	3/4	1/4	1.63	.281	1-1/16
12-1HRN-8	12-HRN-8	3/4	1/2	1.81	.468	1-1/16
16-1HRN-4	16-HRN-4	1	1/4	1.91	.281	1-3/8
16-1HRN-8	16-HRN-8	1	1/2	2.09	.468	1-3/8
16-1HRN-12	16-HRN-12	1	3/4	2.09	.625	1-3/8
1OK Fittings						
2-1HRN-1	2-HRN-1	1/8	1/16	1.01	0.13	7/16
4-1HRN-2-1OK	-	1/4	1/8	1.22	0.19	9/16
6-1HRN-2-1OK	-	3/8	1/8	1.25	0.19	11/16
6-1HRN-4-1OK	-	3/8	1/4	1.43	0.23	11/16
8-1HRN-2-1OK	-	1/2	1/8	1.47	0.19	7/8
8-1HRN-4-1OK	8-HRN-4-1OK	1/2	1/4	1.65	0.23	7/8
8-1HRN-6-1OK	-	1/2	3/8	1.65	0.31	7/8

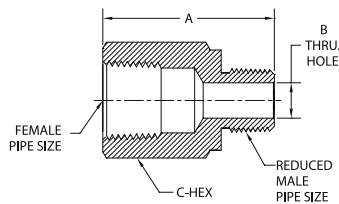
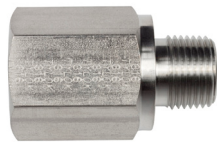
## 1HRN

### Hex Reducing Nipple



## 1RAFM

### Reducer Adapter - Male to Female



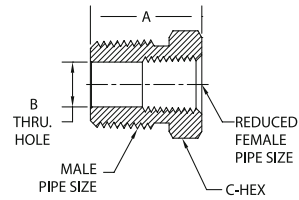
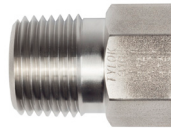
Part No.	Interchanges With	Female Pipe Size	Reduced Male Pipe Size	A	B Thru Hole	C Hex
2-1RAFM-1	2-RA-1	1/8	1/16	1.09	.125	9/16
4-1RAFM-2	4-RA-2	1/4	1/8	1.25	.187	3/4
6-1RAFM-2	6-RA-2	3/8	1/8	1.44	.187	7/8
6-1RAFM-4	6-RA-4	3/8	1/4	1.56	.281	7/8
8-1RAFM-2	8-RA-2	1/2	1/8	1.69	.187	1-1/16
8-1RAFM-4	8-RA-4	1/2	1/4	1.81	.281	1-1/16
8-1RAFM-6	8-RA-6	1/2	3/8	1.81	.375	1-1/16
12-1RAFM-4	12-RA-4	3/4	1/4	1.97	.281	1-5/16
12-1RAFM-6	12-RA-6	3/4	3/8	1.97	.375	1-5/16
12-1RAFM-8	12-RA-8	3/4	1/2	2.06	.468	1-5/16
16-1RAFM-4	16-RA-4	1	1/4	2.13	.281	1-5/8
16-1RAFM-8	16-RA-8	1	1/2	2.25	.468	1-5/8
16-1RAFM-12	16-RA-12	1	3/4	2.25	.625	1-5/8
1OK Fittings						
2-1RAFM-1-1OK	-	1/8	1/16	1.09	0.13	3/4
4-1RAFM-2-1OK	-	1/4	1/8	1.25	0.19	1
6-1RAFM-2-1OK	-	3/8	1/8	1.33	0.19	1-1/4
6-1RAFM-4-1OK	-	3/8	1/4	1.50	0.23	1-1/4
8-1RAFM-2-1OK	-	1/2	1/8	1.58	0.19	1-5/8
8-1RAFM-4-1OK	8-RA-4-1OK	1/2	1/4	1.76	0.23	1-5/8
8-1RAFM-6-1OK	-	1/2	3/8	1.75	0.31	1-5/8

# 1RBMF, 2FF, 2FM

Part No.	Interchanges With	Male Pipe Size	Reduced Female Pipe Size	A	B Thru Hole	C Hex
2-1RBMF-1	2-RB-1	1/8	1/16	1.00	.187	7/16
4-1RBMF-2	4-RB-2	1/4	1/8	1.00	.281	9/16
6-1RBMF-2	6-RB-2	3/8	1/8	.843	.328	11/16
6-1RBMF-4	6-RB-4	3/8	1/4	1.13	.375	3/4
8-1RBMF-2	8-RB-2	1/2	1/8	1.06	.328	7/8
8-1RBMF-4	8-RB-4	1/2	1/4	1.06	.421	7/8
8-1RBMF-6	8-RB-6	1/2	3/8	1.31	.468	7/8
12-1RBMF-4	12-RB-4	3/4	1/4	1.06	.421	1-1/16
12-1RBMF-6	12-RB-6	3/4	3/8	1.06	.562	1-1/16
12-1RBMF-8	12-RB-8	3/4	1/2	1.56	.625	1-1/16
16-1RBMF-4	16-RB-4	1	1/4	1.34	.421	1-3/8
16-1RBMF-6	16-RB-6	1	3/8	1.34	.562	1-3/8
16-1RBMF-8	16-RB-8	1	1/2	1.34	.687	1-3/8
16-1RBMF-12	16-RB-12	1	3/4	1.75	.875	1-3/8
1OK Fittings						
4-1RBMF-2-1OK	-	1/4	1/8	1.15	0.23	3/4
6-1RBMF-4-1OK	-	3/8	1/4	1.38	0.31	1
8-1RBMF-2-1OK	-	1/2	1/8	1.09	0.33	7/8
8-1RBMF-4-1OK	-	1/2	1/4	1.53	0.39	1
8-1RBMF-6-1OK	-	1/2	3/8	1.63	0.39	1-1/4

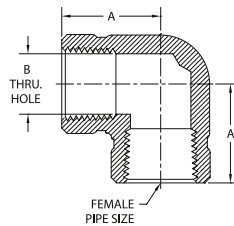
## 1RBMF

Reducer Bushing-  
Male to Female



## 2FF

Female Pipe Elbow

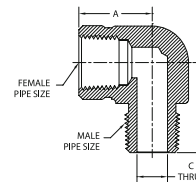


Part No.	Interchanges With	Female Pipe Size	A	B Thru Hole
2-2FF-2	2-E	1/8	.843	.328
4-2FF-4	4-E	1/4	.968	.421
6-2FF-6	6-E	3/8	1.00	.562
8-2FF-8	8-E	1/2	1.13	.687
12-2FF-12	12-E	3/4	1.44	.890
1OK Fittings				
2-2FF-2-1OK	-	1/8	1.04	0.31
4-2FF-4-1OK	-	1/4	1.20	0.41
6-2FF-6-1OK	-	3/8	1.45	0.50
8-2FF-8-1OK	-	1/2	1.65	0.63

Part No.	Interchanges With	Female Pipe Size	Male Pipe Size	A	B	C Thru Hole
1-2FM-1	1-SE	1/16	1/16	.750	.718	.125
2-2FM-2	2-SE	1/8	1/8	.843	.843	.187
4-2FM-4	4-SE	1/4	1/4	.843	1.09	.281
6-2FM-6	6-SE	3/8	3/8	1.00	1.13	.375
8-2FM-8	8-SE	1/2	1/2	1.13	1.38	.468
12-2FM-12	12-SE	3/4	3/4	1.44	1.56	.625
16-2FM-16	16-SE	1	1	1.91	1.91	.875
1OK Fittings						
2-2FM-2-1OK	-	1/8	1/8	1.04	1.04	0.16
4-2FM-4-1OK	-	1/4	1/4	1.20	1.20	0.20
6-2FM-6-1OK	-	3/8	3/8	1.45	1.45	0.28
8-2FM-8-1OK	-	1/2	1/2	1.65	1.65	0.36

## 2FM

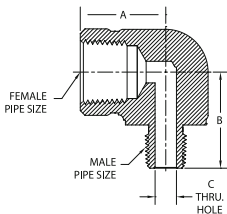
Female-Male Pipe Elbow





## 2FMR

### Female-Male Reducer Pipe Elbow

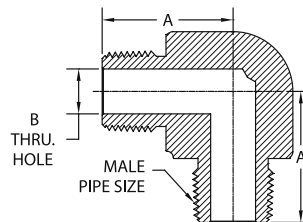


Part No.	Interchanges With	Female Pipe Size	Male Pipe Size	A	B	C Thru Hole
2-2FMR-1	2-RSE-1	1/8	1/16	.750	.750	.125
4-2FMR-2	4-RSE-2	1/4	1/8	.843	.937	.187
6-2FMR-4	6-RSE-4	3/8	1/4	1.06	1.06	.281
8-2FMR-4	8-RSE-4	1/2	1/4	1.13	1.25	.281
8-2FMR-6	8-RSE-6	1/2	3/8	1.13	1.25	.375
10K Fittings						
2-2FMR-1-10K	-	1/8	1/16	1.04	1.04	0.11
4-2FMR-2-10K	-	1/4	1/8	1.20	1.20	0.16
6-2FMR-4-10K	-	3/8	1/4	1.45	1.45	0.20
8-2FMR-4-10K	-	1/2	1/4	1.65	1.65	0.20
8-2FMR-6-10K	-	1/2	3/8	1.65	1.65	0.28

Part No.	Interchanges With	Male Pipe Size	A	B Thru Hole
2-2MM-2	2-ME	1/8	.843	.328
4-2MM-4	4-ME	1/4	.968	.421
6-2MM-6	6-ME	3/8	1.00	.562
8-2MM-8	8-ME	1/2	1.13	.687
12-2MM-12	12-ME	3/4	1.44	.890
16-2MM-16	16-ME	3/4	1.44	.890
10K Fittings				
4-2MM-4-10K	-	1/4	1.20	0.20
6-2MM-6-10K	-	3/8	1.45	0.28
8-2MM-8-10K	-	1/2	1.65	0.36

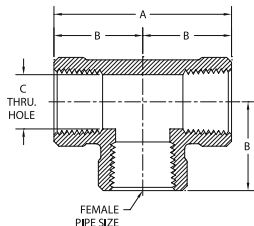
## 2MM

### Male Pipe Elbow



## 3FFF

### All Female Pipe Tee



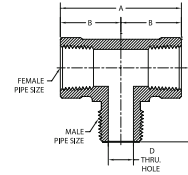
Part No.	Interchanges With	Female Pipe Size	A	B	C Thru Hole
2-3FFF-2	2-T	1/8	1.69	.843	.328
4-3FFF-4	4-T	1/4	1.69	.843	.421
6-3FFF-6	6-T	3/8	2.00	1.00	.562
8-3FFF-8	8-T	1/2	2.63	1.13	.687
12-3FFF-12	12-T	3/4	1.13	1.31	.890
16-3FFF-16	16-T	1	3.25	1.63	.125
10K Fittings					
2-3FFF-2-10K	-	1/8	2.08	1.04	0.31
4-3FFF-4-10K	-	1/4	2.40	1.20	0.41
6-3FFF-6-10K	-	3/8	2.90	1.45	0.50
8-3FFF-8-10K	-	1/2	3.30	1.65	0.63

# 3FFM, 3FMF, 3MMM, 4FPCR

Part No.	Interchanges With	Female Pipe Size	Male Pipe Size	A	B	C	D Thru Hole
2-3FFM-2	2-BT	1/8	1/8	1.69	.843	.843	.187
4-3FFM-4	4-BT	1/4	1/4	1.88	.937	1.00	.281
6-3FFM-6	6-BT	3/8	3/8	2.00	1.00	1.13	.375
8-3FFM-8	8-BT	1/2	1/2	2.25	1.13	1.38	.468
12-3FFM-12	12-BT	3/4	3/4	2.75	1.38	1.63	.625
10K Fittings							
2-3FFM-2-10K	-	1/8	1/8	2.08	1.04	1.04	0.16
4-3FFM-4-10K	-	1/4	1/4	2.40	1.20	1.20	0.20
6-3FFM-6-10K	-	3/8	3/8	2.90	1.45	1.45	0.28

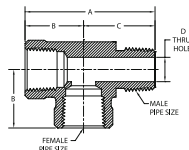
## 3FFM

Pipe Tee Female - Female - Male



## 3FMF

Pipe Tee - Female - Male - Female

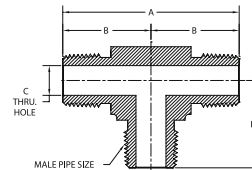
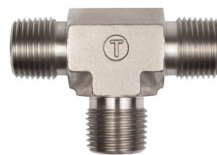


Part No.	Interchanges With	Female Pipe Size	Male Pipe Size	A	B	C	D Thru Hole
2-3FMF-2	2-ST	1/8	1/8	1.69	.843	.843	.187
4-3FMF-4	4-ST	1/4	1/4	1.89	.843	1.05	.281
6-3FMF-6	6-ST	3/8	3/8	2.13	1.00	1.13	.375
8-3FMF-8	8-ST	1/2	1/2	2.50	1.13	1.38	.468
12-3FMF-12	12-ST	3/4	3/4	2.94	1.44	1.50	.625
10K Fittings							
2-3FMF-2-10K	-	1/8	1/8	2.08	1.04	1.04	0.16
4-3FMF-4-10K	-	1/4	1/4	2.40	1.20	1.20	0.20
6-3FMF-6-10K	-	3/8	3/8	2.90	1.45	1.45	0.28

Part No.	Interchanges With	Male Pipe Size	A	B	C Thru Hole
2-3MMM-2	2-MT	1/8	1.44	.718	.187
4-3MMM-4	4-MT	1/4	1.88	.937	.281
6-3MMM-6	6-MT	3/8	2.00	1.00	.375
8-3MMM-8	8-MT	1/2	2.75	1.38	.468
12-3MMM-12	12-MT	3/4	2.75	1.38	.625
10K Fittings					
4-3MMM-4-10K	-	1/4	2.40	1.20	0.20
6-3MMM-6-10K	-	3/8	2.90	1.45	0.28
8-3MMM-8-10K	-	1/2	3.00	1.50	0.36

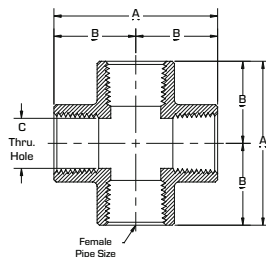
## 3MMM

All Male Pipe Tee



## 4FPCR

Female Pipe Cross



Part No.	Interchanges With	Female Pipe Size	A	B	C Thru Hole
2-4FPCR	2-CS	1/8	1.69	.843	.328
4-4FPCR	4-CS	1/4	1.69	.843	.421
6-4FPCR	6-CS	3/8	2.13	1.06	.562
8-4FPCR	8-CS	1/2	2.25	1.13	.687
12-4FPCR	12-CS	3/4	2.88	1.44	.890
16-4FPCR	16-CS	1	3.25	1.63	1.13
10K Fittings					
2-4FPCR-10K	-	1/8	2.08	1.04	0.31
4-4FPCR-10K	-	1/4	2.40	1.20	0.41

## PIPE THREAD SPECIFICATIONS

Tylok Pipe Fittings are manufactured from materials meeting applicable ASTM or ASME specifications, with pipe threads which meet or exceed ANSI B1.20.1 requirements. Strict quality control procedures are followed throughout production to provide the finest possible product.

### Materials: Brass • 316 Stainless Steel • Steel

These charts are to be used as a guide only and are based on normal wall thicknesses, used for the various sizes. These ratings may vary widely from effects such as the proper use of sealants, size of stock, temperature, corrosion factors, etc. Therefore, Tylok International, Inc. assumes no responsibility for its accuracy in any individual design.

Pressure ratings for Tylok tube fittings that have differing end connection styles shall use the lowest of the pressure ratings.

Suggested Maximum Operating Pressures for Pipe Threads (psig)				
NPT Size	316 SS & Carbon Steel		Brass	
	Male	Female	Male	Female
1/16"	11000	6700	5500	3300
1/8"	10000	6500	5000	3200
1/4"	8000	6600	4000	3300
3/8"	7800	5300	3900	2600
1/2"	7700	4900	3800	2400
3/4"	7300	4600	3600	2300
1"	5300	4400	2600	2200

Tylok Instrumentation Fittings are rated at the following temperatures:	
316 Stainless	-325°F to 1000°F [-198°C to 648°C]
Brass	-40°F to 400°F [-40°C to 204°C]
Steel	-65°F to 375°F [-54°C to 190°C]

Consideration should be given to maximize temperature ratings if fittings and/or tubing are coated or plated.

## TUBE PRESSURE DE-RATING FACTORS ELEVATED TEMPERATURES

The table lists de-rating factors that must be considered in applications above that of ambient temperatures.

### Example:

Type 316 Stainless Steel 1/4" O.D.x.0.49" wall at 800°F is 7,500 PSI x .79 = 5,925 psig.

Therefore, the suggested allowable working pressure for 316 Stainless Steel (1/4" O.D. with .049" tube wall) at 800°F is 5,925 psig.

Temperatures		Tubing Material		
°F	°C	Carbon	304 SS	316 SS
200	93	0.95	1.00	1.00
300	149	0.90	1.00	1.00
400	204	0.87*	0.93	0.96
500	260		0.87	0.89
600	316		0.82	0.85
700	371		0.8	0.81
800	427		0.76	0.79
900	482		0.73	0.77
1000	538		0.69	0.76

\* Based on 375°F (190°C) max

Temperatures		Tubing Material
°F	°C	Copper
100	38	1.00
150	66	0.85
200	93	0.80
250	121	0.80
300	149	0.78
350	177	0.66
400	204	0.50

## Temperature Ratings

Tylok Instrumentation Pipe Fittings are rated at the following temperatures:

**316 Stainless:** -325°F to 1000°F (-198°C to 538°C)    **Brass:** -40°F to 375°F (-40°C to 204°C)    **Steel:** -20°F to 400°F (-28°C to 204°C)

**Note:** Consideration should be given to maximum temperature ratings and/or tubing are coated or plated.

## Heat Traceability

Tylok Instrumentation Pipe Fittings are completely heat code traceable back to the original mill heat from which it was made. Starting with the original billet, the mill creates a certificate which completely describes the chemical & physical makeup. The material certifications can be provided when calling Tylok and giving the heat code stamp marked on the part itself, along with the part number.

## Raw Material Specifications

Fitting Material	Bar Stock	Forging
Brass	ASTM B16 ASTM B453	ASTM B283
Stainless Steel	ASTM A276 ASTM A479 ASME SA-479 Type 316-SS	ASTM A182 ASME SA-182 Type 316-SS
Steel	ASTM A108	

\* Reference Tubing Selection & Preparation