

常用管材(TUBE)技术参数

I. 英制无缝铜管(Tube)最大允许工作压力(MPa)

Tube O.D.	壁厚												
	0.01"	0.012"	0.016"	0.02"	0.028"	0.032"	0.035"	0.049"	0.065"	0.083"	0.095"	0.109"	0.12"
1/16"	15.16	18.60	25.43	31.85									
1/8"					22.03	25.42	27.95						
3/16"					14.01	16.33	18.02	26.00					
1/4"					10.17	11.78	13.02	19.02	25.84				
3/8"						7.57	8.35	12.07	16.62	21.74			
1/2"							6.12	8.79	11.99	15.83			
5/8"							4.84	6.90	9.38	12.28	14.30		
3/4"							4.01	5.70	7.69	10.05	11.66	13.60	
7/8"							3.42	4.84	6.53	8.47	9.84	11.45	
1"							2.98	4.22	5.66	7.36	8.52	9.88	10.96

II. 公制无缝铜管(Tube)最大允许工作压力(MPa)

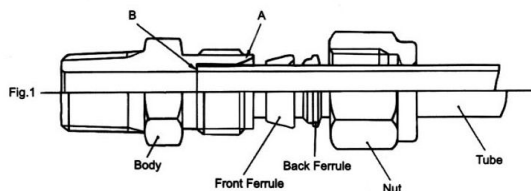
Tube O.D. (mm)	壁厚										
	0.7	0.8	1.0	1.2	1.5	1.6	1.8	2.0	2.2	2.5	3.0
3	23.00	26.60									
4	16.80	19.50	24.80	30.00							
6	10.60	12.40	15.90	19.50	24.80	29.30					
8		9.00	11.50	14.10	17.90	19.50					
10		7.10	9.00	11.00	14.10	15.20	17.30	19.50			
12		5.80	7.40	9.00	11.50	12.40	14.10	15.90			
14			6.20	7.60	9.70	10.40	11.80	13.30	14.80	17.10	21.00
16			5.40	6.60	8.30	9.00	10.20	11.50	12.70	14.70	18.10
18			4.80	5.80	7.30	7.90	9.00	10.10	11.20	12.90	15.90
22			3.90	4.70	5.90	6.30	7.20	8.10	8.90	10.30	12.60
25			3.40	4.10	5.20	5.50	6.30	7.00	7.80	8.90	10.90

III. 英制无缝钢管(Tube)(304/316) 最大允许工作压力(MPa)

Tube O.D. (mm)	壁厚											
	0.01"	0.012"	0.016"	0.02"	0.028"	0.035"	0.049"	0.065"	0.083"	0.095"	0.109"	0.12"
1/16"	47.40	57.96	79.28	99.28								
1/8"				47.29	68.67	87.10						
3/16"				30.02	43.68	56.17	81.04					
1/4"					31.69	40.59	59.27	80.53				
3/8"						26.02	37.62	51.79				
1/2"						19.07	27.39	37.36	49.35			
5/8"						15.08	21.52	29.25	38.27	44.58		
3/4"						12.50	17.78	23.96	31.31	36.33	42.39	47.29
7/8"						10.65	15.08	20.36	26.42	30.67	35.69	39.69
1"						9.27	13.14	17.65	22.94	26.54	30.79	34.15

装配指南:

装配卡套接头时, 必须遵循以下步骤:



1. 出厂时, 卡套接头分体包裹并已预安装, 以便每一次的组装清洁, 高效率。(若有必要参照图一的一体组装件。必须注意金属环顺序和方向是否正确), 只需将管道插入卡套接头, 要确保管切割端牢牢靠在接头挡块的肩部。

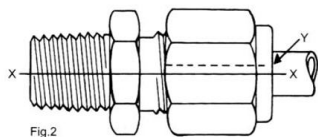
注意: 切割端应平滑直角。若可行, 建议使用管道切割机。

2. 用手将螺母旋到最紧, 即所谓的“指紧”。

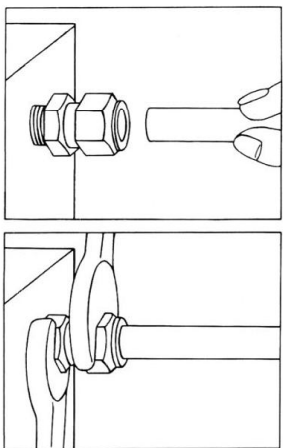
重装指南:

1. 对于须重复使用的接头, 在松开螺母前, 用粉笔或其他作记号的工具记下螺母位置。(Y)

2. 重装时, 旋紧螺母, 使其新的位置要轻微超过原位置。(X)



3. 如正确遵循以上安装和拆装步骤, 卡套接头将能提供无泄漏。



IV. 公制无缝不锈钢管(Tube)(304/316) 最大允许工作压力(MPa)

Tube O.D.	壁厚												
	0.5	0.6	0.7	0.8	1.0	1.2	1.5	1.6	1.8	2.0	2.2	2.5	3.0
3	49.70	60.70	71.80	82.80	103.20								
4	35.90	44.00	52.40	60.70	77.40	93.40							
6			33.10	38.60	49.70	60.70	77.40	91.20					
8			20.80	28.00	35.90	44.00	55.80	60.70					
10				22.10	28.00	34.20	44.00	47.30					
12			18.20	23.10	28.00	35.90	38.60	44.00	49.70				
14				19.50	23.70	30.20	32.40	36.90	41.60	46.30	53.50	65.40	
16				16.90	20.50	26.10	28.00	31.90	35.80	39.80	46.00	56.40	
18				15.00	18.10	23.00	24.60	28.00	31.40	34.90	40.30	49.60	
22				12.10	14.70	18.50	19.90	22.50	25.20	28.00	32.20	39.40	
25				10.60	12.80	16.20	17.30	19.60	22.00	24.40	28.00	34.20	

备注: 1)所有管材最大允许工作压力参数适用的温度范围是-29°C至38°C

2) 破坏压力=4X最大允许工作压力

3) 以上参数的依据是: 铜管屈服应力205MPa, 不锈钢管屈服应力515MPa

常用美制/英制螺纹参数

I.美制锥管螺纹NPT(60°圆锥管螺纹GB/T12716-91)

公称尺寸	每25.4mm 内的牙数	基本上的基本直径(mm)		
		大径	中径	小径
1/16"	27	7.895	7.142	6.389
1/8"	27	10.242	9.489	8.736
1/4"	18	13.616	12.487	11.358
3/8"	18	17.055	15.926	14.797
1/2"	14	21.223	19.772	18.321
3/4"	14	26.568	25.117	23.666
1"	11.5	33.228	31.461	29.694
1 1/4"	11.5	41.985	40.218	38.451
1 1/2"	11.5	48.054	46.287	44.520
2"	11.5	60.092	58.325	56.558

II.美制直管螺纹SAE(60°牙型角)

公称尺寸	每25.4mm 内的牙数	基本直径(mm)				
		大径	中径	外螺纹 小径	内螺纹	
5/16-24	24	7.938	7.249	6.640	6.792	
7/16-20	20	11.113	10.287	9.555	9.738	
1/2-20	20	12.700	11.875	11.143	11.326	
9/16-18	18	14.288	13.371	12.555	12.761	
3/4-16	16	19.050	18.019	17.102	17.330	
1 1/16-12	12	26.988	25.613	24.392	24.696	
1 5/16-12	12	33.338	31.963	30.742	31.046	

III.英制锥管螺纹(55°牙型角)

(GB7306-87;BSPT;ISO 7/1;JIS B0203;DIN 2999;ZG;PT;RT)

公称尺寸	每25.4mm 内的牙数	螺距	基本上的基本直径(mm)		
			大径	中径	小径
1/16"	28	0.907	7.723	7.142	6.561
1/8"	28	0.907	9.728	9.147	8.566
1/4"	19	1.337	13.157	12.301	11.445
3/8"	19	1.337	16.662	15.806	14.950
1/2"	14	1.814	20.955	19.631	18.631
3/4"	14	1.814	26.441	25.279	24.117
1"	11	2.309	33.249	31.770	30.291
1 1/4"	11	2.309	41.910	40.431	38.952
1 1/2"	11	2.309	47.803	46.324	44.845
2"	11	2.309	59.614	58.135	56.656

III.英制直管螺纹(55°牙型角)

(GB7307-87;BSPP;ISO 228/1;BS 2779;JIS B0202;DIN 3852;G;PF;RP;RS;RG)

公称尺寸	每25.4mm 内的牙数	螺距	基本上的基本直径(mm)		
			大径	中径	小径
1/16"	28	0.907	7.723	7.142	6.561
1/8"	28	0.907	9.728	9.147	8.566
1/4"	19	1.337	13.157	12.301	11.445
3/8"	19	1.337	16.662	15.806	14.950
1/2"	14	1.814	20.955	19.631	18.631
3/4"	14	1.814	26.441	25.279	24.117
1"	11	2.309	33.249	31.770	30.291
1 1/4"	11	2.309	37.897	40.431	34.939
1 1/2"	11	2.309	41.910	46.324	38.952
2"	11	2.309	59.614	58.135	56.656

其它常用技术参数

公/英制公称尺寸对照表

DN3 DN6 DN10 DN15 DN20 DN25 DN32 DN40 DN50 DN60 DN80 DN100 DN150 DN200 DN250
1/8" 1/4" 3/8" 1/2" 3/4" 1" 1 1/4" 1 1/2" 2" 2 1/2" 3" 4" 6" 8" 10"

温度单位

$^{\circ}\text{F} = (9/5^{\circ}\text{C}) + 32$

$^{\circ}\text{C} = 5/9(^{\circ}\text{F} - 32)$

长度单位

1 in=25.4mm

1 ft=0.3048m

体积单位

1 ft³=0.0283m³

1 in³=16.39cm³

1 gal(英制)=4.546L

1 gal(美制)=3.785L

质量单位

1 Lb=0.4536kg

面积单位

1 in²=6.45cm²

1 ft²=0.093m²

流量单位

1 GPM(英制)=0.273m³/h

1 GPM(美制)=0.228m³/h

常用压力单位转换表

	PSI	"H ₂ O(15°C)	mmHg(0°C)	"Hg(0°C)
1PSI	·	27.7	51.71	2.036
1"H ₂ O(15°C)	0.03609	·	1.867	0.07349
1mmHg(0°C)	0.01934	0.5357	·	0.03937
1"Hg(0°C)	0.4912	13.61	25.40	·
1mbar	0.0145	0.4018	0.750062	0.02953
1bar	14.50	401.8	750.062	29.53
1Kg/cm ²	14.22	394.05	735.559	28.96
1KPa	0.145	4.016	7.519	0.2953
1MPa	145	4016	7519	295.3

管材 (Pipe) 尺寸 一览表 (毫 米)

公称直径	实际外径	各种SCH的壁厚						
		5S	5	10S	10	20	+	30
1/8"	10.287		0.889	1.245	1.245			
1/4"	13.716		1.245	1.651	1.651			
3/8"	17.145		1.245	1.651	1.651			
1/2"	21.336	1.651	1.651	2.108	2.108			
3/4"	26.670	1.651	1.651	2.108	2.108			
1"	33.401	1.651	1.651	2.769	2.769			
1 1/4"	42.164	1.651	1.651	2.769	2.769			
1 1/2"	48.260	1.651	1.651	2.769	2.769			
2"	60.325	1.651	1.651	2.769	2.769			
2 1/2"	73.025	2.108	2.108	3.048	3.048			
3"	88.900	2.108	2.108	3.048	3.048			
3 1/2"	101.600	2.108	2.108	3.048	3.048			
4"	114.300	2.108	2.108	3.048	3.048			
4 1/2"	127.000							
5"	141.300	2.769	2.769	3.404	3.404			
6"	168.275	2.769	2.769	3.404	3.404			
7"	193.675							
8"	219.075	2.769	2.769	3.759	3.759	6.350	4.445	7.036
9"	244.475							
10"	273.050	3.404	3.404	4.191	4.191	6.350	7.087	7.798
11"	298.450							
12"	323.850	3.962	4.191	4.572	4.572	6.350	9.525	8.382
14"	355.600	3.962		4.775	6.350	7.925		9.525
16"	406.400	4.191		4.775	6.350	7.925		9.525
18"	457.200	4.191		4.775	6.350	7.925		11.125
20"	508.000	4.775		5.537	6.350	9.525		12.700
24"	609.600	5.537		6.350	6.350	9.525		14.275
26"	660.400				7.925	12.700		
28"	711.200				7.925	12.700		15.875
30"	762.000	6.350		7.925	7.925	12.700		15.875
32"	812.800				7.925	12.700		15.875
34"	863.600				7.925	12.700		15.875
36"	914.400				7.925			15.875

mbar	bar	kg/cm ²	k Pa	MPa
68.95	0.06895	0.07031	6.895	0.00690
2.489	0.00249	0.00254	0.249	0.00025
1.3333	0.00133	0.00136	0.113	0.00011
33.86	0.03386	0.03453	3.386	0.00339
·	0.00100	0.00102	0.09998	0.00010
1000	·	1.01970	99.98	0.09998
980.7	0.9807	·	98.05	0.09805
10.002	0.010	0.0102	·	0.001
10002	10.002	10.2	1000	·

40S&STD	40	+	60	80S&E.H.	80	100	120	140	160	DBL E.H.
1.727	1.727			2.413	2.413					
2.235	2.235			3.023	3.023					
2.311	2.311			3.200	3.200					
2.769	2.769			3.734	3.734				4.750	7.468
2.870	2.870			3.912	3.912				5.537	7.823
3.378	3.378			4.547	4.547				6.350	9.093
3.556	3.556			4.851	4.851				6.350	9.703
3.683	3.683			5.080	5.080				7.137	10.160
3.912	3.912			5.537	5.537				8.738	11.074
5.156	5.156			7.010	7.010				9.525	14.021
5.486	5.486			7.620	7.620				11.125	15.240
5.740	5.740			8.077	8.077					16.154
6.020	6.020			8.560	8.560		11.125		13.487	17.120
6.274				9.017						
6.553	6.553			9.525	9.525		12.700		15.875	19.050
7.112	7.112			10.973	10.973		14.275		18.263	21.946
7.645				12.700						22.225
8.179	8.179		10.312	12.700	12.700	15.088	18.263	20.625	23.012	22.225
8.687				12.700						
9.271	9.271		12.700	12.700	15.088	18.263	21.438	25.400	28.575	25.400
9.525				12.700						
9.525	10.312	12.700	14.275	12.700	17.475	21.438	25.400	28.575	33.325	25.400
9.525	11.125		15.088	12.700	19.050	23.825	27.788	31.750	35.712	
9.525	12.700		16.662	12.700	21.438	26.187	30.963	36.525	40.488	
9.525	14.275		19.050	12.700	23.825	29.362	34.925	39.675	45.237	
9.525	15.088		20.625	12.700	26.187	32.537	38.100	44.450	50.013	
9.525	17.475		24.613	12.700	30.963	38.887	46.025	52.375	59.538	
9.525				12.700						
9.525										
9.525				12.700						
9.525	17.475			12.700						
9.525	17.475									
9.525	19.050			12.700						

备注: SCH为SCHEDULES(壁厚系列)的缩写, 5S, 10S, 40S, 80S指不锈钢管规格, 其余指 碳钢管规格, STD; E.H.; DBL E.H.为API标准管规格。

索引

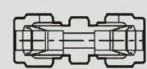
索引



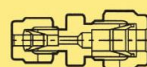
MC
MALE CONNECTOR 11、12



FC
FEMALE CONNECTOR 13



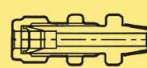
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EQUAL UNION 14



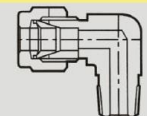
RU
REDUCING UNION 14



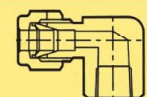
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BULKHEAD UNION 15



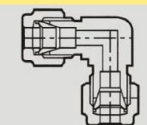
BMC
BULKHEAD MALE CONNECTOR 15



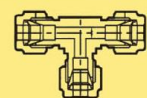
ME
MALE ELBOW 16、17



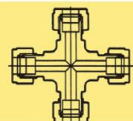
FE
FEMALE ELBOW 18



UE
UNION ELBOW 19



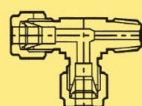
UT
UNION TEE 19



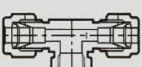
UCR
UNION CROSS 20



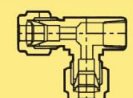
MBT
MALE BRANCH TEE 21



MRT
MALE RUN TEE 22



FBT
FEMALE BRANCH TEE 23



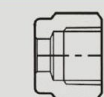
FRT
FEMAL RUN TEE 24



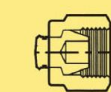
FF
FRONT FERRULE 25



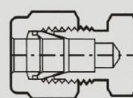
BF
BACK FERRULE 25



N
NUT 25



P
PLUC 26



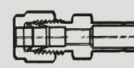
C
CAP 26



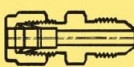
ODSW
SOCKET WELDING PIPE CONNECTOR 27



ODBW
BUTT WELDING PIPE CONNECTOR 28



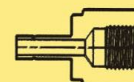
ODTA
REDUCER 29、30



MCH
AN UNION CONNECTOR 30



TAM
MALE TUBE ADAPTER 31



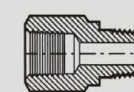
TAF
FEMAIL TUBE ADAPTER 31



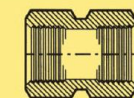
HN
HEX NIPPLE 32



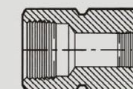
RHN
REDUCING HEX NIPPLE 32



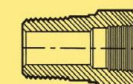
RA
REDUCING ADAPTOR 32



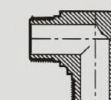
HCG
HEX COUPLING 33



RHCG
REDUCING HEX COUPLING



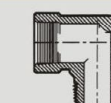
RB
REDUCING BUSHING 33



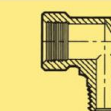
MET
MALE ELBOW 34



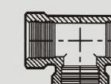
E
ELBOW 34



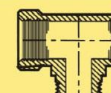
SE
SEREET ELBOW 34



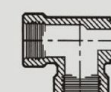
RSE
REDUCING STREET ELBOW



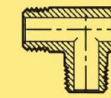
T
TEE 35



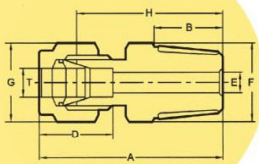
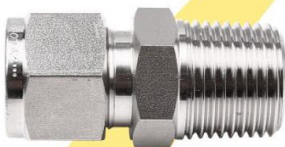
BT
BRANCH TEE 35



ST
STREET TEE 36



MT
MALE TEE 36



MC

MALE CONNECTOR (METRIC)

T TUBE O.D.	PT-NPT MALE PIPE SIZE	CATALOG NUMBER	A	B	D	E	F	G	H
2	1/8	MC-2-1	30.8	10	12.9	1	10	10	24.2
3	1/8	MC-3-1	30.8	10	12.9	2	10	10	24.2
3	1/4	MC-3-2	34.4	13	12.9	2	14	10	27.8
4	1/8	MC-4-1	31.5	10	13.7	3	10	12	24.9
4	1/4	MC-4-2	35.1	13	13.7	3	14	12	28.5
4	3/8	MC-4-3	37.1	14	13.7	3	17	12	30.5
4	1/2	MC-4-4	41.1	17	13.7	3	22	12	34.5
6	1/8	MC-6-1	33.1	10	15.3	5	14	14	25.7
6	1/4	MC-6-2	36.7	13	15.3	5	14	14	29.3
6	3/8	MC-6-3	38.2	14	15.3	5	17	14	30.8
6	1/2	MC-6-4	42.7	17	15.3	5	22	14	35.3
8	1/8	MC-8-1	34.5	10	16.2	5	14	17	27.0
8	1/4	MC-8-2	37.5	13	16.2	6	14	17	30.0
8	3/8	MC-8-3	39.1	14	16.2	6	17	17	31.6
8	1/2	MC-8-4	43.6	17	16.2	6	22	17	36.1
10	1/8	MC-10-1	36.6	10	17.2	5	19	19	29.0
10	1/4	MC-10-2	39.7	13	17.2	6	19	19	32.1
10	3/8	MC-10-3	40.7	14	17.2	8	19	19	33.1
10	1/2	MC-10-4	44.5	17	17.2	8	22	19	36.9
10	3/4	MC-10-6	48.0	19	17.2	8	27	19	40.4
12	1/8	MC-12-1	39.1	10	22.8	5	22	22	29.0
12	1/4	MC-12-2	42.2	13	22.8	6	22	22	32.1
12	3/8	MC-12-3	43.2	14	22.8	8	22	22	33.1
12	1/2	MC-12-4	47.0	17	22.8	10	22	22	36.9
12	3/4	MC-12-6	50.5	19	22.8	10	27	22	40.4
12	1	MC-12-8	55.3	22	22.8	10	34	22	45.2
14	3/8	MC-14-3	43.9	14	24.4	8	24	27	33.8
14	1/2	MC-14-4	47.0	17	24.4	10	24	27	36.9
14	3/4	MC-14-6	50.5	19	24.4	10	27	27	40.4
15	3/8	MC-15-3	47.0	14	24.4	8	24	27	33.8
15	1/2	MC-15-4	49.0	17	24.4	10	24	27	36.9
15	3/4	MC-15-6	50.5	19	24.4	10	27	27	40.4
16	3/8	MC-16-3	43.9	14	24.4	8	24	27	33.8
16	1/2	MC-16-4	47.0	17	24.4	10	24	27	36.9
16	3/4	MC-16-6	50.5	19	24.4	12	27	27	40.4
18	3/8	MC-18-3	45.5	14	24.4	8	27	30	35.4
18	1/2	MC-18-4	48.5	17	24.4	10	27	30	38.4
18	3/4	MC-18-6	50.5	19	24.4	15	27	30	40.4
18	1	MC-18-8	55.3	22	24.4	15	34	30	45.2
20	1/2	MC-20-4	50.3	17	26.0	10	30	32	40.2
20	3/4	MC-20-6	52.3	19	26.0	15	30	32	42.2
22	1/2	MC-22-4	50.3	17	26.0	10	30	32	40.2
22	3/4	MC-22-6	52.3	19	26.0	16.5	30	32	42.2
22	1	MC-22-8	55.2	22	26.0	16.5	34	32	45.1
25	1/2	MC-25-4	55.5	17	31.3	10	34	38	43.2
25	3/4	MC-25-6	57.5	19	31.3	16.5	34	38	45.2
25	1	MC-25-8	60.4	22	31.3	20	34	38	48.1

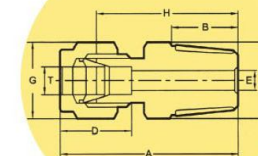
ALL DIMENSIONS ARE IN MILLIMETERS. DIMENSIONS FOR REFERENCE ONLY. SUBJECT TO CHANGE.

MC

MALE CONNECTOR (FRACTIONAL)

T TUBE O.D.	PT-NPT MALE PIPE SIZE	CATALOG NUMBER	A	B	D	E	F	G	H
1/16	1/8	MC-005-1	26.5	10	8.6	1	10	10	22.7
1/16	1/4	MC-005-2	29.8	13	8.6	1	14	10	26.0
1/8	1/8	MC-01-1	30.8	10	12.7	3	12	10	24.2
1/8	1/4	MC-01-2	34.4	13	12.7	3	14	10	27.8
1/8	3/8	MC-01-3	35.6	14	12.7	3	17	10	29.0
1/8	1/2	MC-01-4	40.1	17	12.7	3	22	10	33.5
3/16	1/8	MC-015-1	31.5	10	13.7	3	12	12	24.9
3/16	1/4	MC-015-2	35.1	13	13.7	3	14	12	28.5
1/4	1/8	MC-02-1	33.1	10	15.3	5	14	14	27.7
1/4	1/4	MC-02-2	36.6	13	15.3	5	14	14	29.3
1/4	3/8	MC-02-3	38.2	14	15.3	5	17	14	30.8
1/4	1/2	MC-02-4	42.6	17	15.3	5	22	14	35.1
1/4	3/4	MC-02-6	46.1	19	15.3	5	27	14	38.8
3/8	1/8	MC-03-1	35.6	10	16.8	5	17	17	28.2
3/8	1/4	MC-03-2	38.8	13	16.8	6	17	17	31.3
3/8	3/8	MC-03-3	39.8	14	16.8	8	17	17	32.3
3/8	1/2	MC-03-4	44.1	17	16.8	8	22	17	36.8
3/8	3/4	MC-03-6	47.7	19	16.8	8	27	17	40.3
1/2	1/8	MC-04-1	39.2	10	22.8	5	22	22	29.0
1/2	1/4	MC-04-2	42.2	13	22.8	6	22	22	32.1
1/2	3/8	MC-04-3	43.2	14	22.8	8	22	22	33.1
1/2	1/2	MC-04-4	46.9	17	22.8	10	22	22	36.8
1/2	3/4	MC-04-6	50.4	19	22.8	10	27	22	40.3
1/2	1	MC-04-8	55.2	22	22.8	10	35	22	45.0
5/8	3/8	MC-05-3	43.9	14	24.4	8	24	27	33.8
5/8	1/2	MC-05-4	46.9	17	24.4	10	24	27	36.8
5/8	3/4	MC-05-6	50.4	19	24.4	12	27	27	40.3
3/4	1/2	MC-06-4	48.4	17	24.4	10	27	30	38.2
3/4	3/4	MC-06-6	50.4	19	24.4	15	27	30	40.3
3/4	1	MC-06-8	55.2	22	24.4	15	35	30	45.0
1	1/2	MC-08-4	55.4	17	31.3	10	35	38	43.1
1	3/4	MC-08-6	57.4	19	31.3	16.5	35	38	45.1
1	1	MC-08-8	60.4	22	31.3	20	35	38	48.1

ALL DIMENSIONS ARE IN MILLIMETERS. DIMENSIONS FOR REFERENCE ONLY. SUBJECT TO CHANGE.
FOR THE OTHER TUBE O.D. SIZES CAN BE MADE TO ORDER.



FC

FEMALE CONNECTOR (METRIC)

T TUBE O.D.	PT-NPT FEMALE PIPE SIZE	CATALOG NUMBER	A	B	D	E	F	G	H
4	1/8	FC-4-1	29.7	12	13.7	3	14	12	23.1
6	1/8	FC-6-1	31.3	12	15.3	5	14	14	23.9
6	1/4	FC-6-2	35.8	15	15.3	5	17	14	28.4
6	3/8	FC-6-3	37.6	15	15.3	5	22	14	30.2
6	1/2	FC-6-4	42.5	20	15.3	5	27	14	35.1
8	1/8	FC-8-1	32.1	12	16.2	5	14	17	24.6
8	1/4	FC-8-2	37.0	15	16.2	6	17	17	29.5
8	3/8	FC-8-3	38.5	15	16.2	6	22	17	31.0
8	1/2	FC-8-4	43.3	20	16.2	6	27	17	35.8
10	1/8	FC-10-1	34.8	12	17.2	5	19	19	27.2
10	1/4	FC-10-2	37.8	15	17.2	6	19	19	30.2
10	3/8	FC-10-3	39.4	15	17.2	8	22	19	31.8
10	1/2	FC-10-4	44.2	20	17.2	8	27	19	36.8
12	1/8	FC-12-1	37.3	12	22.8	5	22	22	27.2
12	1/4	FC-12-2	40.3	15	22.8	6	22	22	30.2
12	3/8	FC-12-3	41.9	15	22.8	8	22	22	31.8
12	1/2	FC-12-4	46.7	20	22.8	10	27	22	36.6
12	3/4	FC-12-6	48.3	21	22.8	10	32	22	38.2
12	1	FC-12-8	51.3	24	22.8	10	40	22	41.2
14	3/8	FC-14-3	41.9	15	24.4	8	27	27	31.8
14	1/2	FC-14-4	46.7	20	24.4	10	27	27	36.6
14	3/4	FC-14-6	48.3	21	24.4	10	32	27	38.2
15	3/8	FC-15-3	41.9	15	24.4	8	27	27	31.8
15	1/2	FC-15-4	46.7	20	24.4	10	27	27	36.6
15	3/4	FC-15-6	48.3	21	24.4	10	32	27	38.2
16	3/8	FC-16-3	42.1	15	24.4	8	27	27	32.0
16	1/2	FC-16-4	46.9	20	24.4	10	27	27	36.8
16	3/4	FC-16-6	48.5	21	24.4	12	32	27	38.4
18	3/8	FC-18-3	42.1	15	24.4	14	27	30	32.0
18	1/2	FC-18-4	46.9	20	24.4	14	27	30	36.8
18	3/4	FC-18-6	48.2	21	24.4	14	32	30	38.4
20	1/2	FC-20-4	47.9	20	26.0	16	30	32	37.8
20	3/4	FC-20-6	49.7	21	26.0	16	32	32	39.6
22	1/2	FC-22-4	47.9	20	26.0	18	30	32	37.8
22	3/4	FC-22-6	49.7	21	26.0	18	32	32	39.6
22	1	FC-22-8	57.9	24	26.0	18	40	32	47.8
25	3/4	FC-25-6	53.4	21	31.3	21	35	38	41.1
25	1	FC-25-8	62.3	24	31.3	21	40	38	50.0

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(FRACTIONAL)

1/8	1/8	FC-01-1	28.7	12	12.7	2	14	10	22.1
1/8	1/4	FC-01-2	33.5	15	12.7	2	17	10	27.0
1/4	1/8	FC-02-1	31.2	12	15.3	5	14	14	24.0
1/4	1/4	FC-02-2	35.8	15	15.3	5	17	14	28.4
1/4	3/8	FC-02-3	37.6	15	15.3	5	22	14	30.2
1/4	1/2	FC-02-4	42.4	20	15.3	5	27	14	35.1
3/8	1/8	FC-03-1	32.8	12	16.8	5	17	19	25.4
3/8	1/4	FC-03-2	37.6	15	16.8	6	17	19	30.2
3/8	3/8	FC-03-3	39.1	15	16.8	8	22	19	31.8
3/8	1/2	FC-03-4	43.9	20	16.8	8	27	19	36.6
3/8	3/4	FC-03-6	47.8	21	16.8	8	32	19	40.4
1/2	1/8	FC-04-1	37.3	12	22.8	5	22	22	27.2
1/2	1/4	FC-04-2	40.4	15	22.8	6	22	22	30.2
1/2	3/8	FC-04-3	42.0	15	22.8	8	22	22	31.8
1/2	1/2	FC-04-4	46.7	20	22.8	10	27	22	36.6
1/2	3/4	FC-04-6	48.3	21	22.8	10	32	22	38.2
1/2	1	FC-04-8	51.3	24	22.8	10	40	22	41.2
5/8	3/8	FC-05-3	42.1	15	24.4	8	27	27	32.0
5/8	1/2	FC-05-4	46.9	20	24.4	11	27	27	36.8
5/8	3/4	FC-05-6	48.5	21	24.4	12	32	27	38.4
3/4	1/2	FC-06-4	46.7	20	24.4	15	27	30	36.6
3/4	3/4	FC-06-6	48.3	21	24.4	15	32	30	38.1
1	3/4	FC-08-6	53.3	21	31.3	21	35	38	41.1
1	1	FC-08-8	62.2	24	31.3	21	40	38	50.0

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FOR THE OTHER TUBE O.D. SIZES CAN BE MADE TO ORDER.

U

EQUAL UNION (METRIC)

TUBE O.D.	CATALOG NUMBER	A	D	E	F	G	H
2	U-2-0	35.6	12.9	1	10	10	22.4
3	U-3-0	35.3	12.9	2	10	10	22.1
4	U-4-0	37.3	13.7	3	12	12	24.1
6	U-6-0	41.0	15.3	4	12	14	26.2
8	U-8-0	43.2	16.2	6	14	17	28.2
10	U-10-0	46.2	17.2	8	19	19	31.0
12	U-12-0	51.2	22.8	10	22	22	31.0
14	U-14-0	52.0	24.4	10	24	27	31.8
15	U-15-0	52.0	24.4	11	24	27	31.8
16	U-16-0	52.0	24.4	12	24	27	31.8
18	U-18-0	53.5	24.4	14	27	30	33.3
20	U-20-0	55.0	26.0	16	30	32	34.8
22	U-22-0	55.0	26.0	18	30	32	34.8
25	U-25-0	65.0	31.3	21	35	38	40.4

(FRACTIONAL)

TUBE O.D.	CATALOG NUMBER	A	D	E	F	G	H
1/16	U-005-0	25.1	8.6	1	10	10	17.5
1/8	U-01-0	35.6	12.7	2	10	10	22.4
3/16	U-015-0	37.3	13.7	3	12	12	24.1
1/4	U-02-0	40.9	15.2	4	12	14	26.2
3/8	U-03-0	45.0	16.8	7	17	17	30.2
1/2	U-04-0	51.3	22.9	10	22	22	31.0
5/8	U-05-0	52.1	24.4	12	24	27	31.1
3/4	U-06-0	53.6	24.4	15	27	30	33.3
1	U-08-0	64.8	31.2	21	35	38	40.4

CONNECTS METRIC TUBE TO FRACTIONAL TUBE

RU

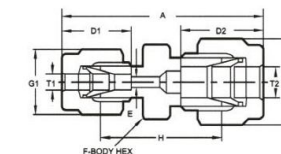
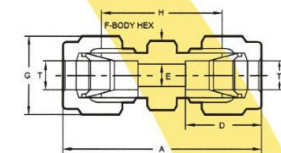
REDUCING UNION (METRIC)

TUBE T1	O.D. T2	CATALOG NUMBER	A	D1	D2	E	G1	G2	F	H
4	3	RU-4-3	38.1	13.7	12.9	2	12	10	12	25.0
4	6	RU-4-6	39.4	13.7	15.3	3	12	14	14	25.4
6	8	RU-6-8	42.3	15.3	16.2	5	14	17	14	27.4
6	10	RU-6-10	44.5	15.3	17.2	5	14	19	19	29.5
6	12	RU-6-12	47.3	15.3	22.8	5	14	22	22	29.5
8	10	RU-8-10	45.1	16.2	17.2	6	17	19	19	30.0
8	12	RU-8-12	47.8	16.2	22.8	6	17	22	22	30.2
10	12	RU-10-12	48.7	17.2	22.8	8	19	22	22	31.0
12	16	RU-12-16	52.0	22.8	24.4	10	22	27	24	31.8
12	18	RU-12-18	53.5	22.8	24.4	10	22	30	27	33.3
18	25	RU-18-25	61.0	24.4	31.3	15	30	38	35	38.6
20	25	RU-20-25	62.0	26.0	31.3	16	32	38	35	39.9

(FRACTIONAL)

TUBE T1	O.D. T2	CATALOG NUMBER	A	D1	D2	E	G1	G2	F	H
1/16	1/8	RU-005-01	31.0	8.6	12.7	1	10	10	12	20.6
1/8	3/16	RU-01-015	36.6	12.7	13.7	3	10	12	12	23.4
1/8	1/4	RU-01-02	38.6	12.7	15.2	3	10	14	14	24.6
1/4	5/16	RU-02-025	42.2	15.2	16.2	5	14	17	14	27.4
1/4	3/8	RU-02-03	43.2	15.2	16.8	5	14	17	17	28.4
1/4	1/2	RU-02-04	47.0	15.2	22.8	5	14	22	22	29.5
3/8	1/2	RU-03-04	48.5	16.8	22.8	7	17	22	22	31.0
1/2	3/4	RU-04-06	53.6	22.8	24.4	10	22	30	27	33.3
3/4	1	RU-06-08	62.7	24.4	31.2	15	30	38	35	40.4

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BU

BULKHEAD UNION (METRIC)

TUBE O.D.	CATALOG NUMBER	A	B	D	E	F	G	H	PANEL HOLE SIZE	MAX PANEL THICK.
6	BU-6-0	57.7	26.2	15.3	5	17	14	42.9	11.5	10.2
8	BU-8-0	61.0	28.6	16.2	6	19	17	46.0	13.1	11.2
10	BU-10-0	63.7	29.4	17.2	8	19	19	48.5	16.3	11.2
12	BU-12-0	71.0	31.8	22.8	10	24	22	50.8	19.5	12.7
14	BU-14-0	72.5	32.5	24.4	10	27	27	52.3	22.5	12.7
15	BU-15-0	72.5	32.5	24.4	11	27	27	52.3	22.8	12.7
16	BU-16-0	72.5	32.5	24.4	13	27	27	52.3	22.8	12.7
18	BU-18-0	78.9	37.3	24.4	14	30	30	58.7	26.0	16.8
20	BU-20-0	84.5	42.9	26.0	16	35	32	64.3	29.0	23.9
22	BU-22-0	84.5	42.9	26.0	18	35	32	64.3	29.0	23.9
25	BU-25-0	99.5	50.0	31.3	21	40	38	75.5	33.2	26.0

(FRACTIONAL)

TUBE O.D.	CATALOG NUMBER	A	B	D	E	F	G	H	PANEL HOLE SIZE	MAX PANEL THICK.
1/4	BU-02-0	57.7	26.0	15.2	5	17	14	42.9	11.5	10.2
3/8	BU-03-0	62.2	29.0	16.8	7	19	17	46.0	16.3	11.2
1/2	BU-04-0	71.1	31.0	22.8	10	24	22	50.8	19.5	12.7
3/4	BU-06-0	79.0	38.0	24.4	15	30	30	58.7	26.0	16.8
1	BU-08-0	95.8	50.0	31.2	21	40	38	71.4	33.2	26.0

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BMC

BULKHEAD MALE CONNECTOR (METRIC)

TUBE O.D.	PIPE SIZE PT/NPT	CATALOG NUMBER	A	B	D	E	F	G	H	PANEL HOLE SIZE	MAX PANEL THICK.
6	1/8	BMC-6-1	50.9	10	15.3	5	17	14	42.4	11.5	10.2
6	1/4	BMC-6-2	53.6	13	15.3	5	17	14	46.2	11.5	10.2
6	3/8	BMC-6-3	54.9	14	15.3	5	17	14	40.9	11.5	10.2
6	1/2	BMC-6-4	57.9	17	15.3	5	22	14	43.9	11.5	10.2
8	1/8	BMC-8-1	53.4	10	16.2	6	19	17	38.4	13.1	11.2
8	1/4	BMC-8-2	56.4	13	16.2	6	19	17	41.4	13.1	11.2
8	3/8	BMC-8-3	57.4	14	16.2	6	19	17	42.4	13.1	11.2
8	1/2	BMC-8-4	60.4	17	16.2	6	22	17	45.4	13.1	11.2
10	1/4	BMC-10-2	56.0	13	17.2	8	19	19	42.0	16.3	11.2
10	3/8	BMC-10-3	56.0	14	17.2	8	19	19	43.0	16.3	11.2
10	1/2	BMC-10-4	59.0	17	17.2	8	24	19	47.0	16.3	11.2
12	1/4	BMC-12-2	62.2	13	22.8	10	24	22	42.7	19.5	12.7
12	3/8	BMC-12-3	63.2	14	22.8	10	24	22	43.7	19.5	12.7
12	1/2	BMC-12-4	68.8	17	22.8	10	24	22	58.7	19.5	12.7

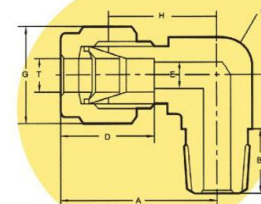
(FRACTIONAL)

TUBE O.D.	PIPE SIZE PT/NPT	CATALOG NUMBER	A	B	D	E	F	G	H	PANEL HOLE SIZE	MAX PANEL THICK.
1/4	1/8	BMC-02-1	50.9	10	15.3	5	17	14	42.4	11.5	10.2
1/4	1/4	BMC-02-2	49.5	13	15.3	5	17	14	46.7	11.5	10.2
1/4	3/8	BMC-02-3	54.9	14	15.3	5	17	14	40.9	11.5	10.2
1/4	1/2	BMC-02-4	57.9	17	15.3	5	22	14	43.9	11.5	10.2
3/8	1/4	BMC-03-2	57.4	13	16.8	8	19	17	42.0	16.3	11.2
3/8	3/8	BMC-03-3	57.4	14	16.8	8	19	17	43.0	16.3	11.2
3/8	1/2	BMC-03-4	63.8	17	16.8	8	22	17	47.0	16.3	11.2
1/2	1/4	BMC-04-2	62.2	13	22.8	10	24	22	42.7	19.5	12.7
1/2	3/8	BMC-04-3	63.2	14	22.8	10	24	22	43.7	19.5	12.7
1/2	1/2	BMC-04-4	68.8	17	22.8	10	24	22	58.8	19.5	12.7

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ME

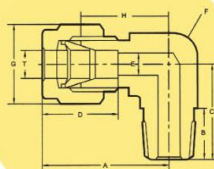
MALE ELBOW (METRIC)



T TUBE O.D.	PT-NPT MALE PIPE SIZE	CATALOG NUMBER	A	B	C	D	E	F	G	H
3	1/8	ME-3-1	25.4	10	19.8	13	2.4	12	12	18.8
3	1/4	ME-3-2	26.6	13	24.0	13	2.4	14	12	20.0
4	1/8	ME-4-1	25.4	10	19.1	13.7	3	12	12	18.8
4	1/4	ME-4-2	26.6	13	22.2	13.7	3	14	12	20.0
4	3/8	ME-4-3	28.4	14	26.0	13.7	3	17	12	21.8
4	1/2	ME-4-4	31.3	17	31.0	13.7	3	22	12	24.7
6	1/8	ME-6-1	27.0	10	19.1	15.3	5	12	14	19.6
6	1/4	ME-6-2	27.0	13	22.2	15.3	5	14	14	19.6
6	3/8	ME-6-3	29.8	14	26.0	15.3	5	17	14	22.4
6	1/2	ME-6-4	31.8	17	31.0	15.3	5	22	14	24.4
8	1/8	ME-8-1	28.8	10	20.1	16.2	6	14	17	21.3
8	1/4	ME-8-2	28.8	13	23.2	16.2	6	14	17	21.3
8	3/8	ME-8-3	30.6	14	26.0	16.2	6	17	17	23.1
8	1/2	ME-8-4	32.6	17	31.0	16.2	6	22	17	25.1
10	1/8	ME-10-1	31.5	10	21.9	17.2	6	17	19	23.9
10	1/4	ME-10-2	31.5	13	25.0	17.2	8	17	19	23.9
10	3/8	ME-10-3	31.5	14	26.0	17.2	8	17	19	23.9
10	1/2	ME-10-4	33.5	17	31.0	17.2	8	22	19	25.9
12	1/8	ME-12-1	36.0	10	25.7	22.8	10	22	22	25.9
12	1/4	ME-12-2	36.0	13	27.0	22.8	10	22	22	25.9
12	3/8	ME-12-3	36.0	14	28.0	22.8	10	22	22	25.9
12	1/2	ME-12-4	36.0	17	31.0	22.8	10	22	22	25.9
12	3/4	ME-12-6	39.8	19	36.8	22.8	10	27	22	29.7
12	1	ME-12-8	45.3	22	45.2	22.8	10	34	22	35.2
14	3/8	ME-14-3	38.0	14	29.0	24.4	10	24	27	27.9
14	1/2	ME-14-4	38.0	17	33.1	24.4	10	24	27	27.9
14	3/4	ME-14-6	39.8	19	36.8	24.4	10	27	27	29.7
15	3/8	ME-15-3	38.0	14	29.0	24.4	11	24	27	27.9
15	1/2	ME-15-4	38.0	17	33.1	24.4	11	24	27	27.9
15	3/4	ME-15-6	39.8	19	36.8	24.4	11	27	27	29.7
16	3/8	ME-16-3	38.0	14	29.0	24.4	12	24	27	27.9
16	1/2	ME-16-4	38.0	17	33.1	24.4	12	24	27	27.9
16	3/4	ME-16-6	39.8	19	36.8	24.4	12	27	27	29.7
18	3/8	ME-18-3	39.8	14	32.5	24.4	14	27	30	29.7
18	1/2	ME-18-4	39.8	17	34.8	24.4	14	27	30	29.7
18	3/4	ME-18-6	39.8	19	36.8	24.4	14	27	30	29.7
20	1/2	ME-20-4	44.6	17	39.7	26.0	16	30	32	34.5
20	3/4	ME-20-6	44.6	19	41.7	26.0	16	30	32	34.5
22	1/2	ME-22-4	44.6	17	39.7	26.0	18	30	32	34.5
22	3/4	ME-22-6	44.6	19	41.7	26.0	18	30	32	34.5
22	1	ME-22-8	44.6	22	44.5	26.0	18	34	32	34.5
25	1/2	ME-25-4	49.1	17	39.7	31.3	21	34	38	36.8
25	3/4	ME-25-6	49.1	19	41.7	31.3	21	34	38	36.8
25	1	ME-25-8	49.1	22	44.5	31.3	21	34	38	36.8

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ME

MALE ELBOW (FRACTIONAL)

T TUBE O.D.	PT-NPT MALE PIPE SIZE	CATALOG NUMBER	A	B	C	D	E	F	G	H
1/16	1/8	ME-005-1	19.1	10	18.1	8.6	1	10	10	15.2
1/16	1/4	ME-005-2	21.8	13	21.6	8.6	1	14	10	18.0
1/8	1/8	ME-01-1	23.6	10	18.1	12.7	3	12	10	17.0
1/8	1/4	ME-01-2	24.6	13	22.2	12.7	3	14	10	18.0
1/8	3/8	ME-01-3	28.4	14	26.8	12.7	3	17	10	21.8
1/8	1/2	ME-01-4	31.3	17	32.7	12.7	3	22	10	24.7
3/16	1/8	ME-015-1	25.4	10	19.1	13.7	3	12	12	18.8
3/16	1/4	ME-015-2	25.4	13	22.2	13.7	3	14	12	18.6
1/4	1/8	ME-02-1	27.0	10	19.1	15.3	5	12	14	19.6
1/4	1/4	ME-02-2	27.0	13	22.2	15.3	5	14	14	19.6
1/4	3/8	ME-02-3	29.7	14	26.0	15.3	5	17	14	22.4
1/4	1/2	ME-02-4	31.8	17	31.0	15.3	5	22	14	24.4
3/8	1/8	ME-03-1	30.5	10	21.1	16.8	6	17	17	21.3
3/8	1/4	ME-03-2	30.5	13	24.2	16.8	8	17	17	21.3
3/8	3/8	ME-03-3	31.2	14	26.0	16.8	8	17	17	23.1
3/8	1/2	ME-03-4	33.3	17	31.0	16.8	8	22	17	26.0
1/2	1/8	ME-04-1	36.1	10	25.7	22.8	10	22	22	26.0
1/2	1/4	ME-04-2	36.1	13	27.0	22.8	10	22	22	26.0
1/2	3/8	ME-04-3	36.1	14	29.0	22.8	10	22	22	26.0
1/2	1/2	ME-04-4	36.1	17	31.0	22.8	10	22	22	26.0
1/2	3/4	ME-04-6	40.0	19	36.8	22.8	10	27	22	29.7
1/2	1	ME-04-8	45.3	22	45.2	22.8	10	34	22	35.2
5/8	3/8	ME-05-3	38.1	14	30.0	24.4	12	24	27	27.9
5/8	1/2	ME-05-4	38.1	17	33.1	24.4	12	24	27	27.9
5/8	3/4	ME-05-6	40.0	19	36.8	24.4	12	27	27	29.7
3/4	1/2	ME-06-4	40.0	17	34.8	24.4	15	27	30	29.7
3/4	3/4	ME-06-6	40.5	19	36.8	24.4	15	27	30	29.7
1	3/4	ME-08-6	49.0	19	41.7	31.3	21	34	38	36.8
1	1	ME-08-8	49.0	22	44.5	31.3	21	34	38	36.8

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FE

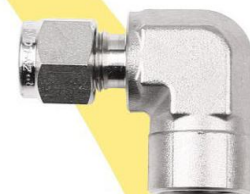
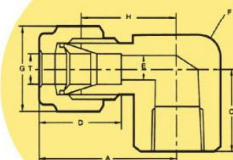
FEMALE ELBOW (METRIC)

T TUBE O.D.	PT-NPT MALE PIPE SIZE	CATALOG NUMBER	A	C	D	E	F	G	H
6	1/8	FE-6-1	27.0	19.1	15.3	5	14	14	19.6
6	1/4	FE-6-2	29.8	22.4	15.3	5	17	14	22.4
6	3/8	FE-6-3	34.6	22.4	15.3	5	22	14	27.2
6	1/2	FE-6-4	37.7	26.4	15.3	5	27	14	30.3
8	1/8	FE-8-1	29.3	20.0	16.2	6	14	17	21.8
8	1/4	FE-8-2	30.6	22.4	16.2	6	17	17	23.1
8	3/8	FE-8-3	34.0	27.7	16.2	6	22	17	26.5
8	1/2	FE-8-4	36.8	31.7	16.2	6	27	17	29.3
10	1/8	FE-10-1	31.5	19.0	17.2	8	17	19	23.9
10	1/4	FE-10-2	33.5	22.4	17.2	8	17	19	25.9
10	3/8	FE-10-3	37.5	27.7	17.2	8	17	19	29.9
10	1/2	FE-10-4	40.3	31.7	17.2	8	22	19	32.7
12	1/8	FE-12-1	36.0	22.4	22.8	10	22	22	25.9
12	1/4	FE-12-2	36.0	22.4	22.8	10	22	22	25.9
12	3/8	FE-12-3	36.0	22.4	22.8	10	22	22	29.9
12	1/2	FE-12-4	38.8	28.4	22.8	10	27	22	28.7
12	3/4	FE-12-6	41.8	32.4	22.8	10	32	22	31.7
14	3/8	FE-14-3	39.8	25.4	24.4	10	27	27	29.7
14	1/2	FE-14-4	39.8	25.4	24.4	10	27	27	29.7
14	3/4	FE-14-6	42.8	32.4	24.4	10	32	27	32.7
15	3/8	FE-15-3	39.8	25.4	24.4	11	27	27	29.7
15	1/2	FE-15-4	39.8	28.4	24.4	11	27	27	29.7
15	3/4	FE-15-6	42.8	32.4	24.4	11	32	27	32.7
16	3/8	FE-16-3	39.8	25.4	24.4	12	27	27	29.7
16	1/2	FE-16-4	39.5	28.4	24.4	12	27	27	29.7
16	3/4	FE-16-6	42.8	32.4	24.4	12	32	27	32.7
18	3/8	FE-18-3	40.5	25.4	24.4	14	27	30	30.4
18	1/2	FE-18-4	40.5	28.4	24.4	14	27	30	30.4
18	3/4	FE-18-6	43.5	32.4	24.4	14	32	30	33.4
20	1/2	FE-20-4	43.5	31.4	26.0	16	32	32	33.4
20	3/4	FE-20-6	46.5	35.4	26.0	16	32	32	36.4
22	1/2	FE-22-4	43.5	31.4	26.0	18	32	32	33.4
22	3/4	FE-22-6	46.5	35.4	26.0	18	32	32	36.4
25	1/2	FE-25-4	47.5	33.4	31.5	21	34	38	35.2
25	3/4	FE-25-6	50.5	37.4	31.5	21	34	38	38.2

(FRACTIONAL)

1/4	1/8	FE-02-1	27.0	19.1	15.3	5	14	14	19.6
1/4	1/4	FE-02-2	29.7	22.4	15.3	5	17	14	22.4
1/4	3/8	FE-02-3	34.6	22.4	15.3	5	22	14	27.2
1/4	1/2	FE-02-4	37.7	26.4	15.3	5	27	14	30.3
3/8	1/8	FE-03-1	30.5	19.8	16.8	7	17	17	23.1
3/8	1/4	FE-03-2	31.2	22.4	16.8	7	17	17	24.0
3/8	3/8	FE-03-3	33.3	22.4	16.8	7	22	17	26.0
3/8	1/2	FE-03-4	36.1	28.4	16.8	7	27	17	28.7
1/2	1/8	FE-04-1	36.0	22.4	22.8	10	22	22	25.9
1/2	1/4	FE-04-2	36.1	22.4	22.8	10	22	22	26.0
1/2	3/8	FE-04-3	36.1	22.4	22.8	10	22	22	26.0
1/2	1/2	FE-04-4	39.0	28.4	22.8	10	27	22	28.7
1/2	3/4	FE-04-6	41.8	32.4	22.8	10	32	22	31.7
5/8	3/4	FE-05-6	42.8	32.4	24.4	12	32	27	32.7
3/4	1/2	FE-06-4	39.9	28.4	24.4	15	27	30	29.7
3/4	3/4	FE-06-6	44.7	32.4	24.4	15	32	30	34.5
1	3/4	FE-08-6	49.0	32.4	31.3	21	34	38	36.8

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UE

UNION ELBOW (METRIC)



TUBE O.D.	CATALOG NUMBER	A	D	E	F	G	H
3	UE-3-0	22.3	12.9	2	12	10	15.7
4	UE-4-0	25.4	13.7	3	12	12	18.8
6	UE-6-0	27.0	15.3	5	12	14	19.6
8	UE-8-0	28.8	16.2	6	14	17	21.3
10	UE-10-0	31.5	17.2	8	17	19	23.9
12	UE-12-0	36.0	22.8	10	22	22	25.9
14	UE-14-0	38.0	24.4	10	24	27	27.9
15	UE-15-0	38.8	24.4	11	24	27	27.9
16	UE-16-0	38.0	24.4	12	24	27	27.9
18	UE-18-0	39.8	24.4	14	27	30	29.7
20	UE-20-0	44.6	26.0	16	30	32	34.5
22	UE-22-0	44.6	26.0	18	30	32	34.5
25	UE-25-0	49.1	31.3	21	34	38	36.8

(FRACTIONAL)

TUBE O.D.	CATALOG NUMBER	A	D	E	F	G	H
1/16	UE-005-0	17.8	8.6	1	10	10	14.0
1/8	UE-01-0	22.4	12.7	3	12	12	15.8
3/16	UE-015-0	25.4	13.7	3	12	12	18.8
1/4	UE-02-0	27.0	15.2	5	12	14	19.6
3/8	UE-03-0	30.5	16.8	8	17	17	21.3
1/2	UE-04-0	36.0	22.8	10	22	22	23.1
5/8	UE-05-0	38.1	24.4	12	24	27	26.0
3/4	UE-06-0	40.0	24.4	15	27	30	29.7
1	UE-08-0	49.0	26.0	21	34	38	36.8

ALL DIMENSIONS ARE IN MILLIMETERS. DIMENSIONS FOR REFERENCE ONLY. SUBJECT TO CHANGE.

UT

UNION TEE (METRIC)



TUBE O.D.	CATALOG NUMBER	A	D	E	F	G	H	J	K
3	UT-3-0	22.3	12.9	2	12	10	15.7	31.5	44.7
4	UT-4-0	25.4	13.7	3	12	12	18.8	37.6	50.8
6	UT-6-0	27.0	15.3	5	12	14	19.6	39.1	53.9
8	UT-8-0	29.9	16.2	6	14	17	22.4	44.7	59.7
10	UT-10-0	31.5	17.2	8	17	19	23.9	47.8	63.0
12	UT-12-0	36.0	22.8	10	22	22	25.9	51.8	72.0
14	UT-14-0	38.8	24.4	10	24	27	28.7	57.4	77.6
15	UT-15-0	38.8	24.4	11	24	27	28.7	57.4	77.6
16	UT-16-0	38.8	24.4	12	24	27	28.7	57.4	77.6
18	UT-18-0	38.8	24.4	14	27	30	29.7	59.4	79.5
20	UT-20-0	44.6	26.0	16	30	32	34.5	69.1	89.3
22	UT-22-0	44.6	26.0	18	30	32	34.5	69.1	89.3
25	UT-25-0	49.1	31.3	21	35	38	36.8	73.7	98.3

(FRACTIONAL)

TUBE O.D.	CATALOG NUMBER	A	D	E	F	G	H	J	K
1/16	UT-005-0	17.8	8.6	1	12	10	14.0	28.0	35.6
1/8	UT-01-0	22.4	12.7	2	12	10	15.8	31.4	44.8
3/16	UT-015-0	25.4	13.7	3	12	12	19.6	39.1	50.8
1/4	UT-02-0	27.0	15.2	5	12	14	22.4	44.8	54.0
3/8	UT-03-0	30.5	16.8	8	17	19	23.1	46.2	61.0
1/2	UT-04-0	36.0	22.8	10	22	22	26.0	52.0	72.0
5/8	UT-05-0	38.9	24.4	12	24	27	28.7	57.4	77.8
3/4	UT-06-0	40.0	26.0	15	27	30	29.7	59.4	80.0
1	UT-08-0	49.0	31.2	21	35	38	36.8	73.6	98.0

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UCR

UNION CROSS (METRIC)

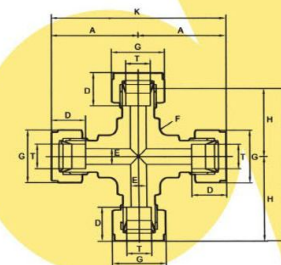


T TUBE O.D. (mm)	CATALOG NUMBER	A	D	E	F	G	H	J	K
3	UCR-3-0	25.5	14.0	2.4	12	10	18.5	37	51.0
6	UCR-6-0	30.2	15.2	5	14	14	23	46	60.4
8	UCR-8-0	30.5	16.5	6	14	17	23	46	61.0
10	UCR-10-0	31.5	19.5	8	17	19	24	48	63.0
12	UCR-12-0	37.0	23.6	10	20	22	26	52	74.0

(FRACTIONAL)

T TUBE O.D. (in)	CATALOG NUMBER	A	D	E	F	G	H	J	K
1/8	UCR-01-0	25.5	14.0	2	12	10	18.5	37	51.0
1/4	UCR-02-0	30.2	15.2	5	14	14	23	46	60.4
3/8	UCR-03-0	31.5	18.8	8	17	19	24	48	63.0
1/2	UCR-04-0	37.0	23.6	10	22	22	26	52	74.0

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MBT

MALE BRANCH TEE
(METRIC)

T TUBE O.D.	PT-NPT CATALOG MALE PIPE SIZE	NUMBER	A	B	C	D	E	F	G	H	J	K
4	1/8	MBT-4-1	25.4	10	19.1	13.7	3	12	12	18.8	37.6	50.8
4	1/4	MBT-4-2	25.4	13	22.2	13.7	3	14	12	18.8	37.6	50.8
6	1/8	MBT-6-1	27.0	10	19.1	15.3	5	12	14	19.6	39.2	54.0
6	1/4	MBT-6-2	27.0	13	22.2	15.3	5	14	14	19.6	39.2	54.0
6	3/8	MBT-6-3	29.8	14	26.0	15.3	5	17	14	22.4	44.8	59.6
6	1/2	MBT-6-4	31.8	17	31.0	15.3	5	22	14	24.4	48.8	63.6
8	1/8	MBT-8-1	28.8	10	20.1	16.2	6	14	17	21.3	42.6	57.6
8	1/4	MBT-8-2	28.8	13	23.2	16.2	6	14	17	21.3	42.6	57.6
8	3/8	MBT-8-3	30.6	14	26.0	16.2	6	17	17	21.3	46.2	61.2
8	1/2	MBT-8-4	32.6	17	31.0	16.2	6	22	17	23.1	50.2	65.2
10	1/8	MBT-10-1	31.5	10	21.9	17.2	8	17	19	25.1	47.8	63.0
10	1/4	MBT-10-2	31.5	13	25.0	17.2	8	17	19	23.9	47.8	63.0
10	3/8	MBT-10-3	31.5	14	26.0	17.2	8	17	19	23.9	47.8	63.0
10	1/2	MBT-10-4	33.5	17	31.0	17.2	8	22	19	25.9	51.8	67.0
12	1/8	MBT-12-1	36.0	10	25.7	22.8	10	22	22	25.9	51.8	72.0
12	1/4	MBT-12-2	36.0	13	27.0	22.8	10	22	22	25.9	51.8	72.0
12	3/8	MBT-12-3	36.0	14	28.0	22.8	10	22	22	25.9	51.8	72.0
12	1/2	MBT-12-4	36.0	17	31.0	22.8	10	22	22	25.9	51.8	72.0
12	3/4	MBT-12-6	39.8	19	36.8	22.8	10	27	22	29.7	59.4	79.6
12	1	MBT-12-8	45.3	22	45.2	22.8	10	35	22	35.2	70.4	90.6
14	3/8	MBT-14-3	38.0	14	29.0	24.4	10	24	27	27.9	55.8	76.0
14	1/2	MBT-14-4	38.0	17	33.1	24.4	10	24	27	27.9	55.8	76.0
14	3/4	MBT-14-6	39.8	19	36.8	24.4	10	27	27	29.7	59.4	79.6
15	3/8	MBT-15-3	38.0	14	29.0	24.4	11	24	27	27.9	55.8	76.0
15	1/2	MBT-15-4	38.0	17	33.1	24.4	11	24	27	27.9	55.8	76.0
15	3/4	MBT-15-6	39.8	19	36.8	24.4	11	27	27	29.7	59.4	79.6
16	3/8	MBT-16-3	38.0	14	29.0	24.4	12	24	27	27.9	55.8	76.0
16	1/2	MBT-16-4	38.0	17	33.1	24.4	12	24	27	27.9	55.8	76.0
16	3/4	MBT-16-6	39.8	19	36.8	24.4	12	27	27	29.7	59.4	79.6
18	3/8	MBT-18-3	39.8	14	32.5	24.4	14	27	30	29.7	59.4	79.6
18	1/2	MBT-18-4	39.8	17	34.8	24.4	14	27	30	29.7	59.4	79.6
18	3/4	MBT-18-6	39.8	19	36.8	24.4	14	27	30	29.7	59.4	79.6
20	1/2	MBT-20-4	44.6	17	39.7	26.0	16	30	32	34.5	69.0	89.2
20	3/4	MBT-20-6	44.6	19	41.7	26.0	16	30	32	34.5	69.0	89.2
22	1/2	MBT-22-4	44.6	17	39.7	26.0	18	30	32	34.5	69.0	89.2
22	3/4	MBT-22-6	44.6	19	41.7	26.0	18	30	32	34.5	69.0	89.2
25	1/2	MBT-25-4	49.1	17	39.7	31.3	21	35	38	36.8	73.6	98.2
25	3/4	MBT-25-6	49.1	19	41.7	31.3	21	35	38	36.8	73.6	98.2
25	1	MBT-25-8	49.1	22	41.5	31.3	21	35	38	36.8	73.6	98.2

(FRACTIONAL)

1/8	1/8	MBT-01-1	23.6	10	18.1	12.7	3	12	12	17.0	34.0	47.2
1/8	1/4	MBT-01-2	24.6	13	22.2	12.7	3	14	12	18.0	36.0	49.2
1/4	1/8	MBT-02-1	27.0	10	19.1	15.2	5	12	14	19.6	39.2	54.0
1/4	1/4	MBT-02-2	27.0	13	22.2	15.2	5	14	14	19.6	39.2	54.0
1/4	3/8	MBT-02-3	29.8	14	26.0	15.2	5	17	14	22.4	44.8	59.6
1/4	1/2	MBT-02-4	31.8	17	31.0	15.2	5	22	14	24.4	48.8	63.6
3/8	1/8	MBT-03-1	30.5	10	21.1	16.8	8	17	17	21.3	42.6	61.0
3/8	1/4	MBT-03-2	30.5	13	24.2	16.8	8	17	17	21.3	42.6	61.0
3/8	3/8	MBT-03-3	31.2	14	26.0	16.8	8	17	17	23.1	46.2	62.4
3/8	1/2	MBT-03-4	33.3	17	31.0	16.8	8	22	17	26.0	52.0	66.6
1/2	1/8	MBT-04-1	36.0	10	25.7	22.8	10	22	22	25.9	51.8	72.0
1/2	1/4	MBT-04-2	36.0	13	27.0	22.8	10	22	22	25.9	51.8	72.0
1/2	3/8	MBT-04-3	36.0	14	28.0	22.8	10	22	22	25.9	51.8	72.0
1/2	1/2	MBT-04-4	36.0	17	31.0	22.8	10	22	22	25.9	51.8	72.0
1/2	3/4	MBT-04-6	39.8	19	36.8	22.8	10	27	22	29.7	59.4	79.6
1/2	1	MBT-04-8	45.3	22	45.2	22.8	10	35	22	35.2	70.4	90.6
5/8	3/8	MBT-05-3	38.1	14	30.0	24.4	12	24	27	27.9	55.8	76.2
5/8	1/2	MBT-05-4	38.1	17	33.1	24.4	12	24	27	27.9	55.8	76.2
5/8	3/4	MBT-05-6	40.0	19	36.8	24.4	12	27	27	29.7	59.4	80.0
3/4	3/4	MBT-06-6	40.5	19	36.8	24.4	15	27	30	29.7	59.4	81.0
1	3/4	MBT-08-6	49.0	19	41.7	31.3	21	35	38	36.8	73.6	98.0
1	1	MBT-08-8	49.0	22	44.5	31.3	21	35	38	36.8	73.6	98.0

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MRT

MALE RUN TEE
(METRIC)

T TUBE O.D.	PT-NPT CATALOG MALE PIPE SIZE	NUMBER	A	B	D	E	F	G	H	J	K
4	1/8	MRT-4-1	25.4	10	15.3	3	12	12	18.8	37.9	44.5
4	1/4	MRT-4-2	25.4	13	15.3	3	14	12	18.8	41.0	47.6
6	1/8	MRT-6-1	27.0	10	15.3	5	12	14	19.6	38.7	46.1
6	1/4	MRT-6-2	27.0	13	15.3	5	14	14	19.6	41.8	49.2
6	3/8	MRT-6-3	29.8	14	15.3	5	17	14	22.4	48.4	55.8
6	1/2	MRT-6-4	31.8	17	15.3	5	22	14	24.4	55.4	62.8
8	1/8	MRT-8-1	28.8	10	16.2	6	14	17	21.3	41.4	48.9
8	1/4	MRT-8-2	28.8	13	16.2	6	14	17	21.3	46.3	52.0
8	3/8	MRT-8-3	28.8	14	16.2	6	17	17	2.1	49.1	54.8
8	1/2	MRT-8-4	30.6	17	16.2	6	22	17	25.1	56.1	61.6
10	1/8	MRT-10-1	31.5	10	17.2	8	17	19	23.9	45.8	53.4
10	1/4	MRT-10-2	31.5	13	17.2	8	17	19	23.9	48.9	56.5
10	3/8	MRT-10-3	31.5	14	17.2	8	17	19	23.9	49.9	57.5
10	1/2	MRT-10-4	33.5	17	17.2	8	22	19	25.9	56.9	64.5
12	1/8	MRT-12-1	36.0	10	22.8	10	22	22	25.9	51.6	61.7
12	1/4	MRT-12-2	36.0	13	22.8	10	22	22	25.9	52.9	63.0
12	3/8	MRT-12-3	36.0	14	22.8	10	22	22	25.9	53.9	64.0
12	1/2	MRT-12-4	36.0	17	22.8	10	22	22	25.9	56.9	67.0
12	3/4	MRT-12-6	39.8	19	22.8	10	27	22	29.7	66.5	76.6
12	1	MRT-12-8	45.3	22	22.8	10	34	22	35.2	80.4	90.5
14	3/8	MRT-14-3	38.0	14	24.4	10	24	27	27.9	56.9	67.0
14	1/2	MRT-14-4	38.0	17	24.4	10	24	27	27.9	61.0	71.1
14	3/4	MRT-14-6	39.8	19	24.4	10	27	27	29.7	66.5	76.6
15	3/8	MRT-15-3	38.0	14	24.4	10	24	27	27.9	56.9	67.0
15	1/2	MRT-15-4	38.0	17	24.4	10	24	27	27.9	61.0	71.1
15	3/4	MRT-15-6	39.8	19	24.4	10	27	27	29.7	66.5	76.6
16	3/8	MRT-16-3	38.0	14	24.4	12	24	27	27.9	56.9	67.0
16	1/2	MRT-16-4	38.0	17	24.4	12	24	27	27.9	61.0	71.1
16	3/4	MRT-16-6	39.8	19	24.4	12	27	27	29.7	66.5	76.6
18	3/8	MRT-18-3	39.8	14	24.4	14	27	30	29.7	62.2	72.3
18	1/2	MRT-18-4	39.8	17	24.4	14	27	30	29.7	64.5	74.6
18	3/4	MRT-18-6	39.8	19	24.4	14	27	30	29.7	66.5	76.6
20	1/2	MRT-20-4	44.6	17	26.0	16	30	32	34.5	74.2	84.3
20	3/4	MRT-20-6	44.6	19	26.0	16	30	32	34.5	76.2	86.3
22	1/2	MRT-22-4	44.6	17	26.0	18	30	32	34.5	74.2	84.3
22	3/4	MRT-22-6	44.6	19	26.0	18	30	32	34.5	76.2	86.3
25	1/2	MRT-25-4	49.1	17	31.3	21	34	38	36.8	76.5	88.8
25	3/4	MRT-25-6	49.1	19	31.3	21	34	38	36.8	78.5	90.8
25	1	MRT-25-8	49.1	22	31.3	21	34	38	36.8	81.3	93.6

(FRACTIONAL)

1/8	1/8	MRT-01-1	23.6	10	12.7	3	12	12	17.0	35.1	41.7
1/8	1/4	MRT-01-2	24.6	13	12.7	3	14	12	18.0	40.2	46.8
1/4	1/8	MRT-02-1	27.0	10	15.2	5	12	14	19.6	38.7	46.1
1/4	1/4	MRT-02-2	27.0	13	15.2	5	14	14	19.6	41.8	49.2
1/4	3/8	MRT-02-3	29.8	14	15.2	5	17	14	22.4	48.4	55.8
1/4	1/2	MRT-02-4	31.8	17	15.2	5	22	14	24.4	55.4	62.8
3/8	1/8	MRT-03-1	30.5	11	16.8	8	17	17	21.3	42.4	51.6

FBT

FEMALE BRANCH TEE
(METRIC)

T TUBE O.D.	PT-NPT MALE PIPE SIZE	CATALOG NUMBER	A	B	D	E	F	G	H	K
6	1/8	FBT-6-1	27.0	19.1	15.3	5	14	14	39.2	54.0
6	1/4	FBT-6-2	29.8	22.4	15.3	5	17	14	44.8	59.6
6	3/8	FBT-6-3	34.6	22.4	15.3	5	22	14	54.4	69.2
6	1/2	FBT-6-4	37.7	28.4	15.3	5	27	14	60.6	74.6
8	1/8	FBT-8-1	29.3	20.0	16.2	6	14	17	43.6	58.6
8	1/4	FBT-8-2	30.6	22.4	16.2	6	17	17	46.2	61.2
8	3/8	FBT-8-3	34.0	27.7	16.2	6	22	17	53.0	68.0
8	1/2	FBT-8-4	36.8	31.7	16.2	6	27	17	58.6	73.6
10	1/8	FBT-10-1	31.5	19.0	17.2	8	17	19	47.8	63.0
10	1/4	FBT-10-2	33.5	22.4	17.2	8	17	19	51.8	67.0
10	3/8	FBT-10-3	37.5	27.7	17.2	8	22	19	59.8	75.0
10	1/2	FBT-10-4	40.3	31.7	17.2	8	27	19	65.4	80.6
12	1/8	FBT-12-1	36.0	22.4	22.8	10	22	22	51.8	72.0
12	1/4	FBT-12-2	36.0	22.4	22.8	10	22	22	51.8	72.0
12	3/8	FBT-12-3	36.0	22.4	22.8	10	22	22	51.8	72.0
12	1/2	FBT-12-4	38.8	28.4	22.8	10	27	22	57.4	77.6
12	3/4	FBT-12-6	41.8	32.4	22.8	10	32	22	63.4	83.6
14	3/8	FBT-14-3	39.8	25.4	24.4	10	27	27	59.4	79.6
14	1/2	FBT-14-4	39.8	28.4	24.4	10	27	27	59.4	79.6
14	3/4	FBT-14-6	42.8	32.4	24.4	10	32	27	65.4	85.6
15	3/8	FBT-15-3	39.8	25.4	24.4	11	27	27	59.4	79.6
15	1/2	FBT-15-4	39.8	28.4	24.4	11	27	27	59.4	79.6
15	3/4	FBT-15-6	42.8	32.4	24.4	11	32	27	65.4	85.6
16	3/8	FBT-16-3	39.8	25.4	24.4	12	27	27	59.4	79.6
16	1/2	FBT-16-4	39.8	28.4	24.4	12	27	27	59.4	79.6
16	3/4	FBT-16-6	42.8	32.4	24.4	12	32	27	64.5	85.6
18	3/8	FBT-18-3	40.5	25.4	24.4	14	27	30	60.8	81.0
18	1/2	FBT-18-4	40.5	28.4	24.4	14	27	30	60.8	81.0
18	3/4	FBT-18-6	43.5	32.4	24.4	14	32	30	66.8	87.0
20	1/2	FBT-20-4	43.5	31.4	26.0	16	32	32	66.8	87.0
20	3/4	FBT-20-6	46.5	35.4	26.0	16	32	32	72.8	93.0
22	1/2	FBT-22-4	43.5	31.4	26.0	18	32	32	66.8	87.0
22	3/4	FBT-22-6	46.5	35.4	26.0	18	32	32	72.8	93.0
25	1/2	FBT-25-4	47.5	33.4	31.3	21	34	38	71.0	95.0
25	3/4	FBT-25-6	50.5	37.4	31.3	21	34	38	76.4	101.0

(FRACTIONAL)

1/4	1/8	FBT-02-1	27.0	19.1	15.2	5	14	14	39.2	54.0
1/4	1/4	FBT-02-2	29.8	22.4	15.2	5	17	14	44.8	59.6
1/4	3/8	FBT-02-3	34.6	22.4	15.2	5	22	14	54.4	69.2
1/4	1/2	FBT-02-4	37.7	28.4	15.2	5	27	14	60.6	74.6
3/8	1/8	FBT-03-1	30.5	19.8	16.8	7	17	17	46.2	61.0
3/8	1/4	FBT-03-2	31.2	22.4	16.8	7	17	17	48.0	62.4
3/8	3/8	FBT-03-3	33.3	22.4	16.8	7	22	17	52.0	66.6
3/8	1/2	FBT-03-4	36.1	28.4	16.8	7	27	17	57.4	72.2
1/2	1/8	FBT-04-1	36.0	22.4	22.8	10	22	22	51.8	72.0
1/2	1/4	FBT-04-2	36.0	22.4	22.8	10	22	22	51.8	72.0
1/2	3/8	FBT-04-3	36.0	22.4	22.8	10	22	22	51.8	72.0
1/2	1/2	FBT-04-4	38.8	28.4	22.8	10	27	22	57.4	77.6
1/2	3/4	FBT-04-6	41.8	32.4	22.8	10	32	22	63.4	83.6
3/4	1/2	FBT-06-4	39.9	28.4	24.4	15	27	30	59.4	79.8
3/4	3/4	FBT-06-6	44.7	31.7	24.4	15	32	30	69.0	89.4
1	3/4	FBT-08-6	49.0	31.7	31.2	21	34	38	73.6	98.0

ALL DIMENSIONS ARE IN MILLIMETERS. DIMENSIONS FOR REFERENCE ONLY. SUBJECT TO CHANGE.

FRT

FEMALE RUN TEE
(METRIC)

T TUBE O.D.	PT-NPT MALE PIPE SIZE	CATALOG NUMBER	A	D	E	F	G	H	J	K
6	1/8	FRT-6-1	27.0	15.3	5	14	14	19.6	38.6	46.0
6	1/4	FRT-6-2	29.8	15.3	5	17	14	22.4	44.7	52.1
6	3/8	FRT-6-3	34.6	15.3	5	22	14	27.2	58.7	57.0
6	1/2	FRT-6-4	37.7	15.3	5	27	14	30.2	41.4	66.1
8	1/8	FRT-8-1	29.9	16.2	6	14	17	22.4	41.4	48.9
8	1/4	FRT-8-2	30.6	16.2	6	17	17	23.1	45.5	53.0
8	3/8	FRT-8-3	34.0	16.2	6	22	17	26.5	54.2	61.7
8	1/2	FRT-8-4	36.8	16.2	6	27	17	29.3	61.0	68.5
10	1/8	FRT-10-1	31.5	17.2	8	17	19	23.9	42.9	50.5
10	1/4	FRT-10-2	33.5	17.2	8	17	19	25.9	48.3	55.9
10	3/8	FRT-10-3	37.5	17.2	8	22	19	29.9	57.6	65.2
10	1/2	FRT-10-4	40.3	17.2	8	27	19	32.7	64.4	72.0
12	1/8	FRT-12-1	36.0	22.8	10	22	22	25.9	48.3	58.4
12	1/4	FRT-12-2	36.0	22.8	10	22	22	25.9	48.3	58.4
12	3/8	FRT-12-3	36.0	22.8	10	22	22	25.9	48.3	58.4
12	1/2	FRT-12-4	38.8	22.8	10	27	22	28.7	57.1	67.2
12	3/4	FRT-12-6	41.8	22.8	10	32	22	31.7	64.1	74.2
14	3/8	FRT-14-3	39.8	24.4	10	27	27	29.7	55.1	65.2
14	1/2	FRT-14-4	39.8	24.4	10	27	27	29.7	58.1	68.2
14	3/4	FRT-14-6	42.8	24.4	10	32	27	32.7	65.1	75.2
15	3/8	FRT-15-3	39.8	24.4	11	27	27	29.7	55.1	65.2
15	1/2	FRT-15-4	39.8	24.4	11	27	27	29.7	58.1	68.2
15	3/4	FRT-15-6	42.8	24.4	11	32	27	32.7	65.1	75.2
16	3/8	FRT-16-3	39.8	24.4	12	27	27	29.7	55.1	65.2
16	1/2	FRT-16-4	39.8	24.4	12	27	27	29.7	58.1	68.2
16	3/4	FRT-16-6	42.8	24.4	12	32	27	32.7	65.1	75.2
18	3/8	FRT-18-3	40.5	24.4	14	27	30	30.4	55.8	65.9
18	1/2	FRT-18-4	40.5	24.4	14	27	30	30.4	58.8	68.9
18	3/4	FRT-18-6	43.5	24.4	14	32	30	33.4	65.8	75.9
20	1/2	FRT-20-4	43.5	26.0	16	32	32	33.4	64.8	74.9
20	3/4	FRT-20-6	46.5	26.0	16	32	32	36.4	71.8	81.9
22	1/2	FRT-22-4	43.5	26.0	18	32	32	33.4	64.8	74.9
22	3/4	FRT-22-6	46.5	26.0	18	32	32	36.4	71.8	81.9
25	1/2	FRT-25-4	47.5	31.3	21	34	38	35.2	68.6	80.9
25	3/4	FRT-25-6	50.5	31.3	21	34	38	38.2	75.6	87.9

(FRACTIONAL)

1/4	1/8	FRT-02-1	27.0	15.2	5	14	14	19.6	38.6	46.0
1/4	1/4	FRT-02-2	29.8	15.2	5	17	14	22.4	44.7	52.1
1/4	3/8	FRT-02-3	34.6	15.2	5	22	14	27.2	49.6	57.0
1/4	1/2	FRT-02-4	37.7	15.2	5	27	14	30.2	58.7	66.1
3/8	1/8	FRT-03-1	30.5	16.8	7	17	17	23.1	42.9	50.3
3/8	1/4	FRT-03-2	31.2	16.8	7	17	17	24.0	46.4	53.6
3/8	3/8	FRT-03-3	33.3	16.8	7	22	17	26.0	48.4	55.7
3/8	1/2	FRT-03-4	36.1	16.8	7	27	17	28.7	57.1	64.2
1/2	1/8	FRT-04-1	36.0	22.8	10	22	22	25.9	48.3	58.4
1/2	1/4	FRT-04-2	36.0	22.8	10	22	22	25.9	48.3	58.4
1/2	3/8	FRT-04-3	36.0	22.8	10	22	22	26.0	48.3	58.4
1/2	1/2	FRT-04-4	38.8	22.8	10	27	22	28.7	57.1	67.2
1/2	3/4	FRT-04-6	41.8	22.8	10	32	22	31.7	64.1	74.2
3/4	1/2	FRT-06-4	39.9	24.4	15	27	30	29.7	51.8	68.3
3/4	3/4	FRT-06-6	44.7	24.4	15	32	30	34.5	66.2	76.4
1	3/4	FRT-08-6	50.5	31.3	21	34	38	38.2	75.6	87.9

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FF

FROFFT FERRULE
(METRIC) (FRACTIONAL)

TUBE O.D.	CATALOG FFUMBER	TUBE O.D.	CATALOG FFUMBER
2	FF-2	1/16	FF-005
3	FF-3	1/8	FF-01
4	FF-4	3/16	FF-015
6	FF-6	1/4	FF-02
8	FF-8	3/8	FF-03
10	FF-10	1/2	FF-04
12	FF-12	5/8	FF-05
14	FF-14	3/4	FF-06
15	FF-15	1	FF-08
16	FF-16		
18	FF-18		
20	FF-20		
22	FF-22		
25	FF-25		

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BF

BACK FERRULE
(METRIC) (FRACTIONAL)

TUBE O.D.	CATALOG NUMBER	TUBE O.D.	CATALOG NUMBER
2	BF-2	1/16	BF-005
3	BF-3	1/8	BF-01
4	BF-4	3/16	BF-015
6	BF-6	1/4	BF-02
8	BF-8	3/8	BF-03
10	BF-10	1/2	BF-04
12	BF-12	5/8	BF-05
14	BF-14	3/4	BF-06
15	BF-15	1	BF-08
16	BF-16		
18	BF-18		
20	BF-20		
22	BF-22		
25	BF-25		

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N

NUT
(METRIC)

TUBE O.D.	CATALOG NUMBER	G	L
2	N-2	10	11.9
3	N-3	10	11.9
4	N-4	12	11.9
6	N-6	14	12.7
8	N-8	17	13.5
10	N-10	19	15.1
12	N-12	22	17.4
14	N-14	27	17.4
15	N-15	27	17.4
16	N-16	27	17.4
18	N-18	30	17.4
20	N-20	32	17.4
22	N-22	32	17.4
25	N-25	38	20.6

(FRACTIONAL)

1/16	N-005	10	7.9
1/8	N-01	10	11.9
3/16	N-015	12	11.9
1/4	N-02	14	12.7
3/8	N-03	17	13.5
1/2	N-04	22	17.5
5/8	N-05	27	17.5
3/4	N-06	30	17.5
1	N-08	38	20.6

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P

PLUG
(METRIC) (FRACTIONAL)

TUBE O.D.	CATALOG NUMBER	G	O.D.	CATALOG NUMBER	G
3	P-3	10	1/16	P-005	10.0
4	P-4	12	1/8	P-01	10.0
6	P-6	14	3/16	P-015	12.0
8	P-8	17	1/4	P-02	14.0
10	P-10	19	3/8	P-03	17.0
12	P-12	22	1/2	P-04	22.0
14	P-14	27	3/4	P-06	32.0
15	P-15	27	1	P-08	38.0
16	P-16	27			
18	P-18	30			
20	P-20	32			
22	P-22	32			
25	P-25	38			

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C

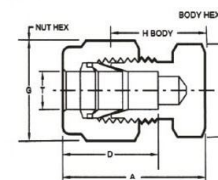
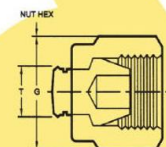
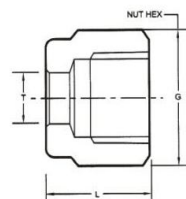
CAP
(METRIC)

TUBE O.D.	CATALOG NUMBER	A	D	F	G	H
2	C-2	20.1	12.9	12	12	13.5
3	C-3	20.1	12.9	12	12	13.5
4	C-4	21.3	13.7	12	12	14.7
6	C-6	23.1	15.3	14	14	15.7
8	C-8	24.5	16.2	14	17	17.0
10	C-10	26.6	17.2	19	19	19.0
12	C-12	29.1	22.8	22	22	19.0
14	C-14	29.9	24.4	24	27	19.8
15	C-15	29.9	24.4	24	27	19.8
16	C-16	29.9	24.4	24	27	19.8
18	C-18	31.4	24.4	27	30	21.3
20	C-20	34.0	26.0	30	32	23.9
22	C-22	34.0	26.0	30	32	23.9
25	C-25	38.5	31.3	35	41	26.2

(FRACTIONAL)

1/16	C-005	15.0	8.6	10	10	11.2
1/8	C-01	20.1	12.7	12	12	13.5
3/16	C-015	21.3	13.7	12	12	14.7
1/4	C-02	23.4	15.2	14	14	17.0
3/8	C-03	25.7	16.3	17	17	18.3
1/2	C-04	29.2	22.8	22	22	19.1
3/4	C-06	31.5	24.4	27	30	21.3
1	C-08	38.4	31.2	35	38	26.2

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ODSW SOCKET WELDING PIPE CONNECTOR (METRIC)

T TUBE O.D.	MALE PIPE WELD SIZE	CATALOG NUMBER	A	B	D	E	F	G	H
4	1/8	ODSW-4-1	29.7	12	13.7	3	14	12	23.1
6	1/8	ODSW-6-1	31.3	12	15.3	5	14	14	23.9
6	1/4	ODSW-6-2	35.8	15	15.3	5	17	14	28.4
6	3/8	ODSW-6-3	37.6	15	15.3	5	22	14	30.2
6	1/2	ODSW-6-4	42.5	20	15.3	5	27	14	35.1
8	1/8	ODSW-8-1	32.1	12	16.2	5	14	17	24.6
8	1/4	ODSW-8-2	37.0	15	16.2	6	17	17	29.5
8	3/8	ODSW-8-3	38.5	15	16.2	6	22	17	31.0
8	1/2	ODSW-8-4	43.3	20	16.2	6	27	17	35.8
10	1/8	ODSW-10-1	34.8	12	17.2	5	19	19	27.2
10	1/4	ODSW-10-2	37.8	15	17.2	6	19	19	30.2
10	3/8	ODSW-10-3	39.4	15	17.2	8	22	19	36.8
10	1/2	ODSW-10-4	44.2	20	17.0	8	27	19	36.8
12	1/8	ODSW-12-1	37.3	12	22.8	5	22	22	27.2
12	1/4	ODSW-12-2	40.3	15	22.8	6	22	22	30.2
12	3/8	ODSW-12-3	41.9	15	22.8	8	22	22	31.8
12	1/2	ODSW-12-4	46.7	20	22.0	10	27	22	36.6
12	3/4	ODSW-12-6	48.3	21	22.8	10	32	22	38.2
12	1	ODSW-12-8	51.3	24	22.8	10	40	22	41.2
14	3/8	ODSW-14-3	41.9	15	24.5	8	27	27	31.8
14	1/2	ODSW-14-4	46.7	20	24.4	10	27	27	36.6
14	3/4	ODSW-14-6	48.3	21	24.4	10	32	27	38.2
15	3/8	ODSW-15-3	41.9	15	24.4	8	27	27	31.8
15	1/2	ODSW-15-4	46.7	20	24.4	10	27	27	36.6
15	3/4	ODSW-15-6	48.5	21	24.4	12	32	27	38.4
18	3/8	ODSW-18-3	42.1	15	24.0	14	27	30	32.0
18	1/2	ODSW-18-4	46.9	20	24.0	14	27	30	36.8
18	3/4	ODSW-18-6	48.2	21	24.0	14	32	30	38.4
20	1/2	ODSW-20-4	47.9	20	26.0	16	30	32	37.8
20	3/4	ODSW-20-6	49.7	21	26.0	16	32	32	39.6
22	1/2	ODSW-22-4	47.9	20	26.0	16	30	32	37.8
22	3/4	ODSW-22-6	49.7	21	26.0	18	32	32	39.6
22	1	ODSW-22-8	57.9	24	26.0	18	40	32	47.8
25	3/4	ODSW-22-6	53.4	21	31.3	21	35	38	41.1
25	1	ODSW-22-8	62.3	24	31.3	21	40	38	50.5

(FRACTIONAL)

1/8	1/8	ODSW-01-1	28.7	12	12.7	2	14	12	22.1
1/8	1/4	ODSW-01-2	33.5	15	12.7	2	17	12	27.0
1/4	1/8	ODSW-02-1	31.2	12	15.2	5	14	14	24.0
1/4	1/4	ODSW-02-2	35.8	15	15.2	5	17	14	28.4
1/4	3/8	ODSW-02-3	37.6	15	15.2	5	22	14	30.2
1/4	1/2	ODSW-02-4	42.4	20	15.2	5	27	14	35.1
3/8	1/8	ODSW-03-1	32.8	12	16.8	5	17	19	25.4
3/8	1/4	ODSW-03-2	37.6	15	16.8	6	17	19	30.2
3/8	3/8	ODSW-03-3	39.1	15	16.8	8	22	19	31.8
3/8	1/2	ODSW-03-4	43.9	20	16.8	8	27	19	36.6
3/8	3/4	ODSW-03-6	47.8	21	16.8	8	32	19	40.4
1/2	1/8	ODSW-04-1	37.3	12	22.8	5	22	22	27.2
1/2	1/4	ODSW-04-2	40.4	15	22.8	6	22	22	30.2
1/2	3/8	ODSW-04-3	40.2	15	22.8	8	22	22	31.8
1/2	1/2	ODSW-04-4	46.7	20	22.8	10	27	22	36.6
1/2	3/4	ODSW-04-6	48.3	21	22.8	10	32	22	38.2
1/2	1	ODSW-04-8	51.3	24	22.8	10	40	22	41.2
5/8	3/8	ODSW-05-3	42.1	15	24.4	8	27	27	32.0
5/8	1/2	ODSW-05-4	46.9	20	24.4	11	27	27	36.8
5/8	3/4	ODSW-05-6	48.5	21	24.4	12	32	27	38.4
3/4	1/2	ODSW-06-4	46.7	20	24.4	15	27	30	36.6
3/4	3/4	ODSW-06-6	48.3	21	24.4	15	32	30	38.1
1	3/4	ODSW-08-6	53.3	21	31.3	21	35	38	41.1
1	1	ODSW-08-8	62.2	24	31.3	21	40	38	50.0

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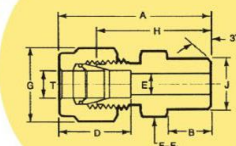
ODBW BUTT WELDING PIPE CONNECTOR (METRIC)

T TUBE O.D.	MALE PIPE WELD SIZE	CATALOG NUMBER	A	B	D	E	F	G	H	J
3	1/8	ODBW-3-1	30.5	10	12.9	2	12	12	23.9	11.3
4	1/8	ODBW-4-1	31.2	10	13.7	3	12	12	24.6	11.3
6	1/8	ODBW-6-1	32.8	10	15.3	5	12	14	25.4	11.3
6	1/4	ODBW-6-2	37.9	13	15.3	5	14	14	30.5	13.7
8	1/8	ODBW-8-1	34.2	10	16.2	6	14	17	26.7	11.3
8	1/4	ODBW-8-2	38.7	13	16.2	6	14	17	31.2	13.7
8	1/2	ODBW-8-4	46.5	17	17.0	8	22	17	38.4	21.3
10	1/4	ODBW-10-2	40.9	13	17.2	8	17	19	33.3	13.7
10	3/8	ODBW-10-3	43.4	14	22.8	10	22	22	33.3	17.1
10	1/2	ODBW-10-4	46.5	17	17.2	8	22	19	38.9	21.3
12	1/4	ODBW-12-2	43.4	13	22.8	8	22	22	33.3	13.7
12	3/8	ODBW-12-3	43.4	14	22.8	10	22	22	33.3	17.1
12	1/2	ODBW-12-4	49.0	17	22.8	10	22	22	38.9	21.3
14	3/8	ODBW-14-3	44.1	14	24.4	10	24	27	34.0	17.1
15	1/2	ODBW-15-4	49.0	17	24.4	11	24	27	38.9	21.3
16	1/2	ODBW-16-4	49.0	17	24.4	12	24	27	38.9	21.3
18	1/2	ODBW-18-4	50.5	17	24.4	14	27	30	40.4	21.3
20	3/4	ODBW-20-6	52.3	19	26.0	16	30	32	42.2	26.7
22	3/4	ODBW-22-6	52.3	19	26.0	18	30	32	42.2	26.7
25	1	ODBW-25-8	60.4	22	31.3	21	35	38	48.1	33.4

(FRACTIONAL)

1/8	1/8	ODBW-01-1	30.4	10	12.7	3	12	12	23.8	10.3
3/16	1/8	ODBW-005-1	31.2	10	13.7	3	12	12	23.8	10.3
1/4	1/8	ODBW-02-1	32.8	10	15.2	5	12	14	25.4	10.3
1/4	1/8	ODBW-02-2	37.8	13	15.2	5	14	14	30.5	13.7
3/8	1/4	ODBW-03-2	38.6	13	16.8	8	17	17	32.5	13.7
3/8	3/8	ODBW-03-3	39.8	14	16.8	8	22	17	32.5	17.1
3/8	1/2	ODBW-03-4	46.2	17	16.8	8	22	17	38.8	21.3
3/8	3/4	ODBW-03-6	47.8	19	16.8	8	27	17	40.4	26.7
1/2	3/8	ODBW-04-3	45.2	14	22.8	10	22	22	33.3	17.1
1/2	1/2	ODBW-04-4	49.0	17	22.8	10	22	22	38.8	21.3
1/2	3/4	ODBW-04-6	50.5	19	22.8	10	27	22	40.4	26.7
5/8	1/2	ODBW-05-4	49.0	17	24.4	12	27	27	38.8	21.3
3/4	3/4	ODBW-06-6	50.5	19	24.4	15	27	30	40.4	26.7
1	1	ODBW-08-8	62.2	22	31.2	21	35	38	50.0	33.4

ALL DIMENSIONS ARE IN MILLIMETERS. DIMENSIONS FOR REFERENCE ONLY. SUBJECT TO CHANGE.



ODTA REDUCER (METRIC)

T TUBE O.D.	TX TUBE O.D. SIZE	CATALOG NUMBER	A	D	E	F	G	H
2	3	ODTA-2-3	33.5	12.9	1.7	10	12	26.9
3	4	ODTA-3-4	35.0	12.9	2.4	10	12	28.4
3	6	ODTA-3-6	36.1	12.9	2.4	10	12	29.5
3	10	ODTA-3-10	38.4	12.9	2.4	12	12	31.8
4	6	ODTA-4-6	37.1	13.7	3	10	12	30.5
6	3	ODTA-6-3	36.9	15.3	2	12	14	29.5
6	8	ODTA-6-8	39.9	15.3	5	12	14	32.5
6	10	ODTA-6-10	40.7	15.3	5	12	14	33.3
6	12	ODTA-6-12	46.3	15.3	5	14	14	38.9
6	18	ODTA-6-18	49.6	15.3	5	19	14	42.2
8	6	ODTA-8-6	40.3	16.2	5	14	17	32.8
8	10	ODTA-8-10	42.0	16.2	6	14	17	34.5
8	12	ODTA-8-12	47.6	16.2	6	14	17	40.1
10	6	ODTA-10-6	42.4	17.2	5	17	19	34.8
10	8	ODTA-10-8	43.4	17.2	6	17	19	35.8
10	12	ODTA-10-12	49.8	17.2	8	17	19	42.2
10	15	ODTA-10-15	51.3	17.2	8	17	19	43.7
10	18	ODTA-10-18	51.3	17.2	8	19	19	43.7
12	6	ODTA-12-6	44.9	22.8	5	22	22	34.8
12	8	ODTA-12-8	45.9	22.8	6	22	22	35.8
12	10	ODTA-12-10	46.7	22.8	8	22	22	36.6
12	16	ODTA-12-16	53.8	22.8	10	22	22	43.7
12	18	ODTA-12-18	53.8	22.8	10	22	22	43.7
12	20	ODTA-12-20	56.1	22.8	10	22	22	46.0
12	22	ODTA-12-22	56.1	22.8	10	24	22	46.0
12	25	ODTA-12-25	62.4	22.8	10	27	22	52.3
16	12	ODTA-16-12	53.0	24.4	10	24	27	42.9
18	12	ODTA-18-12	54.6	24.4	10	27	30	44.5
18	16	ODTA-18-16	56.1	24.4	14	27	30	46.0
18	20	ODTA-18-20	57.6	24.4	14	27	30	47.5
18	22	ODTA-18-22	57.6	24.4	14	27	30	47.5
18	25	ODTA-18-25	62.4	24.4	14	27	30	52.3
20	16	ODTA-20-16	57.9	26.0	14	30	32	47.8
20	18	ODTA-20-18	57.9	26.0	16	30	32	47.8
20	22	ODTA-20-22	59.4	26.0	16	30	32	49.3
20	25	ODTA-20-25	64.2	26.0	16	30	32	54.1
22	18	ODTA-22-18	57.9	26.0	16	30	32	47.8
22	20	ODTA-22-20	59.4	26.0	18	30	32	49.3
22	25	ODTA-22-25	64.2	26.0	18	30	32	54.1
25	18	ODTA-25-18	63.1	31.3	16	35	38	50.8
25	20	ODTA-25-20	64.6	31.3	18	35	38	52.3

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ODTA REDUCER (FRACTIONAL)

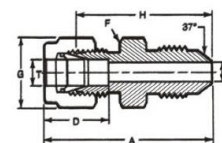
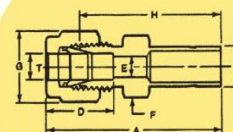
T TUBE O.D.	TX TUBE O.D. SIZE	CATALOG NUMBER	A	D	E	F	G	H
1/16	1/8	ODTA-005-1	29.2	8.6	1	10	10	25.4
1/16	1/4	ODTA-005-2	31.5	8.6	1	10	10	27.7
1/8	1/16	ODTA-01-005	29.0	12.7	0.7	10	12	20.3
1/8	1/8	ODTA-01-1	33.5	12.7	2	10	12	26.9
1/8	1/4	ODTA-01-2	36.0	12.7	3	10	12	29.5
1/8	3/8	ODTA-01-3	37.6	12.7	3	10	12	31.0
1/8	1/2	ODTA-01-4	44.2	12.7	3	14	12	37.6
1/4	1/8	ODTA-02-1	36.8	15.2	2	12	14	29.5
1/4	1/4	ODTA-02-2	38.1	15.2	4	12	14	31.8
1/4	3/8	ODTA-02-3	40.6	15.2	5	12	14	33.3
1/4	1/2	ODTA-02-4	46.2	15.2	5	14	14	38.9
1/4	5/8	ODTA-02-5	48.0	15.2	5	17	14	40.6
1/4	3/4	ODTA-02-6	47.0	15.2	5	19	14	40.6
3/8	1/4	ODTA-03-2	41.4	16.8	4	17	17	34.0
3/8	3/8	ODTA-03-3	43.2	16.8	7	17	17	35.8
3/8	1/2	ODTA-03-4	48.5	16.8	8	17	17	41.1
3/8	5/8	ODTA-03-5	50.3	16.8	8	17	17	42.9
3/8	3/4	ODTA-03-6	50.3	16.8	8	22	17	42.9
1/2	1/4	ODTA-04-2	45.0	22.8	4	22	22	34.8
1/2	3/8	ODTA-04-3	46.7	22.8	7	22	22	36.6
1/2	1/2	ODTA-04-4	52.3	22.8	10	22	22	42.2
1/2	5/8	ODTA-04-5	50.8	22.8	10	22	22	43.7
1/2	3/4	ODTA-04-6	53.8	22.8	10	22	22	43.7
1/2	1	ODTA-04-8	60.2	22.8	10	27	22	50.0
5/8	3/4	ODTA-05-6	54.6	24.4	12	24	27	44.5
5/8	1	ODTA-05-8	61.0	24.4	12	27	27	50.8
3/4	1/2	ODTA-06-4	54.6	24.4	10	27	30	44.5
3/4	1	ODTA-06-8	62.5	24.4	15	27	30	52.3

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MCH AN UNION CONNECTOR (FRACTIONAL)

T TUBE O.D.	AN MALE SIZE	CATALOG NUMBER	A	D	E	F	G	H
1/4	1/4	MCH-02-2	37.6	15.2	4.3	12	14	30.2
3/8	1/4	MCH-03-2	39.6	16.8	4.3	17	17	32.3
3/8	3/8	MCH-03-3	39.6	16.8	7.1	17	17	32.3
1/2	3/8	MCH-04-3	46.0	22.8	8.0	22	22	33.2
1/2	1/2	MCH-04-4	46.0	22.8	9.9	22	22	35.8
3/4	1/2	MCH-06-4	53.3	24.4	12.0	27	30	43.2
3/4	3/4	MCH-06-6	53.3	24.4	15.5	27	30	43.2
1	1	MCH-08-8	61.5	31.2	21.3	35	38	49.3

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TAM MALE TUBE ADAPTER (METRIC)

T TUBE O.D.	PT/NPT MALE PIPE SIZE	CATALOG NUMBER	A	B	E	F
6	1/8	TAM-6-1	32.8	10	4.6	12
6	1/4	TAM-6-2	38.1	13	4.6	14
8	1/4	TAM-8-2	39.1	13	6.4	14
10	1/4	TAM-10-2	39.9	13	7.1	14
10	3/8	TAM-10-3	40.6	14	7.7	17
12	1/4	TAM-12-2	46.5	13	7.1	14
12	3/8	TAM-12-3	51.8	14	9.1	17
12	1/2	TAM-12-4	74.7	17	9.1	22

(FRACTIONAL)

1/4	1/8	TAM-02-1	31.8	10	4.8	12
1/4	1/4	TAM-02-2	37.1	13	4.8	14
1/4	3/8	TAM-02-3	37.8	14	4.8	17
1/4	1/2	TAM-02-4	43.4	17	4.8	22
3/8	1/8	TAM-03-1	33.5	10	7.0	12
3/8	1/4	TAM-03-2	38.9	13	7.0	14
3/8	3/8	TAM-03-3	39.6	14	7.0	17
3/8	1/2	TAM-03-4	45.2	17	7.0	22
1/2	1/4	TAM-04-2	44.5	13	10.0	14
1/2	3/8	TAM-04-3	45.2	14	10.0	17
1/2	1/2	TAM-04-4	50.8	17	10.0	22
5/8	1/2	TAM-05-4	52.3	17	12.7	22
3/4	1/2	TAM-06-4	52.3	17	15.0	22
3/4	3/4	TAM-06-6	52.3	19	15.0	27
1	3/4	TAM-08-6	58.7	19	20.0	27
1	1	TAM-08-8	66.0	22	20.0	35

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TAF FEMALE TUBE ADAPTER (METRIC)

T TUBE O.D.	PT/NPT FEMALE PIPE SIZE	CATALOG NUMBER	A	B	E	F
6	1/8	TAF-6-1	32.5	10	4.8	14
6	1/4	TAF-6-2	37.1	13	4.8	17
8	1/4	TAF-8-2	37.6	13	6.0	17
10	1/4	TAF-10-2	38.1	13	8.0	17
10	3/8	TAF-10-3	40.1	14	8.0	22
12	1/4	TAF-12-2	43.4	13	10.0	17
12	3/8	TAF-12-3	45.5	14	10.0	22
12	1/2	TAF-12-4	51.8	17	10.0	27

(FRACTIONAL)

1/4	1/8	TAF-02-1	33.0	10	4.8	14
1/4	1/4	TAF-02-2	37.1	13	4.8	17
1/4	3/8	TAF-02-3	39.4	14	4.8	22
1/4	1/2	TAF-02-4	45.5	17	4.8	27
3/8	1/8	TAF-03-1	34.3	10	7.0	14
3/8	1/4	TAF-03-2	38.1	13	7.0	17
3/8	3/8	TAF-03-3	40.4	14	7.0	22
3/8	1/2	TAF-03-4	46.7	17	7.0	27
1/2	1/4	TAF-04-2	43.4	13	10.0	14
1/2	3/8	TAF-04-3	45.5	14	10.0	22
1/2	1/2	TAF-04-4	51.8	17	10.0	27
5/8	1/2	TAF-05-4	53.1	17	12.7	27
3/4	1/2	TAF-06-4	52.8	17	15.0	27
3/4	3/4	TAF-06-6	54.9	19	15.0	32
1	3/4	TAF-08-6	60.7	19	20.0	32
1	1	TAF-08-8	64.3	22	20.0	34

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HN HEX NIPPLE (METRIC)

P MALE PT/NPT SIZE	CATALOG NUMBER	A	E MIN OPENING	F HEX FLAT
1/8	HN-01	26	5	12
1/4	HN-02	32	6	14
3/8	HN-03	35	8	17
1/2	HN-04	42	10	22
3/4	HN-06	47	15	27
1	HN-08	56	21	35

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RHN REDUCING HEX NIPPLE

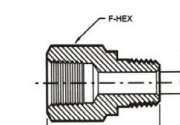
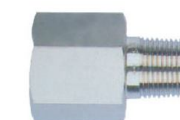
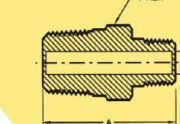
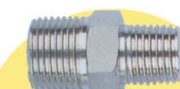
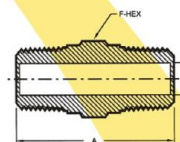
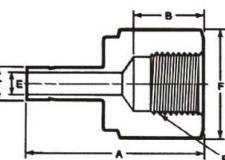
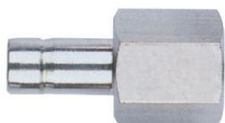
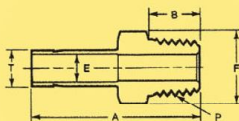
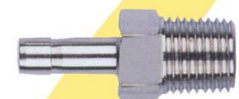
P MALE PT/NPT SIZE	P1 MALE PT/NPT SIZE	CATALOG NUMBER	A	E MIN OPENING	F HEX FLAT
1/4	1/8	RHN-02-01	29	5	14
3/8	1/8	RHN-03-01	31	5	17
3/8	1/4	RHN-03-02	32	6	17
1/2	1/8	RHN-04-01	35	5	22
1/2	1/4	RHN-04-02	38	6	22
1/2	3/8	RHN-04-03	39	8	22
3/4	1/4	RHN-06-02	41	6	27
3/4	3/8	RHN-06-03	42	8	27
3/4	1/2	RHN-06-04	45	10	27
1	1/2	RHN-08-04	51	10	35
1	3/4	RHN-08-06	53	15	35

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RA REDUCING ADAPTOR

P FEMALE PT/NPT SIZE	P1 MALE PT/NPT SIZE	CATALOG NUMBER	A	E MIN OPENING	F HEX FLAT
1/8	1/8	RA-01-01	27	5	14
1/4	1/8	RA-02-01	30	5	17
1/4	1/4	RA-02-02	33	6	17
3/8	1/8	RA-03-01	30	5	22
3/8	1/4	RA-03-02	33	6	22
3/8	3/8	RA-03-03	34	8	22
1/2	1/8	RA-04-01	35	5	27
1/2	1/4	RA-04-02	38	6	27
1/2	3/8	RA-04-03	39	8	27
1/2	1/2	RA-04-04	42	10	27
3/4	1/4	RA-06-02	40	6	32
3/4	3/8	RA-06-03	41	8	32
3/4	1/2	RA-06-04	44	10	32
1	1/4	RA-08-02	43	6	40
1	3/8	RA-08-03	44	8	40
1	1/2	RA-08-04	47	10	40
1	3/4	RA-08-06	49	15	40

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HCG HEX COUPLING

P FEMALE PT/NPT SIZE	CATALOG NUMBER	A	E MIN OPENING	F HEX FLAT
1/8	HCG-01	25	8	14
1/4	HCG-02	35	11	17
3/8	HCG-03	35	14	22
1/2	HCG-04	39	18	27
3/4	HCG-06	43	23	35
1	HCG-08	49	29	40

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RHCG REDUCING HEX COUPLING

FEMALE PT/NPT SIZE	FEMALE PT/NPT SIZE	CATALOG NUMBER	A	E	F
1/4	1/8	RHCG-02-01	32	8	17
3/8	1/8	RHCG-03-01	32	8	22
3/8	1/4	RHCG-03-02	35	11	22
1/2	1/8	RHCG-04-01	37	8	27
1/2	1/4	RHCG-04-02	40	11	27
1/2	3/8	RHCG-04-03	41	14	27
3/4	1/4	RHCG-06-02	40	11	32
3/4	3/8	RHCG-06-03	41	14	32
3/4	1/2	RHCG-06-04	44	18	32
1	1/2	RHCG-08-04	47	18	40
1	3/4	RHCG-08-06	49	23	40

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RB REDUCING BUSHING

P MALE PT/NPT SIZE	P1 FEMALE PT/NPT SIZE	CATALOG NUMBER	A	E MIN OPENING	F HEX FLAT
1/4	1/8	RB-02-01	20	7	14
3/8	1/8	RB-03-01	25	7	17
3/8	1/4	RB-03-02	25	11	17
1/2	1/8	RB-04-01	27	7	22
1/2	1/4	RB-04-02	27	11	22
1/2	3/8	RB-04-03	27	14	22
3/4	1/4	RB-06-02	30	11	27
3/4	3/8	RB-06-03	30	14	27
3/4	1/2	RB-06-04	30	19	27
1	1/4	RB-08-02	35	11	35
1	3/8	RB-08-03	35	14	35
1	1/2	RB-08-04	35	19	35
1	3/4	RB-08-06	35	22	35

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MET MALE ELBOW

P MALE PT/NPT SIZE	CATALOG NUMBER	E	S
1/8	MET-01	5	19.8
1/4	MET-02	6	24.0
3/8	MET-03	8	26.8
1/2	MET-04	10	32.7
3/4	MET-06	15	37.5
1	MET-08	21	45.2

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E ELBOW

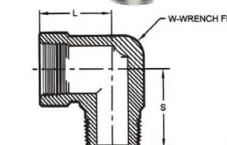
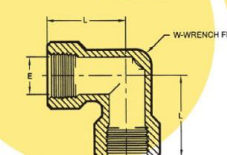
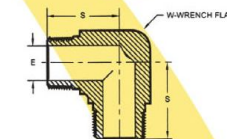
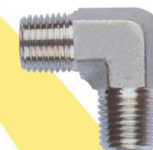
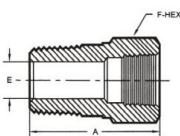
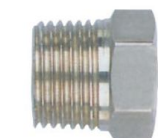
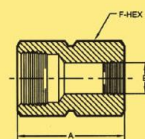
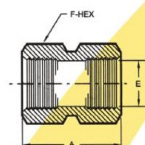
P MALE PT/NPT SIZE	CATALOG NUMBER	E	L
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1/4	E-02	11	24.8
3/8	E-03	14	27.7
1/2	E-04	18	35.5
3/4	E-06	23	42.5
1	E-08	29	47.2

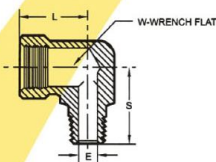
ALL DIMENSIONS ARE IN MILLIMETERS. DIMENSIONS FOR REFERENCE ONLY. SUBJECT TO CHANGE.

SE SEREET ELBOW

P MALE/FEMALE PT/NPT SIZE	CATALOG NUMBER	E	L	S
1/8	SE-01	5	20.0	21.0
1/4	SE-02	6	24.8	25.8
3/8	SE-03	8	27.7	29.7
1/2	SE-04	10	35.5	35.5
3/4	SE-06	15	42.5	40.5
1	SE-08	21	47.2	45.2

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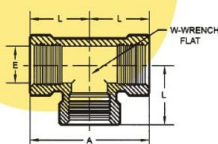


RSE

REDUCING STREET ELBOW

P FEMALE PT/NPT SIZE	P1 MALE PT/NPT SIZE	CATALOG NUMBER	E	L	S
1/4	1/8	RSE-02-01	5	24.8	22.8
3/8	1/4	RSE-03-02	6	27.7	28.7
1/2	1/4	RSE-04-02	6	35.5	31.5
1/2	3/8	RSE-04-03	8	35.5	32.5
3/4	3/8	RSE-06-03	8	42.5	35.5
3/4	1/2	RSE-06-04	10	42.5	38.5

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T

TEE

P FEMALE PT/NPT SIZE	CATALOG NUMBER	A	E	L
1/8	T-01	40.0	8	20.0
1/4	T-02	49.6	11	24.8
3/8	T-03	55.4	14	27.7
1/2	T-04	71.0	18	35.5
3/4	T-06	83.0	23	42.5
1	T-08	94.4	29	47.2

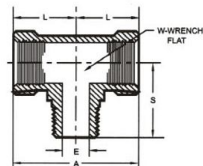
ALL DIMENSIONS ARE IN MILLIMETERS. DIMENSIONS FOR REFERENCE ONLY. SUBJECT TO CHANGE.

BT

BRANCH TEE

P MALE/FEMALE PT/NPT SIZE	CATALOG NUMBER	A	E	L	S
1/8	BT-01	40.0	5	20.0	21.0
1/4	BT-02	49.6	6	24.8	25.8
3/8	BT-03	55.4	8	27.7	29.7
1/2	BT-04	71.0	10	35.5	35.5
3/4	BT-06	85.0	15	42.5	40.5
1	BT-08	94.4	21	47.5	45.2

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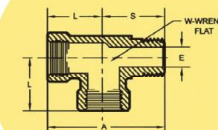


ST

STREET TEE

P MALE/FEMALE PT/NPT SIZE	CATALOG NUMBER	A	E	L	S
1/8	ST-01	41.0	5	20.0	21.0
1/4	ST-02	50.6	6	24.8	25.8
3/8	ST-03	57.7	8	27.7	29.7
1/2	ST-04	71.0	10	35.5	35.5
3/4	ST-06	83.0	15	42.5	40.5
1	ST-08	92.4	21	47.2	45.2

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MT

MALE TEE

P PT/NPT SIZE	CATALOG NUMBER	A	E	S
1/8	MT-01	39.6	5	19.8
1/4	MT-02	48.0	6	24.0
3/8	MT-03	53.6	8	26.8
1/2	MT-04	65.4	10	32.7
3/4	MT-06	75.0	15	37.5
1	MT-08	90.4	21	45.2

ALL DIMENSIONS ARE IN MILLIMETERS. DIMENSIONS FOR REFERENCE ONLY. SUBJECT TO CHANGE.

