

# BOTH WELL

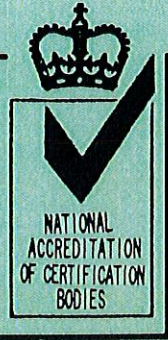
## HIGH PRESSURE FITTINGS

**FORGED**

CARBON ALLOY

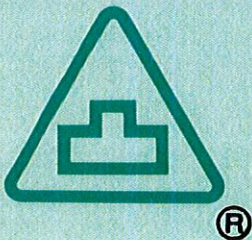
STAINLESS STEEL

**THREADED SOCKETWELD**



### **BOTH-WELL STEEL FITTINGS CO., LTD.**

NO.303 JEN-HSIN ROAD JEN-WU HSIANG,  
KAOHSIUNG HSIEN, TAIWAN, R.O.C. (81405)  
TEL: 886-7-371-1536 · 371-0497 · 372-0260  
FAX: 886-7-371-3864 · 371-3882





# INTRODUCTION

IT IS THE POLICY OF THE **BOTH-WEELL STEEL FITTINGS CO., LTD.** TO MANUFACTURE HIGH PRESSURE FORGEED STEEL PIPE FITTINGS MEETING WITH ASME AND ANSI B16. 11 STANDARD AND RELEVANT ASTM MATERIAL SPECIFICATIONS AND/OR CUSTOMER'S SPECIFICATION/REQUIREMENTS.

WE ARE MANUFACTURING AFOREMENTIONED FITTINGS UNDER THE CONTROL OF OUR QUALITY SYSTEM DEVELOPED IN ACCORDANCE WITH ASME CODE SECTION I AND VIII QUALITY SYSTEM GUIDELINE AND ISO-9002 QUALITY SYSTEM. THE WRITTEN QUALITY SYSTEM REQUIREMENTS ARE IMPLEMENTED STRICTLY BY EVERY INDIVIDUAL IN OUR COMPANY.

THE SCOPE OF OUR PRODUCT IS AS FOLLOWS :

- (1) **TYPE** : A. ELBOW, TEE, COUPLING, HALF COUPLING, CAP, PLUG, BUSHING, UNION, O-LET, SWAGE NIPPLE, BULL PLUG, REDUCER INSERT AND PIPE NIPPLE ETC.  
B. SOCKET-WELD OR THREADED (NPT OR PT TYPE.)
- (2) **SIZE** : NPS 1/8"-4"
- (3) **RATING** : 2000, 3000 AND 6000 LBS
- (4) **SPECIFICATIONS** : A. DIM. SPEC:  
ASME B 16.11-1991 (REVISION OF ANSI B16.11-1980), MSS-SP-79, 83, 95 AND BOTH-WELL SPEC.  
B. MATERIAL SPEC:  
ASTM A105, ASTM A182(F304, F304L, F316, F316L, F304H, F316H, F11 & F22).  
C. SIZE OF RAW MATERIAL:  
DIA. 19-85MM ROUND BAR.
- (5) **MARKING** : A. CARBON AND ALLOY STEEL:  
MARKED BY STAMPING.  
B. STAINLESS:  
MARKED BY ELECTRO-ETCHED OR JET PRINTED.  
C. 3/8" UNDER:  
BRAND ONLY  
D. 1/2" TO 4"  
MARKED BRAND, MATERIAL, HEAT NO. B16(BELONG TO ANSI B16.11 PRODUCT), PRESSURE AND SIZE.
- (6) **FINISH** : GALVANIZED OR BLACK.(CARBON), PICKLED (STAINLESS).
- (7) **PACKING** : CARTON/WOODEN CASE.

WE ALREADY GOT THE APPROVAL OF CERTIFICATE AS FOLLOWS :

1. ISO-9002. QUALITY ASSURED FIRM
2. L/R, C/R, N/K, AND ABS REGISTER OF SHIPPING.

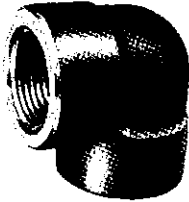


# PRODUCTS LIST

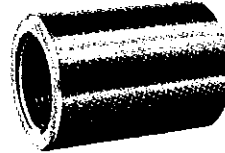
## FORGED PIPE FITTINGS      THREADED

2000-3000-6000 Lbs

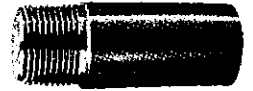
90° ELBOW  
THREADED



COUPLING  
THREADED



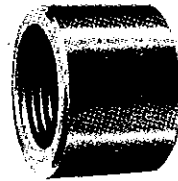
ROUND  
HEAD PLUG  
THREADED



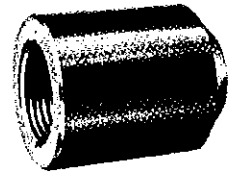
TEE  
THREADED



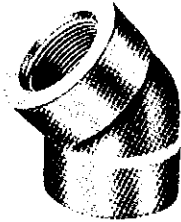
HALF COUPLING  
THREADED



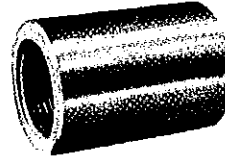
BOSS  
THREADED



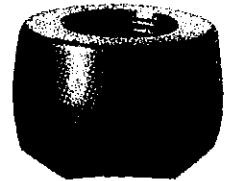
45° ELBOW  
THREADED



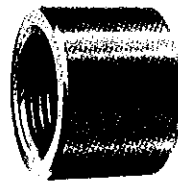
REDUCING  
COUPLING  
THREADED



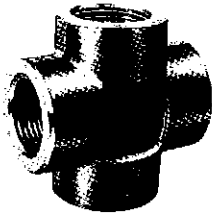
THREAD  
OUTLET  
THREADED



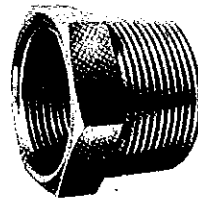
CAP  
THREADED



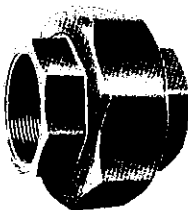
CROSS  
THREADED



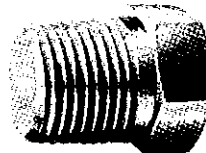
HEX HEAD  
BUSHING  
THREADED



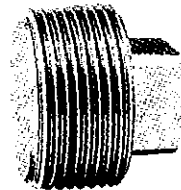
UNION  
THREADED



HEX HEAD  
PLUG  
THREADED



SQ HEAD PLUG  
THREADED



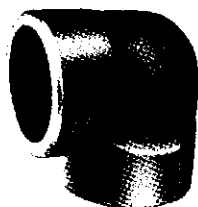


# PRODUCTS LIST

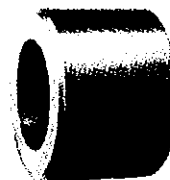
## FORGED PIPE FITTING SOCKET WELD

3000-6000 Lbs

90° ELBOW  
SOCKET WELD



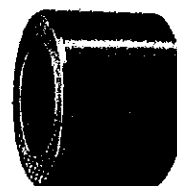
HALF  
COUPLING  
SOCKET WELD



TEE  
SOCKET WELD



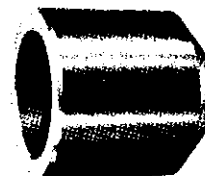
CAP  
SOCKET WELD



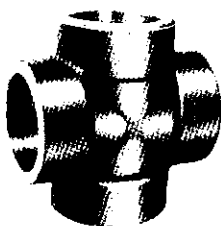
45° ELBOW  
SOCKET WELD



BOSS  
SOCKET WELD



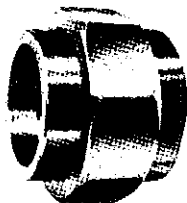
CROSS  
SOCKET WELD



SOCKET  
OUTLET



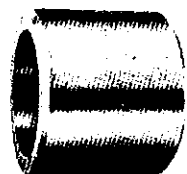
UNION  
SOCKET WELD



WELDING  
OUTLET

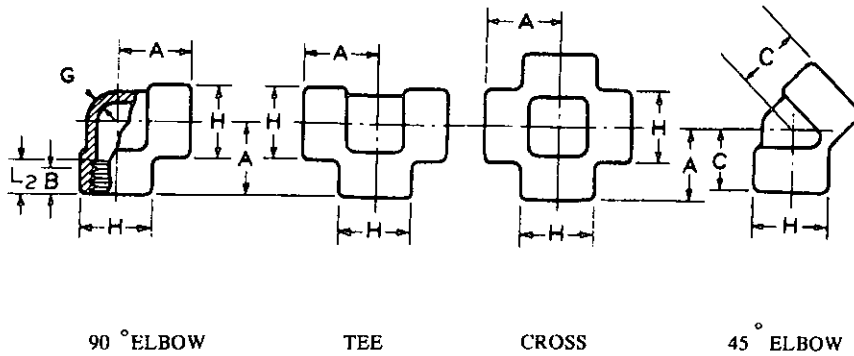


COUPLING  
SOCKET WELD





# THREADED FITTINGS



ASME B16.11-1991  
(REVISION OF ANSI B16.11-1980)

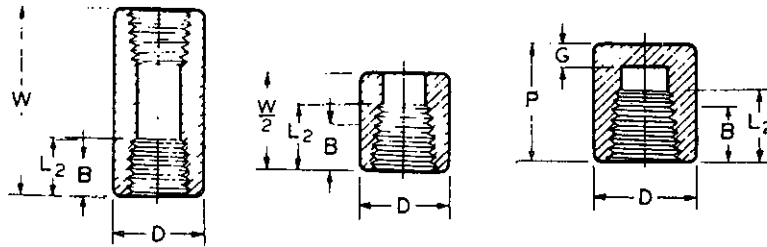
Nominal Pipe Size	Center to End Elbows, Tees, Cross A			Center to End 45° Elbow C			Outside Diameter of Band H			Minimum Wall Thickness G			Length of Thread. Min.(1)	
	2000	3000	6000	2000	3000	6000	2000	3000	6000	2000	3000	6000	B	L <sub>2</sub>
	1/8	21	21	25	17	17	19	22	22	25	3.0	3.0	6.5	6.5
1/4	21	25	29	17	19	22	22	25	33	3.0	3.5	6.5	8.0	10.0
3/8	25	29	33	19	22	25	25	33	38	3.0	3.5	7.0	9.0	10.5
1/2	29	33	38	22	25	29	33	38	46	3.0	4.0	8.0	11.0	13.5
3/4	33	38	44	25	29	33	38	46	56	3.0	4.5	8.5	12.5	14.0
1	38	44	51	29	33	36	46	56	62	3.5	5.0	10.0	14.5	17.5
1-1/4	44	51	60	33	35	43	56	62	75	4.0	5.5	10.5	17.0	18.0
1-1/2	51	60	64	35	43	44	62	75	84	4.0	5.5	11.0	18.0	18.5
2	60	64	83	43	45	52	75	84	102	4.5	7.0	12.0	19.0	19.0
2-1/2	76	83	95	52	52	64	92	102	121	5.5	7.5	15.5	23.5	29.0
3	86	95	106	64	64	79	110	121	146	6.0	9.0	16.5	26.0	30.5
4	106	114	114	79	79	79	146	152	152	6.5	11.0	18.5	27.5	33.0

Dimensions in Millimeters.

(1) Dimension B is minimum length of perfect thread. The length of useful thread (B plus threads with fully formed roots and flat crests) shall not be less than L<sub>2</sub> (effective length of external thread) required by American National Standard for Pipe Threads (ANSI/ASME 1.20.1)



# THREADED FITTINGS



COUPLING

HALF-COUPLING

CAP

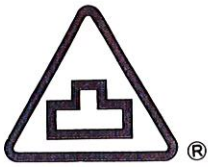
ASME B16.11-1991  
(REVISION OF ANSI B16.11-1980)

Nominal Pipe Size	End to End Couplings W	End to End Caps P		Outside Diameter D		End Wall Thickness G Min.		Length of Thread Min.(1)	
	3000 & 6000	3000	6000	3000	6000	3000	6000	B	L <sub>2</sub>
1/8	32	19		16	22	5.0		6.5	6.5
1/4	35	25	25	19	25	5.0	6.5	8.0	10.0
3/8	38	25	27	22	32	5.0	6.5	9.0	10.5
1/2	48	32	33	29	38	6.5	8.0	11.0	13.5
3/4	51	37	38	35	44	6.5	8.0	12.5	14.0
1	60	41	43	44	57	9.5	11.0	14.5	17.5
1-1/4	67	44	46	57	64	9.5	11.0	17.0	18.0
1-1/2	79	44	48	64	76	11.0	12.5	18.0	18.5
2	86	48	51	76	92	12.5	16.0	19.0	19.0
2-1/2	92	60	64	92	108	16.0	19.0	23.5	29.0
3	108	65	68	108	127	19.0	22.0	26.0	30.5
4	121	68	75	140	159	22.0	28.5	27.5	33.0

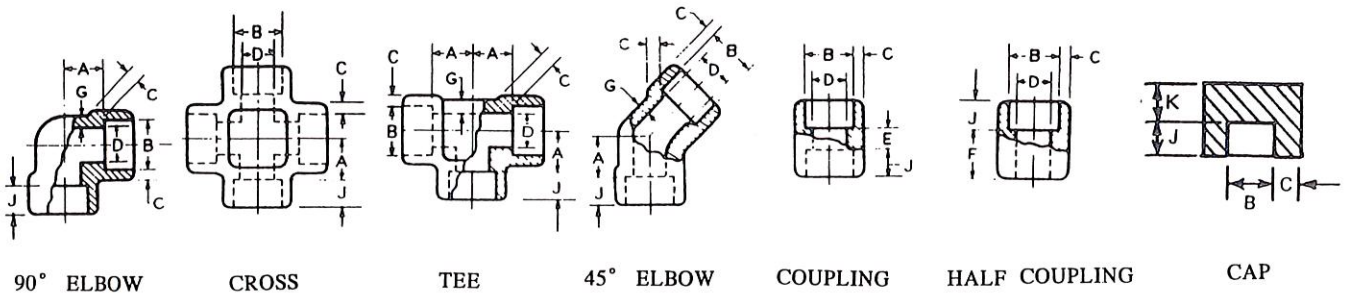
Dimensions in Millimeters.

(1) Dimension B is minimum length of perfect thread. The length of useful thread (B plus threads with fully formed roots and flat crests) shall not be less than L<sub>2</sub> (effective length of external thread) required by American National Standard for Pipe Threads(ANSI/ASME 1.20.1)

(2) Class 2000 and NPS 1/8 class 6000 couplings, half couplings, and caps are not included in this standard.



# SOCKET - WELDING FITTINGS



ASME B16.11-1991  
(REVISION OF ANSI B16.11-1980)

Nom. Pipe Size	Depth Of Socket Min.-j	Center To Bottom of Socket-A						Laying Lengths		End Wall Thickness K min.		
		90° Elbows, Tees, and Crosses			45° Elbows			Couplings E	Half Couplings F	Class Designation		
		Class Designation			Class Designation					3000	6000	9000
		3000	6000	9000	3000	6000	9000					
1/8	10	12	12		9	9		8	17	5.0	6.5	
		10	10		7	7		5	15			
1/4	10	12	17		9	9		8	17	5.0	6.5	
		10	13		7	7		5	15			
3/8	10	15	17		9	13		9	19	5.0	6.5	
		12	14		6	10		6	16			
1/2	10	17	21	27	13	14	17	13	24	6.5	8.0	11.0
		14	18	24	10	11	14	6	21			
3/4	13	21	24	30	14	16	21	13	25	6.5	8.0	12.5
		18	21	27	11	13	17	6	22			
1	13	24	29	34	16	19	23	17	31	9.5	11.0	14.0
		20	25	30	12	15	19	9	27			
1 1/4	13	29	34	37	19	23	24	17	32	9.5	11.0	14.0
		25	30	33	15	19	20	9	28			
1 1/2	13	34	40	40	23	27	28	17	34	11.0	12.5	16.0
		30	36	36	19	23	23	9	30			
2	16	40	43	56	27	31	31	23	43	12.5	16.0	19.0
		36	39	52	23	27	26	15	39			
2 1/2	16	44			31			24	45	16.0	19.0	
		39			27			14	40			
3	16	60			34			24	47	19.0	22.0	
		55			29			14	42			
4	16	69			44			24	50	22.0	28.5	
		64			39			14	45			

Dimensions in Millimeters

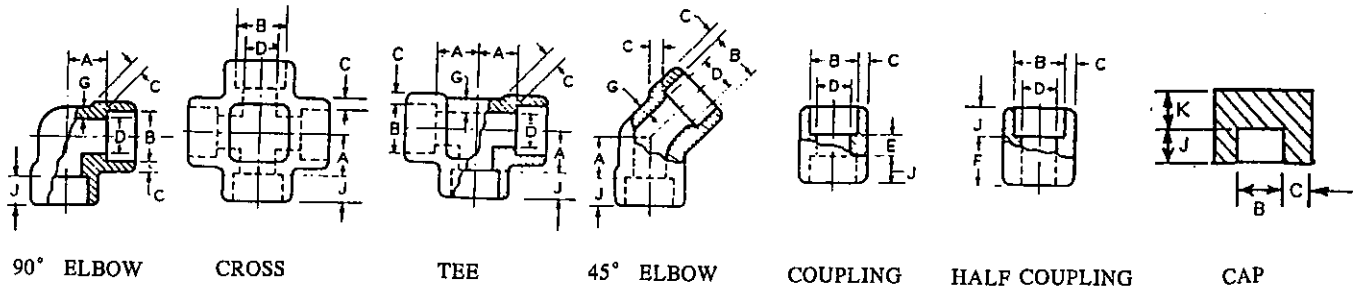
**NOTES :**

(1) Average of Socket Wall Thickness around periphery shall be no less than listed values. The minimum values are permitted in localized areas.

(2) Upper and lower values for each size are the respective maximum and minimum dimensions.



# SOCKET - WELDING FITTINGS



ASME B16.11-1991  
(REVISION OF ANSI B16.11-1980)

Nom. Pipe Size	Socket Bore Dia. (2) B	Bore Diameter of Fitting(2) D			Socket Wall Thickness-C(1)						Body Wall Thickness G		
					Class Designation						Class Designation		
		Class Designation			3000		6000		9000		3000	6000	9000
		3000	6000	6000	Ave.	Min.	Ave.	Min.	Ave.	Min.	Min.	Min.	Min.
1/8	11.15	7.6	4.8										
	10.65	6.1	3.2		3.20	3.20	3.95	3.45			2.40	3.15	
1/4	14.60	10.0	7.1										
	14.10	8.5	5.6		3.80	3.30	4.60	4.00			3.00	3.70	
3/8	18.05	13.3	9.9										
	17.55	11.8	8.4		4.00	3.50	5.05	4.35			3.20	4.00	
1/2	22.20	16.6	12.5	7.2									
	21.70	15.0	11.0	5.6	4.65	4.10	5.95	5.20	9.35	8.20	3.75	4.80	7.45
3/4	27.55	21.7	16.3	11.8									
	27.05	20.2	14.8	10.3	4.90	4.25	6.95	6.05	9.80	8.55	3.90	5.55	7.80
1	34.30	27.4	21.5	16.0									
	33.80	25.9	19.9	14.5	5.70	5.00	7.90	6.95	11.40	9.95	4.55	6.35	9.10
1 1/4	43.05	35.8	30.2	23.5									
	42.55	34.3	28.7	22.0	6.05	5.30	7.90	6.95	12.15	10.60	4.85	6.35	9.70
1 1/2	49.15	41.7	34.7	28.7									
	48.65	40.1	33.2	27.2	6.35	5.55	8.90	7.80	12.70	11.15	5.10	7.15	10.15
2	61.60	53.5	43.6	38.9									
	61.10	51.7	42.6	37.4	6.95	6.05	10.90	9.50	13.85	12.15	5.55		11.05
2 1/2	74.45	64.2											
	73.80	61.2			8.75	7.65					7.00		
3	90.40	79.5											
	89.30	76.4			9.50	8.30					7.60		
4	116.05	103.8											
	115.45	100.7			10.70	9.35					8.55		

Dimensions in millimeters

**NOTES :**

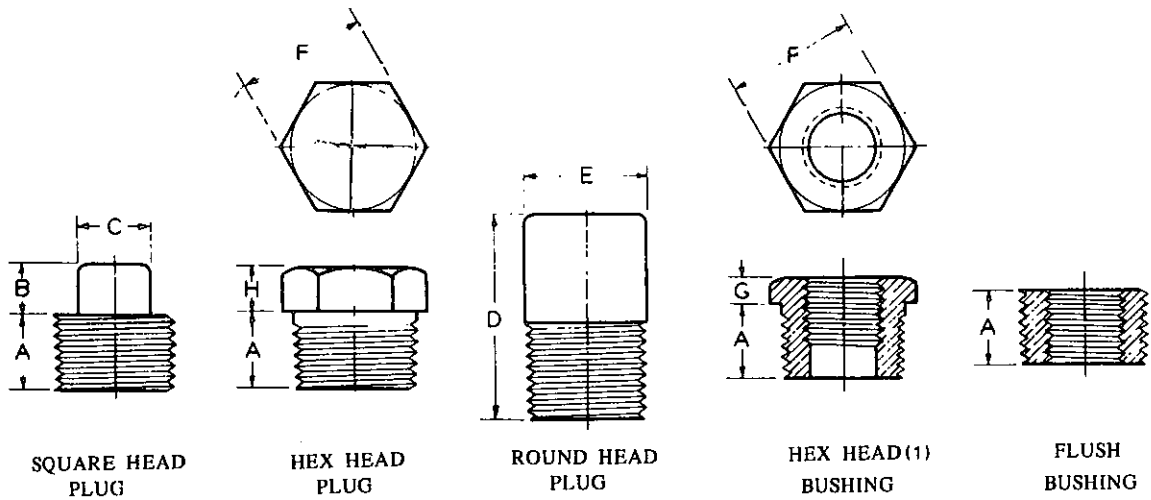
(1) Average of Socket Wall Thickness around periphery shall be no less than listed values. The minimum values are permitted in localized areas.

(2) Upper and lower values for each size are the respective maximum and minimum dimensions.

(3) DIMENSIONAL TOLERANCES : see page 17



# THREADED FITTINGS



ASME B16.11-1991  
(REVISION OF ANSI B16.11-1980)

Nominal Pipe Size	Length (Min.) A	Plugs Square Head		Plugs Round Head		Hex Plugs & Bushings		
		Length Square (Min.) B	Width Flats (Min.) C	Nominal Diameter of Head E	Length (Min.) D	Width Flats (Nom.) F	Hex Height (Min.)	
							Bushing G	plug H
1/8	9.5	6	7.0	10	35	11.0		6
1/4	11.0	6	9.5	13	41	16.0	3	6
3/8	12.5	8	11.0	17	41	17.5	4	6
1/2	14.5	10	14.5	21	44	20.0	5	8
3/4	16.0	11	16.0	27	44	27.0	6	10
1	19.0	13	20.5	33	51	35.0	6	10
1-1/4	20.5	14	24.0	43	51	44.5	7	14
1-1/2	20.5	16	28.5	48	51	51.0	8	16
2	22.0	17	33.5	60	64	63.5	9	17
2-1/2	27.0	19	38.0	73	70	76.0	10	19
3	28.5	21	43.0	89	70	89.0	10	21
4	32.0	25	63.5	114	76	117.5	13	25

Dimensions in Millimeters.

(1) CAUTIONARY NOTE REGARDING HEX HEAD BUSHINGS. Hex Head Bushing of one-size reduction should not be used in services wherein they might be subject to harmful loads and forces other than internal Pressures.



# UNION

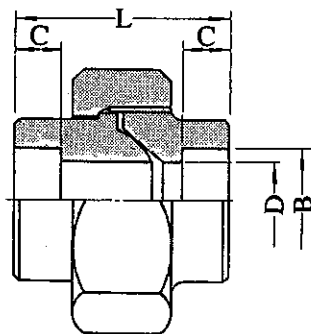
## THREAD & SOCKET WELD END BOTH-WELL CO., SPEC

3000 Lbs

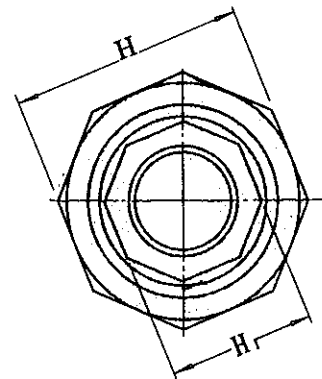
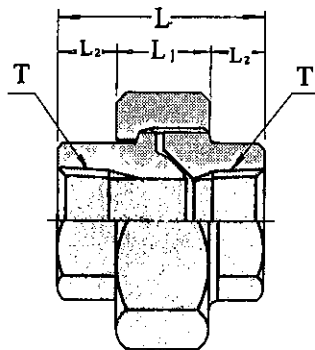
Dimensions in Millimeters.

SIZE	H	H1	L <sub>2</sub>	L <sub>1</sub>	L	C	B	D	Unit Weight in Kg
1/8"	41.0	24.7	13.5	19.3	46.3	10	10.90 10.65	7.6 6.1	0.23
1/4"	41.0	24.7	13.5	19.3	46.3	10	14.35 14.10	10.1 8.5	0.23
3/8"	41.0	24.7	13.5	19.3	46.3	10	17.80 17.55	13.3 11.8	0.23
1/2"	43.5	27.8	14.0	20.5	48.5	10	21.95 21.70	16.6 15.0	0.27
3/4"	53.8	34.2	16.7	24.4	57.8	13	27.30 27.05	21.7 20.2	0.47
1"	63.0	41.6	20.0	25.5	65.5	13	34.05 33.80	27.4 25.9	0.70
1 1/4"	75.2	52.0	20.0	27.0	67.0	13	42.80 42.55	35.8 34.3	0.94
1 1/2"	86.5	58.0	23.0	27.0	73.0	13	48.90 48.65	41.7 40.1	1.35
2"	102.0	72.0	28.0	32.5	88.5	16	61.35 61.10	53.5 51.7	2.22
2 1/2"	118.5	87.5	31.0	44.4	106.5	16	74.20 73.80	64.2 61.2	3.80
3"	139.0	101.5	35.0	46.0	116.0	16	90.15 89.80	79.5 76.4	5.25
4"	184.0	142.0	39.0	48.5	126.5	19	115.80 115.45	103.8 100.7	12.0

**UNION**  
SOCKET WELD



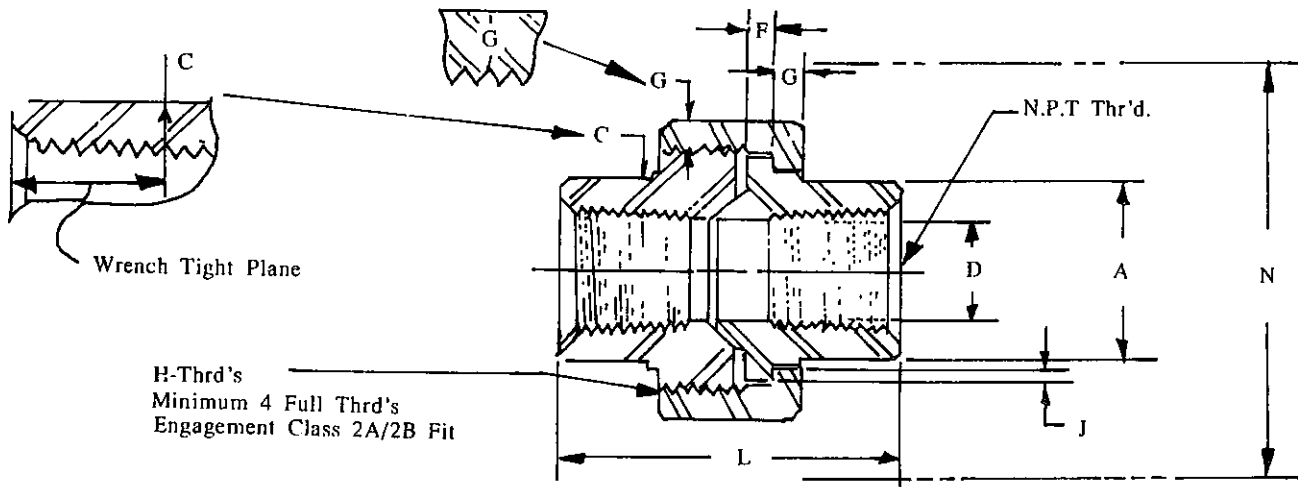
**UNION**  
THREADED





# UNION

## THE RADED END M S S - S P - 8 3



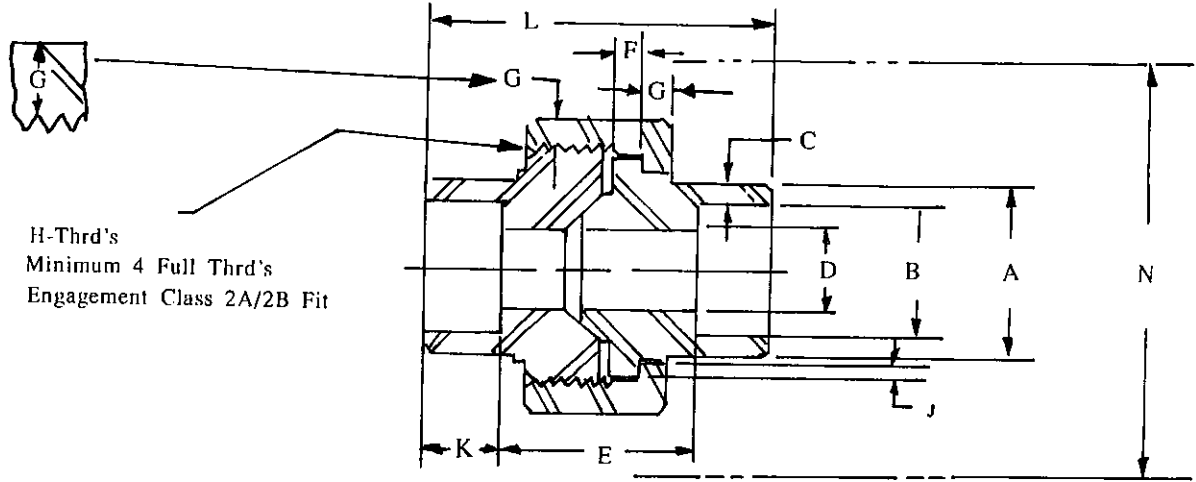
Dimensions in Millimeters.

Nom. Pipe Size	Pipe End Min. A	Socket Min. C	Water Way Bore D	Male Flange Min. F	Nut Min. G	Thrds. Per 25.4 Max. H	Bearing Min. J	Length Assem. Nominal L	Clear Assem. Nut N
1/8	14.7	2.41	6.83 6.43	3.17	3.2	16	1.24	41.4	49.0
1/4	19.0	3.02	9.85 9.45	3.17	3.2	16	1.24	41.4	49.0
3/8	22.9	3.20	13.92 13.51	3.43	3.4	14	1.37	46.0	55.0
1/2	27.7	3.73	17.47 17.07	3.68	3.7	14	1.50	49.0	57.0
3/4	33.5	3.91	21.79 21.39	4.06	4.1	11	1.68	56.9	67.0
1	41.4	4.55	28.14 27.74	4.57	4.4	11	1.85	62.0	79.0
1 1/4	50.5	4.85	35.76 35.36	5.33	5.2	11	2.13	71.1	94.0
1 1/2	57.2	5.08	41.61 41.20	5.84	5.6	10	2.31	76.4	111.0
2	70.1	5.54	52.53 52.12	6.60	6.4	10	2.69	86.1	132.0
2 1/2	85.3	7.01	64.72 64.31	7.49	7.1	8	3.07	102.4	148.0
3	102.4	7.62	77.67 77.27	8.25	8.00	8	3.53	109.0	175.0



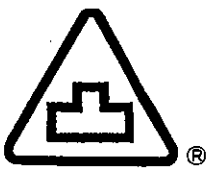
# UNION

## SOCKET WELD END M S S - S P - 8 3



Dimensions in Millimeters.

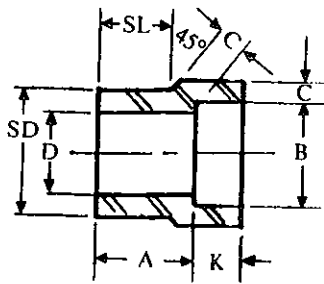
Nom. Pipe Size	Pipe End Min. A	Socket Wall Bore B	Socket Wall Min. C	Water Way Bore D	Laying Length E	Male Flange Min. F	Nut Min. G	Thrds. Per 25.4 Max. H	Bearing Min. J	Depth of Socket Min. K	Length Assem. Nominal L	Clear Assem. Nut N
1/8	21.8	10.92 10.67	3.17	6.83 6.43	22.4 19.0	3.17	3.17	16	1.24	9.6	41.4	49.0
1/4	21.8	14.22 13.97	3.30	9.85 9.45	22.4 19.0	3.17	3.17	16	1.24	9.6	41.4	49.0
3/8	25.9	17.78 17.53	3.48	13.92 13.51	26.9 20.6	3.43	3.43	14	1.37	9.6	46.0	55.0
1/2	31.2	21.84 21.59	4.06	17.47 17.07	26.9 20.6	3.68	3.68	14	1.50	9.6	49.0	57.0
3/4	37.1	27.18 26.92	4.27	21.79 21.39	31.8 25.4	4.06	4.06	11	1.68	12.7	56.9	67.0
1	45.5	34.04 33.78	4.95	28.14 27.74	34.3 26.2	4.57	4.44	11	1.85	12.7	62.0	79.0
1 1/4	54.9	42.67 42.42	5.28	35.76 35.36	40.6 32.5	5.33	5.21	11	2.13	12.7	71.1	94.0
1 1/2	61.5	48.77 48.51	5.54	41.61 41.20	42.2 34.0	5.84	5.59	10	2.31	12.7	76.5	111.0
2	75.2	61.47 61.21	6.05	52.53 52.12	45.5 31.3	6.60	6.35	10	2.69	15.8	86.1	132.0
2 1/2	91.7	74.17 73.66	7.65	64.72 64.31	61.7 52.1	7.49	7.11	8	3.07	15.8	102.4	148.0
3	109.2	90.17 89.66	8.31	77.67 77.27	63.8 53.6	8.25	8.00	8	3.53	15.8	109.0	175.0



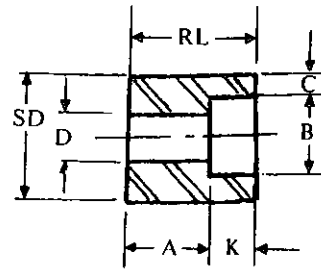
# REDUCER INSERTS

## SOCKET WELDING

MSS - SP - 79



TYPE 1



TYPE 2<sup>(1)</sup>

Dimensions in Millimeters.

NOM. PIPE SIZE	Type <sup>(2)</sup>		SOCKET		SHANK DIA. SD	LAYING LENGTH A		BORE D		WALL MIN. C		LENGTH			
			DIA. B	DEPTH MIN. K		3M	6M	3M	6M	3M	6M	SL		RL <sub>(MIN)</sub>	
	3M	6M										3M	6M	3M	6M
3/8 x 1/4	1	1	14.35	10	17.15	19	21	9.0	6.5	3.78	4.60	14	16		
1/2 x 3/8	1	1	17.78	10	21.34	21	23	12.5	9.0	4.01	5.03	16	16		
x 1/4	1	1	14.35	10	21.34	21	21	9.0	6.5	3.78	4.60	16	16		
3/4 x 1/2	1	1	21.97	10	26.67	22	25	16.0	11.5	4.67	5.97	17	19		
x 3/8	2	1	17.78	10	26.67	16	22	12.5	9.0	4.01	5.03		19	27	
x 1/4	2	2	14.35	10	26.67	18	22	9.0	6.5	3.78	4.60			27	32
1 x 3/4	1	1	27.31	13	33.40	24	28	21.0	15.5	4.90	6.96	19	21		
x 1/2	2	1	21.97	10	33.40	16	28	16.0	11.5	4.67	5.97		21	28	
x 3/8	2	2	17.78	10	33.40	18	22	12.5	9.0	4.01	5.03			28	33
x 1/4	2	2	14.35	10	33.40	19	24	9.0	6.5	3.78	4.60			28	33
1 1/4 x 1	1	1	34.04	13	42.16	25	30	26.5	20.5	5.69	7.92	21	22		
x 3/4	2	2	27.31	13	42.16	18	21	21.0	15.5	4.90	6.96			32	35
x 1/2	2	2	21.97	10	42.16	19	22	16.0	11.5	4.67	5.97			32	35
x 3/8	2	2	17.78	10	42.16	21	24	12.5	9.0	4.01	5.03			32	35
x 1/4	2	2	14.35	10	42.16	22	25	9.0	6.5	3.78	4.60			32	35
1 1/2 x 1 1/4	1	1	42.80	13	48.26	28	35	35.0	29.5	6.07	7.92	22	25		
x 1	2	1	34.04	13	48.26	18	29	26.5	20.5	5.69	7.92		25	33	
x 3/4	2	2	27.31	13	48.26	19	25	21.0	15.5	4.90	6.96			33	40
x 1/2	2	2	21.97	10	48.26	21	27	16.0	11.5	4.67	5.97			33	40
x 3/8	2	2	17.78	10	48.26	22	28	12.5	9.0	4.01	5.03			33	40

(1) At the option of the manufacturer Type 2 Reducers may be furnished in Type 1 configuration

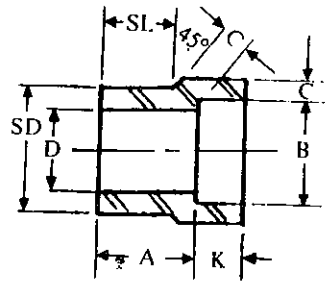
(2) 3M & 6M symbols denote 3000 and 6000 classes



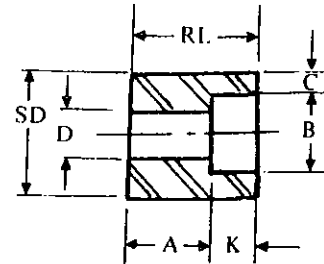
# REDUCER INSERTS

## SOCKET WELDING

MSS - SP - 79



TYPE 1



TYPE 2<sup>(1)</sup>

Dimensions in Millimeters.

NOM. PIPE SIZE	Type <sup>(2)</sup>		SOCKET		SHANK DIA. SD	LAYING LENGTH A		BORE D		WALL MIN. C		LENGTH			
			DIA. B	DEPTH MIN. K		3M	6M	3M	6M	3M	6M	SL		RL <sup>(MIN)</sup>	
	3M	6M										3M	6M	3M	6M
2 x 1½	1	1	48.90	13	60.32	32	39	41.0	34.0	6.35	8.9	25	28		
x 1¼	2	2	42.80	13	60.32	21	24	35.0	29.5	6.07	7.92			38	41
x 1	2	2	34.04	13	60.32	22	25	26.5	21.0	5.69	7.92			38	41
x ¾	2	2	27.31	13	60.32	24	27	21.0	15.5	4.90	6.96			38	41
x ½	2	2	21.97	10	60.32	25	28	16.0	11.5	4.67	5.97			38	41
2½ x 2	1	1	61.37	16	73.02	46	43	52.5	43.0	6.93	10.92	38	32		
x 1½	2	2	48.90	13	73.02	35	X	41.0	X	6.35	X			54	X
x 1¼	2	2	42.80	13	73.02	37	X	35.0	X	6.07	X			54	X
x 1	2	2	34.04	13	73.02	38	X	26.5	X	5.69	X			54	X
x ¾	2	2	27.31	13	73.02	40	X	21.0	X	4.90	X			54	X
3 x 2½	1	X	74.07	16	88.90	38	X	62.5	X	8.76	X	32	X		
x 2	2	X	61.37	16	88.90	25	X	52.5	X	6.93	X			48	X
x 1½	2	X	48.90	13	88.90	29	X	41.0	X	6.35	X			48	X
x 1¼	2	X	42.80	13	88.90	30	X	35.0	X	6.07	X			48	X
x 1	2	X	34.04	13	88.90	32	X	26.5	X	5.69	X			48	X
4 x 3	2	X	90.04	16	114.30	33	X	78.0	X	9.5	X			60	X
x 2½	2	X	74.07	16	114.30	38	X	62.5	X	8.76	X			60	X
x 2	2	X	61.37	16	114.30	38	X	52.5	X	6.93	X			60	X
x 1½	2	X	48.90	13	114.30	42	X	41.0	X	6.35	X			60	X
x 1¼	2	X	42.80	13	114.30	43	X	35.0	X	6.07	X			60	X

(1) At the option of the manufacturer Type 2 Reducers may be furnished in Type 1 configuration

(2) 3M & 6M symbols denote 3000 and 6000 classes

### TOLERANCES

Laying Length A-	Sizes 3/8" thru 3/4"	+1.5mm/-0.0mm	Bore D	Sizes 1/4 thru 2	±0.8mm
	Sizes 1" thru 2"	+2.0mm/-0.0mm		Sizes 2 1/2 thru 3	±1.5mm
	Sizes 2 1/2" thru 4"	+2.5mm/-0.0mm	Shank Dia SD	Sizes 3/8 thru 1 1/2	±0.25mm
Laying Length B-	Sizes 1/4" thru 2"	±0.25mm		Sizes 2 thru 3	±0.50mm
	Sizes 2 1/2" thru 3"	+0.4mm/-0.25mm	Shank Length SL	Sizes 4	±0.75mm
				Sizes 3/8 thru 3/4	+0.00mm/-1.5mm
				Sizes 1 thru 2	+0.00mm/-2.00mm
				Sizes 2 1/2 thru 4	±0.00mm/-2.5mm

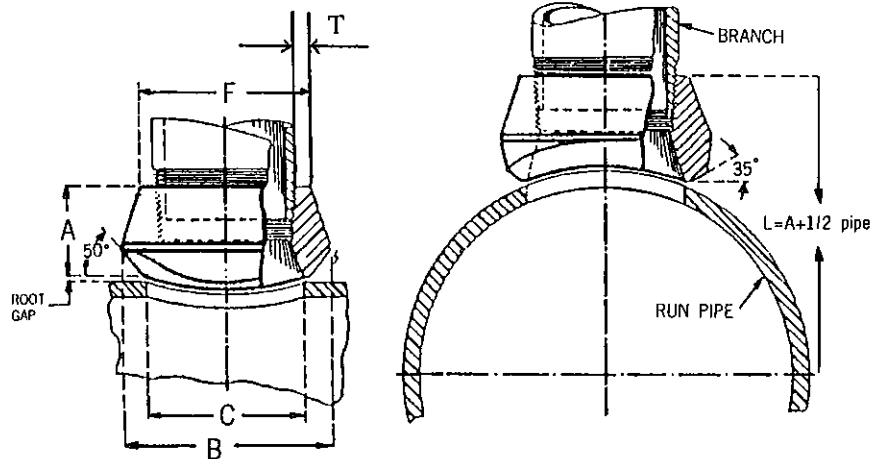


# THREADOLETS

## REDUCING SIZES STANDARD WEIGHT

3000Lbs

6000Lbs



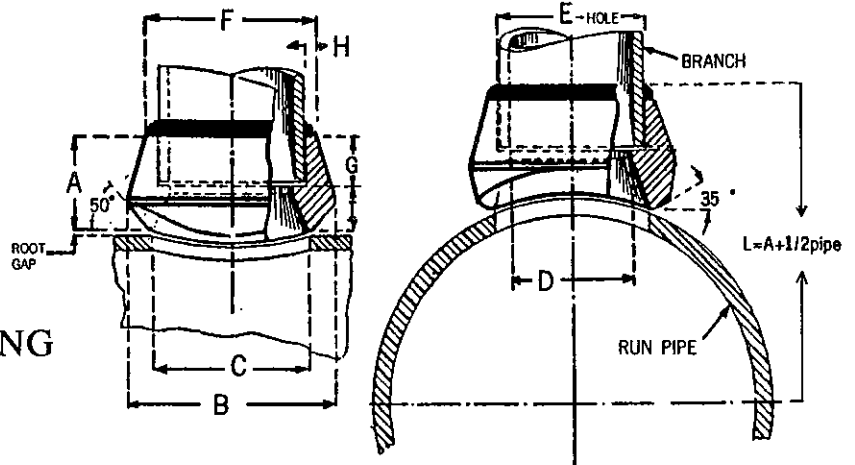
Dimensions in Inches

NOMINAL RUN PIPE SIZE	OUTLET SIZE	A	B	C	F	T
<b>STANDARD WEIGHT 3000#</b>						
3/8 to 36	1/8	11/16	1	5/8	7/8	0.236
3/8 to 36	1/4	11/16	1	5/8	7/8	0.169
1/2 to 36	3/8	13/16	1 1/4	3/4	1	0.165
3/4 to 36	1/2	1	1 3/8	15/16	1 1/4	0.205
1 to 36	3/4	1 1/16	1 3/4	1 3/16	1 7/16	0.193
1 1/4 to 36	1	1 5/16	2 1/8	7 7/16	1 13/16	0.248
1 1/2 to 36	1 1/4	1 5/16	2 9/16	1 3/4	2 3/16	0.264
2 to 36	1 1/2	1 3/8	2 7/8	2	2 7/16	0.268
2 1/2 to 36	2	1 1/2	3 1/2	2 9/16	2 15/16	0.284
3 to 36	2 1/2	1 13/16	4 1/16	3	3 7/16	0.284
3 1/2 to 36	3	2	4 13/16	3 11/16	4 1/8	0.341
4 to 36	3 1/2	2 1/8	5 1/4	4	4 13/16	0.406
5 to 36	4	2 1/4	6	4 3/4	5 1/8	0.311
6 to 36	5	2 5/8	7 5/16	6 1/8	6 5/16	0.374
8 to 36	6	2 11/16	8 5/8	7 1/4	7 7/16	0.405
10 to 36	8	2 3/4	10 3/8	8 11/16	9 1/2	0.437
12 to 36	10	3 1/16	12 11/16	10 13/16	10 13/16	0.500
<b>6000#</b>						
1/2 to 36	1/4	1 1/8	1 3/8	9/16	1 1/4	0.354
1/2 to 36	3/8	1 1/8	1 3/8	9/16	1 1/4	0.287
1 to 36	1/2	1 1/4	1 3/4	3/4	1 9/16	0.362
1 to 36	3/4	1 7/16	2	1	1 13/16	0.382
1 1/4 to 36	1	1 9/16	2 7/16	1 5/16	2 1/4	0.464
1 1/2 to 36	1 1/4	1 5/8	2 3/4	1 1/2	2 9/16	0.452
2 to 36	1 1/2	1 11/16	3 1/4	1 15/16	3	0.551
2 1/2 to 36	2	2 1/16	4 1/16	2 3/4	3 5/8	0.625



# SOCKOLETS

REDUCING SIZES  
STANDARD WEIGHT  
EXTRA STRONG  
SCHEDULE 160  
DOUBLE EXTRA STRONG



Dimensions in Inches

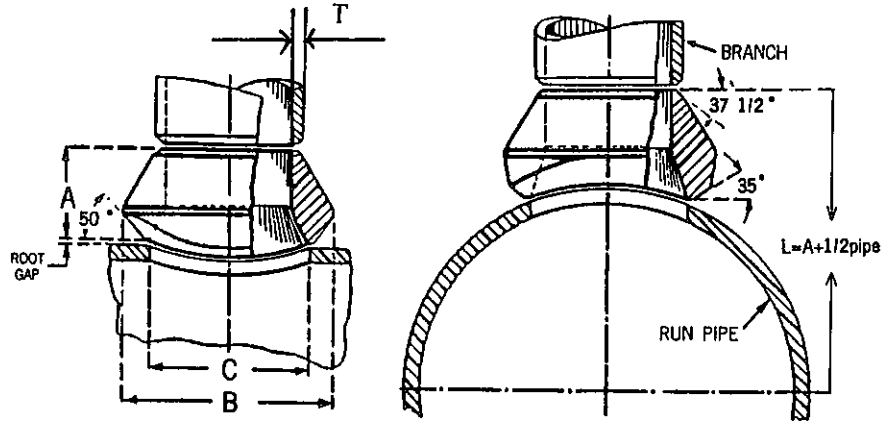
NOMINAL RUN PIPE SIZE	OUTLET SIZE	A	B	C	D	E	F	G	H	I
<b>STANDARD WEIGHT</b>										
3/8 to 36	1/8	11/16	1	5/8	.269	.420	7/8	3/8	7/32	9/32
3/8 to 36	1/4	11/16	1	5/8	.364	.555	7/8	3/8	5/32	9/32
1/2 to 36	3/8	13/16	1 1/4	3/4	.493	.690	1	3/8	5/32	7/16
3/4 to 36	1/2	1	1 3/8	15/16	.622	.855	1 1/4	7/16	13/64	9/16
1 to 36	3/4	1 1/16	1 3/4	1 3/16	.824	1.065	1 7/16	1/2	3/16	9/16
1 1/4 to 36	1	1 5/16	2 1/8	1 7/16	1.049	1.330	1 13/16	17/32	1/4	25/32
1 1/2 to 36	1 1/4	1 5/16	2 9/16	1 3/4	1.380	1.675	2 3/16	19/32	1/4	3/4
2 to 36	1 1/2	1 3/8	2 7/8	2	1.610	1.915	2 7/16	5/8	15/64	3/4
2 1/2 to 36	2	1 1/2	3 1/2	2 9/16	2.067	2.406	2 15/16	11/16	17/64	13/16
3 to 36	2 1/2	1 13/16	4 1/16	3	2.469	2.906	3 7/16	15/16	19/64	7/8
3 1/2 to 36	3	2	4 13/16	3 11/16	3.068	3.535	4 1/8	1 1/8	19/64	7/8
4 to 36	3 1/2	2 1/8	5 1/4	4	3.548	4.040	4 13/16	1 1/8	19/64	1
5 to 36	4	2 1/4	6	4 3/4	4.026	4.545	5 1/8	1 5/32	19/64	1 3/32
6 to 36	5	2 5/8	7 5/16	6 1/8	5.047	5.619	6 5/16	1 9/32	11/32	1 11/32
8 to 36	6	2 11/16	8 5/8	7 1/4	6.065	6.691	7 3/8	1 9/32	11/32	1 13/32
10 to 36	8	2 3/4	10 3/8	8 11/16	7.981	8.691	9 1/2	1 11/16	13/32	1 1/16
12 to 36	10	3 1/16	12 11/16	10 13/16	10.020	10.816	11 3/4	2 5/32	15/32	29/32
<b>EXTRA STRONG</b>										
3/8 to 36	1/8	11/16	1	5/8	.215	.420	7/8	3/8	7/32	5/16
3/8 to 36	1/4	11/16	1	5/8	.302	.555	7/8	3/8	5/32	11/32
1/2 to 36	3/8	13/16	1 1/4	3/4	.423	.690	1	3/8	5/32	7/16
3/4 to 36	1/2	1	1 3/8	15/16	.546	.855	1 1/4	35/64	13/64	29/64
1 to 36	3/4	1 1/16	1 5/8	1 3/16	.742	1.065	1 7/16	9/16	3/16	1/2
1 1/4 to 36	1	1 5/16	2 1/8	1 7/16	.957	1.330	1 13/16	5/8	1/4	11/16
1 1/2 to 36	1 1/4	1 5/16	2 9/16	1 3/4	1.278	1.675	2 3/16	23/32	1/4	5/8
2 to 36	1 1/2	1 3/8	2 7/8	2	1.500	1.915	2 3/8	3/4	15/64	5/8
2 1/2 to 36	2	1 1/2	3 1/2	2 9/16	1.939	2.406	2 15/16	25/32	17/64	23/32
3 to 36	2 1/2	1 1/2	4 1/16	3	2.323	2.906	3 5/8	11/16	11/32	13/16
3 1/2 to 36	3	1 5/8	4 13/16	3 11/16	2.900	3.535	4 5/16	11/16	3/8	15/16
5 to 36	4	1 25/32	6	4 3/4	3.826	4.545	7 7/16	11/16	7/16	1 3/32
<b>SCHEDULE 160 AND DOUBLE EXTRA STRONG</b>										
3/4 to 36	1/2	1 3/4	1 3/4	3/4	ID to	.855	1 9/16	3/8	23/64	7/8
1 to 36	3/4	1 7/16	2	1	match	1.065	1 25/32	9/16	21/64	7/8
1 1/4 to 36	1	1 9/16	2 7/16	1 5/16	Sch. 160	1.330	2 1/4	5/8	15/32	15/16
1 1/2 to 36	1 1/4	1 5/8	2 3/4	1 1/2	and XXS	1.675	2 9/16	13/16	29/64	13/16
2 to 36	1 1/2	1 11/16	3 1/4	1 15/16	respectively	1.915	3	13/16	41/64	7/8
2 1/2 to 36	2	2 5/16	4 1/16	2 5/16		2.406	3 5/8	7/8	7/8	1 7/16



# WELDOLETS

REDUCING SIZES

EXTRA STRONG



Dimensions in Inches

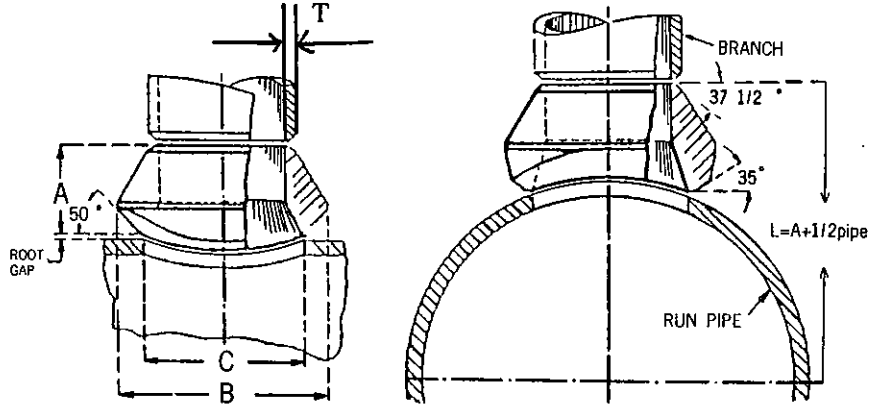
NOMINAL RUN PIPE SIZE	OUTLET SIZE	A	B	C	T
3/8 to 36	1/8	9/16	1	5/8	0.126
3/8 to 36	1/4	9/16	1	5/8	0.126
1/2 to 36	3/8	3/4	1 1/4	3/4	0.126
3/4 to 36	1/2	3/4	1 3/8	15/16	0.147
1 to 36	3/4	7/8	2 3/4	1 3/16	0.154
1 1/4 to 36	1	1 1/16	2 1/8	1 7/16	0.179
1 1/2 to 36	1 1/4	1 1/4	2 9/16	1 3/4	0.191
2 to 36	1 1/2	1 5/16	2 7/8	2	0.200
2 1/2 to 36	2	1 1/2	3 1/2	2 9/16	0.218
3 to 36	2 1/2	1 5/8	4 1/6	3	0.276
3 1/2 to 36	3	1 3/4	4 13/16	3 11/16	0.300
4 to 36	3 1/2	3 7/8	5 5/8	4 7/16	0.318
5 to 36	4	2	6	4 3/4	0.337
6 to 36	5	2 1/4	7 1/16	5 9/16	0.375
8 to 36	6	3 1/16	8 7/8	6 11/16	0.432
10 to 36	8	3 7/8	11 1/2	8 11/16	0.500
12 to 36	10	3 11/16	12 3/4	10 7/16	0.500
14 to 36	12	5 3/8	14 15/16	12 1/2	0.500
16 to 36	14	3 7/8	17	13 13/16	0.500
18 to 36	16	4 3/16	18 3/8	15 7/8	0.500
20 to 36	18	4 3/8	20 5/8	15 7/8	0.500
22 to 36	20	4 11/16	22 15/16	20 1/16	0.500
26 to 36	24	5 1/2	27 7/8	25 1/8	0.500
28 to 36	26	5 3/4	30 1/8	27 1/4	0.500



# WELDOLETS

REDUCING SIZES

STANDRD WEIGHT ■



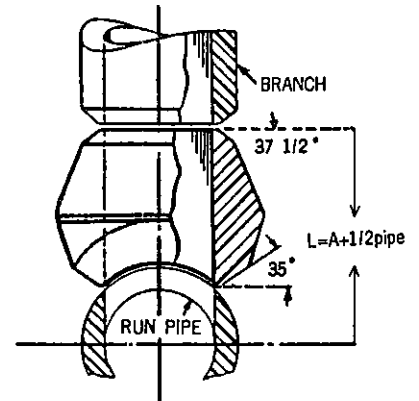
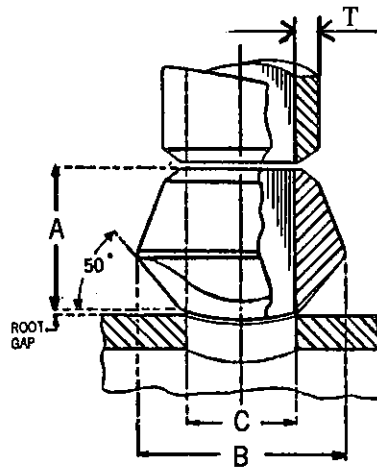
Dimensions in Inches

NOMINAL RUN PIPE SIZE	OUTLET SIZE	A	B	C	T
3/8 to 36	1/8	9/16	1	5/8	0.126
3/8 to 36	1/4	9/16	1	5/8	0.126
1/2 to 36	3/8	3/4	1 1/4	3/4	0.126
3/4 to 36	1/2	3/4	1 3/8	15/16	0.126
1 to 36	3/4	7/8	1 3/4	1 3/16	0.126
1 1/4 to 36	1	1 1/16	2 1/8	1 7/16	0.134
1 1/2 to 36	1 1/4	1 1/4	2 9/16	1 3/4	0.142
2 to 36	1 1/2	1 5/16	2 7/8	2	0.145
2 1/2 to 36	2	1 1/2	3 1/2	2 9/16	0.154
3 to 36	2 1/2	1 5/8	4 1/6	3	0.204
3 1/2 to 36	3	1 3/4	4 13/16	3 11/16	0.216
4 to 36	3 1/2	1 7/8	5 5/8	4 7/16	0.226
5 to 36	4	2	6	4 3/4	0.237
6 to 36	5	2 1/4	7 1/16	5 9/16	0.259
8 to 36	6	2 3/8	8 1/2	6 11/16	0.280
10 to 36	8	2 3/4	10 3/8	8 11/16	0.322
12 to 36	10	3 3/16	12 11/16	10 13/16	0.365
14 to 36	12	3 3/8	14 7/8	12 13/16	0.375
16 to 36	14	3 1/2	16 1/8	14 1/16	0.375
18 to 36	16	3 11/16	18 1/4	16 1/16	0.375
20 to 36	18	3 13/16	20 1/2	18 1/16	0.375
22 to 36	20	4	22 1/2	20	0.375
26 to 36	24	4 9/16	27 1/8	24 3/16	0.375
28 to 36	26	4 11/16	29 1/16	26 1/4	0.375
32 to 36	30	5 3/8	34 1/16	31 9/16	0.375



# WELDOLETS

**REDUCING SIZES**  
**SCHEDULE 160**  
 and  
**DOUBLE EXTRA STRONG**



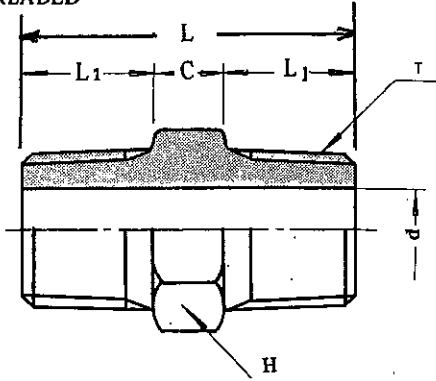
Dimensions in Inches

NOMINAL RUN PIPE SIZE	OUTLET SIZE	A	B	C	T	
					SCH160	XXS
3/4 to 12	1/2	1 1/8	1 3/8	9/16	0.188	0.294
1 to 12	3/4	1 1/4	1 3/4	3/4	0.219	0.308
1 1/4 to 12	1	1 1/2	2	1	0.250	0.358
1 1/2 to 12	1 1/4	1 3/4	2 7/16	1 5/16	0.250	0.382
2 to 12	1 1/2	2	2 3/4	1 1/2	0.281	0.400
2 1/2 to 12	2	2 3/16	3 3/16	1 11/16	0.344	0.436
3 to 12	2 1/2	2 7/16	3 13/16	2 1/8	0.375	0.552
3 1/2 to 12	3	2 7/8	4 3/4	2 7/8	0.438	0.600
5 to 12	4	3 5/16	6	3 7/8	0.531	0.674
6 to 36	5	3 11/16	7 3/8	4 13/16	0.625	0.750
8 to 36	6	4 1/8	8 11/16	5 3/4	0.719	1.864
10 to 36	8	4 1/8	11 3/16	6 13/16	0.906	0.875
12	10	4 15/16	12 15/16	8 1/2	1.125	1.000

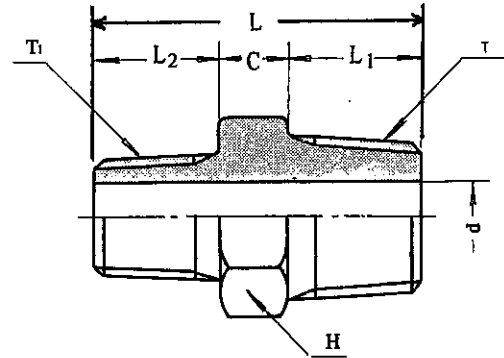


# HEX NIPPLE

**NIPPLE SCH. 80  
THREADED**



**REDUCING NIPPLE SCH. 80  
THREADED**



Dimensions in Inches

Size T	d	H*	L <sub>1</sub>	C	L	Unit Weight in Kgs
1/8	0.16	0.47	0.39	0.24	1.02	0.03
1/4	0.28	0.67	0.55	0.31	1.41	0.04
3/8	0.35	0.75	0.55	0.31	1.41	0.05
1/2	0.47	0.94	0.75	0.35	1.85	0.09
3/4	0.63	1.18	0.75	0.39	1.89	0.15
1	0.79	1.42	0.94	0.43	2.31	0.27
1-1/4	1.10	1.82	0.94	0.47	2.35	0.45
1-1/2	1.26	1.97	0.98	0.55	2.51	0.62
2	1.57	2.56	1.02	0.63	2.67	1.03
2-1/2	2.17	3.15	1.50	0.71	3.71	1.51
3	2.56	3.74	1.57	0.79	3.93	2.22

Dimensions in Inches

Size T×T <sub>1</sub>	d	H*	L <sub>1</sub>	C	L <sub>2</sub>	L	Unit Weight in Kgs
3/8×1/4	0.28	0.75	0.55	0.31	0.55	1.41	0.05
1/2×1/4	0.28	0.94	0.75	0.35	0.55	1.65	0.09
1/2×3/8	0.35	0.94	0.75	0.35	0.55	1.65	0.09
3/4×1/4	0.28	1.18	0.75	0.39	0.55	1.69	0.15
3/4×3/8	0.35	1.18	0.75	0.39	0.55	1.69	0.15
3/4×1/2	0.47	1.18	0.75	0.39	0.75	1.89	0.15
1×3/8	0.35	1.42	0.94	0.43	0.55	1.92	0.27
1×1/2	0.47	1.42	0.94	0.43	0.75	2.12	0.27
1×3/4	0.63	1.42	0.94	0.43	0.75	2.12	0.27
1-1/4×1/2	0.47	1.81	0.94	0.47	0.75	2.16	0.45
1-1/4×3/4	0.63	1.81	0.94	0.47	0.75	2.16	0.45
1-1/4×1	0.47	1.81	0.94	0.47	0.75	2.16	0.45
1-1/2×3/4	0.63	1.97	0.98	0.55	0.75	2.28	0.62
1-1/2×1	0.79	1.97	0.98	0.55	0.94	2.47	0.62
1-1/2×1-1/4	1.10	2.56	0.98	0.55	0.94	2.47	0.62
2×1	0.79	2.56	1.02	0.63	0.98	2.63	1.03
2×1-1/4	1.10	2.56	1.02	0.63	0.94	2.59	1.03
2×1-1/2	1.26	3.15	1.02	0.63	0.98	2.63	1.03
1-1/2×1-1/4	1.57	3.15	1.50	0.71	0.94	3.15	1.51
1-1/2×1-1/2	1.26	3.15	1.50	0.71	0.98	3.19	1.51
2-1/2×2	1.57	3.15	1.50	0.71	1.02	3.23	1.51
3×1-1/2	1.26	3.74	1.57	0.79	0.98	3.34	2.22
3×2	1.57	3.74	1.57	0.79	1.02	3.38	2.22
3×2-1/2	2.17	3.74	1.57	0.79	1.50	3.86	2.22

H. size 2-1/2 and smaller are Hexagonal bodies, size 3 is Octagonal body



# PRESSURE TEMPERATURE RATINGS

Non-shock Working Pressure in Pounds per Square Inch

Service Temperature Degree ° F	2000LB Threaded Fittings					3000LB Socket Welding and Threaded Fittings					6000LB Socket Welding and Threaded Fittings				
	Carbon Steel	F304	F316	F22	F5	Carbon Steel	F304	F316	F22	F5	Carbon Steel	F304	F316	F22	F5
100	2000	1715	2000	2000	2000	3000	2570	3000	3000	3000	6000	5145	6000	6000	6000
150	1970	1615	1970	1970	1970	2950	2425	2950	2950	2950	5915	4855	5915	5915	5915
200	1940	1520	1940	1940	1940	2915	2280	2915	2915	2915	5830	4565	5830	5830	5830
250	1915	1445	1915	1915	1915	2875	2170	2875	2875	2875	5750	4340	5750	5750	5750
300	1895	1370	1895	1895	1895	2845	2055	2845	2845	2845	5690	4115	5690	5690	5690
350	1875	1310	1875	1875	1875	2810	1965	2810	2810	2810	5625	3930	5690	5625	5625
400	1850	1245	1850	1850	1850	2775	1870	2775	2775	2775	5550	3745	5550	5550	5550
450	1810	1195	1810	1810	1810	2715	1870	2715	2715	2715	5430	3585	5430	5430	5430
500	1735	1140	1735	1735	1735	2605	1715	2605	2605	2605	5210	3430	5210	5210	5210
550	1640	1100	1640	1640	1640	2460	1650	2460	2460	2460	4925	3305	4925	4925	4925
600	1540	1060	1540	1540	1540	2310	1590	2310	2310	2310	4620	3180	4620	4620	4620
650	1430	1020	1430	1430	1430	2150	1535	2150	2150	2150	4300	3070	4300	4300	4300
700	1305	985	1370	1340	1340	1960	1480	2055	2010	2010	3920	2960	4110	4025	4025
750	1180	950	1305	1245	1245	1775	1425	1960	1870	1870	3550	2850	3920	3745	3745
800	1015	915	1240	1155	1155	1525	1370	1865	1735	1735	3050	2745	3730	3470	3470
850	830	880	1180	1060	1060	1250	1330	1770	1595	1595	2500	2660	3540	3190	3190
900	615	860	1115	970	970	925	1290	1675	1455	1455	1855	2580	3350	2915	2915
950	425	845	1055	880	880	640	1270	1580	1320	1320	1295	2540	3165	2640	2640
1000	235	830	990	740	695	350	1250	1485	1115	1040	715	2500	2975	2230	2085



# WEIGHT LIST

WEIGHT (KGS) SIZE	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
<b>2000LBS SCREWED</b>												
90° ELBOW	0.10	0.08	0.13	0.22	0.32	0.47	0.74	0.93	1.53	2.98	4.54	10.21
45° ELBOW	0.08	0.06	0.10	0.20	0.27	0.41	0.64	0.75	1.19	3.46	5.44	8.96
TEE	0.13	0.12	0.15	0.31	0.43	0.61	0.95	1.25	1.93	4.11	6.12	14.74
<b>3000LBS SCREWED</b>												
90° ELBOW	0.10	0.14	0.27	0.41	0.65	1.03	1.31	2.21	2.47	4.53	7.77	13.27
45° ELBOW	0.08	0.12	0.24	0.34	0.54	0.92	0.97	1.84	1.93	3.46	5.44	8.96
TEE	0.13	0.13	0.38	0.56	0.84	1.36	1.65	3.10	3.18	6.24	9.53	17.24
COUPLING	0.05	0.05	0.06	0.13	0.19	0.39	0.68	0.99	1.37	2.07	3.08	5.44
HALF COUPLING	0.03	0.03	0.03	0.06	0.10	0.20	0.34	0.50	0.68	1.03	1.54	2.72
REDUCING COUP	0.05	0.05	0.06	0.13	0.19	0.39	0.68	0.99	1.37	2.07	3.08	5.44
CAP	0.04	0.04	0.05	0.11	0.18	0.33	0.60	0.70	1.06	1.84	2.65	4.57
<b>6000LBS SCREWED</b>												
90° ELBOW	0.17	0.30	0.45	0.72	1.15	1.61	2.67	3.20	5.90	9.88	16.43	
45° ELBOW	0.11	0.27	0.39	0.61	1.02	1.17	2.67	2.61	4.37	7.01	14.16	
TEE	0.20	0.42	0.63	0.98	1.65	2.19	3.52	4.42	7.88	13.11	22.50	
COUPLING	0.08	0.06	0.18	0.31	0.41	0.85	1.05	1.87	3.40	4.20	6.10	10.04
HALF COUPLING	0.04	0.04	0.09	0.16	0.20	0.43	0.53	0.91	1.70	2.10	3.05	5.02
REDUCING COUP	0.08	0.06	0.18	0.31	0.41	0.85	1.05	1.81	3.40	4.20	6.10	10.04
CAP	0.06	0.06	0.09	0.14	0.20	0.34	0.59	0.77	1.47			
<b>PLUGS &amp; BUSHING</b>												
<b>2000/3000/6000LBS</b>												
SQUARE HEAD	0.01	0.01	0.03	0.05	0.09	0.16	0.27	0.38	0.63	0.96	1.53	3.83
HEX HEAD	0.01	0.03	0.05	0.07	0.14	0.25	0.47	0.62	0.59	1.73	2.15	5.90
ROUND HEAD	0.02	0.05	0.07	0.12	0.20	0.34	0.55	0.72	1.41	2.21	3.26	6.01
BUSHING		0.01	0.01	0.03	0.05	0.09	0.18	0.16	0.38	0.54	1.16	3.20
<b>3000LBS SOCKET WELD</b>												
90° ELBOW	0.09	0.03	0.10	0.22	0.31	0.45	0.72	0.97	1.71	6.06	4.96	10.95
45° ELBOW	0.07	0.06	0.09	0.20	0.26	0.40	0.64	0.77	1.22	3.57	5.10	9.41
TEE	0.11	0.09	0.15	0.32	0.39	0.45	0.99	1.35	2.07	3.90	5.90	14.20
COUPLING	0.04	0.05	0.07	0.13	0.19	0.27	0.49	0.59	0.97	1.42	1.88	3.31
HALF COUPLING	0.04	0.05	0.07	0.13	0.19	0.27	0.49	0.59	0.97	1.42	1.88	3.31
REDUCING COUP	0.04	0.05	0.07	0.13	0.19	0.27	0.49	0.59	0.97	1.42	1.88	3.31
CAP	0.03	0.04	0.05	0.10	0.16	0.22	0.41	0.51	0.85	1.24	1.94	3.31
<b>6000LBS SOCKET WELD</b>												
90° ELBOW				0.40	0.63	1.19	1.36	2.41	2.72	4.75	8.55	14.31
45° ELBOW				0.30	0.57	0.88	1.11	2.01	2.15	4.05	6.02	11.17
TEE				0.54	0.88	1.44	1.85	3.27	3.60	6.94	10.61	16.92
COUPLING				0.24	0.33	0.65	0.75	1.20	2.12	2.86	4.01	6.35
HALF COUPLING				0.24	0.33	0.65	0.75	1.20	2.12	2.86	4.01	6.35
REDUCING COUP				0.24	0.33	0.65	0.75	1.20	2.12	2.86	4.01	6.35
CAP				0.19	0.26	0.53	0.64	0.97	1.64	2.22	3.45	6.03

DIMENSIONS OF SEAMLESS STEEL PIPE AND SEAMLESS STAINLESS STEEL PIPE

(ANSI B36.10M - 1985 ANSI B16.19M - 1985)

TOLERANCES		NPS in	STEEL											PIPE						ST. ST PIPE			
A53 A106 O.D.	API 5L O.D.		A530 O.D.	STD	MAX	MIN	S/10	S/20	S/30	S/40	STD	S/60	XS	S/80	S/100	S/120	S/140	S/160	XXS	S/55	S/10S	S/40S	S/80S
		1/8	10.3	10.7	9.5				1.7	S/40		S/80	2.4					3.2	4.8		1.2	1.7	2.4
	+1/64"	1/4	13.7	14.1	12.9				2.2	S/40		S/80	3.0					3.7	6.1		1.7	2.2	3.0
	+1/64"	3/8	17.1	17.5	16.3				2.3	S/40		S/80	3.2					4.0	6.4		1.7	2.3	3.2
	-1/32"	1/2	21.3	21.7	20.5				2.8	S/40		S/80	13.7					4.7	7.5	1.7	2.1	2.8	3.7
	-1/32"	3/4	26.7	27.1	25.9				2.9	S/40		S/80	3.9					5.5	7.8	1.7	2.1	2.9	3.9
	-1/32"	1	33.4	33.8	32.8				3.4	S/40		S/80	4.5					6.4	9.1	1.7	2.8	3.4	4.5
	-1/32"	1-1/4	42.2	42.6	41.4				3.6	S/40		S/80	4.9					6.4	9.7	1.7	2.8	3.6	4.9
	-1/32"	1-1/2	48.3	48.7	47.5				3.7	S/40		S/80	5.1					7.1	10.2	1.7	2.8	3.7	5.1
	-1/32"	2	60.3	60.9	59.7				3.9	S/40		S/80	5.5					8.7	11.1	1.7	2.8	3.9	5.5
	+1/32"	2-1/2	3.0	73.7	72.2				5.2	S/40		S/80	7.0					9.5	14.0	2.1	3.0	5.2	7.0
	-1/32"	3	88.9	89.8	88.0				5.5	S/40		S/80	7.6					11.1	15.2	2.1	3.0	5.5	7.6
	-1/32"	3-1/2	101.6	102.6	100.6				5.7	S/40		S/80	8.1							2.1	3.0	5.7	8.1
	-1/32"	4	114.3	115.4	113.2				6.0	S/40		S/80	8.6	11.1				13.5	17.1	2.1	3.0	6.0	8.6
	+1/16"	5	141.3	142.7	139.9				6.6	S/40		S/80	9.5	12.7				15.9	19.1	2.8	3.4	6.6	9.5
	±0.75	6	168.3	170.0	166.6				7.1	S/40		S/80	11.0	14.3				18.2	21.9	2.8	3.4	7.1	11.0
	-1/32"	8	219.3	221.3	216.9			6.4	7.0	S/40	10.3	S/80	12.7	15.1	18.2	20.6	23.0	28.6	22.2	2.8	3.8	8.2	12.7
	-1/32"	10	273.1	275.8	270.4			6.4	7.8	S/40	12.7	S/60	15.1	18.2	21.5	25.4	28.6	33.3		3.4	4.2	9.3	12.7
	+3/32"	12	323.9	327.1	320.7			6.4	8.4	S/40	14.3	S/60	17.4	21.4	25.4	28.6	33.3	35.7		4.2	4.6	9.5	12.7
	-1/32"	14	355.6	359.2	352.0			6.4	9.5	S/30	15.1	S/40	19.1	23.8	27.8	31.8	35.7						
	-1/32"	16	406.4	410.5	402.3			6.4	9.5	S/30	16.7	S/40	21.4	26.2	30.9	36.5	40.5						
	-1/32"	18	457.2	461.8	452.6			6.4	11.1	S/30	19.1	S/40	23.8	29.4	34.9	39.7	45.2						
	+1/8"	20	508.0	513.1	502.9			6.4	12.7	S/20	20.8	S/30	26.2	32.5	38.1	44.5	50.0						
	-1/32"	24	609.6	615.7	603.5			6.4	14.3	S/20	24.6	S/30	30.9	38.9	46.0	52.4	59.5						