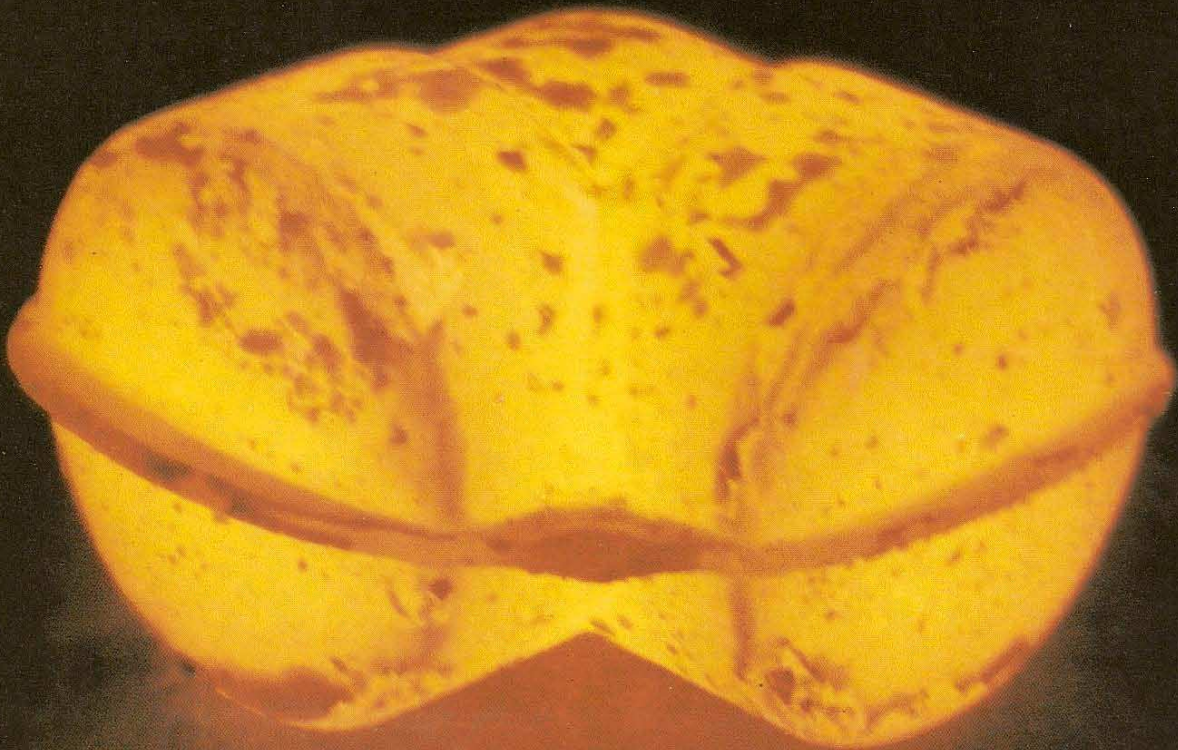


# FORJA ARIAS S.A.

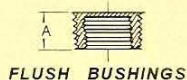
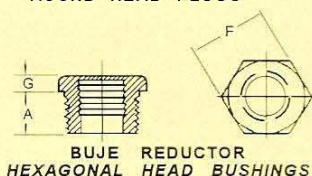
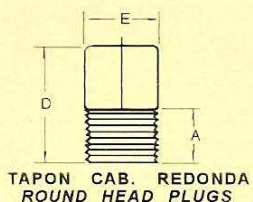
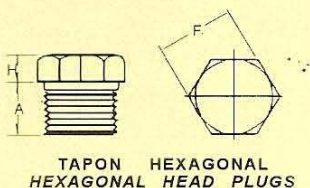
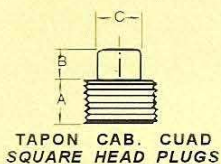


**WE FORGED STEEL STRONG LIKE US**

*Specialists in Forged Steel  
Fittings, Socket - Welding  
and Threaded*

*Especialistas en el Forjado  
de Accesorios Roscados  
y para Soldar*

# TAPONES Y BUJES / PLUGS & BUSHINGS

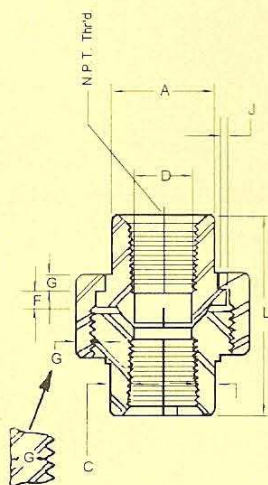


Dimension are in millimeters

Nominal Pipe Size	Length (minimum) A	Plugs Square Head		Plugs Round Head		Hex. Plugs & Bushings		
		Height of Square (minimum) B	Width Flats (minimum) C	Nominal Diameter of Head E	Length (minimum) D	Width Flats (Nominal) F	Hex. Height (Min)	
							Bushing G	Plug H
1/8	9,5	6	7	10	35	11		6
1/4	11	6	9,5	13	41	16	3	6
3/8	12,5	8	11	17	41	17,5	4	8
1/2	14,5	10	14,5	21	44	22	5	8
3/4	16	11	16	27	44	27	6	10
1	19	13	20,5	33	51	35	6	10
1 1/4	20,5	14	24	43	51	44,5	7	14
1 1/2	20,5	16	28,5	48	51	51	8	16
2	22	17	33,5	60	64	63,5	9	17
2 1/2	27	19	38	73	70	76	10	19
3	28,5	21	43	89	70	89	10	21
4	32	25	63,5	114	76	117,5	13	25

NORMA ANSI B 16.11 - 1980

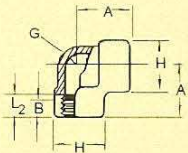
## U. DOBLE SERIE 3000 ROSCADAS CLASS 3000 CARBON STEEL PIPE UNIONS-THREADED ENDS



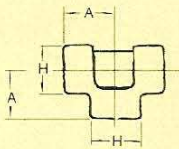
Dimension are in millimeters

Nom. Pipe Size	Pipe End Min. A	Wall 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
1/4	19	3,02	9,85 9,45	3,17	3,2	16	1,24	41,4	49
3/8	22,9	3,2	13,92 13,51	3,43	3,4	14	1,37	46	55
1/2	27,7	3,73	17,47 17,07	3,68	3,7	14	1,5	49	57
3/4	33,5	3,91	21,79 21,39	4,06	4,1	11	1,68	56,9	67
1	41,4	4,55	28,14 27,74	4,57	4,4	11	1,85	62	79
1 1/4	50,5	4,85	35,76 35,36	5,33	5,2	11	2,13	71,1	94
1 1/2	57,2	5,08	41,61 41,20	5,84	5,6	10	2,31	76,4	111
2	70,1	5,54	52,53 52,12	6,6	6,4	10	2,69	86,1	132
2 1/2	85,3	7,01	64,72 64,31	7,49	7,1	8	3,07	102,4	148
3	102,4	7,62	77,67 77,27	8,25	8	8	3,53	109	175

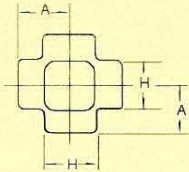
# ACCESORIOS ROSCADOS / THREADED FITTINGS



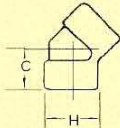
CODO 90°  
90° ELBOWS



TES  
TEES



CRUCES  
CROSSES



CODO 45°  
45° ELBOWS

Nom Pipe Size	Center to End Elbows, Tees, Cross A			Center to End 45° Elbows 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	3	6,5	6,5	6,5
1/4	21	25	29	17	19	22	22	25	33	3	3,5	6,5	8	10
3/8	25	29	33	19	22	25	25	33	38	3	3,5	7	9	10,5
1/2	29	33	38	22	25	29	33	38	46	3	4	8	11	13,5
3/4	33	38	44	25	29	33	38	46	56	3	4,5	8,5	12,5	14
1	38	44	51	29	33	35	46	56	62	3,5	5	10	14,5	17,5
1¼	44	51	60	33	35	43	56	62	75	4	5,5	10,5	17	18
1½	51	60	64	35	43	44	62	75	84	4	5,5	11	18	18,5
2	60	64	83	43	45	52	75	84	102	4,5	7	12	19	19
2½	76	83	95	52	52	64	92	102	121	5,5	7,5	15,5	23,5	29
3	86	95	106	64	64	79	110	121	146	6	9	16,5	26	30,5
4	106	114	114	79	79	79	146	152	152	6,5	11	18,5	27,5	33

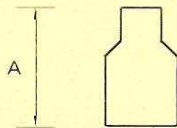
Dimension are in millimeters

NORMA ANSI B 16.11 - 1980

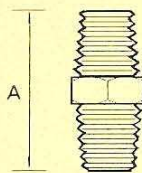
(1) Dimension B is minimum length of perfect thread. The length of useful thread (B plus with threads with fully formed roots and flat crests) shall not be less than L<sub>2</sub> (effective length of external thread) required by American National Standard for Pipe Threads (ANSI B2.1)

## NIPLE REDUCCION ENTRERROSCAS

## SWAGED NIPPLES - HEXAGONAL SHOULDER NIPPLES



NIPLE REDUCCION  
SWAGED NIPPLES

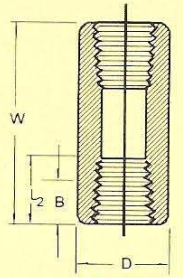


ENTRERROSCAS  
HEXAGONAL SHOULDER  
NIPPLES

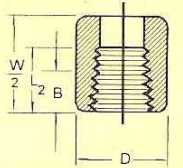
Nom Pipe Size	End to End "A"	
	SWAGED NIPPLES	HEXAGONAL SHOULDER NIPPLE
1/4	57	39
3/8	64	42
1/2	70	46
3/4	76	53
1	89	55
1¼	102	59
1½	114	63
2	165	76
2½	178	85
3	203	88
4	229	93

Dimension are in millimeters

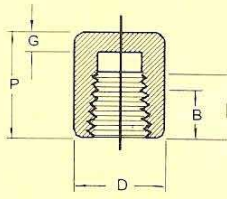
# ACCESORIOS ROSCADOS / THREADED FITTINGS



CUPLAS  
COUPLINGS



MEDIAS CUPLAS  
HALF COUPLINGS



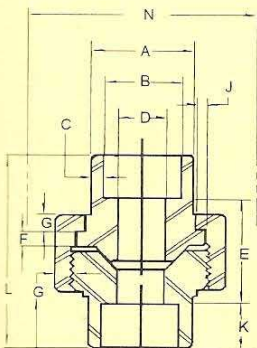
TAPAS  
CAPS

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	27	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	
1¼	67	44	46	57	64	9,5	11,0	17,0	18,0	
1½	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	
2½	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	

Dimension are in millimeters

NORMA ANSI B 16.11 - 1980

## U. DOBLE SERIE 3000 P/SOLDAR CLASS 3000 CARBON STEEL PIPE UNIONS-SOCKET WELDING ENDS



Nom. Pipe Size	Pipe End Min. A	Socket Bore Dia B	Pipe End 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 Nomin 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
1/4	21,8	14,22 13,97	3,3	9,85 9,45	22,4 19,0	3,17	3,17	16	1,24	9,6	41,4	49
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	55
1/2	31,2	21,84 21,59	4,06	17,47 17,07	26,9 20,6	3,68	3,68	14	1,5	9,6	49	57
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
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	79
1¼	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
1½	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
2	75,2	61,47 61,21	6,05	52,53 52,12	45,5 37,3	6,6	6,35	10	2,69	15,8	86,1	132
2½	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
3	109,2	90,17 89,66	8,31	77,67 77,27	63,8 53,6	8,25	8	8	3,53	15,8	109	175

Dimension are in millimeters



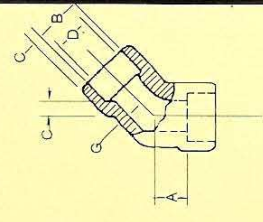
# ACCESORIOS PARA SOLDAR / SOCKET WELDING FITTINGS

Nom Pipe Size	Socket Bore Dia. (2)	Bore Diameter of Fitting (2)		Socket Wall Thickness (1)						Body Wall Thickness G		Center to Bottom of Socket-A		Laying Lengths			
		Pressure Class Designation		9000		6000		3000		Pressure Class Designation		90° Elbows, Tees, and Crosses		45° Elbows		Couplings	Half Couplings
		3000	6000	9000	Ave.	Min.	Ave.	Min.	Ave.	Min.	3000	6000	9000	3000	6000		
1/8	10,90 10,65	7,6 6,1	4,8 3,2	3,2	3,2	3,95	3,45	2,4	3,15	10	12	10	9	7	8	17	15
1/4	14,35 14,10	10,0 8,5	7,1 5,6	3,8	3,3	4,6	4	3	3,7	10	12	10	9	7	8	17	15
3/8	17,80 17,55	13,3 11,8	9,9 8,4	4	3,5	5,05	4,35	3,2	4	10	15	12	9	13	9	19	16
1/2	21,95 21,70	16,6 15,0	12,5 11,0	4,65	4,1	5,95	5,2	4,65	4,8	10	17	14	13	10	13	24	21
3/4	27,30 27,05	21,7 20,2	16,3 14,8	4,9	4,25	6,95	6,05	4,9	5,55	13	21	18	14	11	16	25	22
1	34,05 33,80	27,4 25,9	21,5 19,9	5,7	5	7,9	6,95	5,7	6,35	13	24	20	16	12	17	31	27
1 1/4	42,80 42,55	35,8 34,3	30,2 28,7	6,05	5,3	7,9	6,95	6,05	6,35	13	29	25	19	16	23	32	28
1 1/2	48,90 48,65	41,7 40,1	34,7 33,2	6,35	5,55	8,9	7,8	6,35	6,35	13	34	30	23	19	28	34	30
2	61,35 61,10	53,5 51,7	43,6 42,1	6,95	6,05	10,9	9,5	6,95	8,75	16	40	36	27	23	31	43	39
2 1/2	74,20 73,80	64,2 61,2		8,75	7,65			7		16	44	39	31	27	44	45	40
3	90,15 89,80	79,5 76,4		9,5	8,3			7,6		16	60	55	34	29	47	42	42
4	115,80 115,45	103,8 100,7		10,7	9,35			8,55		19	69	64	44	38	50	45	45

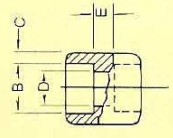
NORMA ANSI B 16.11 - 1980

(1) Average of Socket Wall Thickness around periphery shall be no less than values. The minimum values are permitted in localized areas.  
 (2) Upper and lower values for each size are the respective maximum and minimum dimensions

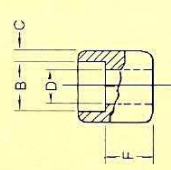
Dimensione in millimetri



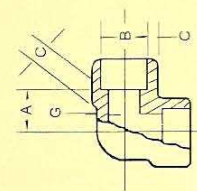
CODO 45°  
45° ELBOW



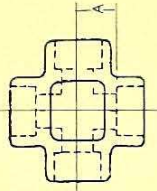
CUPLA  
COUPLING



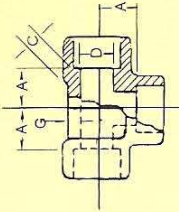
MEDIA CUPLA  
HALF-COUPLING



CODO 90°  
90° ELBOW



CRUZ  
CROSS



TEE  
TEE