LAME founded in 1961 has been manufacturing forged steel high pressure fittings according to ASME B16.11, BS 3799 and outlets to ASME B31.1.

The fittings are made in carbon, alloy and stainless steel, and are used in the industry of Gas, Petroleum and Nuclear fields.

Major engineering companies are using our products of good quality.

We have the most modern equipments as CNC lathes (single and dual spindles) and special multihead machines for high production.

Large inventory of controlled raw and finished forged steel fittings is a guarantee of prime service to all our customers.
We have internal and external laboratory for mechanical, chemical analysis, P.M.I. test, charpy test and further.

We recently moved in the new manufacturing plant, new offices, spreading on a total area of 10.000 m2, for which 5.000 are completely covered.

We are located in Jerago con Orago, only 30 km from MILANO, in a highly industrialized and strategic area near to the international airport MILANO-MALPENSA.

We are also very close to the highway (A8) and it is very simple to reach us.

LAME

RACCORDI
FITTINGS

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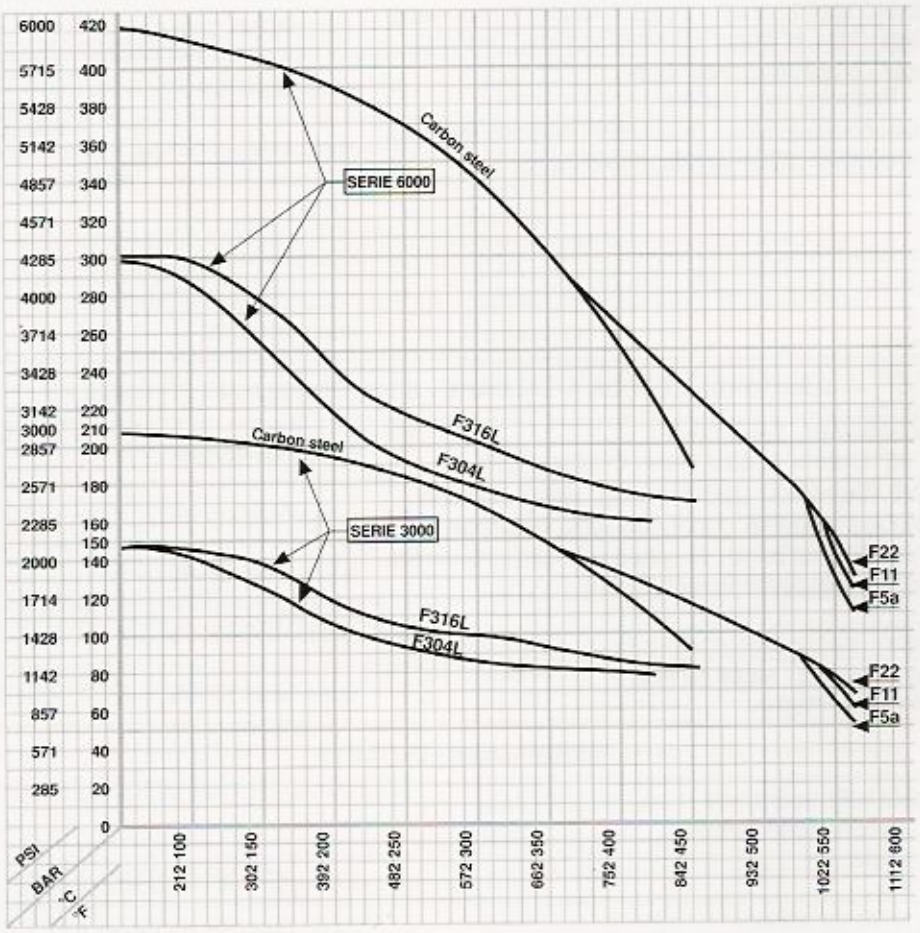
Pressioni di servizio
Pressure rating

RACCORDI / FITTINGS		Tubo Pipe
Serie / Class	Tipo / Type	
2000 lb 3000 lb 6000 lb	Threaded Threaded Threaded	Sch. 80 Sch. 160 XXS
3000 lb 6000 lb 9000 lb	Socket-welding Socket-welding Socket-welding	Sch. 80 Sch. 160 XXS

Correlazione tra la serie dei raccordi ed i tubi in accordo alle ASME B16.11

Correlation of fittings class with wall designation of pipe according to ASME B16.11

Pressioni e temperature di servizio secondo ASME B16.11
Pressure – temperatures ratings according to ASME B16.11



— Acciaio al carbonio
Carbon steel ASTM A 105

— Acciaio legato
Alloy steel ASTM A 182 F 5a

— Acciaio legato
Alloy steel ASTM A 182 F 22

— Acciaio legato
Alloy steel ASTM A 182 F 11

— Acciaio inox
Stainless steel ASTM A 182 F 304 L

— Acciaio inox
Stainless steel ASTM A 182 F 316 L

NORME ASTM / ASTM STANDARDS

Riassunto delle principali norme ASTM, generalmente utilizzate nelle industrie petrolifere.
Summary of the main ASTM standards generally used in the petroleum industries.

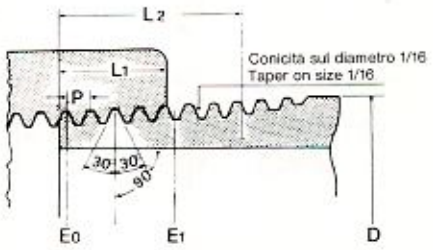
ASTM	Grado Grade	Designazione UNS Designation	COMPOSIZIONE CHIMICA % - CHEMICAL REQUIREMENTS %									CARATTERISTICHE MECCANICHE - MECHANICAL REQUIREMENTS								
			C	Mn	Pmax	Smax	Si	Ni	Cr	Mo	Altri Others	Resistenza Tensile strenght min. MPa	Resistenza Tensile strenght min. ksi	Snervamento Yield strenght min. MPa	Snervamento Yield strenght min. ksi	Allung. min.% Elongat. min. %	Contraz. min.% Red. of area min. %	Durezza Hardness	Resilienza a Impact test at °C	Resilienza a Impact test at °F
A105			0,35 max	0,60-1,05	0,040	0,050	0,35 max	0,40 max	0,30 max	0,12 max	Cu<0,40-V<0,03 Cb<0,02	485	70	250	36	22	30	137-187HB		
A106	B		0,30 max	0,29-1,06	0,035	0,035	0,10 min	0,40 max	0,40 max	0,15 max	Cu<0,40-V<0,08	415	60	240	35	L30T16,5				
A182	F5a	K42544	0,25 max	0,60 max	0,040	0,030	0,50 max	0,50 max	4,0-6,0	0,44-0,55		620	90	450	65	22	50	187-248HB		
	F11	K11572	0,10-0,20	0,30-0,8	0,040	0,040	0,50-1,00		1,0-1,50	0,44-0,65		485	70	275	40	20	30	143-207HB		
	F22	K21590	0,05-0,15	0,30-0,6	0,040	0,040	0,50 max		2,0-2,50	0,87-1,13		515	75	310	45	20	30	156-207HB		
	F304	S30400	0,08 max	2,00 max	0,040	0,030	1,00 max	8,0-11,0	18,0-20,0			515	75	205	30	30	50			
	F304L	S30403	0,035 max	2,00 max	0,040	0,030	1,00 max	8,0-13,0	18,0-20,0			485	70	170	25	30	50			
	F316	S31600	0,08 max	2,00 max	0,040	0,030	1,00 max	10,0-14,0	16,0-18,0	2,00-3,00		515	75	205	30	30	50			
	F316L	S31603	0,035 max	2,00 max	0,040	0,030	1,00 max	10,0-15,0	16,0-18,0	2,00-3,00		485	70	170	25	30	50			
	F321	S32100	0,08 max	2,00 max	0,040	0,030	1,00 max	9,0-12,0	17,0 min		5C<Ti<0,70%	515	75	205	30	30	50			
	F347	S34700	0,08 max	2,00 max	0,040	0,030	1,00 max	9,0-13,0	17,0-20,0		10C<Cb+Ta<1,10%	515	75	205	30	30	50			
	F51	S31803	0,03 max	2,00 max	0,030	0,020	1,00 max	4,5-6,5	21,0-23,0	2,5-3,5	N 0,08-0,20	620	90	450	65	25	45			
A312	TP304	S30400	0,08 max	2,00 max	0,040	0,030	0,75 max	8,0-11,0	18,0-20,0			515	75	205	30	L35T25				
	TP304L	S30403	0,035 max	2,00 max	0,040	0,030	0,75 max	8,0-13,0	18,0-20,0			485	70	170	25	L35T25				
	TP316	S31600	0,08 max	2,00 max	0,040	0,030	0,75 max	11,0-14,0	16,0-18,0	2,00-3,00		515	75	205	30	L35T25				
	TP316L	S31603	0,035 max	2,00 max	0,040	0,030	0,75 max	10,0-15,0	16,0-18,0	2,00-3,00		485	70	170	25	L35T25				
	TP321	S32100	0,08 max	2,00 max	0,040	0,030	0,75 max	9,0-13,0	17,0-20,0		5C<Ti<0,70%	515	75	205	30	L35T25				
	TP347	S34700	0,08 max	2,00 max	0,040	0,030	0,75 max	9,0-13,0	17,0-20,0		10C<Cb+Ta<1%	515	75	205	30	L35T25				
A333	6		0,30 max	0,29-1,06	0,025	0,025	0,10 min					415	60	240	35	L30T16,5			-45	-50
A335	P5	K41545	0,15 max	0,30-0,60	0,025	0,025	0,50 max		4,00-6,00	0,45-0,65		415	60	205	30	L30T20				
	P11	K11597	0,05-0,15	0,30-0,60	0,025	0,025	0,50-1,00		1,00-1,50	0,44-0,65		415	60	205	30	L30T20				
	P22	K21590	0,05-0,15	0,30-0,60	0,025	0,025	0,50 max		1,90-2,60	0,87-1,13		415	60	205	30	L30T20		max197HB		
A350	LF2		0,30 max	1,35 max	0,035	0,040	0,15-0,30	0,40 max	0,30 max	0,12 max	Cu<0,40 Cb<0,02 V<0,03	485-655	70-95	250	36	22	30		-45,6	-50
A420	WPL6		0,30 max	0,39-1,06	0,030	0,030	0,10 min					415-585	60-85	240	35	L30T16,5			-45	-50
A403	WP304		0,08 max	2,00 max	0,045	0,030	1,00 max	8,0-11,00	18,0-20,0			515	75	205	30	L28T20				
	WP304L		0,035 max	2,00 max	0,045	0,030	1,00 max	8,0-13,00	18,0-20,0			485	70	170	25	L28T20				
	WP347		0,08 max	2,00 max	0,045	0,030	1,00 max	9,0-13,00	17,0-20,0		a)	515	75	205	30	L28T20				
	WP316		0,08 max	2,00 max	0,045	0,030	1,00 max	10,0-14,00	16,0-18,0	2,00-3,00		515	75	205	30	L28T20				
	WP316L		0,035 max	2,00 max	0,045	0,030	1,00 max	10,0-15,00	16,0-18,0	2,00-3,00		485	70	170	25	L28T20				
	WP321		0,08 max	2,00 max	0,045	0,030	1,00 max	9,0-13,00	17,0-20,0		b)	515	75	205	30	L28T20				

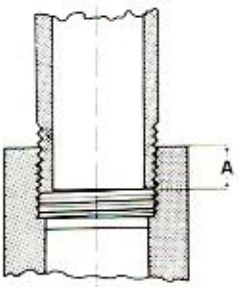
a) Devono avere un contenuto di Niobio + Tantalio di non meno 10 volte il contenuto di Carbonio e non più del 1,10%.
Niobium + Tantalium content must be: not 10 times minus than Carbon content and not 1,10% more.

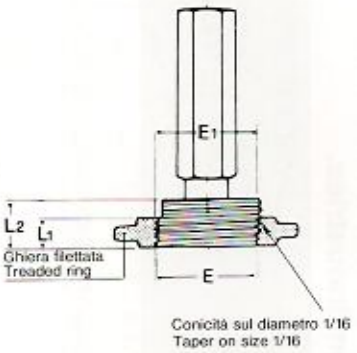
b) Devono avere un contenuto di Titanio di non meno 5 volte il contenuto di Carbonio e non più dello 0,70%.
Titanium content must be: not 5 times minus than Carbon content and not 0,70% more.

Filettatura conica per tubi (NPT)
Standard taper pipe thread (NPT)

ANSI/ASME B1.20.1







∅ NOMIN. PIPE SIZE	1/8	1/4	3/8	1/2	3/4	1	11/4	11/2	2	21/2	3	4
D mm.	10.29	13.72	17.14	21.34	26.67	33.40	42.16	48.26	60.32	73.02	88.90	114.30
n*	27	18	18	14	14	111/2	111/2	111/2	111/2	8	8	8
P mm.	0.940	1.411	1.411	1.814	1.814	2.209	2.209	2.209	2.109	3.175	3.175	3.175
E0 mm.	9.233	12.126	15.545	19.264	24.579	30.826	39.551	45.621	57.633	69.076	84.852	110.093
E1 mm.	9.489	12.487	15.926	19.772	25.117	31.461	40.218	46.287	58.325	70.159	86.068	111.433
L2 mm.	6.703	10.205	10.358	13.556	13.860	17.343	17.952	18.377	19.215	28.892	30.480	33.020
L1 mm.	4.102	5.786	6.096	8.128	8.610	10.160	10.668	10.668	11.074	17.322	19.456	21.437
mm.	0.0586	0.0881	0.0881	0.1132	0.1132	0.1379	0.1379	0.1379	0.1379	0.1982	0.1983	0.1983
A mm.	6.9	10	10.3	13.6	14.1	16.8	17.3	17.3	17.7	23.7	25.8	27.8

* n = Numero di filetti per 25,4 mm / Number of threads for 25,4 mm

Filettatura conica ISO 7-1 - Standard taper pipe thread ISO 7-1

Dimensioni nominali
Nominal dimensions

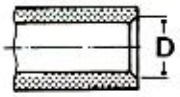
$P = \frac{25,4}{z}$

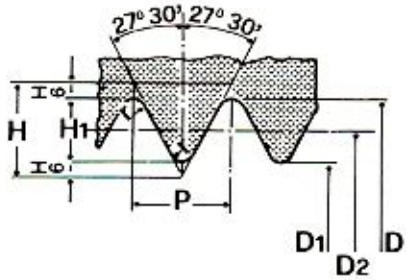
$H = 0,960\,491\ P$

$H_1 = 0,640\,327\ P$

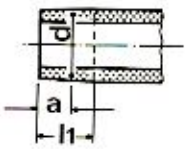
$r = 0,137\,329\ P$

Filettatura interna cilindrica
Cylindrical inside thread





Dimensioni in mm.
Dimensions in mm.



Filettatura esterna conica
Conical outside thread

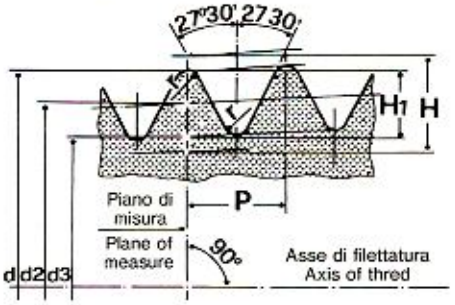
$P = \frac{25,4}{z}$

$H = 0,960\,237\ P$

$H_1 = 0,640\,327\ P$

$r = 0,137\,278\ P$

Conicità 1:16

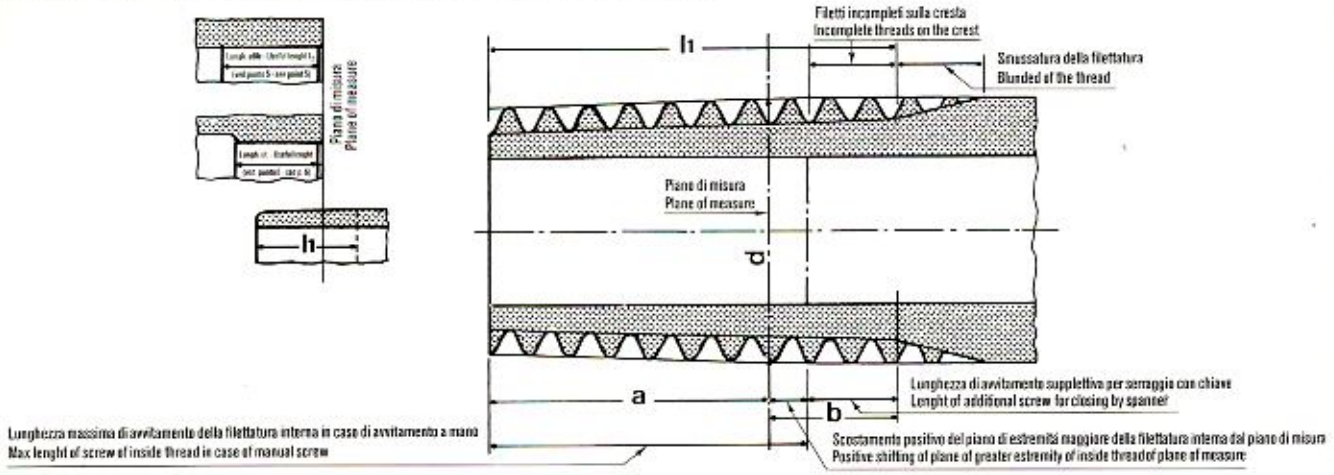


Ø NOMINALE PIPE SIZE	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6
Diametro di filettatura Size of thread **d = D**	9.728	13.157	16.662	20.955	26.441	33.249	41.910	47.803	59.614	75.184	87.884	100.330	113.030	138.430	163.830
Distanza tra il piano di estremità del tubo ed il piano di misura **a** Distance between the plane of extrem. of pipe and plane of measure **a**	4.0	6.0	6.4	8.2	9.5	10.4	12.7	12.7	15.9	17.5	20.6	22.2	25.4	28.6	28.6
Passo **P** Pitch **P**	0.907	1.337	1.337	1.814	1.814	2.309	2.309	2.309	2.309	2.309	2.309	2.309	2.309	2.309	2.309
Numero di filetti per 25.4 mm **Z** Number of threads for 25.4 mm **Z**	28	19	19	14	14	11	11	11	11	11	11	11	11	11	11
Diametro medio Middle size **d2 = D2**	9.147	12.301	15.806	19.793	25.279	31.770	40.431	46.324	58.135	73.705	86.405	98.851	111.551	136.951	162.351
Diam. di nocciolo Size of stone **d3 = D1**	8.566	11.445	14.950	18.631	24.117	30.291	38.952	44.845	56.656	72.226	84.926	97.372	110.072	135.472	160.872
H1	0.581	0.856	0.856	1.162	1.162	1.479	1.479	1.479	1.479	1.479	1.479	1.479	1.479	1.479	1.479
r ≈	0.125	0.184	0.184	0.249	0.249	0.317	0.317	0.317	0.317	0.317	0.317	0.317	0.317	0.317	0.317
Lungh. di filettatura utile **L1** Lenght of useful thread **L1**	6.5	9.7	10.1	13.2	14.5	16.8	19.1	19.1	23.4	26.7	29.8	31.4	35.8	40.1	40.1

LAME

Lunghezze di filettatura, tolleranze e dimensioni limite - Dimensions and lenghts of thread

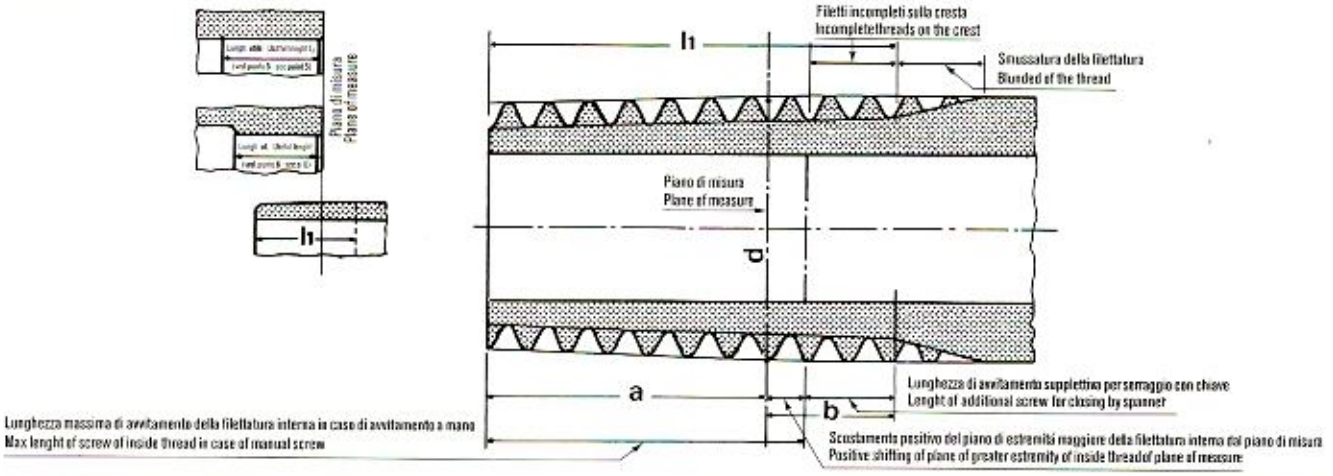
Accoppiamento filettatura esterna conica con filettatura interna cilindrica
Matching conical outside thread with cylindrical inside thread



∅ NOMINALE - PIPE SIZE				1/8	1/4	3/8	1/2	3/4
FILETTATURA ESTERNA OUTSIDE THREAD	Diametro di filettatura nel piano di misura **d** Size of thread in plane of measure			9.728	13.157	16.662	20.955	26.44
	Lunghezza di misura **a** Lenght of measure **a**	Dimensione nominale Nominal dimension		4.0	6.0	6.4	8.2	9.5
		Scostamenti Shiftings	mm ≈	± 0.9	± 1.3	± 1.3	± 1.8	± 1.8
			Filetti Threads	± 1	± 1	± 1	± 1	± 1
		Dimensione Dimension	Massima Max. ≈	4.9	7.3	7.7	10.0	11.3
			Minima Min. ≈	3.1	4.7	5.1	6.4	7.7
	Tolleranza di avvitamento **b** Tolerance of screw **b**	mm ≈		2.5	3.7	3.7	5.0	5.0
		Filetti Threads		2 3/4	2 3/4	2 3/4	2 3/4	2 3/4
	Lungh. min. di filettatura utile **l1** Lenght min. of useful thread **l1**	Per **a** nominale For **a** nominal		6.5	9.7	10.1	13.2	14.5
		Per **a** massima For **a** max.		7.4	11.0	11.4	15.0	16.3
		Per **a** minima For **a** min.		5.6	8.4	8.8	11.4	12.7
FILETTATURA INTERNA INSIDE THREAD	Lunghezza di filettatura utile **l2** Lenght of useful thread **l2**			7.4	11.0	11.4	15,0	16.3
	Scostamenti del piano di estremità dal piano di misura Shifting of plane of extremity on the plane of measure		mm ≈	± 1.1	± 1.7	± 1.7	± 2.3	± 2.3
			Filetti Threads	± 1 1/4	± 1 1/4	± 1 1/4	± 1 1/4	± 1 1/4
	Scostamenti sui diametri di filettatura medio e di nocciolo Shiftings on sizes of middle thread and of stone			± 0.071	± 0.104	± 0.104	± 0.142	± 0.14

Lunghezze di filettatura, tolleranze e dimensioni limite - Dimensions and lenghts of thread

Accoppiamento filettatura esterna conica con filettatura interna cilindrica
Matching conical outside thread with cylindrical inside thread



1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6
33.249	41.910	47.803	59.614	75.184	87.884	100.330	113.030	138.430	163.830
10.4	12.7	12.7	15.9	17.5	20.6	22.2	25.4	28.6	28.6
± 2.3	± 2.3	± 2.3	± 2.3	± 3.5	± 3.5	± 3.5	± 3.5	± 3.5	± 3.5
± 1	± 1	± 1	± 1	± 1 1/2	± 1 1/2	± 1 1/2	± 1 1/2	± 1 1/2	± 1 1/2
12.7	15.0	15.0	18.2	21.0	24.1	25.7	28.9	32.1	32.1
8.1	10.4	10.4	13.6	14.0	17.1	18.7	21.9	25.1	25.1
6.4	6.4	6.4	7.5	9.2	9.2	9.2	10.4	11.5	11.5
2 3/4	2 3/4	2 3/4	3 1/4	4	4	4	4 1/2	5	5
16.8	19.1	19.1	23.4	26.7	29.8	31.4	35.8	40.1	40.1
19.1	21.4	21.4	25.7	30.2	33.3	34.9	39.3	43.6	43.6
14.5	16.8	16.8	21.1	23.2	26.3	27.9	32.3	36.6	36.6
19.1	21.4	21.4	25.7	30.2	33.3	34.9	39.3	43.6	43.6
± 2.9	± 2.9	± 2.9	± 2.9	± 3.5	± 3.5	± 3.5	± 3.5	± 3.5	± 3.5
± 1 1/4	± 1 1/4	± 1 1/4	± 1 1/4	± 1 1/2	± 1 1/2	± 1 1/2	± 1 1/2	± 1 1/2	± 1 1/2
± 0.180	± 0.180	± 0.180	± 0.180	± 0.217	± 0.217	± 0.217	± 0.217	± 0.217	± 0.217

LAMIE

Dimensioni dei tubi secondo Pipe dimensions in accordance to NORMA ANSI B 36.10

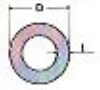
Diametro tubi Size pipes		Spessori nominali e pesi - Nominal thickness and weights																											
		NUMERO DI «SCHEDULE» - NUMBER OF «SCHEDULES»																											
nominale in pollici nominal in inches	esterno in mm outside in mm	Standard		Extra-Strong		Double Extra-Strong		10		20		30		40		60		80		100		120		140		160		5 S *		10 S *	
		mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m
⅛	10,3	1,73	0,36	2,41	0,46	–	–	–	–	–	–	–	–	1,73	0,36	–	–	2,41	0,46	–	–	–	–	–	–	–	–	–	–	1,28	0,28
¼	13,7	2,24	0,63	3,02	0,80	–	–	–	–	–	–	–	–	2,24	0,63	–	–	3,02	0,80	–	–	–	–	–	–	–	–	–	–	1,65	0,49
⅜	17,1	2,31	0,85	3,20	1,10	–	–	–	–	–	–	–	–	2,31	0,85	–	–	3,20	1,10	–	–	–	–	–	–	–	–	–	–	1,65	0,63
½	21,3	2,77	1,26	3,73	1,62	7,47	2,54	–	–	–	–	–	–	2,77	1,26	–	–	3,73	1,62	–	–	–	–	–	–	4,78	1,95	1,65	0,80	2,11	1,00
¾	26,7	2,87	1,68	3,91	2,19	7,82	3,63	–	–	–	–	–	–	2,87	1,68	–	–	3,91	2,19	–	–	–	–	–	–	5,56	2,89	1,65	1,03	2,11	1,28
1	33,4	3,38	2,50	4,55	3,23	9,09	5,45	–	–	–	–	–	–	3,38	2,50	–	–	4,55	3,23	–	–	–	–	–	–	6,35	4,23	1,65	1,29	2,77	2,08
1.¼	42,2	3,56	3,38	4,85	4,46	9,70	7,75	–	–	–	–	–	–	3,56	3,38	–	–	4,85	4,46	–	–	–	–	–	–	6,35	5,60	1,65	1,65	2,77	2,69
1.½	48,3	3,68	4,05	5,08	5,40	10,16	9,54	–	–	–	–	–	–	3,68	4,05	–	–	5,08	5,40	–	–	–	–	–	–	7,14	7,23	1,65	1,90	2,77	3,12
2	60,3	3,91	5,43	5,54	7,47	11,07	13,44	–	–	–	–	–	–	3,91	5,43	–	–	5,54	7,47	–	–	–	–	–	–	8,74	11,10	1,65	2,38	2,77	3,94
2.½	73,0	5,16	8,62	7,01	11,40	14,02	20,39	–	–	–	–	–	–	5,16	8,62	–	–	7,01	11,40	–	–	–	–	–	–	9,52	14,90	2,11	3,70	3,05	5,26
3	88,9	5,49	11,28	7,62	15,25	15,24	27,65	–	–	–	–	–	–	5,49	11,28	–	–	7,62	15,25	–	–	–	–	–	–	11,13	21,30	2,11	4,50	3,05	6,45
3.½	101,6	5,74	13,56	8,08	18,62	–	–	–	–	–	–	–	–	5,74	13,56	–	–	8,08	18,62	–	–	–	–	–	–	–	–	2,11	5,20	3,05	7,40
4	114,3	6,02	16,06	8,56	22,29	17,12	40,99	–	–	–	–	–	–	6,02	16,06	–	–	8,56	22,29	–	–	11,13	28,25	–	–	13,49	33,51	2,11	5,81	3,05	8,34
5	141,3	6,55	21,76	9,52	30,92	19,05	57,37	–	–	–	–	–	–	6,55	21,76	–	–	9,52	30,92	–	–	12,70	40,24	–	–	15,88	49,05	2,77	9,45	3,40	11,56
6	168,3	7,11	28,23	10,97	42,52	21,95	79,11	–	–	–	–	–	–	7,11	28,23	–	–	10,97	42,52	–	–	14,27	54,20	–	–	18,26	67,47	2,77	11,31	3,40	13,82
8	219,1	8,18	42,49	12,70	64,57	22,22	107,78	–	–	6,35	33,28	7,04	36,76	8,18	42,49	10,31	53,07	12,70	64,57	15,09	75,79	18,26	90,32	20,62	100,89	23,01	111,18	2,77	14,78	3,76	19,94
10	273,0	9,27	60,24	12,70	81,46	25,40	154,97	–	–	6,35	41,73	7,80	50,96	9,27	60,24	12,70	81,46	15,09	95,84	18,26	114,59	21,44	132,85	25,40	154,97	28,58	172,11	3,40	22,62	4,19	27,83
12	323,9	9,52	73,76	12,70	97,36	25,40	186,75	–	–	6,35	49,68	8,38	65,14	10,31	79,71	14,27	108,97	17,48	131,81	21,44	159,67	25,40	186,75	28,58	207,87	33,32	238,60	3,96	33,00	4,57	36,00
14	355,6	9,52	81,21	12,70	107,28	–	–	6,35	54,63	7,92	67,98	9,52	81,21	11,13	94,31	15,09	126,51	19,05	157,94	23,83	194,64	27,79	224,36	31,75	253,32	35,71	281,49	3,96	34,23	4,78	41,18
16	406,4	9,52	93,13	12,70	123,18	–	–	6,35	62,58	7,92	77,92	9,52	93,13	12,70	123,18	16,66	160,04	21,44	203,26	26,19	245,34	30,96	286,33	36,53	332,72	40,49	364,94	4,19	41,60	4,78	47,33
18	457,2	9,52	105,05	12,70	139,07	–	–	6,35	70,53	7,92	87,85	11,13	122,12	14,27	155,90	19,05	205,62	23,83	254,24	29,36	309,55	34,92	363,33	39,67	408,21	45,24	459,18	4,19	46,83	4,78	53,18
20	508,0	9,52	116,97	12,70	154,97	–	–	6,35	78,47	9,52	116,97	12,70	154,97	15,09	183,14	20,62	247,79	26,19	310,91	32,54	381,20	38,10	441,06	44,45	507,63	50,01	564,24	4,78	59,22	5,54	68,50
22	558,8	9,52	128,89	12,70	170,66	–	–	6,35	86,42	9,52	128,89	12,70	170,86	–	–	22,22	293,80	28,58	373,27	34,92	450,75	41,28	526,24	47,62	599,76	53,98	671,28	4,78	63,75	5,54	73,81
24	609,6	9,52	140,81	12,70	186,75	–	–	6,35	94,37	9,52	140,81	14,27	209,54	17,48	254,74	24,61	354,62	30,96	441,30	38,89	546,84	46,02	639,18	52,37	719,16	59,54	806,74	5,54	82,60	6,35	94,37
26	660,4	9,52	152,73	12,70	202,65	–	–	7,92	127,58	12,70	202,65	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
28	711,2	9,52	164,65	12,70	218,54	–	–	7,92	137,52	12,70	218,54	15,88	271,94	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
30	762,0	9,52	176,57	12,70	234,44	–	–	7,92	147,45	12,70	234,44	15,88	291,81	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
32	812,8	9,52	188,50	12,70	250,33	–	–	7,92	157,39	12,70	250,33	15,88	311,67	17,48	342,17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
34	863,6	9,52	200,42	12,70	266,22	–	–	7,92	167,32	12,70	266,22	15,88	331,54	17,48	364,01	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
36	914,4	9,52	212,34	12,70	282,12	–	–	7,92	177,26	12,70	282,12	15,88	351,41	19,05	420,21	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

N.B. - Gli spessori ed i pesi «Standard», «Extra-Strong» e «Double Extra-Strong» entro i bordi ingrossati, hanno un corrispondente valore in una «schedula».
Per spessori diversi da quelli indicati il peso può essere ricavato tramite la seguente formula: $\frac{24.66\ (D-t)\ t}{1000}$

* Secondo NORMA ANSI B 36.19

N.B. - Thickness and weights «Standard», «Extra-Strong» and «Double Extra-Strong» within swell elges have a correspondent value in a «schedule».
For different thickness that suitable the weights can proceeds by following formula: $\frac{24.66\ (D-t)\ t}{1000}$

* In accordance to ANSI B 36.19



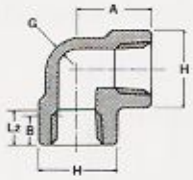
Raccordi filettati - Threaded fittings

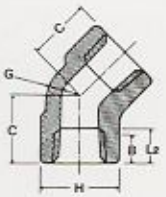
Gomiti 90°
90° Elbows

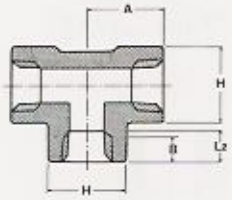
Gomiti 45°
45° Elbows

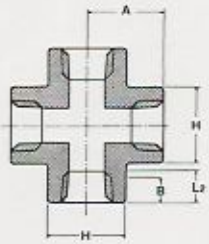
Tee
Equal tees

Croci
Crosses





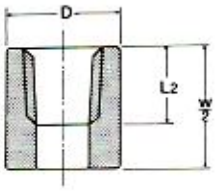




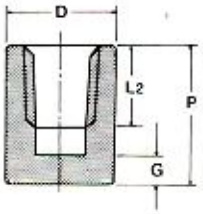
Ø NOMINALE PIPE SIZE		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
LUNGHEZZA MINIMA FILETTATURA	B	6.5	8	9	11	12.5	14.5	17	18	19	23.5	26	27.5
LENGTH OF THREAD. MIN.	L2	6.5	10	10.5	13.5	14	17.5	18	18.5	19	29	30.5	33
2000 LBS	A	21	21	25	29	33	38	44	51	60	76	86	106
	C	17	17	19	22	25	29	33	35	43	52	64	79
	H	22	22	25	33	38	46	56	62	75	92	110	146
	G	3	3	3	3	3	3.5	4	4	4.5	5.5	6	6.5
3000 LBS	A	21	25	29	33	38	44	51	60	64	83	95	114
	C	17	19	22	25	29	33	35	43	45	52	64	79
	H	22	25	33	38	46	56	62	75	84	102	121	152
	G	3	3.5	3.5	4	4.5	5	5.5	5.5	7	7.5	9	11
6000 LBS	A	25	29	33	38	44	51	60	64	83	95	106	114
	C	19	22	25	29	33	35	43	44	52	64	79	79
	H	25	33	38	46	56	62	75	84	102	121	146	152
	G	6.5	6.5	7	8	8.5	10	10.5	11	12	15.5	16.5	18.5

Raccordi filettati - Threaded fittings

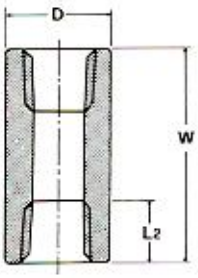
Mezzi manicotti
Half couplings



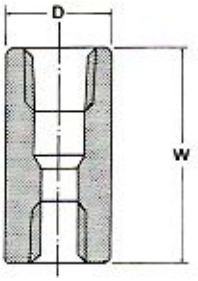
Tappi femmina
Caps



Manicotti
Full couplings



Manicotti ridotti
Reducing couplings



Ø NOMINALE PIPE SIZE		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
LUNG. FILETTO	B	6.5	8	9	11	12.5	14.5	17	18	19	23.5	26	27.5
LENGTH OF THREADED MIN.	L2	6.5	10	10.5	13.5	14	17.5	18	18.5	19	29	30.5	33
3000 LBS	W	32	35	38	48	51	60	67	79	86	92	108	121
	P	19	25	25	32	37	41	44	44	48	60	65	68
	D	16	19	22	29	35	44	57	64	76	92	108	140
	G MIN.	5.0	5.0	5.0	6.5	6.5	9.5	9.5	11	12.5	16.0	19.0	22.0
6000 LBS	W	32	35	38	48	51	60	67	79	86	92	108	121
	P	—	27	27	33	38	43	46	48	51	64	68	75
	D	22	25	32	38	44	57	64	76	92	108	127	159
	G MIN.	—	6.5	6.5	8.0	8.0	11.0	11.0	12.5	16.0	19.0	22.0	28.5

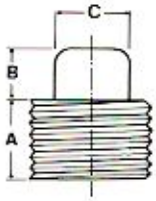
Raccordi filettati - Threaded fittings

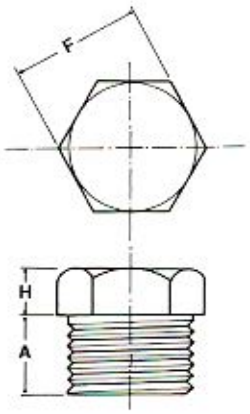
Tappi T. quadra
Square H. plugs

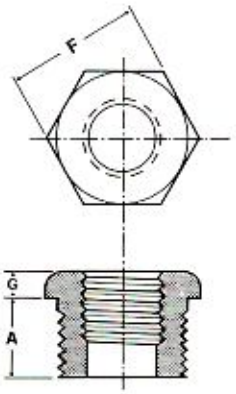
Tappi T. esag.
Hex. H. plugs

Tappi T. tonda
Round H. plugs

Riduz. esag. M/F
Bushings



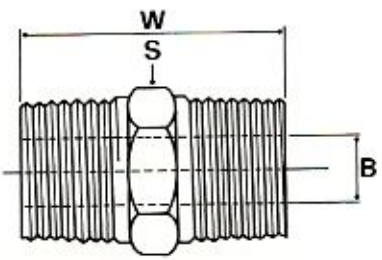




∅ NOMINALE PIPE SIZE	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
A MIN.	9.5	11.0	12.5	14.5	16.0	19.0	20.5	20.5	22.0	27.0	28.5	32.0
B MIN.	6	6	8	10	11	13	14	16	17	19	21	25
C MIN.	7.0	9.5	11.0	14.5	16.0	20.5	24.0	28.5	33.5	38.0	43.0	63.5
D MIN.	35	41	41	44	44	51	51	51	64	70	70	76
E NOM.	10	13	17	21	27	33	43	48	60	73	89	114
F NOM.	11.0	16.0	17.5	22.0	27.0	35.0	44.5	51.0	63.5	76.0	89.0	117.5
G MIN.	—	3	4	5	6	6	7	8	9	10	10	13
H MIN.	6	6	8	8	10	10	14	16	17	19	21	25

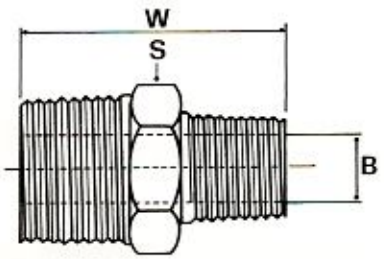
Raccordi filettati - Threaded fittings

Nippli esagonali
Hex. nipples



Nota: Per i nippli ridotti la quota "B" è quella del ∅ minore.

Nippli esagonali ridotti
Reducing hex. nipples



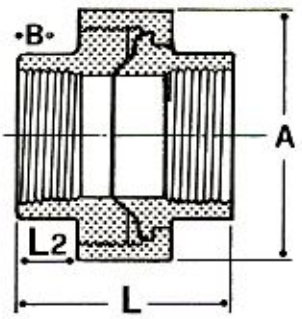
Notes: For reducing nipples the dimension B is for small size.

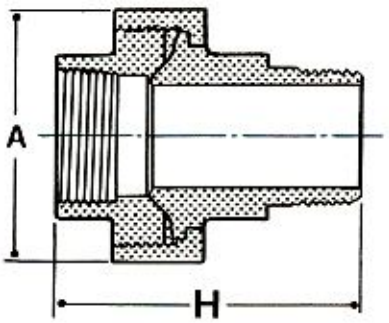
DIMENS.	SERIE CLASS	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
W	3000 LBS	24	36	40	48	52	60	66	68	71	84	94	125
	6000 LBS	24	36	40	48	52	60	66	68	71	84	94	125
S	3000 LBS	11	15	19	22	27	35	45	50	65	80	90	120
	6000 LBS	11	15	19	22	27	35	45	50	65	80	90	120
B	3000 LBS	4.5	6.3	9	11.5	16	21	29	34	43	54	67	87
	6000 LBS	—	6	8	11	13	17	23	30	39	45	58	80

Raccordi filettati - Threaded fittings

Bocchettoni femmina-femmina
Female-female unions

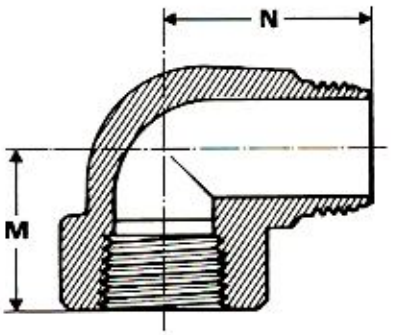
Bocchettoni maschio-femmina
Male-female unions





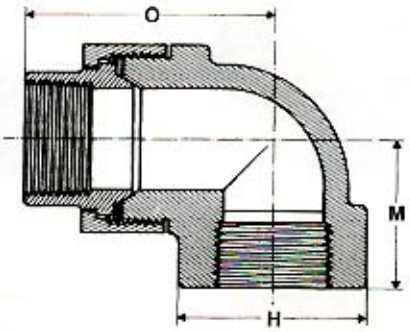
Ø NOMINALE PIPE SIZE		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
LUNGH. FILETTO	B	6.5	8	9	11	12.5	14.5	17	18	19	23.5	26	27.5
LENGHT OF THREADED MIN.	L2	6.5	10	10.5	13.5	14	17.5	18	18.5	19	29	30.5	33
3000 LBS	A	32	35	41	45	55	65	78	85	100	123	148	180
	L	44	40	47	49	57	62	71	75	84	110	120	157
	H	—	64	69	73	83	92	96	110	130	—	—	—
6000 LBS	A												
	L	Dati fornibili su richiesta - Dimensions on request											
	H												

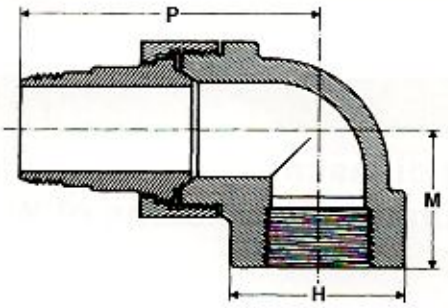
Raccordi filettati - Threaded fittings
Gomiti 90° M/F - Street elbows



Ø NOMINALE PIPE SIZE		1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
3000 LBS	M	24.6	30	33.5	38	46.5	53	62	68
	N	32	39	44	49	59	65	75	82.5
6000 LBS	M	30	33.5	38	46.5	53	62	68	82.5
	N	39	44	49	59	65	75	82.5	110
		Dimensioni non elencate nella ASME B16.11 - 1991 e BS3799 Dimensions not listed in ASME B16.11 - 1991 and BS3799							

Raccordi filettati - Threaded fittings
Gomiti a bocchettone - Union elbows

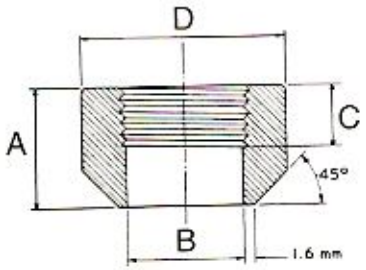




Ø NOMINALE PIPE SIZE		1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
3000 LBS	M	25	30	33	38	45	51	60	64
	H	33	33	38	46	56	62	75	84
	O	45	54	60	65	75	85	98	108
	P	60	70	80	90	100	115	125	140

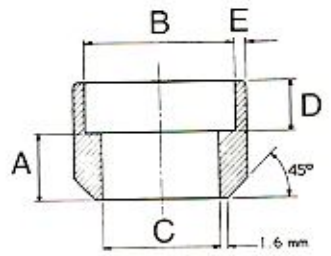
Dimensioni non elencate nella ASME B16.11 e BS3799, possono variare a discrezione del produttore
Dimensions not listed in ASME B16.11 and BS3799, may vary according to the manufacturer

Raccordi filettati - Dimensioni minime degli Inserti Bosses
Threaded fittings - Minimum dimensions of Welding Bosses



DIMENS.	SERIE CLASS	1/8	1/4	3/8	1/2	3/4	1	1 1/2	2	2 1/2	3	4
A MIN.	3/6000 LBS	38	41	45	51	51	51	51	51	51	57	64
B MIN.	3/6000 LBS	8.4	11.1	14.2	18	23	29	44	56	67	82	95
C MIN.	3/6000 LBS	6.70	10.21	10.36	13.56	13.86	17.34	18.38	19.22	28.89	30.48	33.02
D MIN.	3000 LBS	16	19	22	29	35	45	64	76	95	110	140
	6000 LBS	22	26	32	38	45	60	76	95	-	-	-

Raccordi a saldare di tasca - Dimensioni degli Inserti Bosses
Socket welding fittings - Dimensions of Welding Bosses



DIMENS.	SERIE CLASS	1/8	1/4	3/8	1/2	3/4	1	1 1/2	2	2 1/2	3
A MIN.	3/6000 LBS	28	32	34	38	38	35	32	29	29	29
B MIN.	3/6000 LBS	10.7	14.1	17.6	21.8	27.4	34.1	49	61	73.8	89.7
C MIN.	3000 LBS	6.8	9.2	12.5	15.5	21	26.5	40.5	52	62	78
	6000 LBS	-	-	-	11.8	15.5	20.7	34	43	54	66
D MIN.	3/6000 LBS	10	10	11	13	13	16	19	22	22	22
E MIN.	3000 LBS	3.2	3.3	3.5	4.1	4.3	5	5.6	6.1	7.7	8.3
	6000 LBS	-	-	-	5.2	6.1	7	7.8	9.5	10.4	12.2

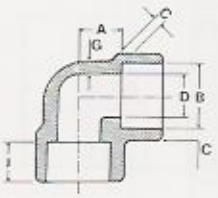
Raccordi a tasca da saldare - Socket welding fittings

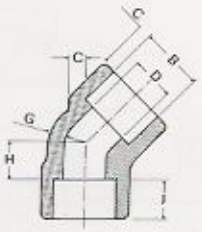
Gomiti 90°
90° Elbows

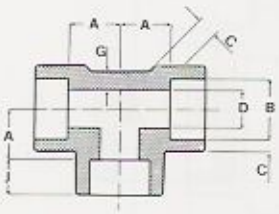
Gomiti 45°
45° Elbows

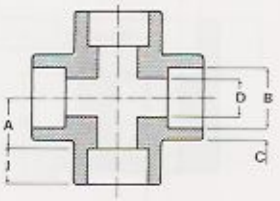
Tee
Equal tees

Croci
Crosses









Ø NOMINALE PIPE SIZE			1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
DIAM. TASCA SOCKET BORE	B	MAX.	10.90	14.35	17.80	21.95	27.30	34.05	42.80	48.90	61.35	74.20	90.15	115.80
		MIN.	10.65	14.10	17.55	21.70	27.05	33.80	42.55	48.65	61.10	73.80	89.80	115.45
PROF. TASCA DEPTH SOCKET	J	MIN.	10	10	10	10	13	13	13	13	16	16	16	19
3000 LBS	D	MAX.	7.6	10.0	13.3	16.6	21.7	27.4	35.8	41.7	53.5	64.2	79.5	103.8
		MIN.	6.1	8.5	11.8	15.0	20.2	25.9	34.3	40.1	51.7	61.2	76.4	100.7
	C	MAX.	3.2	3.8	4.0	4.65	4.90	5.70	6.05	6.35	6.95	8.75	9.50	10.70
		MIN.	3.2	3.3	3.5	4.10	4.25	5.00	5.3	5.55	6.05	7.65	8.30	9.35
	G	MIN.	2.4	3	3.2	3.75	3.90	4.55	4.85	5.10	5.55	7.0	7.60	8.55
	A	MAX.	12	12	15	17	21	24	29	34	40	44	60	69
		MIN.	10	10	12	14	18	20	25	30	36	39	55	64
	H	MAX.	9	9	9	13	14	16	19	23	27	31	34	44
		MIN.	7	7	7	10	11	12	15	19	23	27	29	39
6000 LBS	D	MAX.	4.8	7.1	9.9	12.5	16.3	21.5	30.2	34.7	43.6	—	—	—
		MIN.	3.2	5.6	8.4	11.0	14.8	19.9	28.7	33.2	42.1	—	—	—
	C	MAX.	3.95	4.60	5.05	5.95	6.95	7.90	7.90	8.90	10.90	—	—	—
		MIN.	3.45	4.00	4.35	5.20	6.05	6.95	6.95	7.80	9.50	—	—	—
	G	MIN.	3.15	3.70	4.0	4.80	5.55	6.35	6.35	7.15	8.75	—	—	—
	A	MAX.	12	17	17	21	24	29	34	40	43	—	—	—
		MIN.	10	13	14	18	21	25	30	36	39	—	—	—
	H	MAX.	9	9	13	14	16	19	23	27	31	—	—	—
		MIN.	7	7	10	11	13	15	19	23	27	—	—	—

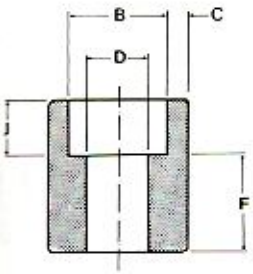
Raccordi a tasca da saldare - Socket weldings fittings

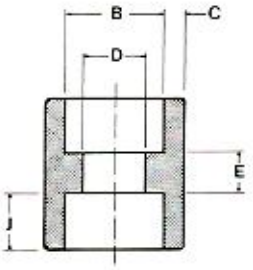
Mezzi manicotti
Half couplings

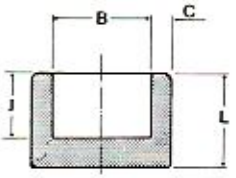
Manicotti
Couplings

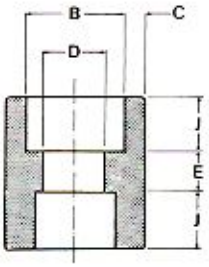
Tappi femmina
Caps

Manicotti ridotti
Reducing couplings





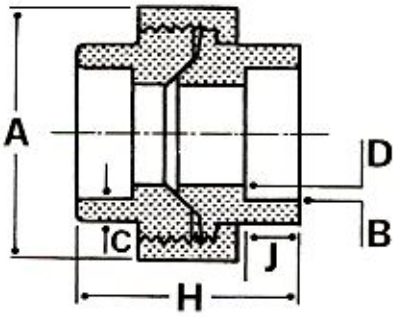




⌀ NOMINALE PIPE SIZE		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
DIAM. TASCA SOCKET BORE	B MAX.	10.90	14.35	17.80	21.95	27.30	34.05	42.80	48.90	61.35	74.20	90.15	115.80
	B MIN.	10.65	14.10	17.55	21.70	27.05	33.80	42.55	48.65	61.10	73.80	89.80	115.45
PROF. TASCA DEPTH SOCKET	J MIN.	10	10	10	10	13	13	13	13	16	16	16	19
3000 LBS	C MAX.	3.20	3.80	4.00	4.65	4.90	5.70	6.05	6.35	6.95	8.75	9.50	10.7
	C MIN.	3.20	3.30	3.50	4.10	4.25	5.00	5.30	5.55	6.05	7.65	8.30	9.35
	D MAX.	7.6	10.0	13.3	16.6	21.7	27.4	35.8	41.7	53.5	64.2	79.5	103.8
	D MIN.	6.1	8.5	11.8	15.0	20.2	25.9	34.3	40.1	51.7	61.2	76.4	100.7
	E MAX.	8	8	9	13	13	17	17	17	23	24	24	24
	E MIN.	5	5	5	6	6	9	9	9	15	14	14	14
	F MAX.	17	17	19	24	25	31	32	34	43	45	47	50
	F MIN.	15	15	16	21	22	27	28	30	39	40	42	45
	L NOM.	18	18	19	23	26	28	30	32	39	39	45	48
6000 LBS	C MAX.	3.95	4.60	5.05	5.95	6.95	7.90	7.90	8.90	10.90	—	—	—
	C MIN.	3.45	4.00	4.35	5.20	6.05	6.95	6.95	7.80	9.50	—	—	—
	D MAX.	4.8	7.1	9.9	12.5	16.3	21.5	30.2	34.7	43.6	—	—	—
	D MIN.	3.2	5.6	8.4	11.0	14.8	19.9	28.7	33.2	42.1	—	—	—
	E MAX.	8	8	9	13	13	17	17	17	23	24	24	24
	E MIN.	5	5	5	6	6	9	9	9	15	14	14	14
	F MAX.	17	17	19	24	25	31	32	34	43	45	47	50
	F MIN.	15	15	16	21	22	27	28	30	39	40	42	45
	L NOM.	18	18	19	23	26	28	30	32	39	39	45	48

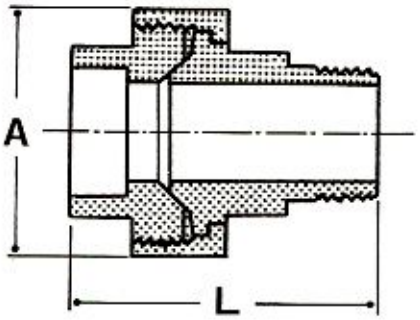
Raccordi a tasca da saldare - Socket welding fittings

Bocchettoni femmina-femmina
Female-female unions



Nota: Dimensioni dei bocchettoni 6000 LBS a richiesta.

Bocchettoni maschio-femmina
Male-female unions



Note: Dimension of union 6000 LBS on request.

Ø NOMINALE PIPE SIZE			1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
DIAM. TASCA SOCKET BORE	B	MAX.	10.90	14.35	17.80	21.95	27.30	34.05	42.80	48.90	61.35	74.20	90.15	115.80
		MIN.	10.65	14.10	17.55	21.70	27.05	33.80	42.55	48.65	61.10	73.80	89.80	115.45
PROF. TASCA DEPTH. SOCKET	J	MIN.	10	10	10	10	13	13	13	13	16	16	16	19
DIMENSIONE BOCCHETTONE 3000 LBS	H	NOM.	44	40	47	49	57	62	71	75	84	110	120	157
DIMENSIONS OF UNION 3000 LBS	A	NOM.	32	35	41	45	55	65	78	85	100	123	148	180
3000 LBS	C	MAX.	3.20	3.80	4.00	4.65	4.90	5.70	6.05	6.35	6.95	8.75	9.50	10.7
		MIN.	3.20	3.30	3.50	4.10	4.25	5.00	5.30	5.55	6.05	7.65	8.30	9.35
	D	MAX.	7.6	10.0	13.3	16.6	21.7	27.4	35.8	41.7	53.5	64.2	79.5	103.8
		MIN.	6.1	8.5	11.8	15.0	20.2	25.9	34.3	40.1	51.7	61.2	76.4	100.7
	L	NOM.	—	64	69	73	83	92	96	110	130	—	—	—
6000 LBS	C	MAX.	3.95	4.60	5.05	5.95	6.95	7.90	7.90	8.90	10.90	—	—	—
		MIN.	3.45	4.00	4.35	5.20	6.05	6.95	6.95	7.80	9.50	—	—	—
	D	MAX.	4.8	7.1	9.9	12.5	16.3	21.5	30.2	34.7	43.6	—	—	—
		MIN.	3.2	5.6	8.4	11.0	14.8	19.9	28.7	33.2	42.1	—	—	—
	L	NOM.	Dati fornibili su richiesta - Dimensions on request											

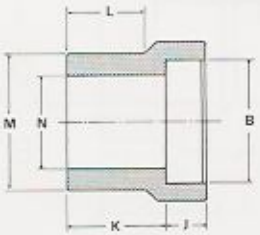
Ø NOMINALE PIPE SIZE	TYPE	M	N	K	L	J
3/8 x 1/4	1	17.15	9	19	14	10
1/2 x 3/8	1	21.34	12.5	21	16	10
1/2 x 1/4	1	21.34	9	21	16	10
3/4 x 1/2	1	26.67	16	22	17	10
3/4 x 3/8	2	26.67	12.5	16	—	10
1 x 3/4	1	33.4	21	24	19	13
1 x 1/2	2	33.4	16	16	—	10
1 1/4 x 1	1	42.16	26.5	25	21	13
1 1/4 x 3/4	2	42.16	21	18	—	13
1 1/4 x 1/2	2	42.16	16	19	—	10
1 1/2 x 1 1/4	1	48.26	35	28	22	13
1 1/2 x 1	2	48.26	26.5	18	—	13
1 1/2 x 3/4	2	48.26	21	19	—	13
1 1/2 x 1/2	2	48.26	16	21	—	10
2 x 1 1/2	1	60.3	41	32	25	13
2 x 1 1/4	2	60.3	35	21	—	13
2 x 1	2	60.3	26.5	22	—	13
2 x 3/4	2	60.3	21	24	—	13
2 x 1/2	2	60.3	16	25	—	10
2 1/2 x 2	1	73	52.5	46	38	16
2 1/2 x 1 1/2	2	73	41	35	—	13
2 1/2 x 1 1/4	2	73	35	37	—	13
2 1/2 x 1	2	73	26.5	38	—	13
2 1/2 x 3/4	2	73	21	40	—	13
3 x 2 1/2	1	88.9	62.5	38	32	16
3 x 2	2	88.9	52.5	25	—	16
3 x 1 1/2	2	88.9	41	29	—	13
3 x 1 1/4	2	88.9	35	30	—	13
3 x 1	2	88.9	26.5	32	—	13
4 x 3	2	114.3	78	33	—	16
4 x 2 1/2	2	114.3	62.5	38	—	16
4 x 2	2	114.3	52.4	38	—	16

Inserti ridotti
Reducer inserts

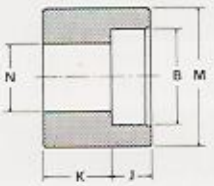
Raccordi a tasca da saldare
Socket welding fittings

Serie 3000 LBS
Class 3000 LBS

Tipo 1
Type 1



Tipo 2
Type 2

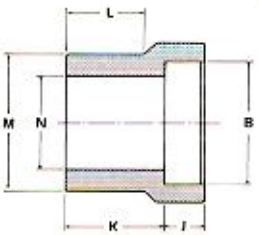


Inserti ridotti - Reducer inserts
Raccordi a tasca da saldare - Socket welding fittings

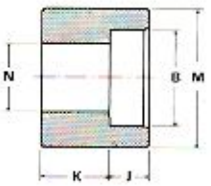
Serie 6000 LBS
Class 6000 LBS

Ø NOMINALE PIPE SIZE	TYPE	M	N	K	L	J
3/8 x 1/4	1	17.15	6.5	21	16	10
1/2 x 3/8	1	21.34	9	23	16	10
1/2 x 1/4	1	21.34	6.5	21	16	10
3/4 x 1/2	1	26.67	11.5	25	19	10
3/4 x 3/8	1	26.67	9	22	19	10
3/4 x 1/4	2	26.67	6.5	22	—	10
1 x 3/4	1	33.4	15.5	28	21	13
1 x 1/2	1	33.4	11.5	28	21	10
1 x 3/8	2	33.4	9	22	—	10
1 x 1/4	2	33.4	6.5	24	—	10
1 1/4 x 1	1	42.16	20.5	30	22	13
1 1/4 x 3/4	2	42.16	15.5	21	—	13
1 1/4 x 1/2	2	42.16	11.5	22	—	10
1 1/4 x 3/8	2	42.16	9	24	—	10
1 1/4 x 1/4	2	42.16	6.5	25	—	10
1 1/2 x 1 1/4	1	48.26	29.5	35	25	13
1 1/2 x 1	1	48.26	20.5	29	25	13
1 1/2 x 3/4	2	48.26	15.5	25	—	13
1 1/2 x 1/2	2	48.26	11.5	27	—	10
1 1/2 x 3/8	2	48.26	9	28	—	10
2 x 1 1/2	1	60.3	34	39	28	13
2 x 1 1/4	2	60.3	29.5	24	—	13
2 x 1	2	60.3	21	25	—	13
2 x 3/4	2	60.3	15.5	27	—	13
2 x 1/2	2	60.3	11.5	28	—	10
2 1/2 x 2	1	73	43	43	32	16
2 1/2 x 1 1/2	2	73	34	40	—	13
2 1/2 x 1 1/4	2	73	29.5	40	—	13
2 1/2 x 1	2	73	21	40	—	13
2 1/2 x 3/4	2	73	15.5	40	—	13
3 x 2 1/2	1	88.9	54	60	35	16
3 x 2	2	88.9	43	55	—	16

Tipo 1
Type 1

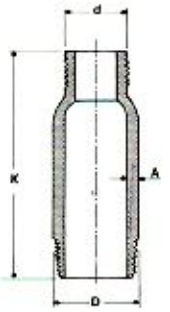


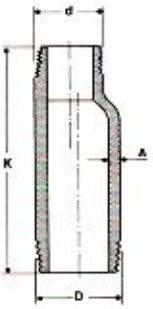
Tipo 2
Type 2

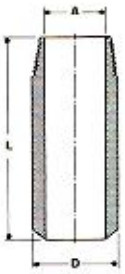


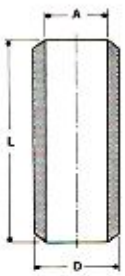
Nippli da tubo a bottiglia
Swage nipples
Nippli da tubo - Pipe nipples

D x d nom.	K nom.	A	L
3/8 x 1/4	64	A Vs. richiesta/On Yr. request: Sch. 80 - 160 - XXS	A Vs. richiesta lungh./On Yr. request lenght: close - 2" - 2 1/2" - 3" - 4" - 5" - 6"
1/2 x 3/8	70		
1/2 x 1/4			
3/4 x 1/2	76		
3/4 x 3/8			
1 x 3/4	89		
1 x 1/2			
1 1/4 x 1	102		
1 1/4 x 3/4			
1 1/4 x 1/2			
1 1/2 x 1 1/4	114		
1 1/2 x 1			
1 1/2 x 3/4			
1 1/2 x 1/2			
2 x 1 1/2	165		
2 x 1			
2 x 3/4			
2 x 1/2			
2 1/2 x 2	178		
2 1/2 x 1 1/2			
2 1/2 x 1			
3 x 2 1/2	203		
3 x 2			
3 x 1 1/2			
3 x 1			
4 x 3	229		
4 x 2 1/2			
4 x 2			
4 x 1 1/2			









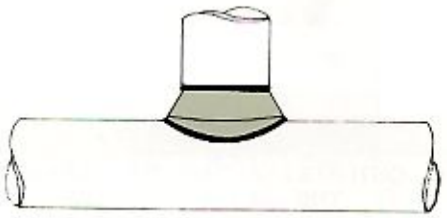
Note informative sull'applicazione delle derivazioni
General informations about the application of Welding-Outlets

a) Si usano ovunque sia necessario un raccordo da saldare.
They are used anywhere welding fittings are requested.

b) Le derivazioni sostituiscono i raccordi a T da saldare con costi di materiale ed installazione inferiori.
The welding outlets replace welding Tees with lower costs of material and installation.

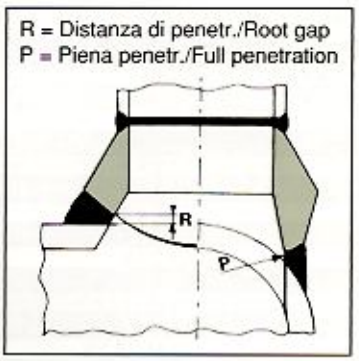
...Le derivazioni conservano integralmente le resistenze del tubo in accordo alle Norme ASME B16.9 ed ASME B31.1.
...The welding outlets maintain full pipe strenght in accordance to specifications ASME B16.9 and ASME B31.1.

WELDING TEE



WELDING OUTLET

Le derivazioni sono pronte per essere saldate
Welding Outlets are ready to be welded



Unificazione dimensioni

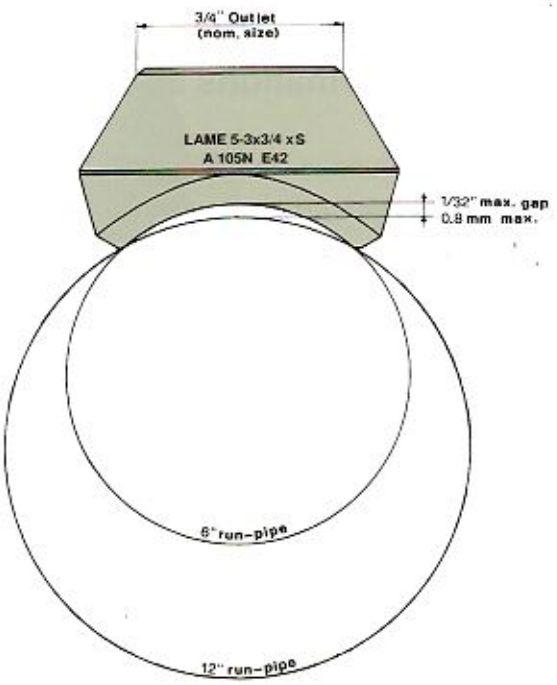
Al fine di ridurre le voci di magazzino, le nostre derivazioni sono state unificate per poter essere impiegate su tubi di diametri diversi, con un gioco massimo di adattamento pari a 0,8 mm, tale da non pregiudicare la saldatura.

Dimensions unification

In order to reduce warehouse inventory, our outlets have been unified to fit on different runpipe sizes with a gap maximum of 1/32" between the run pipe-and outlet. This does not cause any problem during welding.

Tutti i raccordi con uscita superiore a 4" devono essere ordinati precisando le misure esatte del tubo.

Outlet over 4" order to specific run-pipe size.



BW - OUTLETS STANDARD ED EXTRA-STRONG
THD - OUTLETS 3000 LBS
SW - OUTLETS 3000 LBS

3/8 x 1/8	1 1/4 x 1 1/4	3 x 3
1/2 x 1/8	1 1/2 x 1 1/4	3 1/2 x 3
1-3/4 x 1/8	2 x 1 1/4	4 x 3
2 1/2-1 1/4 x 1/8	2 1/2 x 1 1/4	5 x 3
36-3 x 1/8	3 1/2-3 x 1 1/4	6 x 3
	5-4 x 1 1/4	8 x 3
3/8 x 1/4	8-6 x 1 1/4	10 x 3
1/2 x 1/4	18-10 x 1 1/4	14-12 x 3
1-3/4 x 1/4	36-20 x 1 1/4	20-16 x 3
2 1/2-1 1/4 x 1/4		36-24 x 3
36-3 x 1/4	1 1/2 x 1 1/2	
	2 x 1 1/2	3 1/2 x 3 1/2
1/2 x 3/8	2 1/2 x 1 1/2	4 x 3 1/2
1-3/4 x 3/8	3 x 1 1/2	5 x 3 1/2
2 1/2-1 1/4 x 3/8	4-3 1/2 x 1 1/2	6 x 3 1/2
36-3 x 3/8	6-5 x 1 1/2	8 x 3 1/2
	12-8 x 1 1/2	10 x 3 1/2
1/2 x 1/2	24-14 x 1 1/2	14-12 x 3 1/2
3/4 x 1/2	36-26 x 1 1/2	20-16 x 3 1/2
1 x 1/2		36-24 x 3 1/2
1 1/2-1 1/4 x 1/2	2 x 2	
2 1/2-2 x 1/2	2 1/2 x 2	4 x 4
8-3 x 1/2	3 x 2	5 x 4
36-10 x 1/2	3 1/2 x 2	6 x 4
	4 x 2	8 x 4
3/4 x 3/4	5 x 2	10 x 4
1 x 3/4	6 x 2	14-12 x 4
1 1/2-1 1/4 x 3/4	10-8 x 2	20-16 x 4
2 1/2-2 x 3/4	18-12 x 2	36-24 x 4
5-3 x 3/4	36-20 x 2	
12-6 x 3/4		
36-14 x 3/4	2 1/2 x 2 1/2	
	3 x 2 1/2	
1 x 1	3 1/2 x 2 1/2	
1 1/4 x 1	4 x 2 1/2	
1 1/2 x 1	5 x 2 1/2	
2 x 1	6 x 2 1/2	
2 1/2 x 1	8 x 2 1/2	
3 1/2-3 x 1	12-10 x 2 1/2	
5-4 x 1	18-14 x 2 1/2	
10-6 x 1	36-20 x 2 1/2	
36-12 x 1		

THD - OUTLETS 6000 LBS
SW - OUTLETS 6000 LBS

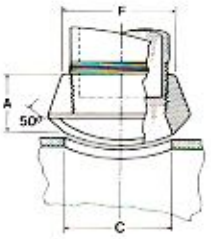
1-3/4 x 1/2	1 1/2 x 1 /14	2 1/2 x 2
2-1 1/4 x 1/2	2 1/2-2 x 1 1/4	3 x 2
6-2 1/2 x 1/2	3 1/2-3 x 1 1/4	4 x 2
36-8 x 1/2	8-4 x 1 1/4	5 x 2
	20-10 x 1 1/4	6 x 2
1 x 3/4	36-24 x 1 1/4	10-8 x 2
2 1/2-1 1/4 x 3/4		20-12 x 2
10-3 x 3/4	2 x 1 1/2	36-24 x 2
36-12 x 3/4	2 1/2 x 1 1/2	
	3 1/2-3 x 1 1/2	
1 1/2-1 1/4 x 1	5-4 x 1 1/2	
2 1/2-2 x 1	8-6 x 1 1/2	
10-3 x 1	18-10 x 1 1/2	
36-12 x 1	36-20 x 1 1/2	

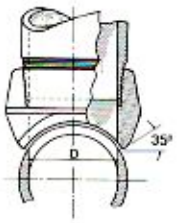
BW - OUTLETS SCH 160 - XXS

1/2 X 1/2	1 1/2-1 1/4 X 1 1/4	2 X 2
1 1/4-3/4 X 1/2	2 1/2-2 X 1 1/4	2 1/2 X 2
36-1 1/2 X 1/2	10-3 X 1 1/4	3 1/2-3 X 2
	36-12 X 1 1/4	5-4 X 2
1-3/4 X 3/4		8-6 X 2
2-1 1/4 X 3/4	1 1/2 X 1 1/2	18-10 X 2
6-2 1/2 X 3/4	2 1/2-2 X 1 1/2	36-20 X 2
36-8 X 3/4	3 1/2-3 X 1 1/2	
	8-4 X 1 1/2	
1 X 1	20-10 X 1 1/2	
2 1/2-1 1/4 X 1	36-24 X 1 1/2	
10-3 X 1		
36-12 X 1		

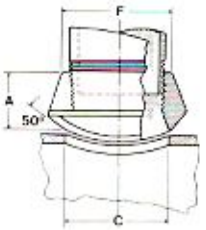
Derivazioni filettate - Threaded Outlets

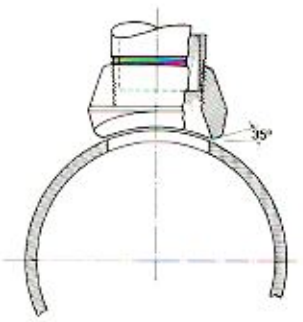
Serie 3000 LBS
Class 3000 LBS





∅ NOMIN. PIPE SIZE	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6
A	25.4	27.0	33.3	33.3	34.9	38.1	46.0	50.8	57.2	61.9	65.1
C	23.8	30.2	36.5	44.5	50.8	65.1	76.2	93.7	120.7	133.4	169.8
D	15.9	20.6	27.0	34.9	41.3	52.4	63.5	77.8	103.2	128.6	154.0
F	31.8	36.5	46.0	55.6	61.9	74.6	87.3	104.8	130.2	160.3	188.9
Weight Kgs.	0.07	0.11	0.20	0.32	0.41	0.64	1.13	1.95	3.08	4.17	7.12

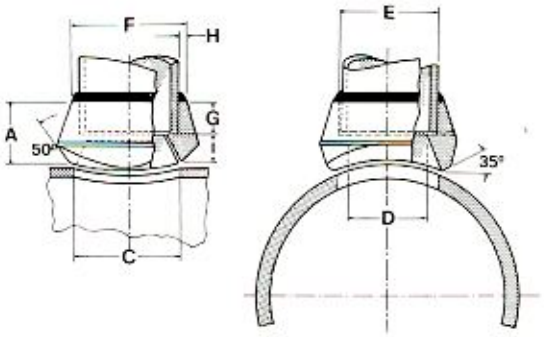




∅ NOMIN. PIPE SIZE	SERIE CLASS	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6
A	3000 LBS	25.4	27.0	33.3	33.3	34.9	38.1	46.0	50.8	57.2	66.7	68.3
	6000 LBS	31.8	36.5	39.7	41.3	42.9	52.4	—	—	—	—	—
C	3000 LBS	23.8	30.2	36.5	44.5	50.8	65.1	76.2	93.7	120.6	141.3	169.8
	6000 LBS	19.1	25.4	33.3	38.1	49.2	69.9	—	—	—	—	—
F	3000 LBS	31.8	36.5	46.0	55.6	61.9	74.6	87.3	104.8	130.2	160.3	188.9
	6000 LBS	39.7	46.0	57.2	65.1	76.2	92.1	—	—	—	—	—
Weight Kgs.	3000 LBS	0.11	0.16	0.28	0.41	0.45	0.79	1.36	1.97	3.22	5.44	6.94
	6000 LBS	0.20	0.34	0.56	0.71	0.89	2.30	—	—	—	—	—

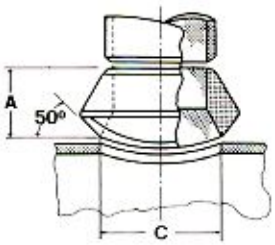
LAME

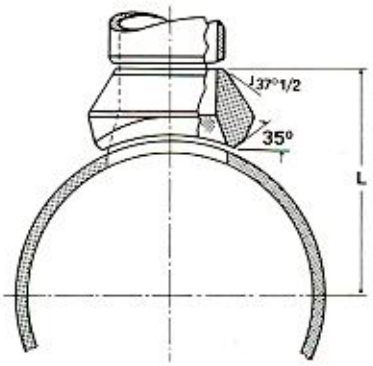
Derivazioni a tasca da saldare - Socket Welding Outlets



∅ NOMINALE PIPE SIZE	SERIE CLASS	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6
A	3000 LBS	25.4	27.0	33.3	33.3	34.9	38.1	46.0	50.8	57.2	66.7	68.3
	6000 LBS	31.8	36.5	39.7	41.3	42.9	52.4	—	—	—	—	—
C	3000 LBS	23.8	30.2	36.5	44.5	50.8	65.1	76.2	93.7	120.7	141.3	169.9
	6000 LBS	19.1	25.4	33.3	38.1	49.2	58.7	—	—	—	—	—
D	3000 LBS	15.8	20.9	26.6	35.1	40.9	52.5	62.7	77.9	102.3	128.2	154.1
	6000 LBS	11.8	15.6	20.7	29.5	34.0	42.9	—	—	—	—	—
E	3000 LBS	21.7	27.1	33.8	42.6	48.6	61.1	73.8	89.8	115.4	142.7	169.9
	6000 LBS	21.7	27.1	33.8	42.6	48.6	61.1	—	—	—	—	—
F	3000 LBS	31.8	36.5	46.0	55.6	61.9	74.6	87.3	104.8	130.2	160.3	187.3
	6000 LBS	39.7	45.2	57.2	65.1	76.2	92.1	—	—	—	—	—
G	3000 LBS	9.5	12.7	12.7	12.7	12.7	15.9	15.9	15.9	19.1	32.5	32.5
	6000 LBS	9.5	12.7	12.7	12.7	12.7	15.9	—	—	—	—	—
H	3000 LBS	5.2	4.8	6.4	6.4	6.0	6.8	6.8	7.5	7.5	8.7	8.7
	6000 LBS	9.1	8.3	11.9	11.5	16.3	15.5	—	—	—	—	—
I	3000 LBS	15.9	14.3	20.6	20.6	22.2	22.2	30.2	34.9	38.1	34.1	35.7
	6000 LBS	22.3	23.8	27.0	28.6	30.2	36.5	—	—	—	—	—
Weight Kgs.	3000 LBS	0.14	0.15	0.27	0.39	0.47	0.73	1.25	1.72	3.3	5.4	6.6
	6000 LBS	0.23	0.36	0.60	0.75	0.90	2.30	—	—	—	—	—

Derivazioni a saldare di testa - Butt Welding Outlets



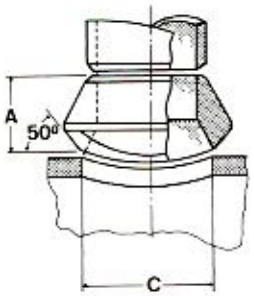


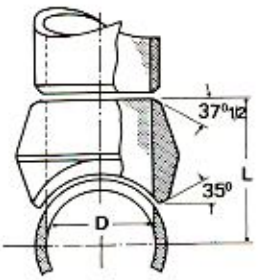
La quota "L" è uguale a A + ($\frac{De}{2}$ del collettore)

The dimension "L" is for A + ($\frac{De}{2}$ of outlets)

Ø NOMINALE PIPE SIZE	SCH.	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6
A	STD.	19.1	22.2	27.0	31.8	33.3	38.1	41.3	47.6	52.4	57.2	60.3
	XS	19.1	22.2	27.0	31.8	33.3	38.1	41.3	47.6	52.4	57.2	77.8
	160	28.6	31.8	38.1	44.5	50.8	55.6	61.9	73.0	84.1	93.7	104.8
C	STD.	23.8	30.2	36.5	44.5	50.8	65.1	76.2	93.7	120.7	141.3	169.9
	XS	23.8	30.2	36.5	44.5	50.8	65.1	76.2	93.7	120.7	141.3	169.9
	160	14.3	19.1	25.4	33.3	38.1	42.9	54.0	73.0	98.4	122.2	146.0
Weight Kgs.	STD.	0.08	0.11	0.23	0.36	0.45	0.8	1.1	1.8	2.9	4.7	5.5
	XS	0.09	0.14	0.21	0.41	0.50	0.79	1.2	1.9	2.9	4.7	10.4
	160	0.11	0.32	0.38	0.57	0.79	0.97	1.53	2.87	4.76	6.46	12.70

Derivazioni a saldare di testa - Butt Welding Outlets



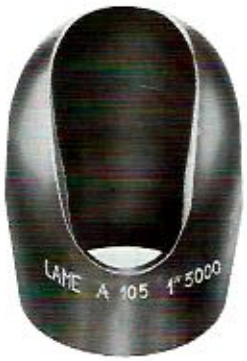


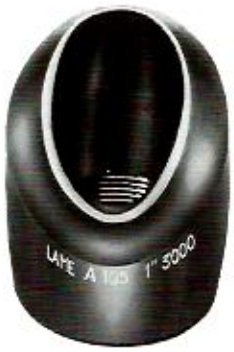
La quota "L" è data da A + ($\frac{De}{2}$ del collettore)

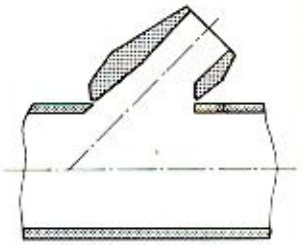
The dimension "L" is for A + ($\frac{De}{2}$ of outlets)

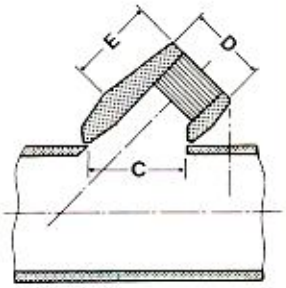
∅ NOMINALE PIPE SIZE	SCH.	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6
	STD.	19.1	22.2	27.0	31.8	33.3	38.1	41.3	47.6	52.4	57.2	60.3
A	XS	19.1	22.2	25.4	28.6	31.8	38.1	41.3	47.6	52.4	57.2	77.8
	160	28.6	31.8	38.1	44.5	50.8	55.6	61.9	73.0	84.1	93.7	104.8
	STD.	23.8	30.2	36.5	44.5	50.8	65.1	76.2	97.3	120.7	141.9	169.9
C	XS	23.8	30.2	36.5	44.5	50.8	65.1	76.2	93.7	120.7	141.3	169.9
	160	14.3	19.1	25.4	33.3	38.1	42.9	54.0	73.0	98.4	122.2	146.0
	STD.	15.9	20.6	26.2	34.9	41.3	52.4	61.9	77.8	101.6	128.6	154.0
D	XS	15.9	20.6	26.2	34.9	41.3	52.4	61.9	77.8	101.6	128.6	154.0
	160	14.3	19.1	25.4	33.3	38.1	42.9	54.0	73.0	98.4	122.2	146.0
	STD.	0.07	0.11	0.18	0.32	0.36	0.68	1.02	1.70	3.0	3.9	6.4
Weight Kgs.	XS	0.07	0.11	0.18	0.32	0.41	0.73	1.13	1.86	3.40	4.30	6.80
	160	0.11	0.32	0.38	0.57	0.79	0.97	1.53	2.87	4.76	6.46	13.72

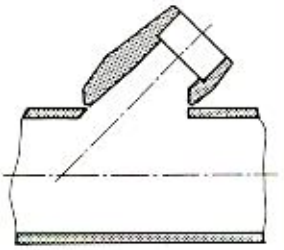
Derivazioni filettate, a tasca da saldare e a saldare di testa, a 45° per tubi
Threaded, socket welding and butt welding outles for pipes





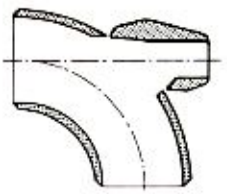


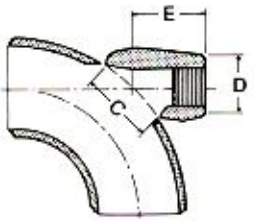


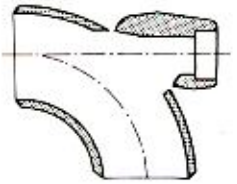


Ø NOMIN. PIPE SIZE	SERIE CLASS	1/2	3/4	1	1 1/4	1 1/2	2	3	4	6
C	3000 LBS	36.5	43.6	54	67.5	76.2	104.8	125.4	163.5	228.6
	6000 LBS	43.6	54	67.5	76.2	104.8	—	—	—	—
D	3000 LBS	31.8	35.7	45.2	54.8	63.5	82.6	88.9	114.3	168.3
	6000 LBS	35.7	45.2	54.8	63.5	82.6	—	—	—	—
E	3000 LBS	39.7	47.6	57.2	61.9	66.7	81	95.3	114.3	155.6
	6000 LBS	47.6	57.2	61.9	66.7	81	—	—	—	—

Derivazioni filettate a tasca da saldare e a saldare di testa su curve
Threaded, socket welding and butt welding outlets for long radius elbows



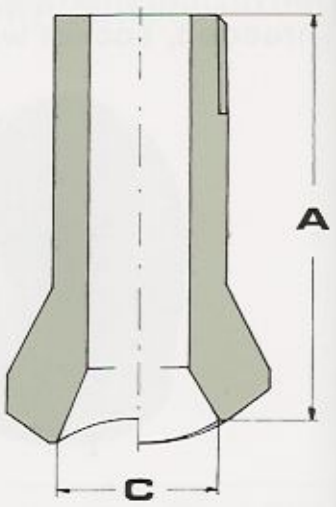




Ø NOMINALE PIPE SIZE	SERIE CLASS	1/2	3/4	1	1 1/4	1 1/2	2
C	3000 LBS	38.1	43.6	54.0	73.0	79.4	106.4
	6000 LBS	43.6	54	73.0	79.4	106.4	—
D	3000 LBS	31.8	35.7	45.2	54.8	63.5	—
	6000 LBS	35.7	45.2	54.8	63.5	82.6	—
E	3000 LBS	38.1	45.2	52.4	55.6	58.8	69.9
	6000 LBS	45.2	52.4	55.6	58.8	69.9	—

Derivazioni maschio (PE-NPT-BW)
Nipple-Outlets (Plain end - Threaded end & Bevel end)

Derivaz. in poll. Outlet size	Reducing sizes			
	3000 Lbs		6000 Lbs	
	A	C	A	C
1/2	89	24	89	14,5
3/4	89	30	89	19,0
1	89	36,5	89	25,5
1 1/4	89	44,5	89	24
1 1/2	89	51	89	38,0
2	89	65	89	43



Appunti/Notes:

Tutte le misure sono in millimetri / All dimensions are in millimeters

Peso approssimativo dei raccordi in Kg.
Approx. weight of fittings in kgs.

Materiali: Acciaio al Carbonio, Legato ed Inossidabile secondo specifiche ASTM.
Materials: Carbon, Alloy and Stainless Steels to ASTM Specs.

Raccordi filettati / Screwed fittings ASME B16.11

		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
Gomiti 90°	2000lbs	0.10	0.10	0.14	0.24	0.32	0.49	0.74	0.99	1.61	2.91	4.79	12.00
	3000lbs	0.14	0.16	0.32	0.44	0.68	1.05	1.26	2.43	3.35	5.38	8.53	17.00
90° Elbows	6000lbs	0.19	0.30	0.48	0.75	1.21	1.62	2.73	3.57	6.16	9.36	17.10	—
Gomiti 45°	2000lbs	0.09	0.09	0.12	0.20	0.28	0.42	0.62	0.78	1.32	2.61	4.26	10.20
	3000lbs	0.12	0.14	0.28	0.36	0.54	0.90	1.16	1.86	3.01	4.73	7.35	15.00
45° Elbows	6000lbs	0.17	0.27	0.39	0.66	1.02	1.35	2.26	3.08	5.06	7.74	14.35	—
Tee	2000lbs	0.13	0.13	0.17	0.30	0.42	0.62	0.94	1.25	2.02	3.60	6.07	15.00
	3000lbs	0.18	0.23	0.38	0.54	0.84	1.30	1.64	2.92	4.10	6.88	10.65	19.00
Equal Tees	6000lbs	0.24	0.43	0.61	0.97	1.59	2.12	3.34	4.42	7.82	12.28	22.65	—
Croce	2000lbs	0.19	0.20	0.23	0.36	0.49	0.74	1.14	1.48	2.47	5.02	7.70	18.00
	3000lbs	0.22	0.27	0.43	0.70	1.05	1.61	2.14	3.35	5.05	8.33	14.63	23.00
Crosses	6000lbs	0.28	0.51	0.73	1.25	1.94	2.62	4.35	5.59	9.90	14.36	27.10	—
Gomiti MF / Street elbows	3000lbs	0.10	0.11	0.18	0.25	0.42	0.65	0.94	1.42	2.17	—	—	—
Manicotti	3000lbs	0.06	0.07	0.09	0.15	0.22	0.43	0.85	1.08	1.64	2.32	3.60	6.40
Couplings	6000lbs	0.10	0.11	0.14	0.29	0.45	0.96	1.30	2.00	3.40	5.00	6.70	12.50
Manicotti Ridotti	3000lbs	0.07	0.08	0.11	0.18	0.27	0.52	1.02	1.30	1.97	2.79	4.32	7.68
Red. Couplings	6000lbs	0.12	0.13	0.17	0.35	0.60	1.16	1.56	2.40	4.08	6.00	8.04	15.00
Mezzi manicotti	3000lbs	0.03	0.04	0.05	0.08	0.11	0.22	0.42	0.54	0.82	1.16	1.80	3.20
Half Couplings	6000lbs	0.05	0.06	0.07	0.15	0.23	0.48	0.65	1.00	1.70	2.50	3.35	6.25
Calotta	3000lbs	0.03	0.04	0.06	0.12	0.16	0.28	0.51	0.73	1.30	2.25	3.33	6.42
Caps	6000lbs	0.05	0.06	0.08	0.15	0.23	0.49	0.68	1.02	1.75	2.60	4.00	9.00
Bocchettoni	3000lbs	0.25	0.33	0.42	0.54	0.66	0.80	1.37	1.96	3.62	6.71	8.85	12.00
Unions	6000lbs	—	0.48	0.66	1.45	1.79	2.30	2.83	3.90	6.78	—	—	—
Bocchettone MF	3000lbs	0.29	0.36	0.47	0.62	0.77	1.24	1.80	2.50	4.44	7.87	9.65	15.20
MF Unions	6000lbs	—	0.54	0.73	1.70	2.01	2.78	3.48	4.90	8.48	—	—	—
Nippli esagonali	3000lbs	0.03	0.03	0.05	0.08	0.11	0.17	0.28	0.34	0.55	1.11	1.66	4.40
Hex Nipples	6000lbs	—	0.05	0.10	0.15	0.21	0.35	0.45	0.55	1.00	1.80	2.50	6.20
Nipplo esag. ridotto/Red. Hex Nipples		—	0.04	0.06	0.08	0.13	0.24	0.35	0.40	0.75	1.20	1.70	5.20
Riduz. Esagonale/Bushings	3/6000lbs	—	0.02	0.02	0.03	0.05	0.07	0.11	0.14	0.28	0.49	0.71	1.50
Tappi	3/6000lbs												
T.E./Hex H. Plugs		0.02	0.03	0.05	0.08	0.14	0.25	0.51	0.64	1.06	1.78	2.75	6.20
T.Q./Square H. Plugs		0.01	0.02	0.03	0.05	0.09	0.15	0.27	0.40	0.68	1.02	1.47	3.70
T.T./Round H. Plugs		0.03	0.05	0.08	0.12	0.19	0.34	0.54	0.74	1.45	2.22	3.43	6.30
Nippli Tubo	2" = 50 mm	0.03	0.04	0.06	0.08	0.11	0.17	0.22	0.27	0.37	0.57	0.76	1.11
	3" = 75 mm	0.04	0.06	0.08	0.12	0.17	0.25	0.33	0.41	0.56	0.86	1.14	1.67
Pipe Nipples	4" = 100 mm	0.05	0.08	0.11	0.16	0.22	0.33	0.44	0.54	0.74	1.14	1.52	2.22
Nippli Bott./Conc. Swages	Sch. 80	—	0.25	0.50	0.11	0.17	0.29	0.45	0.70	1.45	2.00	3.50	4.80

Raccordi a tasca / Socket weld fittings ASME B16.11

		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
Gomiti 90°	3000lbs	0.10	0.10	0.13	0.24	0.34	0.51	0.77	1.03	1.59	2.79	4.80	14.50
90° Elbows	6000lbs	—	—	0.31	0.46	0.73	1.13	1.50	2.59	3.47	6.21	9.52	15.50
Gomiti 45°	3000lbs	0.09	0.09	0.11	0.20	0.28	0.44	0.65	0.84	1.30	2.50	4.15	12.50
45° Elbows	6000lbs	—	—	0.28	0.40	0.65	0.96	1.30	2.20	3.01	5.20	7.50	13.25
Tee	3000lbs	0.15	0.16	0.17	0.32	0.45	0.70	0.99	1.29	2.10	3.72	6.25	18.50
Tees	6000lbs	—	—	0.48	0.62	0.99	1.51	2.03	3.42	4.50	7.82	12.50	20.00
Croci	3000lbs	0.18	0.19	0.27	0.39	0.56	0.84	1.23	1.66	2.64	5.10	8.05	23.00
Crosses	6000lbs	—	—	0.55	0.77	1.28	1.96	2.60	4.50	5.95	10.50	15.50	25.00
Manicotti	3000lbs	0.06	0.07	0.09	0.14	0.20	0.34	0.49	0.66	1.04	1.70	2.15	3.61
Couplings	6000lbs	—	—	0.21	0.29	0.40	0.72	0.95	1.35	2.24	3.13	4.20	7.50
Manicotti Ridotti	3000lbs	0.07	0.08	0.11	0.17	0.24	0.40	0.60	0.80	1.25	2.04	2.58	4.33
Red. Couplings	6000lbs	—	—	0.25	0.35	0.48	0.86	1.14	1.62	2.69	3.76	5.04	9.00
Mezzi manicotti	3000lbs	0.06	0.07	0.10	0.16	0.23	0.38	0.63	0.80	1.24	1.90	2.45	4.16
Half Couplings	6000lbs	—	—	0.23	0.35	0.45	0.80	1.08	1.52	2.55	3.61	5.00	8.50
Calotta	3000lbs	0.03	0.06	0.08	0.12	0.16	0.25	0.43	0.55	0.93	1.43	2.31	4.20
Caps	6000lbs	—	—	0.16	0.19	0.28	0.59	0.77	1.09	1.55	2.57	3.53	6.30
Bocchettoni	3000lbs	0.27	0.30	0.39	0.52	0.70	1.10	1.36	1.94	2.87	6.60	8.20	13.00
Unions	6000lbs	—	—	—	1.43	1.87	2.24	2.87	4.06	7.10	—	—	—
Inserti Rid.	A	—	—	—	0.10	0.15	0.30	0.50	0.75	—	—	—	—
Tipo/Type	B	—	—	—	0.07	0.08	0.15	0.30	0.40	0.75	—	—	—
Red. Inserts	C	—	—	—	0.07	0.08	0.15	0.30	0.40	0.70	—	—	—
Outlet-ELB	3000lbs	—	0.23	0.23	0.29	0.34	0.52	0.86	1.20	2.38	—	—	—
Outlet-LAT	3000lbs	—	0.23	0.23	0.29	0.34	0.52	0.86	1.20	2.38	—	—	—

Per gli altri Outlets vedi pagine precedenti. / About others Outlets see previous pages.