



**Adymar**

**Industriales, S. de R.L. de C.V.**

Tubería, Válvulas y conexiones



Somos una empresa especializada en materiales para la conducción de fluidos y gases, proporcionamos soluciones para la industria a lo largo de toda la república mexicana.

Adymar es una empresa mexicana comprometida con las personas y sus proyectos, una empresa que esta cimentada con integridad y esfuerzo. Damos solución eficaz y eficiente a sus necesidades en tuberías, válvulas y conexiones en materiales como acero al carbón, inoxidable y galvanizado.

## NUESTRAS MARCAS



**Bray**

**CRESCU**  
Alta Tecnología en Tubería Plástica

**WALWORTH**

**FORRESTER**  
VALVES

**TECHTUBE**  
Tecnología en Inoxidable



Industriales, S. de R.L. de C.V.

Tubería, Válvulas y conexiones

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# Tubería en acero al carbono con y sin costura

## Tubería galvanizada

Estándar de Especificación		Aplicación		Requerimiento Químico					Requerimiento Físico		Otras Pruebas e Inspecciones
				C	Si	Mn	P	S	Esfuerzo de Tensión	Esfuerzo de Costura Mínima	
ASTM A-53	Grado A	Tubería para Uso General	0.25 Máx	—	0.95 Máx	0.05 Máx	0.06 Máx	48,000 psi	30,000 psi	En caso de galvanizado de resaca Prueba de recubrimiento de zinc. Prueba Hidrostática especificada respectivamente en su diámetro y grado.	
	Grado B		0.30 Máx	—	1.20 Máx	0.05 Máx	0.06 Máx	60,000 psi	35,000 psi		
ASTM A-53	Grado A-25	Tubería de Línea	Clase I	0.21 Máx	—	0.90 Min / 0.60 Máx	0.045 Máx	0.06 Máx	45,000 psi		25,000 psi
			Clase II	0.21 Máx	—	0.90 Min / 0.60 Máx	0.045 Min / 0.060 Máx	0.06 Máx	65,000 psi		25,000 psi
	Grado A		0.21 Máx	—	0.90 Máx	0.04 Máx	0.05 Máx	48,000 psi	30,000 psi		
	Grado B		0.2 Máx c/ Cost. / 0.27 Máx s/ Cost.	—	1.15 Máx	0.04 Máx	0.05 Máx	60,000 psi	35,000 psi		
ASTM A-106	Grado A	Uso Especial para Condiciones Extremas	0.25 Máx	0.10 Min	0.27 Min / 0.93 Máx	0.048 Máx	0.0058 Máx	48,000 psi	30,000 psi		
	Grado B		0.30 Máx	0.10 Min	0.29 Min / 0.6 Máx	0.048 Máx	0.0058 Máx	60,000 psi	35,000 psi		
	Grado C		0.35 Máx	0.10 Min	0.29 Min / 0.6 Máx	0.048 Máx	0.0058 Máx	70,000 psi	40,000 psi		
ASTM A-252	Grado 1	Tubería para Flores y Estructurales	—	—	—	0.050 Máx	—	50,000 psi	30,000 psi		No Requiere de Prueba Hidrostática
	Grado 2		—	—	—	0.050 Máx	—	60,000 psi	35,000 psi		
	Grado 3		—	—	—	0.050 Máx	—	66,000 psi	45,000 psi		



DIÁMETRO NOMINAL	DIÁMETRO EXTERIOR		ESPESOR DE PARED		CÉDULA	PESO	
	in	mm	in	mm		Lb/ft	Kg/m
¾	0.405	10.3	0.035	0.89	5	0.14	0.21
			0.049	1.24	10	0.19	0.28
			0.068	1.73	40 STD	0.24	0.36
			0.095	2.41	80 XS	0.31	0.47
¾	0.540	13.7	0.049	1.24	5	0.26	0.38
			0.065	1.65	10	0.33	0.49
			0.088	2.24	40 STD	0.43	0.63
			0.119	3.02	80 XS	0.54	0.80
¾	0.675	17.1	0.049	1.24	5	0.33	0.49
			0.065	1.65	10	0.42	0.63
			0.091	2.31	40 STD	0.57	0.85
			0.126	3.20	80 XS	0.74	1.10
¾	0.840	21.3	0.065	1.65	5.55	0.54	0.80
			0.083	2.11	10 105	0.67	1.00
			0.109	2.77	40 STD	0.85	1.27
			0.147	3.73	80 XS	1.09	1.62
			0.198	4.98	160	1.31	1.95
			0.294	7.47	XCS	1.72	2.55
¾	1.050	26.7	0.065	1.65	5.55	0.68	1.02
			0.083	2.11	10 105	0.86	1.28
			0.113	2.87	40 STD	1.13	1.68
			0.154	3.91	80 XS	1.48	2.20
			0.219	5.56	160	1.96	2.90
			0.308	7.82	XCS	2.44	3.64
1	1.315	33.4	0.065	1.65	5.55	0.87	1.29
			0.109	2.77	10 105	1.41	2.09
			0.153	3.38	40 STD	1.68	2.50
			0.179	4.55	80 XS	2.17	3.24
			0.250	6.35	160	2.85	4.24
			0.358	9.09	XCS	3.66	5.45
1½	1.660	42.2	0.065	1.65	5.55	0.87	1.29
			0.109	2.77	10 105	1.41	2.09
			0.140	3.56	40 STD	2.27	3.29
			0.191	4.85	80 XS	3.00	4.46
			0.250	6.35	160	3.77	5.61
			0.382	9.70	XCS	5.22	7.77
1½	1.900	48.3	0.065	1.65	5.55	1.28	1.90
			0.109	2.77	10 105	2.09	3.11
			0.145	3.68	40 STD	2.72	4.05
			0.200	5.08	80 XS	3.63	5.41
			0.281	7.14	160	4.86	7.24
			0.400	10.16	XCS	6.41	9.55



DIÁMETRO NOMINAL	DIÁMETRO EXTERIOR	ESPESOR DE PARED		CÉDULA	PESO					
		in	mm		lb/ft	Kg/m				
2	2.375	60.3	0.065	1.63	5 55	3.51	2.39			
			0.109	2.77	10 105	2.64	3.93			
			0.154	3.91	40 STD	1.96	5.44			
			0.172	4.37		1.69	6.53			
			0.188	4.78		1.40	6.54			
			0.218	5.54	80 X5	5.03	7.48			
			0.256	6.50		4.58	8.45			
			0.281	7.14		6.29	9.36			
			0.344	8.74	160	7.47	11.12			
			0.426	11.07	XXX	9.04	15.45			
2½	2.875	73.0	0.083	2.11	5 55	2.48	3.69			
			0.129	3.05	10 105	3.53	5.26			
			0.201	5.16	40 STD	3.80	6.63			
			0.216	5.49		4.54	9.14			
			0.250	6.35		7.02	10.44			
			0.276	7.01	80 X5	7.67	11.41			
			0.375	9.53	160	10.07	14.90			
			0.502	14.02	XXX	13.71	20.42			
			3	3.500	88.9	0.083	2.11	5 55	3.00	4.51
						0.120	3.05	10 105	4.34	6.43
0.125	3.18					4.51	6.71			
0.156	3.96					3.58	6.36			
0.188	4.78					4.66	6.91			
0.216	5.49	40 STD				7.38	11.29			
0.250	6.35					8.69	12.78			
0.281	7.14					9.87	14.38			
0.300	7.62	80 X5				10.26	15.27			
0.438	11.18	160				14.54	21.54			
3½	4.000	101.6	0.083	10.124	XXX	18.60	27.68			
			0.083	2.11	5 55	3.48	5.17			
			0.120	3.05	10 105	4.98	7.41			
			0.125	3.18		5.18	7.71			
			0.156	3.96		4.41	9.34			
			0.188	4.78		7.06	11.40			
			0.226	5.74	40 STD	9.12	13.67			
			0.250	6.35		10.62	14.92			
			0.281	7.14		11.17	16.02			
			0.318	8.08	80 X5	12.52	18.03			
4	4.500	114.3	0.083	16.15	XXX	22.87	34.04			
			0.083	2.11	5 55	3.82	5.63			
			0.120	3.05	10 105	5.42	8.36			
			0.125	3.18		5.85	8.70			
			0.156	3.96		7.24	10.78			
			0.188	4.78		8.67	12.90			
			0.219	5.58		10.02	14.92			
			0.227	6.02	40 STD	10.69	16.07			
			0.250	6.35		11.38	16.90			
			0.281	7.14	80	12.67	18.96			
4½	5.000	127.0	0.212	7.92		20.79	30.48			
			0.337	8.56	80 X5	15.00	22.32			
			0.438	11.13	120	19.02	28.31			
			0.531	13.49	160	22.53	33.52			
			0.674	17.12	XXX	27.57	41.03			
			0.347	8.27	40 STD	15.55	18.68			
			0.355	9.02	90 X5	17.63	26.23			
			0.710	18.03	XXX	32.36	48.46			

DIÁMETRO NOMINAL	DIÁMETRO EXTERIOR	ESPESOR DE PARED		CÉDULA	PESO		
		in	mm		lb/ft	Kg/m	
5	5.563	141.3	0.109	2.77	5 55	6.26	9.46
			0.125	3.18		7.27	10.81
			0.134	3.40	10 105	7.78	11.57
			0.158	3.96		6.93	13.42
			0.188	4.78		10.80	16.08
			0.219	5.58		12.51	18.62
			0.258	6.50	40 STD	15.03	21.78
			0.281	7.14		16.87	23.81
			0.317	7.92		17.51	26.06
			0.344	8.74		19.19	28.56
6	6.625	168.3	0.125	3.18	80 X5	9.53	14.10
			0.300	12.10	120	27.06	40.28
			0.625	15.88	160	32.90	49.10
			0.750	19.00	XXX	39.18	57.43
			0.109	2.77	5 55	7.69	11.30
			0.120	3.05		8.30	12.42
			0.125	3.18		8.69	12.93
			0.134	3.40	10 105	9.20	13.84
			0.141	3.58		9.77	14.55
			0.148	3.78		10.32	15.35
8	8.625	218.3	0.156	3.96		10.79	16.06
			0.172	4.37		11.87	17.66
			0.186	4.78		12.94	19.25
			0.203	5.16		13.94	20.74
			0.218	5.56		15.00	22.32
			0.237	6.02		16.19	24.08
			0.250	6.35		17.35	25.26
			0.280	7.11	40 STD	18.90	28.27
			0.317	7.92		21.06	31.34
			0.344	8.74		23.12	34.38
10	10.625	269.9	0.317	8.03		20.06	31.29
			0.432	10.97	80 X5	28.80	42.56
			0.500	12.10	120	32.74	48.72
			0.562	14.27	120	41.11	54.21
			0.625	15.88		40.09	59.68
			0.719	16.26	160	48.40	67.56
			0.750	19.00		51.11	75.10
			0.864	21.95	XXX	53.21	79.19
			0.875	22.23		53.79	80.05
			0.301	7.65	110	23.57	35.07
12	130.2	330.2	0.500	12.10	X5	38.88	56.88
			0.875	22.23	XXX	83.14	123.01
			0.100	2.67		9.08	14.23
			0.109	2.77		9.82	14.77
			0.120	3.05	5 55	10.65	15.24
			0.125	3.18		11.36	16.90
			0.134	3.40		12.16	18.10
			0.141	3.58		12.79	19.03
			0.148	3.78	10 105	13.47	19.96
			0.156	3.96		14.12	21.02
14	154.0	391.3	0.164	4.17		14.83	22.08
			0.172	4.37		15.54	23.13
			0.179	4.55		16.16	24.05
			0.188	4.78		16.98	25.24
			0.203	5.16		18.28	27.20
			0.219	5.56		19.68	29.29

DIÁMETRO NOMINAL	DIÁMETRO EXTERIOR	ESPESOR DE PARED	CÉCULA	PESO		
Ø1	Ø2	mm	mm	(Lb/Lt) Kg/m		
		0,065	1,05	5,35	1,61	2,39
		0,109	2,77	10 105	2,64	3,93
		0,154	3,91	40 371	3,66	5,44
		0,172	4,37	40 371	4,05	6,03
		0,188	4,78	40 371	4,40	6,54
		0,218	5,54	80 35	5,03	7,48
		0,250	6,25	80 35	5,68	8,45
		0,281	7,14	80 35	6,29	9,36
		0,344	8,74	160	7,47	11,12
		0,436	11,03	XKS	9,04	13,45
		0,063	2,11	5 55	2,48	3,68
		0,120	3,05	10 105	3,53	5,26
		0,200	5,16	40 371	5,80	8,63
		0,216	3,49	80 35	6,14	9,14
		0,250	6,35	80 35	7,10	10,44
		0,278	7,01	80 35	7,87	11,41
		0,315	9,65	160	10,02	14,92
		0,352	14,62	XKS	13,71	20,40
		0,063	2,11	5 55	3,09	4,51
		0,120	3,05	10 105	4,34	6,45
		0,150	3,96	80 35	4,51	6,71
		0,154	3,96	80 35	5,58	8,30
		0,188	4,78	80 35	6,88	9,91
		0,216	3,49	40 371	7,58	11,28
		0,250	6,35	80 35	8,49	12,50
		0,281	7,14	80 35	9,87	14,39
		0,300	7,62	80 35	10,28	15,27
		0,438	11,13	160	14,24	21,24
		0,600	15,24	XKS	18,80	27,68
		0,063	2,11	5 55	3,48	5,17
		0,130	3,06	10 105	4,86	7,41
		0,125	3,18	80 35	5,18	7,71
		0,156	3,96	80 35	6,41	9,54
		0,188	4,78	80 35	7,66	11,40
		0,226	8,74	40 371	9,17	13,57
		0,250	6,35	80 35	10,52	14,80
		0,281	7,14	80 35	11,17	16,63
		0,318	8,06	80 35	12,52	18,63
		0,636	16,11	XKS	22,87	34,04
		0,063	2,11	5 55	3,80	5,63
		0,130	3,06	10 105	5,26	7,76
		0,125	3,18	80 35	5,80	8,70
		0,156	3,96	80 35	7,24	10,78
		0,188	4,78	80 35	8,67	12,90
		0,219	5,54	40 371	10,02	14,92
		0,237	6,02	40 371	10,80	16,07
		0,250	6,35	80 35	11,36	16,90
		0,281	7,14	60	12,67	18,86
		0,312	7,92	80 35	13,97	20,79
		0,337	8,56	80 35	15,26	22,32
		0,438	11,13	160	20,02	29,31
		0,531	13,49	160	23,52	33,50
		0,674	17,12	XKS	27,57	41,03
		0,247	6,27	40 371	12,35	18,08
		0,355	9,02	80 35	17,63	26,23
		0,710	18,02	XKS	32,56	48,46

DIÁMETRO NOMINAL	DIÁMETRO EXTERIOR	ESPESOR DE PARED	CÉCULA	PESO		
Ø1	Ø2	mm	mm	(Lb/Lt) Kg/m		
		0,109	2,77	5 55	6,36	9,46
		0,125	3,18	10 105	7,27	10,81
		0,134	3,40	10 105	7,78	11,57
		0,156	3,96	80 35	9,02	13,42
		0,188	4,78	80 35	10,80	16,08
		0,219	5,54	80 35	12,51	18,62
		0,250	6,35	40 371	14,63	21,78
		0,261	7,14	40 371	15,87	23,61
		0,312	7,92	80 35	17,51	26,06
		0,344	8,74	80 35	19,19	28,56
		0,375	9,53	80 35	20,80	30,95
		0,500	12,70	120	27,08	40,28
		0,625	15,88	160	32,99	49,10
		0,700	19,05	XKS	38,58	57,43
		0,109	2,77	5 55	7,59	11,30
		0,120	3,06	80 35	8,35	12,42
		0,125	3,18	80 35	8,69	12,93
		0,154	3,40	10 105	9,30	13,84
		0,141	3,58	80 35	9,77	14,55
		0,149	3,75	80 35	10,33	15,35
		0,156	3,96	80 35	10,78	16,06
		0,172	4,37	80 35	11,87	17,66
		0,188	4,78	80 35	12,84	19,25
		0,203	5,16	80 35	13,84	20,74
		0,219	5,54	80 35	15,00	22,32
		0,237	6,02	80 35	16,18	24,09
		0,250	6,35	80 35	17,04	25,36
		0,280	7,11	40 371	18,80	28,27
		0,312	7,92	40 371	21,06	31,34
		0,344	8,74	40 371	23,10	34,38
		0,375	9,53	80 35	25,06	37,29
		0,432	10,97	80 35	28,60	42,56
		0,500	12,70	80 35	32,74	48,72
		0,562	14,27	120	36,43	54,41
		0,625	15,88	160	40,65	60,66
		0,719	18,26	160	46,40	67,96
		0,750	19,05	160	47,51	70,15
		0,854	21,95	XKS	52,92	78,19
		0,875	22,23	XKS	53,79	80,05
		0,301	7,65	510	23,57	35,07
		0,500	12,70	XKS	28,09	56,68
		0,875	22,23	XKS	63,14	93,97
		0,105	2,67	80 35	9,56	14,23
		0,109	2,77	5 55	9,82	14,77
		0,120	3,06	80 35	10,81	16,24
		0,125	3,18	80 35	11,36	16,90
		0,154	3,40	40 371	12,18	18,10
		0,141	3,58	80 35	12,79	19,03
		0,149	3,75	10 105	13,41	19,96
		0,156	3,96	80 35	14,12	21,02
		0,164	4,17	80 35	14,83	22,08
		0,172	4,37	80 35	15,52	23,13
		0,179	4,55	80 35	16,16	24,05
		0,188	4,78	80 35	16,86	25,24
		0,203	5,16	80 35	17,56	27,30
		0,219	5,54	80 35	18,68	29,29

DIÁMETRO NOMINAL	DIÁMETRO EXTERIOR	ESPESOR DE PARED		CÉDULA	PESO		
		t <sub>1</sub>	mm		Lb/Ft	Kg/m	
8	8.625	21.81	0.237	6.02		21.25	31.63
			0.250	6.35	20	22.38	33.31
			0.277	7.04	30	24.72	36.79
			0.312	7.92		27.73	41.26
			0.322	8.18	40 STD	28.58	42.54
			0.344	8.74		30.45	45.32
			0.375	9.53		33.07	49.22
			0.436	10.31	60	36.67	53.09
			0.438	11.13		38.34	57.05
			0.500	12.70	80 XS	43.43	64.63
			0.562	14.27		48.44	72.08
			0.584	15.09	100	51.00	75.90
			0.625	15.88		53.45	79.55
			0.719	18.26	120	60.77	90.44
			0.750	19.05		63.14	93.97
			0.812	20.62	140	67.82	100.90
			0.875	22.23	XXX	72.50	107.89
0.900	23.01	160	74.77	111.26			
1.000	25.40		81.52	121.31			
9	9.625	24.45	0.342	8.69	STD	33.94	50.51
			0.360	9.14	XS	48.78	72.59
			0.334	8.49	5 SS	15.21	22.63
			0.341	8.69		15.80	23.80
			0.349	8.78		16.89	25.13
			0.356	9.06		17.67	26.29
			0.365	9.27	10 10S	18.67	27.79
			0.379	9.55		20.23	30.10
			0.388	9.78		21.23	31.59
			0.403	10.16		22.89	34.06
			0.419	10.66		24.66	36.09
			0.436	11.13	20	28.06	41.78
			0.479	12.16		31.25	46.48
			0.507	12.80	30	34.27	51.01
			0.512	13.00		34.82	51.81
			0.522	13.18		35.90	53.43
			0.534	13.74		38.27	56.96
0.565	14.27	40 STD	40.52	60.31			
0.575	14.53		41.50	61.90			
0.638	16.13		48.29	71.86			
0.660	16.76	60 3S	54.79	81.54			
0.662	16.76		61.21	91.09			
0.684	17.49	80	64.09	95.98			
0.625	15.88		67.66	100.68			
0.719	18.26	100	72.11	114.74			
0.812	20.62		82.77	128.28			
0.844	21.44	120	89.38	133.02			
0.875	22.23		92.38	137.47			
0.938	23.83		98.39	146.43			
1.000	25.40	140 10S	104.34	155.12			
1.125	28.58	160	115.76	172.27			
1.250	31.75		129.95	188.93			
10	10.750	27.31	0.375	9.53	STD	45.40	67.89
			0.500	12.70	30	61.14	89.49
12	12.750	32.91	0.156	3.96		14.19	21.12
			0.154	3.90		14.07	20.90
			0.156	3.96	5S	21.00	31.26

DIÁMETRO NOMINAL	DIÁMETRO EXTERIOR	ESPESOR DE PARED		CÉDULA	PESO		
		t <sub>1</sub>	mm		Lb/Ft	Kg/m	
12	12.750	32.91	0.165	4.19	5	22.20	33.04
			0.172	4.37		23.13	34.40
			0.180	4.57	10 10S	24.18	36.00
			0.188	4.78		25.25	37.57
			0.203	5.16		27.23	40.52
			0.219	5.56		29.34	43.66
			0.237	6.02		31.70	47.18
			0.250	6.35	20	33.41	49.72
			0.281	7.14		37.46	55.74
			0.297	7.54		39.54	58.84
			0.312	7.92		41.89	61.74
			0.330	8.36	30	43.82	65.21
			0.344	8.74		45.62	67.90
			0.375	9.53	STD	48.61	73.03
			0.406	10.31	40	53.58	79.73
			0.438	11.13		57.65	85.80
			0.500	12.70	13	65.48	97.45
0.562	14.27	60	73.22	108.98			
0.625	15.88		81.02	120.37			
0.688	17.49	80	88.72	132.03			
0.750	19.05		96.22	143.19			
0.812	20.62		103.65	154.22			
0.844	21.44	100	107.43	159.87			
0.875	22.23		111.09	165.31			
0.938	23.83		118.45	176.27			
1.000	25.40	120 10S	125.62	186.94			
1.062	27.00		132.70	197.48			
1.125	28.58	140	139.82	208.07			
1.250	31.75		155.76	231.20			
1.312	33.32	160	160.43	238.75			
14	14.000	35.61	0.105	2.67		15.80	23.21
			0.134	3.40		19.86	29.56
			0.156	3.96	5S	23.09	34.30
			0.164	4.17		24.16	35.10
			0.179	4.55		26.45	39.36
			0.188	4.78	10S	27.78	41.31
			0.203	5.16		29.59	44.54
			0.210	5.33		30.96	46.07
			0.219	5.56		32.27	48.03
			0.230	5.85	10	36.75	54.69
			0.281	7.14	20	41.21	61.33
			0.312	7.92		45.66	67.84
			0.344	8.74		50.22	74.74
			0.375	9.53	30 STD	54.82	81.29
			0.438	11.13		65.31	97.91
			0.438	11.13	40	63.50	94.51

DIÁMETRO NOMINAL	DIÁMETRO EXTERIOR	ESPESOR DE PARED	CÉDULA	PESO	
in	in	mm	in	mm	
				Lb/ft	
				Kg/m	
				0.469	11.91
				0.500	12.70
			35	67.84	100.96
				72.16	107.39
				80.74	120.15
			60	85.13	124.69
				89.37	132.99
				97.94	145.71
			80	106.24	156.10
				114.48	170.27
				122.78	184.41
			100	130.99	194.33
				138.96	206.83
				146.89	218.80
			120	150.84	224.63
				154.80	230.44
				160.78	240.47
			140	189.30	281.71
				256.58	381.83
				269.78	401.47
			160	277.53	413.01
				307.36	457.40
				314.40	465.87
			55	27.82	41.67
			85	31.78	47.29
				34.98	51.02
				36.95	54.08
			19	42.09	62.64
				47.22	70.27
			30	52.33	77.87
				57.58	86.68
			30 STD	62.64	93.22
				67.69	100.73
				72.87	108.64
				77.87	115.69
			40 X5	82.85	123.30
				87.75	130.03
				92.73	136.88
			60	107.61	160.14
				112.62	167.60
				122.28	181.67
			80	131.85	196.21
				141.44	210.51
				149.49	219.55
			90	151.04	224.77
				159.64	238.64
			100	164.99	245.53
				169.00	252.39
				176.84	266.24
			120	198.12	279.96
				202.87	303.15
			140	245.49	365.34
			150	314.46	468.2
			105	36.80	53.29
				41.63	61.96
			19	47.44	70.80
				53.23	79.61

DIÁMETRO NOMINAL	DIÁMETRO EXTERIOR	ESPESOR DE PARED	CÉDULA	PESO	
in	in	mm	in	mm	
				Lb/ft	
				Kg/m	
				0.312	7.80
				0.344	8.74
			30D	0.375	9.53
				0.406	10.31
			30	0.438	11.13
				0.469	11.91
			30 X3	0.500	12.70
				0.562	14.27
				0.625	15.88
				0.688	17.48
				0.750	19.05
				0.812	20.62
			80	0.875	22.23
				0.938	23.83
			80	1.000	25.40
				1.062	26.97
				1.125	28.58
			100	1.188	29.36
				1.250	31.75
			120	1.375	34.80
				1.562	39.67
			140	1.781	45.24
			55	29.82	59.26
			105	46.31	68.92
				52.79	78.55
				58.24	88.16
				66.67	97.73
				72.29	107.58
			20 STD	78.68	117.69
				85.05	126.56
				91.60	136.20
				100.33	145.73
			30 X3	0.500	12.70
				0.562	14.27
				0.625	15.88
				0.688	17.48
			20	0.750	19.05
				0.812	20.62
			60	0.875	22.23
				0.938	23.83
				1.000	25.40
			80	1.062	26.97
				1.125	28.58
				1.188	30.18
				1.250	31.75
			100	1.312	33.32
				1.375	34.90
			120	1.500	38.10
			140	1.750	44.45
				1.989	50.01
				0.250	6.35
			10	0.281	7.14
				0.312	7.92
				0.344	8.74
				0.375	9.53
				0.406	10.31
				0.438	11.13
				0.469	11.91
				0.500	12.70
				0.562	14.27
				0.625	15.88
				0.688	17.48
				0.750	19.05
				0.812	20.62
				0.875	22.23
				0.938	23.83
				1.000	25.40
				1.062	26.97
				1.125	28.58
				1.188	30.18
				1.250	31.75
			100	1.312	33.32
				1.375	34.90
			120	1.500	38.10
			140	1.750	44.45
				1.989	50.01
				0.250	6.35
			10	0.281	7.14
				0.312	7.92
				0.344	8.74
				0.375	9.53
				0.406	10.31
				0.438	11.13
				0.469	11.91
				0.500	12.70
				0.562	14.27
				0.625	15.88
				0.688	17.48
				0.750	19.05
				0.812	20.62
				0.875	22.23
				0.938	23.83
				1.000	25.40
				1.062	26.97
				1.125	28.58
				1.188	30.18
				1.250	31.75
			100	1.312	33.32
				1.375	34.90
			120	1.500	38.10
			140	1.750	44.45
				1.989	50.01
				0.250	6.35
			10	0.281	7.14
				0.312	7.92
				0.344	8.74
				0.375	9.53
				0.406	10.31
				0.438	11.13
				0.469	11.91
				0.500	12.70
				0.562	14.27
				0.625	15.88
				0.688	17.48
				0.750	19.05
				0.812	20.62
				0.875	22.23
				0.938	23.83
				1.000	25.40
				1.062	26.97
				1.125	28.58
				1.188	30.18
				1.250	31.75
			100	1.312	33.32
				1.375	34.90
			120	1.500	38.10
			140	1.750	44.45
				1.989	50.01

DIÁMETRO NOMINAL	DIÁMETRO EXTERIOR	ESPESOR DE PARED		CÉDULA	PESO
in	in	mm	mm		Lb/ft Kg/m
				5TD	79,64 113,52
				20	86,25 129,02
					93,73 139,48
					100,97 150,25
					107,96 160,66
			30 X5		114,93 171,03
					128,80 191,68
					142,83 207,54
					156,76 230,28
					170,38 253,56
					183,93 273,72
				60	197,61 294,08
					211,21 314,31
					224,51 334,10
					237,72 353,77
			80		251,67 373,63
					264,33 393,36
					277,29 413,66
					290,18 431,03
				100	303,18 451,19
					316,11 470,42
					328,74 489,22
					353,97 526,76
					403,41 600,34
					451,52 671,33
				55	55,43 82,48
			10		63,48 94,48
					71,25 106,04
					79,01 117,56
					87,00 129,47
				20 5TD	94,71 140,09
					102,47 152,49
					110,33 164,19
					117,98 175,58
				XS	125,82 188,94
					143,62 208,56
					156,19 232,43
					171,47 255,17
			40		186,47 277,42
					201,29 299,56
					216,37 321,92
					231,83 344,16
				60	238,59 355,06
					246,89 365,02
					260,43 387,56
					275,12 409,42
					289,73 431,18
				80	296,88 441,81
					304,02 452,43
					318,23 473,58
					332,18 494,94
					346,69 516,18
					360,81 536,95
				100	367,36 547,29
					374,89 557,60
					429,82 639,64
			120		483,61 719,09
			140		547,43 807,29
			160		547,43 807,29

DIÁMETRO NOMINAL	DIÁMETRO EXTERIOR	ESPESOR DE PARED		CÉDULA	PESO
in	in	mm	mm		Lb/ft Kg/m
					0,700 6,35
					0,201 2,74
				10	0,312 7,92
					0,344 8,74
				5TD	0,375 9,53
					0,406 10,31
					0,438 11,13
					0,469 11,91
				20 X5	0,500 12,70
					0,567 14,27
					0,625 15,88
					0,688 17,48
					0,750 19,05
					0,812 20,62
					0,875 22,23
					0,938 23,83
					1,000 25,40
					0,250 6,35
					0,281 7,14
				10	0,312 7,92
					0,344 8,74
				5TD	0,375 9,53
					0,406 10,31
					0,438 11,13
					0,469 11,91
				20 X5	0,500 12,70
					0,562 14,27
					0,625 15,88
				30	0,688 17,48
					0,750 19,05
					0,812 20,62
					0,875 22,23
					0,938 23,83
					1,000 25,40
					0,250 6,35
				55	0,281 7,14
				10 105	0,312 7,92
					0,344 8,74
					0,375 9,53
				5TD	0,406 10,31
					0,438 11,13
					0,469 11,91
					0,500 12,70
				50 X5	0,562 14,27
					0,625 15,88
				30	0,688 17,48
					0,750 19,05
					0,812 20,62
					0,875 22,23
					0,938 23,83
					1,000 25,40

DIÁMETRO NOMINAL	DIÁMETRO EXTERIOR	ESPESOR DE PARED	CÉDULA		PESO		
			1)	2)	Lb/Ft	Kg/m	
30	30.000	762.0	0.688	17.48		215.60	305.84
			0.750	19.05		234.55	349.02
			0.812	20.62		253.38	377.02
			0.875	22.23		273.45	405.45
			0.938	23.83		293.83	433.70
			1.000	25.40		315.03	461.36
			1.062	26.97		328.55	488.94
			1.125	28.58		347.29	516.81
			1.188	30.18		366.93	544.57
			1.250	31.75		384.20	573.75
			1.375	34.93		420.78	626.19
			1.500	38.10		457.02	680.14
			0.750	6.35		84.86	126.20
			0.781	7.34		95.29	141.82
			0.812	7.82	10	106.70	157.29
0.844	8.74		116.42	172.25			
0.875	9.53	17D	126.39	188.68			
0.906	10.31		137.13	204.08			
0.938	11.13		147.79	219.94			
0.969	12.00	20 X5	160.38	250.56			
0.962	14.27		188.80	281.09			
0.925	15.88	30	200.64	311.96			
0.938	17.48	40	222.21	342.74			
0.750	19.05		250.57	372.88			
0.812	20.62		270.74	402.91			
0.875	22.23		291.18	433.29			
0.938	23.83		313.49	463.55			
1.000	25.40		331.41	493.20			
1.062	26.97		351.26	522.73			
1.125	28.58		371.54	552.81			
1.188	30.18		391.33	582.37			
1.250	31.75		410.90	611.53			
0.750	6.35		90.20	134.24			
0.781	7.34		101.30	150.74			
0.812	7.82	10	112.37	167.22			
0.844	8.74		123.77	184.20			
0.875	9.53	17D	134.80	200.61			
0.906	10.31		146.21	216.90			
0.938	11.13		158.32	233.87			
0.969	11.91		168.32	250.20			
0.962	12.70	20 X5	179.07	266.49			
0.925	14.27		200.90	298.96			
0.925	15.88	30	222.00	331.87			
0.948	17.48	40	243.02	364.03			
0.750	19.05		266.40	396.75			
0.812	20.62		288.30	429.74			
0.875	22.23		309.87	461.15			
0.938	23.83		331.54	493.20			
1.000	25.40		352.80	525.02			
1.062	26.97		373.87	556.52			
1.125	28.58		396.29	588.41			
1.188	30.18		416.73	620.17			
1.250	31.75		437.65	651.30			
0.750	6.35		95.55	142.19			
0.781	7.34		107.20	159.89			
0.812	7.82	10	119.04	177.15			

DIÁMETRO NOMINAL	DIÁMETRO EXTERIOR	ESPESOR DE PARED	CÉDULA		PESO		
			1)	2)	Lb/Ft	Kg/m	
30	30.000	914.4	0.844	8.74		131.13	195.14
			0.875	9.53	17D	142.82	212.54
			0.906	10.31		154.49	229.91
			0.938	11.13		166.12	247.81
			0.969	11.91		176.15	265.12
			0.938	12.70	X5	189.26	282.40
			0.962	14.27		202.67	300.32
			0.925	15.88	30	216.37	317.75
			0.988	17.48	40	230.73	340.52
			0.950	19.05		245.64	359.41
			0.812	20.62		305.46	454.58
			0.875	22.23		328.57	488.01
			0.938	23.83		351.60	523.24
			1.000	25.40		374.18	558.84
			1.062	26.97		396.67	600.21
1.125	28.58		419.45	624.71			
1.188	30.18		442.14	657.87			
1.250	31.75		464.38	691.08			
1.375	34.93		508.98	757.45			
1.500	38.10		553.25	823.27			
0.750	6.35		111.09	166.06			
0.844	8.74		153.20	227.98			
0.875	9.53	17D	166.28	248.24			
0.906	10.31		180.54	269.67			
0.938	11.13		194.82	290.82			
0.969	11.91		209.24	309.89			
0.962	12.70	X5	221.83	330.13			
0.925	14.27		248.87	370.51			
0.925	15.88	30	276.48	411.41			
0.988	17.48	40	303.96	452.19			
0.950	19.05		332.07	492.20			
0.812	20.62		367.55	532.08			
0.875	22.23		384.70	572.50			
0.938	23.83		411.17	612.79			
1.000	25.40		438.32	652.30			
1.062	26.97		464.79	691.08			
1.125	28.58		491.88	730.66			
1.188	30.18		518.24	771.37			
1.250	31.75		544.86	812.94			
1.500	38.10		699.87	1060.51			
0.844	8.74		117.26	200.80			
0.875	9.53	17D	130.93	208.14			
0.906	10.31		146.50	267.42			
0.938	11.13		159.73	331.43			
0.969	11.91		174.32	329.15			
0.962	12.70	X5	205.91	377.85			
0.925	14.27		232.02	424.15			
0.925	15.88	30	216.05	417.07			
0.988	17.48	40	347.90	517.87			
0.950	19.05		376.35	562.83			
0.812	20.62		408.64	600.60			
0.875	22.23		440.83	656.02			
0.938	23.83		471.94	702.32			
1.000	25.40		502.47	747.75			
1.062	26.97		532.90	793.07			
1.125	28.58		562.77	838.99			
1.188	30.18		594.14	884.79			
1.250	31.75		624.14	930.72			
1.500	38.10		745.08	1100.70			
2.000	50.80		983.55	1483.69			

## BRIDA WN 150LBS SCH. STD

DN	D	b	g	m	a	J'	h	k	N° tal	l	Peso (kg.)
1/2"	88,9	11,1	34,9	30,2	21,3	15,7	46,6	60,3	4	15,9	0,500
3/4"	98,4	12,7	42,9	38,1	26,7	20,8	52,4	69,8	4	15,9	0,700
1"	107,9	14,3	50,8	49,2	33,5	26,7	55,6	79,4	4	15,9	1,100
1 1/4"	117,5	15,9	63,5	58,8	42,2	35,1	57,1	88,9	4	15,9	1,500
1 1/2"	127,0	17,5	73,0	65,1	48,3	40,9	61,9	98,4	4	15,9	1,800
2"	152,4	19,0	92,1	77,8	60,3	52,6	63,5	120,6	4	19,0	2,700
2 1/2"	177,8	22,2	104,8	90,5	73,1	62,7	69,8	139,7	4	19,0	4,400
3"	190,5	23,8	127,0	107,9	88,9	76,0	69,8	152,4	4	19,0	5,200
3 1/2"	215,9	23,8	139,7	122,2	101,6	90,2	71,4	177,8	8	19,0	6,400
4"	228,6	23,8	157,2	134,9	114,3	102,4	76,2	190,5	8	19,0	7,500
5"	254,0	23,8	165,7	163,5	141,2	128,3	88,9	215,9	8	22,2	9,200
6"	279,4	26,4	215,9	192,1	166,4	154,2	88,9	241,3	8	22,2	11,000
8"	342,9	28,6	269,9	246,1	219,1	202,7	101,6	298,4	8	22,2	18,300
10"	406,4	30,2	323,8	304,8	273,0	254,5	101,6	361,9	12	25,4	25,000
12"	482,6	31,7	381,0	365,1	323,8	304,8	114,3	431,6	12	25,4	39,000
14"	533,4	34,9	412,7	400,0	356,6	336,5	127,0	476,2	12	28,6	51,000
16"	596,9	36,5	469,9	457,2	406,4	387,3	127,0	539,7	16	28,6	60,000
18"	635,0	3,7	533,4	504,8	457,2	438,1	159,7	577,8	16	31,7	71,000
20"	698,5	42,9	594,2	558,8	508,0	488,9	144,5	635,0	20	31,7	89,000
22"	749,3	46,0	461,2	609,6	558,8	539,7	149,2	692,1	20	34,9	102,000
24"	812,8	47,6	692,1	663,6	609,6	590,5	152,4	749,3	20	34,9	119,000

# Conexión hierro forjado 3000 lbs roscada

## CONEXIONES 3000 LBS ROSCADAS

TIPO DE PRODUCTO	PESO APROXIMADO KG/PZA											
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
CODO 90°	0.1	0.14	0.29	0.43	0.69	1.14	1.42	2.63	2.92	5.99	8.88	14.85
CODO 45°	0.13	0.12	0.24	0.34	0.56	0.94	1.03	2.06	2.23	3.71	5.97	8.96
TEE	0.13	0.2	0.38	0.56	0.92	1.49	1.76	3.27	3.53	6.99	10.19	19.13
COPLE	0.05	0.04	0.06	0.13	0.19	0.45	0.81	1.07	1.4	2.29	3.38	6.28
COPLE REDUCIDO	0.05	0.06	0.06	0.13	0.19	0.39	0.68	0.99	1.37	2.07	3.08	5.44
TAPON CAPA	0.02	0.04	0.05	0.11	0.18	0.37	0.62	0.72	1.09	2.22	3.5	4.84
TUERCA UNION	0.28	0.28	0.24	0.34	0.48	0.77	1.03	1.63	2.43	3.63	5.27	12



## CONEXIONES 6000 LBS ROSCADAS

TIPO DE PRODUCTO	PESO APROXIMADO KG/PZA											
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
CODO 90°	0.17	0.33	0.45	0.8	1.31	1.61	2.93	3.79	7.31	9.88	16.43	
CODO 45°	0.11	0.27	0.39	0.63	1.07	1.27	2.24	2.54	4.37	7.01	14.16	
TEE	0.2	0.45	0.63	0.98	1.65	2.17	3.74	4.71	7.88	13.11	22.5	
COPLE	0.08	0.13	0.2	0.34	0.5	0.87	1.09	1.94	2.87	4.2	6.1	10.04
COPLE REDUCIDO	0.08	0.06	0.18	0.31	0.41	0.85	1.05	1.81	3.4	4.2	6.1	10.04
TAPON CAPA	0.06	0.06	0.09	0.26	0.4	0.71	0.59	0.77	2.23			



## TAPONES Y BUSHING 2000 / 3000 / 6000 LBS

TIPO DE PRODUCTO	PESO APROXIMADO KG/PZA											
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
CAB. CUAD.	0.01	0.01	0.03	0.05	0.09	0.16	0.27	0.38	0.63	0.96	1.53	3.83
CAB. HEX.	0.01	0.03	0.05	0.07	0.14	0.22	0.44	0.59	1.03	1.8	2.6	5.2
CAB. RED.	0.02	0.45	0.07	0.12	0.2	0.34	0.55	0.79	1.47	2.34	3.26	6.24
BUSHING		0.01	0.01	0.03	0.05	0.09	0.25	0.34	0.45	0.6	1.16	3.2





# conexion negra 3000 lbs socketweld

## CONEXIONES 3000 LBS SOCKETWELD

TIPO DE PRODUCTO	PESO APROXIMADO KG/PZA											
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
CODO 90°	0.09	0.08	0.12	0.22	0.33	0.53	0.84	1.08	1.68	3.2	5.38	10.95
CODO 45°	0.16	0.14	0.12	0.2	0.28	0.42	0.69	0.8	1.35	2.53	5.1	9.41
TEE	0.13	0.09	0.15	0.29	0.42	0.65	1.04	1.35	2.04	3.98	5.9	17.91
COPLE	0.04	0.05	0.07	0.13	0.17	0.29	0.45	0.59	0.86	1.4	1.78	2.85
COPLE REDUCIDO	0.04	0.05	0.07	0.13	0.19	0.27	0.49	0.59	0.97	1.42	1.88	3.31
TAPON CAPA	0.03	0.04	0.07	0.1	0.16	0.25	0.45	0.59	0.96	1.43	2.74	4.24
TUERCA UNION	0.28	0.28	0.25	0.35	0.49	0.81	1.1	1.61	2.16	3.5	5.15	11.59

## CONEXIONES 6000 LBS SOCKETWELD

TIPO DE PRODUCTO	PESO APROXIMADO KG/PZA											
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
CODO 90°			0.29	0.4	0.73	1.17	1.48	2.79	3.28			
CODO 45°				0.36	0.57	0.92	1.11	2.01	2.09			
TEE	0.14	0.2	0.43	0.56	0.94	1.49	1.93	3.37	3.95			
COPLE	0.05		0.14	0.24	0.27	0.44	0.6	1.11	1.62			
COPLE REDUCIDO				0.24	0.33	0.65	0.75	1.2	2.12			
TAPON CAPA				0.16	0.23	0.36	0.64	0.94	1.41			



# Conexión acero al carbón soldable

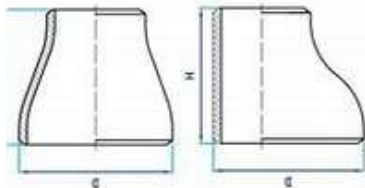
## TAPÓN CAPA

DIÁMETRO NOMINAL	PESO APROXIMADO KG/PZA					
	CÉDULA STD	CÉDULA 40	CÉDULA XS	CÉDULA 80	CÉDULA xxS	CÉDULA 160
in						
1/8	0.04	0.04	0.05	0.05	0.10	0.06
3/8	0.05	0.05	0.07	0.07	0.13	0.09
1	0.11	0.11	0.15	0.15	0.29	0.20
1 1/4	0.14	0.14	0.20	0.20	0.39	0.25
1 1/2	0.17	0.17	0.24	0.24	0.50	0.35
2	0.24	0.24	0.33	0.33	0.68	0.54
2 1/2	0.42	0.42	0.57	0.57	1.33	0.77
3	0.67	0.67	0.92	0.92	2.18	1.40
4	1.17	1.17	1.68	1.68	3.80	2.76
5	1.90	1.90	2.73	2.73	6.22	4.85
6	2.83	2.83	4.38	4.38	9.85	7.81
8	5.11	5.11	7.91	7.91	16.40	15.20
10	8.92	8.92	12.20	16.40	28.35	28.90
12	13.10	13.10	17.40	26.40	39.40	47.70
14	15.90	18.60	21.20	34.90		61.20
16	20.0	26.70	26.70	49.0		
18	25.5	41.5	34.1	69.0		131.0
20	31.8	54.1	42.5	93.7		179.0
22	38.8	61.4	51.7	116.0		219.0
24	45.1	90.1	60.1	160.0		307.0
26	50.5	92.3	67.3			
28	56.2	103.0	74.9			
30	62.1	114.0	82.8			
32	68.4	126.0	91.2			
34	75.4	138.0	100.0			
36	81.9	164.0	109.0			
38	94.7		126.0			
40	102.0		137.0			
42	110.0		147.0			
44	126.0		167.0			
46	134.0		179.0			
48	143.0		191.0			



PROPIEDADES MECÁNICAS						
MATERIAL	TENSIÓN Ksi (Mpa)	CEDENCIA Ksi (Mpa)	ELONGACIÓN RECT. SPE	NOTCH TGH AVG/MIN FT-LB (J)	PRUEBA DE IMPACTO F (°C)	TRATAMIENTO TECNICO
ASTM A-234 WPB	60-65 (415-585)	35 (240)	30	N/A	N/A	N/A**
ASTM A-234 WPC	70-95 (485-655)	40 (275)	30	N/A	N/A	N/A**
ASTM A-420 WPL6	60-65 (415-585)	35 (240)	30	13/10 (17.6/13.6)	-50 (-46)	Se requiere
ASTM A-860 WPHY-52	66 (455)	52 (360)	32	30/25 (40/34)	-50 (-46)	Se requiere
MSS WPHY-52	66	52	25	20	+20 °F	Se requiere
MSS WPHY-60	75	60	20	20	+20 °F	Se requiere
MSS WPHY-65	77	65	20	20	+20 °F	Se requiere
MSS WPHY-70	82	70	18	20	+20 °F	Se requiere

COMPOSICIÓN QUÍMICA MÁXIMO														
MATERIAL	C	Mn	P	S	Si	Cr	Mo	Ni	Cu	V	Cb	Ti	Al	CEDENCIA MÁXIMA
ASTM A-234 WPB	0.300	0.29-1.06	0.050	0.058	0.010 MIN	0.400	0.150	0.400	0.400	0.080	0.020			
ASTM A-234 WPC	0.350	0.29-1.06	0.050	0.058	0.010 MIN	0.400	0.150	0.400	0.400	0.080	0.020			
ASTM A-420 WPL6	0.300	0.60-1.35	0.035	0.040	0.19-0.30	0.300	0.120	0.400	0.400	0.050	0.020			
ASTM A-860 WPHY-52	0.200	1.01-1.45	0.030	0.010	0.15-0.40	0.300	0.250	0.500	0.350	0.100	0.040	0.050	0.060	0.42
MSS WPHY-52/60/65/70	0.300	1.600	0.050	0.060	0.500	0.250	0.250	1.000	1.500	0.130	0.100			0.45



### REDUCTOR CONCÉNTRICO Y REDUCTOR EXCÉNTRICO

DIÁMETRO NOMINAL in	PESO APROXIMADO KG/PZA					
	CÉDULA STD	CÉDULA 40	CÉDULA XS	CÉDULA 80	CÉDULA XXS	CÉDULA 160
1/4 x 1/4	0.06	0.06	0.08	0.08		
1 x 1/4	0.12	0.12	0.15	0.15	0.25	0.19
1 x 1/2	0.11	0.11	0.14	0.14	0.22	0.17
1 1/4 x 1	0.16	0.16	0.21	0.21	0.35	0.25
1 1/2 x 1	0.15	0.15	0.19	0.19	0.31	0.23
1 3/4 x 1	0.14	0.14	0.18	0.18		
1 1/2 x 1 1/4	0.25	0.25	0.33	0.33	0.57	0.43
1 1/2 x 1	0.22	0.22	0.30	0.30	0.50	0.38
1 1/2 x 3/4	0.21	0.21	0.27	0.27	0.45	0.35
1 1/4 x 1	0.18	0.18	0.24	0.24	0.40	0.32
2 x 1 1/4	0.38	0.38	0.51	0.51	0.91	0.75
2 x 1 1/2	0.36	0.36	0.48	0.48	0.85	0.70
2 x 1	0.33	0.33	0.44	0.44	0.77	0.64
2 x 3/4	0.30	0.30	0.40	0.40	0.69	0.58
2 1/2 x 2	0.73	0.73	0.95	0.95	1.68	1.20
2 1/2 x 1 1/2	0.67	0.67	0.87	0.87	1.51	1.08
2 1/2 x 1 1/4	0.64	0.64	0.83	0.83	1.42	1.02
2 1/2 x 1	0.56	0.56	0.73	0.73	1.23	0.93
3 x 2 1/2	0.84	0.84	1.25	1.25	2.25	1.71
3 x 2	0.85	0.85	1.13	1.13	2.01	1.52
3 x 1 1/2	0.79	0.79	1.04	1.04	1.83	1.44
3 x 1 1/4	0.75	0.75	1.00	1.00	1.74	1.37
4 x 3	1.45	1.45	2.02	2.02	3.65	3.00
4 x 2 1/2	1.37	1.37	1.90	1.90	3.41	2.76
4 x 2	1.27	1.27	1.76	1.76	3.11	2.56
4 x 1 1/2	1.19	1.19	1.64	1.64	2.89	2.41
5 x 4	2.50	2.50	3.52	3.52	6.47	5.59
5 x 3	2.27	2.27	3.18	3.18	5.78	5.20
5 x 2 1/2	2.16	2.16	3.02	3.02	5.46	4.70
5 x 2	2.03	2.03	2.85	2.85	5.17	4.43
6 x 5	3.57	3.57	5.38	5.38	9.89	8.63
6 x 4	3.30	3.30	4.96	4.96	8.98	7.88
6 x 3	3.04	3.04	4.56	4.56	8.21	7.21
6 x 2 1/2	2.94	2.94	4.38	4.38	7.98	6.90
8 x 6	5.71	5.71	8.38	8.38	14.50	13.00
8 x 5	5.40	5.40	8.14	8.14	13.40	14.00
8 x 4	5.10	5.10	7.88	7.88	12.60	13.10
10 x 8	9.58	9.58	12.90			
10 x 6	8.78	8.78	11.80			
10 x 5	8.42	8.42	11.30			
10 x 4	8.20	8.20	11.00			
12 x 10	13.60	14.70	18.00			
12 x 8	12.70	13.70	16.70			

REDUCTOR CONCÉNTRICO Y REDUCTOR EXCÉNTRICO

DIÁMETRO NOMINAL	PESO APROXIMADO KG/PZA						
	h1	CÉDULA STD	CÉDULA 40	CÉDULA XS	CÉDULA 80	CÉDULA XOS	CÉDULA 160
12 x 6		11.80	12.80	15.60	21.40	32.00	38.00
12 x 5		11.70	12.60	15.30	20.60	31.00	36.40
14 x 12		25.40	29.50	33.60	49.80		60.50
14 x 10		23.60	27.40	31.20	46.10		51.60
14 x 8		23.80	25.60	28.90	42.20		47.70
14 x 6		20.20	23.60	26.80	39.10		46.30
16 x 14		33.00	41.10	41.10	67.70		121.00
16 x 12		29.60	39.20	39.20	65.00		116.00
16 x 10		27.80	36.80	36.80	60.80		108.00
16 x 8		26.20	34.50	34.50	56.60		99.90
18 x 16		37.80	56.20	50.10	91.40		165.00
18 x 14		35.70	53.00	47.40	86.40		155.00
18 x 12		33.50	51.70	44.00	83.00		149.00
18 x 10		32.70	48.40	43.20	78.50		140.00
20 x 18		56.40	88.40	74.90	150.00		
20 x 16		53.50	83.90	71.10	142.00		
20 x 14		50.80	79.60	67.40	136.00		233.00
20 x 12		49.20	76.90	65.10	130.00		
22 x 20		65.40	98.00	82.90	181.00		
22 x 18		64.60	93.20	78.90	172.00		
22 x 16		56.40	88.40	74.80	164.00		
22 x 14		54.30	83.60	72.10	156.00		
24 x 22		68.40	124.00	91.00	215.00		
24 x 20		65.70	119.00	87.30	206.00		
24 x 18		63.00	114.00	83.80	197.00		
24 x 16		60.50	109.00	80.30	188.00		
26 x 24		89.40	162.00	119.00			
26 x 22		85.80	155.00	114.00			
26 x 20		82.10	148.00	109.00			
26 x 18		79.50	142.00	106.00			
28 x 26		96.60	175.00	129.00			
28 x 24		93.00	168.00	124.00			
28 x 22		89.40	162.00	119.00			
28 x 20		86.80	155.00	115.00			
30 x 28		104.00	188.00	138.00			
30 x 26		100.00	182.00	133.00			
30 x 24		96.60	175.00	129.00			
30 x 22		94.20	168.00	125.00			
32 x 30		111.00	202.00	148.00			
32 x 28		108.00	195.00	143.00			
32 x 26		104.00	188.00	138.00			
32 x 24		102.00	184.00	135.00			
34 x 32		118.00	215.00	158.00			
34 x 30		115.00	208.00	153.00			
34 x 28		111.00	205.00	148.00			
34 x 26		109.00	200.00	145.00			
36 x 34		125.60	250.00	167.30			
36 x 32		122.30	243.00	162.40			
36 x 30		118.40	238.00	157.60			
36 x 28		114.70	234.00	152.80			

COMPOSICIÓN QUÍMICA (MÁXIMO)														
MATERIAL	C	Mn	P	S	Si	Cr	Mo	Ni	Cu	V	Co	Ti	Al	CEDENZA MÁXIMA
ASTM A-234 WPB	0.300	0.25-1.06	0.050	0.030	0.00 MN	0.400	0.050	0.400	0.400	0.050	0.050			
ASTM A-234 WPC	0.350	0.25-1.06	0.050	0.030	0.00 MN	0.400	0.050	0.400	0.400	0.050	0.050			
ASTM A-450 WPB	0.300	0.60-1.35	0.035	0.040	0.03-0.30	0.300	0.020	0.400	0.400	0.050	0.050			
ASTM A-680 WPB-Y-52	0.200	1.05-1.45	0.030	0.030	0.05-0.40	0.300	0.250	0.500	0.350	0.000	0.040	0.050	0.060	0.42
MSS WPB-S24005/70	0.300	1.000	0.050	0.040	0.500	0.250	0.250	1.000	1.100	0.200	0.100			0.45

### REDUCTOR CONCÉNTRICO Y REDUCTOR EXCÉNTRICO

**DIÁMETRO  
NOMINAL**

**PESO APROXIMADO KG/PZA**

in	CÉDULA STD	CÉDULA 40	CÉDULA XS	CÉDULA 80	CÉDULA XXS	CÉDULA 160
40 x 38	140.00		187.00			
40 x 36	137.00		182.00			
40 x 34	133.00		177.00			
40 x 32	131.00		174.00			
42 x 40	147.00		196.00			
42 x 38	144.00		192.00			
42 x 36	140.00		187.00			
42 x 34	138.00		184.00			
44 x 42	155.00		206.00			
44 x 40	151.00		201.00			
44 x 38	147.00		196.00			
44 x 36	146.00		194.00			
46 x 44	189.00		252.00			
46 x 42	185.00		246.00			
46 x 40	180.00		241.00			
46 x 38	178.00		237.00			
48 x 46	197.00		263.00			
48 x 44	193.00		257.00			
48 x 42	189.00		252.00			
48 x 40	186.00		248.00			

PROPIEDADES MECÁNICAS						
MATERIAL	TENSIÓN Ksi (Mpa)	CEDENCIA Ksi (Mpa)	ELONGACIÓN RECT. %	NOTCH TGH AVG/MIN FT-LB (J)	PRUEBA DE IMPACTO F (°C)	ISIAMIENTO TÉCNICO
ASTM A-234 WPB	80-85 (415-585)	35 (240)	30	N/A	N/A	N/A**
ASTM A-234 WPC	70-95 (485-655)	40 (275)				
ASTM A-420 WPL6	60-85 (415-585)	35 (240)	30	13/10 (17 B/13 B)	-50 (-46)	Se requiere
ASTM A-860 WPHY-52	66 (455)	52 (360)		30/25 (40/34)		
MSS WPHY-52	66	52	25	20	+20 °F	Se requiere
MSS WPHY-60	75	60	20	20	+20 °F	Se requiere
MSS WPHY-65	77	65	20	20	+20 °F	Se requiere
MSS WPHY-70	82	70	18	20	+20 °F	Se requiere

**TEE RECTA Y TEE REDUCIDA**

DIÁMETRO NOMINAL In	PESO APROXIMADO KG/PZA					
	CÉDULA STD	CÉDULA 40	CÉDULA XS	CÉDULA 80	CÉDULA XXS	CÉDULA 160
3/8 x 3/8	0.13	0.13	0.15	0.15	0.23	0.17
3/8 x 1/2	0.18	0.18	0.23	0.23	0.35	0.29
3/8 x 3/4	0.17	0.17	0.22	0.22	0.33	0.26
1 x 1	0.34	0.34	0.44	0.44	0.77	0.59
1 x 3/4	0.33	0.33	0.40	0.40	0.67	0.51
1 x 1/2	0.32	0.32	0.39	0.39	0.64	0.50
1 1/2 x 1 1/2	0.59	0.59	0.77	0.77	1.29	0.94
1 1/2 x 1	0.55	0.55	0.72	0.72	1.21	0.89
1 1/2 x 3/4	0.51	0.51	0.65	0.65	1.14	0.85
1 1/2 x 1/2	0.49	0.49	0.64	0.64	1.10	0.80
1 1/2 x 1 1/4	0.83	0.83	1.10	1.10	1.91	1.46
1 1/2 x 1 1/2	0.80	0.80	1.06	1.06	1.84	1.38
1 1/2 x 1	0.77	0.77	1.00	1.00	1.74	1.32
1 1/2 x 3/4	0.73	0.73	0.95	0.95	1.65	1.25
1 1/2 x 1/2	0.69	0.69	0.91	0.91	1.59	1.23
2 x 2	1.20	1.20	1.64	1.64	2.94	2.43
2 x 1 1/2	1.12	1.12	1.51	1.51	2.73	2.22
2 x 1 1/4	1.08	1.08	1.46	1.46	2.60	2.13
2 x 1	1.03	1.03	1.38	1.38	2.47	2.04
2 x 3/4	0.97	0.97	1.34	1.34	2.40	1.96
2 1/2 x 2 1/2	2.38	2.38	3.10	3.10	5.34	3.90
2 1/2 x 2	2.13	2.13	2.81	2.81	4.85	3.60
2 1/2 x 1 1/2	2.00	2.00	2.69	2.69	4.63	3.38
2 1/2 x 1 1/4	2.02	2.02	2.64	2.64	4.53	3.30
2 1/2 x 1	1.86	1.86	2.45	2.45	4.39	3.22
3 x 3	3.29	3.29	4.43	4.43	8.04	6.20
3 x 2 1/2	3.12	3.12	4.18	4.18	7.54	5.77
3 x 2	2.89	2.89	3.89	3.89	7.06	5.48
3 x 1 1/2	2.81	2.81	3.78	3.78	6.68	5.27
3 x 1 1/4	2.76	2.76	3.73	3.73	6.75	5.18
4 x 4	5.62	5.62	7.86	7.86	14.45	11.59
4 x 3	5.22	5.22	7.26	7.26	13.50	10.79
4 x 2 1/2	5.06	5.06	7.02	7.02	12.80	10.50
4 x 2	4.81	4.81	6.73	6.73	12.29	10.00
4 x 1 1/2	4.75	4.75	6.58	6.58	12.08	9.85
5 x 5	8.92	8.92	12.54	12.54	23.58	20.17
5 x 4	8.36	8.36	11.76	11.76	21.94	18.67
5 x 3	7.95	7.95	11.16	11.16	20.85	17.72
5 x 2 1/2	7.79	7.79	10.92	10.92	20.45	17.45
5 x 2	7.61	7.61	10.79	10.79	20.03	17.04
6 x 6	13.06	13.06	19.76	19.76	37.07	31.76
6 x 5	12.38	12.38	18.53	18.53	34.89	29.85





TEE RECTA Y TEE REDUCIDA

DIÁMETRO  
NOMINAL  
in

PESO APROXIMADO Kg/PZA

	CÉDULA STD	CÉDULA 40	CÉDULA X5	CÉDULA 80	CÉDULA X05	CÉDULA 160
6 x 4	11.82	11.82	17.72	17.72	33.99	28.35
6 x 3	11.43	11.43	17.17	17.17	32.30	27.40
6 x 2½	11.40	11.40	17.04	17.04	31.76	26.98
8 x 8	24.40	24.40	36.90	36.90	62.29	64.53
8 x 6	22.63	22.63	34.35	34.35	58.60	59.29
8 x 5	21.95	21.95	33.12	33.12	56.43	57.38
8 x 4	21.40	21.40	32.50	32.50	55.08	54.91
10 x 10	41.44	41.44	65.88	65.79	102.95	113.94
10 x 8	38.85	22.36	55.02	62.42	74.15	110.95
10 x 6	37.07	21.95	50.43	58.83	97.45	106.99
10 x 5	36.53	21.40	49.34	58.75	95.41	104.95
10 x 4	36.53	41.44	49.34	57.93	93.91	103.99
12 x 12	59.43	66.38	76.75	107.95	154.01	194.90
12 x 10	56.70	61.75	75.24	107.95	145.84	184.60
12 x 8	54.11	57.63	72.58	97.52	139.03	174.46
12 x 6	52.34	57.25	69.79	94.73	136.30	170.38
12 x 5	52.75	56.84	69.79	93.64	133.98	169.01
14 x 14	72.92	85.05	96.63	141.75	253.52	253.52
14 x 12	70.74	82.06	93.77	136.50	243.98	243.98
14 x 10	68.02	78.51	90.37	130.71	237.16	237.16
14 x 8	65.70	76.06	89.91	126.82	228.88	228.88
14 x 6	64.20	74.28	85.32	124.03	223.53	223.53
16 x 16	90.10	119.94	118.58	197.54	354.38	354.38
16 x 14	88.46	117.22	117.35	190.82	347.57	347.57
16 x 12	86.00	114.50	115.95	285.97	338.02	338.02
16 x 10	83.55	111.77	110.68	179.92	328.48	328.48
18 x 8	81.50	107.68	109.04	175.83	320.30	320.30
18 x 10	114.56	170.58	151.30	278.06	482.73	482.73
18 x 12	113.95	164.93	147.71	263.52	471.78	471.78
18 x 14	109.32	162.20	144.48	264.43	468.88	468.88
18 x 12	106.73	159.47	147.76	257.61	459.33	459.33
18 x 10	104.82	155.99	139.03	253.52	448.43	448.43
20 x 20	141.75	221.70	188.10	377.56	684.23	684.23
20 x 18	137.67	215.36	182.65	365.29	665.15	665.15
20 x 16	134.12	209.91	178.56	357.11	647.43	647.43
20 x 14	132.69	201.18	175.83	351.66	639.25	639.25
20 x 12	130.58	204.45	173.11	346.21	629.71	629.71
20 x 10	128.13	200.36	170.38	340.25	616.08	616.08
22 x 22	171.14	197.64	227.62	497.50	895.50	895.50
22 x 20	167.65	209.88	222.17	485.23	872.12	872.12
22 x 18	163.56	203.06	216.72	472.97	850.52	850.52
22 x 16	469.47	256.25	272.63	463.42	311.41	311.41
24 x 24	159.00	252.00	185.00			
24 x 22	158.00	249.00	183.00			
24 x 20	156.00	247.00	181.00			
24 x 18	153.00	241.00	177.00			
26 x 26	176.00	319.00	234.00			
26 x 24	172.00	312.00	229.00			
26 x 22	169.00	308.00	225.00			
26 x 20	166.00	302.00	221.00			
28 x 28	198.00	358.00	264.00			
28 x 26	197.00	356.00	261.00			
28 x 24	193.00	350.00	256.00			
28 x 22	190.00	347.00	252.00			

TEE RECTA Y TEE REDUCIDA

DIÁMETRO NOMINAL n	PESO APROXIMADO KG/PZA					
	CÉDULA STD	CÉDULA 40	CÉDULA XS	CÉDULA 60	CÉDULA XS	CÉDULA 80
30 x 30	228.00	414.00	304.00			
30 x 28	226.00	406.00	301.00			
30 x 26	222.00	356.00	296.00			
30 x 24	218.00	350.00	291.00			
32 x 32	259.00	474.00	347.00			
32 x 30	256.00	466.00	341.00			
32 x 28	252.00	468.00	335.00			
32 x 26	250.00	455.00	333.00			
34 x 34	295.00	535.00	393.00			
34 x 32	292.00	526.00	389.00			
34 x 30	290.00	518.00	380.00			
34 x 28	288.00	511.00	377.00			
36 x 36	331.00	656.00	441.00			
36 x 34	328.00	645.00	434.00			
36 x 32	324.00	636.00	431.00			
36 x 30	323.00	627.00	427.00			
38 x 38	370.00	743.00	493.00			
38 x 36	367.00	740.00	489.00			
38 x 34	362.00	741.00	481.00			
38 x 32	357.00	746.00	476.00			
40 x 40	411.00	847.00	547.00			
40 x 38	408.00	843.00	543.00			
40 x 36	402.00	836.00	536.00			
40 x 34	397.00	829.00	529.00			
42 x 42	427.00	862.00	562.00			
42 x 40	420.00	859.00	559.00			
42 x 38	418.00	857.00	557.00			
42 x 36	415.00	854.00	554.00			
44 x 44	475.00	933.00	633.00			
44 x 42	473.00	930.00	630.00			
44 x 40	467.00	923.00	623.00			
44 x 38	462.00	916.00	616.00			
46 x 46	521.00	995.00	695.00			
46 x 44	519.00	991.00	691.00			
46 x 42	513.00	983.00	683.00			
46 x 40	507.00	978.00	678.00			
48 x 48	569.00	1055.00	755.00			
48 x 46	565.00	1051.00	751.00			
48 x 44	564.00	1049.00	749.00			
48 x 42	555.00					

COMPOSICIÓN QUÍMICA MÁXIMO

MATERIAL	C	Mn	P	S	Si	Cr	Mo	Ni	Cu	V	Co	Ti	Al	CEDENZA MÁXIMA
ASTM A-234 WP8	0.300	0.29-1.06	0.050	0.058	0.00 MN	0.800	0.250	0.400	0.400	0.080	0.080			
ASTM A-234 WPC	0.350	0.29-1.06	0.050	0.058	0.00 MN	0.800	0.250	0.400	0.400	0.080	0.080			
ASTM A-182 WP1B	0.300	0.60-1.35	0.030	0.040	0.03-0.30	0.300	0.220	0.400	0.400	0.050	0.030			
ASTM A-182 WP1B-32	0.200	1.01-1.45	0.030	0.030	0.05-0.40	0.300	0.220	0.500	0.350	0.300	0.040	0.050	0.050	0.41
MSL WP1B-32/100/50/70	0.300	1.000	0.050	0.060	0.000	0.250	0.250	1.000	1.000	0.500	0.000			0.45

PROPIEDADES MECÁNICAS

MATERIAL	TENSIÓN Kil (Mpa)	CEDENCIA Kil (Mpa)	ELONGACIÓN RECT. %E	NOTCH TGH AVG/MIN FT-LB (J)	PRUEBA DE IMPACTO F (°C)	TRATAMIENTO TÉCNICO
ASTM A-234 WPB	60-85 (415-585)	35 (240)	30	N/A	N/A	N/A**
ASTM A-234 WPC	70-95 (485-655)	40 (275)	30	N/A	N/A	N/A**
ASTM A-420 WPL6	60-85 (415-585)	35 (240)	30	13/10 (17.6/13.6)	-50 (-46)	Se requiere
ASTM A-990 WPHY-52	66 (455)	52 (360)	32	30/25 (40/34)	-50 (-46)	Se requiere
MSS WPHY-52	66	52	25	20	+20 °F	Se requiere
MSS WPHY-60	75	60	20	20	+20 °F	Se requiere
MSS WPHY-65	77	65	20	20	+20 °F	Se requiere
MSS WPHY-70	82	70	18	20	+20 °F	Se requiere



### CODO 90° RADIO LARGO

DIÁMETRO  
NOMINAL

PESO APROXIMADO KG/PZA

in	CÉDULA STD	CÉDULA 40	CÉDULA XS	CÉDULA 80	CÉDULA XXS	CÉDULA 160
1/2	0.08	0.08	0.1	0.1	0.15	0.12
3/4	0.11	0.11	0.14	0.14	0.22	0.13
1	0.16	0.16	0.20	0.20	0.36	0.25
1 1/4	0.26	0.26	0.35	0.35	0.64	0.42
1 1/2	0.37	0.37	0.50	0.50	0.93	0.65
2	0.66	0.66	0.90	0.90	1.69	1.33
2 1/2	1.29	1.29	1.79	1.79	3.43	2.53
3	2.04	2.04	2.74	2.74	2.25	3.83
4	3.84	3.84	5.36	5.36	10.20	8.02
5	6.48	6.48	9.13	9.13	17.60	14.70
6	9.94	9.94	15.00	15.00	29.10	24.20
8	20.10	20.10	30.50	30.50	51.40	53.20
10	35.4	35.4	57.0	57.0	92.8	103.0
12	52.0	57.0	68.7	94.0	134.0	171.0
14	67.9	79.1	89.9	133.0		236.0
16	89.0	118.0	118.0	195.0		350.0
18	113.0	169.0	150.0	275.0		495.0
20	140.0	220.0	180.0	373.0		676.0
22	169.0	267.0	225.0	493.0		886.0
24	202.0	366.0	268.0	636.0		1160.0
26	237.0	430.0	315.0			
28	276.0	500.0	367.0			
30	316.0	575.0	421.0			
32	361.0	654.0	480.0			
34	408.0	739.0	543.0			
36	457.0	904.0	608.0			
38	510.0		679.0			
40	565.0		753.0			
42	622.0		828.0			
44	684.0		912.0			
46	748.0		997.0			
48	814.0		1085.0			

CODO 90° RADIO CORTO

DIÁMETRO  
NOMINAL

PESO APROXIMADO KG/PZA

in	CÉDULA STD	CÉDULA 40	CÉDULA xS	CÉDULA 80	CÉDULA xxS	CÉDULA 180
1/8						
3/8						
1	0.11	0.11	0.14	0.14	0.22	0.17
1 1/4	0.18	0.18	0.23	0.23	0.39	0.28
1 1/2	0.25	0.25	0.33	0.33	0.57	0.43
2	0.44	0.44	0.60	0.60	1.13	0.89
2 1/2	0.91	0.91	1.19	1.19	2.19	1.46
3	1.36	1.36	1.83	1.83	3.49	2.53
4	2.56	2.56	3.58	3.58	6.79	5.35
5	4.32	4.32	6.09	6.09	11.80	9.79
6	6.63	6.63	10.00	10.00	19.50	16.20
8	13.40	13.40	20.30	20.30	34.30	35.50
10	23.6	23.6	31.8	38.0	61.0	68.6
12	34.6	38.0	45.8	63.0	89.5	114.0
14	45.3	53.0	68.0	89.0		158.0
16	59.1	79.0	78.3	130.0		234.0
18	75.3	113.0	99.9	183.0		330.0
20	93.1	147.0	124.0	249.0		451.0
22	113.0	178.0	150.0	329.0		591.0
24	135.0	244.0	179.0	424.0		773.0
26	158.0	287.0		210.0		
28	184.0	334.0		245.0		
30	211.0	383.0		281.0		
32	241.0	436.0		320.0		
34	272.0	493.0		362.0		
36	304.0	603.0		405.0		
38	340.0			453.0		
40	377.0			502.0		
42	416.0			554.0		
44	456.0			608.0		
46	499.0			665.0		
48	543.0			724.0		

**CODO 45°**

DIÁMETRO NOMINAL	PESO APROXIMADO KG/PZA						
	in	CÉDULA STD	CÉDULA 40	CÉDULA X5	CÉDULA 80	CÉDULA XXS	CÉDULA 180
1/8	0.04	0.04	0.05	0.05			
1/4	0.06	0.06	0.07	0.07			
1	0.08	0.08	0.10	0.10	0.18	0.13	
1 1/4	0.13	0.13	0.18	0.18	0.32	0.21	
1 1/2	0.19	0.19	0.25	0.25	0.47	0.33	
2	0.33	0.33	0.45	0.45	0.85	0.67	
2 1/2	0.69	0.69	0.90	0.90	1.2	1.17	
3	1.02	1.02	1.37	1.37	2.63	1.92	
4	1.92	1.92	2.68	2.68	5.09	4.01	
5	3.24	3.24	4.57	4.57	8.80	7.35	
6	4.97	4.97	7.50	7.50	14.55	12.10	
8	10.10	10.10	15.30	15.30	25.70	26.6	
10	17.70	17.70	23.90	25.50	46.40	51.5	
12	26.00	28.50	34.40	47.00	67.00	85.5	
14	34.00	40.10	45.00	66.50		118.0	
16	44.5	59.0	59.00	97.5		118.0	
18	56.5	84.5	75.5	138.0		118.0	
20	70.0	110.0	93.0	187.0		118.0	
22	84.5		113.0	257.0		118.0	
24	101.0	183.0	134.0	318.0		118.0	
26	119.0		158.0			118.0	
28	138.0		184.0			118.0	
30	158.0		211.0			118.0	
32	180.0	327.0	240.0			118.0	
34	204.0		272.0			118.0	

MATERIAL	COMPOSICIÓN QUÍMICA %MÁXIMO													CEDENCIA MÁXIMA
	C	Mn	P	S	Si	Cr	Mo	Ni	Cu	V	Cb	Ti	Al	
ASTM A-234 WPB	0.300	0.29-1.06	0.050	0.058	0.030 MIN	0.400	0.150	0.400	0.400	0.080	0.020			
ASTM A-234 WPC	0.350	0.29-1.08	0.050	0.058	0.030 MIN	0.400	0.150	0.400	0.400	0.080	0.020			
ASTM A-420 WPLB	0.300	0.60-1.35	0.035	0.040	0.19-0.30	0.300	0.320	0.400	0.400	0.050	0.020			
ASTM A-860 WPHY-S2	0.200	1.01-1.45	0.030	0.030	0.15-0.40	0.300	0.250	0.500	0.350	0.100	0.040	0.050	0.060	0.42
MSS WPHY-S2/60/65/70	0.300	1.000	0.050	0.060	0.500	0.250	0.250	1.000	1.500	0.130	0.100			0.45

PROPIEDADES MECÁNICAS

MATERIAL	TENSIÓN Ksi (Mpa)	CEDENCIA Ksi (Mpa)	ELONGACIÓN RECT. %	NOTCH TGH AVG/MIN FT-LB (J)	PRUEBA DE IMPACTO F (°C)	TRATAMIENTO TÉCNICO
ASTM A-234 WPB	60-85 (415-585)	35 (240)	30	N/A	N/A	N/A**
ASTM A-234 WPC	70-95 (485-655)	40 (275)	30	N/A	N/A	N/A**
ASTM A-420 WPLB	60-85 (415-585)	35 (240)	30	13/10 (17.6/13.6)	-50 (-40)	Se requiere
ASTM A-860 WPHY-52	66 (455)	52 (360)	32	30/25 (40/34)	-50 (-40)	Se requiere
MSS WPHY-52	66	52	25	20	+20 F	Se requiere
MSS WPHY-60	75	60	20	20	+20 F	Se requiere
MSS WPHY-65	77	65	20	20	+20 F	Se requiere
MSS WPHY-70	82	70	18	20	+20 F	Se requiere



Tubería Cédula 10, 40 y 80  
Tipo T 304/L y T316/L



DIAMETRO NOMINAL PIPE SIZE	DIAMETRO EXTERIOR OUT SIDE	CEBULAS / SCHEDULE 5															
		DIAMETRO INT.		5 S	5	10 S	10	20	30	40 S S10	40	60	80 S FH	80	120	160	XXS
		in/ft.	in/ft.														
1/8	0.405		0.035	0.049	0.049				0.068	0.068		0.095	0.095				
1/4			0.2	0.27	0.27				0.36	0.36		0.46	0.46				
3/8	0.54		0.049	0.065	0.065				0.088	0.088		0.119	0.119				
1/2			0.38	0.48	0.48				0.62	0.62		0.79	0.79				
4567	0.675		0.049	0.065	0.065				0.091	0.091		0.125	0.125				
			0.48	0.62	0.62				0.84	0.84		1.09	1.09				
45323	0.84	0.065	0.065	0.083	0.083				0.109	0.109		0.147	0.147		0.188	0.294	
			0.79	0.79	0.99	0.99			1.25	1.25		1.61	1.61		1.93	2.53	
45385	1.05	0.065	0.065	0.083	0.083				0.113	0.113		0.154	0.154		0.219	0.308	
			1.01	1.01	1.26	1.26			1.67	1.67		2.18	2.18		2.87	3.61	
1	1.315	0.065	0.065	0.109	0.109				0.143	0.143		0.179	0.179		0.25	0.359	
			1.28	1.28	2.07	2.07			2.48	2.48		3.21	3.21		4.2	5.41	
1 1/4	1.66	0.065	0.065	0.109	0.109				0.14	0.14		0.191	0.191		0.25	0.382	
			1.63	1.63	2.67	2.67			3.36	3.36		4.43	4.43		5.57	7.17	
1 1/2	1.9	0.065	0.065	0.109	0.109				0.145	0.145		0.2	0.2		0.281	0.4	
			1.88	1.88	3.08	3.08			4.02	4.02		5.37	5.37		7.19	9.48	
2	2.3375	0.065	0.065	0.109	0.109				0.154	0.154		0.208	0.208		0.344	0.436	
			2.37	2.37	3.9	3.9			5.4	5.4		7.46	7.46		11.04	13.36	
2 1/2	2.875	0.083	0.083	0.12	0.12				0.203	0.203		0.276	0.276		0.375	0.552	
			3.66	3.66	5.22	5.22			8.57	8.57		11.33	11.33		14.81	20.26	
3	3.5	0.083	0.083	0.12	0.12				0.216	0.216		0.3	0.3		0.438	0.6	
			4.48	4.48	6.41	6.41			11.21	11.21		15.17	15.17		21.9	27.49	
3 1/2	4	0.083	0.083	0.12	0.12				0.226	0.226		0.318	0.318		0.446	0.636	
			5.13	5.13	7.36	7.36			13.48	13.48		18.51	18.51		26.1	33.81	
4	4.5	0.083	0.083	0.12	0.12				0.203	0.237	0.281	0.337	0.337	0.438	0.531	0.674	
			5.79	5.79	8.3	8.3			15.96	15.96	18.73	22.17	22.17	28.12	33.31	40.75	
4 1/2	5		0.247	0.247					0.355	0.355		0.71	0.71		0.71	0.71	
			0.109	0.109	0.134	0.134	0.203		18.55			26.06			48.14		
5	5.563		9.39	9.39	11.49	11.49	17.19		0.258	0.258		0.375	0.375	0.5	0.625	0.75	
			0.109	0.109	0.134	0.134	0.203		21.63	21.63		30.75	30.75	40.01	48.78	57.05	
6	6.625		11.22	11.22	13.74	13.74	20.6		0.28	0.28		0.432	0.432	0.563	0.719	0.864	
									28.07	28.07		42.28	42.28	53.94	67.1	78.67	
7	7.625								0.301			0.5			0.875		
			0.109	0.109	0.148	0.148	0.25	0.277	34.83			56.31			93.35		
8	8.625		14.67	14.67	19.83	19.83	33.09	36.55	0.258	0.322	0.406	0.5	0.5	0.719	0.906	0.875	
									42.25	42.25	52.74	64.21	64.21	89.85	110.5	107.2	
9	9.625								0.342			0.5					
			0.134	0.134	0.165	0.165	0.25	0.307	50.18	0.365	0.5	77.12	0.594	0.844	1.125	1	
10	10.75		22.48	22.48	27.6	27.6	41.49	50.67	59.91	59.91	81.01	81.01	95.35	132.1	23.14	154.1	
									0.375			0.5					
11	11.75								67.42			88.91					
			0.156	0.165	0.18	0.18	0.25	0.33	0.375	0.406	0.563	0.5	0.688	1	1.313	1	
12	12.75		31.05	32.82	35.75	35.75	49.4	64.77	73.34	79.2	108.5	96.82	131.2	185.7	237.4		
			0.156		0.188	0.25	0.313	0.375	0.375	0.5	0.656	122.5	0.844	1.219	1.594		
16	16		41.29		46.99	62.23	77.61	92.61	92.61	122.2	159.1	202.2	202.2	284.8	363		
			0.165		0.188	0.25	0.313	0.438	0.375	0.563	0.75	0.5	0.938	1.375	1.781		
18	18		46.5		52.09	70.13	87.49	121.6	104.5	155.2	204.5	138.3	253	361.3	456.6		
			0.188		0.29	0.25	0.25	0.375	0.563	0.75	0.688	0.969	0.5	1.219	1.81	2.344	
20	20		82.31		93.84	93.84	140	208.6	140	253.5	352.8	185.7	438.9	635.8	802.4		
			0.219		0.25	0.25	0.375	0.563	0.375	0.688	0.969	0.5	1.218	1.813	2.344		
24	24		82.31		93.84	93.84	140	208.6	140	253.5	352.8	185.7	438.9	635.8	802.4		
			0.25		0.313	0.313	0.5	0.625	0.375			0.5					
30	30		117.6		146.9	146.9	233.1	290.2	290.2	425.6	575.6	233.1					
			0.25		0.313			0.625	0.375	0.75		0.5					
36	36		141.3		176.6							280.6					
			0.25		0.313				0.375			0.5					
42	42		164.9		206.2				246.7			328					

Números superiores ESPESOR en pulgadas/ Top figures WALL THICKNESS in inches

Números inferiores PESO en kilogramos por metro cúbico / Bottom figures WEIGHT per meters in kg

# Bridas inoxidables 150lbs y 300 lbs



150 LB.								
Nom. Pipe size	O	C2	Y2			BOLT CIRCLE	No. and size of holes	
			WELD NECK	SLIP ON THRD.	LAP JOINT			
1/2	3 1/2	1/16	1 7/8	3/8	3/8	2 3/8	4 - 5/8	
3/4	3 7/8	1/2	2 1/16	3/8	2 3/4	2 3/8	4 - 5/8	
1	4 1/4	9/16	2 1/16	11/16	11/16	3 1/8	4 - 5/8	
1 2/4	4 5/8	1/8	2 1/4	13/16	13/16	3 1/2	4 - 5/8	
1 1/2	5	11/16	2 3/16	7/8	7/8	3 1/8	4 - 5/8	
2	6	3/4	2 1/2	1	1	4 3/4	4 - 3/4	
2 1/2	7	7/8	2 3/4	1 1/8	1 1/8	5 1/2	4 - 3/4	
3	7 1/2	15/16	2 3/4	1 3/16	1 3/16	6	4 - 3/4	
3 1/2	8 1/2	15/16	2 11/16	1 1/4	1 1/4	7	8 - 3/4	
4	9	15/17	3	1 5/16	1 5/16	x	8 - 3/4	
5	10	15/18	3 1/2	1 7/16	1 7/16	8 1/2	8 - 3/4	
6	11	1	4 1/2	1 6/16	1 6/16	9 1/2	8 - 7/8	
8	13 1/2	1 1/4	1/2	1 3/4	1 3/4	11 3/4	8 - 7/8	
10	16	1 3/16	1/2	1 15/16	1 5/16	14 1/4	8 - 7/8	
12	19	1 1/4	4 1/2	2 3/16	2 3/16	17	8 - 7/8	
14	21	1 3/8	5	2 1/4	1 1/8	18 3/4	8 - 7/8	
16	23 1/2	1 7/16	5	2 1/2	3 7/16	21 1/4	8 - 7/8	
18	25	1 3/14	5 1/2	2 11/16	3 3/16	22 3/4	8 - 7/8	
20	27 1/2	1 11/16	5 11/16	2 7/8	4 1/16	25	8 - 7/8	
24	32	1 7/8	6	3 1/4	4 3/8	29 1/2	8 - 7/8	

300 LB.							
Nom. Pipe size	O	C2	Y2			BOLT CIRCLE	No. and size of holes
			WELD NECK	SLIP ON THRD.	LAP JOINT		
1/2	3 3/4	3 3/4	2 1/16	7/8	7/8	2 5/8	4-5/8
3/4	4 5/8	5/8	2 1/4	1	1	3 1/4	4-3/4
1	4 7/8	11/16	2 7/16	1 1/16	1 1/16	3 1/2	4-3/4
1 2/4	5 1/4	3/4	2 6/16	1 1/16	1 1/16	3 7/8	4-3/4
1 1/2	6 1/8	11/16	2 11/14	1 1/16	1 1/16	4 1/2	4-3/4
2	6 1/2	1 1/4	2 3/4	1 3/16	1 3/16	5	4-7/8
2 1/2	7 1/2	1	3	1 1/2	1 1/2	5 7/8	4-7/8
3	8 1/4	1 7/16	3 1/4	1 1/16	1 1/16	6 5/8	8-7/8
3 1/2	9	1 3/16	3 1/16	1 3/8	1 3/8	7 1/4	8-7/8
4	10	1 1/4	3 1/8	1 7/8	1 7/8	7 7/8	8-7/8
5	11	1 3/8	3 7/8	2	2	2	8-7/8
6	12 1/2	1 7/16	3 1/8	2 1/16	2 1/16	2 1/16	12-7/8
8	15	1 5/8	4 3/8	2 1/16	2 1/16	13	12-1
10	17 1/2	1 7/8	4 3/8	2 5/8	3 3/4	15 1/4	16 - 1 1/8
12	20 1/2	2	5 1/8	2 7/8	4	17 3/4	16 - 1 1/4
14	23	2 1/8	5 5/8	3	4 3/8	20 1/4	20 - 1 1/4
16	25 1/2	2 1/4	5 3/4	3 1/4	4 3/4	22 1/2	20 - 1 3/8
18	28	2 1/4	6 1/4	3 1/2	5 1/2	24 3/4	24 - 1 3/8
20	30 1/2	2 1/2	6 3/4	3 3/4	5 1/2	27	24 - 1 3/8
24	36	2 3/4	6 3/8	4 1/16	6	32	24 - 1 3/8

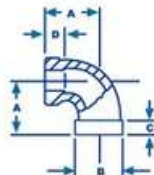
# Conexion en hierro maleable y galvanizado 150 lbs



## Codo de 90° REF

*90° elbows, banded*

**150 lbs.  
Hierro maleable**



MEDIDA	A	B	C	D
1/8"	0.690	0.690	0.208	0.250
1/4"	0.810	0.840	0.210	0.320
3/8"	0.950	1.010	0.230	0.360
1/2"	1.120	1.200	0.250	0.430
3/4"	1.310	1.460	0.270	0.500
1"	1.500	1.770	0.300	0.580
1 1/4"	1.750	2.150	0.340	0.670
1 1/2"	1.950	2.430	0.370	0.700
2"	2.250	2.960	0.420	0.750
2 1/2"	2.700	3.590	0.480	0.920
3"	3.080	4.280	0.550	0.980
4"	3.790	5.400	0.660	1.080
6"	5.130	7.770	0.900	1.280

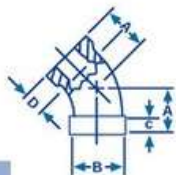


## Codo de 45° REF

45° elbows, banded

150 lbs.

Hierro maleable



MEDIDA	A	B	C	D
1/4"	0.730	0.840	0.210	0.320
3/8"	0.800	1.010	0.230	0.360
1/2"	0.880	1.200	0.250	0.430
3/4"	0.980	1.460	0.270	0.500
1"	1.120	1.770	0.300	0.580
1 1/4"	1.290	2.150	0.340	0.670
1 1/2"	1.430	2.430	0.370	0.700
2"	1.680	2.960	0.420	0.750
2 1/2"	1.950	3.590	0.480	0.920
3"	2.170	4.280	0.550	0.980
4"	2.610	5.400	0.660	1.080

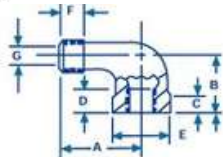


## Codo niple 90°

90° street elbows

150 lbs.

Hierro maleable



MEDIDA	A	B	C	D	E	F	G
1/4"	1.190	0.810	0.210	0.320	0.840	0.400	0.260
3/8"	1.440	0.950	0.230	0.360	1.010	0.410	0.370
1/2"	1.630	1.120	0.250	0.430	1.200	0.530	0.510
3/4"	1.890	1.310	0.270	0.500	1.460	0.550	0.690
1"	2.140	1.500	0.300	0.580	1.770	0.680	0.910
1 1/4"	2.450	1.750	0.340	0.670	2.150	0.710	1.190
1 1/2"	2.690	1.940	0.370	0.700	2.430	0.720	1.390
2"	3.260	2.250	0.420	0.750	2.960	0.760	1.790

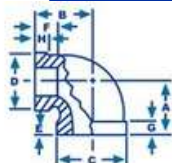


## Codo reducción de 90°

90° reducing elbows, banded

**150 lbs.**

**Hierro maleable**



MEDIDA	A	B	C	D	E	F	G	H
1/2 x 3/8"	1.040	1.030	1.200	1.010	0.430	0.360	0.250	0.230
3/4 x 1/2"	1.200	1.220	1.460	1.200	0.500	0.430	0.270	0.250
1 x 1/2"	1.260	1.360	1.770	1.200	0.580	0.430	0.300	0.250
1 x 3/4"	1.370	1.450	1.770	1.460	0.580	0.500	0.300	0.270
1 1/4 x 3/4"	1.450	1.620	2.150	1.460	0.670	0.500	0.340	0.270
1 1/4 x 1"	1.580	1.670	2.150	1.770	0.670	0.580	0.340	0.300
1 1/2 x 1"	1.650	1.800	2.430	1.770	0.700	0.580	0.370	0.300
1 1/2 x 1 1/4"	1.820	1.880	2.430	2.150	0.700	0.670	0.370	0.340
2 x 1 1/4"	1.900	2.100	2.960	2.150	0.750	0.670	0.420	0.340
2 x 1 1/2"	2.020	2.160	2.960	2.430	0.750	0.700	0.420	0.370

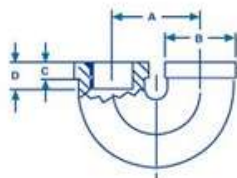


### Codo retorno

*Return bend open, banded*

**150 lbs.**

**Hierro maleable**



MEDIDA	A	B	C	D
1/2"	1.500	1.200	0.250	0.430
3/4"	2.000	1.460	0.270	0.500

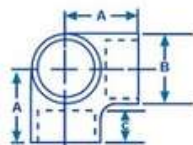


### Codo rincón

*Side outlet elbows, plain*

**150 lbs.**

**Hierro maleable**



MEDIDA	A	B	C
1/2"	1.10	1.000	0.43
3/4"	1.300	1.290	0.50
1"	1.500	1.520	0.58

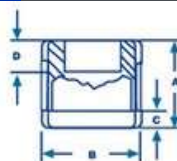


## Cople reforzado

*Couplings banded*

**150 lbs.**

**Hierro maleable**



MEDIDA	A	B	C	D
1/4"	1.060	0.840	0.210	0.320
3/8"	1.160	1.010	0.230	0.360
1/2"	1.340	1.200	0.250	0.430
3/4"	1.520	1.460	0.270	0.500
1"	1.670	1.770	0.300	0.580
1 1/4"	1.930	2.150	0.340	0.670
1 1/2"	2.180	2.430	0.370	0.700
2"	2.530	2.960	0.420	0.750
2 1/2"	2.680	3.590	0.480	0.920
3"	3.180	4.280	0.550	0.980
4"	3.690	5.400	0.660	1.080

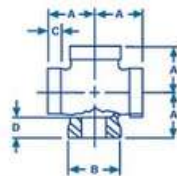


## Cruz reforzada

*Crosses banded*

**150 lbs.**

**Hierro maleable**



MEDIDA	A	B	C	D
1/2"	1.120	1.200	0.250	0.430
3/4"	1.310	1.460	0.270	0.500
1"	1.500	1.770	0.300	0.580
1 1/4"	1.750	2.150	0.340	0.670
1 1/2"	1.940	2.430	0.370	0.700
2"	2.250	2.960	0.420	0.750
2 1/2"	2.700	3.590	0.480	0.920
3"	3.080	4.280	0.550	0.980
4"	3.790	5.400	0.660	1.080



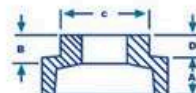
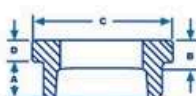


## Reducción bushing

Bushings

150 lbs.

Hierro maleable



MEDIDA	A	B	C	D
3/8 x 1/8"	0.480	0.250	0.680	0.160
3/8 x 1/4"	0.480	0.400	0.680	0.160
1/2 x 1/4"	0.560	0.320	0.870	0.190
1/2 x 3/8"	0.560	0.410	0.870	0.190
3/4 x 1/4"	0.630	0.320	1.150	0.220
3/4 x 3/8"	0.630	0.360	1.150	0.220
3/4 x 1/2"	0.630	0.530	1.150	0.220
1 x 1/4"	0.750	0.320	1.120	0.300
1 x 3/8"	0.750	0.360	1.120	0.300
1 x 1/2"	0.750	0.430	1.420	0.250
1 x 3/4"	0.750	0.500	1.420	0.250
1 1/4 x 1/2"	0.800	0.430	1.340	0.340
1 1/4 x 3/4"	0.800	0.500	1.760	0.280
1 1/4 x 1"	0.800	0.580	1.760	0.280
1 1/2 x 1/2"	0.830	0.430	1.340	0.370
1 1/2 x 3/4"	0.830	0.500	1.630	0.370
1 1/2 x 1"	0.830	0.580	2.000	0.310
1 1/2 x 1 1/4"	0.830	0.710	2.000	0.310
2 x 1/2"	0.880	0.430	1.340	0.410
2 x 3/4"	0.880	0.500	1.630	0.410
2 x 1"	0.880	0.580	1.950	0.410
2 x 1 1/4"	0.880	0.670	2.480	0.340
2 x 1 1/2"	0.880	0.700	2.480	0.340
2 1/2 x 1"	1.070	0.580	1.950	0.440
2 1/2 x 1 1/4"	1.070	0.670	2.390	0.440
2 1/2 x 1 1/2"	1.070	0.700	2.680	0.440
2 1/2 x 2"	1.070	0.750	2.980	0.370
3 x 1"	1.130	0.580	1.950	0.480
3 x 1 1/4"	1.130	0.670	2.390	0.480
3 x 1 1/2"	1.130	0.700	2.680	0.480
3 x 2"	1.130	0.750	3.280	0.480
3 x 2 1/2"	1.130	0.920	3.860	0.400
4 x 1"	1.220	0.580	1.950	0.600
4 x 1 1/4"	1.220	0.670	2.390	0.600
4 x 1 1/2"	1.220	0.700	2.680	0.600
4 x 2"	1.220	0.750	3.280	0.600
4 x 2 1/2"	1.220	0.920	3.860	0.600
4 x 3"	1.220	0.980	4.620	0.500
6 x 2"	1.400	0.750	3.280	0.750
6 x 2 1/2"	1.400	0.920	3.860	0.750
6 x 3"	1.400	0.980	4.620	0.750
6 x 4"	1.400	1.080	5.790	0.750

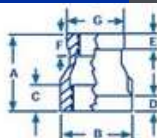


## Reducción Campana

Reducing Couplings

150 lbs.

Hierro maleable



TAMAÑO	A	B	C	D	E	F	G
3/8 x 1/4"	1.130	1.010	0.360	0.230	0.210	0.320	0.840
1/2 x 1/4"	1.250	1.200	0.430	0.250	0.210	0.320	0.840
1/2 x 3/8"	1.250	1.200	0.430	0.250	0.230	0.360	1.010
3/4 x 1/4"	1.440	1.460	0.500	0.270	0.210	0.320	0.840
3/4 x 3/8"	1.440	1.460	0.500	0.270	0.230	0.360	1.010
3/4 x 1/2"	1.440	1.460	0.500	0.270	0.250	0.430	1.200
1 x 1/4"	1.690	1.770	0.580	0.300	0.210	0.320	0.840
1 x 3/8"	1.690	1.770	0.580	0.300	0.230	0.360	1.010
1 x 1/2"	1.690	1.770	0.580	0.300	0.250	0.430	1.200
1 x 3/4"	1.690	1.770	0.580	0.300	0.270	0.500	1.460
1 1/4 x 1/2"	2.060	2.150	0.670	0.340	0.250	0.430	1.200
1 1/4 x 3/4"	2.060	2.150	0.670	0.340	0.270	0.500	1.460
1 1/4 x 1"	2.060	2.150	0.670	0.340	0.300	0.580	1.770
1 1/2 x 1/2"	2.310	2.430	0.700	0.370	0.250	0.430	1.200
1 1/2 x 3/4"	2.310	2.430	0.700	0.370	0.270	0.500	1.460
1 1/2 x 1"	2.310	2.430	0.700	0.370	0.300	0.580	1.770
1 1/2 x 1 1/4"	2.310	2.430	0.700	0.370	0.340	0.670	2.150
2 x 1/2"	2.810	2.960	0.750	0.420	0.250	0.430	1.200
2 x 3/4"	2.810	2.960	0.750	0.420	0.270	0.500	1.460
2 x 1"	2.810	2.960	0.750	0.420	0.300	0.580	1.770
2 x 1 1/4"	2.810	2.960	0.750	0.420	0.340	0.670	2.150
2 x 1 1/2"	2.810	2.960	0.750	0.420	0.370	0.700	2.430
2 1/2 x 1/2"	3.250	3.590	0.920	0.480	0.250	0.430	1.200
2 1/2 x 2"	3.250	3.590	0.920	0.480	0.420	0.750	2.960
3 x 2"	3.690	4.280	0.980	0.550	0.420	0.750	2.960
3 x 2 1/2"	3.690	4.280	0.980	0.550	0.480	0.920	3.590
4 x 3"	4.380	5.400	1.080	0.660	0.550	0.980	4.280

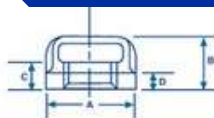


## Tapón Cachucha

Caps Banded

150 lbs.

Hierro maleable



MEDIDA	A	B	C	D
3/8"	1.010	0.740	0.380	0.230
1/2"	1.200	0.870	0.430	0.250
3/4"	1.460	0.970	0.500	0.270
1"	1.770	1.160	0.580	0.300
1 1/4"	2.150	1.280	0.670	0.340
1 1/2"	2.430	1.330	0.700	0.370
2"	2.460	1.450	0.750	0.420
2 1/2"	3.590	1.700	0.920	0.480
3"	4.280	1.800	0.980	0.550
4"	5.400	2.080	1.080	0.660



## Tapón Macho

Plugs

150 lbs.

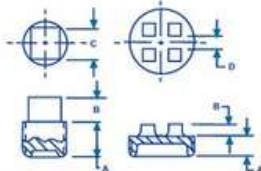
Hierro maleable

CABEZA CUADRADA

CABEZA CON  
RANURAS

3/8" - 3"

4" - 6"



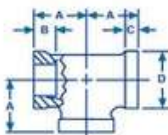
MEDIDA	A	B	C	D
3/8"	0.480	0.310	0.4375	-
1/2"	0.560	0.380	0.5625	-
3/4"	0.630	0.440	0.6250	-
1"	0.750	0.500	0.8125	-
1 1/4"	0.800	0.560	0.9375	-
1 1/2"	0.830	0.620	1.1250	-
2"	0.880	0.680	1.3125	-
2 1/2"	1.070	0.740	1.5000	-
3"	1.130	0.800	1.6875	-
4"	1.220	1.000	-	-
6"	1.400	1.250	-	-



## Tee Reforzada

*Tees Banded*

**150 lbs.  
Hierro maleable**



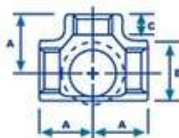
MEDIDA	A	B	C	D
1/4"	0.810	0.320	0.210	0.840
3/8"	0.950	0.360	0.230	1.010
1/2"	1.120	0.430	0.250	1.200
3/4"	1.310	0.500	0.270	1.460
1"	1.500	0.580	0.300	1.770
1 1/4"	1.750	0.670	0.340	2.150
1 1/2"	1.950	0.700	0.370	2.430
2"	2.250	0.750	0.420	2.960
2 1/2"	2.700	0.920	0.480	3.590
3"	3.080	0.980	0.550	4.280
4"	3.790	1.080	0.660	5.400
6"	5.130	1.280	0.900	7.770



## Tee Rincón

*Side outlet tees, plain*

**150 lbs.  
Hierro maleable**



MEDIDA	A	B	C
1/2"	1.10	1.140	0.430
3/4"	1.300	1.390	0.500
1"	1.500	1.705	0.580

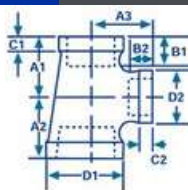


## Tee Reducción

Reducing tees, banded

150 lbs.

Hierro maleable



TAMAÑO	A1	A2	A3	B1	B2	C1	C2	D1	D2
3/4 x 1/2"	1.200	1.200	1.220	0.500	0.430	0.270	0.250	1.460	1.200
1 x 3/4"	1.370	1.370	1.450	0.580	0.500	0.300	0.270	1.770	1.460
1 x 1/2"	1.260	1.260	1.360	0.580	0.430	0.300	0.250	1.770	1.200
1 1/2 x 1"	1.650	1.650	1.800	0.700	0.580	0.370	0.300	2.430	1.770
2 x 1/2"	1.500	1.500	1.870	0.750	0.430	0.480	0.250	2.960	1.200
2 x 1 1/2"	2.020	2.020	2.160	0.750	0.700	0.480	0.370	2.960	2.430

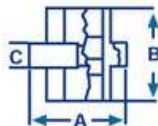


## Tuerca Unión

Unions, brass to iron seat

150 lbs.

Hierro maleable



MEDIDA	A	B	C
1/4"	1.290	1.440	0.560
3/8"	1.440	1.610	0.630
1/2"	1.760	1.790	0.700
3/4"	1.960	2.020	0.712
1"	2.160	2.120	0.780
1 1/4"	2.750	2.260	0.860
1 1/2"	2.990	2.440	0.880
2"	3.620	2.750	1.000
2 1/2"	4.540	3.260	1.200
3"	5.060	3.530	1.220
4"	6.080	3.950	1.430



## Y Griega

*Y branches, banded*

**150 lbs.**

**Hierro maleable**



MEDIDA	A	B	C	D
1/2"	1.710	1.710	0.610	2.320
3/4"	2.050	2.050	0.720	2.770
1"	2.430	2.430	0.850	3.280
1 1/4"	2.920	2.920	1.020	3.940
1 1/2"	3.280	3.280	1.100	4.380
2"	3.930	3.930	1.240	5.170
2 1/2"	4.730	4.730	1.520	6.250
3"	5.550	5.550	1.710	7.260
4"	6.970	6.970	2.010	8.980

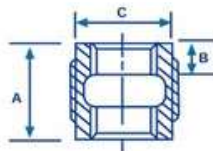


## Cople Liso

*Coupling, plain*

**150 lbs.**

**Hierro maleable**



MEDIDA	A	B	C
3/8"	1.160	0.360	0.870
1/2"	1.340	0.430	1.050
3/4"	1.520	0.500	1.318
1"	1.670	0.580	1.605
1 1/4"	1.930	0.670	1.950
1 1/2"	2.150	0.700	2.375
2"	2.530	0.750	2.575
2 1/2"	2.880	0.920	3.320
3"	3.180	0.980	3.950
4"	3.690	1.080	

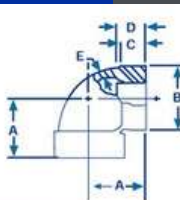


## Codo de 90° REF

90° elbows, banded

300 lbs.

Hierro maleable



MEDIDAS	A	B	C	D	E
3/8"	1.060	1.120	0.440	0.470	0.150
1/2"	1.250	1.340	0.500	0.570	0.160
3/4"	1.440	1.630	0.560	0.640	0.180
1"	1.630	1.950	0.620	0.750	0.200
1 1/4"	1.940	2.390	0.690	0.840	0.220
1 1/2"	2.130	2.680	0.750	0.870	0.240
2"	2.500	3.280	0.840	1.000	0.260
2 1/2"	2.940	3.860	0.940	1.170	0.310
3"	3.380	4.620	1.000	1.230	0.350
4"	4.442	5.955	1.181	1.425	0.460

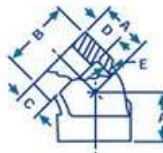


## Codo de 45° REF

45° elbows, banded

300 lbs.

Hierro maleable



MEDIDAS	A	B	C	D	E
1/2"	1.000	1.340	0.500	0.570	0.16
3/4"	1.130	1.630	0.560	0.640	0.18
1"	1.310	1.950	0.620	0.750	0.20
1 1/4"	1.500	2.390	0.690	0.840	0.22
1 1/2"	1.690	2.680	0.750	0.870	0.24
2"	2.000	3.280	0.840	1.000	0.26

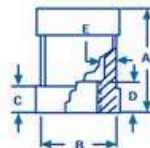


## Cople Reforzado

*Couplings banded*

**300 lbs.**

**Hierro maleable**



MEDIDA	A	B	C	D	E
1/2"	1.870	1.340	0.500	0.570	0.16
3/4"	2.120	1.630	0.560	0.640	0.18
1"	2.370	1.950	0.620	0.750	0.20
1 1/4"	2.870	2.390	0.690	0.084	0.22
1 1/2"	2.870	2.680	0.750	0.870	0.24
2"	3.620	3.280	0.840	1.000	0.26

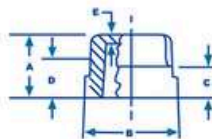


## Tapón Cachucha

*Caps banded*

**300 lbs.**

**Hierro maleable**



MEDIDA	A	B	C	D	E
1/2"	0.980	1.340	0.500	0.570	0.16
3/4"	1.080	1.630	0.560	0.640	0.18
1"	1.260	1.950	0.620	0.750	0.20
1 1/4"	1.380	2.390	0.690	0.840	0.22
1 1/2"	1.430	2.680	0.750	0.870	0.24
2"	1.680	3.280	0.840	1.000	0.26





## Tee Reforzada

*Tees Banded*

**300 lbs.**

**Hierro maleable**



MEDIDA	A	B	C	D	E
3/8"	1.060	1.120	0.440	0.470	0.150
1/2"	1.250	1.340	0.500	0.570	0.160
3/4"	1.440	1.630	0.560	0.640	0.180
1"	1.630	1.950	0.620	0.750	0.200
1 1/4"	1.940	2.390	0.690	0.840	0.220
1 1/2"	2.130	2.680	0.750	0.870	0.240
2"	2.500	3.280	0.840	1.000	0.260
2 1/2"	2.940	3.860	0.940	1.170	0.310
3"	3.380	4.620	1.000	1.230	0.350
4"	4.600	5.930	1.110	1.300	0.460

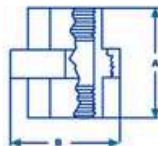


## Tuerca Unión

*Unions, brass to iron seat*

**300 lbs.**

**Hierro maleable**



MEDIDA	A	B
1/2"	1.810	1.760
3/4"	2.120	2.150
1"	2.310	2.480
1 1/4"	2.660	3.020
1 1/2"	2.850	3.280
2"	3.230	3.960

Propiedades mecánicas. Especificación ASTM A-197.

Resistencia a la tensión	40,000 psi – 2,670 kg/cm <sup>2</sup>
Punto de cedencia	30,000 psi – 2,000 kg/cm <sup>2</sup>
Elongación en 2 pulgadas	5%

Composición química (%)

Hierro	Carbón	Silicio	Manganeso	Fósforo	Azufre
93.7%	2.4%	1.4%	0.4%	0.1%	4.0%

Especificaciones de ANSI/ASME

Conexiones roscadas	B 16.3
Tuerca unión	B 16.39
Reducción bushing y tapón macho	B 16.14

## Presiones de trabajo

Temperatura °C	CLASE 150 Conexiones roscadas   Tuerca unión Presión trabajo		CLASE 300 Conexiones roscadas Presión trabajo			Tuerca unión
	ASME B 16.3	ASME B 16.39	ASME B 16.3			ASME B 16.39
	Diam nom 1/4" a 6"	1/4" a 4"	1/4" a 1"	1 1/4" a 2"	2 1/2" a 3"	1/4" a 4"
	psi		psi			
-29 a 66	300	300	2,000	1,500	1,000	600
93	265	265	1,785	1,350	910	550
121	225	225	1,575	1,200	825	505
149	185	185	1,360	1,050	735	460
177	150	150	1,150	900	650	415
204	---	110	935	750	560	370
232	---	75	725	600	475	325
260	---	---	510	450	385	280
288	---	---	300	300	300	230

El codo niple no deberá ser sometido a presiones superiores a 600 psi.

Presión a prueba. A temperatura ambiente (22°C) puede probarse con agua o aire a una presión de 1,500 psi.

# Válvulas Worcester



SERIE 45  
Sanitaria



SERIE  
400 Sanitaria



SERIE 18  
Multivoerta



SERIE 19  
4-Vias



SERIE 15  
3-Vias



SERIE 40040R  
3-Vías



SERIE F-152/F-202  
A Prueba De Fuego



SERIE 4000  
estructura tipo macho hembra



SERIE 4000  
(ALTA PRESIÓN 2500R)



SERIE H600  
(ALTA PRESIÓN)



SERIE 600 BRIDADA  
(PASO COMPLETO)



SERIE 150/202  
(PASO COMPLETO)



SERIE 150/300  
(PASO REDUCIDO)



SERIES  
15



SERIE  
45



SERIE N44  
FPI



VÁLVULAS DE MARIPOSA  
TRIPLE EXCENRICIDAD



VÁLVULAS DE MARIPOSA  
DOBLE EXCENRICIDAD



VÁLVULAS DE  
MARIPOSA BIPARTIDAS



SERIES 400  
REDUCED BORE



SERIES  
1000



ECONOMITE  
SERIES 42



# Válvulas mariposa WAFER



Válvula de mariposa WAFER, disco de acero inoxidable 316, cuerpo de fundición nodular asiento refaccionable EPDM, bridas EN-1092-2 PN-10/PN-16, ANSI B16.5.

**GGG-40** | **EPOXY 250µ** | **316**

**CLASE 125/150** | **EPDM** | **PALANCA**

1" - 6" 20 BAR (300 PSI) | -20°C / 120°C

6" - 12" 16 BAR (250 PSI)

Válvula de mariposa WAFER, disco de acero inoxidable 316, cuerpo de fundición nodular asiento refaccionable NBR, bridas EN-1092-2 PN-10/PN-16, ANSI B16.5.

**GGG-40** | **EPOXY 250µ** | **316**

**CLASE 125/150** | **NBR** | **PALANCA**

2" - 6" 20 BAR (300 PSI) | -20°C / 80°C

6" - 12" 16 BAR (250 PSI)

Válvula de mariposa WAFER, disco de acero inoxidable 316, cuerpo de fundición nodular asiento refaccionable EPDM, bridas EN-1092-2 PN-10/PN-16, ANSI B16.5.

**GGG-40** | **EPOXY 250µ** | **316**

**CLASE 125/150** | **EPDM** | **OPERADOR**

1" - 6" 20 BAR (300 PSI) | -20°C / 120°C

6" - 12" 16 BAR (250 PSI) | 14" - 24" 10 BAR (150 PSI)



Válvula de mariposa WAFER, disco de acero inoxidable 316, cuerpo de fundición nodular asiento refaccionable NBR, bridas EN-1092-2 PN-10/PN-16, ANSI B16.5.

**GGG-40** | **EPOXY 250μ** | **316**

**CLASE 125/150** | **NBR** | **OPERADOR**

**2" - 8" 30 BAR (300 PSI)** | **-20°C / 80°C**

**1" - 12" 16 BAR (250 PSI)**



Válvula de mariposa WAFER, disco de acero inoxidable 316 recubierto de teflon, cuerpo bipartido de fundición nodular asiento de teflon con alma de silicon, bridas EN-1092-2 PN-10/PN-16, ANSI B16.5.

**GGG-40** | **EPOXY 250μ**

**316** | **TEFLON** | **PALANCA**

**CLASE 125/150** | **TEFLON + SILICON**

**16 BAR (250 PSI)** | **-20°C / 180°C**



Válvula de mariposa WAFER, disco de acero inoxidable 316 recubierto de teflon, cuerpo bipartido de fundición nodular asiento de teflon con alma de silicon, bridas EN-1092-2 PN-10/PN-16, ANSI B16.5.

**GGG-40** | **EPOXY 250μ**

**316** | **TEFLON** | **OPERADOR**

**CLASE 125/150** | **TEFLON + SILICON**

**16 BAR (250 PSI)** | **-20°C / 180°C**



Válvula de mariposa WAFER, disco de fundición dúctil, cuerpo de fundición gris (2" - 6") y de fundición dúctil (8" - 12"), asiento rígido, bridas EN-1092-2 PN-10/PN-16, ANSI B16.5.

**GGG-25 (2" - 6")** **GGG-40 (8" - 24")**

**GGG-40** **EPOXY 250μ**

**CLASE 125/150** **EPDM** **PALANCA**

2" - 6" 10 BAR (250 PSI)

-20°C / 120°C

Válvula de mariposa WAFER, disco de fundición dúctil, cuerpo de fundición gris (2" - 6") y de fundición dúctil (8" - 24"), asiento rígido, bridas EN-1092-2 PN-10/PN-16, ANSI B16.5.

**GGG-25 (2" - 6")** **GGG-40 (8" - 24")**

**GGG-40** **EPOXY 250μ**

**CLASE 125/150** **EPDM** **OPERADOR**

2" - 6" 10 BAR (250 PSI) 14" - 24" 10 BAR (250 PSI)

-20°C / 120°C

Válvula de mariposa WAFER, disco de fundición nodular recubierto en poliamida 11 (RILSAN), cuerpo de fundición nodular, asiento refaccionable EPDM, bridas EN-1092-2 PN-10/PN-16, ANSI B16.5.

**GGG-40** **EPOXY 250μ** **GGG-40**

**CLASE 125/150** **EPDM** **PALANCA**

2" - 6" 30 BAR (300 PSI)

8" - 12" 10 BAR (250 PSI)



Válvula de mariposa WAFER, disco de fundición nodular recubierto en poliamida 11 (RILSAN), cuerpo de fundición nodular, asiento refaccionable NBR, bridas EN-1092-2 PN-10/PN-16, ANSI B16.5.

**GGG-40** | **EPOXY 250 $\mu$**  | **GGG-40**

**CLASE 125/150** | **NBR** | **PALANCA**

2" - 8" 20 BAR (290 PSI) | -20°C / 80°C

8" - 12" 16 BAR (230 PSI)



Válvula de mariposa WAFER, disco de fundición nodular recubierto en poliamida 11 (RILSAN), cuerpo de fundición nodular, asiento refaccionable EPDM, bridas EN-1092-2 PN-10/PN-16, ANSI B16.5.

**GGG-40** | **EPOXY 250 $\mu$**  | **GGG-40**

**CLASE 125/150** | **EPDM** | **OPERADOR**

2" - 8" 20 BAR (290 PSI) | -20°C / 120°C

8" - 12" 16 BAR (230 PSI) | 14" - 20" 10 BAR (150 PSI)



Válvula de mariposa WAFER, disco de fundición nodular recubierto en poliamida 11 (RILSAN), cuerpo de fundición nodular, asiento refaccionable NBR, bridas EN-1092-2 PN-10/PN-16, ANSI B16.5.

**GGG-40** | **EPOXY 250 $\mu$**  | **GGG-40**

**CLASE 125/150** | **NBR** | **OPERADOR**

2" - 8" 20 BAR (290 PSI) | -20°C / 80°C

8" - 12" 16 BAR (230 PSI)



Válvula de mariposa LUG, disco de acero inoxidable 316, cuerpo de fundición nodular, asiento refaccionable NBR  
bridas preparadas según norma ANSI 150

GGG-40 EPOXY 250 $\mu$  316

ANSI 150 NBR PALANCA

-20°C / 80°C

2" - 12" 16 BAR (230 PSI)



Válvula de mariposa LUG, disco de acero inoxidable 316, cuerpo de fundición nodular, asiento refaccionable EPDM  
bridas preparadas según norma ANSI 150

GGG-40 EPOXY 250 $\mu$  316

ANSI 150 EPDM PALANCA

-20°C / 120°C

2" - 12" 16 BAR (230 PSI)



Válvula de mariposa LUG, disco de acero inoxidable 316, cuerpo de fundición nodular, asiento refaccionable NBR  
bridas preparadas según norma ANSI 150

GGG-40 EPOXY 250 $\mu$  316

ANSI 150 NBR OPERADOR

-20°C / 80°C

2" - 12" 16 BAR (230 PSI)



Válvula de mariposa LUG, disco de acero inoxidable 316, cuerpo de fundición nodular, asiento refaccionable EPDM  
bridas preparadas según norma ANSI 150

**GGG-40** | **EPOXY 250 $\mu$**  | **316**

**ANSI 150** | **EPDM** | **OPERADOR**

-20°C / 120°C

2" - 12" 16 BAR (230 PSI)

Válvula de mariposa LUG, disco de acero inoxidable 316, cuerpo de fundición nodular, asiento refaccionable EPDM  
bridas preparadas según norma ANSI 150

**GGG-40** | **EPOXY 250 $\mu$**  | **316**

**ANSI 150** | **EPDM** | **OPERADOR**

-20°C / 120°C

2" - 12" 16 BAR (230 PSI)

Válvula de retención doble disco de acero inoxidable 304 (DUOCHECK)  
cuerpo de fundición nodular, bridas EN-1092-2 PN-10/PN-16, ANSI B16.5.

**GGG-40** | **EPOXY 250 $\mu$**

**CLASE 125/150** | **EPDM** | **304**

MIN 0,25 - 0,24 BAR 16 BAR (230 PSI)

-10°C / 50°C

## Trampas termodinámicas



### TRAMPA TERMODINAMICA TD-52 SPIRAX SARCO

MO – Presión máxima de operación 42 kg/cm<sup>2</sup>

TMO – Temperatura máxima de operación 430°C

PMOB – Contrapresión máxima: no puede exceder el 80% de la presión de entrada

Presión diferencial admisible mínima para trabajar satisfactoriamente 0,250 kg/cm<sup>2</sup>

Totalmente en Inoxidable



# Filtro tipo "Y" hierro fundido

## # 250 LBS

FILTRO "Y" HIERRO FUNDIDO

DE 1/2" A 3" ROSCADO

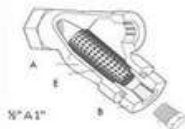
MODELO S.H

MODELO	S.H
MEDIDAS	1/2" A 3"
CONEXIONES	NPT
MATERIAL	HIERRO FUNDIDO
PRESION MAXIMA DE VAPOR SATURADO	250 psig
CEDAZO ESTANDAR	LAMINA INOXIDABLE T-304 CON PERFORACIONES DE 102"
MATERIALES OPCIONALES	MALLA DE DISTINTOS TAMAÑOS BUSHING Y TAPON DE HIERRO MALLEABLE

CUERDANPT DE ACUERDO A ANSI B3.1

CONDICIONES DE DISEÑO:

PRESION MAX. PERMITIDA 21kg / cm<sup>2</sup> / g / 29'x-65'c  
 300psig / 20-150'F  
 TEMPERATURA MAX. PERMITIDA 20F / C / 0-18 Kg / cm<sup>2</sup> / g  
 450'F / 0-250 psig



1/2" A 1"



1 1/2" A 3"

MATERIALES DE CONSTRUCCION		
LETRA	PARTE	MATERIAL
A	CUERPO	HIERRO FUNDIDO ASTM A-128 CL B
B	BUSHING Y TAPON M.	HIERRO MALLEABLE ASTM A-197
C	TAPA	HIERRO FUNDIDO ASTM A-128 CL B
D	JUNTA DE TAPA	ASBESTO GRAFITADO Y/O TEFLON
E	CEDAZO STANDAR	ACERO INOX. T-304
F	TORNILLOS DE TAPA	ACERO ASTM A-449 G5
G	PINTURA	ANTICORROSIONA

VALOR DE Cv Y AREA LIBRE (CEDAZO ESTANDAR)			
Tamaño	Cv	Area (Libr. pul <sup>2</sup> )	Ref. Filtracion.
1/2"	6.1	1.413	4.81:1
3/4"	10.8	2.45	3.79:1
1"	18.6	2.89	3.51:1
1 1/2"	26.1	5.97	3.99:1
1 3/4"	35.4	5.97	2.47:1
2"	68.2	9.24	2.75:1
2 1/2"	94.5	12.83	2.70:1
3"	147.3	17.6	2.38:1



# Empaque de neopreno Y Flexitallic para bridas # 150 Y # 300

EMPAQUE DE NEOPRENO Y FLEXITALLIC PARA BRIDAS # 150 Y  
# 300

Empaque de neopreno para brida de 3/4" hasta 12"

Alta calidad súper fijación y sellado hermético.

ANSI 150 Y 125

Totalmente funcional para sistemas BRIDADOS.

Empaque FLEXITALIC CG 150lbs Y 300lbs en grafito en  
ACERO INOX 304 y 316



# Cinta teflon Garlock PTFE premium y Empco

## I. DENOMINACIÓN TÉCNICA

Cinta de resina granular virgen de alta densidad de Politetrafluoroetileno de alto rendimiento no sinterizado en forma de cinta.

## II. APLICACIONES

Recomendado para uniones roscadas en tuberías de acero inoxidable, cobre, plástico, bronce metal galvanizado o aluminio. Para el sellado de cuerdas macho de tuberías, es químicamente inerte y resistente a la corrosión. Es un producto no tóxico, no endurece, no es inflamable ni absorbente, para industria de gases, alimenticia\*\*, química, etc.



## III. CARACTERÍSTICAS TÉCNICAS

Tipo de Resina:

Tipo II (ASTM D4894)

Color:

Blanco

Temperatura de Operación:

-240°C (-400°F) → +260°C (500°F)

Absorción de Humedad

Ninguna

## IV. ESPECIFICACIONES BAJO MÉTODOS DE PRUEBA

	CARACTERÍSTICAS	REFERENCIA	ESPECIFICACIÓN
Norma		AA-58092	AA-58092
Espesor		AA-58092-2.1	0.0035" Tolerancia +0.001" -0.0005"
Resina		AA-58092-3.4	99%
<b>No flamable</b>		AA-58092-3.4	Politetrafluoroetileno No debe contener ningún material combustible en presencia de oxígeno hasta 260°C
Elongación		D-882	50% Min sin romperse ó desgarrarse
Gravedad específica		D-792	1.2

## IV. ESPECIFICACIONES BAJO MÉTODOS DE PRUEBA

LONGITUD DEL CARRETE	ANCHOS DISPONIBLES	ESPESOR DE CINTA
13.20 mts. 6.60 mts.	1/2; 3/4; 1" 1/2; 3/4; 1"	0.0035" +0.001" / -0.0005"

