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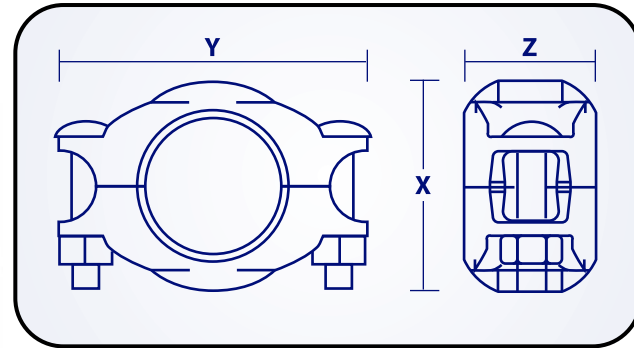
Stainless Steel Flexible Pipe Couplings



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Style D Superduplex High-Pressure Grooved-End Flexible Pipe Couplings



Pressure Rating:

1000 psi (70 bar) with schedule 40s pipe w/cut groove only – all sizes. For other pipe weights & sizes, use Style B ratings.

Higher maximum rating available with some restrictions on service, pipe weight, materials and grooving practice. Contact Piedmont Pacific for information.

■ Bolts/Nuts/Washers – Round-head, square-neck, type 316 stainless steel bolts conform to ASTM F-593, Group 2, condition CW. Nuts are heavy hex type 561 silicon bronze. Sizes 4" and up use SS nuts. Washers are heavy pattern type 316 stainless.

■ Housings – Solid **SUPERDUPLEX** stainless steel type CE8MN, Conforming to ASTM A-890 Grade 2A.

■ Gaskets – EPDM rubber, suitable for hot and cold water service. Not Suitable for petroleum service.

Note 1: Working pressure ratings based upon generally accepted pressure piping design standards and testing in accordance with ASME Section VIII Division 1 pressure vessel test method.

Style D Specifications				
Nominal Size	Dimensions			Aprx Weight
	X	Y	Z	
inches	inches mm.	inches mm.	inches mm.	lbs. kgs
3/4*	2.00 51	3.20 81	1.71 43	1.0 0.47
1	2.29 58	3.42 87	1.68 43	1.0 0.44
1-1/4	2.50 64	3.65 93	1.68 43	1.1 0.48
1-1/2	2.76 70	4.06 103	1.71 43	1.2 0.55
2	3.24 82	4.46 113	1.85 47	1.9 0.87
2-1/2	3.74 95	5.30 135	1.85 47	2.1 0.97
3	4.48 114	5.88 149	1.85 47	2.6 1.20
4	5.21 132	6.90 175	2.20 51	4.4 2.20
5	7.26 184.4	9.5 241.5	2.0 50.9	9.3 4.23
6	8.18 208	10.25 260	2.02 51	9.2 4.21
8*	10.90 277	14.00 356	2.40 61	25.8 11.70
10	13.28 337	15.88 403	2.55 65	33.5 15.18
12	15.28 388	17.38 441	2.55 65	34.8 15.79

* These sizes are type 316SS

Pipe Specifications For Grooved-End Flexible Pipe Couplings

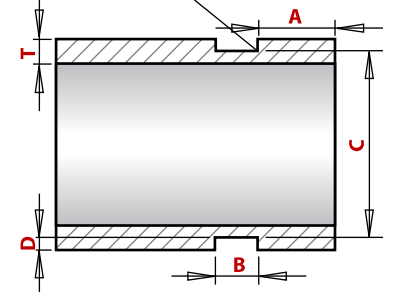
Standard Cut-Groove Specification

Standard Cut Groove Pipe Specification For Flexible Couplings									
Nominal Size	Tolerance for Outer Diameter of Pipe			Gasket Seat "A"	Groove With "B"	Groove Dia C		Groove Depth "D" (info)	Min. Wall Thickness "T"
	Basic OD inches	Tol (+) inches	Tol (-) inches			Basic inches	Tol (+0.00) inches		
3/4	1.050	0.010	0.010	0.625	0.313	0.938	-0.015	0.056	0.113
1	1.315	0.013	0.013	0.625	0.313	1.190	-0.015	0.063	0.133
1-1/4	1.660	0.016	0.016	0.625	0.313	1.535	-0.015	0.063	0.140
1-1/2	1.900	0.019	0.019	0.625	0.313	1.775	-0.015	0.063	0.145
2	2.375	0.024	0.024	0.625	0.313	2.250	-0.015	0.063	0.154
2-1/2	2.875	0.029	0.029	0.625	0.313	2.72	-0.018	0.078	0.188
3	3.500	0.035	0.031	0.625	0.313	3.344	-0.018	0.078	0.188
4	4.500	0.045	0.031	0.625	0.375	4.334	-0.020	0.083	0.203
6	6.625	0.062	0.031	0.625	0.375	6.455	-0.022	0.085	0.219
8	8.625	0.062	0.031	0.750	0.438	8.441	-0.022	0.092	0.238
10	10.750	0.062	0.031	0.750	0.500	10.562	-0.027	0.094	0.250
12	12.750	0.062	0.031	0.750	0.500	12.531	-0.030	0.109	0.279
16	16.000	0.062	0.031	0.938	0.500	15.781	-0.030	0.109	0.312

Standard Cut Groove Pipe Specification For Flexible Couplings									
Nominal Size	Tolerance for Outer Diameter of Pipe			Gasket Seat "A"	Groove With "B"	Groove Dia C		Groove Depth "D" (info)	Min. Wall Thickness "T"
	Basic OD mm.	Tol (+) mm.	Tol (-) mm.			Basic mm.	Tol (+0.00) mm.		
3/4	26.70	0.25	0.25	15.88	7.95	23.83	-0.38	1.42	2.87
1	33.40	0.33	0.33	15.88	7.95	30.23	-0.38	1.60	3.38
1-1/4	42.20	0.41	0.41	15.88	7.95	38.99	-0.38	1.60	3.56
1-1/2	48.30	0.48	0.48	15.88	7.95	45.09	-0.38	1.60	3.68
2	60.30	0.61	0.61	15.88	7.95	57.15	-0.38	1.60	3.91
2-1/2	73.00	0.74	0.74	15.88	7.95	69.09	-0.46	1.98	4.78
3	88.90	0.89	0.79	15.88	7.95	84.94	-0.46	1.98	4.78
4	114.30	1.14	0.79	15.88	9.53	110.08	-0.51	2.11	5.16
6	168.30	1.60	0.79	15.88	9.53	163.96	-0.56	2.16	5.56
8	219.10	1.60	0.79	19.05	11.13	214.40	-0.64	2.34	6.05
10	273.00	1.60	0.79	19.05	12.70	268.28	-0.69	2.39	6.35
12	323.90	1.60	0.79	19.05	12.70	318.29	-0.76	2.77	7.09
16	406.40	1.60	0.79	23.83	12.70	400.84	-0.76	2.77	7.93

IMPORTANT

2x fillet 0.010" min - 0.015" max (0.25mm min - 0.38mm max)



Column Notes:

Gasket seat "A": must be smooth and free of indentations, roll marks, scratches, imperfections and projections from the end of the pipe to the groove in order to provide a proper sealing surface. Dimension 'A' to be measured from square-cut end of pipe. Beveled end pipe not recommended.

Groove Width "B": The bottom of the groove to be free of dirt, chips etc. that may interfere with coupling assembly. See radius notes on drawing above.

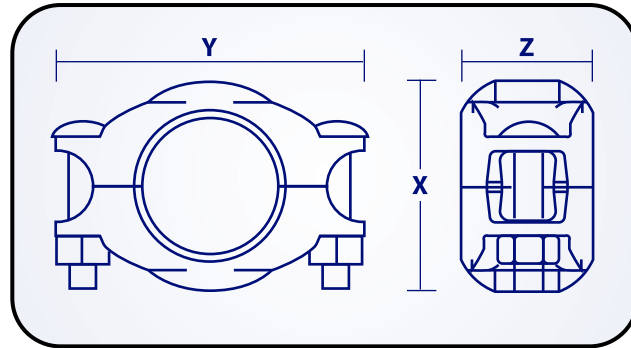
Groove Depth "D": must be of uniform depth for the entire pipe circumference and must be maintained within the 'C' dimension tolerance listed.

Min. Wall Thickness "T": For information only. Actual dimensions must be per groove diameter 'C'.

Notes:

1. Pipe ends to be square cut and shall be neat and free from imperfections that may affect durability, operability and safety.
2. Metal shall be free from fins, burrs and sharp/rough edges, flame cutting is not permitted.
3. Break all corners 0.01 – 0.03 in. chamfer unless otherwise specified.
4. In the event of a conflict between these notes and references cited in the drawings, except for detail specifications, these notes shall take precedence.

Style K Low-Pressure Grooved-End Flexible Pipe Couplings



Designed for MF/UF Systems
300 psi (20 bar) working pressure rating*

- Bolts/Nuts – Round-head, square-neck, type 316 stainless steel bolts and heavy hex nuts conform to ASTM F-593, Group 2, condition CW.
- Housings – Solid type 316 stainless steel Grade CF-8M, conforming to ASTM A 351, A 743 & A 744.
- Gaskets – EPDM rubber, suitable for hot and cold water service. Not suitable for petroleum service.

* Working pressure rating is 200 psi (14 bar) with schedule 5s pipe of 2" diameter and larger.

Style K Specifications				
Nominal Size	Dimensions			Aprx Weight
	X	Y	Z	
inches	inches mm.	inches mm.	inches mm.	lbs. kgs
3/4	1.82 46	2.90 74	1.68 43	0.7 0.33
1	2.21 55	3.40 88	1.68 43	0.8 0.35
1-1/4	2.42 62	3.60 92	1.71 43	0.8 0.35
1-1/2	2.56 68	3.90 99	1.70 43	0.9 0.39
2	3.14 80	4.13 105	1.70 43	0.9 0.41
2-1/2	3.63 94	5.00 127	1.70 43	1.5 0.67
3	4.30 110	5.50 140	1.90 47	1.8 0.83
4	5.18 132	6.81 173	1.90 47	3.3 1.48
6	7.90 201	9.75 248	1.90 47	5.2 2.37
8	19.94 253	12.13 308	2.25 57	8.6 3.91
10	12.12 308	14.26 361	2.25 57	8.6 3.91
12	14.18 360	16.26 413	2.25 57	12.2 5.51
16	20.9 530	21.85 555	2.95 75	52.8 233

Grooved-End Fittings For Flexible Pipe Couplings

90 DEGREE ELBOW

45 DEGREE ELBOW

Max Pressure: 600 PSI

Material: Solid type 316 stainless steel Grade CF-8M,

Conforming to ASTM A 351, A 743 & A 744.

Not suitable for SEAWATER



SAMPLE ELBOW



45 Degree Elbow			
Nominal Pipe Size	Pipe OD	C-E	Weight
inches	inches mm.	inches mm.	lbs. kgs
1.5	1.9 48	1.75 45	0.76 0.35

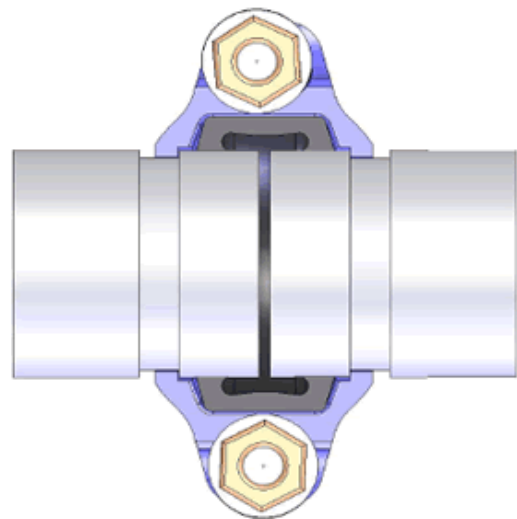
90 Degree Elbow			
Nominal Pipe Size	Pipe OD	C-E	Weight
inches	inches mm.	inches mm.	lbs. kgs
1.5	1.9 48	2.75 70	1.6 0.73

Deflection & Gaskets

Pipe End Separation And Allowable Deflection

Flexible Coupling Performance			
Nominal Size	Allowable Pipe End Separation	Maximum Dimensions	
		Degrees	inches/Ft. mm./m..
inches	inches mm.		
3/4	0 - 0.06 0 - 1.6	3° - 24'	0.72 60
1	0 - 0.06 0 - 1.6	2° - 43'	0.57 48
1-1/4	0 - 0.06 0 - 1.6	2° - 10'	0.45 38
1-1/2	0 - 0.06 0 - 1.6	1° - 56'	0.40 33
2	0 - 0.06 0 - 1.6	1° - 30'	0.32 27
2-1/2	0 - 0.06 0 - 1.6	1° - 15'	0.26 22
3	0 - 0.06 0 - 1.6	1° - 2'	0.21 17
4	0 - 0.13 0 - 3.2	1° - 35'	0.33 27
6	0 - 0.13 0 - 3.2	1° - 12'	0.21 17
8	0 - 0.13 0 - 3.2	0° - 50'	0.18 15
10	0 - 0.13 0 - 3.2	0° - 40'	0.14 12
12	0 - 0.13 0 - 3.2	0° - 34'	0.12 10

Allowable Pipe End Separation



Gaskets

A complete coupling consists of coupling housings, nuts, bolts, and gasket. The coupling housing contains and compresses the gasket, which effects proper sealing of the joint. Piedmont Pacific gaskets are designed for a tight seal in high pressure industrial applications.

Gasket materials: Piedmont Gaskets are EPDM (Ethylene Propylene Diene Monomer) rubber based.

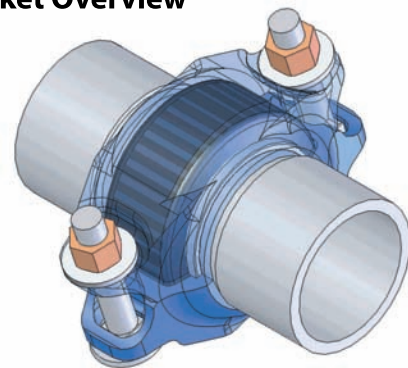
Temperature range: -30F to 230F (-29C to 110C)

Service recommendations: Hot water service within the temperature range, seawater, and brine water, dilute acids, oil-free air and many chemical services. Potable water. NOT SUITABLE FOR PETROLEUM SERVICES.

For other services, please contact Piedmont Pacific.

Piedmont offers two different shapes of gaskets, C-shaped Gasket and Flush-fit Gasket. The Flush-fit type is recommended for vacuum services. The inner lip minimizes turbulence in high-velocity applications.

Gasket Overview

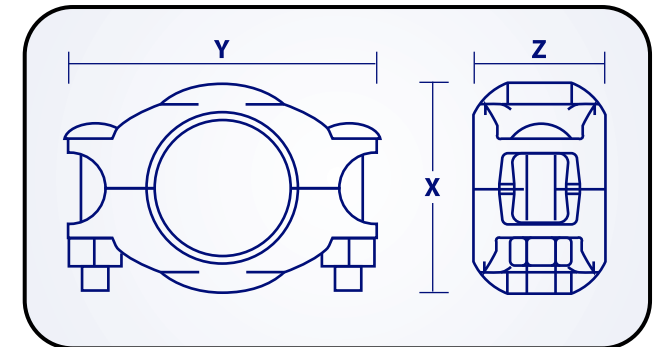


C-shaped Gasket (Standard)

Flush-fit Gasket



Style B Medium-Pressure Grooved-End Flexible Pipe Couplings



Working Pressure Rating		
Pipe Weight	Under 2" Dia.	2" Dia & Larger
Schedule 40s*	600 psi (40 bar)	600 psi (40 bar)
Schedule 10s**	600 psi (40 bar)	350 psi (24 bar)
Schedule 5s*	300 psi (20 bar)	200 psi (14 bar)

Style B Specifications				
Nominal Size	Dimensions			Aprx Weight
	X	Y	Z	
inches	inches mm.	inches mm.	inches mm.	lbs. kgs
1	2.29 58	3.42 87	1.68 43	0.9 0.43
1-1/4	2.50 64	3.65 93	1.68 43	1.0 0.46
1-1/2	2.76 70	4.06 104	1.71 43	1.2 0.56
2	3.24 82	4.13 105	1.85 47	1.4 0.63
2-1/2	3.74 95	5.00 127	1.85 47	2.1 0.96
3	4.36 111	5.50 149	1.85 47	2.3 1.03
4	5.21 132	6.81 173	2.02 51	4.6 2.07
6	8.18 208	9.75 248	2.02 51	9.6 4.38

■ Bolts/Nuts – Round-head, square-neck, type 316 stainless steel bolts and heavy hex nuts conform to ASTM F-593, Group 2, condition CW.

■ Housings – Solid type 316 stainless steel Grade CF-8M, Conforming to ASTM A 351, A 743 & A 744.

■ Gaskets – EPDM rubber, suitable for hot and cold water service. Not suitable for petroleum service.

* Roll or Cut-grooved. Use standard rolls

** Roll-groove using light-wall rolls only. Refer to tool manufacturer for details.

Special Note on Piston Pumps:

Type 316 stainless steel couplings of any manufacture, are not recommended for direct attachment to piston type positive displacement pumps unless coupled to a pulsation damper, or flexible rubber hose. If a positive displacement pump is to be coupled to hard piping, duplex couplings (Style D or S) are recommended.