

Grooved Piping System

The only system that provides the option of rigidity or flexibility

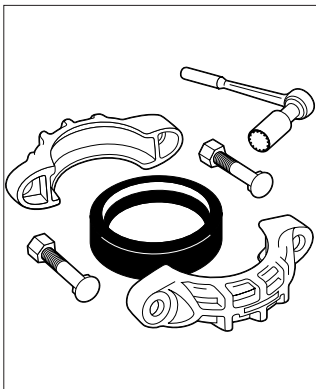
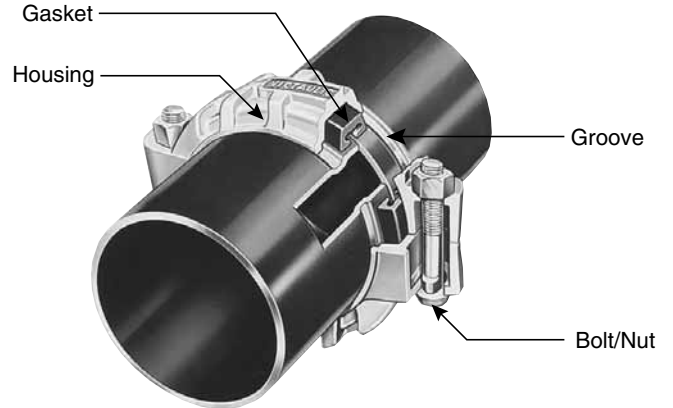
PRODUCT DESCRIPTION

The Victaulic grooved piping system is the most versatile, economical and reliable piping system available. It is up to three times faster to install than welding, easier and more reliable than threading or flanging, resulting in lowest total installed cost.

The system is designed for roll grooved or cut grooved standard pipe or roll grooved light wall pipe. Pipe end preparation is fast and easy either in the shop or on the job site with a variety of Victaulic grooving tools available.

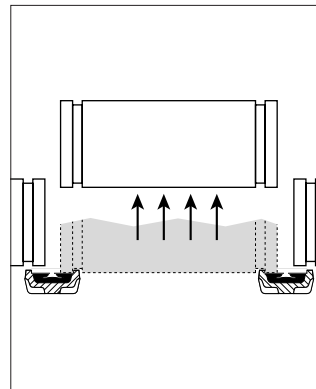
In addition to speed and ease of assembly, the Victaulic system offers varied mechanical benefits to the designer, installer and owner. With the introduction of Zero-Flex® rigid couplings, the option of flexibility or rigidity adds to the design versatility. Flexible and rigid couplings can be incorporated as needed in any system to take full advantage of the characteristics of each.

Victaulic also offers the Advanced Groove System (AGS) for 14 – 24" (350 – 600 mm) sizes.



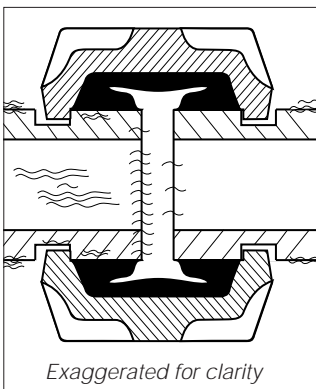
Installed cost savings from 10% to 30%

- Minimal equipment investment
- Fast assembly in tight places
- Clean system. . . no pipe dope or welding slag to contaminate pipes
- Costs are more predictable. . . estimates more accurate



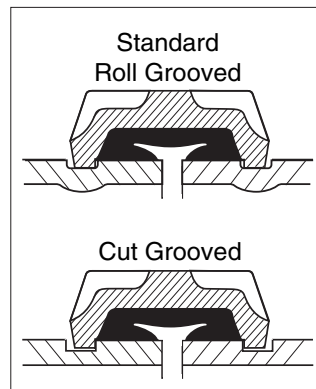
Each joint is a union

- Removal of two couplings permits removal of pipe section for cleaning or servicing
- Easy future add-on, change or renovation of pipe to distribute internal wear from abrasives or slurries
- **WARNING: Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.**



Proven joint reliability

- Full circumferential engagement of housing into groove provides end pull strength
- Couplings available for working pressures to 2,500 psi (17,235 kPa). . . vacuum services to 29.9" Hg



For roll or cut grooved pipe

- Victaulic tools permit roll grooving standard steel pipe up to 42" (1050 mm) in 0.375" (9.5 mm) wall thicknesses
- Couplings fit either roll or cut grooved pipe
- Roll grooving permits use on pipe from Schedule 5 to Schedule 40
- Pipe of different wall thickness and material can be connected directly and intermixed

RIGID SYSTEMS

Zero-Flex Style 07 and Transition Style 307 Rigid Couplings have a unique, patented angle pad design which constricts the housing keys into the groove around the full circumference to grip the pipe rigidly. The housings slide on the angled pads rather than mating squarely.

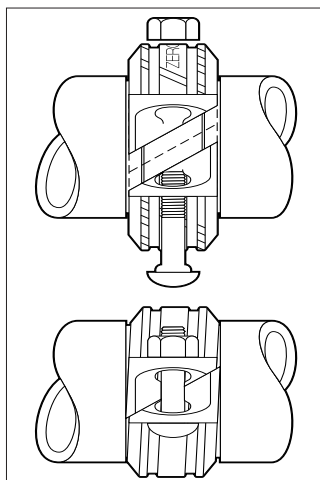
This sliding adjustment also forces the key sections into opposed contact on the inside and the outside groove edges, pushing the joint to its maximum pipe end separation (see chart below) during assembly.

These rigid couplings provide a rigid joint allowing no expansion/contraction or linear movement. Couplings will push the pipe ends to their maximum allowable separation which must be considered during assembly.

Rigid couplings (Styles 07, W07, 89, 489, 307, HP-70, 741, W741 and others) create a rigid joint, useful for risers, mechanical rooms and other areas where flexibility is not desired. Zero-Flex Style 07 and Style W07 AGS couplings are designed to provide rigidity to permit hanging to ASME B31.1 Power Piping Code and ASME B31.9 Building Services Piping Code.

RIGID COUPLING PERFORMANCE (Angle Bolt Pad Design)

Pipe Size			Pipe Size		
Nominal Diameter Inches/mm	Actual Outside Diameter Inches/mm	Allowable Pipe End Sep. Inches/mm	Nominal Diameter Inches/mm	Actual Outside Diameter Inches/mm	Allowable Pipe End Sep. Inches/mm
3/4 20	1.050 26,7	0.05 1,2	133,0 mm	5,250 133,0	0.16 4,1
1 25	1.315 33,7	0.05 1,2	139,7 mm	5,500 139,7	0.16 4,1
1 1/4 32	1.660 42,4	0.05 1,2	5 125	5,563 141,3	0.16 4,1
1 1/2 40	1.900 48,3	0.05 1,2	159,0 mm	6,250 159,0	0.16 4,1
2 50	2.375 60,3	0.07 1,7	165,1 mm	6,500 165,1	0.16 4,1
2 1/2 65	2.875 73,0	0.07 1,7	6 150	6,625 168,3	0.16 4,1
76,1 mm	3,000 76,1	0.07 1,7	8 200	8,625 219,1	0.19 4,8
3 80	3,500 88,9	0.07 1,7	10 250	10,750 273,0	0.13 3,3
4 100	4,500 114,3	0.16 4,1	12 300	12,750 323,9	0.13 3,3
108,0 mm	4,250 108,0	0.16 4,1			



Provides rigidity

- Zero-Flex Style 07 unique (patented) angled-pad design adjusts to standard pipe tolerances
- Provides positive clamping of the pipe to resist flexural and torsional loads
- Support and hanging requirements correspond to ASME B31.1 Power Piping Code, ASME B31.9 Building Services Code and NFPA 13 Sprinkler Systems



Easy swing-over assembly

- Bolt-pad design permits assembly by removing one nut/bolt and scissoring housing over gasket
- Reduces the number of components to handle during assembly
- Speeds and eases installation

FLEXIBLE SYSTEMS

Flexible grooved-type couplings (such as Styles 77, W77, 75, 72, 750, 78 and 791) allow controlled angular, linear and rotational movement at each joint to accommodate expansion, contraction, settling, vibration, noise and other piping system movement. These features provide advantages in designing piping systems but must be considered when determining hanger and support spacing and location.

Victaulic couplings offer superior vibration attenuation characteristics to both flexible metal and elastomeric flexible arch-type connectors. Independent vibration testing data (request Section 26.04) verifies that three Victaulic couplings in close proximity to a vibration source (pump, equipment, etc.) provide superior vibration attenuation in piping systems.

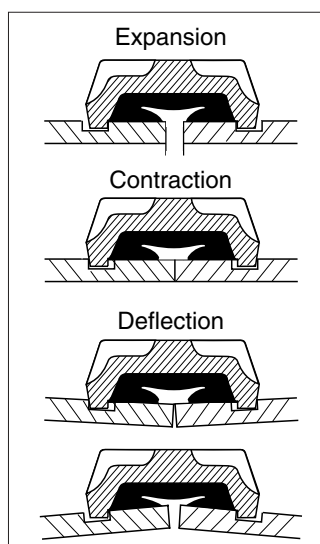
Both type couplings offer installed cost savings from 10 to 30% and higher, plus the convenience of a union at every joint and the proven pressure-responsive "C" shaped Victaulic gasket. Both type products fit into standard roll or cut grooved pipe and provide the security of full circumferential engagement of the coupling housing into the groove for high pressure and end load service.

FLEXIBLE COUPLING PERFORMANCE†

Pipe Size			Deflect. Fr. C ₁ †		Pipe Size		Deflect. Fr. C ₁ †		Pipe Size		Deflect. Fr. C ₁ †			
Nominal Diameter In./mm	Actual Outside Dia. In./mm	Allow. Pipe End Sep. † In./mm	Degrees per Cplg.	Pipe In./ft. mm/m	Nominal Diameter In./mm	Actual Outside Dia. In./mm	Allow. Pipe End Sep. † In./mm	Degrees per Cplg.	Pipe In./ft. mm/m	Nominal Diameter In./mm	Actual Outside Dia. In./mm	Allow. Pipe End Sep. † In./mm	Degrees per Cplg.	Pipe In./ft. mm/m
3/4 20	1.050 26,7	0 - 0.06 0 - 1,6	3° 24'	0.72 60	4 100	4.500 114,3	0 - 0.13 0 - 3,2	1° 36'	0.34 28	165,1 mm	6.500 165,1	0 - 0.13 0 - 3,2	1° 6'	0.23 19
1 25	1.315 33,7	0 - 0.06 0 - 1,6	2° 43'	0.57 48	108,0 mm	4.250 108,0	0 - 0.13 0 - 3,2	1° 41'	0.35 29	6 150	6.625 168,3	0 - 0.13 0 - 3,2	1° 5'	0.23 19
1 1/4 32	1.660 42,4	0 - 0.06 0 - 1,6	2° 10'	0.45 38	4 1/2 120	5.000 127,0	0 - 0.13 0 - 3,2	1° 26'	0.25 21	203,2 mm	8.000 203,2	0 - 0.13 0 - 3,2	0° 54'	0.16 13
1 1/2 40	1.900 48,3	0 - 0.06 0 - 1,6	1° 56'	0.40 33	133,0 mm	5.250 133,0	0 - 0.13 0 - 3,2	1° 21'	0.28 23	8 200	8.625 219,1	0 - 0.13 0 - 3,2	0° 50'	0.18 15
2 50	2.375 60,3	0 - 0.06 0 - 1,6	1° 31'	0.32 27	139,7 mm	5.500 139,7	0 - 0.13 0 - 3,2	1° 18'	0.28 23	254,0 mm	10.000 254,0	0 - 0.13 0 - 3,2	0° 43'	0.15 13
2 1/2 65	2.875 73,0	0 - 0.06 0 - 1,6	1° 15'	0.26 22	5 125	5.563 141,3	0 - 0.13 0 - 3,2	1° 18'	0.27 22	10 250	10.750 273,0	0 - 0.13 0 - 3,2	0° 40'	0.14 12
76,1 mm.	3.000 76,1	0 - 0.06 0 - 1,6	1° 12'	0.26 22	152,4 mm	6.000 152,4	0 - 0.13 0 - 3,2	1° 12'	0.21 17	304,8 mm	12.000 304,8	0 - 0.13 0 - 3,2	0° 36'	0.13 11
3 80	3.500 88,9	0 - 0.06 0 - 1,6	1° 2'	0.22 18	159,0 mm	6.250 159,0	0 - 0.13 0 - 3,2	1° 9'	0.24 20	12 300	12.750 323,9	0 - 0.13 0 - 3,2	0° 34'	0.12 10
3 1/2 90	4.000 101,6	0 - 0.06 0 - 1,6	0° 54'	0.19 16										

Refer to notes on page 4.

† NOTE: These values are based on standard roll grooved pipe. Figures for standard cut grooved pipe may be doubled. See notes on page 4.



Minimizes noise and vibration transmission

- Isolates noise and vibration
- Resilient gasket helps absorb noise and vibration
- Permits elimination of noise suppression devices
- Provides superior vibration attenuation better than flexible metal or elastomeric arch-type connectors (refer to 26.04)

Provides expansion and contraction

- Up to 0.250" (6,35 mm) linear movement at each joint
- Minimizes or eliminates costly expansion joints and loops (refer to 26.02)

Minimizes system stresses

- Flexible joints provide virtually a stress free system (refer to 26.03)
- Reduces or eliminates stresses from settlement of buried pipe
- Absorbs temporary stresses induced by seismic tremors (refer to 26.12)

COUPLING MAXIMUM WORKING PRESSURE (Standard Wall Steel Pipe)

Pipe Size			Coupling Style – Working Pressure – PSI/kPa											
Nominal Diameter In./mm	Actual Outside Dia. In./mm	Pipe Wall Thick. Sched.	Style 07 Rigid	Style W07 AGS Rigid	Style 77 Flexible	Style W77 AGS Flexible	Style 75 Flexible	Style 78 Snap-Joint®	Style 791 Boltless	Style 741 Flange Adpt.	Style W741 AGS Flange Adapter	Style 743 Flange Adpt.	HP-70 Rigid	HP-70ES EndSeal®
3/4 20	1.050 26,7	40	–	–	1000 6900	–	–	–	–	–	–	–	–	–
1 25	1.315 33,7	40	750 5175	–	1000 6900	–	–	300 2065	–	–	–	–	–	–
1 1/4 32	1.660 42,4	40	750 5175	–	1000 6900	–	–	300 2065	–	–	–	–	–	–
1 1/2 40	1.900 48,3	40	750 5175	–	1000 6900	–	500 3450	300 2065	–	–	–	–	–	–
2 50	2.375 60,3	40	750 5175	–	1000 6900	–	500 3450	300 2065	700 4825	300 2065	–	720 4965	1000 6900	2500 17235
2 1/2 65	2.875 73,0	40	750 5175	–	1000 6900	–	500 3450	300 2065	700 4825	300 2065	–	720 4965	1000 6900	2500 17235
76,1 mm	3.000 76,1	40	750 5175	–	1000 6900	–	500 3450	–	–	–	–	–	–	–
3 80	3.500 88,9	40	750 5175	–	1000 6900	–	500 3450	300 2065	700 4825	300 2065	–	720 4965	1000 6900	2500 17235
3 1/2 90	4.000 101,6	40	–	–	1000 6900	–	500 3450	–	–	–	–	–	–	–
4 100	4.500 114,3	40	750 5175	–	1000 6900	–	500 3450	300 2065	700 4825	300 2065	–	720 4965	1000 6900	2500 17235
108,0 mm	4.250 108,0	40	750 5175	–	1000 6900	–	450 3100	–	–	–	–	–	–	–
4 1/2 120	5.000 127,0	40	–	–	–	–	450 3100	–	–	–	–	–	–	–
133,0 mm	5.250 133,0	40	700 4825	–	1000 6900	–	450 3100	–	–	–	–	–	–	–
139,7 mm	5.500 139,7	40	700 4825	–	1000 6900	–	450 3100	–	–	–	–	–	–	–
5 125	5.563 141,3	40	700 4825	–	1000 6900	–	450 3100	300 2065	700 4825	300 2065	–	720 4965	–	–
159,0 mm	6.250 159,0	40	700 4825	–	1000 6900	–	450 3100	–	–	–	–	–	–	–
165,1 mm	6.500 165,1	40	700 4825	–	1000 6900	–	450 3100	–	–	300 2065	–	–	–	–
6 150	6.625 168,3	40	700 4825	–	1000 6900	–	450 3100	300 2065	600 4135	300 2065	–	720 4965	1000 6900	2000 13790
8 200	8.625 219,1	40	600 4130	–	800 5500	–	450 3100	300 2065	500 3450	300 2065	–	720 4965	800 5500	1500 10350
10 250	10.750 273,0	40	500 3450	–	800 5500	–	–	–	–	300 2065	–	720 4965	800 5500	1250 8625
12 300	12.750 323,9	30	400 2750	–	800 5500	–	–	–	–	300 2065	–	720 4965	800 5500	1250 8625
14 350	14.000 355,6	30	–	350 2410	300 ‡ 2065	350 2410	–	–	–	300 2065	300 2065	–	600 4135	–
15 375	15.000 381,0	0.375	–	–	300 ‡ 2065	–	–	–	–	–	–	–	–	–
16 400	16.000 406,4	30	–	350 2410	300 ‡ 2065	350 2410	–	–	–	300 2065	300 2065	–	600 4135	–
18 450	18.000 457,0	STD	–	350 2410	300 ‡ 2065	350 2410	–	–	–	300 2065	300 2065	–	–	–
20 500	20.000 508,0	20	–	350 2410	300 ‡ 2065	350 2410	–	–	–	300 2065	300 2065	–	–	–
22 550	22.000 559,0	20	–	–	300 ‡ 2065	–	–	–	–	–	–	–	–	–
24 600	24.000 610,0	20	–	350 2410	250 ‡ 1725	350 2410	–	–	–	300 2065	300 2065	–	–	–

NOTES

* Working Pressure and End Load are total, from all internal and external loads, based on standard weight (ANSI) steel pipe, standard **roll** or **cut** grooved in accordance with Victaulic specifications. Coupling style numberings beginning with "W" are AGS products for use only on roll grooved standard weight steel pipe. Contact Victaulic for performance on other pipe.

WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1 1/2 times the figures shown.

‡ Available only for cut groove systems.

† Allowable Pipe End Separation and Deflection figures show the maximum nominal range of movement available at each joint for standard **roll** grooved pipe.

Figures for standard **cut** grooved pipe may be doubled. These figures are maximums; for design and installation purposes these figures should be reduced by: 50% for 3/4 - 3 1/2" (20 - 90 mm); 25% for 4" (100 mm) and larger.

Number of bolts required equals number of housing segments.

Metric thread size bolts are available (color coded gold) for all coupling sizes upon request. Contact Victaulic for details.

WARNING: Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.

This product shall be manufactured by Victaulic or to Victaulic specifications. All products shall be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.