

Victaulic® Standard Flexible Coupling Style 77



¾ – 12"/DN20 – DN300 sizes 14 – 24"/DN350 – DN600 sizes

1.0 PRODUCT DESCRIPTION

Available Sizes

- ¾ – 24"/DN20 – DN600

Maximum Working Pressure

- Accommodates pressures ranging from full vacuum (29.9 in Hg/760 mm Hg) up to 1000 psi/6894 kPa
- Working pressure dependent on material, wall thickness and size of pipe

Application

- Joins standard roll grooved and cut grooved pipe, as well as grooved fittings, valves and accessories
- Provides a flexible pipe joint which allows for expansion, contraction and deflection
- Operating temperature dependent upon gasket and/or seal selection – see [Section 3.0](#)
- Exclusively for use with pipe and Victaulic products which feature ends formed with the Victaulic OGS groove profile (see [Section 7.0](#) for Reference Materials)

Pipe Material

- Carbon Steel
- For use with stainless steel pipe, refer to Victaulic [Publication 17.09](#) for pressure ratings and end loads

2.0 CERTIFICATIONS/LISTINGS



G4900051



LPS 1219: Issue 3.1
Cert/LPCB Ref. 104-1a/04



EN 10311
CPR (EU)
No. 305/2011



BS EN 10311
CPR (UK)
2019 No. 465

NOTE

- See [Publication 02.06: Victaulic Potable Water Approvals ANSI/NSF/CAN](#) for potable water approvals if applicable.
- See [Publication 10.01: Victaulic Certification Reference Guide](#) for fire protection ratings and other certification/listing information.

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

3.0 MATERIAL SPECIFICATIONS

Housing: Ductile Iron conforming to ASTM A536, Grade 65-45-12. Ductile Iron conforming to ASTM A395, Grade 65-45-15, is available upon special request.

Housing Coating: (specify choice)

- ☐ Standard: Orange Enamel
- ☐ Optional: Hot Dipped Galvanized and others
- ☐ Optional: Contact Victaulic with your requirements for other coatings.

Gasket: (specify choice¹)

☐ **Grade "E" EPDM**

EPDM (Green stripe color code). Temperature range -30°F to +230°F/-34°C to +110°C. May be specified for cold and hot water service within the specified temperature range plus a variety of dilute acids, oil-free air and many chemical services. UL Classified in accordance with ANSI/NSF 61 for cold +73°F/+23°C and hot +180°F/+82°C potable water service and ANSI/NSF 372. NOT COMPATIBLE FOR PETROLEUM SERVICES OR STEAM SERVICES.

☐ **Grade "T" Nitrile**

Nitrile (Orange stripe color code). Temperature range -20°F to +180°F/-29°C to +82°C. May be specified for petroleum products, air with oil vapors, vegetable and mineral oils within the specified temperature range. Not compatible for hot water services over +150°F/+66°C or for hot dry air over +140°F/+60°C.

☐ **Others**

For alternate gasket selection, reference [Publication 05.01](#): Victaulic Seal Selection Guide - Elastomeric Seal Construction.

¹ Services listed are General Service Guidelines only. It should be noted that there are services for which these gaskets are not compatible. Reference should always be made to the latest [Victaulic Seal Selection Guide](#) for specific gasket service guidelines and for a listing of services which are not compatible.

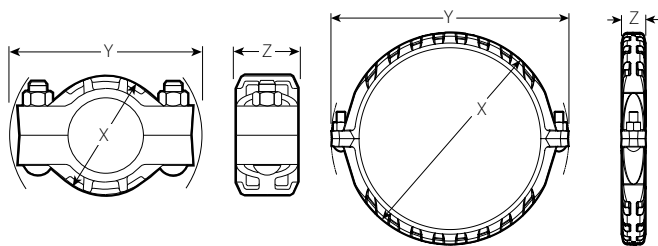
Bolts/Nuts: (specify choice²)

- ☐ Standard: Carbon steel oval neck track bolts meeting the mechanical property requirements of (imperial) ASTM A449 or (metric) ISO 898-1 Class 9.8 (M10-M16) or Class 8.8 (M20 and greater). Carbon steel hex nuts meeting the mechanical property requirements of (imperial heavy hex nuts) ASTM A563 Grade B or (metric hex nuts) ISO 898-2 Class 10 (M12-M16) or Class 8 (M20 and greater). Track bolts and hex nuts are zinc electroplated per ASTM B633 Fe/Zn5 finish (imperial) Type III or (metric) Type II.
- ☐ Optional: Stainless steel oval neck track bolts meeting the mechanical property requirements of ASTM F593, Group 2 (316 stainless steel), condition CW. Stainless steel heavy hex nuts meeting the mechanical property requirements of ASTM F594, Group 2 (316 stainless steel), condition CW, with galling reducing coating.

² Optional bolts/nuts are available in imperial size only.

4.0 DIMENSIONS

Style 77



¾ – 12"/DN20 – DN300 sizes

14 – 24"/DN350 – DN600 sizes

Size		Pipe End Separation ³	Deflection from Centerline ³		Bolt/Nut		Dimensions			Weight
Nominal inches DN	Actual Outside Diameter inches mm	Allowable inches mm	Per Cplg. Degrees	Pipe inches/ft. mm/m	Qty.	Size inches	X inches mm	Y inches mm	Z inches mm	Approx. (Each) lb kg
¾ DN20	1.050 26.9	0–0.06 0–1.5	3°–24'	0.72 60	2	¾ x 2	2.13 54	4.00 102	1.75 44	1.1 0.5
1 DN25	1.315 33.7	0–0.06 0–1.5	2°–43'	0.57 47	2	¾ x 2	2.38 60	4.12 104	1.75 44	1.2 0.5
1¼ DN32	1.660 42.4	0–0.06 0–1.5	2°–10'	0.45 37	2	½ x 2½	2.65 68	5.00 128	1.88 48	2.0 0.9
1½ DN40	1.900 48.3	0–0.06 0–1.5	1°–56'	0.40 33	2	½ x 2½	3.13 80	5.38 136	1.88 48	2.1 1.0
	2.244 57.0	0–0.06 0–1.5	1°–34'	0.33 27	2	½ x 2½	3.43 88	5.73 146	1.90 48	3.0 1.4
2 DN50	2.375 60.3	0–0.06 0–1.5	1°–31'	0.32 27	2	½ x 2½	3.63 92	5.88 150	1.88 48	2.6 1.2
2½	2.875 73.0	0–0.06 0–1.5	1°–15'	0.26 22	2	½ x 2¾	4.25 108	6.50 166	1.88 48	3.1 1.4
DN65	3.000 76.1	0–0.06 0–1.5	1°–12'	0.26 22	2	½ x 2¾	4.38 112	6.63 168	1.88 48	3.2 1.5
3 DN80	3.500 88.9	0–0.06 0–1.5	1°–2'	0.22 18	2	½ x 2¾	5.00 128	7.13 182	1.88 48	3.7 1.7
3½ DN90	4.000 101.6	0–0.06 0–1.5	0°–54'	0.19 16	2	¾ x 3¼	5.63 144	8.25 210	1.88 48	5.6 2.5
	4.250 108.0	0–0.13 0–3.3	1°–41'	0.35 29	2	M16 x 83	6.00 152	8.63 220	2.13 54	6.2 2.8
4 DN100	4.500 114.3	0–0.13 0–3.3	1°–36'	0.34 28	2	¾ x 3¼	6.13 156	8.88 226	2.13 54	6.7 3.0
4½	5.000 127.0	0–0.13 0–3.3	1°–26'	0.30 25	2	¾ x 4¼	7.25 184	10.13 258	2.13 54	10.0 4.5
	5.250 133.0	0–0.13 0–3.3	1°–21'	0.28 23	2	M20 x 108	7.63 194	10.38 264	2.13 54	10.0 4.5
DN125	5.500 139.7	0–0.13 0–3.3	1°–18'	0.28 23	2	M20 x 108	8.63 220	10.65 270	2.13 54	10.0 4.5
5	5.563 141.3	0–0.13 0–3.3	1°–18'	0.27 22	2	¾ x 4¼	7.75 196	10.65 270	2.13 54	10.6 4.8
	6.250 159.0	0–0.13 0–3.3	1°–9'	0.24 20	2	M20 x 108	8.63 220	11.50 292	2.13 54	13.2 6.0
	6.500 165.1	0–0.13 0–3.3	1°–6'	0.23 19	2	¾ x 4¼	8.88 226	11.63 296	2.13 54	13.2 6.0
6 DN150	6.625 168.3	0–0.13 0–3.3	1°–5'	0.23 19	2	¾ x 4¼	8.63 220	11.88 302	2.13 54	12.0 5.4

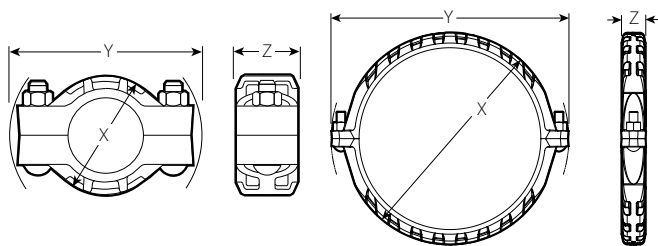
³ Allowable Pipe End Separation and Deflection figures show the maximum nominal range of movement available at each joint for standard **roll** grooved pipe. Figures for standard **cut** grooved pipe may be doubled. These figures are maximums; for design and installation purposes these figures should be reduced by: 50% for ¾ – 3 ½"/DN20 – DN90; 25% for 4"/DN100 and larger.

NOTE

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

4.0 DIMENSIONS (CONTINUED)

Style 77



¾ – 12"/DN20 – DN300 sizes

14 – 24"/DN350 – DN600 sizes

Size		Pipe End Separation ³	Deflection from Centerline ³		Bolt/Nut		Dimensions			Weight
Nominal inches DN	Actual Outside Diameter inches mm	Allowable inches mm	Per Cplg. Degrees	Pipe inches/ft. mm/m	Qty.	Size inches	X inches mm	Y inches mm	Z inches mm	Approx. (Each) lb kg
8 ⁴ DN200	8.625 219.1	0–0.13 0–3.3	0°–50'	0.18 15	2	7/8 x 5	11.00 280	14.75 374	2.50 64	20.8 9.4
10 ⁴ DN250	10.750 273.0	0–0.13 0–3.3	0°–40'	0.14 12	2	1 x 6	13.63 346	17.13 436	2.63 66	27.8 12.5
12 ⁴ DN300	12.750 323.9	0–0.13 0–3.3	0°–34'	0.12 10	2	1 x 6½	15.63 398	19.25 488	2.63 66	31.1 14.0
14 ⁵ DN350	14.000 355.6	0–0.13 0–3.3	0°–31'	0.11 9	2	1 x 3½	16.75 426	20.25 514	3.00 76	39.2 18.0
	14.843 377.0	0–0.13 0–3.3	0°–31'	0.11 9	2	1 x 3½	17.39 442	20.96 532	2.80 72	48.8 22.0
16 ⁵ DN400	16.000 406.4	0–0.13 0–3.3	0°–27'	0.10 8	2	1 x 3½	18.75 476	22.25 566	3.00 76	45 20.5
	16.772 426.0	0–0.13 0–3.3	0°–27'	0.10 8	2	1 x 3½	19.69 500	22.92 582	2.92 74	56.7 25.5
18 ⁵ DN450	18.000 457.2	0–0.13 0–3.3	0°–24'	0.08 7	2	1½ x 4	21.56 548	25.00 636	3.13 80	64.1 29.0
	18.898 480.0	0–0.13 0–3.3	0°–24'	0.08 7	2	1½ x 4	22.38 568	25.86 656	3.04 78	77.2 35.0
20 ⁵ DN500	20.000 508.0	0–0.13 0–3.3	0°–22'	0.08 7	2	1½ x 4	23.63 600	27.00 686	3.13 80	74.8 34.0
	20.866 530.0	0–0.13 0–3.3	0°–22'	0.08 7	2	1½ x 4	24.29 616	27.80 706	3.07 78	91.7 41.5
22 ⁵ DN550	22.000 558.8	0–0.13 0–3.3	0°–19'	0.07 6	2	1½ x 4	25.63 652	29.13 740	3.13 80	82.6 37.5
	22.835 580.0	0–0.13 0–3.3	0°–19'	0.07 6	2	1½ x 4	26.76 680	30.01 762	3.12 80	92.8 42.0
24 ⁵ DN600	24.000 609.6	0–0.13 0–3.3	0°–18'	0.07 6	2	1½ x 4	27.75 704	31.00 788	3.19 82	89.6 40.5
	24.803 630.0	0–0.13 0–3.3	0°–18'	0.07 6	2	1½ x 4	28.42 722	32.16 816	3.12 80	96.8 44.0
14–72 DN350– DN1800	14.000–72.0 355.6–1828.8	AGS See Style W77, refer to Victaulic Publication 20.03 								

³ 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 ¾ – 3 ½"/DN20 – DN90; 25% for 4"/DN100 and larger.

⁴ Couplings 8, 10, 12"/DN200, DN250, DN300 sizes available to JIS standards. Refer to Victaulic [Publication 06.17](#) for details.

⁵ For 14 – 72"/DN350 – DN1800 Roll Groove systems Victaulic offers the Advanced Groove System (AGS) line of products. Refer to Victaulic [Publication 20.03](#) for information on the Style W77 flexible AGS coupling.

NOTE

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

5.0 PERFORMANCE

Style 77

Size		Working Pressure ⁶	End Load ⁶
Nominal inches DN	Actual Outside Diameter inches mm	Maximum psi kPa	Maximum lb N
¾ DN20	1.050 26.9	1000 6895	865 3848
1 DN25	1.315 33.7	1000 6895	1360 6050
1¼ DN32	1.660 42.4	1000 6895	2160 9608
1½ DN40	1.900 48.3	1000 6895	2835 12,610
	2.244 57.0	1000 6895	4430 19,706
2 DN50	2.375 60.3	1000 6895	3955 17,592
2½	2.875 73.0	1000 6895	6490 28,868
DN65	3.000 76.1	1000 6895	7070 31,448
3 DN80	3.500 88.9	1000 6895	9620 42,792
3½ DN90	4.000 101.6	1000 6895	12,565 55,892
	4.250 108.0	1000 6895	14,180 63,076
4 DN100	4.500 114.3	1000 6895	15,900 70,726
4½	5.000 127.0	1000 6895	19,650 87,408
	5.250 133.0	1000 6895	21,635 96,238
DN125	5.500 139.7	1000 6895	23,745 105,624
5	5.563 141.3	1000 6895	24,300 108,092
	6.250 159.0	1000 6895	30,665 136,404
	6.500 165.1	1000 6895	33,185 147,614

⁶ 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. Contact Victaulic for performance on other pipe.

NOTE

- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1½ times the figures shown.

5.0 PERFORMANCE (CONTINUED)

Style 77

Size		Working Pressure ⁶	End Load ⁶
Nominal inches DN	Actual Outside Diameter inches mm	Maximum psi kPa	Maximum lb N
6 DN150	6.625 168.3	1000 6895	34,470 153,330
8 ⁴ DN200	8.625 219.1	800 5516	46,740 207,910
10 ⁴ DN250	10.750 273.0	800 5516	73,280 325,966
12 ⁴ DN300	12.750 323.9	800 5516	102,000 453,718
14 ⁵ DN350	14.000 355.6	300 2068	46,180 205,418
	14.843 377.0	300 2068	51,875 230,752
16 ⁵ DN400	16.000 406.4	300 2068	60,320 268,316
	16.772 426.0	300 2068	66,245 294,672
18 ⁵ DN450	18.000 457.2	300 2068	76,340 339,578
	18.898 480.0	300 2068	84,105 374,118
20 ⁵ DN500	20.000 508.0	300 2068	94,000 418,132
	20.866 530.0	300 2068	102,500 455,940
22 ⁵ DN550	22.000 558.8	300 2068	114,000 507,098
	22.835 580.0	300 2068	122,850 546,464
24 ⁵ DN600	24.000 609.6	250 1724	113,000 502,650
	24.803 630.0	250 1724	102,790 457,232
14–72 DN350–DN1800	14.000–72.000 355.6–1828.8	AGS See Style W77, refer to Victaulic Publication 20.03 	

⁴ Couplings 8, 10, 12"/DN200, DN250, DN300 sizes available to JIS standards. Refer to Victaulic [Publication 06.17](#) for details.

⁵ For 14 – 72"/DN350 – DN1800 Roll Groove systems Victaulic offers the Advanced Groove System (AGS) line of products. Refer to Victaulic [Publication 20.03](#) for information on the Style W77 flexible AGS coupling.

⁶ 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. Contact Victaulic for performance on other pipe.

NOTE

- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1½ times the figures shown.

6.0 NOTIFICATIONS

- For 14 – 72"/DN350 – DN1800 flexible roll groove systems, Victaulic recommends Style W77 AGS couplings. For more information, refer to Victaulic [Publication 20.03](#).

⚠️ WARNING



- Read and understand all instructions before attempting to install any Victaulic products.
- Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.
- Confirm that any equipment, branch lines, or sections of piping that may have been isolated for/during testing or due to valve closures/positioning are identified, depressurized, and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.
- Always read and follow the I-ENDCAP, Victaulic End Cap Installation Safety Instructions, which can be downloaded at [Victaulic.com](#).
- Wear safety glasses, hardhat, foot protection, and hearing protection.

Failure to follow these instructions could result in death or serious personal injury and property damage.

⚠️ WARNING

- Victaulic RX roll sets must be used when grooving light-wall/thin-wall stainless steel pipe for use with Victaulic Couplings.

Failure to use Victaulic RX roll sets when grooving light-wall/thin-wall stainless steel pipe may cause joint failure, resulting in serious personal injury and/or property damage.

NOTICE

- Victaulic RX grooving rolls must be ordered separately. They are identified by a silver color and the designation RX on the front of the roll sets.

7.0 REFERENCE MATERIALS

- [I-100: Victaulic Field Installation Handbook](#)
- [02.06: Victaulic Potable Water Approvals NSF/ANSI/CAN](#)
- [05.01: Victaulic Seal Selection Guide](#)
- [06.15: Victaulic Pressure Ratings and End Loads for Victaulic® Couplings on Steel Pipe](#)
- [06.17: Victaulic Couplings and Fittings for JIS Pipe](#)
- [10.01: Victaulic Certification Reference Guide—General Catalog Products](#)
- [17.01: Victaulic Stainless Steel Pipe End Preparation](#)
- [17.09: Victaulic Grooved Couplings Performance Data for Stainless Steel Pipe](#)
- [20.03: Victaulic AGS Flexible Coupling Style W77/W77B](#)
- [25.01: Victaulic Original Groove System \(OGS\) Groove Specifications](#)
- [26.01: Victaulic Design Data](#)
- [26.04: Victaulic Couplings Vibration Attenuation Characteristics](#)
- [29.01: Victaulic Terms and Conditions of Sale/Warranty](#)
- [I-ENDCAP: Victaulic End Cap Installation Safety Instructions](#)

User Responsibility for Product Selection and Suitability
Each user bears final responsibility for determining the suitability of Victaulic products for their end-use application, in accordance with industry standards, project specifications, and Victaulic’s published performance, maintenance, and safety data, as well as all warnings and installation instructions. Nothing in this or any other document, nor any verbal recommendation, advice, or opinion from any Victaulic employee, shall be deemed to alter, vary, supersede, or waive any provision of Victaulic Company’s standard conditions of sale, warranty, installation instructions, or this disclaimer.

Installation
Always refer to and follow the [Victaulic Installation Handbook](#) or installation instructions for the product you are installing. Handbooks are included with each shipment of Victaulic products, providing complete installation and assembly data, and are available in PDF format on our website at [victaulic.com](#).

Warranty
Refer to the Warranty section of the current Price List or contact Victaulic for details.

Intellectual Property Rights
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Note
All products bearing a Victaulic trademark are manufactured by Victaulic or to Victaulic specifications. All products are to be installed only in accordance with the applicable Victaulic installation instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.