

Victaulic® Standard Flexible Coupling Style 77



¾ – 12"/20 – 300 mm sizes



14 – 24"/350 – 600 mm sizes

1.0 PRODUCT DESCRIPTION

Available Sizes

- ¾ – 24"/20 – 600 mm
- For 14 – 72"/350 – 1800 mm flexible roll groove systems, Victaulic recommends Style W77 AGS couplings. For more information, refer to Victaulic submittal [publication 20.03](#).

Maximum Working Pressure

- 1000 psi/6900 kPa.

Application

- This product joins standard roll grooved and cut grooved pipe.
- Provides a flexible pipe joint with 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).

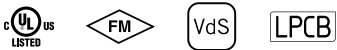
Pipe Material

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

Codes and Requirements

- Support hanger spacing correspond to ASME B31.1 Power Piping Code and ASME B31.9 Building Services Piping Code.

2.0 CERTIFICATION/LISTINGS



NOTES

- Refer to Victaulic submittal [publication 10.01](#) for details
- Refer to Victaulic submittal [publication 02.06](#) for potable water approvals if applicable.

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

System No.		Location		Spec Section		Paragraph	
Submitted By		Date		Approved		Date	

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.

Gasket: (specify choice¹)

- NOTE: Additional gasket styles are available. Contact Victaulic for details.

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.

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.

- 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 Gasket Selection Guide](#) for specific gasket service guidelines and for a listing of services which are not compatible.

Bolts/Nuts: (specify choice)

Standard: Carbon steel oval neck track bolts meeting the mechanical property requirements of ASTM A449.

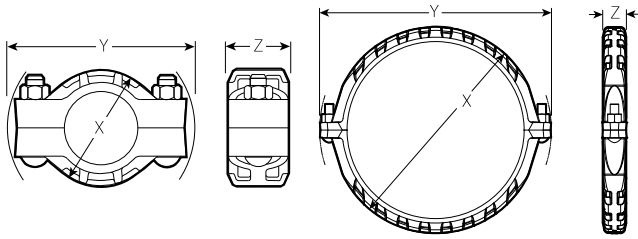
Carbon steel heavy hex nuts meeting the mechanical property requirements of ASTM A563 Grade B. Track bolts and heavy hex nuts are zinc electroplated per ASTM B633 ZN/FE5, finish Type III (imperial) or Type II (metric).

Optional:² Bolts – Stainless steel, meeting the mechanical property requirements of ASTM F593, Group 2 (316 stainless steel), condition CW. Nuts – Stainless Steel 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"/20 – 300 mm sizes

14 – 24"/350 – 600 mm sizes

Size		Working Pressure ³	End Load ³	Pipe End Separation ⁴	Deflection from Centerline ⁴		Bolt/Nut ⁵		Dimensions			Weight
Nominal	Actual Outside Diameter	Maximum	Maximum	Allowable	Per Cplg.	Pipe	Qty.	Size	X	Y	Z	Approx. (Each)
inches DN	inches mm	psi kPa	lb N	inches mm	Degrees	inches/ft. mm/m		inches	inches mm	inches mm	inches mm	lb kg
¾	1.050	1000	865	0-0.06	3°-24'	0.72	2	¾ x 2	2.13	4.00	1.75	1.1
DN20	26.7	6900	3850	0-1.6		60			54	102	44	0.5
1	1.315	1000	1,360	0-0.06	2°-43'	0.57	2	¾ x 2	2.38	4.12	1.75	1.2
DN25	33.4	6900	6050	0-1.6		48			61	105	44	0.5
1¼	1.660	1000	2,160	0-0.06	2°-10'	0.45	2	½ x 2½	2.65	5.00	1.88	2.0
DN32	42.2	6900	9610	0-1.6		38			67	127	48	0.9
1½	1.900	1000	2,835	0-0.06	1°-56'	0.40	2	½ x 2½	3.13	5.38	1.88	2.1
DN40	48.3	6900	12615	0-1.6		33			79	137	48	1.0
2	2.375	1000	4,430	0-0.06	1°-31'	0.32	2	½ x 2½	3.63	5.88	1.88	2.6
DN50	60.3	6900	19715	0-1.6		26			92	149	48	1.2
	2.664	1000	3955	0-0.06	1°-34'	0.33	2	½ x 2½	3.43	5.73	1.90	3.0
	57.0	6900	17592	0-1.6		27			87	146	48	1.4
2½	2.875	1000	6,490	0-0.06	1°-15'	0.26	2	½ x 2¾	4.25	6.50	1.88	3.1
DN65	73.0	6900	28880	0-1.6		22			108	165	48	1.4
	3.000	1000	7,070	0-0.06	1°-12'	0.26	2	½ x 2¾	4.38	6.63	1.88	3.2
	76.1	6900	31460	0-1.6		22			111	168	48	1.5
3	3.500	1000	9,620	0-0.06	1°-2'	0.22	2	½ x 2¾	5.00	7.13	1.88	3.7
DN80	88.9	6900	46810	0-1.6		18			127	181	48	1.7
3½	4.000	1000	12,565	0-0.06	0°-54'	0.19	2	⅝ x 3¼	5.63	8.25	1.88	5.6
DN90	101.6	6900	55915	0-1.6		16			143	210	48	2.5
4	4.500	1000	15,900	0-0.13	1°-36'	0.34	2	⅝ x 3¼	6.13	8.88	2.13	6.7
DN100	114.3	6900	70755	0-3.2		28			156	226	54	3.0
	4.250	1000	14,180	0-0.13	1°-41'	0.35	2	16 x 82.5	6.00	8.63	2.13	11.0
	108.0	6900	63100	0-3.2		29			152	219	54	5.0
5	5.563	1000	24,300	0-0.13	1°-18'	0.27	2	2-¾ x 4¼	7.75	10.65	2.13	10.6
	141.3	6900	108135	0-3.2		23			197	270	54	4.8

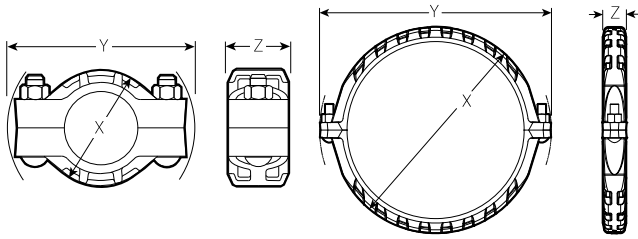
- Working Pressure and End Load are total, from all internal and external loads, based on standard weight (ANSI) steel pipe, standard roll or cut grooved in accordance with Victaulic specifications. Contact Victaulic for performance on other pipe.
- Allowable Pipe End Separation and Deflection figures 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"/20 – 90 mm; 25% for 4"/100 mm and larger.
- Number of bolts required equals number of housing segments.
- Couplings 8, 10, 12"/200, 250, 300 mm sizes available to JIS standards. Refer to Victaulic submittal [publication 06.17](#) for details.
- For 14 – 72"/350 – 1800 mm Roll Groove systems Victaulic offers the Advanced Groove System (AGS) line of products. Refer to Victaulic submittal [publication 20.03](#) for information on the Style W77 flexible AGS coupling.

NOTES

- Metric thread size bolts are available (color coded gold) for all coupling sizes upon request. Contact Victaulic for details.
- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1½ times the figures shown.

4.0 DIMENSIONS

Style 77



¾ – 12"/20 – 300 mm sizes

14 – 24"/350 – 600 mm sizes

Size		Working Pressure ³	End Load ³	Pipe End Separation ⁴	Deflection from Centerline ⁴		Bolt/Nut ⁵		Dimensions			Weight
Nominal inches DN	Actual Outside Diameter inches mm	Maximum psi kPa	Maximum lb N	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
DN125	5.250 133.0	1000 6900	21,635 96275	0-0.13 0-3.2	1°-21'	0.28 24	2	20 x 108	7.63 194	10.38 264	2.13 54	10.0 4.5
	5.500 139.7	1000 6900	23,745 105665	0-0.13 0-3.2	1°-18'	0.28 24	2	20 x 108	8.63 219	10.65 270	2.13 54	10.0 4.5
6 DN150	6.625 168.3	1000 6900	34,470 153390	0-0.13 0-3.2	1°-5'	0.23 18	2	¾ x 4¼	8.63 219	11.88 302	2.13 54	12.0 5.4
	6.250 159.0	1000 6900	30,665 136460	0-0.13 0-3.2	1°-9'	0.24 20	2	20 x 108	8.63 219	11.50 292	2.13 54	13.2 6.0
8 ⁵ DN200	6.500 165.1	1000 6900	33,185 147660	0-0.13 0-3.2	1°-6'	0.23 19	2	¾ x 4¼	8.88 226	11.63 295	2.13 54	13.2 6.0
	8.625 219.1	800 5500	46,740 207995	0-0.13 0-3.2	0°-50'	0.18 14	2	7/8 x 5	11.00 279	14.75 375	2.50 63	20.8 9.4
10 ⁵ DN250	10.750 273.0	800 5500	73,280 326100	0-0.13 0-3.2	0°-40'	0.14 12	2	1 x 6	13.63 346	17.13 435	2.63 67	27.8 12.6
12 ⁵ DN300	12.750 323.9	800 5500	102,000 453900	0-0.13 0-3.2	0°-34'	0.12 9	2	1 x 6½	15.63 397	19.25 489	2.63 67	31.1 14.1
14 ⁶ DN350	14.000 355.6	300 2065	46,180 205500	0-0.13 0-3.2	0°-31'	0.11 9	2	1 x 3½	16.75 425	20.25 514	3.00 76	39.2 17.8
	14.842 377.0	300 2065	51,875 230,845	0-0.13 0-3.2	0°-31'	0.11 9	2	1 x 3½	17.39 442	20.96 531	2.80 71	48.8 22.1
16 ⁶ DN400	16.000 406.4	300 2065	60,320 268425	0-0.13 0-3.2	0°-27'	0.10 9	2	1 x 3½	18.75 476	22.25 565	3.00 76	45 20.4
	16.772 426.0	300 2065	66,245 294,795	0-0.13 0-3.2	0°-27'	0.10 9	2	1 x 3½	19.69 500	22.92 581	2.92 74	56.7 25.7
18 ⁶ DN450	18.000 457.2	300 2065	76,340 339710	0-0.13 0-3.2	0°-24'	0.08 7	2	1½ x 4	21.56 548	25.00 635	3.13 80	64.1 29.1
	18.898 480.0	300 2065	84,105 374,265	0-0.13 0-3.2	0°-24'	0.08 7	2	1½ x 4	22.38 569	25.86 655	3.04 77	77.2 35

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5 Number of bolts required equals number of housing segments.

6 Couplings 8, 10, 12"/200, 250, 300 mm sizes available to JIS standards. Refer to Victaulic submittal [publication 06.17](#) for details.

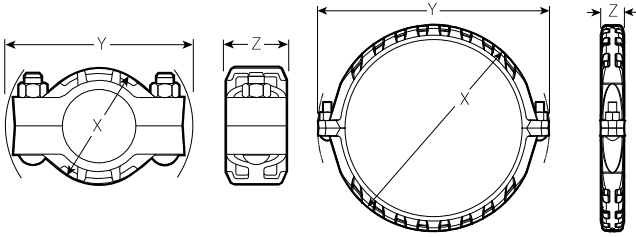
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Nominal inches DN	Actual Outside Diameter inches mm	Maximum psi kPa	Maximum lb N	Allowable inches mm	Per Cplg. Degrees	Pipe inches/ft. mm/m	Qty.	Size inches	X inches mm	Y inches mm	Z inches mm	Approx. (Each) lb kg
20 ⁶ DN500	20.000 508.0	300 2065	94,000 418300	0–0.13 0–3.2	0°–22'	0.08 7	2	1½ x 4	23.63 600	27.00 686	3.13 80	74.8 34
22 DN550	22.000 559.0	300 2065	114,000 507300	0–0.13 0–3.2	0°–19'	0.07 6	2	1½ x 4	25.63 651	29.13 740	3.13 80	82.6 37.5
	20.866 530.0	300 2065	102,535 456,280	0–0.13 0–3.2	0°–22'	0.08 7	2	1½ x 4	24.29 617	27.80 704	3.07 77	91.7 41.6
	22.835 580.0	300 2065	102,380 455,591	0–0.13 0–3.2	0°–19'	0.07 6	2	1½ x 4	26.76 680	30.01 762	3.12 79	92.8 42.2
24 ⁶ DN600	24.000 609.6	250 1725	113,000 502850	0–0.13 0–3.2	0°–18'	0.07 6	2	1½ x 4	27.75 705	31.00 787	3.19 81	89.6 40.7
	24.803 630.0	250 1725	102,790 457,416	0–0.13 0–3.2	0°–18'	0.07 6	2	1½ x 4	28.42 722	32.16 817	3.12 79	96.8 44
14–72 DN350– 1800	AGS See Style W77, refer to Victaulic submittal publication 20.03 											

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5.0 PERFORMANCE

Not applicable – contact Victaulic with any questions.

6.0 NOTIFICATIONS

 **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

[20.03: AGS Flexible Coupling Style W77](#)

[17.09: Pressure Ratings and End Loads for Victaulic Ductile Iron Grooved Couplings on Stainless Steel Pipe](#)

[26.04: Victaulic Couplings Vibration Attenuation Characteristics](#)

[26.12: Design Data for Seismic Applications of Victaulic Grooved System](#)

[17.01: Pipe Preparation for Use on Stainless Steel Pipe With Victaulic Products](#)

[10.01: Victaulic® Products for Fire Protection Piping Systems - Regulatory Approval Reference Guide](#)

[02.06: Potable Water Approvals ANSI/NSF](#)

[05.01: Seal Selection Guide](#)

[06.17: Couplings and Fittings for JIS Pipe](#)

User Responsibility for Product Selection and Suitability

Each user bears final responsibility for making a determination as to the suitability of Victaulic products for a particular end-use application, in accordance with industry standards and project specifications, and the applicable building codes and related regulations as well as Victaulic performance, maintenance, safety, and warning 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, installation guide, or this disclaimer.

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Note

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to 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.

Installation

Reference should always be made to the Victaulic installation handbook or [installation instructions of 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 www.victaulic.com.

Warranty

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

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