Grooved End Fittings

SEE VICTAULIC PUBLICATION 10.01 FOR DETAILS

Victaulic offers a broad line of fittings in sizes through 60"/1500 mm in a variety of straight and reducing styles. Most standard fittings are cast of durable ductile iron to precise tolerances. Victaulic standard fittings pressure ratings conform to the ratings of Victaulic Style 77 couplings.

All fittings are supplied with grooves to permit fast installation without field preparation. The grooved design permits flexibility for easy alignment. *These fittings are not intended for use with Victaulic couplings for plain end pipe (refer to Section 14.04 for fittings available for plain end applications).*

Fittings are provided in various materials including ductile iron, steel or segmentally welded steel depending on styles and size. Fittings are painted orange enamel with a galvanized finish available as an option, contact Victaulic for details.

Victaulic fittings are designed specifically for use in grooved piping systems. Fittings are provided grooved conforming to standard steel pipe outside diameters. When connecting wafer or lug-type butterfly valves directly to Victaulic fittings with 741 or 743 Vic-Flange® adapters, check disc clearance dimensions with I.D. dimension of fitting.

Note: The following Victaulic fittings are VdS approved: No.10 90° Elbow, No.11 45° Elbow, No.20 Tee and No.60 Cap.

Note: The following Victaulic fittings are LPCB approved: No.10 90° Elbow, No.11 45° Elbow, No.12 22½° Elbow, No.13 11¼° Elbow, No.30 45° Lateral, No.30-R Reducing Lateral, No.100 Long Radius Elbow, No.110 Long Radius Elbow, No.20 Tee, No.35 Cross, No.60 Cap, No.25 Reducing Tee, No.33 True Wye, No.50 Concentric Reducer, No.51 Eccentric Reducer and No.29M Tee with Threaded Branch.

NO. 20 TEE

NO. 10 ELBOW

AGS – ADVANCED GROOVE SYSTEM

Advanced Groove System – For 14 – 60"/350 – 1500 mm piping systems, Victaulic now offers the Advanced Groove System (AGS). Refer to Section 20.05 for AGS fitting details.

Stainless Steel – Grooved end fittings are available in Schedule 10 Type 316 stainless steel (Schedule 5, 40 and Type 304 available as an option) in various sizes. Fitting center-to-end dimensions will vary depending upon type and schedule. Refer to Section 17.04 and 17.16 for details.

Aluminum – Grooved end fittings are available in aluminum alloy 356 T6, in sizes from 1 – 8"/25 – 200 mm. Refer to Section 21.03 or contact Victaulic for details.

Fabricated Steel – A full range of fabricated segemtnally welded steel or full flow grooved end fittings are available refer to section 07.04.

Fabricated Steel with AGS Vic-Rings – A full range of full flow fabricated fittings with Vic-Rings are also available.

ALTERNATE STYLES

Extra Heavy EndSeal® "ES" Fittings – EndSeal fittings are available in 2 – 12"/50 – 300 mm for use with "ES" grooved pipe and HP-70ES EndSeal couplings. "ES" fittings are painted black for easy identification. EndSeal (and standard) fittings may be easily internally coated (by others) for severe service requirements. Always specify "ES EndSeal fittings" when ordering. See Section 07.03 for information on EndSeal fittings.

Fittings Machined for Rubber or Urethane Lining (MRL) – For severe abrasive services, Victaulic fittings may be rubber or urethane lined (by others). Lining may be inside diameter/end (abrasion resistance) or wrap-around (corrosion and/or abrasion) machined. Refer to Section 25.03 or contact Victaulic for specific details.

Note: Fittings are available with a variety of coatings upon request such as hot dip galvanized, epoxy, glass lined and others.

JOB/OWNER

System No. _____

Location _____

CONTRACTOR

Submitted By _____

Date _____

ENGINEER

Spec Sect _____ Para _____

Approved _____

Date _____

Grooved End Fittings

MATERIAL SPECIFICATIONS

Fitting: Ductile iron conforming to ASTM A-536, grade 65-45-12. Ductile iron conforming to ASTM A-395, grade 65-45-15, is available upon special request.

- **Or**: Segmentally welded steel as shown under nipples

Nipples: (adapter, swaged & hose)

- ¾ – 4"/20 – 100 mm: Carbon steel, Schedule 40, conforming to ASTM A-53, Type F
- 5 – 6"/125 – 150 mm: Carbon steel, Schedule 40, conforming to ASTM A-53, Type E or S, Gr. B
- 8 – 12"/200 – 300 mm: Carbon steel, Schedule 30 or 40, conforming to ASTM A-53, Type E or S, Gr. B

Flanged Adapter Nipples: (Nipple – see above)

- Class 125 Flange: Cast iron conforming to ANSI B-16.1
- Class 150 Flange: Carbon steel conforming to ANSI B-16.5, raised or flat face
- Class 300 Flange: Carbon steel conforming to ANSI B-16.5, raised or flat face

Fitting Coatings: Orange enamel

- **Optional**: Hot dip galvanized and others. Some fittings supplied electroplated as standard – see product specifications.

Flanged Adapter Nipple Coating: None (Unfinished)

- **Optional**: Orange enamel, hot dip galvanized and others.

Grooved End Fittings

FLOW DATA

(Frictional Resistance)

The chart expresses the frictional resistance of various Victaulic fittings as equivalent feet of straight pipe. Fittings not listed can be estimated from the data given, for example, a 22½° elbow is approximately one-half the resistance of a 45° elbow. Values of mid-sizes can be interpolated.

Size		Dimension – Feet/meters					
		Elbows				Tees	
		90° Elbows		45° Elbows			
Nominal Size In./mm	Actual Outside Dia. In./mm	No. 10 Std. Radius	No. 100 1 ½ D Long Radius	No. 11 Std. Radius	No. 110 1 ½ D Long Radius	Branch	Run
1 25	1.315 33.7	1.7 0.5	—	0.8 0.2	—	4.2 1.3	1.7 0.5
2 50	2.375 60.3	3.5 1.1	2.5 0.8	1.8 0.5	1.1 0.3	8.5 2.6	3.5 1.1
76.1 mm	3.000 76.1	4.3 1.3	—	2.1 0.7	—	10.8 3.3	4.3 1.3
3 80	3.500 88.9	5.0 1.5	3.8 1.2	2.6 0.8	1.6 0.5	13.0 4.0	5.0 1.5
108.0 mm	4.250 108.0	6.4 2.0	—	3.2 0.9	—	15.3 4.7	6.4 2.0
4 100	4.500 114.3	6.8 2.1	5.0 1.5	3.4 1.0	2.1 0.6	16.0 4.9	6.8 2.1
133.0 mm	5.250 133.0	8.1 2.5	—	4.1 1.2	—	20.0 6.2	8.1 2.5
139.7 mm	5.500 139.7	8.5 2.6	—	4.2 1.3	—	21.0 6.4	8.5 2.6
5 125	5.563 141.3	8.5 2.6	—	4.2 1.3	—	21.0 6.4	8.5 2.6
159.0 mm	6.250 159.0	9.4 2.9	—	4.9 1.5	—	25.0 7.6	9.6 2.9
165.1 mm	6.500 165.1	9.6 2.9	—	5.0 1.5	—	25.0 7.6	10.0 3.0
6 150	6.625 168.3	10.0 3.0	7.5 2.3	5.0 1.5	3.0 0.9	25.0 7.6	10.0 3.0
8 200	8.625 219.1	13.0 4.0	9.8 3.0	6.5 2.0	4.0 1.2	33.0 10.1	13.0 4.0
10 250	10.750 273.0	17.0 5.2	12.0 3.7	8.3 2.5	5.0 1.5	41.0 12.5	17.0 5.2
12 300	12.750 323.9	20.0 6.1	14.5 4.4	10.0 3.0	6.0 1.8	50.0 15.2	20.0 6.1
14 350	14.000 355.6	24.5 § 7.5	15.8 4.8	18.5 § 5.6	11.0 3.4	70.0 21.3	23.0 7.0
16 400	16.000 406.4	28.0 § 8.5	18.0 5.5	21.0 § 6.4	13.0 4.0	80.0 24.4	27.0 8.2
18 450	18.000 457.0	31.0 § 9.5	20.0 6.1	23.5 § 7.2	14.0 4.3	90.0 27.4	30.0 9.1
20 800	20.000 508.0	34.0 § 10.4	22.5 6.9	25.5 § 7.8	16.0 4.9	100.0 30.5	33.0 10.1
24 600	24.000 610.0	42.0 § 12.8	27.0 8.2	29.5 § 9.0	19.0 5.8	120.0 36.6	40.0 12.2
Fittings available up to 60"/1500 mm. Contact Victaulic for details.							

Contact Victaulic for details.

For roll grooved systems, Victaulic offers the Advanced Groove System (AGS). For pricing and availability of cut groove fittings in this size, contact your nearest Victaulic sales office.

§ Fitting flow data for 14-24"/350-600 mm size No. 10 and No. 11 Elbows is based on fittings for Style 07 and 77 couplings. For flow data on AGS fittings (No. W10 and No. W11 Elbows), refer to submittal 20.05.

Note: All fittings are ductile iron unless otherwise noted with an "sw" or "s".

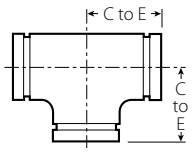
S= Carbon Steel Direct Roll Groove (OGS)

SW= Carbon Steel Segmentally Welded

Grooved End Fittings

Tees, Crosses and True Wyes

NO. 20 Tee
NO. 35 Cross
NO. 33 True Wye
NO. 29M Tee with Threaded Branch



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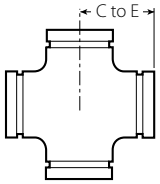

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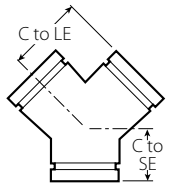

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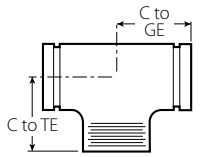


NO. 29M

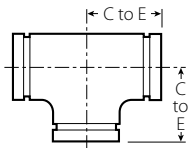
Size		No. 20 Tee		No. 35 Cross (sw)		No. 33 True Wye (sw)			No. 29M Tee with Threaded Branch		
Nominal Size Inches mm	Actual Outside Dia. Inches mm	C to E Inches mm	Approx. Weight Each Lbs. kg	C to E Inches mm	Approx. Weight Each Lbs. kg	C to LE Inches mm	C to SE Inches mm	Approx. Weight Each Lbs. kg	C to GE Inches mm	C to TE Inches mm	Approx. Weight Each Lbs. kg
¾ 20	1.050 26.9	2.25 57	0.6 0.3	2.25 57	0.9 0.4	2.25 57	2.00 51	0.7 0.3	2.25 57	2.25 sw 57	0.6 0.3
1 25	1.315 33.7	2.25 57	1.0 0.5	2.25 57	1.3 0.6	2.25 57	2.25 57	1.1 0.5	2.25 57	2.25 57	1.0 0.5
1 ¼ 32	1.660 42.4	2.75 70	1.5 0.7	2.75 70	2.1 1.0	2.75 70	2.50 64	1.5 0.7	2.75 70	2.75 70	1.5 0.7
1 ½ 40	1.900 48.3	2.75 70	2.0 0.9	2.75 70	2.5 1.1	2.75 70	2.75 70	1.8 0.8	2.75 70	2.75 70	2.0 0.9
2 50	2.375 60.3	3.25 83	3.0 1.4	3.25 83	3.8 1.7	3.25 83	2.75 70	2.5 1.1	3.25 83	4.25 108	3.00 1.4
2 ½ 65	2.875 73.0	3.75 95	4.3 2.0	3.75 95	6.1 2.8	3.75 95	3.00 76	4.3 2.0	3.75 95	3.75 95	4.3 2.0
76.1 mm	3.000 76.1	3.75 95	5.2 2.4	—	—	—	—	—	3.75 95	3.75 sw 95	5.2 2.4
3 80	3.500 88.9	4.25 108	6.8 3.0	4.25 108	10.5 4.8	4.25 108	3.25 83	6.1 2.8	4.25 108	6.00 152	6.8 3.1
3 ½ 90	4.000 101.6	4.50 sw 114	7.9 3.6	4.50 114	11.5 5.2	4.50 114	3.50 89	9.6 4.4	4.50 114	4.50 sw 114	7.9 73.6
108.0 mm	4.250 108.0	5.00 127	15.5 7.0	—	—	—	—	—	5.00 127	5.00 sw 127	15.5 7.0
4 100	4.500 114.3	5.00 127	11.9 5.4	5.00 127	15.8 7.2	5.00 127	3.75 95	10.0 4.5	5.00 127	7.25 184	11.9 5.4
4 ½ 120	5.000 127.0	5.25 sw 133	15.0 6.8	5.25 133	18.5 8.4	—	—	—	5.25 133	5.25 sw 133	15.0 6.8
133.0 mm	5.250 133.0	5.50 140	17.8 8.1	—	—	—	—	—	5.50 140	5.50 sw 140	17.8 8.1
139.7 mm	5.500 139.7	5.50 140	17.8 8.1	—	—	—	—	—	5.50 140	5.50 sw 140	17.8 8.1
5 125	5.563 141.3	5.50 140	17.8 8.1	5.50 140	20.0 9.1	5.50 140	4.00 102	15.0 6.8	5.50 140	5.50 sw 140	17.8 8.1
159.0 mm	6.250 159.0	6.50 165	27.1 12.3	—	—	—	—	—	6.50 165	6.50 sw 165	27.1 12.3
165.1 mm	6.500 165.1	6.50 165	22.0 10.0	6.50 165	28.0 12.7	—	—	—	6.50 165	6.50 sw 165	22.0 10.0
6 150	6.625 168.3	6.50 165	25.7 11.7	6.50 165	28.0 12.7	6.50 165	4.50 114	22.3 10.1	6.50 165	6.50 sw 165	25.7 11.7
8 200	8.625 219.1	7.75 197	47.6 21.6	7.75 197	48.0 21.8	7.75 197	6.00 152	36.0 16.3	7.75 197	7.75 sw 197	47.6 21.6
10 250	10.750 273.0	9.00 229	99.0 44.9	9.00 229	121.5 55.1	9.00 229	6.50 155	69.9 31.7	9.00 229	9.00 sw 229	73.0 33.1
12 300	12.750 323.9	10.00 254	133.0 60.3	10.00 254	110.0 49.9	10.00 254	7.00 178	80.0 36.3	10.00 254	10.00 sw 254	99.0 44.9

Note: All fittings are ductile iron unless otherwise noted with an "sw" or "s".
S= Carbon Steel Direct Roll Groove (OGS)
SW= Carbon Steel Segmentally Welded

Grooved End Fittings

Tees, Crosses and True Wyes

NO. 20 Tee
NO. 35 Cross
NO. 33 True Wye
NO. 29M Tee with Threaded Branch



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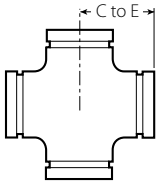

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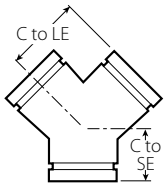

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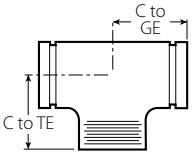

NO. 29M

Size		No. 20 Tee		No. 35 Cross (sw)		No. 33 True Wye (sw)			No. 29M Tee with Threaded Branch (sw)		
Nominal Size Inches mm	Actual Outside Dia. Inches mm	C to E Inches mm	Approx. Weight Each Lbs. kg	C to E Inches mm	Approx. Weight Each Lbs. kg	C to LE Inches mm	C to SE Inches mm	Approx. Weight Each Lbs. kg	C to GE Inches mm	C to TE Inches mm	Approx. Weight Each Lbs. kg
14 # 350	14.000 355.6	11.00 sw 279	145.0 65.8	11.00 279	198.0 89.8	11.00 279	7.50 191	134.2 60.8	11.00 sw 279	11.00 279	145.0 65.8
377.0 mm	14.000 355.6	11.50 292	145.0 65.8	—	—	—	—	—	—	—	—
16 # 400	16.000 406.4	12.00 sw 305	186.0 84.4	12.00 305	250.0 113.4	12.00 305	8.00 203	167.0 75.7	12.00 sw 305	12.00 305	186.0 84.4
426.0 mm †	16.000 406.4	13.00 300	186.0 84.4	—	—	—	—	—	—	—	—
18 # 450	18.000 457.0	15.50 sw 394	260.0 117.9	15.50 394	350.0 158.8	15.50 394	8.50 216	234.0 106.1	15.50 sw 394	15.50 394	117.9
480.0 mm†	18.000 457.0	14.57 370	256.0 116.1	—	—	—	—	—	—	—	—
20 # 500	20.000 508.0	17.25 sw 438	336.0 152.4	17.25 438	452.0 205.0	17.25 438	9.00 229	281.0 127.5	17.25 sw 438	17.25 438	336.0 152.4
530.0 mm †	20.000 508.0	15.39 sw 391	339.0 153.8	—	—	—	—	—	—	—	—
24 # 600	24.000 610.0	20.00 sw 508	592.0 268.5	20.00 508	795.0 360.6	20.00 508	10.00 254	523.0 237.2	20.00 sw 508	20.00 508	592.0 268.5
630.0 mm †	24.000 610.0	17.37 sw 441	473.0 214.5	—	—	—	—	—	—	—	—
14 – 60" 350–1500 mm	AGS™ **For AGS fitting information, see publication 20.05**										

For roll grooved systems, Victaulic offers the Advanced Groove System (AGS). For pricing and availability of cut groove fittings in this size, contact your nearest Victaulic sales office.

† Chinese standard sizes

Note: All fittings are ductile iron unless otherwise noted with an "sw" or "s".

S= Carbon Steel Direct Roll Groove (OGS)

SW= Carbon Steel Segmentally Welded

Grooved End Fittings

INSTALLATION

Reference should always be made to the I-100 Victaulic Field Installation Handbook for the product you are installing. Handbooks are included with each shipment of Victaulic products for 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.

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.

UPDATED 08/2012
07.01 1449 REV R