

Style 232 Restrained Flexible Coupling

Victaulic Bolted Split-Sleeve Products (VBSP) Style 232 carbon steel couplings (formerly Depend-O-Lok FxF) provide a fully restrained, flexible pipe joint that satisfies the requirements set forth by the AWWA C227 Standard for Bolted, Split-Sleeve Restrained and Non-Restrained Couplings for Plain-End Pipe.

This style of coupling creates a restrained joint commonly used in buried or exposed pipe applications for field joint connections where joint flexibility and thrust restraint is required. Typical applications include water and wastewater treatment pipelines, force main and water transmission piping, slurry lines, penstocks and other piping applications that require a restrained, flexible connection. The coupling provides ease of installation and comes standard with an epoxy coating for protection against corrosion. The use of a heat-shrink sleeve or tape system can be used with minimal effort due to the low profile configuration.

The dual-arched coupling body houses o-ring gaskets that provide the radial seal around the circumference of the pipe, while a sealing plate provides for the axial seal across the coupling body and pipe joint. The Style 232 coupling incorporates a restraint ring welded to each pipe end (furnished with the coupling) allowing the coupling housing to straddle the restraint rings, and confining the rings under the coupling body in order to create a fully restrained joint. The coupling housing and restraint ring welds are designed to accommodate hoop stress and end loads to meet system pressure requirements. Style 232 restrained flexible couplings also perform at negative pipe pressures up to full vacuum. The o-ring gasket is not pressure responsive and therefore does not require internal pipe pressure to assist with the seal. The arched cross-sectional design provides stiffness to resist forces encountered during negative pressure (submerged) or vacuum service.

Style 232 couplings are available in standard nominal sizes from 8 – 144"/200 – 3600 mm with larger sizes available based on design and application requirements. The Style 232 restrained coupling can accommodate operating pressures up to 400 psi/2750 kPa (with higher pressure available) depending on the actual pipe diameter and wall thickness. For pressures and sizes not shown in the dimension and performance tables contact Victaulic for information on our engineered products.

Victaulic restrained couplings provide a flexible pipe connection and are not designed or intended to transfer significant shear or bending loads across the pipe joint. Therefore, a single coupling will not allow for differential settlement to occur at the joint. However, a minimum of two flexible couplings designed to allow dynamic (in-service) deflection, and installed in combination, can be used to accommodate differential settlement at a pipe joint or between a pipeline and a structure. Victaulic recommends Style 233/233S couplings for this purpose as they are specifically designed to allow for dynamic deflection and provide thrust restraint at the joint. Refer to publications 60.07 and 60.08 for product details and 26.20 for guidelines regarding the use of these couplings in differential settlement applications.

All flexible bolted split-sleeve couplings require proper support to eliminate undesirable loads at the joint. Pipe support requirements are defined within the Application Guidelines document. Please see publication 26.20.

For proper closure tool selection see column marked Tool Type on pages 6-9.



8 – 144"/200 – 3600mm

JOB/OWNER

System No. _____

Location _____

CONTRACTOR

Submitted By _____

Date _____

ENGINEER

Spec Sect _____ Para _____

Approved _____

Date _____

www.victaulic.com

VICTAULIC IS A REGISTERED TRADEMARK OF VICTAULIC COMPANY. © 2013 VICTAULIC COMPANY. ALL RIGHTS RESERVED.

REV_M



60.05_1

Style 232 Restrained Flexible Coupling

PRODUCT GUIDE

Product Style Guide			
Submittal Number	Style Number	Coupling/Body Material	Application
60.01	230	Carbon Steel	Non-Restrained Coupling
60.02	230S	Stainless Steel	Non-Restrained Coupling
60.03	231	Carbon Steel	Expansion Coupling
60.04	231S	Stainless Steel	Expansion Coupling
60.05	232	Carbon Steel	Restrained Coupling
60.06	232S	Stainless Steel	Restrained Coupling
60.07	233	Carbon Steel	Restrained Coupling For Dynamic Joint Deflection
60.08	233S	Stainless Steel	Restrained Coupling For Dynamic Joint Deflection
60.09	234	Carbon Steel	Restrained Single-Gasket Coupling
60.10	234S	Stainless Steel	Restrained Single-Gasket Coupling

SEGMENTED COUPLINGS

The Style 232 dimension tables list the minimum number of coupling housing segments for a particular pipe size. For special applications, restrained couplings are available in two (or more) segments to allow for installation of the coupling over an existing pipe joint or to facilitate ease of handling for larger size couplings. The o-ring gaskets (except Silicone) can be furnished “split” to allow for field bonding when an existing pipe joint configuration does not allow for installation of a complete o-ring onto the pipe end.

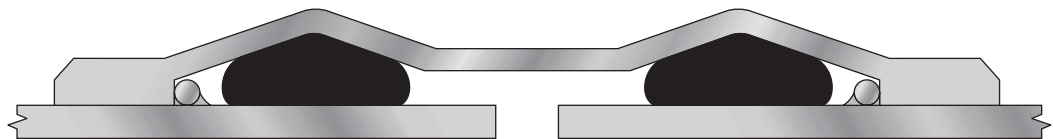
BODY TYPE

Cross-Sections

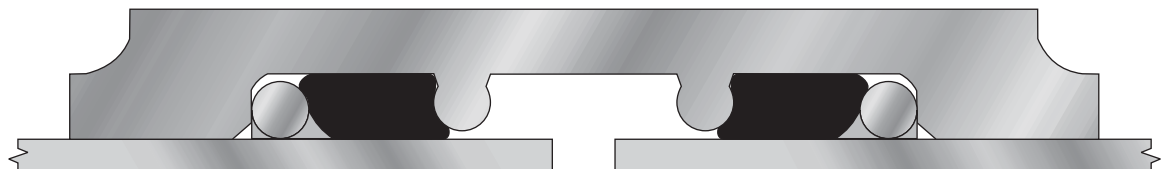
NOTE: Body type is not optional and will be determined by system requirements.



Type 1 coupling is the basic split-sleeve coupling that restrains pipe ends and is generally used for smaller diameter, low pressure applications.



Type 2 coupling is a shouldered coupling. This is a heavy duty coupling to accommodate higher pressures for certain pipe diameters. The shoulders welded to the edge of the coupling body provide a vertical bearing surface for the restraint rings and provide additional cross-sectional stiffness.

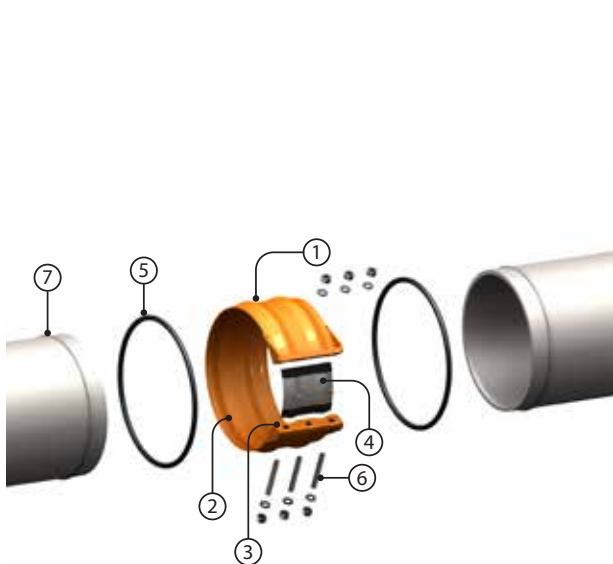


Type 3 coupling is a flat-body variation of the Type 2 with a reinforced, offset closure and thick body design for high pressure applications. As with all Style 232 couplings, the Type 3 coupling is designed to restrain the pipe ends at full axial thrust generated by higher operating pressures.

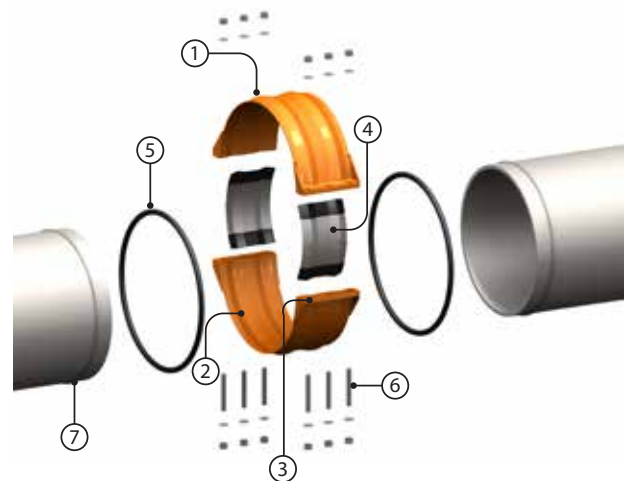
Style 232 Restrained Flexible Coupling

COUPLING COMPONENTS

- 1. Body** – Dual arch cross-section used on Type 1 and Type 2. A thick, flat cross-section is used for Type 3.
- 2. Shoulders (Type 2 and Type 3 only)** – Provide additional stiffness, allow for larger o-ring gasket and provide vertical bearing surface for restraint rings.
- 3. Closure Plates** – Low profile bolt pads for installation and tightening of coupling; gap between plates of installed coupling allows for field flexibility.
- 4. Sealing Plate** – Provides axial seal across the coupling body and pipe joint.
- 5. O-ring Gaskets** – Provide circumferential seal.
- 6. Fasteners**
 - Studs – High Strength Threaded Rod
 - Nuts – Heavy Hex Nuts
 - Washers – SAE small pattern flat washers
- 7. Restraint Rings** – Attached to pipe ends to create a restrained joint.



ONE SEGMENT HOUSING



TWO SEGMENT HOUSING

Style 232 Restrained Flexible Coupling

MATERIAL SPECIFICATIONS

Body

Carbon Steel conforming to ASTM A36 or ASTM A1011 (for gauge thicknesses)

Shoulders (Type 2 and Type 3)

Carbon Steel conforming to ASTM A36

Closure Plates

Carbon Steel conforming to ASTM A36

Sealing Plate

Stainless Steel conforming to ASTM A240 316L

O-ring Gaskets

Standard (Specify choice on order):

- **EPDM** -30°F to +230°F/-34°C to +110°C
Cold and hot water within allowable temperature range; dilute acids; excellent resistance to the deteriorative effects of ozone, oxygen, heat and most chemicals not involving hydrocarbons.
NOT RECOMMENDED FOR PETROLEUM SERVICES.
 - **Silicone** -30°F to +350°F/-34°C to +177°C
Dry, hot air applications; excellent resistance to many chemicals.
NOT RECOMMENDED FOR HOT WATER OR STEAM APPLICATIONS.
 - **Isoprene** -40°F to +160°F/-40°C to +71°C
Water; salt water; sewage; good resistance to oxygen and dilute acids

Services listed are general service recommendations only. Refer to a chemical elastomer guide for specific applications and suitability of gasket material for services that are not listed.
- Optional gasket (specify choice on order):
- **Nitrile** -20°F to +180°F/-28°C to +82°C
Water; petroleum products, vegetable and mineral oils; air with oil vapors within allowable temperature range; good resistance to hydrocarbons; acids and bases.
 - **Fluoroelastomer** +20°F to +300°F/-7°C to +149°C
Outstanding resistance to heat and most chemicals.
 - **Neoprene** -30°F to +180°F/-34°C to +82°C
Water and wastewater; good resistance to ozone, effects of UV and some oils.

Restraint Rings

Carbon Steel conforming to ASTM A108 Grade 1018

Fasteners

Studs - Carbon Steel conforming to ASTM A193 Grade B7 zinc plated.

Optional: Stainless Steel conforming to ASTM A193 Grade B8M 316 Class 2

Nuts - Heavy hex nuts

Carbon Steel conforming to ASTM A194 Grade 2H zinc plated

Optional: Stainless Steel conforming to ASTM A194 Grade 8M 316

Washers - Carbon Steel SAE small pattern flat washers conforming to ASTM F436 SAE pattern zinc plated

Optional: Stainless Steel Type 316 SAE pattern.

Style 232 Restrained Flexible Coupling

LININGS AND COATINGS

Standard (specify choice on order):

- Liquid Epoxy:**
Liquid epoxy is applied per AWWA C210, 16 mils minimum DFT and is NSF61 approved. Epoxy can be applied as a primer for field applied top coat where UV protection due to sunlight exposure is required. A supplemental corrosion protection system such as heat shrink sleeve or tape coat system is recommended for buried applications.
- Fusion Bonded Epoxy:**
Fusion bonded epoxy is applied with an electrostatic spray system using a long cure epoxy powder that offers excellent chemical resistance and corrosion protection. Fusion bonded epoxy is applied per AWWA C213, 12 mils minimum DFT and is NSF61 approved.

Optional (specify choice on order):

- Phenolic Alkyd Primer:**
Phenolic Alkyd primer is a lead-free and chromate-free, fast-drying, corrosion-resistant primer that accepts a variety of high-performance topcoats, but is not recommended for immersion service by itself. This primer system is typically applied at 2 to 3 mils DFT.
- Other Coating Systems (Available Upon Request):**
A water based enamel coating is available. This paint offers an aesthetic coating for minimal protection, short-term installations or where corrosion protection is not a consideration. Fusion bonded nylon for chemical and abrasion resistance, as well as other coatings such as organic zinc primers and hot dipped galvanizing may be available upon request may also be available.

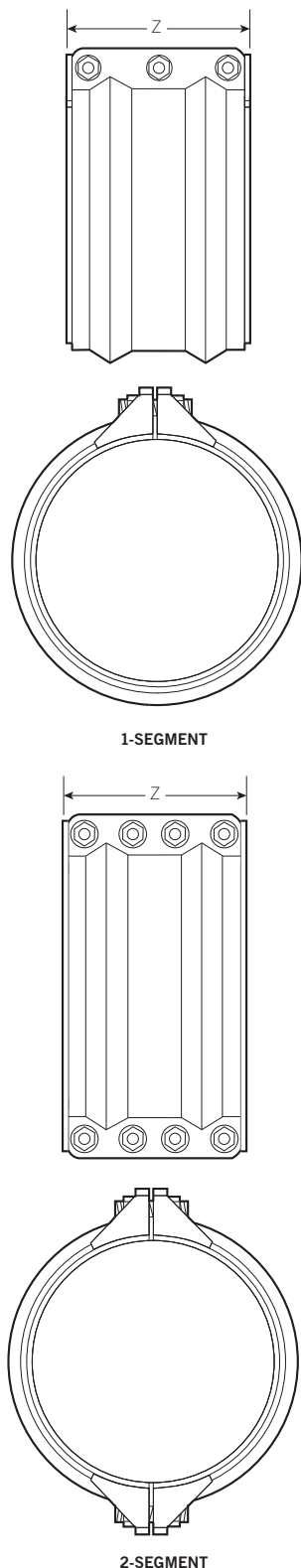
PIPE END DIMENSIONAL TOLERANCE AND OVALITY

For specific pipe diameter tolerances, pipe ovality (roundness) requirements and minimum/maximum pipe diameter allowance, refer to the tables included in the Installation Manuals (below) and 26.20 Application Guidelines.

- I-232.S1 - Styles 232/232S Restrained Coupling (Types 1 & 2, One-Segment)
- I-232.S2 - Styles 232/232S Restrained Coupling (Types 1 & 2, Two-Segments)
- I-232.T3S2 - Style 232 Restrained Coupling (Type 3, Two-Segments)

Style 232 Restrained Flexible Coupling

DIMENSIONS



(1)	(2)	(3)	Coupling Dimensions		(4)		(5)		(6)
Nominal Pipe Size In./mm	Actual Pipe O.D. Range In./mm	Maximum Working Pressure psi/kPa	Body Thickness In.	Width (Z) In./mm	Min. No. of Coupling Segments	No. of Fasteners - Fastener Dimensions Dia. x Length In. x In.	Approximate Weight Each Lbs/Kg.	Body Type	Tool Type
8 200	7.00 - 8.88 177.8 - 225.6	200 1375	11 ga.	10.00 254.0	1	3 - 5/8 x 5	21.0 9.5	1	B,C
		300 2065	10 ga.	10.50 266.7	1	3 - 5/8 x 5	28.0 12.7	2	B,C
10 250	9.00 - 10.88 228.6 - 276.4	200 1375	10 ga.	10.00 254.0	1	3 - 5/8 x 5	24.0 10.9	1	B,C
		300 2065	3/16	10.50 266.7	1	3 - 5/8 x 5	41.0 18.6	2	B,C
12 300	11.00 - 12.88 279.4 - 327.2	150 1035	10 ga.	10.00 254.0	1	3 - 5/8 x 5	28.0 12.7	1	B,C
		300 2065	3/16	10.50 266.7	1	3 - 3/4 x 6	45.0 20.4	2	B,C
14 350	13.00 - 14.88 330.2 - 378.0	100 690	10 ga.	10.00 254.0	1	3 - 5/8 x 5	31.0 14.1	1	B,C
		300 2065	3/16	10.50 266.7	1	3 - 3/4 x 6	50.0 22.7	2	B,C
16 400	15.00 - 16.88 381.0 - 428.8	75 515	3/16	10.00 254.0	1	3 - 3/4 x 6	44.0 20.0	1	B,C
		200 1375	3/16	10.50 266.7	1	3 - 3/4 x 6	57.0 25.9	2	B,C
		300 2065	1/4	12.50 317.5	1	4 - 3/4 x 6	85.0 38.6	2	C
18 450	17.00 - 18.88 431.8 - 479.6	50 345	3/16	10.00 254.0	1	3 - 3/4 x 6	48.0 21.8	1	B,C
		200 1375	3/16	10.50 266.7	1	3 - 3/4 x 6	62.0 28.1	2	B,C
		300 2065	1/4	12.50 317.5	1	4 - 3/4 x 6	94.0 42.6	2	C
20 500	19.00 - 21.88 482.6 - 555.8	25 170	3/16	10.00 254.0	1	3 - 3/4 x 6	52.0 23.6	1	B,C
		200 1375	3/16	10.50 266.7	1	3 - 3/4 x 6	68.0 30.8	2	B,C
		300 2065	1/4	12.50 317.5	1	4 - 3/4 x 6	102.0 46.3	2	C
24 600	22.00 - 26.88 558.8 - 682.8	25 170	3/16	10.00 254.0	1	3 - 3/4 x 6	61.0 27.7	1	B,C
		150 1035	3/16	10.50 266.7	1	3 - 3/4 x 6	81.0 36.7	2	B,C
		250 1725	1/4	12.50 317.5	1	4 - 3/4 x 6	119.0 54.0	2	C
		300 2065	3/8	12.50 317.5	2	8 - 7/8 x 8	248.0 112.5	2	C

(1) Couplings must be used on pipe with a minimum wall thickness that meets the requirements of AWWA C200 for carbon steel pipe.

(2) For actual Pipe O.D. round down to the nearest 1/8" to determine proper coupling size required.

(3) For allowable test or transient pressure, the maximum working pressure may be increased to 1 1/2 times the values shown.

(4) 1-segment couplings may be available as 2-segment couplings to allow for in-place pipe installations. Contact Victaulic for details.

(5) Coupling weights are based on nominal pipe diameter and include all accessories. Weight may vary based on actual size of pipe.

(6) Closure Tool Recommendations:*

A= CTM-01 Small Manual Closure Tool

B= CTM-02 Large Manual Closure Tool

C= CTH-01 10-Ton Hydraulic Closure Tool

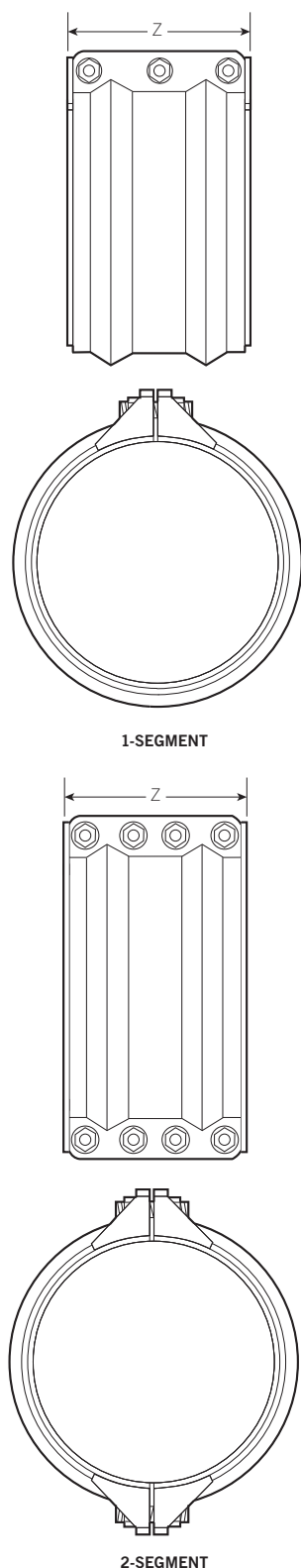
D= CTH-02 25-Ton Hydraulic Closure Tool

*For more details on closure tools refer to page 18.

Note: The data in this table only applies when carbon steel couplings are being used on carbon steel pipe.

Style 232 Restrained Flexible Coupling

DIMENSIONS



(1)	(2)	(3)	Coupling Dimensions		(4)	(5)		(6)	
Nominal Pipe Size In./mm	Actual Pipe O.D. Range In./mm	Maximum Working Pressure psi/kPa	Body Thickness In.	Width (Z) In./mm	Min. No. of Coupling Segments	No. of Fasteners - Fastener Dimensions Dia. x Length In. x In.	Approximate Weight Each Lbs/Kg.	Body Type	Tool Type
30 750	27.00 - 32.88 685.8 - 835.2	100 690	3/16	10.50 266.7	1	3 - 3/4 x 6	97.0 44.0	2	B,C
		200 1375	1/4	12.50 317.5	1	4 - 3/4 x 6	146.0 66.2	2	C
		300 2065	3/8	12.50 317.5	2	8 - 7/8 x 8	293.0 132.9	2	C
36 900	33.00 - 38.88 838.2 - 987.6	150 1035	1/4	12.50 317.5	1	4 - 3/4 x 6	171.0 77.6	2	C
		250 1725	3/8	12.50 317.5	2	8 - 7/8 x 8	337.0 152.9	2	C
		300 2065	1/2	14.50 368.3	2	8 - 1 x 8	520.0 235.9	2	C
42 1050	39.00 - 44.88 990.6 - 1140.0	150 1035	1/4	12.50 317.5	1	4 - 3/4 x 6	195.0 88.5	2	C
		200 1375	3/8	12.50 317.5	2	8 - 7/8 x 8	381.0 172.8	2	C
		300 2065	1/2	14.50 368.3	2	8 - 1 x 8	590.0 267.6	2	C
48 1200	45.00 - 50.88 1143.0 - 1292.4	100 690	1/4	12.50 317.5	1	4 - 3/4 x 6	220.0 99.8	2	C
		150 1035	3/8	12.50 317.5	2	8 - 7/8 x 8	425.0 192.8	2	C
		250 1725	1/2	14.50 368.3	2	8 - 1 x 8	658.0 298.5	2	C
		300 2065	5/8	15.00 381.0	2	8 - 1 x 8	864.0 391.9	2	C
54 1350	51.00 - 56.88 1295.4 - 1444.8	150 1035	3/8	12.50 317.5	2	8 - 7/8 x 8	459.0 208.2	2	C
		200 1375	1/2	14.50 368.3	2	8 - 1 x 8	727.0 329.8	2	C
		250 1725	5/8	15.00 381.0	2	8 - 1 x 8	956.0 433.6	2	C
		300 2065	3/4	16.50 419.1	2	10 - 1 1/4 x 10	1434.0 650.5	3	D
		400 2750	1	16.50 419.1	2	10 - 1 1/4 x 10	1708.0 774.7	3	D
60 1500	57.00 - 62.88 1447.8 - 1597.2	150 1035	3/8	12.50 317.5	2	8 - 7/8 x 8	503.0 228.2	2	C
		200 1375	1/2	14.50 368.3	2	8 - 1 x 8	796.0 361.1	2	C
		250 1725	5/8	15.00 381.0	2	8 - 1 x 8	1047.0 474.9	2	C
		300 2065	3/4	16.50 419.1	2	10 - 1 1/4 x 10	1567.0 710.8	3	D
		400 2750	1	16.50 419.1	2	10 - 1 1/4 x 10	1869.0 847.8	3	D

(1) Couplings must be used on pipe with a minimum wall thickness that meets the requirements of AWWA C200 for carbon steel pipe.

(2) For actual Pipe O.D. round down to the nearest 1/4" to determine proper coupling size required.

(3) For allowable test or transient pressure, the maximum working pressure may be increased to 1 1/2 times the values shown.

(4) 1-segment couplings may be available as 2-segment couplings to allow for in-place pipe installations. Contact Victaulic for details.

(5) Coupling weights are based on nominal pipe diameter and include all accessories. Weight may vary based on actual size of pipe.

(6) Closure Tool Recommendations:*

A= CTM-01 Small Manual Closure Tool

B= CTM-02 Large Manual Closure Tool

C= CTH-01 10-Ton Hydraulic Closure Tool

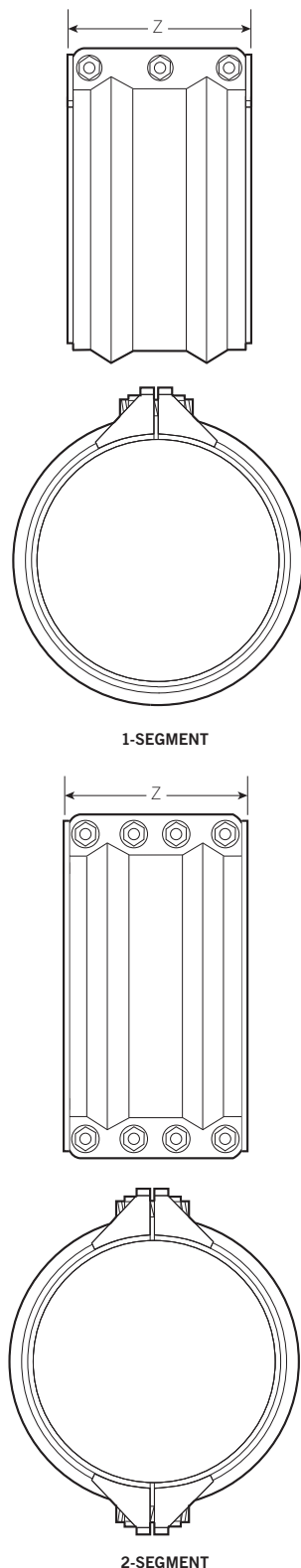
D= CTH-02 25-Ton Hydraulic Closure Tool

*For more details on closure tools refer to page 18.

Note: The data in this table only applies when carbon steel couplings are being used on carbon steel pipe.

Style 232 Restrained Flexible Coupling

DIMENSIONS



(1)	(2)	(3)	Coupling Dimensions		(4)	(5)	(6)	(7)	(8)
Nominal Pipe Size In./mm	Actual Pipe O.D. Range In./mm	Maximum Working Pressure psi/kPa	Body Thickness In.	Width (Z) In./mm	Min. No. of Coupling Segments	No. of Fasteners - Fastener Dimensions Dia. x Length In. x In.	Approximate Weight Each Lbs/Kg.	Body Type	Tool Type
66 1650	63.00 - 68.88 1600.2 - 1749.6	100 690	3/8	12.50 317.5	2	8 - 7/8 x 8	537.0 243.6	2	C
		150 1035	1/2	14.50 368.3	2	8 - 1 x 8	849.0 385.1	2	C
		200 1375	5/8	15.00 381.0	2	8 - 1 x 8	1139.0 516.6	2	C
		250 1725	3/4	16.50 419.1	2	10 - 1 1/4 x 10	1675.0 759.8	3	D
		350 2410	1	16.50 419.1	2	10 - 1 1/4 x 10	1997.0 905.8	3	D
72 1800	69.00 - 74.88 1752.6 - 1902.0	100 690	3/8	12.50 317.5	2	8 - 7/8 x 8	581.0 263.5	2	C
		150 1035	1/2	14.50 368.3	2	8 - 1 x 8	918.0 416.4	2	C
		200 1375	5/8	15.00 381.0	2	8 - 1 x 8	1231.0 558.4	2	C
		250 1725	3/4	16.50 419.1	2	10 - 1 1/4 x 10	1816.0 823.7	3	D
		350 2410	1	16.50 419.1	2	10 - 1 1/4 x 10	2169.0 983.9	3	D
78 1950	75.00 - 80.88 1905.0 - 2054.4	100 690	3/8	12.50 317.5	2	8 - 7/8 x 8	614.0 278.5	2	C
		150 1035	1/2	14.50 368.3	2	8 - 1 x 8	987.0 447.7	2	C
		175 1200	5/8	15.00 381.0	2	8 - 1 x 8	1322.0 599.6	2	C
		200 1375	3/4	16.50 419.1	2	10 - 1 1/4 x 10	1924.0 872.7	3	D
		300 2065	1	16.50 419.1	2	10 - 1 1/4 x 10	2297.0 1041.9	3	D
84 2100	81.00 - 86.88 2057.4 - 2206.8	100 690	3/8	12.50 317.5	2	8 - 7/8 x 8	658.0 298.5	2	C
		150 1035	1/2	14.50 368.3	2	8 - 1 x 8	1040.0 471.1	2	C
		175 1200	5/8	15.00 381.0	2	8 - 1 x 8	1394.0 632.3	2	C
		200 1375	3/4	16.50 419.1	2	10 - 1 1/4 x 10	2056.0 932.6	3	D
		300 2065	1	16.50 419.1	2	10 - 1 1/4 x 10	2458.0 1114.9	3	D
90 2250	87.00 - 92.88 2209.8 - 2359.2	100 690	3/8	12.50 317.5	2	8 - 7/8 x 8	692.0 313.9	2	C
		125 860	1/2	14.50 368.3	2	8 - 1 x 8	1093.0 495.8	2	C
		150 1035	5/8	15.00 381.0	2	8 - 1 x 8	1485.0 673.6	2	C
		200 1375	3/4	16.50 419.1	2	10 - 1 1/4 x 10	2170.0 984.3	3	D
		250 1725	1	16.50 419.1	2	10 - 1 1/4 x 10	2594.0 1176.6	3	D

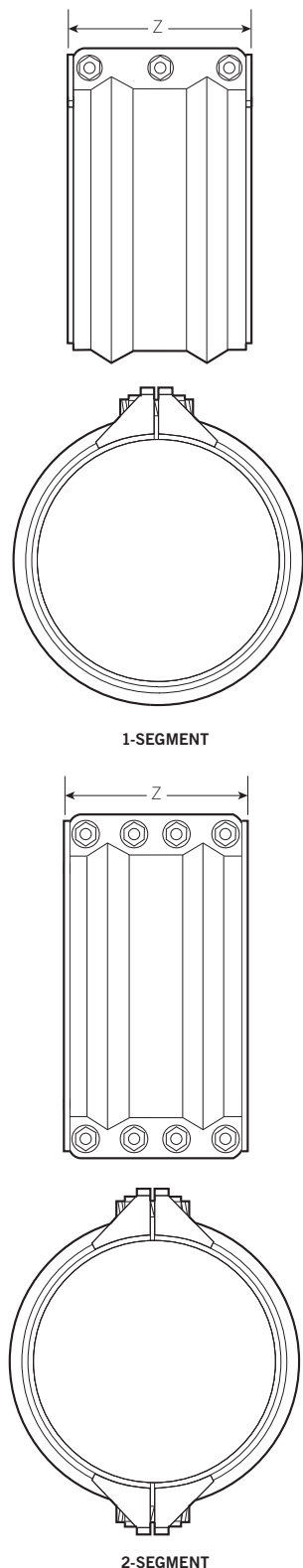
- (1) Couplings must be used on pipe with a minimum wall thickness that meets the requirements of AWWA C200 for carbon steel pipe.
 (2) For actual Pipe O.D. round down to the nearest 1/8" to determine proper coupling size required.
 (3) For allowable test or transient pressure, the maximum working pressure may be increased to 1 1/2 times the values shown.
 (4) 1-segment couplings may be available as 2-segment couplings to allow for in-place pipe installations. Contact Victaulic for details.
 (5) Coupling weights are based on nominal pipe diameter and include all accessories. Weight may vary based on actual size of pipe.
 (6) Closure Tool Recommendations:*
- A= CTM-01 Small Manual Closure Tool
 - B= CTM-02 Large Manual Closure Tool
 - C= CTH-01 10-Ton Hydraulic Closure Tool
 - D= CTH-02 25-Ton Hydraulic Closure Tool

*For more details on closure tools refer to page 18.

Note: The data in this table only applies when carbon steel couplings are being used on carbon steel pipe.

Style 232 Restrained Flexible Coupling

DIMENSIONS



(1)	(2)	(3)	Coupling Dimensions		(4)		(5)		(6)
Nominal Pipe Size In./mm	Actual Pipe O.D. Range In./mm	Maximum Working Pressure psi/kPa	Body Thickness In.	Width (Z) In./mm	Min. No. of Coupling Segments	No. of Fasteners - Fastener Dimensions Dia. x Length In. x In.	Approximate Weight Each Lbs/Kg.	Body Type	Tool Type
96 2400	93.00 - 101.88 2362.2 - 2587.8	100 690	3/8	12.50 317.5	2	8 - 7/8 x 8	745.0 337.9	2	C
		125 860	1/2	14.50 368.3	2	8 - 1 x 8	1176.0 533.4	2	C
		150 1035	5/8	15.00 381.0	2	8 - 1 x 8	1595.0 723.5	2	C
		200 1375	3/4	16.50 419.1	2	10 - 1 1/4 x 10	2277.0 1032.8	3	D
		250 1725	1	16.50 419.1	2	10 - 1 1/4 x 10	2721.0 1234.2	3	D
108 2700	102.00 - 113.88 2590.8 - 2892.6	75 515	3/8	12.50 317.5	2	8 - 7/8 x 8	813.0 368.8	2	C
		100 690	1/2	14.50 368.3	2	8 - 1 x 8	1298.0 588.8	2	C
		150 1035	3/4	16.50 419.1	2	10 - 1 1/4 x 10	2493.0 1130.8	3	D
		200 1375	1	16.50 419.1	2	10 - 1 1/4 x 10	2977.0 1350.3	3	D
120 3000	114.00 - 125.88 2895.6 - 3197.4	75 515	3/8	12.50 317.5	2	8 - 7/8 x 8	890.0 403.7	2	C
		100 690	1/2	14.50 368.3	2	8 - 1 x 8	1420.0 644.1	2	C
		150 1035	3/4	16.50 419.1	2	10 - 1 1/4 x 10	2741.0 1243.3	3	D
		200 1375	1	16.50 419.1	2	10 - 1 1/4 x 10	3275.0 1485.5	3	D
144 3600	126.00 - 150.00 3200.4 - 3810.0	50 345	3/8	12.50 317.5	2	8 - 7/8 x 8	1026.0 465.4	2	C
		100 690	5/8	15.00 381.0	2	8 - 1 x 8	2249.0 1020.1	2	C
		125 860	3/4	16.50 419.1	2	10 - 1 1/4 x 10	3173.0 1439.2	3	D
		175 1200	1	16.50 419.1	2	10 - 1 1/4 x 10	3788.0 1718.2	3	D

(1) Couplings must be used on pipe with a minimum wall thickness that meets the requirements of AWWA C200 for carbon steel pipe.

(2) For actual Pipe O.D. round down to the nearest 1/8" to determine proper coupling size required.

(3) For allowable test or transient pressure, the maximum working pressure may be increased to 1 1/2 times the values shown.

(4) 1-segment couplings may be available as 2-segment couplings to allow for in-place pipe installations. Contact Victaulic for details.

(5) Coupling weights are based on nominal pipe diameter and include all accessories. Weight may vary based on actual size of pipe.

(6) Closure Tool Recommendations:*

A= CTM-01 Small Manual Closure Tool

B= CTM-02 Large Manual Closure Tool

C= CTH-01 10-Ton Hydraulic Closure Tool

D= CTH-02 25-Ton Hydraulic Closure Tool

*For more details on closure tools refer to page 18.

Note: The data in this table only applies when carbon steel couplings are being used on carbon steel pipe.

Style 232 Restrained Flexible Coupling

PERFORMANCE

Nominal Pipe Diameter In./mm	(1)			Body Type	(2) (3)	(3) (4)	(5)
	Maximum Working Pressure psi/kPa Carbon Steel	Maximum Working Pressure psi/kPa Stainless Steel	Maximum Working Pressure psi/kPa Ductile Iron		Pipe End Separation Min - Max In./mm	Max. Allow. Static Deflection Degrees	Max. Permissible End Load lbf/N
8 200	200 1375	200 1375	200 1375	1	0.38 - 0.75 9.7 - 19.1	4° 0'	10053 44718
	300 2065	300 2065	300 2065	2	0.38 - 0.75 9.7 - 19.1	4° 0'	15080 67078
10 250	200 1375	200 1375	200 1375	1	0.38 - 0.75 9.7 - 19.1	3° 30'	15708 69873
	300 2065	300 2065	300 2065	2	0.38 - 0.75 9.7 - 19.1	3° 30'	23562 104809
12 300	150 1035	150 1035	150 1035	1	0.38 - 0.75 9.7 - 19.1	3° 15'	16965 75462
	300 2065	300 2065	250 1725	2	0.38 - 0.75 9.7 - 19.1	3° 15'	33929 150935
14 350	100 690	100 690	100 690	1	0.38 - 0.75 9.7 - 19.1	3° 0'	15394 68475
	300 2065	300 2065	250 1725	2	0.38 - 0.75 9.7 - 19.1	3° 0'	46181 205425
16 400	75 515	75 515	75 515	1	0.38 - 0.75 9.7 - 19.1	2° 30'	15080 67078
	200 1375	200 1375	200 1375	2	0.38 - 0.75 9.7 - 19.1	2° 30'	40212 178874
	300 2065	300 2065	300 2065	2	0.63 - 1.00 16.0 - 25.4	2° 30'	60319 268310
18 450	50 345	50 345	50 345	1	0.38 - 0.75 9.7 - 19.1	2° 15'	12723 56597
	200 1375	200 1375	175 1200	2	0.38 - 0.75 9.7 - 19.1	2° 15'	50894 226387
	300 2065	300 2065	250 1725	2	0.63 - 1.00 16.0 - 25.4	2° 15'	76341 339580
20 500	25 170	25 170	25 170	1	0.38 - 0.75 9.7 - 19.1	2° 0'	7854 34936
	200 1375	200 1375	150 1035	2	0.38 - 0.75 9.7 - 19.1	2° 0'	62832 279490
	300 2065	300 2065	250 1725	2	0.63 - 1.00 16.0 - 25.4	2° 0'	94248 419235
24 600	25 170	25 170	25 170	1	0.38 - 0.75 9.7 - 19.1	1° 45'	11310 50308
	150 1035	150 1035	125 860	2	0.38 - 0.75 9.7 - 19.1	1° 45'	67858 301849
	250 1725	250 1725	200 1375	2	0.63 - 1.00 16.0 - 25.4	1° 45'	113097 503082
	300 2065	250 1725	200 1375	2	0.63 - 1.00 16.0 - 25.4	1° 45'	135717 603398

(1) For allowable test or transient pressure, the maximum working pressure may be increased to 1 ½ times the value shown.

(2) Pipe end separations shown in the table assume the pipe is in a non-deflected state. Maximum allowable axial pipe movement at the joint is the difference between the maximum and minimum pipe separation. At maximum pipe end separation, axial movement can only occur via pipe expansion into the joint and vice versa.

(3) Pipe end movement and deflection are non-concurrent.

(4) Published static deflection values are intended for installation only. For allowable in-service or dynamic deflection, use ½ of the published static values. The coupling closure should be located 90 degrees from the direction of joint deflection.

(5) The maximum permissible end loads listed in the table are calculated using the nominal pipe O.D. The actual maximum permissible end load will be less or greater than the published figures depending on the actual pipe O.D.

Style 232 Restrained Flexible Coupling

PERFORMANCE

Nominal Pipe Size In./mm	(1)			Body Type	(2) (3)		(3) (4)	(5)
	Maximum Working Pressure psi/kPa Carbon Steel	Maximum Working Pressure psi/kPa Stainless Steel	Maximum Working Pressure psi/kPa Ductile Iron		Pipe End Separation Min - Max In./mm		Max. Allow. Static Deflection Degrees	Max. Permissible End Load lbf/N
30 750	100 690	100 690	100 690	2	0.38 - 0.75 9.7 - 19.1		1° 15'	70686 314426
	200 1375	200 1375	150 1035	2	0.63 - 1.00 16.0 - 25.4		1° 15'	141372 628853
	300 2065	200 1375	150 1035	2	0.63 - 1.00 16.0 - 25.4		1° 15'	212058 943279
36 900	150 1035	150 1035	125 860	2	0.63 - 1.00 16.0 - 25.4		1° 6'	152681 679161
	250 1725	175 1200	125 860	2	0.63 - 1.00 16.0 - 25.4		1° 6'	254469 1131935
	300 2065	200 1375	175 1200	2	0.63 - 1.00 16.0 - 25.4		1° 6'	305363 1358322
42 1050	150 1035	150 1035	125 860	2	0.63 - 1.00 16.0 - 25.4		1° 0'	207816 924413
	200 1375	150 1035	125 860	2	0.63 - 1.00 16.0 - 25.4		1° 0'	277088 1232551
	300 2065	300 1375	150 1035	3	0.63 - 1.00 16.0 - 25.4		1° 0'	415633 1848827
48 1200	100 690	100 690	100 690	2	0.63 - 1.00 16.0 - 25.4		0° 50'	189056 804931
	150 1035	125 860	100 690	2	0.63 - 1.00 16.0 - 25.4		0° 50'	271434 1207397
	250 1725	175 1200	125 860	2	0.63 - 1.00 16.0 - 25.4		0° 50'	452389 2012328
	300 2065	250 1725	200 1375	2	0.63 - 1.00 16.0 - 25.4		0° 50'	542867 2414794
54 1350	150 1035	100 690	75 515	2	0.63 - 1.00 16.0 - 25.4		0° 45'	343533 1528112
	200 1375	150 1035	125 860	2	0.63 - 1.00 16.0 - 25.4		0° 45'	458044 2037482
	250 1725	200 1375	175 1200	2	0.63 - 1.00 16.0 - 25.4		0° 45'	572555 2546853
	300 2065	300 2065	250 1725	3	0.75 - 1.00 19.1 - 25.4		0° 30'	687066 3056223
	400 2750	300 2065	250 1725	3	0.75 - 1.00 19.1 - 25.4		0° 30'	916088 4074965
60 1500	150 1035	100 690	75 515	2	0.63 - 1.00 16.0 - 25.4		0° 40'	424115 1886558
	200 1375	125 860	100 690	2	0.63 - 1.00 16.0 - 25.4		0° 40'	565487 2515410
	250 1725	200 1375	175 1200	2	0.63 - 1.00 16.0 - 25.4		0° 40'	706858 3144263
	300 2065	250 2065	200 1375	3	0.75 - 1.00 19.1 - 25.4		0° 27'	848230 3773115
	400 2750	250 1725	200 1375	3	0.75 - 1.00 19.1 - 25.4		0° 27'	1130973 5030821

- (1) For allowable test or transient pressure, the maximum working pressure may be increased to 1 ½ times the value shown.
- (2) Pipe end separations shown in the table assume the pipe is in a non-deflected state. Maximum allowable axial pipe movement at the joint is the difference between the maximum and minimum pipe separation. At maximum pipe end separation, axial movement can only occur via pipe expansion into the joint and vice versa.
- (3) Pipe end movement and deflection are non-concurrent.
- (4) Published static deflection values are intended for installation only. For allowable in-service or dynamic deflection, use ½ of the published static values. The coupling closure should be located 90 degrees from the direction of joint deflection.
- (5) The maximum permissible end loads listed in the table are calculated using the nominal pipe O.D. The actual maximum permissible end load will be less or greater than the published figures depending on the actual pipe O.D.

Style 232 Restrained Flexible Coupling

PERFORMANCE

Nominal Pipe Size In./mm	(1)			Body Type	(2) (3)		(3) (4)	(5)
	Maximum Working Pressure psi/kPa Carbon Steel	Maximum Working Pressure psi/kPa Stainless Steel	Maximum Working Pressure psi/kPa Ductile Iron		Pipe End Separation Min - Max In./mm		Max. Allow. Static Deflection Degrees	Max. Permissible End Load lbf/N
66 1650	100 690	100 690	75 515	2	0.63 - 1.00 16.0 - 25.4		0° 37'	342119 1521823
	150 1035	125 860	100 690	2	0.63 - 1.00 16.0 - 25.4		0° 37'	513179 2282735
	200 1375	200 1375	150 1035	2	0.63 - 1.00 16.0 - 25.4		0° 37'	684239 3043646
	250 1725	250 1725	200 1375	3	0.75 - 1.00 19.1 - 25.4		0° 24'	855299 3804558
	350 2410	250 1725	200 1375	3	0.75 - 1.00 19.1 - 25.4		0° 24'	1197418 5326381
72 1800	100 690	75 515	75 515	2	0.63 - 1.00 16.0 - 25.4		0° 30'	407150 1811095
	150 1035	125 860	100 690	2	0.63 - 1.00 16.0 - 25.4		0° 30'	610726 2716643
	200 1375	175 1200	150 1035	2	0.63 - 1.00 16.0 - 25.4		0° 30'	814301 3622191
	250 1725	250 1725	200 1375	3	0.75 - 1.00 19.1 - 25.4		0° 22'	1017876 4527739
	350 2410	250 1725	200 1375	3	0.75 - 1.00 19.1 - 25.4		0° 22'	1425026 6338834
78 1950	100 690	75 515	50 345	2	0.63 - 1.00 16.0 - 25.4		0° 34'	477836 2125522
	150 1035	100 690	75 515	2	0.63 - 1.00 16.0 - 25.4		0° 34'	716754 3188283
	175 1200	150 1035	125 860	2	0.63 - 1.00 16.0 - 25.4		0° 34'	836213 3719663
	200 1375	200 1375	175 1200	3	0.75 - 1.00 19.1 - 25.4		0° 22'	955672 4251043
	300 2065	200 1375	175 1200	3	0.75 - 1.00 19.1 - 25.4		0° 22'	1433509 6376565
84 2100	100 690	75 515	50 345	2	0.63 - 1.00 16.0 - 25.4		0° 29'	554177 2465102
	150 1035	100 690	75 515	2	0.63 - 1.00 16.0 - 25.4		0° 29'	831265 3697653
	175 1200	150 1035	125 860	2	0.63 - 1.00 16.0 - 25.4		0° 29'	969810 4313929
	200 1375	200 1375	150 1035	3	0.75 - 1.00 19.1 - 25.4		0° 19'	1108354 4930204
	300 2065	200 1375	150 1035	3	0.75 - 1.00 19.1 - 25.4		0° 19'	1662531 7395306
90 2250	100 690	75 515	50 345	2	0.63 - 1.00 16.0 - 25.4		0° 27'	636173 2829837
	125 860	100 690	75 5115	2	0.63 - 1.00 16.0 - 25.4		0° 27'	795216 3537296
	150 1035	150 1035	100 690	2	0.63 - 1.00 16.0 - 25.4		0° 27'	954259 4244755
	200 1375	200 1375	150 1035	3	0.75 - 1.00 19.1 - 25.4		0° 18'	1272345 5659673
	250 1725	200 1375	150 1035	3	0.75 - 1.00 19.1 - 25.4		0° 18'	1590431 7074591

(1) For allowable test or transient pressure, the maximum working pressure may be increased to 1 ½ times the value shown.

(2) Pipe end separations shown in the table assume the pipe is in a non-deflected state. Maximum allowable axial pipe movement at the joint is the difference between the maximum and minimum pipe separation. At maximum pipe end separation, axial movement can only occur via pipe expansion into the joint and vice versa.

(3) Pipe end movement and deflection are non-concurrent.

(4) Published static deflection values are intended for installation only. For allowable in-service or dynamic deflection, use ½ of the published static values. The coupling closure should be located 90 degrees from the direction of joint deflection.

(5) The maximum permissible end loads listed in the table are calculated using the nominal pipe O.D. The actual maximum permissible end load will be less or greater than the published figures depending on the actual pipe O.D.

Style 232 Restrained Flexible Coupling

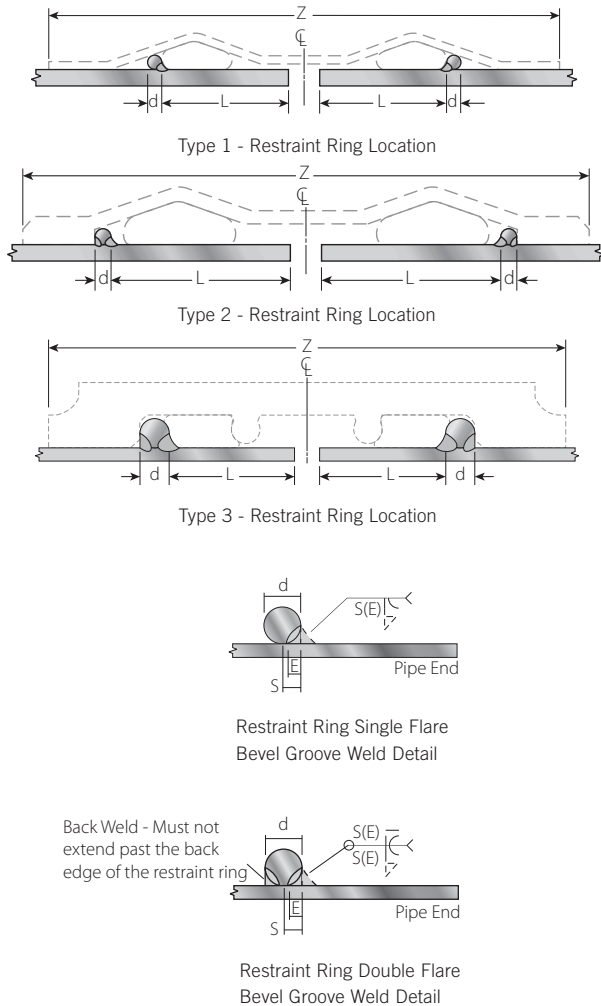
PERFORMANCE

Nominal Pipe Size In./mm	(1)			Body Type	(2) (3)		(3) (4)	(5)
	Maximum Working Pressure psi/kPa Carbon Steel	Maximum Working Pressure psi/kPa Stainless Steel	Maximum Working Pressure psi/kPa Ductile Iron		Pipe End Separation Min - Max In./mm		Max. Allow. Static Deflection Degrees	Max. Permissible End Load lbf/N
96 2400	100 690	50 345	50 345	2	0.63 - 1.00 16.0 - 25.4		0° 25'	723823 3219725
	125 860	75 515	50 345	2	0.63 - 1.00 16.0 - 25.4		0° 25'	904779 4024656
	150 1035	125 1200	100 690	2	0.63 - 1.00 16.0 - 25.4		0° 25'	1085734 4829588
	200 1375	175 1200	125 860	3	0.75 - 1.00 19.1 - 25.4		0° 16'	1447646 6439450
	250 1725	175 1200	125 860	3	0.75 - 1.00 19.1 - 25.4		0° 16'	1809557 8049313
108 2700	75 515	50 345	25 170	2	0.63 - 1.00 16.0 - 25.4		0° 22'	687066 3056223
	100 690	75 515	60 345	2	0.63 - 1.00 16.0 - 25.4		0° 22'	916088 4074965
	150 1035	150 1035	125 860	3	0.75 - 1.00 19.1 - 25.4		0° 15'	1374133 6112447
	200 1375	150 1035	125 860	3	0.75 - 1.00 19.1 - 25.4		0° 15'	1832177 8149929
120 3000	75 515	50 345	25 170	2	0.63 - 1.00 16.0 - 25.4		0° 20'	848230 3773115
	100 690	50 345	50 345	2	0.63 - 1.00 16.0 - 25.4		0° 20'	1130973 5030821
	150 1035	125 806	100 690	3	0.75 - 1.00 19.1 - 25.4		0° 13'	1696460 7546231
	200 1375	125 860	100 690	3	0.75 - 1.00 19.1 - 25.4		0° 13'	2261947 10061641
144 3600	50 345	25 170	25 170	2	0.63 - 1.00 16.0 - 25.4		0° 17'	814301 3622191
	100 690	75 515	75 515	2	0.63 - 1.00 16.0 - 25.4		0° 17'	1628602 7244382
	125 860	125 860	100 690	3	0.75 - 1.00 19.1 - 25.4		0° 11'	2035752 9055477
	175 1200	125 860	100 690	3	0.75 - 1.00 19.1 - 25.4		0° 11'	2850053 12677668

- (1) For allowable test or transient pressure, the maximum working pressure may be increased to 1 ½ times the value shown.
- (2) Pipe end separations shown in the table assume the pipe is in a non-deflected state. Maximum allowable axial pipe movement at the joint is the difference between the maximum and minimum pipe separation. At maximum pipe end separation, axial movement can only occur via pipe expansion into the joint and vice versa.
- (3) Pipe end movement and deflection are non-concurrent.
- (4) Published static deflection values are intended for installation only. For allowable in-service or dynamic deflection, use ½ of the published static values. The coupling closure should be located 90 degrees from the direction of joint deflection.
- (5) The maximum permissible end loads listed in the table are calculated using the nominal pipe O.D. The actual maximum permissible end load will be less or greater than the published figures depending on the actual pipe O.D.

Style 232 Restrained Flexible Coupling

RESTRAINT RINGS



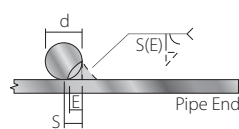
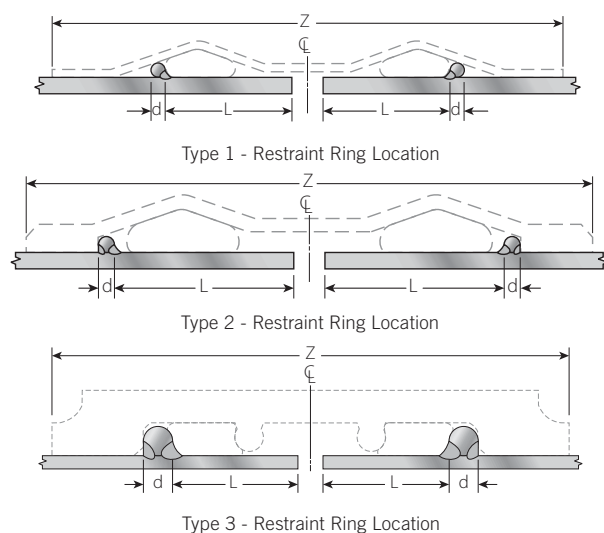
Nominal Pipe Size In./mm	(1) Maximum Working Pressure psi/kPa	(2) Body Type	Width (Z) In./mm	Restrainer Ring		
				Diameter (d) In./mm	Location (L) In./mm	Weld Size (E) In.
8 200	200 1375	1	10.00 254.0	1/4	2.75 69.9	3/32
	300 2065	2	10.50 266.7	1/4	3.38 85.7	3/32
10 250	200 1375	1	10.00 254.0	1/4	2.75 69.9	3/32
	300 2065	2	10.50 266.7	1/4	3.38 85.7	3/32
12 300	150 1035	1	10.00 254.0	1/4	2.75 69.9	3/32
	300 2065	2	10.50 266.7	1/4	3.38 85.7	3/32
14 350	100 690	1	10.00 254.0	1/4	2.75 69.9	3/32
	300 2065	2	10.50 266.7	1/4	3.38 85.7	3/32
16 400	75 515	1	10.00 254.0	1/4	2.75 69.9	3/32
	200 1375	2	10.50 266.7	1/4	3.38 85.7	3/32
	300 2065	2	12.50 317.5	3/8	4.13 104.8	1/8
18 450	50 345	1	10.00 254.0	1/4	2.75 69.9	3/32
	200 1375	2	10.50 266.7	1/4	3.38 85.7	3/32
	300 2065	2	12.50 317.5	3/8	4.13 104.8	1/8
20 500	25 170	1	10.00 254.0	1/4	2.75 69.9	3/32
	200 1375	2	10.50 266.7	1/4	3.38 85.7	3/32
	300 2065	2	12.50 317.5	3/8	4.13 104.8	1/8
24 600	25 170	1	10.00 254.0	1/4	2.75 69.9	3/32
	150 1035	2	10.50 266.7	1/4	3.38 85.7	3/32
	250 1725	2	12.50 317.5	3/8	4.13 104.8	1/8
	300 2065	2	12.50 317.5	3/8	4.13 104.8	1/8

- (1) For allowable test or transient pressure, the maximum working pressure may be increased to 1½ times the values shown.
- (2) For applications other than air or gas, where a liquid or other medium is flowing through pipe, restraint ring weld requirements are as follows:
Type 1 couplings require a full circumferential single flare bevel groove weld based on weld sizes shown in table.
Type 2 and Type 3 couplings require a full circumferential double flare bevel groove weld based on the weld sizes shown in the table.
For low pressure air or gas applications, where the weight of the medium flowing through the pipe is not a consideration, a single flare bevel groove weld and/or less than a full circumference of weld may be allowed to attach the restraint rings. Contact Victaulic for specific details. Each restraint ring shipment includes restraint ring placement and welding data that is specific to application or project requirements.
- (3) Restraint rings must be welded perpendicular to the pipe axis with a tolerance of $\pm 1/16$ in. (1.6 mm).
- (4) Flare bevel groove weld size in table is the minimum requirement. Depth of preparation $S = (d) \div 2$; Weld size $E \approx S \times 0.625$ per AWS D1.1. For a double flare bevel groove weld, the weld on the back side of the restraint ring must not extend beyond the outermost edge of the ring. The coupling shoulder must have unrestricted contact with the ring and the pipe O.D.

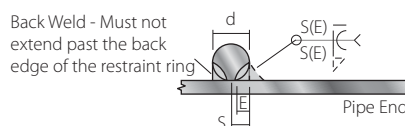
Note: The data in this table only applies when carbon steel couplings are being used on carbon steel pipe.

Style 232 Restrained Flexible Coupling

RESTRAINT RINGS



Restraint Ring Single Flare
Bevel Groove Weld Detail



Restraint Ring Double Flare
Bevel Groove Weld Detail

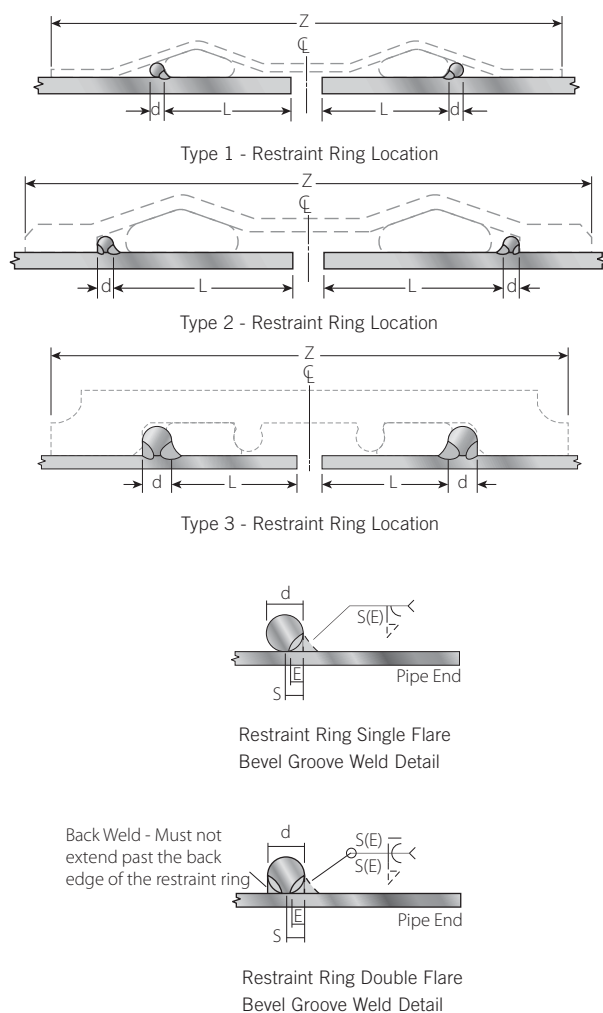
Nominal Pipe Size In./mm	(1) Maximum Working Pressure psi/kPa	(2) Body Type	Width (Z) In./mm	Restraint Ring		
				Diameter (d) In./mm	Location (L) In./mm	Weld Size (E) In.
30 750	100 690	2	10.50 266.7	1/4	3.38 85.7	3/32
	200 1375	2	12.50 317.5	3/8	4.13 104.8	1/8
	300 2065	2	12.50 317.5	3/8	4.13 104.8	1/8
36 900	150 1035	2	12.50 317.5	3/8	4.13 104.8	1/8
	250 1725	2	12.50 317.5	3/8	4.13 104.8	1/8
	300 2065	2	14.50 368.3	1/2	4.75 120.7	5/32
42 1050	150 1035	2	12.50 317.5	3/8	4.13 104.8	1/8
	200 1375	2	12.50 317.5	3/8	4.13 104.8	1/8
	300 2065	2	14.50 368.3	1/2	4.75 120.7	5/32
48 1200	100 690	2	12.50 317.5	3/8	4.13 104.8	1/8
	150 1035	2	12.50 317.5	3/8	4.13 104.8	1/8
	250 1725	2	14.50 368.3	1/2	4.75 120.7	5/32
	300 2065	2	15.00 381.0	3/4	4.50 114.3	1/4
54 1350	150 1035	2	12.50 317.5	3/8	4.13 104.8	1/8
	200 1375	2	14.50 368.3	1/2	4.75 120.7	5/32
	250 1725	2	15.00 381.0	3/4	4.50 114.3	1/4
	300 2065	3	16.50 419.1	1	3.75 95.3	5/16
	400 2750	3	16.50 419.1	1	3.75 95.3	5/16
60 1500	150 1035	2	12.50 317.5	3/8	4.13 104.8	1/8
	200 1375	2	14.50 368.3	1/2	4.75 120.7	5/32
	250 1725	2	15.00 381.0	3/4	4.50 114.3	1/4
	300 2065	3	16.50 419.1	1	3.75 95.3	5/16
	400 2750	3	16.50 419.1	1	3.75 95.3	5/16

- (1) For allowable test or transient pressure, the maximum working pressure may be increased to 1½ times the values shown.
- (2) For applications other than air or gas, where a liquid or other medium is flowing through pipe, restraint ring weld requirements are as follows:
 Type 1 couplings require a full circumferential single flare bevel groove weld based on weld sizes shown in table.
 Type 2 and Type 3 couplings require a full circumferential double flare bevel groove weld based on the weld sizes shown in the table.
 For low pressure air or gas applications, where the weight of the medium flowing through the pipe is not a consideration, a single flare bevel groove weld and/or less than a full circumference of weld may be allowed to attach the restraint rings. Contact Victaulic for specific details. Each restraint ring shipment includes restraint ring placement and welding data that is specific to application or project requirements.
- (3) Restraint rings must be welded perpendicular to the pipe axis with a tolerance of $L \pm 1/16$ in. (1.6 mm).
- (4) Flare bevel groove weld size in table is the minimum requirement. Depth of preparation $S = (d) \div 2$;
 Weld size $E \approx S \times 0.625$ per AWS D1.1. For a double flare bevel groove weld, the weld on the back side of the restraint ring must not extend beyond the outermost edge of the ring. The coupling shoulder must have unrestricted contact with the ring and the pipe O.D.

Note: The data in this table only applies when carbon steel couplings are being used on carbon steel pipe.

Style 232 Restrained Flexible Coupling

RESTRAINT RINGS



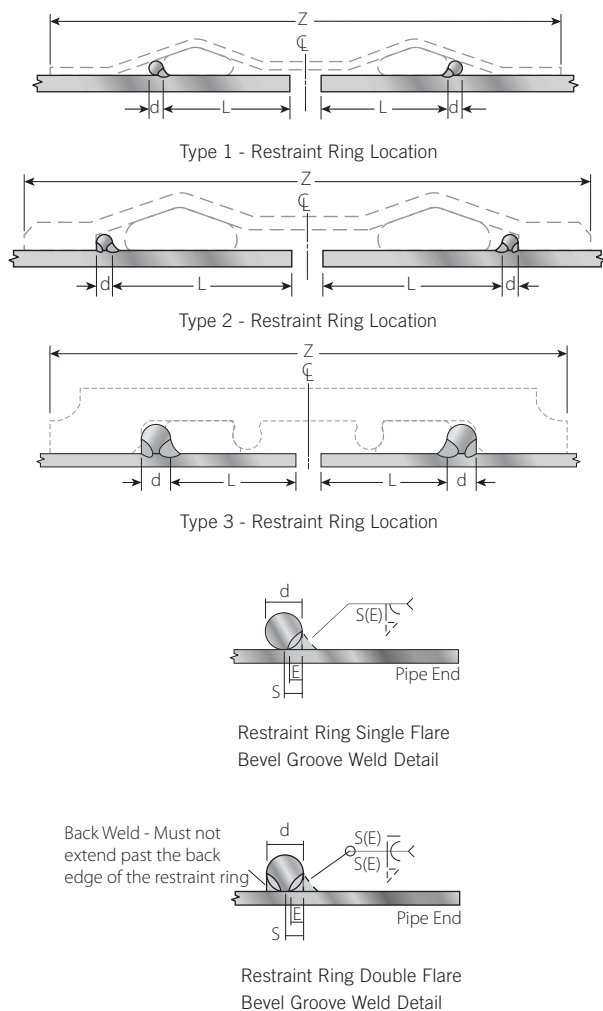
Nominal Pipe Size In./mm	(1) Maximum Working Pressure psi/kPa	(2) Body Type	Width (Z) In./mm	Restraint Ring		
				Diameter (d) In./mm	Location (L) In./mm	Weld Size (E) In.
66 1650	100 690	2	12.50 317.5	3/8	4.13 104.8	1/8
	150 1035	2	14.50 368.3	1/2	4.75 120.7	5/32
	200 1375	2	15.00 381.0	3/4	4.50 114.3	1/4
	250 1725	3	16.50 419.1	1	3.75 95.3	5/16
	350 2410	3	16.50 419.1	1	3.75 95.3	5/16
72 1800	100 690	2	12.50 317.5	3/8	4.13 104.8	1/8
	150 1035	2	14.50 368.3	1/2	4.75 120.7	5/32
	200 1375	2	15.00 381.0	3/4	4.50 114.3	1/4
	250 1725	3	16.50 419.1	1	3.75 95.3	5/16
	350 2410	3	16.50 419.1	1	3.75 95.3	5/16
78 1950	100 690	2	12.50 317.5	3/8	4.13 104.8	1/8
	150 1035	2	14.50 368.3	1/2	4.75 120.7	5/32
	175 1200	2	15.00 381.0	3/4	4.50 114.3	1/4
	200 1375	3	16.50 419.1	1	3.75 95.3	5/16
	300 2065	3	16.50 419.1	1	3.75 95.3	5/16
84 2100	100 690	2	12.50 317.5	3/8	4.13 104.8	1/8
	150 1035	2	14.50 368.3	1/2	4.75 120.7	5/32
	175 1200	2	15.00 381.0	3/4	4.50 114.3	1/4
	200 1375	3	16.50 419.1	1	3.75 95.3	5/16
	300 2065	3	16.50 419.1	1	3.75 95.3	5/16
90 2250	100 690	2	12.50 317.5	3/8	4.13 104.8	1/8
	125 860	2	14.50 368.3	1/2	4.75 120.7	5/32
	150 1035	2	15.00 381.0	3/4	4.50 114.3	1/4
	200 1375	3	16.50 419.1	1	3.75 95.3	5/16
	250 1725	3	16.50 419.1	1	3.75 95.3	5/16

- (1) For allowable test or transient pressure, the maximum working pressure may be increased to 1½ times the values shown.
- (2) For applications other than air or gas, where a liquid or other medium is flowing through pipe, restraint ring weld requirements are as follows:
 Type 1 couplings require a full circumferential single flare bevel groove weld based on weld sizes shown in table.
 Type 2 and Type 3 couplings require a full circumferential double flare bevel groove weld based on the weld sizes shown in the table.
- For low pressure air or gas applications, where the weight of the medium flowing through the pipe is not a consideration, a single flare bevel groove weld and/or less than a full circumference of weld may be allowed to attach the restraint rings. Contact Victaulic for specific details. Each restraint ring shipment includes restraint ring placement and welding data that is specific to application or project requirements.
- (3) Restraint rings must be welded perpendicular to the pipe axis with a tolerance of $\pm 1/16$ in.
- (4) Flare bevel groove weld size in table is the minimum requirement. Depth of preparation $S = (d) \div 2$; Weld size $E \approx S \times 0.625$ per AWS D1.1. For a double flare bevel groove weld, the weld on the back side of the restraint ring must not extend beyond the outermost edge of the ring. The coupling shoulder must have unrestricted contact with the ring and the pipe O.D.

Note: The data in this table only applies when carbon steel couplings are being used on carbon steel pipe.

Style 232 Restrained Flexible Coupling

RESTRAINT RINGS



Nominal Pipe Size In./mm	(1) Maximum Working Pressure psi/kPa	(2) Body Type	Width (Z) In./mm	Restraint Ring		
				Diameter (d) In./mm	Location (L) In./mm	Weld Size (E) In.
96 2400	100 690	2	12.50 317.5	3/8	4.13 104.8	1/8
	125 860	2	14.50 368.3	1/2	4.75 120.7	5/32
	150 1035	2	15.00 381.0	3/4	4.50 114.3	1/4
	200 1375	3	16.50 419.1	1	3.75 95.3	5/16
	250 1725	3	16.50 419.1	1	3.75 95.3	5/16
108 2700	75 515	2	12.50 317.5	3/8	4.13 104.8	1/8
	100 690	2	14.50 368.3	1/2	4.75 120.7	5/32
	150 1035	3	16.50 419.1	1	3.75 95.3	5/16
	200 1375	3	16.50 419.1	1	3.75 95.3	5/16
120 3000	75 515	2	12.50 317.5	3/8	4.13 104.8	1/8
	100 690	2	14.50 368.3	1/2	4.75 120.7	5/32
	150 1035	3	16.50 419.1	1	3.75 95.3	5/16
	200 1375	3	16.50 419.1	1	3.75 95.3	5/16
144 3600	50 345	2	12.50 317.5	3/8	4.13 104.8	1/8
	100 690	2	15.00 381.0	3/4	4.50 114.3	1/4
	125 860	3	16.50 419.1	1	3.75 95.3	5/16
	175 1200	3	16.50 419.1	1	3.75 95.3	5/16

- (1) For allowable test or transient pressure, the maximum working pressure may be increased to 1½ times the values shown.
- (2) For applications other than air or gas, where a liquid or other medium is flowing through pipe, restraint ring weld requirements are as follows:
 Type 1 couplings require a full circumferential single flare bevel groove weld based on weld sizes shown in table.
 Type 2 and Type 3 couplings require a full circumferential double flare bevel groove weld based on the weld sizes shown in the table.
 For low pressure air or gas applications, where the weight of the medium flowing through the pipe is not a consideration, a single flare bevel groove weld and/or less than a full circumference of weld may be allowed to attach the restraint rings. Contact Victaulic for specific details. Each restraint ring shipment includes restraint ring placement and welding data that is specific to application or project requirements.
- (3) Restraint rings must be welded perpendicular to the pipe axis with a tolerance of $L \pm \frac{1}{16} \times 1.6$ mm.
- (4) Flare bevel groove weld size in table is the minimum requirement. Depth of preparation $S = (d) \div 2$;
 Weld size $E \approx S \times 0.625$ per AWS D1.1. For a double flare bevel groove weld, the weld on the back side of the restraint ring must not extend beyond the outermost edge of the ring. The coupling shoulder must have unrestricted contact with the ring and the pipe O.D.

Note: The data in this table only applies when carbon steel couplings are being used on carbon steel pipe.

Style 232 Restrained Flexible Coupling

CLOSURE TOOLS



MANUAL TOOL



HYDRAULIC TOOL

Manual Tools

- CTM-01: for use on 5" and 8" body widths
- CTM-02: for use on 10" body widths
for use on 12" body widths with thickness of $\frac{3}{16}$ " or less

Hydraulic Tools

- CTH-01*: for use on 12" body widths with thickness of $\frac{1}{4}$ " or greater
for use on 14", 16" and 18" body widths
- CTH-02: for use on all type 3 couplings

- Hydraulic tool package comes standard with:

- one (1) tool head
- one (1) hydraulic cylinder
- one (1) hydraulic hose
- one (1) hand pump

* A CTH-01 hydraulic closure tool can be used in applications where the CTM-02 manual closure tool is recommended.

Note: The closure tools listed above are designed specifically for Victaulic Style 230, 231, 232 and 233 couplings. If ordering custom product, contact Victaulic for appropriate tool selection.

Style 232 Restrained Flexible Coupling

PRODUCT CONFIGURATOR

C 0232 0144 50 S 2 D E P S SO										
Class	Style	Actual Pipe O.D. *		Body Type	Segments	PSI/kPa Rating	Rubber Compound	Paint	Hardware	Ring and Pipe Material
		Inches [^]	Fraction							
C	0232	0007 through 0150	00 – 0 13 – 1/8 25 – 1/4 38 – 3/8 50 – 1/2 63 – 5/8 75 – 3/4 88 – 7/8	S – Carbon	1 – One 2 – Two	A – 25/170 B – 50/345 C – 75/515 D – 100/690 E – 125/860 F – 150/1035 G – 175/1200 H – 200/1375 J – 250/1725 K – 300/2065 L – 350/2410 M – 400/2750	E – EPDM I – Isoprene L – Silicone T – Nitrile V – Neoprene O – Fluoro-elastomer	F – Fusion bonded epoxy P – Orange enamel T – Shop primer B – Liquid epoxy N – Fusion bonded nylon G – Galvanized 0 – None	S – Carbon X – Stainless G – Galvanized	SO – Carbon Steel Ring on Carbon Steel Pipe DO – Carbon Steel Ring on Ductile Iron Pipe XO – Stainless Steel Ring on Stainless Steel Pipe

[^] Couplings are available in a range of nominal sizes from 8 – 144".

* For actual pipe O.D. round down to the nearest 1/8" to determine proper coupling size required.

ENGINEERED PRODUCTS OPTIONS

For non-standard products the Victaulic Engineered Products group can assist with specialty joints designed to meet the specific size, pressure and temperature requirements of your system.

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.

TESTING

Victaulic Style 232 couplings are designed to allow for a 50 percent increase over the published maximum working pressure for test and/or transient pressures. Due to the huge volume of air that can be involved in jobsite air testing and the nature of air or gas that is pressurized, jobsite air testing should be limited to 25 psi/175 kPa or less.

Victaulic offers a dished head assembly prepared with a restraint ring for the Style 232 coupling for field testing a section of pipeline or to end a pipeline and allow for future expansion. Contact Victaulic for details.

For complete contact information, visit www.victaulic.com

60.05 3366 REV M UPDATED 08/2013

VICTAULIC IS A REGISTERED TRADEMARK OF VICTAULIC COMPANY. © 2013 VICTAULIC COMPANY. ALL RIGHTS RESERVED.