

Victaulic® High Performance Rigid Coupling

Style 870



1.0 PRODUCT DESCRIPTION

Available Sizes

- 2 – 8"/DN50 – DN200

Pipe Material

- Schedules 40 and 80 carbon steel pipe per ASTM A53 Grade B and ASTM A106 Grade B and metric carbon steel pipe of equivalent thickness per EN 10216-2 P265GH and EN 10217-1 P265TR1/P265TR2.
- Thin wall carbon steel pipe per EN 10216-1 P235TR1.
- Schedule 40S stainless steel pipe per ASTM A312 Grade TP316.
- For use of additional pipe materials, contact Victaulic.

Maximum Working Pressure

- Joints utilizing the Style 870 Coupling are suitable for use in saturated steam systems rated up to 200 psi/ 1379 kPa. Not suitable for use in superheated steam applications.
- For nonsteam applications using Schedules 40 and 80 and equivalent metric thickness carbon steel pipe or Schedule 40S stainless steel pipe, joints utilizing the Style 870 Coupling provide working pressures ranging from full vacuum (29.9 inches Hg/760 mm Hg) up to 740 psi/5102 kPa, depending upon maximum system temperature. Please refer to Figure 1 for specific pressure/temperature ratings.
- For nonsteam applications using thin wall carbon steel pipe per EN 10216-1 P235TR1, joints utilizing the Style 870 Coupling provide working pressures ranging from full vacuum (29.9 inches Hg/760 mm Hg) up to 232 psi/1600 kPa/16 bar, depending on maximum system temperature. Please refer to Figure 2 for specific pressure/temperature ratings.

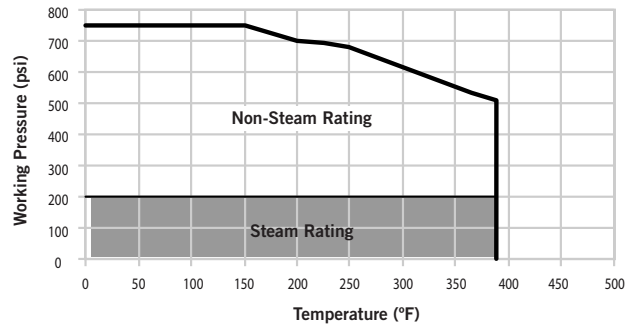


Figure 1: Schedules 40 & 80 and Equivalent Thickness Metric Carbon Steel Pipe, and Schedule 40S Stainless Steel Pipe

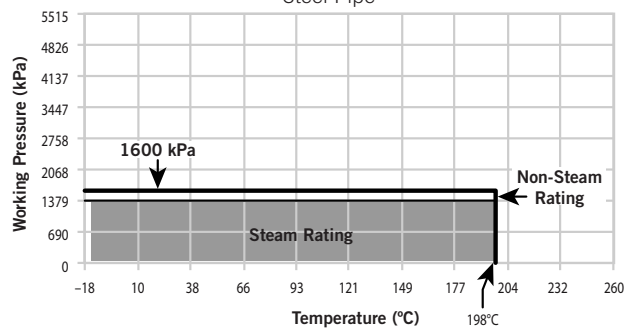


Figure 2: EN 10216-1 P235TR1 Carbon Steel Pipe

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

System No.		Location	
Submitted By		Date	

Spec Section		Paragraph	
Approved		Date	

1.0 PRODUCT DESCRIPTION (CONTINUED)

Operating Temperature Range

- 20°F to +388°F/-29°C to +198°C

Function

- Joins pipes, valves and fittings.
- Does not accommodate expansion, contraction or angular deflection.

Pipe Preparation

- The Style 870 Coupling is exclusively for use on pipe, valves and fittings which feature the Victaulic OGS-200 groove profile (see section 7.0 for Reference Materials).

Codes and Requirements

- Joints utilizing the Style 870 Coupling are designed in accordance with ASME B31.1, ASME B31.3 and ASME B31.9 codes.

2.0 CERTIFICATION/LISTINGS



Manufacturer's Declaration

Victaulic Company, headquartered at 4901 Kesslersville Road, Easton, PA 18040, USA, hereby declares the products listed below have been tested and witnessed by an Authorized Inspection Agency for the purpose of establishing Maximum Allowable Working Pressures (MAWP) in accordance with ANSI/ASME B31.1, ANSI/ASME B31.3, ANSI/ASME B31.9 and ASME BPVC Section VIII Div. 1, and the resulting data has been registered with the States' Boiler and Pressure Vessel Inspection Authorities. We acknowledge individual service applications will be reviewed by the local authority having jurisdiction.

Product	Submittal Number	Material Specification	Service	Size	MAWP ¹ per referenced ASME standards psi /kPa
Style 870 Rigid Coupling	100.02	Housings: Ductile Iron conforming to ASTM A-536, Grade 65-45-12 Bolts: ASTM A193, Grade B7 Nuts: ASTM A194, Grade 2H Washers: ASTM F436, Type 3	Non-Steam Service to 388°F/198°C	2"/DN50	740/5102
				2½"	
				76.1 mm	
				3"/DN80	
				4"/DN100	
				139.7 mm	
				165.1 mm	
				6"/DN150	
			8"/DN200	610/4206	
			2"/DN50		
			2½"		
			76.1 mm		
			3"/DN80		
			4"/DN100		
139.7 mm					
165.1 mm					
6"/DN150	200/1379				
8"/DN200					

¹ Test and Calculation Method: UCD-101 of ASME BPVC Section VIII Div. 1.

3.0 SPECIFICATIONS – MATERIAL

Housing: Ductile iron conforming to ASTM A536, Grade 65-45-12.

Housing Coating: Zinc coating.

Seal: Polytetrafluoroethylene (PTFE) composite.

Spring Energizer: Cobalt-chromium-nickel alloy conforming to AMS 5833.

Hex Bolts: ASTM A193, Grade B7, plain finish.

Heavy Hex Nuts: ASTM A194, Grade 2H, plain finish.

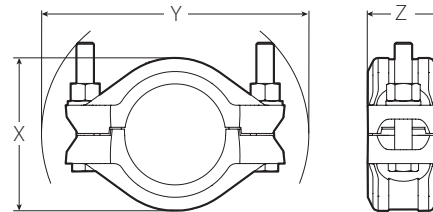
Washers: ASTM F436, Type 3, plain finish.

NOTE

- Contact Victaulic for alternative coating and material options.

4.0 DIMENSIONS

Style 870 Rigid Coupling



Size		Bolt/Nut		Dimensions			Weight
Nominal inches DN	Actual Outside Diameter inches mm	Qty.	Size inches mm	X inches mm	Y inches mm	Z inches mm	Approx. (Each) lb kg
2 DN50	2.375 60.3	2	5/8 x 4 M16 x 102	4.25 108.0	8.88 225.6	2.75 69.9	8.4 3.8
2½	2.875 73.0	2	5/8 x 4 –	4.88 124.0	9.25 235.0	2.75 69.9	9.5 4.3
DN65	3.000 76.1	2	– M16 x 102	5.12 130.1	9.38 238.3	2.75 69.9	9.8 4.4
3 DN80	3.500 88.9	2	5/8 x 4 M16 x 102	5.50 139.7	10.00 254.0	2.75 69.9	10.6 4.8
4 DN100	4.500 114.3	2	¾ x 5 M20 x 127	6.62 168.1	11.62 295.1	3.25 82.6	16.1 7.3
DN125	5.500 139.7	2	– M22 x 127	8.00 203.2	13.00 330.2	3.25 82.6	23.8 10.8
	6.500 165.1	2	– M22 x 127	9.12 231.7	13.88 352.6	3.25 82.6	27.4 12.4
6 DN150	6.625 168.3	2	7/8 x 5 M22 x 127	9.12 231.6	14.62 371.3	3.12 79.2	25.6 11.6
8 DN200	8.625 219.1	2	1 x 7 ¾ M24 x 197	11.50 292.1	17.75 450.9	3.50 88.9	43.2 19.6

5.0 PERFORMANCE

Schedule 40 and Equivalent Metric Wall Carbon Steel Pipe Schedule 40S Stainless Steel Pipe

Size		Victaulic Groove Profile	Allow. Pipe End Separation ¹	Schedule 40 and Metric Carbon Steel Schedule 40S Stainless Steel			
Nominal inches DN	Actual Outside Diameter inches mm			ANSI Wall Thick. inches mm	ISO Wall Thick. inches mm	Max. Joint Work. Press. psi kPa	Max. Perm. End Load lb N
2 DN50	2.375 60.3	OGS-200	0.14 3.6	0.154 3.91	0.157 4.0	740 5102	3278 14583
2½	2.875 73.0	OGS-200	0.14 3.6	0.203 5.16	– –	740 5102	4804 21369
DN65	3.000 76.1	OGS-200	0.14 3.6	– –	0.220 5.6	740 5102	5231 23268
3 DN80	3.500 88.9	OGS-200	0.14 3.6	0.216 5.49	0.220 5.6	740 5102	7120 31670
4 DN100	4.500 114.3	OGS-200	0.14 3.6	0.237 6.02	0.248 6.3	740 5102	11769 52352
DN125	5.500 139.7	OGS-200	0.14 3.6	– –	0.280 7.1	740 5102	17581 78205
	6.500 165.1	OGS-200	0.14 3.6	– –	0.280 7.1	740 5102	24555 109228
6 DN150	6.625 168.3	OGS-200	0.14 3.6	0.280 7.11	0.280 7.1	740 5102	25509 113470
8 DN200	8.625 219.1	OGS-200	0.14 3.6	0.322 8.18	0.346 8.8	740 5102	43235 192321

Schedule 80 and Equivalent Metric Wall Carbon Steel Pipe

Size		Victaulic Groove Profile	Allow. Pipe End Separation ¹	Schedule 80 and Metric Carbon Steel			
Nominal inches DN	Actual Outside Diameter inches mm			ANSI Wall Thick. inches mm	ISO Wall Thick. inches mm	Max. Joint Work. Press. psi kPa	Max. Perm. End Load lb N
2 DN50	2.375 60.3	OGS-200	0.14 3.6	0.218 5.54	0.220 5.6	740 5102	3278 14583
2½	2.875 73.0	OGS-200	0.14 3.6	0.276 7.01	– –	740 5102	4804 21369
DN65	3.000 76.1	OGS-200	0.14 3.6	– –	0.280 7.1	740 5102	5231 23268
3 DN80	3.500 88.9	OGS-200	0.14 3.6	0.300 7.62	0.315 8.0	740 5102	7120 31670
4 DN100	4.500 114.3	OGS-200	0.14 3.6	0.337 8.56	0.346 8.8	740 5102	11769 52352
DN125	5.500 139.7	OGS-200	0.14 3.6	– –	0.394 10.0	740 5102	17581 78205
	6.500 165.1	OGS-200	0.14 3.6	– –	0.433 11.0	740 5102	24555 109228
6 DN150	6.625 168.3	OGS-200	0.14 3.6	0.432 10.97	0.433 11.0	740 5102	25509 113470
8 DN200	8.625 219.1	OGS-200	0.14 3.6	0.500 12.70	0.559 14.2	740 5102	43235 192321

¹ For field installation only. Style 870 Rigid Couplings, when sufficiently pressurized, will allow pipe ends to separate to maximum point shown before joint acts in a fully restrained manner.

NOTES

- Torque values can be found within the product's installation instructions and on the crown of the Style 870 housing.
- WARNING: FOR ONE-TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1½ times the figures shown.
- For use on additional pipe materials, contact Victaulic.

5.0 PERFORMANCE (CONTINUED)

EN 10216-1 P235TR1 Carbon Steel Pipe


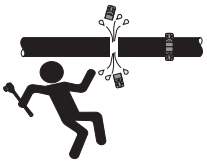




Size		Victaulic Groove Profile	Allow. Pipe End Separation ¹	EN 10216-1 P235TR1		
Nominal inches DN	Actual Outside Diameter inches mm			Minimum Wall Thick. inches mm	Max. Joint Work. Press. psi kPa	Max. Perm. End Load lb N
2 DN50	2.375 60.3	OGS-200	0.14 3.6	0.114 2.9	232 1600	1028 4572
DN65	3.000 76.1	OGS-200	0.14 3.6	0.114 2.9	232 1600	1640 7295
3 DN80	3.500 88.9	OGS-200	0.14 3.6	0.126 3.2	232 1600	2232 9929
4 DN100	4.500 114.3	OGS-200	0.14 3.6	0.142 3.6	232 1600	3690 16413
DN125	5.500 139.7	OGS-200	0.14 3.6	0.157 4.0	232 1600	5512 24518
6 DN150	6.625 168.3	OGS-200	0.14 3.6	0.177 4.5	232 1600	7997 35574
8 DN200	8.625 219.1	OGS-200	0.14 3.6	0.248 6.3	232 1600	13555 60295

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NOTES

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- For use on additional pipe materials, contact Victaulic.

6.0 NOTIFICATIONS

 WARNING		
	<ul style="list-style-type: none"> • Read and understand all instructions before attempting to install, remove, adjust, or maintain any Victaulic piping products. • Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products. • Wear safety glasses, hardhat, and foot protection. • When the Style 870 Coupling is considered suitable for use in saturated steam service, use extreme caution when working around steam systems. • DO NOT impact the coupling or pipe when the system is pressurized. • The Style 870 Coupling must be installed ONLY on carbon steel or stainless steel pipe that is prepared to Victaulic OGS-200 Specifications. DO NOT install the Style 870 Coupling on pipe that is prepared to any other groove specification. • DO NOT attempt to install the Style 870 Coupling on non-metallic pipe. <p>Failure to follow these instructions may cause joint failure, resulting in death or serious personal injury and property damage.</p>	
		
		

Tools, Materials or Other Processes Required For Proper Installation

- Victaulic R9S roll sets must be used when grooving Schedules 40 and 80 carbon steel pipe, metric carbon steel pipe of equivalent thickness, and thin wall metric carbon steel pipe to Victaulic OGS-200 groove specifications. Victaulic R9S roll sets must be ordered separately. They are identified by the designation "R9S" on the front of the roll set, as well as a red color stripe on both the upper and lower roll.
- Victaulic RXS roll sets must be used when grooving schedule 40 stainless steel pipe to Victaulic OGS-200 groove specifications. Victaulic RXS roll sets must be ordered separately. They are identified by the designation "RXS" on the front of the roll set, as well as a red color stripe on both the upper and lower roll.
- Proper installation requires the use of a torque wrench. Refer to markings on the Style 870 housing or installation instructions for torque requirement.
- A new seal must be installed any time the coupling is disassembled, even if the joint has not been in service.

7.0 REFERENCE MATERIALS

- [05.10: Victaulic Chemical Compatibility Guide for the Style 870 High Performance Rigid Coupling Seal Assembly](#)
- [17.01: Victaulic Stainless Steel Pipe End Preparation](#)
- [24.01: Victaulic Pipe Preparation Tools](#)
- [24.11: Victaulic In-Place OGS-200 Roll Grooving Tool Model RG1200](#)
- [24.14: Victaulic OGS-200 Roll Grooving Tool Model RG1210](#)
- [25.12: Victaulic OGS-200 Roll Groove Specifications](#)
- [100.01: Victaulic OGS-200 Grooved End Fittings](#)
- [100.12: Victaulic Gate Valve Series 871](#)
- [100.13: Victaulic Flexible Loop for Steam Series 159](#)
- [I-100: Victaulic Field Installation Handbook](#)
- [I-870: Victaulic Installation Instructions Style 870 Rigid Coupling](#)
- [I-ENDCAP: Victaulic End Cap Installation Safety Instructions](#)
- [TM-RG1200: Victaulic Operating and Maintenance instructions Manual RG1200 Roll Grooving Tool](#)
- [TM-RG1210: Victaulic Operating and Maintenance instructions Manual RG1210 Roll Grooving Tool](#)

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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