

Victaulic® Rigid Coupling for Technology Cooling Systems

Style 07-TCS



1.0 PRODUCT DESCRIPTION

Available Sizes

- 1 – 12"/DN25 – DN300

Pipe Materials

- Stainless steel

Maximum Working Pressure

- Accommodates pressures ranging from full vacuum (29.9 in Hg/760 mm Hg) up to 750 psi/5171 kPa/52 Bar
- Working pressure dependent on pipe material, pipe wall thickness, and pipe size

Operating Temperature

- Reference Section 3.0

Function

- Designed specifically for technology cooling systems.
- Joins roll or cut grooved pipe, grooved fittings, valves, and accessories
- Provides a rigid pipe joint designed to restrict axial or angular movement. Contact Victaulic for information on torsional resistance.

Pipe Preparation

- Cut or roll grooved in accordance with [publication 25.01](#): Victaulic Original Groove System (OGS) Specifications

Codes and Requirements

- Hanger support spacing corresponds to ASME B31.1 Power Piping Code and ASME B31.9 Building Services Piping Code

2.0 CERTIFICATIONS/LISTINGS

Product manufactured by Victaulic and/or certified suppliers in accordance with ISO-9001.

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

3.0 SPECIFICATIONS – MATERIAL

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: Blue coating.

Optional: Contact Victaulic with your requirements for other coatings.

Gasket: Grade “E” Flush-Seal™ EPDM

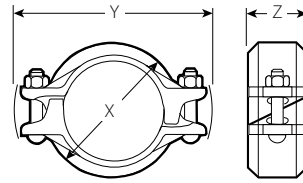
EPDM (Green stripe color code). Temperature range –30°F to +230°F/–34°C to +110°C. May be specified for hot water service within the specified temperature range plus a variety of dilute acids, oil-free air and many chemical services. UL Classified in accordance with ANSI/NSF 61 for cold +73°F/+23°C and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

Bolts/Nuts: Stainless steel oval neck track bolts meeting the mechanical property requirements of ASTM F593, Group 2 (316 stainless steel), condition CW. Stainless steel heavy nuts meeting the mechanical property requirements of ASTM F594, Group 2 (316 stainless steel), condition CW. Bolts and nuts include galling reducing coating.

Washers: Plain Type "A" per ASME B18.21.1, 316 stainless steel.

4.0 DIMENSIONS

Style 07-TCS Rigid Coupling



Size		Pipe End Separation ²	Bolt/Nut		Dimensions			Weight
Nominal inches DN	Actual Outside Diameter inches mm	Allowable inches mm	Qty	Size inches mm	X inches mm	Y inches mm	Z inches mm	Approximate (Each) lbs kg
1 DN25	1.315 33.7	0.05 1.2	2	3/8 x 2	2.36 60	4.22 107	1.84 47	1.6 0.7
1 1/4 DN32	1.660 42.4	0.05 1.2	2	3/8 x 2	2.69 68	4.62 117	1.84 47	1.6 0.7
1 1/2 DN40	1.900 48.3	0.05 1.2	2	3/8 x 2	2.94 75	5.81 148	1.84 47	1.6 0.7
2 DN50	2.375 60.3	0.07 1.7	2	1/2 x 2 1/2	3.35 85	5.78 147	1.84 47	2.3 1.0
2 1/2	2.875 73.0	0.07 1.7	2	1/2 x 2 3/4	3.88 98	6.38 162	1.84 47	2.6 1.2
DN65	3.000 76.1	0.07 1.7	2	M12 x 70.0	4.21 107	6.61 168	1.84 47	3.6 1.6
3 DN80	3.500 88.9	0.07 1.7	2	1/2 x 2 1/2	4.54 115	6.81 173	1.84 47	3.0 1.4
4 DN100	4.500 114.3	0.16 4.1	2	1/2 x 2 3/4	5.81 148	8.21 209	2.07 53	5.3 2.4
DN125	5.500 139.7	0.16 4.1	2	M16 x 82.5	6.94 176	9.82 249	2.07 53	7.6 3.4
5	5.563 141.3	0.16 4.1	2	5/8 x 3 1/4	7.03 179	9.89 251	2.07 53	7.4 3.4
6 DN150	6.625 168.3	0.16 4.1	2	5/8 x 3 1/4	8.26 210	10.83 275	2.07 53	8.3 3.8
8 DN200	8.625 219.1	0.19 4.8	2	3/4 x 4 1/4	10.54 268	13.74 349	2.51 64	15.1 6.8
10 DN250	10.750 273.0	0.13 3.3	2	7/8 x 6 1/2	12.86 327	16.98 431	2.56 65	23.5 10.7
12 DN300	12.750 323.9	0.13 3.3	2	7/8 x 6 1/2	14.86 377	18.88 480	2.56 65	28.2 12.8

² The allowable pipe end separation dimension shown is for system layout purposes only. Style 07-TCS Rigid Couplings are considered rigid connections and will not accommodate expansion/contraction or angular movement of the piping system. Contact Victaulic for torsional resistance information.

NOTE

- The Style 07-TCS Rigid Coupling can be used with No. 460 Stainless Steel OGS End Caps. Reference [publication 17.16](#).

5.0 PERFORMANCE

Style 07-TCS Rigid Coupling Performance on ANSI Pipe Wall Thicknesses

Size		ANSI Pipe Wall Thickness		Grooving Method Std,C,RX	Style 07-TCS	
Nominal inches DN	Actual Outside Diameter inches mm	Nominal inches mm	ANSI Schedule Number		Maximum Working Pressure psi kPa	Maximum End Load lbf N
1 DN25	1.315 33.7	0.179 4.5	80S	C	750 5171	1020 4538
		0.133 3.4	40S	Std,C	750 5171	1020 4538
		0.109 2.8	10S	RX	500 3447	680 3024
		0.065 1.7	5S	RX	400 2758	545 2424
1 ¼ DN32	1.660 42.4	0.191 4.9	80S	C	750 5171	1630 7250
		0.140 3.6	40S	Std,C	750 5171	1630 7250
		0.109 2.8	10S	RX	500 3447	1090 4848
		0.065 1.7	5S	RX	400 2758	870 3870
1 ½ DN40	1.900 48.3	0.200 5.1	80S	C	750 5171	2130 9474
		0.145 3.7	40S	Std,C	750 5171	2130 9474
		0.109 2.8	10S	RX	500 3447	1420 6316
		0.065 1.7	5S	RX	400 2758	1140 5070
2 DN50	2.375 60.3	0.218 5.5	80S	C	750 5171	3330 14,812
		0.154 3.9	40S	Std,C	750 5171	3330 14,812
		0.109 2.8	10S	RX	500 3447	2220 9876
		0.065 1.7	5S	RX	325 2241	1440 6406
2 ½	2.875 73.0	0.276 7.0	80S	C	750 5171	4870 21,662
		0.203 5.2	40S	Std,C	750 5171	4870 21,662
		0.120 3.0	10S	RX	500 3447	3250 14,456
		0.083 2.1	5S	RX	325 2241	2110 9386
3 DN80	3.500 88.9	0.300 7.6	80S	C	750 5171	7220 32,116
		0.216 5.5	40S	Std,C	750 5171	7220 32,116
		0.120 3.0	10S	RX	500 3447	4820 21,440
		0.083 2.1	5S	RX	325 2241	3130 13,922

RX = Roll Set for light wall stainless steel pipe marked with the prefix "RX"

Std = Standard roll set marked with the prefix "R"

C = Cut groove

NOTES

- For pressure ratings on wall thicknesses not mentioned, contact Victaulic.
- Performance data is for ANSI Types 304/304L and 316/316L stainless steel pipe with wall thicknesses from Schedule 5S to Schedule 80S.
- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1 ½ times the figures shown.

5.0 PERFORMANCE (CONTINUED)

Style 07-TCS Rigid Coupling Performance on ANSI Pipe Wall Thicknesses

Size		ANSI Pipe Wall Thickness		Grooving Method Std,C,RX	Style 07-TCS	
Nominal inches DN	Actual Outside Diameter inches mm	Nominal inches mm	ANSI Schedule Number		Maximum Working Pressure psi kPa	Maximum End Load lbf N
4 DN100	4.500 114.3	0.337 8.6	80S	C	750 5171	12,000 53,378
		0.237 6.0	40S	Std,C	750 5171	12,000 53,378
		0.120 3.0	10S	RX	400 2758	6370 28,336
		0.083 2.1	5S	RX	250 1724	3980 17,704
5	5.563 141.3	0.375 9.5	80S	C	750 5171	18,300 81,402
		0.258 6.6	40S	Std,C	500 3447	12,200 54,268
		0.134 3.4	10S	RX	300 2068	7300 32,472
		0.109 2.8	5S	RX	200 1379	4870 21,662
6 DN150	6.625 168.3	0.432 11.0	80S	C	700 4826	24,200 107,646
		0.280 7.1	40S	Std,C	450 3103	15,600 69,392
		0.134 3.4	10S	RX	200 1379	6900 30,692
		0.109 2.8	5S	RX	125 862	4310 19,172
8 DN200	8.625 219.1	0.322 8.2	40S	C	600 4137	35,100 156,132
		0.322 8.2	40S	Std	400 2758	23,400 104,088
		0.148 3.8	10S	RX	125 862	7310 32,516
		0.109 2.8	5S	RX	75 517	4390 19,528
10 DN250	10.750 273.0	0.365 9.3	40S	C	500 3447	45,400 201,950
		0.365 9.3	40S	Std	325 2241	29,500 131,222
		0.165 4.2	10S	RX	75 517	6810 30,292
		0.134 3.4	5S	RX	50 345	4540 20,194
12 DN300	12.750 323.9	0.375 9.5	40S	C	400 2758	51,500 229,084
		0.375 9.5	40S	Std	250 1724	32,000 142,344
		0.180 4.6	10S	RX	125 862	16,000 71,172
		0.156 4.0	5S	RX	75 517	9580 42,614

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5.1 PERFORMANCE

Style 07-TCS Rigid Coupling Performance on ISO Pipe Wall Thicknesses

Size		ISO Pipe Wall Thickness		Style 07-TCS	
Nominal DN inches	Actual Outside Diameter mm inches	Nominal mm inches	Grooving Method Std,C,RX	Maximum Working Pressure kPa psi	Maximum End Load N lbf
DN25 1	33.7 1.315	4.5 0.177	C	5171 750	4538 1020
		3.2 0.126	Std	4309 625	3780 850
		2.6 0.102	RX	3275 475	2892 650
		2.3 0.091	RX	3103 450	2736 615
		2.0 0.079	RX	2930 425	2580 580
		1.6 0.063	RX	2758 400	2424 545
DN32 1 ¼	42.4 1.660	5.0 0.197	C	5171 750	7250 1630
		3.6 0.142	Std,C	5171 750	7250 1630
		3.2 0.126	Std	4309 625	6050 1360
		2.6 0.102	RX	3275 475	4582 1030
		2.0 0.079	RX	2930 425	4092 920
		1.6 0.063	RX	2758 400	3870 870
DN40 1 ½	48.3 1.900	5.0 0.197	C	5171 750	9474 2130
		3.6 0.142	Std,C	5171 750	9474 2130
		3.2 0.126	Std	4137 600	7606 1710
		2.6 0.102	RX	3275 475	6006 1350
		2.0 0.079	RX	2930 425	5382 1210
		1.6 0.063	RX	2758 400	5070 1140
DN50 2	60.3 2.375	5.6 0.220	C	5171 750	14,812 3330
		4.0 0.157	Std,C	5171 750	14,812 3330
		3.6 0.142	Std	4654 675	13,344 3000
		3.2 0.126	Std	4137 600	11,832 2660
		2.9 0.114	Std	3620 525	10,364 2330
		2.6 0.102	RX	3275 475	9386 2110
		2.3 0.091	RX	3275 475	9386 2110
		2.0 0.079	RX	2586 375	7428 1670
		1.6 0.063	RX	2241 325	6406 1440

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- For pressure ratings on wall thicknesses not mentioned, contact Victaulic.
- Performance data is for ISO Types 304/304L and 316/316L stainless steel pipe with wall thicknesses from 1.6 - 12.5mm/0.063-0.429", depending on pipe size.
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5.1 PERFORMANCE (CONTINUED)

Style 07-TCS Rigid Coupling Performance on ISO Pipe Wall Thicknesses

Size		ISO Pipe Wall Thickness		Style 07-TCS	
Nominal DN inches	Actual Outside Diameter mm inches	Nominal mm inches	Grooving Method Std,C,RX	Maximum Working Pressure kPa psi	Maximum End Load N lbf
DN65	76.1 3.000	7.1 0.280	C	5171 750	23,620 5310
		6.4 0.252	C	5171 750	23,620 5310
		5.0 0.197	Std,C	4482 650	20,462 4600
		4.0 0.157	Std	3964 575	18,104 4070
		3.6 0.142	Std	3792 550	17,304 3890
		3.1 0.122	Std	3447 500	15,746 3540
		2.9 0.114	RX	3275 475	14,946 3360
		2.6 0.102	RX	2758 400	12,588 2830
		2.3 0.091	RX	2413 350	11,032 2480
		2.1 0.083	RX	2241 325	10,230 2300
		2.0 0.079	RX	2241 325	10,230 2300
DN80 3	88.9 3.500	8.0 0.315	C	5171 750	32,116 7220
		5.6 0.220	Std,C	5171 750	32,116 7220
		4.0 0.157	Std	4137 600	25,710 5780
		3.6 0.142	Std	3792 550	23,576 5300
		3.2 0.126	Std	3447 500	21,440 4820
		2.9 0.114	RX	3275 475	20,372 4580
		2.6 0.102	RX	2758 400	17,126 3850
		2.3 0.091	RX	2413 350	14,990 3370
		2.0 0.079	RX	2241 325	13,922 3130
		2.0 0.079	RX	2241 325	13,922 3130
DN100 4	114.3 4.500	8.8 0.346	C	5171 750	53,378 12,000
		6.3 0.248	C	5171 750	53,378 12,000
		4.5 0.177	Std	3964 575	40,702 9150
		3.6 0.142	Std	3103 450	31,850 7160
		2.9 0.114	RX	2586 375	26,556 5970
		2.6 0.102	RX	2241 325	22,998 5170
		2.0 0.079	RX	1600 232	16,414 3690
		2.0 0.079	RX	1600 232	16,414 3690

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- Performance data is for ISO Types 304/304L and 316/316L stainless steel pipe with wall thicknesses from 1.6 - 12.5mm/0.063-0.429", depending on pipe size.
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5.1 PERFORMANCE (CONTINUED)

Style 07-TCS Rigid Coupling Performance on ISO Pipe Wall Thicknesses

Size		ISO Pipe Wall Thickness		Style 07-TCS	
Nominal DN inches	Actual Outside Diameter mm inches	Nominal mm inches	Grooving Method Std,C,RX	Maximum Working Pressure kPa psi	Maximum End Load N lbf
DN125	139.7 5.500	10.0 0.394	C	5171 750	79,624 17,900
		7.1 0.280	C	5171 750	79,624 17,900
		6.6 0.260	C	5171 750	79,624 17,900
		6.6 0.260	Std	3447 500	52,934 11,900
		6.3 0.248	Std,C	3275 475	50,264 11,300
		5.6 0.220	Std,C	3103 450	47,596 10,700
		5.0 0.197	Std	2758 400	42,302 9510
		4.0 0.157	Std	2413 350	37,010 8320
		3.4 0.134	RX	2068 300	31,716 7130
		3.2 0.126	RX	1896 275	29,092 6540
		3.0 0.118	RX	1896 275	29,092 6540
		2.8 0.110	RX	1724 250	26,422 5940
		2.6 0.102	RX	1600 232	24,554 5520
DN150 6	168.3 6.625	11.0 0.433	C	4826 700	107,646 24,200
		7.1 0.280	C	4826 700	107,646 24,200
		7.1 0.280	Std	3103 450	69,392 15,600
		5.0 0.197	Std	2068 300	46,262 10,400
		4.5 0.177	Std	1896 275	42,170 9480
		4.0 0.157	Std	1600 232	35,586 8000
		3.2 0.126	RX	1207 175	26,868 6040
		3.0 0.118	RX	1034 150	23,042 5180

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5.1 PERFORMANCE (CONTINUED)

Style 07-TCS Rigid Coupling Performance on ISO Pipe Wall Thicknesses

Size		ISO Pipe Wall Thickness		Style 07-TCS	
Nominal DN inches	Actual Outside Diameter mm inches	Nominal mm inches	Grooving Method Std,C,RX	Maximum Working Pressure kPa psi	Maximum End Load N lbf
DN200 8	219.1 8.625	12.5 0.492	C	4137 600	156,132 35,100
		8.0 0.315	Std,C	2758 400	104,088 23,400
		6.5 0.256	Std,C	2068 300	78,288 17,600
		6.3 0.248	Std,C	1896 275	71,616 16,100
		5.0 0.197	Std	1379 200	52,044 11,700
		4.0 0.157	RX	1034 150	39,010 8770
		3.6 0.142	RX	793 115	29,892 6720
		3.2 0.126	RX	689 100	26,022 5850
		3.0 0.118	RX	517 75	19,528 4390
		14.2 0.559	C	3447 500	201,950 45,400
DN250 10	273.0 10.750	12.5 0.492	C	3447 500	201,950 45,400
		10.0 0.394	C	3447 500	201,950 45,400
		6.3 0.248	Std,C	1207 175	70,726 15,900
		4.0 0.157	RX	517 75	30,292 6810
		3.6 0.142	RX	345 50	20,194 4540
		12.5 0.492	C	2758 400	229,084 51,500
		10.0 0.394	C	2758 400	229,084 51,500
DN300 12	323.9 12.750	7.1 0.280	Std,C	1379 200	113,874 25,600
		5.0 0.197	RX	1034 150	85,406 19,200
		4.5 0.177	RX	862 125	71,172 16,000
		4.0 0.157	RX	517 75	42,614 9580

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6.0 NOTIFICATIONS

! WARNING



- Read and understand all instructions before attempting to install any Victaulic products.
- Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.
- Confirm that any equipment, branch lines, or sections of piping that may have been isolated for/during testing or due to valve closures/positioning are identified, depressurized, and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.
- Wear safety glasses, hardhat, foot protection, and hearing protection.
- When the Style 07-TCS Rigid Coupling is used with No. 460 End Caps, read and follow the [I-ENDCAP](#), Victaulic® End Cap Installation Safety Instructions, which can be downloaded at Victaulic.com.
- Victaulic recommends the use of Victaulic® fittings with Style 07-TCS Rigid Couplings.
- Style 07-TCS Rigid Couplings shall not be used to join PVC or CPVC pipe.

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

! WARNING

FOR STYLE 07-TCS RIGID COUPLINGS USED ON STAINLESS STEEL:

- Victaulic® RX roll sets shall be used when grooving light-wall/thin-wall stainless steel pipe. 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.
- It is the system designer's responsibility to verify suitability of stainless steel components for use with the intended fluid media within the piping system and external environment.
- The material specifier shall evaluate the effect of chemical composition, pH level, operating temperature, chloride level, oxygen level, and flow rate on stainless steel components to confirm system life will be acceptable for the intended service.
- Always reference Victaulic publication [17.01](#) for stainless steel pipe end preparation and grooving roll set requirements.

Failure to follow these instructions may cause joint failure, resulting in death or serious personal injury and property damage.

7.0 REFERENCE MATERIALS

[05.01: Victaulic Seal Selection Guide - Elastomeric Seal Construction](#)

[17.01: Stainless Steel Pipe End Preparation](#)

[17.09: Victaulic Ductile Iron Grooved Couplings Performance Data for Stainless Steel Pipe](#)

[26.01: Victaulic Design Data](#)

[29.01: Victaulic Terms and Conditions of Sale](#)

[I-07-TCS: Style 07-TCS Installation Instructions](#)

[I-ENDCAP: Victaulic End Cap Installation Safety Instructions](#)

User Responsibility for Product Selection and Suitability

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

Installation

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

Warranty

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

Intellectual Property Rights

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Note

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