Victaulic® StrengThin™ 100 System Fittings for Stainless Steel Pipe

1.0 PRODUCT DESCRIPTION

Available Sizes

- 2 – 12"/DN50 – DN300

Maximum Working Pressure

- Fitting pressure ratings are equivalent to the coupling joint pressure rating of the Victaulic StrengThin™ 100 Style E497 Rigid Couplings used to install them (see section 5.0 in publication 31.02: Victaulic StrengThin™ 100 System Style E497 Rigid Coupling for Stainless Steel Pipe).
- For the pressure ratings for the No. E494G Adapter Nipples, see page 8 of this document.
- For the pressure ratings of the No. E498 Flange Adapters, see page 13 of this document.

Function

- Connects pipe sections, provides change in direction, and adapts sizes or components.
- All fittings are supplied with the Victaulic StrengThin™ 100 groove profile. Fittings are exclusively for use with Victaulic StrengThin™ 100 couplings, valves, accessories and pipe which feature ends formed with the Victaulic StrengThin™ 100 groove profile (see section 7.0 for Reference Materials).

2.0 CERTIFICATION/LISTINGS

Product designed and manufactured under Victaulic's Quality Management System, as certified by LPCB 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

Fittings

Investment Cast Fittings**:** Stainless steel per ASTM A351/A351M, Grade CF8 (304) or Grade CF8M (1.4408).

Wrought Fittings: Stainless steel per EN 10088-1 No. 1.4404 (316L), EN 10088-1 No. 1.4432 (316L) or EN 10088-1 No. 1.4307 (304L).

No. E498 Flange Adapter Nipples

Stub Material: ASTM A403, Class WP, Grade 304/304L or 1.4401 (316).

Flange Ring Material (specify choice):

☐ Standard: Stainless steel flange per EN10222-5 1.4401/1.4404 (316/316L) according to EN1092-1 Type 02.

☐ Optional:[1] Carbon steel.

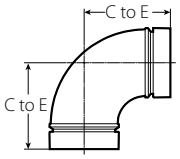
Flange Ring Coating: Hot dipped galvanized as per EN10240 for carbon steel flange ring.

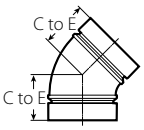
[1] Contact Victaulic for more details.

4.0 DIMENSIONS

Elbows

No. E490 90° Elbow
No. E491 45° Elbow





Size		No. E490 90° Elbow		No. E491 45° Elbow	
Nominal inches DN	**Actual Outside Diameter** inches mm	**C to E** inches mm	**Approximate Weight (Each)** lb kg	**C to E** inches mm	**Approximate Weight (Each)** lb kg
2 DN50	2.375 60.3	3.13(c) 79	1.7 0.8	1.88(c) 48	1.2 0.5
 DN65	3.000 76.1	3.75(c) 95	2.6 1.2	2.00(c) 51	1.8 0.8
3 DN80	3.500 88.9	4.02 (c) 102	3.1 1.4	2.13(c) 54	2.2 1.0
4 DN100	4.500 114.3	5.96 151	2.9 1.3	2.50 64	1.5 0.7
 DN125	5.500 139.7	7.46 189	4.5 2.0	3.09 78	2.2 1.0
6 DN150	6.625 168.3	8.99 228	6.5 2.9	3.72 94	3.2 1.5
8 DN200	8.625 219.1	11.98 304	15.9 7.2	4.98 126	8.3 3.8
10 DN250	10.750 273.0	14.98 380	30.9 14.0	6.24 158	17.6 8.0
12 DN300	12.750 323.9	17.97 456	37.5 17.0	7.46 189	18.7 8.5

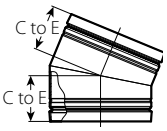
NOTE

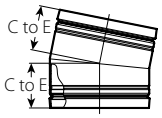
- (c) = Cast fitting

4.1 DIMENSIONS

Elbows

No. E412 22½° Elbow
No. E413 11¼° Elbow



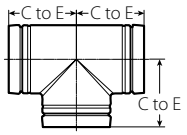


Size		No. E412 22½° Elbow		No. E413 11¼° Elbow	
Nominal inches DN	**Actual Outside Diameter** inches mm	**C to E** inches mm	**Approximate Weight (Each)** lb kg	**C to E** inches mm	**Approximate Weight (Each)** lb kg
2 DN50	2.375 60.3	1.88 48	1.0 0.5	1.88 48	0.7 0.3
 DN65	3.000 76.1	2.00 51	1.2 0.5	2.00 51	0.9 0.4
3 DN80	3.500 88.9	2.25 57	1.7 0.8	2.25 57	1.1 0.5
4 DN100	4.500 114.3	2.88 73	2.9 1.3	2.88 73	1.8 0.8
 DN125	5.500 139.7	2.88 73	3.3 1.5	2.88 73	2.0 0.9
6 DN150	6.625 168.3	3.13 80	5.8 2.6	3.13 80	3.3 1.5
8 DN200	8.625 219.1	3.88 99	9.2 4.2	3.88 99	4.6 2.1
10 DN250	10.750 273.0	4.38 111	13.6 6.2	4.38 111	5.3 2.4
12 DN300	12.750 323.9	4.88 124	19.2 8.7	4.88 124	14.1 6.4

4.2 DIMENSIONS

Tee

No. E492

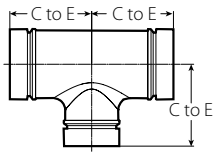


Size		Dimensions	Weight
Nominal inches DN	**Actual Outside Diameter** inches mm	**C to E** inches mm	**Approximate (Each)** lb kg
2 DN50	2.375 60.3	3.24 82	1.8 0.8
 DN65	3.000 76.1	3.72 94	1.8 0.8
3 DN80	3.500 88.9	3.99 101	2.2 1.0
4 DN100	4.500 114.3	4.46 113	5.7 2.6
 DN125	5.500 139.7	5.25 133	7.3 3.3
6 DN150	6.625 168.3	5.88 149	5.9 2.7
8 DN200	8.625 219.1	7.73 196	18.7 8.5
10 DN250	10.750 273.0	8.87 225	32.0 14.5
12 DN300	12.750 323.9	10.37 263	48.5 22.0

4.3 DIMENSIONS

Reducing Tee

No. E493



Size											Dimensions	Weight
Nominal inches DN					Actual Outside Diameter inches mm						C to E inches mm	Approx. (Each) lb kg
	x		x	2 DN50	3.000 76.1	x	3.000 76.1	x	2.375 60.3		3.50(c) 89	3.3 1.5
DN65		DN65										
3 DN80	x	3 DN80	x	2 DN50	3.500 88.9	x	3.500 88.9	x	2.375 60.3		3.50(c) 89	3.8 1.7
				DN65					3.000 76.1		3.76 96	2.2 1.0
4 DN100	x	4 DN100	x	2 DN50	4.500 114.3	x	4.500 114.3	x	2.375 60.3		3.75(c) 95	5.1 2.3
				DN65					3.000 76.1		4.46 113	3.0 1.4
				3 DN80					3.500 88.9		4.46 113	4.4 2.0
	x		x		5.500 139.7	x	5.500 139.7	x	3.000 76.1		5.25 133	6.6 3.0
DN125		DN125		DN65								
				3 DN80					3.500 88.9		5.25 133	6.6 3.0
				4 DN100					4.500 114.3		5.25 133	7.1 3.2
6 DN150	x	6 DN150	x	3 DN80	6.625 168.3	x	6.625 168.3	x	3.500 88.9		5.88 149	8.4 3.8
				4 DN100					4.500 114.3		5.88 149	5.6 2.5
				DN125					5.500 139.7		5.88 149	9.7 4.4
8 DN200	x	8 DN200	x	4 DN100	8.625 219.1	x	8.625 219.1	x	4.500 114.3		7.77 197	15.4 7.0
				DN125					5.500 139.7		7.77 197	15.4 7.0
				6 DN150					6.625 168.3		7.77 197	16.5 7.5
10 DN250	x	10 DN250	x	DN125	10.750 273.0	x	10.750 273.0	x	5.500 139.7		8.87 225	25.4 11.5
				6 DN150					6.625 168.3		8.87 225	26.5 12.0
				8 DN200					8.625 219.1		8.87 225	33.1 15.0
12 DN300	x	12 DN300	x	6 DN150	12.750 323.9	x	12.750 323.9	x	6.625 168.3		10.37 263	36.4 16.5
				8 DN200					8.625 219.1		10.37 263	37.5 17.0
				10 DN250					10.750 273.0		10.37 263	44.1 20.0

NOTE

- (c) = Cast fitting

4.4 DIMENSIONS

Adapter Nipple

No. E494 StrengThin™ 100 Groove x Plain End

Size		Dimensions		Weight
Nominal inches DN	**Actual Outside Diameter** inches mm	**Wall Thickness** inches mm	**E to E** inches mm	**Approximate (Each)** lb kg
2 DN50	2.375 60.3	0.08 2	4.00 102	0.6 0.3
 DN65	3.000 76.1	0.08 2	4.00 102	0.8 0.4
3 DN80	3.500 88.9	0.08 2	4.00 102	1.1 0.5
4 DN100	4.500 114.3	0.08 2	6.00 152	1.8 0.8
 DN125	5.500 139.7	0.08 2	6.00 152	2.2 1.0
6 DN150	6.625 168.3	0.08 2	6.00 152	2.6 1.2
8 DN200	8.625 219.1	0.12 3	6.00 152	5.1 2.3
10 DN250	10.750 273.0	0.12 3	8.00 203	8.4 3.8
12 DN300	12.750 323.9	0.12 3	8.00 203	10.0 4.5

4.5 DIMENSIONS

Adapter Nipple

No. E494G StrengThin™ 100 Groove x Original Groove System (OGS)

Cast

Wrought

Size		Cast		Wrought	
		Dimensions	Weight	Dimensions	Weight
Nominal inches DN	Actual Outside Diameter inches mm	E to E inches mm	Approximate (Each) lb kg	E to E inches mm	Approximate (Each) lb kg
2 DN50	2.375 60.3	4.00 102	1.5 0.7	4.00 102	0.6 0.3
DN65	3.000 76.1	4.00 102	2.1 1.0	4.00 102	0.8 0.4
3 DN80	3.500 88.9	4.00 102	2.6 1.2	4.00 102	1.1 0.5
4 DN100	4.500 114.3	4.00 102	3.7 1.7	6.00 152	1.8 0.8
DN125	5.500 139.7	4.00 102	4.5 2.0	6.00 152	2.2 1.0
6 DN150	6.625 168.3	4.00 102	6.6 3.0	6.00 152	2.6 1.2
8 DN200	8.625 219.1	6.00 152	12.8 5.8	6.00 152	5.1 2.3
10 DN250	10.750 273.0	6.00 152	15.9 7.5	8.00 203	8.4 3.8
12 DN300	12.750 323.9	6.00 152	16.5 7.5	8.00 203	10.0 4.5

NOTES

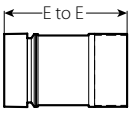
- When using the No. E494G Adapter Nipple, the piping system pressure rating shall be determined by the adjoining coupling/pipe joints. The coupling/pipe joint pressure rating is determined by the pipe size, material and wall thickness. The lower of the two coupling/pipe joint pressure ratings shall govern the piping system pressure rating.
- The No. E494G Adapter Nipple may be used to accommodate linear movement and angular deflection. This is accomplished by using a Victaulic flexible coupling for an OGS groove to adjoin two No. E494G Adapter Nipples. When adjoining the two No. E494G Adapter Nipples, the linear movement and angular deflection of the joint shall be determined by the flexible coupling used to join them. Reference the applicable coupling submittal for linear movement and angular deflection capabilities.
- When using the No. E494G Adapter Nipple to accommodate linear movement and angular deflection, the piping system pressure rating shall be determined by the lowest of the following coupling joint ratings:
  - Coupling/pipe joint rating of the Style E497 piping connection (see publication 31.02: Victaulic StrengThin™ 100 System Style E497 Rigid Coupling for Stainless Steel Pipe).
  - Coupling/adapter nipple joint rating of the OGS groove adapter connection. For this evaluation, the cast No. E494G Adapter Nipple shall be considered as pipe with a nominal wall thickness of Schedule 40S, and the wrought No. E494G Adapter Nipple shall be considered as pipe with a nominal wall thickness of 2 mm (sizes 2 - 6"/DN50 - DN150) or 3 mm (sizes 8 – 10"/DN200 – DN250) (see publication 17.09: Victaulic Grooved Couplings Performance Data for Stainless Steel Pipe). For the wrought 12"/DN300 No. E494G Adapter Nipple, contact Victaulic.

  The coupling/pipe joints pressure rating is determined by the pipe size, material, and pipe wall thickness.

4.6 DIMENSIONS

Adapter Nipple

No. E440H StrengThin™ 100 Groove x Thread



Size		Dimensions	Weight
Nominal inches DN	**Actual Outside Diameter** inches mm	**E to E** inches mm	**Approx. (Each)** lb kg
2 DN50	2.375 60.3	4.00 102	1.5 0.7
 DN65	3.000 76.1	4.00 102	1.5 0.7

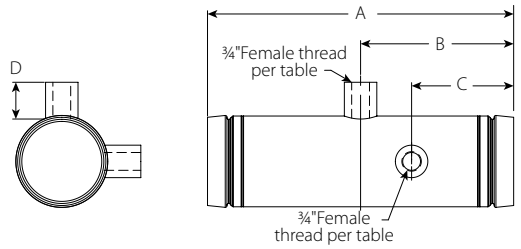
NOTE

- The standard No. E440H adapter nipple is supplied with NPT threaded ends. It is also available with BSPT threads; please specify "BSPT" clearly on order.

4.7 DIMENSIONS

Instrumentation Nipple

No. E494I

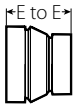


Size		Dimensions					Weight
Nominal inches DN	**Actual Outside Diameter** inches mm	**A** inches mm	**B** inches mm	**C** inches mm	**D** inches mm	**Female Thread Size** inches	**Approximate (Each)** lb kg
2 DN50	2.375 60.3	11.80 300	5.91 150	3.94 100	1.42 36	¾	2.0 0.9
 DN65	3.000 76.1	11.80 300	5.91 150	3.94 100	1.42 36	¾	2.6 1.2
3 DN80	3.500 88.9	11.80 300	5.91 150	3.94 100	1.42 36	¾	3.3 1.5
4 DN100	4.500 114.3	11.80 300	5.91 150	3.94 100	1.42 36	¾	6.0 2.7
 DN125	5.500 139.7	11.80 300	5.91 150	3.94 100	1.42 36	¾	4.9 2.2
6 DN150	6.625 168.3	11.80 300	5.91 150	3.94 100	1.42 36	¾	10.6 4.8
8 DN200	8.625 219.1	11.80 300	5.91 150	3.94 100	1.42 36	¾	10.4 4.7
10 DN250	10.750 273.0	11.80 300	5.91 150	3.94 100	1.42 36	¾	12.8 5.8
12 DN300	12.750 323.9	11.80 300	5.91 150	3.94 100	1.42 36	¾	15.2 6.9

4.8 DIMENSIONS

Concentric Reducer

No. E495



Size						Dimensions	Weight
Nominal inches DN			Actual Outside Diameter inches mm			E to E inches mm	Approx. (Each) lb kg
	x	2 DN50	3.000 76.1	x	2.375 60.3	2.48(c) 63	1.3 0.6
DN65							
3	x	2	3.500	x	2.375	4.09(c)	1.8
DN80		DN50	88.9		60.3	104	0.8
					3.000	5.15	1.1
		DN65			76.1	131	0.5
4	x	2	4.500	x	2.375	5.67(c)	2.5
DN100		DN50	114.3		60.3	144	1.1
					3.000	5.67	1.5
		DN65			76.1	144	0.7
		3			3.500	5.59	1.5
		DN80			88.9	142	0.7
	x		5.500	x	3.000	8.98	2.8
DN125		DN65	139.7		76.1	228	1.3
		3			3.500	6.77	2.2
		DN80			88.9	172	1.0
		4			4.500	6.50	2.4
		DN100			114.3	165	1.1
6	x	3	6.625	x	3.500	9.33	3.5
DN150		DN80	168.3		88.9	237	1.6
		4			4.500	6.81	3.7
		DN100			114.3	173	1.7
					5.500	7.01	4.0
		DN125			139.7	178	1.8
8	x	4	8.625	x	4.500	9.49	6.4
DN200		DN100	219.1		114.3	241	2.9
					5.500	7.24	6.6
		DN125			139.7	184	3.0
		6			6.625	7.13	7.7
		DN150			168.3	181	3.5
10	x		10.750	x	5.500	10.16	8.7
DN250		DN125	273.0		139.7	258	3.9
		6			6.625	7.95	11.0
		DN150			168.3	202	5.0
		8			8.625	8.31	12.1
		DN200			219.1	211	5.5
12	x	8	12.750	x	8.625	8.78	15.4
DN300		DN200	323.9		219.1	223	7.0
		10			10.750	8.78	16.5
		DN250			273.0	223	7.5

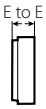
NOTE

- (c) = Cast fitting

4.9 DIMENSIONS

Cap

No. E496



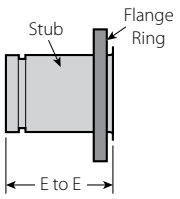
Size		Dimensions		Weight
Nominal inches DN	**Actual Outside Diameter** inches mm	**E to E** inches mm	**Max Tap Size[2]**	**Approximate (Each)** lb kg
2 DN50	2.375 60.3	1.00 25	½" BSPT	0.8 0.4
 DN65	3.000 76.1	1.00 25	¾" BSPT	1.4 0.6
3 DN80	3.500 88.9	1.00 25	¾" BSPT	1.8 0.8
4 DN100	4.500 114.3	1.00 25	1" BSPT	3.2 1.5
 DN125	5.500 139.7	1.06 27	1" BSPT	5.0 2.3
6 DN150	6.625 168.3	1.06 27	1" BSPT	7.4 3.4
8 DN200	8.625 219.1	2.29 58	1" BSPT	7.5 3.4
10 DN250	10.750 273.0	2.78 71	2" BSPT	26.2 11.9
12 DN300	12.750 323.9	3.33 85	2" BSPT	37.7 17.1

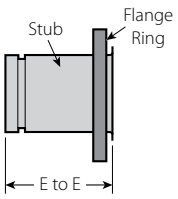
[2] End caps are not tapped as standard. Contact Victaulic for details.

4.10 DIMENSIONS

Flange Adapter Nipples

No. E498 PN10
No. E498 PN16





Size		No. E498 Flange Adapter Nipple PN10 (Serrated Raised Face)		No. E498 Flange Adapter Nipple PN16 (Serrated Raised Face)	
		Dimensions	Weight	Dimensions	Weight
Nominal inches DN	**Actual Outside Diameter** inches mm	**E to E** inches mm	**Approximate (Each)** lb kg	**E to E** inches mm	**Approximate (Each)** lb kg
2 DN50	2.375 60.3	2.50 64	6.7 3.0	2.50 64	6.7 3.0
 DN65	3.000 76.1	2.50 64	7.9 3.6	2.50 64	7.9 3.6
3 DN80	3.500 88.9	2.50 64	9.3 4.2	2.50 64	9.3 4.2
4 DN100	4.500 114.3	3.00 76	11.5 5.2	3.00 76	11.5 5.2
 DN125	5.500 139.7	3.00 76	14.8 6.7	3.00 76	14.8 6.7
6 DN150	6.625 168.3	3.50 89	19.9 9.0	3.50 89	19.9 9.0
8 DN200	8.625 219.1	4.00 102	27.6 12.5	4.00 102	27.6 12.5
10 DN250	10.750 273.0	5.00 127	35.8 16.2	5.00 127	41.5 18.8
12 DN300	12.750 323.9	5.98 152	45.2 20.5	5.98 152	57.0 25.9

NOTE

- A smooth raised face is also available for the No. E498 flange adapter nipple PN10 and PN16. Contact Victaulic for details.

5.0 PERFORMANCE

The chart expresses the frictional resistance of various Victaulic fittings as equivalent feet of straight stainless steel pipe with a 2 mm nominal wall thickness for sizes 2 – 6"/DN50 – DN150 or a 3 mm nominal wall thickness for sizes 8 – 12"/DN200 – DN300.

Size		Frictional Resistance (Equivalent Length of Straight Pipe)			
		Elbows		No. E492 Tee	
Nominal inches DN	**Actual Outside Diameter** inches mm	**No. E490 90° Elbow** ft m	**No. E491 45° Elbow** ft m	**Branch** ft m	**Run** ft m
2 DN50	2.375 60.3	2.7 0.8	2.1 0.6	11.6 3.5	4.2 1.3
 DN65	3.000 76.1	3.5 1.1	2.7 0.8	15.7 4.8	5.5 1.7
3 DN80	3.500 88.9	5.3 1.6	3.9 1.2	18.1 5.5	6.3 1.9
4 DN100	4.500 114.3	6.6 2.0	4.9 1.5	23.4 7.1	8.0 2.4
 DN125	5.500 139.7	7.9 2.4	5.7 1.7	26.9 8.2	9.7 3.0
6 DN150	6.625 168.3	9.4 2.9	6.8 2.1	33.7 10.3	11.4 3.5
8 DN200	8.625 219.1	12.2 3.7	8.8 2.7	13.4 4.1	4.5 1.4
10 DN250	10.750 273.0	15.8 4.8	10.8 3.3	16.5 5.0	5.5 1.7
12 DN300	12.750 323.9	17.9 5.5	12.8 3.9	19.7 6.0	6.5 2.0

6.0 NOTIFICATIONS

⚠ WARNING

- **Read and understand all instructions before attempting to install, remove, adjust, or maintain any Victaulic piping 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.**
- **Wear safety glasses, hardhat, and foot protection.**

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

7.0 REFERENCE MATERIALS

05.01: Victaulic Seal Selection Guide
17.01: Victaulic Pipe Preparation for Use on Stainless Steel Pipe with Victaulic Products
17.09: Victaulic Grooved Couplings Performance Data for Stainless Steel Pipe
25.13: Victaulic StrengThin™ 100 Roll Groove Specifications
31.02: Victaulic StrengThin™ 100 System Style E497 Rigid Coupling for Stainless Steel Pipe
I-ENDCAP: Victaulic End Cap Installation Safety Instructions

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