

# Victaulic® StrenghThin™ 100 System Fittings for Stainless Steel



## 1.0 PRODUCT DESCRIPTION

### Available Sizes

- 2 – 12"/50 – 300 mm

### Maximum Working Pressure

- Fitting pressure ratings are equivalent to the coupling joint pressure rating of the Victaulic StrenghThin™ 100 Style E497 Rigid Couplings used to install them (see section 5.0 in [publication 31.02](#): Victaulic StrenghThin™ 100 System Style E497 Rigid Coupling for Stainless Steel Pipe).
- For the pressure ratings for the No. E494G or the No. E494W Adapter Nipples, see page 7 of this document.
- For the pressure ratings of the No. E498 Flange Adapters, see page 10 of this document.

### Function

- Connects pipe sections, provides change in direction, and adapts sizes or components.
- All fittings are supplied with the Victaulic StrenghThin™ 100 groove profile. Fittings are exclusively for use with Victaulic StrenghThin™ 100 couplings, valves, accessories and pipe which feature ends formed with the Victaulic StrenghThin™ 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-9001:2008.

**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	

### 3.0 SPECIFICATIONS - MATERIAL

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#### Fittings:

Investment Cast Fittings: Stainless steel per ASTM A351/A351M, Grade CF8 (304) or Grade CF8M (316).

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

#### No. E490 90° Elbow

2 – 3"/50 – 80 mm: Cast

4 – 12"/100 – 300 mm: Wrought

#### No. E491 45° Elbow

2 – 3"/50 – 80 mm: Cast

4 – 12"/100 – 300 mm: Wrought

#### No. E492 Tee

2 – 12"/50 – 300 mm: Wrought

#### No. E493 Reducing Tee

76.1 mm x 76.1 mm x 2"/76.1 mm x 76.1 mm x 50 mm; 3" x 3" x 2"/80 mm x 80 mm x 50 mm; and 4" x 4" x 2"/100 mm x 100 mm x 50 mm: Cast

3" x 3" x 76.1 mm/80 mm x 80 mm x 76.1 mm; and 4" x 4" x 76.1 mm/100 mm x 100 mm x 76.1 mm through 12" x 12" x 10"/300 mm x 300 mm x 250 mm: Wrought

#### No. E494 Adapter Nipple

2 – 12"/50 – 300 mm: Wrought

#### No. E494G Adapter Nipple

2 – 6"/50 – 150 mm: Cast

#### No. E494W Adapter Nipple

2 – 12"/50 – 300 mm: Wrought

#### No. E495 Concentric Reducer

76.1 mm x 2"/76.1 mm x 50 mm; 3" x 2"/80 mm x 50 mm; and 4" x 3"/100 mm x 80 mm: Cast

3" x 76.1 mm/80 mm x 76.1 mm; 4" x 76.1 mm/100 mm x 76.1 mm; and 139.7 mm x 3"/139.7 mm x 80 mm through 12" x 10"/300 mm x 250 mm: Wrought

#### No. E496 Cap

2 – 12"/50 – 300 mm: Cast

#### No. E498 Flange Adapter

Stub Material

2 – 12"/50 – 300 mm: ASTM A403, Class WP, Grade 304/304L or 316/316L.

Flange Material

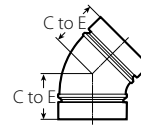
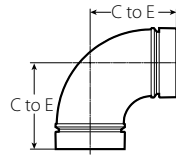
Stainless Steel Flange Per EN10222-5 1.4401/1.4404 (316/316L) according to EN1092-1 Type 02.

## 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	4.50 (c) 114	2.9 1.3	2.13 (c) 54	2.2 1.0
4 DN100	4.500 114.3	6.00 152	2.9 1.3	2.50 64	1.5 0.7
DN125	5.500 139.7	7.50 191	4.5 2.0	3.13 80	1.8 0.8
6 DN150	6.625 168.3	9.00 229	6.5 3.0	3.75 95	3.2 1.5
8 DN200	8.625 219.1	12.00 305	16.9 7.7	5.00 127	8.5 3.9
10 DN250	10.750 273.0	15.00 381	26.4 12.0	6.25 159	13.2 6.0
12 DN300	12.750 323.9	18.00 457	37.6 17.1	7.50 191	18.8 8.5

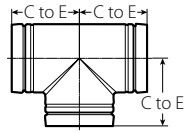
#### NOTES

- Dimensions shown have been rounded up to nearest 1/32 mm.
- (c) = Cast fittings

## 4.1 DIMENSIONS

### Tee

#### No. E492



Size		No. E492 Tee	
Nominal inches DN	Actual Outside Diameter inches mm	C to E inches mm	Approximate Weight (Each) lb kg
2 DN50	2.375 60.3	3.25 83	2.1 1.0
DN65	3.000 76.1	3.75 95	2.9 1.3
3 DN80	3.500 88.9	4.00 102	2.1 1.0
4 DN100	4.500 114.3	4.59 114	3.2 1.5
DN125	5.500 139.7	5.25 133	4.6 2.1
6 DN150	6.625 168.3	5.88 149	6.8 3.1
8 DN200	8.625 219.1	7.75 197	16.0 7.3
10 DN250	10.750 273.0	8.88 226	30.0 13.6
12 DN300	12.750 323.9	10.38 264	51.0 23.1

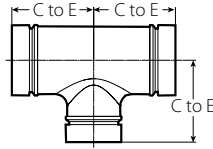
#### NOTE

- Dimensions shown have been rounded up to nearest 1/32 mm.

## 4.2 DIMENSIONS

### Reducing Tee

#### No. E493



Size		No. E493 Reducing Tee		
Nominal inches mm		C to E inches mm	Approximate Weight (Each) lb kg	
76.1 mm	x 76.1 mm	x 2 50	3.50 (c) 89	3.4 1.5
3 80	x 3 80	x 2 50	3.50 (c) 89	3.5 1.6
		x 76.1 mm	3.75 95	2.0 0.9
4 100	x 4 100	x 2 50	3.75 (c) 95	5.1 2.3
		x 76.1 mm	4.50 114	3.2 1.5
		x 3 80	4.50 114	3.2 1.5
139.7 mm	x 139.7 mm	x 3 80	5.25 134	4.0 1.8
		x 4 100	5.25 134	4.6 2.1
6 150	x 6 150	x 3 80	5.88 150	5.6 2.5
		x 4 100	5.88 150	5.6 2.5
		x 139.7 mm	5.88 150	5.8 2.6
8 200	x 8 200	x 139.7 mm	7.78 198	15.5 7.0
		x 6 150	7.78 198	15.8 7.2
10 250	x 10 250	x 6 150	8.88 226	28.0 12.7
		x 8 200	8.88 226	29.0 13.2
12 300	x 12 300	x 8 200	10.38 264	47.0 21.3
		x 10 250	10.38 264	49.0 22.2

#### NOTES

- Dimensions shown have been rounded up to nearest 1/32 mm.
- (c) = Cast fittings

### 4.3 DIMENSIONS

#### Adapter Nipple

No. E494 Plain End x StrenghThin™ 100 Grv.



Size		No. E494 Adapter Nipple		
Nominal inches DN	Actual Outside Diameter inches mm	Wall Thickness inches mm	E to E inches mm	Approximate Weight (Each) lb kg
2 DN50	2.375 60.3	0.079 2.0	4.00 102	0.6 0.3
DN65	3.000 76.1	0.079 2.0	4.00 102	0.8 0.4
3 DN80	3.500 88.9	0.079 2.0	4.00 102	1.1 0.5
4 DN100	4.500 114.3	0.079 2.0	6.00 152	2.4 1.1
DN125	5.500 139.7	0.079 2.0	6.00 152	3.8 1.7
6 DN150	6.625 168.3	0.079 2.0	6.00 152	3.9 1.8
8 DN200	8.625 219.1	0.118 3.0	6.00 152	4.2 1.9
10 DN250	10.750 273.3	0.118 3.0	6.00 152	7.0 3.2
12 DN300	12.750 323.9	0.118 3.0	6.00 152	7.5 3.4

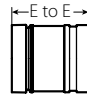
**NOTE**

- Dimensions shown have been rounded up to nearest 1/32 mm.

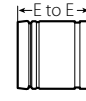
### 4.3 DIMENSIONS (Continued)

#### Adapter Nipple

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



Cast



Wrought

Size		No. E494G Adapter Nipple Cast		No. E494W Adapter Nipple Wrought	
Nominal inches DN	Actual Outside Diameter inches mm	E to E inches mm	Approximate Weight (Each) lb kg	E to E inches mm	Approximate Weight (Each) lb kg
2 DN50	2.375 60.3	4.00 102	1.1 0.5	4.00 102	0.6 0.3
DN65	3.000 76.1	4.00 102	1.8 0.8	4.00 102	0.8 0.4
3 DN80	3.500 88.9	4.00 102	2.2 1.0	4.00 102	1.1 0.5
4 DN100	4.500 114.3	4.00 102	3.0 1.4	6.00 152	2.4 1.1
DN125	5.500 139.7	4.00 102	3.8 1.7	6.00 152	3.8 1.7
6 DN150	6.625 168.3	4.00 102	5.0 2.3	6.00 152	3.9 1.8
8 DN200	8.625 219.1	– –	– –	6.00 152	4.20 107
10 DN250	10.750 273.3	– –	– –	8.00 203	7.00 178
12 DN300	12.750 323.9	– –	– –	8.00 203	7.50 191

#### NOTES

- Dimensions shown have been rounded up to nearest 1/32 mm.
- 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 No. E494G Adapter Nipple shall be considered as pipe with a nominal wall thickness of schedule 40S (see [publication 17.09](#): Victaulic Grooved Couplings Performance Data for Stainless Steel Pipe)
- When using the No. E494W Adapter Nipple, the piping system pressure rating shall be determined by the lowest of the following three 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/pipe joint rating of the OGS piping connection (see [publication 17.09](#): Victaulic Grooved Couplings Performance Data for Stainless Steel Pipe).
  - Coupling/adapter nipple joint rating of the OGS piping connection. For this evaluation, the No. E494W Adapter Nipple shall be considered as pipe with a nominal wall thickness of 2 mm for sizes DN50 – DN150 and a nominal wall thickness of 3 mm for sizes DN200 – DN300 (see [publication 17.09](#): Victaulic Grooved Couplings Performance Data for Stainless Steel Pipe).

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

## 4.4 DIMENSIONS

### Concentric Reducer

#### No. E495



Size		No. E495 Concentric Reducer	
Nominal inches mm		E to E inches mm	Approximate Weight (Each) lb kg
76.1 mm	x 2 50	2.50 (c) 64	1.3 0.6
3 80	x 2 50	4.13 (c) 105	1.8 0.8
	x 76.1 mm	5.13 130	1.1 0.5
4 100	x 76.1 mm	5.63 143	1.3 0.6
	x 3 80	5.50 140	1.5 0.7
139.7 mm	x 3 80	6.63 168	1.8 0.8
	x 4 100	6.63 168	1.9 0.9
6 150	x 4 100	6.89 175	2.5 1.1
	x 139.7 mm	7.08 180	2.6 1.2
8 200	x 6 150	7.08 180	7.7 3.5
10 250	x 8 200	8.31 211	12.1 5.5
12 300	x 10 250	8.78 223	16.5 7.5

#### NOTES

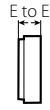
- Dimensions shown have been rounded up to nearest 1/8"/3 mm.
- (c) = Cast fittings



## 4.5 DIMENSIONS

### Cap

#### No. E496



Size		No. E496 Cap	
Nominal inches DN	Actual Outside Diameter inches mm	Thickness "T" inches mm	Approximate Weight (Each) lb kg
2 DN50	2.375 60.3	1.00 25	0.8 0.4
DN65	3.000 76.1	1.00 25	1.4 0.6
3 DN80	3.500 88.9	1.00 25	1.8 0.8
4 DN100	4.500 114.3	1.00 25	3.2 1.5
DN125	5.500 139.7	1.06 27	5.0 2.3
6 DN150	6.625 168.3	1.06 27	7.5 3.4
8 DN200	8.625 219.1	2.29 58	7.8 3.5
10 DN250	10.750 273.3	2.75 70	15.4 7.0
12 DN300	12.750 323.9	3.33 85	22.8 10.3

#### NOTE

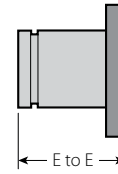
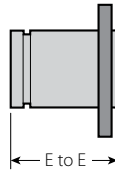
- Dimensions shown have been rounded up to nearest 1/32 mm.

## 4.6 DIMENSIONS

### Flange Adapters

No. E498 PN10

No. E498 PN16



Size		No. E498 Flange Adapter PN10 (Serrated Raised Face)		No. E498 Flange Adapter PN16 (Serrated Raised Face)	
Nominal inches DN	Actual Outside Diameter inches mm	E to E inches mm	Approximate Weight (Each) lb kg	E to E inches mm	Approximate Weight (Each) lb kg
2 DN50	2.375 60.3	2.50 64	+	2.50 64	+
DN65	3.000 76.1	2.50 64	+	2.50 64	+
3 DN80	3.500 88.9	2.50 64	+	2.50 64	+
4 DN100	4.500 114.3	3.00 76	+	3.00 76	+
DN125	5.500 139.7	3.00 76	+	3.00 76	+
6 DN150	6.625 168.3	3.50 89	+	3.50 89	+
8 DN200	8.625 219.1	4.00 102	+	4.00 102	+
10 DN250	10.750 273.3	5.00 127	+	5.00 127	+
12 DN300	12.750 323.9	6.00 152	+	6.00 152	+

†Contact Victaulic for details.

#### NOTES

- Dimensions shown have been rounded up to nearest 1/32 mm.
- A smooth raised face is also available. 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.

Size		Frictional Resistance (Equivalent Length of Straight Pipe)			
		Elbows		No. E492 Straight 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 1.8	26.9 8.2	9.7 2.8
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	10.750 273.3	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

Not applicable - contact Victaulic with any questions.

## 7.0 REFERENCE MATERIALS

- [GSG-100: Victaulic Gasket Chemical Services Guide](#)
- [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](#)

### 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](http://www.victaulic.com).

### Warranty

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

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