



1.0 PRODUCT DESCRIPTION

Available Sizes

- 2 – 8"/54.0 – 206.4 mm

Pipe Material

- Types K, L, M, and DWV hard drawn copper tubing

Maximum Working Pressure

- Fitting pressure ratings are equivalent to the pressure ratings of the joints consisting of a Victaulic Style 607 QuickVic™ Rigid Coupling or Style 641 *Vic-Flange* Adapter and Type of copper tubing (see section 7.0 Reference Materials)

Application

- Connects tubing, provides change in direction, and adapts sizes or components
- Full flow, standard-radius wrought copper supplied roll grooved or bronze castings with “as cast” CTS grooves
- Exclusively for use with Victaulic Style 607 QuickVic™ Rigid Couplings or Victaulic Style 641 *Vic-Flange* Adapters for copper tubing

2.0 CERTIFICATION/LISTINGS



Victaulic copper fittings are UL Classified in accordance with NSF/ANSI/CAN 61 for cold +73°F/+23°C and hot +180°F/+82°C potable water service and NSF/ANSI 372 for lead content.

NOTE

- See [publication 02.06](#): Victaulic Approvals for Potable Water Products - ANSI/NSF 61 and ANSI/NSF 372.

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

3.0 SPECIFICATIONS – MATERIAL

Copper Fittings:

- Wrought copper per ASTM B75 C12200 or ASTM B152 C11000 (see note below) and ANSI B16.22.
- Bronze sand cast conforming to UNS C89836.

NOTE: ASTM B152 C11000 wrought copper applies only to 6 x 4"/155.6 x 104.8 mm No. 650 Concentric Reducers.

Style 643 Adapter Nipple: Type L hard drawn copper tubing per ASTM B88.

4.0 DIMENSIONS

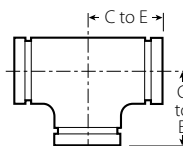
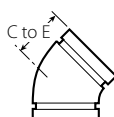
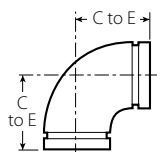
Elbows, Tee and Cap

No. 610 90° Elbow

No. 611 45° Elbow

No. 620 Tee

No. 660 Cap



Size		No. 610 90° Elbow		No. 611 45° Elbow		No. 620 Tee		No. 660 Cap	
Nominal inches	Actual inches mm	C to E inches mm	Approximate Weight (Each) lb kg	C to E inches mm	Approximate Weight (Each) lb kg	C to E inches mm	Approximate Weight (Each) lb kg	T inches mm	Approximate Weight (Each) lb kg
2	2.125 54.0	2.91 74	0.9 0.4	2.19 56	0.8 0.4	2.69 68	1.1 c 0.5	0.96 24	1.2 c 0.5
2½	2.625 66.7	3.31 84	1.3 0.6	2.31 59	1.1 0.5	3.20 81	1.8 c 0.8	0.96 24	1.4 c 0.6
3	3.125 79.4	3.81 97	4.1 1.9	2.59 66	1.6 0.7	3.52 89	3.2 c 1.5	0.96 24	1.4 c 0.6
4	4.125 104.8	4.75 121	4.3 2.0	3.19 81	3.4 1.5	4.25 108	6.1 c 2.8	0.96 24	2.4 c 1.1
5	5.125 130.2	5.94 151	15.0 c 6.8	3.25 83	10.0 c 4.5	5.94 151	18.5 c 8.4	0.96 24	3.5 c 1.6
6	6.125 155.6	6.94 176	20.0 c 9.1	3.63 92	13.0 c 5.9	6.94 176	25.5 c 11.6	0.96 24	4.2 c 1.9
8	8.125 206.4	7.75 197	26.0 c 11.8	4.25 108	15.6 c 7.1	7.75 197	45.0 c 20.4	–	–

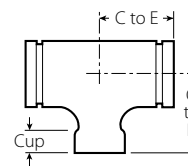
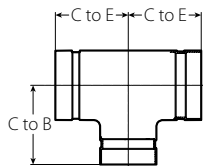
c = Bronze casting; all others, wrought copper.

4.1 DIMENSIONS

Reducing Tee

No. 625 Grv. × Grv. × Grv.

No. 626 Grv. × Grv. × Cup



Size			No. 625 Grv. × Grv. × Grv.			No. 626 Grv. × Grv. × Cup			Approx. Weight (Each) lb kg
Nominal inches	Actual Outside Diameter inches mm		C to E inches mm	C to B inches mm		C to E inches mm	C to B inches mm	Cup inches mm	
2 × 2 × ¾	2.125 54.0 × 2.125 54.0 ×	0.875 22.2	—	—	—	2.20 56	1.98 50	0.75 19	0.8 0.3
		1.125 28.6	—	—	—	2.33 59	2.20 56	0.91 23	0.8 0.4
		1.375 34.9	—	—	—	2.48 63	2.35 60	0.97 25	0.9 0.4
		1.625 41.3	—	—	—	2.55 65	2.28 58	1.09 28	0.9 0.4
		1.875 47.6	—	—	—	2.63 67	2.35 60	1.09 28	0.9 0.4
2½ × 2½ × ¾	2.625 66.7 × 2.625 66.7 ×	0.875 22.2	—	—	—	2.26 57	2.23 57	0.75 19	1.0 0.5
		1.125 28.6	—	—	—	2.40 61	2.40 61	0.91 23	1.2 0.5
		1.375 34.9	—	—	—	2.52 64	2.57 65	0.97 25	1.2 0.6
		1.625 41.3	—	—	—	2.70 69	2.68 68	1.09 28	1.3 0.6
		2.125 53.9	3.28 83	3.38 86	1.6 0.7	—	—	—	—
3 × 3 × ¾	3.125 79.4 × 3.125 79.4 ×	0.875 22.2	—	—	—	2.41 61	2.56 65	0.75 19	1.4 0.6
		1.125 28.6	—	—	—	2.54 65	2.79 71	0.91 23	1.5 0.7
		1.375 34.9	—	—	—	2.63 67	2.89 73	0.97 25	1.7 0.8
		1.625 41.3	—	—	—	2.85 73	3.00 76	1.09 28	1.7 0.8
		2.125 54.0	3.00 76	3.38 86	2.1 c 1.0	—	—	—	—
4 × 4 × ¾	4.125 104.8 × 4.125 104.8 ×	0.875 22.2	—	—	—	3.04 77	2.97 75	0.75 19	2.8 1.2
		1.125 28.6	—	—	—	3.10 79	3.22 82	0.91 23	2.9 1.3
		1.375 34.9	—	—	—	3.25 83	3.47 88	0.97 25	3.0 1.4
		1.625 41.3	—	—	—	3.35 85	3.65 93	1.09 28	3.2 1.4
		2.125 54.0	3.66 93	4.13 105	5.3 c 2.4	—	—	—	—
2½	2.625 66.7	2.625 66.7	3.94 100	4.06 103	5.8 c 2.6	—	—	—	—
		3.125 79.4	4.19 106	4.16 106	6.3 c 2.8	—	—	—	—

c = Bronze casting; all others, wrought copper.

4.1 DIMENSIONS (CONTINUED)

Reducing Tee

No. 625 Grv. × Grv. × Grv.

No. 626 Grv. × Grv. × Cup



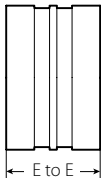
Size			No. 625 Grv. × Grv. × Grv.			No. 626 Grv. × Grv. × Cup			
Nominal inches	Actual Outside Diameter inches mm		C to E inches mm	C to B inches mm	Approx. Weight (Each) lb kg	C to E inches mm	C to B inches mm	Cup inches mm	Approx. Weight (Each) lb kg
5 × 5 × 3	5.125 130.2	5.125 130.2	3.125 79.4	3.75 95	5.4 c 2.5	—	—	—	—
			4.125 104.8	4.25 108	8.8 c 4.0	—	—	—	—
6 × 6 × 2½	6.125 155.6	6.125 155.6	2.625 66.7	3.63 92	6.7 c 3.0	—	—	—	—
			3.125 79.4	3.69 94	8.1 c 3.7	—	—	—	—
			4.125 104.8	4.19 106	9.8 c 4.4	—	—	—	—
			5.125 130.2	4.69 119	11.3 c 5.1	—	—	—	—
						—	—	—	—

c = Bronze casting; all others, wrought copper.

4.2 DIMENSIONS

Nipple

No. 643 Copper Adapter Nipple



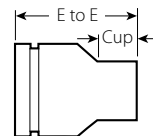
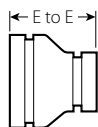
Size		No. 643 Adapter Nipple
Nominal inches	Actual inches mm	E to E inches mm
2	2.125 54.0	2.04 52
2½	2.625 66.7	2.04 52
3	3.125 79.4	2.04 52
4	4.125 104.8	2.04 52

4.3 DIMENSIONS

Concentric Reducer

No. 650 Grv. × Grv.

No. 652 Grv. × Cup



Size		No. 650 Grv. × Grv.		No. 652 Grv. × Cup		
Nominal inches	Actual Outside Diameter inches mm	E to E inches mm	Approx. Weight (Each) lb kg	E to E inches mm	Cup inches mm	Approx. Weight (Each) lb kg
2 × 1	2.125 × 1.125 54.0 × 28.6	—	—	2.70 69	0.91 23	0.5 0.2
		—	—	3.00 76	0.97 25	0.5 0.2
		—	—	2.94 75	1.09 28	0.5 0.2
		—	—	—	—	—
2½ × 1	2.625 × 1.125 66.7 × 28.6	—	—	3.25 83	0.91 23	0.8 0.4
		—	—	3.52 89	0.97 25	0.6 0.3
		—	—	3.45 88	1.09 28	0.7 0.3
		—	—	—	—	—
2½ × 2	2.625 × 1.125 66.7 × 28.6	—	—	3.25 83	0.91 23	0.8 0.4
		—	—	3.52 89	0.97 25	0.6 0.3
		—	—	3.45 88	1.09 28	0.7 0.3
		—	—	—	—	—
3 × 1½	3.125 × 1.625 79.4 × 41.3	—	—	3.68 93	1.09 28	1.1 0.5
		—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
3 × 2	3.125 × 1.625 79.4 × 41.3	—	—	3.68 93	1.09 28	1.1 0.5
		—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
3 × 2½	3.125 × 1.625 79.4 × 41.3	—	—	3.68 93	1.09 28	1.1 0.5
		—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
4 × 2	4.125 × 2.125 104.8 × 54.0	—	—	4.10 104	1.34 34	1.0 0.4
		—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
4 × 2½	4.125 × 2.125 104.8 × 54.0	—	—	4.10 104	1.34 34	1.0 0.4
		—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
4 × 3	4.125 × 2.125 104.8 × 54.0	—	—	4.10 104	1.34 34	1.0 0.4
		—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
5 × 3	5.125 × 3.125 130.2 × 79.4	—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
5 × 4	5.125 × 3.125 130.2 × 79.4	—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
6 × 3	6.125 × 3.125 155.6 × 79.4	—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
6 × 4	6.125 × 3.125 155.6 × 79.4	—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
6 × 5	6.125 × 3.125 155.6 × 79.4	—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
8 × 6	8.125 × 6.125 206.4 × 155.6	—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—

c = Bronze casting; all others, wrought copper.

5.0 PERFORMANCE

Fitting pressure ratings are equivalent to the pressure ratings of the joints consisting of a Victaulic Style 607 QuickVic™ Rigid Coupling or Style 641 *Vic-Flange* Adapter and Type of copper tubing (see section 7.0 for Reference Materials).

Size	Type K ASTM B88			Type L ASTM B88			Type M ASTM B88			Type DWV ASTM B306		
Nominal inches Actual Tubing mm	Wall Thickness inches mm	Max. Joint Work. Press. psi kPa	Max. Permis. End Load lb N	Wall Thickness inches mm	Max. Joint Work. Press. psi kPa	Max. Permis. End Load lb N	Wall Thickness inches mm	Max. Joint Work. Press. psi kPa	Max. Permis. End Load lb N	Wall Thickness inches mm	Max. Joint Work. Press. psi kPa	Max. Permis. End Load lb N
2 54.0	0.083 2.1	300 2065	1065 4737	0.070 1.8	300 2065	1065 4737	0.058 1.5	250 1725	890 3959	0.042 1.1	100 690	354 1575
2½ 66.7	0.095 2.4	300 2065	1625 7228	0.080 2.0	300 2065	1625 7228	0.065 1.7	250 1725	1350 6005	–	–	–
3 79.4	0.109 2.8	300 2065	2300 10231	0.090 2.3	300 2065	2300 10231	0.072 1.8	250 1725	1415 6294	0.045 1.1	100 690	765 3403
4 104.8	0.134 3.4	300 2065	4005 17815	0.110 2.8	300 2065	4005 17815	0.095 2.4	250 1725	3340 14857	0.058 1.5	100 690	1335 5938
5 130.2	0.160 4.1	300 2065	6190 27534	0.125 3.2	300 2065	6190 27534	0.109 2.8	200 1375	4125 18349	0.072 1.8	100 690	2060 9163
6 155.6	0.192 4.9	300 2065	8840 39322	0.140 3.6	300 2065	8840 39322	0.122 3.1	200 1375	5890 26200	0.083 2.1	100 690	2945 13100
8 206.4	0.271 6.9	300 2065	15550 69170	0.200 5.1	300 2065	15550 69170	0.170 4.3	200 1375	10370 46128	0.109 2.8	100 690	5180 23042

NOTE

- Working Pressure and End Load are total, from all internal and external loads, based on the indicated Type of hard drawn copper tubing, standard roll grooved in accordance with Victaulic specifications.

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.

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

⚠ CAUTION

- Copper roll sets shall be used to roll groove copper tubing. Always specify copper roll sets at the time of order.
- **DO NOT** use rolls intended for steel, stainless steel, aluminum, PVC, or CPVC pipe or rolls intended for other groove profiles.

Failure to follow these instructions could damage the tool and cause product failure, resulting in property damage or personal injury.

- Victaulic Copper Connection System fittings in 2 – 8"/54.0 – 206.4 mm sizes are designed to be joined to roll-grooved, hard-drawn copper tubing meeting the requirements of ASTM B88.
- Victaulic VE272SFS, VE270FSD, VE268, VE416FSD and VE414MC Roll Grooving Tools can be used to roll groove Types K, L, M and DWV copper tubing in 2 – 8"/54.0 – 206.4 mm sizes.
- The VE226C Roll Grooving Tool allows for in-place manual grooving of 2 – 6"/54.0 – 155.6 mm copper tubing.
- Tools shall be equipped only with Victaulic rolls designed specifically for grooving copper tubing. Roll sets are color coded copper.
- A Go/No-Go Groove Diameter Cable for Copper Tubing is available for checking groove diameters. See [publication 24.01](#), Victaulic Pipe Preparation Tools, for more information.
- The Victaulic Copper Connection System is available in British Standard ([publication 22.08](#)); DIN Standard ([publication 22.09](#)); and Australian Standard ([publication 22.10](#)).

7.0 REFERENCE MATERIALS

- [22.01: Victaulic Copper Connection Systems for Copper Tubing \(CTS\)](#)
- [22.03: Victaulic Style 641 Vic-Flange Adapter for Copper](#)
- [22.07: Victaulic Copper Testing Data](#)
- [22.08: Victaulic British Standard Copper Products Design](#)
- [22.09: Victaulic DIN Standard Copper Products Design Data](#)
- [22.10: Victaulic Australian Standard Copper Products](#)
- [22.13: Victaulic Style 607 QuickVic™ Rigid Coupling](#)
- [22.44: Victaulic Style 644 Installation-Ready™ Transition Coupling for Potable Water Applications](#)
- [24.01: Victaulic Pipe Preparation Tools](#)
- [I-600: Victaulic Field Assembly and Installation Instruction Handbook for Copper Connection Products](#)

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.

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Note

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