

Victaulic *Mechanical-T* Bolted Branch Outlet & Cross Assembly for Copper Tubing

Style 622



22.12



Style 622



Style 622 Cross

1.0 PRODUCT DESCRIPTION

Available Sizes

- 2 ½ – 4"/66.7 – 104.8 mm

Pipe Material

- ASTM B88 drawn temper Types K, L and M copper tubing

Maximum Working Pressure

- 300 psi/2068 kPa
- Working pressure dependent on type and size of copper tubing

Operating Temperature

- Dependent on gasket selection from section 3.0

Function

- Provides a direct branch connection at any location a hole can be cut in the copper tubing
- Provides a 90° angle connection between the run and branch outlet when properly installed

2.0 CERTIFICATION/LISTINGS



The Victaulic Grade P gasket supplied with the Style 622 *Mechanical-T* Bolted Branch Outlet & Cross Assembly is UL Classified in accordance with NSF/ANSI/CAN 61 and NSF/ANSI/CAN 372 as noted in section 3.0 Specifications – Material.

The Style 622 *Mechanical-T* Bolted Branch Outlet & Cross Assembly is UL Classified in accordance with ANSI/NSF 61 for cold +73°F/+23°C potable water service and ANSI/NSF 372 when the product is made with bronze alloy C89836 only. The Style 622 *Mechanical-T* Bolted Branch Outlet & Cross Assembly is UL Listed in accordance with UL 467.

NOTE

- See [publication 02.06](#) Victaulic Potable Water Approvals ANSI/NSF for potable water approvals if applicable.

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



3.0 SPECIFICATIONS – MATERIAL

Upper Housing: Cast bronze conforming to ASTM B584 UNS C89836

Lower Housing/Coating: Ductile iron conforming to ASTM A536, Grade 65-45-12, with copper coating.

Gasket: (specify choice¹)

Grade "P" Fluoroelastomer Blend

P (Red and blue stripes color code). Temperature range in potable water applications: 0°F to +180°F/-18°C to +82°C. Specifically formulated for compatibility with potable water systems. Optimized for improved resistance to chlorine, chloramine and other typical potable water disinfectants. 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/CAN 372.

Grade "E" EPDM

E (Green stripe color code.) Temperature range in non-potable water applications: -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. NOT COMPATIBLE FOR USE WITH PETROLEUM SERVICES OR STEAM SERVICES.

Grade "T" Nitrile

Nitrile (Orange stripe color code). Temperature range -20°F to +180°F/-29°C to +82°C. May be specified for oil related services, including air with oil vapor, this gasket may be specified for temperatures rated up to +180°F/+82°C. For water related services, this gasket may be specified for temperatures rated up to +150°F/+66°C. For oil free, dry air services, this gasket may be specified for temperatures rated up to +140°F/+60°C. NOT COMPATIBLE FOR USE WITH HOT WATER SERVICES OR STEAM SERVICES.

¹ Services listed are General Service Guidelines only. It should be noted that there are services for which these gaskets are not compatible. Reference should always be made to the latest Victaulic Seal Selection Guide for specific gasket service guidelines and for a listing of services which are not compatible.

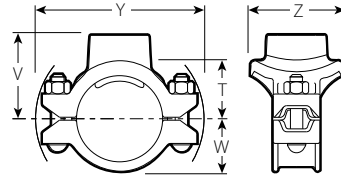
NOTE

- Victaulic reserves the right to substitute equivalent and/or higher grade elastomer products.

Bolts/Nuts: Carbon steel oval neck track bolts meeting the mechanical property requirements of ASTM A449 (imperial) and ISO 898-1 Class 9.8 (M10-M16) Class 8.8 (M20 and greater). Carbon steel hex nuts meeting the mechanical property requirements of ASTM A563 Grade B (imperial – heavy hex nuts) and ASTM A563M Class 9 (metric – hex nuts). Track bolts and hex nuts are zinc electroplated per ASTM B633 FE/ZN5, finish Type III (imperial) or Type II (metric).

4.0 DIMENSIONS

Style 622 Mechanical-T Bolted Branch Outlet for Copper Tubing



Size		Bolt/Nut	Dimensions							Weight
Run x Branch			Hole Diameter +0.13/-0.00 +3.30/-0.00	T ²	V ³	W	Y	Z	Approx. (Each)	
Nominal inches	Actual Outside Diameter inches mm	Size inches mm								inches mm
2 ½ x ¾	2.625 x 0.875 66.7 x 22.2	½ x 3	1.50	2.05	2.61	1.73	5.90	2.75	3.1	
		15 x 80	38	52	66	44	150	70	1.4	
	1	1.125 x 28.6	½ x 3	1.50	1.93	2.61	1.73	5.90	2.75	3.2
			15 x 80	38	49	66	44	150	70	1.5
	1 ½	1.625 x 41.3	½ x 3	2.00	2.15	2.87	1.73	6.06	3.38	4.1
			15 x 80	51	55	73	44	154	86	1.9
3 x ¾	3.125 x 0.875 79.4 x 22.2	½ x 3	1.50	2.30	2.86	2.09	6.30	2.75	3.4	
		15 x 80	38	58	73	53	160	70	1.5	
	1	1.125 x 28.6	½ x 3	1.50	2.19	2.87	2.09	6.30	2.75	3.6
			15 x 80	38	56	73	53	160	70	1.6
	1 ½	1.625 x 41.3	½ x 3	2.00	2.59	3.31	2.09	6.30	3.38	4.5
			15 x 80	51	66	84	53	160	86	2.0
4 x ¾	4.125 x 0.875 104.8 x 22.2	½ x 3	1.50	2.81	3.37	2.50	7.25	2.75	3.3	
		15 x 80	38	71	86	64	184	70	1.7	
	1	1.125 x 28.6	½ x 3	1.50	2.69	3.37	2.50	7.25	2.75	4.0
			15 x 80	38	68	86	64	184	70	1.8
	1 ½	1.625 x 41.3	½ x 3	2.00	3.09	3.81	2.50	7.25	3.38	5.0
			15 x 80	51	79	97	64	184	86	2.3

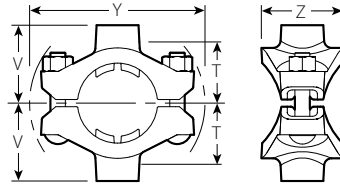
² Center of run to engaged pipe end, female threaded outlet only (dimensions approximate).

³ Center of run to end of fitting.

4.1 DIMENSIONS

Style 622 Mechanical-T Cross Assembly for Copper Tubing

The following combinations of *Mechanical-T* cross assemblies can be achieved with the use of two Style 622s of the same run size and the same or differing outlet size.



Size		Bolt/Nut	Dimensions					Weight
Run x Branch			Hole Diameter +0.13/-0.00 +3.30/-0.00	T ² inches mm	V ³ inches mm	Y inches mm	Z inches mm	Approximate (Each) lb kg
Nominal inches	Actual Outside Diameter inches mm	Size inches mm						
2 ½ x ¾	2.625 x 0.875 66.7 x 22.2	½ x 3	1.50	2.05	2.61	5.90	2.75	4.2
		15 x 80	38	52	66	150	70	1.9
	1	1.125	1.50	1.93	2.61	5.90	2.75	4.4
		28.6	15 x 80	38	49	66	150	70
1 ½	1.625	½ x 3	2.00	2.15	2.87	6.06	3.38	6.2
	41.3	15 x 80	51	55	73	154	86	2.8
3 x ¾	3.125 x 0.875 79.4 x 22.2	½ x 3	1.50	2.30	2.86	6.30	2.75	4.4
		15 x 80	38	58	73	160	70	2.0
	1	1.125	1.50	2.19	2.87	6.30	2.75	4.8
		28.6	15 x 80	38	56	73	160	70
1 ½	1.625	½ x 3	2.00	2.59	3.31	6.30	3.38	6.6
	41.3	15 x 80	51	66	84	160	86	3.0
4 x ¾	4.125 x 0.875 104.8 x 22.2	½ x 3	1.50	2.81	3.37	7.25	2.75	4.5
		15 x 80	38	71	86	184	70	2.0
	1	1.125	1.50	2.69	3.37	7.25	2.75	5.4
		28.6	15 x 80	38	68	86	184	70
1 ½	1.625	½ x 3	2.00	3.09	3.81	7.25	3.38	7.4
	41.3	15 x 80	51	79	97	184	86	3.4

² Center of run to engaged pipe end, female threaded outlet only (dimensions approximate).

³ Center of run to end of fitting.

5.0 PERFORMANCE

Style 622 Mechanical-T Bolted Branch Outlet & Cross Assembly for Copper Tubing

Size		Type K ASTM B88				Type L ASTM B88				Type M ASTM B88			
Nominal	Actual Outside	Wall Thick.	Wall Thick. Tolerances	Max. ⁴ Joint. Wk. Press.	Max. ⁴ Permis. End Load	Wall Thick.	Wall Thick. Tolerances	Max. ⁴ Joint. Wk. Press.	Max. ⁴ Permis. End Load	Wall Thick.	Wall Thick. Tolerances	Max. ⁴ Joint. Wk. Press.	Max. ⁴ Permis. End Load
inches	inches mm	inches mm	inches mm	psi kPa	lb N	inches mm	inches mm	psi kPa	lb N	inches mm	inches mm	psi kPa	lb N
2½	2.625 66.7	0.095 2.4	± 0.010 ± 0.25	300 2068	1625 7230	0.080 2.0	± 0.008 ± 0.20	300 2068	1625 7230	0.065 1.7	± 0.006 ± 0.15	250 1724	1350 6010
3	3.125 79.4	0.109 2.8	± 0.011 ± 0.28	300 2068	2300 10235	0.090 2.3	± 0.009 ± 0.23	300 2068	2300 10235	0.072 1.8	± 0.007 ± 0.187	250 1724	1415 6300
4	4.125 104.8	0.134 2.8	± 0.013 ± 0.33	300 2068	4005 17825	0.110 2.8	± 0.011 ± 0.28	300 2068	4005 17825	0.095 2.4	± 0.010 ± 0.25	250 1724	3340 14865

⁴ Working Pressure and End Load are total, from all internal and external loads, based on hard drawn copper tubing of the weight indicated, roll grooved in accordance with Victaulic specifications. Contact Victaulic for performance on other pipe.

NOTE

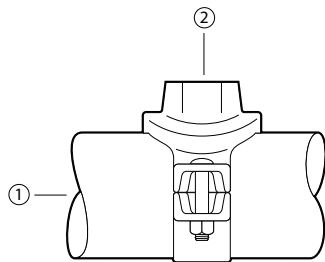
- WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1 ½ times the figures shown.

5.1 PERFORMANCE

Flow Data

Head loss values per UL 213, Section 16 “Pipe Outlet Flow Characteristics Test” are shown in the table below.

The head loss values are expressed in equivalent length of outlet pipe and represent the total head loss between points 1 and 2.



Exaggerated for clarity

Run Size	Outlet Size		
	¾" Type K Copper Tubing	1" Type K Copper Tubing	1 ½" Type K Copper Tubing
2½	1.1'	1.8'	4.5'
3	0.8'	2.0'	3.4'
4	0.9'	1.2'	3.6'

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.

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.

7.0 REFERENCE MATERIALS

[05.01: Victaulic Seal Selection Guide](#)

[10.01: Victaulic Products for Fire Protection Piping Systems - Regulatory Approval Reference Guide](#)

[22.03: Victaulic Vic-Flange Adapter for Copper Tubing - Style 641](#)

[22.04: Victaulic Copper Fittings](#)

[22.13: Victaulic QuickVic™ Rigid Coupling for Copper - Style 607](#)

[22.14: Victaulic Copper Connection Butterfly Valve - Series 608N](#)

[25.06: Victaulic Copper Tubing Roll Groove Specifications](#)

[I-600: Victaulic Field Installation Handbook: Copper Connection Products](#)

[I-IMPACT: Impact Tool Usage Guidelines](#)

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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