

DIN Standard Copper Products

PRODUCT DESCRIPTION



Patented



The Victaulic® copper connection system is a new concept for joining large diameter copper tubing based upon the Victaulic grooved system for steel pipe. The grooved piping concept is now available to join DIN Standard (DIN 1786) copper tubing in sizes 54 - 159 mm.

The system uses a proven pressure-responsive synthetic rubber gasket to seal on the outside diameter of the tubing. This means no heat is required and no lead is used. The coupling housing surrounds the gasket gripping into grooves rolled into the tubing. The housing is isolated from the fluid but provides the gripping strength for pressure ratings up to 16 Bar (232 psi) depending on the copper tubing size and wall thickness.

Compatible copper fittings in 90° and 45° elbows, tees, and reducing configurations are supplied grooved ready for installation.

Standard Victaulic Vic-Easy® roll grooving tools (VE272SFS, VE416FSD, VE414MC, and VE226DINC) can be used to field or shop roll groove DIN copper tubing in sizes 54 - 159 mm. The VE26DIN allows in place grooving of copper tubing. Tools must be equipped only with Victaulic rolls designed specifically for grooving DIN copper tube. **DO NOT use rolls intended for steel or stainless steel pipe, or U.S. copper tubing.**

PERFORMANCE

Style 606-DIN DIN Standard Copper Coupling

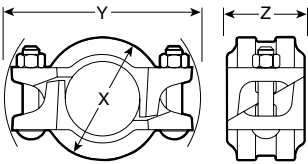
The Victaulic copper connection system has been thoroughly tested. Victaulic products are routinely tested in unrestrained hydrostatic and flexure tests. Using our nominal 3 to 1 safety factor, these tests provide regular verification of the product performance capabilities. The joint ratings shown in the adjacent chart apply to Victaulic Style 606-DIN couplings and roll grooved copper fittings on the indicated wall thickness tubing.

Nominal Size mm	Tube Dimensions – mm/in.		Joint Performance Capabilities*	
	Actual Size	Wall Thickness	Maximum Joint Working Press. Bar/PSI	Maximum Permissible End Load N/Lbs.
54	54,0	2,0	16	3670
	2.125	0.078	232	825
64	64,0	2,0	16	5160
	2.520	0.078	232	1160
76.1	76,1	2,0	16	7300
	3.000	0.078	232	1640
88.9	88,9	2,0	16	9920
	3.500	0.078	232	2230
108	108,0	2,5	16	14640
	4.250	0.098	232	3290
133	133,0	3,0	16	20000
	5.236	0.118	232	4495
159	159,0	3,0	13	25800
	6.260	0.118	189	5820

*Refer to notes on page 4.

DIMENSIONS

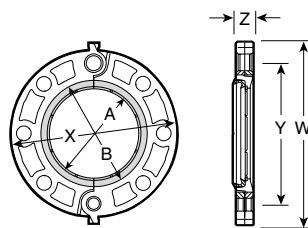
Style 606-DIN DIN Standard Copper Coupling



Tubing		Dimensions mm/in.			Bolt/Nut No. - Size mm			Pipe End Sep. mm/in. †	Aprx. Wgt. Ea. Kg/Lbs.
Nominal Size mm	Actual Size mm/in.	X	Y	Z					
54	54,0 2.125	80,5 3.17	117,6 4.63	45,7 1.80	2 - M10	X	50,8 Lg.	0,76 0.03	0,7 1.54
64	64,0 2.520	88,9 3.54	129,3 5.09	45,7 1.80	2 - M10	X	50,8 Lg.	0,76 0.03	0,9 1.98
76,1	76,1 3.000	102,9 4.05	151,6 5.97	45,7 1.80	2 - M12	X	70 Lg.	0,76 0.03	1,1 2.42
88,9	88,9 3.500	115,6 4.55	161,5 6.36	45,7 1.80	2 - M12	X	70 Lg.	0,76 0.03	1,4 3.09
108	108,0 4.250	138,2 5.44	181,4 7.14	49,3 1.94	2 - M12	X	70 Lg.	4,3 0.17	1,7 3.75
133	133,0 5.236	165,1 6.50	228,9 9.01	49,5 1.95	2 - M16	X	82,5 Lg.	4,6 0.18	2,5 5.51
159	159,0 6.260	191,3 7.53	254,5 10.02	49,3 1.94	2 - M16	X	82,5 Lg.	4,6 0.18	2,9 6.39

† Refer to notes on page 4.

Style 641-DIN Vic-Flange® Adapters



Tubing		Dimensions mm/In.						Bolt/Nut No. - Size @ mm	Aprx. Weight Ea. Kg/Lbs.
Nominal Size mm	Actual Size mm/In.	Seal Surface		Flange Dimensions					
		A Max.	B Min.	W	X	Y	Z		
54	54,0 2.125	54,0 2.13	78,0 3.07	175,0 6.89	152,4 6.00	125,0 4.92	19,8 0.78	4 - M16	1,7 3.75
64	64,0 2.520	64,0 2.52	89,0 3.50	214,4 8.44	184,9 7.20	145,0 5.71	22,4 0.88	4 - M16	2,1 4.63
76,1	76,1 3.000	76,0 2.99	101,0 3.98	208,3 8.20	184,9 7.28	145,0 5.71	19,8 0.78	4 - M16	2,5 5.51
88,9	88,9 3.500	89,0 3.50	114,0 4.49	220,0 8.66	199,9 7.87	160,0 6.30	21,8 0.86	8 - M16	2,8 6.18
108	108,0 4.250	108,0 4.25	133,0 5.24	243,1 9.57	220,0 8.66	180,1 7.09	23,9 0.94	8 - M16	3,1 6.84
133	133,0 5.236	133,0 15.24	160,0 6.30	273,8 10.78	248,9 9.84	210,1 8.27	25,4 1.00	8 - M16	3,9 8.60
159	159,0 6.260	159,0 6.26	186,0 7.32	307,1 12.09	285,0 11.22	240,0 9.45	25,9 1.02	8 - M16	4,5 9.92

@ Total bolts required to be supplied by installer. Bolt sizes for conventional flange-to-flange connection. Longer bolts are required when Vic-Flange adapter is utilized with wafer-type valves.

NOTE: Style 641-DIN Vic-Flange adapters for copper tubing provide rigid joints when used on copper tubing roll grooved to Victaulic dimensions and consequently allow no linear or angular movement at the joint.

FLANGE WASHER NOTES:

Style 641-DIN Vic-Flange adapters require a smooth surface at the mating flange face for effective sealing. Some applications for which the Vic-Flange adapter is otherwise well suited do not provide an adequate mating surface.

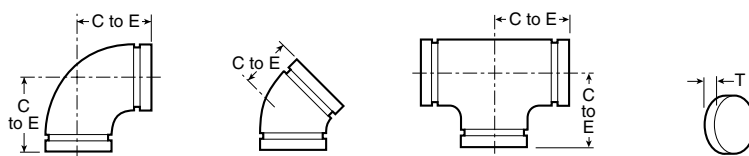
Note: Gray area of mating face must be free from gouges, undulations or deformities of any type for effective sealing.

Typical applications where a flange washer should be used are:

- When mating to a serrated flange:** a flange gasket should be used adjacent to the serrated flange and then the flange washer is inserted between the Vic-Flange adapter and the flange gasket.
- When mating to a wafer valve:** where typical valves are rubber lined and partially rubber faced (smooth or not), the flange washer is placed between the valve and the Vic-Flange adapter.
- When mating to a rubber faced flange:** the flange washer is placed between the Vic-Flange adapter and the rubber faced flange.
- When mating AWWA cast flanges or IPS flanges to copper tubing size flanges:** the flange washer is placed between two Vic-Flange adapters. If one is not a Vic-Flange adapter (e.g., flanged valve), then a flange gasket must be placed adjacent to that flange and the flange washer inserted between the flange gasket and the Vic-Flange adapter.
- When mating to components** (valves, strainers, etc.) where the component flange face has an insert: follow the same arrangement as in Application 1.

DIMENSIONS

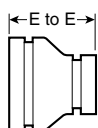
DIN Standard Copper Fittings



Tubing		No. 610 90° Elbow		No. 611 45° Elbow		No. 620 Tee		No. 660 Cap	
Nominal Size mm	Actual Size mm/in.	C to E mm/in.	Aprx. Wgt. Ea. Kg/Lbs.	C to E mm/in.	Aprx. Wgt. Ea. Kg/Lbs.	C to E mm/in.	Aprx. Wgt. Ea. Kg/Lbs.	Thickness T mm/in.	Aprx. Wgt. Ea. Kg/Lbs.
54	54,0 2.125	73,9 2.91	0,4 0.9	55,6 2.19	0,04 0.8	68,3 2.69	0,5 1.1	24,0 0.96	0,5 1.1
64	64,0 2.520	84,1 3.31	0,6 1.3	58,7 2.31	0,5 1.1	81,4 3.20	0,8 1.8	24,0 0.96	0,6 1.4
76,1	76,1 3.000	96,8 3.81	1,0 c 2.1	65,9 2.59	0,7 1.6	89,3 3.52	1,5 3.2	24,0 0.96	0,6 1.4
88,9	88,9 3.500	108,7 4.28	1,7 3.8	80,3 3.16	1,4 3.1	90,4 3.56	1,5 3.2	24,0 0.96	0,6 1.4
108	108,0 4.250	120,7 4.75	1,8 c 4.0	80,9 3.19	1,5 c 3.4	108,0 4.25	2,8 c 6.1	24,0 0.96	1,1 2.4
133	133,0 5.236	150,9 5.94	6,4 c 14.0	82,6 3.25	4,8 c 10.5	150,9 5.94	10,0 c 22.0	24,0 0.96	1,6 3.5
159	159,0 6.260	176,3 6.94	9,1 c 20.0	92,1 3.63	5,9 c 13.0	176,3 6.94	13,2 c 29.0	24,0 0.96	1,9 4.2

c = Bronze casting; all others, drawn copper

No. 650 Copper Concentric Reducer

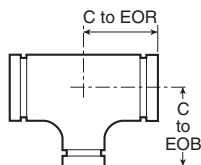


No. 650

Nominal Size mm			Actual O.D. mm/in.			No. 650 Grooved X Grooved	
						End to End mm/in.	Aprx. Wgt. Each Kg/Lbs.
76,1	X	50	76,1 3.000	X X	54,0 2.125	99,1 3.90	0,4 c 0.9
108	X	65	108,0 4.252	X X	76,1 3.000	85,9 3.38	0,9 c 2.0
133	X	65	133,0 5.236	X X	76,1 3.000	99,1 3.90	2,9 6.4
	X	100		X X	108,0 4.252	85,9 3.38	2,9 6.4
159	X	100	159,0 6.260	X X	108,0 4.252	99,1 3.90	2,9 6.4
	X	125		X X	133,0 5.236	85,9 3.38	3,0 6.6

c = Bronze casting; all others, drawn copper

No. 625 Reducing Tee

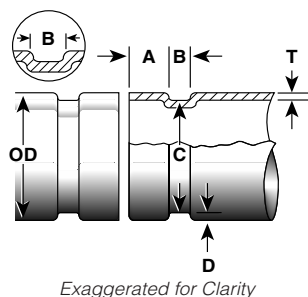


No. 625 Grooved × Grooved															
Nom. Size mm			Actual O.D. mm/in.			C to E mm/in.	Aprx. Wgt. Ea. Kg/Lbs.	Nom. Size mm			Actual O.D. mm/in.			C to E mm/in.	Aprx. Wgt. Ea. Kg/Lbs.
76,1	X	50	76,1 3.000	5 5	54,0 2.125	76,2 3.00	1,0 c 2.2	159	X	100	159,0 6.260	5 5	108,0 4.252	106,7 4.20	4,4 c 9.7
108	X	65	108,0 4.252	5 5	76,1 3.000	106,4 4.19	4,6 c 10.1				X	125	5 5	133,0 5.236	119,4 4.70
133	X	65	133,0 5.236	5 5	76,1 3.000	108,0 4.25	2,5 c 5.5								
	X	100		5 5	108,0 4.252	108,0 4.25	4,5 c 10.0								

c = Bronze casting

GROOVE SPECIFICATIONS

DIN Standard Copper



1	2		3	4	5	6	7
Nominal Size mm	Actual Outside Dia. mm/in.		Gasket Seat "A" mm/in. ± 0.8 mm	Groove Width "B" mm/in. ± 0.8/-0 mm	Groove Diameter "C" mm/in. + 0/-0.5 mm	Groove Depth "D" mm/in. Ref. Only	Max. Allow. Flare Diameter mm/in.
	Min.	Max.					
54	53,93 2.123	54,07 2.129	15,87 0.625	7,62 0.300	51,50 2.028	1,25 0.049	56,41 2.221
64	63,93 2.517	64,07 2.522	15,87 0.625	7,62 0.300	61,46 2.420	1,27 0.050	66,41 2.615
76,1	76,03 2.993	76,17 2.999	15,87 0.625	7,62 0.300	73,40 2.890	1,35 0.053	78,48 3.090
88,9	88,83 3.497	88,97 3.503	15,87 0.625	7,62 0.300	85,70 3.374	1,60 0.063	91,63 3.607
108	107,93 4.249	108,07 4.255	15,87 0.625	7,62 0.300	104,80 4.126	1,60 0.063	110,41 4.347
133	132,50 5.217	133,50 5.256	15,87 0.625	7,62 0.300	129,30 5.090	1,85 0.073	135,42 5.331
159	158,50 6.240	159,50 6.279	15,87 0.625	7,62 0.300	155,30 6.114	1,85 0.073	161,43 6.355

COLUMN 1 - Nominal DIN 1786 drawn copper tubing size as indicated in the chart heading.

COLUMN 2 - Outside diameter: The outside diameter of roll grooved tubing shall not vary more than the tolerance listed. The maximum allowable tolerance from square cut ends is 0.8 mm for 54 - 88.9 mm; 1.1 mm for 108 - 159 mm, measured from true square line.

COLUMN 3 - Gasket seat: The tubing surface shall be free from indentations, roll marks, and projections from the end of the tubing to the groove, to provide a leak-tight seat for the gasket. All loose scale, dirt, chips and grease must be removed.

COLUMN 4 - Groove width: Bottom of groove to be free of loose dirt, chips and scale that may interfere with proper coupling assembly.

COLUMN 5 - Groove outside diameter: The groove must be uniform depth for the entire tubing circumference. Groove must be maintained within the "C" diameter tolerance listed.

COLUMN 6 - Groove depth: For reference only. Groove must conform to the groove diameter "C" listed.

COLUMN 7 - Maximum allowable end flare diameter: Measured at the most extreme tubing end diameter.

MATERIAL SPECIFICATIONS

Housing: Ductile iron conforming to ASTM A-536, grade 65-45-12. Ductile iron conforming to ASTM A-395, grade 65-45-15, is available upon special request.

Housing Coating: Copper colored alkyd enamel.

Copper Fittings: Bronze sand castings to ASTM B-584 UNS No. 83600 (85-5-5-5). Wrought fittings per ASTM B-75 C12200 or ASTM B-152 C11000.

Gasket (Specify choice on order):

- **Grade "E" FlushSeal® EPDM**

EPDM (Copper color code). Temperature range -34°C to +110°C (-30°F to +230°F). Recommended for hot water service within the specified temperature range plus a variety of dilute acids, oil-free air and many chemical services. NOT RECOMMENDED FOR PETROLEUM SERVICES.

- **Optional: Grade "T" FlushSeal® nitrile**

Nitrile gaskets available for oil services. Contact Victaulic for details.

*Services listed are General Service Recommendations only. It should be noted that there are services for which these gaskets are not recommended. Reference should always be made to the latest Victaulic Gasket Selection Guide for specific gasket service recommendations and for a listing of services which are not recommended.

Contact Victaulic for dimensions and other details.

NOTES

* Working Pressure and End Load are total, from all internal and external loads, based on DIN Standard copper tubing of the wall thickness indicated, roll grooved in accordance with Victaulic specifications.

WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1½ times the figures shown.

† For field installation only. Style 606-DIN is essentially rigid and does not accommodate expansion or contraction.

WARNING: Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.

This product shall be manufactured by Victaulic Company. 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.