

EN 1057 Standard Copper Products

PRODUCT DESCRIPTION



Patented



The Victaulic copper connection system was developed for joining large diameter copper tubing. In use since 1925 for steel (and other IPS pipe), cast and ductile iron, the grooved concept is now available to join EN 1057* R250 (half hard) temper copper tubing in 54,0 - 159,0 mm sizes.

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 fluid, but provides the gripping strength for pressure ratings up to 2100 kPa, depending on the size and wall thickness of the tubing.

A Vic-Flange® adapter works in a similar manner with a pressure-responsive gasket and flange design which mates to PN 10/PN 16 flanged products. This permits easy adapting of flanged components.

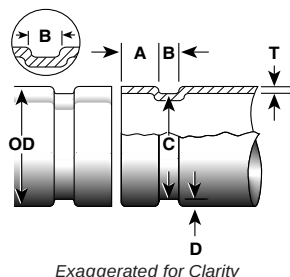
Compatible copper fittings in 90° and 45° elbows, tees, and reducing configurations are supplied grooved, ready for installation.

Standard Victaulic Vic-Easy® roll grooving tools can be used to field or shop roll groove copper tubing from 54,0 - 159,0 mm. Tools must be equipped only with Victaulic rolls designed specifically for grooving EN 1057 copper tube. **DO NOT use rolls intended for steel or stainless steel pipe or U.S. copper tubing.**

*European Standard EN 1057 now combines former DIN Standard and British Standard copper specifications.

GROOVE SPECIFICATIONS

EN 1057 Standard Copper



1 Actual Outside Diameter mm/Inches			2	3	4	5	6
			Dimensions mm/Inches				
Basic	Min.	Max.	Gasket Seat "A" ± 0,76 ±0.03	Groove Width "B" +0,76/-0 +0.03/- 0	Groove Diameter "C" + 0/-0,51 +0/- 0.02	Groove Depth "D" Ref. Only	Max. Allow. Flare Diameter
54,0 2.125	53,93 2.123	54,07 2.129	15,88 0.625	7,62 0.300	51,51 2.028	1,25 0.049	56,39 2.220
64,0 2.520	63,93 2.517	64,07 2.522	15,88 0.625	7,62 0.300	61,47 2.420	1,27 0.050	66,41 2.615
66,7 2.625	66,63 2.623	66,77 2.629	15,88 0.625	7,62 0.300	64,14 2.525	1,27 0.050	69,09 2.720
76,1 3.000	76,03 2.993	76,17 2.999	15,88 0.625	7,62 0.300	73,41 2.890	1,35 0.053	78,61 3.095
88,9 3.500	88,83 3.497	88,97 3.503	15,88 0.625	7,62 0.300	85,70 3.374	1,60 0.063	91,63 3.607
108,0 4.250	107,93 4.249	108,07 4.255	15,88 0.625	7,62 0.300	104,80 4.126	1,60 0.063	110,54 4.352
133,0 5.236	132,80 5.228	133,20 5.244	15,88 0.625	7,62 0.300	129,29 5.090	1,85 0.073	135,79 5.346
159,0 6.260	158,80 6.252	159,20 6.268	15,88 0.625	7,62 0.300	155,30 6.114	1,85 0.073	161,80 6.370

COLUMN 1 - 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 0,76 mm (0.030") for 54,0 - 88,9 mm; 1,1 mm (0.045") for 108,0 - 159,0 mm, measured from a true square line.

COLUMN 2 - 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 3 - Groove width: Bottom of groove to be free of loose dirt, chips and scale that may interfere with proper coupling assembly.

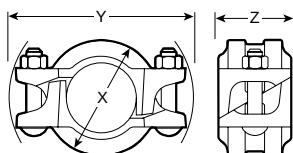
COLUMN 4 - Groove outside diameter: The groove must be uniform depth for the entire tubing circumference. Groove must be maintained within the "C" diameter tolerance listed.

COLUMN 5 - Groove depth: For reference only. Groove must conform to the groove diameter "C" listed.

COLUMN 6 - Maximum allowable end flare diameter: Measured at the most extreme tubing end diameter.

DIMENSIONS

Style 606 Rigid Coupling



Tubing millimeters/ Inches	Dimensions millimeters/Inches			Bolt/Nut * No. - Size millimeters			Aprx. Weight Each kg/Lbs.
Actual Size	X	Y	Z				
54,0 2.125	81 3.17	118 4.63	46 1.80	2 - M10	X	51	0,7 1.54
64,0 2.250	89 3.50	129 5.08	46 1.80				0,9 1.98
66,7 2.625	93 3.67	130 5.13	46 1.80	2 - M10	X	51	0,9 1.98
76,1 3.000	103 4.05	152 5.97	46 1.80				1,1 2.42
88,9 3.500	116 4.57	162 6.38	46 1.80	2 - M12	X	70	1,4 3.1
108,0 4.250	138 5.44	181 7.14	49 1.94				1,7 3.75
133,0 5.236	165 6.50	229 9.01	50 1.97	2 - M16	X	83	2,5 5.51
159,0 6.260	191 7.53	255 10.02	49 1.94				2,9 6.39

* Number of bolts required equals number of housing segments.

PERFORMANCE

Style 606 Rigid Coupling

Tubing millimeters/Inches Actual Size	Wall Thickness mm/inches	Allowable Pipe End Separation ¹ mm/inches	Max. Joint Working Pressure ³ kPa/psi	Max. End Load ² N/lbs.
54,0 2.125	1,2 0.05	0,76 0.03	1,600 232	3,664 824
54,0 2.125	2,0 0.08	0,76 0.03	2,100 305	4,809 1081
64,0 2.250	2,0 0.08	0,76 0.03	1,600 232	5,147 1157
66,7 2.625	1,2 0.05	0,76 0.03	1,500 220	5,241 1178
66,7 2.625	2,0 0.08	0,76 0.03	2,100 305	7,338 1650
76,1 3.000	1,5 0.06	0,76 0.03	1,600 232	7,277 1636
76,1 3.000	2,0 0.08	0,76 0.03	1,900 275	8,642 1943
88,9 3.500	2,0 0.08	0,76 0.03	1,600 232	9,931 2232
108,0 4.250	1,5 0.06	4,30 0.17	1,600 232	14,657 3295
108,0 4.250	2,5 0.10	4,30 0.17	1,800 260	16,490 3707
133,0 5.236	1,5 0.06	4,60 0.18	1,500 220	20,839 4685
133,0 5.236	3,0 0.12	4,60 0.18	1,600 232	22,229 4997
159,0 6.260	2,0 ⁴ 0.08	4,60 0.18	1,500 220	29,783 6695
159,0 6.260	3,0 0.12	4,60 0.18	1,500 220	29,783 5803

¹For field installation only. Style 606 couplings are essentially rigid and do not accommodate expansion/contraction.

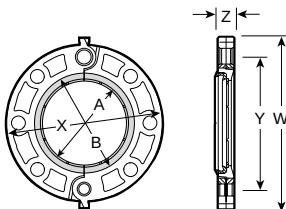
²Working Pressure and End Load are total, from all internal and external loads based on copper tubing of the weight indicated, roll grooved in accordance with Victaulic specification. Contact Victaulic for performance on other pipe.

³100kPa = 1 bar.

⁴When combined with older No. 610 and No. 611 elbows size 159,0 mm, made of wrought material, the maximum joint working pressure rating for Style 606 couplings is reduced to 1,000 kPa. Cast elbows size 159,0 mm are rated to 1,500 kPa. Note that these older products may still be in stock with Victaulic and its distributors.

DIMENSIONS

Style 641 Vic-Flange Adapter



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

Tubing millimeters/ Inches	Dimensions – millimeters/inches				Seal Surface millimeters/ inches		Bolt/Nut No. - Size † millimeters	Aprx. Weight Each kg/Lbs.
	Flange Dimensions				A Max.	B Min.		
Actual Size	W	X	Y	Z				
54,0 2.125	175 6.89	152 6.00	125 4.92	20 0.78	54 2.13	78 3.07	4 - M16	1,7 3.75
64,0 2.250	214 8.43	185 7.28	145 5.71	22 0.88	64 2.25	89 3.50	4 - M16	2,1 4.63
66,7 2.625	200 7.87	178 7.00	145 5.71	22 0.88	67 2.64	92 3.62	4 - M16	2,1 4.63
76,1# 3.000	208 8.19	185 7.28	145 5.71	20 0.78	76 2.99	101 3.98	4 - M16	2,5 5.51
76,1# 3.000	215 8.48	200 7.87	160 6.30	22 0.88	76 2.99	101 3.98	8 - M16	2,5 5.51
88,9 3.500	220 8.66	200 7.87	160 6.30	22 0.88	89 3.50	114 4.49	8 - M16	2,8 6.20
108,0 4.250	243 9.57	220 8.66	180 7.09	24 0.94	108 4.25	133 5.24	8 - M16	3,1 6.84
133,0 5.236	274 10.78	249 9.84	210 8.27	25 1.00	133 5.24	160 6.30	8 - M16	3,9 8.60
159,0 6.260	307 12.09	285 11.22	240 9.45	26 1.02	159 6.26	186 7.32	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.

Specify clearly on order which bolt hole configuration is required.

NOTES

Style 641 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.

Because of the outside flange dimension, Vic-Flange adapters should not be used within 90° of one another on a standard fitting. When wafer or lug-type valves are used adjoining a Victaulic fitting, check disc dimensions to assure proper clearance.

Vic-Flange adapters should not be used as anchor points for tie-rods across non-restrained joints. Mating rubber faced flanges, valves, etc., require the use of a Vic-Flange Washer.

Vic-Flange gaskets must always be assembled with the color coded lip on the pipe and the other lip facing the mating flange.

All flanges listed are fit for PN 10/16.

PERFORMANCE

Style 641 Vic-Flange Adapter

Tubing millimeters/inches Actual Size	Wall Thickness mm/inches	Max. Joint Working Pressure ² kPa/psi ¹	Max. End Load ² n/lbs.
54,0 2.125	1,2 0.05	1,600 232	3,664 824
54,0 2.125	2,0 0.08	2,100 305	4,809 1081
64,0 2.250	2,0 0.08	1,600 232	5,147 1157
66,7 2.625	1,2 0.05	1,000 145	3,494 785
66,7 2.625	2,0 0.08	2,100 305	7,338 1650
76,1 3.000	1,5 0.06	1,600 232	7,277 1636
76,1 3.000	2,0 0.08	1,725 250	7,846 1764
88,9 3.500	2,0 0.08	1,600 232	9,931 2232
108,0 4.250	1,5 0.06	1,000 145	9,161 2059
108,0 4.250	2,5 0.10	1,725 250	15,803 3553
133,0 5.236	1,5 0.06	1,000 145	13,893 3123
133,0 5.236	3,0 0.12	1,600 232	22,229 4997
159,0 6.260	2,0 0.08	1,000 145	19,856 4464
159,0 6.260	3,0 0.12	1,300 189	25,812 5803

¹100kPa = 1 bar.

²Working Pressure and End Load are total, from all internal and external loads based on copper tubing of the weight indicated, roll grooved in accordance with Victaulic specification. Contact Victaulic for performance on other pipe.

FLANGE WASHER NOTES

Style 641 Vic-Flange adapters require a smooth hard 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. In such cases, it is recommended that a Flange Washer be inserted between the Vic-Flange adapter and the mating flange to provide the necessary sealing surface.

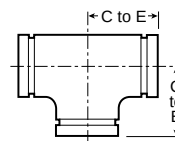
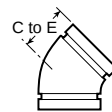
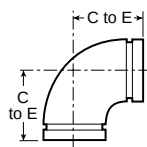
NOTE: Style 641 Vic-Flange adapters are supplied without a Flange Washer. If you require a Flange Washer, specify it clearly on your order. Installation procedures vary by market; consult your Victaulic representative for specific details.

Typical applications where a Flange Washer should be used are:

- 1 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.
- 2 When mating to a rubber faced flange: The Flange Washer is placed between the Vic-Flange adapter and the rubber faced flange.
- 3 When mating to components (valves, strainers, etc.) where the component flange face has an insert: follow the same arrangement as in Application 1. When connecting Vic-Flange adapters to iron body components, use of a bolt isolation kit is recommended.
- 4 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.
- 5 When mating AWWA Vic-Flange adapters or IPS Vic-Flange adapters to copper tubing Vic-Flange adapters: The Flange Washer is placed between the two Vic-Flange adapters. If one flange 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.

FITTING DIMENSIONS

No. 610 and 611 Elbows,
No. 20 Tee

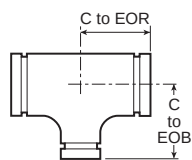


Tubing millimeters/ Inches	No. 610 90° Elbow		No. 611 45° Elbow		No. 620 Tee	
	C to E mm/in.	Aprx. Wgt. Ea. kg/Lbs.	C to E mm/in.	Aprx. Wgt. Ea. kg/Lbs.	C to E mm/in.	Aprx. Wgt. Ea. kg/Lbs.
54,0 2.125	74 2.91	0,4 0.9	56 2.19	0,4 0.9	68 2.69	0,5 c 1.1
64,0 2.250	84 3.31	0,6 1.3	59 2.31	0,5 1.1	81 3.20	0,8 c 1.8
66,7 2.625	84 3.31	0,6 c 1.3	59 2.31	0,5 1.1	81 3.20	0,8 c 1.8
76,1 3.000	97 3.81	1,0 c 2.1	66 2.59	0,7 1.6	89 3.52	1,5 c 3.3
88,9 3.500	109 4.29	1,7 c 3.7	+ +	+ +	90 3.54	1,5 3.3
108,0 4.250	121 4.75	1,8 c 4.0	81 3.19	1,5 c 3.4	108 4.25	2,8 c 6.1
133,0 5.236	151 5.94	6,4 c 14.1	+ +	+ +	151 5.94	10,0 c 22.1
159,0 6.260	176 6.94	9,1 c 20.1	92 3.63	5,9 c 13.0	176 6.94	13,2 c 29.1

c = Bronze casting; all others, drawn copper

+ Contact Victaulic for details

No. 625 Reducing Tee

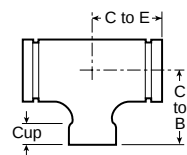


SIZE		Actual O.D.		C to E mm/inches	C to B mm/inches	Aprx. Wgt. Each kg/Lbs.	SIZE		Actual O.D.		C to E mm/inches	C to B mm/inches	Aprx. Wgt. Each kg/Lbs.
		mm	Inches						mm	Inches			
67,0	X	54,0		83	86	0,7 c	133,0	X	76,1		+	+	+
2.626	X	2.125		3.27	3.39	1.5	5.236	X	3.000		+	+	+
76,1	X	54,0		76	86	1,0 c		X	108,0		+	+	+
3.000	X	2.125		2.99	3.39	2.2		X	4.252		+	+	+
	X	66,7		83	89	1,1 c	159,0	X	54,0		+	+	+
	X	2.626		3.27	3.50	2.4	6.260	X	2.125		+	+	+
108,0	X	66,7		100	103	2,6 c		X	66,7		+	+	+
4.252	X	2.626		3.94	4.06	5.7		X	2.626		+	+	+
	X	76,1		106	106	4,6 c		X	76,1		+	+	+
	X	3.000		4.17	4.17	10.1		X	3.000		+	+	+
133,0	X	54,0		+	+	+		X	108,0		106	130	4,4 c
5.236	X	2.125		+	+	+		X	4.252		4.17	5.12	9.7
	X	67,0		+	+	+		X	133,0		119	132	5,1
	X	2.626		+	+	+		X	5.236		4.69	5.20	11.2

c = Bronze casting; all others, drawn copper

+ Contact Victaulic for details

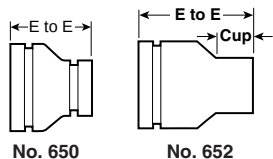
No. 626 Reducing Tee



SIZE		Actual O.D.		C to E mm/in	C to B mm/in	Cup mm/in	Aprx. Wgt. Each kg/Lbs.	SIZE		Actual O.D.		C to E mm/in	C to B mm/in	Cup mm/in	Aprx. Wgt. Each kg/Lbs.
		mm	Inches							mm	Inches				
54,0	X	35,0		125	78	25	0,6	108,0	X	35,0		150	105	25	1,5
2.125	X	1.378		4.92	3.07	0.98	1.3	4.252	X	1.378		5.91	4.13	0.98	3.3
	X	42,0		125	78	29	0,4		X	42,0		103	100	42	1,6
	X	1.654		4.92	3.07	1.14	0.9		X	1.654		4.06	3.94	1.65	3.5
67,0	X	35,0		125	85	25	0,8	133,0	X	35,0		99	96	25	1,9
2.626	X	1.378		4.92	3.35	0.98	1.8	5.236	X	1.378		3.90	3.78	0.98	4.2
	X	42,0		125	85	29	0,6		X	42,0		103	100	42	2,2
	X	1.654		4.92	3.35	1.14	1.3		X	1.654		4.06	3.94	1.65	4.9
76,1	X	35,0		125	89	25	0,9	159,0	X	35,0		99	109	25	2,2
3.000	X	1.378		4.92	3.50	0.98	2.0	6.260	X	1.378		3.90	4.29	0.98	4.9
	X	42,0		125	89	29	0,9		X	42,0		103	113	29	2,3
	X	1.654		4.92	3.50	1.14	2.0		X	1.654		4.06	4.45	1.14	5.1

c = Bronze casting; all others, drawn copper

No. 650 & No. 652 Concentric Reducer



SIZE Actual O.D. mm/Inches					SIZE Actual O.D. mm/Inches						
End to End mm/Inches					End to End mm/Inches						
Cup mm/inches					Cup mm/inches						
Aprx. Weight Each kg/Lbs.					Aprx. Weight Each kg/Lbs.						
54,0	X	35,0 #	+	—	+	108,0	X	54,0	+	—	+
2.125	X	1.378	+	—	+	4.252	X	2.125	+	—	+
	X	42,0 #	75	—	0.2		X	64,0	+	—	+
	X	1.654	2.95	—	0.4		X	2.250	+	—	+
64,0	X	54,0	+	—	+		X	66,7	76	—	0,9 c
2.250	X	2.125	+	—	+		X	2.626	2.99	—	2.0
66,7	X	35,0 #	+	—	+		X	76,1	76	—	0,9 c
2.626	X	1.378	+	—	+		X	3.000	2.99	—	2.0
	X	42,0 #	88	—	0,3		X	88,9	76	—	+ c
	X	1.654	3.46	—	0.7		X	3.500	2.99	—	+
	X	54,0	83	86	0,7	133,0	X	76,1	+	—	+
	X	2.125	3.27	3.39	1.5	5.236	X	3.000	+	—	+
76,1	X	54,0	64	—	0,4 c		X	108,0	+	—	+
3.000	X	2.125	2.52	—	0.9		X	4.252	+	—	+
	X	64,0	64	—	0,5 c		X	54,0	+	—	+
	X	2.250	2.52	—	1.0	159,0	X	2.125	+	—	+
	X	66,7	64	—	0,5 c		X	66,7	+	—	+
	X	2.626	2.52	—	1.0		X	2.626	+	—	+
88,9	X	54,0	76	—	0,9 c		X	76,1	+	—	+
3.500	X	2.125	2.99	—	2.0		X	3.000	+	—	+
	X	64,0	+	—	+		X	108,0	+	—	+
	X	2.250	+	—	+		X	4.252	+	—	+
	X	76,1	76	—	0,9 c		X	133,0	+	—	+
	X	3.000	2.99	—	2.0		X	5.236	+	—	+

No. 652; Cup connection

c = Bronze casting; all others, drawn copper

+ Contact Victaulic for details

No. 660 Cap



Tubing millimeters/ Inches	Thickness T mm/In.	Aprx. Wgt. Ea. kg/Lbs.
54,0	24	0,5 c
2.125	0.96	1.0
64,0	+	+
2.250	+	+
66,7	24	0,6 c
2.625	0.96	1.3
76,1	+	+
3.000	+	+
88,9	24	0,6 c
3.500	0.96	1.3
108,0	24	1,1
4.250	0.96	2.4
133,0	+	+
5.236	+	+
159,0	+	+
6.260	+	+

c = Bronze casting; all others, drawn copper

+ Contact Victaulic for details

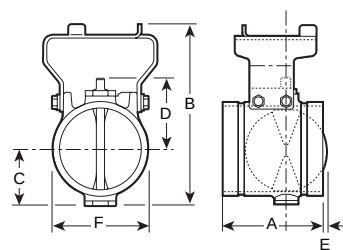
No. 660B Bronze (RG12) Cap with Concentric Threaded Hole

SIZE Actual O.D. mm/Inches			Aprx. Wgt. Ea. kg/Lbs.
54,0	X	25,4	0,3
2.125	X	1	0.7
64,0	X	25,4	0,3
2.250	X	1	0.7
76,1	X	25,4	0,3
3.000	X	1	0.7
88,9	X	25,4	0,6
3.500	X	1	1.3
88,9	X	50,8	+
3.500	X	2	+

+ Contact Victaulic for details

DIMENSIONS

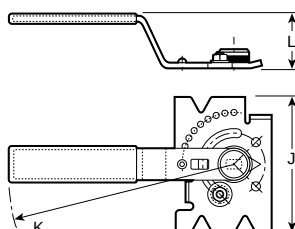
Series 608 Butterfly Valve



Tubing mm/Inches	Dimensions – mm/Inches						Aprx. Wgt. Ea. w/o Oper. kg/Lbs.
Actual Size	End to End A	Overall Height B	C	D	E	F	
66,7 2.625	96 3.77	12 4.77	43 1.69	55 2.17	– –	64 2.5	1,9 c 4.1
76,1 3.000	96 3.77	137 5.39	51 2.00	63 2.48	2 0.08	76 3.00	2,2 c 4.8

c = Bronze casting

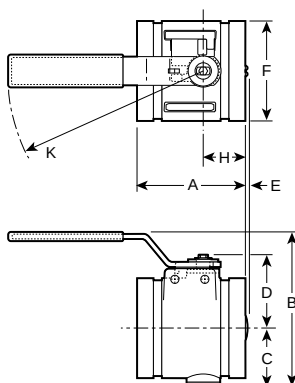
Lever Lock/Infinitely Variable Handle



Tubing mm/Inches	Dimensions – mm/Inches			Aprx. Wgt. Ea. kg/Lbs.
Actual Size	J	K	L	
66,7 2.625				
76,1 3.000				

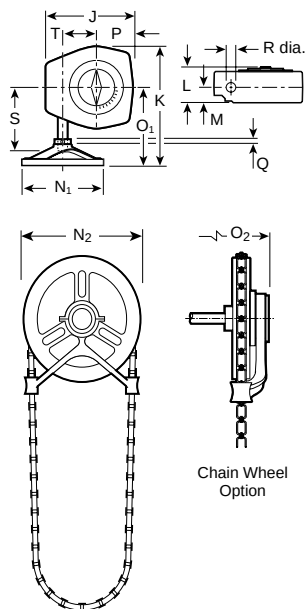
NOTE: Handles come complete with hardware for both lever lock and infinitely variable handle plus memory stop.

Two Position Handle



Tubing mm/Inches	Dimensions – mm/Inches								Aprx. Wgt. Ea. kg/Lbs.
Actual Size	E - E A	Overall Hgt. B	C	D	E	F	H	K	
66,7 2.625									
76,1 3.000									

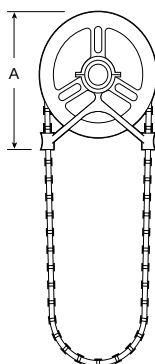
Gear Operator



Tubing mm/Inches	Dimensions mm/Inches											No. Turns to Close	Aprx. Wgt. Ea. kg Lbs.		
Actual Size	J	K	L	M	Handwheel		Chain Wheel		P	Q	R			S	T
					N ₁	O ₁	N ₂	O ₂							
66,7 2.625														10	
76,1 3.000														10	

ACCESSORIES

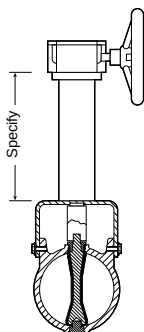
Chain Wheel



Tubing mm/Inches	Dimensions – mm/Inches			Aprx. Weight Each kg Lbs.
	Sprocket Size	Handwheel Size (Dia.)	A	
66,7 2.625	0	102 4.00	118 4.63	1,6 3.5
76,1 3.000	0	102 4.00	118 4.63	1,6 3.5

Always specify length of chain required.

Stem Extensions



Stem extensions are used for remote operations of the valve. Lever, gear or power actuators can be attached to the top of the extension. All extension components are carbon steel (stainless steel also available). Specify extension length per drawing and identify valve by figure number to which the extension will be attached.

Drive Hub Extension Insulation



Series 608-BS valves with bracket-mounted handles, operators or actuators are available with factory-installed (removable) blown urethane insulation around the drive hub extension. This option provides a fully internally-insulated bracket over the drive hub leaving only normal external areas to be insulated.

NOTES

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

§ Sizing of actuator is dependent upon service. Contact Victaulic for details.

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 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.