Victaulic® Discharge Vibration Isolation Pump Drop Series 380/380G

102.10

1.0 PRODUCT DESCRIPTION

Available Sizes

- 3 – 12"/DN80 - DN300
- Offered in full or reduced port size (see Section 4.0 for details).

Maximum Working Pressure

- Rated to the working pressure of the flange connection up to a maximum of 300 psi/2068 kPa/21 bar

Temperature Range

- –30°F to +230°F/–34°C to +110°C

End Preparation (specify choice)

☐ **Series 380:** 3 – 12"/DN80 – DN300: Class 150 flange

☐ **Series 380G:** 4 – 8"/DN100 – DN200: Original Groove System (OGS)

Application

- This Discharge Vibration Isolation Pump Drop connects a pump to the interconnecting pipe/discharge header in the mechanical room.
- Provides noise reduction, expansion, contraction and deflection.

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

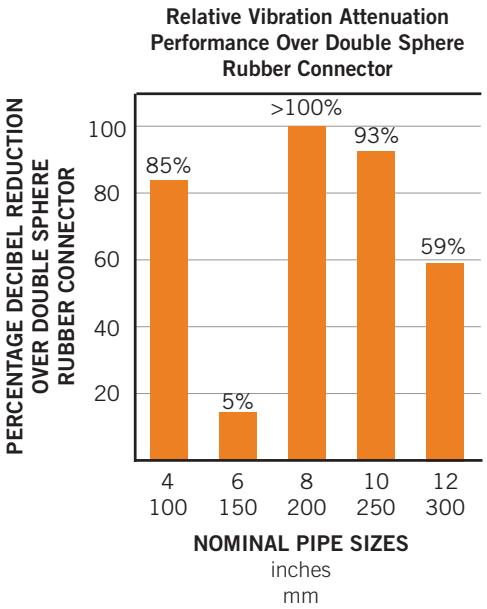
System No.		Location	
Submitted By		Date	

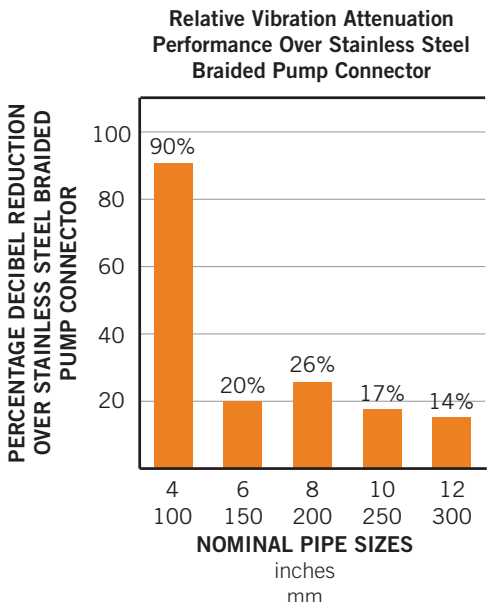
Spec Section		Paragraph	
Approved		Date	

1.0 PRODUCT DESCRIPTION (Continued)

Vibration Attenuation Performance

- The following charts show the relative **vibration attenuation characteristics** of the Series 380/380G Vibration Isolation Pump Drop compared to double sphere rubber connectors and stainless steel braided pump connectors, respectively, for typical HVAC pump speeds.
- For all sizes shown, the vibration attenuation provided by the Series 380/380G exceeds the vibration attenuation characteristics of the other products tested, for typical HVAC pump speeds.





- Additionally, the Series 380/380G provides **linear movement and angular deflection capabilities,** along with the ability to **accommodate piping misalignment,** which should reduce stresses at pump or equipment connections.
- The use of either cut grooved or roll grooved pipe offers the same vibration attenuation characteristics.

NOTE

- For more information, please refer to publication 26.04: Victaulic Couplings Vibration Attenuation Characteristics.

2.0 CERTIFICATION/LISTINGS

Product designed and manufactured under the Victaulic Quality Management System, as certified by LPCB in accordance with ISO-9001:2008.

3.0 SPECIFICATIONS – MATERIAL

- Standard weight carbon steel conforming to ASTM A53 Grade B.
- Victaulic Original Groove System (OGS).
- Standard coating: Orange enamel.
- Gaskets are EPDM.
- Bolts/Nuts: Carbon steel oval neck track bolts meeting the mechanical property requirements of ASTM A449. Carbon steel heavy hex nuts meeting the mechanical property requirements of ASTM A563 Grade B. Track bolts and heavy hex nuts are zinc electroplated per ASTM B633 ZN/FE5, finish Type III (imperial) or Type II (metric).

Ductile iron butterfly valve: Body, end face, and seal retainer conforming to ASTM A536, Grade 65-45-12 with body black alkyd enamel coating.

Disc: Ductile iron conforming to ASTM A536, Grade 65-45-12, with electroless nickel coating conforming to ASTM B733.

Seat: **EPDM.**

Stem: 416 stainless steel conforming to ASTM A582.

Stem Seal Cartridge: C36000 brass.

Bearings: Fiberglass and 316 stainless steel with TFE lining**.**

Stem Seal: Furnished in same materials as seat**.**

Stem Retaining Ring: Carbon steel**.**

10-Position Handle: Sizes 3 – 6"/DN80 – DN150: Zinc-plated carbon steel handle with zinc-plated carbon steel latch plate and zinc-plated carbon steel fasteners, infinitely variable, padlockable and includes memory stop. Optionally available with tamper-resistant hardware.

Gear Operator: Sizes 8 – 12"/DN200 – DN300: Provided with handwheel.

Ductile iron check valve conforming to ASTM A536, Grade 65-45-12, painted black enamel.

Body Seat: Size 3"/DN80: O-ring installed into an electroless nickel plating conforming to ASTM 8733.

Seat: EPDM.

Disc: Size 3"/DN80: CF8M cast stainless steel; Sizes 4 – 12"/DN100 – DN300: Ductile iron conforming to ASTM A536, Grade 65-45-12, fully encapsulated in Grade EPDM elastomer.

Shaft: Size 3"/DN80: Brass; Sizes 4 – 12"/DN100 – DN300: Type 316 stainless steel.

Spring: Type 302/304 stainless steel.

Shaft Plug: Size 3"/DN80: Type 416 stainless steel; Sizes 4 – 12"/DN100 – DN300: Carbon steel zinc plated to ASTM 8633.

Pipe Plug: Size 3"/DN80: Carbon steel zinc plated.

Thermometer Connection: (specify choice):

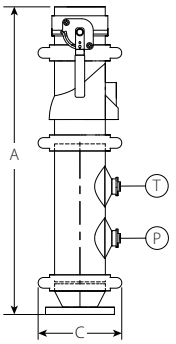
☐ ¾" female NPT connection.

☐ 1 ¼" – 18 UNEF female connection

Pressure Gauge Connection: ¾" NPT outlet

4.0 DIMENSIONS

Series 380/380G* Vertical Discharge Vibration Isolation Pump Drop



Vertical Pump Installation

Size						Dimensions		Weight
Nominal inches DN			Actual Outside Diameter inches mm			A inches mm	C inches mm	Approximate (Each) lb[1] kg
3 DN80	x	2 DN50	3.500 88.9	x	2.375 60.3	28.438 722.3	6.8 172.7	41.8 18.9
		2½			2.875 73.0	28.438 722.3	6.8 172.7	41.8 18.9
		3 DN80			3.500 88.9	25.750 654.1	6.8 172.7	39.3 17.8
4 DN100	x	2 DN50	4.500 114.3	x	2.375 60.3	30.000 762.0	7.9 200.7	58.0 26.3
		2½			2.875 73.0	30.000 762.0	7.9 200.7	61.2 27.8
		3 DN80			3.500 88.9	30.000 762.0	7.9 200.7	62.2 28.2
		4* DN100			4.500 114.3	26.750 679.5	7.9 200.7	57.6 26.1
5	x	2½	5.563 141.3	x	2.875 73.0	36.125 917.6	9.5 241.3	86.6 39.3
		3 DN80			3.500 88.9	36.125 917.6	9.5 241.3	88.3 40.1
		4* DN100			4.500 114.3	35.625 904.9	9.5 241.3	89.2 40.5
		5			5.563 141.3	31.875 609.6	9.5 241.3	81.3 36.9
6 DN150	x	2 DN50	6.625 168.3	x	2.375 60.3	40.125 1019.2	10.9 276.9	114.2 51.8
		2½			2.875 73.0	40.125 1019.2	10.9 276.9	115.5 52.4
		3 DN80			3.500 88.9	40.125 1019.2	10.9 276.9	116.2 52.7
		4* DN100			4.500 114.3	40.125 1019.2	10.9 276.9	117.3 53.2
		5			5.563 141.3	40.125 1019.2	10.9 276.9	118.4 53.7
		6* DN150			6.625 168.3	35.875 911.2	10.9 276.9	105.9 48.0
8 DN200	x	4*	8.625 219.1	x	4.500 114.3	49.313 1252.6	14.8 375.9	189.5 85.95
		5			5.563 141.3	49.313 1252.6	14.8 375.9	191.1 86.7
		6* DN150			6.625 168.3	49.313 1252.6	14.8 375.9	192.7 87.4
		8* DN200			8.625 219.1	44.000 1117.6	14.8 375.9	177.0 80.3

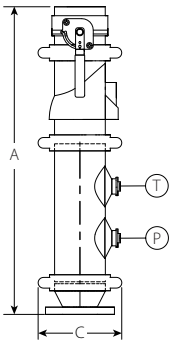
[1] Estimated weight using standard weight pipe.

NOTE

- Only the sizes marked with an asterisk "*" are available as either a Series 380, which uses a Class 150 flange end connection, or a Series 380G, which uses an OGS grooved end connection. All other sizes listed above are only available as a Series 380.

4.0 DIMENSIONS (CONTINUED)

Series 380/380G* Vertical Discharge Vibration Isolation Pump Drop



Vertical Pump Installation

Size					Dimensions		Weight
Nominal inches DN			Actual Outside Diameter inches mm		A inches mm	C inches mm	Approximate (Each) lb[1] kg
10 DN250	x	5	10.750 273.0	x 5.563 141.3	66.75 1695.5	17.1 435.3	422.1 200.5
		6* DN150		6.625 168.3	59.75 1517.6	17.1 434.3	410.4 186.2
		8* DN200		8.625 219.1	59.75 1517.6	17.1 434.3	419.1 190.1
		10 DN250		10.750 273.0	53.625 1362.1	17.1 434.3	376.9 171.0
12 DN300	x	6* DN150	12.750 323.9	x 6.625 219.1	69.375 1762.1	19.3 490.2	534.2 242.3
		8* DN200		8.625 219.1	69.375 1762.1	19.3 490.2	542.1 245.9
		10 DN250		10.750 273.0	69.375 1762.1	19.3 490.2	536.7 243.3
		12 DN300		12.750 323.9	62.250 1581.2	19.3 490.2	489.2 221.9

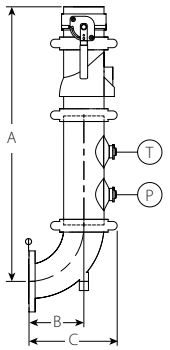
[1] Estimated weight using standard weight pipe.

NOTE

- Only the sizes marked with an asterisk "*" are available as either a Series 380, which uses a Class 150 flange end connection, or a Series 380G, which uses an OGS grooved end connection. All other sizes listed above are only available as a Series 380.

4.1 DIMENSIONS

Series 380/380G* Horizontal Discharge Vibration Isolation Pump Drop



Horizontal Pump Installation

Size					Dimensions			Weight
Nominal inches DN			Actual Outside Diameter inches mm		A inches mm	B inches mm	C inches mm	Approximate (Each) lb[1] kg
3 DN80	x	2 DN50	3.500 88.9	x 2.375 60.3	30.125 765.2	6.9375 176.2	10.3125 261.9	49.4 22.4
		2½		2.875 73.0	30.125 765.2	6.9375 176.2	10.3125 261.9	49.4 22.4
		3 DN80		3.500 88.9	30.188 766.8	4.250 108.0	7.625 193.7	46.3 21.0
4 DN100	x	2 DN50	4.500 114.3	x 2.375 60.3	31.875 809.6	8.250 209.5	12.375 314.3	70.2 31.8
		2½		2.875 73.0	31.875 809.6	8.250 209.5	12.375 314.3	72.2 32.7
		3 DN80		3.500 88.9	31.875 809.6	8.250 209.5	12.375 314.3	73.2 32.2
		4* DN100		4.500 114.3	32.000 812.8	5.000 127.0	9.125 231.8	67.2 30.5
5	x	2½	5.563 141.3	x 2.875 73.0	37.500 952.5	9.750 247.7	14.500 368.3	103.4 46.9
		3 DN80		3.500 88.9	37.500 952.5	9.750 247.7	14.500 368.3	105.1 47.7
		4* DN100		4.500 114.3	37.500 952.5	9.250 235.0	14.000 355.6	106.0 48.1
		5		5.563 141.3	37.625 955.7	5.500 140.0	10.000 254.0	95.9 43.5
6 DN150	x	2 DN50	6.625 168.3	x 2.375 88.9	42.500 1079.5	10.750 273.1	16.200 411.5	153.3 69.5
		2½		2.875 73.0	42.500 1079.5	10.750 273.1	16.200 411.5	154.6 70.1
		3 DN80		3.500 88.9	42.500 1079.5	10.750 273.1	16.200 411.5	155.3 70.4
		4*[2] DN100		4.500 114.3	45.125 1146.2	9.000 228.6	14.500 268.3	136.4 48.1
		5[2]		5.563 141.3	45.125 1146.2	9.000 228.7	14.500 268.4	141.4 64.1
		6* DN150		6.625 168.3	42.625 1082.7	6.500 165.1	11.950 303.5	130.7 59.3

1 Estimated weight using standard weight pipe.

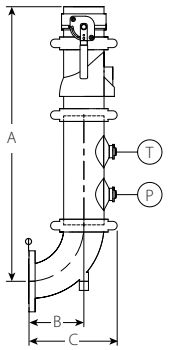
2 This size of the Series 380 VIPD uses a reducing base support elbow. All other sizes do not include a base support.

NOTE

- Only the sizes marked with an asterisk "*" are available as either a Series 380, which uses a Class 150 flange end connection, or a Series 380G, which uses an OGS grooved end connection. All other sizes listed above are only available as a Series 380.

4.1 DIMENSIONS (CONTINUED)

Series 380/380G* Horizontal Discharge Vibration Isolation Pump Drop



Horizontal Pump Installation

Size					Dimensions			Weight
Nominal inches DN			Actual Outside Diameter inches mm		A inches mm	B inches mm	C inches mm	Approximate (Each) lb[1] kg
8 DN200	x	4*	8.625 219.1	x 4.500 114.3	51.9375 1319.2	13.0625 331.8	19.8125 503.2	229.1 103.9
		5		5.563 141.3	51.9375 1319.2	13.0625 331.8	19.8125 503.2	231.5 105.0
		6*[2] DN150		6.625 168.3	54.813 1392.3	10.500 266.7	17.200 436.9	222.9 101.1
		8* DN200		8.625 219.1	52.000 1320.8	7.750 196.9	14.500 368.3	212.8 96.5
10 DN250	x	5	10.750 273.0	x 5.563 141.3	62.813 1595.5	22.125 561.9	23.700 602.0	508.0 230.4
		6* DN150		6.625 168.3	62.813 1595.5	15.125 384.2	23.700 602.0	496.3 225.1
		8*[2] DN200		8.625 219.1	65.750 1670.0	12.000 304.8	20.600 523.2	467.9 212.2
		10 DN250		10.750 273.0	62.750 1593.9	9.000 228.6	17.580 446.5	467.0 211.8
12 DN300	x	6* DN150	12.750 323.9	x 6.625 219.1	72.438 1840.0	17.125 435.0	26.800 680.7	636.4 288.7
		8* DN200		8.625 219.1	72.438 1840.0	17.125 435.0	26.800 680.7	644.6 292.4
		10 DN250		10.750 273.0	72.438 1840.0	17.125 435.0	26.800 680.7	644.3 292.2
		12 DN300		12.750 323.9	72.375 1838.3	10.000 254.0	19.680 499.9	595.3 270.0

[1] Estimated weight using standard weight pipe.

[2] This size of the Series 380 VIPD uses a reducing base support elbow. All other sizes do not include a base support.

NOTE

- Only the sizes marked with an asterisk "*" are available as either a Series 380, which uses a Class 150 flange end connection, or a Series 380G, which uses an OGS grooved end connection. All other sizes listed above are only available as a Series 380.

5.0 COMPONENT PERFORMANCE

Butterfly Valve Flow Characteristics

C_v/K_v values for flow of water at +60°F/+16°C with various disc positions are shown in the table below.

Formulas for C_v/K_v values:

$$\Delta P = \frac{Q^2}{C_v^2}$$

$$Q = C_v \times \sqrt{\Delta P}$$

Where:
Q = Flow (GPM)
ΔP = Pressure Drop (psi)
C_v = Flow Coefficient

$$\Delta P = \frac{Q^2}{K_v^2}$$

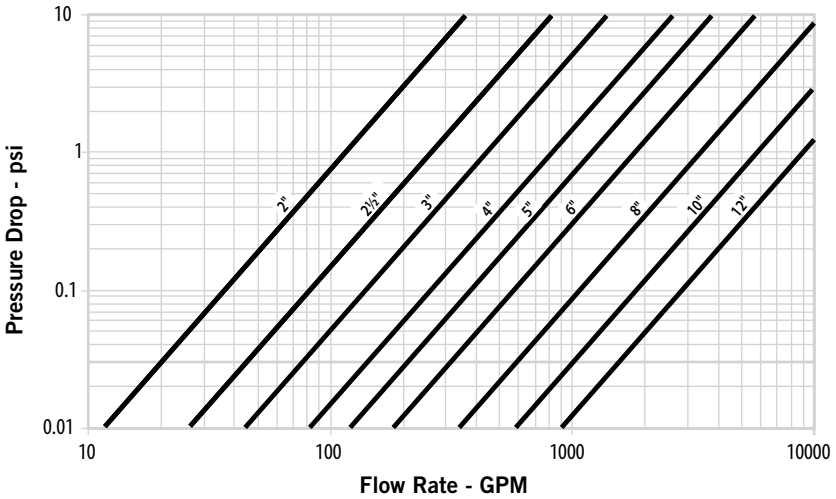
$$Q = K_v \times \sqrt{\Delta P}$$

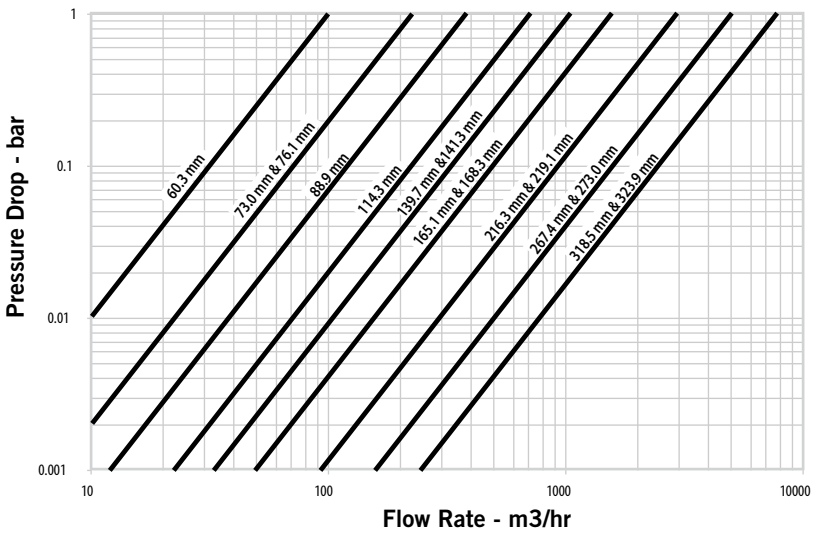
Where:
Q = Flow (m^3/hr)
ΔP = Pressure Drop (Bar)
K_v = Flow Coefficient

Size		(Full Open)
Nominal inches DN	**Actual Outside Diameter** inches mm	C_v K_v
3 DN80	3.500 88.9	440 379
4 DN100	4.500 114.3	820 707
5 DN125	5.563 141.3	1200 1034
6 DN150	6.625 168.3	1800 1552
8 DN200	8.625 219.1	3400 2931
10 DN250	10.750 273.0	5800 5000
12 DN300	12.750 323.9	9000 7758

5.0 COMPONENT PERFORMANCE (Continued)

Butterfly Valve Flow Characteristics





Size		Flow Coefficients					
		Disc Position (Degrees Open)					
		90	70	60	50	40	30
Nominal inches DN	Actual Outside Diameter inches mm	Cv Kv	Cv Kv	Cv Kv	Cv Kv	Cv Kv	Cv Kv
3 DN80	3.500 88.9	440 379	230 198	140 121	90 78	50 43	26 22
4 DN100	4.500 114.3	820 707	430 371	250 216	160 138	100 86	50 43
5 DN125	5.563 141.3	1200 1034	620 534	370 319	240 207	140 121	70 60
6 DN150	6.625 168.3	1800 1552	940 8190	560 483	360 310	220 190	110 95
8 DN200	8.625 219.1	3400 2931	1770 1526	1050 905	670 578	410 353	200 172
10 DN250	10.750 273.0	5800 5000	3020 2603	1800 1552	1150 991	700 603	350 302
12 DN300	12.750 323.9	9000 7758	4680 4034	2790 2405	1780 1534	1080 931	540 465

5.1 COMPONENT PERFORMANCE

Check Valve Flow Characteristics

C_v/K_v values for flow of water at +60°F/+16°C at full open are shown in the table below.

Formulas for C_v/K_v values:

$$\Delta P = \frac{Q^2}{C_v^2}$$

$$Q = C_v \times \sqrt{\Delta P}$$

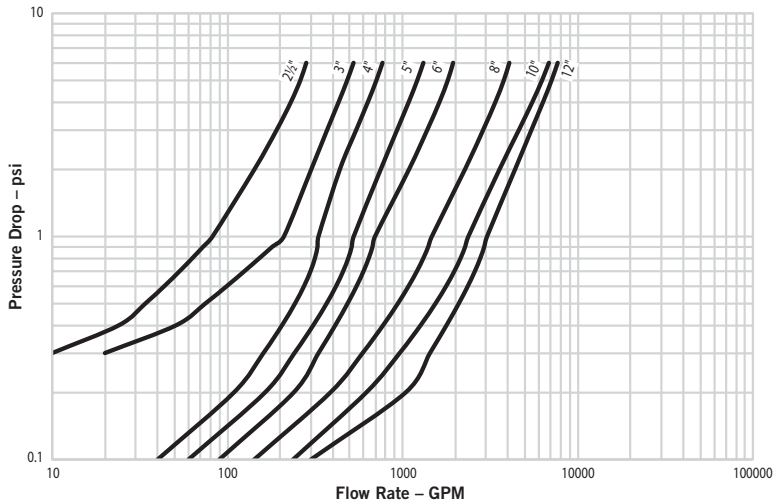
Where:
Q = Flow (GPM)
ΔP = Pressure Drop (psi)
C_v = Flow Coefficient

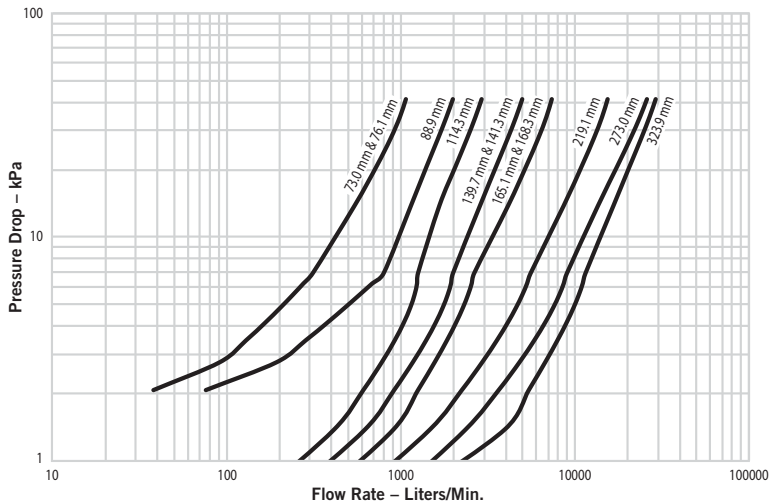
$$\Delta P = \frac{Q^2}{K_v^2}$$

$$Q = K_v \times \sqrt{\Delta P}$$

Where:
Q = Flow (m^3/hr)
ΔP = Pressure Drop (Bar)
K_v = Flow Coefficient

Size		(Full Open)	Size		(Full Open)
Nominal inches DN	**Actual Outside Diameter** inches mm	C_v K_v	**Nominal** inches DN	**Actual Outside Diameter** inches mm	C_v K_v
3 DN80	3.500 88.9	315 273	8 DN200	8.625 219.1	1800 1557
4 DN100	4.500 114.3	390 337	10 DN250	10.750 273.0	3000 2595
5 DN125	5.563 141.3	700 606	12 DN300	12.750 323.9	4200 3633
6 DN150	6.625 168.3	1000 865			





6.0 NOTIFICATIONS

⚠ WARNING

- **Read and understand all instructions before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.**
- **Wear safety glasses, hardhat, and foot protection.**
- **A Victaulic flexible coupling (not included) must also be installed in the piping above the Series 380/380G Discharge Isolation Pump Drop when using a vertical configuration with no reduction in pipe size.**

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

7.0 REFERENCE MATERIALS

05.01: Victaulic Seal Selection

06.15: Victaulic Pressure Ratings and End Loads for Victaulic Couplings on Steel Pipe

26.01: Victaulic Design Data

26.04: Victaulic Vibration Couplings Vibration Attenuation Characteristics

29.01: Victaulic Terms and Conditions/Warranty

I-100: Victaulic Field Installation Handbook

I-177N: Victaulic Installation Instructions for QuickVic™ Flexible Coupling - Style 177N

