NELSON 1000 SERIES

CONTROL VALVE SPECIFICATION,

PERFORMANCE & DIMENSIONS

SECTION 3

1. GENERAL:

The 1000 Series Valve is a sleeve style water control valve that is capable of operating in a pressure range from 10 PSI (0.7 bar) to a maximum of 150 PSI (10.3 bar). The specific pressure range shall be determined by the internal rubber sleeve that is selected at the time of valve manufacture. See the valve configuration code form on the following page. The valve shall be designed for optional accessories which may include control devices to accomplish the following purposes:

A. Valve shall function for manual open/close operation or remote control when an electric solenoid is provided. Solenoid operation shall be through connected control wires or wireless TWIG and/or hydraulic pressure control.
B. Valve shall have pressure control pilot options. A pressure reducing pilot shall be used for downstream pressure control and/or a pressure sustaining pilot for upstream pressure control.
C. Valve shall connect to the Rate of flow control.
D. Valve shall have ports for control water filters of both internal or external design.
E. Valve with pressure control shall have pressure gauge fittings.
F. Selected combinations of the above devices.

2. DESIGN

A. In the simple form, the **valve body** shall be a wafer configuration which is designed to fit between two standard flanges or in-between various end connections. The valve flow capacity shall be as shown on the performance graph. Optional body forms shall include tee and elbow style. Materials of the body shall be as shown on the 1000 Series materials guide.
B. The **internal rubber sleeve** shall be formed in the normally closed position and designed so that flow is closed off when equal pressure is applied to both the internal and external surfaces of the sleeve. The valve shall open by internal pressure applied to stretch the rubber sleeve to the open position.
C. If equipped with a pressure control, the Nelson **3-way pilot** shall be used. The pressure adjustment housing shall have a label to assist the user in setting the pressure properly. The pressure control sensitivity shall be as installed at the factory to match the valve size.
D. The valve options will be identified by a configured part number and description code.
E. The pressure range and date of manufacture shall be on the valve body.

1000 SERIES

CONTROL VALVE SELECTION GUIDE

TO ORDER: Select one option from each of the 7 sections to build the valve description code.

EXAMPLE:

SECTION	1. SIZE	2. STYLE	3. PRESSURE	4. CONNECTIONS	5. ON/OFF CONTROL	6. PRESSURE CONTROL	7. FILTER
CODE	1000V2	INL	MED	B03	E01	R60	H3
DESCRIPTION	1000 Series 2" Valve	Inline	Medium (18-80 psi)	2" PVC Socket	Manual Selector Only	Pressure Reducing 5-60 psi	Internal Filter

1. SIZE

CODE	SIZE
1000V2	2"
1000V3	3"
1000V4	4"

2. STYLE

CODE	STYLE
INL	Inline
BGV	Big Gun Valve
TEE*	Tee
ELB*	Elbow

*Tee and Elbow in 2" only

3. PRESSURE

CODE	OPERATING PRESSURE
LO	Low (10-40 psi)
MED	Medium (18-80 psi)
HI	High (30-150 psi)

4. CONNECTIONS

CODE	CONNECTIONS
	CONNECTIONS FOR 2" VALVES
B01	None (wafer only, no stud kit)
B02	2" FNPT (metal)
B03	2" PVC Socket
B04	Wafer 3x2x3 (no stud kit)
B05	2" Victaulic
B06	3" Victaulic (3x2x3)
B08	2" FNPT (plastic)
B09	3" OD Spline (Certa-Set)
B11	1.5" FNPT
B14	2" FBSP
B16	3" PVC Socket (3x2x3)
B17	Wafer w/stud kit for 2" flanges
B19	Wafer w/stud kit for 75/100 Big Gun
B21	Wafer 3x2x3 w/stud kit
	CONNECTIONS FOR 3" VALVES
B01	None (wafer only, no stud kit)
B15	3" PVC Socket
B18	Wafer w/stud kit for 3" flanges
B20	Wafer w/stud kit for 150 Big Gun
B22	Wafer 4x3x4 w/stud kit
B23	Wafer 4x3x4 (no stud kit)
B24	3" Victaulic
B25	4" PVC Socket (4x3x4)
	CONNECTIONS FOR 4" VALVES
B01	None (wafer only, no stud kit)
B26	4" PVC Socket
B27	Wafer w/stud kit for 4" flanges
B29	Wafer 6x4x6 w/stud kit
B30	Wafer 6x4x6 (no stud kit)
B31	6" PVC Socket (6x4x6)
B32	4" Victaulic

5. ON/OFF CONTROLS*

CODE	ON/OFF CONTROL
E00	None
E01	Manual Selector Only
E11†	Manual Sel. w/E11 Solenoid - 12VDC, NC
E23	Manual Sel. w/E23 Solenoid - DC Lat.
E29	Manual Sel. w/E29 Solenoid - DC Lat.
E31	Manual Sel. w/E31 Window+ Controller
E34	Manual Sel. w/E34 Solenoid - 24VDC
E40	Manual Sel. w/E40 Solenoid - 24VAC
E43	Manual Sel. w/E43 Solenoid - 24VAC
E46	Manual Sel. w/E46 Solenoid - 24VAC
E50	Manual Sel. w/E50 Solenoid - 120VAC
E53	Manual Sel. w/E53 Solenoid - 110VAC

CODE	SINGLE/DUAL CONTROL
	Tee Valves Only:
-1	Single Control
-2	Dual Control

*Contact Factory for full solenoid specifications.
†New, normally closed solenoid for pressure sustaining, normally open valve ("PSNO") for applications at filter stations

6. PRESSURE CONTROL

CODE	ADJ. RANGE
	PRESSURE REDUCING
R0	None
R30	5-30 psi
R60	5-60 psi
R120	10-120 psi
	PRESSURE SUSTAINING
S0	None
S60	5-60 psi
S120	10-120 psi

7. FILTER

CODE	FILTER
H0	None
H2	External Filter
H3	Internal Filter
	FILTER WITH TUBING PROTECTION
H4	External Filter
H5	Internal Filter

Nelson Control Valves come standard normally closed. Use the following codes to specify non-standard, normally open, or special solenoid plumbing logic.

OPTIONAL SOLENOID LOGIC

SOLENOID ONLY		
CODE	SOLENOID STATUS	VALVE STATUS
L01	Energized	Open
	De-energized	Closed
L02	Energized	Closed
	De-energized	Open

SUSTAINING W/ SOLENOID		
CODE	SOLENOID STATUS	VALVE STATUS
L03	Energized	Sustaining
	De-energized	Closed
L04†	Energized	Sustaining
	De-energized	Open
L05	Energized	Closed
	De-energized	Sustaining
L06	Energized	Open
	De-energized	Sustaining

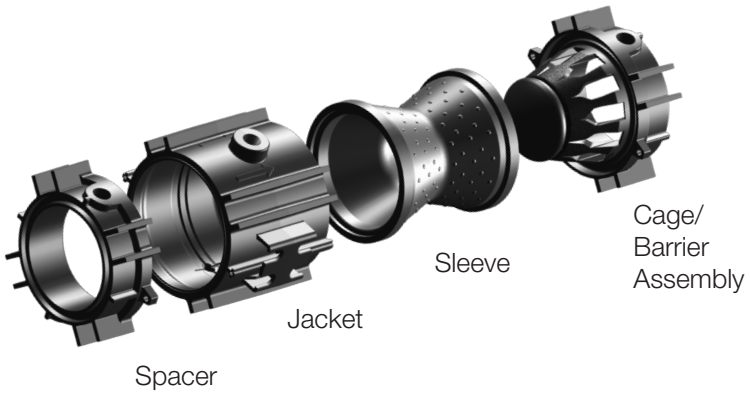
REDUCING W/ SOLENOID		
CODE	SOLENOID STATUS	VALVE STATUS
L07	Energized	Reducing
	De-energized	Closed
L08	Energized	Closed
	De-energized	Reducing

SUSTAINING/REDUCING W/ SOLENOID		
CODE	SOLENOID STATUS	VALVE STATUS
L09	Energized	Sust.-Red.
	De-energized	Closed

†Pressure Sustaining normally-open valve ("PSNO") for applications at filter stations

SPECIFICATION — VALVE MATERIALS

Selecting the right materials for the job has been a goal of Nelson Irrigation engineers from the start of the design to final production. The materials have been selected to give the best service in typical agricultural water. Nelson reserves the right to improve the performance and service life of the 1000 Series valves by changing materials as necessary.

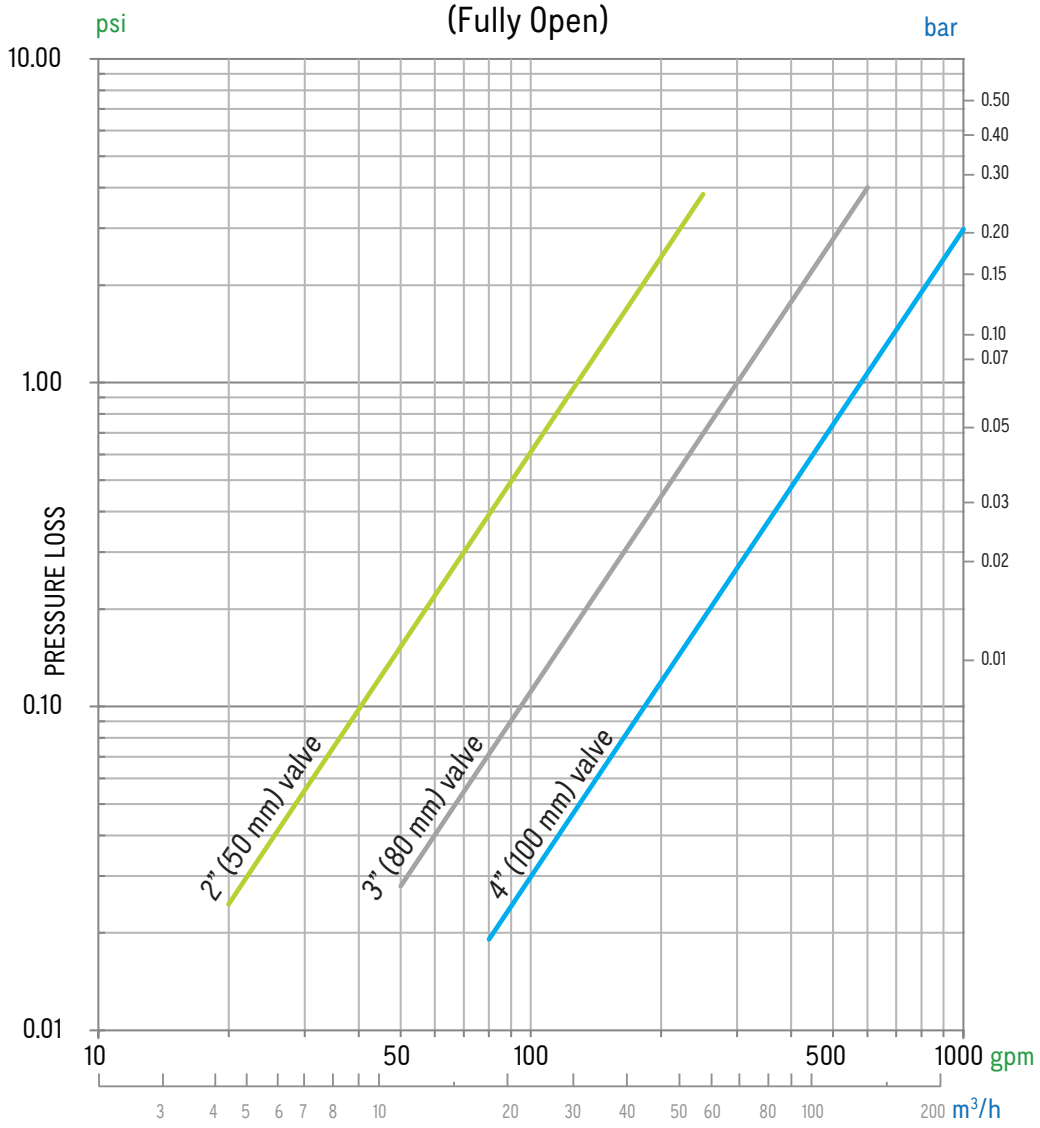


PART	2" & 3" VALVE
HOUSING JACKET	Glass-Filled Nylon
CAGE	Plastic
SLEEVE	Natural Rubber
CENTER SEAT	Glass-Filled Nylon
PRESSURE CONTROL	Plastic, Stainless Steel, Teflon, Nitrile Rubber
CONTROL TUBING	Nylon
TUBE FITTINGS	Nickel Plated Brass
ELECTRIC SOLENOIDS*	Brass, Stainless Steel, Nitrile Rubber

*Contact Factory for material options.

PERFORMANCE

Pressure Loss Data
1000 Series Inline Valves
(Fully Open)



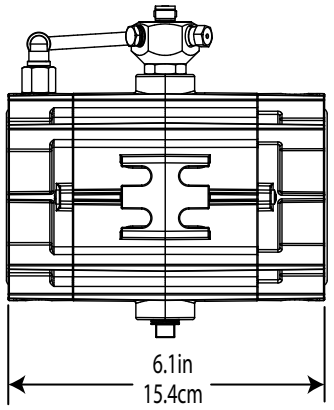
	Cv (gpm @ 1 psi loss)	Kv (m^3/hr @ 1 bar loss)
2" (50 mm)	128	111
3x2x3	135	117
3" (80 mm)	300	259
4x3x4	308	266
4" (100 mm)	580	501
6x4x6	TBA	TBA

Pressure Loss (psi)	$= \frac{\text{Flow (gpm)}^2}{Cv^2}$
Pressure Loss (bar)	$= \frac{\text{Flow}(m^3/h)^2}{Kv^2}$

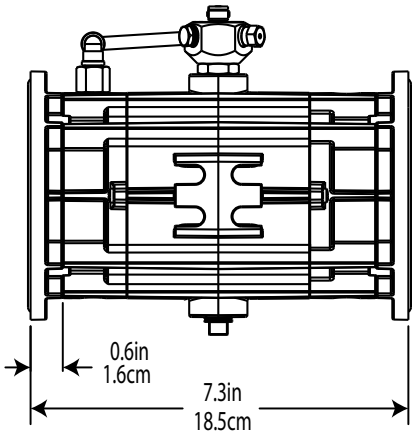
2" INLINE VALVE / WAFER & FLANGE CONNECTIONS

CAD drawing files (.dwg) are available at nelsonirrigation.com.

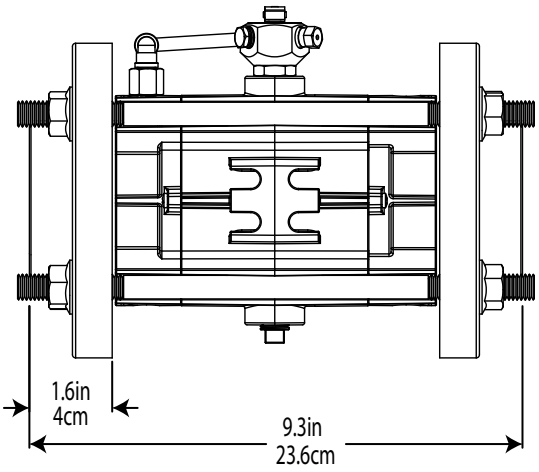
Wafer Style (No Connections)



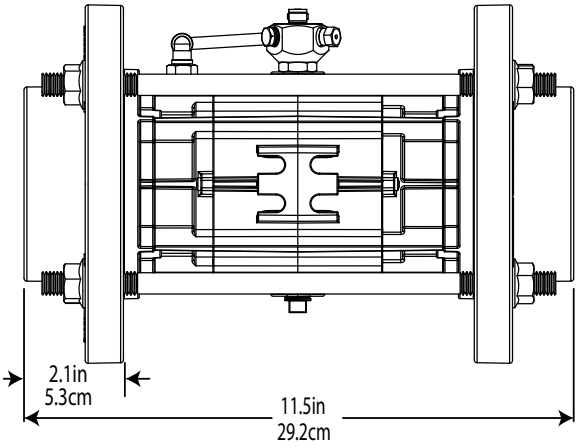
Wafer with 2 x 3" Flange Adapters



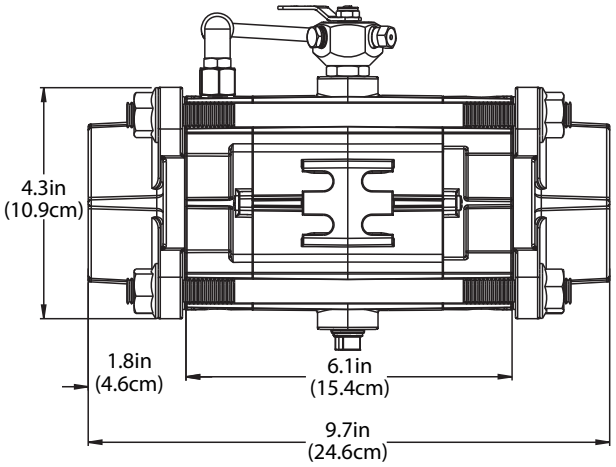
2" Flanges - PVC Socket



3" Flanges - PVC Socket (with 2 x 3" Adapters)



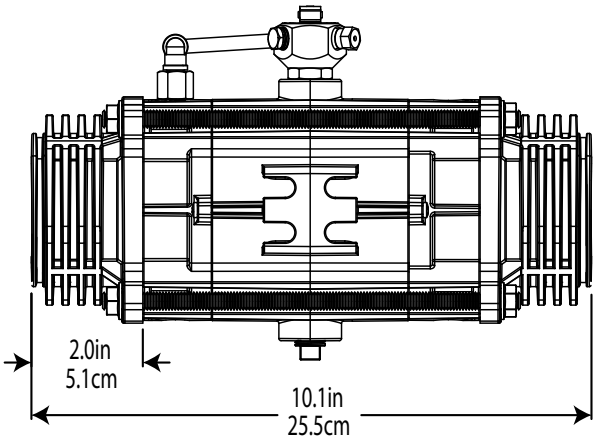
2" Metal Flanges - Threaded (FNPT)



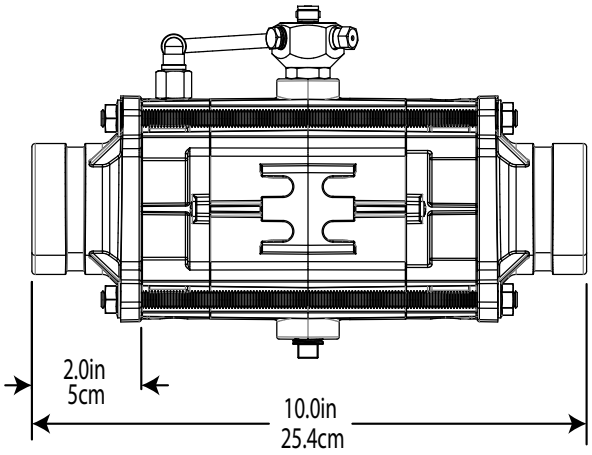
2" INLINE VALVE DIMENSIONS / FLEX CONNECTIONS

CAD drawing files (.dwg) are available at nelsonirrigation.com.

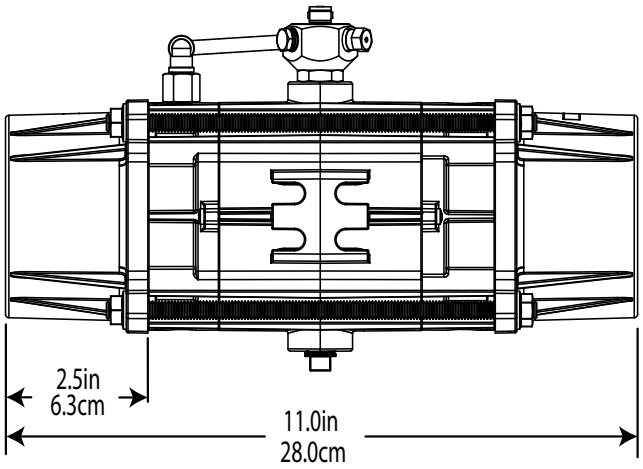
Female Threaded
(1.25", 1.5", 2" FNPT or FBSP)



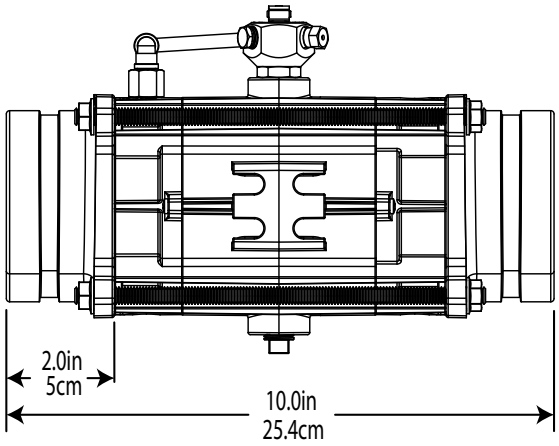
2" Victaulic



3" O.D Spline (Certa-Set)



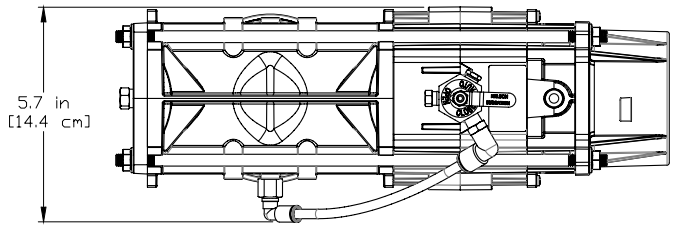
3" Victaulic

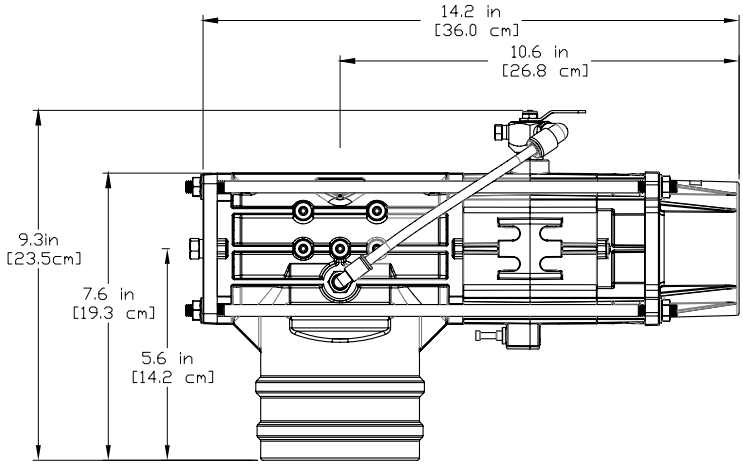


2" TEE & ELBOW VALVE DIMENSIONS

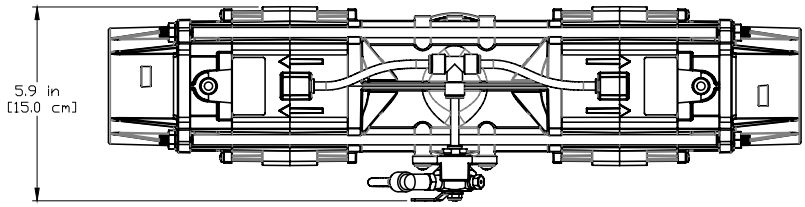
CAD drawing files (.dwg) are available at nelsonirrigation.com.

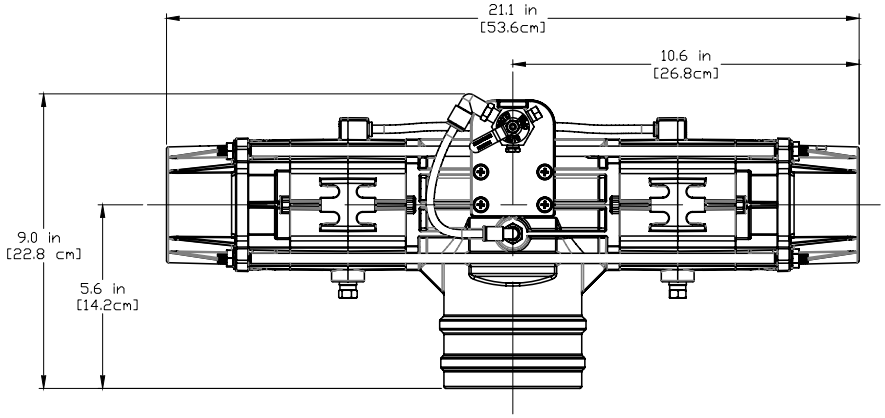
ELBOW VALVE WITH SPLINE OUTLET





TEE VALVE WITH SPLINE OUTLETS



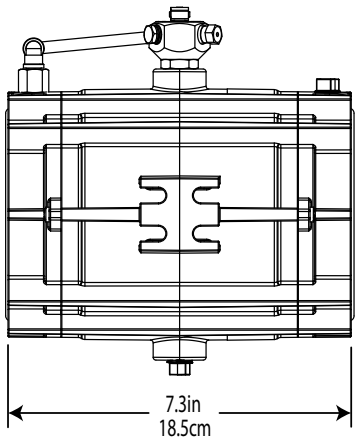


#12347 Spline (12" long)

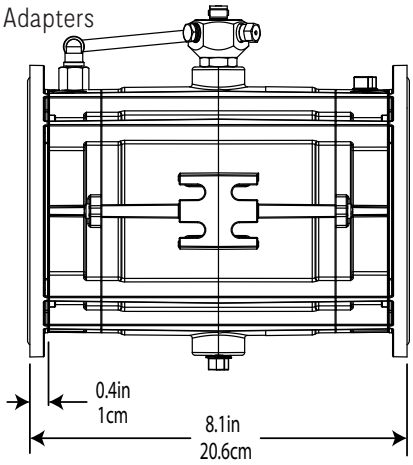
3" INLINE VALVE DIMENSIONS

CAD drawing files (.dwg) are available at nelsonirrigation.com.

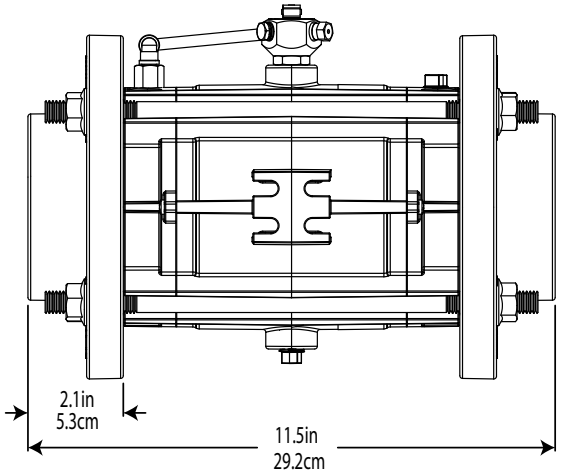
Wafer Style
(No Connections)



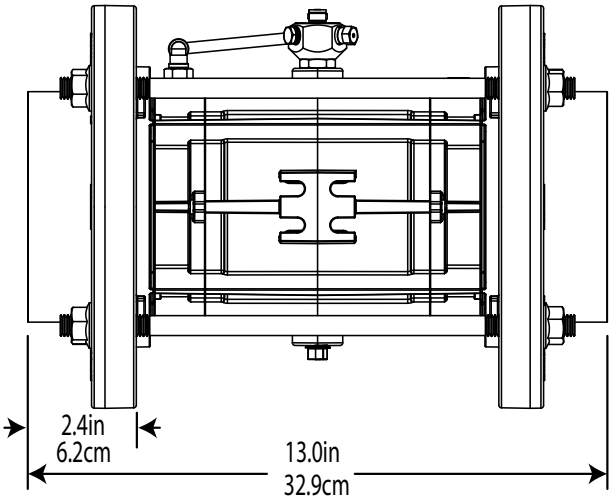
Wafer with
3 x 4" Flange Adapters



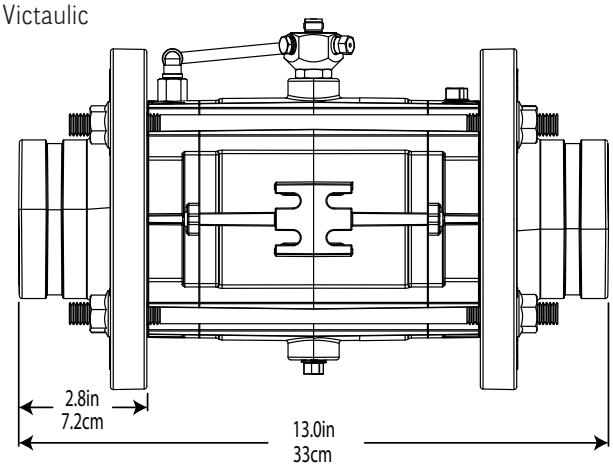
3" Flanges - PVC Socket



4" Flanges - PVC Socket (with 3 x 4" Adapters)



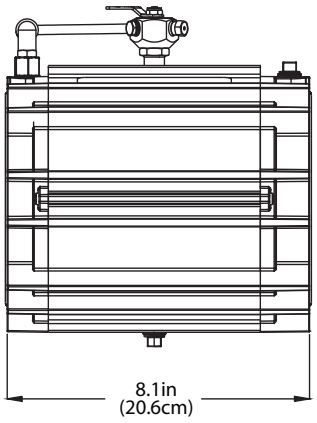
3" Victaulic



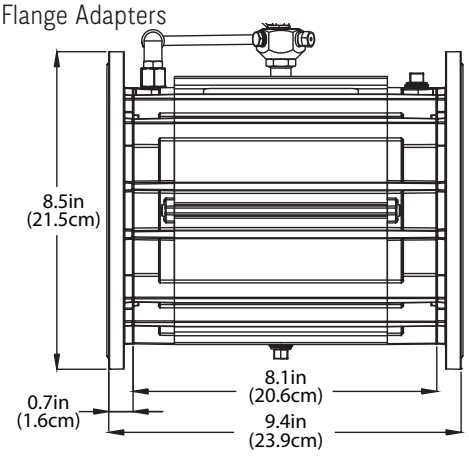
4" INLINE VALVE DIMENSIONS

CAD drawing files (.dwg) are available at nelsonirrigation.com.

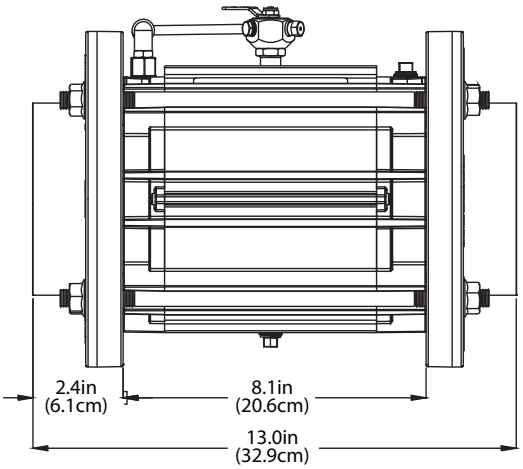
Wafer Style
(No Connections)



Wafer with
4 x 6" Flange Adapters



4" Flanges - PVC Socket (B26)



4" Victaulic (B32)