

hydromat

Innovative water passage with highest flow coefficient

**REVOLUTION
IN WATER
FLOW
REGULATION
& CONTROL**



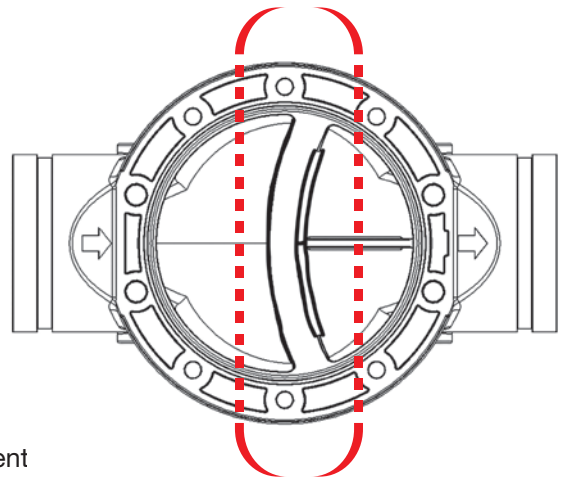
2", 3" & 4"
hydromat Control Valves

Control Valves- 2", 3" & 4"

Extending the range of control valve, Automat has a new addition of 3" and 4" control valves combined with innovative "**Curved Bridge***" design and performance which caters to a diversified range of irrigation application. Equipped with a flexible fabric reinforced diaphragm and made with engineering grade plastics, the valve is operated by the pressure in the pipeline.



***Patent Pending**



Features

- Innovative water passage offers one of the highest flow coefficient amongst the similar products available.
- Polymeric valve with great durability and corrosion resistance.
- Reinforced diaphragm offers smooth operation, tight shut-off and no distortion.
- Simple and robust design involving 4 main parts.

Applications

- Agricultural and landscape irrigation.
- Green house and Turf irrigation.
- Waterworks treatment plants and distribution systems.
- Industrial application (mining, wastewater, marine).

Curved Bridge* Delivers

- Lower opening pressure.
- High flow capacity.
- Minimum pressure loss.
- No vibration and distortion.
- Rapid response.

Available Connections

hydromat valves are available with a variety of end connections for simple and easy installations.



2" and 3" Threaded



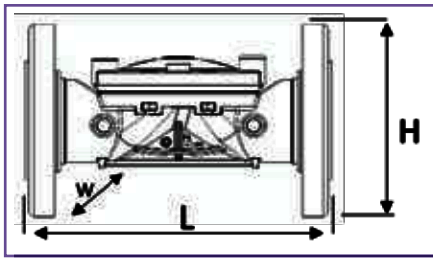
3" and 4" Flanged



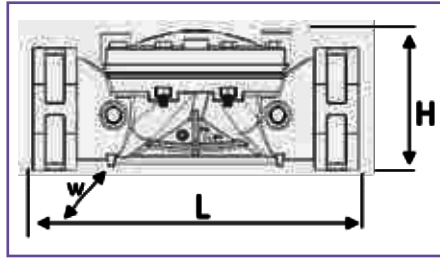
3" and 4" Grooved

Technical Data

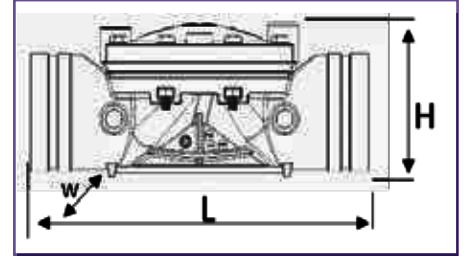
Product Dimensions



Flanged



Threaded



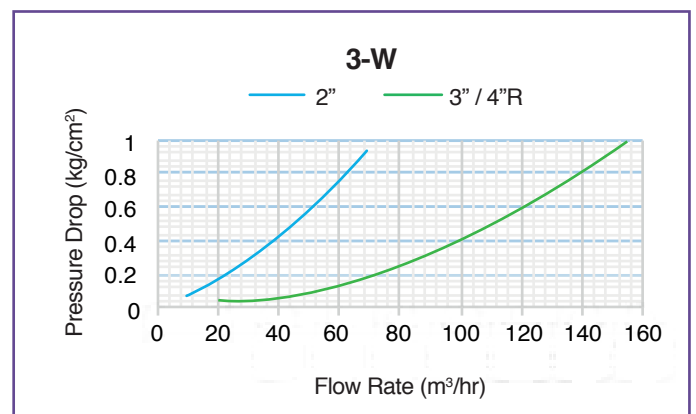
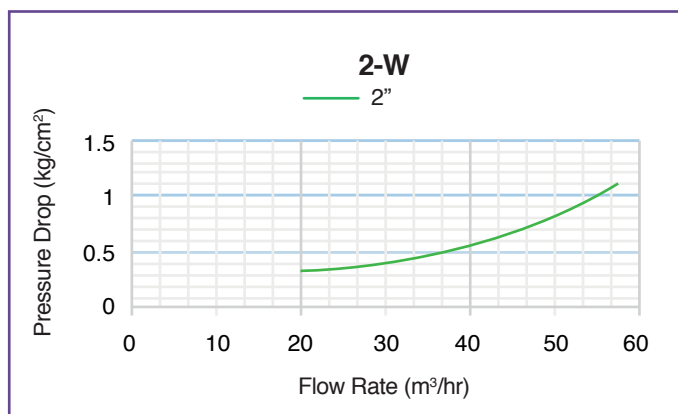
Grooved

Dimension			2" / 50 mm Threaded	3" / 80 mm Flanged	3" / 80 mm Grooved	3" / 80 mm Threaded	4"R / 100 mm R Flanged	4"R / 100 mm R Grooved
Height	H	mm	110	200	116	119	230	125
Width	W	mm	130	175	175	175	175	175
Length	L	mm	200	297	290	290	297	290


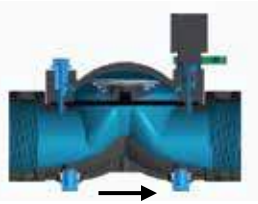
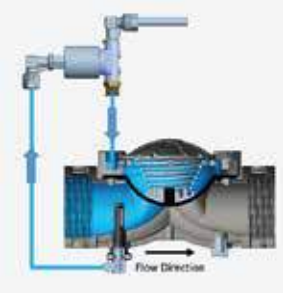
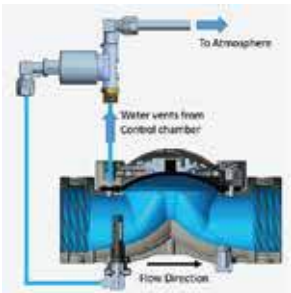
General Data

Inlet/Outlet Connections	2" Female Threaded (BSP/NPT)	3" Female Threaded (BSP/NPT) / 3" Flanged / 3" Grooved	4"R Flanged / Grooved
Maximum Operating Pressure	10 kg/cm ²		
Minimum Operating Pressure	0.8 kg/cm ²	0.5 kg/cm ²	
Min. Recommended Flow Rate (m ³ /hr)	>1		
Maximum Operating Temperature	60°C		
Material of Construction	GRP		
Flow Coefficient (Kv)	70	160	

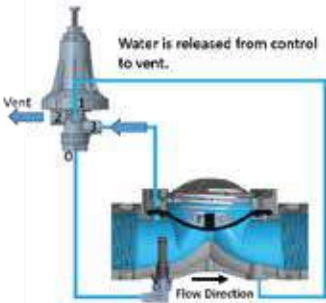
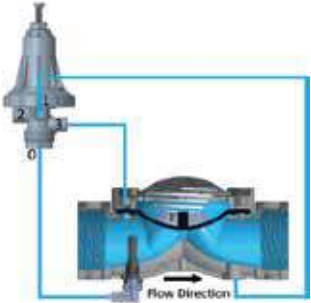
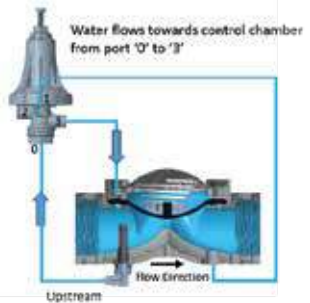
Head Loss Chart



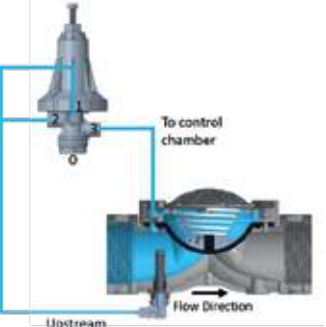
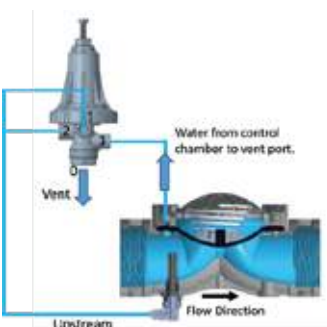
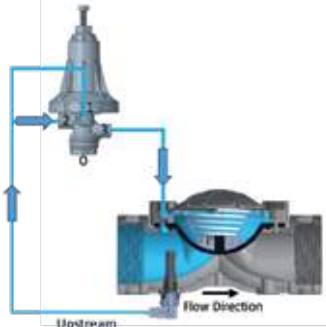
Principle of Operation

2 Way Operation		3 Way Operation	
<p>Closed Mode</p> <p>Line pressure applied from the valve inlet to the control chamber through specially designed labyrinth creates hydraulic force on diaphragm forcing it against seat and providing drip tight sealing.</p>  <p>Flow Direction</p>	<p>Open Mode</p> <p>When the line pressure from the control chamber is released by actuating solenoid, water flows to the outlet through orifice internally and the line pressure at the inlet opens the valve.</p>  <p>Flow Direction</p>	<p>Closed Mode</p> <p>Line pressure applied from the valve inlet to the control chamber through the solenoid creates hydraulic force on diaphragm forcing it against seat and providing drip tight sealing.</p>  <p>Flow Direction</p>	<p>Open Mode</p> <p>When the operating pressure from the control chamber is released to the atmosphere through the solenoid, the line pressure at the valve inlet opens the valve.</p>  <p>Flow Direction</p>

Pressure Reducing Valve Function

<p>When the downstream pressure is lower than the desired pressure, valve opens by discharging water above the diaphragm to vent.</p>  <p>Flow Direction</p>	<p>When the downstream pressure is equal to desired set pressure, pilot valve locks all ports and the diaphragm remains in position.</p>  <p>Flow Direction</p>	<p>When the downstream sensed pressure is higher than set pressure: Pilot operates allowing water to control chamber, thus pressurizing and pushing the diaphragm to close the valve more.</p>  <p>Flow Direction</p>
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Pressure Sustaining / Quick Pressure Relief Valve Function

<p>When the upstream pressure is lower than the set pressure: Valve Closed.</p>  <p>Flow Direction</p>	<p>When the upstream pressure is equal or greater than desired set pressure: Valve begins to open.</p>  <p>Flow Direction</p>	<p>When the upstream pressure drops below set pressure, valve closes by pressurizing the control chamber above the diaphragm.</p>  <p>Flow Direction</p>
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Typical Applications

Manual Controlled Valve

The valve is controlled manually by a 3 Way Brass Selector that allows the user to select either "Open", "Close" or "Auto" port. On selecting the "Close" port, the valve remains in closed position. On selecting "Open", the valve remains in open position. The "Auto" port is used in regulating configurations with a Pilot. The control with 3 Way Selector is quick and effortless even under high pressure conditions.



2 Way Electric

Electrically actuated, it is a normally closed valve with an in-built solenoid actuator. The simplicity of the valve makes it suitable for greenhouse and field irrigation applications. They come equipped with AC or DC latch operators and a manual override is enabled through an integral lever.



3 Way Electric

The 3 Way solenoid valve is actuated by an electric current or an electric pulse (latch) that opens or closes the main valve. The valve is supplied as "Normally Closed".



Pressure Reducing Valve (3 Way Pilot Operated)

The valve maintains a pre-set downstream pressure regardless of upstream pressure or flow fluctuations, controlled by a 3 way pilot valve. The spring loaded membrane of pilot is sensitive to downstream pressure and maintains desired downstream pressure by gradually opening and closing the hydraulic valve. When no flow exists in the system, the valve closes itself automatically.



Pressure Sustaining and Relief Valve (3 Way Pilot Operated)

Pressure sustaining valve installed in-line, sustains minimum back pressure controlled by a 3 way pilot. The spring loaded membrane of pilot is sensitive to upstream pressure and opens the valve when the inlet pressure exceeds pilot set pressure. The valve will be in closed position, if upstream pressure is below the desired set pressure.



Electric Pressure Reducing Valve (3 Way Pilot Operated)

The valve maintains a pre-set downstream pressure regardless of upstream pressure or flow fluctuations, controlled by a 3 way pilot valve. The valve opens to modulate and shuts off in response to an electrical signal.



3 Way Plastic Pilot Valve

Hydraulically operated designed for green house irrigation system as well as turf and field crop irrigation. The 3 way diaphragm actuated, spring loaded pilot valve is designed for controlling downstream pressure in pressure reducing valves and upstream pressure in pressure sustaining valves.

Features

- Color coded Base Cap for easy identification of pressure range.
- Marking for correct installation with hydraulic valve.
- Designed for quick sensing of line pressure.
- Glass Reinforced plastic Base and Cap for strength.
- Light in weight for easy installation and maintenance.

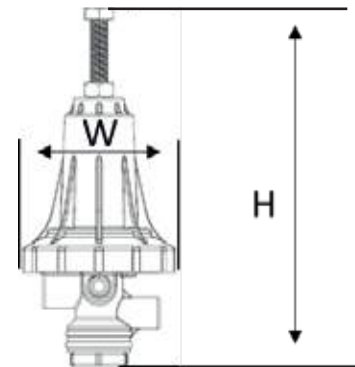


Pressure Adjustment Range

Orange Cap	0.3 - 2 kg/cm ²
Red Cap	0.5 - 5.5 kg/cm ²
Violet Cap	1.5 - 9 kg/cm ²

Technical Specifications

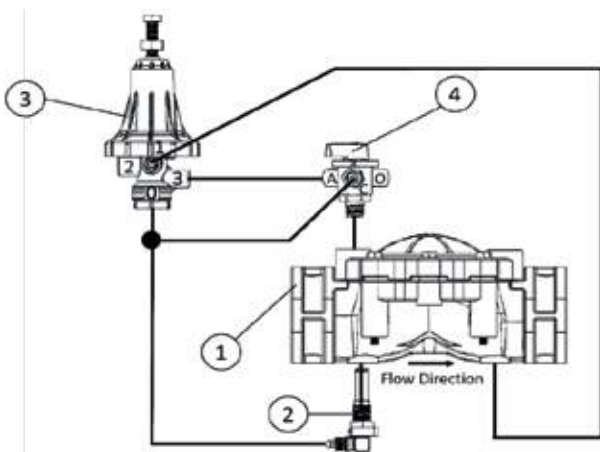
Max. Operating Pressure	10 kg/cm ²
Pressure Adjustment Range	0.3 - 9 kg/cm ²
Port Connections	1/8" - 28 BSP
Function	Pressure Reducing, Pressure Sustaining or Relief
Suitable Valve Sizes	20 - 150 mm / 3/4" - 6"
Height (H, max)	155 mm
Width (W)	69 mm



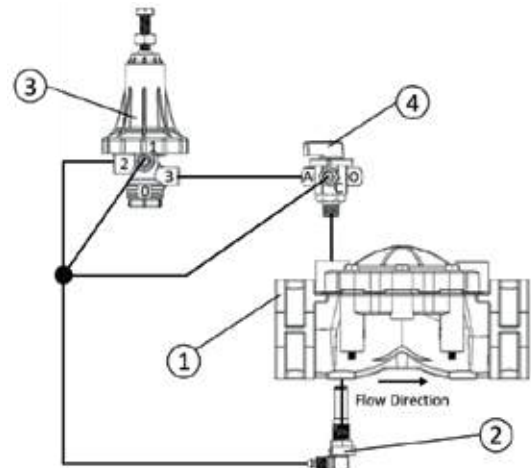
Connections and Control Loop

Pilot Port	Pressure Reducing	Pressure Sustaining / Relief
0	Upstream	Vent
1	Downstream	Upstream
2	Vent	Upstream
3	Control Chamber	Control Chamber

Control Loop	Description
1	Main Valve
2	Inline Finger Filter
3	3 Way Multi-Purpose Pilot
4	3 Way Manual Selector

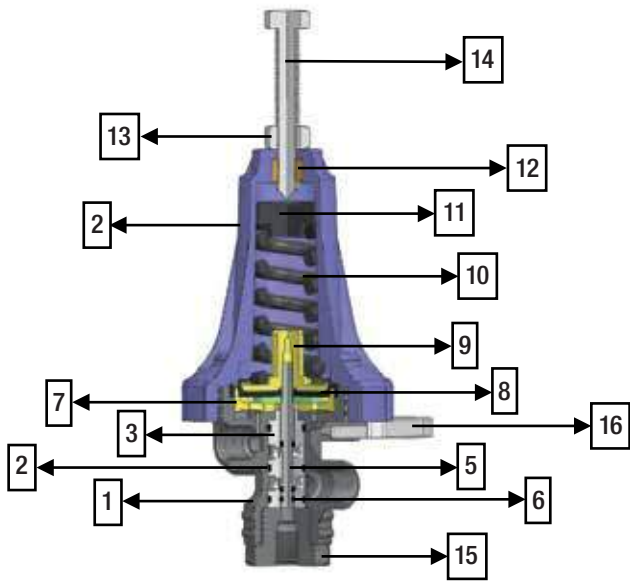


Pressure Reducing Valve



Quick Pressure Relief / Sustaining Valve

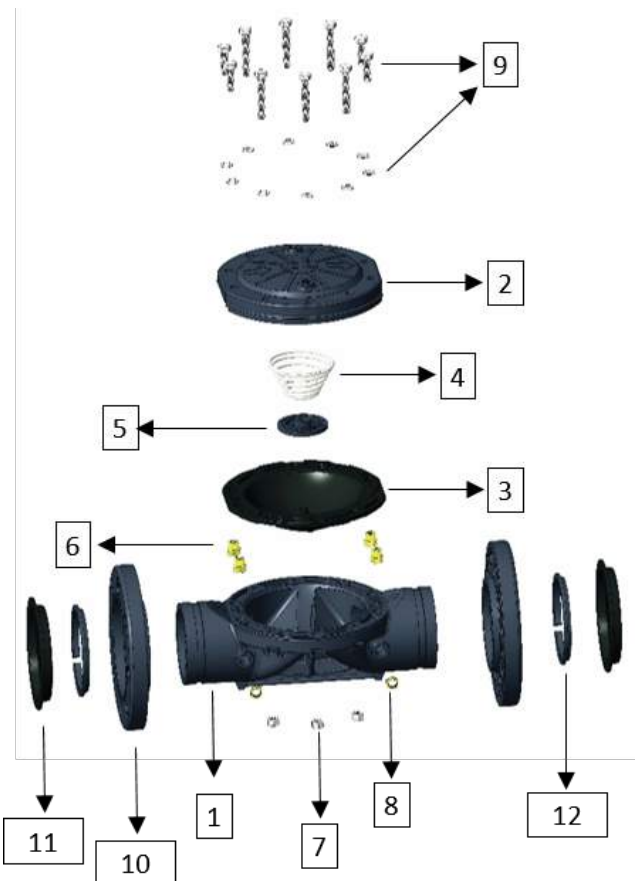
Part List and Materials



Part No	Part Name	Material	Quantity
1	Pilot Base	Reinforced PA	1
2	Pilot Base Cap	Reinforced PA	1
3	Stem Cylinder	Teflon	1
4	Stem Cylinder O-Ring	NBR	3
5	Stem	Stainless Steel	1
6	Stem O-Ring	NBR	3
7	Diaphragm Seat	Acetal	1
8	Diaphragm	NBR	1
9	Actuator	Acetal	1
10	Spring	Stainless Steel	1
11	Spring Button	Stainless Steel	1
12	Nut	Brass	1
13	Lock Nut	Stainless Steel	1
14	Adjusting Screw	Stainless Steel	1
15	End Cap	PA	1
16	Base Plate	Stainless Steel	1



Part No	Part Name	Material	Quantity
1	Body	GRP	1
2	Cover	GRP	1
3	Diaphragm	NR	1
4	Spring	Stainless Steel	1
5	Retainer	GRP	1
6	Body Nut Insert	Brass	4
7	Nut	Stainless Steel	4
8	1/4" Brass Inserts	Brass	2
9	Bolts and Washers	Stainless Steel	8
10	Flange	GRP	2
11	Flange Gasket	EPDM	2
12	Flange Cir-Clip	GRP	2



Ordering Guide

Ordering Data		Ordering Data			Ordering Data	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Port Size		↑	↑	↑		Application
2" / 50 mm	→	426				
3" / 80 mm	→	428		M	←	Manual On-Off
4" / 100 mm R	→	429R		EL2WVAC	←	2 Way Electric with 24 VAC Solenoid
				EL2WVDCL	←	2 Way Electric with 6-40 VDC Latching Solenoid
				EL3WVAC	←	3 Way Electric with 24 VAC Solenoid
				EL3WVDCL	←	3 Way Electric with 9-30 VDC Latching Solenoid
				PR**	←	Pressure Reducing
				PS**	←	Pressure Sustaining / Relief
Connection Type				FR	←	Manual Flow Control
Threaded*	→	T				
Grooved	→	G				
Flanged	→	F				

*Only 2" and 3" valves.

**Pressure regulating valves come with PLT (P) 5.5 kg/cm² pilot and pressure check point as standard.

