

# PLASTIC PRESSURE SUSTAINING CONTROL VALVE

TAYFUR WATER SYSTEMS

TYPHOON



# We Care About Every Drop of Water

Tayfur Water Systems, which was established by Tayfun Yazaroğlu in 2004 in Izmir. We continue our activities as "Tayfur Water Systems Machinery Engineering Industry and Trade Inc." since 2017.

Our company offers its products and experiences to the local market and international market. Tayfur Water Systems, while strengthening its recognition abroad, continues to expand its production, sales and marketing activities every day.

Our engineers and technical staff, technological infrastructure, manufacturing, sales, project-consulting, contracting and service planning meets the requirements of the sector.

Our company manufactures "TYPHOON" brand, hydraulic control valves, plastic hydraulic control valves, backwash valves, plastic backwash valves, impact-free dynamic suction cups, plastic suction cups, bottom clamps, filter reverse flushing control devices. It is progressing towards becoming a strong brand in both domestic and foreign markets by meeting the special demands of its domestic and foreign customers.

# **Our Quality Policy**

In order to be a leader in quality in the sales, marketing and service sector by complying with legal conditions and to comply with the requirements of Quality Management System in order to meet the needs and expectations of our customers, to continuously improve the efficiency and to not compromise the quality under any circumstances.

# **Our Mission**

To be a company aiming to present its synergy in the national and international market which has always taken its responsibilities, desires and expectations of our customers in a correct, reliable and timely manner, within the framework of high quality standards, transforming efficiency and competition into an advantage...

# **Our Vision**

To be a leading, innovative, powerful and reputable enterprise in its sector.



# PRESSURE SUSTAINING CONTROL VALVE



Pressure Sustaining Control Valve is a hydraulic control valve designed to protect the system by rapidly discharging the high pressure wave by sudden opening movement in water systems with excessive pressure increase. With the pilot on the valve, the input pressure is adjusted with the desired pressure. If for any reason the inlet pressure in the system rises above the set value, the valve is opened quickly to release the excess pressure to the outside and the system is protected. Despite its sudden opening, due to the hydraulic principle of operation, the closing of the valve is slowed down so as not to create a ripple. It provides a completely leaktight seal. It can also be used as a safety and warning valve at the exit points of the pressure reducing control valves alone at critical points in the water system.

Pressure Range: PN 10

Diameters : 3/4" 1"-1 ½" - 2" - 2 ½" - 3"R - 3"-4" DN80 - DN100 - DN150 Flanged

## Order Information

Please provide the following information in order





# **Plastic**

# PRESSURE SUSTAINING CONTROL VALVE

# Assembly

- Turn on the pump or turn on the mains main valve and give water to the system.
- Turn the 3-way valve to Auto "a" position.
- Wait a few seconds for the water to reach the control Chamber of the valve.
- When you turn the adjustment bolt in the direction of "5" clock• the connection to the "I" output of the pressure stabiliser pilot and the "C" output of the 3-way valve is provided by means of a plastic tube connected to the valve inlet, finger filter number 2.
- The "II" output of the plastic pilot is connected to the "I" output of the plastic pilot with the necessary connection elements.
- The plastic pilot's "III" output is connected to the auto "A" output of 3-way valve and the valve output is connected to the "3" blind plug.
- · Valve rated diameter should be the same or a small rated diameter as the line diameter.
- In the direction of the arrow indicated on the valve Mount.
- Isolation valves (butterfly or sliding valve etc.) in the line Assembly of the valve.B) it is recommended to use air discharge valve, quick pressure discharge control valve (QR) and dirt retaining valves.
- Cavitation risk during pressure drop is dangerous for valve body. Adjust the output pressure value you want to adjust by looking at the cavitation chart or contact our company. the setting will increase the pressure value, otherwise it will decrease when you turn it in the direction.
- After adjusting the desired inlet pressure value, tighten the nut under the adjustment Bolt.
- Check and clean the finger filter indicated by "2" according to the water quality. Do not do more than one filter cleaning in a few months unless the water is very dirty.
- Drain the water in the actuator and pilot valves of the valves that are not used during the winter season.

# 1 Pressure Regulator Pilot 2 Finger Filter 3 Blind plug 4 Three-Way Valve 5 Pressure Adjustment Bolt

# Adjustment

- Turn on the pump or turn on the mains main valve and give water to the system.
- Turn the 3-way valve to Auto "a" position.
- Wait a few seconds for the water to reach the control Chamber of the valve.
- When you turn the adjustment bolt "5" Clockwise, the adjustment pressure value will increase, otherwise it will decrease when you turn it in the direction.
- After adjusting the desired inlet pressure value, tighten the nut under the adjustment Bolt.
- Check and clean the finger filter indicated by "2" according to the water quality. Do not do more than one filter cleaning in a few months unless the water is very dirty.
- Drain the water in the actuator and pilot valves of the valves that are not used during the winter season.



# **HYDRAULIC CONTROL VALVES**



TYPHOON Plastic Hydraulic Valves are automatic control valves with diaphragm working with line pressure. Hydraulic Control Valves are used in agricultural irrigation, drinking water lines, filtration and industrial areas.

TYPHOON Plastic Valves are automatic control valves with diaphragm closure working with line pressure. Valve body and diaphragm design ensure smooth flow with minimum pressure loss. Since there is no bearing, bush and shaft in the valve body, valve life is longer. The only moving part of the valve is the diaphragm.

TYPHOON Plastic Hydraulic Control Valves are used in agricultural irrigation, drinking water lines, filtration and industrial areas.

### **Features**

- Easy operation and maintenance with simple structure
- Lower costs
- Wide pressure range operation
- Perfect modulation even at low flow rates
- Flexible diaphragm to open and close without impact
- Fully sealed with reinforced diaphragm and internal springu
- Wide range of control applications with different pilot valves
- Ability to work in horizontal and vertical positions in application areas











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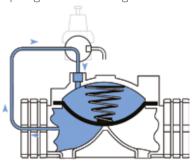
# HYDRAULIC CONTROL VALVES

# **Working Principles**

It is a fully automatic hydraulic control valve designed to perform the hydraulically desired modulation processes with the line pressure without the need for different energy sources such as electricity, pneumatic or mechanical in the main valve mains line.

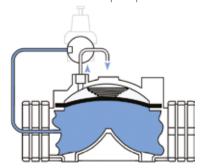
# **Valve Closing Mode**

Pilot valves connected to the main valve create a hydraulic force on the valve diaphragm when the water pressure at the valve inlet reaches the actuator actuator (control reservoir) of the valve. This hydraulic force that is created combines the diaphragm of the valve with the extra force exerted by the internal spring to ensure a tight seal.



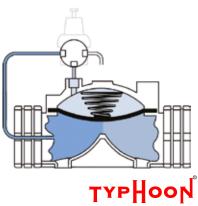
# Valve Opening Mode

When the path of the pilot valve on the main valve in the closed position is set to the discharge position, the pressurized water in the control chamber on the diaphragm of the main valve is discharged. When the line pressure reaches the spring force, the valve diaphragm applies a hydraulic force to the diaphragm to bring the valve into the full open position.



# **Modulation Mode**

The pilot valves that connect the actuator to the main valve allow the main valve to operate in the modulated position. The valve in the actuator of the main valve (control reservoir), according to the flow quantity or pressure conditions to be adjusted, ensures that the fluid continuously operates in the modulated position by controlling the pressure.



# HYDRAULIC CONTROL VALVES

# Model

Connection	Threaded				
Material	Glass Reinforced Polyamide				
Body	Globe				
	inch	mm			
	3/4	25			
	1	32			
Available Diameters	<b>1</b> <sup>1/2</sup>	40			
	2	50			
	<b>2</b> <sup>1/2</sup>	65			
	3"R	80R			
Max. Operating	10 Bar				

Dimensions and Weights

D	Ν		)		L		-1	Weight	
inch	mm	inch	mm	inch	mm	inch	mm	Lbs	K <sub>9</sub>
3/4	20	1,73	44	5,51	140	2,36	62,50	0,66	0,30
1	25	1,73	44	5,51	140	2,36	62,50	0,66	0,30
11/2	40	2,48	63	7,91	201	4,28	100,00	2,54	1,15
2	50	2,95	75	8,07	211	4,33	105,50	2,65	1,20
<b>2</b> <sup>1/2</sup>	65	3,66	93	8,64	219	4,64	112,50	3,09	1,40
3"R	80R	4,33	110	8,78	223	4,88	124,50	3,42	1,55

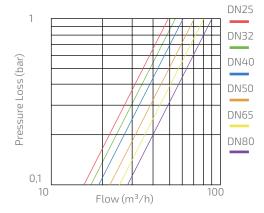


# Regular Body / Threaded

# Main Parts

#	Material Name	Type of Material
1	Body	Glass Reinforced Polyamide
2	Diaphragm	Natural Rubber
3	Spring Seat	Polypropylene
4	Spring	SST 302
5	Cover	Glass Reinforced Polyamide
6	Washer	A2 Stainless Steel
7	Bolł	A2 Stainless Steel
8	Nut	Brass

# Pressure Loss Chart



# Hydraulic Performance

	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
Valve Diameter	3/4	25	1	32	11/2	40	2	50	<b>2</b> <sup>1/2</sup>	65	3"R	80R
Kv m³/h@1bar	5	0	5	55		0	70	0	8	0	9	0
Cv gmp@1psi	5	6	6	6	6	9	8	1	9	2	10	4

Kv(Cv) = Q. \( \sqrt{G/ΔP} \)

**Kv:** Valve flow coefficient (flow rate at 1 bar pressure loss m³/h @ 1 bar)

Cv: Valve flow coefficient (flow in pressure loss of 1 psi GPM @ 1 psi)

 $Q: Flow (m^3/h, gpm)$ 

**Cv** = 1,155Kv

**ΔP:** Pressure Loss (bar, psi)



# **HYDRAULIC CONTROL VALVES**

# Model

0

Connection	Threaded				
Material	Glass Reinforced Polyamide				
Воду	Angled Globe				
Available Diameters	inch	mm			
	2	50			
Available Diameters	21/2	65			
	3"R	80R			
Max. Operating Pressure	10 Bar				

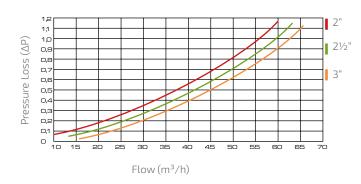
# Main Parts

Material Name	Type of Material
Body	Glass Reinforced Polyamide
Diaphragm	Natural Rubber
Spring Seat	Polypropylene
Spring	SST 302
Cover	Glass Reinforced Polyamide
Boll	A2 Stainless Steel
Washer	A2 Stainless Steel
Nut	Brass
	Body Diaphragm Spring Seat Spring Cover Bolt Washer

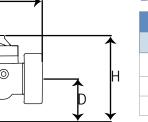
# Regular / Angled



# Pressure Loss Chart



# Dimensions and Weights



DI	Ν		)	l	_	Н		Weight	
inch	mm	inch	mm	inch	mm	inch	mm	Lbs	K <sub>9</sub>
2	50	3,4	86	8	203	6,77	172	2,86	1,30
21/2	65	3,4	86	8	203	6,77	172	2,86	1,20
3"R	80R	3,4	86	8	203	6,77	172	2,86	1,06

Kv(Cv) = Q. √ G/ΔP

# Hydraulic Performance

	inch	mm	inch	mm	inch	mm
Valve Diameter	2	50	21/2	65	3"R	80R
Kv m3 / h @1bar	5′	1,0	56	0,0	66	3,0
Cv gmp @1psi	58	3,9	64	1,7	76	3,2

**Kv**: Valve flow coefficient (flow rate at 1 bar pressure loss m³/h @ 1 bar)

Cv: Valve flow coefficient (flow in pressure loss of 1 psi GPM @ 1 psi)  $Q: Flow (m^3/h, gpm)$ 

Cv = 1,155Kv

**ΔP:** Pressure Loss (bar, psi)



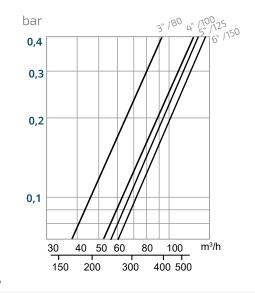
# Large Body / Flanged - Threaded

# Model

10

Connection	Flanged - Threaded				
Material	Glass Reinforced Polyamide				
Body	Glo	be			
	inch	mm			
	3	80			
Available Diameters	4	100			
	5	125			
	6	150 (Flanged)			
Max. Operating Pressure	10 Bar				

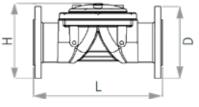
# Pressure Loss Chart



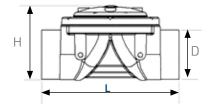




# Dimensions and Weights



	D	Ν		)			ŀ	4	Wei	ght
,	inch	mm	inch	mm	inch	mm	inch	mm	Lbs	Kg
	3	80	7,87	200	14,57	370	8,66	220	14,52	6,60
	4	100	9,00	227	14,57	370	9,17	233	16,28	7,40
	5	125	10,11	257	13,35	390	9,96	253	16,53	7,5
	6	150	11,02	280	15,55	395	10,43	265	16,76	7,6



DN		[	D		L		L		4	Wei	ight
inch	mm	inch	mm	inch	mm	inch	mm	Lbs	Kg		
3	80	4,72	120	11,58	294	7,05	179	10,25	4,65		
4	100	4,72	120	13,23	336	7,28	185	9,70	4,40		

ıb+	
ht	Valve D
I/a	valve L
Ng	
	$\mathbb{I}$ Ky m3 /

Main Parts

Material Name

	inch	mm	inch	mm	inch	mm	inch	mm
Valve Diameter	3	80	4	100	5	125	6	150
Kv m3 / h @1bar	166		208		215		22	20
Cv gmp @1psi	193		242		248		260	

**Kv**: Valve flow coefficient (flow rate at 1 bar pressure loss m<sup>3</sup>/h @ 1 bar) Cv: Valve flow coefficient (flow in pressure loss of 1 psi GPM @ 1 psi)

 $\mathbf{Q}$ : Flow (m<sup>3</sup>/h, gpm)

Cv = 1.155Kv

**ΔP:** Pressure Loss (bar, psi)



# **HYDRAULIC**

# **CONTROL VALVES**

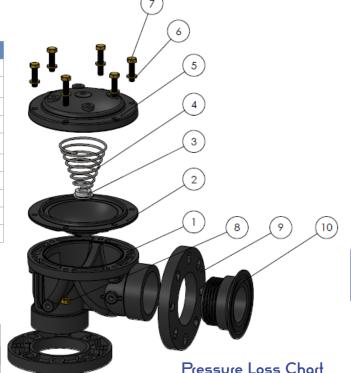
# Angled Large Body / Flanged - Threaded

# Model

Connection	Flanged - Threaded				
Material	Glass Reinforced Polyamide				
Body	Angled Globe				
	inch	mm			
Available Diameters	3	80			
Available Diafficters	4	100			
	6	150			
Max. Operating Pressure	10 Bar				

# Main Parts

#	Material Name	Type of Material
1	Body	Glass Reinforced Polyamide
2	Diaphragm	Naturel Rubber
3	Spring Wedge	Polypropylene
4	Spring	SST 302
5	Cover	Glass Reinforced Polyamide
6	Washer	8.8 Coated Steel
7	Bolł	8.8 Coated Steel
8	Nut	8.8 Coated Steel
9	Flange	Glass Reinforced Polyamide
10	Adapter	Glass Reinforced Polyamide

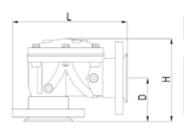


# 11

# Dimensions and Weights

,	D	D	
	inch	mm	inch
_	3	80	3,9
	4	100	3,9

D	DN D		L		Н		Weight		
inch	mm	inch	mm	inch	mm	inch	mm	Lbs	Kg
3	80	3,9	99	10,9	277	8,78	223	11,13	5,05
4	100	3,9	99	10,9	277	8,78	223	10,8	4,90



D	N	D		L		Н		Weight	
inch	mm	inch	mm	inch	mm	inch	mm	Lbs	Kg
3	80	5,08	129	13,42	341	9,96	253	15,43	7
4	100	5,35	136	14,84	377	10,28	261	17,19	7,8
6	150	6,38	162	16,18	411	11,14	283	17,64	8

 $Kv(Cv) = Q. \sqrt{G/\Delta P}$ 

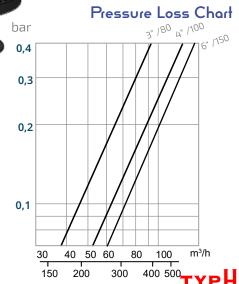
**Kv:** Valve flow coefficient (flow rate at 1 bar pressure loss m<sup>3</sup>/h @ 1 bar)

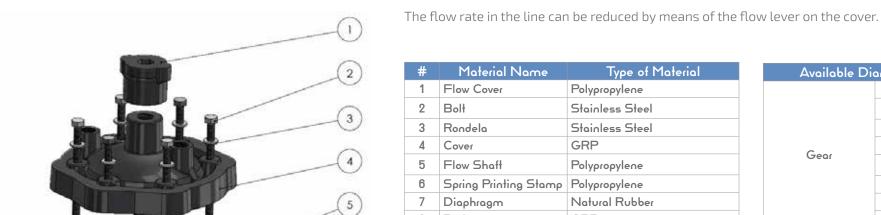
Cv: Valve flow coefficient (flow in pressure loss of 1 psi GPM @ 1 psi)

 $\mathbf{Q}$ : Flow (m<sup>3</sup>/h, gpm)

Cv = 1.155Kv

**ΔP**: Pressure Loss (bar, psi)





Material Name Type of Material Flow Cover Polypropylene Bolt Stainless Steel Rondela Stainless Steel GRP 4 Cover Flow Shaft 5 Polypropylene

Spring Printing Stamp Polypropylene

Diaphragm

Body

Nut

8

Available Diameters 3/4" 11/2" Gear 21/2" 3"R 3"L 4"L **DN80** Flanged **DN100** 91/2" Angle Gear **DN80** 

**DN100** 

# Assembly Application Example

Natural Rubber

GRP

Rice







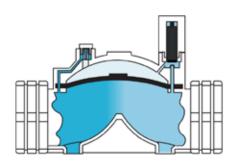
# HYDRAULIC CONTROL VALVES

2 Way Solenoid Usage

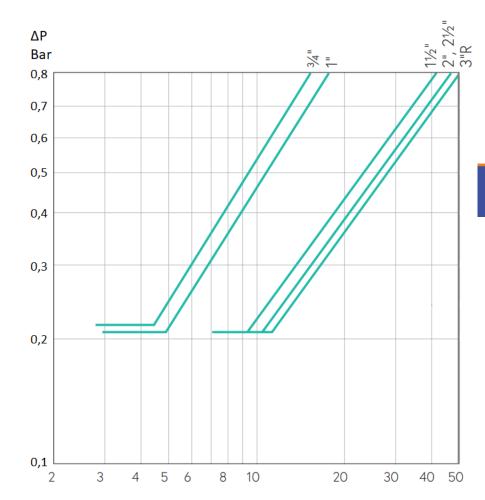
It is controlled by a 2-way solenoid valve connected to the main valve. The normally closed valve switches to the open position when signalled or manually intervened

# **Valve Opening Mode**

# **Valve Closing Mode**



# **Pressure Loss Table**







TYPHOON Y Type Plastic Automatic Hydraulic Control Valves are designed in "Y" body model type, with high modulation capacity, to work with minimum pressure loss, cavitation and noise under difficult working conditions with high pressure differences.

TYPHOON Y Type Plastic Automatic Hydraulic Control Valves are close the flap with double chamber diaphragm actuator. It has double control chamber as standard. It can be used as a single chamber without using an extra control chamber. Through to the valve shaft, which is rigidly mounted on the valve body, it operates in a controlled and properly opens and closes fully sealed without causing impact.

TYPHOON Y Type Plastic Automatic Hydraulic Control Valves provide maximum performance under difficult conditions with glass reinforced nylon body structure. It is easy to assemble and disassemble with its simple and reliable structure. It has high chemical and corrosion resistance.

TYPHOON Y Type Automatic Hydraulic Control Valves can be obtained by adding various control equipments to the Basic valve body and valves that can make different tasks.

# Order Information

Please provide the following information in order

Maximum flow rate	$m^3/h$
Maximum mains / operating pressure	bar
Main pipeline diameter	mm
Valve connection type	

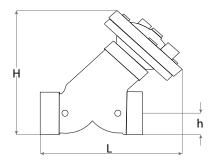
# **Features**

- Easy to use and maintain with its simple structure
- Lower costs
- Working in wide pressure range
- Perfect modulation even at low flow rates
- · Impact-free opening and closing with flexible diaphragm
- Fully sealing with reinforced diaphragm and inner spring
- High diaphragm resistance
- · Wide control application area with different pilot mounts
- Ability to work in horizontal and vertical positions



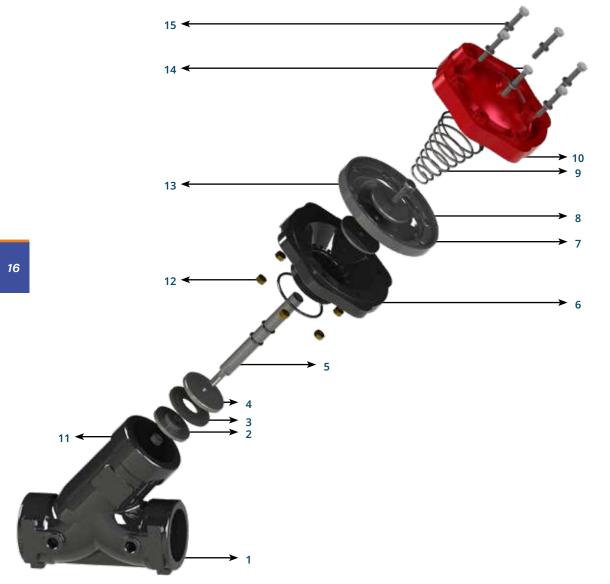
# Dimentions and Weights

D	Ν	L		h		Н		Weighł	
inch	mm	inch	mm	inch	mm	inch	mm	Lbs	K <sub>9</sub>
2	50	6,49	165	1,49	38	8,86	225	3,86	1,75
3/4	20	5,31	135	1,02	26	5,23	133	2,09	0,95
1	25	5,31	135	1,02	26	5,23	133	2,20	1,00
11/4	32	5,31	135	1,14	29	5,23	133	2,31	1,05
11/2	40	8,78	165	1,49	38	8,86	225	3,86	1,75
2	50	6,49	165	1,49	38	8,86	255	3,86	1,75



Working Temperature: Maximum 80°C Working Pressure: Maximum 10 Bar

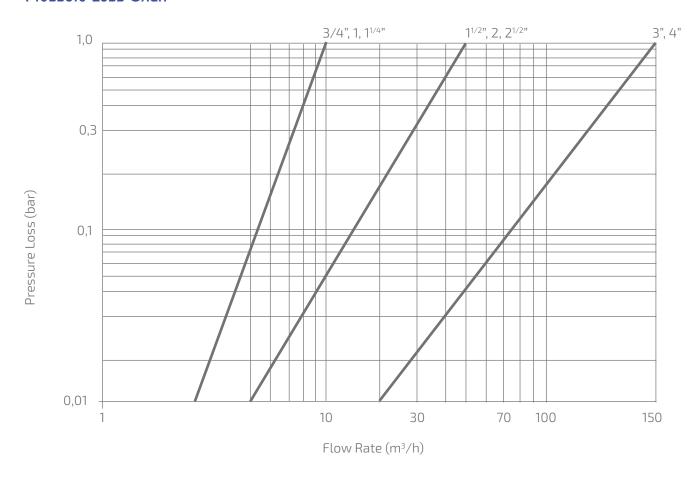


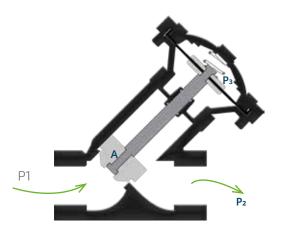


#	Material Name	Type Of Material
1	Body	Glass Fiber Reinforced Polyamide
2	Flaρ	Stainless Steel
3	Sealing Rubber	EPDM
4	Bowl	Stainless Steel
5	Shaft	Stainless Steel
6	Bottom Cover	Glass Fiber Reinforced Polyamide
7	Diaphragm	Natural Rubber
8	Diaphragm Support	Stainless Steel
9	Spring	Stainless Steel
10	Top Cover	Glass Fiber Reinforced Polyamide
11	Nut	Stainless Steel
12	Nut	Brass
13	Bolł	Stainless Steel
14	Bolł	Stainless Steel
15	Washer	Stainless Steel



# Pressure Loss Chart





# **Working Principles**

They are automatic control valves with double chamber diaphragm actuators, which are used to perform hydraulically desired operations with line pressure without the need for energy sources in the network line.

P1: Inlet Pressure

P<sub>spring</sub>: Spring Force
A: The Valve's Influence P2: Outlet Pressure

P3: Actuator Pressure

# Valve Closing Mode

When the pilots on the main control valve bring the inlet pressure (P1) above the diaphragm, the water creates hydraulic force. Though to this force, the valve flap fits into the body bushing and ensures the valve to be closed in a fully sealed manner.

If the forces are exemined in closing mode;

$$P_3 \times 3A + P_{Spring} > P_1 \times A$$

 $P_3 \times 3A + P_{Spring} > P_1 \times A$ Inequality is achieved. If there is no external influence on the area indicated by the  $P_3$  pressure, the  $P_3$ pressure will be equal to the maximum P, pressure.



# Valve Opening Mode

The inlet pressure of the main control valve is provided to open the valve by overcoming the spring force that helps the closing process and the force created by the pressure P3 on the diaphragm.

If the forces are exemined in opening mode;

$$P_1 \times A > P_{spring} + P_3 \times 3A$$

Inequality is achieved. As the area indicated by the pressure P3 is evacuated, the differential pressure becomes 0. Thus, P<sub>1</sub>xA force is overcome by spring force and the valve is opened. Spring force determines the minimum opening pressure that enables the valve to open.

# **Modulation Mode**

The pilots on the main control valve constantly control the pressure of the fluid and enable it to operate in modulation mode.

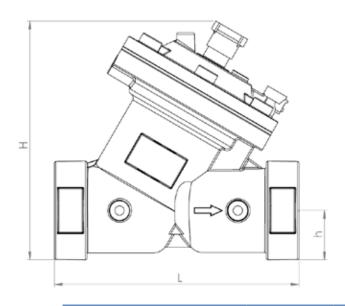
If the forces are exemined in modulation mode:

$$P_1 \times A + P_2 \times 3A = P_3 \times 3A + P_{spring} + P_2 \times A$$

Equality is achieved. The pilot valve, which enables the valve to operate in modulation mode, regulates the pressures of  $P_2$  and  $P_3$ , providing force equality. Thus, the valve operates in modulation mode.

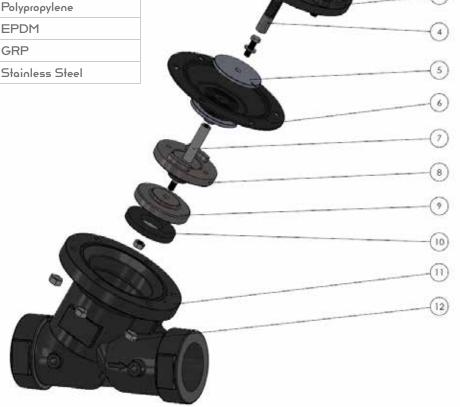






#	Material Name	Type Of Material
1	Flow Rate Clamp	Polypropylene
2	Bolł	Stainless Steel
3	Cover	GRP
4	Flow Shaft	Polypropylene
5	Aperture Support	Stainless Steel
6	Diaphragm	Natural Rubber
7	Mil	Stainless Steel
8	Bollom Cover	Polypropylene
9	Dish	Polypropylene
10	Sealing Rubber	EPDM
11	Body	GRP
12	Nut	Stainless Steel

Connection	DN		L		h		Н	
	inch	mm	inch	mm	inch	mm	inch	mm
	3/4"	20	6,50	165	1,02	26,0	6,30	160
	1"	25	6,50	165	1,02	26,0	6,30	160
	11/4"	32	6,50	165	1,18	30,0	6,46	164
The state of	11/2"	40	8,78	223	1,46	37,0	8,94	227
Threaded	2"	50	8,78	223	1,57	40,0	9,06	230
	21/2"	65	8,98	228	1,89	48,0	9,37	238
	3"	80	11,81	300	2,40	61,0	11,61	295
	4"	100	12,60	320	2,89	73,5	12,00	305
	2"	50	11,28	261	3,25	82,5	10,63	270
	21/2"	65	11,28	267	3,64	92,5	11,02	280
Flanged	3"	80	15,59	396	3,84	97,5	12,99	330
	4"	100	15,59	396	4,47	113,5	13,62	346
Violentie	3"	80	11,81	300	2,05	52,0	11,22	285
Victaulic	4"	100	11,81	300	2,26	57,5	11,42	290





# CERTIFICATES







AYFUR SU SİSTE "LERİ "AKİ "E MÜHE "DİSLİK SA "AYİ VE TİCARET ANONIM ŞİRKETİ

### ISO 9001:2015

M MANAGERS CHINGES.

TAYFUR SU SİSTEMLERİ MAKİNE MÜHENDİSLİK SANAYİ
VE TİCARET ANONIM SİDVETİ

150 45001:2018





### ISO 14001:2015



## SERTIFIKA

### 150 10002:2018





# **EXHIBITIONS**











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