## SOLENOID CONTROLLED PRESSURE REDUCING CONTROL VALVE

# CATALOG









TYPHOON



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.

## Solenoid Controlled Pressure Reducing Valve

#### Plastic Hydraulic Control Valve

Solenoid Controlled Pressure Reducing Control Valve is a hydraulic control valve that reduces the input pressure value to the desired pressure value. The control of the main valve is effected by solenoid coils mounted on it. The solenoid valve is provided with an electrical signal, a control device, a time relay, a switch, a PLC control unit, and control equipment. Thus, automation and control in application systems are easily achieved.

Pressure Range: PN 10

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



Please provide the following information in order

Maximum flow rate	m³/h
Maximum mains / operating pressure	
Main pipeline diameter	. mm
Valve connection type	
Maximum valve inlet pressure	. bar
Minimum valve inlet pressure	. bar
Desired outlet pressure value	. bar
Electric voltage value to be used	. volt





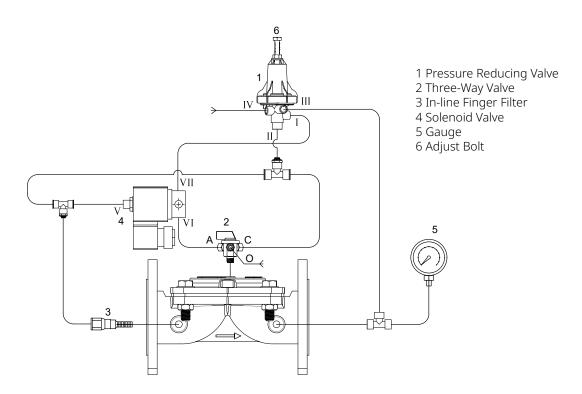


## Solenoid Controlled Pressure Reducing Valve

#### Plastic Hydraulic Control Valve

#### **Assembly**

- After connect the in-line finger filter that is numbered "3" into the imput of valve , which the connection is provided to the outlet "V" of solenoid valve and pressure reducing pilot's outlet numbered "II" with plastic pipe.
- The outlet numbered "4" of solenoid valve is connected to the outlet as auto "A" of the 3way mini ball valve and to the outlet "I" of plastic pilot as shown "VII"
- The outlet "II" of the plastic pilot is connected to the outlet "C" position as closed of 3way mini ball valve with the required fitting parts.
- TE fitting part is connected to the output of the valve. One outlet of TE part is connected to the outlet "III" of plastic pilot and the gauge is connected to the other outler position of TE.
- Valve's nominal diameter has to be as same as the diameter of line or has to be less one size than line diameter.
- Assemble the valve in accordance with the direction of arrow which is shown onto the valve.
- Usage of the isolation valves (butterfly valves, gate valves etc), air release valves, Quick pressure relief valve (QR) and strainers is recommended at the assemble in the pipe line.
- In the period of pressure reducing, the cavitation risk is dangerous for the body of valve. Adjust the outlet pressure value according to the cavitation schema and apply to our Company.



#### **Adjustment**

- Run the pump or give the water to system as opening the main valve.
- Keep the mini ball valve as shown number "2" as auto position
- Adjust the adjusting bolt "5" of pressure reducing pilot as shown "1" according to the desired output pressure value while looking at the gauge "4"
- When you turn the adjust bolt in the direction of the clockwise, the outlet's pressure value will be increased and when turn the adjust bolt in the opposite direction of the clockwise, the outlet's presure value will be reduced.
- After specified the adjust bolt , tighten the nut which is under of the adjust bolt.



#### Flanged - Threaded - Angled

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

#### **Threaded**



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

Brass

#### Model

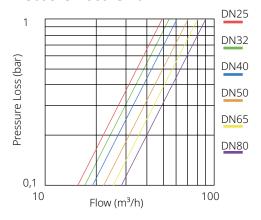
8

Nut

**Main Parts** 

Connection	Threaded					
Material	Glass Reinford	ed Polyamide				
Body	Glo	be				
	inch	mm				
	3/4	25				
	1	32				
Available Diameters	1½	40				
	2	50				
	2½	65				
	3R	80				
Max. Operating Pressure	10 Bar					

#### **Pressure Loss Chart**

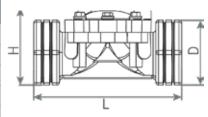


#### **Hydraulic Performance**

	inch	mm										
Valve Diameter	3/4	25	1	32	1½	40	2	50	2½	65	3R	80
Kv m³/h@1bar	5	0	5	5	6	0	7	0	8	0	9	0
Cv gmp@1psi	5	6	6	6	6	9	8	1	9	2	10	)4

#### **Dimensions and Weights**

D	Ν	[	)	l	L H		1	Wei	ght
inch	mm	inch	mm	inch	mm	inch	mm	Lbs	Kg
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
1½	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
21/2	65	3,66	93	8,64	219	4,64	112,50	3,09	1,40
3	80	4,33	110	8,78	223	4,88	124,50	3,42	1,55



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

**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)

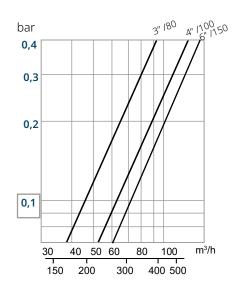
**G**: The specific gravity of water(Water=1.0)



#### Flanged - Threaded



#### **Pressure Loss Chart**



#### **Main Parts**

#	Material Name	Type of Material				
1	Body	Glass Reinforced Polyamide				
2	Flange Adapter	Glass Reinforced Polyamide				
3	Flange	Glass Reinforced Polyamide				
4	Diaphgram	Natural Rubber				
5	Spring Seat	Polypropylene				
6	Spring	SST302				
7	Cover	Glass Reinforced Polyamide				
8	Bolt 8.8 Coated Steel					
9	Nut	8.8 Coated Steel				
10	Rondela	8.8 Coated Steel				

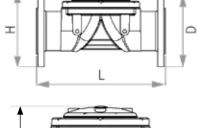
#### Model

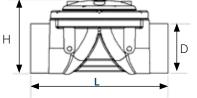
Connection	Flanged - Threaded				
Material	Glass Reinforced Polyamide				
Body	Globe				
	inch	mm			
Available Diameters	3	80			
Available Diameters	4	100			
	6	150 (Flanged)			
Max. Operating Pressure	10 Bar				

#### **Hydraulic Performance**

	inch	mm	inch	mm	inch	mm
Valve Diameter	3	80	4	100	6	150
Kv m³ / h @1bar	1	66	20	08	22	20
Cv gmp @1psi	1:	93	24	12	20	50

#### **Dimensions and Weights**





D	N	[	)		L	ŀ	4	Wei	ight
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
6	150	11,02	280	15,55	395	10,43	265	16,76	7,6

D	N	[	D		_	ŀ	4	Wei	ght
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

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

**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)

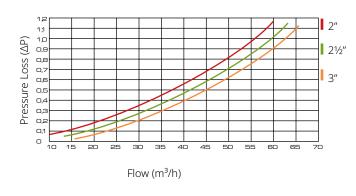
**G**: The specific gravity of water(Water=1.0)



#### Angled



#### **Pressure Loss Chart**



#### **Main Parts**

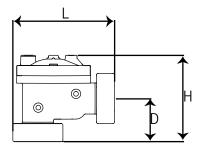
#	Material Name	Type of Material			
1	Body	Glass Reinforced Polyamide			
2	Diaphragm	Natural Rubber			
3	Spring Seat	Polypropylene			
4	Spring SST 302				
5	Cover	Glass Reinforced Polyamide			
6	Bolt	A2 Stainless Steel			
7	Washer A2 Stainless Steel				
8	Nut Brass				

#### Model

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

#### **Hydraulic Performance**

	inch	mm	inch	mm	inch	mm
Valve Diameter	2	50	2½	65	3R	80
Kv m³ / h @1bar	51	1,0	56	5,0	66	5,0
Cv gmp @1psi	58	3,9	64	l,7	76	5,2



#### **Dimensions and Weights**

D	N	D		L		Н		Weight	
inch	mm	inch	mm	inch	mm	inch	mm	Lbs	Kg
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
3R	80	3,4	86	8	203	6,77	172	2,86	1,06

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

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

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

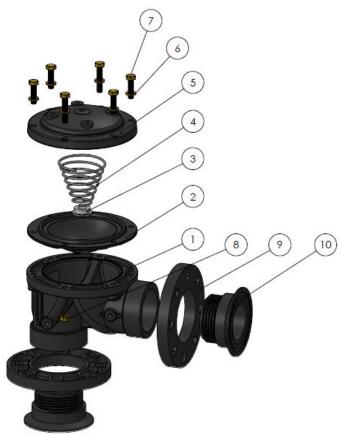
**Cv** = 1,155Kv

 $\Delta P$  : Pressure Loss (bar, psi)

**G**: The specific gravity of water(Water=1.0)



#### **Angled Flanged - Threaded**

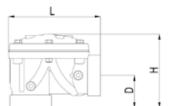


#### **Main Parts**

#	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	Bolt	8.8 Coated Steel
8	Nut	8.8 Coated Steel
9	Flange	Glass Reinforced Polyamide
10	Adapter	Glass Reinforced Polyamide

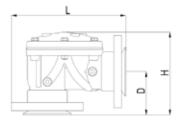
#### Model

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

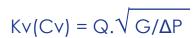


#### **Dimensions and Weights**

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



DN		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**: 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 (m³/h, gpm)

**Cv** = 1,155Kv

**ΔP :** Pressure Loss (bar, psi) **G :** The specific gravity of water(Water=1.0)

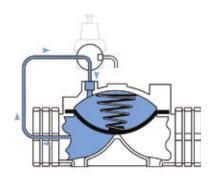


**Working Principles** 

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.

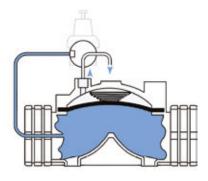
#### Valve Closing Mode

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.



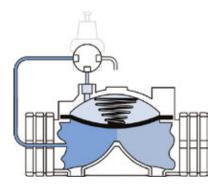
#### Valve Opening Mode

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.





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.

#### **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



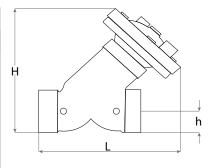
#### **Order Information**

Please provide the following information in order

Maximum flow rate	m³/h
Maximum mains / operating pressure	bar
Main pipeline diameter	mm
Valve connection type	

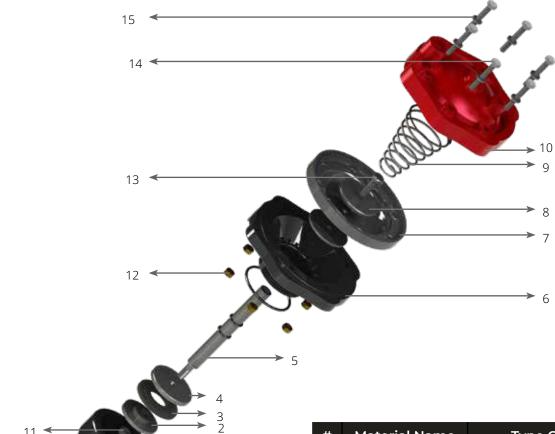
#### **Dimentions and Weights**

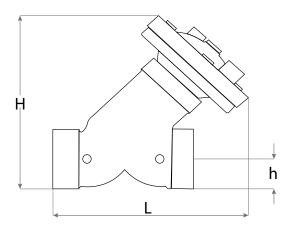
DN		L		h		Н		Weight	
inch	mm	inch	mm	inch	mm	inch	mm	Lbs	Kg
2	50	6,49	165	1,49	38	8,86	225	3,86	1,75
3/4	20	5,31	135	1,02	26	5,23	133	2,09	0,95
1	25	5,31	135	1,02	26	5,23	133	2,20	1
11⁄4	32	5,31	135	1,14	29	5,23	133	2,31	1,05
1½	40	8,78	165	1,49	38	8,86	225	3,86	1,75
2	50	6,49	165	1,49	38	8,86	255	3,86	1,75



Working Temperature: Maximum 80°C Working Pressure: Maximum 12 Bar







#	Material Name	Type Of Material
1	Body	Glass Fiber Reinforced Polyamide
2	Flap	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	Bolt	Stainless Steel
14	Bolt	Stainless Steel
15	Washer	Stainless Steel

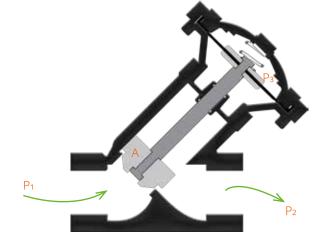
### **Dimensions and Weights**

DN		L		h		Н		Weight	
inch	mm	inch	mm	inch	mm	inch	mm	Lbs	Kg
2	50	6,49	165	1,49	38	8,86	225	3,86	1,75

#### **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.

P<sub>1</sub>: Inlet Pressure P<sub>2</sub>: Outlet Pressure P<sub>3</sub>: Actuator Pressure P <sub>spring</sub>: Spring Force A: The Valve's Influence



#### Valve Closing Mode

When the pilots on the main control valve bring the inlet pressure (P<sub>1</sub>) 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;

 $P_3 \times 3A + PSpring > P_1 \times A$ 

Inequality is achieved. If there is no external influence on the area indicated by the P<sub>3</sub> pressure, the P<sub>3</sub> pressure will be equal to the maximum P<sub>1</sub> pressure.



#### Valve Opening Mode

The inlet pressure of the main control valve is provided to open the valve by over-coming 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;

 $P_1 \times A > Pspring + P_3 \times 3A$ 

Inequality is achieved. As the area indicated by the pressure  $P_3$  is evacuated, the differential pressure becomes 0. Thus,  $P_1xA$  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;

 $P_1 \times A + P_2 \times 3A = P_3 \times 3A + Pspring + P_2 \times A$ 

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.





















## Her Fabrika Bir Kaledir\*

Kaledir\*



\*Every factory is a fortress