ATM

Abresan Toloue Mehr Company

Producer of valves and under pressure joints

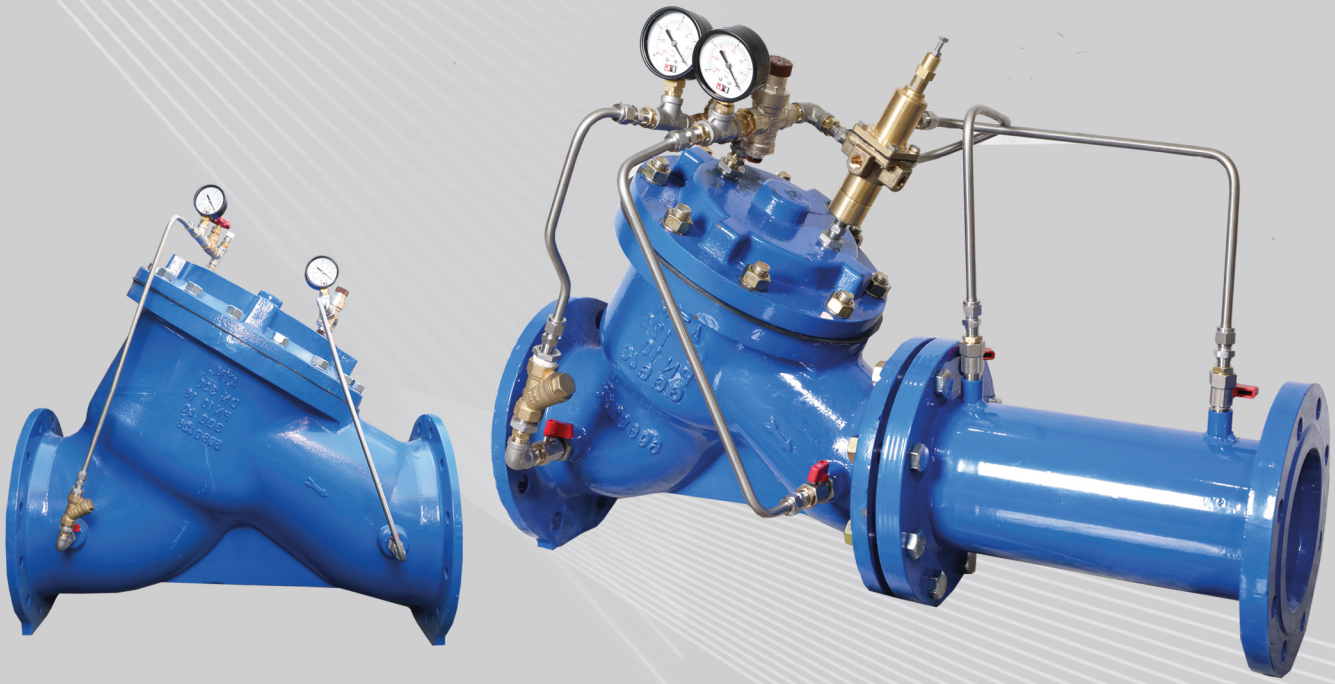
AUTOMATIC CONTROL VALVE

OHSAS 18001

ISO 14001

QAL Certification

ISO 9001: 2008



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Automatic Control VALVE

Automatic Control VALVE Pressure PN 10-PN 25
Size DN 50- DN 800
Flange dimensions according to DIN EN 1092-2 (DIN 2501)
Flange in Flange LED according to DIN EN 558-1 series 1 (DIN 3202 - F1)
Pressure PN 10-PN 25
Size DN 50- DN 800
Flange dimensions according to DIN EN 1092-2 (DIN 2501)
Flange in Flange valve according to DIN EN 558-1 series 1 (DIN 3202 - F1)

Valve Specification:

The control valves are used as the control and control valve. Design of the structure of these valves shall be non-straight and within them suitable for flow passage. The inner and outer part of the structure is coated with an epoxy layer. These valves are controlled by water flow.

Cover Color:

All parts made of cast iron are coated with an electrostatic powder coating of the RAL5005 epoxy powder.

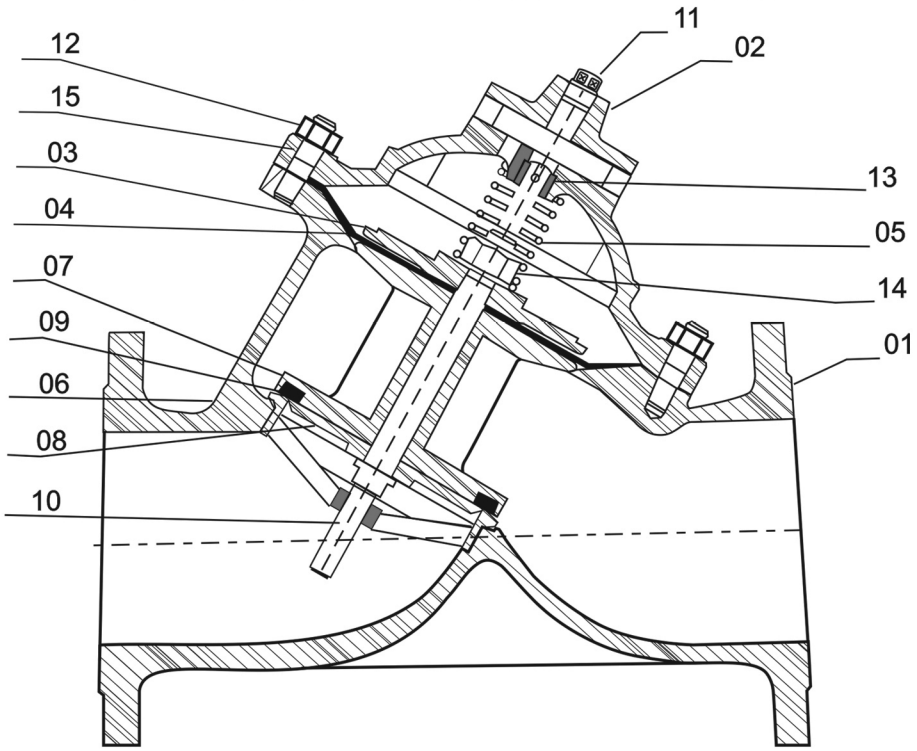
Scope of use:

Used for drinking water and raw water up to 70 ° C.

Pressure test according to DIN EN 12266-1		
Nominal pressure (bar)	Water pressure test (bar)	
	leakage test	the power of the structure test
10	11	17
16	17.6	25
25	27.5	37.5

Abresan Toloue Mehr Company reserves the right to change any dimension and specification to promote quality while considering related standards.

Automatic Control VALVE



the number	the name of piece	Section material	Spare parts
01	the structure	EN-GJS-400-15(1)	
02	the lid	EN-GJS-400-15(1)	
03	Diaphragm holder	Al-Bz/EN-GJS-400-15	
04	The diaphragm	NBR	•
05	Spring	1.4310	•
06	Seal collar	1.4308/x20cr13	
07	Pulley	Al-Bz/EN-GJS-400-15	
08	Rubber seal holder	Al-Bz/EN-GJS-400-15	
09	Rubber sealant	NBR / EPDM	•
10	the hub	1.4301 / x20cr13	
11	the lid	A2/Galvanized steel	•
12	AlSamoula	A2/Galvanized steel	
13	Link	MS 58	
14	AlSamoula	A2/Galvanized steel	
15	Double-head screwdriver	A2/Galvanized steel	

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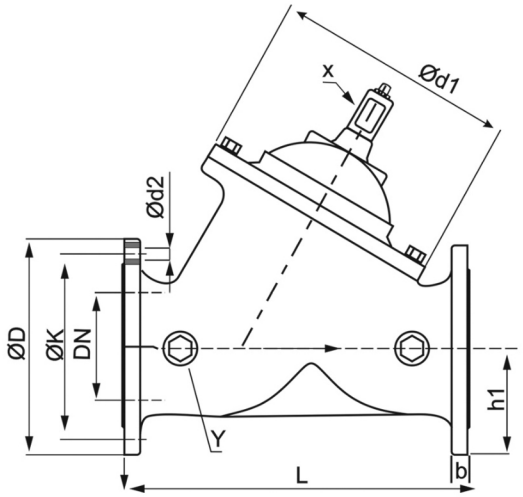
The dimensions of the types of automatic control valves of ABRASAN TOLOU MEHR in terms of body structure



Face to face:
DIN EN 558-1 Series 1 (DIN 3202-F1)
Flanges : DIN EN 1092-2 (DIN 2501)

DN mm	PN Bar	L Mm	$ØD$ mm	$ØK$ mm	$Ød$ mm	n	b mm	h 1 mm	$Ød1$ mm	X in	Y in
50	10,16	230	165	125	19	4	19	83	143	$G\frac{3}{8}$"	$G\frac{3}{8}$"
65	10,16	290	185	145	19	4	19	93	200	$G\frac{3}{8}$"	$G\frac{3}{8}$"
80	10,16	310	200	160	19	8	19	100	200	$G\frac{3}{8}$"	$G\frac{1}{2}$"
100	10,16	350	220	180	19	8	19	110	245	$G\frac{1}{2}$"	$G\frac{1}{2}$"
125	10,16	400	250	210	19	8	19	125	245	$G\frac{1}{2}$"	$G\frac{1}{2}$"
150	10,16	480	285	240	23	8	19	143	335	$G\frac{1}{2}$"	$G\frac{1}{2}$"
200	10	600	340	295	23	8	20	178	430	$G\frac{1}{2}$"	$G\frac{1}{2}$"
	16		340	295	23	12	20				
250	10	730	395	350	23	12	22	200	430	$G\frac{1}{2}$"	$G\frac{1}{2}$"
	16		405	350	28		22				
300	10	850	445	400	23	12	24.5	208	560	G1"	$G\frac{3}{4}$"
	16		460	410	28		24.5				
350	10	980	505	460	22	16	26	253	712	$G1\frac{1}{4}$"	$G\frac{3}{4}$"
	16		520	470	26		30				
400	10	1100	565	515	26	16	26	283	712	$G1\frac{1}{4}$"	$G\frac{3}{4}$"
	16		580	525	30		32				
500	10	1250	670	620	26	20	28	345	900	G1"	$G\frac{3}{4}$"
	16		715	650	33		34				
600	10	1450	780	725	30	20	28	400	900	$G\frac{3}{4}$"	$G\frac{3}{4}$"
	16		840	770	36		36				
700	10	1650	895	840	30	24	30	458	1226	$G\frac{3}{4}$"	G1"
	16		910	840	36		36				
800	10	1850	1015	950	33	24	32	593	1226	$G\frac{3}{4}$"	G1"
	16		1025	950	39		38				

To compress 25bar and more, the ad will be on demand.

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Definition of automatic diaphragm control valves

Definition of automatic diaphragm control valves

Among the automatic valves there are the diaphragm automatic control valves. The principles of these valves are based on the principle of balancing the corresponding pressure forces at the input and output and its control tank is used to control the hydraulic components of liquid. Architecture within the structure and the type of mass movement and the presence of parts such as spring and diaphragm, which affect its power on the valve mechanism, allows automatic control of this type of valve. In control valves, is often the task of controlling changes by a device called a hand-held connector or a pailot which is placed in the control circuit.

Piles or conductors are actually a variable slot that their operating basis is liquid pressure. Piles or conductors has different types which are developed according to the function description of the valve in the control circuit and the controlled main valve. Usually the hydraulic circuit valves are equipped with one or more types of pailots or conductors which allows the ability to perform different tasks on the lines. The following are some examples of types of automatic control valves with different piles.

General Specifications:

* Type of hydraulic performance: It is mainly for control of hydraulic components of liquids
* Type of block motion: linear motion by liquid force and parts such as spring and diaphragm
* Type of pipe line connection: Flange
* Type of service specification: regular and special service (multi-purpose)
* Operator Type: Automatic liquid-assisted in-line running
* type of fluid stream: full or smaller than input

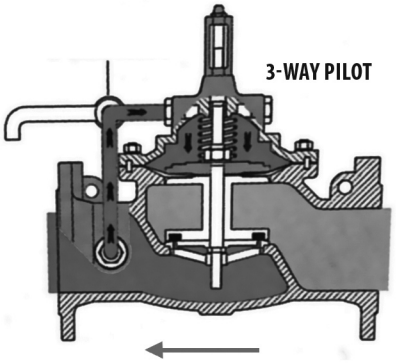
Features of Automatic Control Valves Design:

* Indirect fluid flow path with 90 degree rotation
* The existence of a parallel block with the liquid flow path
* with the design of the axis of the mobile directory
* With non-metallic metal sealant
* With the design of the block in the form of a dish (cylinder)
* With optimal control in the 20 to 80 range of the opening
* with optimal sealant design

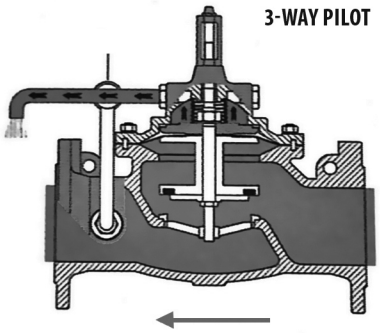
Principles of Performance Methods for Automatic Diaphragm Control Valves

Principles of Performance Methods for Automatic Diaphragm Control Valves
These valves are formed from the compressive tank which is detailed from the structure of the valve and the pressure of the line by the diaphragm. High pressure balance of the low diaphragm creates a balance state for the block blocking. In fact, increasing the high pressure forces of the diaphragm will cause the valve to close and reducing the high pressure forces of the diaphragm will open the valve.

Cutting and connection mode:

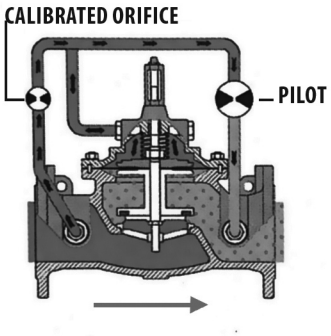


A three-way pilot removes the flow from the tank into free space.
Application of liquid pressure under the cylinder to open the Valve.

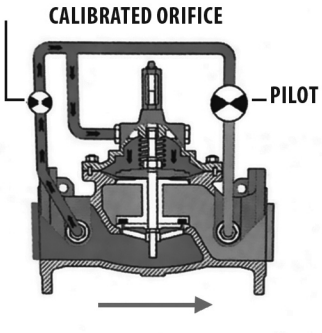


A tri-directional pilot directs the flow to the control tank.
The application of the spring force closes the valve.

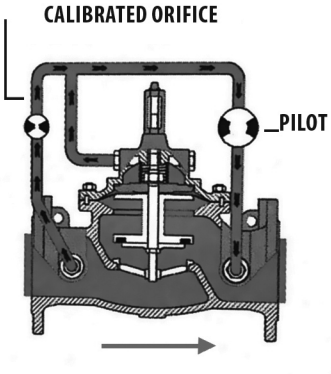
Condition of air conditioner:



Opening the pylot increases the flow rate through the calibrated input hole and thus opens the valve.



Peelot closure reduces the amount of mass flow through it, and the main valve gradually closes.



When the mass flow balance of the flow of the pylot and the aperture occurs, The main valve is hydraulically placed in the center position and

The advantages of the pressure reduction valve are its negatives, a schematic display of it and a circuit controlled by it

Advantages:

* Has the ability to control the liquid optimally
* Automatic function of the valve with the initial settings and stability until the change in the following settings
* Optimal LED function and uniform change in opening quantity
* The ability to integrate components such as pylots into the control circuit to perform multiple valve tasks at the same time in the pipeline line
* Use suitable materials in the control circuit components to create good resistance to rust and corrosion
* Repair the internal parts without removing the valve from the line of the tube

Limitations:

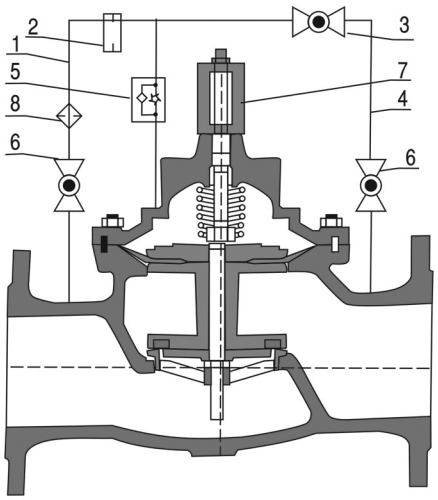
* Large size face to face
* The need to reboot in the case of discharge of the line and the introduction of air in the control tank
* High sensitivity of this valve to water impurities and impurities
* Disrupt the valve if the axis connection fails to the block
* Requires differential pressure in a 5 meter water column between output and output pressure
* Control limit on the ratio of the change of high pressure to low pressure

1. Pressure Reducing Control Valve

The function of this valve is to reduce the input pressure and keep it in the outlet of the valve, away from the pressure of the top of the valve. In the control circuit of this valve, there is a special pressure reduction pail, the main valve opening quantity changes according to the initial setting with the effect of lower pressure reduction, and keeps the pressure steady at the bottom.

In other words, the pressure-reducing valve is controlled by the pressure by pressing down, so that the amount of open the pylot is increased by lowering the pressure down as a result of the increased drag from the regulatory pressure of the bilot, leading to further discharge and discharge of the cover water as a result, the main valve opens more and compensates for the drop in the pipeline line.

In the case of increased pressure down (Due to drag reduction) for the regulatory pressure of bilot, the amount of pylot opening decreases and pressure on the diaphragm increases the main valve is closed, thus causing low pressure in the valve outlet part to the organizational limit.



Schematic display and control circuit Pressure reduction valve:

1. Internal pressure tube
2. Port
3. Pilot
4. Flow control valve
5. Tube under outlet pressure
6. Ball valve
7. The status of the valve cylinder
8. Filter or filter

2. Level control valve

This valve is designed to adjust the level of the reservoir water in a minimum and maximum range by maintaining a fixed height of the water level in the reservoirs, and is produced in the following types.

A) Float Control Valve with adaptive pilot:

In this type of valve, the water level inside the reservoir is permanently kept constant; in other words, to the extent of the removed water from the reservoir, the same amount of water enters the reservoir. Thus the water level inside the reservoir remains constant and unchanging. These valves are mostly used for small storage reservoirs or balancing tanks (compressor tank).

B) Float Control Valve with on/off pilot:

The function of this valve is to control the water level inside the reservoir between the minimum and maximum limits and is applicable to large storage tanks. In this type of valve, the water level inside the tank varies between a minimum and a maximum height. With the explanation that when the water level inside the reservoir reaches the maximum defined point, the pilot gives the valve the closing and stopping command. With withdrawal from the reservoir, the level of water inside the tank gradually decreases, but the valve remains closed until the water level reaches the minimum defined point. In this case, the valve pilot sends the opening command and the main valve opens. The pilot allows the valve to remain open so long as the water level reaches the maximum defined point. At this time, the closing command is issued to the valve, this cycle is constantly repeated.

C) Float Control Valve with solenoid on/off pilot:

The function of this type of valve is exactly like on/off pilot; the only difference is the use of a water level sensor and a Solenoid Valve instead of a pilot in the control circuit.

D) Float Control Valve with a level pilot:

In this type of valve, the water level inside the reservoir is controlled by the use of a specific and exact pressure equipment corresponding to the height of the column of liquid inside the tank. The pilot operates on the basis of the pressure changes corresponding to the column of water inside the reservoir. In such a way that, by decreasing the pressure corresponding to the height of the water in the pilot tank, the valve's opening is increased so that the height of the water in the reservoir is increased; as the water level increases in the reservoir and the corresponding pressure increases, the pilot commands the main valve to decrease the amount of openness. This action is done continuously. This valve should be installed at the bottom of the tank.

3. Pressure Relief Valve

According to the position of installation of the valve in the pipeline, it can have several functional tasks:

*** Pressure retaining function:** Installing this valve in the main pipelines with positive or negative gradient (pumping and gravity) to maintain its upstream pressure in order to provide the required pressure in the branches.

* In front of the pumps to adjust the pressure of pump's operating point.
* It is used to control the pressure between zones and different pressure levels.

*** Extra pressure discharge function relative to the regulating pressure:**

The installation of this valve is used to discharge excess pressure on the primary regulating pressure in the pipe bypassing the main lines.

Introduction of automatic diaphragm control valves

In this case, the valve is normally closed and when the line pressure exceeds the pilot pressure setting, the pilot will send the opening command to the main valve and the valve will open to decrease the pressure and reach the regulating pressure, and then the re-closing command of the valve is issued.

4. Surge Anticipator Control Valve The function of this valve is like a relief valve, which is installed in the bypass circuit to discharge excess pressure. In the control circuit of this valve, in addition to the equipment in the control valve, there is a solenoid valve and a pressure balance reservoir added to the control circuit so that the valve opens in time of power outage and leads to the merge of compressive pressure while discharging the extra pressure, and ultimately it slowly closes again. The functional difference of this valve with a relief valve is in the quick opening and slow closing. The valve closing speed can be adjusted by regulating the volume of the accumulator compartment that is in the control circuit of this valve.

5. Rate of Flow Control Valve This valve, disregard of the input pressure variations, limits the amount of outflow and keeps it constant. This valve, in addition to the main body and the control circuit, is equipped with a interconnecting pipe (having flange at both ends) and an orifice in the valve outlet. The diameter of the orifice is calculated based on the volume of the desired discharge rate.
As mentioned earlier, the basis of the performance of the pilots is the pressure variation, the pilot of this valve is based on the pressure variations before and after the output orifice. The amount of fluid volume is controlled.

6. Pressure Reducing & Sustain Valve This valve is a combination of a pressure reducing valve and a pressure retainer valve which, with the help of two pilot, perform the following tasks:

- Keeping the output pressure constant regardless of input pressure variations
- Setting and stabilizing the minimum input pressure in a specified range.

The automatic input control section is normally kept open by the upstream pressure, but the pressure loss is regulated to the adjustment point, which in turn regulates the main valve for stabilizing the optimum pressure in the upstream.

7. Pump Control Valve This valve is immediately installed after the centrifugal electro-pumps and protects the pipes from the consequences of water shocks of abrupt changes in speed and also simplifies the operation of the pump. In addition, another type of this valve equipped with a pressure preservation pilot can, in addition to the above cases, adjust the operation of the pump at its operating position. **The pump control valve also carries out the following tasks:**

* The valve's closing before the electromotor reaches the nominal round (creating corresponding pressure).
* Slow closure of the valve before the electro pump is switched off
* Slow closure of the valve as a one-way mixing valve and open and close during power outage

8. Check Valve with Opening & Closing Speed Control) These valves are installed at the pumps outlet, and when the back pressure wave occurs, the valve is closed and when the inlet pressure returns to its original state, the valve opens. The speed of opening and closing of this valve is controllable and thus preventing the impact of one-way valves.

Important tips on how to select automatic control valves

9. Solenoid Control Valve The open-close valve equipped with solenoid control valve made by Abresan Tolou Mehr Company allows the closing and opening of fluid flow by the electric command. This valve has remote control capability and the closing and opening of the flow can be controlled and regulated
at the desired function by the use of equipment such as time relay, etc.,

10. Pressure Regulating Solenoid valve If the pressure in the pipeline is higher than the pressure set on the pilot installed in the circuit, the valve acts as a relief valve and opens. This valve controls the fluid flow through the solenoid valve command.

Important points on how to select automatic control valves:

When selecting automatic control valves (especially pressurizers), the size of the pipe network does not play a significant role in choosing the size of the valve, but the minimum and maximum volumetric flow rate of water (discharge) is the criterion for selection. The following table shows the minimum, normal and maximum volumetric flow (discharge) of different sizes of valves. For correct operation, it is necessary to observe the values.

The following table shows the minimum, normal and maximum volumetric flow rate of water (discharge) in valve in liters per second

DN	50	65	80	100	125	150	200	250	300	350	400	500	600	700	800
Min I/S	1	1.8	3	5	8	13	23	35	51	75	95	146	221	301	380
Nor I/S	6	10	14	22	36	51	91	142	210	286	372	585	844	1150	1462
Max I/S	10	17	25	40	60	88	155	243	350	480	620	980	1410	1920	2510

In the case of permanent use of the valve, the maximum discharge is considered 20% less than the table.

Determination of pressure loss in automatic control valves

A) By calculating,

first determine the KV value from the table and then the ΔP pressure loss is calculated using the formula.

ΔP = (bar) Pressure Loss

Kv = (m^3/h) Flow Coefficient = (m^3/h) Discharge amount Q =kv $\sqrt{\Delta P}$ $\Delta P = \left(\frac{Q}{KV}\right)^2$

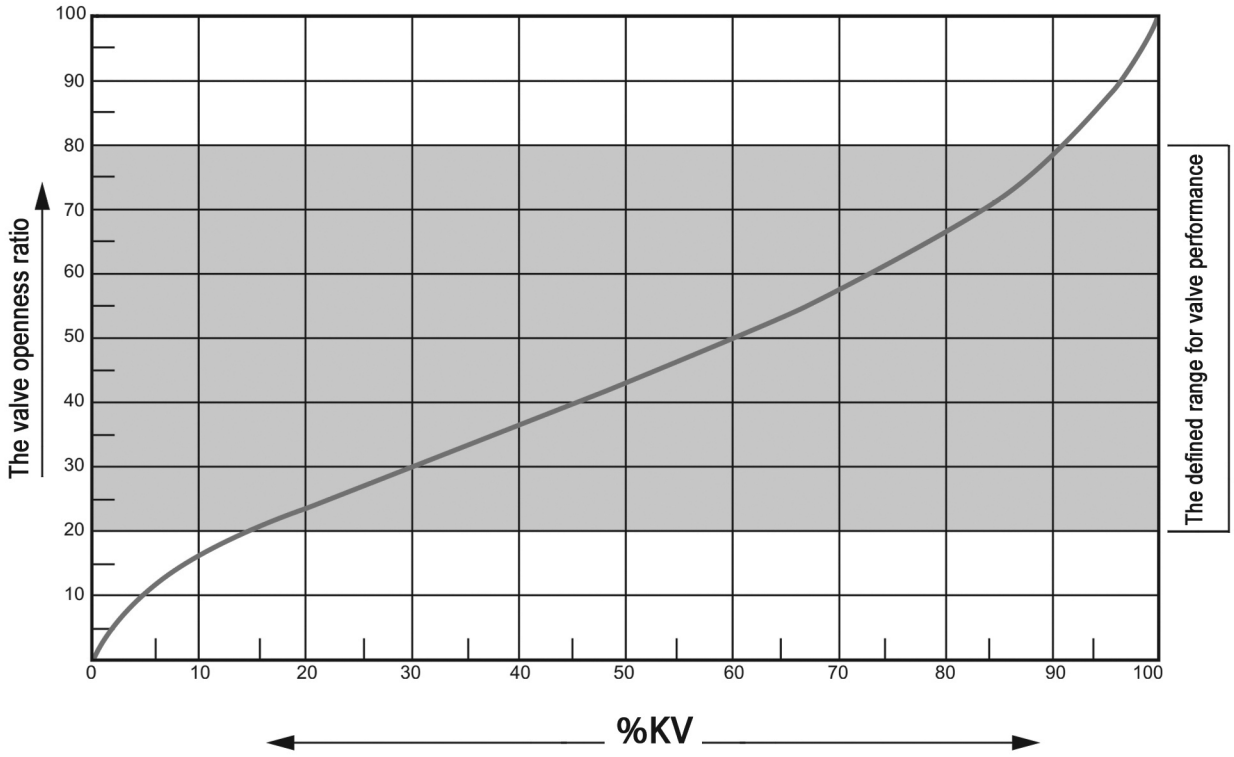
DN	50	65	80	100	125	150	200	250	300	350	400	500	600	700	800
kv	46	66	96	172	240	470	810	860	1640	2200	2800	3050	3250	6200	7600

Definition of kv factor (%)

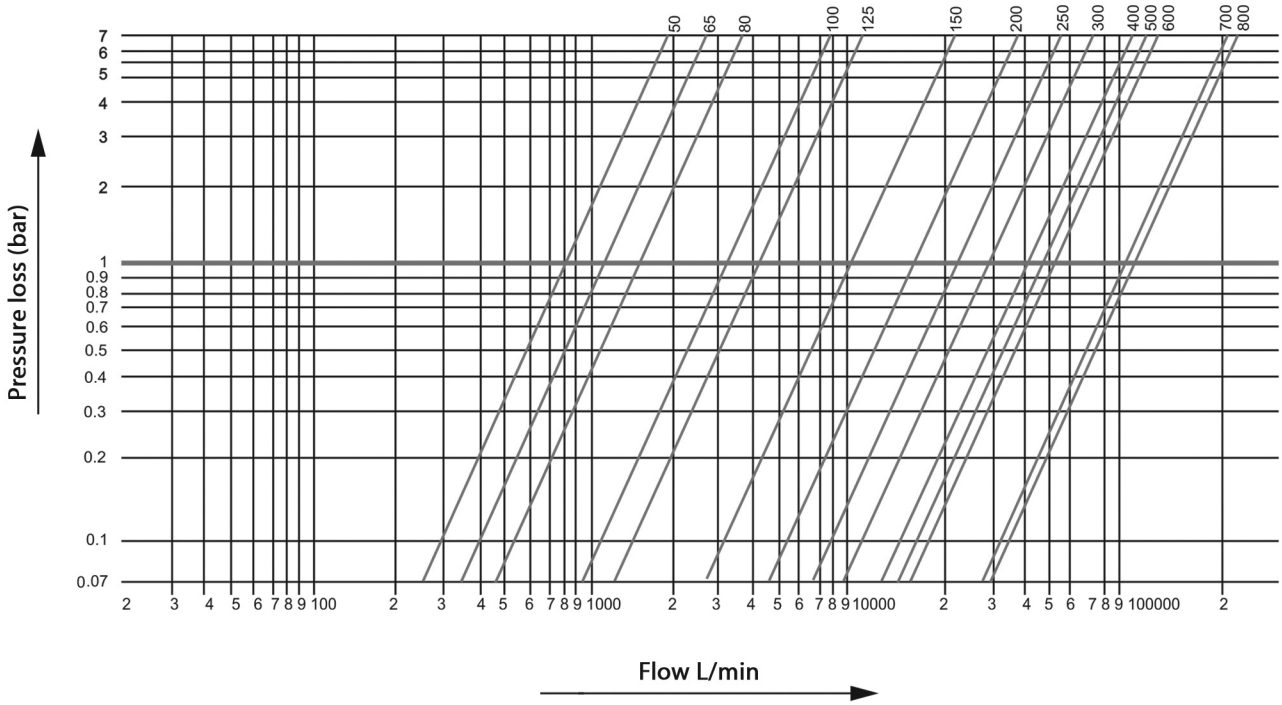
It is the flow rate in cubic meters per hour that passes the valve at ambient temperature of 20 ° C and produce a pressure loss of 1 bar when the valve is completely open.

Valve Graph

Kv factor diagram in relation to the valve openness percentage



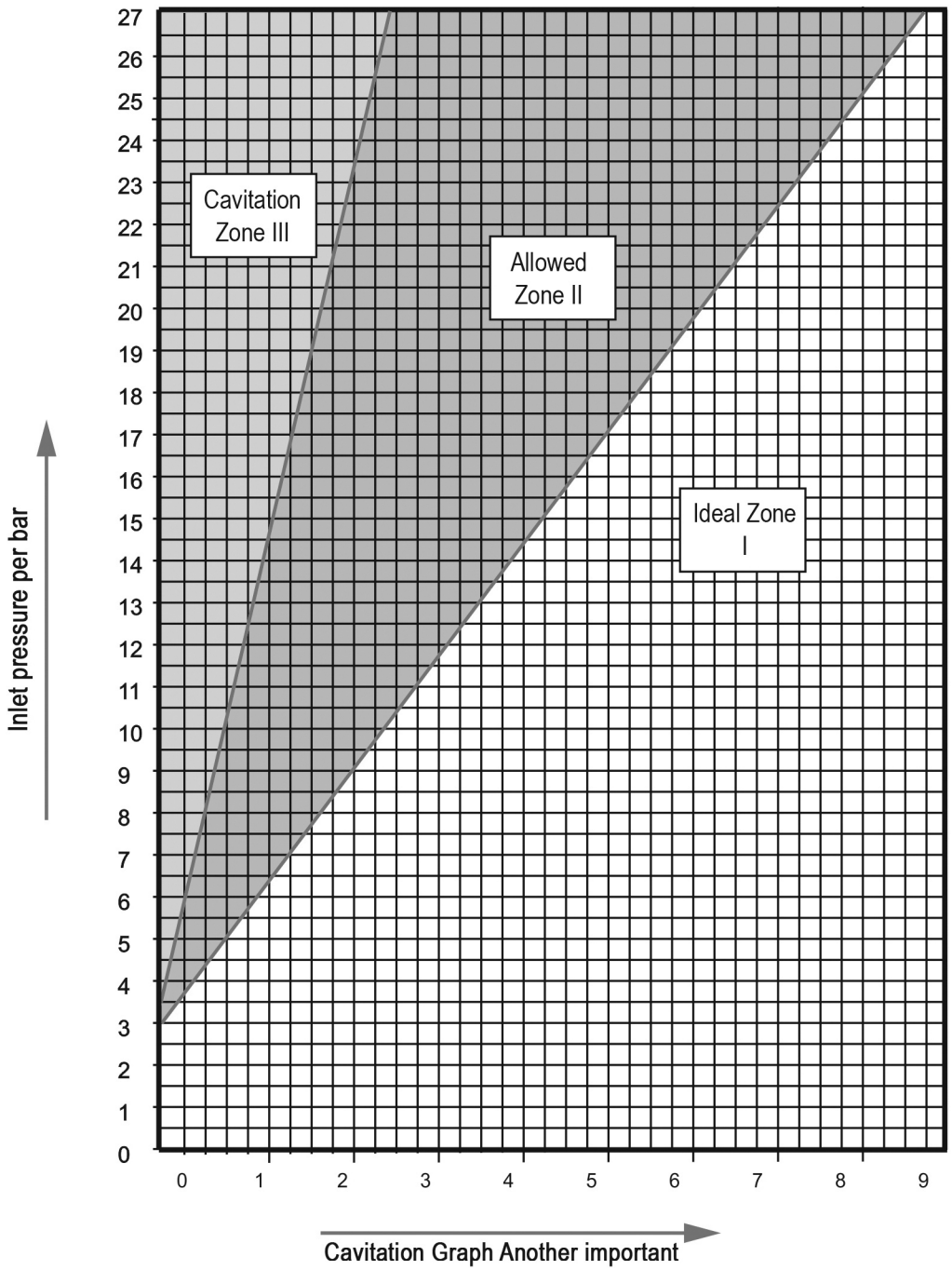
Determining pressure loss by using pressure loss curve



In keeping with the relevant standards, Abresan Tolou Mehr Company has the right to make any changes to its dimensions and specifications in order to improve the quality.

Cavitation Graph

Another important point in the selection of automatic control valves is the absence of valve in the cavitation zone. The inlet and outlet pressure ratio of the automatic control valve is of particular importance. If the valve operates in the cavitation zone, severe wear of parts will shorten the life of the valve. Zone I: The placement of valve in this zone is ideal. Zone II: The placement of valve in this zone is still acceptable.
Zone III: Use of valve in this area is not allowed. Otherwise it will deplete the internal parts of the valve.

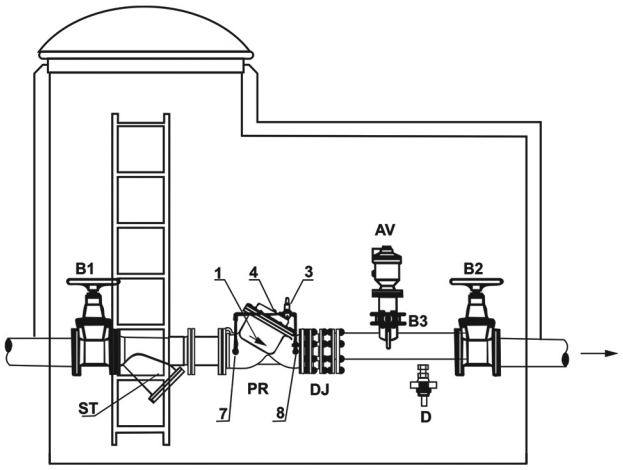


Instructions for installing and operating a pressure reducing valve made by Abresan Tolou Mehr Company

1. After ensuring that inside of the pipe is clean of external objects such as sand, stone, etc., then install the pressure reducing valve made by Abresan Tolou Mehr Company according to the proposed plan. When installing, make sure that the display flash (number 1) has the same current.
2. Open the ball valve (7) before the pilot and close the ball valve (8) after the pilot.
3. Open the bleeding cap above the control compartment (4) and loosen the top joint of control circuit one round.
4. Loosen the pilot lock nut and rotate the center bolt counterclockwise so that the spring resistance is not felt underneath the bolt.
5. Fill the valve control compartment with water through the cap (4) and then close the cap such that it does not close completely.
6. Slowly open the inlet open-close valve B1 to allow water flow inside the valve.
7. After ensuring that the air is exhausted from the control compartment cap and the control circuit joint, tighten the cap and the joint so that it is completely sealed.
8. To ensure the correctness of the steps done, open the open-close valve B2 a bit; in this case the pressure reducing valve remains in the closed position or closes after a few moments. If the pressure reducing valve is not closed, repeat the previous steps, especially care must be taken regarding the bleeding step. At the end of bleeding, the open-close valve B2 must be closed.
9. To adjust the downstream pressure, open the ball valve after the pilot slowly. In this case, the pressure reducing valve is opened and fill the pipe at the valve's outlet section. Here, the downstream pressure reaches about 0.4 bar, and then the pressure reducing valve automatically closes.
10. Slowly open the open-close valve B2. In this situation, the pressure reducing valve is again closed when the pipe is fully filled. After opening the B2 valve, open B1 valve slowly and completely.
11. If there is a firefighting valve in the downstream, open it so that the downstream pressure can be regulated while the water is moving.
(When the pilot's bolt is turned clockwise, pressure increased) and close the pressure of the firefighting valve after adjusting.
12. By turning the bolt every round, wait a bit for the pressure to remain constant at the outlet section. The amount of pressure after valve can be seen from the manometer.
13. After adjusting the desired pressure at the downstream, tighten the lock nut of the pilot bolt.
When installing and operating, if necessary, contact the technical affairs of the company.

How to install the pressure reducing valve:

PR: pressure reducing valve made by
Abresan Tolou Mehr Company ST: filter AV: air valve
B: Open-close valves (B1, B2, B3)
DJ: Dismantling joint D: Ball valve
(for use in emergency situations)



For better operation of pressure reducing valves in network with great diameters, by pass system is recommended:

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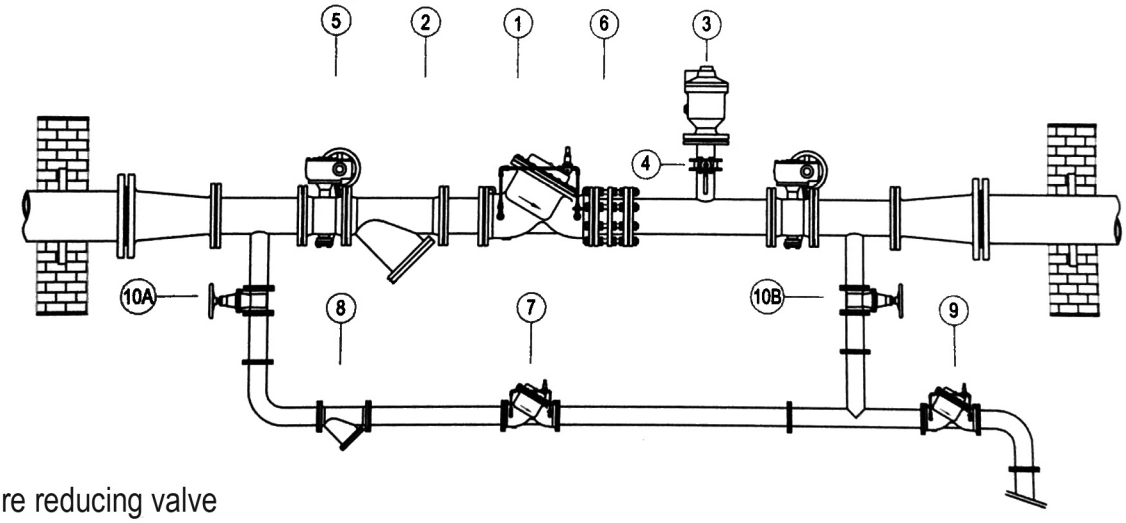

1. Pressure reducing valve
2. Filter
3. Air Valve
4. Open-close butterfly valve without flange
5. Open-close butterfly valve with flange
6. Dismantling flange
7. Pressure reducing valve
8. Filter 9. Relief valve
10. Sliding valve
(for open and close)

Type of bypass	Components
A Manual bypass	10A
B Manual bypass with relief valve	9-10A-10B
C Automatic bypass	7-8-10A-10B
D Automatic bypass with relief valve	7-8-9-10A-10B
E Relief valve (without manual bypass)	9-10B

Servicing and maintenance of pressure reducing valve; Taking into consideration the experience of Abresan Tolou Mehr Company in the manufacture of control valves and selecting suitable raw material for the manufacture of the valves, these valves can be used for a long time without any problems. However, for better efficiency, it is necessary to consider the following notes:

A) In normal use of valves

* Once a year, the correct functioning of the valve should be monitored.
* Two times a year, the filters in the control circuit and before the control valves should be cleaned.
* Every four years, all the moving parts shall be dismantled and, if the deposit is gathered, the parts shall be cleaned and the defective parts shall be replaced.

B) In special circumstances: Like the presence of suspended particles in water, the high pressure difference between the inlet and outlet of the valve, low flow rates, and long performance, the above tasks should be done with less time intervals.

Spare Parts : For the four-year service of these valves, there is a need for a number of spare parts that are more exposed to wear.

hese components include the main body parts, the pilot and the control circuit.