BACCARA

Pneumatics, Automation & Control Solutions

500 Series
Plastic Hydraulic Control Valves

Landscape Irrigation
Agricultural Irrigation

K-Q TSE-ISO-EN 18000
K-Q TSE-ISO-EN 14000
K-Q TSE-ISO-EN 9000
TSE

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www.baccara-geva.com

500 Series
hydraulic control valves

general description

500 series valves are direct diaphragm closing automatic hydraulic control valves which work with line pressure. They ensure easy and smooth flow with minimum pressure losses thanks to excellent design of valve body and diaphragm. No wearable parts such as stem, bearing and seat exist in main valve body, valve life is much longer than other competitor valves. Only movable part of valve is the valve diaphragm. 500 series hydraulic control valves are designed so that it can be used in potable water force network, agricultural irrigation, filtration, industrial applications by even an unskilled personnel.

general features

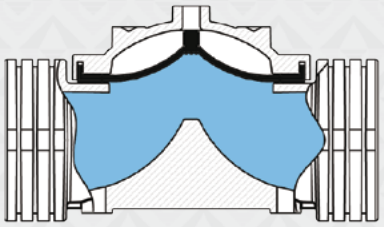
- Easy use and maintenance due to simple design
- Low cost
- Operation in wide pressure range
- Perfect modulation even in lower flow rates
- Anti-surge closing and opening with flexible diaphragm
- Full tightness thanks to reinforced diaphragm and inner spring
- Long life with Glass Reinforced Polyamide material
- Wide control application range by using different pilot valves
- Operation in both horizontal and vertical positions in application areas

operating principals

It is an automatic hydraulic control valve designed to make desired modulation in main valve network line as full hydraulically by means of line pressure without requiring different energy sources such as electric, pneumatic or mechanic energy.

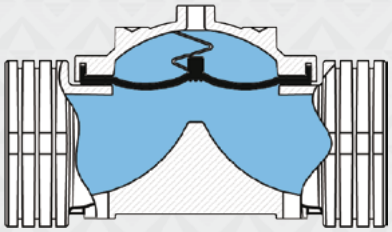
valve opening mode

When pilot valve located on main valve being in closed position is brought into relief position, pressurized water within control chamber on main valve diaphragm is released. When line pressure (P1) reaches to a value which will overcome spring force, water carries valve to fully open position by applying a hydraulic force to valve diaphragm from bottom.



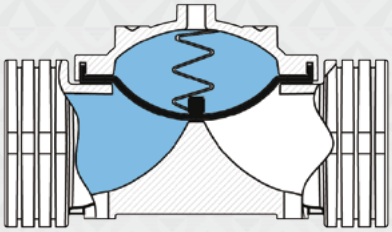
modulation mode

Pilot valves which are connected to main valve actuator ensure that main valve works in modulated mode. According to flow rate or pressure conditions, it ensures that main valve Works in modulation mode by controlling pressure of fluid within main valve actuator (control chamber).



valve closing mode

When the pilot valves on the main valve transfers the upstream water pressure to valve actuator (control chamber), water in the control chamber creates a hydraulic force on the valve diaphragm. This pressure force combined with extra force applied by inner spring, ensures that valve will be closed with full tightness.

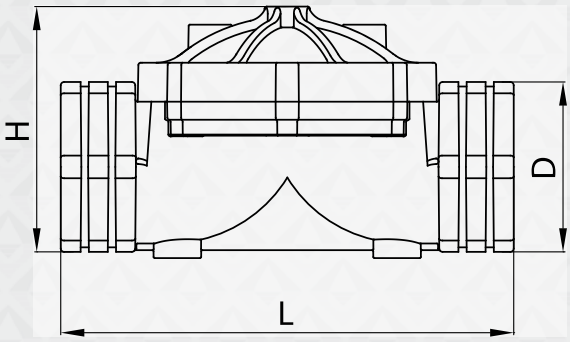


technical specifications

Pressure Range	Standard	0,7 - 10 bar (10 - 160 psi)
Connection	Threaded	BSPT-NPT
Hydraulic Connections	Standard	Reinforced Nylon (Air Brake) Hydraulic Pipe-SAE J 844
Actuator Type	Standard	Diaphragm Closing Type with Single Control Chamber and Diaphragm Actuator

available models

Model	55	
Connection	Threaded	
Material	Glass Reinforced Polyamide	
Body	Globe	
Maximum Working Pressure	10 bar	160 psi
Available Sizes	inch	mm
	1½	40
	2	50
	2½	65
	3	80



model 55

dimensions

DN		D		L		H	
inch	mm	inch	mm	inch	mm	inch	mm
1½"	40	2½"	62	7⅞"	200	4⅜"	110
2"	50	3"	75	7⅞"	200	4⅜"	110
2½"	65	3¾"	95	9⅞"	250	5⅜"	138
3"	80	4¼"	109	9⅞"	250	5⅜"	145

hydraulic performance

hydraulic performance chart

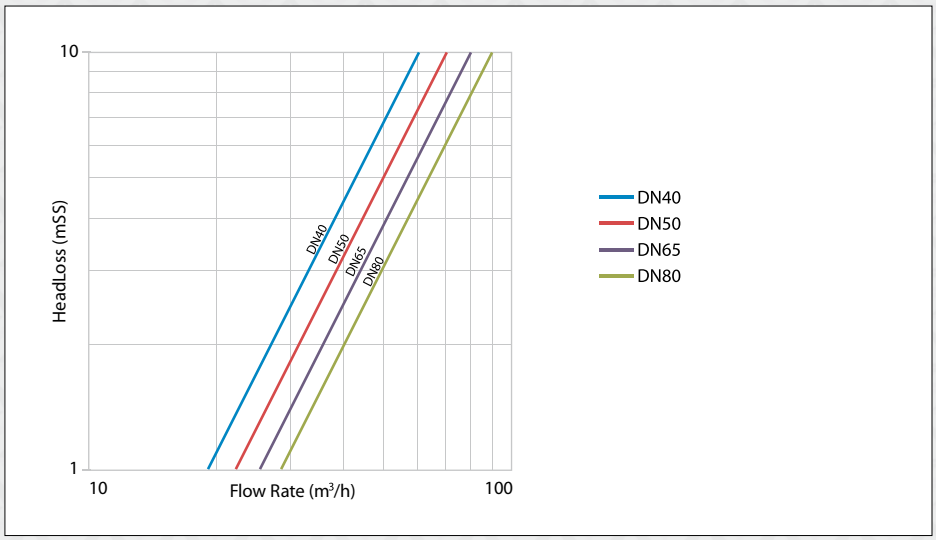
valve size	mm	40	50	65	80
	inch	1½"	2"	2½"	3"
Kv	m^3/h @ 1 bar	60	70	80	90
Cv	gpm @ 1 psi	70	85	95	105

Kv: Valve Flow Coefficient (fluid passing under 1 bar pressure difference in m^3/h @ 1 bar)
Cv: Valve Flow Coefficient (fluid passing under 1 bar pressure difference in gpm @ 1 bar)
Q : Flow Rate (m^3/h)
ΔP: Head Loss (bar)
G : Specific weight of water (1.0 for water)

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

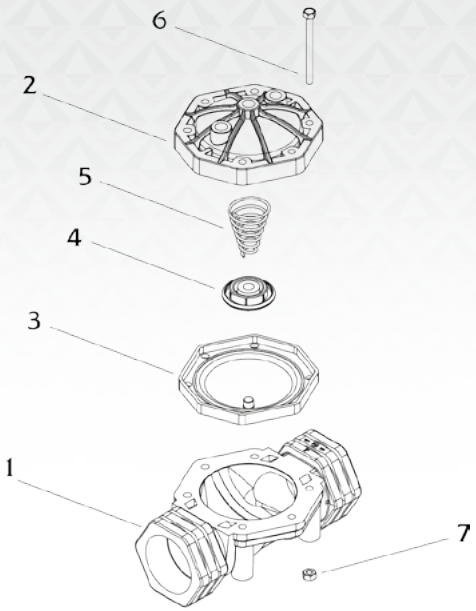
$$Cv = 1{,}155\ Kv$$

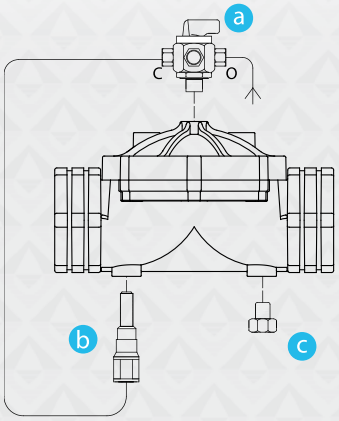
head loss chart



main parts

No	Part Name	Material
1	Body	Glass Reinforced Polyamide
2	Bonnet	Glass Reinforced Polyamide
3	Diaphragm	Natural Rubber
4	Spring Thrust Ring	Glass Reinforced Polyamide
5	Spring	SST302
6	Bolt	SST304
7	Nut	Brass





a 3- way selector valve
b In-line Finger Filter
c Plug

description

"M" model valve is the hydraulic control valve operated by line pressure and designed to ensure opening/closing process by means of a 3-way selector valve. Minimum opening pressure of valve is 0.7 bar. Thanks to its flexible diaphragm, it makes easy and fast control process in high pressure applications and is closed as fully tight without causing surge. It may be used in different applications by adding different pilot valves on its main body.

applications

Use **55M** for local operation of hydraulic valve by a manual command.
Use **55M** for water distribution and field.

standards

55M manual control valve with 3-way selector valve, polyethylene plastic tubing and nylon fittings.

options

Pressure Gauge

order information

Please submit following information to our sales department while ordering.

Maximum flow rate _____ m^3/h
Maximum network/line pressure _____ bar
Main line size _____ mm
Valve connection type _____

EL | solenoid control valve

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description

"EL" model valve is the hydraulic control valve operated by line pressure and designed to ensure opening/closing process by means of built in 3-way solenoid pilot valve controlled remotely with electric signal. Electric signal for solenoid pilot valve is ensured by means of a control device, time relay, main switch and PLC control units etc. Opening/Closing process may be realized easily thanks to manual control on solenoid pilot valve. Depending on requirements. 24V AC 50Hz/60Hz or 12V DC, 9V Latch and 12V DC Latch normally open (N.O.) or normally closed (N.C.) solenoids coils may be used on main valve.

applications

Use **55EL** for remove operation of hydraulic valve by an electric command.
Use **55EL** for water distribution.

standards

55EL/B – 24V AC N.O. Solenoid, polyethylene plastic tubing system and nylon fittings
55EL/B-3W - 24V AC N.O. Solenoid, polyethylene plastic tubing system, nylon fittings and 3-way selector valve.

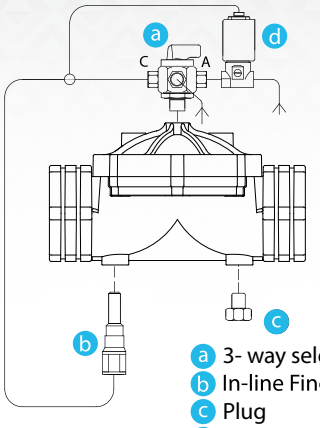
options

Pressure Gauge
9V DC Latch Solenoid
12V DC Latch Solenoid
N.C. Solenoid

order information

Please submit following information to our sales department while ordering.

Maximum flow rate _____ m^3/h
Maximum network/line pressure _____ bar
Main line size _____ mm
Valve connection type _____
Electric voltage value to be used _____ volt



a 3- way selector valve
b In-line Finger Filter
c Plug
d Solenoid Pilot Valve

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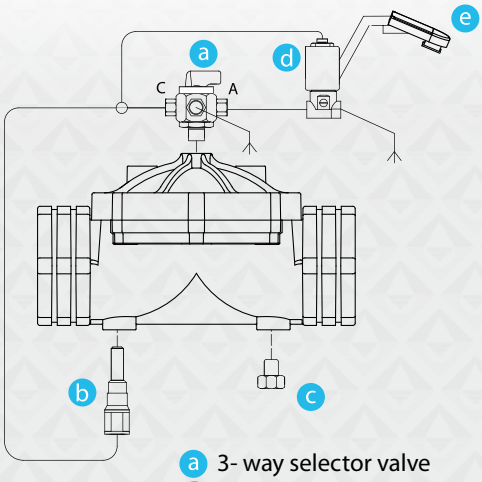
Electric Control Valve + Control Device (1 Outlet) | EL/C



a 3- way selector valve
b In-line Finger Filter
c Plug
d Solenoid Pilot Valve
e Controller

description

"EL/C" model valve is the hydraulic control valve operated by line pressure and designed to ensure opening/closing process by means of built in solenoid pilot valve controlled remotely with electric signal at required time or required duration. Electric signal for solenoid pilot valve is ensured by means of a control device, time relay, main switch and PLC control units etc. Opening/Closing process may be realized easily thanks to manual control on solenoid pilot valve. Depending on requirements. The controller irrigates in cycles, during a window of time according to your needs.

applications

Use **55EL/C** for programmed irrigation.
Use **55EL/C** for water distribution.

standards

55EL/C – 9V DC Latch solenoid, Control Unit (1 Outlet), polyethylene plastic tubing system, nylon fittings and 3-way selector valve.

options

Pressure Gauge

order information

Please submit following information to our sales department while ordering.

Maximum flow rate _____ m^3/h
Maximum network/line pressure _____ bar
Main line size _____ mm
Valve connection type _____
Electric voltage value to be used _____ volt

PR | pressure reducing control valve

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description

"PR" model pressure reducer control valve is the hydraulic control valve which reduces high upstream pressure value to desired lower pressure value by means of built-in pressure reducing pilot valves. Pressure reducer control valve controls downstream pressure value continuously and maintains it constant without being affected from flow rate and upstream pressure values. When no flow exists in the system, it closes itself automatically. When valve upstream pressure value, it is opened fully by itself. Valve may be used in vertical or horizontal positions in the system.

applications

Use **55PR** for irrigation, water distribution and filtration systems.
Smart designed **55PR** provides high corrosion resistance.

standards

55PR – 3-way plastic pressure reducing pilot, polytethylene plastic tubing system and nylon fittings
55PR-3W - 3-way plastic pressure reducing pilot, polytethylene plastic tubing system, nylon fittings and 3-way selector valve
Standard pressure adjustment from Factory: 2,5 bar.

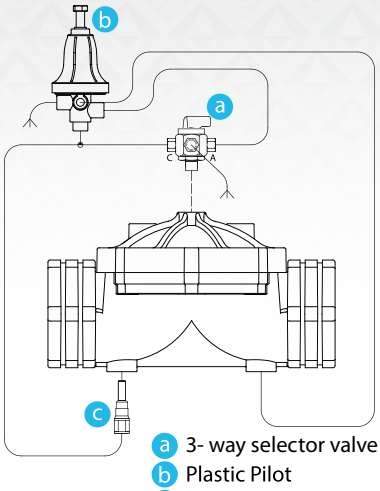
options

Pressure Gauge

order information

Please submit following information to our sales department while ordering.

Maximum flow rate _____ m^3/h
Maximum network/line pressure _____ bar
Main line size _____ mm
Valve connection type _____
Maximum upstream pressure _____ bar
Minimum upstream pressure _____ bar
Desired downstream pressure _____ bar



a 3- way selector valve
b Plastic Pilot
c In-line Finger Filter

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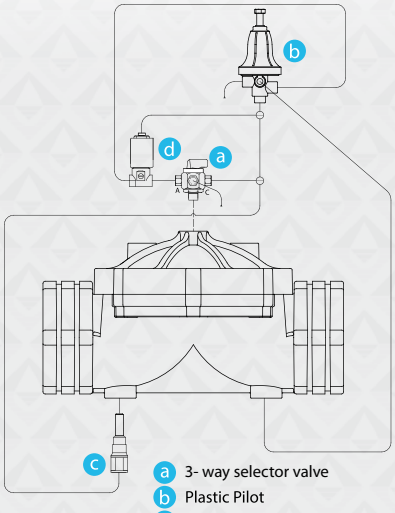
solenoid controlled pressure reducing valve | PREL



description

"PREL" model pressure reducing valve is the hydraulic control valve which reduces high upstream pressure value into desired lower pressure value. Control of main valve is achieved by means of built-in solenoid pilot valves. Electric signal for solenoid pilot valves is ensured by means of a control device, time relay, main switch and PLC control units etc. Automated control may be easily ensured by this way in application systems.

applications

Use **55PREL** for water distribution, where downstream pressure should be reduced the valve is the commanded to open.

standards

55PREL/B - 3-way plastic pressure reducing pilot, solenoid 24V AC N.O., polytethylene plastic tubing system and nylon fittings

55PREL/B-3W - 3-way plastic pressure reducing pilot, solenoid 24V AC N.O., polytethylene plastic tubing system, nylon fittings and 3-way selector valve

Standard pressure adjustment from Factory: 2,5 bar.

options

Pressure Gauge

order information

Please submit following information to our sales department while ordering.

Maximum flow rate _____ m^3/h
Maximum network/line pressure _____ bar
Main line size _____ mm
Valve connection type _____
Maximum upstream pressure _____ bar
Minimum upstream pressure _____ bar
Desired downstream pressure _____ bar
Electric voltage value to be used _____ volt

PRPS | pressure reducing and sustaining control valve

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description

"PRPS" model pressure reducing/sustaining hydraulic control valve reduces valve downstream pressure to desired value by sustaining upstream pressure. Two pilot valves exist on valve. Pilot valve on upstream side is the pressure sustaining pilot valve and sustains upstream pressure. Other pilot valve is pressure reducing pilot valve and keeps downstream pressure constant by reducing it to desired value. Reducing/sustaining control valve pumps fluid downwards; it ensures that system works within normal values by regulating over flow and high pressure in pumping systems. It controls upstream and downstream pressure continuously and keeps them within constant values.

applications

Use **55PRPS** for protecting booster pumps and preserve set pressure downstream.

standards

55PRPS – 3-way plastic pressure reducing pilot, 3-way plastic pressure sustaining valve, polytethylene plastic tubing system, nylon fittings and 3-way selector valve

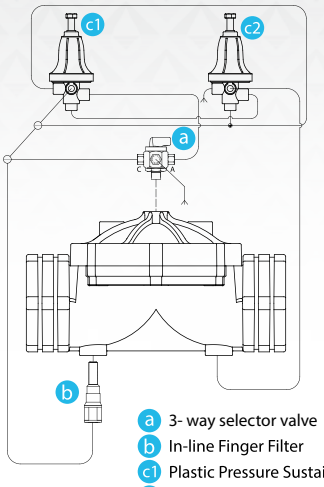
options

Pressure Gauge

order information

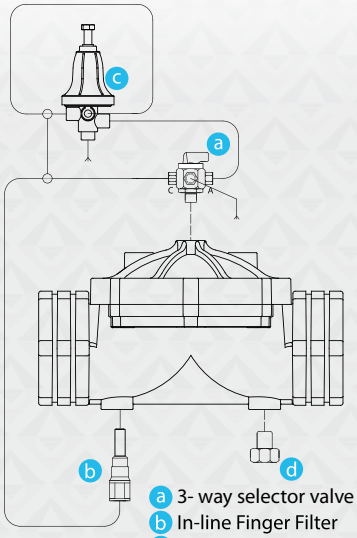
Please submit following information to our sales department while ordering.

Maximum flow rate _____ m^3/h
Maximum network/line pressure _____ bar
Main line size _____ mm
Valve connection type _____
Maximum upstream pressure _____ bar
Minimum upstream pressure _____ bar
Desired downstream pressure _____ bar
Desired upstream pressure _____ bar



a 3- way selector valve
b In-line Finger Filter
c1 Plastic Pressure Sustaining Pilot
c2 Plastic Pressure Reducing Pilot

quick pressure relief control valve | QR



description

"QR" model quick pressure relief valve is the safety control valve designed to protect system by releasing pressure surges in water network elevation lines to atmosphere quickly, which are caused by sudden changes in water speed due to pumps put into/out of service. When network pressure exceeds set point, valve opens by itself quickly and protects system by releasing over pressure. When line pressure decreases to normal level, it is closed slowly and automatically as fully tight without causing surge.

applications

Use **55QR** for avoiding an unwelcome high pressure.

standards

55QR – 3-way plastic pilot, polytethylene plastic tubing system and nylon fittings

options

Pressure Gauge

order information

Please submit following information to our sales department while ordering.

Maximum flow rate _____ m^3/h
Maximum network/line pressure _____ bar
Main line size _____ mm
Valve connection type _____
Maximum upstream pressure _____ bar
Desired upstream pressure _____ bar

PS | pressure sustaining
control valve

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description

"PS" model pressure sustaining hydraulic control valve maintains valve upstream pressure value constant. Valve is opened when line pressure reaches the preset pressure level. It ensures that pump motor within pumping systems will start without load. It also prevents positive pressure waves caused by pump during start-up. Valve controls upstream pressure value continuously and keeps it at a constant value without being affected from changes in flow rate. When no flow exists, it closed by itself fully tight.

applications

Use **55PS** for maintaining a constant upstream pressure or avoid an unwelcome high pressure.

standards

55PS – 3-ways plastic pressure sustaining pilot, polytethylene plastic tubing system and nylon fittings
55PS-3W - 3-ways plastic pressure sustaining pilot, polytethylene plastic tubing system, nylon fittings and 3-way selector valve
Standard pressure adjustment from Factory: 2,5 bar.

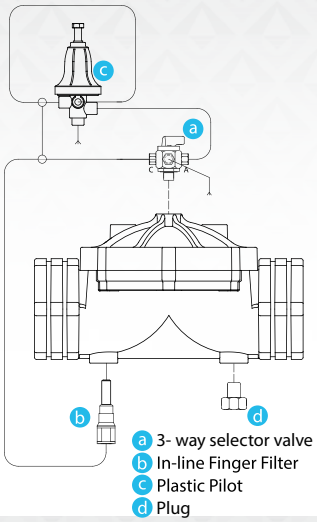
options

Pressure Gauge

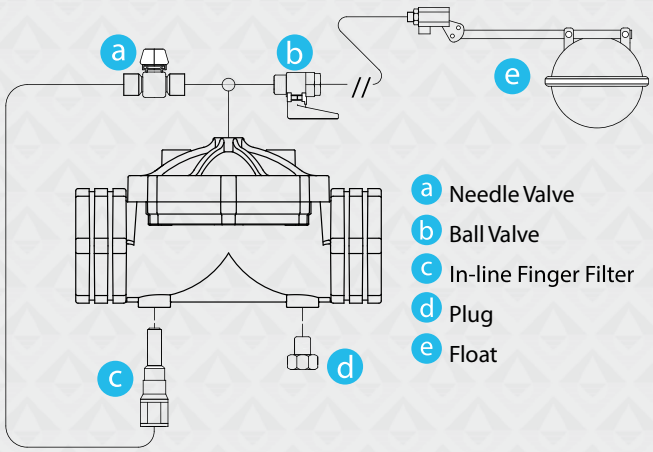
order information

Please submit following information to our sales department while ordering.

Maximum flow rate _____ m^3/h
Maximum network/line pressure _____ bar
Main line size _____ mm
Valve connection type _____
Desired upstream pressure _____ bar



a 3- way selector valve
b In-line Finger Filter
c Plastic Pilot
d Plug



a Needle Valve
b Ball Valve
c In-line Finger Filter
d Plug
e Float

description

"FL" model float level control valve is the hydraulic control valve designed to control water level in reservoirs and tanks continuously. Main valve is controlled by 2-way modulating type float pilot valve or manually. Main valve mounted on upstream of a reservoir or tank is closed as fully sealed without causing surge when water level reaches to maximum level. Valve opening/closing speed may be adjusted. It may be used in the system by mounting in horizontal or vertical orientations.

applications

Use **55FL** for when the water level reduce to minimum level, main valve opens fully itself and provides the water level at maximum.

standards

55FL – Plastic float, needle valve, ball valve, polytethylene plastic tubing system and nylon fittings

options

Pressure Gauge

order information

Please submit following information to our sales department while ordering.

Maximum flow rate _____ m^3/h
Maximum network/line pressure _____ bar
Main line size _____ mm
Valve connection type _____

FLEL | electric float level control valve

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description

"FLEL" model electrical float level control valve is the hydraulic control valve designed to control water level continuously by means of electrical float placed in reservoirs and tanks. Electrical float sends signal to solenoid coil on main valve when water level decreases below set level. Main valve is opened and ensures that tank or reservoir will be filled permanently. When water reaches maximum level, electrical float sends signal to solenoid coil again and main valve is closed as full sealed. Valve may be used in the system by mounting horizontal or vertical positions.

applications

Use **55FLEL** for when the water level reduce to minimum level, main valve opens fully itself and provides the water level at maximum.

standards

55FLEL – Electrically float level switch, 24V AC N.O. solenoid, needle valve, ball valve, polytethylene plastic tubing system and nylon fittings

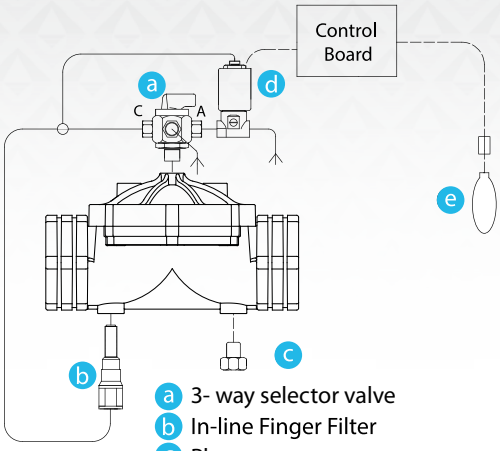
options

Pressure Gauge

order information

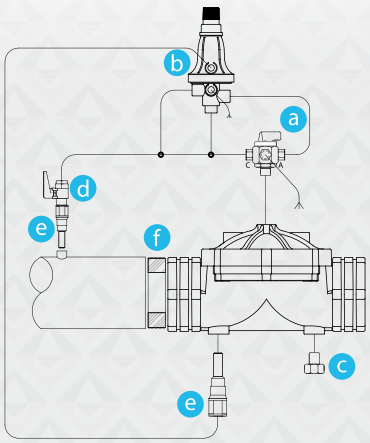
Please submit following information to our sales department while ordering.

Maximum flow rate _____ m^3/h
Maximum network/line pressure _____ bar
Main line size _____ mm
Valve connection type _____
Electric voltage value to be used _____ volt



a 3- way selector valve
b In-line Finger Filter
c Plug
d Solenoid Pilot Valve
e Electric Float Switch

flow rate control valve | FR



a 3- way selector valve
b Plastic Pilot
c Plug
d Ball Valve
e In-line Finger Filter
f Orifice Plate

description

"FR" model flow rate control valve is designed to limit desired flow rate. The orifice on main valve upstream creates pressure difference and 3/way differential pressure set pilot mounted in control chamber of valve senses this pressure difference and ensures that main valve opens in desired flow rate. Valve thereby limits desired flow rate automatically and keeps it fixed. It eliminates over flow by preventing excessive flow during reverse washing in filtration systems.

applications

Use **55FR** for automatically limiting required flow rate without affecting inlet pressure.

standards

55FR – Plastic flow rate pilot, polytethylene plastic tubing system, nylon fittings and stainless steel orifice

options

Pressure Gauge

order information

Please submit following information to our sales department while ordering.

Maximum flow rate _____ m^3/h
Maximum network/line pressure _____ bar
Main line size _____ mm
Valve connection type _____
Maximum upstream pressure _____ bar
Desired flow rate _____ m3/h