500 Series Hydraulic Control Valves	
Operating Principals	
Available Models	
Hydraulic Performance	
G500-S Hydraulic with Manual Selector 1-1/2" - 3"	
G500-EL Electric Solenoid Control Valve 1-1/2" - 3"	
G500-C DC Battery Controller 1-1/2" - 3"	
G500-PR Pressure Reducing 1-1/2" - 3"	
G500-PREL Solenoid Controlled Pressure Reducing 1-1/2" - 3"	
G500-PRPS Pressure Reducing & Sustaining Control Valve 1-1/2" - 3"	
G500-QR Quick Pressure Relief 1-1/2" - 3"	
G500-PS Pressure Sustaining Control Valve 1-1/2" - 3"	
G500-FR Flow Rate Control Valve 1-1/2" - 3"	

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 the valve body and diaphragm. No wearable parts such as stem, bearing and seat exist in the main valve body and valve life is much longer than other competitor valves. The only movable part of the valve is the valve diaphragm.

500 series hydraulic control valves are designed so that they can be used in portable water force network, agricultural irrigation, filtration and industrial applications by even 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

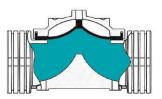
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Operating principals

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 mechanical energy.

Valve opening mode

When the pilot valve located on the 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.

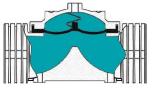


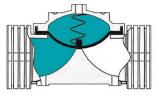
Modulation mode

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

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).





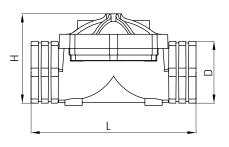
Available models

Technical Data

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	G500				
Connection	Threaded				
Material	Glass reinforc	ed polyamide			
Body	Globe				
Maximum working pressure	10 bar	160psi			
	inch	mm			
	1-1/2"	40			
Available sizes	2"	50			
	2-1/2"	65			
	3"	80			



model G500

Dimensions

D	N	D		I	L	Н		
inch	mm	inch	mm	inch	mm	inch	mm	
1-1/2"	40	2-1/2"	62	7-7/8"	200	4-3/8"	110	
2"	50	3"	75	7-7/8"	200	4-3/8"	110	
2-1/2"	65	3-3/4"	95	9-7/8"	250	5-3/8"	138	
3"	80	4-1/4"	109	9-7/8"	250	5-3/8"	145	

Order Information

Please submit following information to our sales department when ordering :

Maximum flow ratem ³ /h
Maximum network/line pressurebar
Main line sizemm
Valve connection type
Maximum upstream pressurebar
Minimum upstream pressurebar
Desired downstream pressurebar
Electric voltage value to be usedvolt



Hydraulic performance

Hydraulic Performance Chart

VALVE SIZE	mm	40	50	65	80
	inch	1-1/2"	2"	2-1/2"	3"
Kv	m³/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 m³/h @ 1 bar)

• Cv : Valve Flow Coefficient (fluid passing under 1 bar pressure difference in gpm @ 1 bar)

• Q : Flow Rate (m³/h)

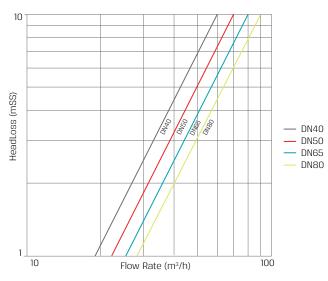
• $\triangle P$: Head Loss (bar)

• G : Specific weight of water (1.0 for water)



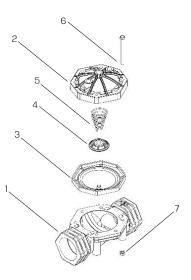


Head Loss Chart



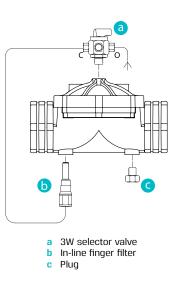
Main Parts

NO		MATERIAL
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



G500-S | Hydraulic with Manual selector 1-1/2" - 3"





Description

G500-S 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 completely tight without causing surge. It may be used in different applications by adding different pilot valves on its main body.

Applications

- Use G500-S for local operation of hydraulic valve by a manual command.
- Use G500-S for water distribution and field.

Standards

G500-S : manual control valve with 3 Way selector valve, polyethylene plastic tubing and nylon fittings.

How to Order

G500	-	TYPE		-	PORT	
		Hydraulic	S		1-1/2" BSPT	70
		with Manual Selector	SM		1-1/2" NPT	71
					2" BSPT	80
					2" NPT	81
					2-1/2" BSPT	85
					2-1/2" NPT	86
					3" BSPT	90
					3" NPT	91

Example : G500-SM-80

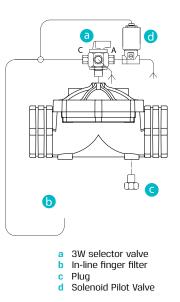
G500 Hydraulic with manual selector, 2" BSPT





G500-EL | Electric Solenoid Control Valve 1-1/2" - 3"





Description

G500-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 (NO) or normally closed (NC), solenoids coils may be used on main valve.

Applications

- Use G500-EL to remove operation of hydraulic valve by an electric command.
- Use G500-EL for water distribution.

Standards

- G500-EL : 3 Way NO Solenoid, polyethylene plastic tubing system and nylon fittings.
- G500-ELM : 3 Way NO Solenoid, polyethylene plastic tubing system, nylon fittings and 3 Way selector.

How to Order

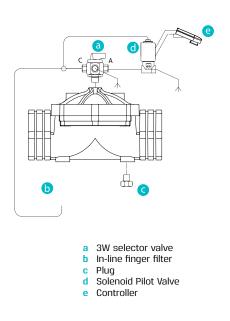
G500 -	TYPE	-	PORT	PORT		VOLTAGE		S
	Electric	EL	1-1/2" BSPT	70	No solenoid (hydraulic)	0	two	null
	with Manual Selector	ELM	1-1/2" NPT	71	24V AC	1	three ⁽¹⁾	а
	2" BSPT	80	24V AC w/out Diode	1R				
			2" NPT	81	12V AC	3		
			2-1/2" BSPT	85	12V DC	4		
			2-1/2" NPT	86	24V DC	5		
			3" BSPT	90	24 Latch (23 Ω)	6		
			3" NPT	91	6 Latch (4 Ω)	В		
Example : G500)-ELM-801			12 Latch (9 Ω)	С			
G500 Electric v 2" BSPT, 24V AC			16Latch (12 Ω)	D				



(1) For Latch only

G500-C | DC Battery Controller 1-1/2" - 3"





Description

G500-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 G500-C for programmed irrigation.
- Use G500-C for water distribution.

Standards

G500-C : 9V DC Latch solenoid, Control Unit (1 Outlet), polyethylene plastic tubing system, nylon fittings and 3 Way selector.

How to Order

G500-C	-	TYPE		-	PORT	
		One valve	null		1-1/2" BSPT	70
		Window	W		1-1/2" NPT	71
		Window +	W+		2" BSPT	80
					2" NPT	81
					2-1/2" BSPT	85
					2-1/2" NPT	86
					3" BSPT	90
					3" NPT	91

Example : G500-C-W-90

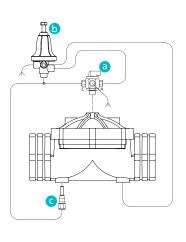
G500 DC Battery controller, Window, 3" BSPT





G500-PR | Pressure reducing 1-1/2" - 3"







Description

G500-PR model pressure reducing 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 valve. Pressure reducing 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 is lower than set point, it is opened fully by itself. Valve may be used in vertical or horizontal positions in the system.

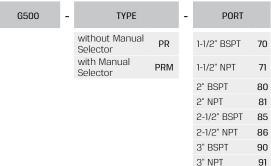
Applications

- Use G500-PR for irrigation, water distribution and filtration systems.
- Smart designed G500-PR provides high corrosion resistance.

Standards

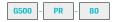
- G500-PR : 3 Way plastic pressure reducing pilot, polytethylene plastic tubing system and nylon fittings.
- G500-PRM : 3 Way plastic pressure reducing pilot, polytethylene plastic tubing system, nylon fittings and 3 Way selector.
- Standard pressure adjustment from factory : 2.5 bar.

How to Order



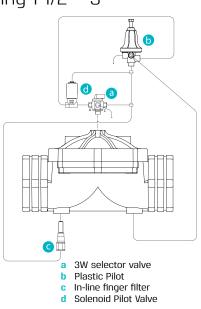
Example : G500-PR-80

G500 pressure reducing without manual selector, 2" BSPT



G500-PREL | Solenoid controlled pressure reducing 1-1/2" - 3"





Description

G500-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 G500-PREL for water distribution, where downstream pressure should be reduced, the valve is commanded to open.

Standards

- G500-PREL : 3 Way plastic pressure reducing pilot, solenoid 24V AC NO, polytethylene plastic tubing system and nylon fittings
- G500-PRELM : 3 Way plastic pressure reducing pilot, solenoid 24V AC NO, polytethylene plastic tubing system and nylon fittings and 3 Way selector.
- Standard pressure adjustment from factory : 2.5 bar.

How to Order

G500 -	TYPE		-	PORT	PORT VOLTAGE			WIRES	
	without Manual Selector	PREL		1-1/2" BSPT	70	No solenoid (hydraulic)	0	two	null
	with Manual Selector	PRELM		1-1/2" NPT	71	24V AC	1	three ⁽¹⁾	а
				2" BSPT	80	24V AC w/out Diode	1R		
				2" NPT	81	12V AC	3		
				2-1/2" BSPT	85	12V DC	4		
				2-1/2" NPT	86	24V DC	5		
				3" BSPT	90	24 Latch (23 Ω)	6		
				3" NPT	91	6 Latch (4 Ω)	В		
Example : G500-PRELM-851						12 Latch (9 Ω)	С		
G500 Solenoid controlled pressure reducing, with manual selector, 2-1/2" BSPT, 24V AC, two wires						16Latch (12 Ω)	D		

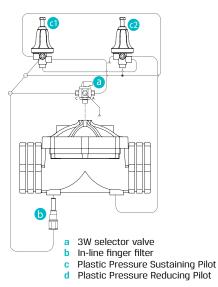


(1) For Latch only



G500-PRPS | Pressure reducing & sustaining control valve 1-1/2" - 3"





Description

G500-PRPS model pressure reducing/sustaining hydraulic control valve reduces valve downstream pressure to desired value by sustaining upstream pressure. Two pilot valves exist on the valve. Pilot valve on upstream side is the pressure sustaining pilot valve and sustains upstream pressure. The 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 the system works within normal values by regulating overflow and high pressure in pumping systems. It controls upstream and downstream pressure continuously and keeps them within constant values.

Applications

Use G500-PRPS for protecting booster pumps and preserving set pressure downstream.

Standards

G500-PRPS: 3 Way plastic pressure reducing pilot, 3 Way plastic pressure sustaining valve, polytethylene plastic tubing system, nylon fittings and 3 Way selector.

How to Order

G500-PRPS	-	PORT	
		1-1/2" BSPT	70
		1-1/2" NPT	71
		2" BSPT	80
		2" NPT	81
		2-1/2" BSPT	85
		2-1/2" NPT	86
		3" BSPT	90
		3" NPT	91

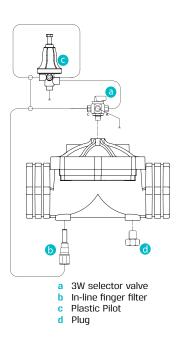
Example : G500-PRPS-80

G500 pressure reducing & sustaining 2" BSPT

G500-PRPS - 80

G500-QR | Quick pressure relief 1-1/2" - 3"





Description

G500-QR model quick pressure relief valve is the safety control valve designed to protect the system by releasing pressure surges, which are caused by sudden changes in water speed due to pumps put into/out of service, in water network elevation lines to the atmosphere quickly. When network pressure exceeds set point, the valve opens by itself quickly and protects the system by releasing over pressure. When the line pressure decreases to normal level, it is tightly closed slowly and automatically without causing a surge.

Applications

Use G500-QR when wishing to avoid unwanted high pressure.

Standards

- G500-QR : 3 Way plastic pilot, polytethylene plastic tubing system and nylon fittings.
- G500-QRM : 3 Way plastic pilot, polytethylene plastic tubing system and nylon fittings and 3 Way selector.

How to Order

G500 -	ТҮРЕ		-	PORT		VOLTAGE		WIRE	S
	without Manual Selector	QR		1-1/2" BSPT	70	No solenoid (hydraulic)	0	two	null
	with Manual Selector	QRM		1-1/2" NPT	71	24V AC	1	three ⁽¹⁾	а
				2" BSPT	80	24V AC w/out Diode	1R		
				2" NPT	81	12V AC	3		
	2-1/2" BSPT	85	12V DC	4					
	2-1/2" NPT	86	24V DC	5					
				3" BSPT	90	24 Latch (23 Ω)	6		
				3" NPT	91	6 Latch (4 Ω)	В		
Example : G50	12 Latch (9 Ω)	С							
G500 quick pressure relief, without manual selector, 16Latch (12Ω) D 1-1/2" BSPT, 24V AC, two wires									

G500	-[QR	-	70	1

(1) For Latch only







Description

G500-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. The 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 closes tightly by itself.

Applications

Use G500-PS for maintaining a constant upstream pressure or to avoid unwanted high pressure.

Standards

- G500-PS: 3 Way plastic pressure sustaining pilot, polytethylene plastic tubing system and nylon fittings.
- G500-PSM: 3 Way plastic pressure sustaining pilot, polytethylene plastic tubing system, nylon fittings and 3 Way selector.
- Standard pressure adjustment from factory : 2.5 bar.

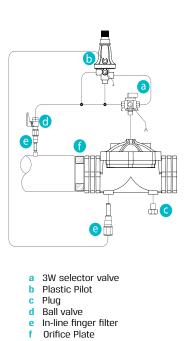
How to Order

G500	-	TYPE		-	PORT		VOLTAGE		WIRE	S
		without Manual Selector	PS		1-1/2" BSPT	70	No solenoid (hydraulic)	0	two	null
		with Manual Selector	PSM		1-1/2" NPT	71	24V AC	1	three ⁽¹⁾	а
					2" BSPT	80	24V AC w/out Diode	1R		
					2" NPT	81	12V AC	3		
					2-1/2" BSPT	85	12V DC	4		
					2-1/2" NPT	86	24V DC	5		
					3" BSPT	90	24 Latch (23 Ω)	6		
					3" NPT	91	6 Latch (4 Ω)	В		
Example : G500-PSM-801							12 Latch (9 Ω)	С		
G500 pressure sustaining with manual selector, 2" BSPT, 24V AC, two wires							16Latch (12 Ω)	D		



G500-FR | Flow rate control valve 1-1/2" - 3"





Description

G500-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 the main valve opens in desired flow rate. The valve thereby limits desired flow rate automatically and keeps it fixed. It eliminates overflow by preventing excessive flow during reverse washing in filtration systems.

Applications

Use G500-FR for automatically limiting required flow rate without affecting inlet pressure.

Standards

G500-FR : Plastic flow rate pilot, polytethylene plastic tubing system, nylon fittings and Stainless Steel orifice.

How to Order

G

6500-FR	-	PORT	
		1-1/2" BSPT	70
		1-1/2" NPT	71
		2" BSPT	80
		2" NPT	81
		2-1/2" BSPT	85
		2-1/2" NPT	86
		3" BSPT	90
		3" NPT	91
		3" NPT	91

Example : G500-FR-70

G500 flow rate control, 1-1/2" BSPT



