

HYDROSTAB PRESSURE REDUCING VALVE (PRV) DN 50 to 600 XG AND DN 150 to 700 LG

Setting instruction
and maintenance
WXA 05 012

Series K1 10

A - GENERALS

FUNCTIONS

Automatically reduces a higher inlet pressure to a steady lower downstream pressure regardless of variations of flow and/or inlet pressure.

It can be used as a "on-off" valve with manual operation.

PRINCIPAL CHARACTERISTICS

- PN 25.
- Flanges drilling: ISO PN10, 16 or 25.
- Max. working temperature: 65 °C.
- Fluid: potable or raw water (max. mesh size: 2 mm).
- Main valve: diaphragm type.
- Pilot valve - 3/8" for DN 50 to 300 XG and 150 to 400 LG.
- 3/4" for DN 400 to 600XG and 500 to 700 LG.

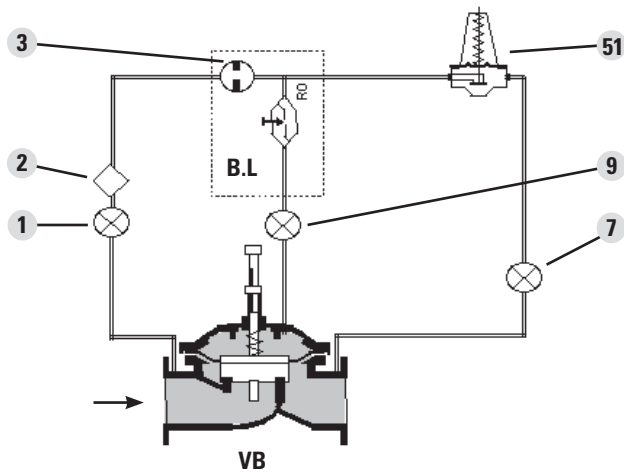


Fig. I

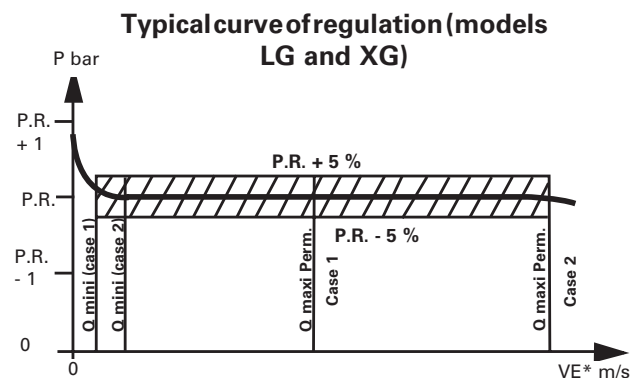


Fig. II

DESCRIPTION AND OPERATION

The Hydrostab pressure reducing valve consists of (fig. I):

- an Hydrobloc main valve (globe or angled) (VB),
- a pilot circuit including :
 - on its upstream branch (A): a filter (2), a restrictor (3) and an isolating cock (1),
 - on its downstream branch (B): a downstream pressure control pilot valve (51) and an isolating cock (7),
 - a linking block to upper chamber (BL) and a chamber isolating cock.

When the downstream pressure increases, the pilot valve tends to close which operates closing of the main valve. When the downstream pressure decreases, the pilot valve tends to open, which operates opening of the main valve.

The main valve copies the movements of the pilot valve.

ADVISED PERFORMANCES AND FLOWS

- The operating principle guarantees a very accurate control of the downstream pressure (fig. II): generally $\pm 5\%$ of the set value (PR) within the recommended flowrange (see table III below).
- With clean water, the valve is leakproof at zero flow for a downstream pressure approx. 1 bar higher than the set value.
- If the inlet pressure drops close to the set value, the Hydrostab fully opens thus creating a very low headloss.

Table III - RECOMMENDED FLOWRATES (l/s) - **Case 1** : Δp available ≤ 1 bar ; **Case 2** : Δp available > 1 bar

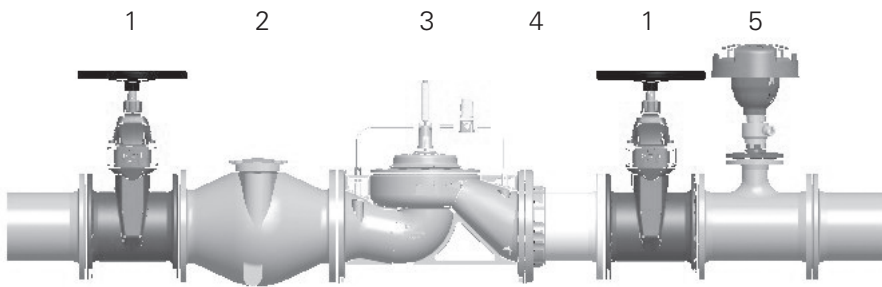
		VE*/ DN	50	65	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000
LG Design	Case 1 Mini flow rate	0,2	-	-	-	-	3,5	6,3	9,8	14	19	25	39	57	77	-	127	157	
	Maxi permanent flow rate	2	-	-	-	-	35	63	98	141	192	251	393	565	770	-	1272	1571	
XG Design	Case 2 Mini flow rate	0,4	-	-	-	-	7,1	13	20	28	38	50	79	113	154	-	254	314	
	Maxi permanent flow rate	4	-	-	-	-	71	126	196	283	385	503	785	1131	1539	-	2545	3142	
XG Design	Case 1 Mini flow rate	0,2	0,4	0,7	1	1,6	2,5	3,5	6,3	9,8	14	-	25	-	57	-	101	-	-
	Maxi permanent flow rate	2,5	4,9	8,3	13	20	31	44	79	123	177	-	314	-	707	-	1257	-	-
XG Design	Case 2 Mini flow rate	0,4	0,8	1,3	2	3,1	4,9	7,1	13	20	28	-	50	-	113	-	201	-	-
	Mini flow rate/Mini flow rate	5	9,8	17	25	39	61	88	157	245	353	-	628	-	1414	-	2513	-	-

* VE (m/s) : equivalent flow velocity : average velocity in DN section

B - INSTALLATION AND COMMISSIONING

INSTALLATION

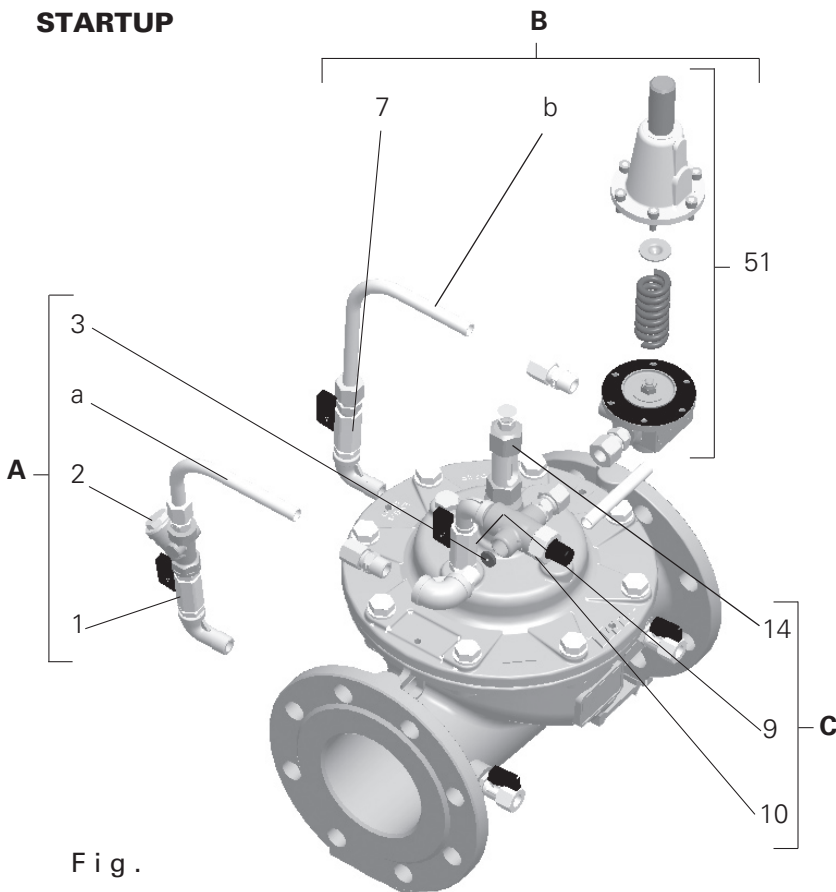
Please refer to general notice WXA 05 011.



- 1 - Isolating gate valve
- 2 - Strainer box F3 10/F3 20
- 3 - Hydrostab Pressure Reducing valve K1 10
- 4 - Dismantling coupling MAJORC1 10/C1 15
- 5 - Double orifice Air Valve VANNAIR F1 20

(Upstream the Hydrostab if pipe is horizontal or going upwards and downstream side of the Hydrostab if pipe is going downwards)

STARTUP



Upstream Branch A

- Isolating cock 1/4 turn 1
- Filter 2
- Restrictor 3
- Tubing 8/10 (pilot 3/8") a
- Tubing 13/15 (pilot 3/4") a

Linking blocks to upper chamber C

- Chamber isolating cock 9
- Opening speed control 10
- Visual position indicator + air trap 14

Downstream Branch B

- Pressure reducing pilot valve 51
- Isolating cock 1/4 turn 7
- Tubing 8/10 (pilot 3/8") b
- Tubing 13/15 (pilot 3/4") b

Fig .

PRELIMINARY SETTING OF DOWNSTREAM PRESSURE

The upstream network must be filled, pressurized and free of air. Upstream and downstream isolating gate valves must be closed. Startup in 3 steps.

1 - To fill and bleed Hydrostab (Fig.V)

- Open the upstream pressure gauge.
- Check the stop cocks (1) and (9) are fully open.
- Close downstream stop cock (7).
- Open slightly the upstream gate valve.
- Open slightly the air trap on top of visual indicator (14), let all air go out. Main valve remains closed.
- Open completely the valve upstream gate valve.

2 - Downstream pressure initial adjustment

This presetting is carried out using the curves shown opposite.

- Open the downstream pressure gauge.
- Set the pilot valve to the required outlet pressure: loosen the locking nut (12). Downstream pressure is increased by turning the adjusting screw into the direction indicated by the (+) arrow and decreased by turning into the (-) direction. Presetting is achieved according curves fig. V.
- Lock the counter-nut (12).

3 - Fill the downstream section

- Open the downstream stop cock (7)
- Gradually open the downstream isolating valve to fully open position. Take usual precautions by filling slowly the pipeline: about 1.5 km / hour, use of air release valves...Final adjustments can only be made under normal flow conditions (see "Setting while in use").

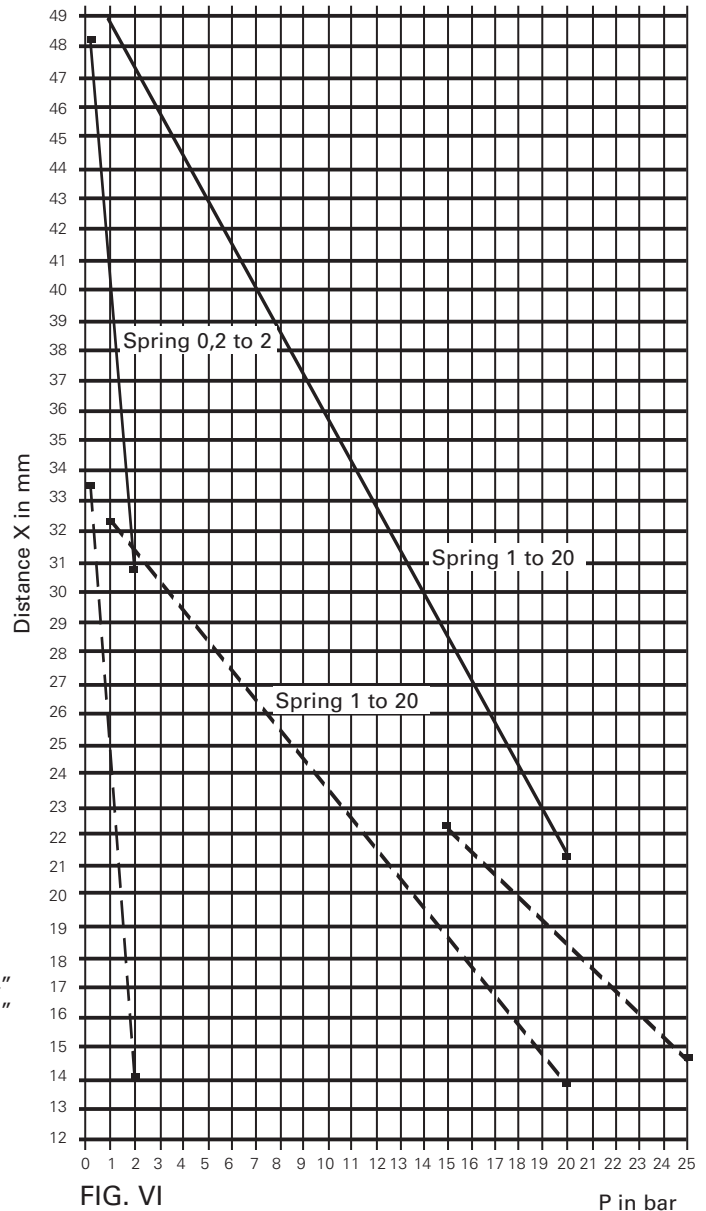
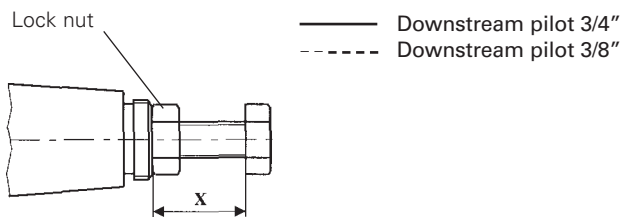


FIG. VI

P in bar

SETTING WHILE IN USE

Following operations have to be carried out when the downstream network is in service and if possible under normal flow conditions. If the demand is too low or close to zero, open a drain valve or hydrant downstream of the Hydrostab.

Setting the pilot valve

- Open the pressure gauges.
- Set the pilot valve as previously indicated until getting the desired value (value read on the downstream pressure gauge).

Setting of valves in parallel

When 2 Hydrostab are installed in parallel (using a smaller valve on by pass for low flowrates), the smaller valve should be set 0.5 bar higher than the larger one.

Using the Hydrostab as a on/off valve

Close downstream isolating cock (7) to fully close the main valve (upstream isolating cock (1) must be in open position).

Reopen downstream isolating cock (7) to put back the Hydrostab into regulating function.

Caution: Closing of the upstream isolating cock (1) can provoke the full opening of the valve (ie: upstream pressure = downstream pressure).

Adjusting the opening speed control (RO)

This device allows to adjust the opening speed of the Hydrostab without influencing the closing speed. It guarantees a better protection of the network especially when the demand fluctuates rapidly and frequently. This device is self cleaning.

- Take off the protection cap, and unscrew the locking nut. Fully screw down the adjusting screw. Then reopen (unscrew) according to the desired number of turns:
 - for a maximal opening speed slow down: 2 to 4 turns,
 - normal setting: 5 turns,
 - minimal slow down: 8 turns.
- For some specific applications the opening speed control (RO) can be replaced by a closing speed control (RF) or a closing and opening speed control (RFO). Please contact us.

Adjusting the closing speed for valves in series

- When several Hydrostab PRV are fitted in series on the pipeline, the valve located further upstream should have a quicker opening than the one located downstream.

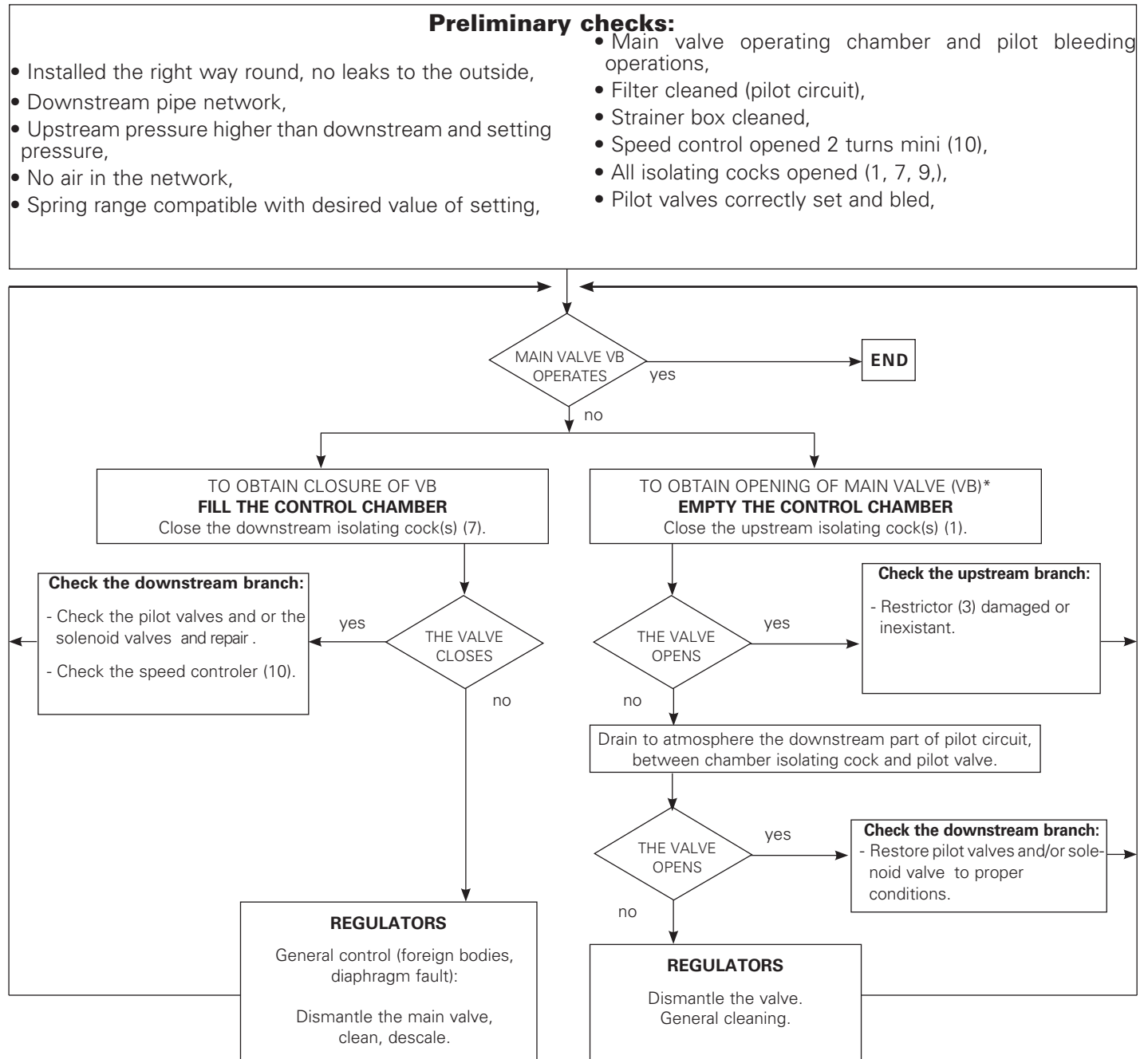
Hydrostab should be fitted with a closing and / opening speed instead of opening speed control.

C - OPERATION AND MAINTENANCE

MAINTENANCE

Please refer to general notice WXA 05 011.

PROCEDURE IN CASE OF INCIDENTS



Solenoid valve in option

** In this case, upstream pressure is transmitted to downstream.*

NOISY DEVICE

Noise can either be due to too high pressure differential or too low downstream pressure. As a result, cavitation occurs. One solution consists in increasing the downstream pressure (installation of an orifice plate). Another possibility is to install another valve in serie in order to scale the Δp (check the working conditions and cavitation diagrams).

A simultaneous record of inlet and outlet pressures is useful for the understanding of any malfunction.

In order to avoid the wear of materials, when cavitation may occur, use by the anti-cavitation kit for mobile assembly.

In case of problem, please consult us.

PRESSURE FLUCTUATIONS

Pressure fluctuations in the network are often due to air pockets in the pipes. Be sure that air valves have been installed at high points, dead ends or at any drastic change of pipe profile.

If the air pockets are not possible to locate, fluctuations can be reduced by adjusting the opening speed control (10).