



STANDARD EQUIPMENT

No	Description	Qty	Type
1	MAIN VALVE HYTROL/X113 AE/GE/NGE	1	100-01/X113
2	ISOLATION BALL VALVE	3	RB-117
3	STRAINER WITH INCORPORATED ORIFICE	1	X44-A
4	2-WAY ON/OFF FLOAT LEVEL CONTROL	1	CF9

OPTIONAL FEATURES

No	Description	Qty	Type
F	REMOTE SENSING	1	-
N	PRESSURE RELIEF CONTROL	1	CRL & RB-117
W1	ANTI-FREEZE FEATURE	1	-

NOTES

AE/GE : DN 80 - DN 400 / NGE : DN 100 - DN 600

(E) = INLET (BRONZE)
(S) = OUTLET (SS-STEEL)

OPTIONAL FEATURES : _____
NOT FURNISHED BY CLA-VAL : _____



► Operating data

1.1 ► HYDRAULIC REMOTE CONTROL

The 2-way float control CF9 (4) is a non modulating, two positions, on-off pilot. It is operated mechanically through a stainless steel float Ø 180 mm, which moves freely along its float rod equipped with two adjustable rings, allowing to set the "maximum" and the "minimum" levels.

At maximum level, the float control (4) is closed and forces therefore the control pressure into the control chamber of the main valve (1), causing it to close.

At minimum level, the float control (4) is opening integrally and discharges into the reservoir the control pressure, as well as the volume of the main valve (1) control chamber, generating its complete opening.

Note: In order to guarantee a good operation of the system, the dynamic pressure at the inlet of the main valve (1) must always be higher than the height difference between the main valve (1) and the float control (4), increased twice of the pressure drop of the valve at max. rate of flow. In addition, the float control (4) should be installed at a height which is always beneath that of the inlet feeding pipe of the reservoir. However, if this condition cannot be matched (reservoir bottom feeding), it must be checked that at maximum reservoir level, the main valve inlet dynamic pressure is still in a position to feed positively the float control (4) for insuring the proper control of the main valve (1). Further the float level control (4) must be installed in the storage tank, over the top of the maximum level of the reservoir and its float should be protected by a stilling well, preventing any water turbulence to disturb its proper operation.

The float level control (4) is equipped with an unbalanced locking feature that prevents the valve to switch between maximum and minimum levels.

1.2 ► OPENING / CLOSING SPEED

The main valve (1) includes a feature allowing automatic acceleration of opening, respectively closing speed, when one third of the valve stroke is reached (first third of opening stroke or last third of closing stroke). This feature prevents the system from hydraulic shocks, when the differential pressure is important. Once the valve has passed one third of its opening stroke, opening speed becomes automatically accelerated until full opening of the main valve (1) is obtained. When closing, the accelerated speed takes place until the last third of the stroke begins, which automatically generates the slow closing speed.

1.3 ► (E*) EUROPEAN STANDARDS

ITEM (2) - Isolation ball valve:

The isolation ball valves RB-117 (2) are used to isolate the pilot system from main line pressure. These isolation ball valves must be open during normal operation.

ITEM (3) - Y-Strainer with incorporated orifice:

The strainer X44-A (3) is installed in the pilot supply line to protect the pilot system from foreign particles. The strainer screen must be cleaned periodically.

1.4 ► OPTIONAL FEATURES

Suffix (F) - Independent operating pressure:

The control pressure for the pilot system is provided by an independent source; in any application, the independent pressure must be equal or higher than the existing inlet main valve (1) pressure.

Suffix (N) - Pressure relief control:

The pressure relief control CRL (N), connected directly to the main valve upper chamber, is sensing the upstream pressure of the main valve (1) in order to control automatically the valve closing speed for avoiding any surge at main valve (1) inlet or in its upstream pipe during the closing cycle.



If overpressure occurs in the main feeding pipe while the valve is closing, the pressure relief control (**N**) will generate a partial provisory opening of the main valve (**1**), permitting to relieve the upstream overpressure and to allow then to insure the tight closure of the main valve (**1**) without surge.

Pressure relief control adjustment: Turn the adjusting screw clockwise to increase the overpressure setting or anticlockwise to decrease the overpressure setting.

Suffix (**W1**) - Antifreeze feature:

The float control valve (**4**) is equipped with a bypass circuit which is securing a permanent and constant flow through the pilot circuit of the main valve (**1**). This eliminates all freezing risks in case of low ambient temperature.

1.5 ▶ CHECK LIST FOR PROPER OPERATION

- System valves open upstream and downstream (if existing).
- Air removed from the main valve cover and all high points of the pilot system.
- All isolation ball valves (**2**) open.
- Periodic cleaning of strainer (**3**) is recommended.
- Proper installation of independent supply line [optional feature (**F**)].
- Connecting pipe between isolating cock (**2C**) and size float level control (**4**) correctly installed, respecting the following points :
 - a) Connecting pipe R 3/8" [if length between pilot circuit and float level control (**4**) smaller than 5 m].
 - b) Connecting pipe R 1/2" [if length between pilot circuit and float level control (**4**) equal or over 5 m].
 - c) Avoid to create a high point in this piping. If not possible the high point must be equipped with a manual venting cock Rp 1/4", eventually with an automatic vent air release valve.
- Spherical float ball must be protected against water waves or turbulence by installing a stilling tube $\varnothing_{id} \geq 250$ mm.
- Install the spherical float ball and eventually the correct counterweight (see next point below) on its guiding rod between the two level rings at adjust them according the prescribed max. and min. levels. Lock properly the two set ring fixing screws, as well as the rod elements themselves to prevent them falling into the reservoir.
- If the length of the guiding float rod is $L \leq 1$ m, use the float counterweight (300 g). Don't use it if the total rod length is longer than 1 m. Contact CLA-VAL Europe or his Distributor if the total rod length is over 2.5 m.