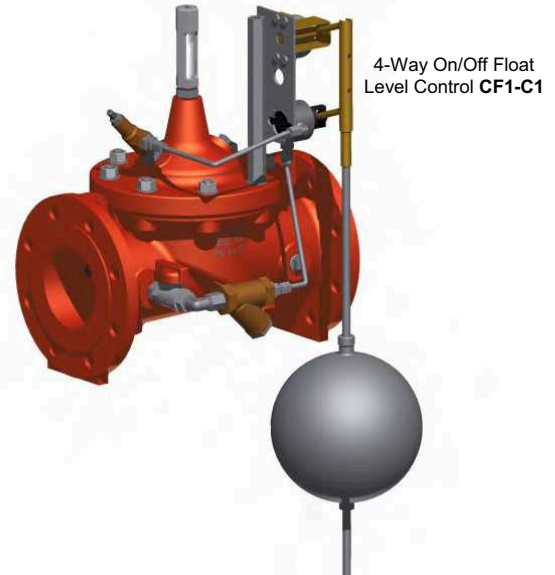
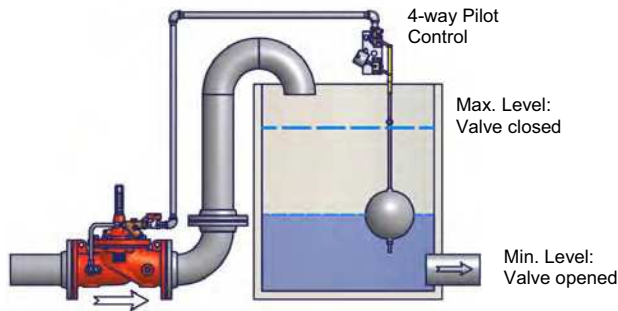


► Simple, Reliable and Accurate

- Completely Automatic Operation
- Easy Adjustment and Maintenance
- Quality Approved Materials
- World Wide Support

► CLA-VAL SERIES 100 Main Function



The CLA-VAL SERIES 100 On/Off Float Level Control Valve is a non-modulating valve which accurately controls the liquid level in a tank. This valve opens fully when the liquid level reaches a preset low level and closes drip tight when the liquid level reaches a high level.

► CLA-VAL 100-CF1 & 124-01 Typical Application

The CLA-VAL 100-CF1 & 124-01 is equipped with a 4-way pilot control type CF1-C1.

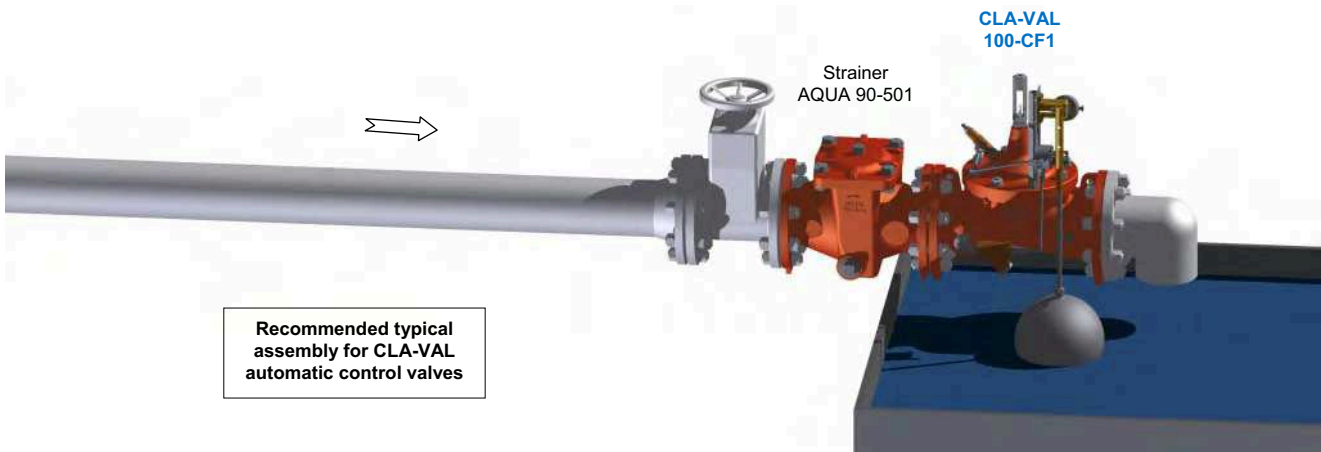
The CLA-VAL 100-CF1 is designed to open when the liquid level reaches a preset min. level and closes drip tight when the filling of the tank reaches the preset max. level.

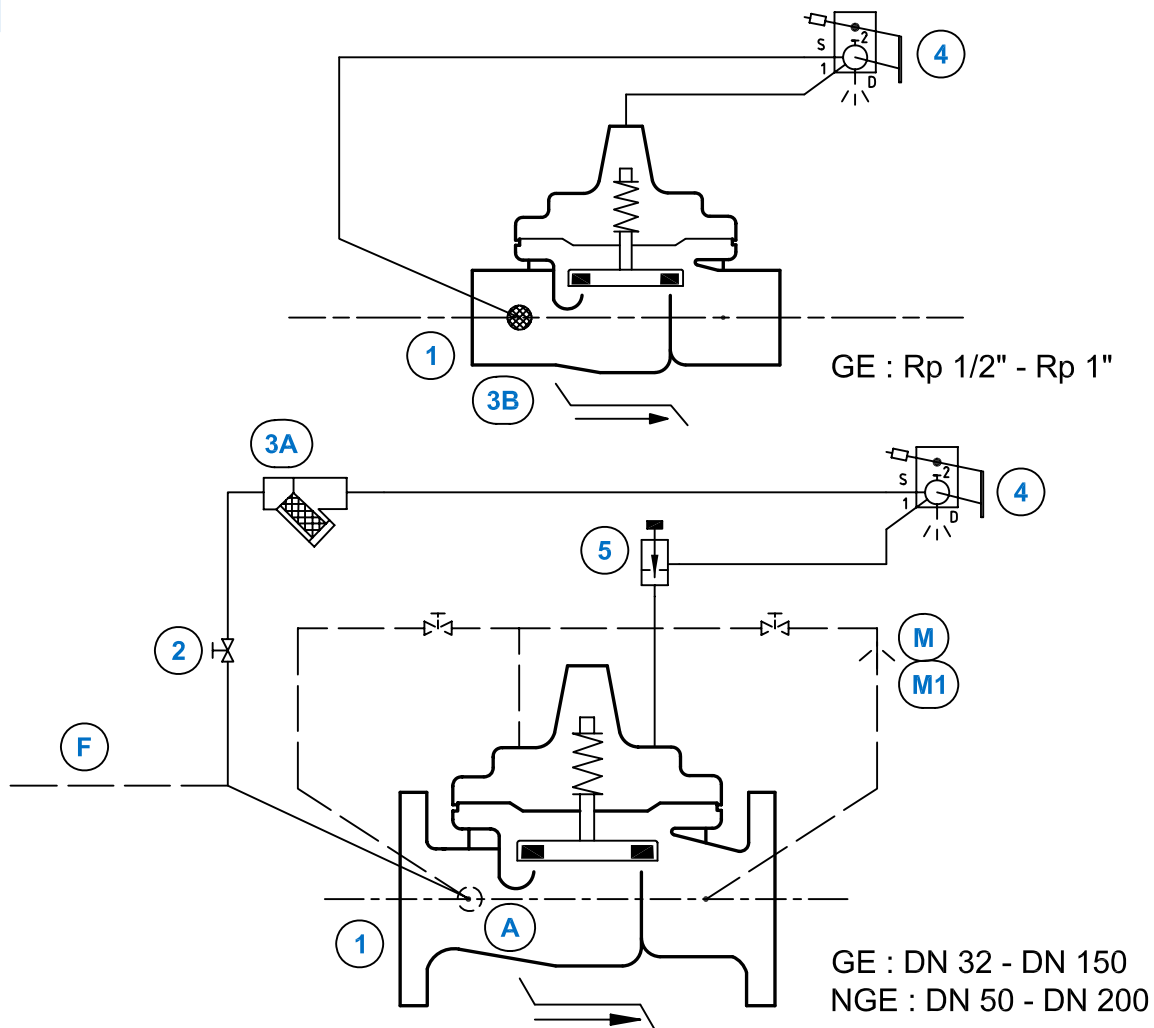
The CLA-VAL 124-01 Float Valve is commonly mounted above the high water level in a tank. Globe pattern valves are supplied standard with the float control mounted on the cover as illustrated, with a horizontal discharge. Angle valves are configured to discharge downwards.

Make your valve even Better!

LFS Option?	<u>Control</u> Low flows or night flows
KO Option?	<u>Extend</u> valve life with Anti-Cavitation trim
KG1 Option?	<u>Use</u> stem cleaning for harsh water
Maintenance?	<u>Check</u> on periodic maintenance
Environment?	<u>Adapt</u> to high temperatures or frost risk
Security?	<u>Add</u> hydraulic safety back-up to your valve
Protection?	<u>Remove</u> excessive system overpressures
Corrosion?	<u>Protect</u> your valve with upgraded materials

Not just Products but Solutions: contact CLA-VAL!





STANDARD EQUIPMENT

No	Description	Qty	Type
1	MAIN VALVE HYTROL AE/GE/NGE	1	100-01/KH
2	ISOLATION BALL VALVE	1	RB-117
3A	STRAINER	1	X43
3B	FLOW CLEAN STRAINER	1	X46A
4	4-WAY ON/OFF FLOAT LEVEL CONTROL	1	CF1-C1
5	NEEDLE VALVE	1	6120

OPTIONAL FEATURES

No	Description	Qty	Type
A	FLOW CLEAN STRAINER	1	X46A
F	REMOTE SENSING	1	-
M	MANUAL OPERATOR	2	RB-117
M1	MANUAL OPERATOR (DRAIN TO ATMOSPHERE)	2	RB-117

NOTES

AE/GE : Rp 1/2" - DN 150 / NGE : DN 50 - DN 200
(#) = According to valve size this feature type could change

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

▶ Operating data

1.1 ▶ HYDRAULIC REMOTE CONTROL

Float control pilot valve (4) is directly installed on the main valve (1). It is a float actuated, 4-way plate type pilot valve which applies or relieves pressure in the cover chamber of the main valve (1) in function of the set "maximum level", respectively "minimum level".

The float assembly floats on the top of the liquid in the reservoir and slides up and down the float rod. Adjustable stops on the float rod limit the distance between the high "maximum" and low "minimum" levels. At "maximum level", the float assembly is connecting its ports "S"-1" during its ports "2"-D" are connected for discharge. In this particular application, the float valve (4) is acting like a 3-way switch and port "2" is plugged. At maximum level, the command pressure is directed through ports "S"-1" in the control chamber of the main valve (1), which closes.

At "minimum level", the float assembly is connecting its ports "S"-2" and "1"-D". The pressure of the main valve (1) cover chamber is relieved to the atmosphere through the connections "2"-D" and the main valve (1) opens.

1.2 ▶ OPENING / CLOSING SPEED

Needle valve (5) controls the reaction speed and particularly the closing speed of the main valve (1).

Needle valve (5) adjustment: Turn the adjusting screw of valve (5) clockwise to make the main valve (1) close slower.

Note: Do not close the needle valves (5) completely or the main valve (1) will not close or open. Recommended adjustment = 1/2 to 1 turn open.

1.3 ▶ (E*) EUROPEAN STANDARDS

ITEM (2) - Isolation ball valve:

The isolation ball valves are used to isolate the pilot system from main line pressure. These valves must be open during normal operation.

ITEM (3) - Y-Strainer:

A strainer 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 obtained from an independent source; in any application, the independent pressure must be equal or higher than the existing inlet main valve (1) pressure.

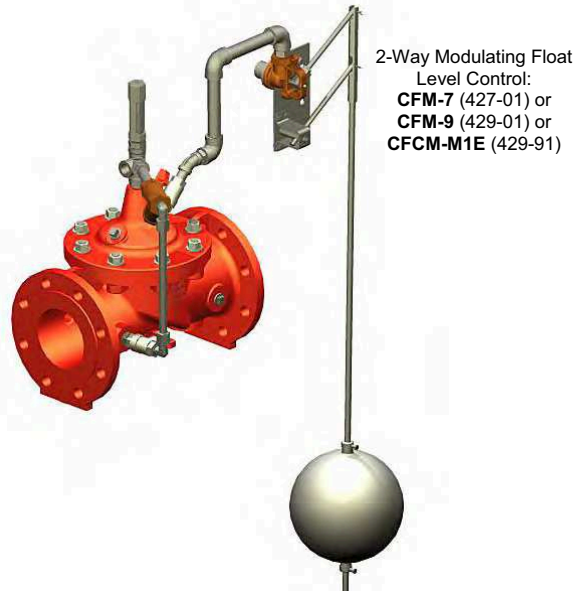
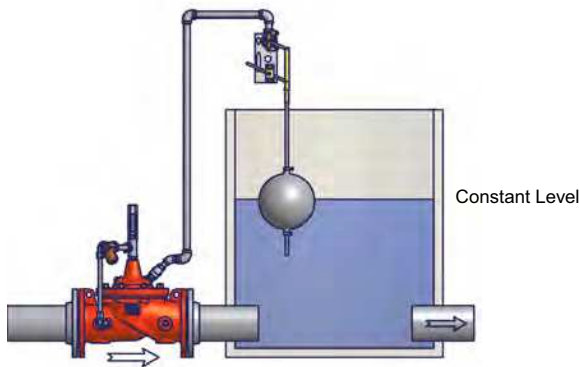
1.5 ▶ CHECK LIST FOR PROPER OPERATION

- System valves open upstream and downstream.
- Air removed from the main valve cover and all high points of the system.
- Isolation ball valve (2) open completely.
- Periodic cleaning of strainer (3) is recommended.
- Needle valves (5) open at least ½ turn.
- Pilot circuit of float valve (4), 4 x 6 mm or 10 x 12 mm properly mounted.

► Simple, Reliable and Accurate

- Completely Automatic Operation
- Easy Adjustment and Maintenance
- Quality Approved Materials
- World Wide Support

► CLA-VAL SERIES 420 Main Function



The CLA-VAL SERIES 420 Modulating Float Level Control Valve maintains a constant water level in a reservoir by compensating for variations in supply or demand. It can be installed to control the flow into or out of the reservoir by closing on rising level or opening on decreasing level.

► CLA-VAL 427-01 & CLA-VAL 429-01/91 Typical Application

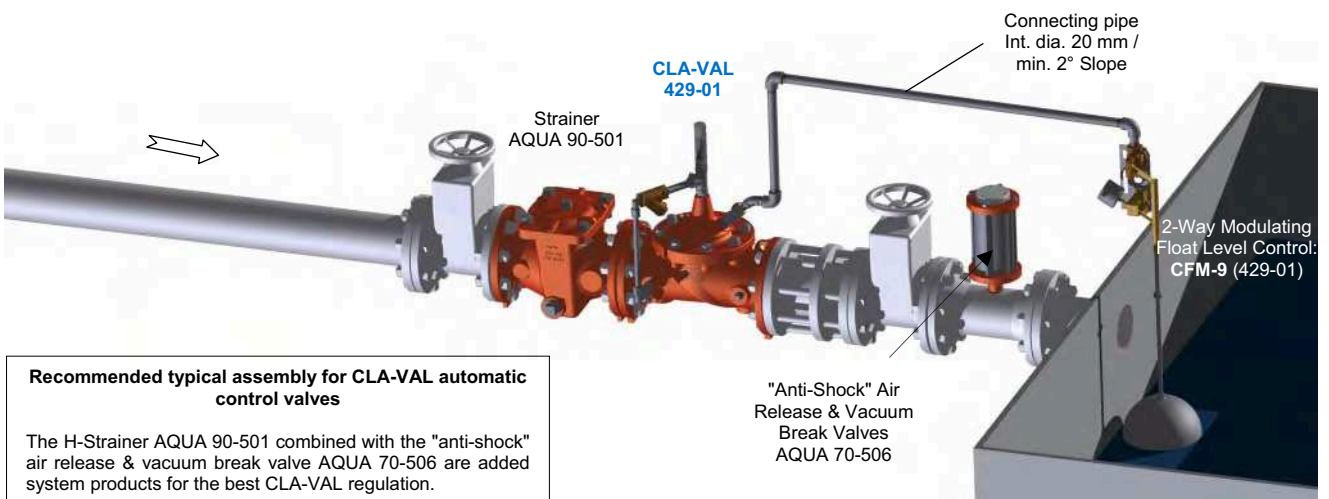
The CLA-VAL 429-01 is a self-stabilizing Modulating Float Level Control Valve which maintains a constant liquid level. A slight change in liquid level moves the Float Control which makes the main valve to seek a new position.

The CLA-VAL 429-01 is designed for high pressure system networks ($P < 16\text{bar}$) and where tank levels change rapidly. The CLA-VAL 429-01 is recommended for 150 mm and less.

Make your valve even Better!

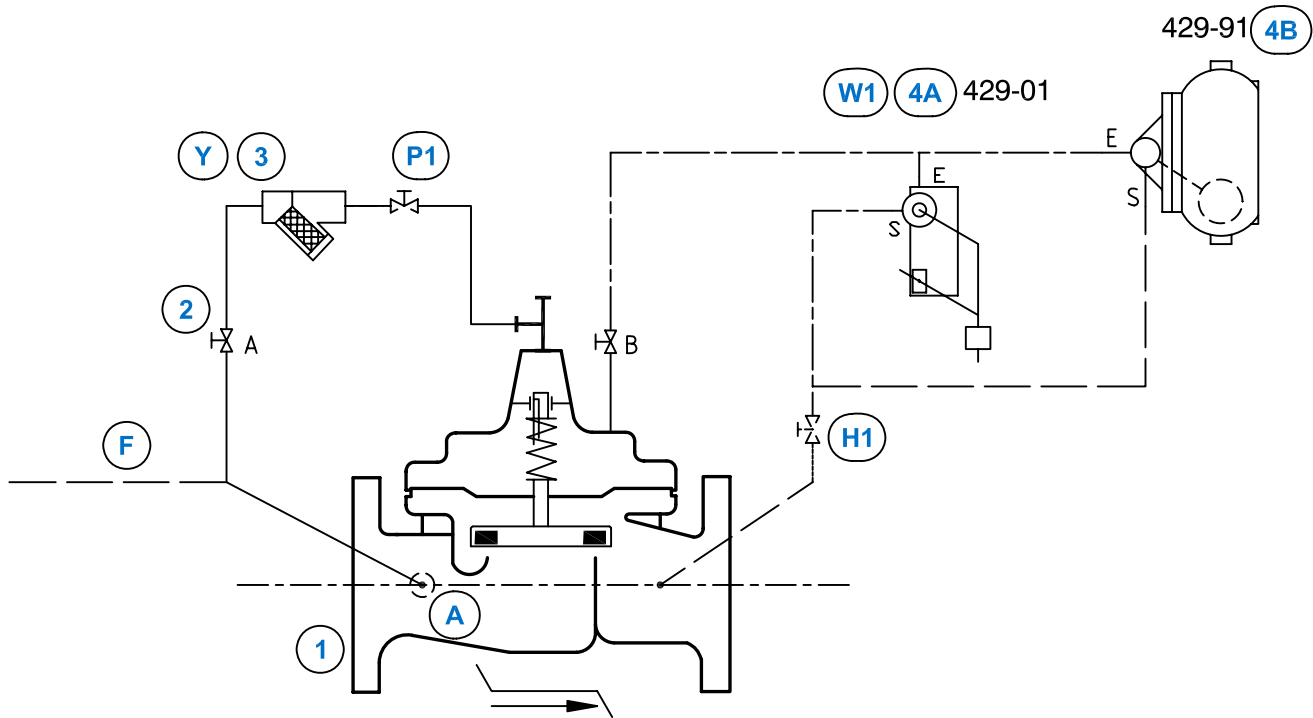
LFS Option?	<u>Control</u> Low flows or night flows
KO Option?	<u>Extend</u> valve life with Anti-Cavitation trim
KG1 Option?	<u>Use</u> stem cleaning for harsh water
Maintenance?	<u>Check</u> on periodic maintenance
Environment?	<u>Adapt</u> to high temperatures or frost risk
Security?	<u>Add</u> hydraulic safety back-up to your valve
Protection?	<u>Remove</u> excessive system overpressures
Corrosion?	<u>Protect</u> your valve with upgraded materials

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Recommended typical assembly for CLA-VAL automatic control valves

The H-Strainer AQUA 90-501 combined with the "anti-shock" air release & vacuum break valve AQUA 70-506 are added system products for the best CLA-VAL regulation.



STANDARD EQUIPMENT

No	Description	Qty	Type
1	MAIN VALVE HYTROL/X743 AE/GE/NGE	1	100-01/X743
2	ISOLATION BALL VALVE	2	RB-117
3	STRAINER	1	X43
4A	2-WAY MODULATING FLOAT LEVEL CONTROL	1	CFM-9
4B	2-WAY MODULATING FLOAT CHAMBER LEVEL CONTROL	1	CFCM-M1E

OPTIONAL FEATURES

No	Description	Qty	Type
A	FLOW CLEAN STRAINER	1	X46A
F	REMOTE SENSING	1	-
H1	DRAIN TO MAIN VALVE OUTLET	1	RB-117
P1	ISOLATION BALL VALVE	1	RB-117
W1	ANTI-FREEZE FEATURE	1	-
Y	HIGH CAPACITY STRAINER	1	X43/80-EP

NOTES

AE/GE : DN 32 - DN 150 / NGE : DN 50 - DN 200

E : INLET FLOAT VALVE (RED)
S : OUTLET FLOAT VALVE (BLUE)

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

▶ Operating data

1.1 ▶ INSTALLATION

Float control (4) must be installed in the reservoir above the maximum water level; when closed the float ball position must be set in order to correspond to the desired maximum level of the reservoir (adjustment by means of the two stop collars, which must always maintain the float ball firmly together with the float rod).

The connecting pipe between the main valve chamber (1) and the inlet "E" of the float pilot (4) not included in the CLA-VAL Europe equipment must be sized in G 1/2", if its length is smaller than 5 m or in G 3/4" if its length is bigger than 5 m. If it presents high point(s), this (these) one(s) should be equipped with venting cock(s) or automatic air release valve(s). The discharging pipe between the outlet "S" of float pilot and the reservoir / outlet of main valve (1), must be sized the same way; the discharging pipe should avoid any turbulence in the reservoir, in order to ensure a quiet action of the float pilot (stilling tube for the float ball can be recommended).

1.2 ▶ OPERATION

Opening operation:

As the float (liquid level) lowers, flow increases through control (4) and reduces main valve cover pressure. This causes the main valve (1) to open until flow through the main valve integrated admission is balancing the flow through control (4); the requested partial opening of main valve (1) corresponding to the requested inlet flow is reached.

Closing operation:

As the float (liquid level) rises, flow decreases through control (4) and increases main valve cover pressure. This causes the main valve (1) to close until flow through the main valve integrated admission, whose section varies linearly and proportionally with its opening stroke. While the main valve (1) is closed, the minimum possible opening of the integrated admission maintains a permanent pressure in the chamber of the main valve (1). This pressure is either provided by the inlet pressure of the main valve or an independent operating pressure (F).

1.3 ▶ (E*) EUROPEAN STANDARDS

ITEM (2) - Isolation ball valve:

The isolation ball valves 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 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 (A) - Internal strainer self-cleaning:

In certain cases the screwed in self cleaning CLA-VAL strainer **X46A** at the inlet reduces maintenance, which can be caused by the screen of the standard strainer (3).

The installation of the strainer **X46A** replaces the strainer (3) with the isolation ball valves (2A) and (2B). For cleaning of the strainer **X46A**, this has to be screwed out from the body of the main valve (1).

Suffix (F) - Independent operating pressure:

Pilot supply pressure is obtained from an independent source, which must be equal or bigger than pressure at the main valve (1) inlet at all times.

Suffix (H1) - Discharging pressure orifice of float pilot connected to outlet of main valve:

If the discharge "S" of the float pilot cannot be discharged into the reservoir or if the pressure at the outlet of the main valve (1) is varying, then the orifice "S" must be connected to the outlet of main valve (1), at the corresponding isolation ball valve.



Suffix (**W1**) - Anti-freeze device:

The float pilot valve **CFM-9 (4)** is equipped with an adjustable stroke limiter, which allows a permanent minimum rate of flow through the pilot system, even when the main valve (**1**) is closed. This artificial leakage prevents any freezing of the pilot tubing.

Suffix (**Y**) - High capacity filter:

When too many foreign particles are contained into the control pressure, it is recommended to replace the standard filter **X43** by the high capacity filter **X43/80-EP**, whose screen (\varnothing 80 x 110 mm) offers a much bigger filtration surface.

1.5 ▶ CHECK LIST FOR PROPER OPERATION

- System valves open upstream and downstream.
- Air removed from the main valve cover and pilot system at all high points.
- Isolation valves (**2A**) and (**2B**) open.
- Periodical cleaning of the filter screen (**3**).
- Float pilot (**4**) properly installed and connected to main valve (**1**) as prescribed.