



### STANDARD EQUIPMENT

No	Description	Qty	Type
1	MAIN VALVE HYTROL AE/GE/NGE	1	100-01
2	ISOLATION BALL VALVE	3	RB-117
3	STRAINER WITH INCORPORATED ORIFICE	1	X44-A
4	PRESSURE RELIEF CONTROL	1	CRL / CRL-60
5	NEEDLE VALVE	1	6120
6	3-WAY ON/OFF ALTITUDE LEVEL CONTROL	1	CDS-6A
7	AUXILIARY VALVE HYTROL	1	100-KHR

### OPTIONAL FEATURES

No	Description	Qty	Type
C	ONE-WAY FLOW CONTROL (CLOSING SPEED)	1	CV
F	REMOTE SENSING	1	-
H1	DRAIN TO MAIN VALVE OUTLET	1	CDC-1
S	ONE-WAY FLOW CONTROL (OPENING SPEED)	1	CV
T	DELAYED OPENING	1	CVC & 81-01

### NOTES

AE/GE : DN 32 - DN 400 / NGE : DN 50 - DN 600

OPTIONAL FEATURES : \_\_\_\_\_  
NOT FURNISHED BY CLA-VAL : \_\_\_\_\_



### ▶ Operating data

#### 1.1 ▶ PRESSURE SUSTAINING FEATURE

Pressure relief control CRL (4) is a "normally closed" control that senses main valve inlet pressure changes. An increase in inlet pressure tends to open control (4) and a decrease in inlet pressure tends to close control (4) is higher than the set point of control (4). This causes main valve cover pressure to vary and the main valve (1) modulates (opens and closes), maintaining a relatively constant inlet pressure. When inlet pressure is lower than the set point of control (4), control (4) closes. This pressurizes the main valve cover and the main valve (1) closes, maintaining the desired back pressure.

**Pressure relief control (4) adjustment:** Turn the adjusting screw clockwise to increase the setting.

#### 1.2 ▶ ALTITUDE VALVE FEATURE

Altitude control CDS-6A (6) is a spring loaded, 3-way, diaphragm actuated control that senses pressure in the reservoir. When the reservoir pressure (liquid level) is lower than the set point of control (6), ports "I" and "D" are interconnected. This relieves main valve cover pressure to atmosphere and the main valve (1) opens to fill the reservoir. Reservoir sensing pressure increases as the liquid level rises in the reservoir. When reservoir pressure increases to the set point of control (6), control (6) shifts, interconnecting ports "S" and "I". This pressurizes the main valve cover and the main valve (1) closes.

**Altitude control (6) adjustment:** Turn the spring adjusting nut clockwise to increase the liquid level shutoff point, counterclockwise to decrease the liquid level shutoff point.

#### 1.3 ▶ CLOSING / OPENING SPEED CONTROL

Flow control valve 6120 (5) controls the closing and the opening speed of the main valve (1).

**Flow control valve (5) adjustment:** Turn the adjusting screw of control (5) clockwise to make the main valve (1) close and open slower.

**Note:** Do not close flow control valve (5) completely or the main valve (1) will not close or open (suggested initial setting of needle valve is 1 turn open).

#### 1.4 ▶ (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.

#### 1.5 ▶ OPTIONAL FEATURES

Suffix (F) - Remote sensing:

Remote sensing is obtained from a point upstream of the main valve (1) inlet, by a pipe (not furnished by CLA-VAL Europe) size Ø 12 mm, which must not have any high points and so formation of air pockets and avoid any pulsation of control.

Suffix (H1) - Pilot drain to outlet:

Check valve CDC-1 (H1) and cock RB-117 (2B) are used when pilot drain to atmosphere is not desired. When outlet pressure is higher than inlet pressure check valve (H1) closes, maintaining main valve (1) in position of partial opening.

Suffix (C) - Closing speed:

Flow control CV (C) regulates the closing speed of main valve (1).

**Flow control (C) adjustment:** Turn the adjusting screw clockwise to make the main valve (1) close more slowly.



Suffix **(S)** - Opening speed:

Flow control CV **(S)** regulates the opening speed of main valve **(1)**.

**Flow control (S) adjustment:** Turn the adjusting screw clockwise to make the valve open more slowly.

Suffix **(T)** - Delayed opening feature:

Differential control CVC is closed during the reservoir filling cycle. As the liquid level rises in the reservoir, check valve 81-01 opens. This directs static reservoir pressure into the sensing chamber of altitude control **(6)**. When the reservoir is filled and the main valve **(1)** closes, the liquid level has reached the high point and check valve 81-01 closes. As the reservoir level lowers, check valve 81-01 remains closed, trapping pressure in the sensing chamber of altitude control **(6)**. When the level lowers to the desired reopening point, differential control CVC opens and releases the trapped pressure from altitude control **(6)** which shifts, permitting the main valve **(1)** to reopen and fill the reservoir.

**Differential control CVC adjustment:** Turn the adjusting screw clockwise to increase the delay of opening.

### 1.6 ▶ 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 ball valves **(2)** open.
- Periodic cleaning of strainer **(3)** is recommended.
- Flow control **(5)** minimum 1 turn open.
- Reservoir sensing line connected without high point(s) or high point(s) to be equipped with venting cock(s).