



### 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	1	X43
4	3-WAY SOLENOID VALVE (NO)	1	311-D
5	NEEDLE VALVE	1	6120
6	CHECK VALVE	1	CDC-1 (#)
7	SWITCH ASSEMBLY	1	X105-MCW
8	SWING CHECK VALVE (HIGH CAPACITY)	1	SW-200

### OPTIONAL FEATURES

No	Description	Qty	Type
F	SWITCH ASSEMBLY (2 PROXIMITY DETECTOR)	1	X105-M2W

### NOTES

AE/GE : DN 50 - DN 100 / NGE : DN 65 - DN 150  
 (#) = According to valve size this feature type could change

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

### ▶ Operating data

#### 1.1 ▶ SOLENOID CONTROL

Solenoid valve 311-D (4), equipped with a manual actuator, is a direct-acting, 3-way solenoid control that changes position when its coil is energized or de-energized. This applies or relieves pressure in the control chamber of main valve (1), providing the operation shown in the following table:

60-31/02		
Solenoid 311-D (4)		Main valve (1)
State	Ports connected	Position
De-energized	0 - 1	Closed
Energized	1 - 2	Open

#### 1.2 ▶ CHECK VALVE HIGH CAPACITY

The main valve (1) equipped with a high capacity hydraulic check feature, closes automatically when its outlet pressure exceeds its inlet pressure. In case of electrical power failure, it is hydraulically locked into its closed position, by the outlet pressure flowing into its control chamber through swing check valve SW-200 (8). Any leak of the control pressure out of the chamber is prevented by the check valve CDC-1 (6).

#### 1.3 ▶ OPERATING SPEED CONTROL

Needle valve 6120 (5) controls the operating speed of main valve (1) during the opening and the closing cycles.

**Needle valve (5) adjustment:** Turn the adjusting hand wheel of control (5) clockwise to make the main valve (1) operate slower.

**Note:** Do not close control (5) completely or the main valve (1) will not move anymore. (Suggested initial setting of needle valve (5) = 1 turn open).

#### 1.4 ▶ SWITCH ASSEMBLY FEATURE (STANDARD VALVE)

Switch assembly X105-MCW (7) (low unit) is actuated magnetically by a permanent magnet fixed to the main valve stem extension. The magnetic contact can be adjusted by moving its PVC support.

The switch assembly is normally adjusted to switch when the main valve (1) is reaching approximately 3% of its opening lift. When the main valve (1) is closing and reaches the above set point, the switch (7) trips and shut down the pump.

#### 1.5 ▶ (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) - Strainer:

The strainer X43 (3) is installed in the pilot supply line to protect the pilot system from foreign particles. The strainer screen must be cleaned periodically.



### 1.6 ▶ OPTIONAL FEATURE

Suffix (F) - Pump security, dry running:

The switch assembly upper unit (F) permits the control of the operating position of the main valve diaphragm assembly; In case of its partial closure due to a restricted rate of flow, the pump must be switched off, by closing the main valve (1).

### 1.7 ▶ CHECK LIST FOR PROPER OPERATION

- System valve open 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.
- Needle valve (5) minimum 1 turn open.
- Correct voltage to solenoid valve (4).
- Manual solenoid valve (4) override disengaged.
- Lower switch (7) assembly correctly positioned and connected.