REVERSIBLE 90° ROTARY ACTUATOR WITH MANUAL RELASE AND TWO AUVILIARY MINIATURE SWITCHES

CVH.../S1 Eng.

- **Power supply : 230 V ~ or 24 V ~**
- **Three-wire electric control (common, opens, closes)**
- **Rotation angle : 90°**
- **Run times : 630 - 210 - 105 - 52 seconds**
- **Auxiliary miniature switch with adjustable intervention point**
- **Manual release mechanism**
- **IP 54 protection**

CE

1. APPLICATION

CVH actuators are designed to operate the following Coster rotary valves:
- mixing VSG-VSF-VFG-VFF up to DN 100.
- ball XDG, XLG, YDG, 2 S (for DIN see 2. MODELS).
- butterfly shut-off 2F up to DN 200.

Using AVA and AVS linkage kits, CVH actuators can be adapted to operate mixing valves of other makes.

2. MODELS

Model	Power Supply V ~ (VA)	Run time s	Nominal torque kg/cm (Nm)	Starting torque kg/cm (Nm)	Mixing Valves VSG-VFG VSF-VFF up to DN	Butterfly valves 2 F up to DN	Ball valves XDG-XLG up to DN	Ball Valves YDG up to DN	Ball Valves 2 S up to DN
CVH 638/S1	230 (4.5)	630	150 (15)	200 (20)	100	200	2"	2"1/2	65
CVH 634/S1	24 (4.5)	630	150 (15)	200 (20)	100	200	2"	2"1/2	65
CVH 218/S1	230 (4.5)	210	150 (15)	200 (20)	100	200	2"	2"1/2	65
CVH 214/S1	24 (4.5)	210	150 (15)	200 (20)	100	200	2"	2"1/2	65
CVH 118/S1	230 (4.5)	105	150 (15)	200 (20)	100	200	1"1/2	2"1/2	–
CVH 114/S1	24 (4.5)	105	150 (15)	200 (20)	100	200	1"1/2	2"1/2	–
CVH 058/S1	230 (5.0)	52	150 (15)	200 (20)	100	200	2"	2"1/2	–
CVH 054/S1	24 (5.0)	52	150 (15)	200 (20)	100	200	2"	2"1/2	–

3. SPECIAL MODELS

Model	Description
CVH.../S1/T	Supplied with 2W heater for use in plants with chilled water

4. ACCESSORIES

Model	Description
AVA 101	Universal linkage kit for valves : Buche, Controlli, Honeywell, Mut, Landis & Gyr, Lazzari, Stark, Zentra.
AVS 102	Special linkage kit for other makes of valve (universal linkage plate without holes).

5. TECHNICAL DATA

Power supply (see 2.MODELS)	230 V ~ , 24 V ~
Frequency	50...60 Hz
Consumption (see 2.MODELS)	4.5 , 5.0 VA
Auxiliary miniature switches :	
maximum switching voltage	250 V ~
maximum switching current	5 (1) A
Protection	IP 54
Rotation angle	fixed at 90°
Nominal torque :	150 kg/cm (15 Nm)
Starting torque :	200 kg/cm (20 Nm)
Run times (see 2. MODELS)	52…630 s

Materials :	
base	Nylon 66
cover	Nylon 66
Valve fluid temperature :	
	5…120 °C
	–20…120 °C with CVH…/T actuators
Ambient temperature :	
operating	0…45 °C
storage	– 20…+60 °C
Weight	1.8 kg

6. OPERATION

CVH can be controlled by an On-Off or modulating device (e.g. thermostat, switch, modulating controller) provided with an SPDT output switch. The small electric motor transmits the rotary movement to the mechanical reduction unit that determines the rotation speed of the shaft and, accordingly, the run time of the actuator.
The actuator has a rotary movement with a working angle of 90°, limited by two microswitches (10.7) operated by an end-of run cam (10.10).

7. CONSTRUCTION

The base (9.1) and the protective cover (9.2) of the CVH actuator are made of Nylon 66 with IP 54 protection.
Two PG 11 screwed holes in the lower part of the base, and closed by two plastic plugs (9.3), permit the introduction of the electric cables. All the electrical and mechanical components, including the terminal block for the connections (10.6),are accessible when the protective cover is removed.
The linkage device is in the rear part of the base and allows rapid mounting on the valve by means of the two threaded pins (10.14) and a linkage (10.15.17) supplied with the actuator.

8. INSTALLATION

• On Coster mixing valve VSG-VSF-VFG-VFF or Coster butterfly valves 2F :

– Loosen the two screws (10.13), withdraw the two threaded pins (10.14) and screw them into the screwed valve supports (10.16)
– Position the valve spindle so that the internal sector is halfway between the closed and open positions and then slide the Coster valve coupling (10.15) on the valve spindle
– Loosen the screw of the manual release (10.11) and, using the manual control, position the actuator shaft at half run.
– Mount the actuator so that the pins fit into their housings and so that the actuator shaft fits into the milling on the valve coupling. Then secure it by tightening the two pins (10.13),
– Using the manual control make a couple of complete runs of the valve to check the correct movement and then tighten up the screw of the manual release (10.11).

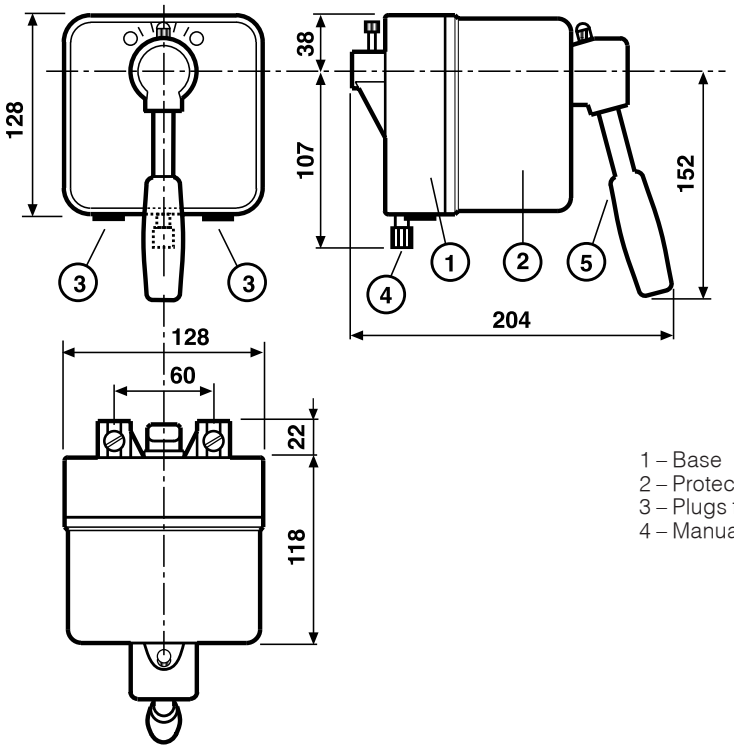
• On non-Coster mixing valve (use AVA 101 or AVS 102) :

– Loosen the two screws (10.13), withdraw the two threaded pins (10.14) and screw them into the mobile blocks (10.18) of the linkage bracket (10.21),
– Position the valve spindle so that the internal sector is halfway between the closed and open positions; slide the coupling (10.17) on to the valve spindle,
– Loosen the screw of the manual release (10.11) and, using the manual control, position the actuator shaft at half run.
– Fix the coupling bracket to the valve using the screws (10.20) supplied with the coupling AVA 101 or AVS 102.
– Mount the actuator so that the pins fit into their seats and secure them by tightening the two screws (10.13),
– Loosen the two screws fixing the mobile blocks (10.19) and move them so that the actuator shaft fits into the milling on the coupling; tighten up the two screws on the coupling (10.19),
– Using the manual control make a couple of complete runs of the valve to check the correct movement and then tighten up the screw of the manual release (10.11).

• On Coster ball valves XDG-XLG-YDG-2S

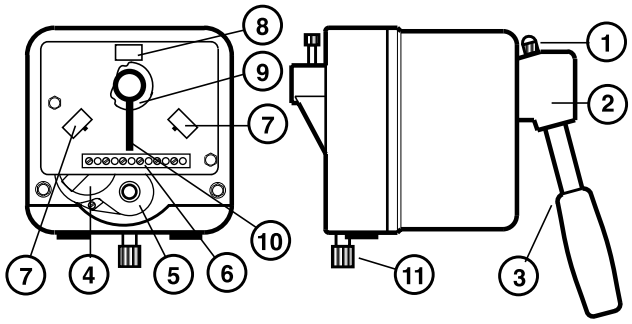
– loosen the two screws (10.13), withdraw the two threaded spigots (10.14) and screw them into the holes provided on the valve coupling plate (10.22);
– loosen the screw of the manual release (10.11) so that the actuator stem can be operated by the handle;
– install the actuator so that the spigots slide into their housings and, using the handle, couple the stem to the milling on the valve spindle or on the coupling; then secure the actuator on the spigots by tightening the two screws (10.13);
– using the manual control make a couple of complete runs of the valve in order to check its correct operation and then tighten up the manual release screw (10.11).

9. OVERALL DIMENSIONS



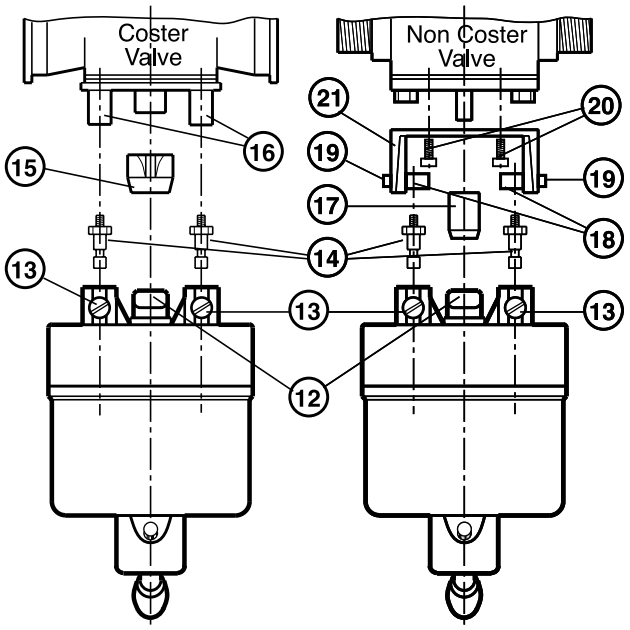
1 – Base
2 – Protective cover
3 – Plugs for PG 11 cable entry
4 – Manual control

10. INSTALLATION

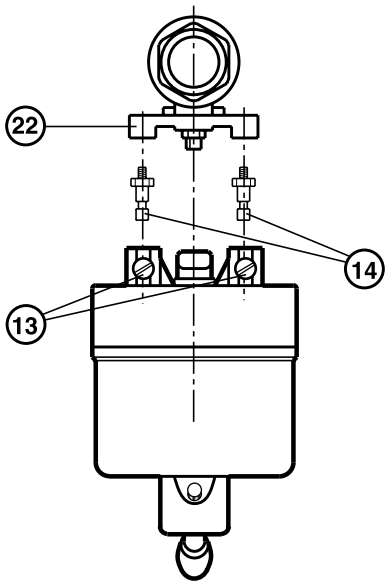


1 – Pointer; handle securing nut
2 – Handle mounting
3 – Hand grip
4 – Small electric motor
5 – Geared motor
6 – Connection block
7 – End run miniature switches
8 – Auxiliary miniature switches
9 – Auxilary switches cam
10 – End-of-run cam
11 – Manual release screw
12 – Actuator shaft
13 – Pin blocking screws
14 – Pins
15 – Coster valve coupling
16 – Screwed supports
17 – Coupling for non-Coster valve
18 – Screwed mobile blocks
19 – Fixing pins mobile blocks
20 – Linkage bracket fixing screws
21 – Linkage bracket
22 – Plate bracket

Mixing valves



Ball valves

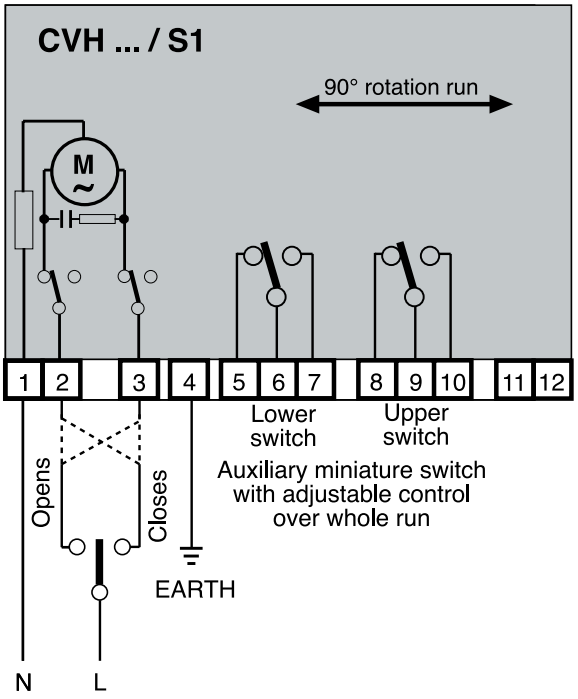


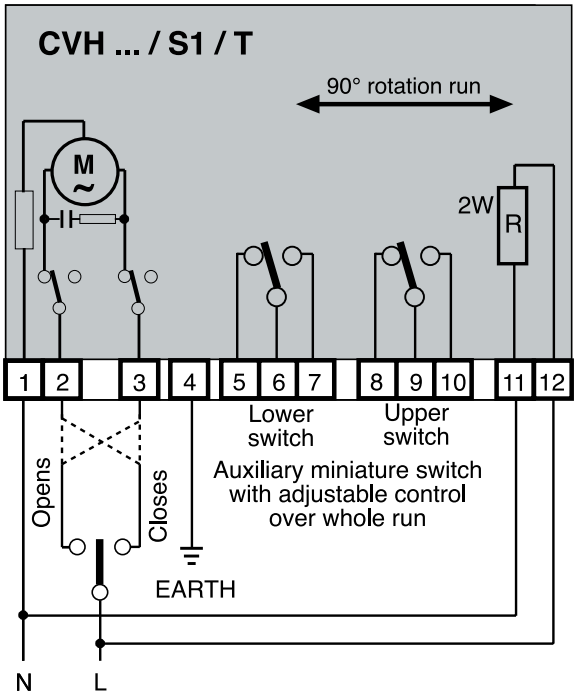
11. WIRING

To make the electrical connections proceed as follows :

– loosen the pointer of the manual control (10.1) and withdraw the hand grip (10.3), turning it gently,
– withdraw the handle mounting (10.2) from the actuator shaft and remove the protective cover (9.3),
– introduce the electric cables into the actuator through the holes provided (9.3) to accept cable entry glands PG11,
– make the electrical connections, using 1,5 mm^2 cables, according to the diagram for the actuator model used, and in strict observance of the relevant current safety regulations.
– replace the protective cover and the handle mounting, insert the handle in its seat and tighten up the pointer.

12. WIRING DIAGRAMS





N. B.: When the auxiliary switches are normally open (NO) and normally closed (NC), as shown in the wiring diagram, it is to be understood that the levers of the dipswitches are in the "not pressed" condition.

IMPORTANT READ CAREFULLY :

– the diagram of the auxiliary miniature switches shows these switches in the Off position (i.e. not depressed)
– the two cams of the auxiliary miniature switches can be set at any angle in respect of the position of the actuator so as to render completely free and adjustable the actions of the miniature switches themselves according to use requirements.
– the actuator must never receive orders to open and to close at the same time: ensure that the switching logic can never permit (even temporalily) such a contemporary event. This actuator is of the SYNCHRONOUS type: simultaneous control commands can either make it vibrate without rotation or set it in motion in one or other direction. Both vibration and starting in the wrong direction can damage some mechanical component irreversibly (e.g. cam or end of-run miniature switches).
To avoid giving two simultaneous instructions it is suggested that:
- a single relay is used with a changeover switch for "all open" or "all closed"
- a single relay with changeover switch "Opens" or "Closes" and a second relay which removes the "Closes" instruction when it is desired to stop the actuator in any position between "all open" and "all closed".

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