

CRV/E Actuator to fit Rotary CRM Valves



Flow Data and Installation Instructions

1. General

The specification applies to ALBION CRV230, CRV24 and CRE24 actuator only. It is intended for mounting on mixing / diverting valves, which have neck shape adapted to connection with the clip system. Actuators are intended to be installed on heating and/or cooling systems, sanitary applications, and plant room installations with ALBION CRM valves. Actuators CRV 230, CRV24 have 3-point control, CRE24 have modulating signal 0-10V.

1.1. Product overview

CODE	Name
ADCVCRV230	CRV 230 73s/90° 230V
ADCVCRV24	CRV 24 73s/90° 24V
ADCVCRE24	CRE 24 73s/90° 0-10V

2. Actuators specification:

2.1 Nominal specification

	CRV230	CRV24	CRE24
Control signal	SPTT 3-point	SPTT 3-point	0-10V DC, 4..20mA
Supply voltage	230V~ 50Hz	24V~ 50Hz	24V~ 50Hz
Power consumption	5 VA	5 VA	3,5 VA working 1,5 VA stand by
Nominal torque	15Nm	15Nm	15Nm
Operating time	73s/90°	73s/90°	73s/90°

2.2 Protection

Degree of protection: IP 44 IEC 529

3. Scheme connection

Actuator has synchronous motor with defined rotation direction (CW - clockwise direction, CCW counter clockwise direction).

3.1 Connection CRV 230, CRV 24 (UNI 3P S2 20730, UNI 3P S2 20733)

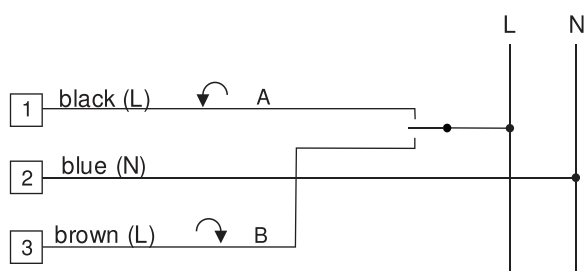
Fixed cable: black l = 1m; 4x0,5mm²;

Fixed cable: grey l = 1m; 4x0,5mm²;

External insulation: black PVC (max 90°C), grey PVC (max 90°C).

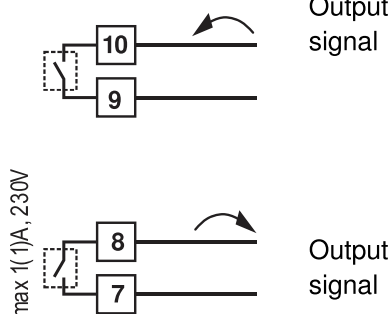
Electrical connection: when the black (L) wire is connected, the actuator turns in counterclockwise direction. When the brown (L) wire is connected, the actuator turns in clockwise direction.

When brown and black wires are not connected, the actuator stays in current position.



Pre-mounted auxiliary switches - potential free

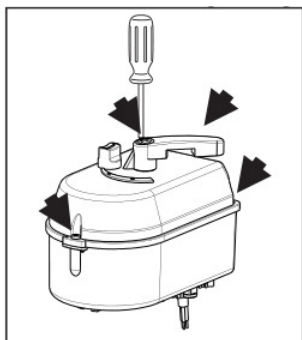
Cable: grey	
10	yellow
9	white
8	green
7	brown



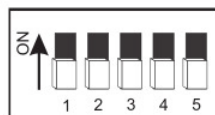
3.2. Connection CRE 24 (UNI MOD X 20737)

SP	brown	24VAC
SN	black	+10/-15% / 50Hz
Y	blue - Y (+)	0-10VDC, 2-10VDC Y-Control signal 0-5VDC, 5-10VDC 0-20mA, 4-20mA
X	red- X (+)	X- Output signal-voltage 0-10VDC max < 0,5 mA/10V
Input impedance: U(V) - R=26KΩ I(A) - R=500 Ω		

Parameters setting using DIP switches



Factory default



- 1 CCW ↺
+ auto calibration
- 2 ↘
- 3,4 Y= 0-10V
- 5 U (V)

DIP switches are located inside actuator. To open the actuator it is necessary to loosen the screws on the cover (3x), and handle screw (1x).

With DIP switches can be set following parameters:

1. Direction of rotation: CCW ↺ / CW ↻

- CCW ↺ - opening to the left
- CW ↻ - opening to the right

DIP	CCW ↺	CW ↻
1	OFF	ON

During changing position of DIP1 is performed calibration proces. The actuator turns into left and right position. During proces leave the button for manual control in position AUTO!

2. Control signal: direct/inverse

DIP	↗	↘
2	OFF	ON

3,4. Range settings

DIP	0,16-9,84V 0-20mA	2-9,84V 4-20mA	0,16-4,88V	5,12-9,84V
3	OFF	OFF	ON	ON
4	OFF	ON	OFF	ON

5. Y-Control signal U(V)/I(mA)

DIP	U(V)	I(mA)
5	OFF	ON

4. Temperature, relative humidity and relative loudness

For indoor use only.

Operating room temperature: +2 °C...+55 °C

Relative humidity: 0% - 80% (without condensation)

Shipping and storage temperature: -20 °C...+60 °C

Temperature of medium: +5 °C...+90 °C

Noise level: 45 dB (A) (reference is 1 pW)

5. Torque

5.1 Actuator nominal torque

Max. torque (230 V~ / 50 Hz, 24 V~ / 50Hz) = 15 Nm

6. Actuator durability

Endurance: minimum number of cycles 60.000 – max duty cycle 50 %

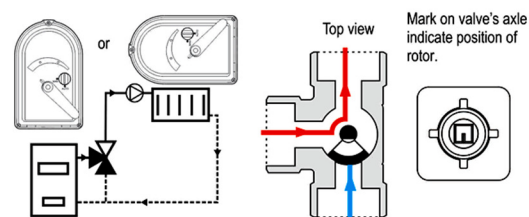
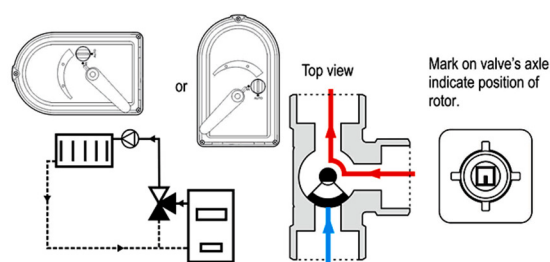
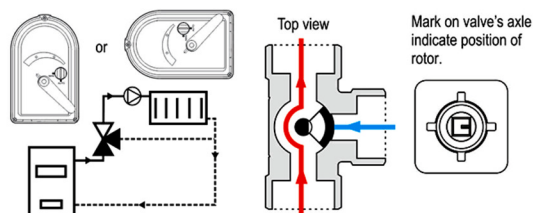
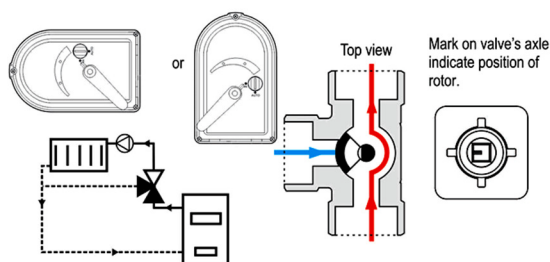
- water temperature 80 °C, room temperature 20 °C.

7. Actuator accuracy

Accuracy on the end-stroke angle of the actuator shall be max. +/-3,5°.

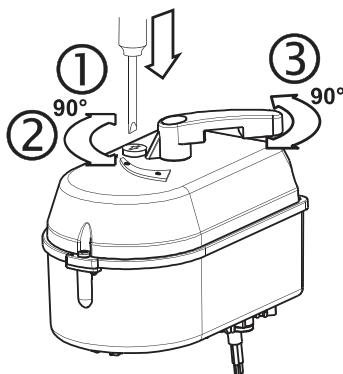
8. Installation of the actuator

8.1 3-way mixing valve



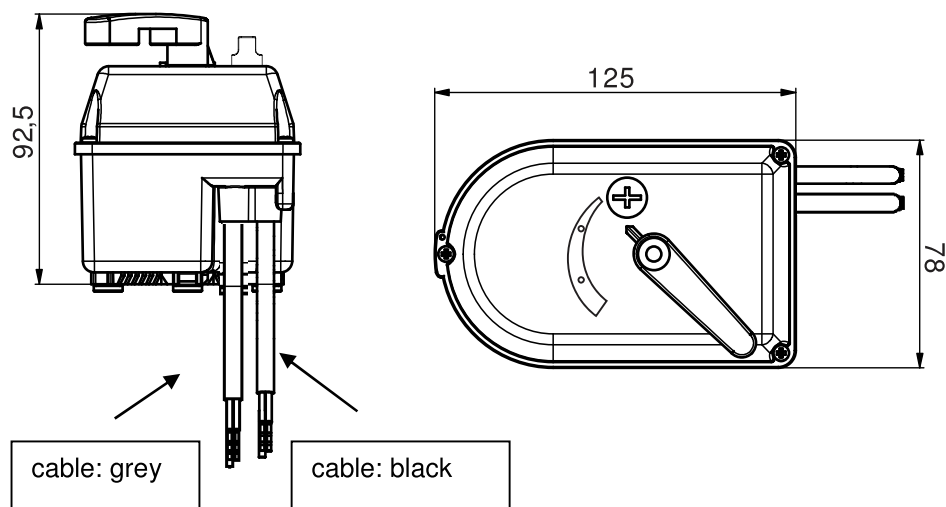
9. Manual operating

The actuator can be manually operated (temporary or permanent), by pushing down the button on the cover and turning it in MAN position, with the screwdriver, and then by rotating the handle. The actuator stays in current position regardless of control signal. For automatic operation it is necessary to return the button in AUTO position.



10. Dimensions

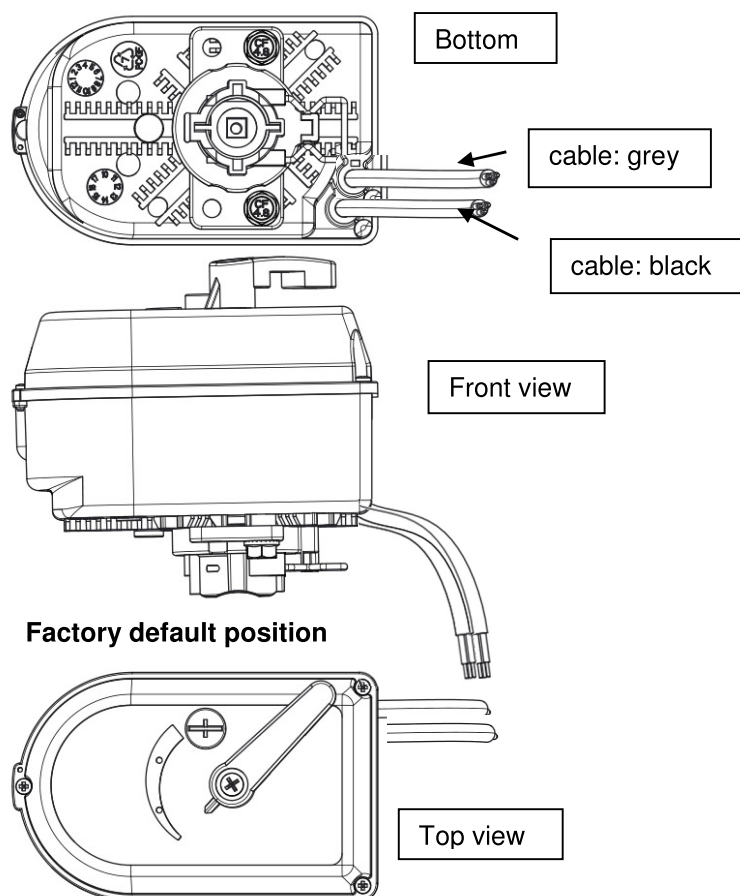
10.1 Actuator dimensions



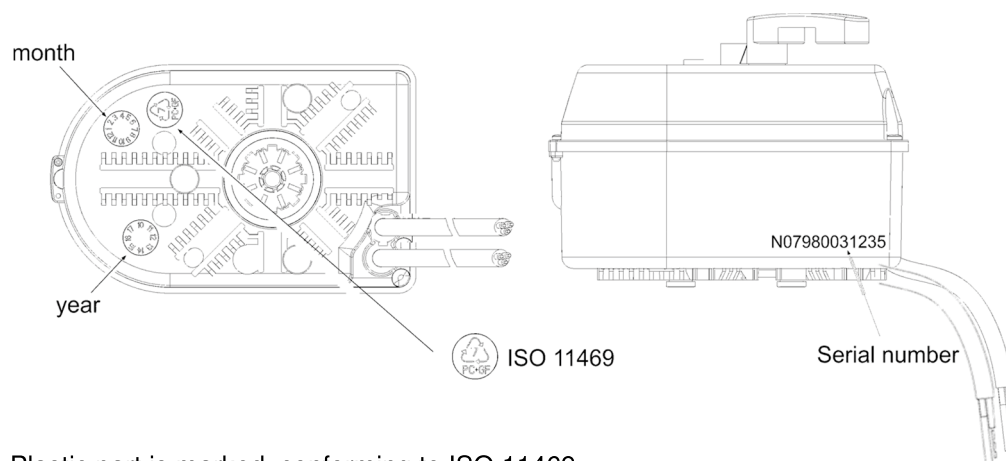
10.2 Actuator weight: CRV 230 / CRV 24 / CRE 24: 0,68kg

11. Delivery

Actuators are delivered with the indicator oriented to the left.

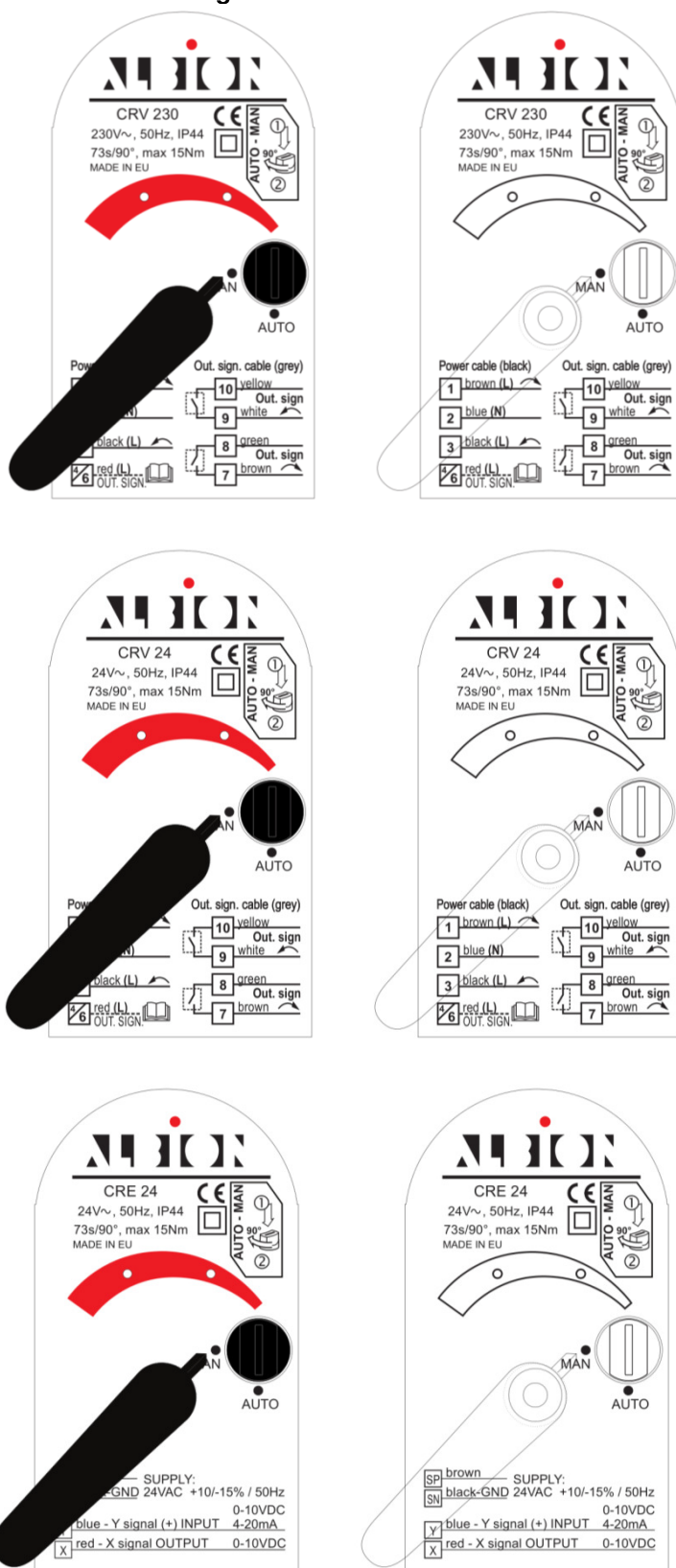


11.1. Date of manufacturing



Plastic part is marked, conforming to ISO 11469

11.2. Marking on cover of actuator for Albion

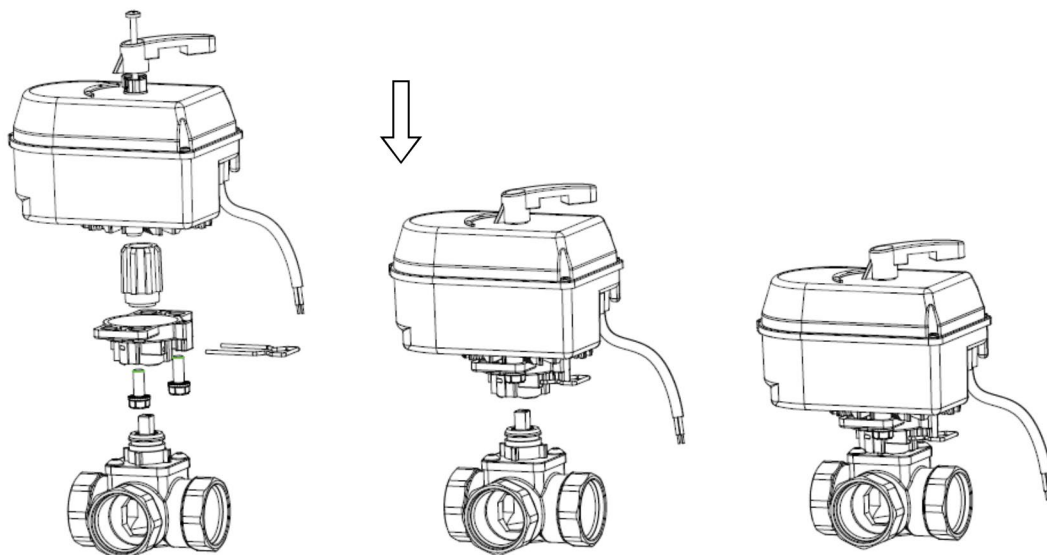


12. Assembling the actuator on the valve

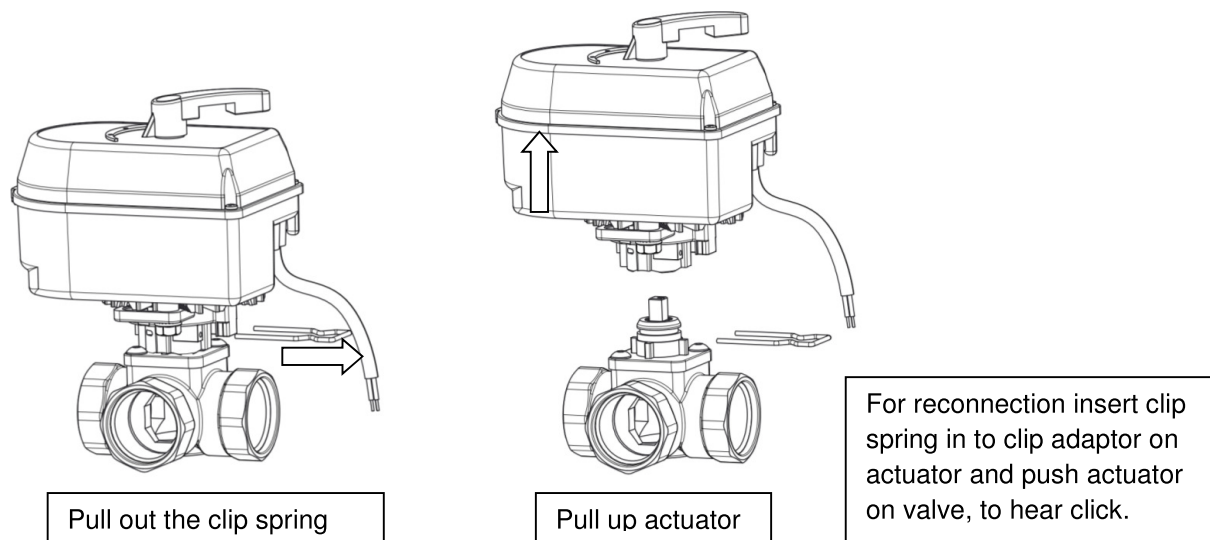
Actuator, valve support, adapter and valve have to be fitted together as shown in the picture below. Before the valve support is mounted on the actuator, with two screws, the insert has to be put between them and inserted in the actuator's drive. After that the actuator and the valve are fixed together with metallic spring.

12.1 Connection to the mixing / diverting valve ALBION CRM clip DN15-DN25

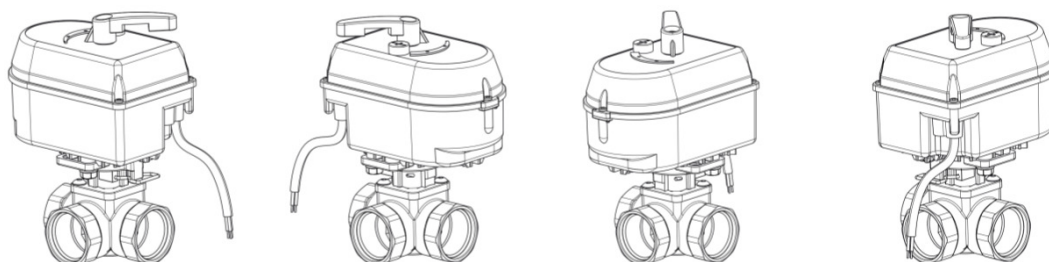
12.1.1. Connection DN15-DN25



- Disconnection from valve

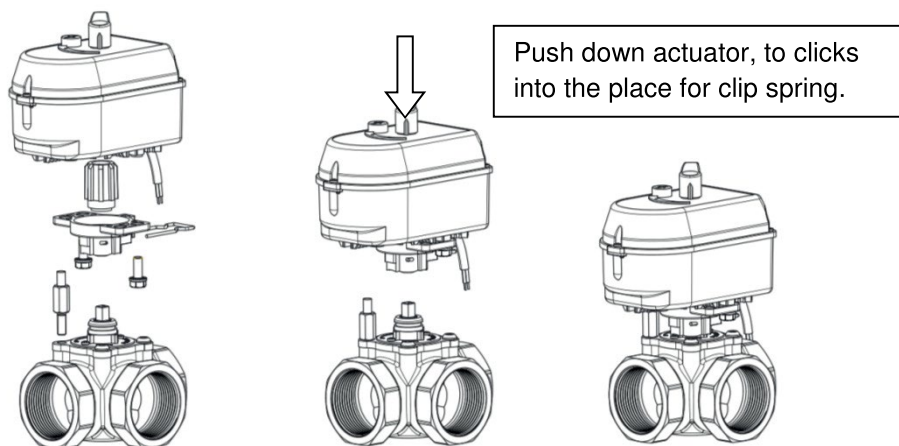


Actuator can be installed in all four positions depending on the position of valve (DN15-DN25)

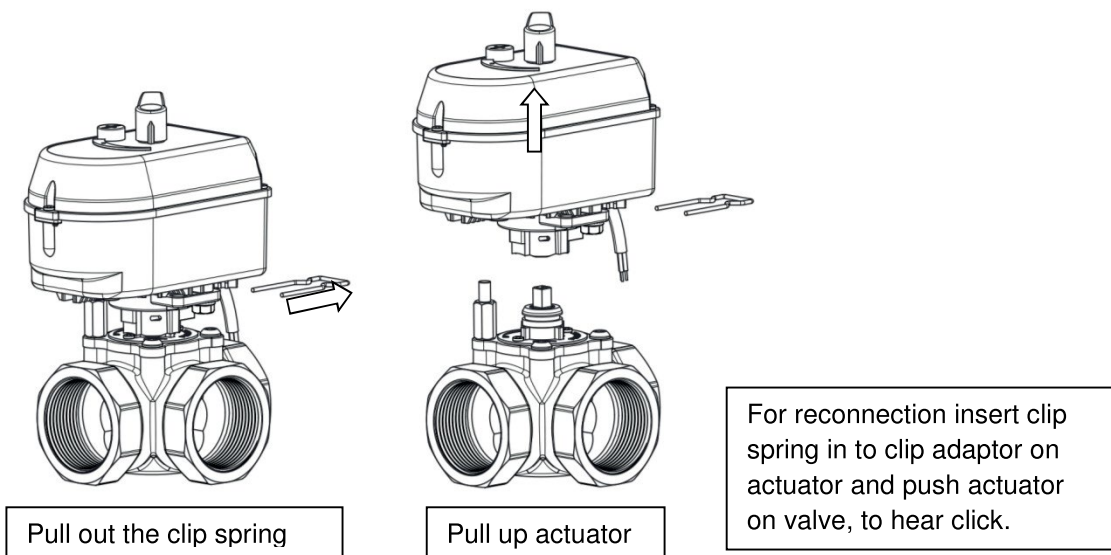


12.2 Connection to the mixing / diverting valve ALBION CRM clip DN32-DN50

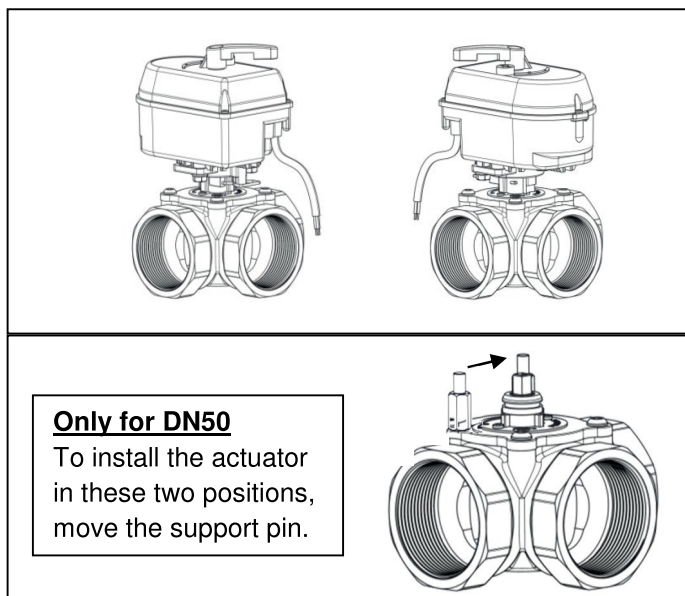
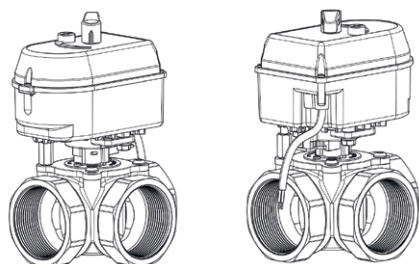
12.1.2. Connection DN32-DN50



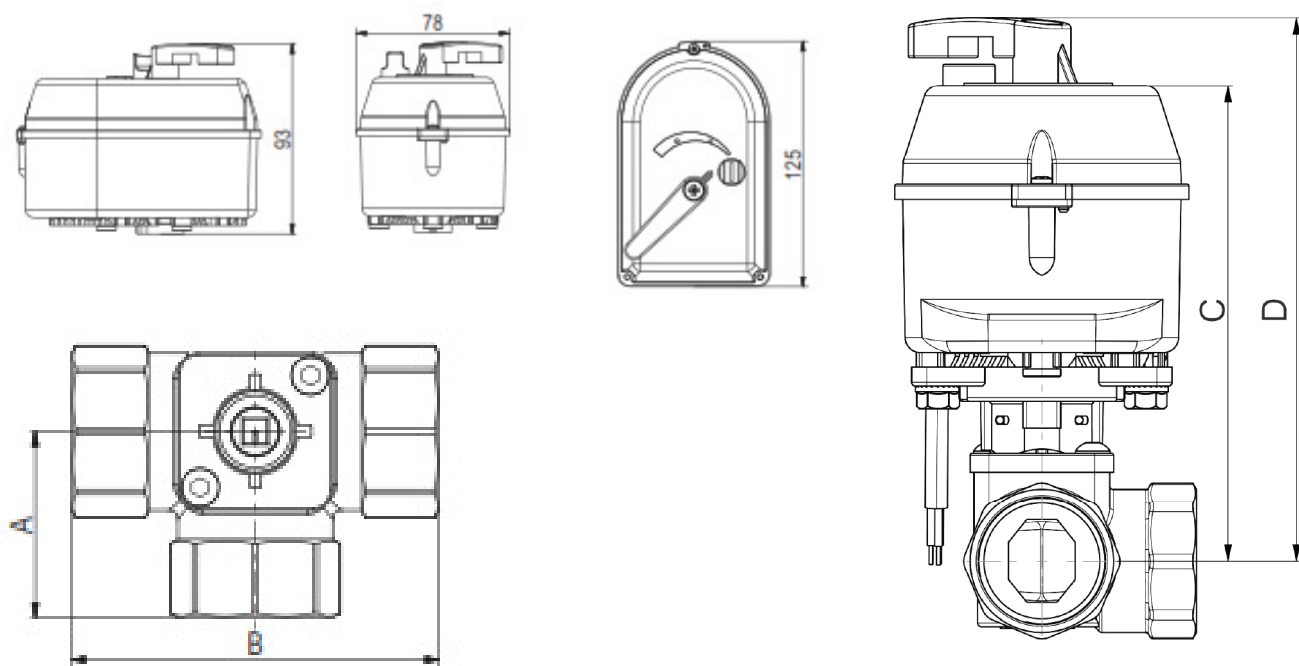
- Disconnection DN32-DN50



Actuator can be installed in all four position depending on the position of valve. (DN32-DN40)



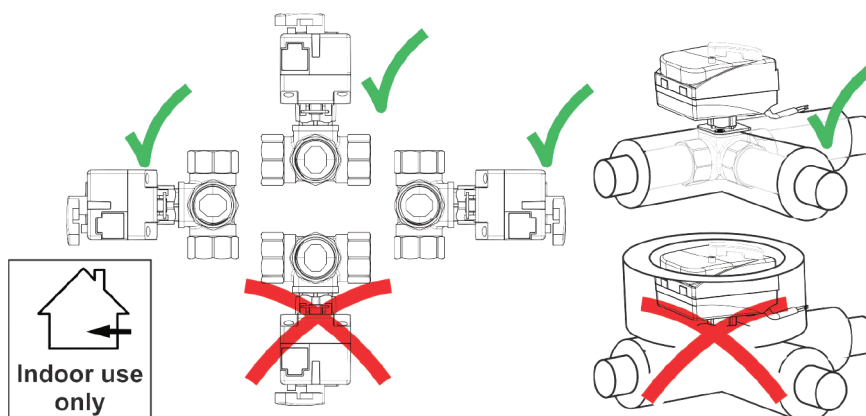
13. Dimensions of mixing unit (valve CRM - actuator CRV / CRE)



Rotary Mixing Unit (valve CRM - actuator CRV / CRE)

Type	DN	Kvs	Connection	A[mm]	B[mm]	C[mm]	D[mm]	Weight [kg]
CRM 15/3.0	15	3	Rp 1/2"	36	72	126	144	1,22
CRM 20/7.0	20	7	Rp 3/4"	36	72	126	144	1,28
CRM 25/11	25	11	Rp 1"	41	82	126	144	1,32
CRM 32/15	32	15	Rp 1 1/4"	47	94	132	149	1,65
CRM 40/25	40	25	Rp 1 1/2"	53	106	139	156	2,35
CRM 50/40	50	40	Rp 2"	60	120	140	158	2,93

14. Mounting position



Do not mount actuator under pipes fittings and other valves due to possible leakage of water. The installation site has to be frost-proof and the protection of the device from chemicals, paints, detergents, solvents and their vapours and environmental influences must be guaranteed.

15. Inspections at the production site

Routine tests are performed in accordance with EN50344-1:2002 (within the scope of the EN 60730 series). Routine tests are intended to be carried out by manufacturer on appliances to detect a production variation that could impair safety. They are normally carried out on the complete appliance after assembly. These tests are the minimum considered necessary to cover essential safety aspects.

15.1. Earth continuity test: not performed

Actuator is class II appliance. It doesn't have earthed wire.

15.2. Electric strength test

The insulation of the appliance is subjected to a voltage of substantially sinusoidal waveform having frequency of 50 Hz for 1s.

For class II appliance is rated test voltage 2.500 V. No breakdown shall occur. Breakdown is assumed to occur when the current in the test circuit exceeds 5 mA.

15.3. Functional test

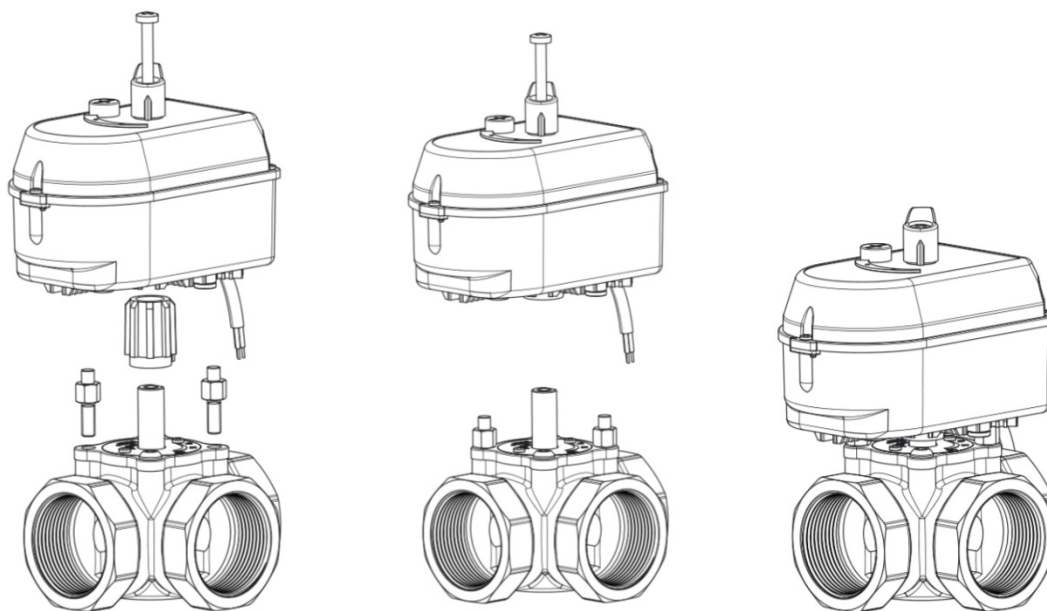
The correct functioning of an appliance is checked with testing device. Actuators are connected to power supply and they are rotated in both end positions. Acceptable fault rate: zero-fault.

16. Directives and norms

Directive	Used standards:
2006/95/EC(LVD) Low voltage directive	EN 60730-2-14:1998 EN 60730-2-14:1998/A1:2002
2004/108/EC(EMC) Electromagnetic compatibility directive	
2011/65/EC (RoHS2) Restriction of Hazardous Substances Directive	

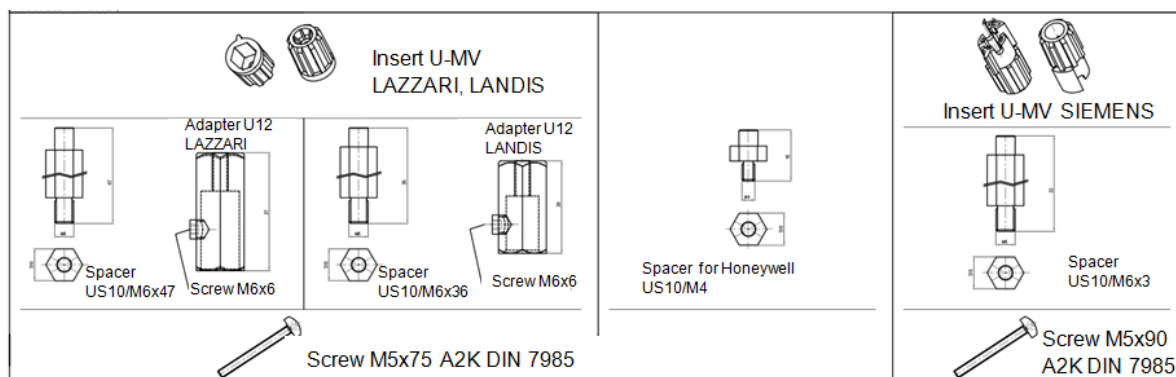
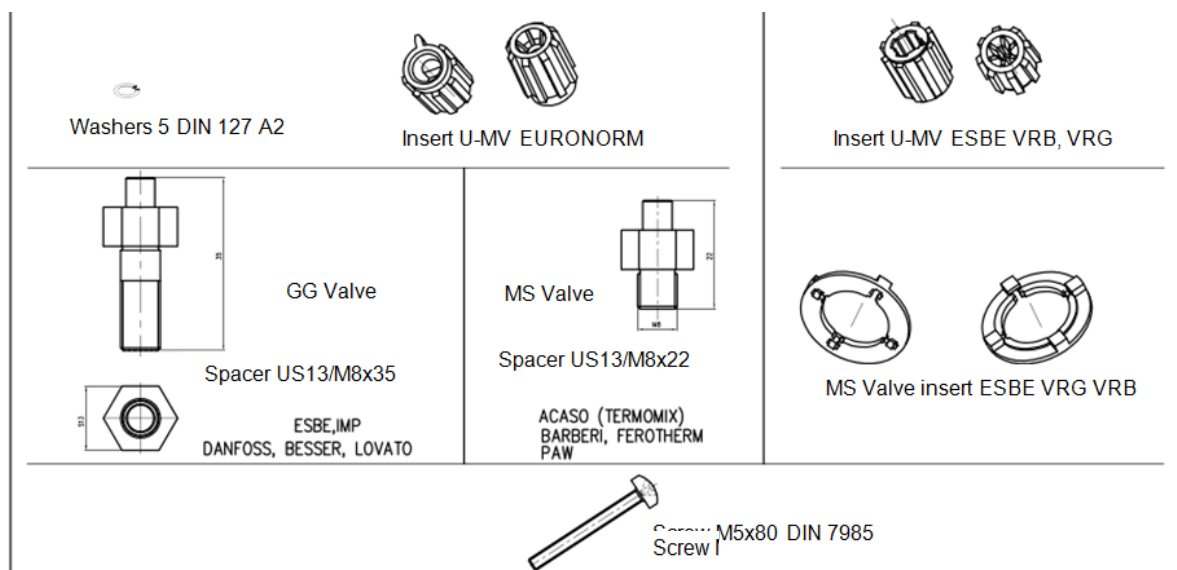
17. Annex

17.1 Connection to the mixing / diverting valve Danfoss, Lovato, Barberi, Esbe (VRB, VRG), Siemens, Honeywell

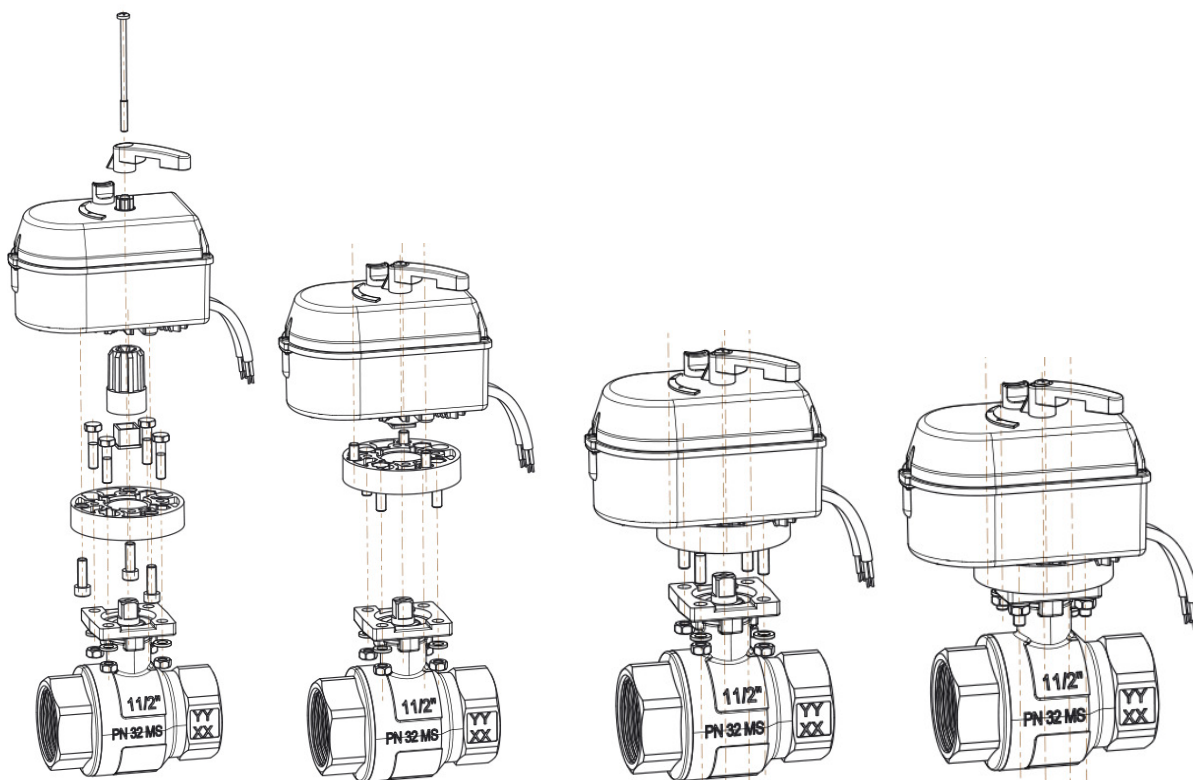


Set for connection to valve with EURONORM axis

CODE	NAME
AK 41	Adaptor set (Esbe, Danfoss, Siemens, Honeywell MS)



17.2. Connection to the valve with ISO connection



Set for connection to ISO valve

CODE	NAME
AK 21	Adaptor set U-ISO F03, F04, F05 INOX



ISO ADAPTER 9

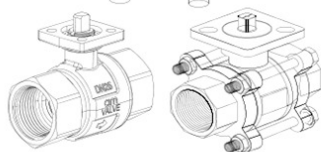


Insert U ISO 11 pl/sinter

Screw M5x20 DIN 933 A2
CIM, ED35M INOX 1/2"-5/4"

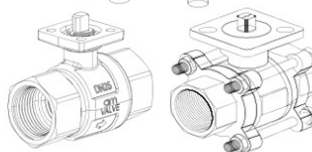
Flange ISO F3, F4, F5

Screw IMBUS M5x20 A2K

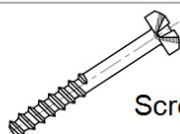


Washers 5 DIN 127 A2
Hex nut M5 DIN 934 A2

Screw M6x25 DIN 933 A2
CIM, ED35M INOX 1 1/2", 2"



Washers 6x20 DIN 127 A2
Hex nut M6 DIN 934 A2



Screw B 4,2x75 A2K DIN 7981



9a Fallbank Industrial Estate,
Dodworth, Barnsley, S75 3LS



Distributor