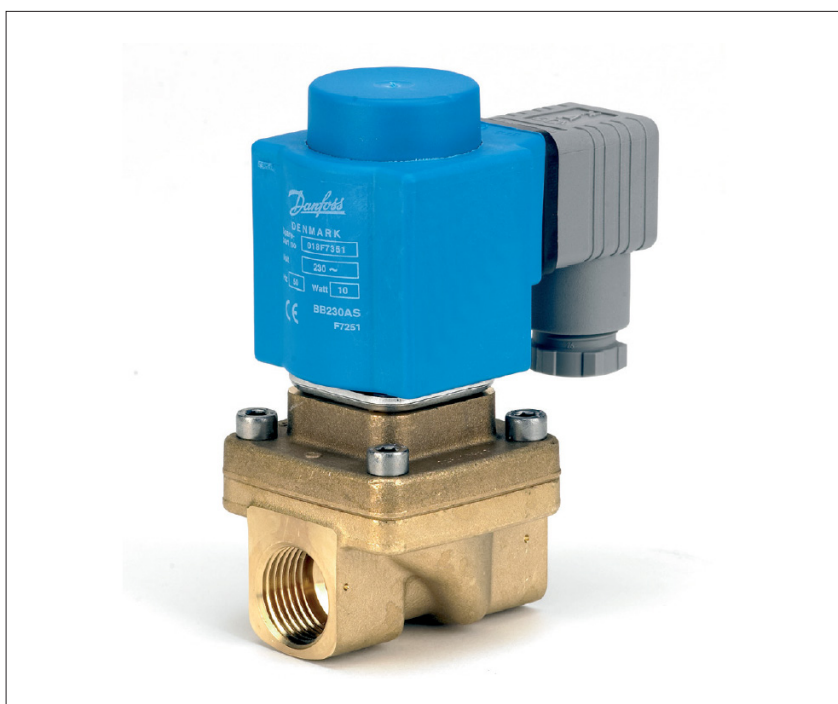


Data sheet

# Assisted lift operated solenoid valves for drinking water

## Type EV250BW



EV250BW 10,12,18 & 22 with assisted lift can operate from zero and up to 10 bar differential pressure.

This 2/2-way valve program is especially to use in applications with low differential pressure, but demanding moderate flow rates.

This valve type is designed with EPDM seal, lead free dezincification resistant ECO brass for drinking water applications.

- For water supply
- Houses and large apartments
- Kitchens and bathrooms
- Commercial buildings
- Industrial buildings
- Zoning
- Laundry
- Dishwashing
- Main inlet valves
- Machine and food processing

### Features and versions:

- Designed for drinking water
- Clip on coil
- Flow range KV 2,5 - 7 m<sup>3</sup>/h
- Differential pressure 0,1 - 10 bar
- Media temperature range 0 – 90 °C
- Ambient temperature: Up to 80 °C
- Coil enclosure: Up to IP67
- Thread connections: From G 3/8 – G 1
- DN 10,12,18 & 22
- Viscosity: Up to 50 cSt
- Water hammer damped
- Body material in ECO brass (Lead free < 0,1%)
- New generation EPDM sealings recommended for drinking water
- Valves are certified by RISE, notified body 1002. Valid in Denmark and Sweden. In accordance with Boverket Building Regulations (BBR 21, 2014-06-17). Certificate numbers SCO155-18
- Valves are certified by SINTEF, Valid in Norway. In accordance with NKB Product rules nr. 13, pkt. 3.2 - 3.6
  - NT VVS 100, pkt. 642 and 6.4.8
  - EN ISO 6509
- Inspection by DTI
- Wetted materials in accordance with 4MS, DVGW, KTW and W270
- NO/NC ECO brass DN 10, 14, 18 & 22

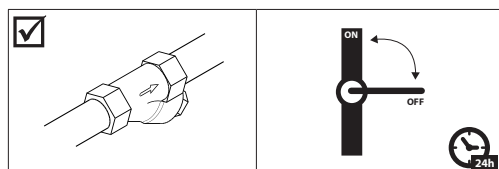
**EV250BW  
ECO brass valve body, NC**


- In accordance with:
  - Low Voltage Directive 2014/35/EU
  - EN60730-1
  - EN60730-2-8
  - Pressure Equipment Directive 2014/68/EU
- RoHS Directive 2011/65/EU
- Wetted materials in accordance with BBR, NKB, DVGW, 4MS (4 member states Germany, Holland, France and UK), KTW and W270
- Certified by RISE
- Certified by SINTEF
- Inspection by DTI

Connection ISO 228/1	Seal material	Orifice size	K <sub>v</sub> -value [m <sup>3</sup> /h]	Media temperature min. to max. [°C]	Differential pressure min. to max. [bar] /coil type		Code number
					BZ, BO, BY, BB AC, BE AC, BG AC/DC	BB DC / BE DC	
G 3/8	EPDM <sup>1)</sup>	10	2,5	0 – 90	0 – 10	0 – 6	<b>132U2450</b>
G 1/2	EPDM <sup>1)</sup>	12	4	0 – 90	0 – 10	0 – 6	<b>132U2452</b>
G 3/4	EPDM <sup>1)</sup>	18	6	0 – 90	0 – 10	0 – 6	<b>132U2454</b>
G 1	EPDM <sup>1)</sup>	22	7	0 – 90	0 – 10	0 – 6	<b>132U2456</b>

<sup>1)</sup> It is recommended to use a filter in front of the valve.

<sup>2)</sup> In water applications, exercise the valves at least once every 24 hours, meaning change the state of the valve. The valve exercise will minimize the risk of the valve sticking due to calcium carbonate, zinc or iron oxide build-up

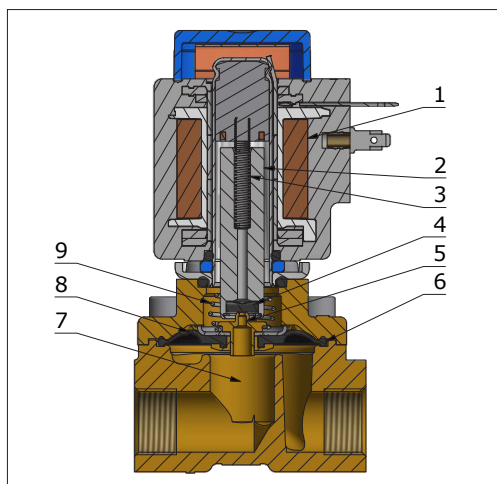

**Technical data,  
NC**

Type	EV250BW 10	EV250BW 12	EV250BW 18	EV250BW 22
Time to open [ms] <sup>1)</sup>	100	100	150	150
Time to close [ms] <sup>1)</sup>	100	100	100	100

<sup>1)</sup> The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Installation	Vertical solenoid system is recommended.		
Max. working pressure	NC	DN 10,12,18 & 22	0 - 10 bar
Max. test pressure	EV250BW	15 bar	
Ambient temperature	BZ, BO, BY, BB AC/DC, BE AC/DC, BG AC/DC	Up to 50 °C	
Viscosity	Max. 50 cSt		
Materials	Valve body	ECO brass	CW724R
	Armature	Stainless steel	W.no. 1.4105 / AISI 430FR
	Armature tube	Stainless steel	W.no. 1.4306 / AISI 304L
	Armature stop	Stainless steel	W.no. 1.4105 / AISI 430FR
	Springs	Stainless steel	W.no. 1.4310 / AISI 301
	O-rings	EPDM	
	Valve plate	EPDM	
	Diaphragm	EPDM	

Function, NC



Pos. no.	Description
1	Coil
2	Armature
3	Closing spring
4	Valve plate
5	Pilot orifice
6	Diaphragm
7	Main orifice
8	Equalizing orifice
9	Assisted lift

**Coil voltage disconnected (closed):**

When the supply voltage to the coil (1) is disconnected, the valve plate (4) is pressed down against the pilot orifice (5) by the closing spring (3). The pressure across the diaphragm (6) is built up via the equalizing orifice (8). The diaphragm closes the main orifice (7) as soon as the pressure across the diaphragm is equivalent to the inlet pressure below, due to the larger diameter of the upper side and/or the tension of the closing spring (3). The valve will be closed as long as the voltage to the coil is disconnected.

**Coil voltage connected (open):**

When voltage is applied to the coil, the armature (2) and the valve plate (4) are lifted clear of the pilot orifice (5). If there is a differential pressure across the valve, the pressure above the diaphragm (6) drops as the pilot orifice is larger than the equalizing orifice. Therefore the diaphragm is lifted clear of the main orifice (7). If there is no differential pressure across the valve, the armature (2) draws the diaphragm (6) clear of the main orifice (7) using the assisted lift (9). The valve will be open for as long as there is voltage to the coil.

**EV250BW**  
ECO brass valve body, NO

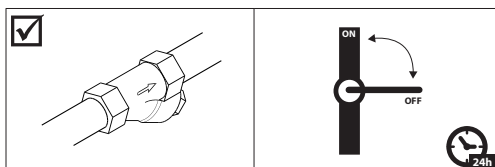


- In accordance with:
  - Low Voltage Directive 2014/35/EU
  - EN60730-1
  - EN60730-2-8
  - Pressure Equipment Directive 2014/68/EU
- RoHS Directive 2011/65/EU
- Wetted materials in accordance with BBR, NKB, DVGW, 4MS (4 member states Germany, Holland, France and UK), KTW and W270
- Certified by RISE
- Certified by SINTEF
- Inspection by DTI

Connection ISO 228/1	Seal material	Orifice size	K <sub>v</sub> -value [m <sup>3</sup> /h]	Media temperature min. to max. [°C]	Differential pressure min. to max. [bar] /coil type	Code number
					BZ, BO, BY, BB AC, BE AC, BG AC/DC	
G 3/8	EPDM <sup>1)</sup>	10	2,5	0 – 90	0 – 10	<b>132U2451</b>
G 1/2	EPDM <sup>1)</sup>	12	4	0 – 90	0 – 10	<b>132U2453</b>
G 3/4	EPDM <sup>1)</sup>	18	4,9	0 – 90	0 – 10	<b>132U2455</b>
G 1	EPDM <sup>1)</sup>	22	5,2	0 – 90	0 – 10	<b>132U2457</b>

<sup>1)</sup> It is recommended to use a filter in front of the valve.

<sup>2)</sup> In water applications, exercise the valves at least once every 24 hours, meaning change the state of the valve. The valve exercise will minimize the risk of the valve sticking due to calcium carbonate, zinc or iron oxide build-up



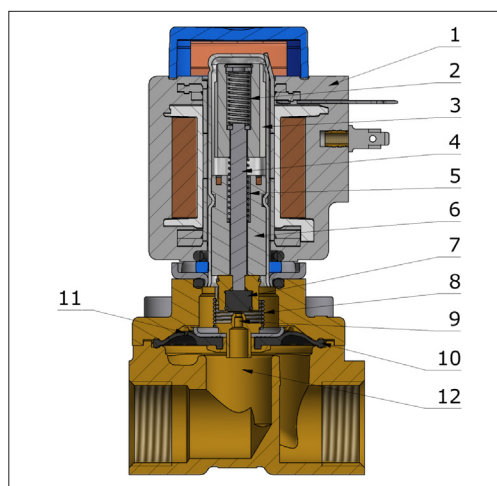
**Technical data, NO**

Type	EV250BW 10	EV250BW 12	EV250BW 18	EV250BW 22
Time to open [ms] <sup>1)</sup>	100	100	150	150
Time to close [ms] <sup>1)</sup>	100	100	100	100

<sup>1)</sup> The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Installation	Vertical solenoid system is recommended.		
Max. working pressure	NO	DN 10,12,18 & 22	0 - 10 bar
Max. test pressure	EV250BW	15 bar	
Ambient temperature	BZ, BO, BY, BB AC, BE AC, BG AC/DC	Up to 50 °C	
Viscosity	Max. 50 cSt		
Materials	Valve body	ECO brass	CW724R
	Armature	Stainless steel	W.no. 1.4105 / AISI 430FR
	Armature tube	Stainless steel	W.no. 1.4306 / AISI 304L
	Armature stop	Stainless steel	W.no. 1.4105 / AISI 430FR
	Springs	Stainless steel	W.no. 1.4310 / AISI 301
	O-rings	EPDM	
	Valve plate	EPDM	
Diaphragm	EPDM		

Function, NO



Pos. no.	Description
1	Coil
2	Closing spring
3	Armature
4	Spindle
5	Opening spring
6	Armature stop
7	Valve plate
8	Assisted lift
9	Pilot orifice
10	Diaphragm
11	Equalising orifice
12	Main orifice

**Coil voltage disconnected (valve is open):**

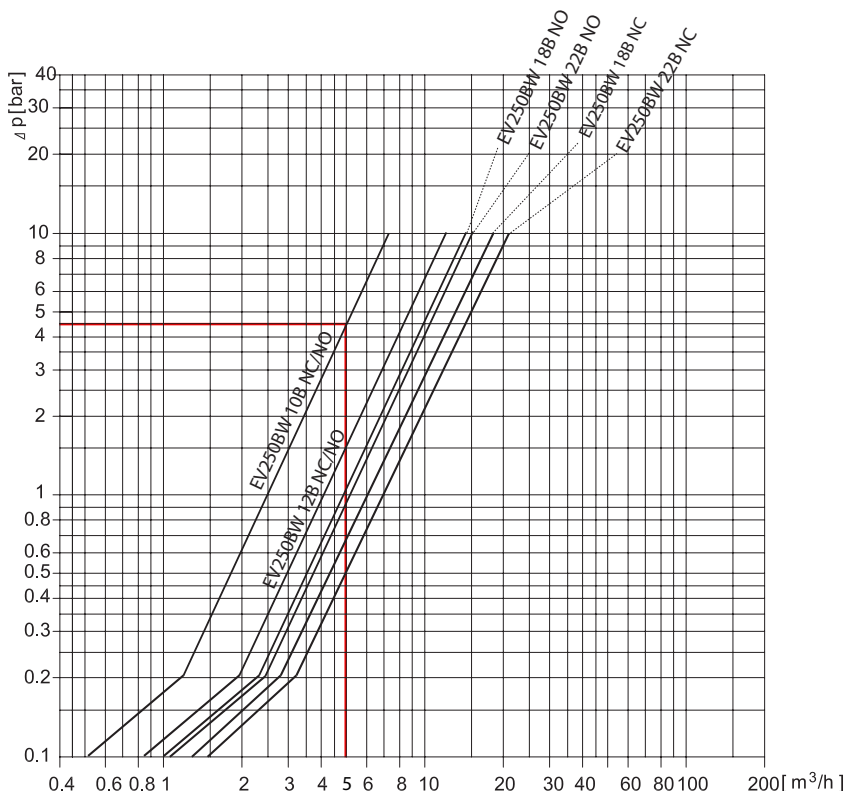
When the supply voltage to the coil (1) is disconnected, the valve plate (7) are lifted clear of the pilot orifice (9) if there is a differential pressure across the valve. The pressure above the diaphragm (10) drops as the pilot orifice is larger than the equalizing orifice. Therefore the diaphragm is lifted clear of the main orifice (12). If there is no differential pressure across the valve, the opening spring (5) draws the diaphragm (10) clear of the main orifice (12) using the assisted lift (8). The valve will be open for as long as there is no voltage to the coil.

**Coil voltage connected (valve is closed):**

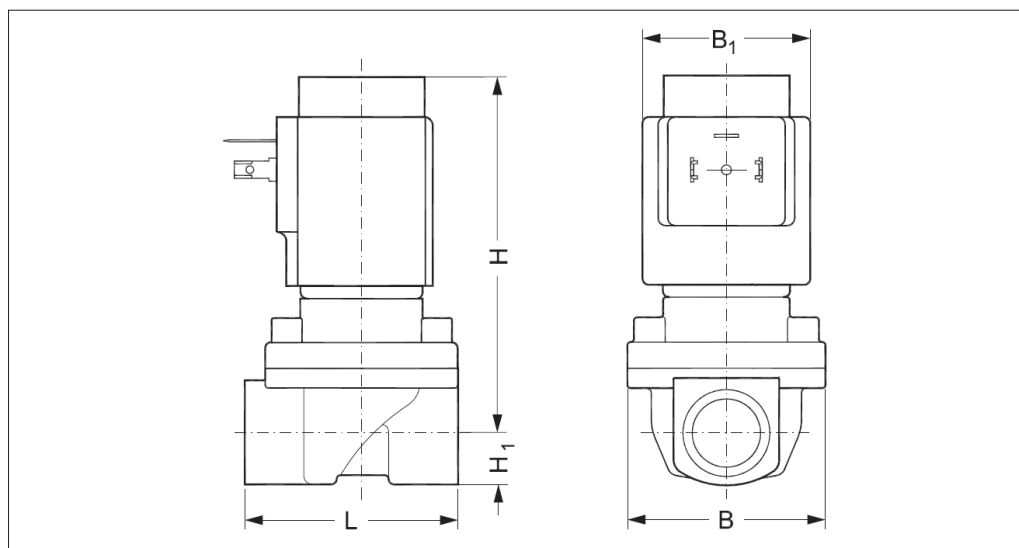
When the supply voltage to the coil (1) is connected, the armature (3) will compress the opening spring (5) and the closing spring will push the spindle (4)/ valve plate down against the pilot orifice (9). The pressure across the diaphragm (10) is built up via the equalising orifice (11). The diaphragm closes the main orifice (12) as soon as the pressure across the diaphragm is equivalent to the inlet pressure below, due to the larger diameter of the upper side and / or the tension of the closing spring (2). The valve will be closed as long as coil voltage is connected

**Capacity diagram:**

Example, water: EV250BW 10 NC at 4,5 bar diff. pressure:  
Approx: 5 m<sup>3</sup>/h



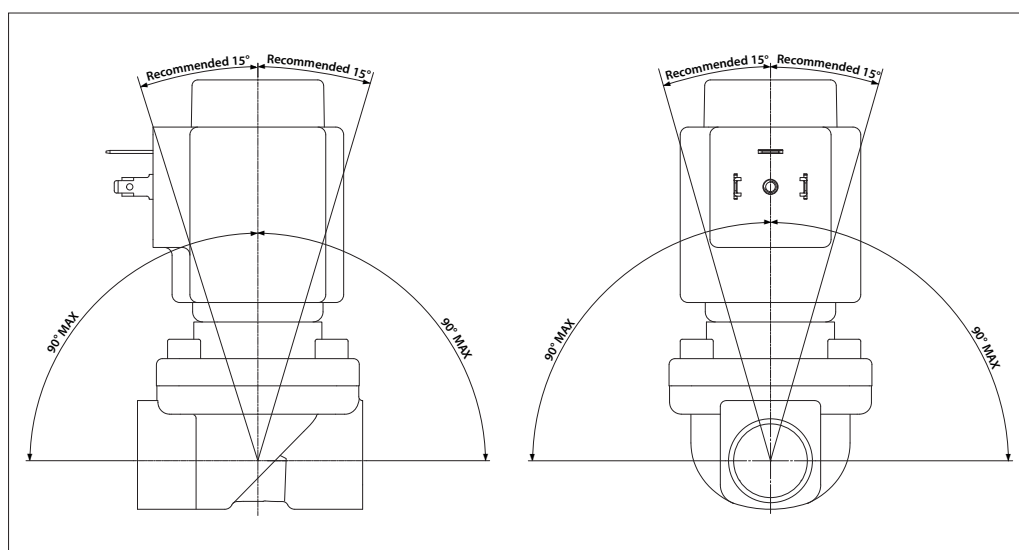
Dimensions



Dimension and weight: ECO brass NC and NO

Type	Weight gross valve body without coil [kg]	L [mm]	B [mm]	B1 [mm] / Coil type		H [mm]	H <sub>1</sub> [mm]
				BB / BE	BG		
EV250BW 10	0,6	58	52,3	46	68	91	12,5
EV250BW 12	0,6	58,0	52,3	46	68	91	12,5
EV250BW 18	0,8	90,5	58	46	68	92	18
EV250BW 22	1,1	90,0	58	46	68	96,3	22,3

Mounting angle



**BB, clip on**



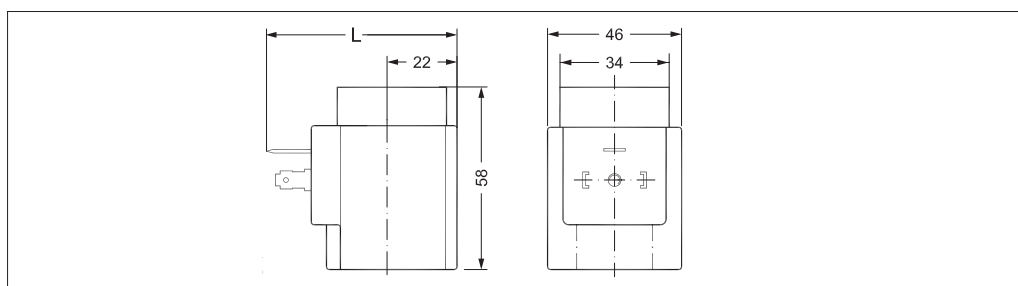
- Enclosure:
  - IP00 version with DIN 43650 A spade connectors
  - IP20 version with protective cap
  - IP65 version with mounted cable plug
- In accordance with:
  - RoHS Directive 2011/65/EU
  - Low Voltage Directive 2014/35/EU
  - EN60730-1
  - EN60730-2-8

Type	Tambient	Supply voltage	Voltage variation	Frequency	Control	Power consumption		Code no.
	[°C]	[V]		[Hz]		[W]	[VA]	
BB024AS	-40 – 80	24	-15%, +10%	50	NO, NC	11	19	018F7358
BB230AS	-40 – 80	220 - 230	-15%, +10%	50	NO, NC	11	19	018F7351
BB012DS	-40 – 50	12	±10%	DC	NC, NO, UN (Latching)	13	-	018F7396
BB024DS	-40 – 50	24	±10%	DC	NC, NO, UN (Latching)	16	-	018F7397

**Technical data**

Design	In accordance with VDE 0580
Insulation of coil windings	Class H according to IEC 85
Connection	Spade connector in accordance with DIN 43650 form A
Enclosure, IEC 529	IP00 with spade connector, IP20 with protective cap, IP65 with cable plug
Duty rating	Continuous
Plug type	Cable plug (042N0156)

**Dimensions and weight**



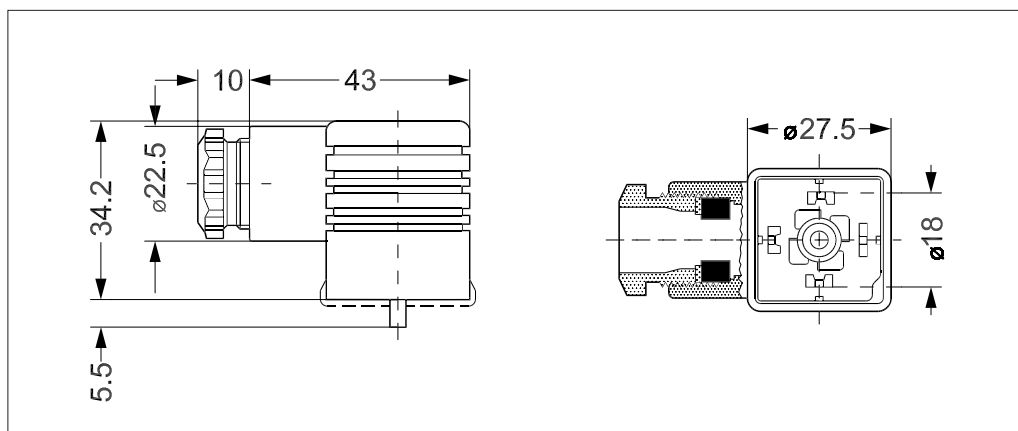
L without cable plug	L with protective cap	L with cable plug	Weight
[mm]	[mm]	[mm]	[kg]
62	77	85	0.24

Data sheet | Solenoid valves, type EV250BW

Accessories:  
Cable plug



Type, Form A	Code no.
GDM 2011 (grey) cable plug according to DIN 43650-A PG11	042N0156



EEC Electronic coil controller



EEC electronic coil controller for solenoid valves, type EV250BW.

The EEC gives the coil a short over-boost, and controls the armature speed:

- Low power consumption (holding power: 4 W)
- Reduced noise during operation
- Increased MOPD compared to standard coils
- Increased lifetime of the solenoid valve
- Enclosure:
  - IP67 version
- In accordance with:
  - Low Voltage Directive 2014/35/EU
  - EN60730-1

Type	Tambient	Supply voltage	Voltage variation	Frequency	Control	Power consumption	Code no.
	[°C]	[V]		[Hz]		[W]	
BE240CS	-25 – 55	208 - 240	±10%	60	NC, NO	4	018F6783
		208 - 240	±10%	50	NC, NO	4	



**Spare part kits  
DN 10, 12, 18 and 22**

Type	Actuatorkit NC	Actuator kit NO
EV250BW DN 10 G 3/8	132U8012	132U8017
EV250BW DN 12 G 1/2	132U8012	132U8017
EV250BW DN 18 G 3/4	132U8018	132U8019
EV250BW DN 22 G 1	132U8018	132U8019
	<ol style="list-style-type: none"> <li>1. O-ring coil</li> <li>2. 4x M4 screws</li> <li>3. Armature tube</li> <li>4. O-ring</li> <li>5. 4x screw for cover</li> <li>6. Armature + Spring</li> <li>7. Assist Spring</li> <li>8. Diaphragm</li> </ol>	<ol style="list-style-type: none"> <li>1. O-ring coil</li> <li>2. 4x M4 screws</li> <li>3. NO unit</li> <li>4. O-ring</li> <li>5. 4x screw for cover</li> <li>6. Assist Spring</li> <li>7. Diaphragm</li> </ol>

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