Data sheet

Solenoid valve

EV220B 65 - 100

Valves for high capacity applications

Description

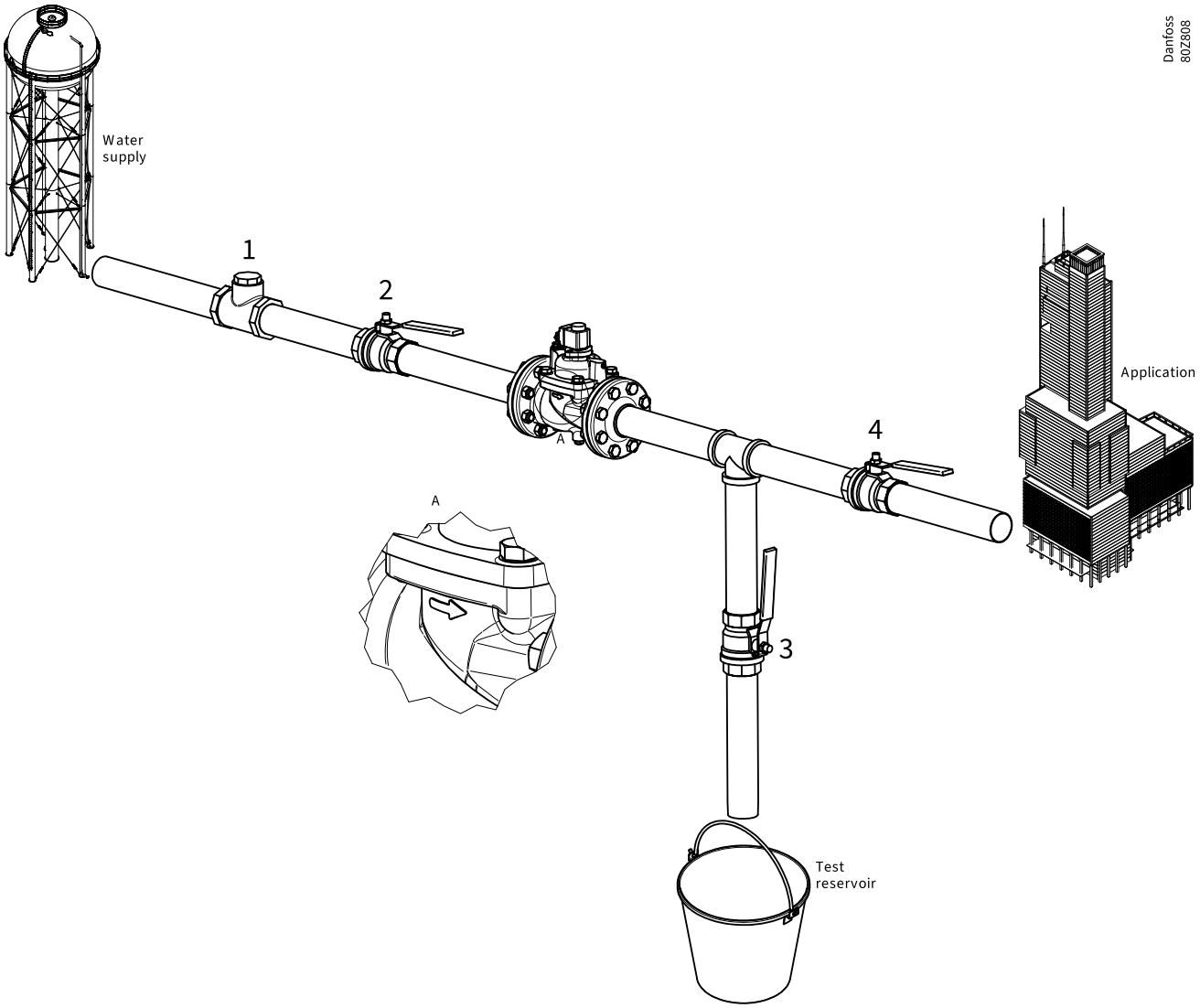
EV220B 65 – EV220B 100 is a 2/2–way solenoid valve program for use in robust industrial applications, demanding high flow rates. The valve is designed with cast iron valve body and flanged connection. Water–hammer damped design and built-in pilot filter ensures a reliable operation.

Features & benefits

- For water and similar neutral media
- Clip on coil
- Ambient temperature: Up to 80 °C
- Coil enclosure: Up to IP67
- Water hammer damped
- Built-in filter for protection of pilot system

Applications

Application diagram

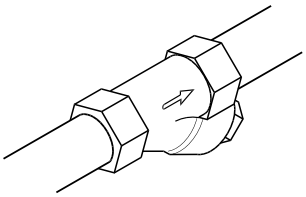


1	Filter	3	Ball valve, Test reservoir
2	Ball valve, Water supply	4	Ball valve, Application

Recommendations

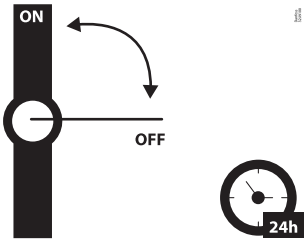
It is recommended to use a filter in front of the valve. Recommended filter 50 mesh (297 microns).

Filter



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.

Exercise: Valve on/off



Guidelines for water

To minimize scaling, and corrosion attack it is recommended that the water passing the valve have the following values:

- Hardness 6 – 18 °dH to avoid scaling (chalk / lime stone build up).
- Conductivity 50 – 800 µS/cm to avoid brass dezincification and corrosion.
- Above 25 °C media temperature avoid stagnant water inside the valve to avoid dezincification and corrosion attack.

Ordering

Product code numbers

Seal Material	Orifice size [mm]	Kv value [m³/h]	Code number
NBR	65.00	50.000	016D3330
NBR	80.00	75.000	016D3331
NBR	100.00	130.000	016D3332
EPDM	65.00	50.000	016D6065
EPDM	80.00	75.000	016D6080
EPDM	100.00	130.000	016D6100

Accessories code numbers

Coils

Table: Below coils can be used with EV220B

Coil	Type	Power consumption	Enclosure	Features
	BB, clip on	10 W AC 18 W DC	IP00 with spade connector	IP20 with protective cap, IP65 with cable plug
	BE, clip on	10 W AC 18 W DC	IP67	With terminal box
	BG, clip-on	12 W AC 20 W DC	IP67	With terminal box

Cable plug

Table: Cable plug

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

Universal electronics multi-timer, type ET20M

Table: EV220B 65 – 100

Application	Voltage [V AC]	To use with coil	Ambient temperature [°C]	Code no.
External adjustable timing from1 to 45 minutes with 1 to 15 seconds drain open. With Manual override (test button). Electrical connection DIN 43650 A/EN 175 301-803-A	24 – 240	BA, BD, BB	-10 – 50	042N0185

Flange set

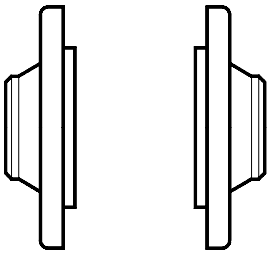


Table: Flange

Connection	Type	Code no.
2 ½ weld type 11 according to DIN EN 1092-1	EV220B 65	027N3065
3 weld type 11 according to DIN EN 1092-1	EV220B 80	027N3080
4 weld type 11 according to DIN EN 1092-1	EV220B 100	027N3100

Manual override kit, hand operated

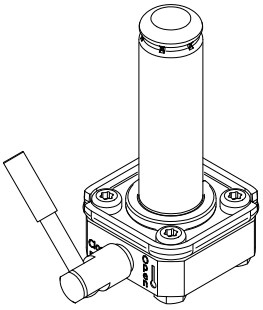


Table: Manual override

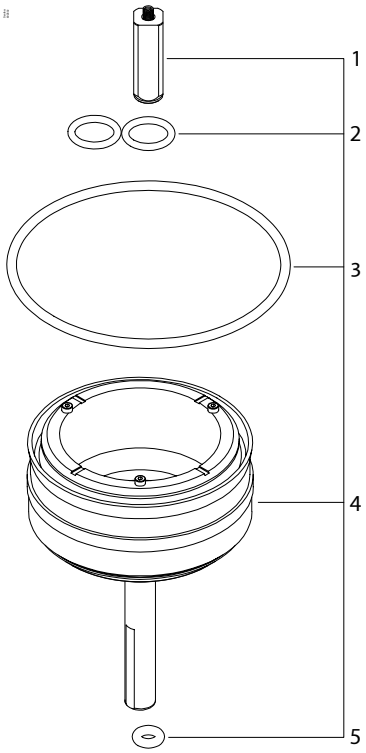
Seal material	Description	Code no.
EPDM	Manuel override kit. used for manual override in event of power failure. Note: Valve height is increased by 16 mm	032U7390

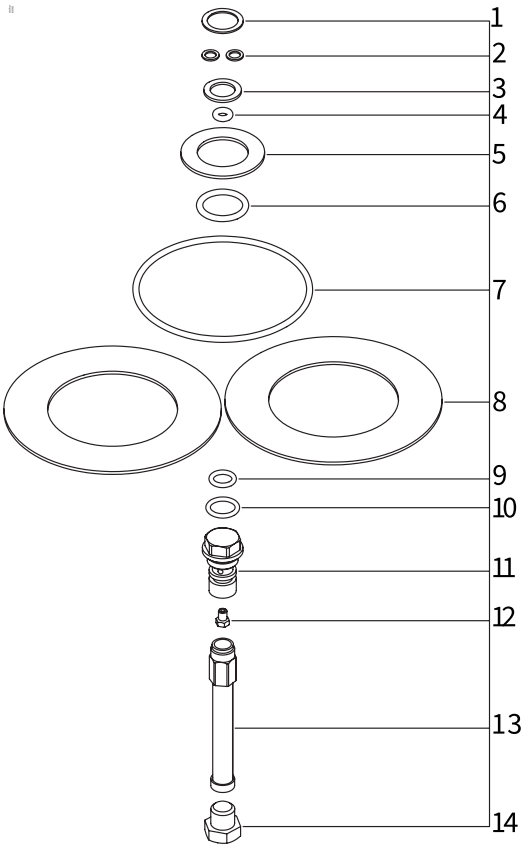
Spare parts code numbers

Spare part kit

Table: Spare part kit and seal kit

Type	Spare part kit EPDM	Spare part kit NBR	Seal kit EPDM	Seal kit NBR
EV220B 65	016D0078	016D0095	016D0075	016D0084
EV220B 80	016D0079	016D0096	016D0076	016D0085
EV220B 100	016D0080		016D0077	016D0086





1. Armature +Spring
2. 2x O-ring
3. O–ring
4. Piston
5. O-ring

1. Steam gasket
2. 2x Sealing
3. Sealing
4. O-ring
5. Rubber gasket
6. O-ring
7. O-ring
8. 2x Steam gasket
9. O-ring
10. O-ring
11. Filter holder
12. Orifice
13. Filter
14. Drain plug

For detailed guidance see installation guides for EV220B 65 – 100 valve, spare part kit and seal kit.

Overview

Product portfolio

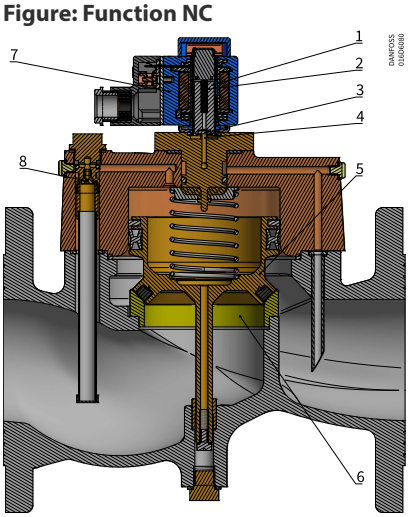
Features	EV220B 65 – EV220B 100
	
Body material	Cast iron
DN [mm]	65 – 80
Connection	G21/2, G3, G4
Sealing material	EPDM, NBR
Function	NC
K_v [m^3/h]	50 – 130
Differential pressure range [bar]	0.25 – 10
Temperature range [°C]	-25 – 90

Functions

Coil voltage disconnected (closed)
When the voltage is disconnected, the valve plate (3) is pressed down against the pilot orifice (4) by the pilot system's closing spring (2). The pressure across the servo piston (5) is built up via the equalizing orifice (8). The servo piston closes the main orifice (6) as soon as the pressure across the piston is equivalent to the inlet pressure. The valve will be closed for as long as the voltage to the coil is disconnected.

Coil voltage connected (open)
When voltage is applied to the coil (7), the armature (1) and the valve plate (3) are lifted clear of the pilot orifice (4). As the pilot orifice is larger than the equalizing orifice (8), the pressure across the servo piston (5) drops and therefore it is lifted clear of the main orifice (6). The valve will be open for as long as the minimum differential pressure across the valve is maintained, and for as long as there is voltage to the coil.

Figure: Function NC



1.	Armature
2.	Closing spring in pilot system
3.	Valve plate
4.	Pilot orifice
5.	Servo piston
6.	Main orifice
7.	Coil
8.	Equalizing orifice

Product details

General data

Table: Technical data

Media	EPDM	Water, brine and glycol
	NBR	Air and oil
Media temperature	EPDM / NBR	-25 – 90 °C
Ambient temperature	Up to 80 °C	
K_v value	DN65	50 m^3/h
	DN80	75 m^3/h
	DN100	130 m^3/h
Min. opening differential pressure	0.25 bar	
Max. opening differential pressure [bar]	10 bar	
Max working pressure [bar]	10 bar	
Max test pressure [bar]	15 bar	
Viscosity	Max. 50 cSt	

Time to open/close
Table: Time to open/close

Main type	EV220B 65	EV220B 80	EV220B 100
Time to open [s](1)	5	5	5
Time to close [s](1)	7	15	29

(1) The times are indicative and apply to water.

Materials

Table: Materials

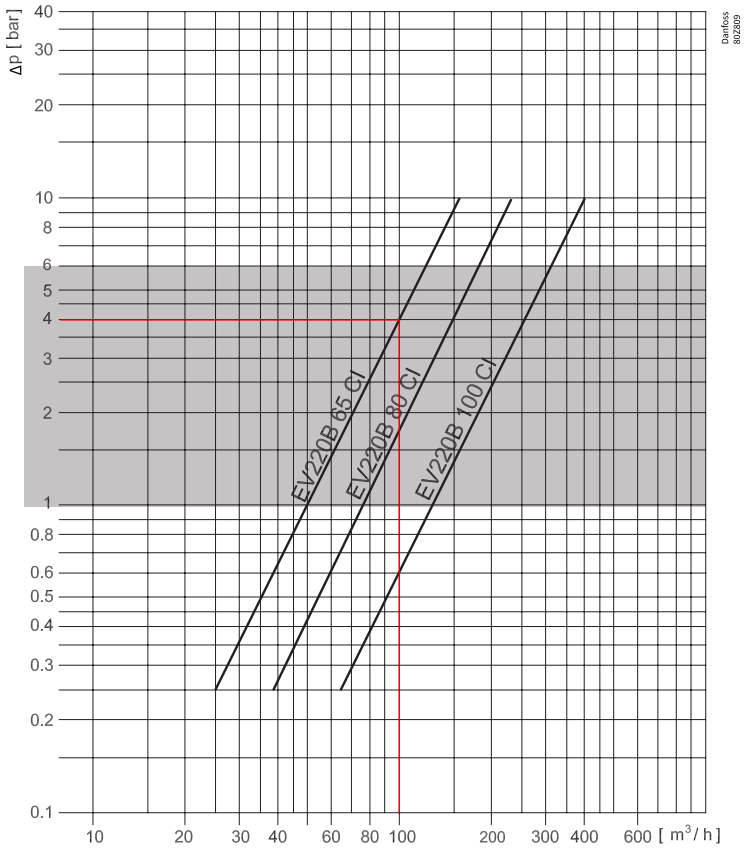
Components	Materials	Specifications
Valve body	Cast iron	W.no. 0.6020
Armature	Stainless steel	W.no. 1.4105/AISI 430L
Armature tube	Stainless steel	W.no. 1.4306/AISI 304L
Springs	Stainless steel	W.no. 1.4310/AISI 301
Pilot body	Brass	
Ring	Copper	
Sealing	EPDM version	NBR, Cetellen WS3820, PTFE, EPDM, CR
	NBR version	NBR, centellen WS3820, PTFE

Capacity

Recommended operating range: Grey area 1 – 6 bar differential pressure

Example, water: Capacity for EV220B 65 at differential pressure of 4 bar: approx. 100 m^3/h

Capacity diagram



Dimensions

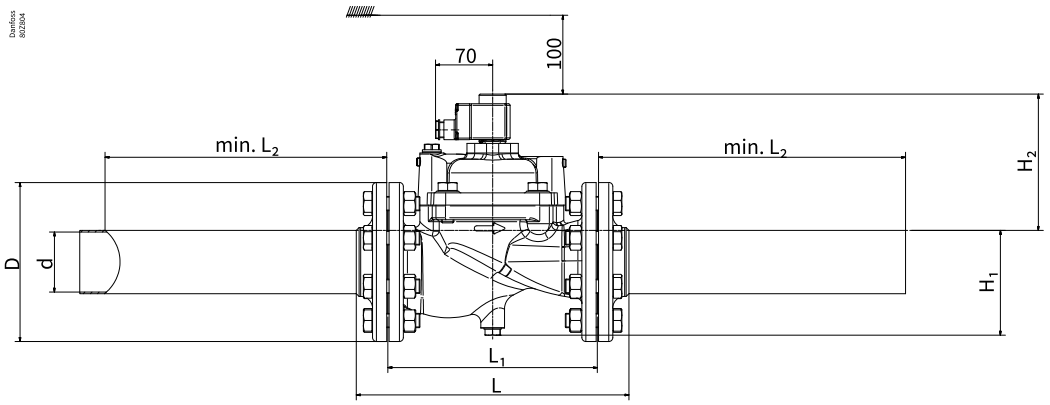
Table: Dimensions and weight

Type	L [mm]	L_1 [mm]	Required min. L_2 [1] [mm]	B_1 Coil type [mm]		øD [mm]	H_1 [mm]	H_2 [mm]	Weight without coil [kg]	Required min. inside tube diameter d [2] [mm]
				BB/BE	BG					
EV220B 65	320	224	300	46	66	185	85	185	24	65
EV220B 80	370	265	350	46	66	200	93	215	34	80
EV220B 100	430	315	400	46	66	220	103	240	44	100

[1] Avoid closing problems caused by turbulent flow it is required to have a straight tube on both sides of the valve.

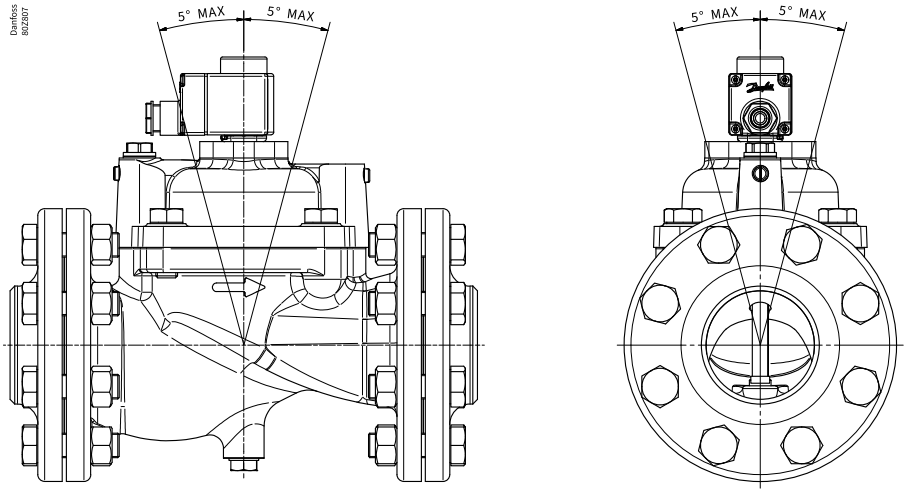
[2] Required to keep same tube size for entire application, same or bigger inside diameter as valve orifice 65 / 80 / 100 mm.

Dimensions



Installation

Mounting angle

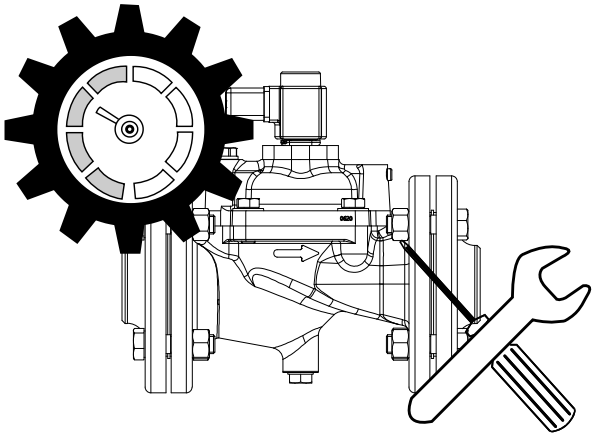


Service

Maintenance

Maintenance/Inspection every 6 to 12 months recommended.

Periodic maintenance/inspection



Before starting maintenance/inspection be sure:

- Coil is not energized when removed from the armature tube.
- System/solenoid valve is not pressurised. Eventually close ball valves on each side of the valve.
- Be sure any pumps one the upstream (inlet supply) will not be energized or a pressure sensor or switch will not start the pump.
- After cleaning and service, eventually with Danfoss spare part kit, it is recommended to lubricate piston and piston sealing with a thin layer of lubrication included into the spare part kit.

Frequency and maintenance depend largely on the application and the medium used in the valve. Mechanical contaminants, iron, excessive mineralization, through the valve or may cause problems with the operation of the valves. All maintenance and repair work should be carried out by technically trained personnel who are familiar with the operation of the installation. In case of large impurities visible on the filter, piston scale and cover, other impurities inside the valve, the frequency of inspections should be increased.

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The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

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Export Control Declaration	Solenoid valves - Stainless steel	Danfoss	
Export Control Declaration	Solenoid valves – Polymer, Bronze, Brass, Cast iron	Danfoss	
Mechanical Safety Certificate	UL MH7648	UL - Underwriters Laboratories inc.	
Pressure Safety Certificate	LLC CDC EURO-TYSK UA.TR.089.1015.02-22	LLC CDC EURO TYSK - Ukraine	PED, Pressure
EU Declaration	Danfoss EU 033F0682.AA	Danfoss	EU RoHS, LVD, PED, Pressure

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