

Solenoid valves 2/2-way servo-operated

Type EV220B 6-22

Features



EV220B NC and NO

- For robust industrial application
- For water, oil, compressed air and similar neutral media
- Valve sizes 6-22 mm
- Differential pressure: Up to 30 bar
- Viscosity: Up to 50 cSt
- Ambient temperature: Up to 80°C
- Coil enclosure: Up to IP 67
- Thread connections: From G ¼ to G 1
- Also available with NPT thread. Please contact Danfoss.
- WRAS approved EPDM NC versions

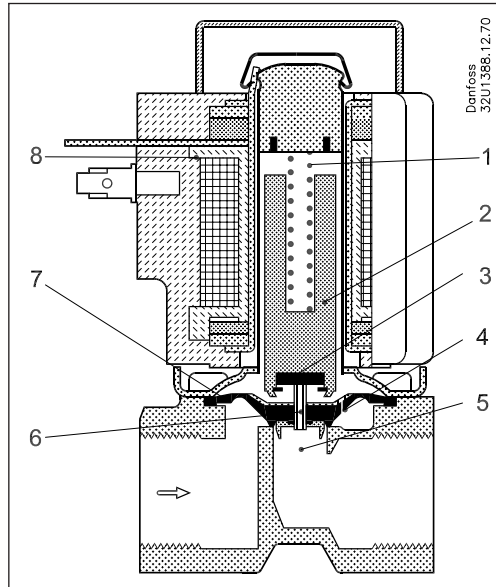
Technical data for NC and NO

Type	EV220B 6B	EV220B 10B	EV220B 12B	EV220B 18B	EV220B 22B
Installation	Vertical solenoid system is recommended.				
Pressure range	NC	0.1 to 30 bar			
	NO	0.1 to 10 bar			
Max.test pressure	50 bar	50 bar	16 bar	16 bar	16 bar
Time to open ¹⁾	40 ms	50ms	60ms	200ms	200ms
Time to close ¹⁾	250ms	300 ms	300 ms	500 ms	500 ms
Ambient temperature	40 to 80°C (depending on coil type, see data for the coil selected)				
Medium temperature	EPDM: -30 to +100°C.		FKM: 0 to +100°C.		
Viscosity	max. 50 cSt				
Materials	Valve body: Brass, W.no. 2.0402 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 or FKM Valve plate: EPDM or FKM Diaphragm: EPDM or FKM				

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

Function NC

- 1. Armature spring
- 2. Armature
- 3. Valve plate
- 4. Equalising orifice
- 5. Main orifice
- 6. Pilot orifice
- 7. Diaphragm
- 8. Coil



Coil voltage disconnected (closed):

When the supply voltage to the coil (8) is disconnected, the valve plate (3) is pressed down against the pilot orifice (6) by the armature spring (1). The pressure across the diaphragm (7) is built up via the equalising orifice (4). The diaphragm closes the main orifice (5) as soon as the pressure across the diaphragm 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, the pilot orifice (6) is opened. As the pilot orifice is larger than the equalising orifice (4), the pressure across the diaphragm (7) drops and therefore it is lifted clear of the main orifice (5). The valve is now open and 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.

Ordering NC

valve body

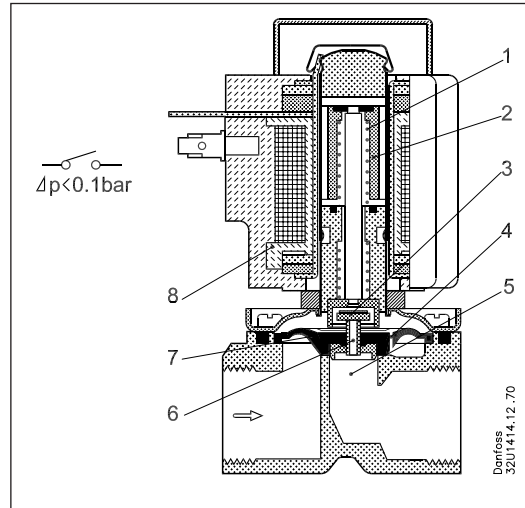
Connection ISO 228/1	Seal material	k _v - value [m ³ /h]	Media temp.		Type designation		Permissible differential pressure (bar)/ Coil type						Code no. without coil	
			Min. [°C]	Max. [°C]	Main type	Specification	Max.							
							BA		BB/BE		BG			
							9 W ac	15 W dc	10 W ac	18 W dc	12 W ac	20 W dc		
G 1/4	EPDM ¹⁾	0.7	-30	+100	EV220B 6B	G 14E NC000	0.1	20	-	20	10	20	20	032U1236
G 1/4	FKM ²⁾	0.7	0	+100	EV220B 6B	G 14F NC000	0.1	20	-	20	10	20	20	032U1237
G 3/8	EPDM ¹⁾	0.7	-30	+100	EV220B 6B	G 38E NC000	0.1	30	-	30	-	30	30	032U1241
G 3/8	FKM ²⁾	0.7	0	+100	EV220B 6B	G 38F NC000	0.1	20	-	20	10	20	20	032U1242
G 3/8	EPDM ¹⁾	1.5	-30	+100	EV220B10B	G 38E NC000	0.1	30	-	30	-	30	30	032U1246
G 3/8	FKM ²⁾	1.5	0	+100	EV220B10B	G 38F NC000	0.1	20	-	20	10	20	20	032U1247
G1/2	EPDM ¹⁾	1.5	-30	+100	EV220B10B	G12E NC000	0.1	30	-	30	-	30	30	032U1251
G 1/2	FKM ²⁾	1.5	0	+100	EV220B10B	G 12F NC000	0.1	20	-	20	10	20	20	032U1252
G 1/2	EPDM ¹⁾	2.5	-30	+100	EV220B12B	G 12E NC000	0.3	10	-	10	-	-	10	032U1256
G 1/2	FKM ²⁾	2.5	0	+100	EV220B12B	G 12F NC000	0.3	10	-	10	-	-	10	032U1255
G 3/4	EPDM ¹⁾	6.0	-30	+100	EV220B18B	G34E NC000	0.3	10	-	10	-	10	10	032U1261
G 3/4	FKM ²⁾	6.0	0	+100	EV220B18B	G34F NC000	0.3	10	-	10	-	10	10	032U1260
G 1	EPDM ¹⁾	6.0	-30	+100	EV220B22B	G 1E NC000	0.3	10	-	10	-	10	10	032U1263
G 1	FKM ²⁾	6.0	0	+100	EV220B22B	G1F NC000	0.3	10	-	10	-	10	10	032U1266

1)EPDM is suitable for water only.

2)FKM is suitable for oil and air. May also be used for water and neutral aqueous solutions if the water temperature does not exceed 60 °C.

= Only gas

Function NO



- 1. Opening spring
- 2. Armature
- 3. Valve plate
- 4. Equalising orifice
- 5. Main orifice
- 6. Pilot orifice
- 7. Diaphragm
- 8. Coil

Coil voltage disconnected (open):

When the voltage to the coil (8) is disconnected, the pilot orifice (6) is open. As the pilot orifice is larger than the equalising orifice (4), the pressure across the diaphragm (7) drops and therefore it is lifted clear of the main orifice (5). The valve will be open for as long as the minimum differential pressure across the valve is maintained, and for as long as the voltage to the coil is disconnected.

Coil voltage connected (closed):

When voltage is applied to the coil, the valve plate (3) is pressed down against the pilot orifice (6). The pressure across the diaphragm (7) is built up via the equalising orifice (4). The diaphragm closes the main orifice (5) as soon as the pressure across the diaphragm is equivalent to the inlet pressure. The valve will be closed for as long as there is voltage to the coil.

Ordering NO

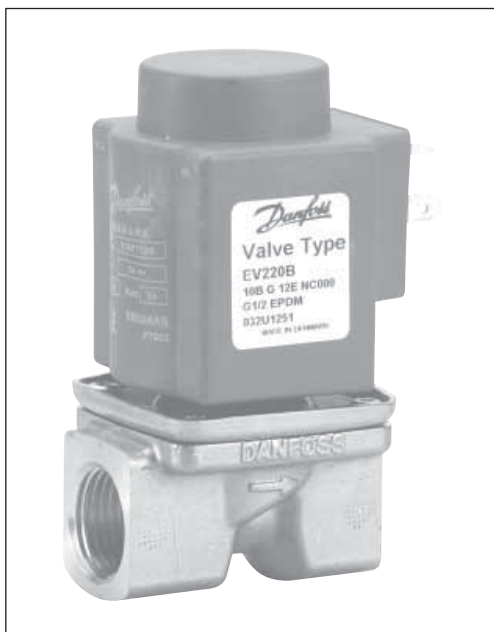
valve body

Connection ISO 228/1	Seal material	k _v - value [m ³ /h]	Media temp.		Type designation		Permissible differential pressure (bar)/Coil type						Code no. without coil		
			Min. [°C]	Max. [°C]	Main type	Specification	Min.	Max.							
								BA		BB		BE			
								9 W ac	15 W dc	10 W ac	18 W dc	10 W ac		18 W dc	
G 3/8	EPDM ¹⁾	0.7	-30	+100	EV220B 6B	G 38E NO000	0.1	10	10	10	10	10	10	10	032U1238
G 3/8	FKM ²⁾	0.7	0	+100	EV220B 6B	G 38F NO000	0.1	10	10	10	10	10	10	10	032U1239
G 1/2	FKM ²⁾	1.0	0	+100	EV220B 10B	G 12F NO000	0.1	10	10	10	10	10	10	10	032U1249

1)EPDM is suitable for water only.

2)FKM is suitable for oil and air. May also be used for water and neutral aqueous solutions if the water temperature does not exceed 60 °C.

Features



EV220BD for slightly aggressive liquids and gases.

- For robust industrial application
- For neutral and slightly aggressive liquids and gases. Contact Danfoss if you are in doubt about the valve's suitability for the medium in question.
- Differential pressure: Up to 20 bar
- Viscosity: Up to 50 cSt
- Ambient temperature: Up to 80°C
- Coil enclosure: Up to IP 67
- Thread connections: From G 1/4 to G 1/2

Technical data

Type	EV220B 6BD	EV220B 10BD	EV22B 12BD
Installation	Vertical solenoid system is recommended		
Pressure range	0.1 to 20 bar		
Max. test pressure	50 bar	50 bar	16 bar
Time to open ¹⁾	40 ms	50 ms	60 ms
Time to close ¹⁾	250 ms	300 ms	300 ms
Ambient temperature	40 to +80°C (depending on coil type, see data for coil selected)		
Medium temperature	-10 to +90°C		
Viscosity	Max. 50 cSt		
Materials	Valve body: Dezincification resistant brass, CuZn36 Pb2As/CZ132 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 Valve Seat: Stainless Steel,.....W.no. 1.4404/AISI 316L O-rings: EPDM Valve plate: EPDM Diaphragm: EPDM		

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



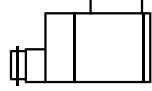
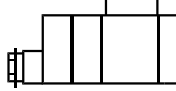
Ordering

valve body

Connec- tion ISO 228/1	Seal material	k _v - value [m ³ /h]	Media temp.		Type designation		Permissible differential pressure (bar)/Coil type						Code no. without coil	
			Min. [°C]	Max. [°C]	Main type	Specification	Min.	Max.						
								BA		BB		BE		
								9 W ac	15 W dc	10 W ac	18 W dc	10 W ac		18 W dc
G 1/4	EPDM ¹⁾	0.7	-30	+100	EV220B 6BD	G 14E NC000	0.1	20	-	20	10	20	20	032U5806
G 3/8	EPDM ¹⁾	0.7	-30	+100	EV220B 6BD	G 38E NC000	0.1	20	-	20	10	20	20	032U5807
G 3/8	EPDM ¹⁾	1.5	-30	+100	EV220B 10BD	G 38E NC000	0.1	20	-	20	10	20	20	032U5809
G 1/2	EPDM ¹⁾	1.5	-30	+100	EV220B 10BD	G 12E NC000	0.1	20	-	20	10	20	20	032U5810
G 1/2	EPDM ¹⁾	2.5	-30	+100	EV220B 12BD	G 12E NC000	0.3	10	-	10	-	-	10	032U5811

1) EPDM is suitable for water only.

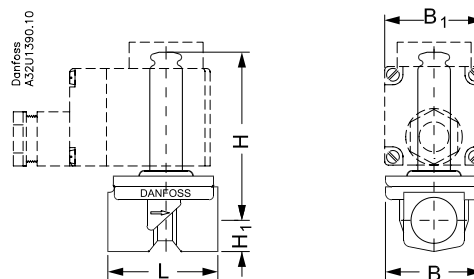
Coil options

				<p>Danfoss also offers hum-free coils for noise sensitive applications and EEx m II T4 coils for use in explosion risk areas - please see coil data sheet DKACV.PD.600.A</p>
Type: BA 9 W ac 15 W dc	Type: BB 10 W ac 18 W dc	Type: BE (IP67) 10 W ac 18 W dc	Type: BG 12 W ac 20 W dc	

Ordering Coils

See separate data sheet for coils IC.PD.600.A

Dimensions and weight

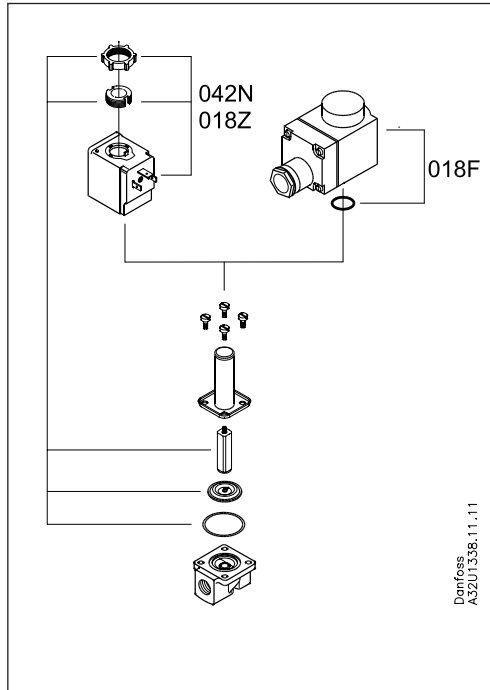


Type	L [mm]	B [mm]	B ₁ [mm]			H ₁ [mm]	H [mm]	Weight without coil [kg]
			Coil type					
			BA	BB/BE	BG			
EV220B 6B	45.5	43,5	32	46	68	13.0	74.0	0.22
EV220B 10B	51.5	48.0	32	46	68	13.0	77.0	0.29
EV220B 12B	58.0	54.0	32	46	68	13.0	77.0	0.35
EV220B 18B	90.0	62.0	32	46	68	18.0	83.0	0.65
EV220B 22B	90.0	62.0	32	46	68	18.0	98.0	0.65

Media resistance

Please contact Danfoss

Spare parts kit for
-EV220B 6 - 22 B
(brass body)
-EV220B 6 - 12 BD
(dezincification resistant
brass body)

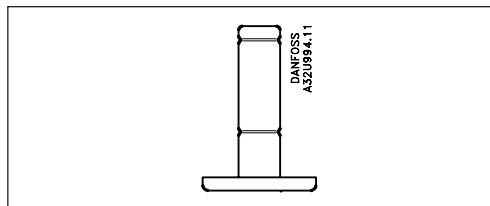


The spare parts kit comprises a locking button, nut for the coil, armature with valve plate and spring, and a diaphragm. For EV220B 6 and 10 the spare parts kit also includes an O-ring.

Type	Seal material	Code no.	
		Standard	WRAS
EV220B 6B	EPDM ¹⁾	032U1062	032U6001
EV220B 6B	FKM ²⁾	032U1063	
EV220B 10B	EPDM ¹⁾	032U1065	032U6002
EV220B 10B	FKM ²⁾	032U1066	
EV220B 12B	EPDM ¹⁾	032U1068	032U6003
EV220B 12B	FKM ²⁾	032U1067	
EV220B18-22	EPDM ¹⁾	032U1070	032U6004
EV220B18-22	FKM ²⁾	032U1069	

Type	Seal material	Code no.
EV220B 6BD	EPDM ¹⁾	032U4280
EV220B 10BD	EPDM ¹⁾	032U4281
EV220B 12BD	EPDM ¹⁾	032U4283

Assembled normally
open(NO) unit



EV220B 6 - 10B; NO		
Type	Seal material	Code no.
EV220B 6B	EPDM ¹⁾	032U0165
EV220B 6B	FKM ²⁾	032U0166
EV220B 10B	FKM ²⁾	032U0167

1)EPDM is suitable for water.

2)FKM is suitable for oil and air. For water at max. 60 °C.

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequential changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.