

Introduction

EV220B 6-22 is a direct servo-operated 2/2 way solenoid valve program. This program is especially for OEM applications demanding a robust solution and moderate flow rates.

EV220B 6-22 valves are supplied complete or as separate components i.e valve body and coil, can be ordered separately.


Features

- For robust industrial application.
- For water, oil, compressed air and similar neutral media.
- Valve sizes 6-22 mm
- Differential pressure: Up to 30 Bar
- Ambient temperature: Up to 80°C
- Coil enclosure : Up to IP 67
- Tread connections: From G ¼ to G 1
- Viscosity: Up to 50 cSt
- k_v value up to 8.0 m³/h
- Also available with NPT thread. Please contact Danfoss.

Approvals

EPDM versions in Normally Closed (NC) valves are WRAS approved.

Pressure Equipment Directive (PED) 97/23/ EC



Versions with UL approval can be supplied to order.

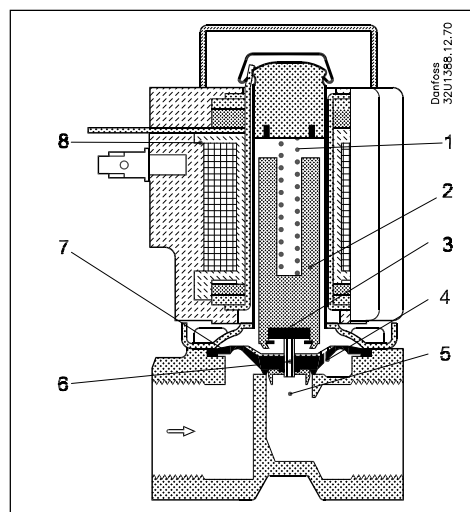
ATTESTATION DE CONFORMITE SANITAIRE, ACS
Body material B = Brass with EPDM seal material
EV220B 6B EV220B 10B EV220B 12B EV220B 18B EV220B 22B

PAŃSTWOWY ZAKŁAD HIGIENY, PZH
Body material B = Brass with EPDM seal material
EV220B 6B EV220B 10B EV220B 12B EV220B 18B EV220B 22B

Technical data NC

Type	EV220B 6B	EV220B 10B	EV220B 12B	EV220B 18B	EV220B 22B
Installation	Vertical solenoid system is recommended.				
Pressure range	0.1 to 30 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



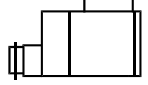
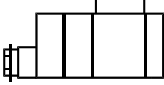
Conne- ction ISO 228/1	Seal material	k _v - value [m ³ /h]	Media temp.		Type designation		Permissible differential pressure (bar)/ Coil type						Code no. without coil	
			Min. [°C]	Max. [°C]	Main type	Specification	Min.	Max.						
								BA		BB/BE		BG		
								9 W ac	15 W dc	10 W ac	18 W dc	12 W ac		20 W dc
Standard														
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
							0.1	30	-	30	-	30	30	
G 3/8	EPDM ¹⁾	0.7	-30	+100	EV220B 6B	G 38E NC000	0.1	20	-	20	10	20	20	032U1241
G 3/8	FKM ²⁾	0.7	0	+100	EV220B 6B	G 38F NC000	0.1	20	-	20	10	20	20	032U1242
							0.1	30	-	30	-	30	30	
G 3/8	EPDM ¹⁾	1.5	-30	+100	EV220B10B	G 38E NC000	0.1	20	-	20	10	20	20	032U1246
G 3/8	FKM ²⁾	1.5	0	+100	EV220B10B	G 38F NC000	0.1	20	-	20	10	20	20	032U1247
							0.1	30	-	30	-	30	30	
G 1/2	EPDM ¹⁾	1.5	-30	+100	EV220B10B	G 12E NC000	0.1	20	-	20	10	20	20	032U1251
G 1/2	FKM ²⁾	1.5	0	+100	EV220B10B	G 12F NC000	0.1	20	-	20	10	20	20	032U1252
							0.1	30	-	30	-	30	30	
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	G 34E NC000	0.3	10	-	10	-	10	10	032U1261
G 3/4	FKM ²⁾	6.0	0	+100	EV220B18B	G 34F 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	G 1F 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.

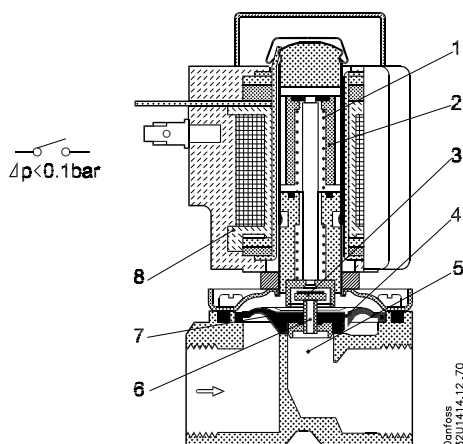
= only gas

Coil options

				<i>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</i>
Type: BA	Type: BB	Type: BE (IP67)	Type: BG	
9 W ac	10 W ac	10 W ac	12 W ac	
15 W dc	18 W dc	18 W dc	20 W dc	

Ordering Coils

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

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.

Technical data NO

Type	EV220B 6B	EV220B 10B	EV220B 12B	EV220B 18B	EV220B 22B
Installation	Vertical solenoid system is recommended.				
Pressure range	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				

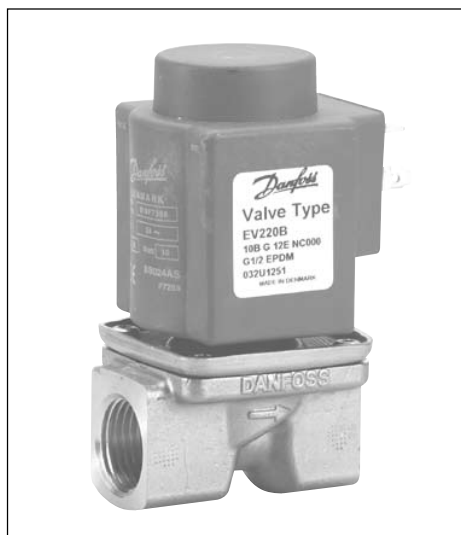
1) The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Ordering NO
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			
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


- 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	EV220B 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		

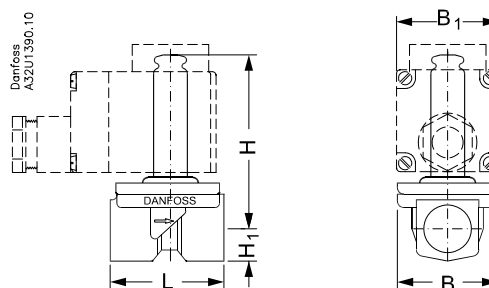
1) The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Ordering
valve body

Conne- ction 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

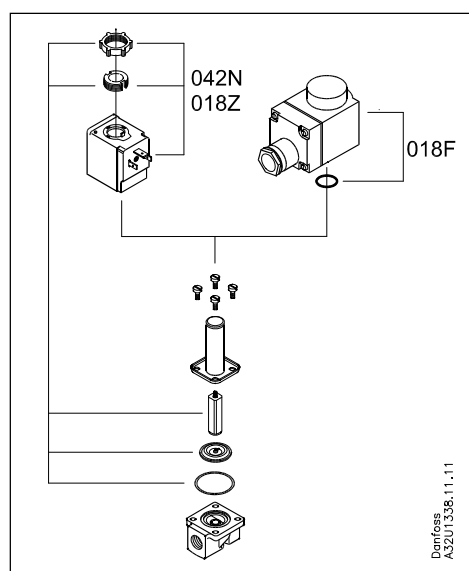
1) EPDM is suitable for water only.

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

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

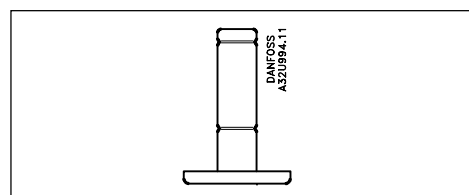


The spare parts kit comprises a locking button, nut for the coil, armature with valve plate and spring, and a diaphragm. For EV220B 6 and 10 the spare parts kit also includes an O-ring.

Type	Seal material	Code no.	
		Standard	WRAS / ACS
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.

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