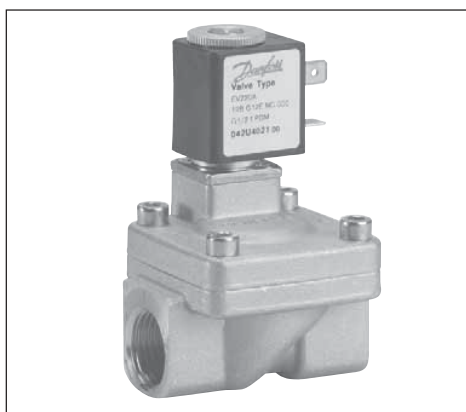


# Solenoid valves 2/2-way servo-operated Type EV220A 6-50

## Features



## EV220A

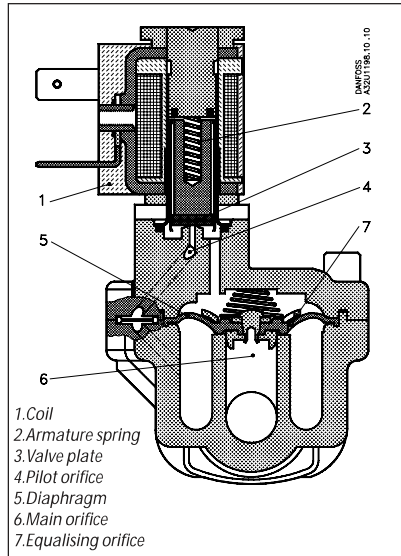
- Compact solenoid valve for robust industrial applications
- Liquid hammer damped
- Low power consumption
- NO version, standard for 1/4" to 1" valve sizes
- NC version, standard for 1/4" to 2" valve sizes
- For water, oil, compressed air and similar neutral media
- Differential pressure: Up to 16 bar
- Viscosity: Up to 50 cSt
- Ambient temperatures: Up to +50°C
- Enclosure: Up to IP 65

## Technical data

Type	EV220A 6B	EV220A 10B	EV220A 12B	EV220A 14B	EV220A 18B	EV220A 22B	EV220A 32B	EV220A 40B	EV220A 50B
Capacity, $k_v$ (m <sup>3</sup> /h)	1	1.6	2.5	4	7	7	15	18	32
Differential pressure range	0.2 - 16 bar		0.3 - 16 bar						
Max.test pressure	50 bar		25 bar						
Opening times <sup>1)</sup> ms	40	50	60	100	200	200	2500	4000	5000
Closing times <sup>1)</sup> ms	250	300	300	400	500	500	4000	6000	10000
Ambient temperature	Max. +50°C								
Media temperature	NBR: -10 → +90°C / EPDM: -30 → +100°C FKM: 0 → +100°C / FKM for water max. +60°C								
Media viscosity	+50cSt								
Materials	Valve body: Brass,..... W. no. 2.0401 Armature: Stainless steel, W. no. 1.4105 / AISI 430FR Armature stop: Stainless steel, W. no. 1.4105 / AISI 430FR Armature tube: Stainless steel, W. no. 1.4303 / AISI 305 Spring: Stainless steel, W. no. 14310 / AISI 301 O-ring: NBR, EPDM or FKM Valve plate: NBR, EPDM or FKM For NO: NBR Diaphragm: NBR, EPDM or FKM								

1) Times are indicative and apply to water. Exact times will depend on pressure conditions.

Function



De-energized closed version

Coil voltage disconnected

When voltage is disconnected, the armature spring (2) presses the armature block (3) down against the pilot orifice (4). Pressure builds up over the diaphragm (5) via the equalising orifice (7). The diaphragm closes the main orifice (6) as soon as the pressure over the diaphragm equals the inlet pressure. The valve stays closed for as long as voltage remains disconnected.

Coil voltage connected (open)

When voltage is applied to the coil (1), the pilot orifice (4) is opened. Since the pilot orifice is larger than the equalising orifice (7), pressure over the diaphragm (5) falls and the diaphragm is lifted clear of the main orifice (6). The valve stays open for as long as the required least differential pressure is present and voltage is applied to the coil.

De-energized open version

In principle the function involves valve positions opposite to the above for applied and disconnected voltage respectively.

Ordering NC

Valve body

Con- nec- tion ISO 228/1	Seal material	k <sub>v</sub> - Value [m <sup>3</sup> /h]	Media temp.		Type designation		Permissible differential pressure (bar)/Coil type	Max. <sup>3)</sup>					Code no. without coil	
			Min. [°C]	Max. [°C]	Main type	Specification		Min	Max. <sup>3)</sup>					
									AB		AM			AK
									4.5 W ac	5.0 W dc	7.5 W ac	9.5 W dc		
G ¼	EPDM <sup>1)</sup>	1	-30	+100	EV220A 6B	G 14E NC000	0.2	10	10	16	16	10	042U4001	
G ¼	NBR	1	-10	+90	EV220A 6B	G 14N NC000		10	10	16	16	10	042U4003	
G ¼	FKM <sup>2)</sup>	1	0	+100	EV220A 6B	G 14F NC000		10	10	16	16	10	042U4005	
G ⅜	EPDM <sup>1)</sup>	1	-30	+100	EV220A 6B	G 38E NC000	0.2	10	10	16	16	10	042U4002	
G ⅜	NBR	1	-10	+90	EV220A 6B	G 38N NC000		10	10	16	16	10	042U4004	
G ⅜	FKM <sup>2)</sup>	1	0	+100	EV220A 6B	G 38F NC000		10	10	16	16	10	042U4006	
G ⅜	EPDM <sup>1)</sup>	1.6	-30	+100	EV220A 10B	G 38E NC000	0.2	10	10	16	16	10	042U4011	
G ⅜	NBR	1.6	-10	+90	EV220A 10B	G 38N NC000		10	10	16	16	10	042U4013	
G ⅜	FKM <sup>2)</sup>	1.6	0	+100	EV220A 10B	G 38F NC000		10	10	16	16	10	042U4015	
G ½	EPDM <sup>1)</sup>	1.6	-30	+100	EV220A 10B	G 12E NC000	0.2	10	10	16	16	10	042U4012	
G ½	NBR	1.6	-10	+90	EV220A 10B	G 12N NC000		10	10	16	16	10	042U4014	
G ½	FKM <sup>2)</sup>	1.6	0	+100	EV220A 10B	G 12F NC000		10	10	16	16	10	042U4016	
G ½	EPDM <sup>1)</sup>	2.5	-30	+100	EV220A 12B	G 12E NC000	0.3	10	10	16	16	10	042U4021	
G ½	NBR	2.5	-10	+90	EV220A 12B	G 12N NC000		10	10	16	16	10	042U4023	
G ½	FKM <sup>2)</sup>	2.5	0	+100	EV220A 12B	G 12F NC000		10	10	10	10	10	042U4025	
G ½	EPDM <sup>1)</sup>	4	-30	+100	EV220A 14B	G 12E NC000	0.3	10	10	16	16	10	042U4022	
G ½	NBR	4	-10	+90	EV220A 14B	G 12N NC000		10	10	16	16	10	042U4024	
G ½	FKM <sup>2)</sup>	4	0	+100	EV220A 14B	G 12F NC000		10	10	10	10	10	042U4026	
G ¾	EPDM <sup>1)</sup>	7	-30	+100	EV220A 18B	G 34E NC000	0.3	10	10	16	16	10	042U4031	
G ¾	NBR	7	-10	+90	EV220A 18B	G 34N NC000		10	10	16	16	10	042U4032	
G ¾	FKM <sup>2)</sup>	7	0	+100	EV220A 18B	G 34F NC000		10	10	10	10	10	042U4033	
G 1	EPDM <sup>1)</sup>	7	-30	+100	EV220A 22B	G 1E NC000	0.3	10	10	16	16	10	042U4041	
G 1	NBR	7	-10	+90	EV220A 22B	G 1N NC000		10	10	16	16	10	042U4042	
G 1	FKM <sup>2)</sup>	7	0	+100	EV220A 22B	G 1F NC000		10	10	10	10	10	042U4043	
G 1 ¼	EPDM	15	-30	+100	EV220A 32B	G114E NC000	0.3	10	10	16	16	10	042U4085	
G 1 ¼	NBR	15	-10	+90	EV220A 32B	G114N NC000		10	10	16	16	10	042U4084	
G 1 ¼	FKM <sup>2)</sup>	15	0	+100	EV220A 32B	G114F NC000		10	10	10	10	10	042U4095	
G 1 ½	EPDM	18	-30	+100	EV220A 40B	G112E NC000	0.3	10	10	16	16	10	042U4087	
G 1 ½	NBR	18	-10	+90	EV220A 40B	G112N NC000		10	10	16	16	10	042U4086	
G 1 ½	FKM <sup>2)</sup>	18	0	+100	EV220A 40B	G112F NC000		10	10	10	10	10	042U4096	
G 2	EPDM	32	-30	+100	EV220A 50B	G 2E NC000	0.3	10	10	16	16	10	042U4089	
G 2	NBR	32	-10	+90	EV220A 50B	G 2N NC000		10	10	16	16	10	042U4088	
G 2	FKM <sup>2)</sup>	32	0	+100	EV220A 50B	G 2F NC000		10	10	10	10	10	042U4097	

1) Suitable only for water. - WRAS approved.

2) Suitable for oil and air, water max. +60°C

3) For higher differential pressure than stated, please contact Danfoss.

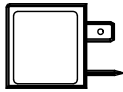
Ordering NO

Valve body

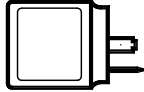
Con- nec- tion ISO 228/1	Seal mate- rial	k <sub>v</sub> - Value [m3/h]	Media temp.		Type designation		Permissible differential pressure (bar)/Coil type					Code no. without coil	
			Min. [°C]	Max. [°C]	Main type	Specification	Min.	Max. <sup>2)</sup>					
								AB		AM			AK
								4.5 W ac	5.0 W dc	7.5 W ac	9.5 W ac		3.0 W dc
G ¼	NBR <sup>1)</sup>	1	-10	+90	EV220A 6B	G 14N NO000	0.2	-	-	16	16	-	<b>042U4053</b>
G ½	NBR <sup>1)</sup>	1.6	-10	+90	EV220A 10B	G 12N NO000	0.2	-	-	16	16	-	<b>042U4064</b>
G ½	NBR <sup>1)</sup>	2.5	-10	+90	EV220A 12B	G 12N NO000	0.3	-	-	16	16	-	<b>042U4073</b>
G ½	NBR <sup>1)</sup>	4	-10	+90	EV220A 14B	G 12N NO000	0.3	-	-	16	16	-	<b>042U4074</b>
G ¾	NBR <sup>1)</sup>	7	-10	+90	EV220A 18B	G 34N NO000	0.3	-	-	16	16	-	<b>042U4082</b>
G 1	NBR <sup>1)</sup>	7	-10	+90	EV220A 22B	G 1N NO000	0.3	-	-	16	16	-	<b>042U4092</b>

1) NBR is suitable for oil,water and air.  
2) For higher differential pressure than stated, please contact Danfoss.

Coil options



Type AB:  
4.5 W ac / 5.0W dc  
IP00

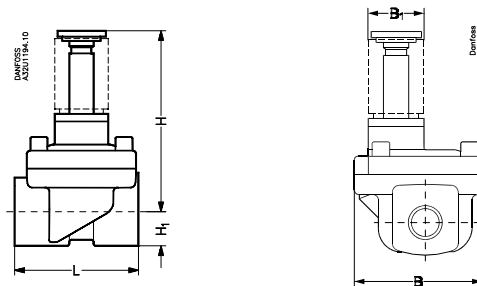


Type AM: 7.5 W ac / 9.5 W dc  
Type AK: 3.0 W dc  
IP00

Ordering Coils

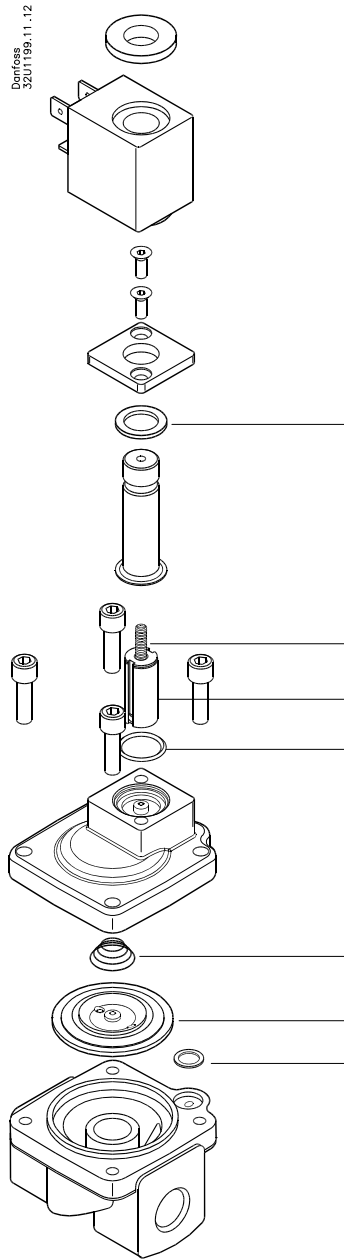
See separate data sheet for coils IC.PD.600.A

Dimensions and weight



Type	L [mm]	B [mm]	B <sub>1</sub> [mm]		H [mm]		H <sub>1</sub> [mm]	Weight without coil [kg]
			Coil type AB	Coil type AM/AK/AR	NC	NO		
EV220A 6B	51	50	22	33	76	80	13	0.46
EV220A 10B	51	50	22	33	76	80	13	0.44
EV220A 12B	58	58	22	33	77	81	13	0.52
EV220A 14B	58	58	22	33	77	81	13	0.50
EV220A 18B	90	58	22	33	78	82	18	0.72
EV220A 22B	90	58	22	33	83	87	22	1
EV220A 32B	120	82	22	33	95		27	2
EV220A 40B	130	95	22	33	105		32	3.2
EV220A 50B	162	113	22	33	111		37	4.3

**Spare parts kit for NC version**



Spare parts kit comprising armature assembly, diaphragm assembly, armature spring, diaphragm spring and two O-rings.

Type	Seal material	Code no.
EV220A 6 - 10B	EPDM <sup>1)</sup>	<b>042U1000</b>
EV220A 6 - 10B	NBR <sup>2)</sup>	<b>042U1001</b>
EV220A 6 - 10B	FKM <sup>3)</sup>	<b>042U1002</b>
EV220A 12 - 14B	EPDM <sup>1)</sup>	<b>042U1003</b>
EV220A 12 - 14B	NBR <sup>2)</sup>	<b>042U1004</b>
EV220A 12 - 14B	FKM <sup>3)</sup>	<b>042U1005</b>
EV220A 18 - 22B	EPDM <sup>1)</sup>	<b>042U1006</b>
EV220A 18 - 22B	NBR <sup>2)</sup>	<b>042U1007</b>
EV220A 18 - 22B	FKM <sup>3)</sup>	<b>042U1008</b>
EV220A 32B	EPDM <sup>1)</sup>	<b>042U1037</b>
EV220A 32B	NBR <sup>2)</sup>	<b>042U1038</b>
EV220A 32B	FKM <sup>3)</sup>	<b>042U1046</b>
EV220A 40B	EPDM <sup>1)</sup>	<b>042U1039</b>
EV220A 40B	NBR <sup>2)</sup>	<b>042U1040</b>
EV220A 40B	FKM <sup>3)</sup>	<b>042U1047</b>
EV220A 50B	EPDM <sup>1)</sup>	<b>042U1041</b>
EV220A 50B	NBR <sup>2)</sup>	<b>042U1042</b>
EV220A 50B	FKM <sup>3)</sup>	<b>042U1048</b>

- 1) Suitable for water.
- 2) Suitable for water, oil and air.
- 3) Suitable for oil and air. Water max. +60°C

**Media resistance**

Please contact Danfoss

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