

Data Sheet

Solenoid valve Type **EV220T**

Middle size valve range for water fluid controls



Middle size valve range for water fluid controls for washing and processing machines / applications:

- Inlet / shut off valves for Applications
- Laundry
- Dishwashing
- Carwash
- Industrial Processing
- Irrigation

Features

- Clip-on coil
- Ambient temperature: Up to 80 °C
- Coil enclosure: IP65
- Water hammer damped
- Built-in filter

1 Portfolio overview

Table 1: Portfolio overview

Features	EV220T
	
Body material	Polymer
DN [mm]	14 - 18
Connection G inlet	G3/4 ext.
Connection G outlet	3/4 hose, G3/4 ext.
Connection NPSM inlet	3/4-14 NPSM ext.
Connection NPSM outlet	3/4-14 NPSM ext.
Connection GH inlet	3/4- 11.5 NH
Connection GH outlet	3/4 hose
Sealing material	EPDM
Function	NC
K_v [m³/h]	4 - 6
Differential pressure range [bar]	0.3 - 10
Temperature range [°C]	0 - 85

2 Functions

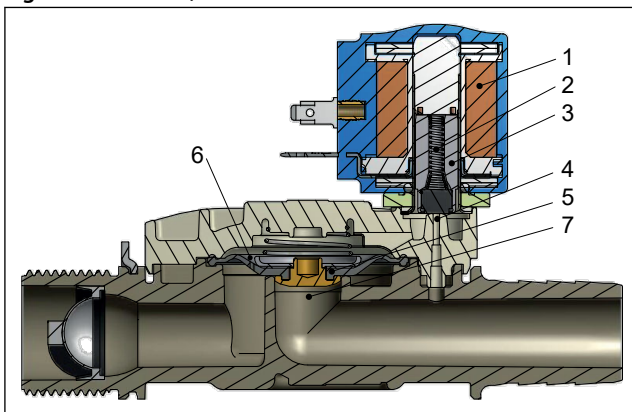
Coil voltage disconnected

When voltage is disconnected, the armature spring (2) presses the armature (3) down against the pilot orifice (4). Pressure builds up over the diaphragm (5) via the equalizing orifice (6). The diaphragm closes the main orifice (7) 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 equalizing orifice (6), pressure over the diaphragm (5) falls and the diaphragm is lifted clear of the main orifice (7). The valve stays open for as long as the required minimum differential pressure is present and voltage is applied to the coil.

Figure 1: Function, NC

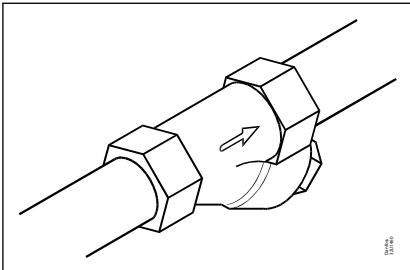


1.	Coil
2.	Armature spring
3.	Armature
4.	Pilot orifice
5.	Diaphragm
6.	Equalizing orifice
7.	Main orifice

3 Applications

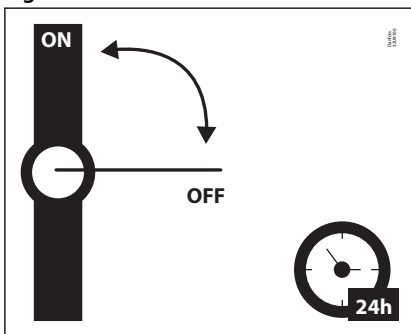
It is recommended to use a filter in front of the valve. Recommended filter 50 mesh (297 microns).

Figure 2: 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.

Figure 3: Exercise: Valve on/off



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 $\mu\text{S}/\text{cm}$ to avoid brass dezincification and corrosion.
- Above 25°C media temperature avoid stagnant water inside the valve to avoid dezincification and corrosion attack.

4 Product specification

4.1 Technical data

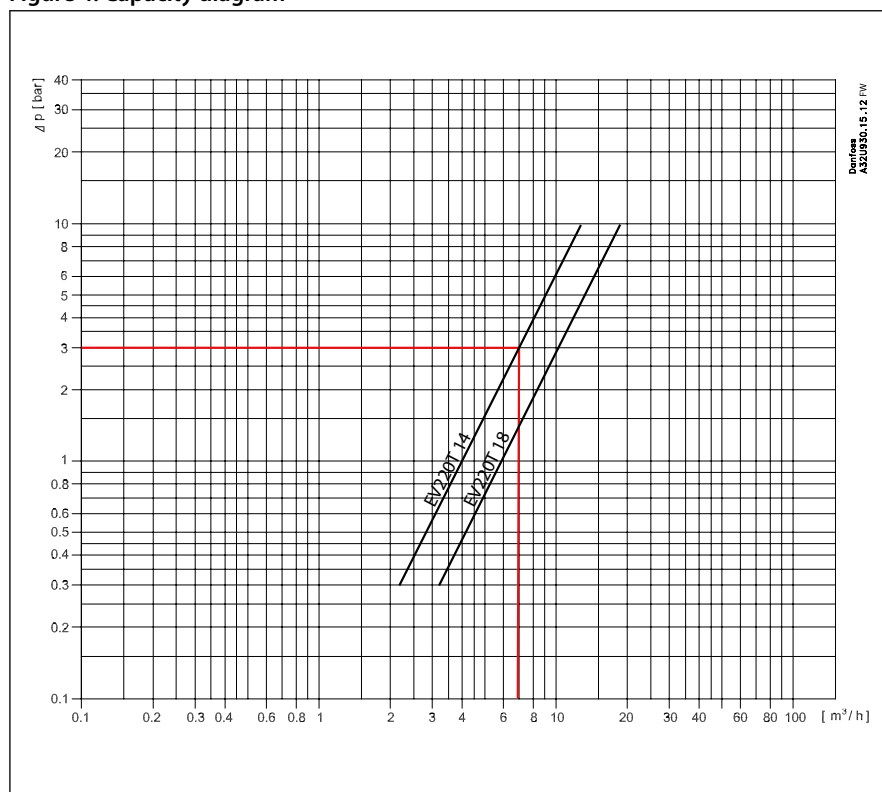
Table 2: Technical data

Media	EPDM	Water, drinking water
Media temperature [°C]	EPDM	0 - 85 °C
Ambient temperature [°C]	Max 50 °C	
K _v value [m ³ /h]	DN14	4 m ³ /h
	DN18	6 m ³ /h
Min. Opening differential pressure [bar]	0.3 bar	
Max. Opening differential pressure [bar]	10 bar	
Max. working pressure [bar]	10 bar	
Max. test pressure [bar]	15 bar	
Viscosity [cSt]	Max. 50 cSt	

Capacity diagram

Example for water: Capacity for EV220T at a differential pressure of 3 bar: Approx. 7 m³/h

Figure 4: Capacity diagram



Time to open/close

Table 3: Time to open/close

Type	EV220T 14	EV220T 18
Time to open [ms] ⁽¹⁾	100	200
Time to close [ms] ⁽¹⁾	400	500

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

Materials

Table 4: Materials

Components	Materials	Specifications
Valve body/cover	Polymer	EMS Grivory HT (Glass fiber reinforced)
Armature	Stainless steel	W.no. 1.4105 / AISI 430 FR
Armature tube	Stainless steel	W.no. 1.4303 / AISI 305
Armature stop	Stainless steel	W.no. 1.4105 / AISI 430 FR
Springs	Stainless steel	W.no. 1.4310 / AISI 301
O-rings	EPDM	
Valve plate	EPDM	
Diaphragm	EPDM	
Screws	Steel zinc plated delta PT	

4.2 Dimensions and weights

Table 5: G thread connection

Orifice	ISO 228-1 connection		L	L1	L2	L3	B	B1	H	H1
			[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
DN 14	G 3/4 ext.	G 3/4 ext.	117.5	20.5	76.5		68.8	45.0	77.7	14.0
DN 14	G 3/4 ext.	3/4" Hose	127.5	20.5	76.5	30	68.8	45.0	77.7	14.0
DN 18	G 3/4 ext.	G 3/4 ext.	117.5	20.5	76.5		68.8	45.0	79.9	14.0
DN 18	G 3/4 ext.	3/4" Hose	127.5	20.5	76.5	30	68.8	45.0	79.9	14.0

Table 6: NPSM thread connection

Orifice	NPSM connection		L	L1	L2	L3	B	B1	H	H1
			[in.]	[in.]	[in.]	[in.]	[in.]	[in.]	[in.]	[in.]
DN 14	3/4 - 14 NPSM ext.	3/4" Hose	5.0	0.81	2.99	1.18	2.78	1.77	3.03	0.55
DN 14	3/4 - 14 NPSM ext.	3/4 - 14 NPSM ext.	4.61	0.81	2.99		2.78	1.77	3.03	0.55
DN 18	3/4 - 14 NPSM ext.	3/4" Hose	5.0	0.81	2.99	1.18	2.78	1.77	3.11	0.55
DN 18	3/4 - 14 NPSM ext.	3/4 - 14 NPSM ext.	4.61	0.81	2.99		2.78	1.77	3.11	0.55

Table 7: GH thread connection

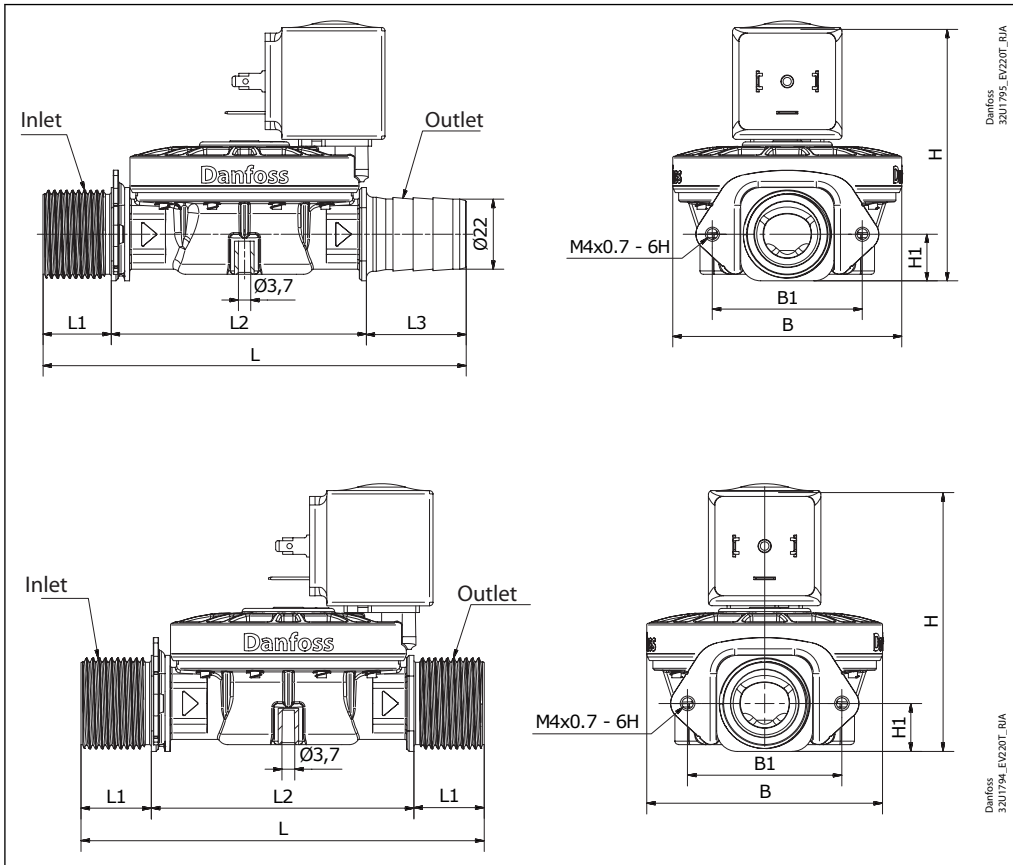
Orifice size	Garden Hose connection		L	L1	L2	L3	B	B1	H	H1
	Inlet	Outlet	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
DN 14	3/4 - 11.5 NH	3/4 hose	127.5	20.5	76.5	30.0	68.8	45.0	77.7	14.0
DN 18	3/4 - 11.5 NH	3/4 hose	127.5	20.5	76.5	30.0	68.8	45.0	77.7	14.0

Table 8: Weight

Valve type	Gross weight Valve body without coil [kg]	Gross weight Valve body including AM coil, plug [kg]
EV220T 14 - 18	0.16	0.30

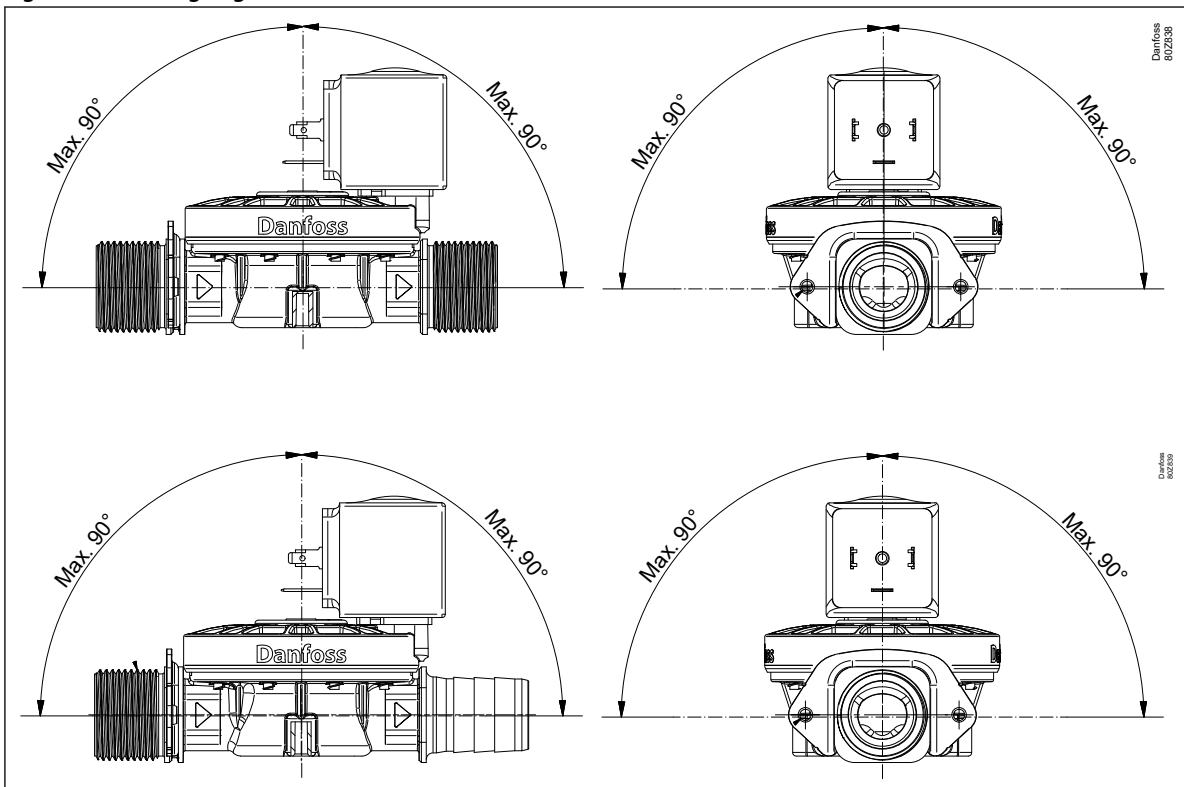
Solenoid valve, Type EV220T

Figure 5: Dimensions



4.3 Mounting

Figure 6: Mounting angle



5 Ordering

5.1 Parts program

Table 9: Polymer, valve body NC with G thread connection

ISO228/1 connection		Orifice [mm]	K _v value [m ³ /h]	Sealing EPDM	Approval	Function NC
Inlet	Outlet					
G3/4 ext.	3/4 hose	14	4	EPDM		042U8105
G3/4 ext.	G3/4 ext.	14	4			042U8125
G3/4 ext.	3/4 hose	18	6			042U8155
G3/4 ext.	G3/4 ext.	18	6			042U8175

Table 10: Polymer, valve body NC with NPSM thread connection

NPSM connection		Orifice [mm]	K _v value [m ³ /h]	Sealing EPDM	Approval	Function NC
Inlet	Outlet					
G3/4 – 14 NPSM ext.	G3/4 – 14 NPSM ext.	14	4	EPDM		042U8135
G3/4 14 NPSM ext.	G3/4 – 14 NPSM ext.	18	6			042U8185

Table 11: Polymer, valve body NC with GH thread connection

Garden Hose connection (GH)		Orifice [mm]	K _v value [m ³ /h]	Sealing EPDM	Approval	Function NC
Inlet	Outlet					
G3/4 – 11.5 NH	3/4 hose	14	4	EPDM		042U8145
G3/4 – 11.5 NH	3/4 hose	18	6			042U8195

5.2 Accessories

Coil

AS/AZ, Compact UL recognised, clip-on coils

Figure 7: Coils AS/AZ



Table 12: Coils AS/AZ

Type	Tambient	Supply voltage [V]	Voltage variation	Frequency [Hz]	Power consumption		Approval	Code no.
	[°C]				[W]	[VA]		
AS024CS	-40 – 50	24	-10%, +6%	50	9.5	18		042N7608
		24	-10%, +6%	60	7.0	14		
AS230CS	-40 – 50	230	-10%, +6%	50	8.0	16		042N7601
		208 - 240	±6%	60	7.0	14		
AZ012DS	-40 – 50	12	-10%, +6%	DC	6.0			042N7616
AZ024DS	-40 – 50	24	-10%, +6%	DC	6.5			042N7617

Solenoid valve, Type EV220T

Cable plug

Figure 8: Cable plug



Table 13: Cable plug

Cable plug size	Description	Code no
DIN 18	Cable plug IP65	042N1278

Universal electronic multi-timer, Type ET 20 M

Figure 9: Type ET 20 M



Table 14: Type ET 20 M

Type	Voltage	Suitable for coil types	Code no
	[V]		
BA024A	24 - 240	AL, AM, AS, AZ, BA, BD, BB	042N0185

Built-in filter

Figure 10: Built-in filter

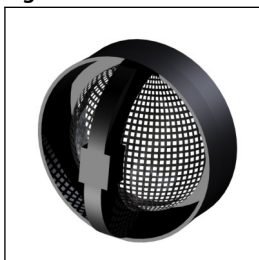


Table 15: Built-in filter

Type	Code number
Built-in filter mesh width 0.45 mm	042U8199

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