

Motor-driven ball valves for CO₂ systems



The products, shown in this leaflet, are designed for installation on commercial refrigerating systems and on civil and industrial conditioning plants, which use the refrigerant fluid R744.

The valves series 6590E, 6597E and 6598E may be coupled, with suitable flanged adapter separately sold, to specific electrical actuators, always supplied by Castel.

After coupling the ball valve to the actuator it is possible a remote control on valve opening/closing or a manual control, excluding the actuator.

All the electrical actuators can be equipped with auxiliary switch units, separately sold.

As above the ball valves arranged for motor-driving, introduced by Castel for CO₂ systems, are the following types:

- Valves series 6590E with PS = 80 bar, copper connections equipped, for trans-critical systems low pressure side and medium pressure side.
- Valves series 6597E with PS = 120 bar, reinforced copper connections (K65) equipped, for trans-critical systems high pressure side.
- Valves series 6598E with PS = 140 bar, stainless steel connections equipped, for trans-critical systems high pressure side.



General characteristics ball valves

	Catalogue Number	Connections		Ball Port Ø [mm]	Kv Factor [m³/h]	PED Directive			
		ODS				TS [°C]		PS [bar]	Risk Category
		Ø [in.]	Ø [mm]			min.	max.		
SERIES 6590E	6590E/7	7/8"	22	19	29	-40	+150	80	Art. 3.3
	6590E/M28	-	28	25	51				
	6590E/9	1.1/8"	-	32	86				
	6590E/11	1.3/8"	35	38	117				
	6590E/13	1.5/8"	-						
	6590E/M42	-	42						1
SERIES 6597E	6597E/7	7/8"	22	19	29	-40	+150	120	Art. 3.3
	6597E/9	1.1/8"	-	25	51				
	6597E/11	1.3/8"	35	32	86				
	6597E/13	1.5/8"	-	38	117				1
SERIES 6598E	Catalogue Number	Connections		Ball Port Ø [mm]	Kv Factor [m³/h]	PED Directive			
		w				TS [°C]		PS [bar]	Risk Category
		Ø [in.]	Ø [mm]			min.	max.		
	6598E/M22	7/8"	22	19	29	-40	+150	140	Art. 3.3
	6598E/M28	-	28	25	51				
	6598E/M35	1.5/16"	33,4	32	86				
6598E/M42	-	42,2	38	117	1				

General characteristics actuators

Catalogue Number	Angle of Rotation	Torque [Nm]	Running Time [sec]	Voltage [V]	Frequency [Hz]	Power [W]	Ambient Temperature [°C]		Protection Degree
							min.	max.	
9700/RA2 (1), (3)	90°	10	60	24	50/60	4,8	-20	+55	IP54
9700/RA6 (1) (4)				230		2,9			
9720/RA2 (2) (3)	90°	30	120	24	50/60	2,4	-20	+55	IP54
9720/RA6 (2) (4)				230		3,7			

(1) Suitable for valves: 6590E/7; 6590E/M28; 6590E/9; 6597E/7; 6597E/9; 6598E/M22; 6598E/M28

(2) Suitable for valves: 6590E/11; 6590E/13; 6590E/M42; 6597E/11; 6597E/13; 6598E/M35; 6598E/M42

(3) Wiring connections: switching output 2 points (open/closed) or continuous output (0 ÷ 10 V)

(4) Wiring connections: switching output 2 points (open/closed)

General characteristics auxiliary switch units

Catalogue Number	Suitable for actuator	Contact type	Max loading [A]	Ambient temperature [°C]		Protection Degree
				min.	max.	
9750/X01	9700/RA2	Double	5	-20	+55	IP54
9750/X02	9700/RA6; 9720/RA2; 9720/RA6	Double	5	-20	+55	IP54

General characteristics servomotor adapters

Catalogue Number	Suitable for valve	Suitable for actuator
9901/X21	6590E/7; 6590E/M28; 6590E/9; 6597E/7; 6597E/9; 6598E/M22; 6598E/M28	9700/RA2
9901/X22	6590E/7; 6590E/M28; 6590E/9; 6597E/7; 6597E/9; 6598E/M22; 6598E/M28	9700/RA6
9901/X23	6590E/11; 6590E/13; 6590E/M42; 6597E/11; 6597E/13; 6598E/M35; 6598E/M42	9720/RA2; 9720/RA6





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Castel has always been aware of environmental sustainability issues and gives its contribution to a cleaner environment, supplying the refrigeration and air conditioning industry with state-of-the-art and environment-friendly technology. With its commitment and steady research in its laboratories, Castel has developed a whole range of products using natural refrigerants, which reduce emissions to the minimum. The large range of products belonging to the Castel "GoGreen" line has been developed to be used in CO₂ (R744)- and HC hydrocarbon-filled systems.



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