



## BALL VALVES

### APPLICATIONS

The ball valves, shown in this chapter, are classified “Pressure accessories” in the sense of the Pressure Equipment Directive 97/23/EC, Article 1, Section 2.1.4 and are subject of Article 3, Section 1.3 of the same Directive.

They are designed for installation on commercial refrigerating systems and on civil and industrial conditioning plants, which use refrigerant fluids proper to the Group II (as defined in Article 9, Section 2.2 of Directive 97/23/EC and referred to in Directive 67/548/EEC).

### CONSTRUCTION

The specific design of Castel ball valves:

- ensures the internal equilibrium of pressures when the valve is closed;
- permits the bi-directional flow of the refrigerant and, consequently, the assembly on the plant without taking into account the direction of the refrigerant;
- prevents any risk of ejection or explosion of the spindle.

The opening and closing of the valve is realized by turning the spindle one fourth of a turn. A standstill in turning realizes either a full opening or a full closing, moreover the arrow printed on the spindle head shows the flow direction.

The electric welding of the bodies and the seal gaskets, assembled on the spindle,

prevent any leaks.

Ball valves are available in the following two types:

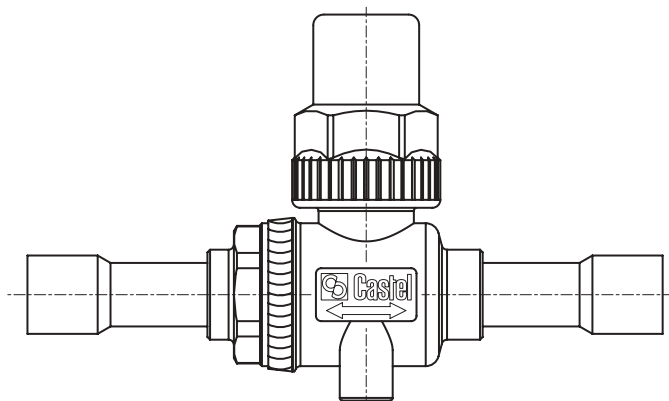
- type 6590 (full port) and type 6591 (reduced port) without access fitting.
  - type 6590/A (full port) and type 6591/A (reduced port) with access fitting.
- These ball valves are equipped with valve core 8394/A and cap 8392/A.

The main parts of the valves are made with the following materials:

- hot forged brass EN 12420 – CW 617N for body;
- hot forged brass EN 12420 – CW 617N, chromium plated, for ball;
- copper tube EN 12735-1 – Cu-DHP for solder connections;
- steel, with proper surface protection, for the spindle;
- chloroprene rubber (CR) for outlet seal gaskets;
- P.T.F.E. for seat ball gaskets;
- glass reinforced PBT for cap that covers the spindle. Hot forged brass EN 12420 – CW 617N for caps on sizes from 6590/M64A up to 6591/34A.

### INSTALLATION

The brazing of ball valves should be carried out with care, using a low melting point filler material. It is important to avoid direct contact between the torch flame and the valve body, which could be damaged and compromise the proper functioning of the valve.



6590



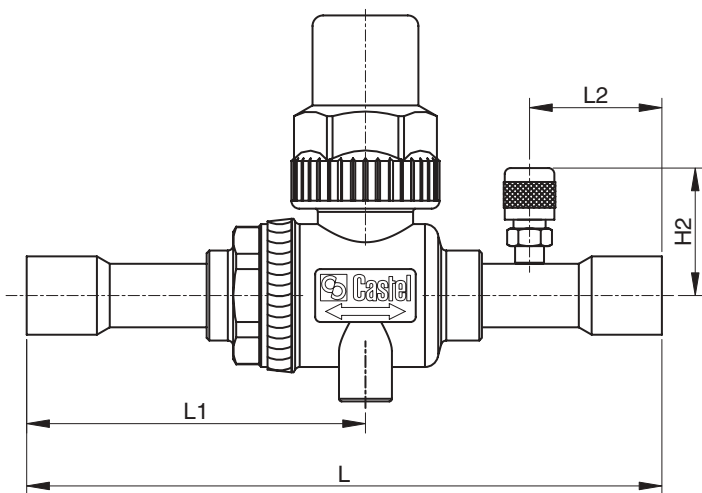
TABLE 1: General Characteristics

Catalogue Number		Connections		Ball Port Ø [mm]	Kv Factor [m³/h]	TS [°C]		PS [bar]	Risk Category according to PED
without access fitting	with access fitting	ODS				min.	max.		
		Ø [in.]	Ø [mm]						
6590/M6	-	-	6	10	0,8	-40	+150	45	Art. 3.3
6590/2	-	1/4"	-		3,0				
6590/3	6590/3A	3/8"	-		5,0				
6590/M10	6590/M10A	-	10		14,5				
6590/M12	6590/M12A	-	12		24,0				
6590/4	6590/4A	1/2"	-	28					
6591/5	-	5/8"	16	40,0					
6590/M15	6590/M15A	-	15	68,0					
6590/5	6590/5A	5/8"	16	100,0					
6590/M18	6590/M18A	-	18	178,0					
6590/6	6590/6A	3/4"	-	293,0					
6591/7	-	7/8"	22	430					
6590/7	6590/7A	7/8"	22	430					
6591/M28	-	-	28	430					
6591/9	-	1.1/8"	-	430					
6590/M28	6590/M28A	-	28	430					
6590/9	6590/9A	1.1/8"	-	430					
6591/11	-	1.3/8"	35	430					
6590/11	6590/11A	1.3/8"	35	430					
6591/13	-	1.5/8"	-	430					
6591/M42	-	-	42	430					
6590/13	6590/13A	1.5/8"	-	430					
6590/M42	6590/M42A	-	42	430					
6591/17	-	2.1/8"	54	430					
6590/17	6590/17A	2.1/8"	54	430					
6591/M64	6591/M64A	-	64	430					
6591/21	6591/21A	2.5/8"	-	430					
-	6590/M64A	-	64	430					
-	6590/21A	2.5/8"	-	430					
-	6591/24A	3"	-	430					
-	6591/25A	3.1/8"	-	430					
-	6590/25A	3.1/8"	80	430					
-	6591/28A	3.1/2"	89	430					
-	6591/29A	3.5/8"	-	430					
-	6591/33A	4.1/8"	105	430					
-	6591/34A	4.1/4"	108	430					



TABLE 2: Dimensions and Weights

Catalogue Number		Dimensions [mm]							Weight [g]				
		H	H <sub>1</sub>	H <sub>2</sub>	L	L <sub>1</sub>	L <sub>2</sub>	l		d			
6590/M6	-	73	20	-	121	65	-	18	M5	260			
6590/2	-												
6590/3	6590/3A												
6590/M10	6590/M10A												
6590/M12	6590/M12A	80	24	33	141	74	24	300					
6590/4	6590/4A												
6591/5	-			-			138		73,5	-	290		
6590/M15	6590/M15A	95,5	27,5	38	175	93	33	410					
6590/5	6590/5A												
6590/M18	6590/M18A												
6590/6	6590/6A												
6591/7	-	101,5	30	-	206	109	43	450					
6590/7	6590/7A			-					177	92	-	760	
6591/M28	6591/M28A			-					206	108,5	-	800	
6591/9	-	117	38	45	247	129	49	30	M6	1050			
6590/M28	6590/M28A												
6590/9	6590/9A												
6591/11	-												
6590/11	6590/11A	130	45	48	262	136	49	3240					
6591/13	-								-	248	130	-	2050
6591/M42	6591/M42A								-	292	151	-	5450
6590/13	6590/13A	150	55	53	303	162	58	75	M10	5500			
6591/17	-												
6590/17	6590/17A												
6591/M64	6591/M64A												
6591/21	6591/21A	172,5	62	64	330	175	58	8120					
-	6590/M64A												
-	6590/21A												
-	6591/24A												
-	6591/25A	196,5	75	70	380	199	76	12400					
-	6590/25A												
-	6591/28A												
-	6591/29A												
-	6591/33A	400	209	86	12450								
-	6591/34A												



6590/..A

