

HANDBOOK  
**VALVES**

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Ed. 2017

 **Castel**<sup>®</sup>  
Italian technology

# CHAPTER 1 ■ VALVES WITH SCREW SHUTTER

FOR REFRIGERATION PLANTS THAT USE HCFC, HFC OR HFO REFRIGERANTS



## APPLICATIONS

All valves illustrated in this chapter are designed for installation on commercial refrigeration systems and on civil and industrial air conditioning plants that use the following refrigerant fluids:

- HCFC (R22)
- HFC (R134a, R404A, R407C, R410A, or R507)
- HFO and HFO/HFC mixtures (R1234ze, R448A, R449A, R450A, or R452A)

belonging to Group 2, as defined in Article 13, Chapter 1, Point (b) of Directive 2014/68/EU, with reference to EC Regulation No. 1272/2008.

Furthermore, the valves (up to DN 25, for globe taps, model: 6512/9) can also be installed on systems using the following refrigeration fluids:

- HFC (R32)
- HFO (R1234yf)

classified as A2L in the ASHRAE 34-2013 standard, and belonging to Group 1, as defined in Article 13, Chapter 1, Point (a) of Directive 2014/68/EU, with reference to EC Regulation No. 1272/2008.

For specific applications with refrigerant fluids not listed above, please contact Castel Technical Department.

## HERMETIC VALVES

The hermetic valves can be divided into two categories:

- Two-way shut-off valves, types 6010/2 and 6012/22
- Three-way valves; two main connections plus a third one for charging, types::
  - 6065, with right charge connection
  - 6075, with left charge connection

Note: the third way must be equipped with a mechanism (for example type 8394/A or other similar ones) to be ordered separately.

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

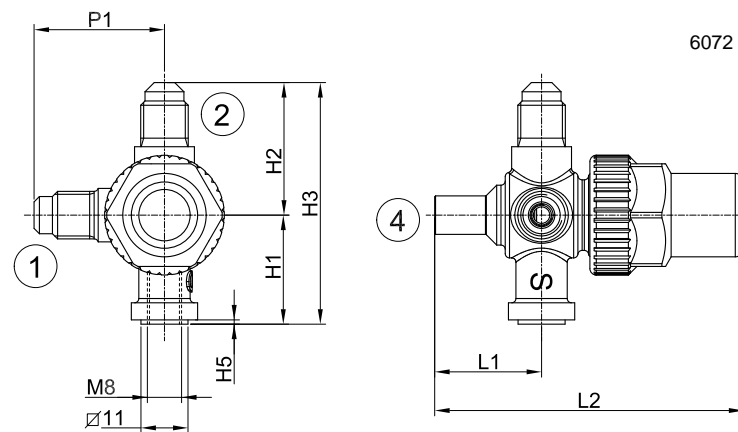
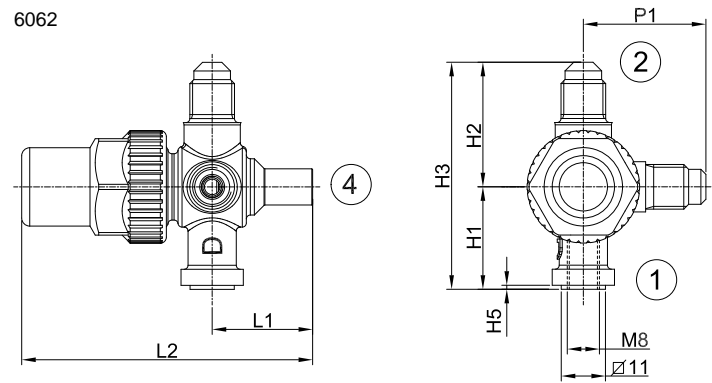
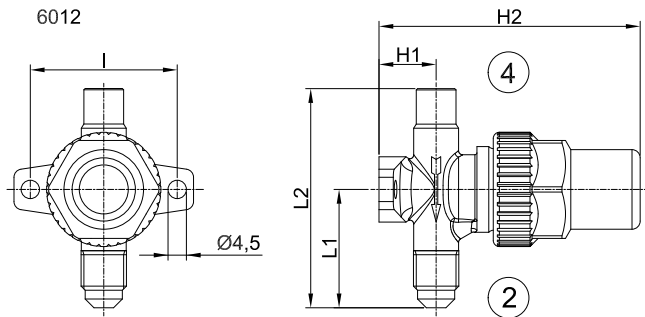
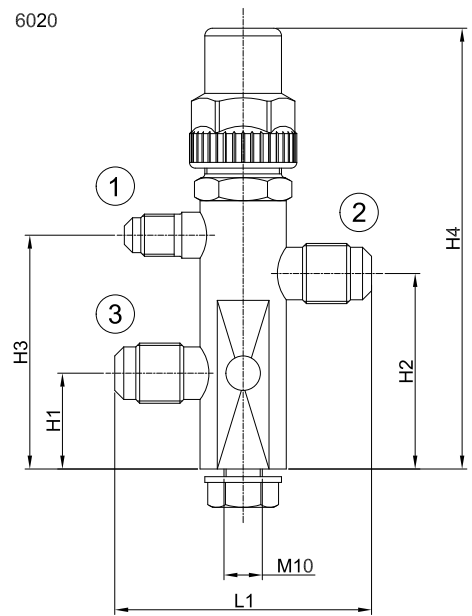
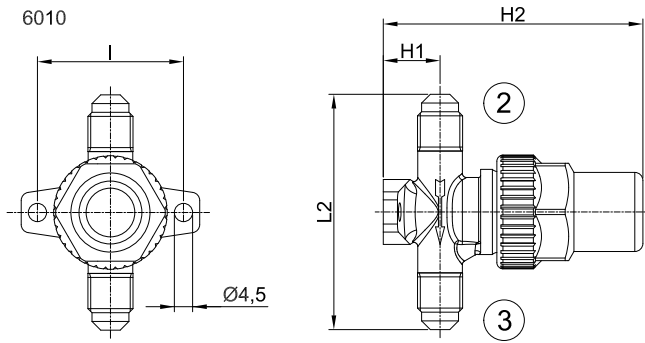
- Hot forged brass EN 12420 – CW 617N for the body.
- Steel, with proper surface protection, or brass for the spindle
- Chloroprene rubber (CR) and aramid fibres for gland seal
- Glass-reinforced PBT for the protective cap that covers the spindle.

TABLE 1: General characteristics of valves for hermetic systems

| Catalogue Number | Connections |      |      |         |        | Kv Factor [m³/h] | PS [bar] | TS [°C] |      | TA [°C] |      | Risk Category according to PED Recast |      |      |
|------------------|-------------|------|------|---------|--------|------------------|----------|---------|------|---------|------|---------------------------------------|------|------|
|                  | SAE Flare   |      |      | ODS     |        |                  |          | min.    | max. | min.    | max. |                                       |      |      |
|                  | (1)         | (2)  | (3)  | Ø [in.] | Ø [mm] |                  |          |         |      |         |      |                                       |      |      |
| 6010/2           | -           | 1/4" | 1/4" | -       | -      | 0,27             | 45       | -40     | +130 | -40     | +50  | Art. 4.3                              |      |      |
| 6012/22          |             | 1/4" | -    | 1/4"    |        | 0,39             |          |         |      |         |      |                                       |      |      |
| 6020/222         | 1/4"        | 1/4" | 1/4" | -       |        | 1,20             |          |         |      |         |      |                                       |      |      |
| 6020/233         |             | 3/8" | 3/8" |         |        | 2,20             |          |         |      |         |      |                                       |      |      |
| 6020/244         |             | 1/2" | 1/2" |         |        | 2,80             |          |         |      |         |      |                                       |      |      |
| 6020/255         |             | 5/8" | 5/8" |         |        | 6                |          |         |      |         |      |                                       | 0,46 |      |
| 6062/22M6        |             | 1/4" | -    |         |        | -                |          |         |      |         |      |                                       | 10   | 1,38 |
| 6062/23M10       |             | 3/8" |      |         |        |                  |          |         |      |         |      |                                       | 6    | 0,46 |
| 6072/22M6        |             | 1/4" |      |         |        |                  |          |         |      |         |      |                                       | 8    | 1,29 |
| 6072/23M8        |             | 3/8" |      |         |        |                  |          |         |      |         |      |                                       | 10   | 1,38 |
| 6072/23M10       |             | 3/8" |      |         |        |                  |          |         |      |         |      |                                       | 12   | 2,55 |
| 6072/24M12       |             | 1/2" |      |         |        |                  |          |         |      |         |      |                                       | 16   | 3,40 |
| 6072/25M16       | 5/8"        |      |      |         |        |                  |          |         |      |         |      |                                       |      |      |

TABLE 2: Dimensions and weights of valves for hermetic systems

| Catalogue Number | Dimensions [mm] |                |                |                |                |    |                |                |                | Weight [g] |     |   |   |   |     |   |    |   |   |   |   |      |
|------------------|-----------------|----------------|----------------|----------------|----------------|----|----------------|----------------|----------------|------------|-----|---|---|---|-----|---|----|---|---|---|---|------|
|                  | H <sub>1</sub>  | H <sub>2</sub> | H <sub>3</sub> | H <sub>4</sub> | H <sub>5</sub> | l  | L <sub>1</sub> | L <sub>2</sub> | P <sub>1</sub> |            |     |   |   |   |     |   |    |   |   |   |   |      |
| 6010/2           | 14              | 66             | -              | -              | -              | 36 | -              | 58             | -              | -          | 160 |   |   |   |     |   |    |   |   |   |   |      |
| 6012/22          |                 |                | 29             | 55,5           |                |    | 145            |                |                |            |     |   |   |   |     |   |    |   |   |   |   |      |
| 6020/222         | 25              | 51             | 61             | 115            |                | -  | -              | 62             | -              | -          | 360 |   |   |   |     |   |    |   |   |   |   |      |
| 6020/233         |                 |                | 60             |                |                |    |                | 67             |                |            | 370 |   |   |   |     |   |    |   |   |   |   |      |
| 6020/244         |                 |                | 77             |                |                |    |                | 520            |                |            |     |   |   |   |     |   |    |   |   |   |   |      |
| 6020/255         | 26,5            | 52             | 67,5           | 127            |                | 1  | -              | 79             | 72             | 30,5       | 530 |   |   |   |     |   |    |   |   |   |   |      |
| 6062/22M6        | 25,5            | 31             | 56,5           | -              |                |    |                | 1              |                |            | 25  | - | - | - | 205 |   |    |   |   |   |   |      |
| 6062/23M10       |                 | 33             | 58,5           |                |                |    |                |                |                |            |     |   |   |   | 200 |   |    |   |   |   |   |      |
| 6072/22M6        |                 | 31             | 56,5           |                |                |    |                |                |                |            |     |   |   |   | 205 |   |    |   |   |   |   |      |
| 6072/23M8        |                 | 33             | 58,5           |                |                |    |                |                |                |            |     |   |   |   | -   | 1 | 25 | - | - | - | - | 210  |
| 6072/23M10       |                 |                |                |                |                |    |                |                |                |            |     |   |   |   |     |   |    |   |   |   |   | 220  |
| 6072/24M12       |                 |                |                |                |                |    |                |                |                |            |     |   |   |   |     |   |    |   |   |   |   | 38,5 |
| 6072/25M16       | 29,5            | 39,5           | 69             | 84             | 32             |    |                | 320            |                |            |     |   |   |   |     |   |    |   |   |   |   |      |



## RECEIVER VALVES

The receiver valves can be divided into three categories:

- Two-way valves, 90° angle connections, types 6110 and 6120
- Three-way valves; two main connections (90° angle) plus a third one for charging, type 6132. The access connection may be shut off by the back-sealing of the spindle
- Two-way valves, 120° angle connections, type 6140

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

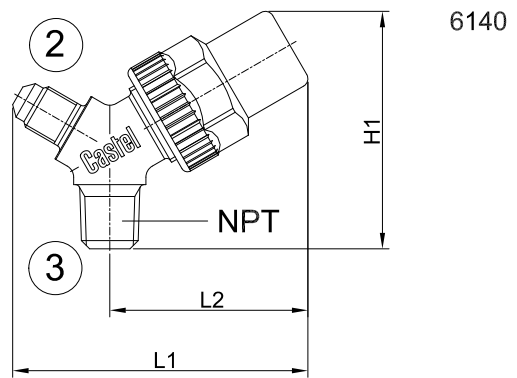
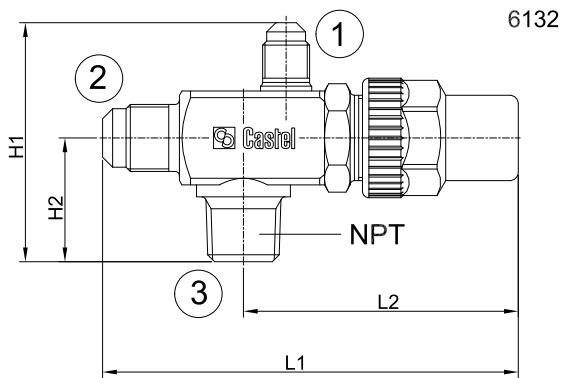
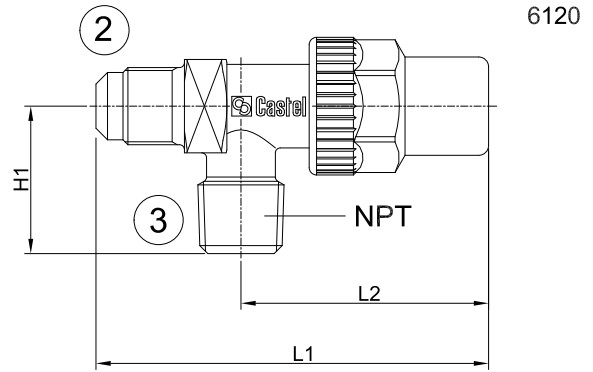
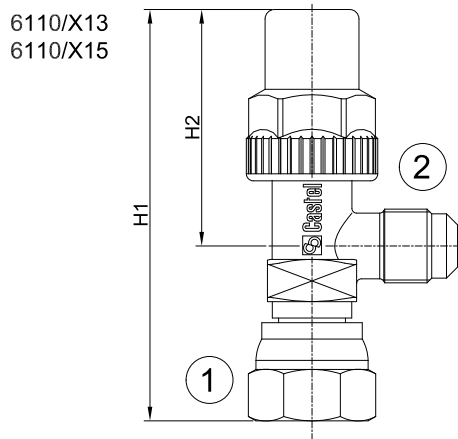
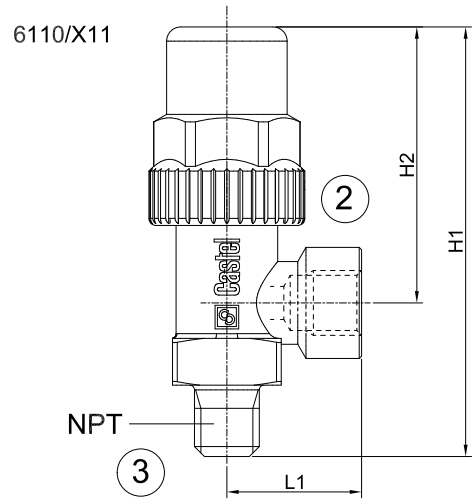
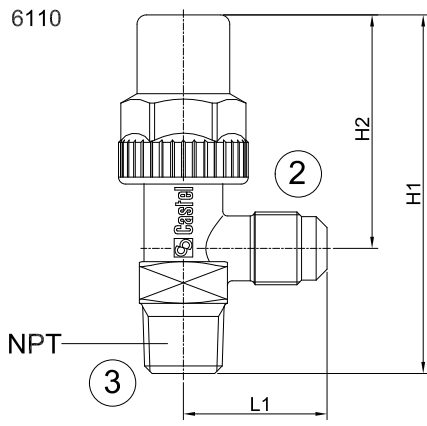
- Hot forged brass EN 12420 – CW 617N for the body.
- Steel, with proper surface protection, for the spindle.
- Chloroprene rubber (CR) and aramid fibres for gland seal
- Glass-reinforced PBT for the protective cap that covers the spindle.

**TABLE 3: General characteristics of receiver valves**

| Catalogue Number | Connections |        |          | Kv Factor<br>[m <sup>3</sup> /h] | PS<br>[bar] | TS [°C] |      | TA [°C] |          | Risk<br>Category<br>according to<br>PED Recast |
|------------------|-------------|--------|----------|----------------------------------|-------------|---------|------|---------|----------|--|
|                  | SAE Flare   |        | NPT      |                                  |             | min.    | max. | min.    | max.     |  |
|                  | (1)         | (2)    | (3)      |                                  |             |         |      |         |          |  |
| 6110/21          | -           | 1/4"   | 1/8"     | 0,44                             | 45          | -40     | -40  | +50     | Art. 4.3 |  |
| 6110/22          |             | 1/4"   | 1/4"     |                                  |             |         |      |         |          |  |
| 6110/X15         | 1/4" F      | 1/4"   | -        |                                  |             |         |      |         |          |  |
| 6110/X11         | -           | -      | 1/4" M/F |                                  |             |         |      |         |          |  |
| 6110/23          | -           | 1/4"   | 3/8"     | 0,45                             |             |         |      |         |          |  |
| 6110/32          |             | 3/8"   | 1/4"     | 1,35                             |             |         |      |         |          |  |
| 6110/33          |             | 3/8"   | 3/8"     |                                  |             |         |      |         |          |  |
| 6110/X13         |             | 3/8" F | 3/8"     |                                  |             |         |      |         |          | -  |
| 6110/43          | -           | 1/2"   | 3/8"     |                                  |             |         |      |         |          | 2,40   |
| 6110/44          |             | 1/2"   | 1/2"     | 3,40                             |             |         |      |         |          |  |
| 6110/54          |             | 5/8"   | 1/2"     |                                  |             |         |      |         |          |  |
| 6110/66          |             | 3/4"   | 3/4"     | 6,00                             |             |         |      |         |          |  |
| 6120/22          |             | 1/4"   | 1/4"     | 0,44                             |             |         |      |         |          |  |
| 6120/23          |             | 1/4"   | 3/8"     | 0,45                             |             |         |      |         |          |  |
| 6120/32          |             | 3/8"   | 1/4"     | 1,35                             |             |         |      |         |          |  |
| 6120/33          |             | 3/8"   | 3/8"     | 1,35                             |             |         |      |         |          |  |
| 6120/43          |             | 1/2"   | 3/8"     | 2,40                             |             |         |      |         |          |  |
| 6120/44          |             | 1/2"   | 1/2"     | 3,40                             |             |         |      |         |          |  |
| 6120/54          |             | 5/8"   | 1/2"     |                                  |             |         |      |         |          |  |
| 6120/66          |             | 3/4"   | 3/4"     | 6,00                             |             |         |      |         |          |  |
| 6132/22          | 1/4"        | 1/4"   | 1/4"     | 0,45                             |             |         |      |         |          |  |
| 6132/33          |             | 3/8"   | 3/8"     | 1,20                             |             |         |      |         |          |  |
| 6132/44          |             | 1/2"   | 1/2"     | 2,20                             |             |         |      |         |          |  |
| 6132/54          |             | 5/8"   | 1/2"     | 3,85                             |             |         |      |         |          |  |
| 6140/22          | -           | 1/4"   | 1/4"     | 0,36                             |             |         |      |         |          |  |
| 6140/23          |             | 1/4"   | 3/8"     |                                  |             |         |      |         |          |  |

**TABLE 4: Dimensions and weights of receiver valves**

| Catalogue Number | Dimensions [mm] |                |                |                | Weight [g] |     |
|------------------|-----------------|----------------|----------------|----------------|------------|-----|
|                  | H <sub>1</sub>  | H <sub>2</sub> | L <sub>1</sub> | L <sub>2</sub> |            |     |
| 6110/21          | 70,5            | 48             | 27,5           | -              | 100        |     |
| 6110/22          | 72              |                |                |                | 110        |     |
| 6110/X15         | 83              |                |                |                | 130        |     |
| 6110/X11         | 88              | 55,5           | 28,5           |                | 230        |     |
| 6110/23          | 77              | 50             | 29             |                | 135        |     |
| 6110/32          |                 |                | 31             |                | 130        |     |
| 6110/33          |                 |                | 140            |                |            |     |
| 6110/X13         |                 |                | 87             |                | 175        |     |
| 6110/43          | 88              | 55,5           | 34,5           |                | 220        |     |
| 6110/44          | 92              |                |                |                | 235        |     |
| 6110/54          | 245             |                |                |                |            |     |
| 6110/66          | 128             | 88             | 42,5           | 675            |            |     |
| 6120/22          | 27,5            | -              | 72             | 48             | 110        |     |
| 6120/23          | 30              |                | 77             | 50             | 130        |     |
| 6120/32          |                 |                | 80             |                | 135        |     |
| 6120/33          |                 |                | 80             |                | 140        |     |
| 6120/43          |                 |                | 93             | 225            |            |     |
| 6120/44          | 33              |                | 94             | 55,5           | 305        |     |
| 6120/54          |                 |                | 129,5          |                | 245        |     |
| 6120/66          |                 |                | 40             | 88             | 670        |     |
| 6132/22          | 56              |                | 29             | 94             | 64         | 240 |
| 6132/33          |                 |                |                | 97             |            | 250 |
| 6132/44          | 65,5            | 36             | 112            | 75             | 350        |     |
| 6132/54          |                 |                | 115            |                | 365        |     |
| 6140/22          | 57              | -              | 69             | 46             | 115        |     |
| 6140/23          |                 |                |                |                | 125        |     |



## STOP VALVES

Stop valves have a very compact design and a fixing flange that is dimensioned to meet the current market requirements.

Valves 6170 and 6175 must be completed with the following components, which must be ordered separately:

- Internal spring mechanism, part no. 8394/B or external spring mechanism, part nos. 8395/A1 or 8395/A3
- Cap with gasket code 8392/A or 1/4" SAE FLARE blind union part no. 7020/20.

Valves 6176 6176 have been specifically designed to be installed on air conditioning systems that use R410A refrigerant fluid. They must be completed with the

following components, to be ordered separately:

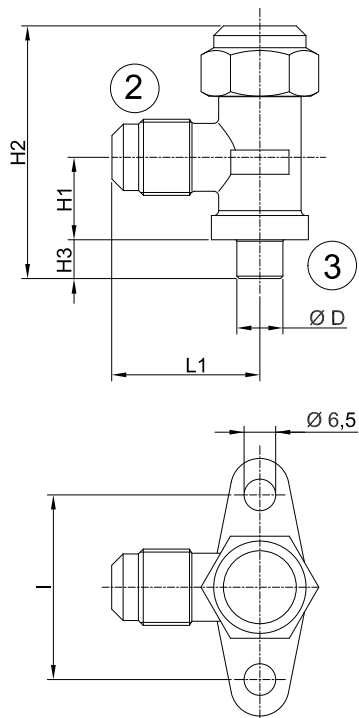
- External spring mechanisms, part no. 8395/A1 and 8395/A3
  - 5/16" SAE FLARE blind union, part no. 7020/X02
- The main parts of the stop valves are made with the following materials:
- Hot forged brass EN 12420 – CW 617N for the body.
  - Brass EN 12164 – CW 614N for spindle and protection cap
  - Chloroprene rubber (CR) for outlet seal gaskets for series 6165, 6175 and 6176
  - Chloroprene rubber (CR) and aramid fibres for gland seal, only for series 6170

TABLE 5: General characteristics of valves for split systems

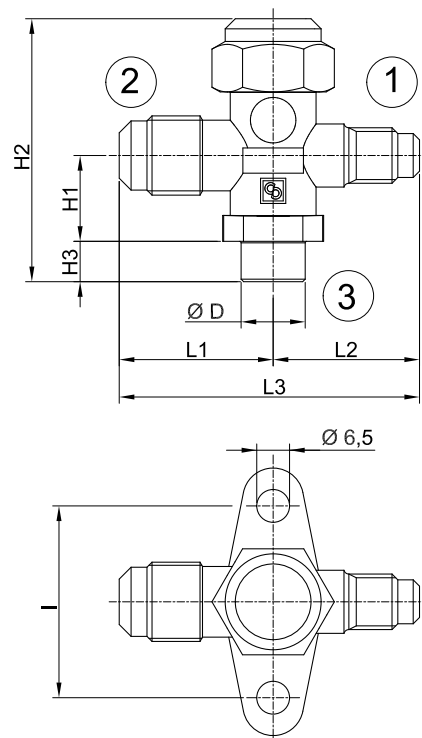
| Catalogue Number | Way Nr. | Connections |      |         |        | Kv Factor [m³/h] | PS [bar] | TS [°C] |      | TA [°C] |      | Risk Category according to PED Recast |
|------------------|---------|-------------|------|---------|--------|------------------|----------|---------|------|---------|------|---------------------------------------|
|                  |         | SAE Flare   |      | ODS     |        |                  |          | min.    | max. | min.    | max. |                                       |
|                  |         | (1)         | (2)  | Ø [in.] | Ø [mm] |                  |          |         |      |         |      |                                       |
| 6165/22          | 2       | -           | 1/4" | 1/4"    | -      | 0,68             | 45       | -20     | +110 | -20     | +50  | Art. 4.3                              |
| 6165/33          |         |             | 3/8" | 3/8"    |        | 1,70             |          |         |      |         |      |                                       |
| 6175/33          | 3       | 1/4"        | 3/8" | 3/8"    | 16     | 1,70             |          |         |      |         |      |                                       |
| 6175/44          |         |             | 1/2" | 1/2"    |        | 3,40             |          |         |      |         |      |                                       |
| 6175/55          |         |             | 5/8" | 5/8"    |        | 4,60             |          |         |      |         |      |                                       |
| 6170/66          |         |             | 3/4" | 3/4"    |        | 9,00             |          |         |      |         |      |                                       |
| 6170/77          |         |             | 7/8" | 7/8"    |        | 10,80            |          |         |      |         |      |                                       |
| 6176/44          |         |             | 3    | 5/16"   |        | 1/2"             |          |         |      |         |      |                                       |
| 6176/55          | 5/8"    | 5/8"        |      |         | 4,60   |                  |          |         |      |         |      |                                       |
| 6176/66          | 3/4"    | 3/4"        |      |         | 7,50   |                  |          |         |      |         |      |                                       |

TABLE 6: Dimensions and weights of valves for split systems

| Catalogue Number | Dimensions [mm] |                |                |      |                |                |                |    | Weight [g] |
|------------------|-----------------|----------------|----------------|------|----------------|----------------|----------------|----|------------|
|                  | H <sub>1</sub>  | H <sub>2</sub> | H <sub>3</sub> | D    | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | l  |            |
| 6165/22          | 17              | 52             | 8              | 9,5  | 29             | -              | -              | 38 | 113        |
| 6165/33          |                 |                |                | 12,7 | 30,5           |                |                |    | 120        |
| 6175/33          |                 |                |                | 29   | 59,5           | 135            |                |    |            |
| 6175/44          | 20              | 65             | -              | 15,9 | 36             | 31             | 67             | 50 | 225        |
| 6175/55          |                 |                |                | 19,0 |                |                |                |    | 235        |
| 6170/66          | 28,5            | 104            | 12             | 22,2 | 47             | 36             | 83             | 50 | 655        |
| 6170/77          |                 |                |                | 28,6 |                |                |                |    | 670        |
| 6176/44          | 20              | 65             | 8              | 15,9 | 36             | 31             | 67             | 38 | 225        |
| 6176/55          |                 |                |                | 19,0 |                |                |                |    | 235        |
| 6176/66          |                 |                |                | 22,2 |                |                |                |    | 41         |



6165



6170  
6175  
6176

## DIAPHRAGM VALVES

Diaphragm valves do not have a gland seal. Thin metal discs (diaphragms), which hermetically isolate the spindle chamber from the fluid flow area, ensure the external sealing.

The main parts of the diaphragm valves are made with the

following materials:

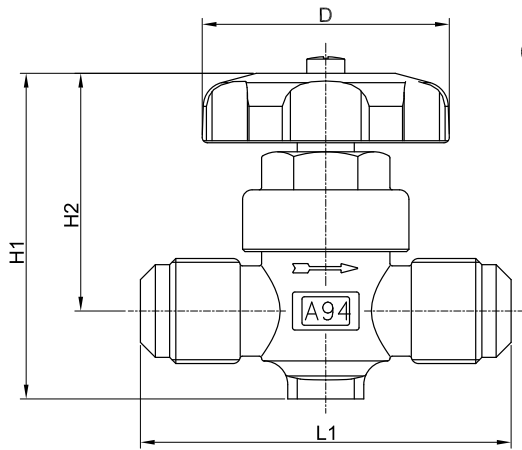
- Hot forged brass EN 12420 – CW 617N for the body.
- Brass EN 12164 – CW 614N for spindle
- Harmonic steel for spring
- Nylon for seat sealing gaskets

TABLE 7: General characteristics of diaphragm valves

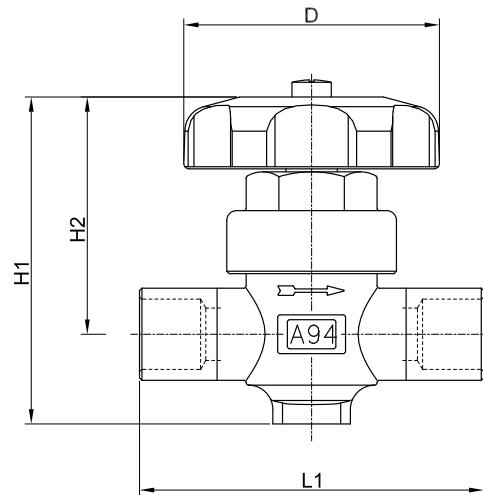
| Catalogue Number | Connections |         | Kv Factor<br>[m <sup>3</sup> /h] | PS<br>[bar] | TS [°C] |      | TA [°C] |      | Risk<br>Category<br>according to<br>PED Recast |        |
|------------------|-------------|---------|----------------------------------|-------------|---------|------|---------|------|--|--------|
|                  | SAE Flare   | ODS     |                                  |             | min.    | max. | min.    | max. |  |        |
|                  |             | Ø [in.] |                                  |             |         |      |         |      |  | Ø [mm] |
| 6210/2           | 1/4"        | -       | -                                | 28          | -35     | +90  | -35     | +50  | Art. 4.3                                       |        |
| 6210/3           | 3/8"        |         |                                  |             |         |      |         |      |  |        |
| 6210/4           | 1/2"        |         |                                  |             |         |      |         |      |  |        |
| 6210/5           | 5/8"        |         |                                  |             |         |      |         |      |  |        |
| 6210/6           | 3/4"        |         |                                  |             |         |      |         |      |  |        |
| 6220/M6          | -           | 6       | 0,28                             |             |         |      |         |      |  |        |
| 6220/2           | 1/4"        | -       | 1,00                             |             |         |      |         |      |  |        |
| 6220/3           | 3/8"        |         |                                  |             |         |      |         |      |  |        |
| 6220/M10         | -           | 10      | 1,30                             |             |         |      |         |      |  |        |
| 6220/4           | 1/2"        | -       |                                  |             |         |      |         |      |  |        |
| 6220/5           | 5/8"        | 16      |                                  | 1,80        |         |      |         |      |  |        |
| 6220/6           | 3/4"        | -       |                                  |             |         |      |         |      |  |        |
| 6220/7           | 7/8"        | -       |                                  | 3,65        |         |      |         |      |  |        |

TABLE 8: Dimensions and weights of diaphragm valves

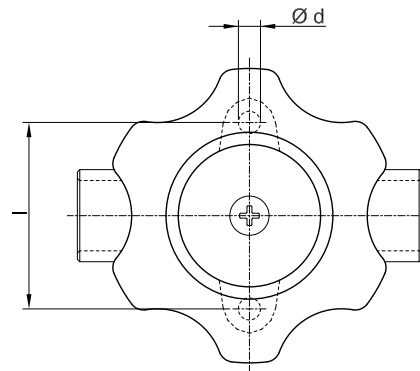
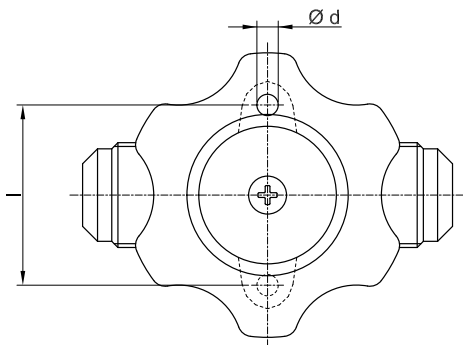
| Catalogue Number | Dimensions [mm] |                |                |     |     |    | Weight [g] |
|------------------|-----------------|----------------|----------------|-----|-----|----|------------|
|                  | H <sub>1</sub>  | H <sub>2</sub> | L <sub>1</sub> | d   | l   | D  |            |
| 6210/2           | 68              | 53,5           | 58             | 4,5 | 36  | 52 | 200        |
| 6210/3           | 72              |                | 74             |     | 325 |    |            |
| 6210/4           |                 |                | 78             |     | 335 |    |            |
| 6210/5           |                 |                | 340            |     |     |    |            |
| 6210/6           | 86              | 62,5           | 98             | 6,2 | 50  | 60 | 655        |
| 6220/M6          | 68              | 53,5           | 53             | 4,5 | 36  | 52 | 195        |
| 6220/2           |                 |                | 72             |     | 61  |    | 38         |
| 6220/3           | 70              |                |                |     | 305 |    |            |
| 6220/M10         | 71              |                |                |     |     |    |            |
| 6220/4           | 86              | 62,5           | 92             | 6,2 | 50  | 60 | 580        |
| 6220/5           |                 |                | 94             |     |     |    | 645        |
| 6220/6           |                 |                | 94             |     |     |    | 645        |



6210



6220



## ROTALOCK VALVES

Rotalock valves mounted with 7910 fittings and 7990 gaskets, guarantee quick installation and safe sealing. They can be assembled in any direction before tightening the ring.

Furthermore, they have an additional charging connection, which can be excluded by the back sealing of the spindle.

Fittings 7910 and gaskets 7990 must be ordered separately. The main parts of the rotalock valves and their accessories are made with the following materials:

- Ottone forgiato a caldo EN 12420 – CW 617N per il corpo.
- Hot forged brass EN 12420 – CW 617N for the body.
- Steel, with proper surface protection, for the spindle and ring
- Chloroprene rubber (CR) and aramid fibres for gland seal
- Glass-reinforced PBT for the protective cap that covers the spindle.
- Steel bar EN 10277-3 11S Mn Pb 37 + C for 7910 fittings
- PTFE for 7990 gaskets

TABLE 9: General characteristics of rotalock valves

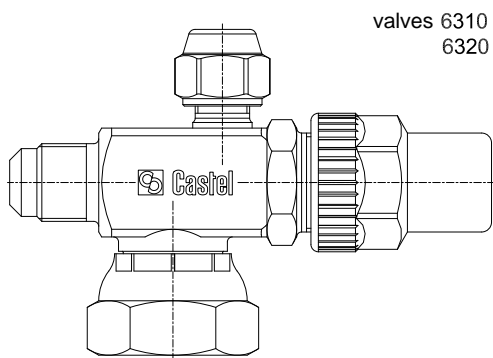
| Catalogue Number | Connections |      |                | Union code | Gasket code | PS [bar] | Kv Factor [m <sup>3</sup> /h] | PS [bar] | TS [°C] |      | TA [°C] |      | Risk Category according to PED Recast |
|------------------|-------------|------|----------------|------------|-------------|----------|-------------------------------|----------|---------|------|---------|------|---------------------------------------|
|                  | SAE Flare   |      | Swivel nut (3) |            |             |          |                               |          | min.    | max. | min.    | max. |                                       |
|                  | (1)         | (2)  |                |            |             |          |                               |          |         |      |         |      |                                       |
| 6310/2           | 1/4"        | 1/4" | 3/4" UNF       | 7910/6     | 7990/6      | 45       | 0,46                          | 45       | -40     | +110 | -40     | +50  | Art. 4.3                              |
| 6310/3           |             | 3/8" |                |            |             |          | 1,35                          |          |         |      |         |      |                                       |
| 6310/4           |             | 1/2" |                |            |             |          |                               |          |         |      |         |      |                                       |
| 6320/3           |             | 3/8" | 1" UNS         | 7910/8     | 7990/8      |          | 1,40                          |          |         |      |         |      |                                       |
| 6320/4           |             | 1/2" |                |            |             |          | 3,10                          |          |         |      |         |      |                                       |
| 6320/5           |             | 5/8" |                |            |             |          |                               |          |         |      |         |      |                                       |
| 6320/6           |             | 3/4" |                |            |             |          | 3,4                           |          |         |      |         |      |                                       |

TABLE 10: Dimensions and weights of rotalock valves

| Catalogue Number | Dimensions [mm] |                |                |                | Weight [g] |     |
|------------------|-----------------|----------------|----------------|----------------|------------|-----|
|                  | H <sub>1</sub>  | H <sub>2</sub> | L <sub>1</sub> | L <sub>2</sub> |            |     |
| 6310/2           | 68,5            | 33,5           | 94             | 64             | 290        |     |
| 6310/3           |                 |                |                |                |            | 300 |
| 6310/4           |                 |                | 97             |                |            |     |
| 6320/3           | 69,5            | 34,5           |                |                | 330        |     |
| 6320/4           | 72              | 36,5           | 114,5          | 77,5           | 400        |     |
| 6320/5           |                 |                | 117,5          |                | 415        |     |
| 6320/6           |                 |                |                |                | 425        |     |

TABLE 11: Dimensions and weights of unions

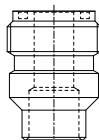
| Catalogue number | Connections |             |     | L  | Weight [g] | Gasket code |
|------------------|-------------|-------------|-----|----|------------|-------------|
|                  | Threaded    | Solder [mm] |     |    |            |             |
|                  |             | ODF         | ODM |    |            |             |
| 7910/6           | 3/4" UNF    | 10          | 13  | 26 | 28         | 7990/6      |
| 7910/8           | 1" UNS      | -           | 19  |    | 47         | 7990/8      |



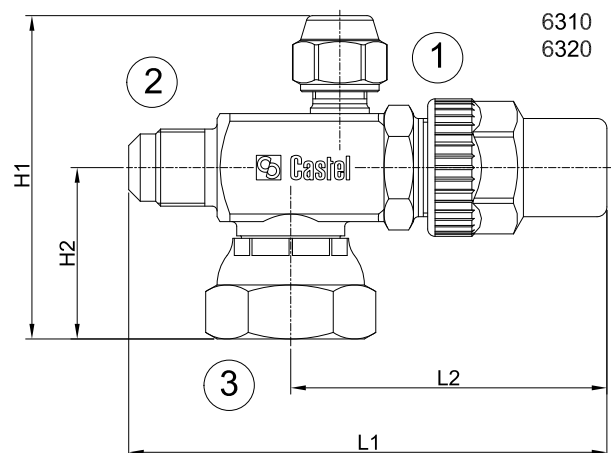
valves 6310  
6320



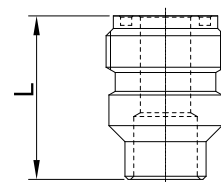
gasket 7990



coupling 7910



6310  
6320



7910

## CAPPED VALVES

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

- Hot forged brass EN 12420 – CW 617N for the body
- Steel, with proper surface protection, for the spindle.
- Chloroprene rubber (CR) and aramid fibres for gland seal
- Glass-reinforced PBT for the protective cap that covers the spindle.

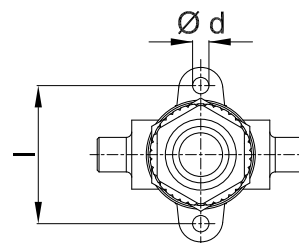
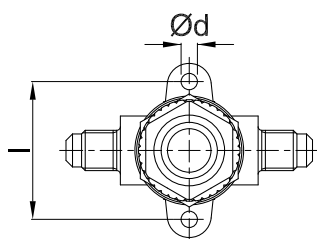
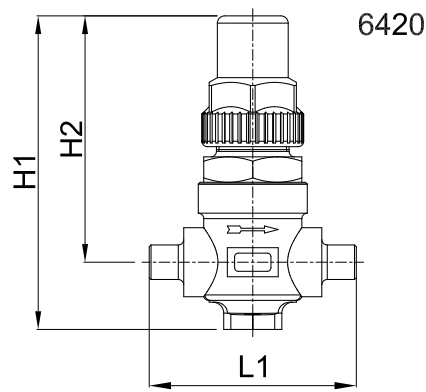
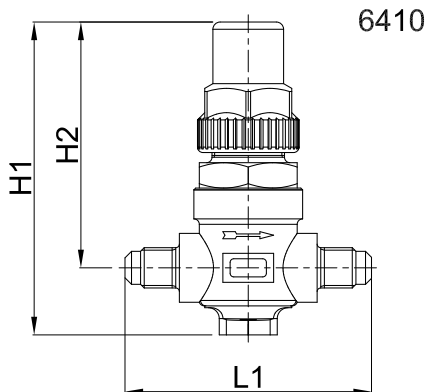
The brazing of capped valves with solder connections, type 6420, should be carried out with care, using a low melting point filler material. It is necessary to remove the spindle assembly, including the packing gland before brazing the body. It is important to avoid direct contact between the torch flame and the body, which could be damaged and compromise the proper functioning of the valves.

TABLE 12: General characteristics of capped valves

| Catalogue Number | Connections          |         |        | Kv Factor [m <sup>3</sup> /h] | PS [bar] | TS [°C] |      | TA [°C] |      | Risk Category according to PED Recast |
|------------------|----------------------|---------|--------|-------------------------------|----------|---------|------|---------|------|---------------------------------------|
|                  | SAE Flare            | ODS     |        |                               |          | min.    | max. | min.    | max. |                                       |
|                  |                      | Ø [in.] | Ø [mm] |                               |          |         |      |         |      |                                       |
| 6410/2           | 1/4"                 | -       | -      | 0,40                          | 45       | -40     | +110 | -40     | +50  | Art. 4.3                              |
| 6410/3           | 3/8"                 |         |        | 1,00                          |          |         |      |         |      |                                       |
| 6410/4           | 1/2"                 |         |        | 1,45                          |          |         |      |         |      |                                       |
| 6410/5           | 5/8"                 |         |        | 1,70                          |          |         |      |         |      |                                       |
| 6410/6           | 3/4"                 |         |        | 3,50                          |          |         |      |         |      |                                       |
| 6420/2           | 1/4"                 |         |        | 0,40                          |          |         |      |         |      |                                       |
| 6420/3           | 3/8"                 | 1,00    |        |                               |          |         |      |         |      |                                       |
| 6420/3S3         | 3/8" - OUT 3/8" - IN |         |        |                               |          |         |      |         |      |                                       |
| 6420/M10         | -                    | -       | 10     | 1,45                          |          |         |      |         |      |                                       |
| 6420/M12         |                      | -       | 12     |                               |          |         |      |         |      |                                       |
| 6420/4           |                      | 1/2"    | -      |                               |          |         |      |         |      |                                       |
| 6420/5           |                      | 5/8"    | 16     | 1,70                          |          |         |      |         |      |                                       |
| 6420/M18         |                      | -       | 18     | 3,50                          |          |         |      |         |      |                                       |
| 6420/6           |                      | 3/4"    | -      |                               |          |         |      |         |      |                                       |
| 6420/M22         |                      | -       | 22     |                               |          |         |      |         |      |                                       |
| 6420/7           |                      | 7/8"    | -      |                               |          |         |      |         |      |                                       |

TABLE 13: Dimensions and weights of capped valves

| Catalogue Number | Dimensions [mm] |                |                |     |    | Weight [g] |
|------------------|-----------------|----------------|----------------|-----|----|------------|
|                  | H <sub>1</sub>  | H <sub>2</sub> | L <sub>1</sub> | d   | l  |            |
| 6410/2           | 85,5            | 67             | 68             | 4,5 | 38 | 305        |
| 6410/3           |                 |                | 74             |     |    | 325        |
| 6410/4           |                 |                | 78             |     |    | 330        |
| 6410/5           |                 |                |                |     |    |            |
| 6410/6           | 113             | 89,5           | 98             | 6,2 | 50 | 695        |
| 6420/2           | 85,5            | 67             | 57             | 4,5 | 38 | 300        |
| 6420/3           |                 |                | 61             |     |    | 305        |
| 6420/3S3         |                 |                | 67,5           |     |    |            |
| 6420/M10         |                 |                | 61             |     |    |            |
| 6420/M12         |                 |                | 70             |     |    |            |
| 6420/4           |                 |                | 71             |     |    |            |
| 6420/5           |                 |                |                |     |    |            |
| 6420/M18         |                 |                | 113            |     |    | 89,5       |
| 6420/6           | 94              | 685            |                |     |    |            |
| 6420/M22         |                 | 690            |                |     |    |            |
| 6420/7           |                 |                |                |     |    |            |



## GLOBE VALVES

These valves are available in the following two types:

- 6512 with straight solder connections
- 6532 with right-angle solder connections

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

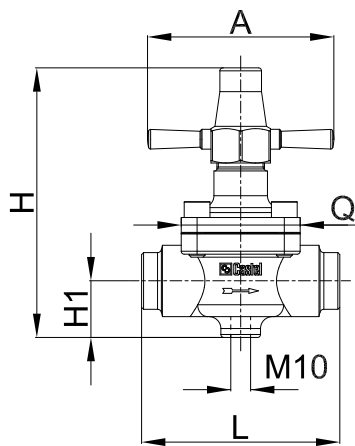
- Hot forged brass EN 12420 – CW 617N for body, cover and cap that covers the spindle
- Steel, with proper surface protection, for the spindle.
- Chloroprene rubber (CR) and aramid fibres for gland seal
- Metal-rubber laminate for outlet seal gaskets
- PTFE for seat gaskets.

TABLE 14: General characteristics of globe valves

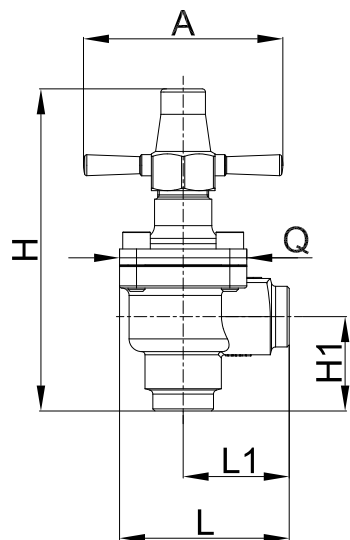
| Catalogue Number | Connections |        |         |        | Kv Factor<br>[m <sup>3</sup> /h] | PS<br>[bar] | TS [°C] |      | TA [°C] |      | Risk<br>Category<br>according to<br>PED Recast |
|------------------|-------------|--------|---------|--------|----------------------------------|-------------|---------|------|---------|------|--|
|                  | ODS         |        | ODM     |        |                                  |             | min.    | max. | min.    | max. |  |
|                  | Ø [in.]     | Ø [mm] | Ø [in.] | Ø [mm] |                                  |             |         |      |         |      |  |
| 6512/M22         | –           | 22     | –       | 28     | 7,1                              | 45          | -35     | +160 | -35     | +50  | Art. 4.3                                       |
| 6512/7           | 7/8"        | –      | 1.1/8"  | –      |                                  |             |         |      |         |      |  |
| 6512/M28         | –           | 28     | 1.3/8"  | 35     | 8,4                              |             |         |      |         |      |  |
| 6512/9           | 1.1/8"      | –      | 1.3/8"  | 35     |                                  |             |         |      |         |      |  |
| 6512/11          | 1.3/8"      | 35     | 1.5/8"  | –      | 15,0                             |             |         |      |         |      |  |
| 6512/13          | 1.5/8"      | –      | 2"      | –      | 25,0                             |             |         |      |         |      |  |
| 6512/M42         | –           | 42     | 2"      | –      |                                  |             |         |      |         |      |  |
| 6512/17          | 2.1/8"      | 54     | –       | –      | 40,0                             |             |         |      |         |      |  |
| 6532/M22         | –           | 22     | –       | 28     | 8,2                              |             |         |      |         |      |  |
| 6532/7           | 7/8"        | –      | 1.1/8"  | –      |                                  |             |         |      |         |      |  |
| 6532/M28         | –           | 28     | 1.3/8"  | 35     | 9,1                              |             |         |      |         |      |  |
| 6532/9           | 1.1/8"      | –      | 1.3/8"  | 35     |                                  |             |         |      |         |      |  |
| 6532/11          | 1.3/8"      | 35     | 1.5/8"  | –      | 18,7                             |             |         |      |         |      |  |
| 6532/13          | 1.5/8"      | –      | 2"      | –      | 38,0                             |             |         |      |         |      |  |
| 6532/M42         | –           | 42     | 2"      | –      |                                  |             |         |      |         |      |  |
| 6532/17          | 2.1/8"      | 54     | –       | –      | 48,5                             |             |         |      |         |      |  |

TABLE 15: Dimensions and weights of globe valves

| Catalogue Number | Dimensions [mm] |      |     |      |     |     | Weight [g] |
|------------------|-----------------|------|-----|------|-----|-----|------------|
|                  | H               | H1   | L   | L1   | Q   | A   |            |
| 6512/M22         | 136             | 28,5 | 100 | -    | 60  | 94  | 1415       |
| 6512/7           |                 |      |     |      |     |     | 1310       |
| 6512/M28         |                 |      |     |      |     |     |            |
| 6512/9           |                 |      |     |      |     |     |            |
| 6512/11          | 166             | 34   | 118 | -    | 68  | 126 | 2020       |
| 6512/13          | 199             | 37   | 141 | -    | 88  | 138 | 3500       |
| 6512/M42         |                 |      |     |      |     |     | 5050       |
| 6512/17          | 215             | 42,5 | 173 | -    | 104 | -   |            |
| 6532/M22         | 147             | 44,5 | 80  | 50   | 60  | 94  | 1350       |
| 6532/7           |                 |      |     |      |     |     | 1290       |
| 6532/M28         |                 |      |     |      |     |     |            |
| 6532/9           |                 |      |     |      |     |     |            |
| 6532/11          | 165             | 52,5 | 93  | 59   | 68  | 126 | 1910       |
| 6532/13          | 238             | 65   | 139 | 86,5 | 104 | 138 | 4920       |
| 6532/M42         |                 |      |     |      |     |     | 4765       |
| 6532/17          |                 |      |     |      |     |     |            |



6512



6532

## GAUGE MOUNTING VALVES

The valves are equipped with:

- A small flange for fixing the tap to the control panel
- A threaded SAE Flare connection for joining it to the copper pipe with a union.
- A threaded NPT (type 8320) or a swivel union SAE Flare (8321) connection for mounting the gauge

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

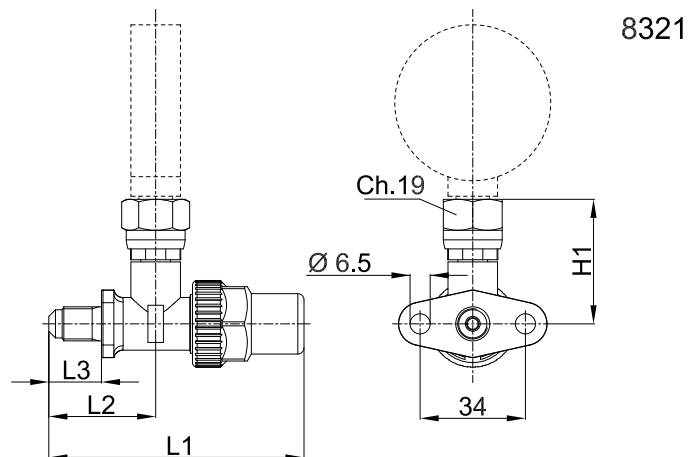
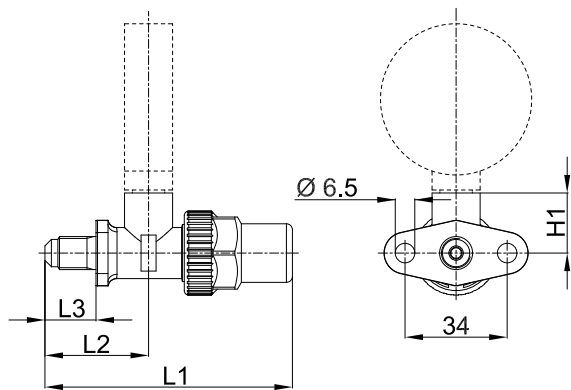
- Hot forged brass EN 12420 – CW 617N for the body
- Steel, with proper surface protection, for the spindle.
- Chloroprene rubber (CR) and aramid fibres for gland seal
- Glass-reinforced PBT for the protective cap that covers the spindle.

**TABLE 16: General characteristics of gauge mounting valves**

| Catalogue Number | Connections |      |           | Kv Factor [m³/h] | PS [bar] | TS [°C] |      | TA [°C] |      | Risk Category according to PED Recast |
|------------------|-------------|------|-----------|------------------|----------|---------|------|---------|------|---------------------------------------|
|                  | SAE Flare   | NPT  | SAE Flare |                  |          | min.    | max. | min.    | max. |                                       |
| 8320/21          | 1/4"        | 1/8" | –         | 0,44             | 45       | -40     | +130 | -40     | +50  | Art. 4.3                              |
| 8320/22          | 1/4"        | 1/4" | –         |                  |          |         |      |         |      |                                       |
| 8321/22          | 1/4"        | –    | 1/4" f    |                  |          |         |      |         |      |                                       |

**TABLE 17: Dimensions and weight of gauge mounting valves**

| Catalogue Number | Dimensions [mm] |    |    |    | Weight [g] |
|------------------|-----------------|----|----|----|------------|
|                  | H1              | L1 | L2 | L3 |            |
| 8320/21          | 19              | 83 | 35 | 17 | 140        |
| 8320/22          | 37              |    |    |    | 186        |
| 8321/22          | 40              |    |    |    |            |



## LINE PIERCING VALVE

The piercing valve is a fast, economic means of providing a charging, purging or gauge inlet point in the refrigeration system. It can be applied on copper pipes with a 6 mm to 10 mm diameter, and can be installed in any position on the system.

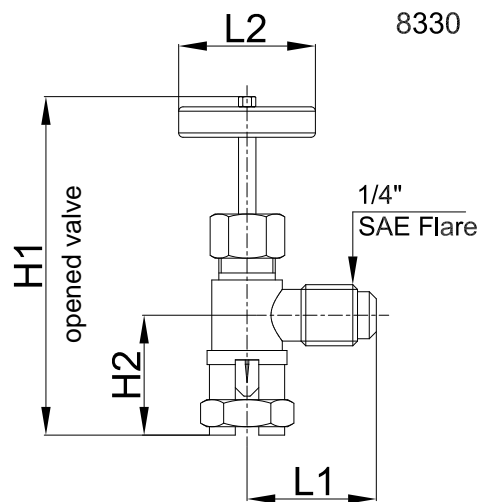
The main parts of the piercing valve are made with the following materials:

- Hot forged brass EN 12420 – CW 617N for the body
- Hardened steel for the needle
- Chloroprene rubber (CR) for the outlet seal gaskets

Install the threaded fork astride of the copper pipe, fix the valve to the pipe, tightening the lower nut. Then, as the needle advances, it pierces the pipe. The hole connects the inside of the pipe with the 1/4" SAE Flare connection of the valve as shown in Figures 1 and 2.

**TABLE 18: General characteristics and dimensions of line piercing valve**

| Catalogue Number | Connections |                    | Dimensions [mm] |                |                |                | Weight [g] | PS [bar] | TS [°C] |      | TA [°C] |      | Risk Category according to PED Recast |
|------------------|-------------|--------------------|-----------------|----------------|----------------|----------------|------------|----------|---------|------|---------|------|---------------------------------------|
|                  | SAE Flare   | Pipe Diameter [mm] | H <sub>1</sub>  | H <sub>2</sub> | L <sub>1</sub> | L <sub>2</sub> |            |          | min.    | max. | min.    | max. |                                       |
| 8330/A           | 1/4"        | 6 - 10             | 72              | 25,5           | 29             | 36             | 104        | 25       | -10     | +70  | -10     | +50  | Art. 4.3                              |



[www.castel.it](http://www.castel.it)



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