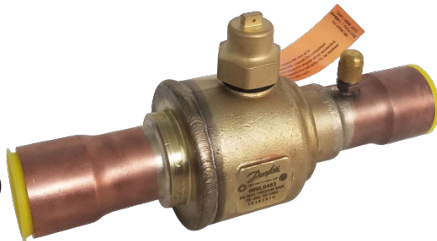


## Data Sheet

# Shut-off ball valve Type **GBC (90 bar)** and **GBCT (140 bar)**

For CO<sub>2</sub> applicationGBC  
(90 bar)GBCT  
(140 bar)

Danfoss shut-off ball valves, type GBC (90 bar), GBCT (140 bar) are manually operated shut-off valves for CO<sub>2</sub> refrigeration systems, in order to open and to shut off inner flow path by operating the valve spindle.

The valves are specifically designed for intrinsic standstill security, meaning that the valves can withstand pressures normally arising when the refrigeration system is shut off, i.e. during serving or during unexpected power failure.

The valve structure and materials are designed and tested specifically for use with CO<sub>2</sub> refrigerant.

GBC (90 bar) valves are designed to use in subcritical CO<sub>2</sub> refrigeration systems. GBCT (140 bar) valves are approved for use in transcritical CO<sub>2</sub> systems.

## Features

### **Features of GBC (90 bar)**

- Maximum working pressure: 90 bar / 1305 psig
- Applicable for subcritical CO<sub>2</sub> refrigeration systems
- Bidirectional flow
- Bleed hole design to prevent liquid entrapment when the valve is closed
- Able to isolate both directions during service
- Sealing material especially for CO<sub>2</sub> to ensure long term product reliability
- Stainless steel body with Cu-plated stainless steel tube - easy and fast brazing for systems with copper piping
- Available of access port version for all sizes
- Meet demand for lead-free and full RoHS compliance
- UL/cUL Listed, complies with Pressure Equipment Directive 2014/68/ EU

### **Features of GBCT (140 bar)**

- Maximum working pressure: 140 bar / 2031 psig
- Applicable for transcritical CO<sub>2</sub> refrigeration systems
- Bidirectional flow
- Bleed hole design to prevent liquid entrapment when the valve is closed
- Sealing material especially for CO<sub>2</sub> to ensure long term product reliability
- Version with reinforced copper-iron tube extensions to allow easy torch-brazing installation for systems with K65 piping
- Version with stainless-steel butt welding connections, suitable for systems with stainless-steel piping
- Available of access port version for all sizes
- UL/cUL Listed, complies with Pressure Equipment Directive 2014/68/ EU

## Applications

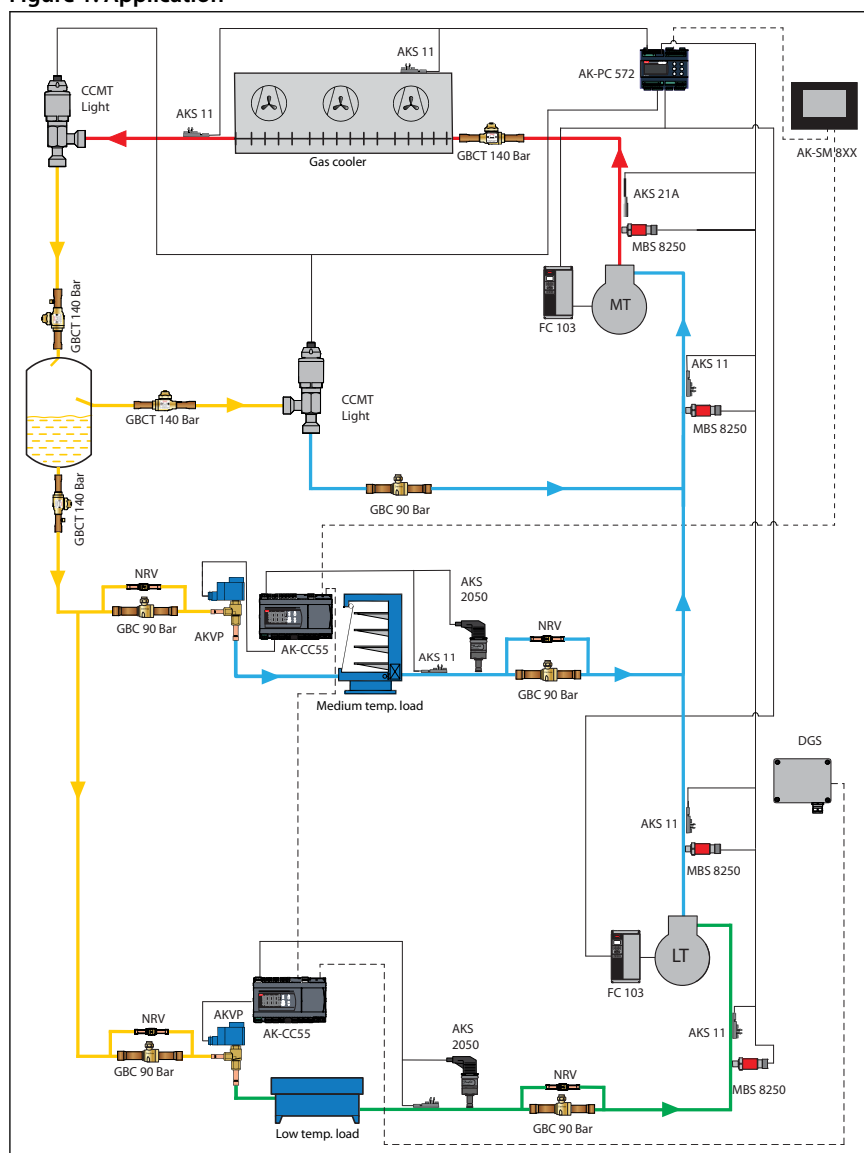
**Typical applications for CO<sub>2</sub> ball valves are:**

- Display cases
- Cold rooms
- Rack/Pack units

**Danfoss CO<sub>2</sub> ball valves are designed for the following refrigerant cycles:**

- GBC with PS = 90 bar, Cu-plated stainless steel connections equipped, for subcritical systems
- GBCT with PS = 140 bar, copper (K65) / stainless steel connections equipped, for transcritical systems

**Figure 1: Application**



|  |                                    |
|--|------------------------------------|
|  | HP High Pressure (120-140 bar)     |
|  | HP Receiver Pressure (60-90 bar)   |
|  | LP Suction Pressure MT (35-55 bar) |
|  | LP Suction Pressure LT (25-30 bar) |

## Media

**Table 1: Media**

|                 |   |
|-----------------|---|
| Refrigerants    | R 744 (CO <sub>2</sub> )                            |
| Refrigerant oil | POE,PVE,PAG(Not compatible for Mineral oil and PAO) |

**NOTE:****For the application use with R744 as part of a secondary loop or cascade:**

1. The design pressure of the refrigerant containing component is not less than the design pressure of the associated components.
2. The component is not provided with any pressure relief or pressure regulating relief valve and that a sufficient number of valves having capacity deemed adequate shall be field installed on the refrigeration system.
3. When the refrigeration system is de-energized, venting of R744 may occur through the pressure regulating relief valves, and may need to be recharged, but the valve should not be defeated or bypassed.
4. A sufficient number of pressure relief and pressure regulating valves may need to be provided based upon system capacity and located such that no stop valve is provided between the relief valve and the parts or section of the system being protected.

**Product specification**

**Technical data**

Table 2: Technical data

| Technical data   | GBC   | GBCT   |
|--|---|--|
| Max. working pressure                                    | 90 bar / 1305 psig                                | 140 bar / 2031 psig                          |
| Media temperature range                                  | -40 °C – 100 °C / -40 °F – 212 °F                 | -40 °C – 149 °C / -40 °F – 300 °F            |
| Flow direction   | Bi flow   | Bi flow                                      |
| Isolation orientation during service                     | Bi-directional                                    | Uni-directional (following GBCT instruction) |
| Environmental transport/storage temperature and humidity | -40 – 65 °C / -40 – 150 °F. Air humidity: RH≤95%. |  |

**Mounting of GBCT:**

Danfoss recommends that GBCT valves are installed so that the HP side is oriented towards the highest pressure side of the system when the valve is in the closed position. The ball valve will only internally seal in closed position when flow direction is from HP to LP.

Figure 2: Marking of GBCT

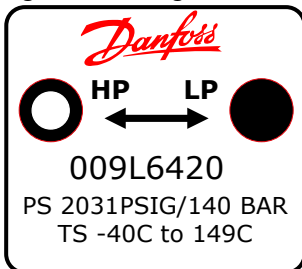
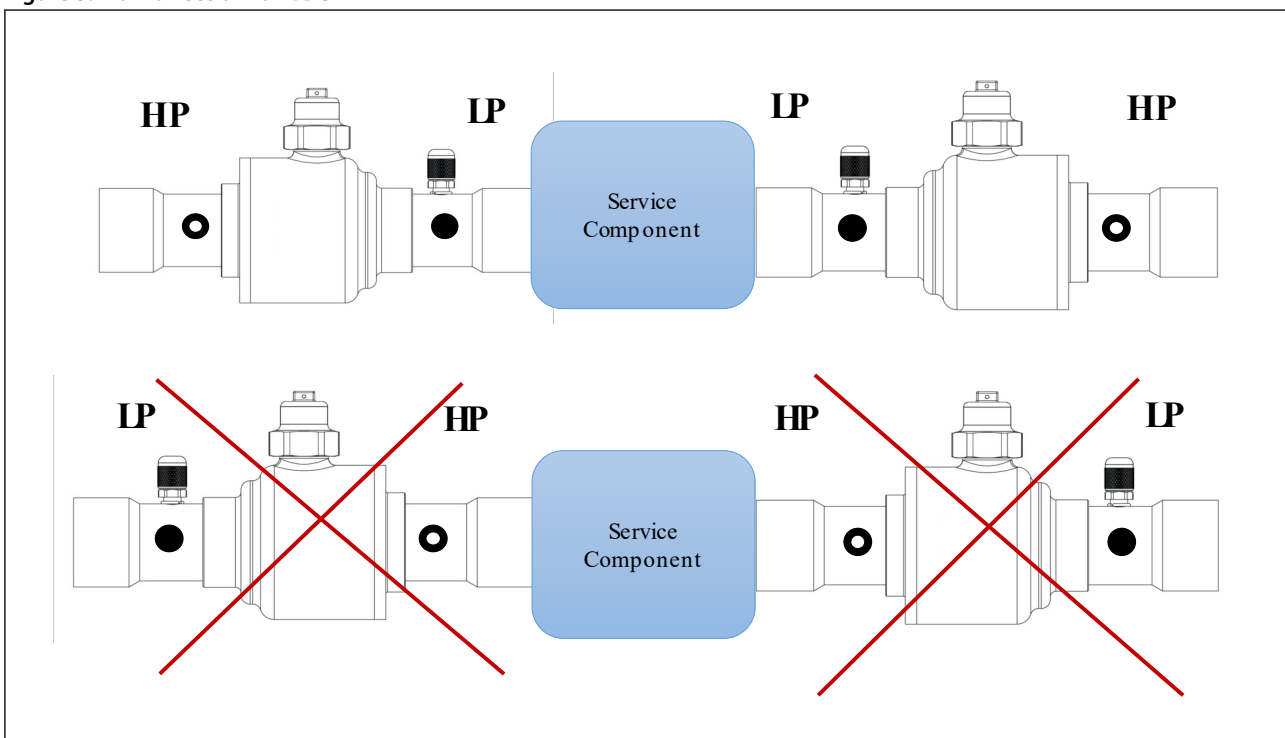


Table 3: Marking of GBCT

| Inscription | Explanation  |
|-------------|--|
| "HP"        | Indicates where the bleed hole of ball is located and Danfoss recommends the HP side is oriented towards the highest pressure side of system when valve is in closed position. |
| "LP"        | Indicates the side without bleed hole and shall be oriented towards to the low pressure side of system when valve is in closed position.                                       |

Figure 3: Flow direction for GBCT

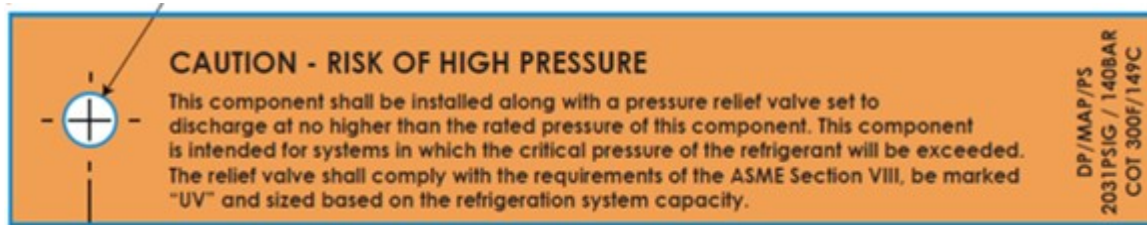


## Shut-off ball valve, type GBC (90 bar) and GBCT (140 bar)

### GBCT CAUTION - RISK OF HIGH PRESSURE

Do not close with CO2 liquid temperature below ambient. This component shall be installed along with a pressure relief valve set to discharge at no higher than the rated pressure of this component. This component is intended for systems in which the critical pressure of the refrigerant will be exceeded. The relief valve shall comply with the requirements of ASME Section VIII, be marked "UV" and sized based on the refrigeration system capacity. An orange Hanging tag is added on all valves as per requirement of UL certificate.

Figure 4: Hanging tag of GBCT



### Identification

Relevant product data is available on the product and box label. An example of a box label and product label are shown, including an explanation of the content.

Figure 5: Box label

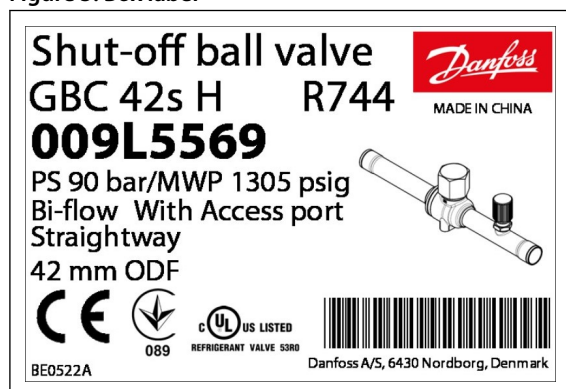


Figure 6: Product label



Table 4: Product and label text

| Position                 | Inscription   | Explanation  |
|--------------------------|---|--|
| Box label; Product label | Shut-off ball valve                                       | Product name   |
| Box label; Product label | GBC 42s H   | Product type   |
| Box label; Product label | 009L5569  | Code number for ordering   |
| Box label                | Bi-flow   | Flow type  |
| Box label                | Straightway   | Direction  |
| Box label                | R744  | Refrigerant  |
| Box label                | 42 mm ODF   | Connection size and type   |
| Box label; Product label | PS 90 bar/MWP 1305 psig                                   | Max. working pressure in bar and psig  |
| Box label; Product label | BE0522A   | Code for production place and time (BE = Wuqing, week 05, year 2022, weekday A = Monday) |
| Box label; Product label | MADE IN CHINA   | Manufacturing site acc. to EN standards  |
| Box label                | EAN code  | Barcode for individual code no. identification according to EAN standard                 |
| Product label            | TS -40/+100°C -40/+212°F                                  | Media temperature range  |
| Box label; Product label | Additional information: Relevant approval authority logos | -  |

### Design and materials

Direct flow gives maximum through-flow with minimum pressure drop across valve. The combination of laser-welded valve body (2) and valve tail (4), ball seat/seal (3), double O-ring seal in spindle (6), and cap seal (7) provides the best tightness.

## Shut-off ball valve, type GBC (90 bar) and GBCT (140 bar)

Figure 7: GBC with Cu-plated stainless steel tube

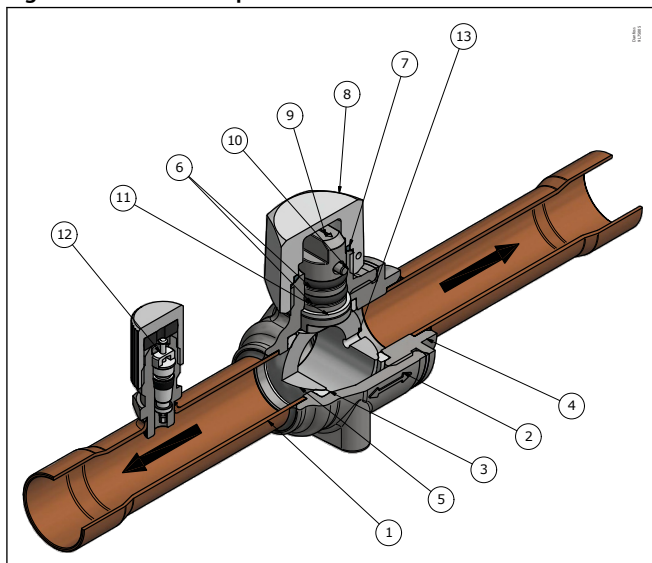


Figure 8: GBCT with copper tube

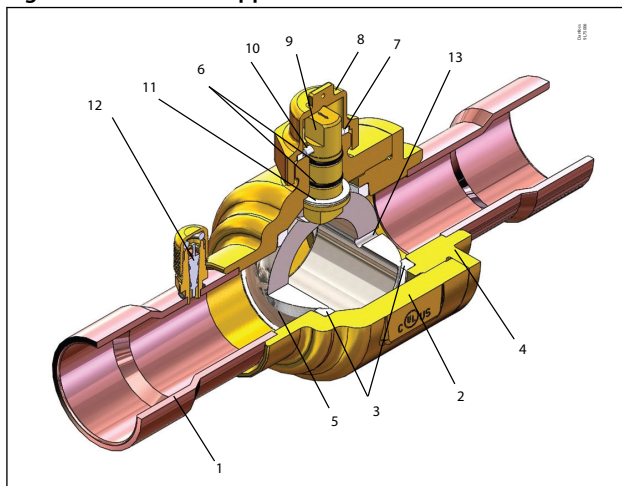


Figure 9: GBCT with stainless steel tube

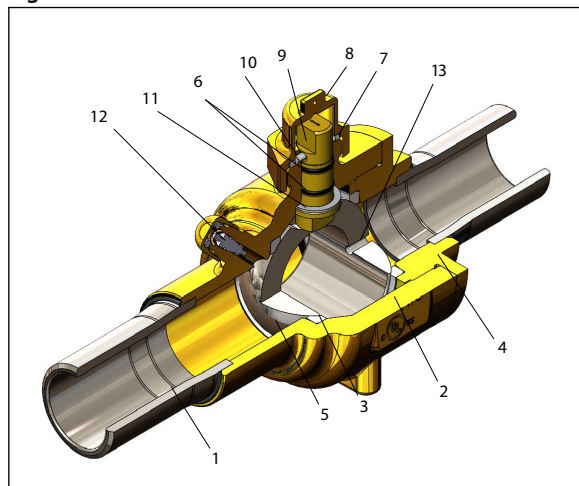


Table 5: Design and materials

| Position | Description                   | Material                  |                        |
|----------|-------------------------------|---------------------------|------------------------|
|          |                               | GBC                       | GBCT                   |
| 1        | Connection tube               | Cu-plated stainless steel | Copper/Stainless steel |
| 2        | Valve body                    | Stainless steel           | Brass                  |
| 3        | Ball seat                     | PTFE                      | PTFE                   |
| 4        | Valve tail                    | Stainless steel           | Brass                  |
| 5        | Ball                          | Stainless steel           | Stainless steel        |
| 6        | Double O-ring seal in spindle | EPDM                      | FKM                    |
| 7        | Cap seal                      | PTFE                      | PTFE                   |
| 8        | Seal cap                      | Aluminum                  | Brass                  |
| 9        | Spindle                       | Stainless steel           | Stainless steel/Brass  |
| 10       | Pin                           | Stainless steel           | Stainless steel        |
| 11       | Guide ring                    | PTFE                      | PTFE                   |
| 12       | Schrader valve                | Brass                     | Brass                  |
| 13       | Bleed hole                    | -                         | -                      |

## Dimensions

We have chosen to show dimensions of the major versions.

You will find downloadable dimension drawings for individual code numbers on Danfoss store as part of the Visuals tab for individual code numbers.

## Shut-off ball valve, type GBC (90 bar) and GBCT (140 bar)

Weights also differ depending on the design of the individual code numbers. Weights are available as part of the technical data for individual code numbers on Danfoss store.

### GBC solder ODF/ODF, Cu plated stainless steel connections

Figure 10: GBC solder ODF/ODF, Cu plated stainless steel connections

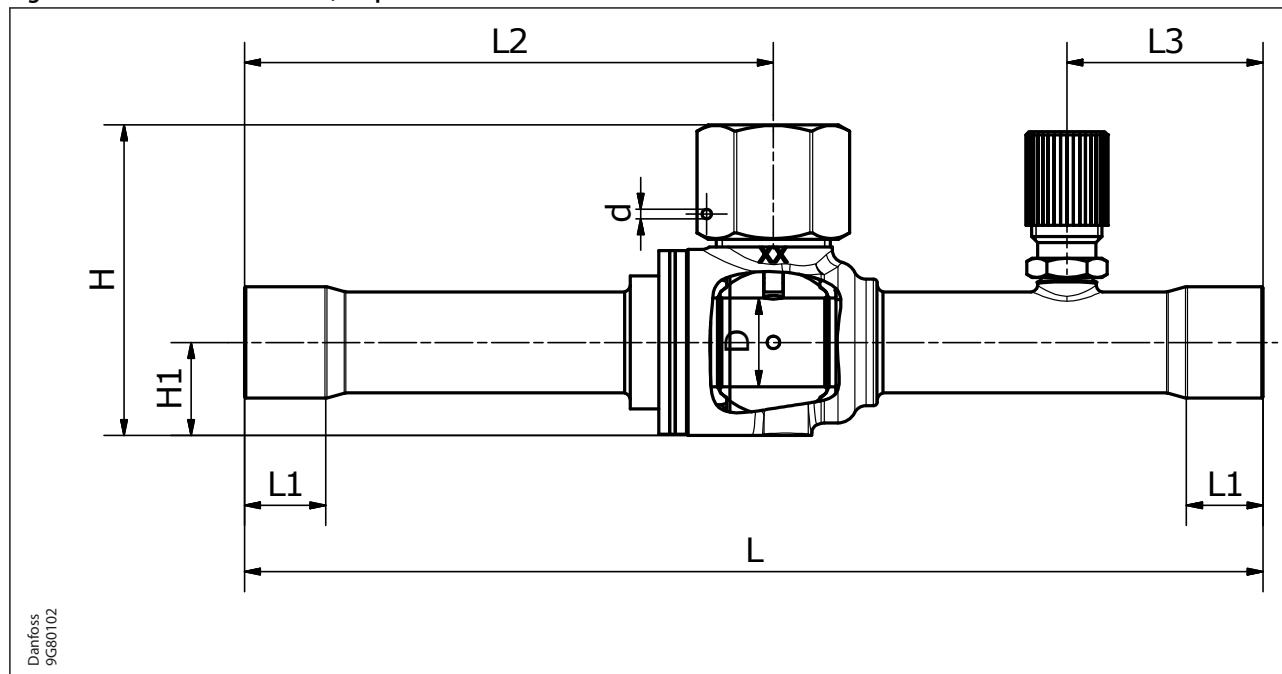


Table 6: GBC solder ODF/ODF, Cu plated stainless steel connections

| Type                     | Size           | Connec-<br>tion | Connection tol-<br>erance | H    | H1   | L    | L1   | L2   | L3   | D    | d    | Weight<br>[kg] | Code no.               |                  |
|--------------------------|----------------|-----------------|---------------------------|------|------|------|------|------|------|------|------|----------------|------------------------|------------------|
|                          |                | [mm]            | [mm]                      | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] |                | without access<br>port | with access port |
| GBC 6s H                 | ¼ in.          | 6.35            | +0.065/+0.155             | 43   | 12   | 139  | 7    | 72.4 | 31   | 11   | 1.5  | 0.13           | 009L5415               | 009L5581         |
|                          | 6 mm           | 6               |                           |      |      |      |      |      |      |      |      |                | 009L5395               | 009L5580         |
| GBC 10s H                | ¾ in.          | 9.52            |                           | 43   | 12   | 139  | 9    | 72.4 | 31   | 11   | 1.5  | 0.13           | 009L5416               | 009L5582         |
|                          | 10 mm          | 10              |                           |      |      |      |      |      |      |      |      |                | 009L5396               | 009L5583         |
| GBC 12s H                | ½ in.          | 12.7            |                           | 43   | 12   | 161  | 9    | 83.4 | 31   | 11   | 1.5  | 0.14           | 009L5417               | 009L5585         |
|                          | 12 mm          | 12              |                           |      |      |      |      |      |      |      |      |                | 009L5397               | 009L5584         |
| GBC 16s H                | ⅝ in.          | 16              |                           | 50   | 14.7 | 161  | 12   | 83.6 | 31   | 14   | 1.5  | 0.22           | 009L5418               | 009L5586         |
|                          | 16 mm          |                 |                           |      |      |      |      |      |      |      |      |                |                        |                  |
| GBC 18s H <sup>(1)</sup> | ¾ in.          | 19.05           |                           | 58   | 18.8 | 185  | 12   | 95.8 | 37   | 19   | 1.5  | 0.4            | 009L5419               | 009L5588         |
|                          | 18 mm          | 18              |                           |      |      |      |      |      |      |      |      |                | 009L5399               | 009L5587         |
| GBC 22s H <sup>(1)</sup> | ⅞ in.<br>22 mm | 22.22           |                           | 58   | 18.8 | 185  | 17   | 95.8 | 37   | 19   | 1.5  | 0.4            | 009L5420               | 009L5589         |
| GBC 25s H <sup>(1)</sup> | 1 in.<br>25 mm | 25.4<br>25      |                           |      |      |      |      |      |      |      |      |                | 80                     | 25               |
| GBC 28s H <sup>(1)</sup> | 1 ⅛ in.        | 28.58           | 80                        | 25   | 208  | 20   | 111  | 44   | 25.5 | 2    | 0.85 | -              |                        |                  |
|                          | 28 mm          |                 |                           |      |      |      |      |      |      |      |      | 28             | 009L5526               | 009L5565         |
| GBC 35s H <sup>(1)</sup> | 1 ⅜ in.        | 35              | 89                        | 30   | 251  | 20   | 132  | 44   | 32   | 2    | 1.3  | 009L5410       | 009L5567               |                  |
|                          | 35 mm          |                 |                           |      |      |      |      |      |      |      |      |                |                        |                  |
| GBC 42s H <sup>(1)</sup> | 1 ⅝ in.        | 41.28           | 110                       | 35   | 281  | 29   | 149  | 56   | 38   | 2    | 2.2  | 009L5529       | 009L5568               |                  |
|                          | 42 mm          |                 |                           |      |      |      |      |      |      |      |      | 42             | 009L5411               | 009L5569         |

<sup>(1)</sup> GBC 18s H~42s H will be available in June, 2024



**GBCT solder ODF/ODF, copper connections**

Figure 11: GBCT solder ODF/ODF, copper connections

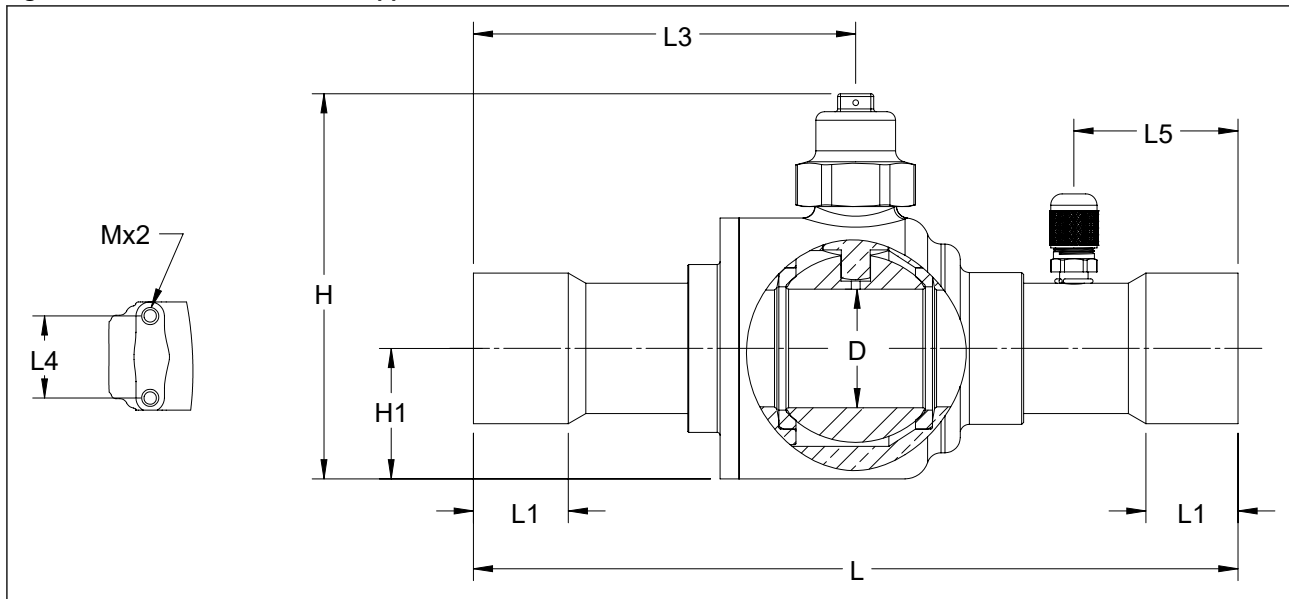


Table 7: GBCT solder ODF/ODF, copper connections

| Type     | Size    | Con-<br>nec-<br>tion<br>[mm] | Con-<br>nec-<br>tion<br>tolerance<br>[mm] | H    | H1   | L    | L1   | L3   | L4   | L5   | M        | D    | Weight<br>[kg] | Code no. |                           |
|----------|---------|------------------------------|---|------|------|------|------|------|------|------|----------|------|----------------|----------|---------------------------|
|          |         |                              |   | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] | [mm]     | [mm] |                | [mm]     | without<br>access<br>port |
| GBCT 6s  | ¼ in.   | 6.35                         | +0.051/+0.155                             | 57   | 14   | 127  | 7    | 69   | 22   | N/A  | M4 × 0.7 | 13   | 0.2            | 009L6415 | -                         |
|          |         |                              |   | 57   | 14   | 127  | 7    | 55   | N/A  | 44   | N/A      | 13   | 0.3            | -        | 009L6581                  |
| GBCT 10s | ⅜ in.   | 9.52                         |   | 57   | 14   | 132  | 9    | 72   | 22   | N/A  | M4 × 0.7 | 13   | 0.2            | 009L6416 | -                         |
|          |         |                              |   | 57   | 14   | 132  | 9    | 58   | N/A  | 46   | N/A      | 13   | 0.3            | -        | 009L6582                  |
| GBCT 12s | ½ in.   | 12.70                        |   | 57   | 14   | 139  | 10   | 75   | 22   | N/A  | M4 × 0.7 | 13   | 0.2            | 009L6417 | -                         |
|          |         |                              |   | 57   | 14   | 139  | 10   | 61   | N/A  | 50   | N/A      | 13   | 0.3            | -        | 009L6585                  |
| GBCT 16s | ⅝ in.   | 15.88                        |   | 57   | 14   | 148  | 13   | 80   | 22   | N/A  | M4 × 0.7 | 13   | 0.2            | 009L6418 | -                         |
|          |         |                              |   | 57   | 14   | 148  | 13   | 66   | N/A  | 54   | N/A      | 13   | 0.3            | -        | 009L6586                  |
| GBCT 18s | ¾ in.   | 19.05                        |   | 87   | 32   | 148  | 17   | 78   | N/A  | 30   | N/A      | 19   | 0.7            | 009L6419 | 009L6588                  |
| GBCT 22s | 7/8 in. | 22.22                        |   | 87   | 32   | 185  | 20   | 96   | N/A  | 40   | N/A      | 19   | 0.7            | 009L6420 | 009L6589                  |
| GBCT 28s | 1 ⅛ in. | 28.58                        | +0.075/+0.185                             | 102  | 37   | 185  | 24   | 95   | N/A  | 40   | N/A      | 25   | 1.3            | 009L6406 | 009L6451                  |
| GBCT 35s | 1 ⅜ in. | 34.93                        |   | 103  | 35   | 205  | 25   | 102  | N/A  | 44   | N/A      | 32   | 2.0            | 009L6410 | 009L6453                  |
| GBCT 42s | 1 ⅝ in. | 41.28                        | +0.075/+0.203                             | 113  | 40   | 240  | 28   | 120  | N/A  | 50   | N/A      | 38   | 2.9            | 009L6411 | 009L6454                  |
| GBCT 54s | 2 ⅛ in. | 53.98                        |   | 144  | 52   | 275  | 35   | 138  | N/A  | 56   | N/A      | 51   | 6.1            | 009L6412 | 009L6456                  |

**GBCT butt weld, stainless steel connections**

Figure 12: GBCT butt weld, stainless steel connections

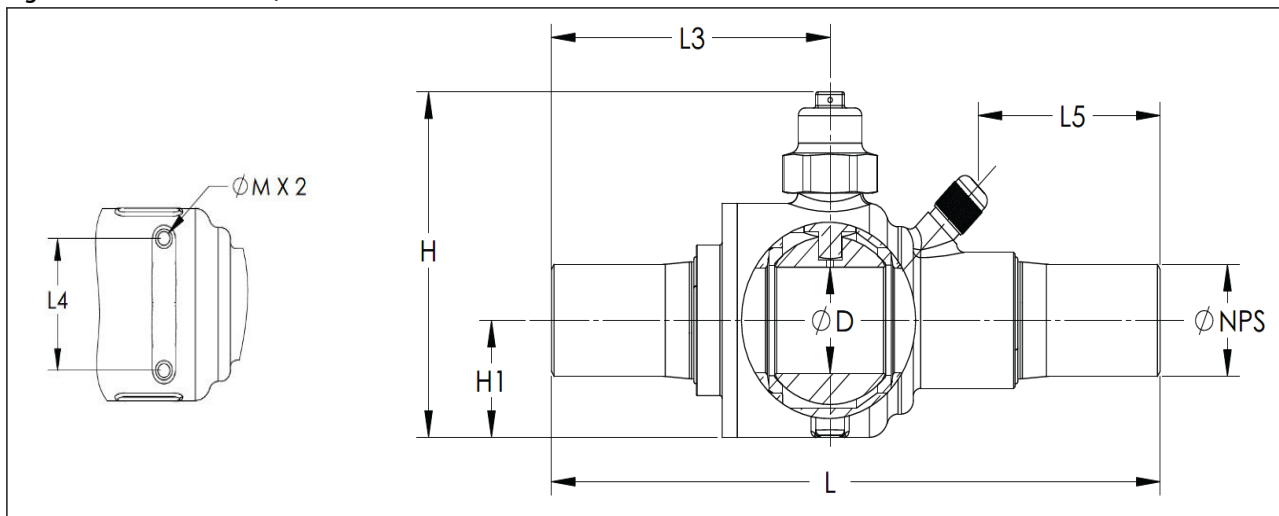


Table 8: GBCT (ODE)

| Type      | ODE   | H    | H1   | L    | L3   | L4   | L5   | M        | D    | Weight | Code no.         |
|-----------|-------|------|------|------|------|------|------|----------|------|--------|------------------|
|           | [mm]  | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] | [mm]     | [mm] | [kg]   | with access port |
| GBCT 10 D | 10.20 | 57   | 14   | 132  | 57   | 22   | 29   | M4 x 0.7 | 13   | 0.27   | 009L6701         |
| GBCT 13 D | 13.50 | 57   | 14   | 139  | 61   | 22   | 32   | M4 x 0.7 | 13   | 0.28   | 009L6702         |
| GBCT 17 D | 17.20 | 57   | 14   | 148  | 66   | 22   | 36   | M4 x 0.7 | 13   | 0.29   | 009L6703         |
| GBCT 21 D | 21.30 | 72   | 20   | 185  | 86   | 30   | 58   | M4 x 0.7 | 19   | 0.54   | 009L6704         |
| GBCT 27 D | 26.90 | 92   | 28   | 185  | 84   | 38   | 53   | M4 x 0.7 | 25   | 1.08   | 009L6705         |
| GBCT 34 D | 33.70 | 103  | 35   | 205  | 94   | 48   | 61   | M6 x 1.0 | 32   | 2.08   | 009L6706         |
| GBCT 42 D | 42.40 | 113  | 40   | 240  | 114  | 55   | 72   | M6 x 1.0 | 38   | 3.13   | 009L6707         |
| GBCT 48 D | 48.30 | 144  | 52   | 275  | 132  | 74   | 81   | M6 x 1.0 | 51   | 6.23   | 009L6708         |
| GBCT 60 D | 60.30 | 144  | 52   | 275  | 132  | 74   | 81   | M6 x 1.0 | 51   | 6.51   | 009L6709         |

ODE = Outside Diameter External

Table 9: GBCT (NPS)

| Type      | NPS   | H     | H1    | L     | L3    | L4    | L5    | M        | D     | Weight | Code no.         |
|-----------|-------|-------|-------|-------|-------|-------|-------|----------|-------|--------|------------------|
|           | [in.] | [in.] | [in.] | [in.] | [in.] | [in.] | [in.] | [in.]    | [in.] | [lbs]  | with access port |
| GBCT 10 D | 1/8   | 2.2   | 0.6   | 5.2   | 2.2   | 0.9   | 1.1   | M4 x 0.7 | 0.5   | 0.60   | 009L6701         |
| GBCT 13 D | 1/4   | 2.2   | 0.6   | 5.5   | 2.4   | 0.9   | 1.3   | M4 x 0.7 | 0.5   | 0.62   | 009L6702         |
| GBCT 17 D | 3/8   | 2.2   | 0.6   | 5.8   | 2.6   | 0.9   | 1.4   | M4 x 0.7 | 0.5   | 0.64   | 009L6703         |
| GBCT 21 D | 1/2   | 2.8   | 0.8   | 7.3   | 3.4   | 1.2   | 2.3   | M4 x 0.7 | 0.7   | 1.19   | 009L6704         |
| GBCT 27 D | 3/4   | 3.6   | 1.1   | 7.3   | 3.3   | 1.5   | 2.1   | M4 x 0.7 | 1.0   | 2.38   | 009L6705         |
| GBCT 34 D | 1     | 4.1   | 1.4   | 8.1   | 3.7   | 1.9   | 2.4   | M6 x 1.0 | 1.3   | 4.59   | 009L6706         |
| GBCT 42 D | 1 1/4 | 4.4   | 1.6   | 9.4   | 4.5   | 2.2   | 2.8   | M6 x 1.0 | 1.5   | 6.90   | 009L6707         |
| GBCT 48 D | 1 1/2 | 5.7   | 2.1   | 10.8  | 5.2   | 2.9   | 3.2   | M6 x 1.0 | 2.0   | 13.7   | 009L6708         |
| GBCT 60 D | 2     | 5.7   | 2.1   | 10.8  | 5.2   | 2.9   | 3.2   | M6 x 1.0 | 2.0   | 14.4   | 009L6709         |

NPS = National Pipe Size

## Shut-off ball valve, type GBC (90 bar) and GBCT (140 bar)

### Connection Diagrams

#### Connection diagrams of GBC (90 bar)

| Type        | Connection type | Connection Size |         |
|-------------|-----------------|-----------------|---------|
| GBC (90bar) | Solder ODF      | 6 mm            | ¼ in.   |
|             |                 | 10 mm           | ⅜ in.   |
|             |                 | 12 mm           | ½ in.   |
|             |                 | 16 mm           | ⅝ in.   |
|             |                 | 18 mm           | ¾ in.   |
|             |                 | 22 mm           | 7⁄8 in. |
|             |                 | -               | 1 in.   |
|             |                 | 28 mm           | 1 ⅛ in. |
|             |                 | 35 mm           | 1 ⅜ in. |
|             |                 | 42 mm           | 1 ⅝ in. |

#### Connection diagrams of GBCT (140 bar)

| Type          | Connection type | Connection Size |         |
|---------------|-----------------|-----------------|---------|
| GBCT (140bar) | Solder ODF      | -               | ¼ in.   |
|               |                 | -               | ⅜ in.   |
|               |                 | -               | ½ in.   |
|               |                 | -               | ⅝ in.   |
|               |                 | -               | ¾ in.   |
|               |                 | -               | 7⁄8 in. |
|               |                 | -               | 1 ⅛ in. |
|               |                 | -               | 1 ⅜ in. |
|               |                 | -               | 1 ⅝ in. |
|               |                 | -               | 2 ⅛ in. |
|               | Butt weld       | 10.2 mm         | ⅛ in.   |
|               |                 | 13.5 mm         | ¼ in.   |
|               |                 | 17.2 mm         | ⅜ in.   |
|               |                 | 21.3 mm         | ½ in.   |
|               |                 | 26.9 mm         | ¾ in.   |
|               |                 | 33.7 mm         | 1 in.   |
|               |                 | 42.4 mm         | 1 ¼ in. |
|               |                 | 48.3 mm         | 1 ½ in. |
|               |                 | 60.3 mm         | 2 in.   |

**Ordering**

**GBC solder ODF/ODF, Cu plated stainless steel connections**

Figure 13: GBC without access port, solder ODF

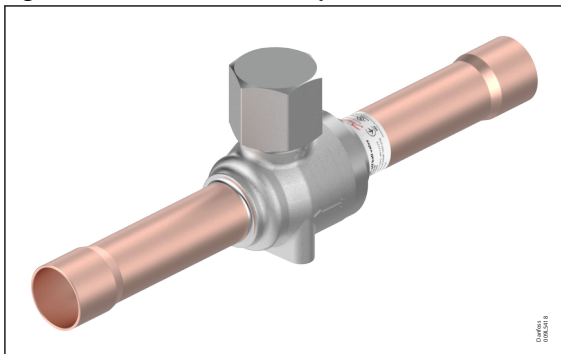


Figure 14: GBC with access port, solder ODF

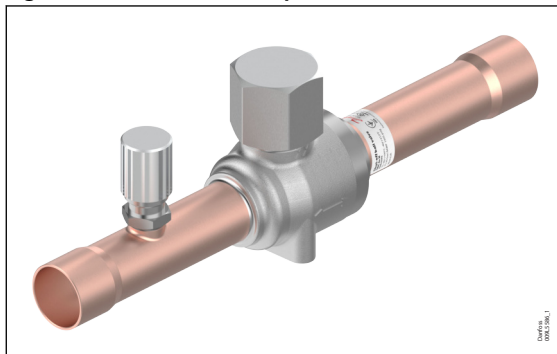


Table 10: GBC solder ODF/ODF, Cu-plated stainless steel connections

| Type                     | Code no.            |                  | Connection |      | Kv <sup>(1)</sup><br>[m <sup>3</sup> /h] | Cv <sup>(1)</sup><br>[gal/min] | Multi pack<br>Qty/ pack | PED category<br>[Fluid Group 2] | Max. working pressure<br>PS/MWP | Media temperature range             |
|--------------------------|---------------------|------------------|------------|------|--|--------------------------------|-------------------------|---------------------------------|---------------------------------|-------------------------------------|
|                          | without access port | with access port | [in.]      | [mm] |  |                                |                         |                                 |                                 |                                     |
| GBC 6s H                 | 009L5415            | 009L5581         | 1/4        | -    | 1.78                                     | 2.06                           | 30                      | Art. 4.3                        | 90 bar / 1305 psig              | -40 °C ~ +100 °C / -40 °F ~ +212 °F |
|                          | 009L5395            | 009L5580         | -          | 6    | 1.78                                     | 2.06                           | 30                      |                                 |                                 |                                     |
| GBC 10s H                | 009L5416            | 009L5582         | 3/8        | -    | 7.00                                     | 8.09                           | 30                      |                                 |                                 |                                     |
|                          | 009L5396            | 009L5583         | -          | 10   | 7.00                                     | 8.09                           | 30                      |                                 |                                 |                                     |
| GBC 12s H                | 009L5417            | 009L5585         | 1/2        | -    | 8.00                                     | 9.25                           | 30                      |                                 |                                 |                                     |
|                          | 009L5397            | 009L5584         | -          | 12   | 8.00                                     | 9.25                           | 30                      |                                 |                                 |                                     |
| GBC 16s H                | 009L5418            | 009L5586         | 5/8        | 16   | 12.40                                    | 14.33                          | 25                      |                                 |                                 |                                     |
| GBC 18s H <sup>(2)</sup> | 009L5419            | 009L5588         | 3/4        | -    | 31.00                                    | 35.84                          | 25                      |                                 |                                 |                                     |
|                          | 009L5399            | 009L5587         | -          | 18   | 31.00                                    | 35.84                          | 25                      |                                 |                                 |                                     |
| GBC 22s H <sup>(2)</sup> | 009L5420            | 009L5589         | 7/8        | 22   | 25.47                                    | 29.44                          | 25                      |                                 |                                 |                                     |
| GBC 25s H <sup>(2)</sup> | 009L5400            | 009L5590         | 1          | -    | 55.93                                    | 64.66                          | 5                       |                                 |                                 |                                     |
|                          | 009L5526            | 009L5565         | 1 1/8      | -    | 65.85                                    | 76.12                          | 5                       |                                 |                                 |                                     |
| GBC 28s H <sup>(2)</sup> | 009L5406            | 009L5566         | -          | 28   | 65.85                                    | 76.12                          | 5                       |                                 |                                 |                                     |
|                          | 009L5410            | 009L5567         | 1 3/8      | 35   | 103.05                                   | 119.13                         | 5                       |                                 |                                 |                                     |
| GBC 35s H <sup>(2)</sup> | 009L5529            | 009L5568         | 1 5/8      | -    | 175.41                                   | 202.78                         | 4                       | Cat. I                          |                                 |                                     |
|                          | 009L5411            | 009L5569         | -          | 42   | 175.41                                   | 202.78                         | 4                       |                                 |                                 |                                     |

<sup>(1)</sup> Calculated based on fluid dynamic equations

<sup>(2)</sup> GBC 18s H~42s H will be available in June, 2024

Solder connection reference standard ISO 2016 (≈EN 1254-1)

### GBCT solder ODF/ODF, copper connections

Figure 15: GBCT without access port, solder ODF

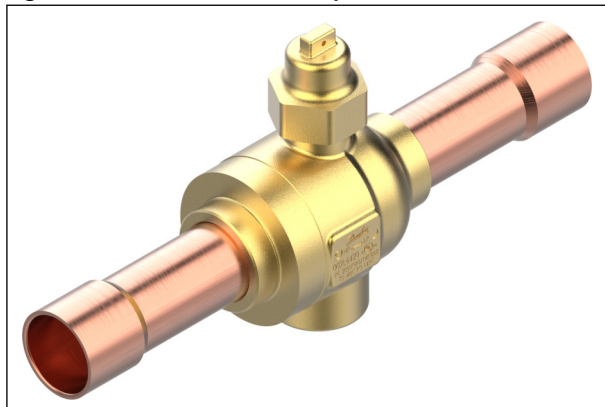


Figure 16: GBCT with access port, solder ODF

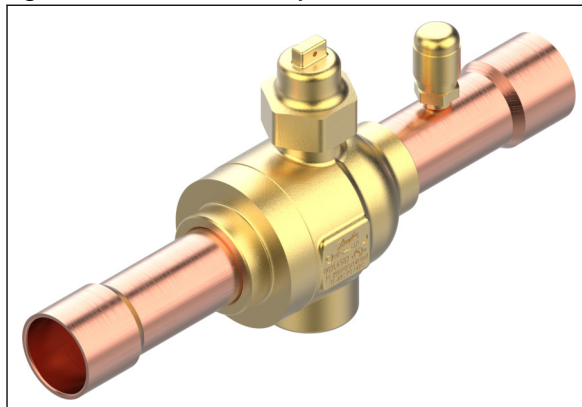
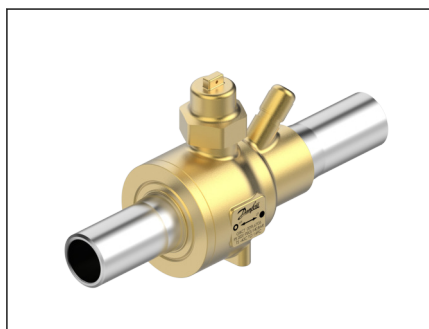


Table 11: GBCT solder ODF/ODF, copper connections

| Type     | Code no             |                  | Connection |      | Kv<br>[m3/h] | Cv<br>[gal/min] | Multi pack<br>qty/pack | Max. working pressure<br>PS/MWP | Media temperature range              | PED category<br>[Fluid Group 2] |
|----------|---------------------|------------------|------------|------|--------------|-----------------|------------------------|---------------------------------|--------------------------------------|---------------------------------|
|          | without access port | with access port | [in.]      | [mm] |              |                 |                        |                                 |                                      |                                 |
| GBCT 6s  | 009L6415            | 009L6581         | 1/4        | -    | 0.9          | 1.0             | 30                     | 140 bar /<br>2031 psig          | -40 °C – 149 °C /<br>-40 °F – 300 °F | Art. 4.3                        |
| GBCT 10s | 009L6416            | 009L6582         | 3/8        | -    | 3.7          | 4.3             | 30                     |                                 |                                      |                                 |
| GBCT 12s | 009L6417            | 009L6585         | 1/2        | -    | 5.4          | 6.2             | 30                     |                                 |                                      |                                 |
| GBCT 16s | 009L6418            | 009L6586         | 5/8        | -    | 10.4         | 12.1            | 30                     |                                 |                                      |                                 |
| GBCT 18s | 009L6419            | 009L6588         | 3/4        | -    | 16.4         | 19.0            | 18                     |                                 |                                      |                                 |
| GBCT 22s | 009L6420            | 009L6589         | 7/8        | -    | 23.7         | 27.5            | 18                     |                                 |                                      |                                 |
| GBCT 28s | 009L6406            | 009L6451         | 1 1/8      | -    | 42.3         | 48.9            | 4                      |                                 |                                      |                                 |
| GBCT 35s | 009L6410            | 009L6453         | 1 3/8      | -    | 67.1         | 77.6            | 4                      |                                 |                                      |                                 |
| GBCT 42s | 009L6411            | 009L6454         | 1 5/8      | -    | 83.1         | 96.1            | 4                      |                                 |                                      |                                 |
| GBCT 54s | 009L6412            | 009L6456         | 2 1/8      | -    | 171.3        | 198.0           | 2                      |                                 |                                      | Cat. I                          |

### GBCT butt weld, stainless steel connections

Figure 17: GBCT butt weld, stainless steel connections



| Type      | Code no             |                  | Connection |          | Kv<br>[m3/h] | Cv<br>[gal/min] | Multi pack<br>qty/pack | Max. working pressure<br>PS/MWP | Media temperature range              | PED category<br>[Fluid Group 2] |
|-----------|---------------------|------------------|------------|----------|--------------|-----------------|------------------------|---------------------------------|--------------------------------------|---------------------------------|
|           | without access port | with access port | NPS [in.]  | ODE [mm] |              |                 |                        |                                 |                                      |                                 |
| GBCT 10 D | -                   | 009L6701         | /          | 10.3     | 3.5          | 4               | 30                     | 140 bar /<br>2031 psig          | -40 °C – 149 °C /<br>-40 °F – 300 °F | Art. 4.3                        |
| GBCT 13 D | -                   | 009L6702         | /          | 13.5     | 4.2          | 4.9             | 30                     |                                 |                                      |                                 |
| GBCT 17 D | -                   | 009L6703         | /          | 17.2     | 8.9          | 10.3            | 30                     |                                 |                                      |                                 |
| GBCT 21 D | -                   | 009L6704         | /          | 21.3     | 18           | 21              | 16                     |                                 |                                      |                                 |
| GBCT 27 D | -                   | 009L6705         | /          | 26.9     | 36           | 42              | 4                      |                                 |                                      |                                 |
| GBCT 34 D | -                   | 009L6706         | 1          | 33.7     | 64           | 74              | 4                      |                                 |                                      |                                 |
| GBCT 42 D | -                   | 009L6707         | 1.25       | 42.4     | 96           | 111             | 4                      |                                 |                                      |                                 |
| GBCT 48 D | -                   | 009L6708         | 1.5        | 48.3     | 169          | 196             | 2                      |                                 |                                      |                                 |
| GBCT 60 D | -                   | 009L6709         | 2          | 60.3     | 202          | 234             | 2                      |                                 |                                      |                                 |

## Shut-off ball valve, type GBC (90 bar) and GBCT (140 bar)

NPS = National Pipe Size

ODE = Outside Diameter External

Butt-weld connection reference standard EN 10220

### Spare parts

Figure 18: Seal cap kit



Table 12: Seal cap kit

| Type              | Valve connection size |         | Industrial pack [pcs] | Code no. |
|-------------------|-----------------------|---------|-----------------------|----------|
|                   | [inch]                | [mm]    |                       |          |
| GBC 6s H - 12s H  | 1/4 - /               | 6 - 22  | 4                     | 009L5209 |
| GBC 16s H - 22s H | 5/8 - 7/8             | 16 - 22 | 4                     | 009L5210 |
| GBC 25s H - 35s H | 1 - 1 3/8             | 25 - 35 | 2                     | 009L5211 |
| GBC 42s H         | 1 5/8                 | 42      | 2                     | 009L5212 |

Figure 19: Schrader valve



| Type             | Industrial pack [pcs.] | Code no. |
|------------------|------------------------|----------|
| GBC 6s H - 42s H | 10                     | 009L5213 |

**NOTE:**

The spare parts are only for GBC. For GBCT spare parts, please consult Danfoss

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| Type      | File name                   | Document type                    | Document topic | Approval authority |
|-----------|-----------------------------|----------------------------------|----------------|--------------------|
| GBCT      | EAC RU Д-DK.PA01.B.02567_19 | EAC Declaration                  | EAC            | EAC RU             |
| GBC       | 033F4001                    | Manufacturers Declaration        | PED<br>RoHS    | Danfoss            |
| GBC       | 033F4002                    | EU Declaration<br>UK Declaration | PED<br>UKCA    | Danfoss            |
| GBCT      | 033F4003                    | Manufacturers Declaration        | PED            | Danfoss            |
| GBC       | 033F4006                    | Manufacturers Declaration        | China RoHS     | Danfoss            |
| GBCT      | 033F4013                    | EU Declaration                   | PED            | Danfoss            |
| GBC       | UA.TR.089.1015.04-22        | Pressure - Safety Certificate    | UA             | LLC CDC EURO TYSK  |
| GBC, GBCT | UL SA7200                   | Mechanical - Safety Certificate  | UL 207         | UL                 |
| GBCT      | 033F4052                    | UK Declaration                   | UKCA           | Danfoss            |

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