Data sheet

GBC, GBC E



GBC L



Shut-off ball valve

GBC / GBC E / GBC L

For A1, A2L, A3 refrigerants

Description

Danfoss shut-off ball valves, type GBC, are manually operated shut-off valves for refrigeration systems, in order to open and to shut off inner flow path by operating the valve spindle.
The GBC valves are used in liquid, suction and hot gas lines in refrigeration and air conditioning systems.
The GBC bi-directional ball valves can be delivered with or without external access port.
The valves have one-piece wire seal cap to prevent unintentional cap removal or tampering between services.
There are 3 different ranges, valid for different types of refrigerants, system sizes and made with different materials: GBC and GBC E in brass, GBC L in stainless steel.

Features & benefits

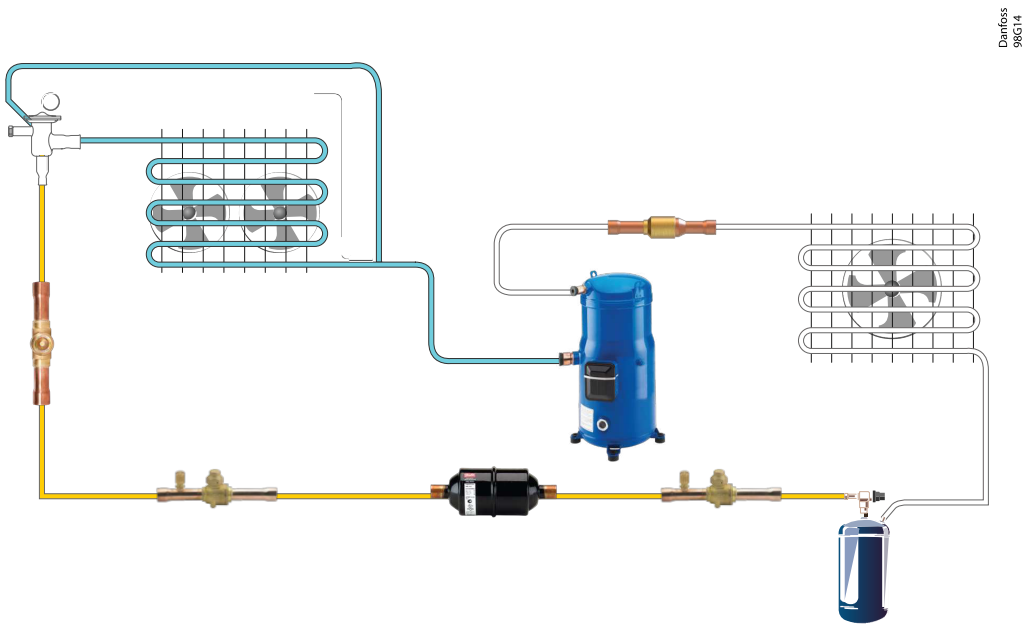
- GBC L with light design and safe connections: 1/4 in. – 1-⅛ in. / 6 mm – 28 mm, with stainless steel body and Cu-plated stainless steel tube - easy and fast brazing for systems with copper piping
- GBC, GBC E: 1 ⅜ in. – 3 ⅛ in. / 35 mm – 79 mm, with brass body and copper tube
- ¼ turn from fully open to fully closed
- Rotation stops at fully open and fully closed positions
- Ball status indicator on spindle top indicating open or closed position
- Double O-ring stem seal design
- Customized brass material ensures consistent performance under aggressive environment
- Rupture proof, internally-loaded spindle design ensures safe operation under extreme pressures and Versions with access port helps in reducing cost if service of the system is necessary
- Bi-directional flow, valve orientation is unimportant and One-piece seal cap for safety purpose complies with European Safety Directive EN 378 (Safety and environmental requirements)
- Full port construction to match line size and Anti-corrosion - 2000 hours salt spray and UL/cUL Listed, complies with Pressure Equipment Directive 2014/68/EU

Applications

Typical applications for GBC valves are:

- Cold room
- Chiller
- Heat pump
- Transport refrigeration

Figure: Application Diagram



Ordering

Product code numbers

GBC L solder ODF/ODF, stainless steel connections

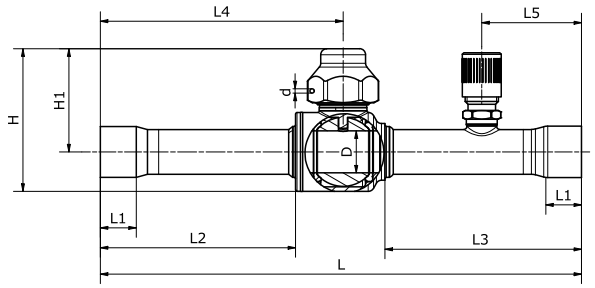


Table: GBC L solder ODF/ODF, stainless steel connections

Type	Size	Connection	Connection tolerance	H	H1	L	L1	L2	L3	L4	L5	D	d	Weight	Code no.	
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]	without access port	with access port
GBC 6L	¼ in.	6.35	+0.065/+0.155	41	31	139	7	56	56	71	32	11.1	1.5	0.1	009L8620	009L8650 009L8350
	6 mm	6.00													009L8630	009L8660
GBC 10L	⅜ in.	9.52		41	31	139	9	56	56	71	32	11.1	1.5	0.1	009L8621	009L8651 009L8351
	10 mm	10.00													009L8631	009L8661
GBC 12L	½ in.	12.70		41	31	161	10	67	67	82	32	11.1	1.5	0.1	009L8622	009L8652 009L8352
	12 mm	12.00													009L8632	009L8662
GBC 16L	⅝ in.	16.00		48	35	161	12	65	66	81	33	14.0	1.5	0.2	009L8623	009L8653 009L8353
	16 mm															
GBC 18L	¾ in.	19.05		57	39	185	17	74	74	93	40	19.0	1.5	0.3	009L8624	009L8654 009L8354
	18 mm	18.00													009L8635	009L8665
GBC 22L	⅞ in.	22.22	+0.075/+0.185	57	39	185	17	74	74	93	40	19.0	1.5	0.3	009L8625	009L8655 009L8365
	22 mm															
GBC 25L	1 in.	25.40		77	54	208	19	83	82	105	–	25.5	1.5	0.6	009L8680	–
GBC 28L	1 ⅛ in.	28.58		77	54	208	20	83	82	105	47	25.5	1.5	0.6	009L8626	009L8656 009L8366
	28 mm	28.00													009L8633	009L8663

- The thread of access port: 7/16–20UNF
- The thread of schrader valve: 5 V1 DIN7756/DIN7757

GBC L solder ODF/ODM, stainless steel connections

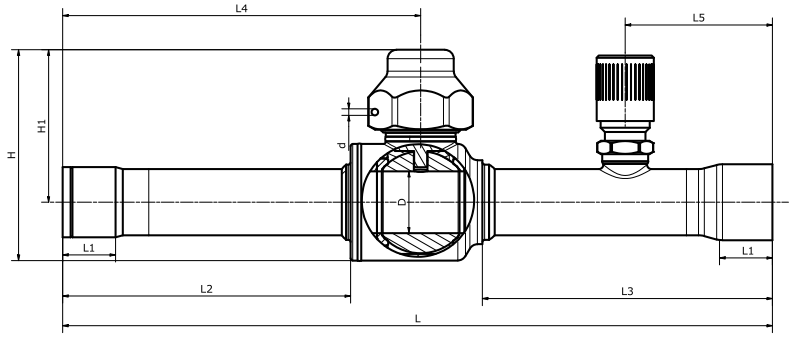


Table: GBC L solder ODF/ODM, stainless steel connections

Type	Size	Connection	Connection tolerance	H [mm]	H1 [mm]	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	L5 [mm]	D [mm]	d [mm]	Weight [kg]	Code no. without access port	Code no. with access port
GBC 16L	⅝ in.	ODF: 16 ODM: 15.88	ODF: +0.065/+0.155 ODM: -0.04/+0.04	48	35	161	12	65	66	81	33	14.0	1.5	0.2	009L8523	009L8553
	16 mm															
GBC 22L	⅞ in.	ODF: 22.22 ODM: 22	ODF: +0.075/+0.185 ODM: -0.08/+0.08	57	39	201	17	90	74	109	–	19.0	1.5	0.3	009L8525	–
	22 mm															
GBC 28L	1 ⅛ in.	28.58	ODF: +0.075/+0.185 ODM: -0.12/+0.12	77	54	228	ODF: 20 ODM: 22	83	102	105	–	25.5	1.5	0.6	009L8526	–
				77	54	208		83	82	105	47	25.5	1.5	0.6	–	009L8356

- The thread of access port: 7/16-20UNF
- The thread of schrader valve: 5 V1 DIN7756/DIN7757

GBC L solder ODM/ODM, stainless steel connections

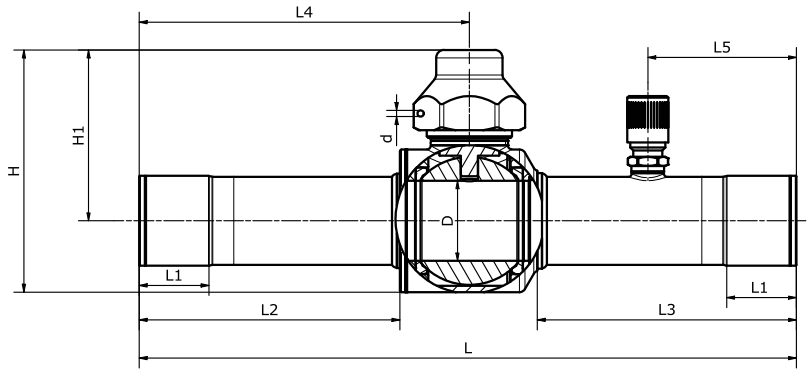


Table: GBC L solder ODM/ODM, stainless steel connections

Type	Size	Connection	Connection tolerance	H	H1	L	L1	L2	L3	L4	L5	D	d	Weight	Code no.	
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]	without access port	with access port
GBC 28L	1 ⅛ in.	28.58	-0.12/+0.05	77	54	208	22	83	82	105	47	25.5	1.5	0.6	–	009L8556

- The thread of access port : 7/16-20UNF
- The thread of schrader valve: 5 V1 DIN7756/DIN7757

GBC/GBC E solder ODF/ODF, copper connections

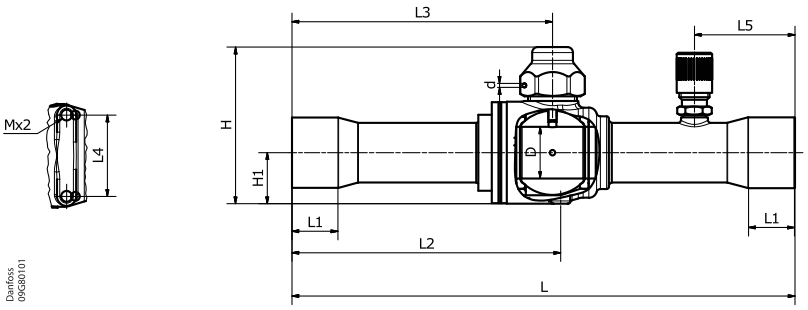


Table: GBC/GBC E solder ODF/ODF, copper connections

Type	Size	Connection	Connection tolerance	H	H1	L	L1	L2	L3	L4	L5	M	D	d	Weight	Code no.	
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]	without access port	with access port
GBC 35s	1 ⅜ in.	35.00	+0.09/+0.23	89	30	251	25	136	130	48	44	M6 × 1.0	32.0	1.5	1.4	009L7027 009L9027	009L7057 009L8067 009L9057
	35 mm																
GBC 42s	1 ⅝ in.	41.28		110	35	281	29	151	145	55	56	M6 × 1.0	38.0	1.5	2.2	009L7028 009L9028 009L9036	009L7058 009L8068 009L9058
	42 mm	42.00														009L7034 009L9034	009L7064 009L9064
GBC 54s	2 ⅛ in.	54.00		131	46	305	34	167	157	74	56	M6 × 1.0	50.0	1.5	4.2	009L7029 009L9029 009L9037	009L7059 009L8059 009L9059
	54 mm	54.00															
GBC 67s	2 ⅝ in.	66.70	+0.1/+0.33	149	55	343	38	188	172	84	72	M6 × 1.0	60.5	1.5	5.8	009L7959 009L9959 009L9961	009L7960 009L8069 009L9960
GBC 79s	3 ⅛ in.	79.38		169	65	416	38	230	214	86	80	M6 × 1.0	73.5	1.5	9.1	009L7980 009L9980 009L9982	009L7981 009L9981
GBC 67s RP	2 ⅝ in.	66.68	+0.09/+0.29	131	46	305	37	167	157	74	56	M6 × 1.0	50.0	1.5	4.4	009L7036	009L7066
GBC 79s RP	3 ⅛ in.	79.38		131	46	305	42	167	157	74	56	M6 × 1.0	50.0	1.5	4.5	009L7037	009L7067

RP: Reduced Port
The thread of access port: 7/16-20UNF
The thread of schrader valve: 5 V1 DIN7756/DIN7757

GBC solder ODF/ODM, copper connections

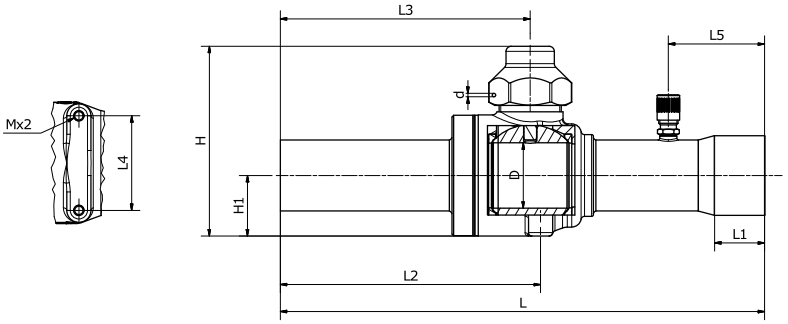


Table: GBC solder ODF/ODM, copper connections

Type	Size	Connection	Connection tolerance	H [mm]	H1 [mm]	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	L5 [mm]	M [mm]	D [mm]	d [mm]	Weight [kg]	Code no.	
																without access port	with access port
GBC 35s	1 ⅜ in.	35.00	ODF: +0.09/+0.23 ODM: -0.15/+0.15	89	30	280	25	136	130	48	–	M6 × 1.0	32.0	1.5	1	009L7002	–
	35 mm																
	1 ⅜ in.			89	30	251	25	136	130	48	44	M6 × 1.0	32.0	1.5	1	–	009L7098
	35 mm																
GBC 42s	1 ⅝ in.	41.28		110	35	295	29	151	145	55	–	M6 × 1.0	38.0	1.5	2.2	009L7003	–
				110	35	281	29	151	145	55	56	M6 × 1.0	38.0	1.5	2.2	–	009L7099
GBC 54s	2 ⅛ in.	54.00	ODF: +0.09/+0.23 ODM: -0.1/+0.1	131	46	305	34	167	157	74	56	M6 × 1.0	50.0	1.5	4	–	009L7069
	54 mm																
GBC 67s	2 ⅝ in	66.70	ODF: +0.1/+0.33 ODM: -0.16/+0.07	149	55	346	38	191	175	84	72	M6 × 1.0	60.5	1.5	5.8	–	009L7958
GBC 79s	3 ⅛ in.	79.38		168	65	406	38	220	204	86	80	M6 × 1.0	73.5	1.5	9.1	009L7969	009L7970

The thread of access port: 7/16-20UNF
The thread of schrader valve: 5 V1 DIN7756/DIN7757

GBC solder ODM/ODM, copper connections

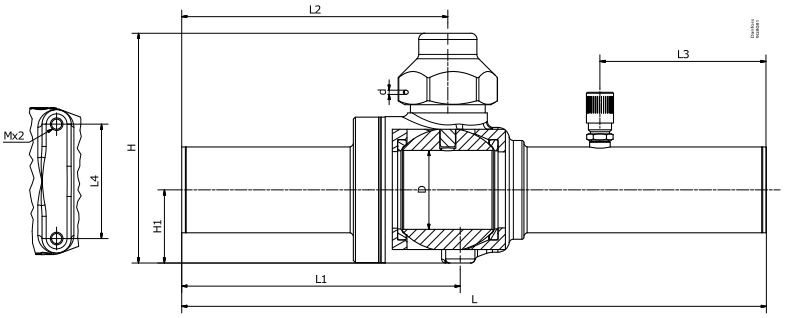


Table: GBC solder ODM/ODM, copper connections

Type	Size	Connection	Connection tolerance	H	H1	L	L1	L2	L3	L4	M	D	d	Weight	Code no.	
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]	without access port	with access port
GBC 42s	1 ⅝	41.28	-0.15/+0.06	110	35	281	134	128	80	55	M6x1.0	38.0	1.5	2.4	–	009L7101
GBC 54s	2 ⅛	54.00		131	46	305	151	141	81	74	M6x1.0	50.0	1.5	4.3	–	009L7102
GBC 67s	2 ⅝	66.70	-0.16/+0.07	149	55	305	153	137	78	84	M6x1.0	60.5	1.5	5.6	–	009L7103
GBC 79s	3 ⅛	79.38		168	65	410	220	204	106	86	M6x1.0	73.5	1.5	9.0	–	009L7104

The thread of access port: 7/16-20UNF
The thread of schrader valve: 5 V1 DIN7756/DIN7757

GBC/GBC E/GBC L code numbers described in this data sheet are standard code numbers, i.e. made to stock. Besides code numbers made to stock GBC/GBC E/GBC L is also made to order.

Make to order options include:

- Mechanical connection type
- Mechanical connection size
- Access port size

Multipack contains several items, individually packed, so that customers can purchase 1 item and receive all relevant documentation.

GBC L solder ODF/ODF, Stainless steel connections

Figure: GBC L without access port, solder ODF/ODF



Figure: GBC L with access port, solder ODF/ODF



Table: GBC L solder ODF/ODF, Stainless steel connections

Type	Code no.		Connection		K_v (1)	C_v (1)	Multi pack	Industrial pack	PED category		Max. working pressure: PS/MWP	Media temperature range
	without access port	with access port	[in.]	[mm]	[m^3/h]	[gal/min]	Qty/ pack	Qty/ pack	Fluid Group 1 (2)	Fluid Group 2 (3)		
GBC 6L	009L8620	009L8650	¼	–	1.83	2.12	30	–	Art. 4.3	Art. 4.3	50 bar / 725 psig	-40 – 150 °C / -40 – 302 °F
	009L8630	009L8660	–	6	1.83	2.12	30	–				
GBC 10L	009L8621	009L8651	⅜	–	8.04	9.29	30	–				
	009L8421	–	⅜	–	8.04	9.29	–	20				
	009L8631	009L8661	–	10	8.04	9.29	30	–				
GBC 12L	009L8622	009L8652	½	–	13.17	15.22	30	–				
	009L8632	009L8662	–	12	13.17	15.22	30	–				
GBC 16L	009L8623	009L8653	⅝	16	15.66	18.10	25	–				
	009L8423	–	⅝	16	15.66	18.10	–	20				
GBC 18L	009L8624	009L8654	¾	–	21.93	25.35	25	–				
	009L8635	009L8665	–	18	21.93	25.35	25	–				
GBC 22L	009L8625	009L8655	⅞	22	33.34	38.54	25	–				
GBC 25L	009L8680	–	1	–	62.25	71.96	5	–				
GBC 28L	009L8626	009L8656	1 - ⅛	–	62.25	71.96	5	–				
	009L8633	009L8663	–	28	62.25	71.96	5	–				

(1) Calculated based on fluid dynamic equations.

(2) Fluid group 1 (flammable or toxic refrigerants)

(3) Fluid group 2 (non-toxic and non-flammable refrigerants)

GBC L solder ODF/ODF with cap strap, Stainless steel connections



Table: GBC L solder ODF/ODF with cap strap, Stainless steel connections

Type	Code no.		Connection		K_v (1)	C_v (1)	Multi pack	PED category		Max. working pressure: PS/MWP	Media temperature range
	without access port	with access port	[in.]	[mm]	[m^3/h]	[gal/min]	Qty/ pack	Fluid Group 1 (2)	Fluid Group 2 (3)		
GBC 6L	–	009L8350	¼	–	1.83	2.12	30	Art. 4.3	Art. 4.3	50 bar / 725 psig	-40 – 150 °C / -40 – 302 °F
GBC 10L	–	009L8351	⅜	–	8.04	9.29	30				
GBC 12L	–	009L8352	½	–	13.17	15.22	30				
GBC 16L	–	009L8353	⅝	16	15.66	18.10	25				
GBC 18L	–	009L8354	¾	–	21.93	25.35	25				
GBC 22L	–	009L8365	⅞	22	33.34	38.54	25				
GBC 28L	–	009L8366	1 - ⅛	–	62.25	71.96	5				

(1) Calculated based on fluid dynamic equations.

(2) Fluid group 1 (flammable or toxic refrigerants)

(3) Fluid group 2 (non-toxic and non-flammable refrigerants)

GBC L solder ODF/ODM, Stainless steel connections

Figure: GBC L without access port, solder ODF/ODM



Figure: GBC L with access port, solder ODF/ODM



Table: GBC L solder ODF/ODM, Stainless steel connections

Type	Code no.		Connection		K_v (1)	C_v	Multi pack	PED category		Max. working pressure: PS/MWP	Media temperature range
	without access port	with access port	[in.]	[mm]	[m^3/h]	[gal/min]	Qty/ pack	Fluid Group 1 (2)	Fluid Group 2 (3)		
GBC 16L	009L8523	009L8553	⅝	16	15.66	18.10	25	Art. 4.3	Art. 4.3	50 bar / 725 psig	-40 – 150 °C / -40 – 302 °F
GBC 22L	009L8525	–	⅞	22	33.34	38.54	5				
GBC 28L	009L8526	009L8356	1 - ⅛	–	62.25	71.96	5				

(1) Calculated based on fluid dynamic equations.

(2) Fluid group 1 (flammable or toxic refrigerants)

(3) Fluid group 2 (non-toxic and non-flammable refrigerants)

GBC L solder ODM/ODM, Stainless steel connections



Table: GBC L solder ODM/ODM, Stainless steel connections

Type	Code no.		Connection		K_v (1)	C_v (1)	Multi pack	PED category		Max. working pressure: PS/MWP	Media temperature range
	without access port	with access port	[in.]	[mm]	[m^3/h]	[gal/min]	Qty/ pack	Fluid Group 1 (2)	Fluid Group 2 (3)		
GBC 28L	–	009L8556	1 - ⅛	–	62.25	71.96	5	Art. 4.3	Art. 4.3	50 bar / 725 psig	-40 – 150 °C / -40 – 302 °F

(1) Calculated based on fluid dynamic equations.

(2) Fluid group 1 (flammable or toxic refrigerants)

(3) Fluid group 2 (non-toxic and non-flammable refrigerants)

GBC solder ODF/ODF, copper connections

Figure: GBC without access port, solder ODF/ODF



Figure: GBC with access port, solder ODF/ODF

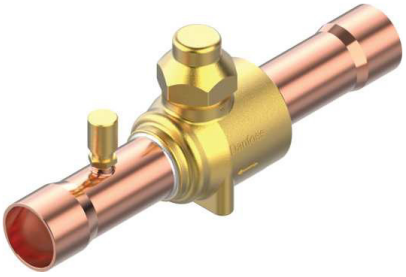


Table: GBC solder ODF/ODF, copper connections

Type	Code no.		Connection		K_v (1)	C_v (1)	Multi pack	PED category		Max. working pressure: PS/MWP	Media temperature range
	without access port	with access port	[in.]	[mm]	[m^3/h]	[gal/min]	Qty/ pack	Fluid Group 1 (2)	Fluid Group 2 (3)		
GBC 35s	009L7027	009L7057	1 ⅜	35	92.76	107.23	5	–	Art. 4.3	45 bar / 650 psig	-40 – 100 °C / -40 – 212 °F
GBC 42s	009L7028	009L7058	1 ⅝	–	134.76	155.78	4		Cat. I		
	009L7034	009L7064	–	42	134.76	155.78	4				
GBC 54s	009L7029	009L7059	2 ⅛	54	240.11	277.57	2				
GBC 67s	009L7959	009L7960	2 ⅝	–	367.38	424.69	1				
GBC 67s RP	009L7036	009L7066	2 ⅝	–	203.12	234.81	2				
GBC 79s	009L7980	009L7981	3 ⅛	–	528.87	611.37	1				
GBC 79s RP	009L7037	009L7067	3 ⅛	–	171.89	198.70	2				

(1) Calculated based on fluid dynamic equations.

(2) Fluid group 1 (flammable or toxic refrigerants)

(3) Fluid group 2 (non-toxic and non-flammable refrigerants)

GBC solder ODF/ODM, copper connections

Figure: GBC without access port, solder ODF/ODM

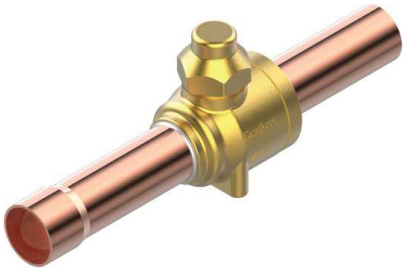


Figure: GBC with access port, solder ODF/ODM

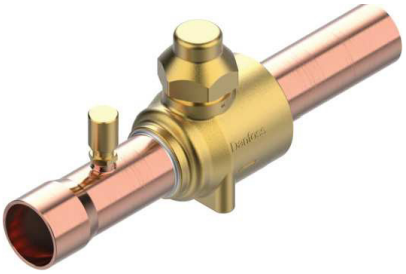


Table: GBC solder ODF/ODM, copper connections

Type	Code no.		Connection		K_v (1)	C_v (1)	Multi pack	PED category		Max. working pressure: PS/MWP	Media temperature range
	without access port	with access port	[in.]	[mm]	[m^3/h]	[gal/min]	Qty/ pack	Fluid Group 1 (2)	Fluid Group 2 (3)		
GBC 35s	009L7002	009L7098	1 ⅜	35	92.76	107.23	7002: 4 7098: 5	–	Art. 4.3	45 bar / 650 psig	-40 – 100 °C / -40 – 212 °F
GBC 42s	009L7003	009L7099	1 ⅝	–	134.76	155.78	4		Cat. I		
GBC 54s	–	009L7069	2 ⅛	54	240.11	277.57	2				
GBC 67s	–	009L7958	2 ⅝	–	367.38	424.69	1				
GBC 79s	009L7969	009L7970	3 ⅛	–	528.87	611.37	1				

(1) Calculated based on fluid dynamic equations.

(2) Fluid group 1 (flammable or toxic refrigerants)

(3) Fluid group 2 (non-toxic and non-flammable refrigerants)

GBC solder ODF/ODF with cap strap, copper connections

Figure: GBC solder ODF/ODF with cap strap, copper connections



Table: GBC solder ODF/ODF with cap strap, copper connections

Type	Code no.		Connection		K_v (1)	C_v (1)	Multi pack	PED category		Max. working pressure: PS/MWP	Media temperature range
	without access port	with access port	[in.]	[mm]	[m^3/h]	[gal/min]	Qty/ pack	Fluid Group 1 (2)	Fluid Group 2 (3)		
GBC 35s	–	009L8067	1 ⅜	35	92.76	107.23	5	–	Art. 4.3	45 bar / 650 psig	-40 – 100 °C / -40 – 212 °F
GBC 42s	–	009L8068	1 ⅝	–	134.76	155.78	4		Cat. I		
GBC 54s	–	009L8059	2 ⅛	54	240.11	277.57	2				
GBC 67s	–	009L8069	2 ⅝	–	367.38	424.69	1				

(1) Calculated based on fluid dynamic equations.

(2) Fluid group 1 (flammable or toxic refrigerants)

(3) Fluid group 2 (non-toxic and non-flammable refrigerants)

GBC solder ODM/ODM, copper connections

Figure: GBC with access port,solder ODM/ODM

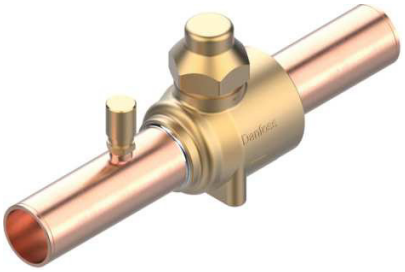


Table: GBC solder ODM/ODM, copper connections

Type	Code no.		Connection		K_v (1)	C_v (1)	Multi pack	PED category		Max. working pressure: PS/MWP	Media temperature range
	without access port	with access port	[in.]	[mm]	[m^3/h]	[gal/min]	Qty/ pack	Fluid Group 1 (2)	Fluid Group 2 (3)		
GBC 42s	–	009L7101	1 ⅜	–	134.76	155.78	4	–	Cat. I	45 bar / 650 psig	-40 – 100 °C / -40 – 212 °F
GBC 54s	–	009L7102	2 ⅛	54	240.11	277.57	2				
GBC 67s	–	009L7103	2 ⅝	–	367.38	424.69	1				
GBC 79s	–	009L7104	3 ⅛	–	528.87	611.37	1				

(1) Calculated based on fluid dynamic equations.

(2) Fluid group 1 (flammable or toxic refrigerants)

(3) Fluid group 2 (non-toxic and non-flammable refrigerants)

GBC E solder ODF/ODF, copper connections

Figure: GBC E without access port, solder ODF/ODF

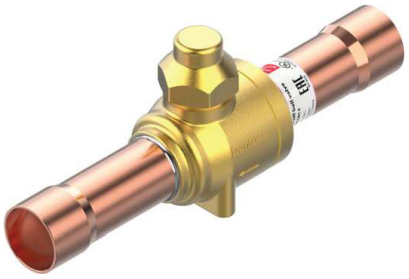


Figure: GBC E with access port, solder ODF/ODF

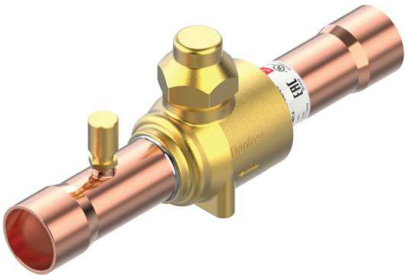


Table: GBC E solder ODF/ODF, copper connections

Type	Code no.		Connection		K_v (1)	C_v (1)	Multi pack	PED category		Max. working pressure: PS/MWP	Media temperature range
	without access port	with access port	[in.]	[mm]	[m^3/h]	[gal/min]	Qty/ pack	Fluid Group 1 (2)	Fluid Group 2 (3)		
GBC 35s E	009L9027	009L9057	1 ⅜	35	92.76	107.23	5	Cat. II	Art. 4.3	49 bar / 710 psig	-40 – 150 °C / -40 – 302 °F
GBC 42s E	009L9028	009L9058	1 ⅝	–	134.76	155.78	4		Cat. I		
	009L9034	009L9064	–	42	134.76	155.78	4				
GBC 54s E	009L9029	009L9059	2 ⅛	54	240.11	277.57	2				
GBC 67s E	009L9959	009L9960	2 ⅝	–	367.38	424.69	1				
GBC 79s E	009L9980	009L9981	3 ⅛	–	528.87	611.37	1				

(1) Calculated based on fluid dynamic equations.

(2) Fluid group 1 (flammable or toxic refrigerants)

(3) Fluid group 2 (non-toxic and non-flammable refrigerants)

NOTE:
For Flammable refrigerants, GBC 35s E~79s E are PED approved with category II

GBC E solder ODF/ODF, with lock ring, copper connections

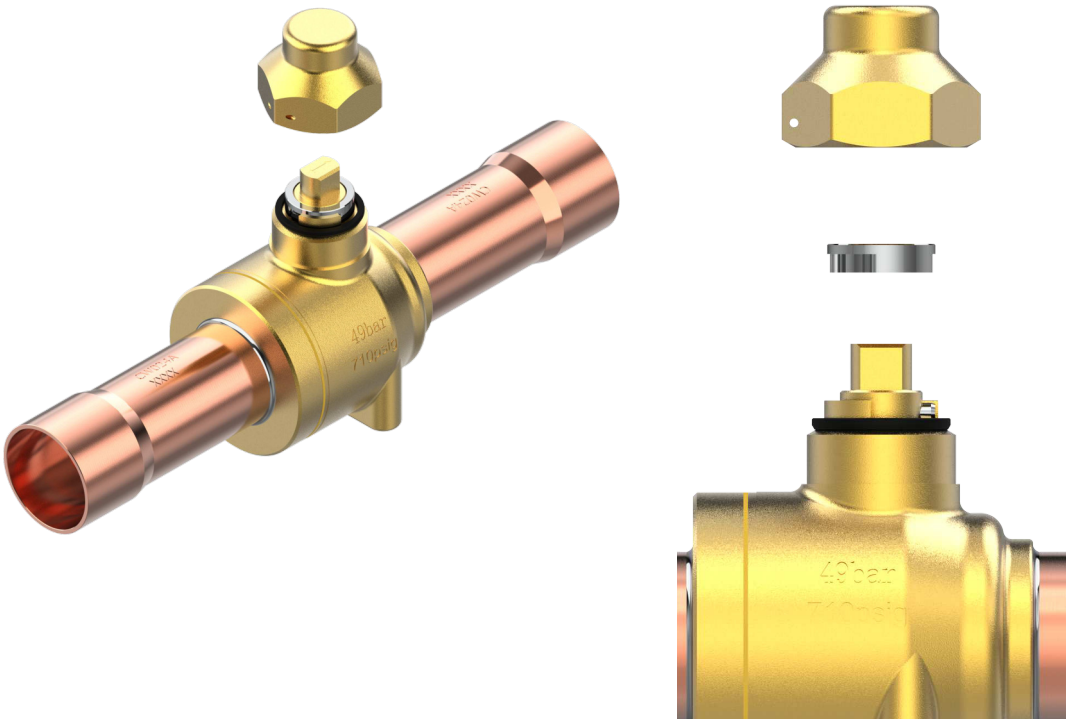


Table: GBC E solder ODF/ODF, with lock ring, copper connections

Type	Code no.		Connection		K_v (1)	C_v (1)	Multi pack	PED category		Max. working pressure: PS/MWP	Media temperature range
	without access port	with access port	[in.]	[mm]	[m^3/h]	[gal/min]	Qty/ pack	Fluid Group 1 (2)	Fluid Group 2 (3)		
GBC 10s E	009L9018	–	⅜	–	8.04	9.29	25	Art. 4.3	Art. 4.3	49 bar / 710 psig	-40 – 150 °C / -40 – 302 °F
GBC 12s E	009L9019	–	½	–	13.17	15.22	25				
GBC 42s E	009L9036	–	1 ⅝	–	134.76	155.78	4	Cat. II	Cat. I		
GBC 54s E	009L9037	–	2 ⅛	54	240.11	277.57	2				
GBC 67s E	009L9961	–	2 ⅝	–	367.38	424.69	1				
GBC 79s E	009L9982	–	3 ⅛	–	528.87	611.37	1				

(1) Calculated based on fluid dynamic equations.

(2) Fluid group 1 (flammable or toxic refrigerants)

(3) Fluid group 2 (non-toxic and non-flammable refrigerants)

Spare parts code numbers

Figure: Seal cap kit



Table: Seal cap kit

Type	Valve connection size		Industrial pack [pcs]	Code no. for 009Gxxxx series	Code no. for 009Lxxxx 45 bar series	Code no. for 009Lxxxx 49 bar series
	[in.]	[mm]				
GBC 6s – GBC 12s	¼ – ½	6 – 12	6	009G7210	009L7209	009L7210
GBC 16s – GBC 22s	⅝ – ⅞	16 – 22	6		009L7210	
GBC 28s – GBC 35s	1 ⅛ – 1 ⅜	28 – 35	4	009G7211	–	
			3	–	009L7211	
GBC 42s – GBC 79s	1 ⅝ – 3 ⅛	42 – 79	4	009G7212	–	
			3	–	009L7212	

NOTE:
Seal cap kit can be used for GBC, GBC E, GBC L.

Figure: Bracket kit



Table: Bracket kit

Type	Valve connection size		Industrial pack [pcs]	Code no. for 009Gxxxx series	Code no. for 009Lxxxx 45 bar series	Code no. for 009Lxxxx 49 bar series
	[in.]	[mm]				
GBC 6s – GBC 12s	¼ – ½	6 – 12	12	009G7084	009G7089	009G7084
GBC 16s	⅝	16	12		009G7084	
GBC 18s – GBC 22s	¾ – ⅞	18 – 22	12	009G7085		
GBC 28s	1 ⅛	28	10	009G7086		
GBC 35s	1 ⅜	35	5	009G7087		
GBC 42s	1 ⅝	42	4	009G7088		

NOTE:
Bracket kit can be only used for GBC and GBC E. It's not available for GBC L.

Figure: Schrader valve



Table: Schrader valve

Type	Industrial pack [pcs]	Code no.
GBC, GBC E, GBC L	10	009L7213

Figure: Lock ring kit

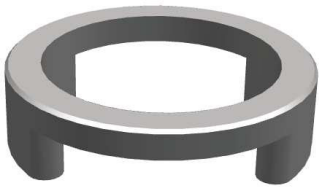


Table: Lock ring kit

Type	Valve connection size		Industrial pack [pcs]	Code no.
	[in.]	[mm]		
GBC L	¼ – ⅞	6 – 22	10	009L7017
GBC, GBC E	1 ⅝ – 3 ⅛	42 – 79	10	009L7018

Media

Refrigerants

Table: Refrigerants

Valve type	Refrigerants	Approval	Max. working pressure (PS/ MWP)	Media temperature range
GBC 6L – 28L	R134a, R407C, R290, R32, R404A/R507, R407A, R407F, R407H, R410A, R448A, R449A, R449B, R450A, R452A, R452B, R454A, R454B, R454C, R455A, R463A, R513A, R515B, R516A, R1233zd(E), R1234ze(E), R1234yf	PED, UL 207, UA	50 bar / 725 psig	-40 – 150 °C / -40 – 302 °F
GBC 35s – 79s	R134a, R22/R407C, R404A/ R507, R407A, R407F, R407H, R410A, R448A, R449A, R449B, R450A, R452A, R463A, R513A, R515B, R1234ze(E)	PED, UL 207, EAC, UA, CRN	45 bar / 650 psig	-40 – 100 °C / -40 – 212 °F
GBC 35s – 42s	R290, R32, R452B, R454A, R454B, R454C, R455A, R516A, R600, R600a, R1270, R1234yf	UL 207, EAC, UA, CRN (Not PED approved)		
GBC 54s – 79s	R32, R452B, R454A, R454B, R454C, R455A, R516A, R1234yf			
GBC 35s E – 42s E	R134a, R407C, R290, R32, R404A/R507, R407A, R407F, R407H, R410A, R448A, R449A, R449B, R450A, R452A, R452B, R454A, R454B, R454C, R455A, R463A, R513A, R515B, R516A, R1233zd(E), R1234ze(E), R1234yf	PED, UL 207, EAC, UA	49 bar / 710 psig	-40 – 150 °C / -40 – 302 °F
GBC 54s E – 79s E	R134a, R407C, R32, R404A/ R507, R407A, R407F, R407H, R410A, R448A, R449A, R449B, R450A, R452A, R452B, R454A, R454B, R454C, R455A, R463A, R513A, R515B, R516A, R1233zd(E), R1234ze(E), R1234yf			

NOTE:

- For GBC 42s/GBC 42s E, only the version of without access port can be used for R290.
- GBC 42s: only the version without access port can be used with R600/R600a and R1270
- GBC 35s to 79s for flammable refrigerants are not PED approved.

Table: Refrigerant oil

Valve type	Refrigerant oil
GBC	POE, PVE, PAG, PAO; Mineral oils
GBC E, GBC L	POE, PVE, PAG (Not compatible for Mineral oil and PAO)

NOTE:

1. For a complete list of approved refrigerants, visit http://store.danfoss.com/ and search for individual code numbers, where refrigerants are listed as part of product details.
2. This product is approved for R290, R32, R452B, R454A, R454B, R454C, R455A, R516A, R1234ze(E), R1234yf by ignition source assessment in accordance to standard EN ISO 80079–36.
3. For oil–free applications, the GBC maximum media temperature is 80 °C / 176 °F, the GBC E and GBC L maximum media temperature is 150 °C / 302 °F

Product details

General data

Table: Technical data

Technical data	GBC	GBC E	GBC L
Max. working pressure	45 bar / 650 psig	49 bar / 710 psig	50 bar / 725 psig
Media temperature range	-40 – 100 °C / -40 – 212 °F	-40 – 150 °C / -40 – 302 °F	-40 – 150 °C / -40 – 302 °F
Environmental transport/storage temperature and humidity	-40 – 65 °C / -40 – 150 °F Air humidity: RH≤95%		
Flow direction	Bi flow		

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: Box label



Figure: Product label



Table: Product and label text

Position	Inscription	Explanation
Box label; Product label	Shut-off ball valve	Product name
Box label; Product label	GBC 16L	Product type
Box label; Product label	009L8653	Code number for ordering
Box label	Straightway	Direction
Box label	5/8 in–16 mm ODF	Connection size and type
Box label; Product label	PS 50 bar / 725 psig	Max. working pressure in bar and psig
Box label; Product label	BE4423B	Code for production place and time (BE = Wuqing, week 44, year 2023, weekday B = Tuesday)
Product label	TS -40 / +150 °C -40 / +302 °F	Media temperature range
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
Box label; Product label	Additional information: Relevant approval authority logos	

Design

Design and materials

The GBC valves can be installed in liquid, suction and hot gas lines in refrigeration and air conditioning systems. The design of the ball valves guarantees the pressure balance with the valve closed, it allows two directions fluid flow and prevents the danger of explosion and rejection of the operating spindle.

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.

Table: Design and materials

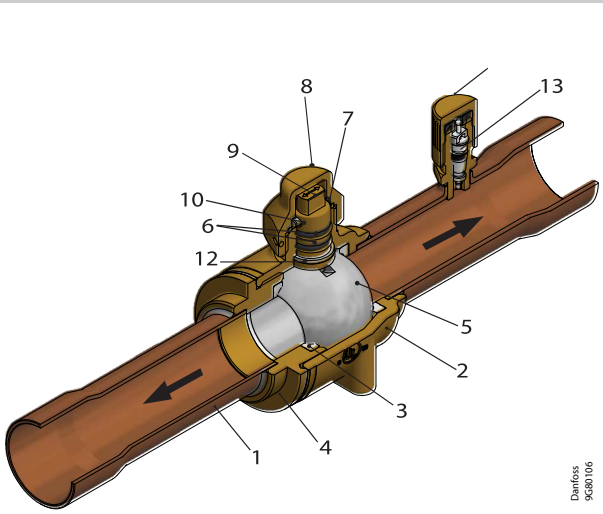
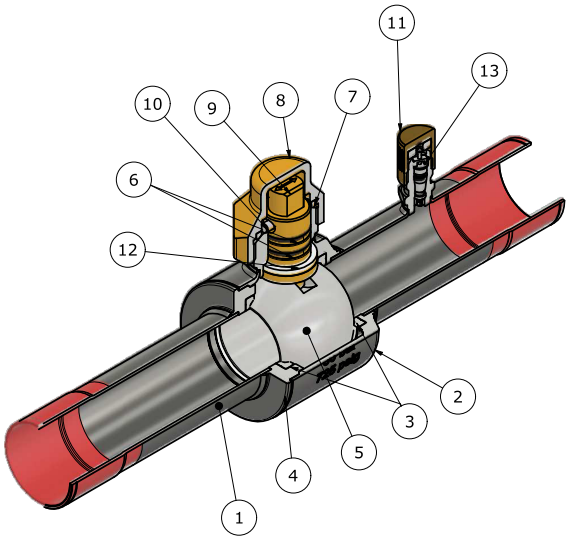
GBC and GBC E with copper tube	GBC L with stainless steel tube
	

Table: Design and materials

Position	Description	Material
1	Connection tube	GBC/GBC E: copper GBC L: stainless steel
2	Valve body	GBC/GBC E: brass GBC L: stainless steel
3	Ball seat	PTFE
4	Valve tail	GBC/GBC E: brass GBC L: stainless steel
5	Ball	Stainless steel
6	Double O–ring seal in spindle	GBC: CR rubber GBC E/GBC L: EPDM
7	Cap seal	PTFE
8	Seal cap	Brass
9	Spindle	Brass
10	Pin	Stainless steel
11	Access port cap	Brass
12	Guide ring	PTFE
13	Schrader valve	Stainless steel

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.
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.

Connections

Standard GBC, GBC E, GBC L versions can be provided with straightway, connection types solder ODF/ODF or ODF/ODM or ODM/ODM in a wide variety of connection sizes. Solder versions are with extended ends copper and stainless steel connections.
For details on availability, see Ordering.

Connection diagrams

Table: Connection diagrams

Type	Inlet	Outlet	mm connections	Inch connections
GBC L (50 bar)	Solder ODF	Solder ODF	6 mm x 6 mm	¼ in. x ¼ in.
			10 mm x 10 mm	⅜ in. x ⅜ in.
			12 mm x 12 mm	½ in. x ½ in.
			16 mm x 16 mm	⅝ in. x ⅝ in.
			18 mm x 18 mm	¾ in. x ¾ in.
			22 mm x 22 mm	⅞ in. x ⅞ in.
			28 mm x 28 mm	1 in. x 1 in.
			–	1 ⅛ in. x 1 ⅛ in.
	Solder ODF	Solder ODM	16 mm x 16 mm	⅝ in. x ⅝ in.
			22 mm x 22 mm	⅞ in. x ⅞ in.
			–	1 ⅛ in. x 1 ⅛ in.
	Solder ODM	Solder ODM	–	1 ⅛ in. x 1 ⅛ in.
GBC (45 bar)	Solder ODF	Solder ODF	35 mm x 35 mm	1 ⅜ in. x 1 ⅜ in.
			42 mm x 42 mm	1 ⅝ in. x 1 ⅝ in.
			54 mm x 54 mm	2 ⅛ in. x 2 ⅛ in.
			–	2 ⅝ in. x 2 ⅝ in.
			–	3 ⅛ in. x 3 ⅛ in.
	Solder ODF	Solder ODM	35 mm x 35 mm	1 ⅜ in. x 1 ⅜ in.
			54 mm x 54 mm	1 ⅝ in. x 1 ⅝ in.
			–	2 ⅛ in. x 2 ⅛ in.
			–	2 ⅝ in. x 2 ⅝ in.
			–	3 ⅛ in. x 3 ⅛ in.
	Solder ODM	Solder ODM	54 mm x 54 mm	1 ⅝ in. x 1 ⅝ in.
				2 ⅛ in. x 2 ⅛ in.
				2 ⅝ in. x 2 ⅝ in.
				3 ⅛ in. x 3 ⅛ in.
GBC E (49 bar)	Solder ODF	Solder ODF	35 mm x 35 mm	1 ⅜ in. x 1 ⅜ in.
			42 mm x 42 mm	1 ⅝ in. x 1 ⅝ in.
			54 mm x 54 mm	2 ⅛ in. x 2 ⅛ in.
			–	2 ⅝ in. x 2 ⅝ in.
			–	3 ⅛ in. x 3 ⅛ in.

Certificates, declarations and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Issuer	Approval topic
UK Declaration	Danfoss UK 033F4025.AA	Danfoss	Pressure
Pressure Safety Certificate	LLC CDC EURO-TYSK UA.TR.089.1015.04-22	LLC CDC EURO TYSK - Ukraine	PED, Pressure
Pressure Safety Certificate	TSSA CRN 0C24058.5267890TNY	TSSA - Technical Standards & Safety Authority	Pressure
UA Declaration	Danfoss UA 2023-01-10 Ball Valves PL01	Danfoss	PED, Pressure
Manufacturer's Declaration	Danfoss MD 033F4010	Danfoss	EU RoHS
Manufacturer's Declaration	Danfoss MD 033F4017.AF	Danfoss	
Manufacturer's Declaration	Danfoss MD 033F4006 AC	Danfoss	China RoHS
Export Control Declaration	Check valve, Shut-off diaphragm valve, shut-off ball valve and differential pressure valve	Danfoss	
Pressure Safety Certificate	Certificate B (UA.TR.131.B.2657-26) Shut-off and regulating valves	Academtest LLC	Pressure
Pressure Safety Certificate	4) Certificate D (UA.TR.131.1046-26) Shut-off and regulating valves	Academtest LLC	Pressure
EU Declaration	Danfoss EU-UK 033F4002.AN	Danfoss	PED, Pressure
Manufacturer's Declaration	Danfoss MD 033F4001.AM	Danfoss	EU RoHS, PED, Pressure
EU Declaration	EU DOC PL01 Packaging	Danfoss	Packaging
Export Control Declaration	Shut Off ball valve type GBC - Stainless Steel	Danfoss	

Contact details

Online support

Danfoss offers a wide range of support along with our products, including digital information, software, mobile apps and expert guidance. See the possibilities below.

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