

Data sheet

Shut-off ball valve

Type GBC



Danfoss shut-off ball valves, type GBC, are manually operated shut-off valves suitable for bi-directional flow.

The GBC valves are used in liquid, suction and hotgas 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.

Features

- Broad temperature range equally applicable to freezing, refrigeration and air conditioning applications.
- ¼ turn from fully open to fully closed.
- Full flow with minimum pressure drop.
- Ball status indicator on spindle top indicating open or closed position.
- Bi-directional flow, i.e. valve orientation is unimportant.
- Rotation stops at fully open and fully closed positions ensures precise positioning.
- One-piece seal cap for safety purpose Complies with European Safety Directive EN 378 (Safety and environmental requirements).
- Laser welded construction.
- Burst-proof spindle design prevents any risk of ejection or explosion of the spindle.
- Holes for panel mounting.
- Selected Teflon and O-ring material to secure the best tightness and long lifetime.
- Versions with access port helps in reducing cost if service of the system is necessary.

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Approvals



Technical data

- Refrigerants: R22, R134a, R407C, R507, R404A and R410A
- GBC 6s-25s can be used with R32
- For other refrigerants, please contact Danfoss

Type	Media temperature range	Max. working pressure (PS/MWP)
GBC 6 – 42s	-40 – 150 °C / -40 – 300 °F	45 bar / 650 psig
GBC 54 – 79s	-40 – 121 °C / -40 – 250 °F	45 bar / 650 psig

Ordering



GBC without access port,
ODF/ODF

GBC without access port, ODF/ODF

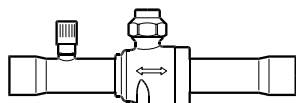
Type	Solder ODF/ODF connection		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Code no.
	[in.]	[mm]			
GBC 6s	1/4	-	1.74	2.01	009G7020
	-	6	1.74	2.01	009G7030
GBC 10s	3/8	-	7.52	8.69	009G7021
	-	10	7.52	8.69	009G7031
GBC 12s	1/2	-	12.9	14.9	009G7022
	-	12	12.9	14.9	009G7032
GBC 16s	5/8	16	15.7	18.1	009G7023
GBC 18s	3/4	-	21.9	25.4	009G7024
	-	18	21.9	25.4	009G7035
GBC 22s	7/8	22	33.3	38.5	009G7025
GBC 28s	1 1/8	-	62.3	71.9	009G7026
	-	28	62.3	71.9	009G7033
GBC 35s	1 3/8	-	92.8	107	009G7027
	1 5/8	-	135	156	009G7028
GBC 42s	-	42	135	156	009G7034
	2 1/8	54	240	278	009G7029
GBC 67s	2 5/8	-	367	425	009G7959
GBC 67s RP	2 5/8	-	203	235	009G7036
GBC 79s	3 1/8	-	529	611	009G7980
GBC 79s RP	3 1/8	-	172	199	009G7037

¹⁾ Calculated based on fluid dynamic equations
RP = Reduced Port

The product can be supplied with and without access port both in mm and inch from 1/4 inch to 3 1/8 inch and 6mm to 54 mm. All valves have holes for panel mounting.

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Ordering



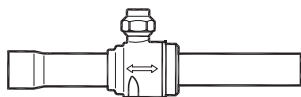
GBC with access port,
ODF/ODF

GBC with access port, ODF/ODF

Type	Solder ODF/ODF connection		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Code no.
	[in.]	[mm]			
GBC 6s	1/4	-	1.74	2.01	009G7050
	-	6	1.74	2.01	009G7060
GBC 10s	3/8	-	7.52	8.69	009G7051
	-	10	7.52	8.69	009G7061
GBC 12s	1/2	-	12.9	14.9	009G7052
	-	12	12.9	14.9	009G7062
GBC 16s	5/8	16	15.7	18.1	009G7053
GBC 18s	3/4	-	21.9	25.4	009G7054
	-	18	21.9	25.4	009G7065
GBC 22s	7/8	22	33.3	38.5	009G7055
GBC 28s	1 1/8	-	62.3	71.9	009G7056
	-	28	62.3	71.9	009G7063
GBC 35s	1 3/8	35	92.8	107	009G7057
GBC 42s	1 5/8	-	135	156	009G7058
	-	42	135	156	009G7064
GBC 54s	2 1/8	54	240	278	009G7059
GBC 67s	2 5/8	-	367	425	009G7960
GBC 67s RP	2 5/8	-	203	235	009G7066
GBC 79s	3 1/8	-	529	611	009G7981
GBC 79s RP	3 1/8	-	172	199	009G7067

¹⁾ Calculated based on fluid dynamic equations

RP = Reduced Port

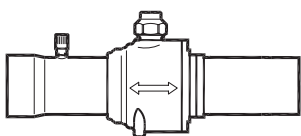


GBC without access port,
ODF/ODM

GBC without access port, ODF/ODM

Type	Solder ODF/ODM connection		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Code no.
	[in.]	[mm]			
GBC 22s	7/8	22	33.3	38.5	009G7000
GBC 28s	1 1/8	-	62.3	71.9	009G7001
GBC 35s	1 3/8	35	93	107	009G7002
GBC 42s	1 5/8	-	135	156	009G7003
GBC 79s	3 1/8	-	529	611	009G7969

¹⁾ Calculated based on fluid dynamic equations



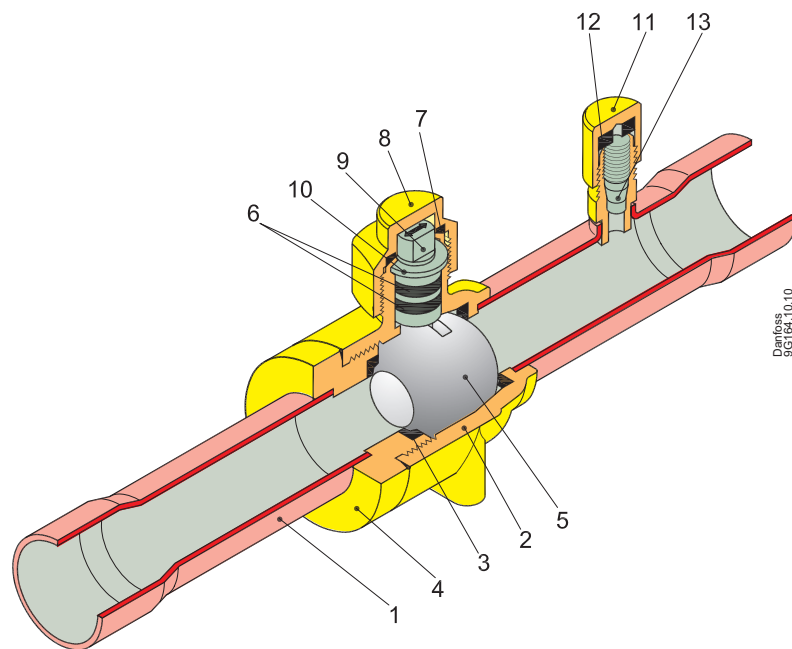
GBC with access port,
ODF/ODM

GBC with access port, ODF/ODM

Type	Solder ODF/ODM connection		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Code no.
	[in.]	[mm]			
GBC 28s	1 1/8	-	62.3	71.9	009G7097
GBC 35s	1 3/8	35	92.8	107	009G7098
GBC 42s	1 5/8	-	135	156	009G7099
GBC 54s	2 1/8	54	240	278	009G7069
GBC 67s	2 5/8	-	367	425	009G7958
GBC 79s	3 1/8	-	529	611	009G7970

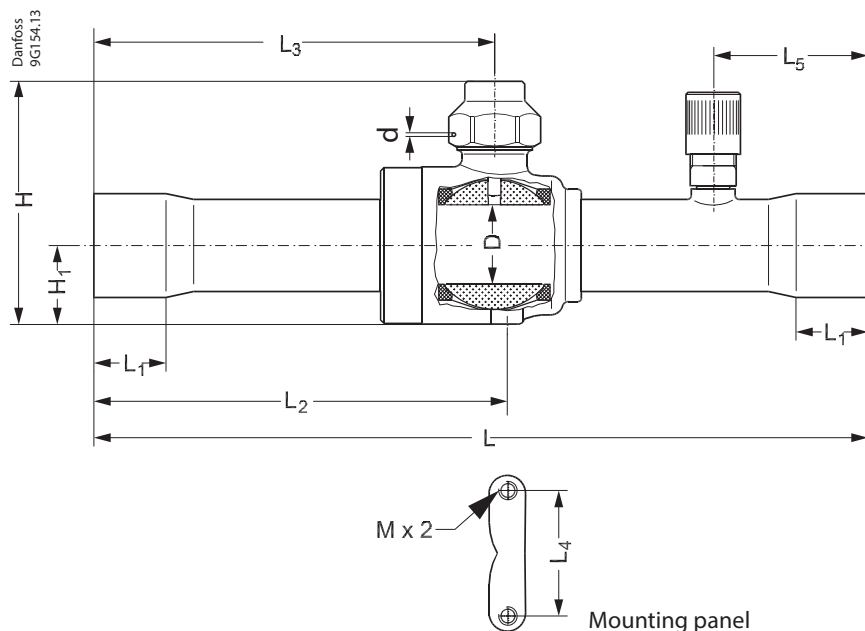
¹⁾ Calculated based on fluid dynamic equations

Function



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

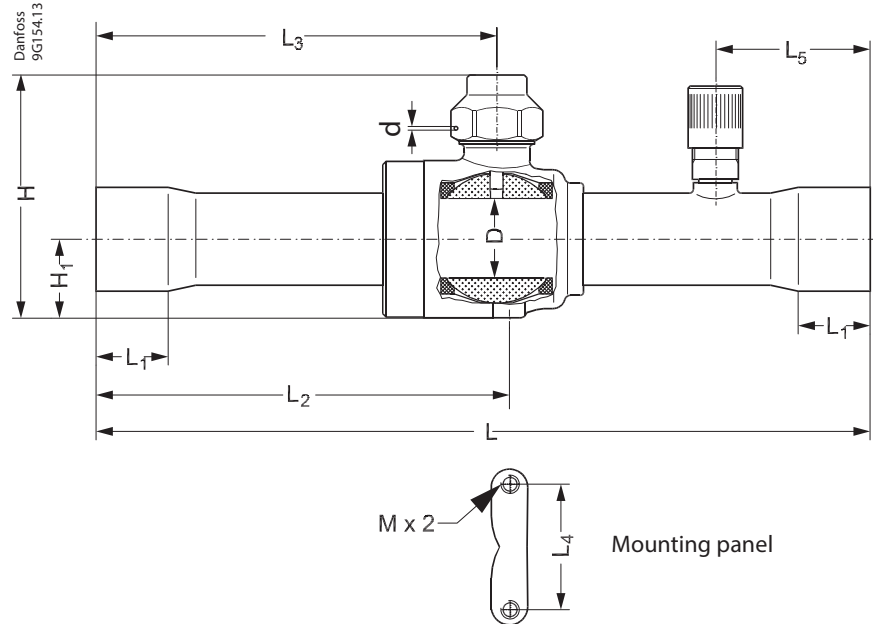
1. Connection
2. Laser welded valve body
3. Ball seat (modified PTFE)
4. Valve adapter
5. Stainless steel ball
6. Double spindle O-ring seal (chloroprene)
7. Cap seal (PTFE)
8. Seal cap
9. Spindle
10. Support gasket
11. Access port cap
12. Seal gasket
13. Schrader valve

Dimensions and weights

SI units

Type	Connection type	Access port	Connection		H [mm]	H ₁ [mm]	L [mm]	L ₁ [mm]	L ₂ [mm]	L ₃ [mm]	L ₄ [mm]	L ₅ [mm]	M [mm]	D [mm]	d [mm]	Net weight [kg] ¹⁾
			[in.]	[mm]												
GBC 6s	ODF / ODF	No/Yes	1/4	6	53	15	139	7	75	73	22	31	M4 x 0.7	14.0	1.5	0.2
GBC 10s	ODF / ODF	No/Yes	3/8	-	53	15	139	8	75	73	22	31	M4 x 0.7	14.0	1.5	0.2
GBC 10s	ODF / ODF	No/Yes	-	10	53	15	139	9	75	73	22	31	M4 x 0.7	14.0	1.5	0.2
GBC 12s	ODF / ODF	No/Yes	1/2	12	53	15	161	10	86	84	22	31	M4 x 0.7	14.0	1.5	0.2
GBC 16s	ODF / ODF	No/Yes	5/8	16	53	15	161	12	86	84	22	31	M4 x 0.7	14.0	1.5	0.2
GBC 18s	ODF / ODF	No/Yes	3/4	18	61	19	185	14	99	96	30	37	M4 x 0.7	19.0	1.5	0.4
GBC 22s	ODF / ODF	No/Yes	7/8	22	61	19	185	17	99	96	30	37	M4 x 0.7	19.0	1.5	0.4
GBC 22s	ODF / ODM	No	7/8	22	61	19	201	17	86	83	30	-	M4 x 0.7	19.0	1.5	0.7
GBC 28s	ODF / ODF	No/Yes	1 1/8	28	81	25	208	20	112	108	38	44	M4 x 0.7	25.5	1.5	0.9
GBC 28s	ODF / ODM	Yes	1 1/8	-	81	25	208	20	112	108	38	44	M4 x 0.7	25.5	1.5	0.9
GBC 28s	ODF / ODM	No	1 1/8	-	81	25	228	20	112	108	38	-	M4 x 0.7	25.5	1.5	0.9
GBC 35s	ODF / ODF	No/Yes	1 3/8	35	91	30	251	25	136	130	48	44	M6 x 1.0	32.0	1.5	1.4
GBC 35s	ODF / ODM	Yes	1 3/8	35	91	30	251	25	136	130	48	44	M6 x 1.0	32.0	1.5	1.4
GBC 35s	ODF / ODM	No	1 3/8	35	91	30	280	25	136	130	48	-	M6 x 1.0	32.0	1.5	1.4
GBC 42s	ODF / ODF	No/Yes	1 5/8	42	110	35	281	29	151	145	55	56	M6 x 1.0	38.0	1.5	2.2
GBC 42s	ODF / ODM	Yes	1 5/8	-	110	35	281	29	151	145	55	56	M6 x 1.0	38.0	1.5	2.2
GBC 42s	ODF / ODM	No	1 5/8	-	110	35	295	29	151	145	55	-	M6 x 1.0	38.0	1.5	2.7
GBC 54s	ODF / ODF	No/Yes	2 1/8	54	132	46	305	34	167	157	74	56	M6 x 1.0	50.0	1.5	4.2
GBC 54s	ODF / ODM	Yes	2 1/8	54	132	46	305	34	167	157	74	56	M6 x 1.0	50.0	1.5	4.2
GBC 67s	ODF / ODF	No/Yes	2 5/8	-	149	55	343	38	188	172	84	72	M6 x 1.0	60.5	1.5	7.0
GBC 67s	ODF / ODM	Yes	2 5/8	-	149	55	346	38	191	175	84	72	M6 x 1.0	60.5	1.5	6.9
GBC 67s RP	ODF / ODF	No/Yes	2 5/8	-	132	46	305	37	167	157	74	56	M6 x 1.0	50.0	1.5	4.3
GBC 79s	ODF / ODF	No/Yes	3 1/8	-	169	65	416	38	230	214	86	80	M6 x 1.0	73.5	1.5	10.8
GBC 79s	ODF / ODM	No/Yes	3 1/8	-	169	65	406	38	220	204	86	80	M6 x 1.0	73.5	1.5	10.7
GBC 79s RP	ODF / ODF	No/Yes	3 1/8	-	132	46	305	42	167	157	74	56	M6 x 1.0	50.0	1.5	4.4

¹⁾ Calculated value
RP = Reduced Port

Dimensions and weights



US units

Type	Connection type	Access port	Conn. [in.]	H [in.]	H ₁ [in.]	L [in.]	L ₁ [in.]	L ₂ [in.]	L ₃ [in.]	L ₄ [in.]	L ₅ [in.]	M [mm]	D [in.]	d [in.]	Net weight [lbs] ¹⁾
GBC 6s	ODF/ODF	No/Yes	1/4	2.09	0.59	5.47	0.27	2.95	2.87	0.87	1.22	0.7	0.55	0.06	0.44
GBC 10s	ODF/ODF	No/Yes	3/8	2.09	0.59	5.47	0.31	2.95	2.87	0.87	1.22	0.7	0.55	0.06	0.44
GBC 12s	ODF/ODF	No/Yes	1/2	2.09	0.59	6.34	0.39	3.39	3.31	0.87	1.22	0.7	0.55	0.06	0.44
GBC 16s	ODF/ODF	No/Yes	5/8	2.09	0.59	6.34	0.47	3.39	3.31	0.87	1.22	0.7	0.55	0.06	0.44
GBC 18s	ODF/ODF	No/Yes	3/4	2.40	0.75	7.28	0.55	3.90	3.78	1.18	1.46	0.7	0.75	0.06	0.88
GBC 22s	ODF/ODF	No/Yes	7/8	2.40	0.75	7.28	0.67	3.90	3.78	1.18	1.46	0.7	0.75	0.06	0.88
GBC 22s	ODF/ODM	No	7/8	2.40	0.75	7.91	0.67	3.39	3.27	1.18	-	0.7	0.75	0.06	1.54
GBC 28s	ODF/ODF	No/Yes	1 1/8	3.19	0.98	8.19	0.79	4.41	4.25	1.50	1.73	0.7	1.00	0.06	1.98
GBC 28s	ODF/ODM	Yes	1 1/8	3.19	0.98	8.19	0.79	4.41	4.25	1.50	1.73	0.7	1.00	0.06	1.98
GBC 28s	ODF/ODM	No	1 1/8	3.19	0.98	8.98	0.79	4.41	4.25	1.50	-	0.7	1.00	0.06	1.98
GBC 35s	ODF/ODF	No/Yes	1 3/8	3.58	1.18	9.88	0.98	5.35	5.12	1.89	1.73	1.0	1.26	0.06	3.09
GBC 35s	ODF/ODM	Yes	1 3/8	3.58	1.18	9.88	0.98	5.35	5.12	1.89	1.73	1.0	1.26	0.06	3.09
GBC 35s	ODF/ODM	No	1 3/8	3.58	1.18	11.02	0.98	5.35	5.12	1.89	-	1.0	1.26	0.06	3.09
GBC 42s	ODF/ODF	No/Yes	1 5/8	4.33	1.38	11.06	1.14	5.94	5.71	2.17	2.20	1.0	1.50	0.06	4.85
GBC 42s	ODF/ODM	Yes	1 5/8	4.33	1.38	11.06	1.14	5.94	5.71	2.17	2.20	1.0	1.50	0.06	4.85
GBC 42s	ODF/ODM	No	1 5/8	4.33	1.38	11.61	1.14	5.94	5.71	2.17	-	1.0	1.50	0.06	5.95
GBC 54s	ODF/ODF	No/Yes	2 1/8	5.20	1.81	12.00	1.34	6.57	6.18	2.91	2.20	1.0	1.97	0.06	9.26
GBC 54s	ODF/ODM	Yes	2 1/8	5.20	1.81	12.00	1.34	6.57	6.18	2.91	2.20	1.0	1.97	0.06	9.26
GBC 67s	ODF/ODF	No/Yes	2 5/8	5.87	2.17	13.51	1.50	7.41	6.77	3.31	2.83	1.0	2.38	0.06	15.43
GBC 67s	ODF/ODM	Yes	2 5/8	5.87	2.17	13.63	1.50	7.52	6.89	3.31	2.83	1.0	2.38	0.06	15.21
GBC 67s RP	ODF/ODF	No/Yes	2 5/8	5.20	1.81	12.00	1.46	6.57	6.18	2.91	2.20	1.0	1.97	0.06	9.48
GBC 79s	ODF/ODF	No/Yes	3 1/8	6.66	2.56	16.37	1.50	9.05	8.42	3.39	3.15	1.0	2.89	0.06	23.81
GBC 79s	ODF/ODM	No/Yes	3 1/8	6.66	2.56	15.98	1.50	8.66	8.03	3.39	3.15	1.0	2.89	0.06	23.59
GBC 79s RP	ODF/ODF	No/Yes	3 1/8	5.20	1.81	12.00	1.65	6.57	6.18	2.91	2.20	1.0	1.97	0.06	9.70

¹⁾Nominal value

RP = Reduced Port

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