

Data sheet

Ball Valve Type GBC



Danfoss 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
- The available access port helps in reducing cost if service of the system is necessary.

Approvals

UL
CE

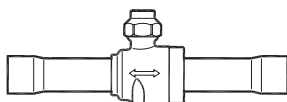
Technical data

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

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

Ordering

GBC without access port, ODF/ODF



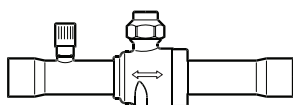
Type	Solder ODF/ODF connection		Solder ODF/ODF connection		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]
	[in.]	Code no.	[mm]	Code no.		
GBC 6s	1/4	009G7020	6	009G7030	1.96	2.27
GBC 10s	3/8	009G7021	10	009G7031	5.68	6.57
GBC 12s	1/2	009G7022	12	009G7032	10.58	12.23
GBC 16s	5/8	009G7023	16	009G7023	14.11	16.31
GBC 18s	3/4	009G7024	18	009G7035	20.42	23.61
GBC 22s	7/8	009G7025	22	009G7025	28.17	32.56
GBC 28s	1 1/8	009G7026	28	009G7033	51.95	60.05
GBC 35s	1 3/8	009G7027	35	009G7027	80.89	93.51
GBC 42s	1 5/8	009G7028	42	009G7034	121.07	139.96
GBC 54s	2 1/8	009G7029	54	009G7029	224.96	260.05
GBC 67s	2 5/8	009G7959	–	–	310.00	358.36
GBC 67s RP	2 5/8	009G7036	–	–	245.78	284.12
GBC 79s	3 1/8	009G7980	–	–	700.00	809.20
GBC 79s RP	3 1/8	009G7037	–	–	222.52	257.23

RP = Reduced Port

¹⁾ CFD calculated values (Computational Fluid Dynamics)

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

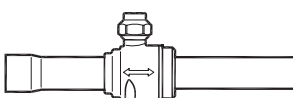
Ordering (continued)



GBC with access port, ODF/ODF

Type	Solder ODF/ODF connection		Solder ODF/ODF connection		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]
	[in.]	Code no.	[mm]	Code no.		
GBC 6s	1/4	009G7050	6	009G7060	1.96	2.27
GBC 10s	3/8	009G7051	10	009G7061	5.68	6.57
GBC 12s	1/2	009G7052	12	009G7062	10.58	12.23
GBC 16s	5/8	009G7053	16	009G7053	14.11	16.31
GBC 18s	3/4	009G7054	18	009G7065	20.42	23.61
GBC 22s	7/8	009G7055	22	009G7055	28.17	32.56
GBC 28s	1 1/8	009G7056	28	009G7063	51.95	60.05
GBC 35s	1 3/8	009G7057	35	009G7057	80.89	93.51
GBC 42s	1 5/8	009G7058	42	009G7064	121.07	139.96
GBC 54s	2 1/8	009G7059	54	009G7059	224.96	260.05
GBC 67s	2 5/8	009G7960	–	–	310.00	358.36
GBC 67s RP	2 5/8	009G7066	–	–	245.78	284.12
GBC 79s	3 1/8	009G7981	–	–	700.00	809.20
GBC 79s RP	3 1/8	009G7067	–	–	222.52	257.23

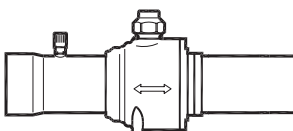
RP = Reduced Port



GBC without access port, ODF/ODM

Type	Solder ODF/ODM connection		Solder ODF/ODM connection		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]
	[in.]	Code no.	[mm]	Code no.		
GBC 22s	7/8	009G7000	22	009G7000	28.17	32.56
GBC 28s	1 1/8	009G7001	–	–	51.95	60.05
GBC 35s	1 3/8	009G7002	35	009G7002	80.89	93.51
GBC 42s	1 5/8	009G7003	–	–	121.07	139.96
GBC 79s	3 1/8	009G7969	–	–	700.00	809.20

GBC with access port, ODF/ODM

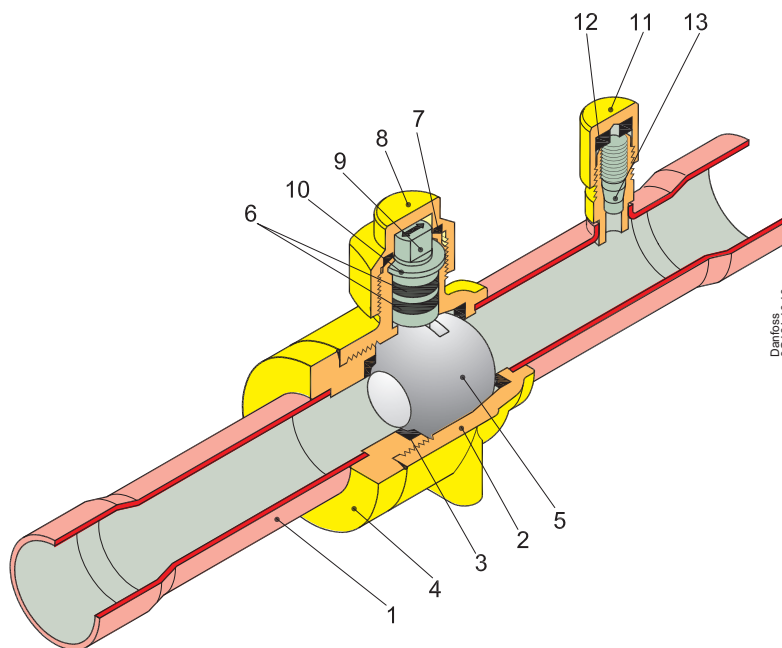


Type	Solder ODF/ODM connection		Solder ODF/ODM connection		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]
	[in.]	Code no.	[mm]	Code no.		
GBC 28s	1 1/8	009G7097	–	–	51.95	60.05
GBC 35s	1 3/8	009G7098	35	009G7098	80.89	93.51
GBC 42s	1 5/8	009G7099	–	–	121.07	139.96
GBC 54s	2 1/8	009G7069	54	009G7069	224.96	260.05
GBC 67s	2 5/8	009G7958	–	–	310.00	358.36
GBC 79s	3 1/8	009G7970	–	–	700.00	809.20

¹⁾ CFD calculated values (Computational Fluid Dynamics)

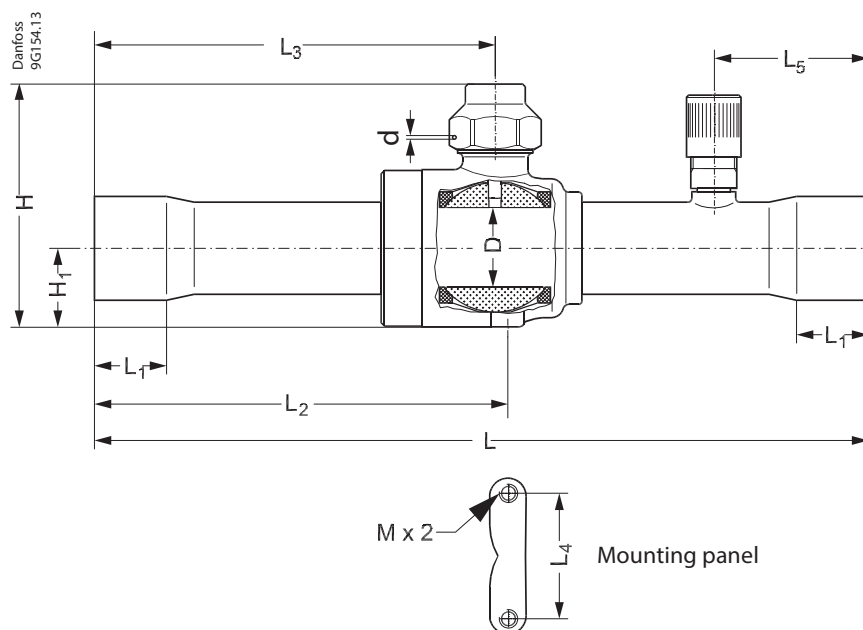
Construction

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. Schraeder valve



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.

Dimensions and weights

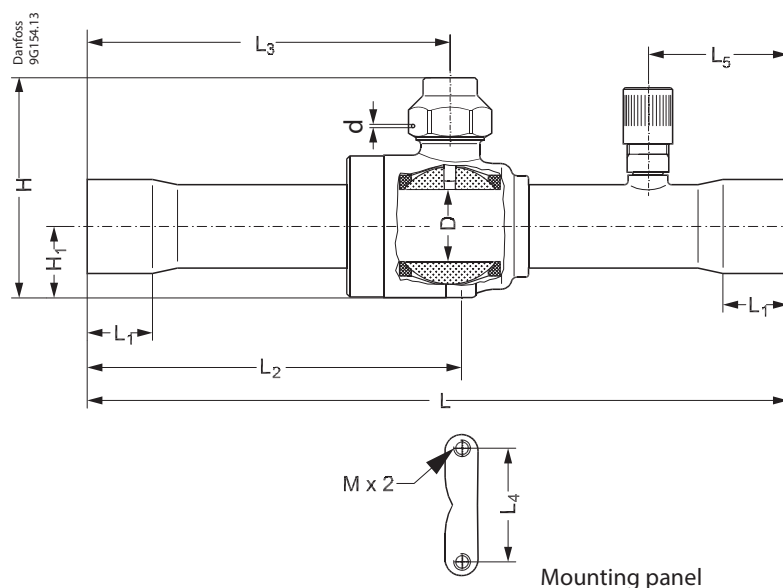


Type	Connection type	Access port	Connection		H [mm]	H ₁ [mm]	L [mm]	L ₁ [mm]	L ₂ [mm]	L ₃ [mm]	L ₄ [mm]	L ₅ [mm]	M [mm]	D [mm]	d [mm]	Net weight [kg] ¹⁾
			[in.]	[mm]												
GBC 6s	ODF / ODF	No/Yes	1/4	6	53	15	139	7	75	73	22	31	M4 × 0.7	14.0	1.5	0.2
GBC 10s	ODF / ODF	No/Yes	3/8	–	53	15	139	8	75	73	22	31	M4 × 0.7	14.0	1.5	0.2
GBC 10s	ODF / ODF	No/Yes	–	10	53	15	139	9	75	73	22	31	M4 × 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 × 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 × 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 × 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 × 0.7	19.0	1.5	0.4
GBC 22s	ODF / ODM	No	7/8	22	61	19	201	17	86	83	30	–	M4 × 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 × 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 × 0.7	25.5	1.5	0.9
GBC 28s	ODF / ODM	No	1 1/8	–	81	25	228	20	112	108	38	–	M4 × 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 × 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 × 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 × 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 × 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 × 1.0	38.0	1.5	2.2
GBC 42s	ODF / ODM	No	1 5/8	–	110	35	295	29	151	145	55	–	M6 × 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 × 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 × 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 × 1.0	60.5	1.5	5.8
GBC 67s	ODF / ODM	Yes	2 5/8	–	149	55	346	38	191	175	84	72	M6 × 1.0	60.5	1.5	5.8
GBC 67s RP	ODF / ODF	No/Yes	2 5/8	–	132	46	305	37	167	157	74	56	M6 × 1.0	50.0	1.5	4.4
GBC 79s	ODF / ODF	No/Yes	3 1/8	–	169	65	416	38	230	214	86	80	M6 × 1.0	73.5	1.5	9.1
GBC 79s	ODF / ODM	No/Yes	3 1/8	–	169	65	406	38	220	204	86	80	M6 × 1.0	73.5	1.5	9.1
GBC 79s RP	ODF / ODF	No/Yes	3 1/8	–	132	46	305	42	167	157	74	56	M6 × 1.0	50.0	1.5	4.5

¹⁾ Calculated value

RP = Reduced Port

Dimensions [in.] and weights [lbs]



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 [in.]	D [in.]	d [in.]	Net weight [lbs]
GBC 6s	ODF/ODF	No/Yes	1/4	2.09	0.59	5.47	0.27	2.95	2.87	0.87	1.22	M4 × 0.027	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	M4 × 0.027	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	M4 × 0.027	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	M4 × 0.027	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	M4 × 0.027	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	M4 × 0.027	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	–	M4 × 0.027	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	M4 × 0.027	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	M4 × 0.027	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	–	M4 × 0.027	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	M6 × 0.039	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	M6 × 0.039	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	–	M6 × 0.039	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	M6 × 0.039	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	M6 × 0.039	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	–	M6 × 0.039	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	M6 × 0.039	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	M6 × 0.039	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	M6 × 0.039	2.38	0.06	12.79
GBC 67s	ODF/ODM	Yes	2 5/8	5.87	2.17	13.63	1.50	7.52	6.89	3.31	2.83	M6 × 0.039	2.38	0.06	12.79
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	M6 × 0.039	1.97	0.06	9.70
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	M6 × 0.039	2.89	0.06	20.06
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	M6 × 0.039	2.89	0.06	20.06
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	M6 × 0.039	1.97	0.06	9.92

RP = Reduced Port

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