

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.
- $\frac{1}{4}$ 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.

Approvals

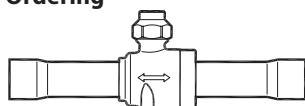


Technical data

- 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)		Max. test pressure
GBC 6 – 42s	-40 – 150 °C (-40 – 300 °F)	45 bar (650 psig)	45 bar (650 psig)	65 bar / 940 psig
GBC 67 – 79s	-40 – 121 °C (-40 – 250 °F)	35 bar (500 psig)	45 bar (650 psig)	65 bar / 940 psig

Ordering



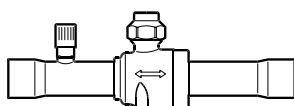
GBC without access port,
ODF/ODF

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	-	12.92	14.94	009G7022
	-	12	12.92	14.94	009G7032
GBC 16s	5/8	16	15.66	18.10	009G7023
GBC 18s	3/4	-	21.93	25.35	009G7024
	-	18	21.93	25.35	009G7035
GBC 22s	7/8	22	33.34	38.54	009G7025
GBC 28s	1 1/8	-	62.25	71.96	009G7026
	-	28	62.25	71.96	009G7033
GBC 35s	1 3/8	35	92.76	107.23	009G7027
GBC 42s	1 5/8	-	134.76	155.78	009G7028
	-	42	134.76	155.78	009G7034
GBC 54s	2 1/8	54	240.11	277.57	009G7029
GBC 67s	2 5/8	-	367.38	424.69	009G7959
GBC 67s RP	2 5/8	-	203.12	234.81	009G7036
GBC 79s	3 1/8	-	528.87	611.37	009G7980
GBC 79s RP	3 1/8	-	171.89	198.70	009G7037

¹⁾ calculated based on fluid dynamic equations
RP) Reduced Port

Approvals



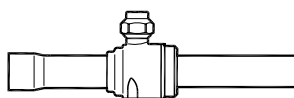
GBC with access port, ODF/ODF

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	-	12.92	14.94	009G7052
	-	12	12.92	14.94	009G7062
GBC 16s	5/8	16	15.66	18.10	009G7053
GBC 18s	3/4	-	21.93	25.35	009G7054
	-	18	21.93	25.35	009G7065
GBC 22s	7/8	22	33.34	38.54	009G7055
GBC 28s	1 1/8	-	62.25	71.96	009G7056
	-	28	62.25	71.96	009G7063
GBC 35s	1 3/8	35	92.76	107.23	009G7057
GBC 42s	1 5/8	-	134.76	155.78	009G7058
	-	42	134.76	155.78	009G7064
GBC 54s	2 1/8	54	240.11	277.57	009G7059
GBC 67s	2 5/8	-	367.38	424.69	009G7960
GBC 67s RP	2 5/8	-	203.12	234.81	009G7066
GBC 79s	3 1/8	-	528.87	611.37	009G7981
GBC 79s RP	3 1/8	-	171.89	198.70	009G7067

¹⁾ calculated based on fluid dynamic equations
RP) Reduced Port

Approvals



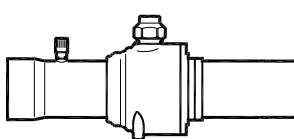
GBC without access port, ODF/ODM

GBC without access port, ODF/ODM

Type	Solder ODF/ODF connection		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Code no.
	[in.]	[mm]			
GBC 22s	7/8	22	33.34	38.54	009G7000
GBC 28s	1 1/8	-	62.25	71.96	009G7001
GBC 35s	1 3/8	35	92.76	107.23	009G7002
GBC 42s	1 5/8	-	134.76	155.78	009G7003
GBC 79s	3 1/8	-	528.87	611.37	009G7969

¹⁾ calculated based on fluid dynamic equations

Approvals



GBC with access port, ODF/ODM

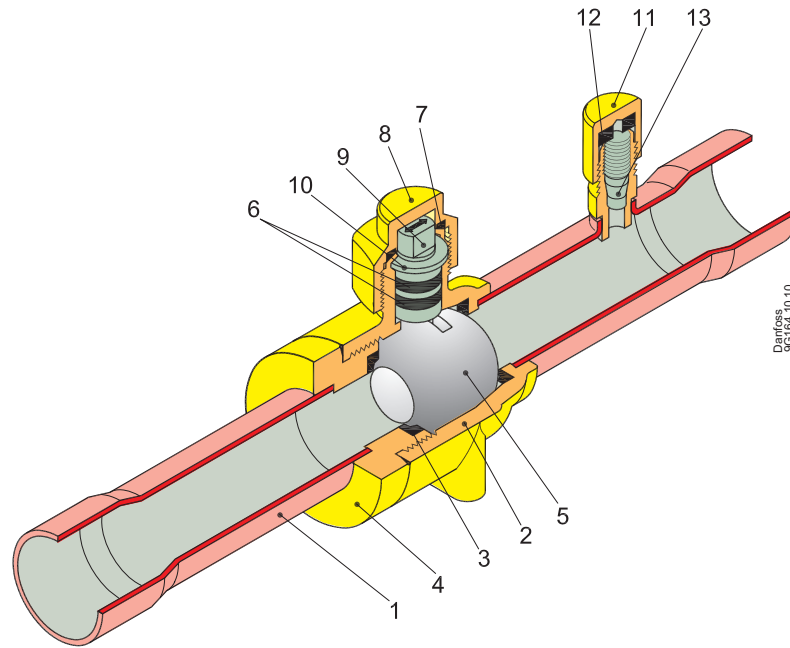
GBC with access port, ODF/ODM

Type	Solder ODF/ODF connection		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Code no.
	[in.]	[mm]			
GBC 28s	1 1/8	-	62,25	71,96	009G7097
GBC 35s	1 3/8	35	92,76	107,23	009G7098
GBC 42s	1 5/8	-	134,76	155,78	009G7099
GBC 54s	2 5/8	54	240,11	277,57	009G7069
GBC 67s	2 5/8	-	367,38	424,69	009G7958
GBC 79s	3 1/8	-	528,87	611,37	009G7970

¹⁾ calculated based on fluid dynamic equations

Function

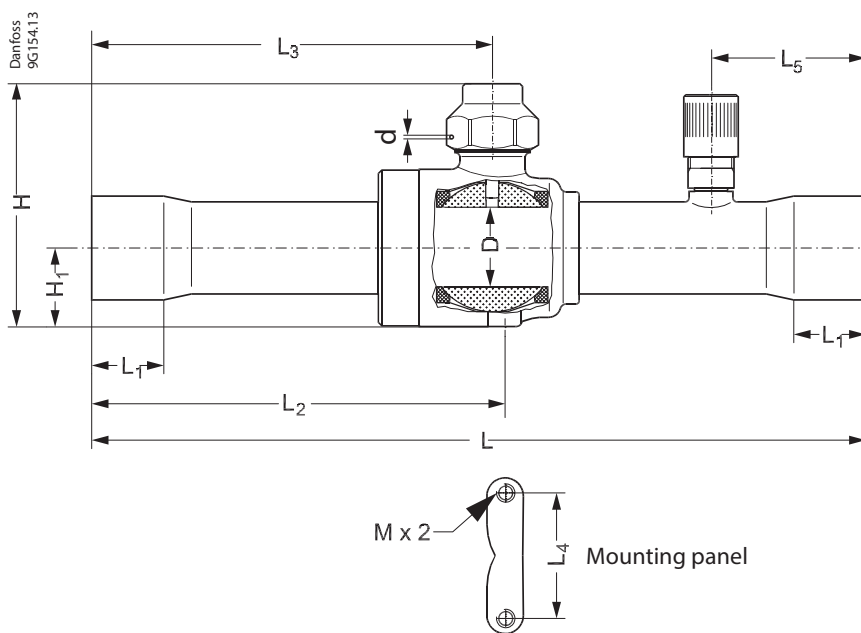
1. Connection
2. Laser welded valve body
3. Ball seat (modified PTFE)
4. Valve adapter
5. Stainless steel ball
6. Double spindle O-ring seal (chloroprene)
7. Cap seal (PTFE)
8. Seal cap
9. Spindle
10. Support gasket
11. Access port cap
12. Seal gasket
13. Schrader valve



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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.

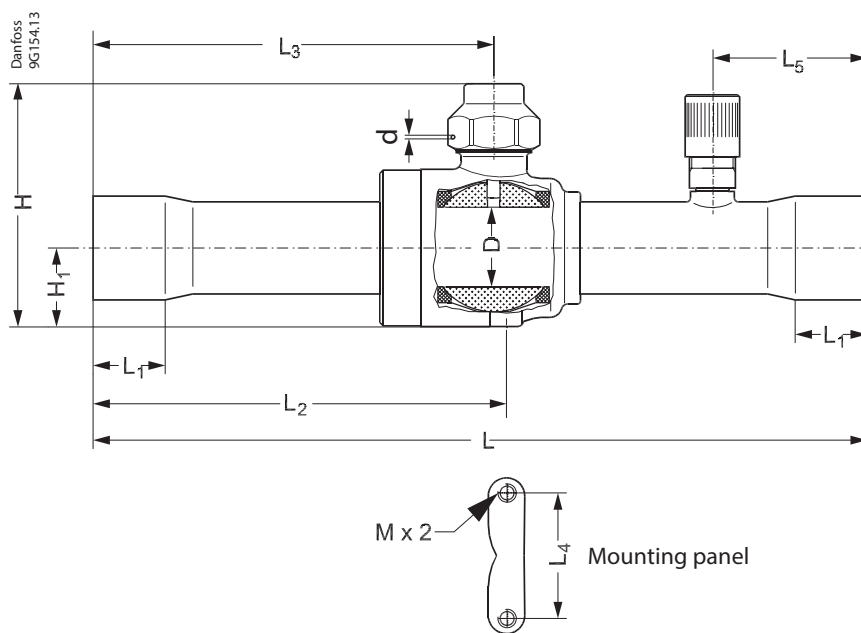
Dimensions and weights



Type	Connection		H	H ₁	L	L ₁	L ₂	L ₃	L ₄	L ₅	M	D	d	Net weight
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg] ¹⁾
GBC 6s	-	6	53	15	139	7	75	73	22	31	M4 × 0.7	14.0	1.5	0.2
GBC 6s	1/4	-	53	15	139	7	75	73	22	31	M4 × 0.7	14.0	1.5	0.2
GBC 10s	3/8	-	53	15	139	8	75	73	22	31	M4 × 0.7	14.0	1.5	0.2
GBC 10s	-	10	53	15	139	9	75	73	22	31	M4 × 0.7	14.0	1.5	0.2
GBC 12s	-	12	53	15	161	10	86	84	22	31	M4 × 0.7	14.0	1.5	0.2
GBC 12s	1/2	-	53	15	161	10	86	84	22	31	M4 × 0.7	14.0	1.5	0.2
GBC 16s	5/8	16	53	15	161	12	86	84	22	31	M4 × 0.7	14.0	1.5	0.2
GBC 18s	-	18	61	19	185	14	99	96	30	37	M4 × 0.7	19.0	1.5	0.4
GBC 18s	3/4	-	61	19	185	14	99	96	30	37	M4 × 0.7	19.0	1.5	0.4
GBC 22s	7/8	22	61	19	185	17	99	96	30	37	M4 × 0.7	19.0	1.5	0.4
GBC 28s	-	28	81	25	208	20	112	107	38	44	M4 × 0.7	25.5	1.5	0.9
GBC 28s	1 1/8	-	81	25	208	20	112	107	38	44	M4 × 0.7	25.5	1.5	0.9
GBC 35s	1 3/8	35	91	30	251	25	136	130	48	44	M6 × 1.0	32.0	1.5	1.4
GBC 42s	1 5/8	-	110	35	281	29	151	145	55	56	M6 × 1.0	38.0	1.5	2.2
GBC 42s	-	42	110	35	281	29	151	145	55	56	M6 × 1.0	38.0	1.5	2.2
GBC 54s	2 1/8	54	132	46	305	34	167	157	74	56	M6 × 1.0	50.0	1.5	7.0
GBC 67s	2 5/8	67	149	55	346	38	191	175	84	72	M6 × 1.0	60.5	1.5	6.9
GBC 67s RP	2 5/8	67	132	46	305	37	167	157	74	56	M6 × 1.0	50.0	1.5	4.3
GBC 79s ODF/ODF	3 1/8	79	170	65	416	38	230	214	86	80	M6 × 1.1	73.5	1.5	10.8
GBC 79s ODF/ODM	3 1/8	79	170	65	406	38	220	204	86	80	M6 × 1.1	73.5	1.5	10.7
GBC 79s RP	3 1/8	79	132	46	305	42	167	157	74	56	M6 × 1.0	50.0	1.5	4.4

¹⁾ calculated value
RP) Reduced Port

Dimensions and weights



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]
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

RP) Reduced Port

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