Data sheet

Ball valve for high pressure Type GBC for R744 (CO_2)

Danfoss ball valves, type GBC for R744 (CO_2) are manually operated shut-off valves for CO_2 systems. 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_2 refrigerant. The valves are approved for use in all parts of the system with pressure ratings lower than the below stated Maximum Working Pressure, typically the liquid, suction, gas-bypass, and hot gas lines.

Features

- Slimline body – easy to install and service.
- ¼ turn from fully open to fully closed.
- GBC for R744 is designed for 75 - 90 bar / 1085 -1305 psi max. working pressure.
- Rotation stops at fully open and fully close positions.
- Indicator on spindle top shows if the valve is open or closed.
- Precision laser welded construction.
- Burst-proof spindle design.
- Valve seal of low friction, tight-sealing modified PTFE Teflon®.
- Drilled and tapped for panel mounting.
- Relief hole design to release entrapped liquid.
- Selected O-ring material for CO_2 refrigerant.
- Advanced design ensures trusted bi-flow function

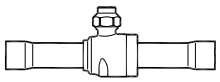
Technical data

Refrigerants	R 744 (CO_2)
Oils	POE, PAG
Temperature range	-40 – +100 °C / -40 – +212 °F
Max. working pressure (PS/MWP)	6s H to 28s H: 90 bar / 1305 psi 35s H to 42s H: 75 bar / 1085 psi
Approvals	CE

To ensure good tightness, oil is required in the system to lubricate valves. The amount of oil typically circulating in refrigeration system is sufficient.

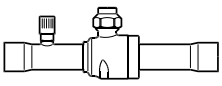
Warning! CO2 GBC ball valve are designed and qualified only for Food Retail applications, for the usage of such valves in other applications please consult Danfoss.

Ordering



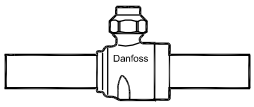
GBC without access port - Copper connections solder ODF connection

Type	In.	Code no.	K_v value* m^3/h	C_v value* (gal/min)	mm	Code no.	K_v value* m^3/h	C_v value* (gal/min)	Multi-pack	MWP bar	PS psi
GBC 6s H	1/4	**009G7415**	0.94	4.14	6	**009G7395**	0.73	3.21	25	90	1305
GBC 10s H	3/8	**009G7416**	3.04	13.39	10	**009G7396**	3.42	15.05			
GBC 12s H	1/2	**009G7417**	6.96	30.64	12	**009G7397**	5.96	26.24			
GBC 16s H	5/8	**009G7418**	9.60	42.27	16	**009G7418**	9.60	42.27			
GBC 18s H	3/4	**009G7419**	15.45	68.02	18	**009G7399**	12.52	55.56			
GBC 22s H	7/8	**009G7420**	21.30	93.78	22	**009G7420**	21.30	93.78			



GBC with access port - Copper connections solder ODF connection

Type	In.	Code no.	K_v value* m^3/h	C_v value* (gal/min)	mm	Code no.	K_v value* m^3/h	C_v value* (gal/min)	Multi-pack	MWP bar	PS psi
GBC 6s H	1/4	**009G7581**	0.94	4.14	6	**009G7580**	0.73	3.21	25	90	1305
GBC 10s H	3/8	**009G7582**	3.04	13.39	10	**009G7583**	3.42	15.05			
GBC 12s H	1/2	**009G7585**	6.96	30.64	12	**009G7584**	5.95	26.24			
GBC 16s H	5/8	**009G7586**	9.60	42.27	16	**009G7586**	9.60	42.27			
GBC 18s H	3/4	**009H7588**	15.45	68.02	18	**009G7587**	12.52	55.56			
GBC 22s H	7/8	**009G7589**	21.30	93.78	22	**009G7589**	21.30	93.78			



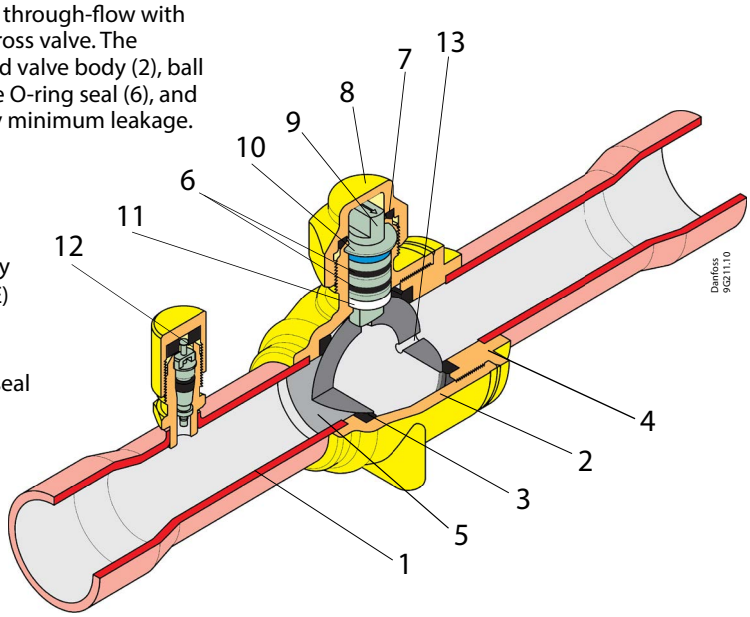
GBC with Stainless steel connections - butt welding

Type	mm	Code no.	K_v value* m^3/h	C_v value* (gal/min)	Multi-pack	MWP bar	PS psi
GBC 28s H	28	**009G7406**	56.5	248.8	5	90	1305
GBC 35s H	35	**009G7410**	82.2	361.9	5	75	1085
GBC 42s H	42	**009G7411**	121.7	535.8	4	75	1085

* Calculated according to IEC standard

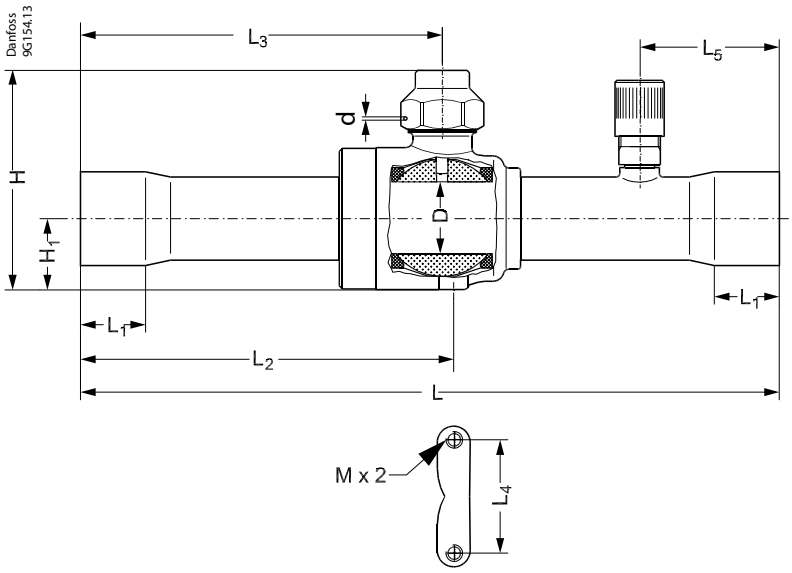
Function

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
7. Cap O-ring seal (PTFE)
8. Seal cap
9. Spindle
10. Support gasket
11. Seal gasket
12. Schraeder valve
13. Relief hole

Dimensions and weights



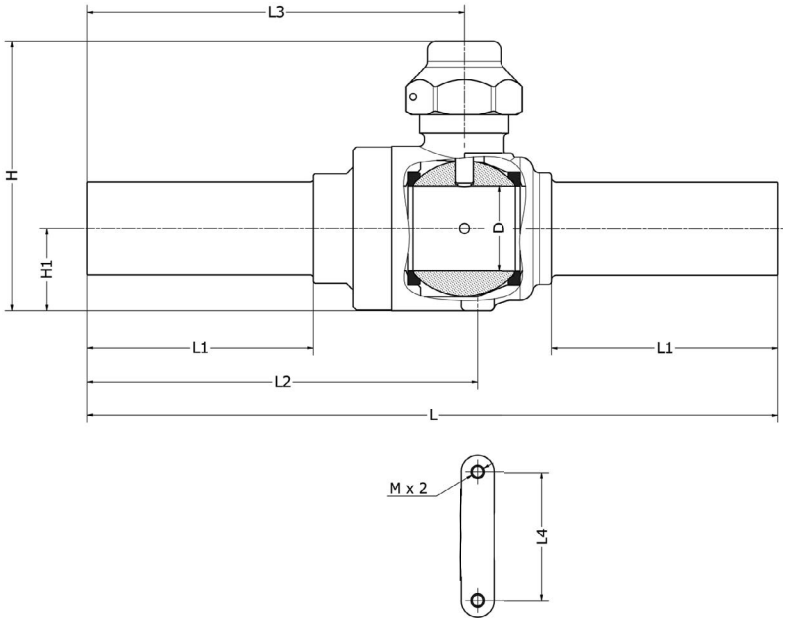
SI units

Type	Connection		H	H1	L	L1	L2	L3	L4	L5	M	D	Weight
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
GBC 6s H	1/4	-	53	15	139	5	75	73	22	31	M4 × 0.7	14	0.24
GBC 6s H	-	6	53	15	139	5	75	73	22	31	M4 × 0.7	14	0.24
GBC 10s H	3/8	-	53	15	139	7	75	73	22	31	M4 × 0.7	14	0.24
GBC 10s H	-	10	53	15	139	7	75	73	22	31	M4 × 0.7	14	0.24
GBC 12s H	½	-	53	15	161	8	86	84	22	31	M4 × 0.7	14	0.26
GBC 12s H	-	12	53	15	161	8	86	84	22	31	M4 × 0.7	14	0.26
GBC 16s H	5/8	16	53	15	161	10	86	84	22	31	M4 × 0.7	14	0.26
GBC 18s H	3/4	-	61	19	185	12	99	96	30	37	M4 × 0.7	19	0.46
GBC 18s H	-	18	61	19	185	12	99	96	30	37	M4 × 0.7	19	0.46
GBC 22s H	7/8	22	61	19	185	15	99	96	30	37	M4 × 0.7	19	0.46

us units

Type	Connection		H	H1	L	L1	L2	L3	L4	L5	M	D	Weight
	[in.]	[mm]	[in.]	[in.]	[in.]	[in.]	[in.]	[in.]	[in.]	[in.]	[mm]	[in.]	[lbs]
GBC 6s H	1/4	-	2.09	0.59	5.47	0.20	2.95	2.87	0.87	1.22	M4 × 0.7	0.55	0.5
GBC 6s H	-	6	2.09	0.59	5.47	0.20	2.95	2.87	0.87	1.22	M4 × 0.7	0.55	0.5
GBC 10s H	3/8	-	2.09	0.59	5.47	0.28	2.95	2.87	0.87	1.22	M4 × 0.7	0.55	0.5
GBC 10s H	-	10	2.09	0.59	5.47	0.28	2.95	2.87	0.87	1.22	M4 × 0.7	0.55	0.5
GBC 12s H	½	-	2.09	0.59	6.34	0.32	3.39	3.31	0.87	1.22	M4 × 0.7	0.55	0.6
GBC 12s H	-	12	2.09	0.59	6.34	0.32	3.39	3.31	0.87	1.22	M4 × 0.7	0.55	0.6
GBC 16s H	5/8	16	2.09	0.59	6.34	0.39	3.39	3.31	0.87	1.22	M4 × 0.7	0.55	0.6
GBC 18s H	3/4	-	2.40	0.75	7.28	0.47	3.90	3.78	1.18	1.46	M4 × 0.7	0.75	1.0
GBC 18s H	-	18	2.40	0.75	7.28	0.47	3.90	3.78	1.18	1.46	M4 × 0.7	0.75	1.0
GBC 22s H	7/8	22	2.40	0.75	7.28	0.59	3.90	3.78	1.18	1.46	M4 × 0.7	0.75	1.0

Dimensions and weights



SI units

Type	Connection	H	H1	L	L1	L2	L3	L4	M	D	Weight
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
GBC 28s H	28	81	25	208	74	112	108	38	M4 x 0.7	25	0.87
GBC 35s H	35	91	30	251	89	136	130	48	M6 x 1.0	32	1.40
GBC 42s H	42	111	35	281	100	151	145	55	M6 x 1.0	38	1.91

us units

Type	Connection	H	H1	L	L1	L2	L3	L4	M	D	Weight
	[mm]	[in.]	[in.]	[in.]	[in.]	[in.]	[in.]	[in.]	[in.]	[in.]	[lbs]
GBC 28s H	28	3.19	0.98	8.19	2.91	4.41	4.25	1.50	M4 x 0.7	0.98	1.9
GBC 35s H	35	3.58	1.18	9.88	3.50	5.35	5.12	1.89	M6 x 1.0	1.26	3.1
GBC 42s H	42	4.37	1.38	11.06	3.94	5.94	5.71	2.17	M6 x 1.0	1.50	4.2