

Data sheet

Shut-off ball valve for high pressure

Type GBC for R744 (CO₂ - 90 bar)



Danfoss shut-off ball valves, type GBC for R744 (CO₂) are manually operated shut-off valves for CO₂ 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 CO₂ 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 lines.

Features

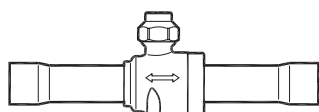
- Slimline body – easy to install and service.
- ¼ turn from fully open to fully closed.
- GBC for R744 is designed for:
GBC 6s H – 28s H: 90 bar / 1305 psi
GBC 35s H – 42s H: 75 bar / 1088 psi
max. working pressure.
- Rotation stops at fully open and fully close positions.
- Indicator on spindle top 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 CO₂ refrigerant.
- Advanced design ensures trusted bi-flow function.

Approvals

Technical data

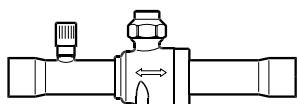
- Refrigerants: R 744 (CO₂)
- Oils: POE, PAG
- Media temperature range: -40 – +100 °C / -40 – +212 °F.
- Max. working pressure (PS/MWP): GBC 6s H – 28s H: 90 bar / 1305 psi
GBC 35s H – 42s H: 75 bar / 1088 psi

Warning! The GBC for CO₂ are designed and qualified for normal food retail applications. For the usage in more aggressive environments like marine applications please consult Danfoss.

Ordering

GBC without access port, solder ODF/ODF, Copper connections

Type	Solder ODF/ODF connection		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Max. working pressure (PS/MWP)		Code no.
	[in.]	[mm]			[bar]	[psig]	
GBC 6s H	1/4	-	1,78	2,06	90	1305	009G7415
	-	6	1,78	2,06	90	1305	009G7395
GBC 10s H	3/8	-	6,31	7,29	90	1305	009G7416
	-	10	6,31	7,29	90	1305	009G7396
GBC 12s H	1/2	-	12,87	14,88	90	1305	009G7417
	-	12	12,87	14,88	90	1305	009G7397
GBC 16s H	5/8	16	11,77	13,61	90	1305	009G7418
GBC 18s H	3/4	-	31,07	35,92	90	1305	009G7419
	-	18	31,07	35,92	90	1305	009G7399
GBC 22s H	7/8	22	24,47	28,29	90	1305	009G7420

¹⁾ calculated based on fluid dynamic equations


GBC with access port, solder ODF/ODF, Copper connections

Type	Solder ODF/ODF connection		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Max. working pressure (PS/MWP)		Code no.
	[in.]	[mm]			[bar]	[psig]	
GBC 6s H	1/4	-	1,78	2,06	90	1305	009G7581
	-	6	1,78	2,06	90	1305	009G7580
GBC 10s H	3/8	-	6,31	7,29	90	1305	009G7582
	-	10	6,31	7,29	90	1305	009G7583
GBC 12s H	1/2	-	12,87	14,88	90	1305	009G7585
	-	12	12,87	14,88	90	1305	009G7584
GBC 16s H	5/8	16	11,77	13,61	90	1305	009G7586
GBC 18s H	3/4	-	31,07	35,92	90	1305	009G7588
	-	18	31,07	35,92	90	1305	009G7587
GBC 22s H	7/8	22	24,47	28,29	90	1305	009G7589

¹⁾ calculated based on fluid dynamic equations


GBC without access port, butt weld, Stainless steel connections

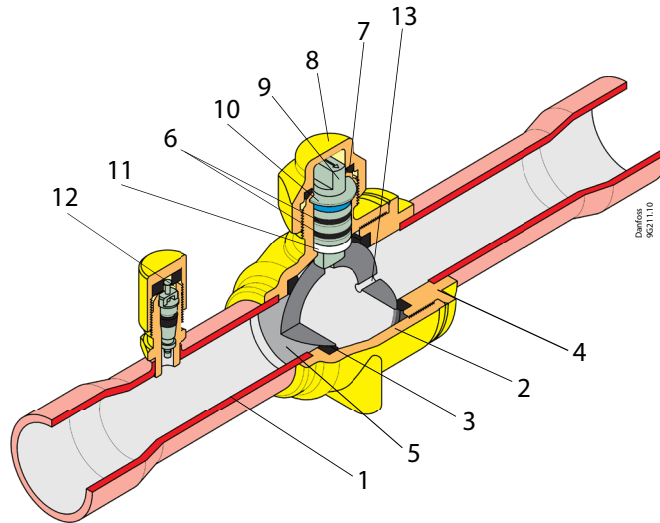
Type	Solder ODF/ODF connection		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Max. working pressure (PS/MWP)		Code no.
	[in.]	[mm]			[bar]	[psig]	
GBC 28s H	-	28	96,72	111,81	90	1305	009G7406
GBC 35s H	-	35	106,95	123,63	75	1088	009G7410
GBC 42s H	-	42	150,98	174,53	75	1088	009G7411

¹⁾ calculated based on fluid dynamic equations

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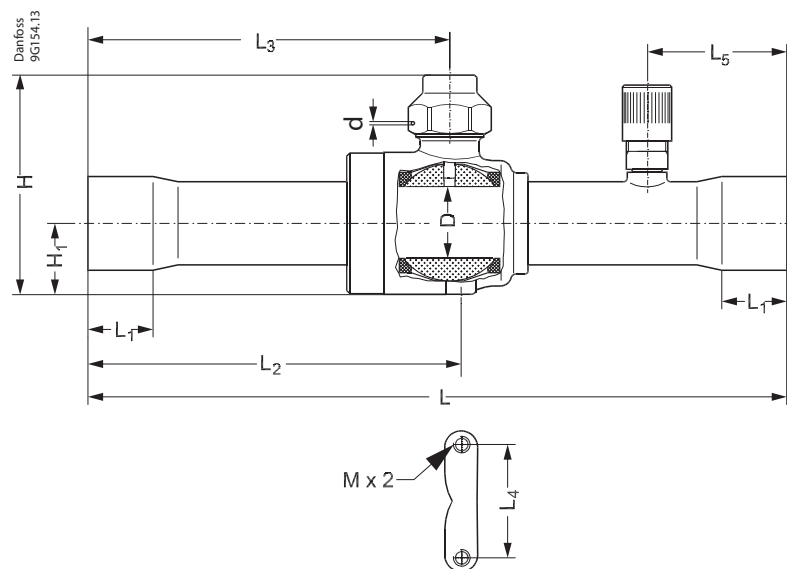
Function

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



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



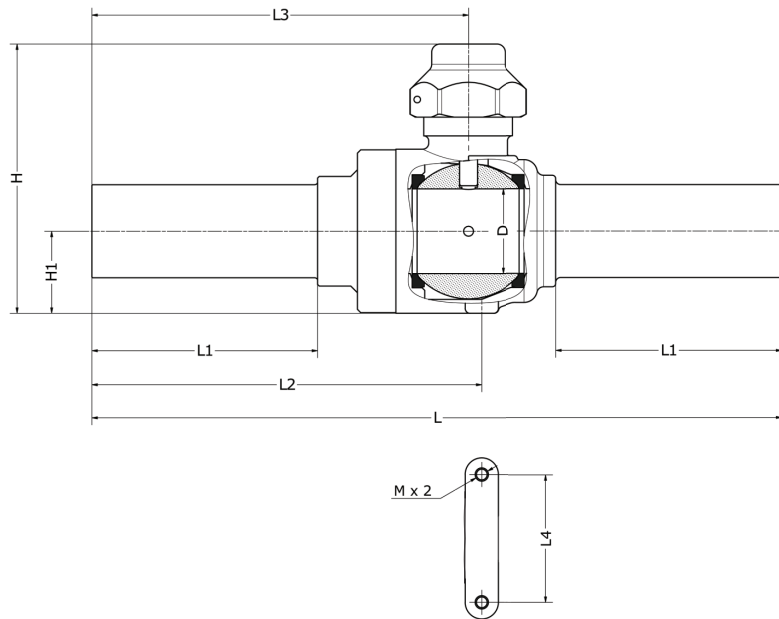
SI units

Type	Connection		Access port	H	H1	L	L1	L2	L3	L4	L5	M	D	Weight
	[in.]	[mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g]
GBC 6s H	1/4	6	No/Yes	53	15	139	5	75	73	22	31	M4 x 0.7	14	225
GBC 10s H	3/8	10	No/Yes	53	15	139	7	75	73	22	31	M4 x 0.7	14	230
GBC 12s H	1/2	12	No/Yes	53	15	161	8	86	84	22	31	M4 x 0.7	14	245
GBC 16s H	5/8	16	No/Yes	53	15	161	10	86	84	22	31	M4 x 0.7	14	249
GBC 18s H	3/4	18	No/Yes	61	19	185	12	99	96	30	37	M4 x 0.7	19	445
GBC 22s H	7/8	22	No/Yes	61	19	185	15	99	96	30	37	M4 x 0.7	19	448

US units

Type	Connection		Access port	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	6	No/Yes	2.09	0.59	5.47	0.20	2.95	2.87	0.87	1.22	M4 x 0.7	0.55	0.50
GBC 10s H	3/8	10	No/Yes	2.09	0.59	5.47	0.28	2.95	2.87	0.87	1.22	M4 x 0.7	0.55	0.51
GBC 12s H	1/2	12	No/Yes	2.09	0.59	6.34	0.32	3.39	3.31	0.87	1.22	M4 x 0.7	0.55	0.54
GBC 16s H	5/8	16	No/Yes	2.09	0.59	6.34	0.39	3.39	3.31	0.87	1.22	M4 x 0.7	0.55	0.55
GBC 18s H	3/4	18	No/Yes	2.40	0.75	7.28	0.47	3.90	3.78	1.18	1.46	M4 x 0.7	0.75	0.98
GBC 22s H	7/8	22	No/Yes	2.40	0.75	7.28	0.59	3.90	3.78	1.18	1.46	M4 x 0.7	0.75	0.99

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]	[g]
GBC 28s H	28	81	25	208	68	118	114	38	M4 x 0.7	25	869
GBC 35s H	35	91	30	251	81	144	138	48	M6 x 1.0	32	1317
GBC 42s H	42	111	35	281	90	159	153	55	M6 x 1.0	38	2171

US units

Type	Connection	H	H1	L	L1	L2	L3	L4	M	D	Weight
	[mm]	[in.]	[in.]	[in.]	[in.]	[in.]	[in.]	[in.]	[mm]	[in.]	[lbs]
GBC 28s H	28	3.19	0.98	8.19	2.68	4.65	4.49	1.50	M4 x 0.7	0.98	1.92
GBC 35s H	35	3.58	1.18	9.88	3.19	5.67	5.43	1.89	M6 x 1.0	1.26	2.90
GBC 42s H	42	4.37	1.38	11.06	3.54	6.26	6.02	2.17	M6 x 1.0	1.50	4.79

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