



Ball Valve

ECOLINE BLC 1000

Type Series Booklet



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Type Series Booklet ECOLINE BLC 1000

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Ball Valves

Ball valves with Floating Ball

ECOLINE BLC 1000



Main applications

- General industry
- Petrochemical industry
- Chemical industry
- Process engineering
- Manufacturing
- Water supply systems

Fluids handled

- Service water
- Fluids containing gas
- Gas
- Condensate
- Corrosive fluids
- River water, lake water and groundwater
- Fuels
- Cooling water
- Fire-fighting water
- Oil
- Lubricants
- Boiler feed water
- Drinking water
- Wash water
- Other fluids on request.

Operating data

Table 1: Operating properties

Characteristic	Value
Nominal pressure	1000 WOG
Nominal size [inch]	NPS ¼ - 4
Nominal size	DN 8 - 100
Max. permissible pressure [bar]	84
Max. permissible temperature [°C]	≤ +200

Selection as per pressure/temperature ratings (⇒ Page 5)

Valve body materials

Table 2: Overview of available valve body materials

Material	Temperature limit [°C]
ASTM A216 WCB	≤ 200 °C
ASTM A351 CF8M	≤ 200 °C

Other materials on request.

Seat materials

Table 3: Overview of available valve body materials

Material	Temperature limit [°C]
PTFE	≤ 160 °C
RPTFE	≤ 200 °C
PTFE + graphite	≤ 200 °C

Other seat materials on request

Design details

Design

- ECOLINE BLC-P1: single-piece ball valve, reduced bore
- ECOLINE BLC-P2: two-piece ball valve, full bore
- ECOLINE BLC-P3: three-piece ball valve, full bore
- ECOLINE BLC-P2D: two-piece ball valve with top flange for direct mounting of actuators, full bore
- ECOLINE BLC-P3D: three-piece ball valve with top flange for direct mounting of actuators, full bore

Design

- Design to ASME B16.34
- Soft-seated
- Socket weld ends (only ECOLINE BLC-P3 and ECOLINE BLC-P3D) or threaded ends (NPT)
- PTFE seat
- PTFE packing
- PTFE gasket
- Blowout-proof shaft
- Locking device (versions with lever)
- Solid ball
- Anti-static design (except for ECOLINE BLC-P1)
- Lever-operated

Variants

- Seat made of RPTFE
- Seat made of PTFE + graphite
- Oil-free and grease-free
- Other threaded ends
- Electric actuators (ECOLINE BLC-P2D and ECOLINE BLC-P3D)
- Pneumatic actuators (ECOLINE BLC-P2D and ECOLINE BLC-P3D)
- Top flange and bare shaft end to ISO 5211 (ECOLINE BLC-P2D and ECOLINE BLC-P3D)

Product benefits

- Integral shoulder prevents blow-out.
- Elastic PTFE seat and smoother ball finish for reliable and tight shut-off
- Solid ball prevents deformation under excessive pressure, resulting in a longer service life.
- Anti-static design prevents electrostatic charging during operation (except for ECOLINE BLC-P1).
- Full bore for maximum flow rate without pressure drop (except for ECOLINE BLC-P1).

Product information

Product information as per Regulation No. 1907/2006 (REACH)

For information as per European chemicals regulation (EC) No. 1907/2006 (REACH) see <https://www.ksb.com/en-global/company/corporate-responsibility/reach>.

Product information as per European Pressure Equipment Directive 2014/68/EU (PED)

The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 2014/68/EU (PED) for fluids in Groups 1 and 2.

Product information as per UK Pressure Equipment (Safety) Regulations 2016

The valves satisfy the safety requirements of the UK Pressure Equipment (Safety) Regulations 2016 (PER) for fluids in Groups 1 and 2.

Pressure/temperature ratings

Seat made of PTFE (standard)

Table 5: Permissible operating pressures [bar]

NPS [inch]	Material	[°C]					
		0 to 38	66	93	121	149	160
1/4 - 1	ASTM A 216 WCB	84,1	65,9	47,0	27,3	7,7	0
1 1/4 - 1 1/2	ASTM A 351 CF8M	69,0	54,1	38,5	22,4	6,3	0
2 - 4		50,0	39,2	28,0	16,3	4,6	0

Table 6: Permissible operating pressures [psi]

NPS [inch]	Material	[°F]					
		32 to 100	150	200	250	300	320
1/4 - 1	ASTM A 216 WCB	1220	956	681	396	112	0
1 1/4 - 1 1/2	ASTM A 351 CF8M	1000	784	559	325	92	0

Product information as per Directive 2014/34/EU (ATEX)

The valves do not have a potential internal source of ignition and can be used in potentially explosive atmospheres, Group II, category 2 (zones 1+21) and category 3 (zone 2+22) to ATEX 2014/34/EU.

Product information as per UK Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016

The valves do not have a potential internal source of ignition and can be used in accordance with the UK's Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 in potentially explosive atmospheres, Group II, category 2 (zones 1+21) and category 3 (zone 2+22).

Related documents

Table 4: Information/documents

Document	Reference number
Type series booklet ECO-LINE BLT 150-300	8222.51
Operating manual ECOLINE BLT 150-300	8222.82
Operating manual ECOLINE BLC 1000	8222.81

Purchase order specifications

Please specify the following information in all enquiries or purchase orders:

1. Type
2. Nominal pressure
3. Nominal size
4. Operating pressure
5. Differential pressure
6. Operating temperature
7. Fluid handled
8. Pipe connection
9. Materials (body, seat, ball)
10. Variants
11. Reference number

NPS [inch]	Material	[°F]					
		32 to 100	150	200	250	300	320
2 - 4	ASTM A 216 WCB ASTM A 351 CF8M	725	568	406	236	67	0

Seat made of RPTFE or PTFE + graphite (variant)

Table 7: Permissible operating pressures [bar]

NPS [inch]	Material	[°C]						
		0 to 38	66	93	121	149	177	200
1/4 - 1	ASTM A 216 WCB	84,1	70,4	56,2	41,5	26,8	11,9	0
1 1/4 - 1 1/2	ASTM A 351 CF8M	69,0	57,8	46,1	34,1	22,0	9,9	0
2 - 4		50,0	41,9	33,4	25,0	15,9	7,2	0

Table 8: Permissible operating pressures [psi]

NPS [inch]	Material	[°F]						
		32 to 100	150	200	250	300	350	392
1/4 - 1	ASTM A 216 WCB	1220	1022	816	602	389	173	0
1 1/4 - 1 1/2	ASTM A 351 CF8M	1000	838	669	494	319	144	0
2 - 4		725	608	485	363	231	105	0

Table 9: Test pressures

Test	Test medium	1000 WOG	
		[bar]	[psi]
Shell	Water	105	1500
Leak test (seat) ¹⁾		77	1100
Leak test (seat)	Air	6	85

¹⁾ Optional seat leak test with water upon customer request

Materials

Materials for ECOLINE BLC-P1

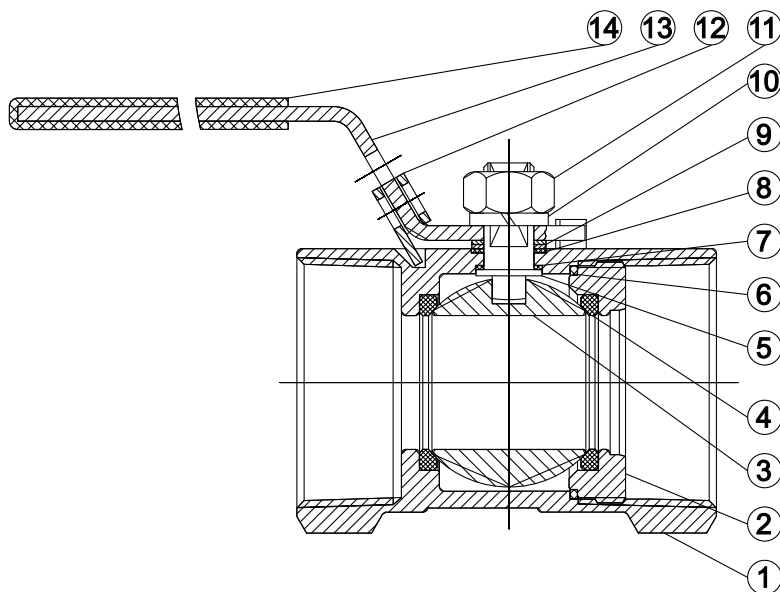


Fig. 1: Sectional drawing of ECOLINE BLC-P1

Table 10: Parts list

Part No.	Description	Material	
		A216 WCB	A351 CF8M
1	Body	A216 WCB	A351 CF8M
2	End cap	A216 WCB	A351 CF8M
3	Ball	A351 CF8M	
4	Seat	PTFE	
5	Shaft	SUS316	
6	Gasket	PTFE	
7	Thrust washer	PTFE	
8	Gland packing	PTFE	
9	Washer	SUS304	
10	Spring washer	SUS304	
11	Shaft nut	SUS304	
12	Locking device	SUS304	
13	Lever	SUS304	
14	Plastic sleeve	Plastic	

Materials for ECOLINE BLC-P2

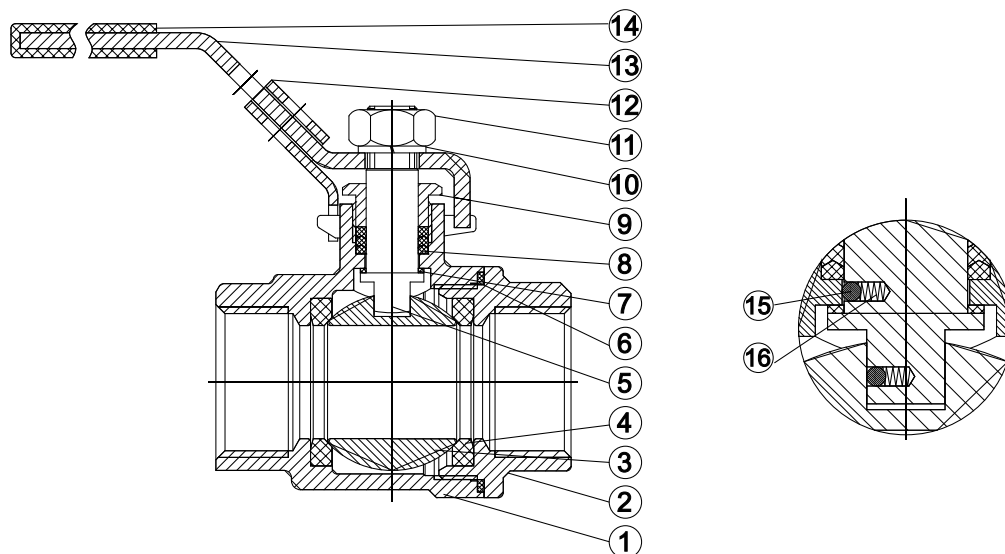


Fig. 2: Sectional drawings of ECOLINE BLC-P2

Table 11: Parts list

Part No.	Description	Material	
		A216 WCB	A351 CF8M
1	Body	A216 WCB	A351 CF8M
2	End cap	A216 WCB	A351 CF8M
3	Ball	A351 CF8M	
4	Seat	PTFE	
5	Shaft	SUS316	SUS316
6	Gasket	PTFE	
7	Thrust washer	PTFE	
8	Gland packing	PTFE	
9	Gland follower	SUS304	
10	Spring washer	SUS304	
11	Shaft nut	SUS304	
12	Locking device	SUS304	
13	Lever	SUS304	
14	Plastic sleeve	Plastic	
15	Anti-static ball	SUS316	
16	Anti-static spring	SUS316	

Materials for ECOLINE BLC-P3

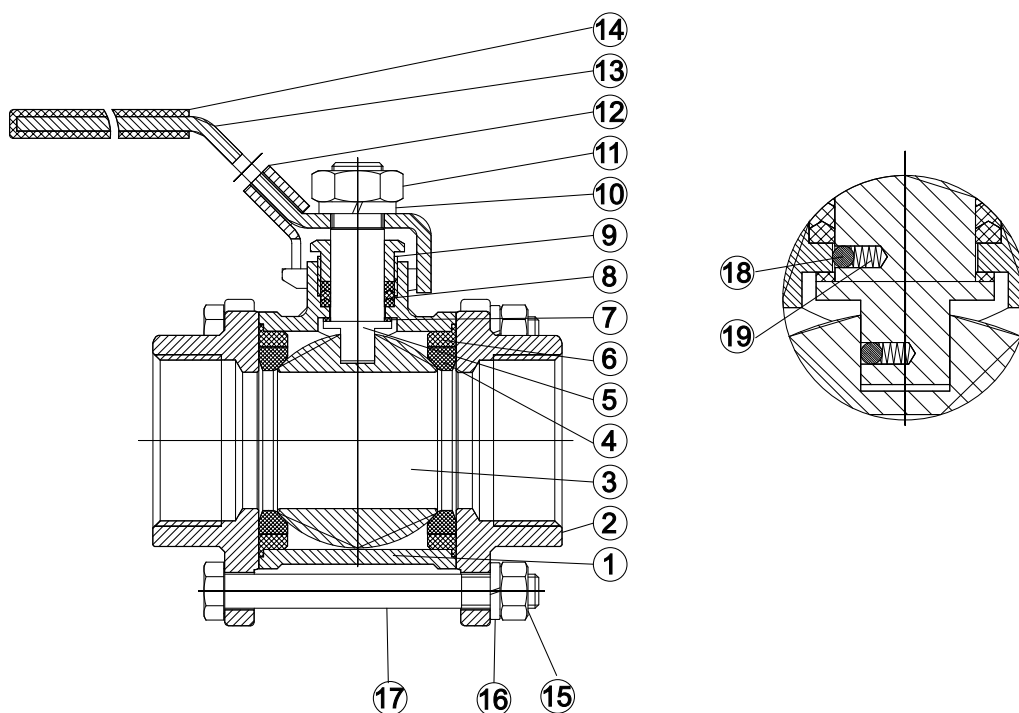


Fig. 3: Sectional drawings of ECOLINE BLC-P3

Table 12: Parts list

Part No.	Description	Material	
		A216 WCB	A351 CF8M
1	Body	A216 WCB	A351 CF8M
2	End cap	A216 WCB	A351 CF8M
3	Ball	A351 CF8M	
4	Seat	PTFE	
5	Shaft	SUS316	
6	Gasket	PTFE	
7	Thrust washer	PTFE	
8	Gland packing	PTFE	
9	Gland follower	SUS304	
10	Spring washer	SUS304	
11	Shaft nut	SUS304	
12	Locking device	SUS304	
13	Lever	SUS304	
14	Plastic sleeve	Plastic	
15	Hexagon nut	SUS304	
16	Washer	SUS304	
17	Tie bolt	SUS304	
18	Anti-static ball	SUS316	
19	Anti-static spring	SUS316	

8222.53/05-EN

Materials for ECOLINE BLC-P2D

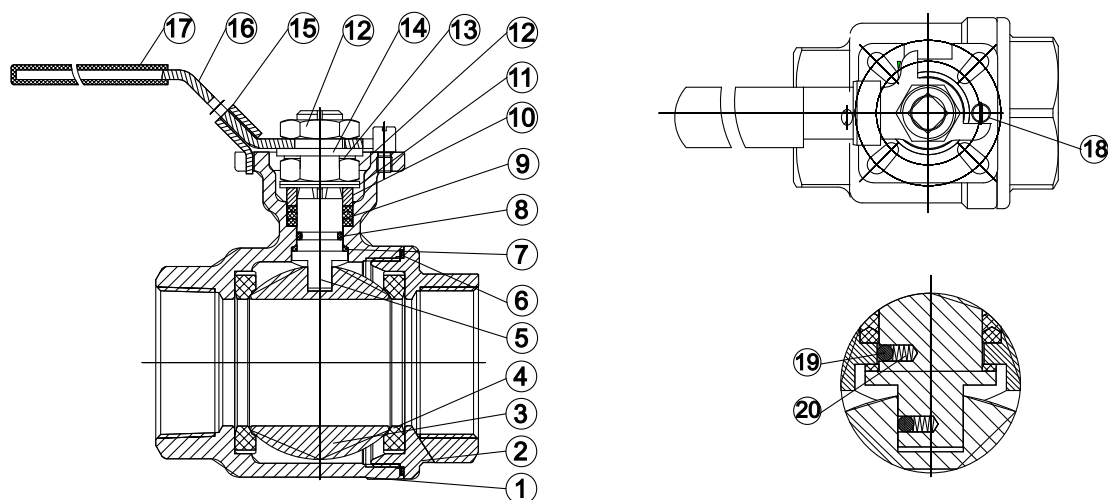


Fig. 4: Sectional drawings of ECOLINE BLC-P2D

Table 13: Parts list

Part No.	Description	Material
		A351 CF8M
1	Body	A351 CF8M
2	End cap	A351 CF8M
3	Ball	A351 CF8M
4	Seat	PTFE
5	Shaft	SUS316
6	Gasket	PTFE
7	Thrust washer	TFM4215
8	O-ring	Viton
9	Gland packing	PTFE
10	Gland follower	SUS304
11	Spring washer	SUS301
12	Shaft nut	SUS304
13	Stop disc	SUS304
14	Washer	SUS304
15	Locking device	SUS304
16	Lever	SUS304
17	Plastic sleeve	Plastic
18	Stop pin	SUS304
19	Anti-static ball	SUS316
20	Anti-static spring	SUS316

Materials for ECOLINE BLC-P3D

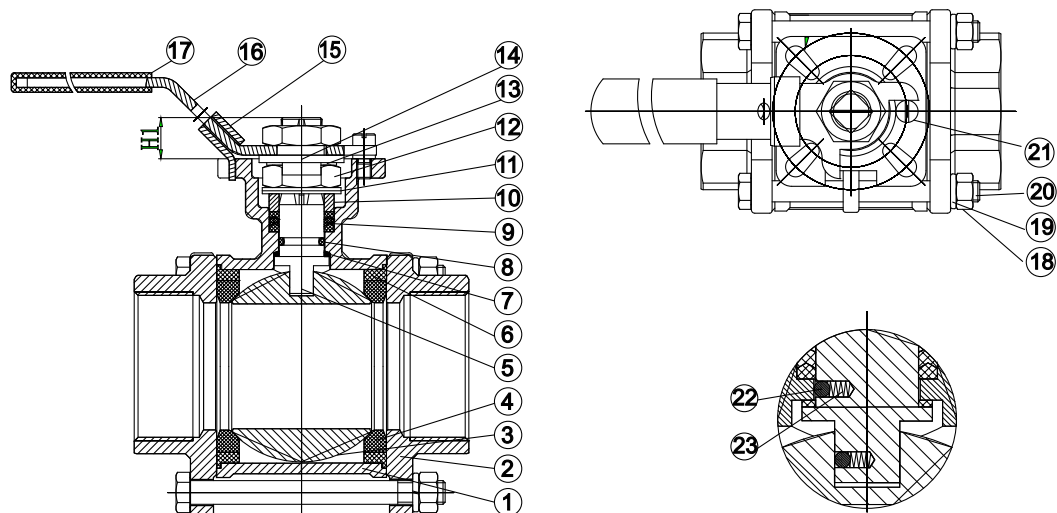


Fig. 5: Sectional drawings of ECOLINE BLC-P3D

Table 14: Parts list

Part No.	Description	Material
		A351 CF8M
1	Body	A351 CF8M
2	End cap	A351 CF8M
3	Ball	A351 CF8M
4	Seat	PTFE
5	Shaft	SUS316
6	Gasket	PTFE
7	Thrust washer	TFM4215
8	O-ring	Viton
9	Gland packing	PTFE
10	Gland follower	SUS304
11	Spring washer	SUS301
12	Shaft nut	SUS304
13	Stop disc	SUS304
14	Washer	SUS304
15	Locking device	SUS304
16	Lever	SUS304
17	Plastic sleeve	Plastic
18	Nut	SUS304
19	Spring washer	SUS304
20	Tie bolt	SUS304
21	Stop pin	SUS304
22	Anti-static ball	SUS316
23	Anti-static spring	SUS316

Dimensions and weights

Dimensions and weights of ECOLINE BLC-P1

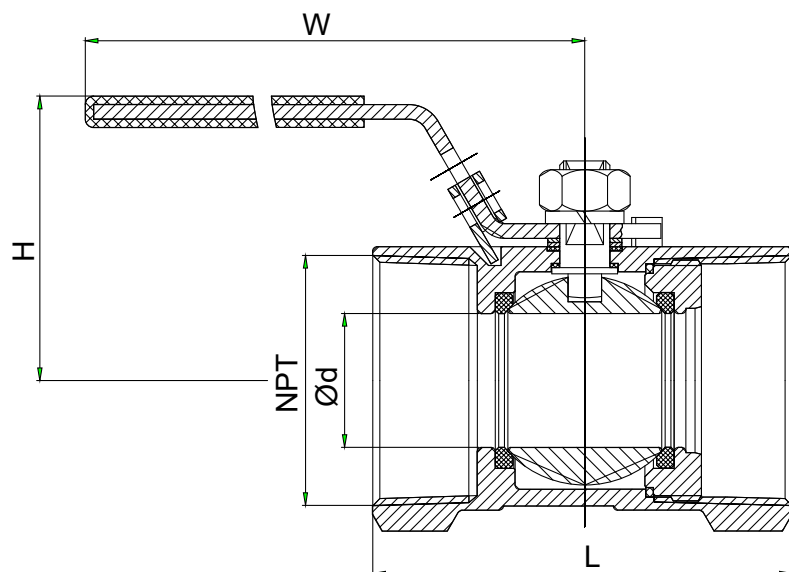


Fig. 6: Dimensions of ECOLINE BLC-P1

Table 15: Dimensions and weights

NPS/NPT [inch]	DN	Ød [mm]	L [mm]	H [mm]	W [mm]	[kg]
1/4	8	5,5	39	34	69	0,06
3/8	10	7,5	44	38	83	0,10
1/2	15	9,5	59	41	96	0,17
3/4	20	13	60	45	96	0,24
1	25	16	72	52	116	0,38
1 1/4	32	20	77	57	116	0,58
1 1/2	40	25	84	62	158	0,85
2	50	32	100	68	158	1,28

Mating dimensions as per standard

Face-to-face lengths: Manufacturer's standard

Threaded ends: ASME B1.20.1

Dimensions and weights of ECOLINE BLC-P2

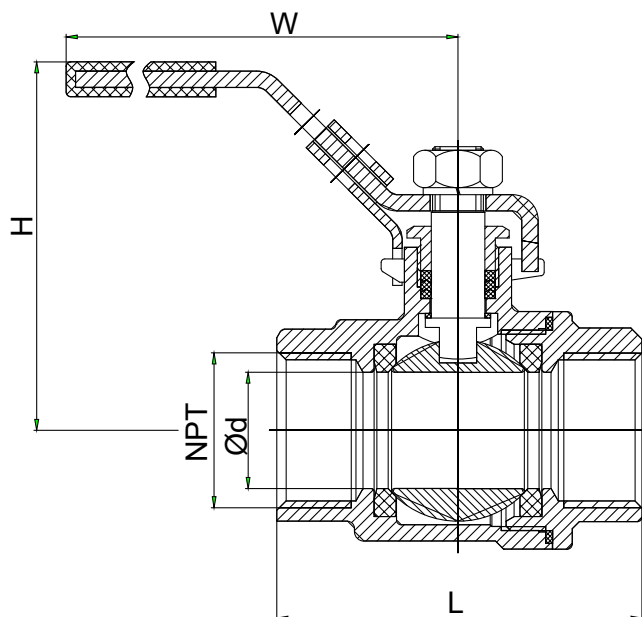


Fig. 7: Dimensions of ECOLINE BLC-P2

Table 16: Dimensions and weights

NPS/NPT [inch]	DN	Ød [mm]	L [mm]	H [mm]	W [mm]	[kg]
1/4	8	11,6	52	56	102	0,25
3/8	10	12,7	52	56	102	0,24
1/2	15	15	58	65	123	0,32
3/4	20	20	67	68	123	0,65
1	25	25	78	79	153	0,79
1 1/4	32	32	90	84	153	1,14
1 1/2	40	40	104	93	183	1,66
2	50	50	127	99	183	2,76
2 1/2	65	65	158	136	246	6,10
3	80	80	187	146	246	9,47

Mating dimensions as per standard

Face-to-face lengths: Manufacturer's standard

Threaded ends: ASME B1.20.1

Dimensions and weights of ECOLINE BLC-P3

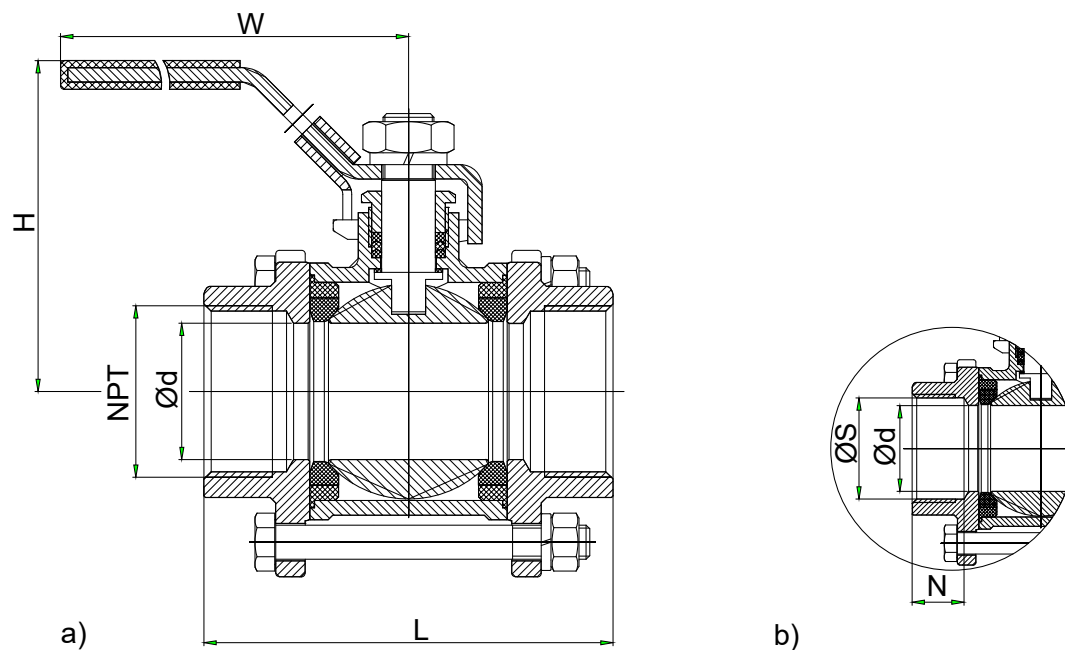


Fig. 8: Dimensions of ECOLINE BLC-P3

- a) Threaded ends
b) Socket weld ends

Table 17: Dimensions and weights

NPS/NPT [inch]	DN	Ød [mm]	L [mm]	H [mm]	W [mm]	ØS [mm]	N [mm]	[kg]
1/4	8	11,6	58	56	102	14,1	14,0	0,38
3/8	10	12,7	58	56	102	17,6	15,5	0,36
1/2	15	15	63	65	123	21,7	16,0	0,53
3/4	20	20	73	67	123	27,1	16,5	0,70
1	25	25	85	79	153	33,8	19,0	0,97
1 1/4	32	32	96	84	153	42,6	22,0	1,48
1 1/2	40	38	114	92	183	48,7	22,0	2,24
2	50	50	134	99	183	61,1	25,0	3,46
2 1/2	65	65	180	136	246	76,9	38,0	7,48
3	80	80	200	146	246	89,8	41,0	12,32
4	100	100	228	168	350	115,5	36,0	16,49

Mating dimensions as per standard

Face-to-face lengths: Manufacturer's standard
Socket weld ends: ASME B16.11
Threaded ends: ASME B1.20.1

Dimensions and weights of ECOLINE BLC-P2D

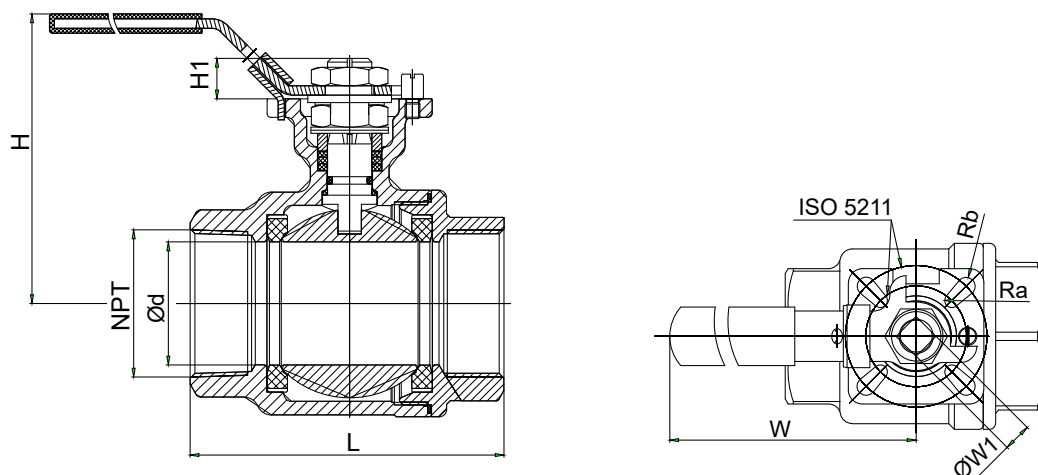


Fig. 9: Dimensions and weights of ECOLINE BLC-P2D

Table 18: Dimensions and weights

NPS/NPT [inch]	DN	Ød [mm]	L [mm]	H [mm]	W [mm]	H1 [mm]	ØW1 [mm]	Ra	Rb	ISO 5211 ²⁾	[kg]
1/4	8	11,6	58	74	123	9	9	R3	R3	F03/F04	0,41
3/8	10	12,7	58	74	123	9	9	R3	R3	F03/F04	0,46
1/2	15	15	58	74	123	9	9	R3	R3	F03/F04	0,36
3/4	20	20	67	78	123	9	9	R3	R3	F03/F04	0,54
1	25	25	78	89	153	11	11	R3	R3,5	F04/F05	0,73
1 1/4	32	32	90	94	153	11	11	R3	R3,5	F04/F05	1,28
1 1/2	40	38	104	110	183	14	14	R3,5	R4,5	F05/F07	2,04
2	50	50	126	118	183	14	14	R3,5	R4,5	F05/F07	3,05

Mating dimensions as per standard

Face-to-face lengths: Manufacturer's standard
Threaded ends: ASME B1.20.1

² Top flange to ISO 5211

Dimensions and weights of ECOLINE BLC-P3D

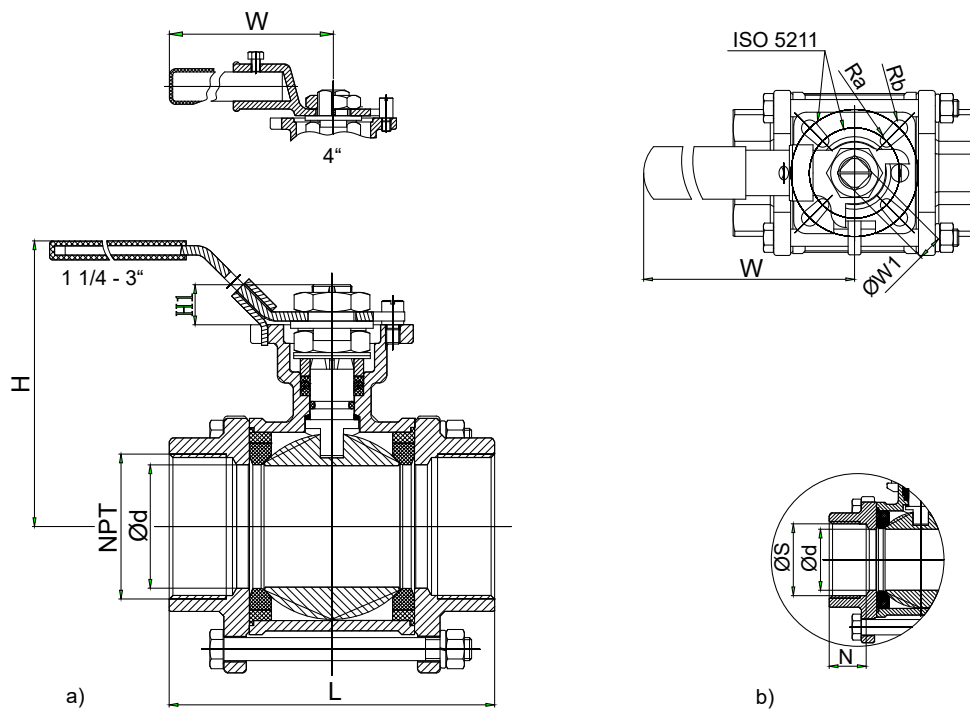


Fig. 10: Dimensions and weights of ECOLINE BLC-P3D

- a) Threaded ends
b) Socket weld ends

Table 19: Dimensions and weights

NPS/ NPT	DN	Ød	L	H	W	ØS	H1	N	ØW1	Ra	Rb	ISO 5211 ³⁾	[kg]
[inch]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]				
1/4	8	11,6	63	74	123	14,1	9	14,0	9	R3	R3	F03/ F04	0,74
3/8	10	12,7	63	74	123	17,6	9	15,5	9	R3	R3	F03/ F04	0,70
1/2	15	15	63	74	123	21,7	9	16,0	9	R3	R3	F03/ F04	0,64
3/4	20	20	73	78	123	27,1	9	16,5	9	R3	R3	F03/ F04	0,78
1	25	25	85	89	153	33,8	11	19,0	11	R3	R3,5	F04/ F05	1,22
1 1/4	32	32	96	94	153	42,6	11	22,0	11	R3	R3,5	F04/ F05	1,70
1 1/2	40	38	114	110	183	48,7	14	22,0	14	R3,5	R4,5	F05/F07	2,52
2	50	50	134	118	183	61,1	14	25,0	14	R3,5	R4,5	F05/F07	3,24
2 1/2	65	65	180	161	246	76,9	17	38,0	17	R4,5	R5,5	F07/F10	8,14
3	80	80	200	170	246	89,8	17	41,0	17	R4,5	R5,5	F07/F10	12,74
4	100	100	228	202	395	115,5	22	36,0	22	R5,7	R6,7	F10/F12	21,0

Mating dimensions as per standard

Face-to-face lengths: Manufacturer's standard
Socket weld ends: ASME B16.11
Threaded ends: ASME B1.20.1

³ Top flange to ISO 5211

Technical data

Table 20: Flow coefficient

Design	NPS	DN	Flow coefficient		Torque ⁴⁾	
			Cv	Kv		
	[inch]		[US gallons/min.]	[m³/h]	[ft.lb.]	[Nm]
BLC-P1	1/4	8	4	3,5	n/a	n/a
	3/8	10	4	3,5	n/a	n/a
	1/2	15	4,5	3,9	n/a	n/a
	3/4	20	9	7,8	n/a	n/a
	1	25	16	13,8	n/a	n/a
	1 1/4	32	24	20,7	n/a	n/a
	1 1/2	40	27	23,3	n/a	n/a
	2	50	68	58,8	n/a	n/a
BLC-P2	1/4	8	6	5,2	4,4	6
	3/8	10	7	6,0	5,9	8
	1/2	15	10	8,6	8,1	11
	3/4	20	25	21,6	10,3	14
	1	25	35	30,2	13,2	18
	1 1/4	32	46	39,8	20,6	28
	1 1/2	40	80	69,2	33,1	45
	2	50	110	95,2	38,4	52
	2 1/2	65	310	268,2	49,4	67
	3	80	360	311,4	70,0	95
BLC-P3	1/4	8	6	5,2	4,4	6
	3/8	10	7	6,0	5,9	8
	1/2	15	10	8,6	8,1	11
	3/4	20	25	21,6	10,3	14
	1	25	35	30,2	13,2	18
	1 1/4	32	46	39,8	20,6	28
	1 1/2	40	80	69,2	33,1	45
	2	50	110	95,2	38,4	52
	2 1/2	65	310	268,2	49,4	67
	3	80	360	311,4	70,0	95
	4	100	820	709,3	92,2	125
BLC-P2D	1/4	8	6	5,2	4,4	6
	3/8	10	7	6,0	5,9	8
	1/2	15	10	8,6	8,1	11
	3/4	20	25	21,6	10,3	14
	1	25	35	30,2	13,2	18
	1 1/4	32	46	39,8	20,6	28
	1 1/2	40	80	69,2	33,1	45
	2	50	110	95,2	38,4	52
BLC-P3D	1/4	8	6	5,1	4,4	6
	3/8	10	7	6,0	5,9	8
	1/2	15	10	8,6	8,1	11
	3/4	20	25	21,4	10,3	14
	1	25	35	30,0	13,2	18
	1 1/4	32	46	39,4	20,6	28
	1 1/2	40	80	68,5	33,1	45
	2	50	110	94,3	38,4	52
	2 1/2	65	310	265,6	49,4	67
	3	80	360	308,5	70,0	95
	4	100	820	702,7	92,2	125

⁴ Maximum breakaway torque



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