

Ball Valve

## ECOLINE BLC 1000

1000 WOG  
DN 8 to 100 (¼ to 4 inches)

### 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)

#### Body materials

Table 2: Overview of available materials

Material	Temperature limit
ASTM A216 WCB	≤ 200 °C
ASTM A 351 CF8	≤ 200 °C
ASTM A 351 CF8M	≤ 200 °C

Other body materials on request

#### Seat materials

Table 3: Overview of available materials

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

Other seat materials on request

#### Design details

##### Design

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

**Variants**

- Seat made of RPTFE
- Seat made of PTFE + graphite
- Oil and grease-free
- Other threaded ends
- Electric actuators (only BLC-P2D and BLC-P3D)
- Pneumatic actuators (only BLC-P2D and BLC-P3D)
- Bare shaft end with top flange to ISO 5211 (only BLC-P2D and 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 BLC-P1)
- Full bore for maximum flow rate without pressure drop (except for BLC-P1)

**Product information**

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

For information as per chemicals Regulation (EC) No. 1907/2006 (REACH), see <https://www.ksb.com/ksb-en/About-KSB/Corporate-responsibility/reach/>.

**Product information as per 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 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 (zones 2+22) to ATEX 2014/34/EU.

**Related documents**

**Table 4:** Information/documents

Document	Reference number
Type series booklet ECOLINE BLT 150-300	8222.51
Operating manual	8222.81

**Purchase order specifications**

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

**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 CF8	69,0	54,1	38,5	22,4	6,3	0
2 - 4	ASTM A 351 CF8M	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 CF8	1000	784	559	325	92	0
2 - 4	ASTM A 351 CF8M	725	568	406	236	67	0

8222.53/03-EN

**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 CF8	69,0	57,8	46,1	34,1	22,0	9,9	0
2 - 4	ASTM A 351 CF8M	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 CF8	1000	838	669	494	319	144	0
2 - 4	ASTM A 351 CF8M	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) <sup>1)</sup>		77	1100
Leak test (seat)	Air	6	85

<sup>1</sup> Optional seat leak test with water upon customer request

Materials

Materials for Ecoline BLC-P1

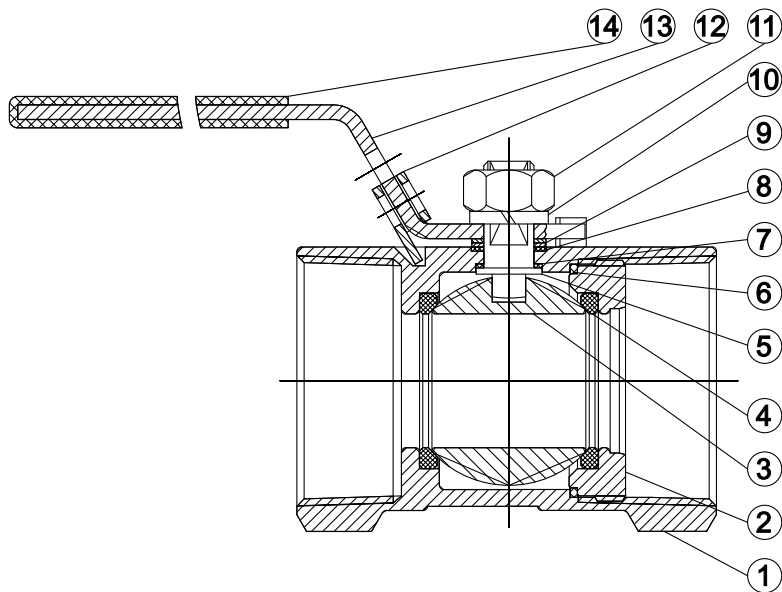
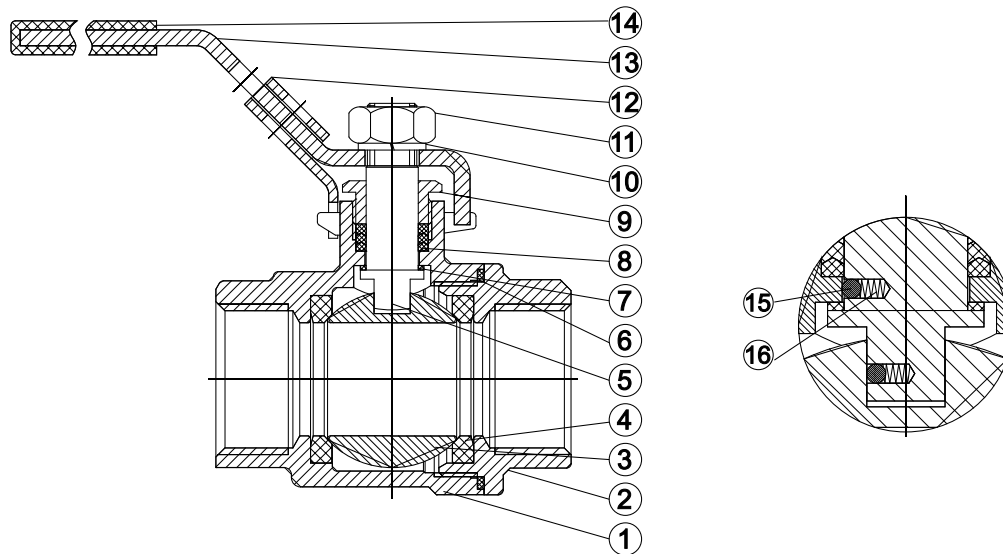


Fig. 1: Sectional drawing

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 cover	Plastic	

**Materials for Ecoline BLC-P2**



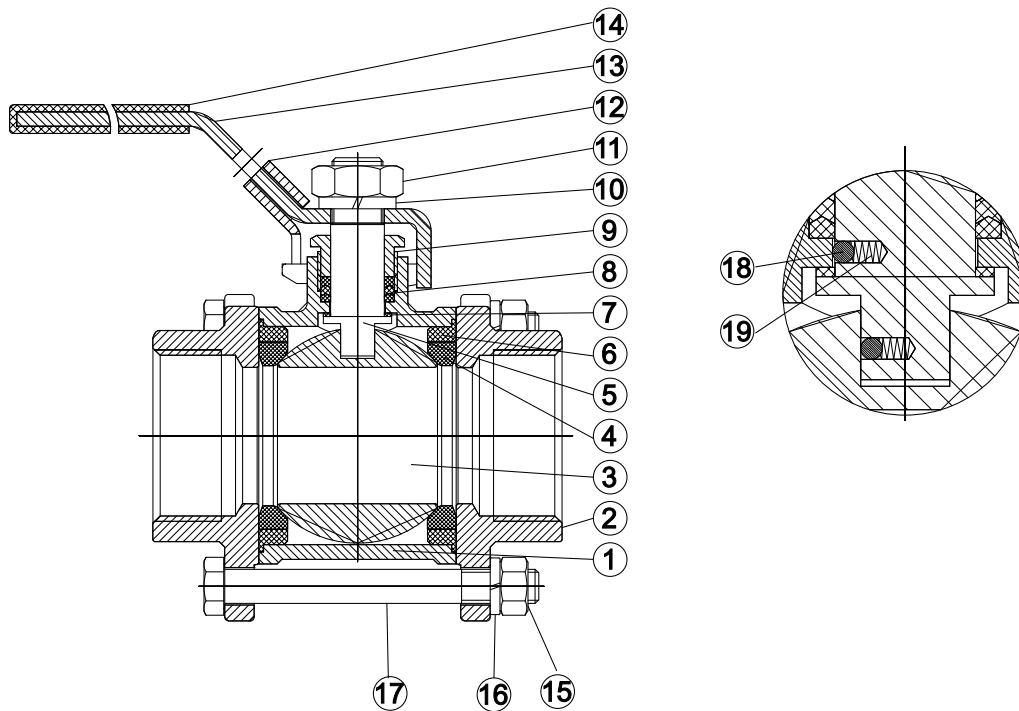
**Fig. 2:** Sectional drawings

**Table 11:** Parts list

Part No.	Description	Material		
		A216 WCB	A351 CF8	A351 CF8M
1	Body	A216 WCB	A351 CF8	A351 CF8M
2	End cap	A216 WCB	A351 CF8	A351 CF8M
3	Ball	A351 CF8M		
4	Seat	PTFE		
5	Shaft	SUS316	SUS304	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 cover	Plastic		
15	Anti-static ball	SUS316		
16	Anti-static spring	SUS316		



**Materials for Ecoline BLC-P3**

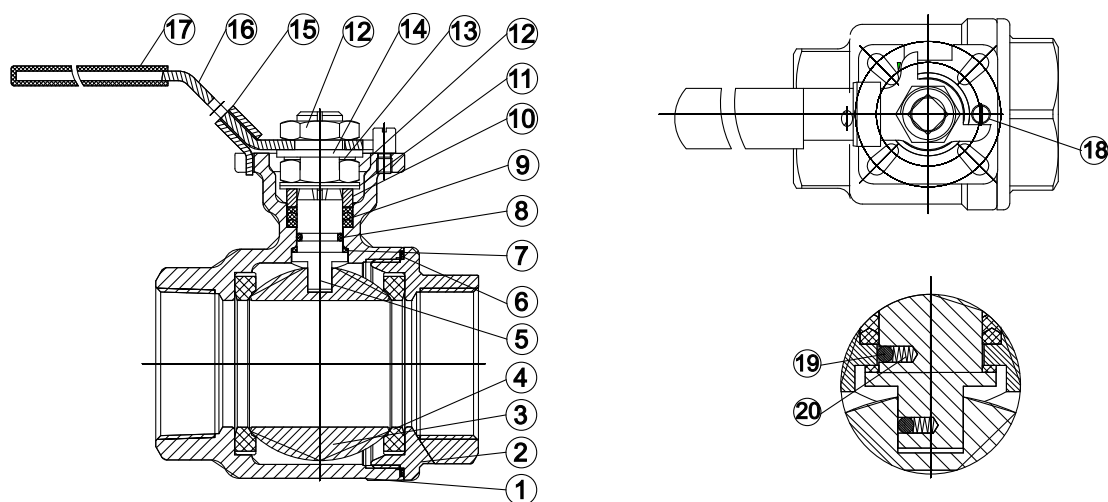


**Fig. 3:** Sectional drawings

**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 cover	Plastic	
15	Hexagon nut	SUS304	
16	Washer	SUS304	
17	Bolt	SUS304	
18	Anti-static ball	SUS316	
19	Anti-static spring	SUS316	

**Materials for Ecoline BLC-P2D**

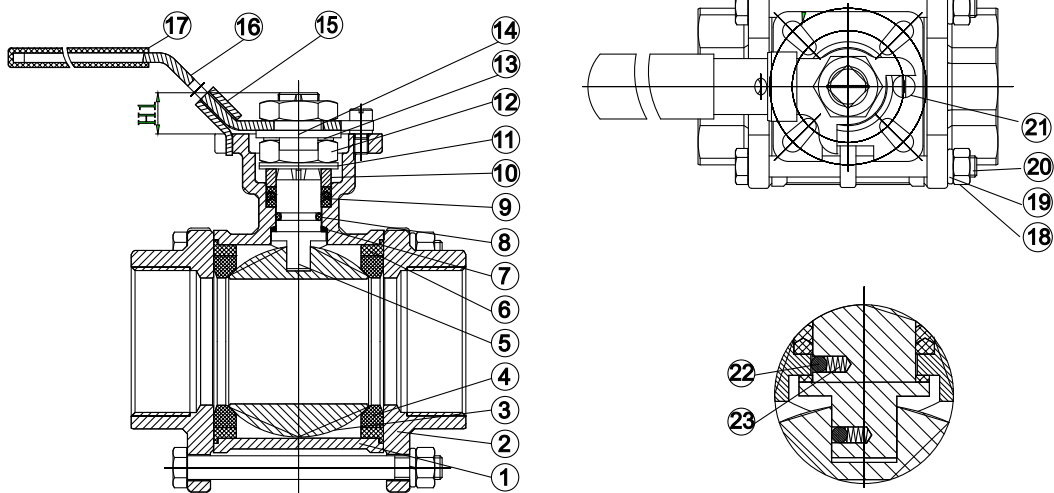


**Fig. 4:** Sectional drawings

**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 cover	Plastic
18	Stop pin	SUS304
19	Anti-static ball	SUS316
20	Anti-static spring	SUS316

**Materials for Ecoline BLC-P2D**



**Fig. 5:** Sectional drawings

**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 cover	Plastic
18	Nut	SUS304
19	Spring washer	SUS304
20	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

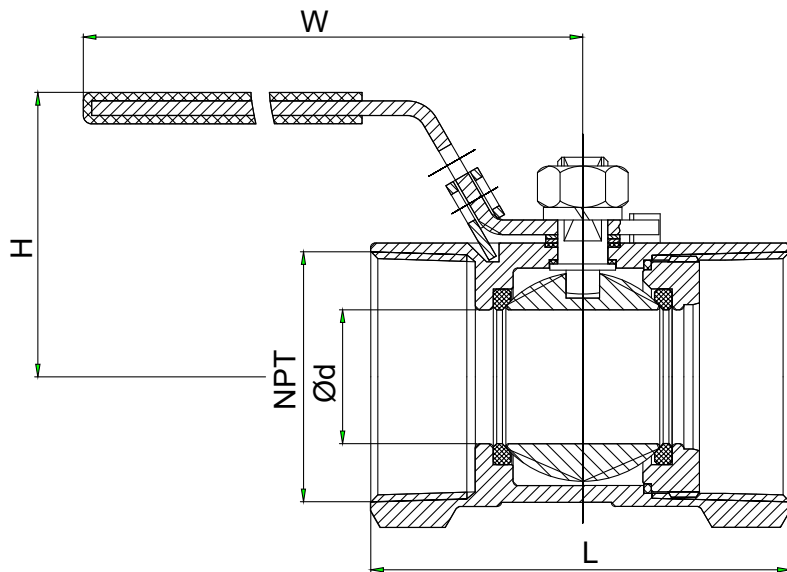


Fig. 6: Dimensions

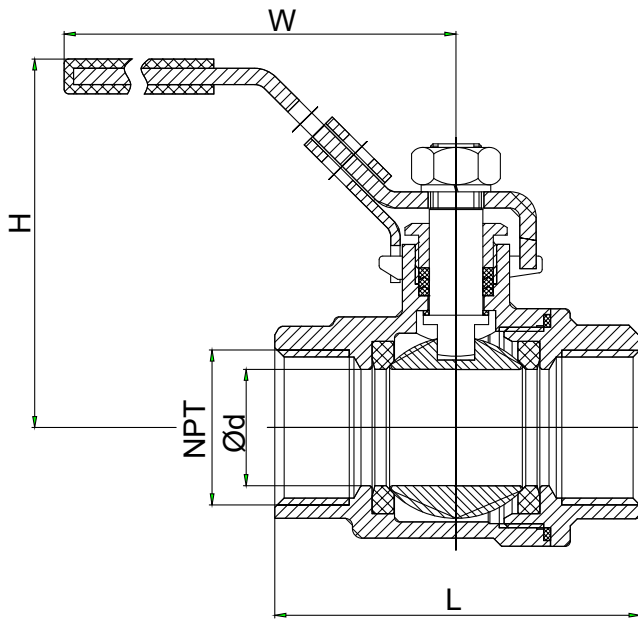
NPS/NPT [inch]	DN	Ød [mm]	L [mm]	H [mm]	W [mm]	[kg]
1/4	8	5,5	39	34	69	0,06
3/8	10	7,5	44	38	83	0,10
1/2	15	9,5	59	41	96	0,17
3/4	20	13	60	45	96	0,24
1	25	16	72	52	116	0,38
1 1/4	32	20	77	57	116	0,58
1 1/2	40	25	84	62	158	0,85
2	50	32	100	68	158	1,28

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**

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

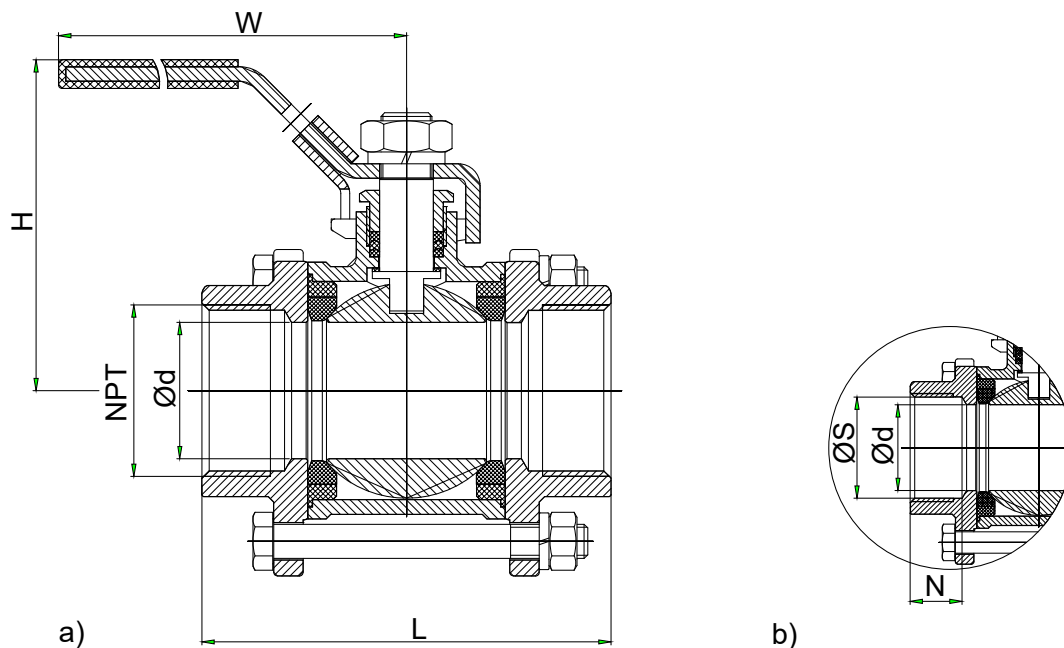


Fig. 8: Dimensions a) Threaded ends b) Socket weld ends

Table 15: Dimensions [mm] and weights [kg]

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

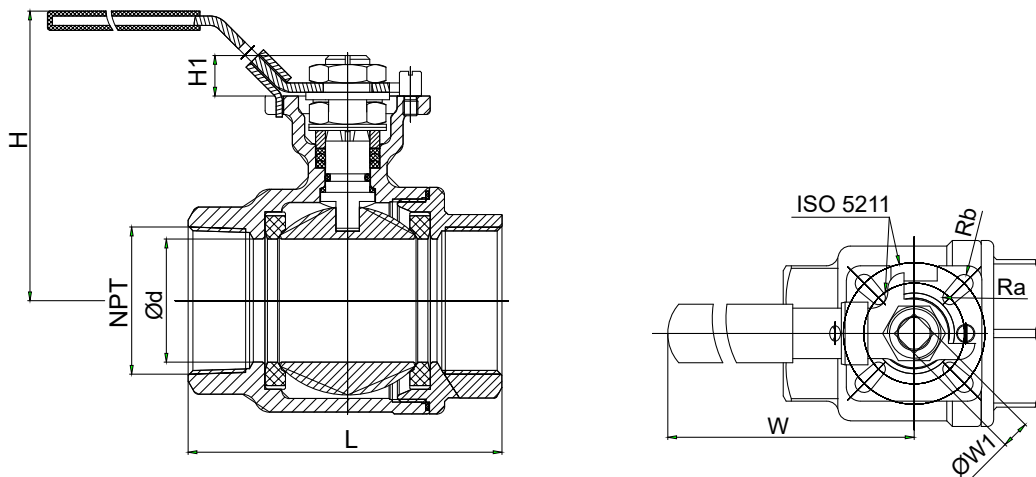


Fig. 9: Dimensions

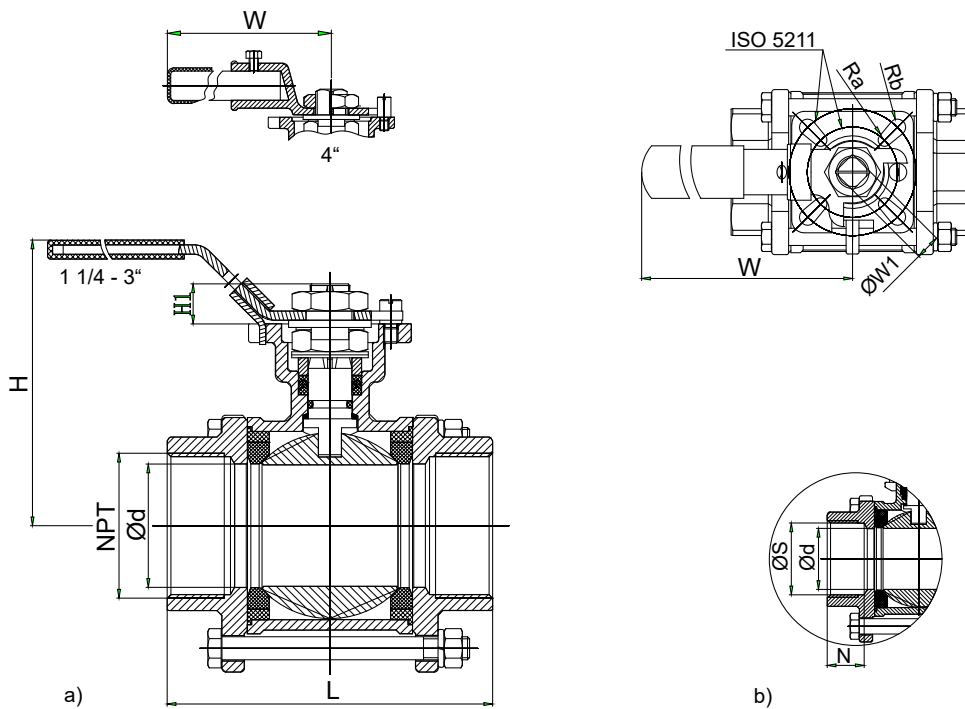
NPS/NPT [inch]	DN	Ød [mm]	L [mm]	H [mm]	W [mm]	H1 [mm]	ØW1 [mm]	Ra	Rb	ISO 5211 <sup>2)</sup>	[kg]
1/4	8	11,6	58	74	123	9	9	R3	R3	F03/F04	0,41
3/8	10	12,7	58	74	123	9	9	R3	R3	F03/F04	0,46
1/2	15	15	58	74	123	9	9	R3	R3	F03/F04	0,36
3/4	20	20	67	78	123	9	9	R3	R3	F03/F04	0,54
1	25	25	78	89	153	11	11	R3	R3,5	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

<sup>2</sup> Top flange to ISO 5211

**Dimensions and weights of ECOLINE BLC-P3D**



**Fig. 10:** Dimensions a) Threaded ends b) Socket weld ends

NPS/ NPT	DN	Ød	L	H	W	ØS	H1	N	ØW1	Ra	Rb	ISO 5211 <sup>3)</sup>	[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

<sup>3</sup> Top flange to ISO 5211



**Technical data**
**Table 16: Flow coefficient**

Design	NPS	DN	Flow coefficient		Torque <sup>4)</sup>	
			Cv	Kv	[ft.lb.]	[Nm]
	[inch]		[US gallons/min.]	[m <sup>3</sup> /h]		
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
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	

8222.53/03-EN

<sup>4</sup> Maximum breakaway torque







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