

Butterfly Valve

Double-offset Butterfly Valves

ECOLINE DEB 16/16L/16K



Main applications

- Irrigation systems
- Cooling circuits
- Seawater desalination and reverse osmosis
- Shipbuilding
- Water treatment
- Water supply systems

Fluids handled

- Service water
- River, lake and groundwater
- Seawater
- Cooling water
- Drinking water

Operating data

Operating properties

Characteristic	Value
Nominal pressure	PN 10/16
Nominal size	DN 100-2800
Max. permissible pressure	16 bar
Permissible temperature	-10 to +120 °C

Selection as per pressure/temperature ratings (=> page 2)

Body materials

Overview of available materials

Material	Temperature limit
QT 450-10	+120 °C

Design details

Design

- Design per GB/T 12238, EN 593
- Resilient seat
- Non-toxic elastomer
- Manual hand wheel operating with gearbox which epoxy coated in black color
- Double-flanged body with short face-to-face length to GB/T 12221 / EN558-1 series 13 (ECOLINE DEB 16) and **series 14 (ECOLINE DEB 16L)**
- Flanges per GB/T 17241.6, EN 1092-2
- For resilient seat, perfectly tight shut-off in either direction flow in accordance with GB/T 13927, **EN 12266-1 Rate A**
- For metal-seated, leakage rate GB/T 13927 Rate D in preferred direction and 80% leakage level of Rate D in reverse direction
- External and internal epoxy coated with thickness min. 250 µm and RAL 5015
- Rubber and coating certificated for drinking water applications to WRAS

Variants

- Bare shaft with mounting flange per ISO 5211
- Electric actuator
- Pneumatic actuator
- Limit switch
- Other materials
- Metal-seated (only available for ECOLINE DEB 16 PN10 DN300-2800 and PN16 DN300-1400)

Product benefits

- Body seating surface is depositing welded with stainless steel and preciously machined and finely grinded, to ensure tight shut-off and long time working life due to no corrosion. The integral body seating design avoids leakage possibly between body and separate seat ring.
- The tapered pins retain disc and shafts tightly to prevent from any shocking and deformation or malposition, so as to stabilize operating force transmission from operating mechanism to disc.
- The valve's double end flanges are suitable to downstream dismantling and as dead-end valve.
- Online replacement of disc sealing ring is available when valve fully open due to no touching of disc sealing ring and body seating.
- For big sizes, multiple framework enforced disc design, so as to realize enough strength of disc and the best flow efficiency when disc fully open, avoiding shocking stress damage to disc at high flow velocity.
- Disc sealing ring is retained by metal plate and adjustable hexogen nuts, so the sealing ring is able to be re-tightened to keep disc always tightly shut-off. Every hexogen nut is equipped with locking washer to prevent from loosening due to fluid shocking so as to a more lasting and stable disc.
- The split rings are to prevent lower shaft from dropping down to ensure precious positioning of disc so as to a stable and a lasting disc sealing.
- PTFE bushing with self-lubricant is used between body and shafts to ensure longer working life and lower operating torque.
- Valve is able to shut-off tightly in either direction even though disc sealing use double offset design.

Related documents

- Operating manual 7356.81/03-EN

On all enquiries / orders please specify

1. Type
2. Nominal pressure
3. Nominal size
4. Operating pressure
5. Differential pressure
6. Operating temperature
7. Medium
8. Pipe connection
9. Variants
10. Number of type series booklet

Pressure/temperature ratings

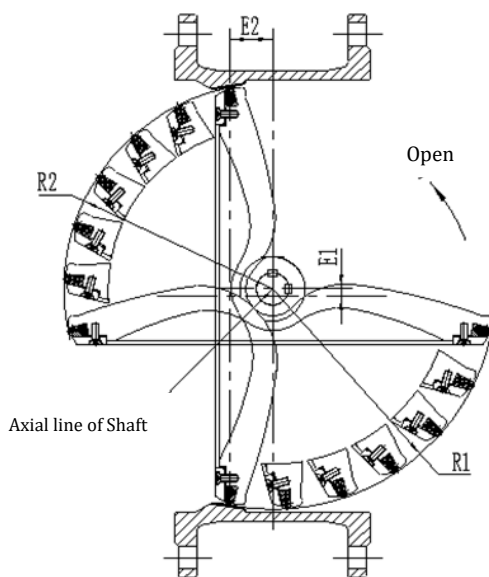
Permissible operating pressures in bar at temperatures in °C

Nominal pressure	Nominal size	Permissible operating pressure ¹⁾
PN	DN	Up to + 120 °C
10	100 – 2800	10
16	100 - 2000	16

1) Static load

Kinematic

- The valve disc is pressed onto the seat by a double-offset kinematics.
- Double offset:
 - The axis of rotation is offset from the seat/disc interface (E1).
 - The axis of rotation is offset from the piping centerline (E2).
- This design prevents friction between the seat and the sealing surface of the valve disc as the valve discs open and closes.
- The valve's shut-off capability is maintained even after a very large number of actuating cycles.
- The butterfly valve's shut-off capability meets the most stringent specifications and standards.



E1. First offset

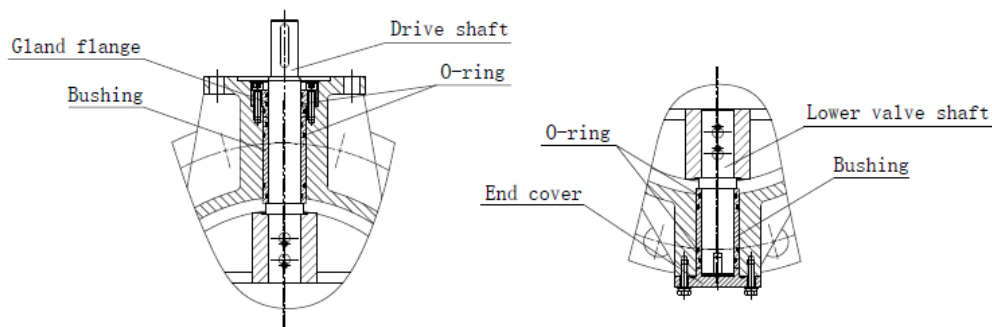
E2. Second offset

Structure

- **Body**
The valve body adopts resin sand precision casting process, using electric furnace smelting and annealing treatment to relieve internal stress so as to acquire beautiful appearance, fine texture, uniform structure instead of casting defects such as crack, shrinkage cavity, looseness and insufficient pouring.
- **Disc**
 - Adopt same casting process as body. The disc adopts streamline type, this kind of shape is designed based on the principle of hydrodynamics which is able to reduce the medium flow resistance and has stable performance when the water flow speed is high so as to save energy.
 - Disc has good conductivity and its flow resistance coefficient is no more than 0.2 when valve is fully open.
 - Adopt thrust plate and adjusting screw to limit and adjust disc of valve instead of traditional combination of split ring and antifriction adjusting pad.
- **Shaft**
 - Valve shaft is design into two parts in order to reduce the flow resistance and the energy consumption. The valve shaft is made of stainless steel, with high strength, good rigidity, wear resistance and corrosion resistance.
 - Valve shaft and disc are connected by flat key and double locating pin which makes the transmission torque more reliable and the maintenance more convenient.
- **Bushing**
 - Self-lubricating material which has no harmful effect on water and rubber, the connection between bushing and shaft ensures good operation performance and reduces abrasion between shaft and body.
 - Bushing is made by copper alloy which friction coefficient is less than 0.25 under the maximum pressure load.
 - Bushing is equipped with multiple O-ring seal grooves to ensure that the medium in the inner cavity has no chance escape to the atmosphere, which not only improves the safety during operation, but also protects the environment.

Drive Shaft View

Lower Shaft View

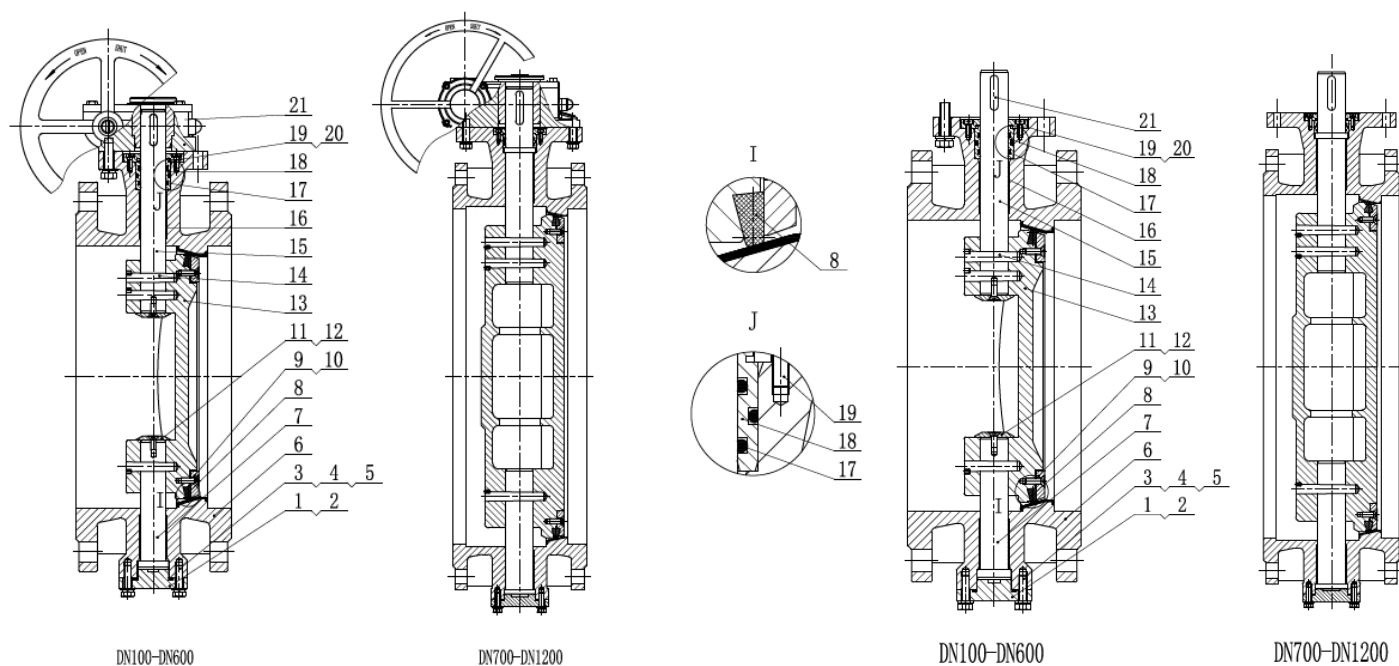


- **Sealing surface**
 - The sealing type adopts the soft sealing type with self-sealing function. Among them, the whole rubber seal ring is pressed on the valve disc by the seal retainer, and has a certain embedding freedom, which can be adjusted freely within a certain range to achieve two-way sealing. There is no direction requirement for water flow, and the butterfly valve can reliably achieve bubble level sealing even under the highest working pressure. The rubber sealing ring can be easily disassembled and replaced to realize the long-term service.
 - The valve seat is made of hard-facing stainless steel, which has strong wear and corrosion resistance and long service life.

- Special sealing design ensure two-way sealing. In case of reverse sealing, the whole regulating retainer is affected by the medium pressure on the sealing ring to increase the interference and ensure the sealing.
- Cone-shaped section replaces the traditional T-shaped sealing ring so as to provide reliable positioning and stable compression ratio. Increase pre-tightening force of the screw to enhance the effect of anti-loosen.

Materials

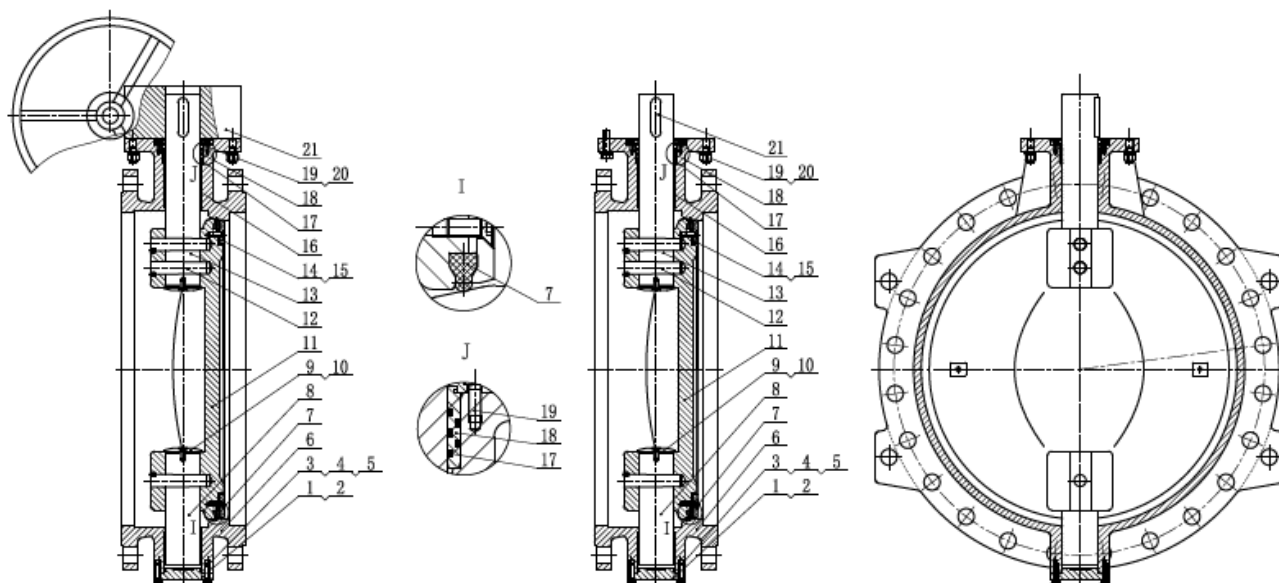
- **ECOLINE DEB 16**
PN10 DN100~DN1200



Overview of available materials

Part No.	Description	Material	Part No.	Description	Material
1	End Cover	Q235-B	12	Caping	SS304
2	O-Ring	EPDM	13	Disc	QT450-10
3	Spring Gasket	A2	14	Conical Pin	20Cr13
4	Washer	A2	15	Drive shaft	20Cr13
5	Bolt	A2-70	16	Compound Bearing	Steel Base
6	Body	QT450-10+308L	17	O-Ring	EPDM
7	Lower Valve Shaft	20Cr13	18	Gland	SS304
8	Seal Ring	EPDM	19	Gland Flange	SS304
9	Screw	A2-70	20	Bolt	A2-70
10	Disc Seal Retainer	Q235-B+Epoxy coated	21	Gear Box/Key	Finished Goods/45#
11	Screw	A2-70			

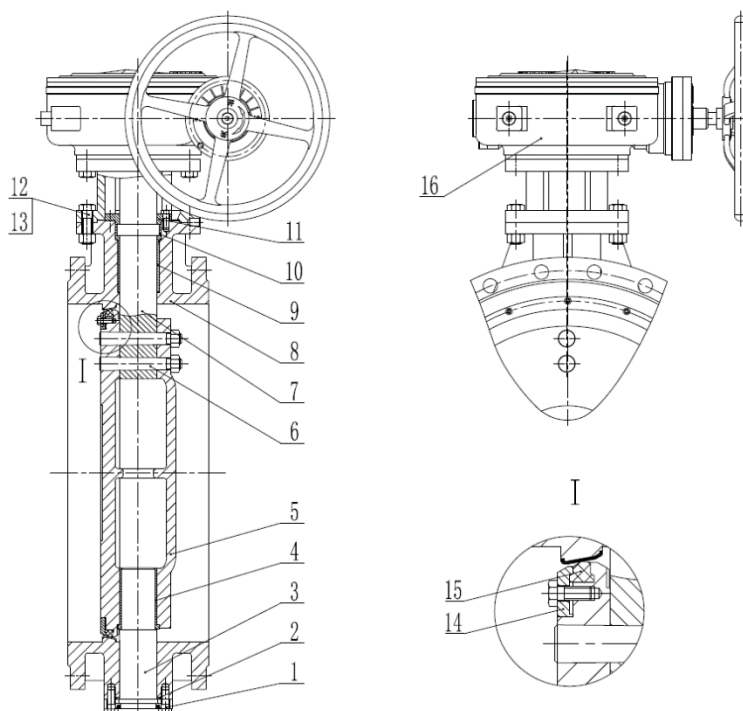
- **ECOLINE DEB 16**
PN16 DN100~DN1200



Overview of available materials

Part No.	Description	Material	Part No.	Description	Material
1	End Cover	Q235-B	12	Conical Pin	20Cr13
2	O-Ring	EPDM	13	Drive shaft	20Cr13
3	Spring Gasket	A2	14	Disc Seal Retainer	Q235-B+Epoxy coated
4	Washer	A2	15	Screw	A2-70
5	Bolt	A2-70	16	Compound Bearing	Steel Base
6	Body	QT450-10+308L	17	O-Ring	EPDM
7	Seal Ring	EPDM	18	Gland	SS304
8	Lower Valve Shaft	20Cr13	19	Screw	A2-70
9	Caping	SS304	20	Gland Flange	SS304
10	Screw	A2-70	21	Gear Box/Key	Finished Goods/45#
11	Disc	QT450-10			

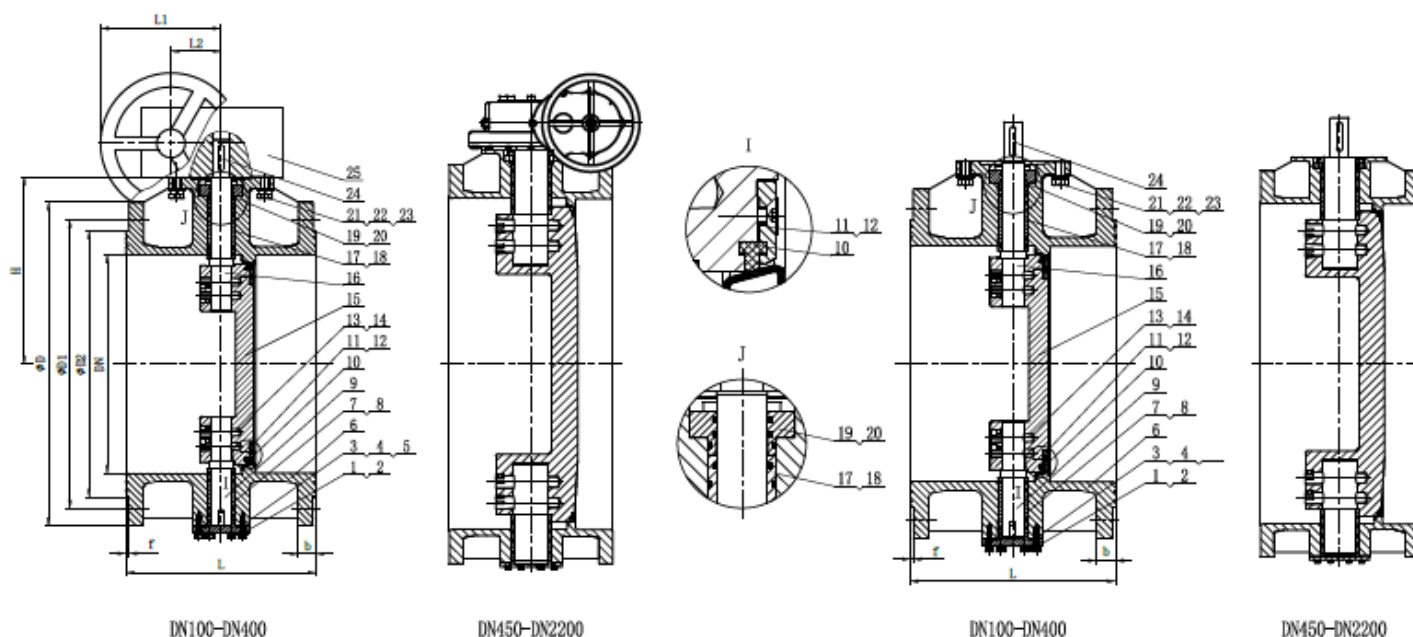
- **ECOLINE DEB 16**
PN10 DN1400~DN2800 & PN16 DN1400~DN2000



Overview of available materials

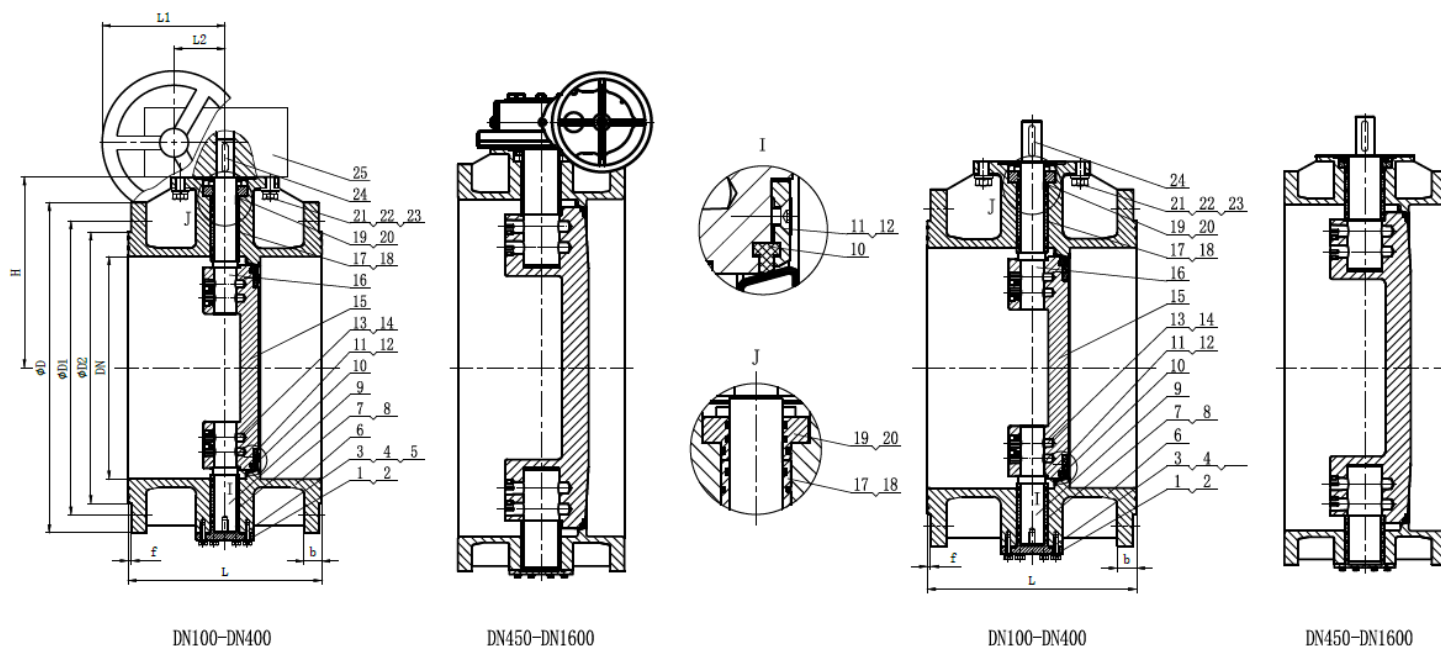
Part No.	Description	Material	Part No.	Description	Material
1	Bolt	A2-70	11	Gland Flange	SS304
2	O-Ring	EPDM	12	Bolt	A2-70
3	Lower Valve Shaft	20Cr13	13	Nut	A2-70
4	Bushing	QA19-2	14	Disc Seal Retainer	Q235-B+Epoxy coated
5	Disc	QT450-10	15	Seal Ring	EPDM
6	Conical Pin	20Cr13	16	Gear Box	Finished Goods
7	Drive shaft	20Cr13			
8	Body	QT450-10+308L			
9	Bushing	QA19-2			
10	O-Ring	EPDM			

- ECOLINE DEB 16L
PN10 DN100~DN2200

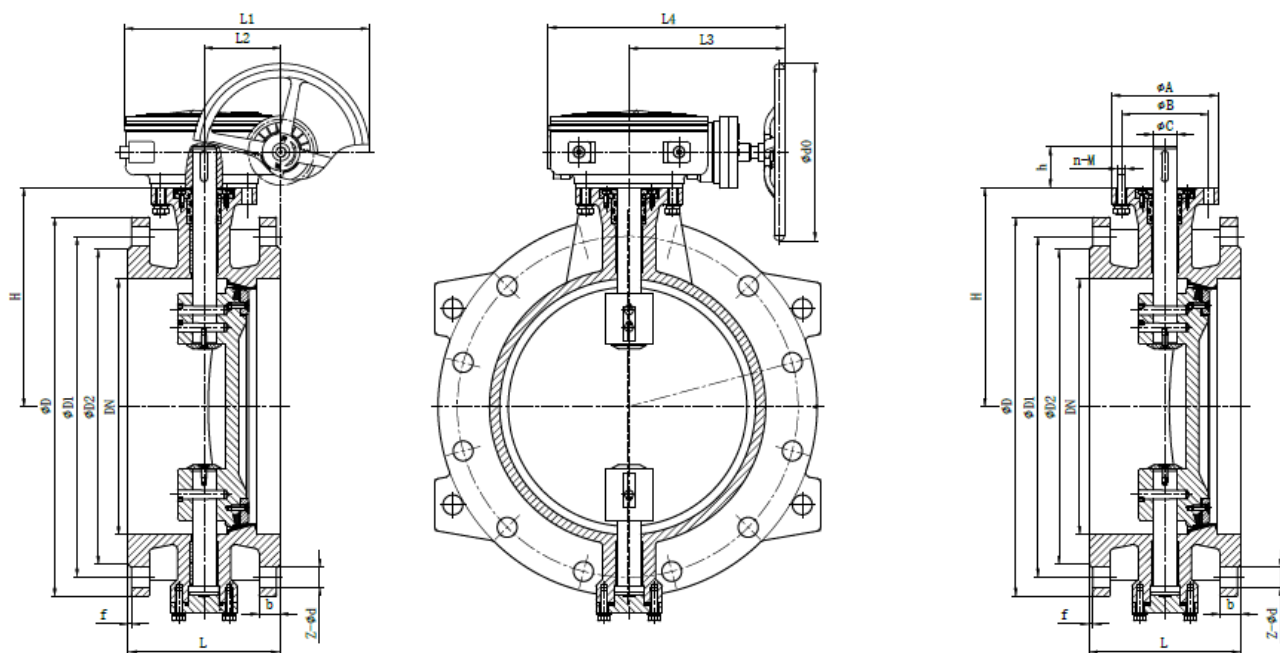


Overview of available materials

Part No.	Description	Material	Part No.	Description	Material
1	End Cover	Q235-B	14	Set Screw	A2
2	O-Ring	EPDM	15	Disc	QT450-10
3	Spring Gasket	A2	16	Drive shaft	20Cr13
4	Washer	A2	17	Bearing	QA19-2
5	Bolt	A2-70	18	O-Ring	EPDM
6	Body	QT450-10+308L	19	Gland	SS304
7	Bearing	QA19-2	20	O-Ring	EPDM
8	O-Ring	EPDM	21	Bolt	A2-70
9	Lower Valve Shaft	20Cr13	22	Washer	A2
10	Seal Ring	EPDM	23	Spring Gasket	A2
11	Disc Seal Retainer	Q235-B+Epoxy coated	24	Key	45 Galvanized
12	Screw	A2-70	25	Gear Box	Finished Goods
13	Conical Pin	20Cr13			

ECOLINE DEB 16L
PN16 DN100~DN1600

Overview of available materials

Part No.	Description	Material	Part No.	Description	Material
1	End Cover	Q235-B	14	Set Screw	A2
2	O-Ring	EPDM	15	Disc	QT450-10
3	Spring Gasket	A2	16	Drive shaft	20Cr13
4	Washer	A2	17	Bearing	QA19-2
5	Bolt	A2-70	18	O-Ring	EPDM
6	Body	QT450-10+308L	19	Gland	SS304
7	Bearing	QA19-2	20	O-Ring	EPDM
8	O-Ring	EPDM	21	Bolt	A2-70
9	Lower Valve Shaft	20Cr13	22	Washer	A2
10	Seal Ring	EPDM	23	Spring Gasket	A2
11	Disc Seal Retainer	Q235-B+Epoxy coated	24	Key	45 Galvanized
12	Screw	A2-70	25	Gear Box	Finished Goods
13	Conical Pin	20Cr13			

Dimensions & Weights
- ECOLINE DEB 16 (DN100~DN1200 PN10/16)


Dimension in mm

PN	DN	L	ΦD	ΦD1	ΦD2	b	Z-Φd	f	H	L1	L2	L3	L4	Φd0
10	100	127	220	180	156	19	8-Φ19	3	145	270	71	205	315	200
10	150	140	285	240	211	19	8-Φ23	3	190	270	71	205	315	200
10	200	152	340	295	266	20	8-Φ23	3	210	270	71	205	315	200
10	250	165	395	350	319	22	12-Φ23	3	245	270	71	205	315	200
10	300	178	445	400	370	24.5	12-Φ23	4	260	375	100	220	345	300
10	350	190	505	460	429	24.5	16-Φ23	4	300	375	100	220	345	300
10	400	216	565	515	480	24.5	16-Φ28	4	350	490	135	339	495	400
10	450	222	615	565	530	25.5	20-Φ28	4	360	490	135	339	495	400
10	500	229	670	620	582	26.5	20-Φ28	4	390	490	135	339	495	400
10	600	267	780	725	682	30	20-Φ31	5	440	590	185	374	570	400
10	700	292	895	840	794	32.5	24-Φ31	5	525	590	185	374	570	400
10	800	318	1015	950	901	35	24-Φ34	5	595	725	235	466	710	500
10	900	330	1115	1050	1001	37.5	28-Φ34	5	655	725	235	466	710	500
10	1000	410	1230	1160	1112	40	28-Φ37	5	725	850	300	556	850	500
10	1200	470	1455	1380	1328	45	32-Φ40	5	840	850	300	556	850	500

PN	DN	L	ΦD	ΦD1	ΦD2	b	Z-Φd	f	H	L1	L2	L3	L4	Φd0
16	100	127	220	180	156	19	8-Φ19	3	145	270	71	205	315	200
16	150	140	285	240	211	19	8-Φ23	3	190	270	71	205	315	200
16	200	152	340	295	266	20	12-Φ23	3	210	270	71	205	315	200
16	250	165	405	355	319	22	12-Φ28	3	250	270	71	205	315	200
16	300	178	460	410	370	24.5	12-Φ28	4	280	375	100	220	345	300
16	350	190	520	470	429	26.5	16-Φ28	4	315	375	100	220	345	300
16	400	216	580	525	480	28	16-Φ31	4	350	490	135	339	495	400
16	450	222	640	585	548	30	20-Φ31	4	395	490	135	339	495	400
16	500	229	715	650	609	31.5	20-Φ34	4	435	490	135	339	495	400
16	600	267	840	770	720	36	20-Φ37	5	495	590	185	374	570	400
16	700	292	910	840	794	39.5	24-Φ37	5	525	590	185	374	570	400

PN	DN	L	ΦD	ΦD1	ΦD2	b	Z-Φd	f	H	L1	L2	L3	L4	Φd0
16	800	318	1025	950	901	43	24-Φ40	5	590	725	235	466	710	500
16	900	330	1125	1050	1001	46.5	28-Φ40	5	695	725	235	466	710	500
16	1000	410	1255	1170	1112	50	28-Φ43	5	740	850	300	556	850	500
16	1200	470	1485	1390	1328	57	32-Φ49	5	875	850	300	556	850	500

PN	DN	ΦA	ΦB	ΦC	n-M	h	Weight(Kg)
10	100	125	102	22	4-M10	45	20
10	150	125	102	20	4-M10	45	28
10	200	125	102	22	4-M10	45	37
10	250	125	102	25	4-M10	50	51
10	300	125	102	28	4-M10	50	67
10	350	150	125	32	4-M12	70	93
10	400	175	140	40	4-M16	70	124
10	450	175	140	40	4-M16	80	170
10	500	175	140	40	4-M16	80	198
10	600	210	165	50	4-M20	95	277
10	700	210	165	60	4-M20	100	408
10	800	300	254	65	8-M16	100	600
10	900	300	254	75	8-M16	110	750
10	1000	300	254	80	8-M16	120	1065
10	1200	350	298	95	8-M20	120	1518

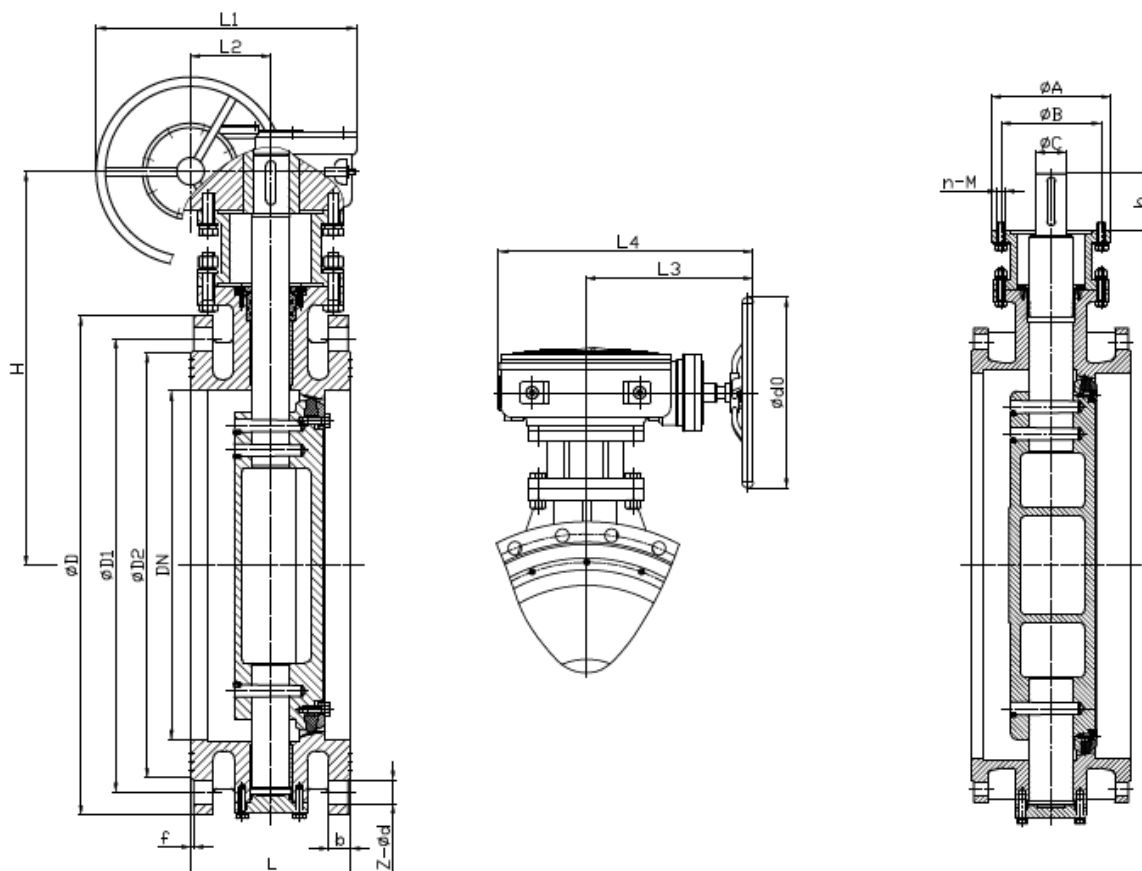
PN	DN	ΦA	ΦB	ΦC	n-M	h	Weight(Kg)
16	100	125	102	22	4-M10	45	20
16	150	125	102	25	4-M10	45	30
16	200	150	125	30	4-M12	45	43
16	250	150	125	32	4-M12	55	61
16	300	150	125	35	4-M12	75	85
16	350	175	140	38	4-M16	75	125
16	400	210	165	45	4-M20	75	165
16	450	210	165	50	4-M20	95	205
16	500	210	165	55	4-M20	95	260
16	600	300	254	65	8-M16	105	420
16	700	300	254	80	8-M16	110	507
16	800	300	254	90	8-M16	115	640
16	900	350	298	90	8-M20	135	950
16	1000	350	298	95	8-M20	135	1158
16	1200	415	356	120	8-M30	180	1857

Mating dimensions - Standards

Face-to-face lengths: GB/T 12221, EN558-1 Series 13

Flanges: GB/T 17241.6, EN 1092-2

- ECOLINE DEB 16 (DN1400~DN2800 PN10 & DN1400~DN2000 PN16)



Dimension in mm

PN	DN	L	ΦD	ΦD1	ΦD2	b	Z-Φd	f	H	L1	L2	L3	L4	Φd0
10	1400	530	1675	1590	1530	46	36-Φ43	5	1345	1020	365	712	1090	600
10	1600	600	1915	1820	1750	49	40-Φ49	5	1481	1020	365	712	1090	600
10	1800	670	2115	2020	1950	52	44-Φ49	5	1605	1175	435	620	1060	600
10	2000	760	2325	2230	2150	55	48-Φ49	5	1800	1175	435	620	1060	600
10	2200	800	2550	2440	2370	65	52-Φ56	6	2000	1330	455	780	1265	800
10	2400	850	2760	2650	2570	65	56-Φ56	6	2000	1330	455	780	1265	800
10	2600	900	2960	2850	2780	65	60-Φ56	6	2065	1540	545	945	1520	840
10	2800	950	3180	3070	2980	65	64-Φ56	6	2510	1790	640	1020	1650	1000

PN	DN	L	ΦD	ΦD1	ΦD2	b	Z-Φd	f	H	L1	L2	L3	L4	Φd0
16	1400	530	1685	1590	1530	60	36-Φ49	5	1345	1020	365	712	1090	600
16	1600	600	1930	1820	1750	65	40-Φ56	5	1481	1020	365	712	1090	600
16	1800	670	2130	2020	1950	70	44-Φ56	5	1605	1175	435	620	1060	600
16	2000	760	2345	2230	2150	75	48-Φ62	5	1800	1175	435	620	1060	600

PN	DN	ΦA	ΦB	ΦC	n-M	h	Weight(Kg)
10	1400	460	400	128	12-M24	230	2206.3
10	1600	460	400	128	12-M24	233	2893.5
10	1800	560	483	160	12-M30	290	4630
10	2000	560	483	180	12-M30	290	5580
10	2200	650	590	200	12-M36	290	6930
10	2400	680	603	220	20-M36	300	7640
10	2600	686	603	240	20-M36	330	9504
10	2800	800	700	260	20-M36	390	13620

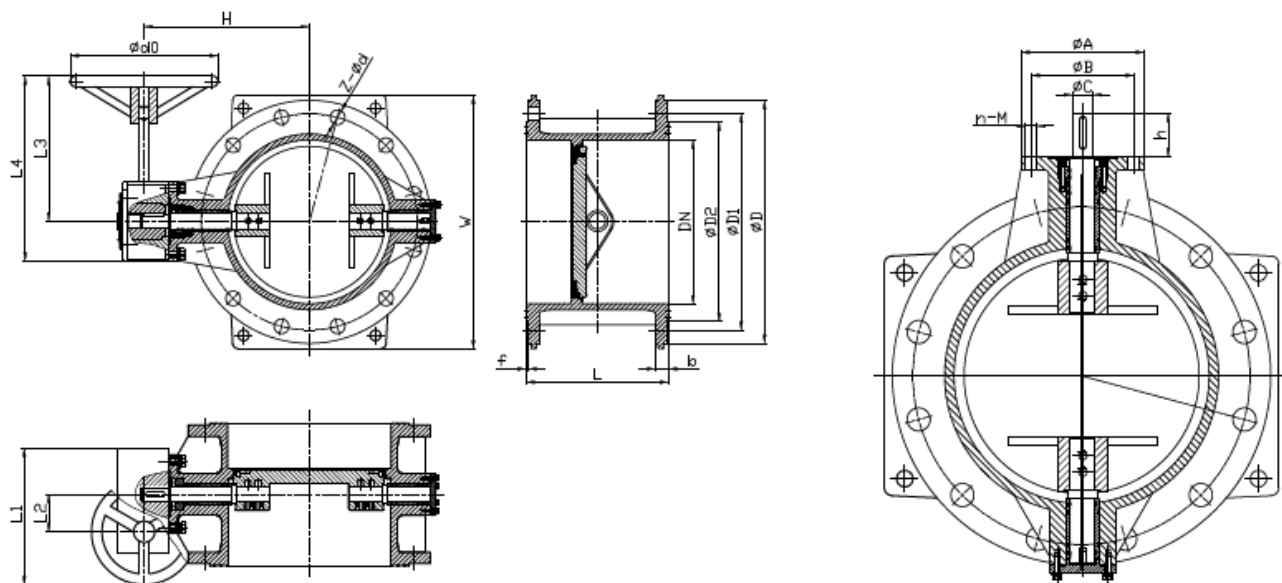
PN	DN	ΦA	ΦB	ΦC	n-M	h	Weight(Kg)
16	1400	460	400	128	12-M24	230	2370
16	1600	460	400	128	12-M24	233	3100
16	1800	560	483	160	12-M30	290	4630
16	2000	560	483	180	12-M30	290	5580

Mating dimensions - Standards

Face-to-face lengths: GB/T 12221, EN558-1 Series 13

Flanges: GB/T 17241.6, EN 1092-2

ECOLINE DEB 16L



PN	DN	L	ΦD	ΦD1	ΦD2	b	Z-Φd	f	H1	H2	L1	L2	L3	L4	Φd0	W
10	100	190	220	180	156	19	8-Φ19	3	135	165	160	37	84	129	140	240
10	150	210	285	240	211	19	8-Φ23	3	170	205	160	45	124	170	140	390
10	200	230	340	295	266	20	8-Φ23	3	182	235	225	55	157	220	200	345
10	250	250	395	350	319	22	12-Φ23	3	204	285	325	71	201	230	300	400
10	300	270	445	400	370	24.5	12-Φ23	3	265	320	375	71	201	230	400	454
10	350	290	505	460	429	24.5	16-Φ23	4	295	375	455	86	265	317	400	515
10	400	310	565	515	480	24.5	16-Φ28	4	315	415	505	86	265	317	500	575
10	450	330	615	565	530	25.5	20-Φ28	4	320	450	505	86	265	317	500	625
10	500	350	670	620	582	26.5	20-Φ28	4	352	490	550	105	302	380	500	680

PN	DN	L	ΦD	ΦD1	ΦD2	b	Z-Φd	f	H1	H2	L1	L2	L3	L4	Φd0	W
10	600	390	780	725	682	30	20-Φ31	5	407	550	550	130	323	444	500	790
10	700	430	895	840	794	32.5	24-Φ31	5	470	590	550	130	323	444	500	905
10	800	470	1015	950	901	35	24-Φ34	5	550	655	550	150	347	472	500	1030
10	900	510	1115	1050	1001	37.5	28-Φ34	5	572	720	550	150	347	472	500	1130
10	1000	550	1230	1160	1112	40	28-Φ37	5	627	800	650	182	407	540	600	1250
10	1200	630	1455	1380	1328	45	32-Φ40	5	748	960	715	182	407	540	600	1470
10	1400	710	1675	1590	1530	46	36-Φ43	5	858	1100	825	256	570	672	700	1876
10	1600	790	1915	1820	1750	49	40-Φ49	5	994	1215	825	256	570	672	700	2112
10	1800	870	2115	2020	1950	52	44-Φ49	5	1084	1420	920	284	501	763	700	2130
10	2000	950	2325	2230	2150	55	48-Φ49	5	1300	1620	1042	324	585	866	800	2400
10	2200	1030	2550	2440	2370	65	52-Φ56	6	1400	1770	1042	324	585	866	800	2560

PN	DN	L	ΦD	ΦD1	ΦD2	b	Z-Φd	f	H1	H2	L1	L2	L3	L4	Φd0	W
16	100	190	220	180	156	19	8-Φ19	3	117	175	160	37	84	129	140	240
16	150	210	285	240	211	19	8-Φ23	3	147	200	225	55	124	220	140	290
16	200	230	340	295	266	20	12-Φ23	3	200	235	225	55	157	220	200	440
16	250	250	405	355	319	22	12-Φ28	3	214	285	325	71	201	230	300	410
16	300	270	460	410	370	24.5	12-Φ28	3	248	320	455	86	201	317	400	480
16	350	290	520	470	429	26.5	16-Φ28	4	270	375	455	86	265	317	400	530
16	400	310	580	525	480	28	16-Φ31	4	305	415	550	105	265	380	500	590
16	450	330	640	585	548	30	20-Φ31	4	335	450	550	105	265	380	500	840
16	500	350	715	650	609	31.5	20-Φ34	4	360	490	550	130	302	444	500	720
16	600	390	840	770	720	36	20-Φ37	5	428	550	550	130	323	444	500	860
16	700	430	910	840	794	39.5	24-Φ37	5	477	590	550	150	323	472	500	920
16	800	470	1025	950	901	43	24-Φ40	5	527	655	550	150	347	472	500	1065
16	900	510	1125	1050	1001	46.5	28-Φ40	5	583	720	665	182	347	540	500	1325
16	1000	550	1255	1170	1112	50	28-Φ43	5	643	800	715	182	407	540	600	1290
16	1200	630	1485	1390	1328	57	32-Φ49	5	766	960	775	256	407	672	600	1505
16	1400	710	1685	1590	1530	60	36-Φ49	5	855	1100	920	284	570	763	700	1980
16	1600	790	1930	1820	1750	65	40-Φ56	5	994	1215	992	324	570	866	700	2230

PN	DN	ΦA	ΦB	ΦC	n-M	h	Weight(Kg)
10	100	90	70	18	4-M8	30	14.7
10	150	90	70	18	4-M8	30	19.8
10	200	125	102	20	4-M10	30	31
10	250	125	102	20	4-M10	40	42.2
10	300	150	125	25	4-M12	40	73.8
10	350	150	125	25	4-M12	40	96.8
10	400	175	140	35	4-M16	55	128.7
10	450	175	140	35	4-M16	55	160
10	500	210	165	50	4-M20	80	202.3
10	600	210	165	50	4-M20	80	301.5
10	700	210	165	50	4-M20	80	436.5
10	800	300	254	70	8-M16	100	618
10	900	300	254	70	8-M16	105	819
10	1000	350	298	90	8-M20	140	1069

PN	DN	ΦA	ΦB	ΦC	n-M	h	Weight(Kg)
10	1200	350	298	90	8-M20	140	1676
10	1400	415	356	120	8-M30	180	2559
10	1600	415	356	120	8-M30	180	3701
10	1800	475	406	140	8-M36	210	5270
10	2000	475	406	140	8-M36	210	6684
10	2200	560	483	180	8-M36	270	

PN	DN	ΦA	ΦB	ΦC	n-M	h	Weight(Kg)
16	100	90	70	18	4-M8	30	18.3
16	150	90	70	18	4-M8	30	28.5
16	200	125	102	20	4-M10	30	41.2
16	250	150	125	25	4-M12	40	65
16	300	150	125	25	4-M12	53	84.8
16	350	175	140	35	4-M16	55	124.5
16	400	175	140	35	4-M16	55	153.5
16	450	210	165	50	4-M20	75	210
16	500	210	165	50	4-M20	75	271.2
16	600	210	165	50	4-M20	80	407
16	700	300	254	70	8-M16	110	532.5
16	800	300	254	70	8-M16	110	728
16	900	350	298	90	8-M20	140	1013.5
16	1000	350	298	90	8-M20	140	1306
16	1200	415	356	120	8-M30	180	2133
16	1400	475	406	140	8-M36	240	2981
16	1600	475	406	140	8-M36	240	4495

Mating dimensions - Standards

Face-to-face lengths: GB/T 12221, EN558-1 Series 14

Flanges: GB/T 17241.6, EN 1092-2

Torque [Nm]

A safety coefficient has already been included in the actuating torques for actuator selection.

DN	NPS	ECOLINE DEB 16		ECOLINE DEB 16L	
	[inch]	10 bar (lubricating)	16 bar (lubricating)	10 bar (lubricating)	16 bar (lubricating)
100	4	85	85	90	145
150	6	125	225	210	340
200	8	225	395	380	610
250	10	350	615	620	990
300	12	495	930	910	1450
350	14	710	1335	1270	2030
400	16	1023	1800	1700	2720
450	18	1317	2320	2200	3520

500	20	1779	2980	2780	4450
600	24	2787	5000	4190	6700
700	28	3930	7000	5950	9520
800	32	5301	9900	8090	12950
900	36	7015	15000	10650	17040
1000	40	8790	16500	13650	21840
1200	48	13465	31800	21120	33800
1400	56	35300	37000	30720	49200
1600	64	51000	51600	42710	68350
1800	72	71000	71000	57330	N/A
2000	80	93500	93500	74820	N/A
2200	88	122000	N/A	(*1)	N/A
2400	96	152000	N/A	N/A	N/A
2600	104	187000	N/A	N/A	N/A
2800	112	228000	N/A	N/A	N/A

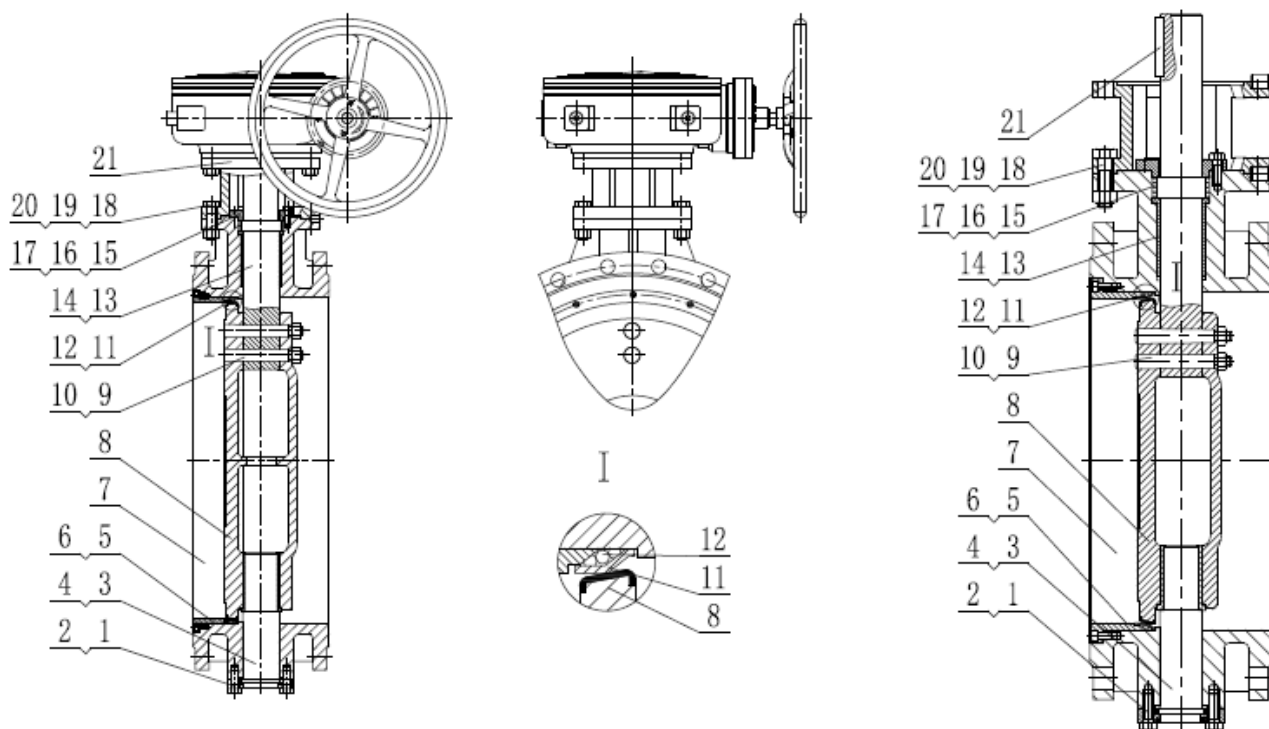
Note 1: the missing operating torque please consult with KSB sales.

Note 2: the data in table is applicable for resilient seat valve, not for metal-seated valve.

Variants

Materials

- **ECOLINE DEB 16K**
PN10 DN300~DN2200 & PN16 DN300~DN1400
- Metal seated

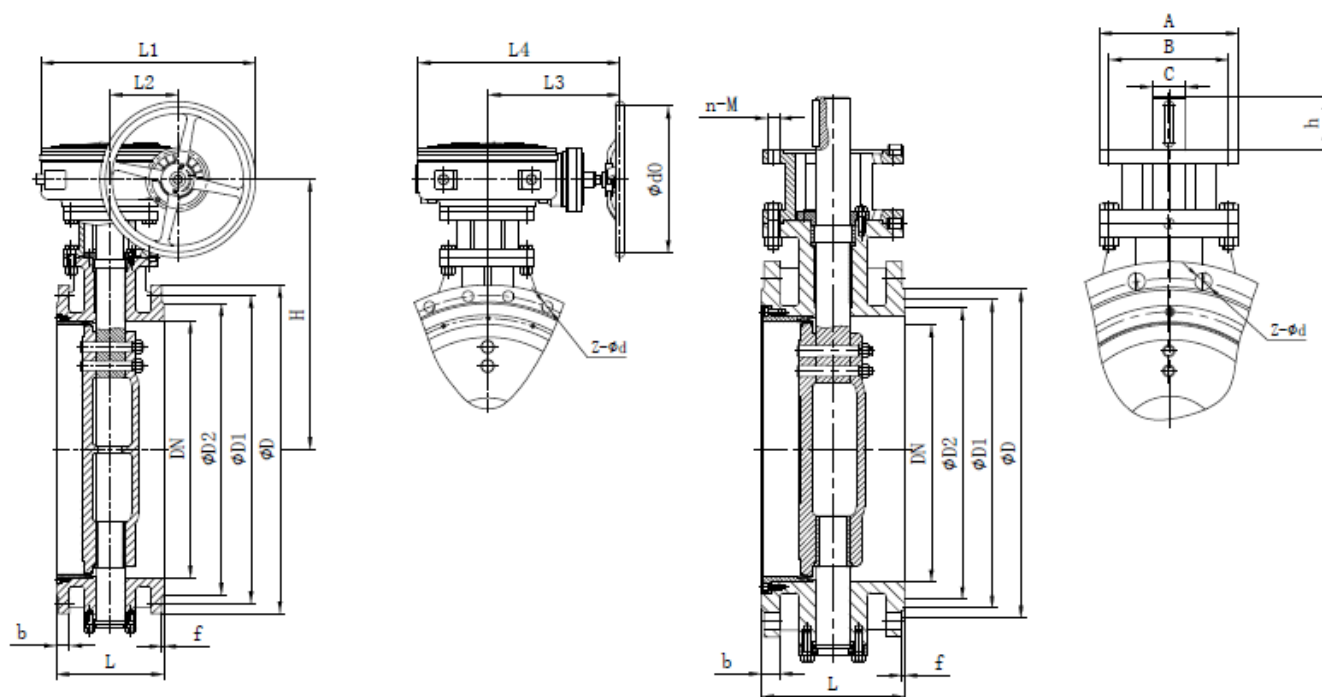


Overview of available materials

Part No.	Description	Material	Part No.	Description	Material
1	Bolt	A2-70	13	Drive shaft	20Cr13
2	O-Ring	EPDM	14	Bushing	QA19-2
3	Lower Valve Shaft	20Cr13	15	O-Ring	EPDM
4	Bushing	QA19-2	16	Gland Flange	SS304
5	Disc Seal Retainer	Q235-B+Epoxy coated	17	Bolt	A2-70
6	Screw	A2-70	18	Washer	A2
7	Body	QT450-10	19	Nut	A2
8	Disc	QT450-10+308L	20	Bolt	A2-70
9	Conical Pin	20Cr13	21	Gear Box/Key	Finished Goods/45#
10	Nut	A2			
11	Seal Ring	06Cr18Ni11T			
12	O-Ring	EPDM			

Dimensions & Weights

- **ECOLINE DEB 16K**
PN10 DN300~DN2200 & PN16 DN300~DN1400
- Metal seated



Dimension in mm

PN	DN	L	ΦD	ΦD1	ΦD2	b	Z-Φd	f	H	L1	L2	L3	L4	Φd0
10	300	178	445	400	370	24.5	12-Φ23	4	403	375	100	220	345	300
10	350	190	505	460	429	24.5	16-Φ23	4	440	375	100	220	345	300
10	400	216	565	515	480	24.5	16-Φ28	4	520	490	135	339	495	400
10	450	222	615	565	530	25.5	20-Φ28	4	550	490	135	339	495	400
10	500	229	670	620	582	26.5	20-Φ28	4	580	490	135	339	495	400
10	600	267	780	725	682	30	20-Φ31	5	675	590	185	374	570	400
10	700	292	895	840	794	32.5	24-Φ31	5	735	590	185	374	570	400
10	800	318	1015	950	901	35	24-Φ34	5	840	725	235	466	710	500
10	900	330	1115	1050	1001	37.5	28-Φ34	5	900	725	235	466	710	500
10	1000	410	1230	1160	1112	40	28-Φ37	5	1015	850	300	556	850	500
10	1200	470	1455	1380	1328	45	32-Φ40	5	1140	850	300	556	850	500
10	1400	530	1675	1590	1530	46	36-Φ43	5	1345	1020	365	712	1090	600
10	1600	600	1915	1820	1750	49	40-Φ49	5	1481	1020	365	712	1090	600
10	1800	670	2115	2020	1950	52	44-Φ49	5	1605	1175	435	620	1060	600
10	2000	760	2325	2230	2150	55	48-Φ49	5	1800	1175	435	620	1060	600
10	2200	800	2550	2440	2370	65	52-Φ56	6	2000	1330	455	780	1265	800

PN	DN	L	ΦD	ΦD1	ΦD2	b	Z-Φd	f	H	L1	L2	L3	L4	Φd0
16	300	178	460	410	370	24.5	12-Φ28	4	403	375	100	220	345	300
16	350	190	520	470	429	26.5	16-Φ28	4	440	375	100	220	345	300
16	400	216	580	525	480	28	16-Φ31	4	520	490	135	339	495	400
16	450	222	640	585	548	30	20-Φ31	4	550	490	135	339	495	400
16	500	229	715	650	609	31.5	20-Φ34	4	580	490	135	339	495	400
16	600	267	840	770	720	36	20-Φ37	5	675	590	185	374	570	400
16	700	292	910	840	794	39.5	24-Φ37	5	735	590	185	374	570	400
16	800	318	1025	950	901	43	24-Φ40	5	840	725	235	466	710	500
16	900	330	1125	1050	1001	46.5	28-Φ40	5	900	725	235	466	710	500
16	1000	410	1255	1170	1112	50	28-Φ43	5	1015	850	300	556	850	500
16	1200	470	1485	1390	1328	57	32-Φ49	5	1140	850	300	556	850	500
16	1400	530	1685	1590	1530	60	36-Φ49	5	1345	1020	365	712	1090	600

PN	DN	ΦA	ΦB	ΦC	n-M	h	Weight(Kg)
10	300	164	136	12	4-M12	55	85
10	350	164	136	12	4-M12	70	95
10	400	210	180	14	4-M16	80	142
10	450	210	180	14	4-M16	90	166
10	500	210	180	14	4-M16	100	206
10	600	256	212	18	4-M20	130	308
10	700	256	212	18	4-M20	145	427
10	800	310	260	22	8-M20	155	608
10	900	310	260	22	8-M20	180	766
10	1000	375	320	28	8-M24	175	1075
10	1200	375	320	28	8-M24	240	1636
10	1400	460	400	32	12-M24	270	2481
10	1600	460	400	32	12-M24	340	3520
10	1800	560	483	40	12-M30	290	4630
10	2000	560	483	45	12-M30	230	5580
10	2200	650	590	45	12-M36	255	6930

PN	DN	ΦA	ΦB	ΦC	n-M	h	Weight(Kg)
16	300	164	136	12	4-M12	55	85
16	350	164	136	12	4-M12	70	95
16	400	210	180	14	4-M16	80	142
16	450	210	180	14	4-M16	90	166
16	500	210	180	14	4-M16	100	206
16	600	256	212	18	4-M20	130	308
16	700	256	212	18	4-M20	145	427
16	800	310	260	22	8-M20	155	608
16	900	310	260	22	8-M20	180	766
16	1000	375	320	28	8-M24	175	1075
16	1200	375	320	28	8-M24	240	1636
16	1400	460	400	32	12-M24	270	2481

Torque [Nm]

A safety coefficient has already been included in the actuating torques for actuator selection.

DN	NPS	ECOLINE DEB 16K	
	[inch]	10 bar (lubricating)	16 bar (lubricating)
300	12	950	1400
350	14	1400	2010
400	16	1900	2900
450	18	2500	3850
500	20	3500	5240
600	24	5600	8600
700	28	8000	12400
800	32	11500	17800
900	36	15700	24300
1000	40	20700	32000
1200	48	32760	51000
1400	56	49000	76300
1600	64	72100	N/A
1800	72	97700	N/A
2000	80	132000	N/A
2200	88	(*1)	N/A

Note 1: the missing operating torque please consult with KSB sales.



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