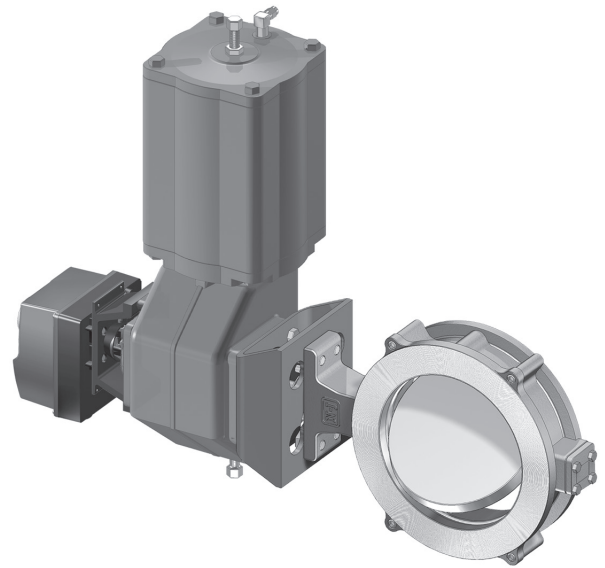


Neles™ high performance metal seated Neldisc™ triple eccentric disc valve Series L1 & L2

Neles Neldisc series L1 is a wafer type, and series L2 a lug type, metal seated high performance triple eccentric disc valve. With close to equal percentage characteristics and superior tightness, Neldisc triple eccentric disc valves operate both in control and shut-off applications.

As a result of the unique geometry of Neldisc, the contact between disc and seat is mechanically induced and does not rely on assistance from differential pressure. The valve is very tight even in low Δp applications.

Due to a number of special constructions developed from the versatile Neldisc design, these valves offer a powerful tool for standardization and are true high performance valves.



Features

- Metal to metal
- Bidirectional long lasting tightness
- Low friction
- Excellent wear resistance
- Extended life cycle
- Lower operational torque

Applications

The Neldisc triple eccentric disc valves are widely used in applications such as:

- Liquids
- Gases
- Steam
- Pulpstocks both on control and shutoff services.

FEATURES

Bidirectional tight seat

- Unique all-metal seat design assures superior tightness in difficult applications over long time periods.
- Contact between disc and seat is mechanically induced and does not rely on assistance from differential pressure

Abrasion resistant

- Solid metal seat design is offered in a variety of materials to suit your application.
- Fully metal seated construction with no resilient parts exposed to the medium.

Wide pressure and temperature range

- Differential pressure/temperature ratings in accordance with ASME B16.34.
- Appropriate constructions perform equally well from -200 °C to +600 °C / -330 °F to +1110 °F.

Low cost of ownership

- Extremely high cycle life minimizes need for maintenance.
- Totally interchangeable seats can be replaced without disassembly of the disc and shaft.

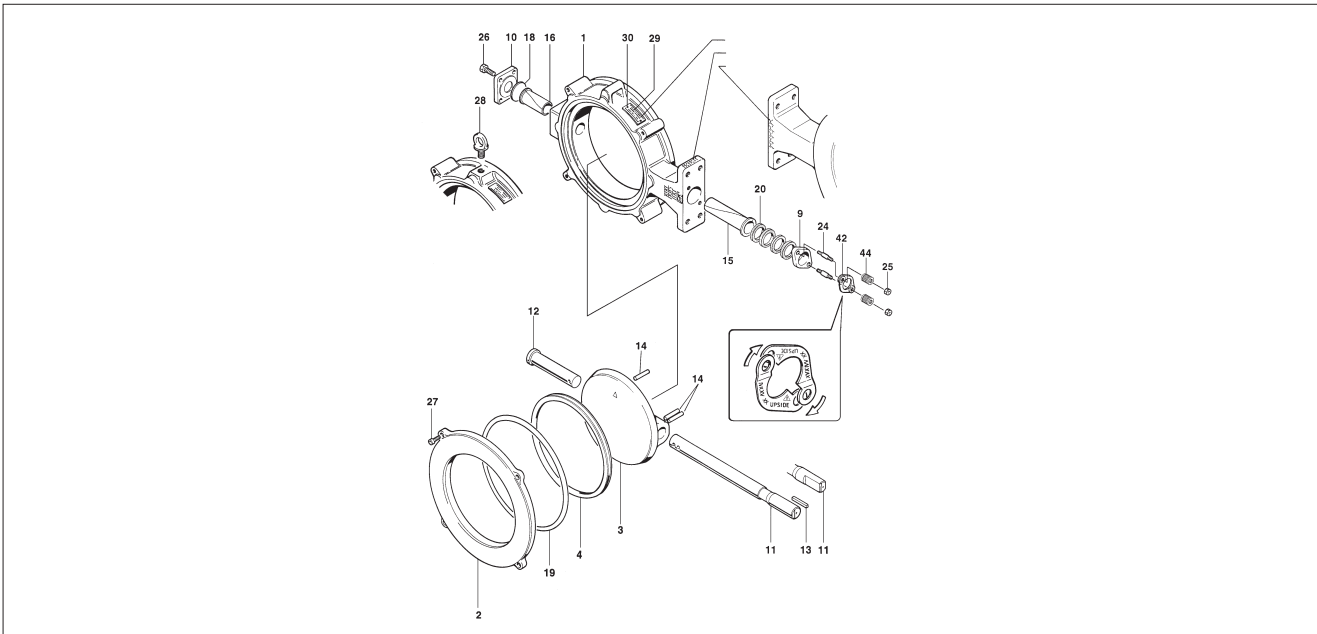
Offset shaft and eccentric disc

- No seat/disc contact in the open or intermediate position.
- Eliminates wear points at top and bottom of disc.

Anti-blow out shaft

- Anti-blow out shaft construction standard in all valves, see page 2 exploded view.

Exploded view

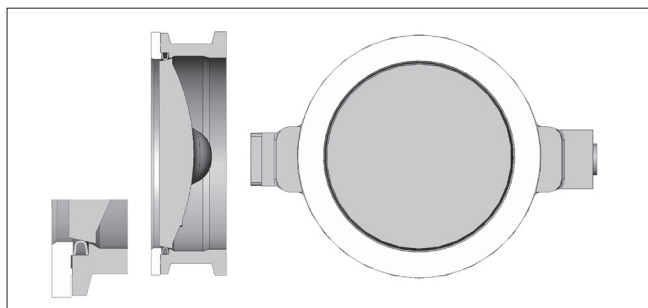


Parts list

Item	Part description	Material
1	BODY	Carbon steel, ASTM A 216 gr. WCB
2	CLAMP RING	Carbon steel, 1.0425 (Type ASTM A 515 gr. 55)
3	DISC	Stainless steel, ASTM A 351 gr. CF8M
4	SEAT RING	Ni-Fe-base superalloy + Hard chrome, ASTM B 424 (Incoloy 825) or W.no. 1.4418
9	GLAND	Stainless steel, ASTM A 351 gr. CF8M
10	BLIND FLANGE	DN 450-500 Stainless steel, ASTM A 351 gr. CF8M DN 600- Carbon steel, ASTM A 216 gr. WCB or equal
11	DRIVE SHAFT	L1/L2C Duplex 1.4460 / 1.4462 (equivalent to SS 329 or SS 2324) L1/L2D Stainless steel, ASTM A 564 gr. 630 (17-4PH)
12	SHAFT	L1/L2C Duplex 1.4460 / 1.4462 (equivalent to SS 329 or SS 2324) L1/L2D Stainless steel, ASTM A 564 gr. 630 (17-4PH)
13	KEY	Stainless steel, Duplex 1.4460 / 1.4462 (equivalent to SS 329 or SS 2324)
14	PIN	L1/L2C Duplex 1.4460 / 1.4462 (equivalent to SS 329 or SS 2324) L1/L2D Stainless steel, ASTM A 564 gr. 630 (17-4PH)
15	BEARING	PTFE on stainless steel net
16	BEARING	PTFE on stainless steel net
18	GASKET	Graphite
19	BODY SEAL	Graphite
20	GLAND PACKING	PTFE / Graphite
24	STUD	Stainless steel
25	HEXAGON NUT	Stainless steel
26	HEXAGON SCREW	Stainless steel
27	HEXAGON SOCKET SCREW	Stainless steel
28	LIFTING EYE BOLT (DN 600-)	Steel
29	IDENTIFICATION PLATE	Stainless steel, AISI 304
42	RETAINING PLATE	Stainless steel
44	Disc spring set	Electroless nickel plated spring steel (EN 10083-1.8159)

Neldisc triple eccentric seating principle

The disc of the valve is machined to close tolerances to create an elliptical shape similar to an oblique slice taken from a solid metal cone. When the valve is closed, the elliptical disc at the major axis displaces the seat ring outward, causing the seat ring to contact the disc at the minor axis. When the valve is opened, the contact is released and the seat ring returns to its original circular shape.



Technical specification

Product type

High performance triple eccentric disc valve
Metal seated fully rated
L1 - Wafer type
L2 - Lug type

Pressure ratings

Body: ASME 150, ASME 300, PN 10, PN 16,
PN 25, PN 40, ISO PN 20, ISO PN 50
Trim: L1C, L2C ASME 150
L1D, L2D ASME 300

Size range

DN700 - DN1200 / 28" - 48"

Temperature range

-200 °C ... +600 °C / -330 °F...+1110 °F
(over +600 °C/+1110 °F please consult with factory).

Design standards

Body: ASME B16.34.
Face to face: ISO 5752, L1D and L2D face to face
according to manufacturer.

Standard materials

Body: ASTM A216 gr. WCB
ASTM A351 gr. CF8M
ASTM A351 gr. CG8M
Disc: ASTM A351 gr. CF8M
ASTM A351 gr. CG8M
Clamp ring: DIN 17155 - 1.0425
ASTM A351 gr. CF8M
ASTM A351 gr. CG8M
Shaft and pins: Duplex 1.4460 / 1.4462 or
ASTM A564 gr.630 (17-4PH)
Seat ring: W.Nr. 1.4418 (Avesta 248SV) with hard
chrome plating
Bearing: PTFE + AISI 316 net

Certification

EN 10204 - 3.1B material certificates for body, clamp ring,
gland and blind flange. Disc and shaft certification on
request.

Approvals

API 607 fire safe
ISO 15848-1 fugitive emission, TA-Luft
TSG
TR-CU

Valve testing

Each valve undergoes a shell test and a seat test. The shell
test pressure is 1.5 x PN. The seat test pressure is 1.1 x PN.
The test medium is inhibited water.

Valve tightness: Bidirectionally ISO 5208 Rate D or
ANSI Class V
(Improved tightness available on
request).
10x ISO 5208 rate D with RH hand lever

Options

- Cryogenic.
- High temperature.
- Heating jacket.
- S-disc, flow balancing trim, see bulletin 2S-L1 20.
- NACE.
- Erosion resistant design.

Flow data

C_v tables of L1 and L2 valves in pressure classes ASME 150
and ASME 300.

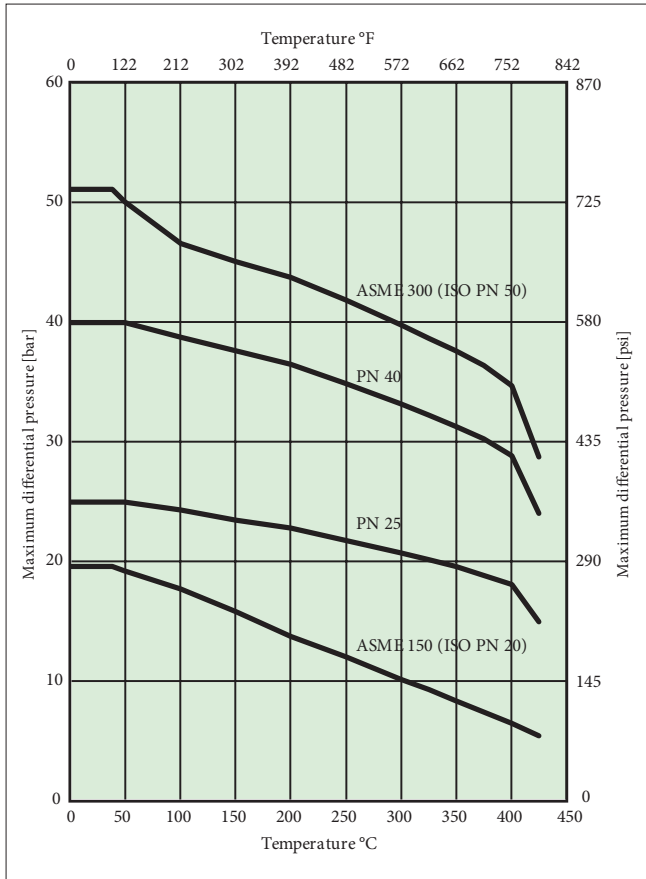
ASME 150

DN	inch	Relative opening h 100%
700	28	39300
750	30	46900
800	32	53600
900	36	66400
1000	40	82800
1200	48	116000

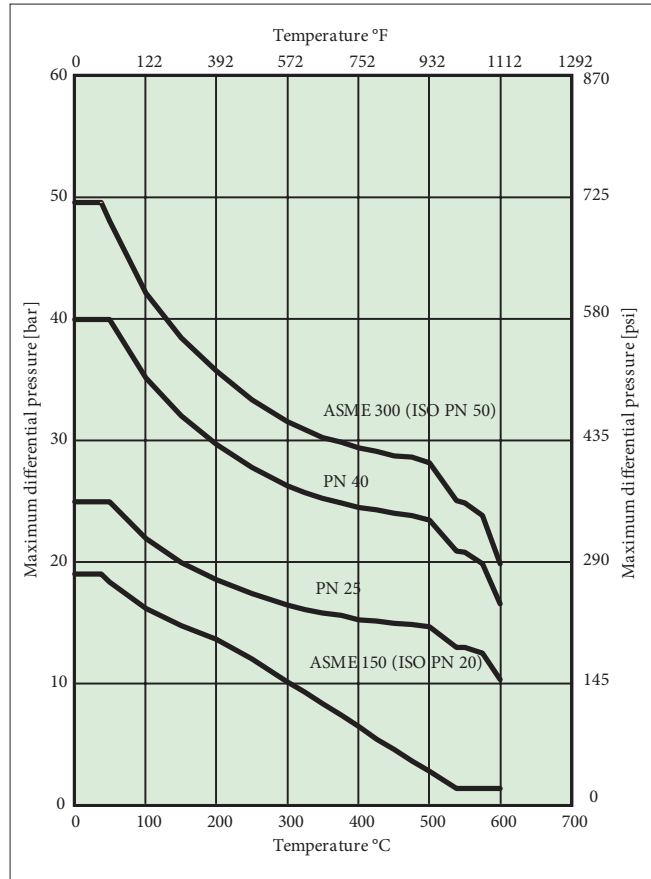
ASME 300

DN	inch	Relative opening h 100%
700	28	28100
750	30	28800
900	36	40300

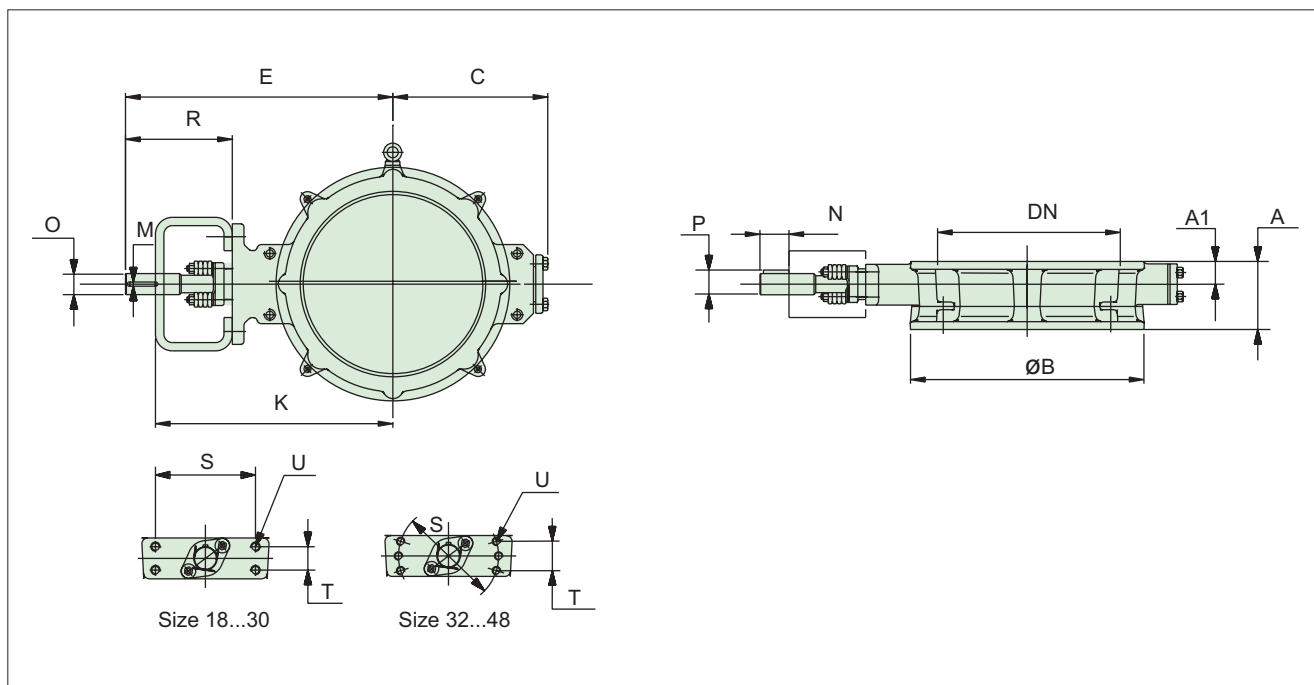
Pressure/temperature ratings for valve body, WCB



Pressure/temperature ratings for valve body, CF8M



Dimensions, weights and c_v -values

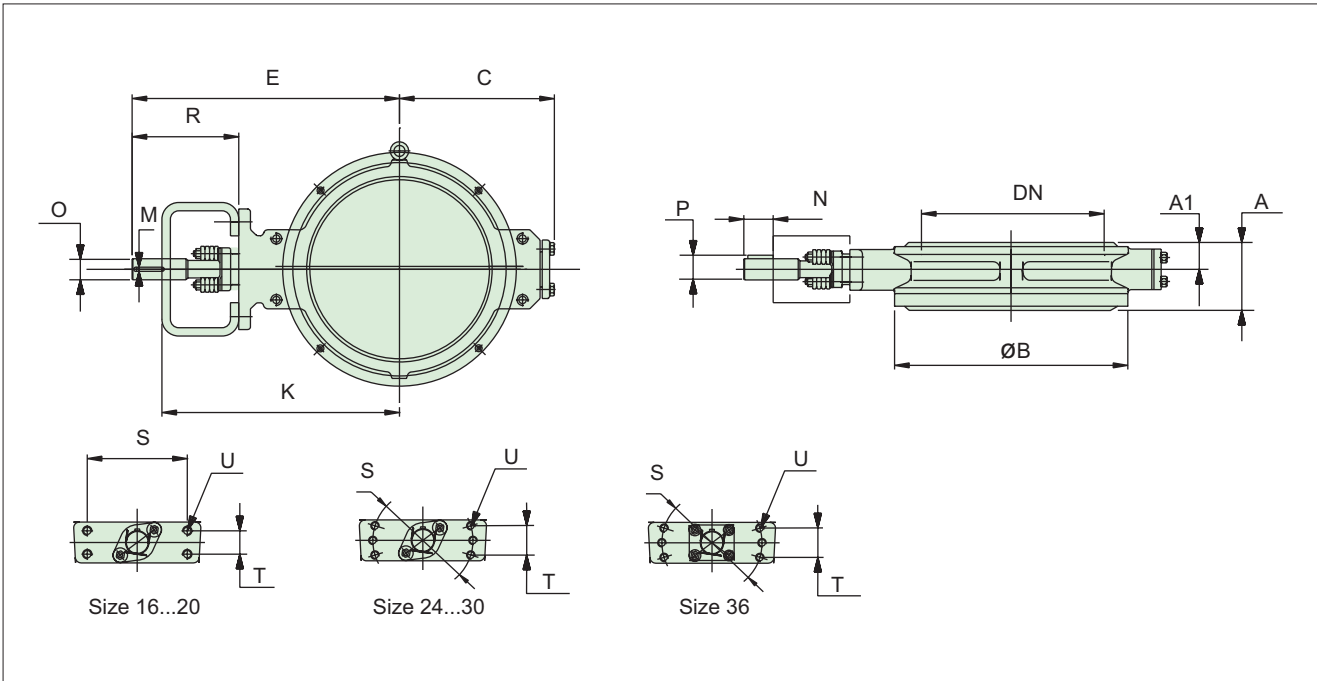


L1/L2C, ASME 150

Size		Dimensions, mm											U UNC	Dimensions, mm					Δp bar	L1C		L2C	
		L1C			L2C			C	E	K	S	T		O	R	M	P	N		Cv 90°	kg	Cv 90°	kg
in	DN	A	A1	B	A	A1	B	C	E	K	S	T		O	R	M	P	N					
28	700	229	96	805	250	96	927	545	886	740	230	90	1	85	326	22.23	94.7	146	20	39300	400	39000	700
30	750	229	96	870	250	96	985	585	911	765	230	90	1	85	326	22.23	94.7	146	20	46900	470	46000	820
32	800	241	101	910	270	101	1060	600	1006	850	330	120	1 1/4	95	376	22.23	104.8	156	20	53600	550	52800	1000
36	900	241	105	1010	241	105	1170	660	1065	885	330	120	1 1/4	105	400	25.4	116.2	180	20	66400	710	68000	1400
40*	1000*	300	130	1120				715	1185	980	330	120	1 1/4	120	425	31.75	133.8	205	20	82800	950		
48*	1200*	350	175	1355				960	1440	1190	400	160	1 1/2	150	500	38.10	167	250	20	116000	2100		

Size		Dimensions, inch											U UNC	Dimensions, inch					Δp bar	L1C		L2C	
		L1C			L2C			C	E	K	S	T		O	R	M	P	N		Cv 90°	lbs	Cv 90°	lbs
in	DN	A	A1	B	A	A1	B	C	E	K	S	T		O	R	M	P	N					
28	700	9.02	3.78	31.69	9.84	3.78	36.50	21.46	34.88	29.13	9.06	3.54	1	3.35	12.83	0.88	3.73	5.75	280	39300	880	39000	1540
30	750	9.02	3.78	34.25	9.84	3.78	38.78	23.03	35.87	30.12	9.06	3.54	1	3.35	12.83	0.88	3.73	5.75	280	46900	1034	46000	1804
32	800	9.49	3.98	35.83	10.63	3.98	41.73	23.62	39.61	33.46	12.99	4.72	1 1/4	3.74	14.80	0.88	4.13	6.14	280	53600	1210	52800	2200
36	900	9.49	4.13	39.76	9.49	4.13	46.06	25.98	41.93	34.84	12.99	4.72	1 1/4	4.13	15.75	1.00	4.57	7.09	280	66400	1562	68000	3080
40*	1000*	11.81	5.12	44.09				28.15	46.65	38.58	12.99	4.72	1 1/4	4.72	16.73	1.25	5.27	8.07	280	82800	2090		
48*	1200*	13.78	6.89	53.35				37.80	56.69	46.85	15.75	6.30	1 1/2	5.91	19.69	1.50	6.57	9.84	280	116000	4620		

*) Only L1C series



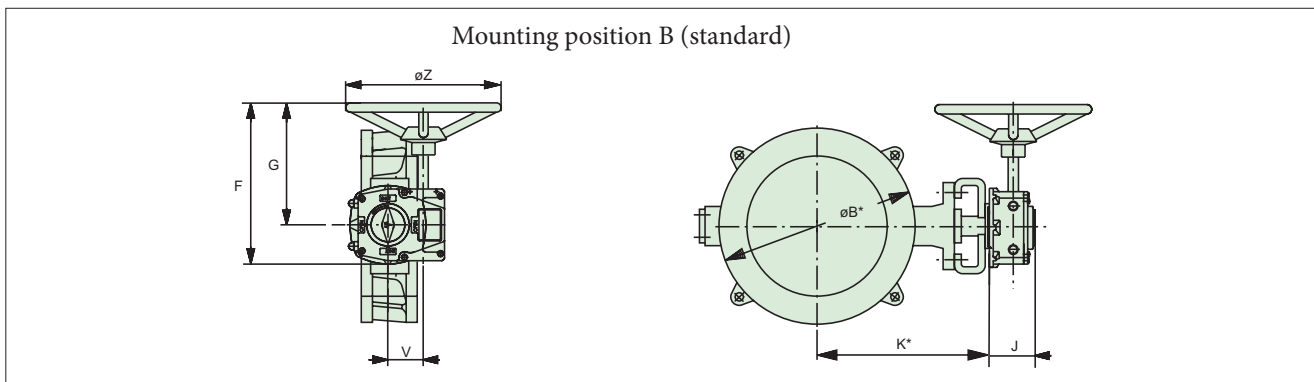
L1/L2D, ANSI 300

Size		Dimensions, mm													U UNC	Dimensions, mm					Δp bar	L1D		L2D	
		L1D			L2D			C	E	K	S	T	O	R		M	P	N	Cv 90°	kg		Cv 90°	kg		
in	DN	A	A1	B	A	A1	B	C	E	K	S	T	U UNC	O	R	M	P	N	Δp bar	Cv 90°	kg	Cv 90°	kg		
28*	700*	250	125	848				615	1028	823	330	120	1 1/4	120	425	31.75	133.8	205	51	28100	830				
30	750	300	150	942	300	130	1090	655	1115	890	360	135	1 1/4	135	475	31.75	149	225	51	28800	1250	28800	1200		
36*	900*	360	180	1100				730	1260	980	360	135	1 1/4	165	530	38.1	181.8	280	51	40300	2000				

Size		Dimensions, inch													U UNC	Dimensions, inch					Δp bar	L1D		L2D	
		L1D			L2D			C	E	K	S	T	O	R		M	P	N	Cv 90°	lbs		Cv 90°	lbs		
in	DN	A	A1	B	A	A1	B	C	E	K	S	T	U UNC	O	R	M	P	N	Δp bar	Cv 90°	lbs	Cv 90°	lbs		
28*	700*	9.84	4.92	33.39				24.21	40.47	32.40	12.99	4.72	1 1/4	4.72	16.73	1.25	5.27	8.07	735	28100	1826				
30	750	11.81	5.91	37.09	300	5.12	42.91	25.79	43.90	35.04	14.17	5.31	1 1/4	5.31	18.70	1.25	5.87	8.86	735	28800	2750	28800	2640		
36*	900*	14.17	7.09	43.31				28.74	49.61	38.58	14.17	5.31	1 1/4	6.50	20.87	1.50	7.16	11.02	735	40300	4400				

*) Only L1D series

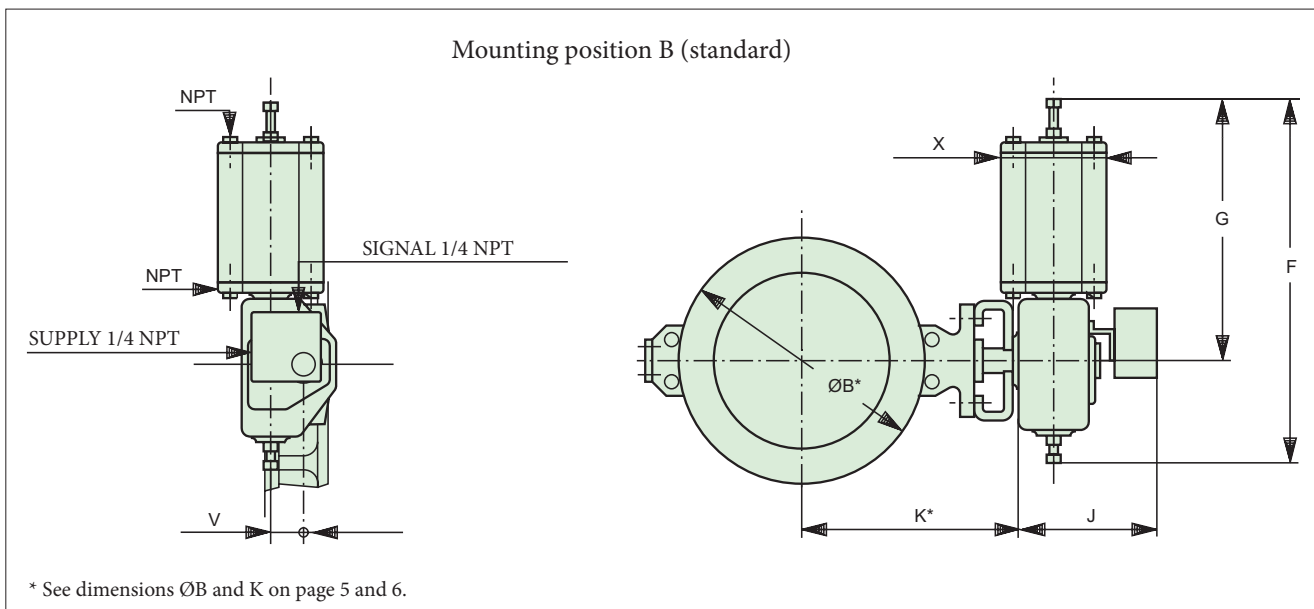
Valve + manual gear operator series M



Type	Dimensions, mm					kg
	F	G	J	V	ØZ	
M15/F16	532	406	106	123	500	31
M16/F25	642	466	127	154	600	45

Type	Dimensions, inch					lbs
	F	G	J	V	ØZ	
M15/F16	20.94	15.98	4.15	4.84	19.69	68
M16/F25	25.28	18.35	4.98	6.06	23.62	99

Valve + pneumatic actuator / B1C / B1J / B1JA



Type	Dimensions, mm					NPT	kg
	X	G	F	V	J		
B1C25	265	710	1040	121	448	1/2	131
B1C32	395	910	1330	153	525	3/4	256
B1C40	505	1150	1660	194	595	3/4	446
B1C50	610	1350	1970	242	690	1	830

Type	Dimensions, mm					NPT	kg
	X	G	F	V	J		
B1J, B1JA20	395	935	1200	97	358	3/4	175
B1J, B1JA25	505	1200	1530	121	448	3/4	350
B1J, B1JA32	540	1410	1830	153	525	1	671
B1J/B1JA40	724	1578	2095	194	580	1	1100

Type	Dimensions, inch					NPT	lbs
	X	G	F	V	J		
B1C25	10.43	27.95	40.94	4.76	17.64	1/2	289
B1C32	15.55	35.83	52.36	6.02	20.67	3/4	564
B1C40	19.88	45.28	65.35	7.64	23.43	3/4	983
B1C50	24.02	53.15	77.56	9.53	27.17	1	1829

Type	Dimensions, inch					NPT	lbs
	X	G	F	V	J		
B1J, B1JA20	15.55	36.81	47.24	3.82	14.09	3/4	386
B1J, B1JA25	19.88	47.24	60.24	4.76	17.64	3/4	771
B1J, B1JA32	21.26	55.51	72.05	6.02	20.67	1	1479
B1J/B1JA40	28.50	62.13	84.48	7.64	22.83	1	2424

How to order

Typical Neldisc triple eccentric disc valves

L1CMA_AAJAT standard valve ($T_{max} = +250\text{ °C}$)

L1CMH_AANHG high temp. ($T_{max} = +600\text{ °C}$)

L1CMH_AAHHG high temp. ($T_{max} = +600\text{ °C}$)

L1CMC_AACAG cryo temp. ($T_{max} = -200 \dots +250\text{ °C}$)

Example

1	2	3	4	5	6	7	8	9	10	11		12
S-	L1	C	M	A	20	A	A	J	A	T	/	-

1	S-DISC
S-	Flow balancing trim on downstream side

2	VALVE TYPE
L1	Wafer type.
L2	Lug type.

3	PRESSURE RATING
C	ASME Class 150.
D	ASME Class 300.

4	SEAT TYPE
M	Metal seat.

5	CONSTRUCTION TYPE
A	Standard.
C	Cryogenic.
H	High-temp.

6	VALVE SIZE
L1C	28, 30, 32, 36, 40, 48
L2C	28, 30, 32, 36
L1D	28, 30, 36
L2D	28, 30, 36

7	BODY MATERIAL
A	ASTM A351 gr CF8M.
C	ASTM A351 gr CG8M.
P	ASTM A216 gr WCB.
F	ASTM A352 gr LCC.

8	DISC MATERIAL
A	ASTM A351 gr CF8M.
C	ASTM A351 gr CG8M.
P	ASTM A216 gr WCB.

9	SHAFT AND PIN MATERIAL		
C	17-4PH.	H	Nimonic 80A
J	Duplex 1.4460 / 1.4462 (equivalent to SS 329 or SS 2324)	N	XM-19 (Nitronic 50)

10	SEAT MATERIAL
B	W.Nr. 1.4418 (Avesta 248SV) with hard chrome plating
H	Nimonic 80H HCr plated

11	PACKING CONSTRUCTION
T	Live loaded PTFE
G	Live loaded graphite

12	FLANGE FACING
-	Ra 3.2 - 6.3 standard, covers; ASME B16.5 (Ra 3.2 - 6.3) DIN 2526 Form E EN 1092-1 type B1 The flange face roughness 10 - 12.5 has to be defined separately in the order.

Subject to change without prior notice.

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