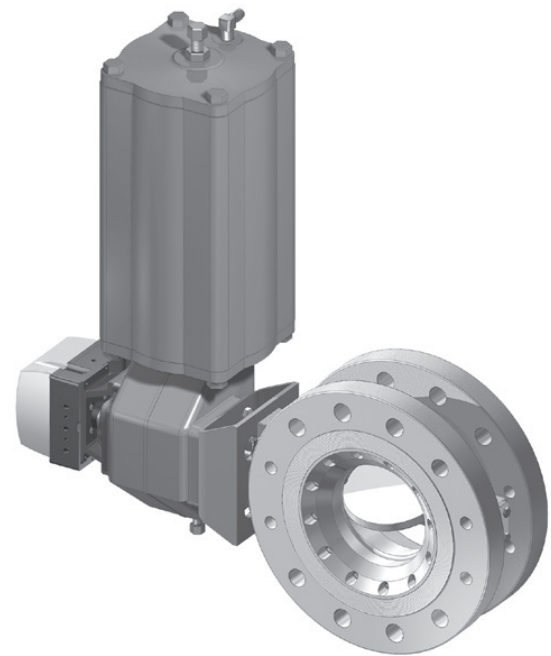


## Neles™ Neldisc™ high performance butterfly valves

### Series L6, Sizes 28" and bigger & all sizes for pressure ratings F/D & F/E

Neles series L6 is a double flanged metal seated Neldisc triple eccentric disc valve with one piece body design, for both control and tight shut-off applications. It is particularly well suited for the refining, power, petrochemical and chemical industries.

The L6 incorporates the Neldisc triple offset metal seated design, which provides extended operational life in control, tight shut-off, high cycle, high temperature and abrasive applications. S-disc flow construction expands application possibilities beyond those of typical butterfly valves. Pressure rating from ASME 150 to 600 makes the L6 a sound control or shut-off valve and an ideal replacement for gate valves.



#### Excellent on-off capabilities

- Uniquely functioning full metal seat design assures tightness over long time periods.
- Contact between disc and seat is mechanically induced and does not rely on assistance from differential pressure.
- Bi-directional long term tightness is maintained even in high cycle rate services. Tightness is not compromised by large thermal cycling either.
- Low friction and excellent wear resistance.
- Lowered operational torque reduces actuator size
- Heavy-duty stem and bearings arrangement extends service life and is insensitive to thermal cycles and impurities.

#### Excellent flow control capabilities

- Good controllability via smoothly rising installed characteristic curve at both very small openings and nearly full Cv positions. L6 provides very wide rangeability in fairly low pressure drop services.
- Good dynamic stability in both flow directions.
- S-disc design provides dynamic torque balancing and noise abatement, allowing L6 valve use in applications where high performance butterflies could not typically be considered. This offers very cost effective control solutions.
- Available with a variety of actuators, positioners and accessories for single source responsibility.

#### Abrasion resistant

- Solid, sturdy all metal seat design is based on metal-to-metal contact. No resilient parts are needed for seating. Furthermore, there are no resilient parts exposed to the medium.

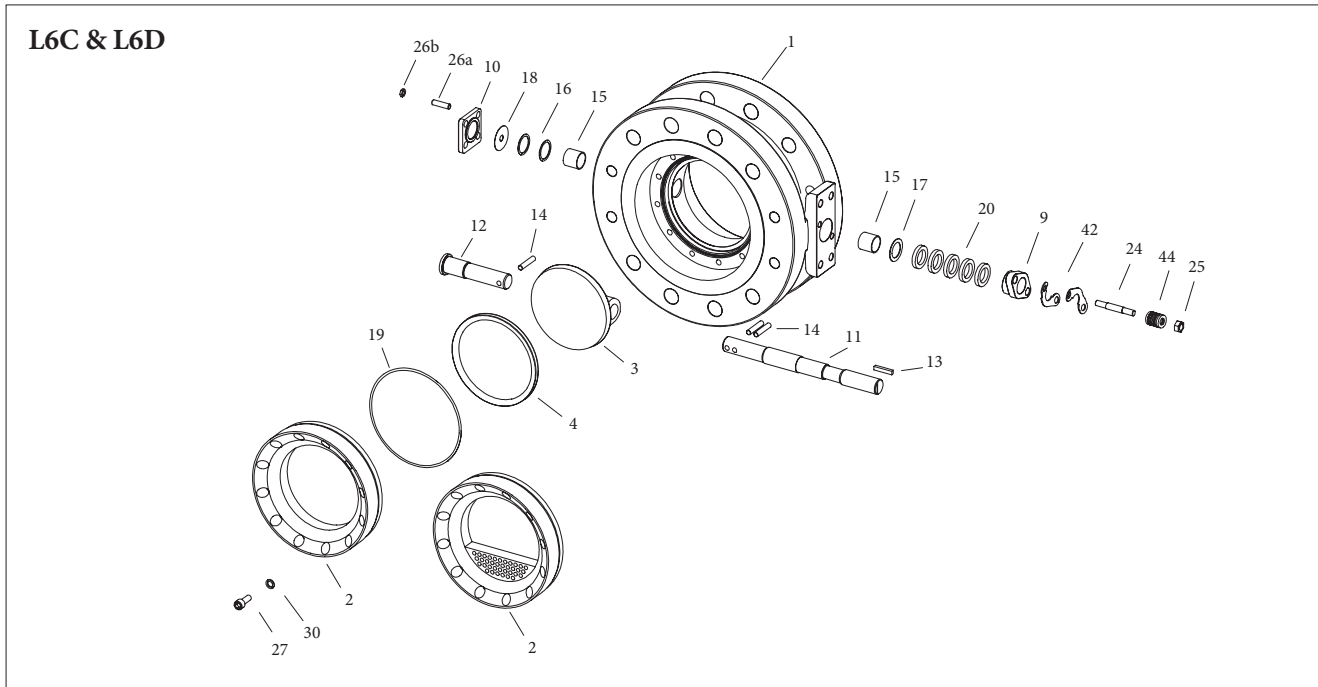
#### Wide pressure and temperature range

- Differential pressure/temperature ratings in accordance with ASME B16.34.
- Standard construction performs equally well from -200 ...+538 °C / -328 ...+1000 °F.

#### Low cost of ownership

- Extremely high cycle life minimizes the need for maintenance, and increases Mean Time Between Failure (MTBF).
- Interchangeable seat can be replaced without disassembling the disc and shaft. Seat replacement does not require any adjustment or special tools. Seat design is exactly the same in ASME class 150 and 300 regardless of pressure rating.

## Exploded view

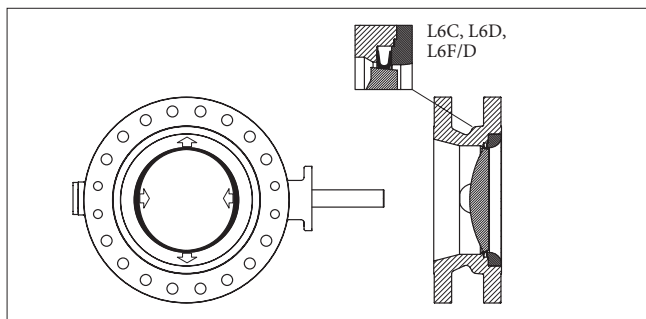


## Parts list

| Part no. | Part name               | Material   |
|----------|-------------------------|--|
| 1        | Body                    | Carbon Steel ASTM A216 Type WCB / 316 Stainless Steel ASTM A351 Type CF8M  |
| 2        | Clamp ring              | 316 Stainless Steel ASTM A182 type F316 / 316 Stainless Steel ASTM A351 Type CF8M  |
| 3        | Disc                    | 316 stainless steel ASTM A351 type CF8M  |
| 4        | Seat ring               | Incoloy® 825 hard chrome plated DN 100-750 / 4"-30"<br>W:no I.4418 (Avesta® 248 SV) hard chrome plated DN 800-1500 / 32"-64" |
| 9        | Gland                   | 316 stainless steel ASTM A351 type CF8M  |
| 10       | Blind flange            | 316 stainless steel ASTM A351 type CF8M  |
| 11       | Drive shaft             | 17-4PH stainless steel hard chrome plated  |
| 12       | Shaft                   | 17-4PH stainless steel hard chrome plated  |
| 13       | Key                     | 329 stainless steel  |
| 14       | Cylindrical pin         | 17-4PH stainless steel   |
| 15       | Bearing (upper & lower) | Cobalt based alloy / Nitronic® 60  |
| 16       | Thrust bearing          | Cobalt based alloy   |
| 17       | Anti extrusion ring     | Stainless steel  |
| 18       | Gasket                  | Graphite   |
| 19       | Body seal               | Graphite   |
| 20       | Gland packing           | PTFE / Graphite.   |
| 24       | Stud                    | Stainless steel  |
| 25       | Nut                     | Stainless steel  |
| 26a      | Stud                    | Stainless steel  |
| 26b      | Nut                     | Stainless steel  |
| 27       | Socket screw            | Stainless steel  |
| 30       | Spring washer           | Stainless steel  |
| 42       | Retaining plate         | Stainless steel  |
| 44       | Spring stack            | Stainless steel  |
| 44       | Boîtier ressort         | Acier inoxydable   |

## 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. The seat ring is able to move freely in a plane in its recess, to accommodate the disc in an optimal manner. When the valve is opened, the contact is released, and the seat ring returns to its original circular shape.



## Technical specifications

### Valve ratings

ASME Class 150, 300, 600, and PN10-50.

### Sizes and end connection types

ASME cl. 150 valves are available in sizes 28”-80” (DN 700-2000).

ASME cl. 300 valves are available in sizes 28”-56” (DN 700-1400).

ASME cl. 600 valves are available in sizes 28”-36” (DN 700-900).

Flanges are designed as per:

- ASME B16.47 series A for 28” (DN 700) and bigger sizes.
- ASME B16.47 series B flanges are available upon request.

ASME cl. 150 & 300 face-to-face dimensions are acc. to ISO 5752 series 13.

ASME cl. 600 face-to-face dimensions are acc. to ISO 5752 series 14.

### Inherent flow characteristic

Standard: Equal percentage

S-disc: Modified equal percentage

### Valve tightness (bi-directionally)

- Standard seat, code A:
  - ANSI Class V
  - ISO 5208, rate D, air
  - DIN 3230 rate 3
  - 10 x ISO 5208 rate D with RH hand lever

- Optional tightness:

- API 598 (metal seated),
- ANSI Class VI
- ISO 5208 rate A, air (28” - 30”)

### Safety features

- Fire-tested per API 607, 6th edition and BS 6755 part 2.
- Fugitive emission control with live loaded stem sealing as standard, ISO 15848 & TA-Luft/VDI 2440.
- Rugged single piece double flanged body eliminates potential leak paths associated with jointed bodies.
- Positive shaft blow-out prevention.

### Options

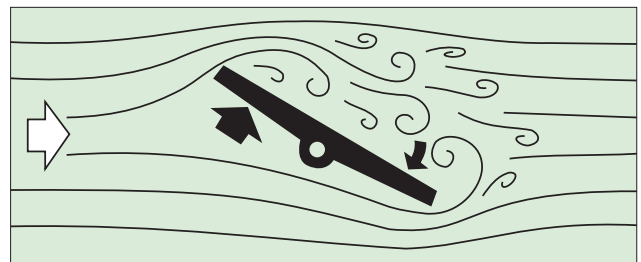
- S-Disc, flow balancing trim, see bulletin 2 S-L1 20
- Oxygen construction for gaseous oxygen service
- High temperature design
- High cycle/cycling design
- Erosion resistant design
- Cryogenic
- Steam jacket, heat tracing
- NACE MR0103/MR0175

### Flow data

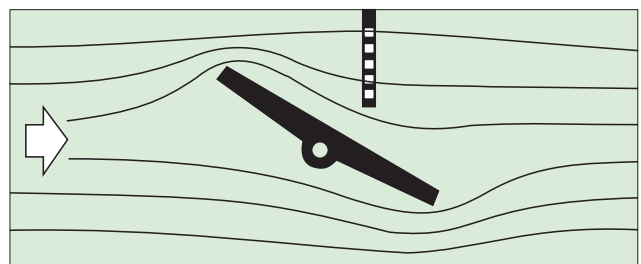
Flow coefficients of L6 Neldisc triple eccentric disc valves.

| Size | Cv-values |       |          |        |       |          |
|------|-----------|-------|----------|--------|-------|----------|
|      | Standard  |       |          | S-Disc |       |          |
|      | #150      | #300  | #600/300 | #150   | #300  | #600/300 |
| 28   | 25100     | 16300 | 16300    | 12614  | 10488 | 10488    |
| 30   | 24100     | 15900 | 15900    | 12344  | 10339 | 10339    |
| 32   | 39500     | 23700 | 23700    | 17277  | 14761 | 14761    |
| 36   | 53000     | 24300 | 24300    | 23085  | 14993 | 14993    |
| 40   | 69600     | 36700 | -        | 30039  | 22266 | -        |
| 42   | 66300     | 35700 | -        | 29395  | 22013 | -        |
| 48   | 80700     | 34000 | -        | 36106  | 21550 | -        |
| 52   | 127000    | 73600 | -        | 52395  | 46954 | -        |
| 56   | 117000    | 69800 | -        | 50693  | 45777 | -        |
| 60   | 112000    | 67400 | -        | 49563  | -     | -        |
| 64   | 149000    | -     | -        | 66646  | -     | -        |
| 72   | 221000    | -     | -        | 110782 | -     | -        |
| 80   | 203000    | -     | -        | 105086 | -     | -        |

### Conventional butterfly valve flow



### S-Disc™ flow



S-DISC design offers stable flow control, reduced dynamic torque, noise level and vibration. For more information see technical bulletin 2SL120.

Not recommended mounting position coding for valve-actuator unit if using S-Disc: A-HL, B-HL, C-HL and D-HL.

## Constructions

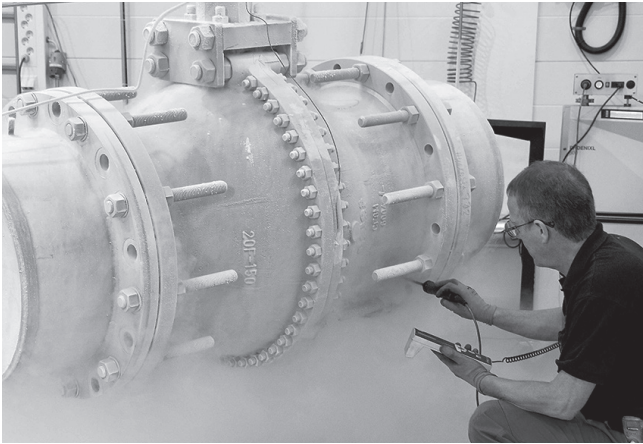
### Standard

Fire-tested construction in accordance with API 607 is standard. Standard design also carries a live loaded stem packing.

### Abrasive

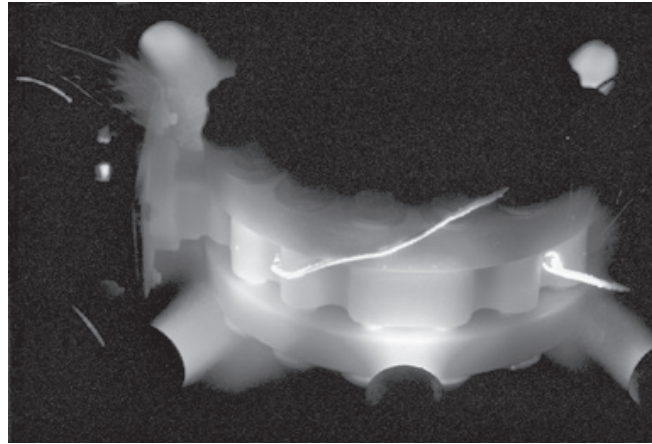
The disc can be protected against erosion by HCr plating or cobalt based alloy. The shaft is protected by special bearing bushings and can be flushed with a purge.

### Cryogenic



L6 is an excellent valve for cryogenic applications, temperatures -200 ... -46 °C / -320 ... -50 °F. Tight sealing over a wide range of cryogenic temperatures is accomplished with a high nickel alloy seat which maintains its mechanical properties even at cryogenic temperatures. The testing of these valves is done in the cryogenic laboratory. The testing procedure is agreed together with customer to fulfill the available standards and requirements.

### High temperature

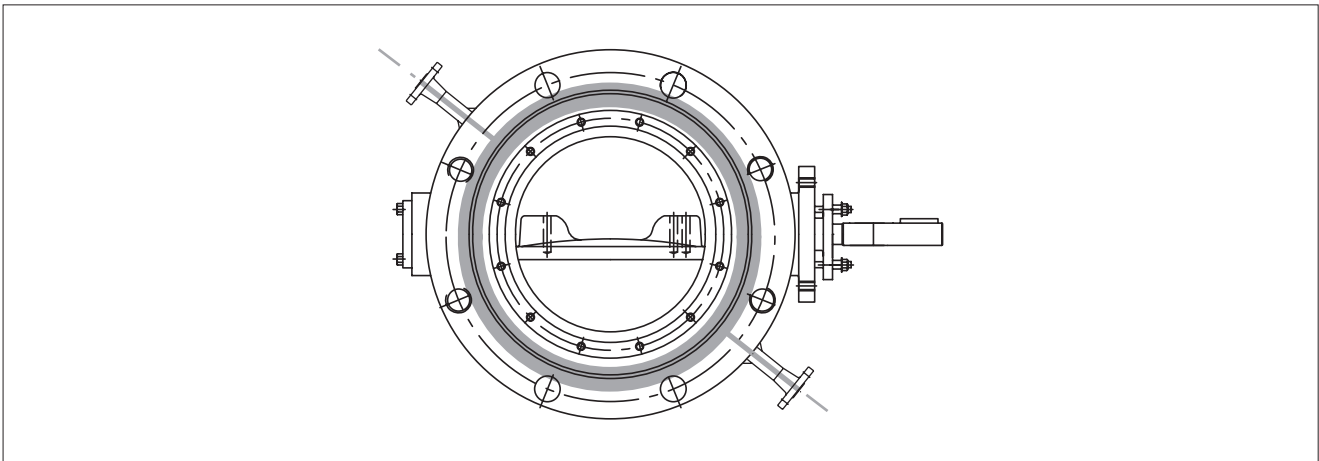


Service temperatures above +425 °C / +800 °F require high temperature construction with cobalt based alloy bearings and high temperature alloy shafts and seat. +600 °C / +1110 °F, consult the factory for proper material selection and higher temperatures.

### NACE

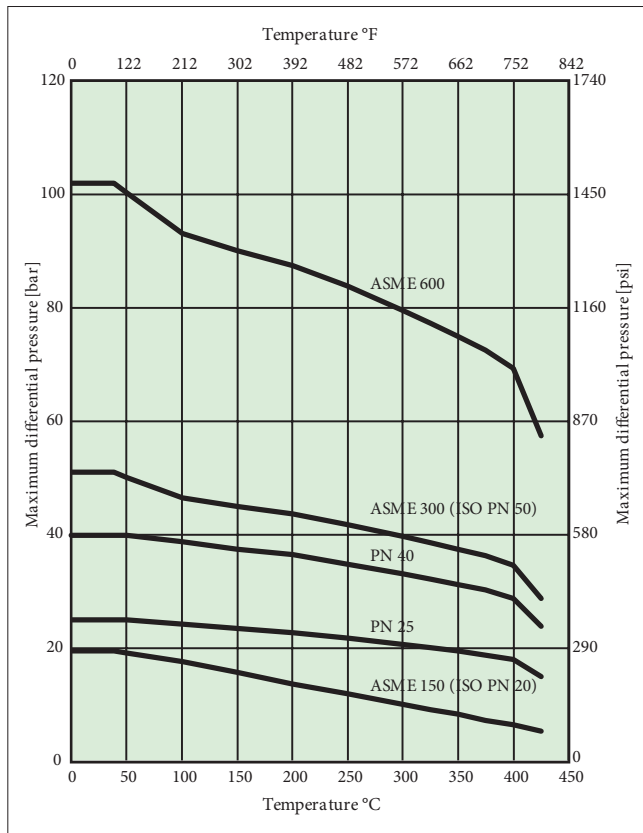
L6 Neldisc valves are available to comply with NACE MR 0103 or NACE MR 0175.

## Steam jacket

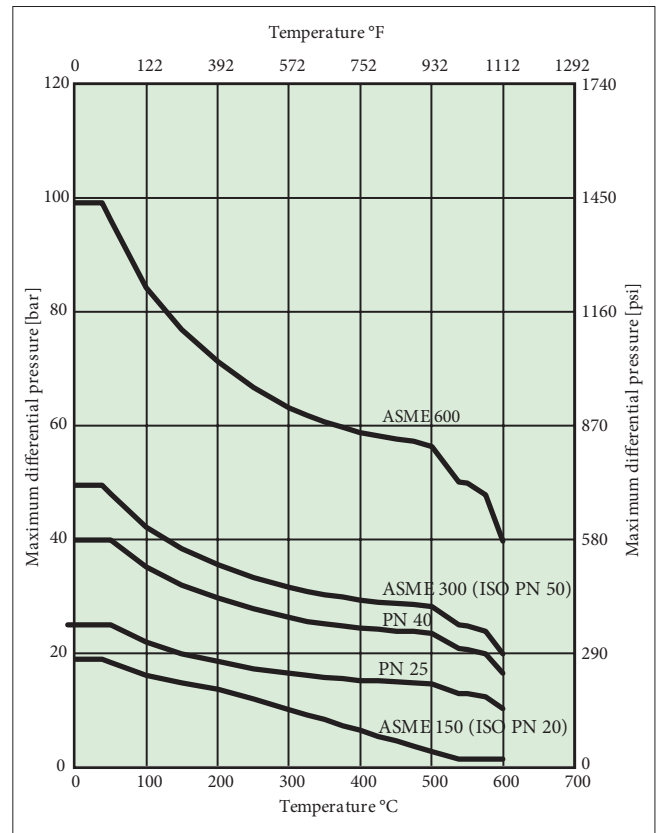


For applications requiring constant higher temperature levels, the L6 valve can be equipped with steam jacket to prevent e.g. liquid sulphur to crystallize. The bearing area is protected by an O-ring to prevent contaminant particles from entering the bearing and packing area.

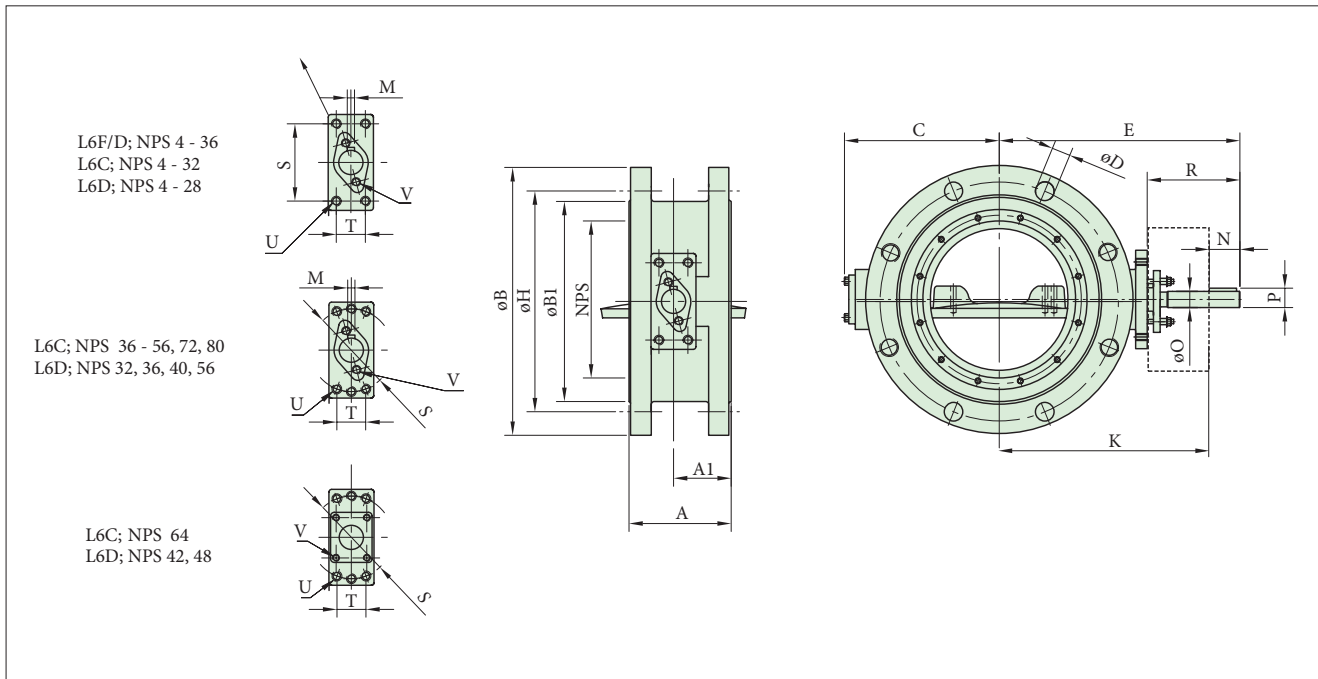
Pressure/temperature ratings for valve body, WCB



Pressure/temperature ratings for valve body, CF8M



## Dimensions



### L6C, ASME CLASS 150

| NPS | Dimensions, mm |       |          |           |          |          |      |      |          |     |       |       |     |      |     |     | kg   | U     | V     |
|-----|----------------|-------|----------|-----------|----------|----------|------|------|----------|-----|-------|-------|-----|------|-----|-----|------|-------|-------|
|     | A              | A1    | $\phi B$ | $\phi B1$ | $\phi H$ | $\phi D$ | C    | E    | $\phi O$ | R   | P     | M     | N   | K    | S   | T   |      |       |       |
| 28* | 292            | 144   | 925      | 800       | 863.6    | 35       | 464  | 820  | 70       | 300 | 78.2  | 19.05 | 119 | 701  | 230 | 90  | 700  | 1     | 5/8   |
| 30* | 318            | 170   | 985      | 857       | 914.4    | 35       | 492  | 785  | 70       | 300 | 78.2  | 19.05 | 119 | 666  | 230 | 90  | 850  | 1     | 5/8   |
| 32* | 318            | 159   | 1060     | 914       | 977.9    | 42       | 530  | 875  | 85       | 325 | 94.7  | 22.23 | 146 | 730  | 230 | 90  | 1050 | 1     | 5/8   |
| 36* | 330            | 150   | 1170     | 1022      | 1085.8   | 42       | 630  | 995  | 95       | 375 | 104.8 | 22.23 | 156 | 839  | 330 | 120 | 1350 | 1 1/4 | 3/4   |
| 38* | 330            | 150   | 1240     | 1073      | 1149.3   | 42       | 695  | 1085 | 95       | 375 | 104.8 | 22.23 | 156 | 929  | 330 | 120 | 1400 | 1 1/4 | 3/4   |
| 40* | 410            | 222   | 1290     | 1124      | 1200.2   | 42       | 645  | 1090 | 105      | 395 | 116   | 25.4  | 180 | 913  | 330 | 120 | 1600 | 1 1/4 | 3/4   |
| 48* | 470            | 256   | 1510     | 1359      | 1422.4   | 42       | 756  | 1235 | 120      | 425 | 133.8 | 31.75 | 205 | 1030 | 330 | 120 | 2300 | 1 1/4 | 3/4   |
| 56* | 530            | 288   | 1745     | 1575      | 1651     | 48       | 1001 | 1470 | 150      | 530 | 181   | 38.1  | 280 | 1190 | 400 | 160 | 4600 | 1 1/2 | 1 1/4 |
| 64* | 600            | 370   | 1870     | 1714      | 1790     | 38       | 1097 | 1540 | 165      | 530 | 181   | 38.1  | 280 | 1260 | 400 | 160 | 5200 | 1 1/2 | 1 1/4 |
| 72* | 356            | 160.5 | 2020     | 1917      | 1957     | 29       | 1130 | 1512 | 135      | 475 | 148.9 | 31.75 | 225 | 1287 | 360 | 135 | 4800 | 1 1/4 | 7/8   |
| 80* | 540            | 274.5 | 2345     | 2213      | 2257     | 45       | 1173 | 1700 | 135      | 475 | 148.9 | 31.75 | 225 | 1475 | 360 | 135 | 6900 | 1 1/4 | 7/8   |

| NPS | Dimensions, inch |       |          |           |          |          |       |       |          |       |      |      |       |       |       |      | lb    | U     | V     |
|-----|------------------|-------|----------|-----------|----------|----------|-------|-------|----------|-------|------|------|-------|-------|-------|------|-------|-------|-------|
|     | A                | A1    | $\phi B$ | $\phi B1$ | $\phi H$ | $\phi D$ | C     | E     | $\phi O$ | R     | P    | M    | N     | K     | S     | T    |       |       |       |
| 28* | 11.50            | 5.67  | 36.50    | 31.50     | 34.00    | 1.38     | 18.27 | 32.28 | 2.76     | 11.81 | 3.08 | 0.75 | 4.69  | 27.60 | 9.06  | 3.54 | 1540  | 1     | 5/8   |
| 30* | 12.52            | 6.69  | 38.74    | 33.75     | 36.00    | 1.38     | 19.37 | 30.91 | 2.76     | 11.81 | 3.08 | 0.75 | 4.69  | 26.22 | 9.06  | 3.54 | 1870  | 1     | 5/8   |
| 32* | 12.52            | 6.26  | 41.73    | 36.00     | 38.50    | 1.65     | 20.87 | 34.45 | 3.35     | 12.80 | 3.73 | 0.88 | 5.75  | 28.74 | 9.06  | 3.54 | 2310  | 1     | 5/8   |
| 36* | 12.99            | 5.91  | 45.98    | 40.25     | 42.75    | 1.65     | 24.80 | 39.17 | 3.74     | 14.76 | 4.13 | 0.88 | 6.14  | 33.03 | 12.99 | 4.72 | 2970  | 1 1/4 | 3/4   |
| 38* | 12.99            | 5.91  | 48.74    | 42.24     | 45.25    | 1.65     | 27.36 | 42.72 | 3.74     | 14.76 | 4.13 | 0.88 | 6.14  | 36.57 | 12.99 | 4.72 | 3080  | 1 1/4 | 3/4   |
| 40* | 16.14            | 8.74  | 50.75    | 44.25     | 47.24    | 1.65     | 25.39 | 42.91 | 4.13     | 15.55 | 4.57 | 1.00 | 7.08  | 35.94 | 12.99 | 4.72 | 3520  | 1 1/4 | 3/4   |
| 48* | 18.50            | 10.08 | 59.49    | 53.50     | 56.00    | 1.65     | 29.76 | 48.62 | 4.72     | 16.73 | 5.27 | 1.25 | 8.07  | 40.55 | 12.99 | 4.72 | 5060  | 1 1/4 | 3/4   |
| 56* | 20.87            | 11.34 | 68.90    | 62.01     | 65.00    | 1.89     | 39.41 | 57.87 | 5.91     | 20.87 | 7.13 | 1.50 | 11.02 | 46.85 | 15.75 | 6.30 | 10120 | 1 1/2 | 1 1/4 |
| 64* | 23.62            | 14.57 | 73.62    | 67.48     | 70.47    | 1.50     | 43.19 | 60.63 | 6.50     | 20.87 | 7.13 | 1.50 | 11.02 | 49.61 | 15.75 | 6.30 | 11440 | 1 1/2 | 1 1/4 |
| 72* | 14.02            | 18.13 | 83.46    | 78.39     | 80.00    | 1.14     | 44.49 | 59.53 | 5.31     | 18.70 | 5.86 | 1.25 | 8.86  | 50.67 | 14.17 | 5.31 | 10560 | 1 1/4 | 7/8   |
| 80* | 21.26            | 10.81 | 92.32    | 87.13     | 88.86    | 1.77     | 46.18 | 66.93 | 5.31     | 18.70 | 5.86 | 1.25 | 8.86  | 58.07 | 14.17 | 5.31 | 15180 | 1 1/4 | 7/8   |

\*) Size 28" and bigger acc. to ASME B16.47 Series A, drilling for sizes 64" and bigger to be agreed with the factory

### L6D, ASME CLASS 300

| NPS | Dimensions, mm |     |      |      |        |    |      |      |     |     |       |       |     |      |     |     | kg   | U     | V     |
|-----|----------------|-----|------|------|--------|----|------|------|-----|-----|-------|-------|-----|------|-----|-----|------|-------|-------|
|     | A              | A1  | oB   | oB1  | oH     | oD | C    | E    | oO  | R   | P     | M     | N   | K    | S   | T   |      |       |       |
| 26  | 292            | 140 | 970  | 749  | 876.3  | 45 | 575  | 955  | 95  | 375 | 104.8 | 25.4  | 156 | 799  | 330 | 120 | 900  | 1 1/4 | 3/4   |
| 28* | 292            | 140 | 1035 | 800  | 939.8  | 45 | 575  | 975  | 95  | 395 | 104.8 | 25.4  | 156 | 819  | 330 | 120 | 1100 | 1 1/4 | 3/4   |
| 32* | 318            | 159 | 1150 | 914  | 1054   | 51 | 640  | 1055 | 120 | 425 | 133.8 | 31.75 | 205 | 850  | 330 | 120 | 1400 | 1 1/4 | 1     |
| 36* | 330            | 165 | 1270 | 1022 | 1168.4 | 54 | 780  | 1175 | 135 | 475 | 149   | 31.75 | 225 | 950  | 360 | 135 | 1900 | 1 1/4 | 1 1/4 |
| 40* | 410            | 165 | 1240 | 1086 | 1155.7 | 45 | 780  | 1175 | 135 | 475 | 149   | 31.75 | 225 | 950  | 360 | 135 | 1900 | 1 1/4 | 1 1/4 |
| 42* | 410            | 205 | 1290 | 1137 | 1206.5 | 45 | 820  | 1260 | 165 | 530 | 181   | 38.1  | 280 | 980  | 360 | 135 | 2530 | 1 1/4 | 1 1/4 |
| 48* | 470            | 255 | 1465 | 1302 | 1371.6 | 51 | 940  | 1380 | 165 | 530 | 181   | 38.1  | 280 | 1100 | 360 | 135 | 3530 | 1 1/4 | 1 1/4 |
| 56* | 530            | 285 | 1710 | 1518 | 1600.2 | 60 | 1110 | 1590 | 200 | 590 | 222.1 | 50.8  | 340 | 1250 | 460 | 180 | 5650 | 1 1/2 | 1 1/2 |

| NPS | Dimensions, inch |       |       |       |       |      |       |       |      |       |      |      |       |       |       |      | lb    | U     | V     |
|-----|------------------|-------|-------|-------|-------|------|-------|-------|------|-------|------|------|-------|-------|-------|------|-------|-------|-------|
|     | A                | A1    | oB    | oB1   | oH    | oD   | C     | E     | oO   | R     | P    | M    | N     | K     | S     | T    |       |       |       |
| 26  | 11.50            | 5.51  | 38.27 | 29.50 | 34.50 | 1.77 | 22.64 | 37.60 | 3.74 | 14.76 | 4.13 | 1.00 | 6.14  | 31.46 | 12.99 | 4.72 | 1980  | 1 1/4 | 3/4   |
| 28* | 11.50            | 5.51  | 40.75 | 31.50 | 37.00 | 1.77 | 22.64 | 38.39 | 3.74 | 15.55 | 4.13 | 1.00 | 6.14  | 32.24 | 12.99 | 4.72 | 2420  | 1 1/4 | 3/4   |
| 32* | 12.52            | 6.26  | 45.28 | 37.80 | 41.50 | 2.01 | 25.20 | 41.54 | 4.72 | 16.73 | 5.27 | 1.25 | 8.07  | 33.46 | 12.99 | 4.72 | 3080  | 1 1/4 | 1     |
| 36* | 12.99            | 6.50  | 50.00 | 40.25 | 46.00 | 2.13 | 30.71 | 46.26 | 5.31 | 18.70 | 5.87 | 1.25 | 8.86  | 37.40 | 14.17 | 5.31 | 4180  | 1 1/4 | 1 1/4 |
| 40* | 16.14            | 6.50  | 48.74 | 42.75 | 45.50 | 1.77 | 30.71 | 46.26 | 5.31 | 18.70 | 5.87 | 1.25 | 8.86  | 37.40 | 14.17 | 5.31 | 4180  | 1 1/4 | 1 1/4 |
| 42* | 16.14            | 8.07  | 50.75 | 40.35 | 47.50 | 1.77 | 32.28 | 49.61 | 6.50 | 20.87 | 7.13 | 1.50 | 11.02 | 38.58 | 14.17 | 5.31 | 5566  | 1 1/4 | 1 1/4 |
| 48* | 18.50            | 10.04 | 57.76 | 51.25 | 54.00 | 2.01 | 37.01 | 54.33 | 6.50 | 20.87 | 7.13 | 1.50 | 11.02 | 43.31 | 14.17 | 5.31 | 7766  | 1 1/4 | 1 1/4 |
| 56* | 20.87            | 11.22 | 67.24 | 59.75 | 63.00 | 2.36 | 43.70 | 62.60 | 7.87 | 23.23 | 8.74 | 2.00 | 13.39 | 49.21 | 18.11 | 7.09 | 12430 | 1 1/2 | 1 1/2 |

\*) Size 28” and bigger acc. to ASME B16.47 Series A

### L6F/D & L6F/E, ASME CLASS 600/300

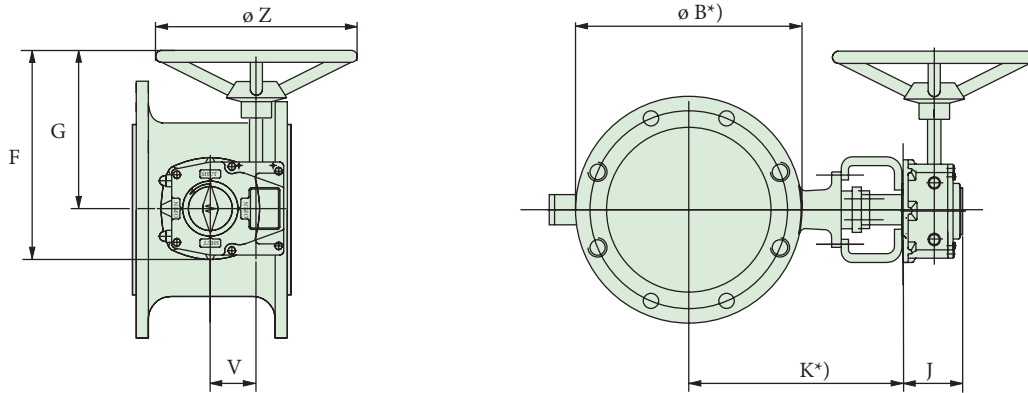
| NPS | Dimensions, mm |       |      |       |        |      |     |      |     |     |         |        |     |      |     |     | kg   | U     | V     |
|-----|----------------|-------|------|-------|--------|------|-----|------|-----|-----|---------|--------|-----|------|-----|-----|------|-------|-------|
|     | A              | A1    | oB   | oB1   | oH     | oD   | C   | E    | oO  | R   | P       | M      | N   | K    | S   | T   |      |       |       |
| 4   | 190            | 110   | 275  | 157.2 | 215.9  | 26   | 110 | 270  | 15  | 125 | 17      | 4.76   | 25  | 245  | 110 | 32  | 45   | 3/8   | 3/8   |
| 6   | 210            | 125   | 355  | 215.9 | 292.1  | 29   | 150 | 315  | 20  | 115 | 22.7    | 4.76   | 35  | 280  | 110 | 32  | 90   | 1/2   | 3/8   |
| 8   | 230            | 177   | 420  | 269.9 | 349.2  | 32   | 225 | 376  | 25  | 146 | 27.8    | 6.35   | 46  | 330  | 110 | 32  | 150  | 1/2   | 1/2   |
| 10  | 250            | 145   | 510  | 323.8 | 431.8  | 35   | 220 | 443  | 35  | 158 | 39.1    | 9.53   | 58  | 385  | 160 | 40  | 215  | 5/8   | 5/8   |
| 12  | 270            | 181   | 560  | 381   | 489    | 35   | 326 | 612  | 45  | 230 | 50.4    | 12.7   | 80  | 532  | 230 | 90  | 350  | 1     | 3/4   |
| 14  | 290            | 180   | 605  | 412.8 | 527.0  | 38   | 350 | 585  | 45  | 230 | 50.4    | 12.7   | 80  | 505  | 230 | 90  | 410  | 1     | 3/4   |
| 16  | 310            | 202   | 685  | 469.9 | 603.2  | 41   | 400 | 666  | 50  | 230 | 55.5    | 12.7   | 90  | 576  | 230 | 90  | 450  | 1     | 3/4   |
| 18  | 330            | 220   | 745  | 533.4 | 654.0  | 45   | 420 | 629  | 55  | 239 | 60.6    | 12.7   | 90  | 539  | 230 | 90  | 600  | 1 1/2 | -     |
| 20  | 350            | 243.5 | 815  | 584.2 | 723.9  | 45   | 460 | 778  | 70  | 278 | 78.15   | 19.05  | 119 | 659  | 230 | 90  | 895  | 1     | 1     |
| 24  | 390            | 256.5 | 940  | 692.2 | 838.2  | 51   | 490 | 1451 | 85  | 846 | 94.625  | 22.225 | 146 | 1305 | 330 | 120 | 1225 | 1 1/4 | 1 1/4 |
| 28* | 430            | 200   | 1075 | 800   | 863.6  | 48   | 565 | 1605 | 95  | 980 | 104.825 | 22.225 | 156 | 1449 | 330 | 120 | 1625 | 1 1/4 | 1 1/4 |
| 30* | 430            | 200   | 1130 | 857   | 1022.3 | 54   | 646 | 1006 | 95  | 381 | 104.825 | 22.225 | 156 | 850  | 330 | 120 | 1795 | 1 1/4 | 1 1/4 |
| 36* | 510            | 345   | 1314 | 987.2 | 1193.8 | 66.7 | 710 | 1600 | 135 | 890 | 148.95  | 31.75  | 225 | 1375 | 360 | 135 | 2770 | 1 1/4 | 1 1/4 |

| NPS | Dimensions, inch |       |       |       |       |      |       |       |      |       |      |      |      |       |       |      | lb     | U     | V     |
|-----|------------------|-------|-------|-------|-------|------|-------|-------|------|-------|------|------|------|-------|-------|------|--------|-------|-------|
|     | A                | A1    | oB    | oB1   | oH    | oD   | C     | E     | oO   | R     | P    | M    | N    | K     | S     | T    |        |       |       |
| 4   | 7.48             | 4.33  | 10.75 | 6.19  | 8.50  | 1.02 | 4.33  | 10.63 | 0.59 | 4.92  | 0.67 | 0.19 | 0.98 | 9.65  | 4.33  | 1.26 | 99     | 3/8   | 3/8   |
| 6   | 8.27             | 4.92  | 14.02 | 8.50  | 11.50 | 1.14 | 5.91  | 12.40 | 0.79 | 4.53  | 0.89 | 0.19 | 1.38 | 11.02 | 4.33  | 1.26 | 198    | 1/2   | 3/8   |
| 8   | 9.06             | 6.97  | 16.54 | 12.13 | 13.75 | 1.26 | 8.86  | 14.80 | 0.98 | 5.75  | 1.09 | 0.25 | 1.81 | 12.99 | 4.33  | 1.26 | 330    | 1/2   | 1/2   |
| 10  | 9.84             | 5.71  | 20.00 | 14.00 | 17.00 | 1.38 | 8.66  | 17.44 | 1.38 | 6.22  | 1.54 | 0.38 | 2.28 | 15.16 | 6.30  | 1.57 | 473    | 5/8   | 5/8   |
| 12  | 10.63            | 7.13  | 22.01 | 15.00 | 19.25 | 1.38 | 12.83 | 24.09 | 1.77 | 9.06  | 1.98 | 0.50 | 3.15 | 20.94 | 9.06  | 3.54 | 770    | 1     | 3/4   |
| 14  | 11.42            | 7.09  | 23.82 | 16.26 | 20.75 | 1.50 | 13.78 | 23.03 | 1.77 | 9.06  | 1.98 | 0.50 | 3.15 | 19.88 | 9.06  | 3.54 | 902    | 1     | 3/4   |
| 16  | 12.20            | 7.95  | 27.01 | 20.00 | 23.75 | 1.61 | 15.75 | 26.22 | 1.97 | 9.06  | 2.19 | 0.50 | 3.54 | 22.68 | 9.06  | 3.54 | 990    | 1     | 3/4   |
| 18  | 12.99            | 8.66  | 29.25 | 21.00 | 25.75 | 1.77 | 16.54 | 24.76 | 2.17 | 9.41  | 2.39 | 0.50 | 3.54 | 21.22 | 9.06  | 3.54 | 1320   | 1 1/2 | -     |
| 20  | 13.78            | 9.59  | 32.22 | 21.26 | 28.50 | 1.77 | 18.11 | 30.63 | 2.76 | 10.94 | 3.08 | 0.75 | 4.69 | 25.94 | 9.06  | 3.54 | 1969   | 1     | 1     |
| 24  | 15.35            | 10.10 | 37.50 | 24.72 | 33.00 | 2.01 | 19.29 | 57.13 | 3.35 | 33.31 | 3.73 | 0.88 | 5.75 | 51.38 | 12.99 | 4.72 | 2695   | 1 1/4 | 1 1/4 |
| 28* | 16.93            | 7.87  | 42.24 | 30.31 | 34.00 | 1.89 | 22.24 | 63.19 | 3.74 | 38.58 | 4.13 | 0.88 | 6.14 | 57.05 | 12.99 | 4.72 | 3575   | 1 1/4 | 1 1/4 |
| 30* | 16.93            | 7.87  | 44.49 | 29.50 | 40.25 | 2.13 | 25.43 | 39.61 | 3.74 | 15.00 | 4.13 | 0.88 | 6.14 | 33.46 | 12.99 | 4.72 | 3949   | 1 1/4 | 1 1/4 |
| 36* | 20.1             | 13.6  | 51.7  | 38.9  | 47    | 2.6  | 28    | 63    | 5.3  | 35    | 5.9  | 1.3  | 8.9  | 54.1  | 14.2  | 5.3  | 6106.8 | 1 1/4 | 1 1/4 |

\*) Size 28” and bigger acc. to ASME B16.47 Series A



### VALVE + MANUAL GEAR OPERATOR

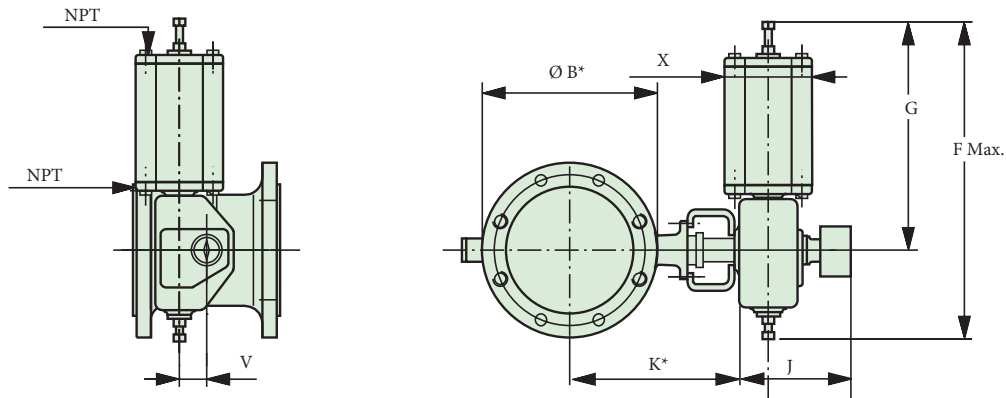


\*) See dimensions K and øB on pages 6-7.

| Type | Dimensions in mm |     |     |     |     | kg |
|------|------------------|-----|-----|-----|-----|----|
|      | F                | G   | J   | V   | Z   |    |
| M07  | 196              | 152 | 58  | 38  | 160 | 3  |
| M10  | 297              | 239 | 67  | 52  | 200 | 5  |
| M12  | 357              | 282 | 81  | 66  | 315 | 10 |
| M14  | 435              | 345 | 93  | 89  | 400 | 18 |
| M15  | 532              | 406 | 105 | 123 | 500 | 31 |
| M16  | 642              | 466 | 126 | 154 | 600 | 45 |
| M25  | 597              | 412 | 160 | 182 | 600 | 61 |

| Type | Dimensions in inch |       |      |      |       | lbs |
|------|--------------------|-------|------|------|-------|-----|
|      | F                  | G     | J    | V    | Z     |     |
| M07  | 7.72               | 5.98  | 2.28 | 1.52 | 6.30  | 6   |
| M10  | 11.69              | 9.41  | 2.64 | 2.05 | 7.87  | 11  |
| M12  | 14.06              | 11.10 | 3.19 | 2.63 | 12.40 | 21  |
| M14  | 17.13              | 13.58 | 3.68 | 3.52 | 25.75 | 40  |
| M15  | 20.94              | 15.98 | 4.15 | 4.84 | 19.69 | 68  |
| M16  | 25.28              | 18.35 | 4.98 | 6.06 | 23.62 | 99  |
| M25  | 23.28              | 16.07 | 6.24 | 7.10 | 23.40 | 134 |

### VALVE + PNEUMATIC ACTUATOR B1C, B1J, B1JA



\*) See dimensions K and øB on pages 6-7.

| Type  | Dimensions in mm |      |      |     |     | NPT | kg  |
|-------|------------------|------|------|-----|-----|-----|-----|
|       | X                | G    | F    | V   | J   |     |     |
| B1C6  | 90               | 260  | 400  | 36  | 283 | 1/4 | 4,2 |
| B1C9  | 110              | 315  | 455  | 43  | 279 | 1/4 | 9,6 |
| B1C11 | 135              | 375  | 540  | 51  | 290 | 3/8 | 16  |
| B1C13 | 175              | 445  | 635  | 65  | 316 | 3/8 | 31  |
| B1C17 | 215              | 545  | 770  | 78  | 351 | 1/2 | 54  |
| B1C20 | 215              | 575  | 840  | 97  | 385 | 1/2 | 73  |
| 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 in inch |       |       |      |       | NPT | lbs  |
|-------|--------------------|-------|-------|------|-------|-----|------|
|       | X                  | G     | F     | V    | J     |     |      |
| B1C6  | 3.54               | 10.24 | 15.75 | 1.42 | 11.14 | 1/4 | 9    |
| B1C9  | 4.33               | 12.40 | 17.91 | 1.69 | 10.98 | 1/4 | 21   |
| B1C11 | 5.31               | 14.76 | 21.26 | 2.01 | 11.42 | 3/8 | 35   |
| B1C13 | 6.89               | 17.52 | 25.00 | 2.56 | 12.44 | 3/8 | 68   |
| B1C17 | 8.46               | 21.46 | 30.31 | 3.07 | 13.82 | 1/2 | 119  |
| B1C20 | 8.46               | 22.64 | 33.07 | 3.82 | 15.16 | 1/2 | 161  |
| 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 in mm |      |      |     |     | NPT | kg   |
|-------------|------------------|------|------|-----|-----|-----|------|
|             | X                | G    | F    | V   | J   |     |      |
| B1J, B1JA8  | 135              | 420  | 560  | 43  | 279 | 3/8 | 17   |
| B1J, B1JA10 | 175              | 490  | 650  | 51  | 290 | 3/8 | 30   |
| B1J, B1JA12 | 215              | 620  | 800  | 65  | 316 | 1/2 | 57   |
| B1J, B1JA16 | 265              | 760  | 990  | 78  | 351 | 1/2 | 100  |
| 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 in inch |       |       |      |       | NPT | lbs  |
|-------------|--------------------|-------|-------|------|-------|-----|------|
|             | X                  | G     | F     | V    | J     |     |      |
| B1J, B1JA8  | 5.31               | 16.54 | 22.05 | 1.69 | 10.98 | 3/8 | 37   |
| B1J, B1JA10 | 6.89               | 19.29 | 25.59 | 2.01 | 11.42 | 3/8 | 66   |
| B1J, B1JA12 | 8.46               | 24.41 | 31.5  | 2.56 | 12.44 | 1/2 | 126  |
| B1J, B1JA16 | 10.43              | 29.92 | 38.98 | 3.07 | 13.82 | 1/2 | 220  |
| 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

|    |    |    |    |    |    |    |    |    |     |     |     |     |
|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. |
|    | L6 | C  | B  | N  | 24 | P  | A  | C  | A   | G   | /   |     |

| 1. Sign | S-disc construction  |
|---------|--|
| S-      | Flow balancing trim on downstream side of the body flow port |

| 2. Sign | Product series/design  |
|---------|--|
| L6      | L6C and L6D pressure ratings are flanged and face-to-face according to EN 558 part 1, basic series 13, ISO 5752 series 13, API 609 category B, double flanged, short pattern<br>L6F and L6F/D are flanged and face-to-face according to EN 558 part 1, basic series 14, ISO 5752 series 14, API 609 category B |

| 3. Sign | Pressure rating   |
|---------|---|
| C       | Body ASME Class 150                                     |
| D       | Body ASME Class 300                                     |
| F/D     | Body ASME Class 600 / Internals ASME Class 300          |
| F/E     | Body ASME Class 600 / Internals extended ASME Class 300 |

| 4. Sign                       | Seat design  |
|-------------------------------|--|
| B<br>not<br>L6F/D or<br>L6F/E | Metal seat<br>- actuator mounting manufacturer standard / metric threads with drive shaft with 2 key ways<br>- pipe flange threads according to pipe flange standard applied (sign 13)<br>Used together with sign 5, codes N, C, H, S (also NACE versions) |

| 5. Sign              | Construction  |
|----------------------|---|
| N<br>or<br>1N (NACE) | STANDARD in size range 4”...24” (cl.150, cl.300)<br>- $t_{max} = +425\text{ °C} / +800\text{ °F}$<br>- bearings cobalt based alloy, shaft bearing surface nitrated (17-4PH shaft)<br>- body and blind flange gaskets graphite<br>- bare shaft valve ATEX II 2 G c<br>- not used in L6F/D or L6F/E   |
| A                    | Standard design in size range 04”...24” (cl.150, cl.300)<br>- Bearings PTFE + C25 + AISI 316 or PTFE + C25 + Alloy 625 depending on body material, shaft bearing surface non-nitrated.<br>- $t_{max} = +260\text{ °C} / +500\text{ °F}$<br>- Gr. 630 (17-4PH) shaft<br>- body and blind flange gaskets graphite   |
| U<br>or<br>1U (NACE) | Standard design in size range 28”...80” (cl.150, cl.300) and 4”-36” (L6F/D & L6F/E)<br>- $T_{max} + 425\text{ °C} / +800\text{ °F}$<br>- shaft bearing surfaces chrome plated<br>- bearings NITRONIC 60 (not NACE)<br>- bearings cobalt based alloy (NACE)<br>- body and blind flange gaskets graphite<br>- clamp ring screws Gr. 660 (NACE)<br>- bare shaft valve ATEX II 2 G c  |
| H<br>or<br>1H (NACE) | High temperature / High Cycle<br>- $t_{max} = +538\text{ °C}$ (for higher temperatures contact product line)<br>- bearing surfaces of shafts cobalt based alloy<br>- bearings cobalt based alloy<br>- body and blind flange gaskets graphite (ATEX II 2 G c)  |
| C                    | Cryogenic, $t = -200\text{ °C} \dots +260\text{ °C}$ , code C<br>$t = -50\text{ °C}$ or $-100\text{ °C} \dots +260\text{ °C}$ , code 1C<br>$t = -200\text{ °C} \dots +260\text{ °C}$ , code 2C<br>- extended bonnet and drive shaft (Cryo extension for $T = -200\text{ °C}$ to $+260\text{ °C}$ )<br>- bearings PTFE+ C25 + AISI 316<br>- body and blind flange gaskets graphite |
| X<br>or<br>1X (NACE) | LOW EMISSION CONSTRUCTION<br>- Low emission graphite packing<br>- Low emission blind flange<br>- Low emission blind flange bolting<br>- Otherwise as construction “N” or “1N”   |
| S<br>or<br>1S (NACE) | STEAM JACKET WITH BEARING PROTECTION<br>- steam jacket on valve body and graphite bearing protection, otherwise as construction “BN” or “BU”  |
| Z                    | OXYGEN CONSTRUCTION<br>- BAM tested non-metallic materials<br>- $T = -50\text{ °C} \dots +200\text{ °C}$<br>- Max pressure as per body rating<br>- Bearings cobalt based alloy<br>- Oxygen cleaning acc. to manufacturer internal procedures.<br>- Recommended typecodes L_ _ _ BZH_AACAG or L_ _ _ BZH_AMMKG or L_ _ _ BZH_MMMKG   |

Note! Only “Z” construction available for oxygen flow media. Not to be used with other flow medias.

| 6. Sign | Size  |
|---------|---|
|         | L6C: 28, 30, 32, 36, 38, 40, 42, 48, 52, 54, 56, 60, 64, 72, 80<br>L6D: 26, 28, 30, 32, 36, 40, 42, 44, 48, 50, 56<br>L6F/D & L6F/E: 04, 06, 08, 10, 12, 14, 16, 18, 20, 24, 28, 30, 36 |

| 7. Sign | Body materials                 |
|---------|--------------------------------|
| A       | ASTM A 351 gr. CF8M. Standard. |
| P       | ASTM A 216 gr. WCB. Standard.  |
| F       | ASTM A 352 gr. LCC             |

| 8. Sign | Disc material                         |
|---------|---------------------------------------|
| A       | ASTM A 351 gr. CF8M / F 316. Standard |

| 9. Sign | Shaft and pin material  |
|---------|---|
| C       | Gr. 630 (17-4PH). Standard.                                       |
| H       | Nimonic 80A (high temp. above $+425\text{ °C} / +800\text{ °F}$ ) |

| 10. Sign          | Seat material   |
|-------------------|---|
|                   | Standard  |
| A<br>not<br>L6F/E | Incoloy 825, hard chrome plated.  |
| B                 | W.no. 1.4418, hard chrome plated (AVESTA 248 SV).   |
| D<br>not<br>L6F/E | F6NM, hard chrome plated (Nace)<br>$t = -75\text{ °C} \dots +425\text{ °C} / -100\text{ °F} \dots +800\text{ °F}$ |
| H                 | Nimonic 80A, hard chrome plated, (high temp. above $+425\text{ °C} / +800\text{ °F}$ ).                           |

| 11. Sign | Packing material option                 |
|----------|---|
| G        | Live loaded graphite packing, Fire-safe |
| T        | Live loaded PTFE V-ring packing         |

| 12. Sign | Flange facing  |
|----------|--|
| -        | Ra 3.2 - 6.3, standard, without sign cover:<br>EN 1092-1 Type B1 (Ra 3.2 - 12.5)<br>ASME B16.5, Ra 3.2 - 6.3 (125 - 250 $\mu\text{in}$ ) |

| 13. Sign | Flange drilling  |
|----------|--|
| -        | According to ASME B16.5, without sign (4” - 24”).<br>According to ASME B16.47 series A (28” and up). |
| B        | ASME B16.47 Series B Class 150 & Class 300 (size 26” and bigger).                                    |

### Examples:

|                |   |  |
|----------------|---|--|
| L6CBN24AACAG   | = | Standard construction with metal bearings, stainless steel body and disc.<br>Max. temperature $+425\text{ °C}$                           |
| L6CBN24AACAT   | = | Max. temperature $+230\text{ °C}$  |
| L6CMU28AACAG   | = | Standard construction in bigger sizes, metal bearings, stainless steel body and disc.<br>Max. temperature $+425\text{ °C}$               |
| L6CBH24AAHHG   | = | High temperature construction  |
| L6CBC24AACAG   | = | Cryo construction  |
| L6F/DMU08PACAG | = | Standard construction with metal bearings, carbon steel body and stainless steel disc.<br>Body ASME Class 600 / Internals ASME Class 300 |

**Valmet Flow Control Oy**

Vanha Porvoontie 229, 01380 Vantaa, Finland.

Tel. +358 10 417 5000.

[www.valmet.com/flowcontrol](http://www.valmet.com/flowcontrol)

Subject to change without prior notice.

Neles, Neles Easyflow, Jamesbury, Stonel, Valvcon and Flowrox, and certain other trademarks, are either registered trademarks or trademarks of Valmet Oyj or its subsidiaries in the United States and/or in other countries.

