

HIGH PERFORMANCE DOUBLE ECCENTRIC BUTTERFLY VALVES

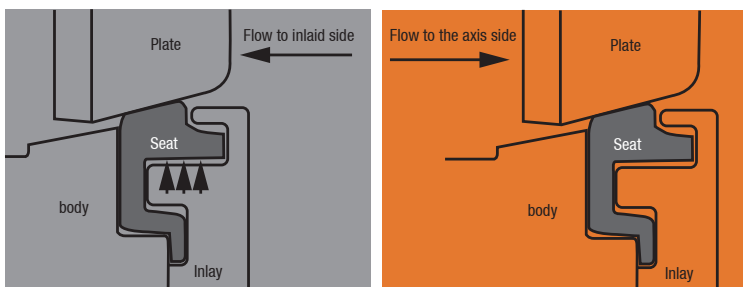
2020 version



Why choose Floeriner?

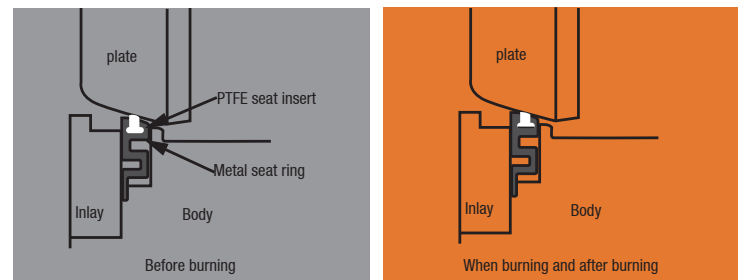
Floeriner is a global producer with innovative designed and technologically advanced valves in marine and offshore market. Floeriner high performance butterfly valves FD are specifically double offset design and patented floating seat construction, ensure lower torque value, 100% bi-directional disc sealing, meet high demanding applications where the valve performance is critical.

This in turn improves plant safety, increases the mechanical integrity of equipment and allows customers to gain a competitive advantage in the market place.



When pressure is on the insert side, pressure is applied under the seat lip. This further amplifies the sealing force between the disc and the seat

When pressure is on the non-insert side, the disc moves into the seat. Due to the spherical profile of the disc, the more the disc moves into the seat, the tighter the shut-off. Excessive movement of the seat is limited by the flexible lip which contacts the bottom of the groove in the insert



Fire safe design: The fire-tight seat (FOV series) was developed for applications where effective shut off during a fire is a concern. The primary sealing element is PTFE with back up metal seat ring. In the event that the PTFE is destroyed, the secondary metal seat provides effective shut off. Fire test according to API 607–6th edition and ISO 10497. LR fire safety certificate to be supplied if needed.

100% Bi-directional sealing: Floeriner butterfly valve standard seat seal is constructed by PTFE or RPTFE, filled PTFE and UHMW Polyethylene, utilizes a flexible lip, which, when distorted, will always attempt to return to its original shape and maintain seal against the disc regardless of flow direction.

Zero leakage: Leakage rate according to API 598 or EN1266–1 class A

FD SERIES

Product Selection Guide

Flöriner double eccentric butterfly (FD series) are designed to DIN, EN, ASME and JIS standard, normal size ranges are DN50 to DN1200, maximum size can be customized up to DN1500, widely used in shipbuilding, offshore, industries, petrochemical applications etc. Manual, hydraulic, electrical, pneumatic operations to be supplied, other operation type such as electrical–hydraulic are available according to customer's standard.



Series: FDW

Wafer type, suitable for flanges DIN PN10, PN16, PN25, ANSI 150#, ANSI 300#

Pressure class: 6bar, 10bar, 16bar, 25bar, 150lb, 300lb

Size: DN50 – DN1200

Design standard: EN 593 / API 609

Face to face acc.: DIN 3202, EN558, ISO 5752, BS 2080, JIS 2002, API609, etc.

Connection: EN1092, ASME B16.5, JIS B2239 & 2220, etc.

Top flange acc.: EN ISO 5211

Materials: Nodular cast iron, Cast steel, Al.Bronze, Stainless steel and other exotic material

Seats: PTFE(–60~190 °C), RPTFE(–60~230 °C)

Paint: Akzo Nobel, Epoxy coated, RAL5011, 150µm



Series: FDD

Double flange type, suitable for flanges DIN PN10, PN16, PN25, ANSI 150#, ANSI 300#

Pressure class: 6bar, 10bar, 16bar, 25bar, 150lb, 300lb

Size: DN50 – DN900

Design standard: EN 593 / API 609

Face to face acc.: DIN 3202, EN558, ISO 5752, BS 2080, JIS 2002, API609, etc.

Connection: EN1092, ASME B16.5, JIS B2239 & 2220, etc.

Top flange acc.: EN ISO 5211

Materials: Nodular cast iron, Cast steel, Al.Bronze, Stainless steel and other exotic material

Seats: PTFE(–60~190 °C), RPTFE(–60~230 °C)

Paint: Akzo Nobel, Epoxy coated, RAL5011, 150µm



Series: FDL

Lug type, suitable for flanges DIN PN10, PN16, PN25, ANSI 150#, ANSI 300#

Pressure class: 6bar, 10bar, 16bar, 25bar, 150lb, 300lb

Size: DN50 – DN1200

Design standard: EN 593 / API 609

Face to face acc.: DIN 3202, EN558, ISO 5752, BS 2080, JIS 2002, API609, etc.

Connection: EN1092, ASME B16.5, JIS B2239 & 2220, etc.

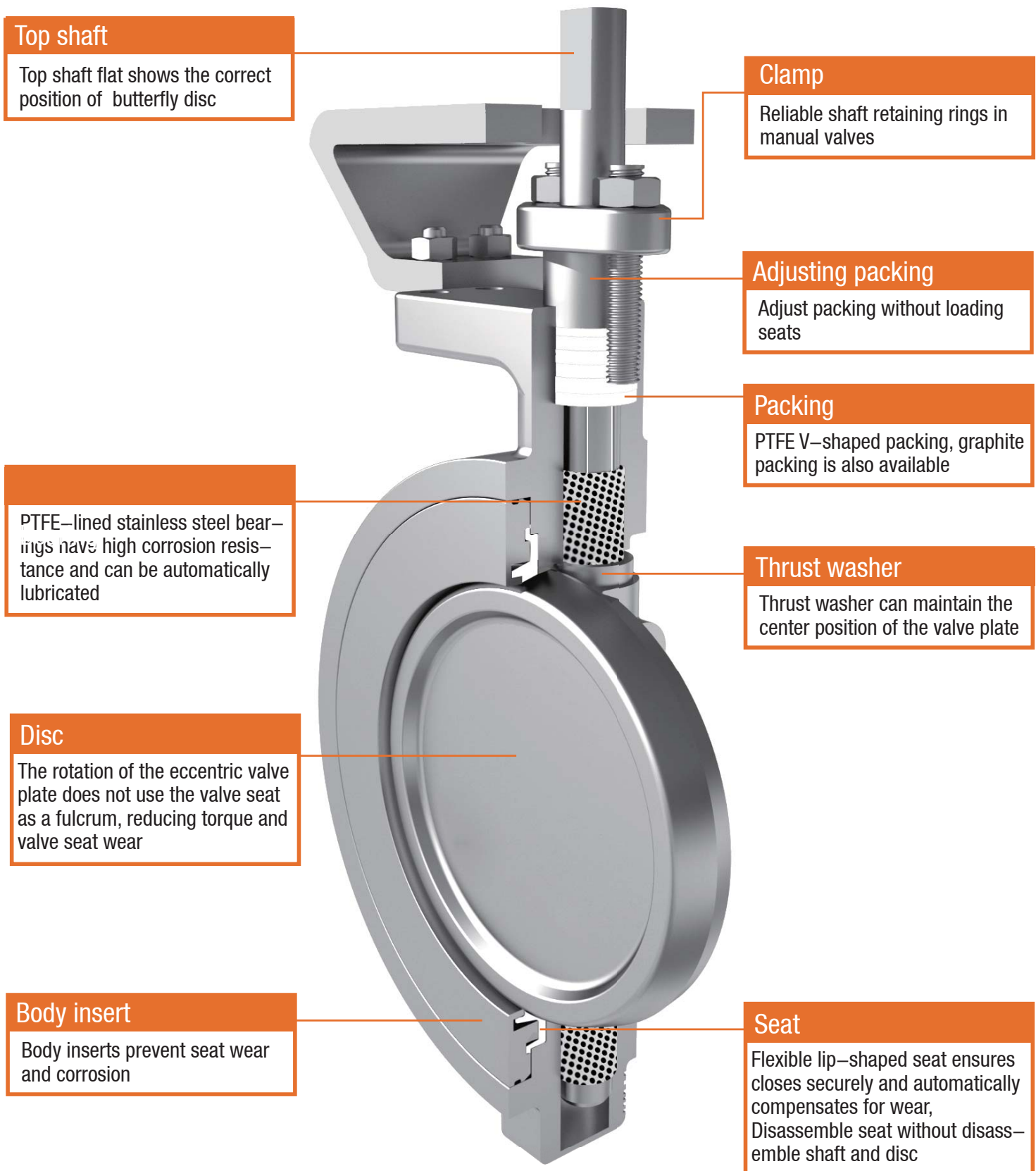
Top flange acc.: EN ISO 5211

Materials: Nodular cast iron, Cast steel, Al.Bronze, Stainless steel and other exotic material

Seats: PTFE(–60~190 °C), RPTFE(–60~230 °C)

Paint: Akzo Nobel, Epoxy coated, RAL5011, 150µm

FD Series product advantages at a glance



FDWN type double eccentric disc wafer type butterfly valve, is special designed as a high performance butterfly valve, it has two stems offset from the center.

FDWN type are available in higher pressure than centric disc type. It is designed up to 16bar in Nodular cast iron, carbon steel, stainless steel, and other exotic body materials, with variation of PTFE or RPTFE seats.

FDWN type can be widely used in power generation, pulp and paper, HAVC, chemical, oil and gas, water, wastewater & corrosive treatment, shipbuilding and offshore.

Operation

| Type | Material | DN |
|--------------|----------------|-------------|
| Bare shaft | | DN50–DN1200 |
| Lever | Aluminum alloy | DN50–DN150 |
| Worm gearbox | Aluminum alloy | DN50–DN1200 |

Pneumatic, electric or hydraulic actuator, hydraulic–electric see actuator section

Pressure and temperature range

| Nominal pressure | DN | Temp. | Max.p |
|--------------------------------|-------------|-------------------|-------|
| <input type="checkbox"/> PN10 | DN50–DN1200 | PTFE –60°C–190°C | 10bar |
| | | RPTFE –60°C–230°C | |
| <input type="checkbox"/> PN16 | DN50–DN1200 | PTFE –60°C–190°C | 16bar |
| | | RPTFE –60°C–230°C | |
| <input type="checkbox"/> CL150 | DN50–DN1200 | PTFE –60°C–190°C | 150LB |
| | | RPTFE –60°C–230°C | |

For the flange, see the flange matching dimension table

Material specification

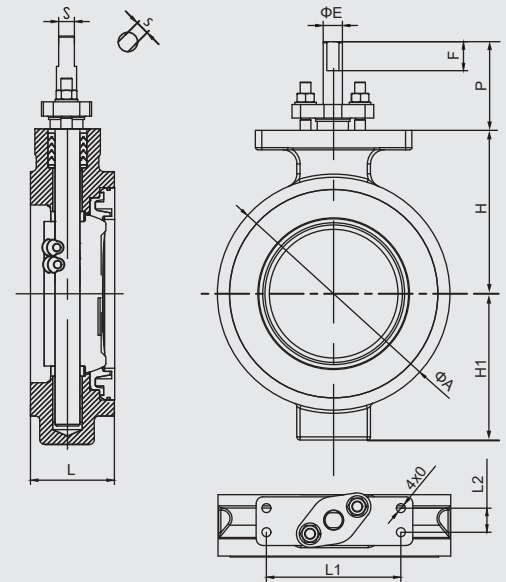
| Body | Disc | Shaft | Liner |
|--|--|--|--------------------------------|
| <input type="checkbox"/> Nodular cast iron | <input type="checkbox"/> Cast steel | <input type="checkbox"/> Al–bronze | <input type="checkbox"/> PTFE |
| <input type="checkbox"/> Cast steel | <input type="checkbox"/> Stainless steel | <input type="checkbox"/> Stainless steel | <input type="checkbox"/> RPTFE |
| <input type="checkbox"/> Stainless steel | <input type="checkbox"/> Al–Bronze | <input type="checkbox"/> Duplex steel | |
| <input type="checkbox"/> Bronze | <input type="checkbox"/> Monel alloy | <input type="checkbox"/> Hastelloy alloy | |
| <input type="checkbox"/> Duplex steel | <input type="checkbox"/> Duplex steel | <input type="checkbox"/> Monel alloy | |

Dimension

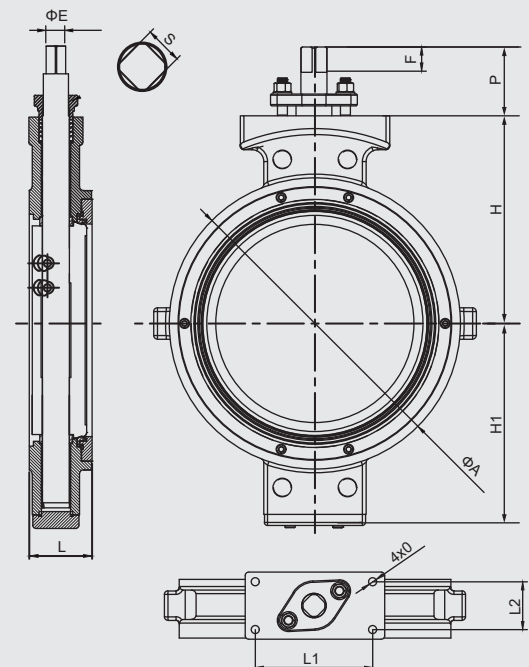
| DN | H | H1 | P | L | ΦA | F | ΦE | S | L1 | L2 | 4–0 | Torque (N·m) | | |
|--------|-----|-----|-----|-----|------|----|-----|----|-----|-----|-----|--------------|-------|-------|
| | | | | | | | | | | | | PN10 | PN16 | 150LB |
| DN50 | 81 | 62 | 44 | 43 | 96 | 14 | 12 | 9 | 126 | 22 | M10 | 23 | 24 | 23 |
| DN65 | 111 | 83 | 82 | 49 | 118 | 27 | 16 | 11 | 126 | 22 | M10 | 29 | 31 | 29 |
| DN80 | 121 | 91 | 82 | 49 | 132 | 27 | 16 | 11 | 126 | 22 | M10 | 34 | 37 | 35 |
| DN100 | 133 | 111 | 82 | 54 | 157 | 27 | 16 | 11 | 126 | 22 | M10 | 47 | 53 | 50 |
| DN125 | 135 | 191 | 82 | 57 | 186 | 27 | 16 | 11 | 126 | 22 | M10 | 65 | 76 | 72 |
| DN150 | 153 | 133 | 82 | 57 | 217 | 27 | 19 | 14 | 126 | 22 | M10 | 97 | 113 | 107 |
| DN200 | 188 | 173 | 82 | 64 | 274 | 27 | 22 | 16 | 126 | 22 | M10 | 164 | 193 | 183 |
| DN250 | 233 | 227 | 93 | 71 | 330 | 28 | 28 | 21 | 143 | 37 | M12 | 222 | 274 | 260 |
| DN300 | 265 | 266 | 97 | 81 | 386 | 33 | 35 | 24 | 143 | 37 | M12 | 290 | 390 | 371 |
| DN350 | 309 | 274 | 87 | 92 | 425 | 35 | 35 | 29 | 143 | 37 | M12 | 491 | 684 | 650 |
| DN400 | 331 | 300 | 89 | 102 | 470 | 41 | 46 | 41 | 203 | 83 | M16 | 628 | 876 | 832 |
| DN450 | 356 | 345 | 92 | 114 | 533 | 41 | 47 | 41 | 203 | 83 | M16 | 816 | 1144 | 1087 |
| DN500 | 377 | 373 | 89 | 127 | 590 | 41 | 54 | 41 | 203 | 83 | M16 | 1098 | 1546 | 1469 |
| DN600 | 490 | 454 | 116 | 154 | 692 | 51 | 67 | 51 | 254 | 83 | M20 | 1673 | 2384 | 2265 |
| DN700 | 570 | 550 | 127 | 165 | 800 | 51 | 67 | 51 | 254 | 83 | M20 | 2942 | 3986 | 3787 |
| DN800 | 570 | 550 | 127 | 190 | 905 | 51 | 67 | 51 | 254 | 83 | M20 | 2942 | 3986 | 3787 |
| DN900 | 660 | 601 | 134 | 184 | 1014 | 51 | 67 | 51 | 254 | 83 | M20 | 4786 | 6589 | 6260 |
| DN1000 | 737 | 664 | 330 | 222 | 1185 | 63 | 102 | a | 330 | 178 | M20 | 7837 | 10928 | 10382 |
| DN1200 | 845 | 833 | 285 | 254 | 1350 | 63 | 127 | a | 381 | 178 | M20 | 12433 | 17409 | 16539 |

a: Shaft is the key axis

Note: There is no safety factor included for the torque list above table



DN50–DN300



DN350–DN1200

FDWH type double eccentric disc wafer type butterfly valve, is special designed as a high performance butterfly valve, it has two stems offset from the center.

FDWH type are available in more higher pressure than FDWN type. It is designed up to 25bar in Nodular cast iron, carbon steel, stainless steel, and other exotic body materials, with variation of PTFE or RPTFE seats.

FDWH type can be widely used in power generation, pulp and paper, HVAC, chemical, oil and gas, water, wastewater & corrosive treatment, shipbuilding and offshore.

Operation

| Type | Material | DN |
|--------------|----------------|------------|
| Bare shaft | | DN50–DN600 |
| Lever | Aluminum alloy | DN50–DN150 |
| Worm gearbox | Aluminum alloy | DN50–DN600 |

Pneumatic, electric or hydraulic actuator, hydraulic–electric see actuator section

Pressure and temperature range

| Nominal pressure | DN | Temp. | Max.p |
|--------------------------------|------------|---------------------------------------|-------|
| <input type="checkbox"/> CL300 | DN50–DN600 | PTFE –60°C–190°C RPTFE –60°C–230°C | 300lb |
| <input type="checkbox"/> PN25 | DN50–DN600 | PTFE –60°C–190°C RPTFE –60°C–230°C | 25bar |

For the flange, see the flange matching dimension table

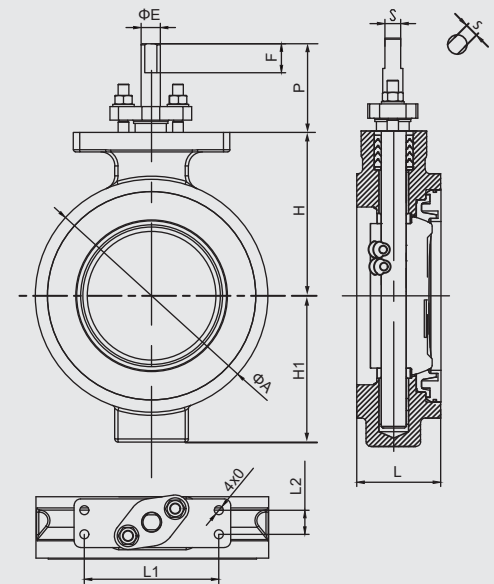
Material specification

| Body | Disc | Shaft | Liner |
|--|--|--|--------------------------------|
| <input type="checkbox"/> Nodular cast iron | <input type="checkbox"/> Cast steel | <input type="checkbox"/> Al-bronze | <input type="checkbox"/> PTFE |
| <input type="checkbox"/> Cast steel | <input type="checkbox"/> Stainless steel | <input type="checkbox"/> Stainless steel | <input type="checkbox"/> RPTFE |
| <input type="checkbox"/> Stainless steel | <input type="checkbox"/> Al–Bronze | <input type="checkbox"/> Duplex steel | |
| <input type="checkbox"/> Bronze | <input type="checkbox"/> Monel alloy | <input type="checkbox"/> Hastelloy alloy | |
| <input type="checkbox"/> Duplex steel | <input type="checkbox"/> Duplex steel | <input type="checkbox"/> Monel alloy | |

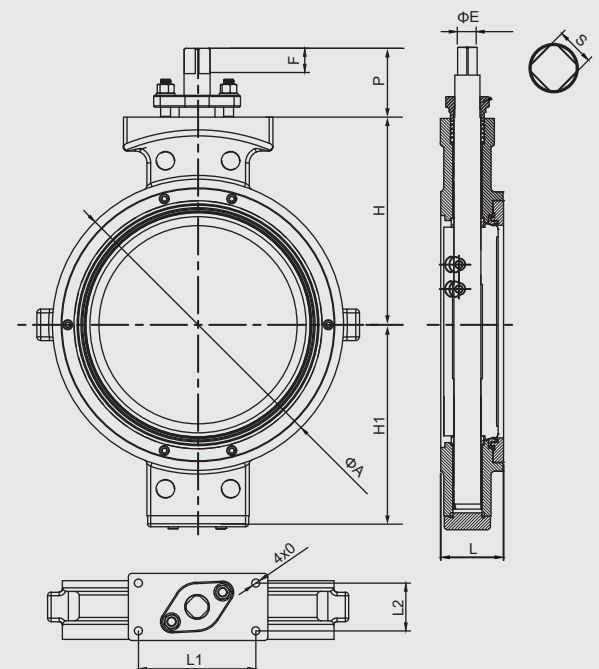
Dimension

| DN | H | H1 | P | L | ΦA | F | ΦE | S | L1 | L2 | 4–0 | Torque (N·m) | |
|-------|-----|-----|-----|-----|-----|----|----|----|-----|----|-----|--------------|------|
| | | | | | | | | | | | | 300LB | PN25 |
| DN50 | 81 | 62 | 44 | 43 | 96 | 14 | 12 | 9 | 126 | 22 | M10 | 25 | 26 |
| DN65 | 111 | 83 | 82 | 49 | 118 | 27 | 16 | 11 | 126 | 22 | M10 | 31 | 33 |
| DN80 | 121 | 91 | 82 | 49 | 132 | 27 | 16 | 11 | 126 | 22 | M10 | 37 | 39 |
| DN100 | 133 | 111 | 82 | 54 | 157 | 27 | 16 | 11 | 126 | 22 | M10 | 55 | 58 |
| DN125 | 135 | 191 | 82 | 57 | 186 | 27 | 16 | 11 | 126 | 22 | M10 | 82 | 86 |
| DN150 | 175 | 153 | 82 | 59 | 217 | 27 | 22 | 16 | 126 | 22 | M10 | 120 | 126 |
| DN200 | 213 | 180 | 99 | 73 | 273 | 28 | 28 | 21 | 143 | 37 | M12 | 206 | 217 |
| DN250 | 254 | 238 | 99 | 83 | 327 | 33 | 35 | 24 | 143 | 37 | M12 | 302 | 318 |
| DN300 | 283 | 292 | 105 | 92 | 386 | 35 | 35 | 29 | 143 | 37 | M12 | 451 | 475 |
| DN350 | 325 | 300 | 102 | 117 | 445 | 41 | 46 | 41 | 203 | 83 | M16 | 807 | 849 |
| DN400 | 351 | 343 | 89 | 133 | 505 | 41 | 54 | 41 | 203 | 83 | M16 | 1033 | 1087 |
| DN450 | 425 | 377 | 117 | 149 | 550 | 41 | 54 | 41 | 203 | 83 | M16 | 1352 | 1423 |
| DN500 | 447 | 447 | 127 | 159 | 610 | 51 | 67 | 51 | 254 | 83 | M20 | 1830 | 1926 |
| DN600 | 501 | 496 | 133 | 181 | 718 | 51 | 67 | 51 | 254 | 83 | M20 | 2834 | 2983 |

Note: There is no safety factor included for the torque list above table



DN50–DN300



DN350–DN600

FDDN type double eccentric disc double flange type butterfly valve, is special designed as a high performance butterfly valve, it has two stems offset from the center.

FDDN type are available in higher pressure than centric disc type. It is designed up to 16bar in Nodular cast iron, carbon steel, stainless steel, and other exotic body materials, with variation of PTFE or RPTFE seats.

FDDN type can be widely used in power generation, pulp and paper, HAVC, chemical, oil and gas, water, wastewater & corrosive treatment, shipbuilding and offshore.

Operation

| Type | Material | DN |
|--------------|----------------|------------|
| Bare shaft | | DN50–DN900 |
| Lever | Aluminum alloy | DN50–DN150 |
| Worm gearbox | Aluminum alloy | DN50–DN900 |

Pneumatic, electric or hydraulic actuator, hydraulic–electric see actuator section

Pressure and temperature range

| Nominal pressure | DN | Temp. | Max.p |
|--------------------------------|------------|---------------------------------------|-------|
| <input type="checkbox"/> PN10 | DN50–DN900 | PTFE –60°C–190°C RPTFE –60°C–230°C | 10bar |
| <input type="checkbox"/> PN16 | DN50–DN900 | PTFE –60°C–190°C RPTFE –60°C–230°C | 16bar |
| <input type="checkbox"/> CL150 | DN50–DN900 | PTFE –60°C–190°C RPTFE –60°C–230°C | 150LB |

For the flange, see the flange matching dimension table

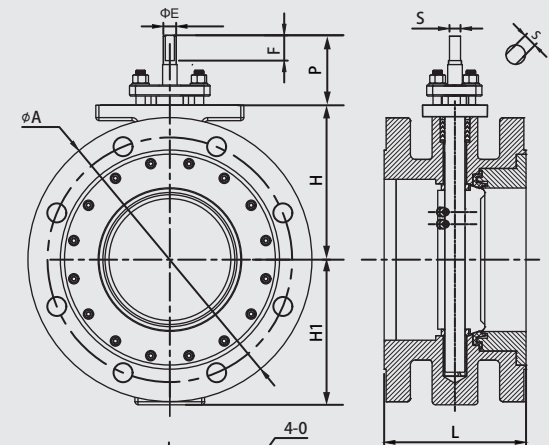
Material specification

| Body | Disc | Shaft | Liner |
|--|--|--|--------------------------------|
| <input type="checkbox"/> Nodular cast iron | <input type="checkbox"/> Cast steel | <input type="checkbox"/> Al–bronze | <input type="checkbox"/> PTFE |
| <input type="checkbox"/> Cast steel | <input type="checkbox"/> Stainless steel | <input type="checkbox"/> Stainless steel | <input type="checkbox"/> RPTFE |
| <input type="checkbox"/> Stainless steel | <input type="checkbox"/> Al–Bronze | <input type="checkbox"/> Duplex steel | |
| <input type="checkbox"/> Bronze | <input type="checkbox"/> Monel alloy | <input type="checkbox"/> Hastelloy alloy | |
| <input type="checkbox"/> Duplex steel | <input type="checkbox"/> Duplex steel | <input type="checkbox"/> Monel alloy | |

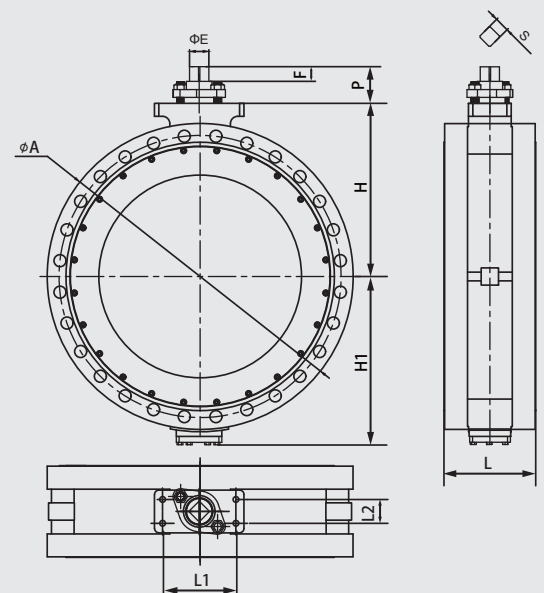
Dimension

| DN | H | H1 | P | L | ΦA | F | ΦE | S | L1 | L2 | 4–0 | Torque (N-m) | | |
|-------|-----|-----|-----|-----|------|----|----|----|-----|----|-----|--------------|------|-------|
| | | | | | | | | | | | | PN10 | PN16 | 150LB |
| DN50 | 108 | 91 | 65 | 108 | 165 | 14 | 12 | 9 | 126 | 22 | M10 | 22 | 24 | 23 |
| DN80 | 121 | 103 | 82 | 114 | 190 | 27 | 16 | 11 | 126 | 22 | M10 | 34 | 37 | 35 |
| DN100 | 133 | 115 | 82 | 127 | 230 | 27 | 16 | 11 | 126 | 22 | M10 | 47 | 53 | 50 |
| DN125 | 135 | 127 | 82 | 140 | 255 | 27 | 16 | 11 | 126 | 22 | M10 | 65 | 76 | 72 |
| DN150 | 153 | 140 | 82 | 140 | 280 | 27 | 19 | 14 | 126 | 22 | M10 | 97 | 113 | 107 |
| DN200 | 188 | 172 | 82 | 152 | 345 | 27 | 22 | 16 | 126 | 22 | M10 | 164 | 193 | 183 |
| DN250 | 233 | 203 | 93 | 165 | 405 | 28 | 28 | 21 | 143 | 37 | M12 | 222 | 274 | 260 |
| DN300 | 265 | 243 | 97 | 178 | 485 | 33 | 35 | 24 | 143 | 37 | M12 | 290 | 390 | 371 |
| DN350 | 309 | 293 | 87 | 190 | 535 | 35 | 35 | 29 | 143 | 37 | M12 | 491 | 684 | 650 |
| DN400 | 331 | 333 | 89 | 216 | 595 | 41 | 46 | 41 | 203 | 83 | M16 | 628 | 876 | 832 |
| DN450 | 360 | 341 | 92 | 222 | 635 | 41 | 47 | 41 | 203 | 83 | M16 | 816 | 1144 | 1087 |
| DN500 | 377 | 380 | 89 | 229 | 700 | 41 | 54 | 41 | 203 | 83 | M16 | 1098 | 1546 | 1469 |
| DN600 | 490 | 462 | 116 | 267 | 815 | 51 | 67 | 51 | 254 | 83 | M20 | 1673 | 2384 | 2265 |
| DN700 | 550 | 528 | 127 | 292 | 925 | 51 | 67 | 51 | 254 | 83 | M20 | 2516 | 3216 | 2960 |
| DN800 | 600 | 580 | 127 | 318 | 1060 | 51 | 67 | 51 | 254 | 83 | M20 | 3946 | 5130 | 4650 |
| DN900 | 685 | 626 | 133 | 330 | 1170 | 51 | 67 | 51 | 254 | 83 | M20 | 5249 | 7026 | 6589 |

Note: There is no safety factor included for the torque list above table



DN50–DN350



DN350–DN900

FDDH type double eccentric disc double flange type butterfly valve, is special designed as a high performance butterfly valve, it has two stems offset from the center.

FDDH type are available in higher pressure than FDDN type. It is designed up to 25bar in Nodular cast iron, carbon steel, stainless steel, and other exotic body materials, with variation of PTFE or RPTFE seats.

FDDH type can be widely used in power generation, pulp and paper, HVAC, chemical, oil and gas, water, wastewater & corrosive treatment, shipbuilding and offshore.

Operation

| Type | Material | DN |
|--------------|----------------|------------|
| Bare shaft | | DN50–DN900 |
| Lever | Aluminum alloy | DN50–DN150 |
| Worm gearbox | Aluminum alloy | DN50–DN900 |

Pneumatic, electric or hydraulic actuator, hydraulic–electric see actuator section

Pressure and temperature range

| Nominal pressure | DN | Temp. | Max.p |
|--------------------------------|------------|---------------------------------------|-------|
| <input type="checkbox"/> CL300 | DN50–DN900 | PTFE –60°C–190°C RPTFE –60°C–230°C | 300lb |
| <input type="checkbox"/> PN25 | DN50–DN900 | PTFE –60°C–190°C RPTFE –60°C–230°C | 25bar |

For the flange, see the flange matching dimension table

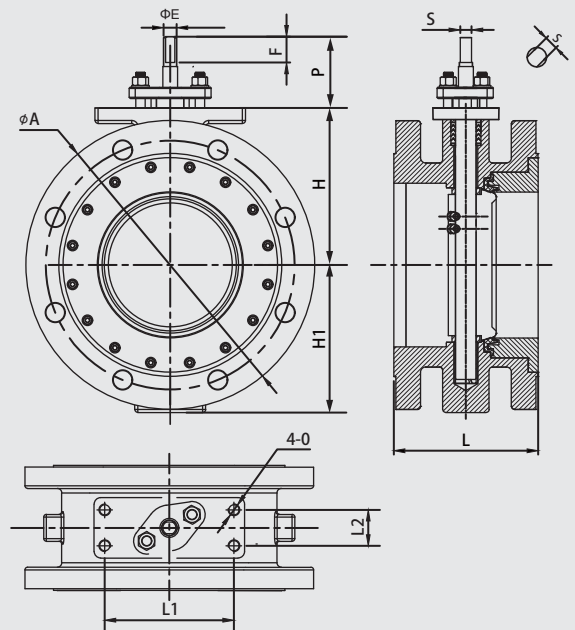
Material specification

| Body | Disc | Shaft | Liner |
|--|--|--|--------------------------------|
| <input type="checkbox"/> Nodular cast iron | <input type="checkbox"/> Cast steel | <input type="checkbox"/> Al–bronze | <input type="checkbox"/> PTFE |
| <input type="checkbox"/> Cast steel | <input type="checkbox"/> Stainless steel | <input type="checkbox"/> Stainless steel | <input type="checkbox"/> RPTFE |
| <input type="checkbox"/> Stainless steel | <input type="checkbox"/> Al–Bronze | <input type="checkbox"/> Duplex steel | |
| <input type="checkbox"/> Bronze | <input type="checkbox"/> Monel alloy | <input type="checkbox"/> Hastelloy alloy | |
| <input type="checkbox"/> Duplex steel | <input type="checkbox"/> Duplex steel | <input type="checkbox"/> Monel alloy | |

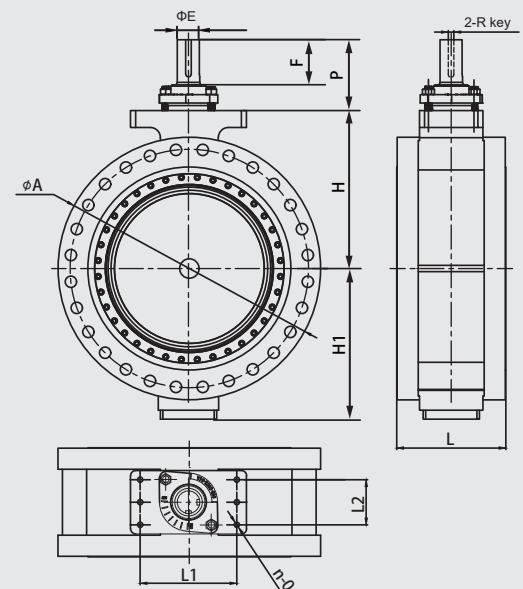
Dimension

| DN | H | H1 | P | L | ΦA | F | φE | S | R | L1 | L2 | n–O | Torque (N·m) | |
|-------|-----|-----|-----|-----|------|-----|-----|----|-------|-----|-----|-------|--------------|-------|
| | | | | | | | | | | | | | 300LB | PN25 |
| DN50 | 108 | 91 | 65 | 108 | 165 | 14 | 12 | 9 | 126 | 22 | M10 | 22 | 24 | 23 |
| DN80 | 121 | 105 | 82 | 114 | 168 | 27 | 16 | 11 | – | 126 | 22 | 4–M10 | 37 | 39 |
| DN100 | 133 | 128 | 82 | 127 | 255 | 27 | 16 | 11 | – | 126 | 22 | 4–M10 | 55 | 58 |
| DN125 | 135 | 140 | 82 | 140 | 280 | 27 | 16 | 11 | – | 126 | 22 | 4–M10 | 82 | 86 |
| DN150 | 175 | 160 | 82 | 140 | 320 | 27 | 22 | 16 | – | 126 | 22 | 4–M10 | 120 | 126 |
| DN200 | 213 | 190 | 93 | 152 | 380 | 28 | 28 | 21 | – | 143 | 37 | 4–M12 | 206 | 217 |
| DN250 | 254 | 223 | 91 | 165 | 445 | 33 | 35 | 24 | – | 143 | 37 | 4–M12 | 302 | 318 |
| DN300 | 283 | 292 | 105 | 178 | 520 | 35 | 35 | 29 | – | 143 | 37 | 4–M12 | 451 | 475 |
| DN350 | 367 | 320 | 102 | 190 | 585 | 41 | 46 | 41 | – | 203 | 83 | 4–M16 | 807 | 849 |
| DN400 | 410 | 355 | 89 | 216 | 650 | 41 | 47 | 41 | – | 203 | 83 | 4–M14 | 1033 | 1087 |
| DN450 | 424 | 460 | 93 | 222 | 685 | 41 | 54 | 41 | – | 254 | 83 | 4–M16 | 1352 | 1423 |
| DN500 | 447 | 512 | 93 | 229 | 755 | 51 | 70 | 51 | – | 254 | 83 | 4–M20 | 1830 | 1926 |
| DN600 | 501 | 545 | 114 | 267 | 890 | 51 | 83 | 51 | – | 254 | 83 | 4–M20 | 2834 | 2983 |
| DN700 | 623 | 594 | 279 | 430 | 1035 | 178 | 89 | – | 22*14 | 381 | 178 | 6–M20 | 4322 | 4549 |
| DN800 | 680 | 667 | 280 | 470 | 1150 | 178 | 89 | – | 22*14 | 381 | 178 | 6–M20 | 7612 | 8013 |
| DN900 | 783 | 769 | 270 | 510 | 1270 | 165 | 101 | – | 28*16 | 381 | 178 | 6–M20 | 12101 | 13965 |

Note: There is no safety factor included for the torque list above table



DN50–DN300



DN350–DN900

FDLN type double eccentric disc full lug type butterfly valve, is special designed as a high performance butterfly valve, it has two stems offset from the center.

FDLN type are available in higher pressure than centric disc type. It is designed up to 16bar in Nodular cast iron, carbon steel, stainless steel, and other exotic body materials, with variation of PTFE or RPTFE seats.

FDLN type can be widely used in power generation, pulp and paper, HVAC, chemical, oil and gas, water, wastewater & corrosive treatment, shipbuilding and offshore.

Operation

| Type | Material | DN |
|--------------|----------------|-------------|
| Bare shaft | | DN50–DN1200 |
| Lever | Aluminum alloy | DN50–DN150 |
| Worm gearbox | Aluminum alloy | DN50–DN1200 |

Pneumatic, electric or hydraulic actuator, hydraulic–electric see actuator section

Pressure and temperature range

| Nominal pressure | DN | Temp. | Max.p |
|--------------------------------|-------------|-------------------|-------|
| <input type="checkbox"/> PN10 | DN50–DN1200 | PTFE –60°C–190°C | 10bar |
| | | RPTFE –60°C–230°C | |
| <input type="checkbox"/> PN16 | DN50–DN1200 | PTFE –60°C–190°C | 16bar |
| | | RPTFE –60°C–230°C | |
| <input type="checkbox"/> CL150 | DN50–DN1200 | PTFE –60°C–190°C | 150LB |
| | | RPTFE –60°C–230°C | |

For the flange, see the flange matching dimension table

Material specification

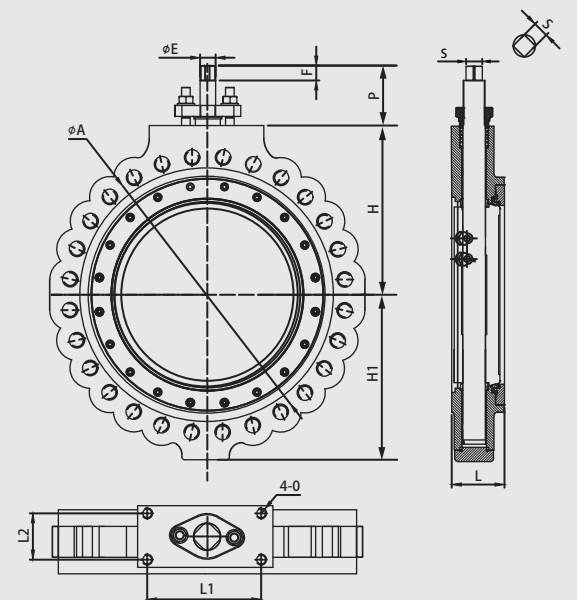
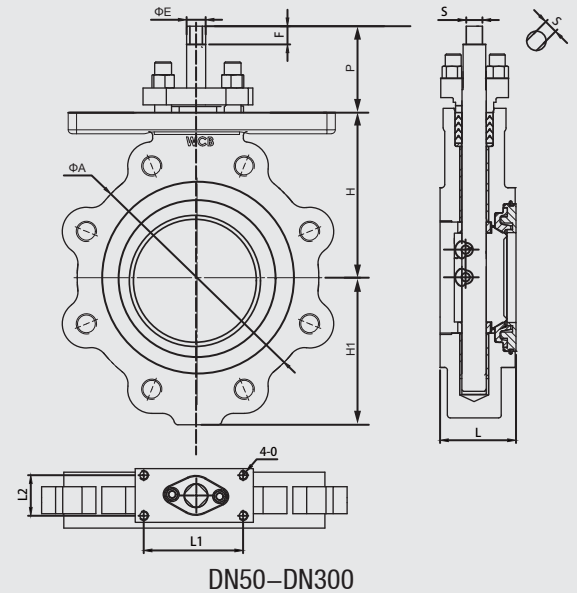
| Body | Disc | Shaft | Liner |
|--|--|--|--------------------------------|
| <input type="checkbox"/> Nodular cast iron | <input type="checkbox"/> Cast steel | <input type="checkbox"/> Al-bronze | <input type="checkbox"/> PTFE |
| <input type="checkbox"/> Cast steel | <input type="checkbox"/> Stainless steel | <input type="checkbox"/> Stainless steel | <input type="checkbox"/> RPTFE |
| <input type="checkbox"/> Stainless steel | <input type="checkbox"/> Al-Bronze | <input type="checkbox"/> Duplex steel | |
| <input type="checkbox"/> Bronze | <input type="checkbox"/> Monel alloy | <input type="checkbox"/> Hastelloy alloy | |
| <input type="checkbox"/> Duplex steel | <input type="checkbox"/> Duplex steel | <input type="checkbox"/> Monel alloy | |

Dimension

| DN | H | H1 | P | L | ΦA | F | ΦE | S | L1 | L2 | 4-O | Torque (N·m) | | |
|--------|-----|-----|-----|-----|------|----|-----|----|-----|-----|-----|--------------|-------|-------|
| | | | | | | | | | | | | PN10 | PN16 | 150LB |
| DN50 | 80 | 62 | 44 | 43 | 121 | 14 | 12 | 9 | 126 | 22 | M10 | 23 | 24 | 23 |
| DN65 | 111 | 83 | 82 | 49 | 140 | 27 | 16 | 11 | 126 | 22 | M10 | 29 | 31 | 29 |
| DN80 | 121 | 94 | 82 | 49 | 152 | 27 | 16 | 11 | 126 | 22 | M10 | 34 | 37 | 35 |
| DN100 | 133 | 110 | 82 | 54 | 191 | 27 | 16 | 11 | 126 | 22 | M10 | 47 | 53 | 50 |
| DN125 | 135 | 127 | 82 | 57 | 216 | 27 | 16 | 11 | 126 | 22 | M10 | 65 | 76 | 72 |
| DN150 | 152 | 143 | 82 | 57 | 241 | 27 | 19 | 14 | 126 | 22 | M10 | 97 | 113 | 107 |
| DN200 | 187 | 172 | 82 | 64 | 299 | 27 | 22 | 16 | 126 | 22 | M10 | 164 | 193 | 183 |
| DN250 | 232 | 202 | 93 | 71 | 362 | 28 | 28 | 21 | 143 | 37 | M12 | 222 | 274 | 260 |
| DN300 | 260 | 238 | 97 | 81 | 432 | 33 | 35 | 24 | 143 | 37 | M12 | 290 | 390 | 371 |
| DN350 | 309 | 273 | 88 | 92 | 476 | 35 | 35 | 29 | 143 | 37 | M14 | 491 | 684 | 650 |
| DN400 | 331 | 300 | 88 | 102 | 540 | 41 | 46 | 41 | 203 | 83 | M16 | 628 | 876 | 832 |
| DN450 | 356 | 323 | 93 | 114 | 578 | 41 | 47 | 41 | 203 | 83 | M14 | 816 | 1144 | 1087 |
| DN500 | 377 | 363 | 93 | 127 | 635 | 41 | 54 | 41 | 203 | 83 | M14 | 1098 | 1546 | 1469 |
| DN600 | 490 | 454 | 114 | 154 | 749 | 51 | 70 | 51 | 254 | 83 | M20 | 1673 | 2384 | 2265 |
| DN700 | 570 | 525 | 213 | 165 | 914 | 82 | 55 | a | 254 | 83 | M20 | 2942 | 3986 | 3787 |
| DN800 | 570 | 525 | 213 | 190 | 914 | 82 | 55 | a | 254 | 83 | M20 | 2942 | 3986 | 3787 |
| DN900 | 660 | 601 | 134 | 184 | 1086 | 51 | 95 | 51 | 254 | 107 | M20 | 4786 | 6589 | 6260 |
| DN1000 | 737 | 738 | 330 | 222 | 1257 | 63 | 102 | a | 330 | 178 | M20 | 7837 | 10928 | 10382 |
| DN1200 | 845 | 823 | 285 | 254 | 1422 | 63 | 127 | a | 381 | 178 | M20 | 12433 | 17409 | 16539 |

a: Shaft is the key axis

Note: There is no safety factor included for the torque list above table



FDLH type double eccentric disc full lug type butterfly valve, is special designed as a high performance butterfly valve, it has two stems offset from the center.

FDLH type are available in more higher pressure than FDLN type. It is designed up to 25bar in Nodular cast iron, carbon steel, stainless steel, and other exotic body materials, with variation of PTFE or RPTFE seats.

FDLH type can be widely used in power generation, pulp and paper, HVAC, chemical, oil and gas, water, wastewater & corrosive treatment, shipbuilding and offshore.

Operation

| Type | Material | DN |
|--------------|----------------|------------|
| Bare shaft | | DN50–DN900 |
| Lever | Aluminum alloy | DN50–DN150 |
| Worm gearbox | Aluminum alloy | DN50–DN900 |

Pneumatic, electric or hydraulic actuator, hydraulic–electric see actuator section

Pressure and temperature range

| Nominal pressure | DN | Temp. | Max.p |
|--------------------------------|------------|-------------------|-------|
| <input type="checkbox"/> CL300 | DN50–DN900 | PTFE –60°C–190°C | 300lb |
| | | RPTFE –60°C–230°C | |
| <input type="checkbox"/> PN25 | DN50–DN900 | PTFE –60°C–190°C | 25bar |
| | | RPTFE –60°C–230°C | |

For the flange, see the flange matching dimension table

Material specification

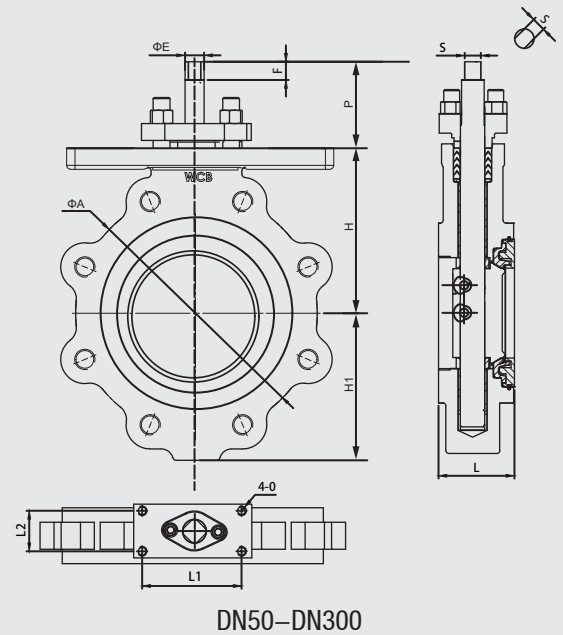
| Body | Disc | Shaft | Liner |
|--|--|--|--------------------------------|
| <input type="checkbox"/> Nodular cast iron | <input type="checkbox"/> Cast steel | <input type="checkbox"/> Al–bronze | <input type="checkbox"/> PTFE |
| <input type="checkbox"/> Cast steel | <input type="checkbox"/> Stainless steel | <input type="checkbox"/> Stainless steel | <input type="checkbox"/> RPTFE |
| <input type="checkbox"/> Stainless steel | <input type="checkbox"/> Al–Bronze | <input type="checkbox"/> Duplex steel | |
| <input type="checkbox"/> Bronze | <input type="checkbox"/> Monel alloy | <input type="checkbox"/> Hastelloy alloy | |
| <input type="checkbox"/> Duplex steel | <input type="checkbox"/> Duplex steel | <input type="checkbox"/> Monel alloy | |

Dimension

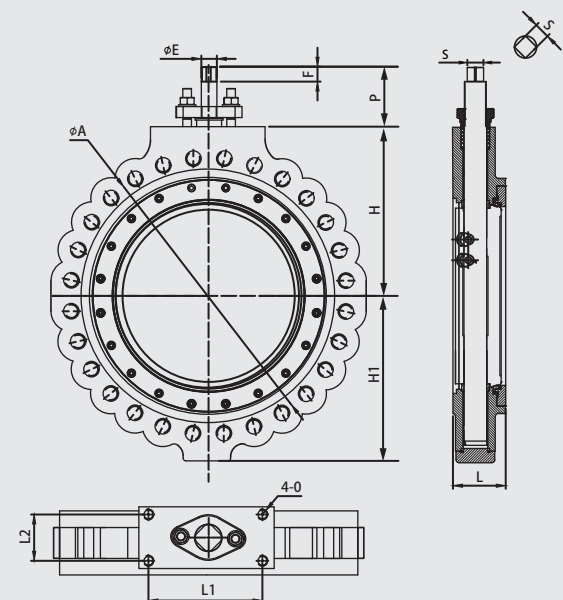
| DN | H | H1 | P | L | ΦA | F | ΦE | S | L1 | L2 | 4–0 | Torque (N·m) | |
|-------|-----|-----|-----|-----|------|----|-----|----|-----|-----|-----|--------------|-------|
| | | | | | | | | | | | | 300LB | PN25 |
| DN50 | 80 | 62 | 44 | 43 | 121 | 27 | 12 | 9 | 126 | 22 | M10 | 25 | 26 |
| DN65 | 111 | 83 | 82 | 49 | 140 | 27 | 16 | 11 | 126 | 22 | M10 | 31 | 33 |
| DN80 | 121 | 94 | 82 | 49 | 152 | 27 | 16 | 11 | 126 | 22 | M10 | 37 | 39 |
| DN100 | 133 | 110 | 82 | 54 | 191 | 27 | 16 | 11 | 126 | 22 | M10 | 55 | 58 |
| DN125 | 135 | 127 | 82 | 57 | 216 | 27 | 16 | 11 | 126 | 22 | M10 | 82 | 86 |
| DN150 | 175 | 153 | 82 | 59 | 270 | 27 | 22 | 16 | 126 | 22 | M10 | 120 | 126 |
| DN200 | 213 | 180 | 82 | 73 | 330 | 28 | 28 | 21 | 143 | 37 | M12 | 206 | 217 |
| DN250 | 254 | 222 | 93 | 83 | 387 | 33 | 35 | 24 | 143 | 37 | M12 | 302 | 318 |
| DN300 | 283 | 284 | 97 | 92 | 451 | 35 | 35 | 29 | 143 | 37 | M12 | 451 | 475 |
| DN350 | 325 | 286 | 88 | 118 | 514 | 41 | 46 | 41 | 203 | 83 | M12 | 807 | 849 |
| DN400 | 351 | 335 | 88 | 133 | 572 | 41 | 47 | 41 | 203 | 83 | M14 | 1033 | 1087 |
| DN450 | 424 | 367 | 93 | 149 | 629 | 41 | 54 | 41 | 254 | 83 | M16 | 1352 | 1423 |
| DN500 | 447 | 419 | 93 | 159 | 686 | 51 | 70 | 51 | 254 | 83 | M20 | 1830 | 1926 |
| DN600 | 501 | 431 | 114 | 181 | 813 | 51 | 83 | 51 | 254 | 83 | M20 | 2834 | 2983 |
| DN700 | 642 | 627 | 280 | 273 | 997 | 51 | 95 | 51 | 254 | 83 | M20 | 4322 | 4549 |
| DN800 | 642 | 627 | 280 | 273 | 997 | 51 | 95 | 51 | 254 | 178 | M20 | 7612 | 8013 |
| DN900 | 783 | 771 | 270 | 286 | 1168 | 51 | 102 | a | 254 | 178 | M20 | 12101 | 13965 |

a: Shaft is the key axis

Note: There is no safety factor included for the torque list above table



DN50–DN300



DN350–DN900

FOV SERIES—Fire safe type

Flöriner double eccentric butterfly (FOV series) are designed to DIN, EN, ASME and JIS standard, normal size ranges are DN50 to DN1200, widely used in fire protection pipes for shipbuilding, offshore, industries, petrochemical applications etc.

FOV series (fire safe type) valves with PTFE (RPTFE)&Metallic or Metallic seat were covered by the fire test complying with API 607–2016/ ISO 10497–2010.

Manual, hydraulic, electrical, pneumatic operations to be supplied, other operation type such as electrical–hydraulic are available according to customer's standard.



Series: FOVW

Wafer type, suitable for flanges DIN PN10, PN16, PN25, ANSI 150#, ANSI 300#

Pressure class: 6bar, 10bar, 16bar, 25bar, 150lb, 300lb

Size: DN50 – DN1200

Design standard: EN 593 / API 609

Face to face acc.: DIN 3202, EN558, ISO 5752, BS 2080, JIS 2002, API609, etc.

Connection: EN1092, ASME B16.5, JIS B2239 & 2220 , etc.

Top flange acc.: EN ISO 5211

Materials: Nodular cast iron, Cast steel, Al.Bronze, Stainless steel and other exotic material

Seats: PTFE (RPTFE) + Metallic, Metallic

Paint: Akzo Nobel, Epoxy coated, RAL3000, 150µm

Fire test: API 607–2016, ISO 10497–2010



Series: FOVD

Double flange type, suitable for flanges DIN PN10, PN16, PN25, ANSI 150#, ANSI 300#

Pressure class: 6bar, 10bar, 16bar, 25bar, 150lb, 300lb

Size: DN50 – DN900

Design standard: EN 593 / API 609

Face to face acc.: DIN 3202, EN558, ISO 5752, BS 2080, JIS 2002, API609, etc.

Connection: EN1092, ASME B16.5, JIS B2239 & 2220 , etc.

Top flange acc.: EN ISO 5211

Materials: Nodular cast iron, Cast steel, Al.Bronze, Stainless steel and other exotic material

Seats: PTFE (RPTFE) + Metallic, Metallic

Paint: Akzo Nobel, Epoxy coated, RAL3000, 150µm

Fire test: API 607–2016, ISO 10497–2010



Series: FOVL

Lug type, suitable for flanges DIN PN10, PN16, PN25, ANSI 150#, ANSI 300#

Pressure class: 6bar, 10bar, 16bar, 25bar, 150lb, 300lb

Size: DN50 – DN1200

Design standard: EN 593 / API 609

Face to face acc.: DIN 3202, EN558, ISO 5752, BS 2080, JIS 2002, API609, etc.

Connection: EN1092, ASME B16.5, JIS B2239 & 2220 , etc.

Top flange acc.: EN ISO 5211

Materials: Nodular cast iron, Cast steel, Al.Bronze, Stainless steel and other exotic material

Seats: PTFE (RPTFE) + Metallic, Metallic

Paint: Akzo Nobel, Epoxy coated, RAL3000, 150µm

Fire test: API 607–2016, ISO 10497–2010

FOV Series product advantages at a glance

Top shaft

Top shaft flat shows the correct position of butterfly disc

Clamp

Reliable shaft retaining rings in manual valves

Adjusting packing

Adjust packing without loading seats

Packing

PTFE V-shaped packing, graphite packing is also available

Bearing

PTFE-lined stainless steel bearings have high corrosion resistance and can be automatically lubricated

Thrust washer

Thrust washer can maintain the center position of the valve plate

Disc

The rotation of the eccentric valve plate does not use the valve seat as a fulcrum, reducing torque and valve seat wear

Seat

PTFE (RPTFE) + Metallic seat, widely used in fire protection pipes
Disassemble seat without disassemble shaft and disc

Body insert

Body inserts prevent seat wear and corrosion

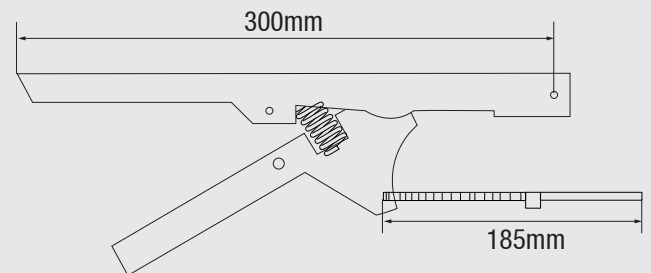


Handlevers

- material is cast iron
- Open and closed positions are adjustable
- Can be locked to prevent misuse



DN50–DN150



Gear box



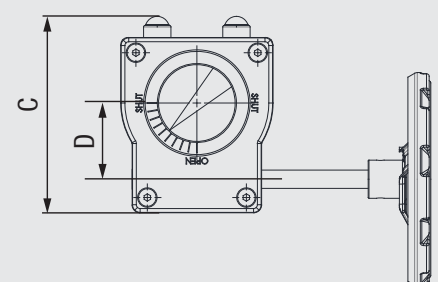
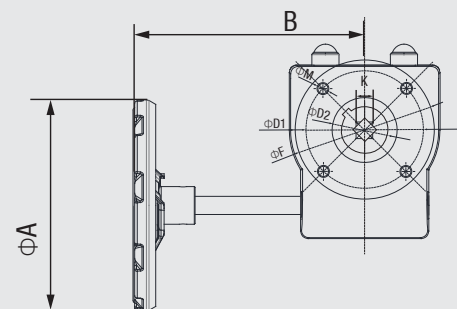
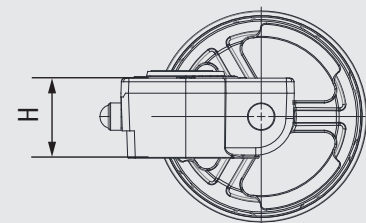
DN200–DN250



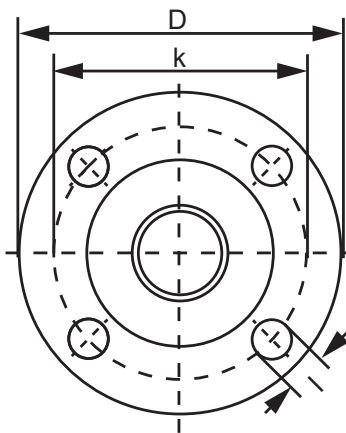
DN300–DN1200

- Robust ductile iron or diecasted Al–alloy gear box
- Protection class IP65/IP67
- Visual position indicator
- Stainless steel shaft and bolt

| Model | DN | ISO 5211 | K (max. value) | Output Torque (Nm)(Max) | Gear/Ratio | H | ΦA | B | C | D |
|-------|-------------|----------|----------------|-------------------------|------------|-----|-----|-----|-----|-----|
| 180 | DN200 | F07 | 17*17 | 180 | 1:40 | 48 | 140 | 160 | 115 | 42 |
| 300 | DN250 | F10 | 17*17 | 300 | 1:36 | 69 | 300 | 225 | 180 | 160 |
| 850 | DN300–DN350 | F12 | 27*27 | 850 | 1:38 | 74 | 300 | 142 | 162 | 62 |
| 1350 | DN400–DN450 | F14 | 36*36 | 1350 | 1:40 | 85 | 350 | 160 | 202 | 79 |
| 2000 | DN500 | F14 | 36*36 | 2000 | 1:47 | 91 | 400 | 163 | 223 | 89 |
| 3000 | DN600 | F16 | 46*46 | 3000 | 1:61 | 105 | 500 | 192 | 267 | 112 |
| 4500 | DN700–DN800 | F16 | 46*46 | 4500 | 1:167 | 105 | 500 | 269 | 276 | 112 |
| 6500 | DN900 | F16 | 46*46 | 6500 | 1:167 | 117 | 600 | 281 | 307 | 129 |
| 11000 | DN1000 | F25 | 55*55 | 11000 | 1:348 | 145 | 600 | 351 | 385 | 157 |
| 23500 | DN1200 | F25 | 55*55 | 23500 | 1:627 | 193 | 600 | 398 | 465 | 200 |



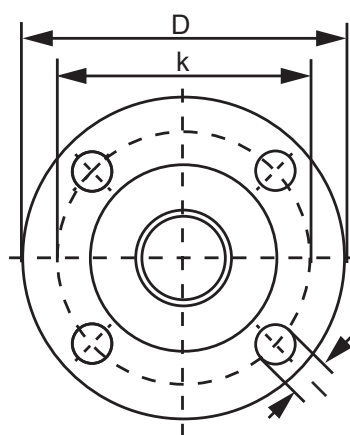
| Flange Standard | | DIN 1092 PN 6 | | | | DIN 1092 PN 10 | | | | DIN 1092 PN 16 | | | | DIN 1092 PN 25 | | | |
|-----------------|--------|---------------|------|----|----|----------------------|------|----|----|----------------|------|----|----|----------------|------|----|----|
| DN | | D | k | n | l | D | k | n | l | D | k | n | l | D | k | n | l |
| mm | in. | mm | mm | | mm | mm | mm | | mm | mm | mm | | mm | mm | mm | | mm |
| 25 | 1" | 100 | 75 | 4 | 11 | identical with PN 16 | | | | 115 | 85 | 4 | 14 | 115 | 85 | 4 | 14 |
| 32 | 1 1/4" | 120 | 90 | 4 | 14 | | | | | 140 | 100 | 4 | 18 | 140 | 100 | 4 | 18 |
| 40 | 1 1/2" | 130 | 100 | 4 | 14 | | | | | 150 | 110 | 4 | 18 | 150 | 110 | 4 | 18 |
| 50 | 2" | 140 | 110 | 4 | 14 | | | | | 165 | 125 | 4 | 18 | 165 | 125 | 4 | 18 |
| 65 | 2 1/2" | 160 | 130 | 4 | 14 | | | | | 185 | 145 | 4 | 18 | 185 | 145 | 8 | 18 |
| 80 | 3" | 190 | 150 | 4 | 18 | | | | | 200 | 160 | 8 | 18 | 200 | 160 | 8 | 18 |
| 100 | 4" | 210 | 170 | 4 | 18 | | | | | 220 | 180 | 8 | 18 | 235 | 190 | 8 | 22 |
| 125 | 5" | 240 | 200 | 8 | 18 | | | | | 250 | 210 | 8 | 18 | 270 | 220 | 8 | 26 |
| 150 | 6" | 265 | 225 | 8 | 18 | | | | | 285 | 240 | 8 | 22 | 300 | 250 | 8 | 26 |
| 200 | 8" | 320 | 280 | 8 | 18 | | | | | 340 | 295 | 8 | 22 | 340 | 295 | 12 | 22 |
| 250 | 10" | 375 | 335 | 12 | 18 | 395 | 350 | 12 | 22 | 405 | 355 | 12 | 26 | 425 | 370 | 12 | 30 |
| 300 | 12" | 440 | 395 | 12 | 22 | 445 | 400 | 12 | 22 | 460 | 410 | 12 | 26 | 485 | 430 | 16 | 30 |
| 350 | 14" | 490 | 445 | 12 | 22 | 505 | 460 | 16 | 22 | 520 | 470 | 16 | 26 | 555 | 490 | 16 | 33 |
| 400 | 16" | 540 | 495 | 16 | 22 | 565 | 515 | 16 | 26 | 580 | 525 | 16 | 30 | 620 | 550 | 16 | 36 |
| 450 | 18" | 595 | 550 | 16 | 22 | 615 | 565 | 20 | 26 | 640 | 585 | 20 | 30 | 670 | 600 | 20 | 36 |
| 500 | 20" | 645 | 600 | 20 | 22 | 670 | 620 | 20 | 26 | 715 | 650 | 20 | 33 | 730 | 660 | 20 | 36 |
| 600 | 24" | 755 | 705 | 20 | 26 | 780 | 725 | 20 | 30 | 840 | 770 | 20 | 36 | 845 | 770 | 20 | 39 |
| 700 | 28" | 860 | 810 | 24 | 26 | 895 | 840 | 24 | 30 | 910 | 840 | 24 | 36 | 960 | 875 | 24 | 42 |
| 800 | 32" | 975 | 920 | 24 | 30 | 1015 | 950 | 24 | 33 | 1025 | 950 | 24 | 39 | 1085 | 990 | 24 | 48 |
| 900 | 36" | 1075 | 1020 | 24 | 30 | 1115 | 1050 | 28 | 33 | 1125 | 1050 | 28 | 39 | 1185 | 1090 | 28 | 48 |
| 1000 | 40" | 1175 | 1120 | 28 | 30 | 1230 | 1160 | 28 | 36 | 1255 | 1170 | 28 | 42 | 1320 | 1210 | 28 | 56 |
| 1200 | 48" | 1450 | 1340 | 32 | 33 | 1455 | 1380 | 32 | 39 | 1485 | 1390 | 32 | 48 | 1530 | 1420 | 32 | 56 |



n = Number of Holes

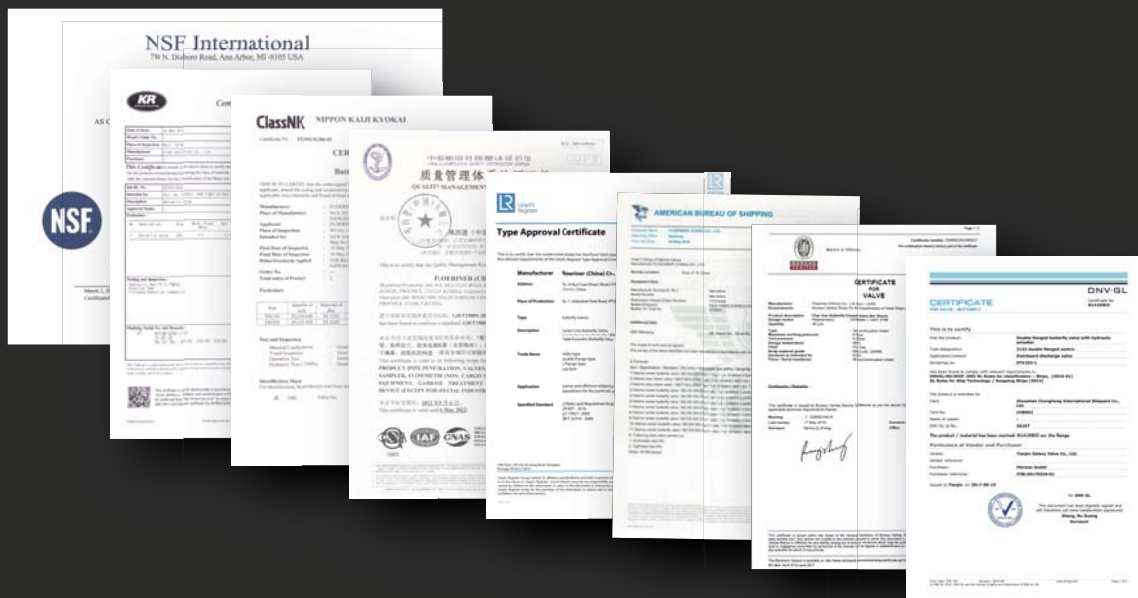
| Flange Standard | | GB/T9119 PN 6 | | | | GB/T9119 PN 10 | | | | GB/T9119 PN 16 | | | | GB/T9119 PN 25 | | | |
|-----------------|--------|---------------|------|----|----|----------------------|------|----|----|----------------|------|----|----|----------------|-----|----|----|
| DN | | D | k | n | l | D | k | n | l | D | k | n | l | D | k | n | l |
| mm | in. | mm | mm | | mm | mm | mm | | mm | mm | mm | | mm | mm | mm | | mm |
| 25 | 1" | 100 | 75 | 4 | 11 | identical with PN 16 | | | | 115 | 85 | 4 | 14 | 115 | 85 | 4 | 14 |
| 32 | 1 1/4" | 120 | 90 | 4 | 14 | | | | | 140 | 100 | 4 | 18 | 140 | 100 | 4 | 18 |
| 40 | 1 1/2" | 130 | 100 | 4 | 14 | | | | | 150 | 110 | 4 | 18 | 150 | 110 | 4 | 18 |
| 50 | 2" | 140 | 110 | 4 | 14 | | | | | 165 | 125 | 4 | 18 | 165 | 125 | 4 | 18 |
| 65 | 2 1/2" | 160 | 130 | 4 | 14 | | | | | 185 | 145 | 4 | 18 | 185 | 145 | 8 | 18 |
| 80 | 3" | 190 | 150 | 4 | 18 | | | | | 200 | 160 | 8 | 18 | 200 | 160 | 8 | 18 |
| 100 | 4" | 210 | 170 | 4 | 18 | | | | | 220 | 180 | 8 | 18 | 235 | 190 | 8 | 22 |
| 125 | 5" | 240 | 200 | 8 | 18 | | | | | 250 | 210 | 8 | 18 | 270 | 220 | 8 | 26 |
| 150 | 6" | 265 | 225 | 8 | 18 | | | | | 285 | 240 | 8 | 22 | 300 | 250 | 8 | 26 |
| 200 | 8" | 320 | 280 | 8 | 18 | | | | | 340 | 295 | 8 | 22 | 340 | 295 | 12 | 22 |
| 250 | 10" | 375 | 335 | 12 | 18 | 395 | 350 | 12 | 22 | 405 | 355 | 12 | 26 | 425 | 370 | 12 | 30 |
| 300 | 12" | 440 | 395 | 12 | 22 | 445 | 400 | 12 | 22 | 460 | 410 | 12 | 26 | 485 | 430 | 16 | 30 |
| 350 | 14" | 490 | 445 | 12 | 22 | 505 | 460 | 16 | 22 | 520 | 470 | 16 | 26 | 555 | 490 | 16 | 33 |
| 400 | 16" | 540 | 495 | 16 | 22 | 565 | 515 | 16 | 26 | 580 | 525 | 16 | 30 | 620 | 550 | 16 | 36 |
| 450 | 18" | 595 | 550 | 16 | 22 | 615 | 565 | 20 | 26 | 640 | 585 | 20 | 30 | 670 | 600 | 20 | 36 |
| 500 | 20" | 645 | 600 | 20 | 22 | 670 | 620 | 20 | 26 | 715 | 650 | 20 | 33 | 730 | 660 | 20 | 36 |
| 600 | 24" | 755 | 705 | 20 | 26 | 780 | 725 | 20 | 30 | 840 | 770 | 20 | 36 | 845 | 770 | 20 | 39 |
| 700 | 28" | 860 | 810 | 24 | 26 | 895 | 840 | 24 | 30 | 910 | 840 | 24 | 36 | 960 | 875 | 24 | 42 |
| 800 | 32" | 975 | 920 | 24 | 30 | 1015 | 950 | 24 | 33 | 1025 | 950 | 24 | 39 | 1085 | 990 | 24 | 48 |
| 900 | 36" | 1075 | 1020 | 24 | 30 | 1115 | 1050 | 28 | 33 | 1125 | 1050 | 28 | 39 | | | | |
| 1000 | 40" | 1175 | 1120 | 28 | 30 | 1230 | 1150 | 28 | 36 | 1255 | 1170 | 28 | 42 | | | | |
| 1200 | 48" | 1405 | 1340 | 32 | 33 | 1455 | 1380 | 32 | 39 | 1485 | 1390 | 32 | 48 | | | | |

| Flange Standard | | ANSI B 16.5 150 lb/sq. in | | | | | | | ANSI B 16.5 300 lb/sq. in. | | | | | | |
|-----------------|--------|---------------------------|---------|-------|---------|----|------|--------|----------------------------|---------|-------|---------|----|------|--------|
| DN | | D | | k | | n | l | | D | | k | | n | l | |
| mm | in. | mm | in. | mm | in. | | mm | in. | mm | in. | mm | in. | | mm | in. |
| 25 | 1" | 108 | 4 1/2" | 79.4 | 3 1/8" | 4 | 15.9 | 5/8" | 123.8 | 4 7/8" | 88.9 | 3 1/2" | 4 | 19 | 3/4" |
| 32 | 1 1/4" | 117.5 | 4 5/8" | 88.9 | 3 1/2" | 4 | 15.9 | 5/8" | 133.4 | 5 1/4" | 98.4 | 3 7/8" | 4 | 19 | 3/4" |
| 40 | 1 1/2" | 127 | 5" | 98.4 | 3 7/8" | 4 | 15.9 | 5/8" | 155.6 | 6 1/8" | 114.3 | 4 3/4" | 4 | 22.2 | 3/4" |
| 50 | 2" | 152.4 | 6" | 120.7 | 4 3/4" | 4 | 19 | 3/4" | 165.1 | 6 1/2" | 127 | 5" | 8 | 19 | 3/4" |
| 65 | 2 1/2" | 177.8 | 7" | 139.7 | 5 1/2" | 4 | 19 | 3/4" | 190.5 | 7 1/2" | 149.2 | 5 7/8" | 8 | 22.2 | 7/8" |
| 80 | 3" | 190.5 | 7 1/2" | 152.4 | 6" | 4 | 19 | 3/4" | 209.6 | 8 1/4" | 168.3 | 6 5/8" | 8 | 22.2 | 7/8" |
| 100 | 4" | 228.6 | 9" | 190.5 | 7 1/2" | 8 | 19 | 3/4" | 254 | 10" | 200 | 7 8/8" | 8 | 22.2 | 7/8" |
| 125 | 5" | 254 | 10" | 215.9 | 8 1/2" | 8 | 22.2 | 7/8" | 279.4 | 11" | 235 | 9 1/4" | 8 | 22.2 | 7/8" |
| 150 | 6" | 279.4 | 11" | 241.3 | 9 1/2" | 8 | 22.2 | 7/8" | 317.5 | 12 1/2" | 269.9 | 10 5/8" | 12 | 22.2 | 7/8" |
| 200 | 8" | 342.9 | 13 1/2" | 298.5 | 11 3/4" | 8 | 22.2 | 7/8" | 381 | 15" | 330.2 | 13" | 12 | 25.4 | 1" |
| 250 | 10" | 406.4 | 16" | 361.9 | 14 1/4" | 12 | 25.4 | 1" | 444.5 | 17 1/2" | 387.3 | 15 1/4" | 16 | 28.6 | 1 1/8" |
| 300 | 12" | 482.6 | 19" | 431.8 | 17" | 12 | 25.4 | 1" | 520.7 | 20 1/2" | 450.8 | 17 3/4" | 16 | 31.7 | 1 1/4" |
| 350 | 14" | 533.4 | 21" | 476.2 | 18 3/4" | 12 | 28.6 | 1 1/8" | 584.2 | 23" | 514.3 | 20 1/4" | 20 | 31.7 | 1 1/4" |
| 400 | 16" | 596.9 | 23 1/2" | 539.7 | 21 1/4" | 16 | 28.6 | 1 1/8" | 647.7 | 25 1/2" | 571.5 | 22 1/2" | 20 | 34.9 | 1 3/8" |
| 450 | 18" | 635 | 25" | 577.9 | 22 3/4" | 16 | 31.7 | 1 1/4" | 711.2 | 28" | 628.7 | 24 3/4" | 24 | 34.9 | 1 3/8" |
| 500 | 20" | 698.5 | 27 1/2" | 635 | 25 | 20 | 31.7 | 1 1/4" | 774.7 | 30 1/2" | 685.8 | 27" | 24 | 34.9 | 1 3/8" |
| 600 | 24" | 812.8 | 32" | 749.3 | 29 1/2" | 20 | 34.9 | 1 3/8" | 914.4 | 36" | 812.8 | 32" | 24 | 41.3 | 1 5/8" |



n =Number of Holes

| Flange Standard | | JIS 5K | | | | JIS 10K | | | | JIS 16K | | | |
|-----------------|--------|--------|-----|----|----|---------|-----|----|----|---------|-----|----|----|
| DN | | D | k | n | l | D | k | n | l | D | k | n | l |
| mm | in. | mm | mm | | mm | mm | mm | | mm | mm | mm | | mm |
| 25 | 1" | | | | | 125 | 90 | 4 | 19 | 125 | 90 | 4 | 19 |
| 32 | 1 1/4" | 115 | 90 | 4 | 15 | 135 | 100 | 4 | 19 | 135 | 100 | 4 | 19 |
| 40 | 1 1/2" | 120 | 95 | 4 | 15 | 140 | 105 | 4 | 19 | 140 | 105 | 4 | 19 |
| 50 | 2" | 130 | 105 | 4 | 15 | 155 | 120 | 4 | 19 | 155 | 120 | 8 | 19 |
| 65 | 2 1/2" | 155 | 130 | 4 | 15 | 175 | 140 | 4 | 19 | 175 | 140 | 8 | 19 |
| 80 | 3" | 180 | 145 | 4 | 19 | 185 | 150 | 8 | 19 | 200 | 160 | 8 | 23 |
| 100 | 4" | 200 | 165 | 8 | 19 | 210 | 175 | 8 | 19 | 225 | 185 | 8 | 23 |
| 125 | 5" | 235 | 200 | 8 | 19 | 250 | 210 | 8 | 23 | 270 | 225 | 8 | 25 |
| 150 | 6" | 265 | 230 | 8 | 19 | 280 | 240 | 8 | 23 | 305 | 260 | 12 | 25 |
| 200 | 8" | 320 | 280 | 8 | 23 | 330 | 290 | 12 | 23 | 350 | 305 | 12 | 25 |
| 250 | 10" | 385 | 345 | 12 | 23 | 400 | 355 | 12 | 25 | 430 | 380 | 12 | 27 |
| 300 | 12" | 430 | 390 | 12 | 23 | 445 | 400 | 16 | 25 | 480 | 430 | 16 | 27 |
| 350 | 14" | 480 | 435 | 12 | 25 | 490 | 445 | 16 | 25 | 540 | 480 | 16 | 33 |
| 400 | 16" | 540 | 495 | 16 | 25 | 560 | 510 | 16 | 27 | 605 | 540 | 16 | 33 |
| 450 | 18" | 605 | 555 | 16 | 25 | 620 | 565 | 20 | 27 | 675 | 605 | 20 | 27 |
| 500 | 20" | 655 | 605 | 20 | 25 | 675 | 620 | 20 | 27 | 730 | 660 | 20 | 33 |
| 600 | 24" | 770 | 715 | 20 | 27 | 795 | 730 | 24 | 33 | 845 | 770 | 24 | 39 |



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APPENDICES

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