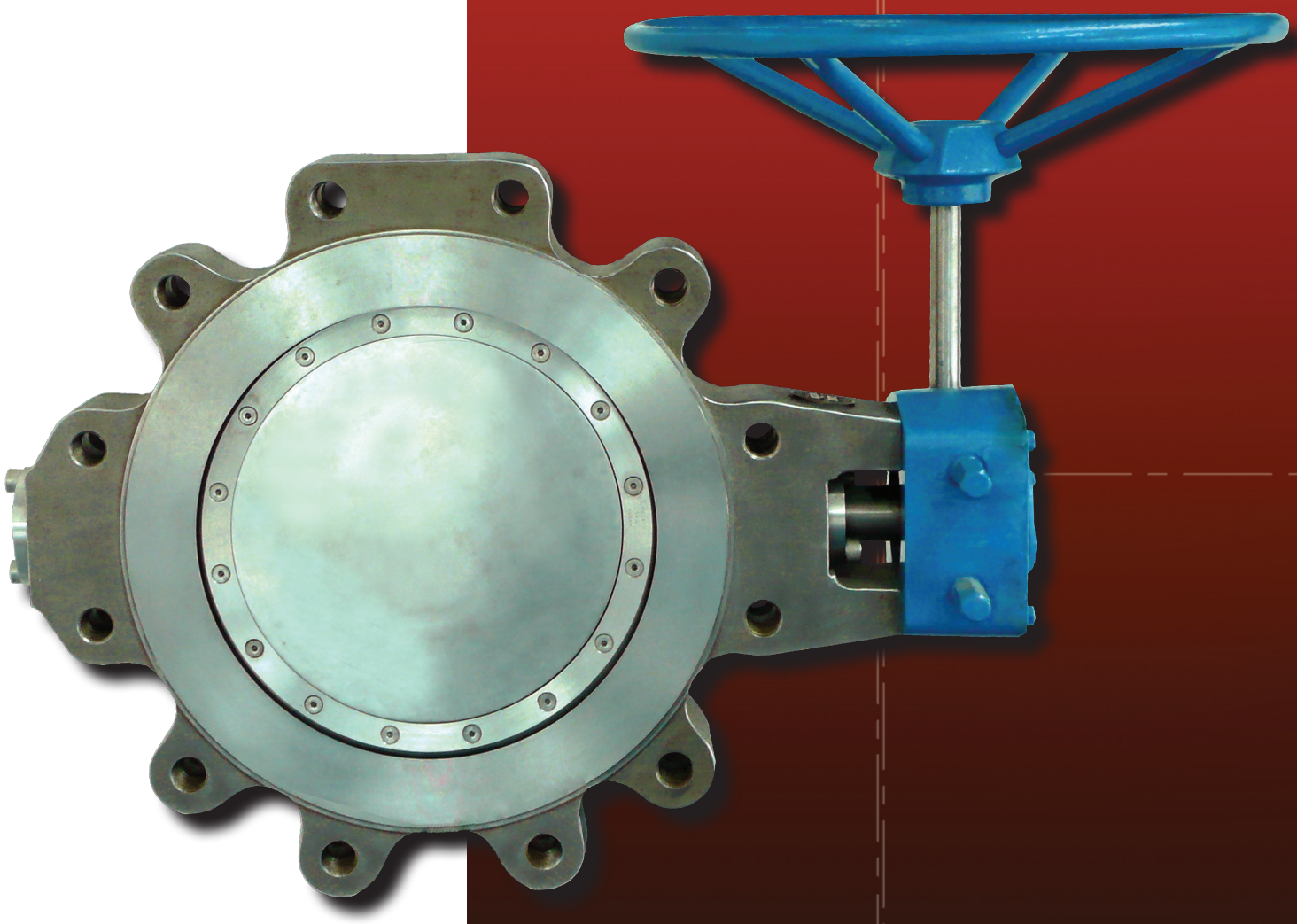
# Solent & Pratt
# R-Series

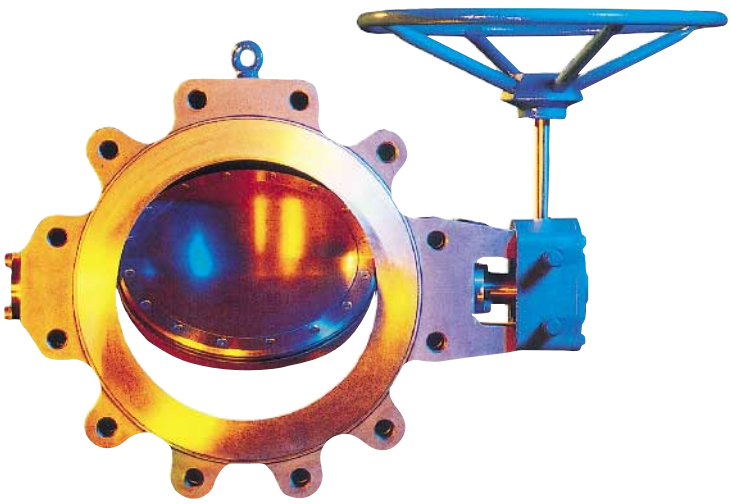


PHÖNIX
VALVE GROUP

S+P Solent & Pratt
Phönix Ltd

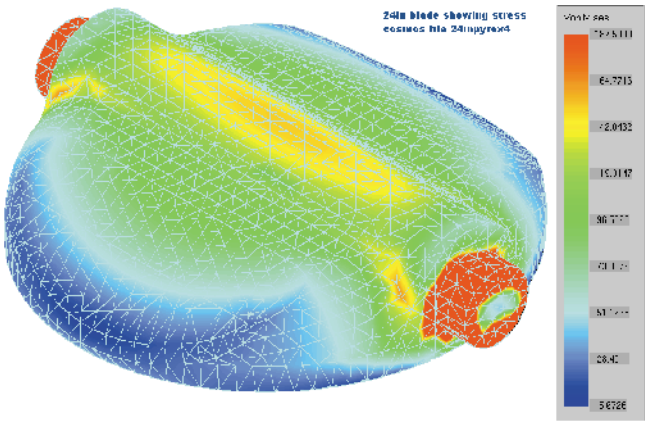
# R-Series Features

**2″ (50mm) to 84″ (2100mm)**



- Quality Assurance Certified by Lloyds to ISO 9001
- Certified firesafe by Lloyds to DOT Rule 54 App.D for use in fire water mains offshore and marine installations.
- Tight shut-off in both directions to API 598.
- Field replacement resilient disc seal.
- ANSI 125lb, 150lb, 300lb rating.
- Single or double offset valve geometry available.
- Low seating and unseating torques.
- Body designs: Double flanged, wafer lugged and wafer flangeless.
- Flanges to suit any British, American or continental flange standards including ANSI, API, MSS, BS, PN and ISO.
- Actuation via manual gearbox, pneumatic, electric or hydraulic actuators.
- Materials available to NACE requirements.
- External anti-blowout device to API 609 optional..

For over 40 years Solent & Pratt has been at the forefront of the design, development and manufacture of high quality butterfly valves for engineering projects around the world. An absolute commitment to outstanding quality and reliability is the key of our success, particularly in environments such as the oil and gas, chemical, petro-chemical and power generation industries.



24″ (600mm) Disc showing the results of a finite element stress analysis carried out by Solent & Pratt's Design Department

## Applications

Resilient Sealed Valves are suitable for isolation and flow control applications and have a proven record for reliability over the past 40 years for application in hydrocarbon service, seawater cooling systems, offshore, onshore and marine fire mains systems, desalination plants and power plant installations.

The ease and flexibility of material selection enables both simple and arduous applications alike to be within the capability of this valve series.

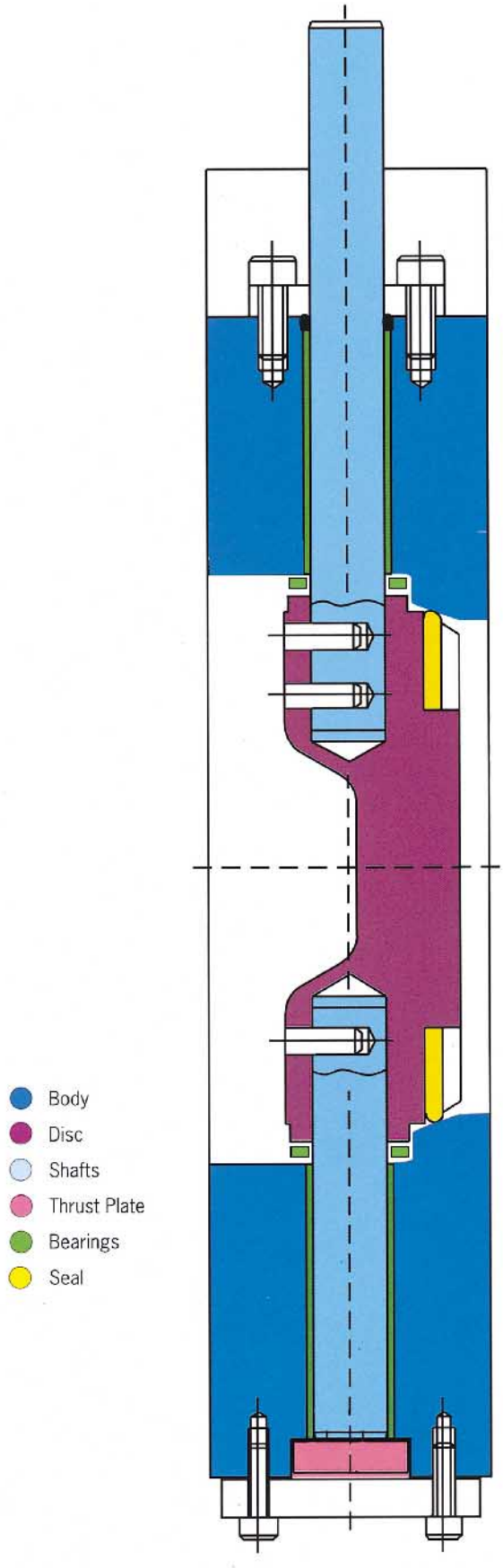
## Design

The valve is a bi-directional tight shut-off device incorporating a resilient seal mechanically retained around the periphery of the valve disc. The seal is available in various types of elastomers, the selection being dependant on the valve duty and working pressure and temperature. The seal seats against a metal seating surface machined into the body of the valve. * Positive shut-off is achieved without excessive interference between seat and seal ensuring maximum seal life and low seating and unseating torques.

* replacement seats available as an option.

## Operators

Valves can be supplied with manual, electric, pneumatic or hydraulic operator. Fail-safe systems for emergency operation are also available.

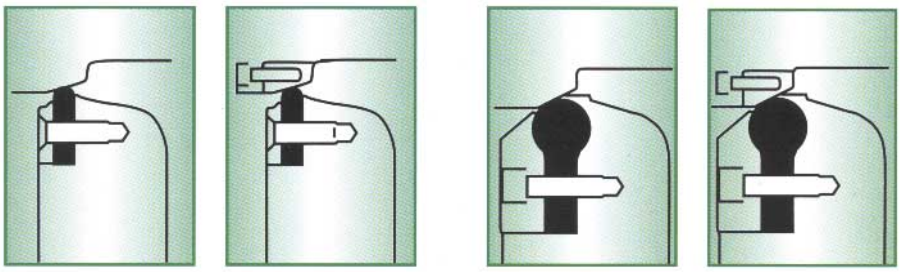


Materials tabulated show two options for offshore firewater mains duty.

**Two standard material options for the Resilient Sealed Butterfly Valve R-Series**

| Item | Description | Qty | Option 1 | Option 2 |
|---|---|---|---|---|
| 1 | Body | 1 | Bronze AB2 | 6MO SS UNS S31254 |
| 2 | Disc | 1 | Bronze AB2 | 6MO SS UNS S31254 |
| 3 | Drive shaft | 1 | Monel K500 | Zeron 100 UNS S32760 |
| 4 | Stub shaft | 1 | Monel K500 | Zeron 100 UNS S32760 |
| 5 | Seat | 1 | Integral | Integral |
| 6 | Disc seal | 1 | Nitrile | Nitrile |
| 7 | Clamp ring | 1 | Bronze AB2 | Zeron 100 UNS S32760 |
| 8 | Thrust washer | 2 | Orkot TL | Orkot TL |
| 9 | End plug | 1 | Bronze AB2 | Zeron 100 UNS S32760 |
| 10 | Gland plate | 1 | Bronze AB2 | Zeron 100 UNS S32760 |
| 11 | D.E. Bearing | 2 | Orkot TL | Orkot TL |
| 12 | N.D.E. Bearing | 2 | Orkot TL | Orkot TL |
| 13 | Shaft pin | 3 | Monel K500 | Zeron 100 UNS S32760 |
| 14 | Gland seal | 1 | Nitrile | Nitrile |
| 15 | End plug seal | 1 | Nitrile | Nitrile |
| 16 | Clamp ring screw | 1-24 | Monel K500 | Zeron 100 UNS S32760 |
| 17 | End plug screw | 2 | A2 SS | A2 SS |
| 18 | Gland plate screw | 2 | A2 SS | A2 SS |
| 19 | Key | 1 | BS 970 070 M55T | BS970 070 M55T |
| 20 | Roll pin | 1 | A2 SS | A2 SS |

## Disc Seal options



Integral Seat | Replaceable Seat | Integral Seat | Replaceable Seat

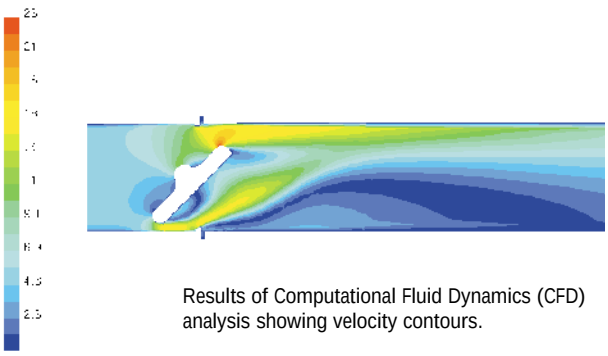
**Flat Round Nose Seal**
Standard applications

**Music Note Seal**
Arduous duties

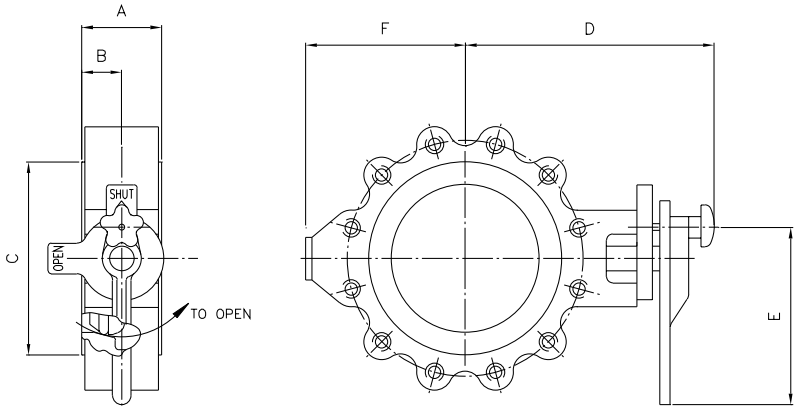
### Special Applications

Valve design range is available in most other materials including:

- Cast Iron and SG Iron
- Carbon Steel
- 316 Stainless Steel
- Duplex Stainless Steel
- Monel
- Incoloy
- Hastelloy B & C
- Titanium



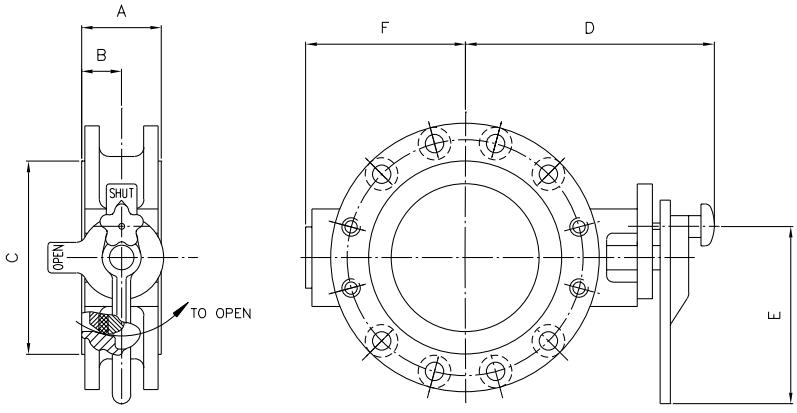
Results of Computational Fluid Dynamics (CFD) analysis showing velocity contours.




**Class 150# range** **Wafer lugged**

| Valve Size Inches | MM | A | B | C | D | E | F | Wt Kg | Wt Lbs |
|---|---|---|---|---|---|---|---|---|---|
| 2″ | 50 | 46 | 25 | 92 | 178 | 152 | 99 | 7.5 | 17 |
| 3 | 80 | 48 | 31 | 127 | 200 | 305 | 114 | 11.8 | 26 |
| 4 | 100 | 54 | 29 | 157 | 225 | 305 | 136 | 15.5 | 34 |
| 6 | 150 | 57 | 35 | 216 | 260 | 305 | 166 | 21.8 | 48 |

2″ (50mm) - 6″ (150mm) sizes are also available with gearbox.
All dimensions are approximate and subject to change.




**Class 150# range** **Double Flanged**

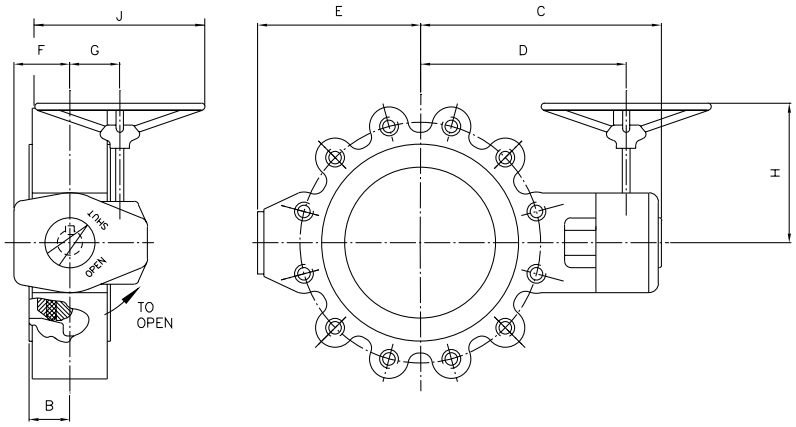
| Valve Size Inches | MM | A | B | C | D | E | F | Wt Kg | Wt Lbs |
|---|---|---|---|---|---|---|---|---|---|
| 2″ | 50 | 108 | 54 | 92 | 178 | 152 | 99 | 13 | 29 |
| 3 | 80 | 114 | 57 | 127 | 205 | 305 | 114 | 23 | 51 |
| 4 | 100 | 127 | 63.5 | 157 | 225 | 305 | 136 | 33 | 73 |
| 6 | 150 | 140 | 70 | 216 | 260 | 305 | 166 | 43 | 95 |

2″ (50mm) - 6″ (150mm) sizes are also available with gearbox.
All dimensions are approximate and subject to change.

# Dimensions

Solent & Pratt

For other sizes and pressure ratings please consult sales offices. All dimensions are approximate and subject to change.




**Class 150# range** (dimensions in mm) **Wafer Lugged**

| Valve size Inches | mm | Mastergear type Operator | A | B | C | D | E | F | G | H | J | Kg. | Lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 50 | M10/SR8 | 46 | 25 | 215 | 183 | 151 | 99 | 52 | 254 | 203 | 12 | 27 |
| 3 | 80 | M10/SR8 | 48 | 31 | 229 | 197 | 165 | 114 | 52 | 254 | 203 | 16 | 33 |
| 4 | 100 | M10/SR8 | 54 | 29 | 240 | 217 | 185 | 136 | 52 | 254 | 203 | 19.5 | 43 |
| 6 | 150 | M10/SR8 | 57 | 35 | 289 | 257 | 225 | 166 | 52 | 254 | 203 | 26 | 58 |
| 8 | 200 | M10/SR8 | 64 | 39 | 319 | 287 | 255 | 200 | 52 | 254 | 203 | 40 | 88 |
| 10 | 250 | M12/SR12 | 71 | 43 | 370 | 331 | 292 | 235 | 67 | 295 | 305 | 79 | 174 |
| 12 | 300 | M14/SR12 | 81 | 51 | 449 | 394 | 350 | 274 | 90 | 315 | 305 | 100 | 220 |
| 14 | 350 | M14/R18 | 92 | 56 | 474 | 419 | 375 | 319 | 90 | 354 | 457 | 152 | 335 |
| 16 | 400 | M15/R18 | 102 | 60 | 531 | 476 | 420 | 338 | 123 | 406 | 457 | 211 | 465 |
| 18 | 450 | M15/R24 | 114 | 68 | 561 | 506 | 450 | 373 | 123 | 441 | 610 | 298 | 656 |
| 20 | 500 | M16/R24 | 127 | 74 | 644 | 567 | 490 | 414 | 154 | 466 | 610 | 353 | 777 |
| 24 | 600 | MFF/36/S5/R24 | 154 | 82.5 | 740 | 665 | 580 | 477 | 68 | 497 | 610 | 530 | 1166 |
| 26 | 650 | MFF/36/S5/R24 | 229 | 114.5 | 750 | 655 | 568 | 485 | 68 | 497 | 610 | 555 | 1221 |
| 28 | 700 | MJF50/S5/R24 | 229 | 114.5 | 790 | 704 | 609 | 515 | 97 | 505 | 762 | 643 | 1415 |
| 30 | 750 | MJF50/D9/R24 | 229 | 114.5 | 1014 | 824 | 634 | 597 | 181 | 590 | 610 | 740 | 1628 |
| 32 | 800 | MJF50/D9/R24 | 229 | 114.5 | 1085 | 895 | 705 | 636 | 181 | 590 | 610 | 798 | 1756 |
| 34 | 850 | MLF60/D12/R18 | 241 | 120.5 | 1125 | 935 | 745 | 610 | 237 | 523 | 457 | 1020 | 2244 |
| 36 | 900 | MLF60/D12/R18 | 241 | 120.5 | 1140 | 950 | 840 | 635 | 237 | 523 | 457 | 1105 | 2431 |
| 38 | 950 | MLF60/D12/R18 | 300 | 150 | 1180 | 990 | 870 | 670 | 237 | 580 | 457 | 1257 | 2805 |
| 40 | 1000 | MLF60/D12/R18 | 300 | 150 | 1205 | 1015 | 895 | 695 | 237 | 580 | 457 | 1420 | 3124 |
| 42 | 1050 | MLF60/D12/R18 | 300 | 150 | 1235 | 1045 | 925 | 725 | 237 | 580 | 457 | 1520 | 3344 |
| 44 | 1100 | MLF60/D12/R18 | 300 | 150 | 1260 | 1070 | 950 | 750 | 237 | 580 | 457 | 1675 | 3685 |
| 46 | 1150 | MLF60/D12/R18 | 350 | 175 | 1290 | 1100 | 980 | 780 | 237 | 580 | 457 | 1850 | 4070 |
| 48 | 1200 | MPF50/D12/S3/R30 | 350 | 175 | 1348 | 1158 | 1038 | 815 | 292 | 791 | 752 | 2075 | 4565 |
| 50 | 1250 | MPF50/D12/S3/R30 | 350 | 175 | 1378 | 1188 | 1068 | 845 | 292 | 791 | 752 | 2340 | 5148 |
| 52 | 1300 | MTF50/DB6/D9/R24 | 350 | 175 | 1608 | 1313 | 1123 | 865 | 356 | 1024 | 610 | 2520 | 5544 |
| 54 | 1350 | MTF50/DB6/D9/R24 | 390 | 195 | 1743 | 1448 | 1158 | 900 | 356 | 1024 | 610 | 2920 | 6424 |
| 56 | 1400 | MTF50/DB6/D9/R24 | 390 | 195 | 1778 | 1483 | 1193 | 935 | 356 | 1024 | 610 | 3250 | 7150 |
| 58 | 1450 | MTF50/DB6/D9/R24 | 390 | 195 | 1808 | 1513 | 1223 | 965 | 356 | 1024 | 610 | 3440 | 7568 |
| 60 | 1500 | MTF50/DB6/D9/R24 | 440 | 220 | 1853 | 1558 | 1268 | 990 | 356 | 1024 | 610 | 3695 | 8129 |
| 64 | 1600 | MB3/DB9/D9/R30 | 440 | 220 | 1928 | 1633 | 1343 | 1035 | 356 | 1062 | 752 | 4690 | 10318 |
| 72 | 1800 | MB3/DB9/D9/R30 | 490 | 245 | 2033 | 1738 | 1448 | 1170 | 356 | 1065 | 752 | 5480 | 12056 |
| 80 | 2000 | MB3/DB9/D9/R30 | 540 | 270 | 2128 | 1833 | 1543 | 1245 | 356 | 1062 | 752 | 7525 | 16555 |
| 84 | 2100 | MB3/DB9/D9/R30 | 540 | 270 | 2223 | 1938 | 1638 | 1340 | 356 | 1062 | 752 | 10140 | 22308 |

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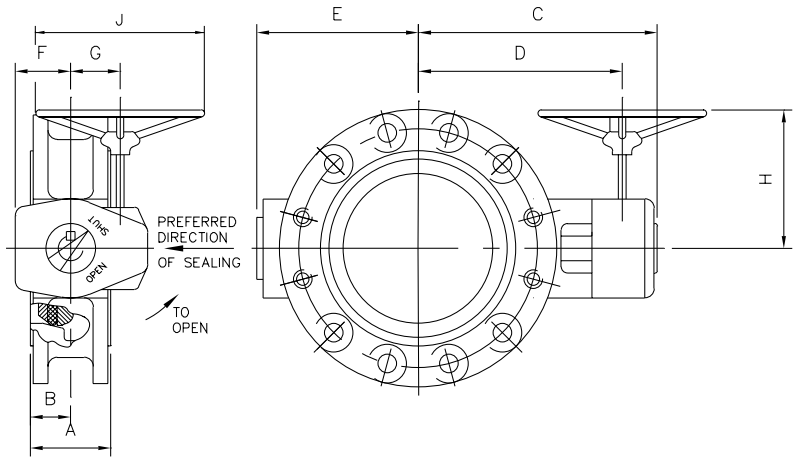


**Class 150# range** (dimensions in mm) **Double Flanged**

| Valve size Inches | mm | Mastergear type Operator | A | B | C | D | E | F | G | H | J | Kg. | Lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 50 | M10/SR8 | 108 | 54 | 215 | 182 | 150 | 99 | 52 | 254 | 203 | 17 | 38 |
| 3 | 80 | M10/SR8 | 114 | 57 | 229 | 197 | 165 | 114 | 52 | 254 | 203 | 27 | 60 |
| 4 | 100 | M10SR8 | 127 | 63.5 | 249 | 217 | 185 | 136 | 52 | 254 | 203 | 37 | 82 |
| 6 | 150 | M10/SR8 | 140 | 70 | 289 | 257 | 225 | 155 | 52 | 254 | 203 | 47 | 104 |
| 8 | 200 | M10/SR8 | 152 | 76 | 319 | 287 | 255 | 200 | 52 | 254 | 203 | 63 | 139 |
| 10 | 250 | M12/SR12 | 165 | 82.5 | 370 | 331 | 292 | 235 | 67 | 295 | 305 | 85 | 187 |
| 12 | 300 | M14/SR12 | 178 | 89 | 449 | 394 | 350 | 274 | 90 | 315 | 305 | 124 | 273 |
| 14 | 350 | M14/R18 | 190 | 95 | 474 | 419 | 375 | 319 | 90 | 354 | 457 | 163 | 359 |
| 16 | 400 | M15/R18 | 216 | 108 | 531 | 475 | 420 | 338 | 123 | 406 | 457 | 190 | 418 |
| 18 | 450 | M15/R24 | 222 | 111 | 561 | 506 | 450 | 373 | 123 | 441 | 610 | 229 | 504 |
| 20 | 500 | M16/R24 | 229 | 114.5 | 644 | 567 | 490 | 414 | 154 | 456 | 610 | 295 | 649 |
| 24 | 600 | MFF/36/S5/R24 | 267 | 133.5 | 740 | 655 | 580 | 477 | 138 | 497 | 610 | 474 | 1043 |
| 26 | 650 | MFF/36/S5/R24 | 292 | 146 | 740 | 655 | 568 | 485 | 68 | 497 | 610 | 595 | 1309 |
| 28 | 700 | MJF50/S5/R24 | 292 | 146 | 790 | 704 | 609 | 515 | 97 | 505 | 762 | 714 | 1571 |
| 30 | 750 | MJF50/D9/R24 | 318 | 159 | 1014 | 824 | 634 | 597 | 181 | 590 | 610 | 826 | 1818 |
| 32 | 800 | MJF50/D9/R24 | 318 | 159 | 1085 | 895 | 705 | 636 | 181 | 590 | 610 | 888 | 1954 |
| 34 | 850 | MLF60/D12/R18 | 330 | 165 | 1125 | 935 | 745 | 610 | 237 | 523 | 457 | 1135 | 2497 |
| 36 | 900 | MLF60/D12/R18 | 330 | 165 | 1140 | 950 | 840 | 635 | 237 | 523 | 457 | 1229 | 2704 |
| 38 | 950 | MLF60/D12/R18 | 410 | 205 | 1180 | 990 | 870 | 670 | 237 | 580 | 457 | 1417 | 3118 |
| 40 | 1000 | MLF60/D12/R18 | 410 | 205 | 1205 | 1015 | 895 | 695 | 237 | 580 | 457 | 1581 | 3479 |
| 42 | 1050 | MLF60/D12/R18 | 410 | 205 | 1235 | 1045 | 925 | 725 | 237 | 580 | 457 | 1690 | 3718 |
| 44 | 1100 | MLF60/D12/R18 | 410 | 205 | 1250 | 1070 | 950 | 750 | 237 | 580 | 457 | 1865 | 4103 |
| 46 | 1150 | MLF60/D12/R18 | 470 | 235 | 1290 | 1100 | 980 | 780 | 237 | 580 | 457 | 2060 | 4532 |
| 48 | 1200 | MPF50/D12/S3/R30 | 470 | 235 | 1348 | 1158 | 1038 | 815 | 292 | 791 | 752 | 2310 | 5082 |
| 50 | 1250 | MPF50/D12/S3/R30 | 470 | 235 | 1378 | 1188 | 1068 | 845 | 292 | 791 | 752 | 2601 | 5723 |
| 52 | 1300 | MTF50/DB6/D9/R24 | 530 | 265 | 1608 | 1313 | 1123 | 865 | 356 | 1024 | 610 | 2860 | 6292 |
| 54 | 1350 | MTF50/DB6/D9/R24 | 530 | 265 | 1743 | 1448 | 1158 | 900 | 356 | 1024 | 610 | 3240 | 7128 |
| 56 | 1400 | MTF50/DB6/D9/R24 | 530 | 265 | 1778 | 1483 | 1193 | 935 | 356 | 1024 | 610 | 3610 | 7942 |
| 58 | 1450 | MTF50/DB6/D9/R24 | 600 | 300 | 1808 | 1513 | 1223 | 965 | 356 | 1024 | 610 | 3825 | 8415 |
| 60 | 1500 | MTF50/DB6/D9/R24 | 600 | 300 | 1853 | 1558 | 1268 | 990 | 356 | 1024 | 610 | 4110 | 9042 |
| 64 | 1600 | MB3/DB9/D9/R30 | 600 | 300 | 1928 | 1633 | 1343 | 1035 | 356 | 1062 | 752 | 5225 | 11465 |
| 72 | 1800 | MB3/DB9/D9/R30 | 670 | 335 | 2033 | 1738 | 1448 | 1170 | 356 | 1062 | 752 | 6095 | 13409 |
| 80 | 2000 | MB3/DB9/D9/R30 | 760 | 380 | 2128 | 1833 | 1543 | 1245 | 356 | 1062 | 752 | 8360 | 18392 |
| 84 | 2100 | MB3/DB9/D9/R30 | 760 | 380 | 2223 | 1928 | 1638 | 1340 | 356 | 1062 | 752 | 11270 | 24794 |

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