

TEKMARINE



Marine Fenders



About TekMarine

From its base in the United States, TekMarine Systems LLC designs and supplies advanced marine fendering and mooring systems to ports, harbors and waterways across the world.

We bring a wealth of engineering and market experience to each project. Our fender solutions range from simple modules to the most sophisticated engineered systems. We supply every type of berth, including passenger terminals, bulk and RoRo ports, Oil and Gas installations and naval facilities.

We offer full support at each step from early concept discussions through to design and detailing, material selection, construction, testing, shipping, and installation. A full after-care service helps keep your investment working safely and reliably for many years after commission.

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TJCO Cone Fender

The TJCO Cone Fender is one of the most advanced molded units available. The conical shape is self-centering, which keeps it stable at large compression angles. The TJCO resists high shear forces and can handle large panel weights. Chain systems, where required, are simple and reliable.

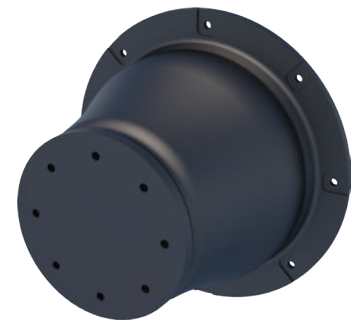
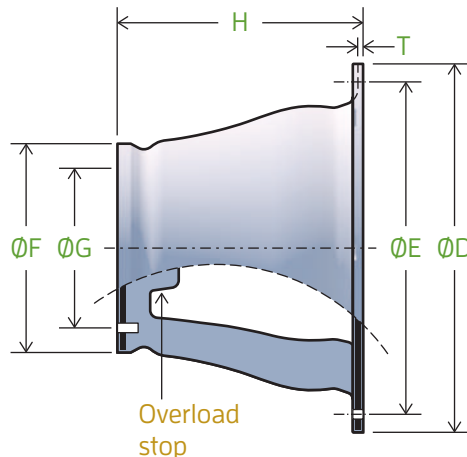
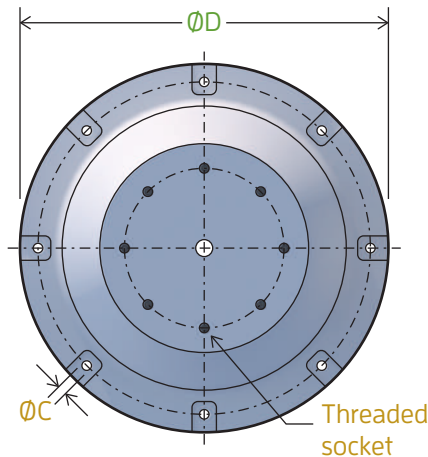
The TJCO fender works just as well mounted in reverse (with its smaller face against the quay wall) so designers can make use of the TJCO on narrow harbor structures where the footprint area is limited.

Please ask TekMarine about optional overload stops and how TJCO systems can be designed to prevent hydraulic locking.

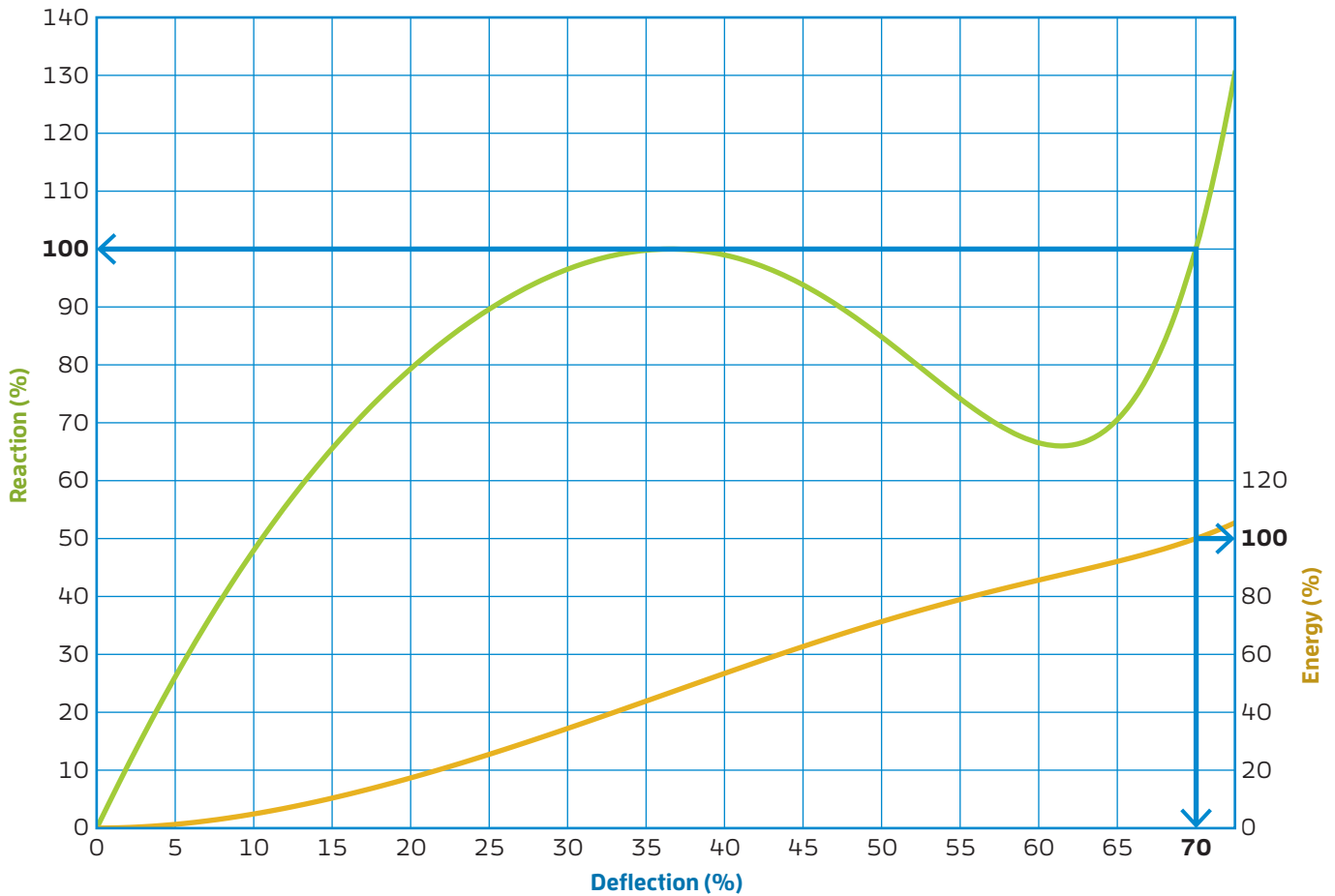


Dimensions

| Model | Height | | ØD | | ØE | | ØF | | ØG | | T | n × ØC | | Bolt | Weight | | |
|-----------|--------|------|------|------|------|------|------|------|------|------|----|--------|---------|----------|--------|------|-------|
| | mm | in | mm | in | mm | in | mm | in | mm | in | | mm | in | | mm | kg | lb |
| TJCO 300 | 300 | 11.8 | 450 | 17.7 | 405 | 15.9 | 255 | 10.0 | 195 | 7.7 | 14 | 0.50 | 4 × 20 | 4 × 0.80 | M16 | 30 | 66 |
| TJCO 500 | 500 | 19.7 | 750 | 29.5 | 675 | 26.6 | 425 | 16.7 | 325 | 12.8 | 21 | 0.83 | 4 × 30 | 4 × 1.20 | M24 | 140 | 309 |
| TJCO 600 | 600 | 23.6 | 900 | 35.4 | 810 | 31.9 | 510 | 20.1 | 390 | 15.4 | 22 | 0.87 | 6 × 30 | 6 × 1.20 | M24 | 230 | 507 |
| TJCO 700 | 700 | 27.6 | 1050 | 41.3 | 945 | 37.2 | 595 | 23.4 | 455 | 17.9 | 26 | 1.02 | 6 × 38 | 6 × 1.50 | M30 | 390 | 860 |
| TJCO 800 | 800 | 31.5 | 1200 | 47.2 | 1080 | 42.5 | 680 | 26.8 | 520 | 20.5 | 30 | 1.18 | 6 × 44 | 6 × 1.70 | M36 | 540 | 1190 |
| TJCO 900 | 900 | 35.4 | 1350 | 53.1 | 1215 | 47.8 | 765 | 30.1 | 585 | 23.0 | 30 | 1.18 | 6 × 44 | 6 × 1.73 | M36 | 755 | 1664 |
| TJCO 1000 | 1000 | 39.4 | 1500 | 59.1 | 1350 | 53.1 | 850 | 33.5 | 650 | 25.6 | 40 | 1.57 | 6 × 50 | 6 × 1.97 | M42 | 1020 | 2249 |
| TJCO 1100 | 1100 | 43.3 | 1650 | 65.0 | 1485 | 58.5 | 935 | 36.8 | 715 | 28.1 | 42 | 1.65 | 6 × 50 | 6 × 1.97 | M42 | 1500 | 3308 |
| TJCO 1150 | 1150 | 45.3 | 1725 | 67.9 | 1550 | 61.0 | 998 | 39.3 | 750 | 29.5 | 42 | 1.65 | 6 × 50 | 6 × 1.97 | M42 | 1600 | 3527 |
| TJCO 1200 | 1200 | 47.2 | 1800 | 70.9 | 1620 | 63.8 | 1020 | 40.2 | 780 | 30.7 | 45 | 1.77 | 8 × 50 | 8 × 1.97 | M42 | 1960 | 4321 |
| TJCO 1300 | 1300 | 51.2 | 1950 | 76.8 | 1755 | 69.1 | 1105 | 43.5 | 845 | 33.3 | 47 | 1.85 | 8 × 60 | 8 × 2.36 | M48 | 2400 | 5291 |
| TJCO 1400 | 1400 | 55.1 | 2100 | 82.7 | 1890 | 74.4 | 1190 | 46.9 | 930 | 36.6 | 54 | 2.13 | 8 × 60 | 8 × 2.36 | M52 | 3000 | 6615 |
| TJCO 1600 | 1600 | 63.0 | 2400 | 94.5 | 2160 | 85.0 | 1360 | 53.5 | 1060 | 41.7 | 58 | 2.28 | 8 × 66 | 8 × 2.60 | M56 | 4600 | 10141 |
| TJCO 1800 | 1800 | 70.9 | 2880 | 113 | 2625 | 103 | 1530 | 60.2 | 1190 | 46.9 | 75 | 2.95 | 10 × 66 | 10 × 2.6 | M56 | 6600 | 14553 |
| TJCO 2000 | 2000 | 78.7 | 3200 | 126 | 2920 | 115 | 1900 | 74.8 | 1540 | 60.6 | 80 | 3.15 | 10 × 66 | 10 × 2.6 | M56 | 9200 | 20286 |



TJCO Performance



Intermediate values

| Deflection (%) | Reaction (%) | Energy (%) |
|----------------|--------------|------------|
| 5 | 26 | 1 |
| 10 | 48 | 5 |
| 15 | 66 | 10 |
| 20 | 79 | 17 |
| 25 | 90 | 25 |
| 30 | 97 | 34 |
| 35 | 100 | 44 |
| 40 | 99 | 53 |
| 45 | 94 | 63 |
| 50 | 85 | 71 |
| 55 | 74 | 79 |
| 60 | 67 | 86 |
| 65 | 71 | 92 |
| 70 | 100 | 100 |
| 72.5 | 130 | 105 |

Angle factor

| Angle (°) | γ_A | |
|-----------|-------------|-------------|
| | Energy | Reaction |
| 0 | 1.00 | 1.00 |
| 3 | 1.00 | 1.00 |
| 5 | 1.00 | 1.00 |
| 8 | 0.99 | 1.00 |
| 10 | 0.98 | 1.00 |
| 15 | 0.93 | 1.00 |
| 20 | 0.87 | 1.00 |

Velocity factors

| Time (s) | γ_V |
|----------|------------|
| 1 | 1.31 |
| 2 | 1.13 |
| 3 | 1.08 |
| 4 | 1.05 |
| 5 | 1.03 |
| 6 | 1.02 |
| 7 | 1.02 |
| 8 | 1.01 |
| 9 | 1.01 |
| ≥10 | 1.00 |

Temperature factor

| Temperature | | γ_T |
|-------------|-----------|-------------|
| (°C) | (°F) | |
| 50 | 122 | 0.90 |
| 40 | 104 | 0.94 |
| 30 | 86 | 0.98 |
| 23 | 73 | 1.00 |
| 10 | 50 | 1.06 |
| 0 | 32 | 1.10 |
| -10 | 14 | 1.14 |
| -20 | -4 | 1.19 |
| -30 | -22 | 1.24 |

Values are for single units. Standard tolerance ±10%. Please ask TekMarine if $t < 4$ seconds or for any other performance data.

TJCO Performance (metric units)

| Model | | E = kNm, R=kN | | | | | | | | | | | | |
|-----------|---|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | T07 | T08 | T09 | T10 | T11 | T12 | T13 | T14 | T15 | T16 | T17 | T18 | T19 |
| TJCO 300 | E | 8.7 | 9.9 | 11.2 | 12.4 | 12.6 | 12.8 | 13.0 | 13.2 | 13.4 | 13.6 | 13.8 | 14.0 | 14.2 |
| | R | 52.3 | 59.8 | 67.2 | 74.7 | 76.0 | 77.3 | 78.5 | 79.8 | 81.1 | 82.4 | 83.7 | 84.9 | 86.2 |
| TJCO 500 | E | 40.7 | 46.5 | 52.3 | 58.1 | 58.9 | 59.7 | 60.5 | 61.2 | 62.0 | 62.8 | 63.6 | 64.3 | 65.1 |
| | R | 145 | 166 | 186 | 207 | 211 | 214 | 218 | 222 | 225 | 229 | 232 | 236 | 240 |
| TJCO 600 | E | 70.6 | 80.7 | 90.8 | 101 | 102 | 103 | 105 | 106 | 107 | 109 | 110 | 111 | 113 |
| | R | 209 | 239 | 269 | 299 | 304 | 309 | 314 | 319 | 324 | 329 | 334 | 340 | 345 |
| TJCO 700 | E | 111 | 127 | 143 | 159 | 161 | 163 | 165 | 167 | 170 | 172 | 174 | 176 | 178 |
| | R | 285 | 326 | 366 | 407 | 414 | 421 | 428 | 435 | 442 | 449 | 456 | 463 | 470 |
| TJCO 800 | E | 166 | 190 | 213 | 237 | 240 | 244 | 247 | 250 | 254 | 257 | 260 | 263 | 267 |
| | R | 372 | 425 | 478 | 531 | 541 | 550 | 559 | 568 | 577 | 586 | 595 | 604 | 613 |
| TJCO 900 | E | 236 | 270 | 303 | 337 | 342 | 347 | 351 | 356 | 361 | 365 | 370 | 375 | 379 |
| | R | 470 | 537 | 604 | 671 | 683 | 695 | 706 | 718 | 729 | 741 | 752 | 764 | 776 |
| TJCO 1000 | E | 324 | 370 | 417 | 463 | 469 | 476 | 482 | 488 | 495 | 501 | 508 | 514 | 520 |
| | R | 581 | 664 | 747 | 830 | 844 | 858 | 873 | 887 | 901 | 915 | 930 | 944 | 958 |
| TJCO 1100 | E | 431 | 493 | 554 | 616 | 624 | 633 | 641 | 650 | 658 | 667 | 675 | 684 | 693 |
| | R | 703 | 803 | 904 | 1004 | 1021 | 1039 | 1056 | 1073 | 1090 | 1107 | 1125 | 1142 | 1159 |
| TJCO 1150 | E | 492 | 562 | 633 | 703 | 713 | 722 | 732 | 742 | 752 | 762 | 772 | 781 | 791 |
| | R | 768 | 878 | 987 | 1097 | 1116 | 1135 | 1154 | 1172 | 1191 | 1210 | 1229 | 1248 | 1267 |
| TJCO 1200 | E | 560 | 640 | 720 | 800 | 811 | 822 | 833 | 844 | 855 | 867 | 878 | 889 | 900 |
| | R | 836 | 955 | 1075 | 1194 | 1215 | 1235 | 1256 | 1276 | 1297 | 1317 | 1338 | 1358 | 1379 |
| TJCO 1300 | E | 711 | 813 | 914 | 1016 | 1030 | 1044 | 1058 | 1072 | 1086 | 1100 | 1115 | 1129 | 1143 |
| | R | 982 | 1122 | 1263 | 1403 | 1427 | 1451 | 1475 | 1499 | 1523 | 1547 | 1571 | 1595 | 1619 |
| TJCO 1400 | E | 889 | 1016 | 1143 | 1270 | 1288 | 1305 | 1323 | 1340 | 1358 | 1376 | 1393 | 1411 | 1428 |
| | R | 1138 | 1301 | 1463 | 1626 | 1654 | 1682 | 1710 | 1737 | 1765 | 1793 | 1821 | 1849 | 1877 |
| TJCO 1600 | E | 1327 | 1517 | 1706 | 1896 | 1922 | 1948 | 1974 | 2001 | 2027 | 2053 | 2080 | 2106 | 2132 |
| | R | 1486 | 1698 | 1911 | 2123 | 2159 | 2196 | 2232 | 2269 | 2306 | 2342 | 2379 | 2415 | 2452 |
| TJCO 1800 | E | 1889 | 2159 | 2429 | 2699 | 2736 | 2773 | 2811 | 2848 | 2886 | 2923 | 2960 | 2998 | 3035 |
| | R | 1882 | 2151 | 2420 | 2689 | 2735 | 2781 | 2827 | 2873 | 2919 | 2965 | 3011 | 3058 | 3104 |
| TJCO 2000 | E | 2591 | 2961 | 3331 | 3701 | 3753 | 3804 | 3855 | 3907 | 3958 | 4009 | 4060 | 4112 | 4163 |
| | R | 2324 | 2656 | 2988 | 3320 | 3377 | 3434 | 3491 | 3548 | 3605 | 3661 | 3718 | 3775 | 3832 |

Other sizes and intermediate performances are available on request. Please ask TekMarine for details.

TJCO Performance (metric units)

| Model | | E = kNm, R=kN | | | | | | | | | | | | |
|-----------|---|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | T20 | T21 | T22 | T23 | T24 | T25 | T26 | T27 | T28 | T29 | T30 | T31 | T32 |
| TJCO 300 | E | 14.4 | 14.6 | 14.8 | 15.0 | 15.2 | 15.4 | 15.6 | 15.8 | 16.0 | 16.2 | 16.4 | 17.2 | 18.0 |
| | R | 87.5 | 88.8 | 90.0 | 91.3 | 92.6 | 93.9 | 95.2 | 96.4 | 97.7 | 99.0 | 100 | 105 | 110 |
| TJCO 500 | E | 65.9 | 66.7 | 67.4 | 68.2 | 69.0 | 69.8 | 70.5 | 71.3 | 72.1 | 72.9 | 73.6 | 77.3 | 81.0 |
| | R | 243 | 247 | 250 | 254 | 258 | 261 | 265 | 268 | 272 | 275 | 279 | 293 | 307 |
| TJCO 600 | E | 114 | 115 | 117 | 118 | 119 | 121 | 122 | 123 | 125 | 126 | 127 | 134 | 140 |
| | R | 350 | 355 | 360 | 365 | 370 | 375 | 380 | 386 | 391 | 396 | 401 | 421 | 441 |
| TJCO 700 | E | 181 | 183 | 185 | 187 | 189 | 192 | 194 | 196 | 198 | 201 | 203 | 213 | 223 |
| | R | 477 | 484 | 491 | 498 | 505 | 512 | 519 | 525 | 532 | 539 | 546 | 574 | 601 |
| TJCO 800 | E | 270 | 273 | 276 | 280 | 283 | 286 | 290 | 293 | 296 | 299 | 303 | 318 | 333 |
| | R | 623 | 632 | 641 | 650 | 659 | 668 | 677 | 686 | 695 | 705 | 714 | 749 | 785 |
| TJCO 900 | E | 384 | 389 | 393 | 398 | 403 | 407 | 412 | 417 | 422 | 426 | 431 | 452 | 474 |
| | R | 787 | 799 | 810 | 822 | 833 | 845 | 856 | 868 | 880 | 891 | 903 | 948 | 993 |
| TJCO 1000 | E | 527 | 533 | 540 | 546 | 552 | 559 | 565 | 572 | 578 | 585 | 591 | 620 | 650 |
| | R | 972 | 987 | 1001 | 1015 | 1029 | 1043 | 1058 | 1072 | 1086 | 1100 | 1115 | 1170 | 1226 |
| TJCO 1100 | E | 701 | 710 | 718 | 727 | 735 | 744 | 752 | 761 | 769 | 778 | 786 | 826 | 865 |
| | R | 1176 | 1193 | 1211 | 1228 | 1245 | 1262 | 1279 | 1297 | 1314 | 1331 | 1348 | 1416 | 1483 |
| TJCO 1150 | E | 801 | 811 | 821 | 830 | 840 | 850 | 860 | 870 | 879 | 889 | 899 | 944 | 989 |
| | R | 1285 | 1304 | 1323 | 1342 | 1361 | 1380 | 1398 | 1417 | 1436 | 1455 | 1474 | 1547 | 1621 |
| TJCO 1200 | E | 911 | 922 | 933 | 944 | 955 | 966 | 977 | 989 | 1000 | 1011 | 1022 | 1073 | 1124 |
| | R | 1399 | 1420 | 1440 | 1461 | 1481 | 1502 | 1522 | 1543 | 1564 | 1584 | 1605 | 1685 | 1765 |
| TJCO 1300 | E | 1157 | 1171 | 1185 | 1199 | 1213 | 1228 | 1242 | 1256 | 1270 | 1284 | 1298 | 1363 | 1428 |
| | R | 1643 | 1667 | 1691 | 1715 | 1739 | 1763 | 1787 | 1812 | 1836 | 1860 | 1884 | 1978 | 2072 |
| TJCO 1400 | E | 1446 | 1464 | 1481 | 1499 | 1516 | 1534 | 1551 | 1569 | 1587 | 1604 | 1622 | 1703 | 1784 |
| | R | 1905 | 1933 | 1961 | 1989 | 2017 | 2045 | 2073 | 2101 | 2129 | 2157 | 2185 | 2294 | 2403 |
| TJCO 1600 | E | 2158 | 2185 | 2211 | 2237 | 2263 | 2290 | 2316 | 2342 | 2368 | 2395 | 2421 | 2542 | 2663 |
| | R | 2488 | 2525 | 2561 | 2598 | 2634 | 2671 | 2707 | 2744 | 2781 | 2817 | 2854 | 2996 | 3139 |
| TJCO 1800 | E | 3072 | 3110 | 3147 | 3185 | 3222 | 3259 | 3297 | 3334 | 3372 | 3409 | 3446 | 3619 | 3791 |
| | R | 3150 | 3196 | 3242 | 3288 | 3334 | 3380 | 3426 | 3473 | 3519 | 3565 | 3611 | 3791 | 3972 |
| TJCO 2000 | E | 4214 | 4266 | 4317 | 4368 | 4420 | 4471 | 4522 | 4573 | 4625 | 4676 | 4727 | 4964 | 5200 |
| | R | 3889 | 3946 | 4003 | 4060 | 4117 | 4174 | 4231 | 4287 | 4344 | 4401 | 4458 | 4681 | 4904 |

Other sizes and intermediate performances are available on request. Please ask TekMarine for details.

TJCO Performance (US units)

| Model | | E = ft.kip, R=kips | | | | | | | | | | | | |
|-----------|---|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | T07 | T08 | T09 | T10 | T11 | T12 | T13 | T14 | T15 | T16 | T17 | T18 | T19 |
| TJCO 300 | E | 6.4 | 7.3 | 8.3 | 9.2 | 9.3 | 9.5 | 9.6 | 9.7 | 9.9 | 10.0 | 10.2 | 10.3 | 10.5 |
| | R | 11.8 | 13.4 | 15.1 | 16.8 | 17.1 | 17.4 | 17.7 | 17.9 | 18.2 | 18.5 | 18.8 | 19.1 | 19.4 |
| TJCO 500 | E | 30.0 | 34.3 | 38.6 | 42.9 | 43.5 | 44.0 | 44.6 | 45.2 | 45.7 | 46.3 | 46.9 | 47.5 | 48.0 |
| | R | 32.6 | 37.3 | 41.9 | 46.6 | 47.4 | 48.2 | 49.0 | 49.8 | 50.6 | 51.4 | 52.2 | 53.0 | 53.8 |
| TJCO 600 | E | 52.1 | 59.5 | 66.9 | 74.4 | 75.4 | 76.3 | 77.3 | 78.3 | 79.3 | 80.2 | 81.2 | 82.2 | 83.2 |
| | R | 47.0 | 53.7 | 60.4 | 67.1 | 68.3 | 69.4 | 70.6 | 71.7 | 72.9 | 74.0 | 75.2 | 76.3 | 77.5 |
| TJCO 700 | E | 81.9 | 93.6 | 105 | 117 | 119 | 120 | 122 | 123 | 125 | 127 | 128 | 130 | 132 |
| | R | 64.1 | 73.2 | 82.4 | 91.5 | 93.1 | 94.7 | 96.2 | 97.8 | 99.4 | 101 | 102 | 104 | 106 |
| TJCO 800 | E | 122 | 140 | 157 | 175 | 177 | 180 | 182 | 185 | 187 | 189 | 192 | 194 | 197 |
| | R | 83.6 | 95.6 | 108 | 119 | 122 | 124 | 126 | 128 | 130 | 132 | 134 | 136 | 138 |
| TJCO 900 | E | 174 | 199 | 224 | 249 | 252 | 256 | 259 | 262 | 266 | 269 | 273 | 276 | 280 |
| | R | 106 | 121 | 136 | 151 | 154 | 156 | 159 | 161 | 164 | 167 | 169 | 172 | 174 |
| TJCO 1000 | E | 239 | 273 | 307 | 341 | 346 | 351 | 356 | 360 | 365 | 370 | 374 | 379 | 384 |
| | R | 131 | 149 | 168 | 187 | 190 | 193 | 196 | 199 | 203 | 206 | 209 | 212 | 215 |
| TJCO 1100 | E | 318 | 363 | 409 | 454 | 460 | 467 | 473 | 479 | 486 | 492 | 498 | 504 | 511 |
| | R | 158 | 181 | 203 | 226 | 230 | 234 | 237 | 241 | 245 | 249 | 253 | 257 | 261 |
| TJCO 1150 | E | 363 | 415 | 467 | 518 | 526 | 533 | 540 | 547 | 555 | 562 | 569 | 576 | 584 |
| | R | 173 | 197 | 222 | 247 | 251 | 255 | 259 | 264 | 268 | 272 | 276 | 281 | 285 |
| TJCO 1200 | E | 413 | 472 | 531 | 590 | 598 | 606 | 615 | 623 | 631 | 639 | 647 | 655 | 664 |
| | R | 188 | 215 | 242 | 268 | 273 | 278 | 282 | 287 | 292 | 296 | 301 | 305 | 310 |
| TJCO 1300 | E | 524 | 599 | 674 | 749 | 760 | 770 | 780 | 791 | 801 | 812 | 822 | 832 | 843 |
| | R | 221 | 252 | 284 | 315 | 321 | 326 | 332 | 337 | 342 | 348 | 353 | 359 | 364 |
| TJCO 1400 | E | 656 | 749 | 843 | 937 | 950 | 963 | 976 | 989 | 1002 | 1015 | 1028 | 1040 | 1053 |
| | R | 256 | 292 | 329 | 365 | 372 | 378 | 384 | 391 | 397 | 403 | 409 | 416 | 422 |
| TJCO 1600 | E | 979 | 1119 | 1258 | 1398 | 1418 | 1437 | 1456 | 1476 | 1495 | 1514 | 1534 | 1553 | 1573 |
| | R | 334 | 382 | 430 | 477 | 485 | 494 | 502 | 510 | 518 | 527 | 535 | 543 | 551 |
| TJCO 1800 | E | 1393 | 1592 | 1791 | 1990 | 2018 | 2046 | 2073 | 2101 | 2128 | 2156 | 2183 | 2211 | 2239 |
| | R | 423 | 484 | 544 | 604 | 615 | 625 | 636 | 646 | 656 | 667 | 677 | 687 | 698 |
| TJCO 2000 | E | 1911 | 2184 | 2457 | 2730 | 2768 | 2806 | 2844 | 2881 | 2919 | 2957 | 2995 | 3033 | 3071 |
| | R | 522 | 597 | 672 | 746 | 759 | 772 | 785 | 798 | 810 | 823 | 836 | 849 | 862 |

Other sizes and intermediate performances are available on request. Please ask TekMarine for details.

TJCO Performance (US units)

| Model | | E = ft.kip, R=kips | | | | | | | | | | | | |
|-----------|---|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | T20 | T21 | T22 | T23 | T24 | T25 | T26 | T27 | T28 | T29 | T30 | T31 | T32 |
| TJCO 300 | E | 10.6 | 10.8 | 10.9 | 11.1 | 11.2 | 11.3 | 11.5 | 11.6 | 11.8 | 11.9 | 12.1 | 12.7 | 13.3 |
| | R | 19.7 | 20.0 | 20.2 | 20.5 | 20.8 | 21.1 | 21.4 | 21.7 | 22.0 | 22.3 | 22.5 | 23.7 | 24.8 |
| TJCO 500 | E | 48.6 | 49.2 | 49.7 | 50.3 | 50.9 | 51.5 | 52.0 | 52.6 | 53.2 | 53.7 | 54.3 | 57.0 | 59.7 |
| | R | 54.7 | 55.5 | 56.3 | 57.1 | 57.9 | 58.7 | 59.5 | 60.3 | 61.1 | 61.9 | 62.7 | 65.9 | 69.0 |
| TJCO 600 | E | 84.1 | 85.1 | 86.1 | 87.1 | 88.0 | 89.0 | 90.0 | 90.9 | 91.9 | 92.9 | 93.9 | 98.6 | 103 |
| | R | 78.6 | 79.8 | 80.9 | 82.1 | 83.2 | 84.4 | 85.5 | 86.7 | 87.8 | 89.0 | 90.1 | 94.6 | 99.1 |
| TJCO 700 | E | 133 | 135 | 136 | 138 | 140 | 141 | 143 | 145 | 146 | 148 | 150 | 157 | 164 |
| | R | 107 | 109 | 110 | 112 | 113 | 115 | 117 | 118 | 120 | 121 | 123 | 129 | 135 |
| TJCO 800 | E | 199 | 202 | 204 | 206 | 209 | 211 | 214 | 216 | 218 | 221 | 223 | 234 | 246 |
| | R | 140 | 142 | 144 | 146 | 148 | 150 | 152 | 154 | 156 | 158 | 160 | 168 | 176 |
| TJCO 900 | E | 283 | 287 | 290 | 294 | 297 | 301 | 304 | 307 | 311 | 314 | 318 | 334 | 350 |
| | R | 177 | 180 | 182 | 185 | 187 | 190 | 193 | 195 | 198 | 200 | 203 | 213 | 223 |
| TJCO 1000 | E | 389 | 393 | 398 | 403 | 407 | 412 | 417 | 422 | 426 | 431 | 436 | 458 | 479 |
| | R | 219 | 222 | 225 | 228 | 231 | 235 | 238 | 241 | 244 | 247 | 251 | 263 | 276 |
| TJCO 1100 | E | 517 | 523 | 530 | 536 | 542 | 549 | 555 | 561 | 567 | 574 | 580 | 609 | 638 |
| | R | 264 | 268 | 272 | 276 | 280 | 284 | 288 | 291 | 295 | 299 | 303 | 318 | 333 |
| TJCO 1150 | E | 591 | 598 | 605 | 612 | 620 | 627 | 634 | 641 | 649 | 656 | 663 | 696 | 729 |
| | R | 289 | 293 | 297 | 302 | 306 | 310 | 314 | 319 | 323 | 327 | 331 | 348 | 364 |
| TJCO 1200 | E | 672 | 680 | 688 | 696 | 705 | 713 | 721 | 729 | 737 | 745 | 754 | 791 | 829 |
| | R | 315 | 319 | 324 | 328 | 333 | 338 | 342 | 347 | 351 | 356 | 361 | 379 | 397 |
| TJCO 1300 | E | 853 | 864 | 874 | 885 | 895 | 905 | 916 | 926 | 937 | 947 | 957 | 1005 | 1053 |
| | R | 369 | 375 | 380 | 386 | 391 | 396 | 402 | 407 | 413 | 418 | 423 | 445 | 466 |
| TJCO 1400 | E | 1066 | 1079 | 1092 | 1105 | 1118 | 1131 | 1144 | 1157 | 1170 | 1183 | 1196 | 1256 | 1316 |
| | R | 428 | 435 | 441 | 447 | 453 | 460 | 466 | 472 | 479 | 485 | 491 | 516 | 540 |
| TJCO 1600 | E | 1592 | 1611 | 1631 | 1650 | 1669 | 1689 | 1708 | 1727 | 1747 | 1766 | 1786 | 1875 | 1964 |
| | R | 559 | 568 | 576 | 584 | 592 | 600 | 609 | 617 | 625 | 633 | 642 | 674 | 706 |
| TJCO 1800 | E | 2266 | 2294 | 2321 | 2349 | 2376 | 2404 | 2432 | 2459 | 2487 | 2514 | 2542 | 2669 | 2796 |
| | R | 708 | 718 | 729 | 739 | 750 | 760 | 770 | 781 | 791 | 801 | 812 | 852 | 893 |
| TJCO 2000 | E | 3108 | 3146 | 3184 | 3222 | 3260 | 3297 | 3335 | 3373 | 3411 | 3449 | 3487 | 3661 | 3835 |
| | R | 874 | 887 | 900 | 913 | 925 | 938 | 951 | 964 | 977 | 989 | 1002 | 1052 | 1102 |

Other sizes and intermediate performances are available on request. Please ask TekMarine for details.



TJSC Cell Fender

The TJSC Cell Fender is a proven design that protects thousands of harbors around the world. Its cylindrical body resists overloading without sacrificing shear resistance.

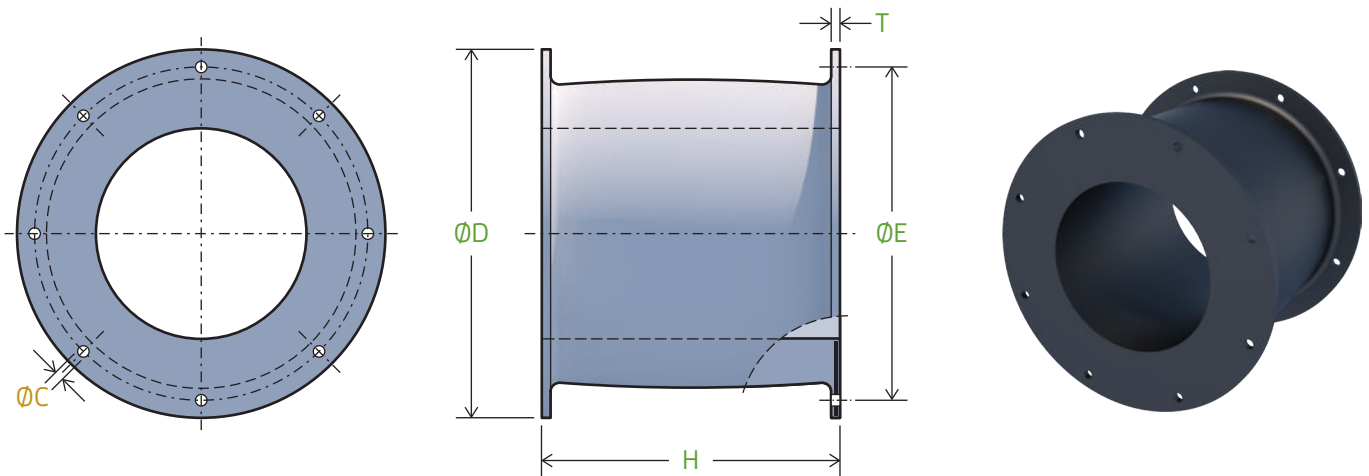
The Cell Fender's large footprint makes installation simple. Its efficient force distribution also enables large, low hull-pressure panel designs. No other fender offers as many sizes in a full range of compounds.

TJSC Cell Fenders are compatible with nearly all legacy cell fenders, making them ideal for replacements and upgrades, as well as new builds. Please ask us about designing for systems at or below the water level.

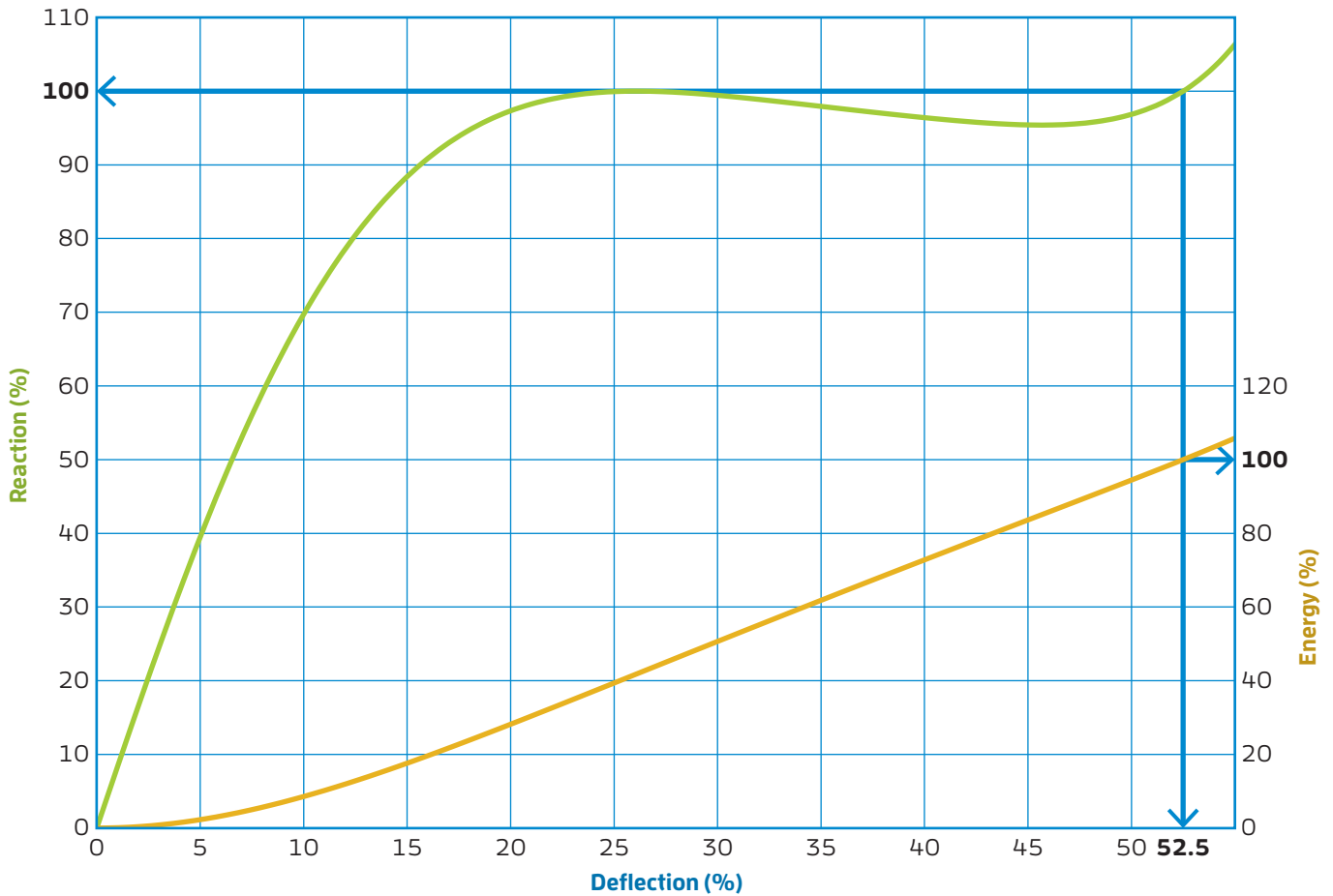


Dimensions

| Model | Height | | ØD | | ØE | | T | | n × ØC | | Bolt | Weight | |
|-----------|--------|------|------|------|------|------|----|------|---------|-----------|------|--------|-------|
| | mm | in | mm | in | mm | in | mm | in | mm | in | | mm | kg |
| TJSC 400 | 400 | 15.7 | 650 | 25.6 | 550 | 21.7 | 25 | 1.00 | 4 × 30 | 4 × 1.20 | M22 | 83 | 183 |
| TJSC 500 | 500 | 19.7 | 650 | 25.6 | 550 | 21.7 | 25 | 0.98 | 4 × 32 | 4 × 1.26 | M24 | 110 | 243 |
| TJSC 630 | 630 | 24.8 | 840 | 33.1 | 700 | 27.6 | 30 | 1.18 | 4 × 39 | 4 × 1.54 | M30 | 235 | 518 |
| TJSC 800 | 800 | 31.5 | 1050 | 41.3 | 900 | 35.4 | 30 | 1.18 | 6 × 40 | 6 × 1.57 | M30 | 410 | 904 |
| TJSC 1000 | 1000 | 39.4 | 1300 | 51.2 | 1100 | 43.3 | 35 | 1.38 | 6 × 47 | 6 × 1.85 | M36 | 805 | 1775 |
| TJSC 1150 | 1150 | 45.3 | 1500 | 59.1 | 1300 | 51.2 | 40 | 1.57 | 6 × 50 | 6 × 1.97 | M42 | 1223 | 2697 |
| TJSC 1250 | 1250 | 49.2 | 1650 | 65.0 | 1450 | 57.1 | 45 | 1.77 | 6 × 53 | 6 × 2.09 | M42 | 1490 | 3285 |
| TJSC 1450 | 1450 | 57.1 | 1850 | 72.8 | 1650 | 65.0 | 47 | 1.85 | 6 × 61 | 6 × 2.40 | M48 | 2330 | 5138 |
| TJSC 1600 | 1600 | 63.0 | 2000 | 78.7 | 1800 | 70.9 | 50 | 1.97 | 8 × 61 | 8 × 2.40 | M48 | 3020 | 6659 |
| TJSC 1700 | 1700 | 66.9 | 2100 | 82.7 | 1900 | 74.8 | 55 | 2.17 | 8 × 66 | 8 × 2.60 | M56 | 3730 | 8225 |
| TJSC 2000 | 2000 | 78.7 | 2200 | 86.6 | 2000 | 78.7 | 55 | 2.17 | 8 × 74 | 8 × 2.91 | M64 | 5023 | 11076 |
| TJSC 2250 | 2250 | 88.6 | 2550 | 100 | 2300 | 90.6 | 60 | 2.36 | 10 × 74 | 10 × 2.91 | M64 | 7450 | 16427 |
| TJSC 2500 | 2500 | 98.4 | 2950 | 116 | 2700 | 106 | 70 | 2.76 | 10 × 74 | 10 × 2.91 | M64 | 10750 | 23704 |
| TJSC 3000 | 3000 | 118 | 3350 | 131 | 3150 | 124 | 75 | 2.95 | 12 × 92 | 12 × 3.62 | M76 | 16320 | 35904 |



TJSC Performance



Intermediate values

| Deflection | Reaction | Energy |
|-------------|------------|------------|
| % | % | % |
| 5 | 39 | 2 |
| 10 | 70 | 9 |
| 15 | 88 | 18 |
| 20 | 97 | 28 |
| 25 | 100 | 39 |
| 30 | 98 | 51 |
| 35 | 96 | 62 |
| 40 | 95 | 73 |
| 45 | 95 | 84 |
| 50 | 97 | 94 |
| 52.5 | 100 | 100 |
| 55 | 106 | 106 |

Angle factor

| Angle (°) | γ_A | |
|-----------|-------------|-------------|
| | Energy | Reaction |
| 0 | 1.00 | 1.00 |
| 3 | 0.97 | 0.98 |
| 5 | 0.95 | 0.95 |
| 8 | 0.91 | 0.94 |
| 10 | 0.89 | 0.92 |
| 15 | 0.80 | 0.88 |
| 20 | 0.65 | 0.80 |

Velocity factors

| Time (s) | γ_V |
|-----------|------------|
| 1 | 1.22 |
| 2 | 1.09 |
| 3 | 1.05 |
| 4 | 1.03 |
| 5 | 1.02 |
| 6 | 1.01 |
| 7 | 1.01 |
| 8 | 1.00 |
| 9 | 1.00 |
| ≥ 10 | 1.00 |

Temperature factor

| Temperature | | γ_T |
|-------------|-----------|-------------|
| (°C) | (°F) | |
| 50 | 122 | 0.90 |
| 40 | 104 | 0.94 |
| 30 | 86 | 0.98 |
| 23 | 73 | 1.00 |
| 10 | 50 | 1.06 |
| 0 | 32 | 1.10 |
| -10 | 14 | 1.14 |
| -20 | -4 | 1.19 |
| -30 | -22 | 1.24 |

Values are for single units. Standard tolerance $\pm 10\%$. Please ask TekMarine if $t < 4$ seconds or for any other performance data.

TJSC Performance (metric units)

| Model | | E = kNm, R=kN | | | | | | | | | | | |
|-----------|---|---------------|------|------|------|------|------|------|------|------|------|------|------|
| | | T08 | T09 | T10 | T11 | T12 | T13 | T14 | T15 | T16 | T17 | T18 | T19 |
| TJSC 400 | E | 8.8 | 9.3 | 9.8 | 10.3 | 10.8 | 11.3 | 11.8 | 12.3 | 13.0 | 13.7 | 14.5 | 15.2 |
| | R | 50.3 | 53.1 | 55.9 | 58.7 | 61.5 | 64.2 | 67.0 | 69.8 | 74.0 | 78.2 | 82.4 | 86.6 |
| TJSC 500 | E | 17.3 | 18.2 | 19.2 | 20.1 | 21.1 | 22.0 | 23.0 | 23.9 | 25.4 | 26.8 | 28.3 | 29.7 |
| | R | 78.6 | 82.9 | 87.3 | 91.6 | 96.0 | 100 | 105 | 109 | 116 | 122 | 129 | 135 |
| TJSC 630 | E | 34.4 | 36.3 | 38.2 | 40.2 | 42.2 | 44.1 | 46.1 | 48.1 | 51.0 | 53.9 | 56.7 | 59.6 |
| | R | 124 | 131 | 138 | 145 | 152 | 160 | 167 | 174 | 184 | 195 | 205 | 216 |
| TJSC 800 | E | 70.8 | 74.8 | 78.7 | 82.6 | 86.5 | 90.5 | 94.4 | 98.3 | 104 | 110 | 116 | 121 |
| | R | 202 | 213 | 224 | 235 | 246 | 258 | 269 | 280 | 297 | 313 | 330 | 346 |
| TJSC 1000 | E | 138 | 145 | 153 | 161 | 169 | 176 | 184 | 192 | 203 | 215 | 226 | 238 |
| | R | 314 | 332 | 349 | 367 | 384 | 402 | 419 | 437 | 463 | 489 | 516 | 542 |
| TJSC 1150 | E | 210 | 221 | 233 | 245 | 257 | 268 | 280 | 292 | 309 | 327 | 344 | 362 |
| | R | 416 | 439 | 462 | 485 | 508 | 532 | 555 | 578 | 652 | 727 | 801 | 876 |
| TJSC 1250 | E | 269 | 284 | 299 | 314 | 329 | 344 | 359 | 374 | 397 | 419 | 442 | 464 |
| | R | 491 | 518 | 545 | 572 | 600 | 627 | 655 | 682 | 723 | 764 | 805 | 846 |
| TJSC 1450 | E | 420 | 444 | 467 | 490 | 514 | 537 | 561 | 584 | 620 | 656 | 692 | 728 |
| | R | 661 | 697 | 734 | 771 | 808 | 844 | 881 | 918 | 974 | 1031 | 1087 | 1144 |
| TJSC 1600 | E | 565 | 597 | 628 | 660 | 692 | 723 | 755 | 787 | 834 | 880 | 927 | 973 |
| | R | 805 | 849 | 894 | 939 | 984 | 1030 | 1075 | 1120 | 1186 | 1252 | 1318 | 1384 |
| TJSC 1700 | E | 679 | 716 | 754 | 793 | 832 | 870 | 909 | 948 | 1002 | 1057 | 1111 | 1166 |
| | R | 909 | 960 | 1010 | 1062 | 1114 | 1166 | 1218 | 1270 | 1344 | 1418 | 1492 | 1566 |
| TJSC 2000 | E | 1098 | 1159 | 1220 | 1284 | 1348 | 1412 | 1476 | 1540 | 1630 | 1720 | 1810 | 1900 |
| | R | 1251 | 1321 | 1390 | 1462 | 1534 | 1606 | 1678 | 1750 | 1854 | 1958 | 2062 | 2166 |
| TJSC 2250 | E | 1854 | 1957 | 2060 | 2132 | 2204 | 2276 | 2348 | 2420 | 2566 | 2712 | 2858 | 3004 |
| | R | 1881 | 1986 | 2090 | 2162 | 2234 | 2306 | 2378 | 2450 | 2598 | 2746 | 2894 | 3042 |
| TJSC 2500 | E | 2538 | 2679 | 2820 | 2922 | 3024 | 3126 | 3228 | 3330 | 3526 | 3722 | 3918 | 4114 |
| | R | 2313 | 2442 | 2570 | 2662 | 2754 | 2846 | 2938 | 3030 | 3210 | 3390 | 3570 | 3750 |
| TJSC 3000 | E | 4401 | 4646 | 4890 | 5062 | 5234 | 5406 | 5578 | 5750 | 6094 | 6438 | 6782 | 7126 |
| | R | 3339 | 3525 | 3710 | 3842 | 3974 | 4106 | 4238 | 4370 | 4630 | 4890 | 5150 | 5410 |

Other sizes and intermediate performances are available on request. Please ask TekMarine for details.

TJSC Performance (metric units)

| Model | | E = kNm, R=kN | | | | | | | | | | | | |
|-----------|---|---------------|---|------|------|------|------|------|------|------|------|------|------|------|
| | | T20 | T21 | T22 | T23 | T24 | T25 | T26 | T27 | T28 | T29 | T30 | T31 | T32 |
| TJSC 400 | E | 15.9 | 16.4 | 16.9 | 17.4 | 17.9 | 18.4 | 18.9 | 19.3 | 19.8 | 20.2 | 20.7 | 21.7 | 22.8 |
| | R | 90.8 | 93.6 | 96.5 | 99.3 | 102 | 105 | 108 | 110 | 113 | 115 | 118 | 124 | 130 |
| TJSC 500 | E | 31.2 | 32.2 | 33.1 | 34.1 | 35.0 | 36.0 | 36.9 | 37.8 | 38.6 | 39.5 | 40.4 | 42.4 | 44.4 |
| | R | 142 | 146 | 151 | 155 | 160 | 164 | 168 | 172 | 176 | 180 | 184 | 193 | 202 |
| TJSC 630 | E | 62.5 | 64.4 | 66.3 | 68.1 | 70.0 | 71.9 | 73.7 | 75.5 | 77.2 | 79.0 | 80.8 | 84.8 | 88.9 |
| | R | 226 | 233 | 240 | 246 | 253 | 260 | 266 | 273 | 279 | 286 | 292 | 307 | 321 |
| TJSC 800 | E | 127 | 131 | 135 | 139 | 143 | 147 | 151 | 155 | 158 | 162 | 166 | 174 | 183 |
| | R | 363 | 374 | 385 | 397 | 408 | 419 | 430 | 440 | 451 | 461 | 472 | 496 | 519 |
| TJSC 1000 | E | 249 | 257 | 265 | 272 | 280 | 288 | 295 | 302 | 310 | 317 | 324 | 340 | 356 |
| | R | 568 | 585 | 603 | 620 | 638 | 655 | 672 | 688 | 705 | 721 | 738 | 775 | 812 |
| TJSC 1150 | E | 379 | 391 | 402 | 414 | 425 | 437 | 448 | 459 | 471 | 482 | 493 | 518 | 542 |
| | R | 950 | 933 | 916 | 900 | 883 | 866 | 888 | 910 | 932 | 954 | 976 | 1025 | 1074 |
| TJSC 1250 | E | 487 | 502 | 516 | 531 | 545 | 560 | 575 | 591 | 606 | 622 | 637 | 669 | 701 |
| | R | 887 | 914 | 940 | 967 | 993 | 1020 | 1048 | 1076 | 1104 | 1132 | 1160 | 1218 | 1276 |
| TJSC 1450 | E | 764 | 786 | 807 | 829 | 850 | 872 | 895 | 918 | 941 | 964 | 987 | 1036 | 1086 |
| | R | 1200 | 1234 | 1268 | 1302 | 1336 | 1370 | 1406 | 1442 | 1478 | 1514 | 1550 | 1628 | 1705 |
| TJSC 1600 | E | 1020 | 1052 | 1084 | 1116 | 1148 | 1180 | 1210 | 1240 | 1270 | 1300 | 1330 | 1397 | 1463 |
| | R | 1450 | 1496 | 1542 | 1588 | 1634 | 1680 | 1722 | 1764 | 1806 | 1848 | 1890 | 1985 | 2079 |
| TJSC 1700 | E | 1220 | 1258 | 1296 | 1334 | 1372 | 1410 | 1446 | 1482 | 1518 | 1554 | 1590 | 1670 | 1749 |
| | R | 1640 | 1690 | 1740 | 1790 | 1840 | 1890 | 1938 | 1986 | 2034 | 2082 | 2130 | 2237 | 2343 |
| TJSC 2000 | E | 1990 | 2052 | 2114 | 2176 | 2238 | 2300 | 2358 | 2416 | 2474 | 2532 | 2590 | 2720 | 2849 |
| | R | 2270 | 2340 | 2410 | 2480 | 2550 | 2620 | 2686 | 2752 | 2818 | 2884 | 2950 | 3098 | 3245 |
| TJSC 2250 | E | 3150 | 3246 | 3342 | 3438 | 3534 | 3630 | 3724 | 3818 | 3912 | 4006 | 4100 | | |
| | R | 3190 | 3288 | 3386 | 3484 | 3582 | 3680 | 3774 | 3868 | 3962 | 4056 | 4150 | | |
| TJSC 2500 | E | 4310 | 4444 | 4578 | 4712 | 4846 | 4980 | 5108 | 5236 | 5364 | 5492 | 5620 | | |
| | R | 3930 | 4052 | 4174 | 4296 | 4418 | 4540 | 4656 | 4772 | 4888 | 5004 | 5120 | | |
| TJSC 3000 | E | 7470 | Please speak to TekMarine about harder grades in these sizes. | | | | | | | | | | | |
| | R | 5670 | | | | | | | | | | | | |

Other sizes and intermediate performances are available on request. Please ask TekMarine for details.

TJSC Performance (US units)

| Model | | E = ft.kip, R=kips | | | | | | | | | | | |
|-----------|---|--------------------|------|------|------|------|------|------|------|------|------|------|------|
| | | T08 | T09 | T10 | T11 | T12 | T13 | T14 | T15 | T16 | T17 | T18 | T19 |
| TJSC 400 | E | 6.5 | 6.9 | 7.2 | 7.6 | 8.0 | 8.3 | 8.7 | 9.1 | 9.6 | 10.1 | 10.7 | 11.2 |
| | R | 11.3 | 11.9 | 12.6 | 13.2 | 13.8 | 14.4 | 15.1 | 15.7 | 16.6 | 17.6 | 18.5 | 19.5 |
| TJSC 500 | E | 12.7 | 13.5 | 14.2 | 14.9 | 15.5 | 16.2 | 16.9 | 17.6 | 18.7 | 19.8 | 20.9 | 21.9 |
| | R | 17.7 | 18.6 | 19.6 | 20.6 | 21.6 | 22.6 | 23.5 | 24.5 | 26.0 | 27.5 | 29.0 | 30.4 |
| TJSC 630 | E | 25.4 | 26.8 | 28.2 | 29.6 | 31.1 | 32.6 | 34.0 | 35.5 | 37.6 | 39.7 | 41.8 | 44.0 |
| | R | 27.9 | 29.5 | 31.0 | 32.6 | 34.3 | 35.9 | 37.5 | 39.1 | 41.5 | 43.8 | 46.1 | 48.5 |
| TJSC 800 | E | 52.2 | 55.1 | 58.0 | 60.9 | 63.8 | 66.7 | 69.6 | 72.5 | 76.7 | 81.0 | 85.2 | 89.4 |
| | R | 45.3 | 47.8 | 50.4 | 52.9 | 55.4 | 57.9 | 60.4 | 62.9 | 66.7 | 70.4 | 74.1 | 77.9 |
| TJSC 1000 | E | 102 | 107 | 113 | 119 | 124 | 130 | 136 | 142 | 150 | 158 | 167 | 175 |
| | R | 70.6 | 74.5 | 78.5 | 82.4 | 86.4 | 90.3 | 94.3 | 98.2 | 104 | 110 | 116 | 122 |
| TJSC 1150 | E | 155 | 163 | 172 | 181 | 189 | 198 | 207 | 215 | 228 | 241 | 254 | 267 |
| | R | 93.5 | 98.7 | 104 | 109 | 114 | 120 | 125 | 130 | 147 | 163 | 180 | 197 |
| TJSC 1250 | E | 198 | 210 | 221 | 232 | 243 | 254 | 265 | 276 | 293 | 309 | 326 | 343 |
| | R | 110 | 116 | 123 | 129 | 135 | 141 | 147 | 153 | 163 | 172 | 181 | 190 |
| TJSC 1450 | E | 310 | 327 | 344 | 362 | 379 | 396 | 413 | 431 | 457 | 484 | 510 | 537 |
| | R | 149 | 157 | 165 | 173 | 182 | 190 | 198 | 206 | 219 | 232 | 244 | 257 |
| TJSC 1600 | E | 417 | 440 | 463 | 487 | 510 | 534 | 557 | 580 | 615 | 649 | 684 | 718 |
| | R | 181 | 191 | 201 | 211 | 221 | 231 | 242 | 252 | 267 | 281 | 296 | 311 |
| TJSC 1700 | E | 501 | 528 | 556 | 585 | 613 | 642 | 671 | 699 | 739 | 779 | 820 | 860 |
| | R | 204 | 216 | 227 | 239 | 250 | 262 | 274 | 286 | 302 | 319 | 335 | 352 |
| TJSC 2000 | E | 810 | 855 | 900 | 947 | 994 | 1041 | 1089 | 1136 | 1202 | 1269 | 1335 | 1401 |
| | R | 281 | 297 | 312 | 329 | 345 | 361 | 377 | 393 | 417 | 440 | 464 | 487 |
| TJSC 2250 | E | 1367 | 1443 | 1519 | 1572 | 1626 | 1679 | 1732 | 1785 | 1893 | 2000 | 2108 | 2216 |
| | R | 423 | 446 | 470 | 486 | 502 | 518 | 535 | 551 | 584 | 617 | 651 | 684 |
| TJSC 2500 | E | 1872 | 1976 | 2080 | 2155 | 2230 | 2306 | 2381 | 2456 | 2601 | 2745 | 2890 | 3034 |
| | R | 520 | 549 | 578 | 598 | 619 | 640 | 660 | 681 | 722 | 762 | 803 | 843 |
| TJSC 3000 | E | 3246 | 3426 | 3607 | 3734 | 3860 | 3987 | 4114 | 4241 | 4495 | 4748 | 5002 | 5256 |
| | R | 751 | 792 | 834 | 864 | 893 | 923 | 953 | 982 | 1041 | 1099 | 1158 | 1216 |

Other sizes and intermediate performances are available on request. Please ask TekMarine for details.

TJSC Performance (US units)

| Model | | E = ft.kip, R=kips | | | | | | | | | | | | |
|-----------|---|--------------------|---|------|------|------|------|------|------|------|------|------|------|------|
| | | T20 | T21 | T22 | T23 | T24 | T25 | T26 | T27 | T28 | T29 | T30 | T31 | T32 |
| TJSC 400 | E | 11.7 | 12.1 | 12.5 | 12.8 | 13.2 | 13.6 | 13.9 | 14.2 | 14.6 | 14.9 | 15.3 | 16.0 | 16.8 |
| | R | 20.4 | 21.1 | 21.7 | 22.3 | 23.0 | 23.6 | 24.2 | 24.8 | 25.4 | 25.9 | 26.5 | 27.9 | 29.2 |
| TJSC 500 | E | 23.0 | 23.7 | 24.4 | 25.1 | 25.8 | 26.6 | 27.2 | 27.9 | 28.5 | 29.1 | 29.8 | 31.3 | 32.8 |
| | R | 31.9 | 32.9 | 33.9 | 34.9 | 35.9 | 36.9 | 37.8 | 38.7 | 39.6 | 40.5 | 41.4 | 43.4 | 45.5 |
| TJSC 630 | E | 46.1 | 47.5 | 48.9 | 50.3 | 51.6 | 53.0 | 54.3 | 55.7 | 57.0 | 58.3 | 59.6 | 62.6 | 65.6 |
| | R | 50.8 | 52.3 | 53.9 | 55.4 | 56.9 | 58.5 | 59.9 | 61.3 | 62.8 | 64.2 | 65.6 | 68.9 | 72.2 |
| TJSC 800 | E | 93.7 | 96.6 | 100 | 103 | 105 | 108 | 111 | 114 | 117 | 120 | 122 | 129 | 135 |
| | R | 81.6 | 84.1 | 86.6 | 89.2 | 91.7 | 94.2 | 96.6 | 99.0 | 101 | 104 | 106 | 111 | 117 |
| TJSC 1000 | E | 184 | 189 | 195 | 201 | 207 | 212 | 218 | 223 | 228 | 234 | 239 | 251 | 263 |
| | R | 128 | 132 | 136 | 139 | 143 | 147 | 151 | 155 | 158 | 162 | 166 | 174 | 182 |
| TJSC 1150 | E | 280 | 288 | 297 | 305 | 314 | 322 | 331 | 339 | 347 | 355 | 364 | 382 | 400 |
| | R | 214 | 210 | 206 | 202 | 198 | 195 | 200 | 205 | 210 | 214 | 219 | 230 | 241 |
| TJSC 1250 | E | 359 | 370 | 381 | 391 | 402 | 413 | 424 | 436 | 447 | 458 | 470 | 493 | 517 |
| | R | 199 | 205 | 211 | 217 | 223 | 229 | 236 | 242 | 248 | 254 | 261 | 274 | 287 |
| TJSC 1450 | E | 563 | 579 | 595 | 611 | 627 | 643 | 660 | 677 | 694 | 711 | 728 | 764 | 801 |
| | R | 270 | 277 | 285 | 293 | 300 | 308 | 316 | 324 | 332 | 340 | 348 | 366 | 383 |
| TJSC 1600 | E | 752 | 776 | 800 | 823 | 847 | 870 | 892 | 915 | 937 | 959 | 981 | 1030 | 1079 |
| | R | 326 | 336 | 347 | 357 | 367 | 378 | 387 | 397 | 406 | 415 | 425 | 446 | 467 |
| TJSC 1700 | E | 900 | 928 | 956 | 984 | 1012 | 1040 | 1067 | 1093 | 1120 | 1146 | 1173 | 1231 | 1290 |
| | R | 369 | 380 | 391 | 402 | 414 | 425 | 436 | 446 | 457 | 468 | 479 | 503 | 527 |
| TJSC 2000 | E | 1468 | 1513 | 1559 | 1605 | 1651 | 1696 | 1739 | 1782 | 1825 | 1868 | 1910 | 2006 | 2101 |
| | R | 510 | 526 | 542 | 558 | 573 | 589 | 604 | 619 | 634 | 648 | 663 | 696 | 730 |
| TJSC 2250 | E | 2323 | 2394 | 2465 | 2536 | 2607 | 2677 | 2747 | 2816 | 2885 | 2955 | 3024 | | |
| | R | 717 | 739 | 761 | 783 | 805 | 827 | 848 | 870 | 891 | 912 | 933 | | |
| TJSC 2500 | E | 3179 | 3278 | 3377 | 3475 | 3574 | 3673 | 3767 | 3862 | 3956 | 4051 | 4145 | | |
| | R | 883 | 911 | 938 | 966 | 993 | 1021 | 1047 | 1073 | 1099 | 1125 | 1151 | | |
| TJSC 3000 | E | 5510 | Please speak to TekMarine about harder grades in these sizes. | | | | | | | | | | | |
| | R | 1275 | | | | | | | | | | | | |

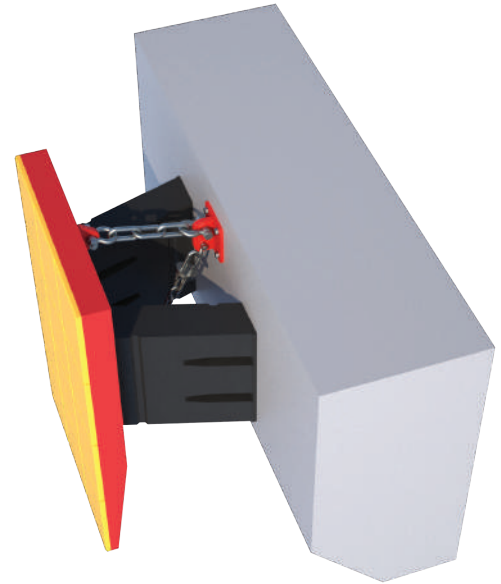
Other sizes and intermediate performances are available on request. Please ask TekMarine for details.



TJUE Element Fender

TJUE Element Fenders are molded buckling column legs with embedded mounting plates. Ideal for restricted spaces, they are easy to install and need little maintenance.

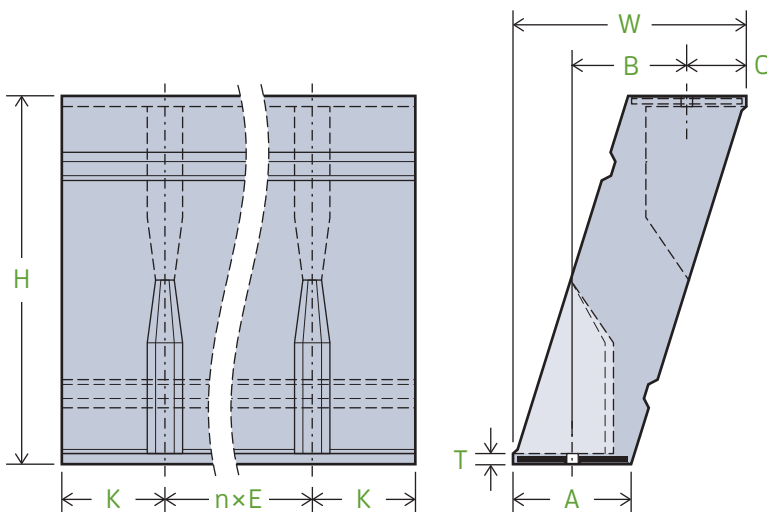
TJUE systems combine one or more pairs of elements mounted horizontally and/or vertically behind a UHMW-PE facing or a steel panel. TJUE Elements can be used in many more configurations than traditional V-fenders, or even within specialist engineered fender systems.



Dimensions

| Model | Height | | W | | A | | B | | C | | T | | E | | K | | Bolt | Weight | |
|-----------|--------|------|-----|------|-----|------|-----|------|-----|------|----|------|-----|------|-----|------|------|--------|------|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | | mm | kg |
| TJUE 300 | 300 | 11.8 | 188 | 7.40 | 94 | 3.70 | 94 | 3.70 | 47 | 1.85 | 15 | 0.59 | 300 | 11.8 | 200 | 7.87 | M20 | 39 | 86 |
| TJUE 400 | 400 | 15.7 | 250 | 9.84 | 125 | 4.92 | 124 | 4.88 | 63 | 2.48 | 17 | 0.67 | 500 | 19.7 | 250 | 9.84 | M24 | 70 | 155 |
| TJUE 500 | 500 | 19.7 | 316 | 12.4 | 158 | 6.22 | 142 | 5.59 | 87 | 3.43 | 20 | 0.79 | 500 | 19.7 | 250 | 9.84 | M30 | 110 | 243 |
| TJUE 550 | 550 | 21.7 | 344 | 13.5 | 172 | 6.77 | 170 | 6.69 | 87 | 3.43 | 20 | 0.79 | 500 | 19.7 | 250 | 9.84 | M30 | 132 | 291 |
| TJUE 600 | 600 | 23.6 | 373 | 14.7 | 188 | 7.40 | 199 | 7.83 | 87 | 3.43 | 20 | 0.79 | 500 | 19.7 | 250 | 9.84 | M30 | 156 | 344 |
| TJUE 750 | 750 | 29.5 | 466 | 18.3 | 235 | 9.25 | 230 | 9.06 | 118 | 4.65 | 26 | 1.02 | 500 | 19.7 | 250 | 9.84 | M36 | 230 | 507 |
| TJUE 800 | 800 | 31.5 | 498 | 19.6 | 250 | 9.84 | 240 | 9.45 | 129 | 5.08 | 26 | 1.02 | 500 | 19.7 | 250 | 9.84 | M36 | 283 | 624 |
| TJUE 1000 | 1000 | 39.4 | 634 | 25.0 | 322 | 12.7 | 310 | 12.2 | 162 | 6.38 | 31 | 1.22 | 500 | 19.7 | 250 | 9.84 | M42 | 430 | 948 |
| TJUE 1250 | 1250 | 49.2 | 792 | 31.2 | 401 | 15.8 | 388 | 15.3 | 202 | 7.95 | 36 | 1.42 | 500 | 19.7 | 250 | 9.84 | M48 | 655 | 1444 |
| TJUE 1450 | 1450 | 57.1 | 910 | 35.8 | 454 | 17.9 | 445 | 17.5 | 228 | 8.98 | 41 | 1.61 | 500 | 19.7 | 250 | 9.84 | M48 | 835 | 1841 |
| TJUE 1600 | 1600 | 63.0 | 994 | 39.1 | 500 | 19.7 | 480 | 18.9 | 257 | 10.1 | 50 | 1.97 | 500 | 19.7 | 250 | 9.84 | M56 | 1005 | 2216 |

Values are for single units, L=1m. Other sizes and fender lengths are available on request. Please ask TekMarine for details.

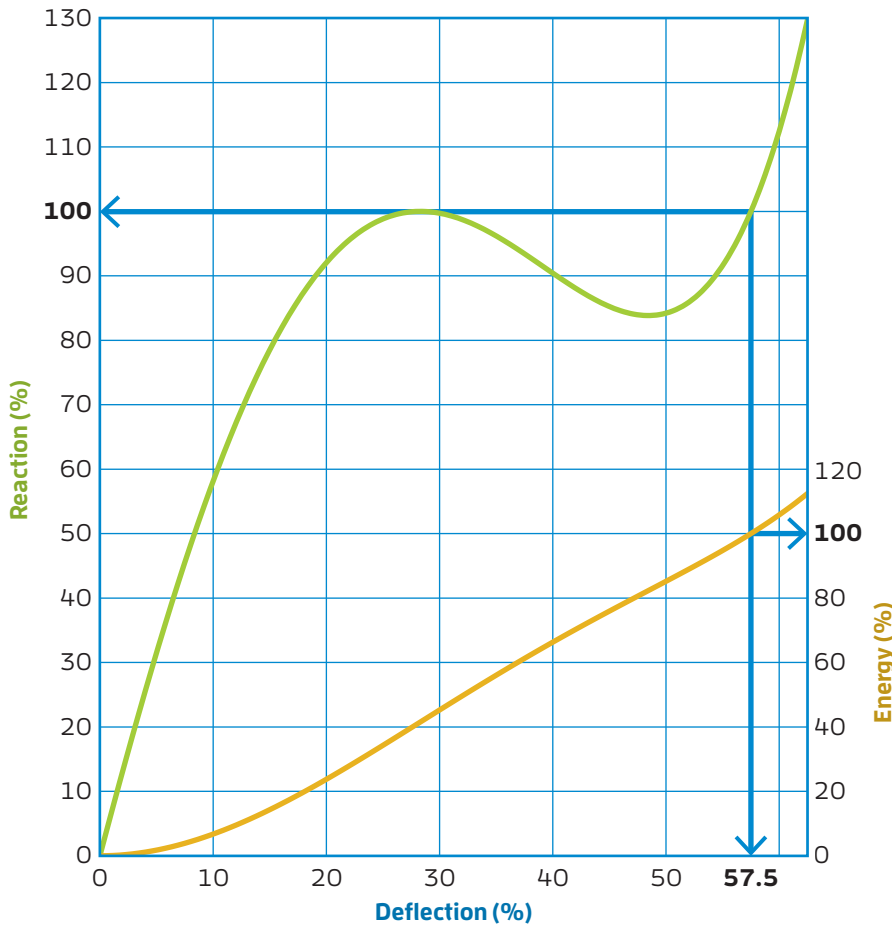


Available sizes

| Model | n standard length / n available on request | | | | |
|-----------|--|--------|--------|--------|--------|
| | L=900 | L=1000 | L=1200 | L=1500 | L=2000 |
| TJUE 300 | 3 | - | 4 | 5 | - |
| TJUE 400 | 3 | - | 4 | 3 | 4 |
| TJUE 500 | 3 | 2 | - | 3 | 4 |
| TJUE 550 | 3 | 2 | - | 3 | 4 |
| TJUE 600 | 3 | 2 | - | 3 | 4 |
| TJUE 750 | 3 | 2 | - | 3 | 4 |
| TJUE 800 | 3 | 2 | - | 3 | 4 |
| TJUE 1000 | 3 | 2 | - | 3 | 4 |
| TJUE 1250 | 3 | 2 | - | 3 | 4 |
| TJUE 1450 | - | 2 | - | 3 | 4 |
| TJUE 1600 | - | 2 | - | 3 | 4 |

Please ask TekMarine about other lengths.

TJUE Performance

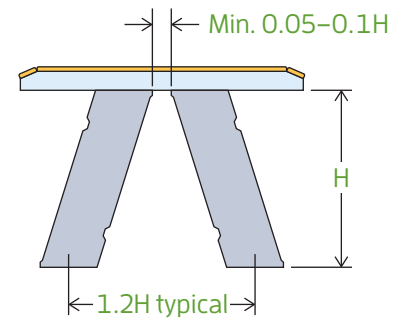


Element spacing

Always ensure there is a gap between the elements, on the panel side, of at least 5% to 10% of the element fender height.

The angular factors given are based on a typical separation of 1.2 times the fender height (see diagram). For other spacings consult TekMarine.

For more details on fender spacing within systems, please see 'Design Considerations' on p59.



Intermediate values

| Deflection (%) | Reaction (%) | Energy (%) |
|----------------|--------------|------------|
| 5 | 31 | 2 |
| 10 | 58 | 7 |
| 15 | 79 | 14 |
| 20 | 92 | 24 |
| 25 | 99 | 34 |
| 30 | 100 | 45 |
| 35 | 96 | 56 |
| 40 | 90 | 66 |
| 45 | 85 | 76 |
| 50 | 84 | 85 |
| 55 | 92 | 95 |
| 57.5 | 100 | 100 |
| 60 | 112 | 106 |
| 62.5 | 130 | 112 |

Angle factor

| Angle (°) | γ_A | |
|-----------|-------------|-------------|
| | Energy | Reaction |
| 0 | 1.00 | 1.00 |
| 3 | 0.99 | 1.00 |
| 5 | 0.99 | 1.00 |
| 8 | 0.96 | 1.00 |
| 10 | 0.93 | 1.00 |
| 15 | 0.81 | 1.00 |
| 20 | 0.71 | 1.00 |

Velocity factors

| Time (s) | γ_V |
|----------|------------|
| 1 | 1.24 |
| 2 | 1.10 |
| 3 | 1.06 |
| 4 | 1.04 |
| 5 | 1.02 |
| 6 | 1.01 |
| 7 | 1.01 |
| 8 | 1.00 |
| 9 | 1.00 |
| ≥10 | 1.00 |

Temperature factor

| Temperature | | γ_T |
|-------------|-----------|-------------|
| (°C) | (°F) | |
| 50 | 122 | 0.90 |
| 40 | 104 | 0.94 |
| 30 | 86 | 0.98 |
| 23 | 73 | 1.00 |
| 10 | 50 | 1.06 |
| 0 | 32 | 1.10 |
| -10 | 14 | 1.14 |
| -20 | -4 | 1.19 |
| -30 | -22 | 1.24 |

Values are for single units, L=1m. Standard tolerance ±10%. Please ask TekMarine if $t < 4$ seconds or for any other performance data.

TJUE Performance (metric units)

| Model | | E = kNm, R=kN | | | | | | | | | | | | |
|-----------|---|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | T07 | T08 | T09 | T10 | T11 | T12 | T13 | T14 | T15 | T16 | T17 | T18 | T19 |
| TJUE 300 | E | 12.5 | 12.8 | 13.1 | 13.5 | 13.8 | 14.1 | 14.5 | 14.8 | 15.1 | 15.5 | 15.9 | 16.4 | 16.9 |
| | R | 90.6 | 93.0 | 95.4 | 97.8 | 100 | 103 | 105 | 107 | 110 | 112 | 116 | 119 | 123 |
| TJUE 400 | E | 22.2 | 22.8 | 23.4 | 23.9 | 24.5 | 25.1 | 25.7 | 26.3 | 26.9 | 27.5 | 28.3 | 29.2 | 30.0 |
| | R | 121 | 124 | 127 | 130 | 134 | 137 | 140 | 143 | 146 | 150 | 154 | 159 | 163 |
| TJUE 500 | E | 34.7 | 35.6 | 36.5 | 37.4 | 38.3 | 39.3 | 40.2 | 41.1 | 42.0 | 42.9 | 44.2 | 45.6 | 46.9 |
| | R | 151 | 155 | 159 | 163 | 167 | 171 | 175 | 179 | 183 | 187 | 193 | 199 | 204 |
| TJUE 550 | E | 41.9 | 43.0 | 44.2 | 45.3 | 46.4 | 47.5 | 48.6 | 49.7 | 50.8 | 51.9 | 53.5 | 55.1 | 56.7 |
| | R | 166 | 170 | 175 | 179 | 184 | 188 | 193 | 197 | 201 | 206 | 212 | 218 | 225 |
| TJUE 600 | E | 49.9 | 51.2 | 52.5 | 53.9 | 55.2 | 56.5 | 57.8 | 59.2 | 60.5 | 61.8 | 63.7 | 65.6 | 67.5 |
| | R | 181 | 186 | 191 | 196 | 200 | 205 | 210 | 215 | 220 | 224 | 231 | 238 | 245 |
| TJUE 750 | E | 78.0 | 80.0 | 82.1 | 84.2 | 86.2 | 88.3 | 90.4 | 92.5 | 94.5 | 96.6 | 99.5 | 103 | 105 |
| | R | 226 | 232 | 238 | 244 | 250 | 257 | 263 | 269 | 275 | 281 | 289 | 298 | 306 |
| TJUE 800 | E | 88.7 | 91.1 | 93.4 | 95.8 | 98.1 | 100 | 103 | 105 | 108 | 110 | 113 | 117 | 120 |
| | R | 242 | 248 | 254 | 261 | 267 | 274 | 280 | 286 | 293 | 299 | 308 | 318 | 327 |
| TJUE 1000 | E | 139 | 142 | 146 | 150 | 153 | 157 | 161 | 164 | 168 | 172 | 177 | 182 | 187 |
| | R | 302 | 310 | 318 | 326 | 334 | 342 | 350 | 358 | 366 | 374 | 386 | 397 | 408 |
| TJUE 1250 | E | 217 | 222 | 228 | 234 | 240 | 245 | 251 | 257 | 263 | 268 | 277 | 285 | 293 |
| | R | 377 | 387 | 397 | 407 | 417 | 428 | 438 | 448 | 458 | 468 | 482 | 496 | 511 |
| TJUE 1450 | E | 291 | 299 | 307 | 315 | 322 | 330 | 338 | 346 | 353 | 361 | 372 | 383 | 394 |
| | R | 438 | 449 | 461 | 473 | 484 | 496 | 508 | 519 | 531 | 542 | 559 | 576 | 592 |
| TJUE 1600 | E | 355 | 364 | 374 | 383 | 393 | 402 | 411 | 421 | 430 | 440 | 453 | 467 | 480 |
| | R | 483 | 496 | 509 | 522 | 534 | 547 | 560 | 573 | 586 | 599 | 617 | 635 | 653 |

Values are for single units, L= 1m (3.28ft) . Other sizes and intermediate performances are available on request. Please ask TekMarine for details.

TJUE Performance (metric units)

| Model | | E = kNm, R=kN | | | | | | | | | | | | |
|-----------|---|---------------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | T20 | T21 | T22 | T23 | T24 | T25 | T26 | T27 | T28 | T29 | T30 | T31 | T32 |
| TJUE 300 | E | 17.3 | 17.8 | 18.3 | 18.8 | 19.2 | 19.7 | 20.2 | 20.7 | 21.1 | 21.6 | 22.1 | 22.6 | 23.0 |
| | R | 126 | 129 | 133 | 136 | 140 | 143 | 147 | 150 | 153 | 157 | 160 | 164 | 167 |
| TJUE 400 | E | 30.8 | 31.7 | 32.5 | 33.4 | 34.2 | 35.0 | 35.9 | 36.7 | 37.6 | 38.4 | 39.3 | 40.1 | 40.9 |
| | R | 168 | 173 | 177 | 182 | 186 | 191 | 195 | 200 | 205 | 209 | 214 | 218 | 223 |
| TJUE 500 | E | 48.2 | 49.5 | 50.8 | 52.1 | 53.4 | 54.8 | 56.1 | 57.4 | 58.7 | 60.0 | 61.3 | 62.6 | 64.0 |
| | R | 210 | 216 | 221 | 227 | 233 | 239 | 244 | 250 | 256 | 261 | 267 | 273 | 279 |
| TJUE 550 | E | 58.3 | 59.9 | 61.5 | 63.1 | 64.7 | 66.3 | 67.8 | 69.4 | 71.0 | 72.6 | 74.2 | 75.8 | 77.4 |
| | R | 231 | 237 | 244 | 250 | 256 | 262 | 269 | 275 | 281 | 288 | 294 | 300 | 307 |
| TJUE 600 | E | 69.4 | 71.3 | 73.2 | 75.1 | 77.0 | 78.9 | 80.7 | 82.6 | 84.5 | 86.4 | 88.3 | 90.2 | 92.1 |
| | R | 252 | 259 | 266 | 273 | 279 | 286 | 293 | 300 | 307 | 314 | 321 | 327 | 334 |
| TJUE 750 | E | 108 | 111 | 114 | 117 | 120 | 123 | 126 | 129 | 132 | 135 | 138 | 141 | 144 |
| | R | 315 | 323 | 332 | 341 | 349 | 358 | 366 | 375 | 384 | 392 | 401 | 409 | 418 |
| TJUE 800 | E | 123 | 127 | 130 | 133 | 137 | 140 | 144 | 147 | 150 | 154 | 157 | 160 | 164 |
| | R | 336 | 345 | 354 | 363 | 373 | 382 | 391 | 400 | 409 | 418 | 428 | 437 | 446 |
| TJUE 1000 | E | 193 | 198 | 203 | 209 | 214 | 219 | 224 | 230 | 235 | 240 | 245 | 251 | 256 |
| | R | 420 | 431 | 443 | 454 | 466 | 477 | 489 | 500 | 511 | 523 | 534 | 546 | 557 |
| TJUE 1250 | E | 301 | 309 | 318 | 326 | 334 | 342 | 350 | 359 | 367 | 375 | 383 | 392 | 400 |
| | R | 525 | 539 | 553 | 568 | 582 | 596 | 611 | 625 | 639 | 654 | 668 | 682 | 697 |
| TJUE 1450 | E | 405 | 416 | 427 | 438 | 449 | 461 | 472 | 483 | 494 | 505 | 516 | 527 | 538 |
| | R | 609 | 625 | 642 | 659 | 675 | 692 | 708 | 725 | 742 | 758 | 775 | 791 | 808 |
| TJUE 1600 | E | 493 | 507 | 520 | 534 | 547 | 561 | 574 | 588 | 601 | 615 | 628 | 641 | 655 |
| | R | 672 | 690 | 708 | 727 | 745 | 763 | 782 | 800 | 818 | 837 | 855 | 873 | 892 |

Values are for single units, L= 1m (3.28ft) . Other sizes and intermediate performances are available on request. Please ask TekMarine for details.

TJUE Performance (US units)

| Model | | E = ft.kip, R=kips | | | | | | | | | | | | |
|-----------|---|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | T07 | T08 | T09 | T10 | T11 | T12 | T13 | T14 | T15 | T16 | T17 | T18 | T19 |
| TJUE 300 | E | 9.2 | 9.4 | 9.7 | 9.9 | 10.2 | 10.4 | 10.7 | 10.9 | 11.2 | 11.4 | 11.7 | 12.1 | 12.4 |
| | R | 20.4 | 20.9 | 21.4 | 22.0 | 22.5 | 23.1 | 23.6 | 24.1 | 24.7 | 25.2 | 26.0 | 26.8 | 27.5 |
| TJUE 400 | E | 16.4 | 16.8 | 17.2 | 17.7 | 18.1 | 18.5 | 19.0 | 19.4 | 19.8 | 20.3 | 20.9 | 21.5 | 22.1 |
| | R | 27.1 | 27.9 | 28.6 | 29.3 | 30.0 | 30.8 | 31.5 | 32.2 | 32.9 | 33.6 | 34.7 | 35.7 | 36.7 |
| TJUE 500 | E | 25.6 | 26.2 | 26.9 | 27.6 | 28.3 | 28.9 | 29.6 | 30.3 | 31.0 | 31.7 | 32.6 | 33.6 | 34.6 |
| | R | 33.9 | 34.8 | 35.7 | 36.6 | 37.5 | 38.4 | 39.3 | 40.2 | 41.1 | 42.0 | 43.3 | 44.6 | 45.9 |
| TJUE 550 | E | 30.9 | 31.7 | 32.6 | 33.4 | 34.2 | 35.0 | 35.8 | 36.7 | 37.5 | 38.3 | 39.5 | 40.7 | 41.8 |
| | R | 37.3 | 38.3 | 39.3 | 40.3 | 41.3 | 42.3 | 43.3 | 44.3 | 45.3 | 46.3 | 47.7 | 49.1 | 50.5 |
| TJUE 600 | E | 36.8 | 37.8 | 38.8 | 39.7 | 40.7 | 41.7 | 42.7 | 43.6 | 44.6 | 45.6 | 47.0 | 48.4 | 49.8 |
| | R | 40.7 | 41.8 | 42.9 | 44.0 | 45.0 | 46.1 | 47.2 | 48.3 | 49.4 | 50.5 | 52.0 | 53.5 | 55.1 |
| TJUE 750 | E | 57.5 | 59.0 | 60.6 | 62.1 | 63.6 | 65.1 | 66.7 | 68.2 | 69.7 | 71.2 | 73.4 | 75.6 | 77.8 |
| | R | 50.9 | 52.3 | 53.6 | 55.0 | 56.3 | 57.7 | 59.0 | 60.4 | 61.7 | 63.1 | 65.0 | 66.9 | 68.9 |
| TJUE 800 | E | 65.4 | 67.2 | 68.9 | 70.6 | 72.4 | 74.1 | 75.8 | 77.6 | 79.3 | 81.1 | 83.5 | 86.0 | 88.5 |
| | R | 54.3 | 55.7 | 57.2 | 58.6 | 60.1 | 61.5 | 62.9 | 64.4 | 65.8 | 67.3 | 69.3 | 71.4 | 73.5 |
| TJUE 1000 | E | 102 | 105 | 108 | 110 | 113 | 116 | 119 | 121 | 124 | 127 | 131 | 134 | 138 |
| | R | 67.9 | 69.7 | 71.5 | 73.3 | 75.1 | 76.9 | 78.7 | 80.5 | 82.3 | 84.1 | 86.7 | 89.2 | 91.8 |
| TJUE 1250 | E | 160 | 164 | 168 | 172 | 177 | 181 | 185 | 189 | 194 | 198 | 204 | 210 | 216 |
| | R | 84.8 | 87.1 | 89.3 | 91.6 | 93.9 | 96.1 | 98.4 | 101 | 103 | 105 | 108 | 112 | 115 |
| TJUE 1450 | E | 215 | 221 | 226 | 232 | 238 | 243 | 249 | 255 | 261 | 266 | 274 | 283 | 291 |
| | R | 98.4 | 101 | 104 | 106 | 109 | 111 | 114 | 117 | 119 | 122 | 126 | 129 | 133 |
| TJUE 1600 | E | 262 | 269 | 276 | 283 | 289 | 296 | 303 | 310 | 317 | 324 | 334 | 344 | 354 |
| | R | 109 | 111 | 114 | 117 | 120 | 123 | 126 | 129 | 132 | 135 | 139 | 143 | 147 |

Values are for single units, L= 1m (3.28ft) . Other sizes and intermediate performances are available on request. Please ask TekMarine for details.

TJUE Performance (US units)

| Model | | E = ft.kip, R=kips | | | | | | | | | | | | |
|-----------|---|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | T20 | T21 | T22 | T23 | T24 | T25 | T26 | T27 | T28 | T29 | T30 | T31 | T32 |
| TJUE 300 | E | 12.8 | 13.1 | 13.5 | 13.8 | 14.2 | 14.5 | 14.9 | 15.2 | 15.6 | 15.9 | 16.3 | 16.6 | 17.0 |
| | R | 28.3 | 29.1 | 29.9 | 30.6 | 31.4 | 32.2 | 33.0 | 33.7 | 34.5 | 35.3 | 36.0 | 36.8 | 37.6 |
| TJUE 400 | E | 22.7 | 23.4 | 24.0 | 24.6 | 25.2 | 25.8 | 26.5 | 27.1 | 27.7 | 28.3 | 28.9 | 29.6 | 30.2 |
| | R | 37.8 | 38.8 | 39.8 | 40.8 | 41.9 | 42.9 | 43.9 | 45.0 | 46.0 | 47.0 | 48.1 | 49.1 | 50.1 |
| TJUE 500 | E | 35.5 | 36.5 | 37.5 | 38.4 | 39.4 | 40.4 | 41.4 | 42.3 | 43.3 | 44.3 | 45.2 | 46.2 | 47.2 |
| | R | 47.2 | 48.5 | 49.8 | 51.1 | 52.3 | 53.6 | 54.9 | 56.2 | 57.5 | 58.8 | 60.1 | 61.4 | 62.6 |
| TJUE 550 | E | 43.0 | 44.2 | 45.3 | 46.5 | 47.7 | 48.9 | 50.0 | 51.2 | 52.4 | 53.6 | 54.7 | 55.9 | 57.1 |
| | R | 51.9 | 53.3 | 54.7 | 56.2 | 57.6 | 59.0 | 60.4 | 61.8 | 63.2 | 64.7 | 66.1 | 67.5 | 68.9 |
| TJUE 600 | E | 51.2 | 52.6 | 54.0 | 55.4 | 56.8 | 58.2 | 59.6 | 60.9 | 62.3 | 63.7 | 65.1 | 66.5 | 67.9 |
| | R | 56.6 | 58.2 | 59.7 | 61.3 | 62.8 | 64.4 | 65.9 | 67.4 | 69.0 | 70.5 | 72.1 | 73.6 | 75.2 |
| TJUE 750 | E | 80.0 | 82.1 | 84.3 | 86.5 | 88.7 | 90.9 | 93.1 | 95.2 | 97.4 | 100 | 102 | 104 | 106 |
| | R | 70.8 | 72.7 | 74.7 | 76.6 | 78.5 | 80.4 | 82.4 | 84.3 | 86.2 | 88.2 | 90.1 | 92.0 | 94.0 |
| TJUE 800 | E | 91.0 | 93.5 | 95.9 | 98.4 | 101 | 103 | 106 | 108 | 111 | 113 | 116 | 118 | 121 |
| | R | 75.5 | 77.6 | 79.6 | 81.7 | 83.7 | 85.8 | 87.9 | 89.9 | 92.0 | 94.0 | 96.1 | 98.2 | 100 |
| TJUE 1000 | E | 142 | 146 | 150 | 154 | 158 | 162 | 165 | 169 | 173 | 177 | 181 | 185 | 189 |
| | R | 94.4 | 97.0 | 100 | 102 | 105 | 107 | 110 | 112 | 115 | 118 | 120 | 123 | 125 |
| TJUE 1250 | E | 222 | 228 | 234 | 240 | 246 | 252 | 258 | 265 | 271 | 277 | 283 | 289 | 295 |
| | R | 118 | 121 | 124 | 128 | 131 | 134 | 137 | 141 | 144 | 147 | 150 | 153 | 157 |
| TJUE 1450 | E | 299 | 307 | 315 | 323 | 332 | 340 | 348 | 356 | 364 | 372 | 380 | 389 | 397 |
| | R | 137 | 141 | 144 | 148 | 152 | 156 | 159 | 163 | 167 | 170 | 174 | 178 | 182 |
| TJUE 1600 | E | 364 | 374 | 384 | 394 | 404 | 414 | 423 | 433 | 443 | 453 | 463 | 473 | 483 |
| | R | 151 | 155 | 159 | 163 | 167 | 172 | 176 | 180 | 184 | 188 | 192 | 196 | 200 |

Values are for single units, L= 1m (3.28ft) . Other sizes and intermediate performances are available on request. Please ask TekMarine for details.



Parallel Motion Fenders

The Parallel Motion Fender is a self-contained, fully engineered fender system. Reaction forces can be reduced to around half that of conventional fender systems. Even at high berthing angles and varying impact levels the panel remains vertical, and there is little or no loss of energy absorption.

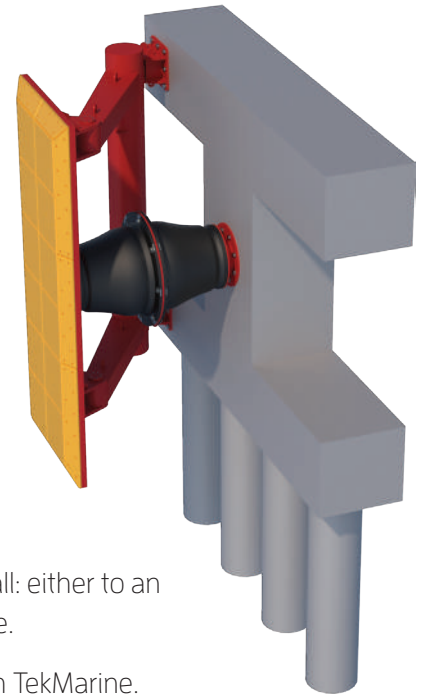
Parallel Motion Fenders are popular choices for belted vessels such as RoRo and ferries, for soft-hulled ships such as tankers and LNG carriers, and for sites with high tidal ranges or load-sensitive berthing structures.

A typical design uses twin TJCO Cone Fenders installed flange-to-flange. This absorbs double the energy of a single cone for the same reaction. Loads on the structure are reduced, which saves build costs and vessel turnaround times.

The fully sealed hinge mechanism, arm and box panel will perform for years with little maintenance, making for low running costs and a very long working life.

Because Parallel Motion Fenders are pre-built in the factory, they are easy to install: either to an anchor system on a concrete structure, or lowered into place around a tubular pile.

Every system is custom designed, so please discuss your exact requirements with TekMarine.



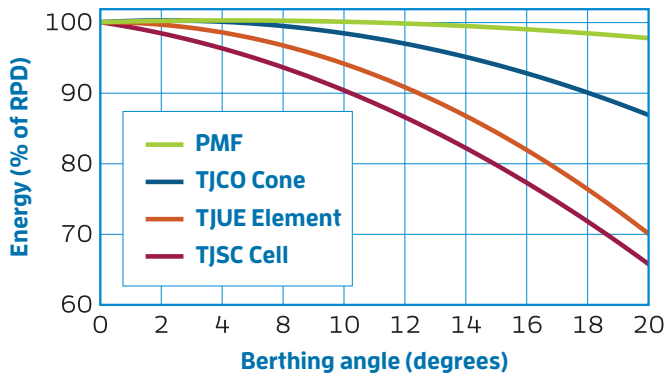
Performance

| Model | Single Cone PMF | | | | Dual Cone PMF | | | |
|------------------|-----------------|-----------|-----------|----------|---------------|-----------|-----------|----------|
| | Energy | | Reaction | | Energy | | Reaction | |
| | kNm | ft.kips | kN | kips | kNm | ft.kips | kN | kips |
| TJCO 300 | 9-18 | 6-13 | 52-110 | 12-25 | 18-36 | 12-26 | 52-110 | 12-25 |
| TJCO 400 | 21-42 | 15-31 | 93-196 | 21-44 | 42-84 | 30-62 | 93-196 | 21-44 |
| TJCO 500 | 41-81 | 30-60 | 145-307 | 33-69 | 82-162 | 60-120 | 145-307 | 33-69 |
| TJCO 600 | 71-140 | 52-103 | 209-441 | 47-99 | 142-280 | 104-206 | 209-441 | 47-99 |
| TJCO 700 | 111-223 | 82-165 | 285-601 | 64-135 | 222-446 | 164-330 | 285-601 | 64-135 |
| TJCO 800 | 166-333 | 122-246 | 372-785 | 84-177 | 332-666 | 244-492 | 372-785 | 84-177 |
| TJCO 900 | 236-474 | 174-350 | 470-993 | 106-223 | 472-948 | 348-700 | 470-993 | 106-223 |
| TJCO 1000 | 324-650 | 239-479 | 581-1226 | 131-276 | 648-1300 | 478-958 | 581-1226 | 131-276 |
| TJCO 1100 | 431-865 | 318-638 | 703-1483 | 158-333 | 862-1730 | 636-1276 | 703-1483 | 158-333 |
| TJCO 1150 | 492-989 | 363-730 | 768-1621 | 173-364 | 984-1978 | 726-1460 | 768-1621 | 173-364 |
| TJCO 1200 | 560-1124 | 413-829 | 836-1765 | 188-397 | 1120-2248 | 826-1658 | 836-1765 | 188-397 |
| TJCO 1300 | 711-1428 | 524-1053 | 982-2072 | 221-466 | 1422-2856 | 1048-2106 | 982-2072 | 221-466 |
| TJCO 1400 | 889-1784 | 656-1316 | 1138-2403 | 256-540 | 1778-3568 | 1312-2632 | 1138-2403 | 256-540 |
| TJCO 1600 | 1327-2663 | 979-1964 | 1486-3139 | 334-706 | 2654-5326 | 1958-3928 | 1486-3139 | 334-706 |
| TJCO 1800 | 1889-3791 | 1393-2796 | 1882-3972 | 423-893 | 3778-7582 | 2786-5592 | 1882-3972 | 423-893 |
| TJCO 2000 | 2591-5200 | 1911-3836 | 2324-4904 | 523-1103 | 5182-10400 | 3822-7672 | 2324-4904 | 523-1103 |

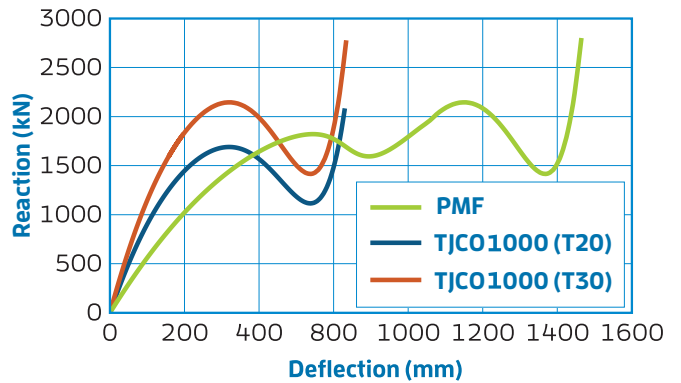
The TJCO Cone values given here are for guidance only. Due to their specialist nature TJUE Element-based systems require calculation on individual basis. Please ask TekMarine for more information.

Performance Comparison

Energy and berthing angle



Reaction and deflection

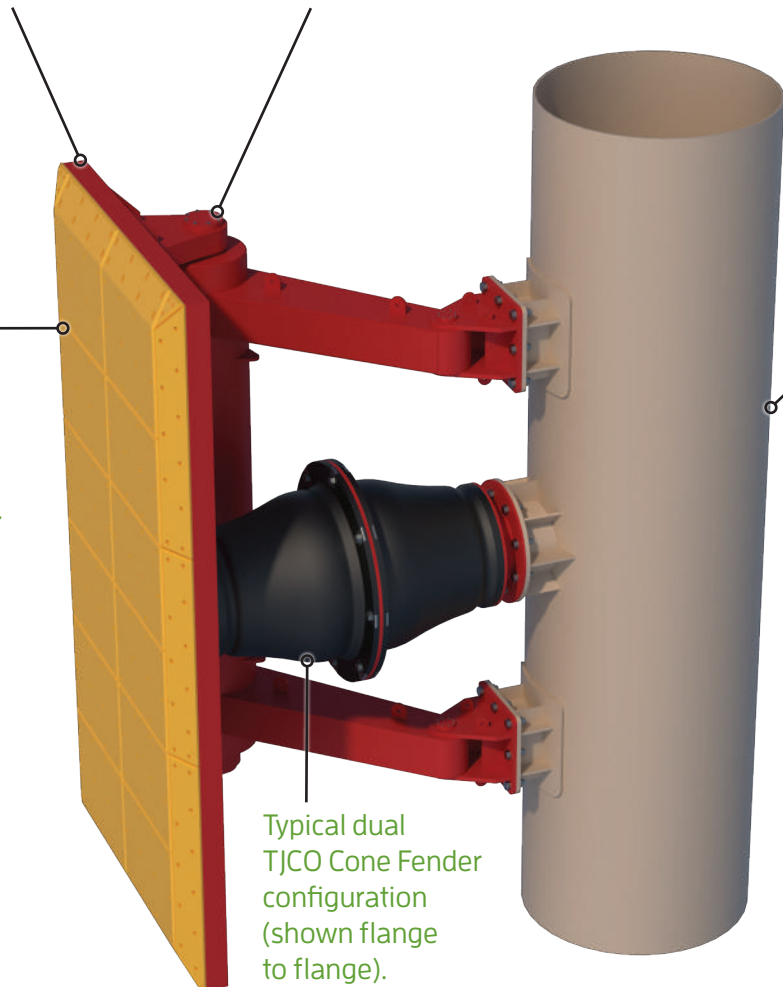


The front panel is fully sealed and pressure tested. Lead-in bevels reduce the risk of snagging hull protrusions.

Stainless steel hinge pins articulate in sealed, high longevity bearings. Free joint movement lowers hinge stresses and allows for a wide range of berthing angles.

Premium quality UHMW-PE face pads keep friction to a minimum while protecting the fender system and the vessel.

Optional pile jacket for rapid installation, structural reinforcement and added corrosion protection in the inter-tidal zone.



Typical dual TJCO Cone Fender configuration (shown flange to flange).



TJDA-A Arch Fender

TJDA-A Arch Fenders are single piece rubber units. The simplest version has a plain rubber face and can be installed almost anywhere. An optional embedded steel plate allows mounting behind pilings, or for UHMW-PE facings (p28) or steel plates to be attached.

Arch fenders are used wherever simplicity and toughness are essential, such as general-purpose berths and exposed sites. They are easy to install horizontally or vertically and need little maintenance.

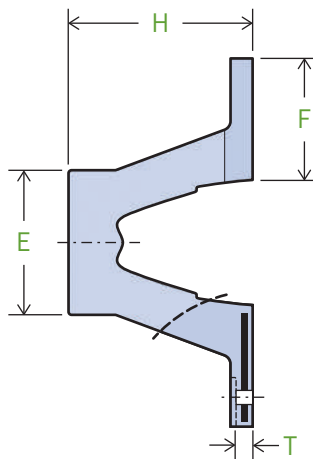
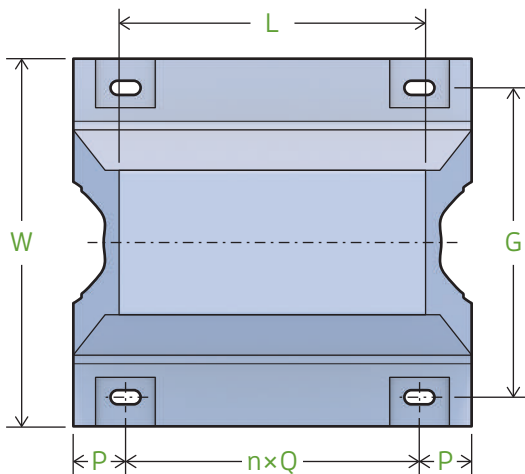


Dimensions

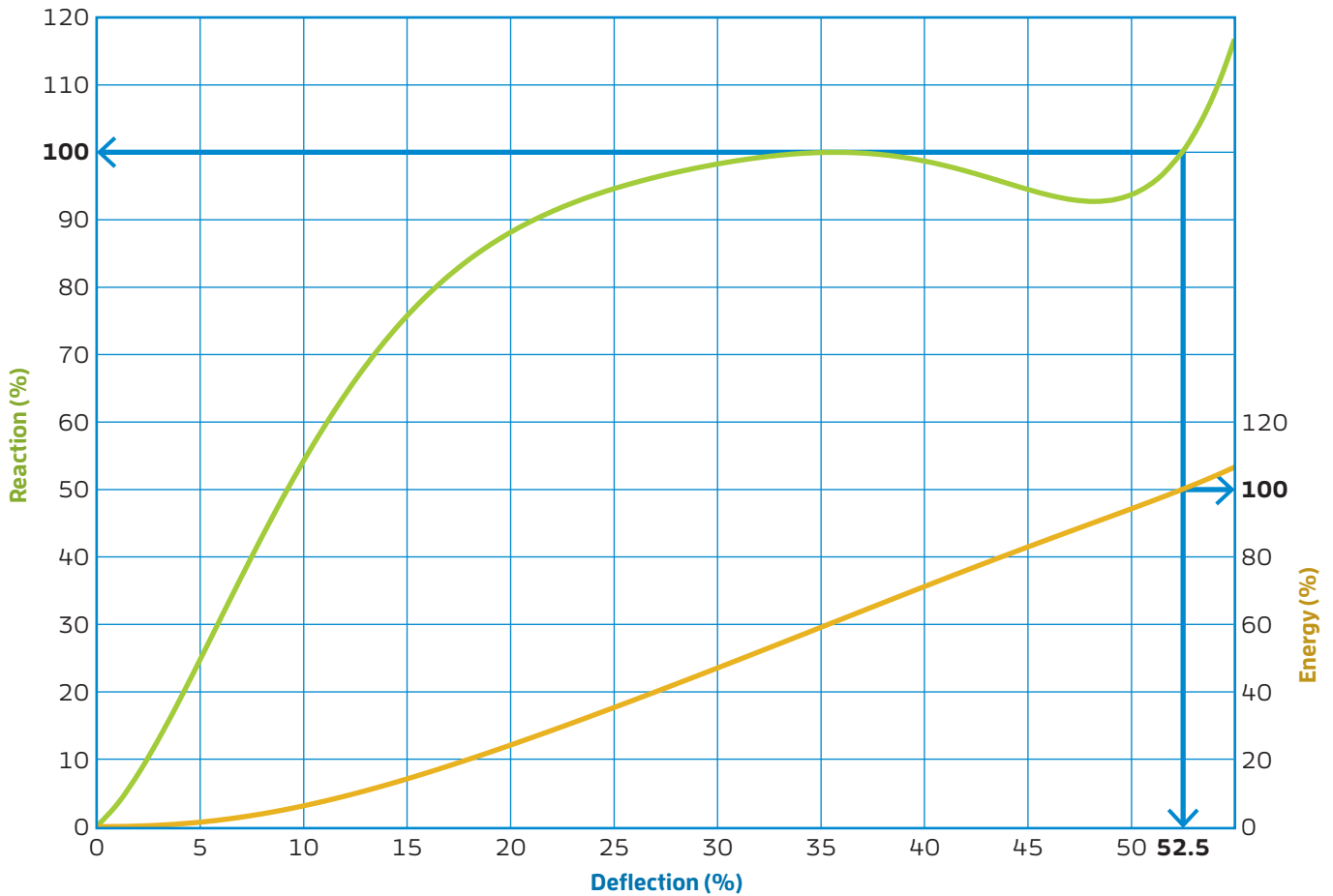
| Model | Height | | W | | E | | F | | G | | T | | Slot size | | Bolt | Weight | |
|------------|--------|------|------|------|-----|------|-----|------|------|------|----|-----|-----------|-----------|------|--------|------|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | | mm | kg |
| TJDA-A250 | 250 | 9.8 | 500 | 19.7 | 164 | 6.5 | 160 | 6.3 | 410 | 16.1 | 21 | 0.8 | 32 × 64 | 1.3 × 2.5 | M24 | 85 | 187 |
| TJDA-A300 | 300 | 11.8 | 600 | 23.6 | 225 | 8.9 | 195 | 7.7 | 490 | 19.3 | 24 | 0.9 | 35 × 70 | 1.4 × 2.8 | M30 | 125 | 276 |
| TJDA-A400 | 400 | 15.7 | 800 | 31.5 | 300 | 11.8 | 260 | 10.2 | 670 | 26.4 | 30 | 1.2 | 41 × 82 | 1.6 × 3.2 | M36 | 205 | 452 |
| TJDA-A500 | 500 | 19.7 | 1000 | 39.4 | 375 | 14.8 | 325 | 12.8 | 840 | 33.1 | 33 | 1.3 | 47 × 94 | 1.9 × 3.7 | M42 | 325 | 717 |
| TJDA-A600 | 600 | 23.6 | 1200 | 47.2 | 450 | 17.7 | 390 | 15.4 | 1010 | 39.8 | 36 | 1.4 | 50 × 100 | 2.0 × 3.9 | M48 | 480 | 1058 |
| TJDA-A800 | 800 | 31.5 | 1600 | 63.0 | 600 | 23.6 | 520 | 20.5 | 1340 | 52.8 | 45 | 1.8 | 68 × 136 | 2.7 × 5.4 | M56 | 875 | 1929 |
| TJDA-A1000 | 1000 | 39.4 | 2000 | 78.7 | 750 | 29.5 | 650 | 25.6 | 1680 | 66.1 | 60 | 2.4 | 68 × 136 | 2.7 × 5.4 | M56 | 1400 | 3086 |

Values are for single units, L= 1m.

| Model | 1m (3.28ft), n=1 | | | | 1.5m (4.92ft), n=2 | | | | 2m (6.56ft), n=3 | | | | 2.5m (8.2ft), n=3 | | | | 3m (9.84ft), n=4 | | | | 3.5m (11.48ft), n=5 | | | |
|------------|------------------|-----|------|------|--------------------|-----|-----|------|------------------|-----|-----|------|-------------------|-----|-----|------|------------------|-----|-----|------|---------------------|-----|-----|------|
| | P | | Q | | P | | Q | | P | | Q | | P | | Q | | P | | Q | | P | | Q | |
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| TJDA-A250 | 130 | 5.1 | 865 | 34.1 | 135 | 5.3 | 680 | 26.8 | 135 | 5.3 | 620 | 24.4 | 130 | 5.1 | 790 | 31.1 | 135 | 5.3 | 715 | 28.1 | 120 | 4.7 | 673 | 26.5 |
| TJDA-A300 | 140 | 5.5 | 870 | 34.3 | 140 | 5.5 | 685 | 27.0 | 140 | 5.5 | 625 | 24.6 | 140 | 5.5 | 790 | 31.1 | 145 | 5.7 | 715 | 28.1 | 140 | 5.5 | 674 | 26.5 |
| TJDA-A400 | 150 | 5.9 | 900 | 35.4 | 150 | 5.9 | 700 | 27.6 | 150 | 5.9 | 635 | 25.0 | 150 | 5.9 | 800 | 31.5 | 150 | 5.9 | 725 | 28.5 | 150 | 5.9 | 680 | 26.8 |
| TJDA-A500 | 160 | 6.3 | 930 | 36.6 | 160 | 6.3 | 715 | 28.1 | 160 | 6.3 | 645 | 25.4 | 160 | 6.3 | 810 | 31.9 | 165 | 6.5 | 730 | 28.7 | 160 | 6.3 | 686 | 27.0 |
| TJDA-A600 | 170 | 6.7 | 960 | 37.8 | 170 | 6.7 | 730 | 28.7 | 170 | 6.7 | 655 | 25.8 | 170 | 6.7 | 820 | 32.3 | 170 | 6.7 | 740 | 29.1 | 170 | 6.7 | 692 | 27.2 |
| TJDA-A800 | 180 | 7.1 | 1040 | 40.9 | 180 | 7.1 | 770 | 30.3 | 180 | 7.1 | 680 | 26.8 | 185 | 7.3 | 845 | 33.3 | 180 | 7.1 | 760 | 29.9 | | | | |
| TJDA-A1000 | 200 | 7.9 | 1100 | 43.3 | 200 | 7.9 | 800 | 31.5 | 200 | 7.9 | 700 | 27.6 | | | | | | | | | | | | |



TJDA-A Performance



Intermediate values

| Deflection | Reaction | Energy |
|-------------|------------|------------|
| % | % | % |
| 5 | 25 | 1 |
| 10 | 54 | 6 |
| 15 | 76 | 14 |
| 20 | 88 | 25 |
| 25 | 95 | 35 |
| 30 | 98 | 47 |
| 35 | 100 | 59 |
| 40 | 99 | 71 |
| 45 | 95 | 83 |
| 50 | 94 | 94 |
| 52.5 | 100 | 100 |
| 55 | 116 | 106 |

Angle factor

| Angle (°) | γ_A | |
|-----------|-------------|-------------|
| | Energy | Reaction |
| 0 | 1.00 | 1.00 |
| 3 | 0.97 | 1.00 |
| 5 | 0.95 | 1.00 |
| 8 | 0.91 | 1.00 |
| 10 | 0.88 | 1.00 |
| 15 | 0.80 | 1.00 |
| 20 | 0.73 | 1.00 |

Velocity factors

| Time (s) | γ_V |
|----------|------------|
| 1 | 1.19 |
| 2 | 1.08 |
| 3 | 1.04 |
| 4 | 1.03 |
| 5 | 1.02 |
| 6 | 1.01 |
| 7 | 1.01 |
| 8 | 1.00 |
| 9 | 1.00 |
| ≥10 | 1.00 |

Temperature factor

| Temperature | | γ_T |
|-------------|-----------|-------------|
| (°C) | (°F) | |
| 50 | 122 | 0.90 |
| 40 | 104 | 0.94 |
| 30 | 86 | 0.98 |
| 23 | 73 | 1.00 |
| 10 | 50 | 1.06 |
| 0 | 32 | 1.10 |
| -10 | 14 | 1.14 |
| -20 | -4 | 1.19 |
| -30 | -22 | 1.24 |

Values are for single units, L=1m. Standard tolerance ±10%. Please ask TekMarine if $t < 4$ seconds or for any other performance data.

TJDA-A Performance (metric units)

| Model | E = kNm, R=kN | | | | | | | | | | | | | |
|------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | T07 | T08 | T09 | T10 | T11 | T12 | T13 | T14 | T15 | T16 | T17 | T18 | T19 | |
| TJDA-A250 | E | 10.6 | 12.2 | 13.7 | 15.2 | 15.8 | 16.5 | 17.1 | 17.7 | 18.4 | 19.0 | 19.6 | 20.3 | 20.9 |
| | R | 102 | 117 | 132 | 146 | 152 | 158 | 164 | 170 | 176 | 182 | 188 | 194 | 200 |
| TJDA-A300 | E | 15.3 | 17.5 | 19.7 | 21.9 | 22.8 | 23.7 | 24.6 | 25.5 | 26.4 | 27.4 | 28.3 | 29.2 | 30.1 |
| | R | 123 | 140 | 158 | 175 | 183 | 190 | 197 | 204 | 211 | 218 | 225 | 232 | 240 |
| TJDA-A400 | E | 27.2 | 31.1 | 35.0 | 38.9 | 40.5 | 42.2 | 43.8 | 45.4 | 47.0 | 48.6 | 50.2 | 51.9 | 53.5 |
| | R | 164 | 187 | 210 | 234 | 243 | 253 | 262 | 272 | 281 | 291 | 300 | 310 | 319 |
| TJDA-A500 | E | 42.6 | 48.7 | 54.7 | 60.8 | 63.3 | 65.9 | 68.4 | 70.9 | 73.5 | 76.0 | 78.5 | 81.0 | 83.6 |
| | R | 205 | 234 | 263 | 292 | 304 | 316 | 328 | 340 | 352 | 364 | 375 | 387 | 399 |
| TJDA-A600 | E | 61.3 | 70.1 | 78.8 | 87.6 | 91.2 | 94.9 | 98.5 | 102 | 106 | 109 | 113 | 117 | 120 |
| | R | 246 | 281 | 316 | 351 | 365 | 379 | 394 | 408 | 422 | 436 | 451 | 465 | 479 |
| TJDA-A800 | E | 109 | 125 | 140 | 156 | 162 | 169 | 175 | 182 | 188 | 195 | 201 | 207 | 214 |
| | R | 327 | 374 | 421 | 468 | 487 | 506 | 525 | 544 | 563 | 582 | 601 | 620 | 639 |
| TJDA-A1000 | E | 170 | 195 | 219 | 243 | 253 | 263 | 274 | 284 | 294 | 304 | 314 | 324 | 334 |
| | R | 409 | 468 | 526 | 585 | 608 | 632 | 656 | 680 | 703 | 727 | 751 | 775 | 798 |

Values are for single units, L= 1m (3.28ft) . Other sizes and intermediate performances are available on request. Please ask TekMarine for details.

TJDA-A Performance (US units)

| Model | E = ft.kip, R=kips | | | | | | | | | | | | | |
|------------|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | T07 | T08 | T09 | T10 | T11 | T12 | T13 | T14 | T15 | T16 | T17 | T18 | T19 | |
| TJDA-A250 | E | 7.9 | 9.0 | 10.1 | 11.2 | 11.7 | 12.1 | 12.6 | 13.1 | 13.5 | 14.0 | 14.5 | 14.9 | 15.4 |
| | R | 23.0 | 26.3 | 29.6 | 32.9 | 34.2 | 35.5 | 36.9 | 38.2 | 39.5 | 40.9 | 42.2 | 43.5 | 44.9 |
| TJDA-A300 | E | 11.3 | 12.9 | 14.5 | 16.2 | 16.8 | 17.5 | 18.2 | 18.8 | 19.5 | 20.2 | 20.8 | 21.5 | 22.2 |
| | R | 27.6 | 31.5 | 35.5 | 39.4 | 41.0 | 42.6 | 44.2 | 45.8 | 47.4 | 49.0 | 50.6 | 52.2 | 53.8 |
| TJDA-A400 | E | 20.1 | 23.0 | 25.8 | 28.7 | 29.9 | 31.1 | 32.3 | 33.5 | 34.7 | 35.9 | 37.1 | 38.3 | 39.4 |
| | R | 36.8 | 42.1 | 47.3 | 52.6 | 54.7 | 56.8 | 59.0 | 61.1 | 63.3 | 65.4 | 67.5 | 69.7 | 71.8 |
| TJDA-A500 | E | 31.4 | 35.9 | 40.4 | 44.9 | 46.7 | 48.6 | 50.5 | 52.3 | 54.2 | 56.0 | 57.9 | 59.8 | 61.6 |
| | R | 46.0 | 52.6 | 59.1 | 65.7 | 68.4 | 71.1 | 73.7 | 76.4 | 79.1 | 81.7 | 84.4 | 87.1 | 89.7 |
| TJDA-A600 | E | 45.2 | 51.7 | 58.1 | 64.6 | 67.3 | 70.0 | 72.7 | 75.3 | 78.0 | 80.7 | 83.4 | 86.1 | 88.7 |
| | R | 55.2 | 63.1 | 71.0 | 78.9 | 82.1 | 85.3 | 88.5 | 91.7 | 94.9 | 98.1 | 101 | 104 | 108 |
| TJDA-A800 | E | 80.4 | 91.9 | 103 | 115 | 120 | 124 | 129 | 134 | 139 | 143 | 148 | 153 | 158 |
| | R | 73.6 | 84.1 | 94.6 | 105 | 109 | 114 | 118 | 122 | 127 | 131 | 135 | 139 | 144 |
| TJDA-A1000 | E | 126 | 144 | 162 | 179 | 187 | 194 | 202 | 209 | 217 | 224 | 232 | 239 | 247 |
| | R | 92.0 | 105 | 118 | 131 | 137 | 142 | 147 | 153 | 158 | 163 | 169 | 174 | 179 |

Values are for single units, L= 1m (3.28ft) . Other sizes and intermediate performances are available on request. Please ask TekMarine for details.

TJDA-A Performance (metric units)

| Model | E = kNm, R=kN | | | | | | | | | | | | | |
|------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | T20 | T21 | T22 | T23 | T24 | T25 | T26 | T27 | T28 | T29 | T30 | T31 | T32 | |
| TJDA-A250 | E | 21.5 | 22.2 | 22.8 | 23.4 | 24.0 | 24.7 | 25.3 | 25.9 | 26.6 | 27.2 | 27.8 | 29.2 | 30.6 |
| | R | 206 | 211 | 217 | 223 | 229 | 235 | 241 | 247 | 253 | 259 | 265 | 278 | 291 |
| TJDA-A300 | E | 31.0 | 31.9 | 32.8 | 33.7 | 34.6 | 35.5 | 36.4 | 37.4 | 38.3 | 39.2 | 40.1 | 42.1 | 44.1 |
| | R | 247 | 254 | 261 | 268 | 275 | 282 | 289 | 296 | 304 | 311 | 318 | 334 | 350 |
| TJDA-A400 | E | 55.1 | 56.7 | 58.3 | 59.9 | 61.6 | 63.2 | 64.8 | 66.4 | 68.0 | 69.6 | 71.3 | 74.8 | 78.4 |
| | R | 329 | 338 | 348 | 357 | 367 | 376 | 386 | 395 | 405 | 414 | 424 | 445 | 466 |
| TJDA-A500 | E | 86.1 | 88.6 | 91.1 | 93.7 | 96.2 | 98.7 | 101 | 104 | 106 | 109 | 111 | 117 | 122 |
| | R | 411 | 423 | 435 | 447 | 459 | 470 | 482 | 494 | 506 | 518 | 530 | 556 | 583 |
| TJDA-A600 | E | 124 | 128 | 131 | 135 | 139 | 142 | 146 | 149 | 153 | 157 | 160 | 168 | 176 |
| | R | 493 | 507 | 522 | 536 | 550 | 564 | 579 | 593 | 607 | 621 | 636 | 667 | 699 |
| TJDA-A800 | E | 220 | 227 | 233 | 240 | 246 | 253 | 259 | 266 | 272 | 279 | 285 | 299 | 314 |
| | R | 658 | 677 | 696 | 715 | 734 | 753 | 772 | 791 | 810 | 829 | 848 | 890 | 932 |
| TJDA-A1000 | E | 344 | 354 | 365 | 375 | 385 | 395 | 405 | 415 | 425 | 435 | 445 | 468 | 490 |
| | R | 822 | 846 | 870 | 893 | 917 | 941 | 965 | 988 | 1012 | 1036 | 1059 | 1112 | 1165 |

Values are for single units, L= 1m (3.28ft) . Other sizes and intermediate performances are available on request. Please ask TekMarine for details.

TJDA-A Performance (US units)

| Model | E = ft.kip, R=kips | | | | | | | | | | | | | |
|------------|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | T20 | T21 | T22 | T23 | T24 | T25 | T26 | T27 | T28 | T29 | T30 | T31 | T32 | |
| TJDA-A250 | E | 15.9 | 16.3 | 16.8 | 17.3 | 17.7 | 18.2 | 18.7 | 19.1 | 19.6 | 20.1 | 20.5 | 21.6 | 22.6 |
| | R | 46.2 | 47.5 | 48.9 | 50.2 | 51.5 | 52.9 | 54.2 | 55.5 | 56.9 | 58.2 | 59.5 | 62.5 | 65.5 |
| TJDA-A300 | E | 22.9 | 23.5 | 24.2 | 24.9 | 25.5 | 26.2 | 26.9 | 27.6 | 28.2 | 28.9 | 29.6 | 31.0 | 32.5 |
| | R | 55.4 | 57.0 | 58.6 | 60.2 | 61.8 | 63.4 | 65.0 | 66.7 | 68.3 | 69.9 | 71.5 | 75.0 | 78.6 |
| TJDA-A400 | E | 40.6 | 41.8 | 43.0 | 44.2 | 45.4 | 46.6 | 47.8 | 49.0 | 50.2 | 51.4 | 52.6 | 55.2 | 57.8 |
| | R | 73.9 | 76.1 | 78.2 | 80.3 | 82.5 | 84.6 | 86.7 | 88.9 | 91.0 | 93.1 | 95.3 | 100 | 105 |
| TJDA-A500 | E | 63.5 | 65.4 | 67.2 | 69.1 | 70.9 | 72.8 | 74.7 | 76.5 | 78.4 | 80.3 | 82.1 | 86.2 | 90.3 |
| | R | 92.4 | 95.1 | 97.7 | 100 | 103 | 106 | 108 | 111 | 114 | 116 | 119 | 125 | 131 |
| TJDA-A600 | E | 91.4 | 94.1 | 96.8 | 99.5 | 102 | 105 | 108 | 110 | 113 | 116 | 118 | 124 | 130 |
| | R | 111 | 114 | 117 | 120 | 124 | 127 | 130 | 133 | 137 | 140 | 143 | 150 | 157 |
| TJDA-A800 | E | 163 | 167 | 172 | 177 | 182 | 186 | 191 | 196 | 201 | 205 | 210 | 221 | 231 |
| | R | 148 | 152 | 156 | 161 | 165 | 169 | 173 | 178 | 182 | 186 | 191 | 200 | 210 |
| TJDA-A1000 | E | 254 | 261 | 269 | 276 | 284 | 291 | 299 | 306 | 314 | 321 | 329 | 345 | 361 |
| | R | 185 | 190 | 195 | 201 | 206 | 211 | 217 | 222 | 228 | 233 | 238 | 250 | 262 |

Values are for single units, L= 1m (3.28ft) . Other sizes and intermediate performances are available on request. Please ask TekMarine for details.



TJDA-B Arch Fender

TJDA-B Arch Fenders are single piece rubber moldings with an integral vulcanized UHMW-PE low friction face pad in black, and other color options. The low-friction properties of the TJDA-B fender make it ideal for locations where shear forces must be minimized.

Arch fenders are used wherever simplicity and toughness are essential, such as general-purpose berths and exposed sites. They are easy to install horizontally or vertically and need little maintenance.

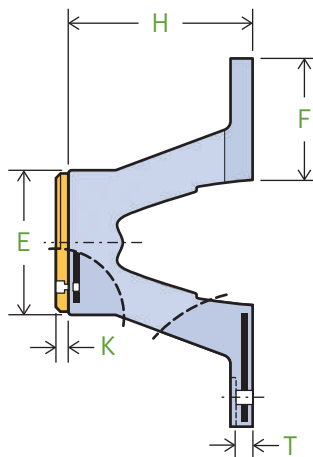
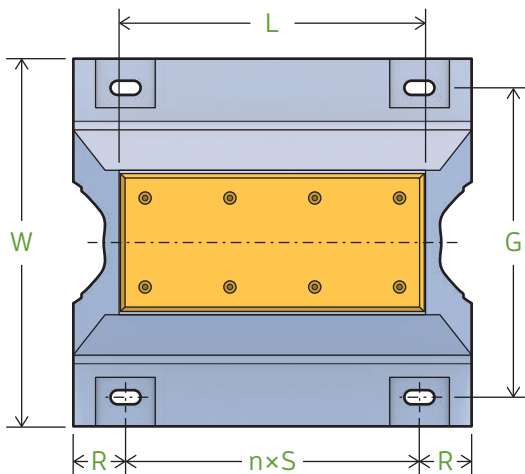


Dimensions

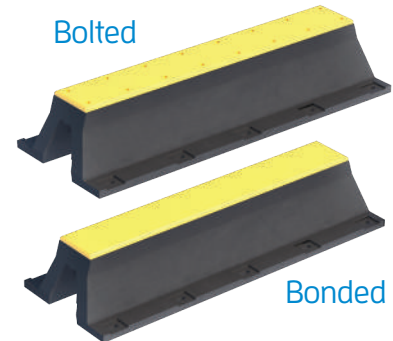
| Model | Height | | W | | E | | F | | G | | T | | Slot size | | Bolt | Weight | |
|------------|--------|------|------|------|-----|------|-----|------|------|------|----|-----|-----------|-----------|------|--------|------|
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | | mm | kg |
| TJDA-B250 | 250 | 9.8 | 500 | 19.7 | 164 | 6.5 | 160 | 6.3 | 410 | 16.1 | 21 | 0.8 | 32 × 64 | 1.3 × 2.5 | M24 | 85 | 187 |
| TJDA-B300 | 300 | 11.8 | 600 | 23.6 | 225 | 8.9 | 195 | 7.7 | 490 | 19.3 | 24 | 0.9 | 35 × 70 | 1.4 × 2.8 | M30 | 125 | 276 |
| TJDA-B400 | 400 | 15.7 | 800 | 31.5 | 300 | 11.8 | 260 | 10.2 | 670 | 26.4 | 30 | 1.2 | 41 × 82 | 1.6 × 3.2 | M36 | 205 | 452 |
| TJDA-B500 | 500 | 19.7 | 1000 | 39.4 | 375 | 14.8 | 325 | 12.8 | 840 | 33.1 | 33 | 1.3 | 47 × 94 | 1.9 × 3.7 | M42 | 325 | 717 |
| TJDA-B600 | 600 | 23.6 | 1200 | 47.2 | 450 | 17.7 | 390 | 15.4 | 1010 | 39.8 | 36 | 1.4 | 50 × 100 | 2.0 × 3.9 | M48 | 480 | 1058 |
| TJDA-B800 | 800 | 31.5 | 1600 | 63.0 | 600 | 23.6 | 520 | 20.5 | 1340 | 52.8 | 45 | 1.8 | 68 × 136 | 2.7 × 5.4 | M56 | 875 | 1929 |
| TJDA-B1000 | 1000 | 39.4 | 2000 | 78.7 | 750 | 29.5 | 650 | 25.6 | 1680 | 66.1 | 60 | 2.4 | 68 × 136 | 2.7 × 5.4 | M56 | 1400 | 3086 |

Values are for single units, L= 1m.

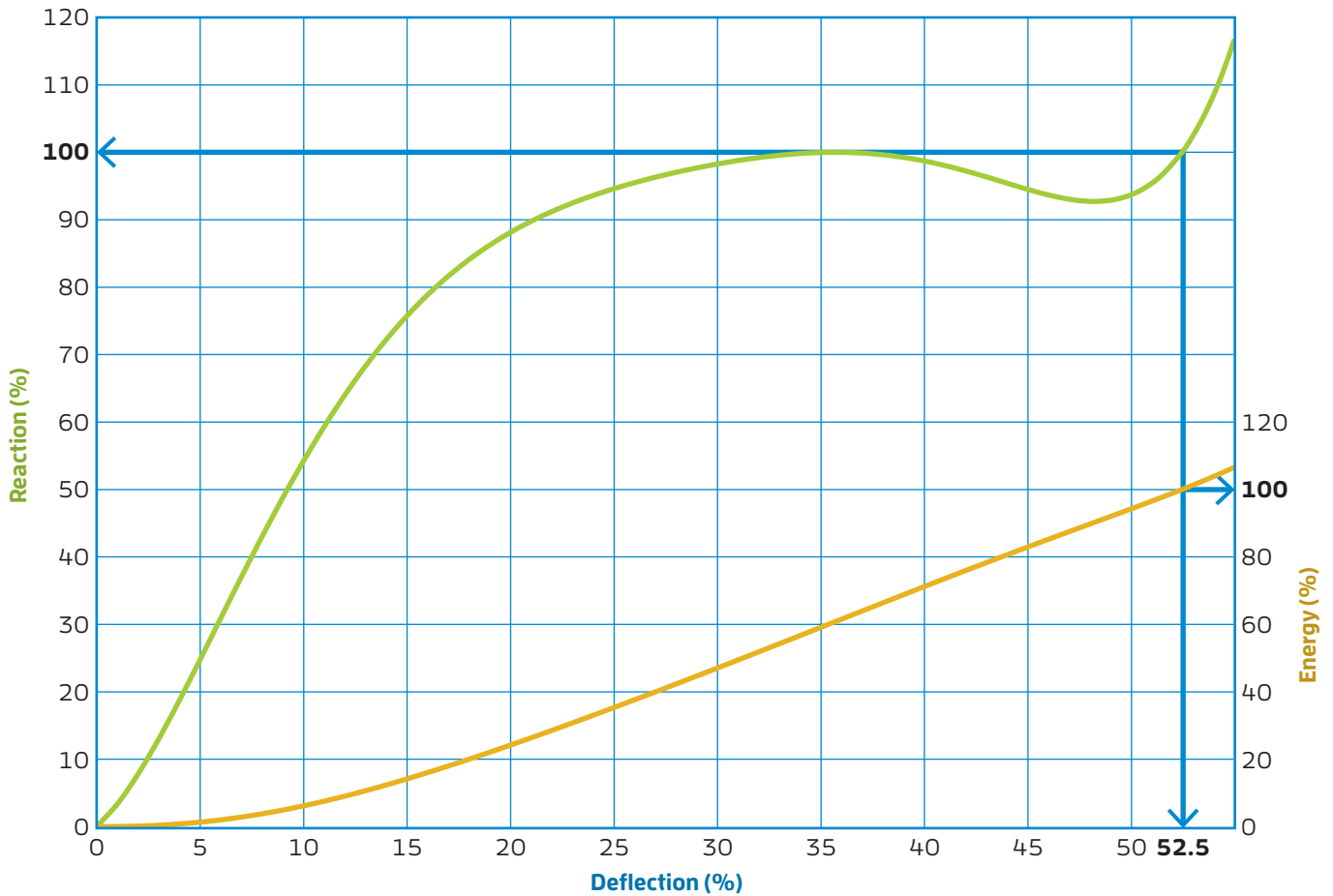
| Model | 1m (3.28ft), n=1 | | | | 1.5m (4.92ft), n=2 | | | | 2m (6.56ft), n=3 | | | | 2.5m (8.2ft), n=3 | | | | 3m (9.84ft), n=4 | | | | 3.5m (11.48ft), n=5 | | | |
|------------|------------------|-----|------|------|--------------------|-----|-----|------|------------------|-----|-----|------|-------------------|-----|-----|------|------------------|-----|-----|------|---------------------|-----|-----|------|
| | P | | Q | | P | | Q | | P | | Q | | P | | Q | | P | | Q | | P | | Q | |
| | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| TJDA-B250 | 130 | 5.1 | 865 | 34.1 | 135 | 5.3 | 680 | 26.8 | 135 | 5.3 | 620 | 24.4 | 130 | 5.1 | 790 | 31.1 | 135 | 5.3 | 715 | 28.1 | 120 | 4.7 | 673 | 26.5 |
| TJDA-B300 | 140 | 5.5 | 870 | 34.3 | 140 | 5.5 | 685 | 27.0 | 140 | 5.5 | 625 | 24.6 | 140 | 5.5 | 790 | 31.1 | 145 | 5.7 | 715 | 28.1 | 140 | 5.5 | 674 | 26.5 |
| TJDA-B400 | 150 | 5.9 | 900 | 35.4 | 150 | 5.9 | 700 | 27.6 | 150 | 5.9 | 635 | 25.0 | 150 | 5.9 | 800 | 31.5 | 150 | 5.9 | 725 | 28.5 | 150 | 5.9 | 680 | 26.8 |
| TJDA-B500 | 160 | 6.3 | 930 | 36.6 | 160 | 6.3 | 715 | 28.1 | 160 | 6.3 | 645 | 25.4 | 160 | 6.3 | 810 | 31.9 | 165 | 6.5 | 730 | 28.7 | 160 | 6.3 | 686 | 27.0 |
| TJDA-B600 | 170 | 6.7 | 960 | 37.8 | 170 | 6.7 | 730 | 28.7 | 170 | 6.7 | 655 | 25.8 | 170 | 6.7 | 820 | 32.3 | 170 | 6.7 | 740 | 29.1 | 170 | 6.7 | 692 | 27.2 |
| TJDA-B800 | 180 | 7.1 | 1040 | 40.9 | 180 | 7.1 | 770 | 30.3 | 180 | 7.1 | 680 | 26.8 | 185 | 7.3 | 845 | 33.3 | 180 | 7.1 | 760 | 29.9 | | | | |
| TJDA-B1000 | 200 | 7.9 | 1100 | 43.3 | 200 | 7.9 | 800 | 31.5 | 200 | 7.9 | 700 | 27.6 | | | | | | | | | | | | |



Facing options



TJDA-B Performance



Intermediate values

| Deflection | Reaction | Energy |
|-------------|------------|------------|
| % | % | % |
| 5 | 25 | 1 |
| 10 | 54 | 6 |
| 15 | 76 | 14 |
| 20 | 88 | 25 |
| 25 | 95 | 35 |
| 30 | 98 | 47 |
| 35 | 100 | 59 |
| 40 | 99 | 71 |
| 45 | 95 | 83 |
| 50 | 94 | 94 |
| 52.5 | 100 | 100 |
| 55 | 116 | 106 |

Angle factor

| Angle (°) | γ_A | |
|-----------|-------------|-------------|
| | Energy | Reaction |
| 0 | 1.00 | 1.00 |
| 3 | 0.97 | 1.00 |
| 5 | 0.95 | 1.00 |
| 8 | 0.91 | 1.00 |
| 10 | 0.88 | 1.00 |
| 15 | 0.80 | 1.00 |
| 20 | 0.73 | 1.00 |

Velocity factors

| Time (s) | γ_V |
|----------|------------|
| 1 | 1.19 |
| 2 | 1.08 |
| 3 | 1.04 |
| 4 | 1.03 |
| 5 | 1.02 |
| 6 | 1.01 |
| 7 | 1.01 |
| 8 | 1.00 |
| 9 | 1.00 |
| ≥10 | 1.00 |

Temperature factor

| Temperature | | γ_T |
|-------------|-----------|-------------|
| (°C) | (°F) | |
| 50 | 122 | 0.90 |
| 40 | 104 | 0.94 |
| 30 | 86 | 0.98 |
| 23 | 73 | 1.00 |
| 10 | 50 | 1.06 |
| 0 | 32 | 1.10 |
| -10 | 14 | 1.14 |
| -20 | -4 | 1.19 |
| -30 | -22 | 1.24 |

Values are for single units, L=1m. Standard tolerance ±10%. Please ask TekMarine if $t < 4$ seconds or for any other performance data.

TJDA-B Performance (metric units)

| Model | E = kNm, R=kN | | | | | | | | | | | | | |
|------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | T07 | T08 | T09 | T10 | T11 | T12 | T13 | T14 | T15 | T16 | T17 | T18 | T19 | |
| TJDA-B250 | E | 10.6 | 12.2 | 13.7 | 15.2 | 15.8 | 16.5 | 17.1 | 17.7 | 18.4 | 19.0 | 19.6 | 20.3 | 20.9 |
| | R | 102 | 117 | 132 | 146 | 152 | 158 | 164 | 170 | 176 | 182 | 188 | 194 | 200 |
| TJDA-B300 | E | 15.3 | 17.5 | 19.7 | 21.9 | 22.8 | 23.7 | 24.6 | 25.5 | 26.4 | 27.4 | 28.3 | 29.2 | 30.1 |
| | R | 123 | 140 | 158 | 175 | 183 | 190 | 197 | 204 | 211 | 218 | 225 | 232 | 240 |
| TJDA-B400 | E | 27.2 | 31.1 | 35.0 | 38.9 | 40.5 | 42.2 | 43.8 | 45.4 | 47.0 | 48.6 | 50.2 | 51.9 | 53.5 |
| | R | 164 | 187 | 210 | 234 | 243 | 253 | 262 | 272 | 281 | 291 | 300 | 310 | 319 |
| TJDA-B500 | E | 42.6 | 48.7 | 54.7 | 60.8 | 63.3 | 65.9 | 68.4 | 70.9 | 73.5 | 76.0 | 78.5 | 81.0 | 83.6 |
| | R | 205 | 234 | 263 | 292 | 304 | 316 | 328 | 340 | 352 | 364 | 375 | 387 | 399 |
| TJDA-B600 | E | 61.3 | 70.1 | 78.8 | 87.6 | 91.2 | 94.9 | 98.5 | 102 | 106 | 109 | 113 | 117 | 120 |
| | R | 246 | 281 | 316 | 351 | 365 | 379 | 394 | 408 | 422 | 436 | 451 | 465 | 479 |
| TJDA-B800 | E | 109 | 125 | 140 | 156 | 162 | 169 | 175 | 182 | 188 | 195 | 201 | 207 | 214 |
| | R | 327 | 374 | 421 | 468 | 487 | 506 | 525 | 544 | 563 | 582 | 601 | 620 | 639 |
| TJDA-B1000 | E | 170 | 195 | 219 | 243 | 253 | 263 | 274 | 284 | 294 | 304 | 314 | 324 | 334 |
| | R | 409 | 468 | 526 | 585 | 608 | 632 | 656 | 680 | 703 | 727 | 751 | 775 | 798 |

Values are for single units, L= 1m (3.28ft) . Other sizes and intermediate performances are available on request. Please ask TekMarine for details.

TJDA-B Performance (US units)

| Model | E = ft.kip, R=kips | | | | | | | | | | | | | |
|------------|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | T07 | T08 | T09 | T10 | T11 | T12 | T13 | T14 | T15 | T16 | T17 | T18 | T19 | |
| TJDA-B250 | E | 7.9 | 9.0 | 10.1 | 11.2 | 11.7 | 12.1 | 12.6 | 13.1 | 13.5 | 14.0 | 14.5 | 14.9 | 15.4 |
| | R | 23.0 | 26.3 | 29.6 | 32.9 | 34.2 | 35.5 | 36.9 | 38.2 | 39.5 | 40.9 | 42.2 | 43.5 | 44.9 |
| TJDA-B300 | E | 11.3 | 12.9 | 14.5 | 16.2 | 16.8 | 17.5 | 18.2 | 18.8 | 19.5 | 20.2 | 20.8 | 21.5 | 22.2 |
| | R | 27.6 | 31.5 | 35.5 | 39.4 | 41.0 | 42.6 | 44.2 | 45.8 | 47.4 | 49.0 | 50.6 | 52.2 | 53.8 |
| TJDA-B400 | E | 20.1 | 23.0 | 25.8 | 28.7 | 29.9 | 31.1 | 32.3 | 33.5 | 34.7 | 35.9 | 37.1 | 38.3 | 39.4 |
| | R | 36.8 | 42.1 | 47.3 | 52.6 | 54.7 | 56.8 | 59.0 | 61.1 | 63.3 | 65.4 | 67.5 | 69.7 | 71.8 |
| TJDA-B500 | E | 31.4 | 35.9 | 40.4 | 44.9 | 46.7 | 48.6 | 50.5 | 52.3 | 54.2 | 56.0 | 57.9 | 59.8 | 61.6 |
| | R | 46.0 | 52.6 | 59.1 | 65.7 | 68.4 | 71.1 | 73.7 | 76.4 | 79.1 | 81.7 | 84.4 | 87.1 | 89.7 |
| TJDA-B600 | E | 45.2 | 51.7 | 58.1 | 64.6 | 67.3 | 70.0 | 72.7 | 75.3 | 78.0 | 80.7 | 83.4 | 86.1 | 88.7 |
| | R | 55.2 | 63.1 | 71.0 | 78.9 | 82.1 | 85.3 | 88.5 | 91.7 | 94.9 | 98.1 | 101 | 104 | 108 |
| TJDA-B800 | E | 80.4 | 91.9 | 103 | 115 | 120 | 124 | 129 | 134 | 139 | 143 | 148 | 153 | 158 |
| | R | 73.6 | 84.1 | 94.6 | 105 | 109 | 114 | 118 | 122 | 127 | 131 | 135 | 139 | 144 |
| TJDA-B1000 | E | 126 | 144 | 162 | 179 | 187 | 194 | 202 | 209 | 217 | 224 | 232 | 239 | 247 |
| | R | 92.0 | 105 | 118 | 131 | 137 | 142 | 147 | 153 | 158 | 163 | 169 | 174 | 179 |

Values are for single units, L= 1m (3.28ft) . Other sizes and intermediate performances are available on request. Please ask TekMarine for details.

TJDA-B Performance (metric units)

| Model | E = kNm, R=kN | | | | | | | | | | | | | |
|------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | T20 | T21 | T22 | T23 | T24 | T25 | T26 | T27 | T28 | T29 | T30 | T31 | T32 | |
| TJDA-B250 | E | 21.5 | 22.2 | 22.8 | 23.4 | 24.0 | 24.7 | 25.3 | 25.9 | 26.6 | 27.2 | 27.8 | 29.2 | 30.6 |
| | R | 206 | 211 | 217 | 223 | 229 | 235 | 241 | 247 | 253 | 259 | 265 | 278 | 291 |
| TJDA-B300 | E | 31.0 | 31.9 | 32.8 | 33.7 | 34.6 | 35.5 | 36.4 | 37.4 | 38.3 | 39.2 | 40.1 | 42.1 | 44.1 |
| | R | 247 | 254 | 261 | 268 | 275 | 282 | 289 | 296 | 304 | 311 | 318 | 334 | 350 |
| TJDA-B400 | E | 55.1 | 56.7 | 58.3 | 59.9 | 61.6 | 63.2 | 64.8 | 66.4 | 68.0 | 69.6 | 71.3 | 74.8 | 78.4 |
| | R | 329 | 338 | 348 | 357 | 367 | 376 | 386 | 395 | 405 | 414 | 424 | 445 | 466 |
| TJDA-B500 | E | 86.1 | 88.6 | 91.1 | 93.7 | 96.2 | 98.7 | 101 | 104 | 106 | 109 | 111 | 117 | 122 |
| | R | 411 | 423 | 435 | 447 | 459 | 470 | 482 | 494 | 506 | 518 | 530 | 556 | 583 |
| TJDA-B600 | E | 124 | 128 | 131 | 135 | 139 | 142 | 146 | 149 | 153 | 157 | 160 | 168 | 176 |
| | R | 493 | 507 | 522 | 536 | 550 | 564 | 579 | 593 | 607 | 621 | 636 | 667 | 699 |
| TJDA-B800 | E | 220 | 227 | 233 | 240 | 246 | 253 | 259 | 266 | 272 | 279 | 285 | 299 | 314 |
| | R | 658 | 677 | 696 | 715 | 734 | 753 | 772 | 791 | 810 | 829 | 848 | 890 | 932 |
| TJDA-B1000 | E | 344 | 354 | 365 | 375 | 385 | 395 | 405 | 415 | 425 | 435 | 445 | 468 | 490 |
| | R | 822 | 846 | 870 | 893 | 917 | 941 | 965 | 988 | 1012 | 1036 | 1059 | 1112 | 1165 |

Values are for single units, L= 1m (3.28ft) . Other sizes and intermediate performances are available on request. Please ask TekMarine for details.

TJDA-B Performance (US units)

| Model | E = ft.kip, R=kips | | | | | | | | | | | | | |
|------------|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | T20 | T21 | T22 | T23 | T24 | T25 | T26 | T27 | T28 | T29 | T30 | T31 | T32 | |
| TJDA-B250 | E | 15.9 | 16.3 | 16.8 | 17.3 | 17.7 | 18.2 | 18.7 | 19.1 | 19.6 | 20.1 | 20.5 | 21.6 | 22.6 |
| | R | 46.2 | 47.5 | 48.9 | 50.2 | 51.5 | 52.9 | 54.2 | 55.5 | 56.9 | 58.2 | 59.5 | 62.5 | 65.5 |
| TJDA-B300 | E | 22.9 | 23.5 | 24.2 | 24.9 | 25.5 | 26.2 | 26.9 | 27.6 | 28.2 | 28.9 | 29.6 | 31.0 | 32.5 |
| | R | 55.4 | 57.0 | 58.6 | 60.2 | 61.8 | 63.4 | 65.0 | 66.7 | 68.3 | 69.9 | 71.5 | 75.0 | 78.6 |
| TJDA-B400 | E | 40.6 | 41.8 | 43.0 | 44.2 | 45.4 | 46.6 | 47.8 | 49.0 | 50.2 | 51.4 | 52.6 | 55.2 | 57.8 |
| | R | 73.9 | 76.1 | 78.2 | 80.3 | 82.5 | 84.6 | 86.7 | 88.9 | 91.0 | 93.1 | 95.3 | 100 | 105 |
| TJDA-B500 | E | 63.5 | 65.4 | 67.2 | 69.1 | 70.9 | 72.8 | 74.7 | 76.5 | 78.4 | 80.3 | 82.1 | 86.2 | 90.3 |
| | R | 92.4 | 95.1 | 97.7 | 100 | 103 | 106 | 108 | 111 | 114 | 116 | 119 | 125 | 131 |
| TJDA-B600 | E | 91.4 | 94.1 | 96.8 | 99.5 | 102 | 105 | 108 | 110 | 113 | 116 | 118 | 124 | 130 |
| | R | 111 | 114 | 117 | 120 | 124 | 127 | 130 | 133 | 137 | 140 | 143 | 150 | 157 |
| TJDA-B800 | E | 163 | 167 | 172 | 177 | 182 | 186 | 191 | 196 | 201 | 205 | 210 | 221 | 231 |
| | R | 148 | 152 | 156 | 161 | 165 | 169 | 173 | 178 | 182 | 186 | 191 | 200 | 210 |
| TJDA-B1000 | E | 254 | 261 | 269 | 276 | 284 | 291 | 299 | 306 | 314 | 321 | 329 | 345 | 361 |
| | R | 185 | 190 | 195 | 201 | 206 | 211 | 217 | 222 | 228 | 233 | 238 | 250 | 262 |

Values are for single units, L= 1m (3.28ft) . Other sizes and intermediate performances are available on request. Please ask TekMarine for details.



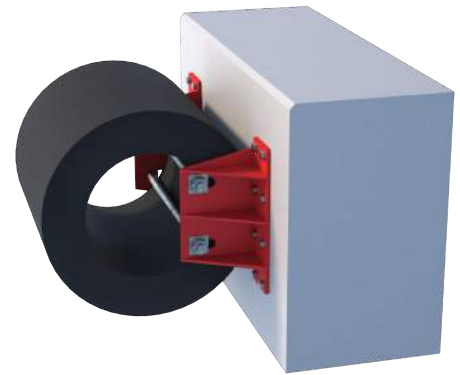
TJCY Cylindrical Fender

Cylindrical Fenders have been a popular choice for many decades. TekMarine TJCY Cylindrical Fenders come in many sizes and configurations, are easy to install and will last for years with minimal maintenance.

The reaction force and energy absorption increase proportionally all the way to the fender's rated deflection, softening vessel berthing.

Depending on size, cylindricals may be installed onto a chain or a steel bar and chains. For very large sizes a custom ladder bracket is recommended.

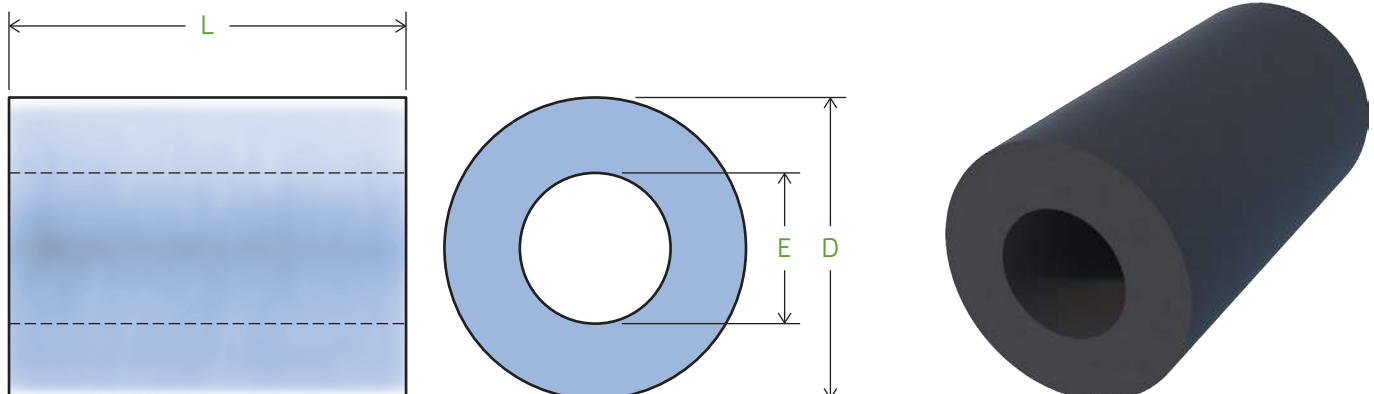
Almost any length fender can be supplied subject to transport limitations. Lengths can be pre-curved or jointed on request.



Dimensions and Performance

| D | | E | | Weight | | T1 | | | | T2 | | | |
|------|------|------|------|--------|-------|--------|---------|----------|------|--------|---------|----------|------|
| mm | in | mm | in | kg/m | lb/ft | Energy | | Reaction | | Energy | | Reaction | |
| mm | in | mm | in | kg/m | lb/ft | kNm | ft-kips | kN | kips | kNm | ft-kips | kN | kips |
| 100 | 3.9 | 50 | 2.0 | 7.1 | 4.8 | 0.8 | 0.6 | 41.3 | 9.3 | 1.1 | 0.8 | 55.0 | 12.4 |
| 150 | 5.9 | 75 | 3.0 | 15.9 | 10.7 | 1.9 | 1.4 | 61.9 | 13.9 | 2.5 | 1.8 | 82.6 | 18.6 |
| 200 | 7.9 | 100 | 3.9 | 28.3 | 19.0 | 3.4 | 2.5 | 82.6 | 18.6 | 4.5 | 3.3 | 110 | 24.7 |
| 250 | 9.8 | 125 | 4.9 | 44.2 | 29.7 | 5.3 | 3.9 | 103 | 23.2 | 7.0 | 5.2 | 138 | 31.0 |
| 300 | 11.8 | 150 | 5.9 | 63.6 | 42.8 | 7.6 | 5.6 | 124 | 27.9 | 10.1 | 7.4 | 165 | 37.1 |
| 400 | 15.7 | 200 | 7.9 | 113 | 76.0 | 13.5 | 10.0 | 165 | 37.1 | 18.0 | 13.3 | 220 | 49.5 |
| 500 | 19.7 | 250 | 9.8 | 177 | 119 | 21.1 | 15.6 | 206 | 46.3 | 28.1 | 20.7 | 275 | 61.8 |
| 600 | 23.6 | 300 | 11.8 | 254 | 171 | 30.3 | 22.3 | 248 | 55.8 | 40.4 | 29.8 | 330 | 74.2 |
| 800 | 31.5 | 400 | 15.7 | 452 | 304 | 53.9 | 39.8 | 330 | 74.2 | 71.9 | 53.0 | 440 | 98.9 |
| 900 | 35.4 | 450 | 17.7 | 573 | 385 | 68.2 | 50.3 | 372 | 83.6 | 91.0 | 67.1 | 495 | 111 |
| 1000 | 39.4 | 500 | 19.7 | 707 | 475 | 84.2 | 62.1 | 413 | 92.8 | 112 | 82.6 | 550 | 124 |
| 1200 | 47.2 | 600 | 23.6 | 1018 | 685 | 121 | 89.2 | 495 | 111 | 162 | 119 | 661 | 149 |
| 1400 | 55.1 | 700 | 27.6 | 1385 | 931 | 165 | 122 | 578 | 130 | 220 | 162 | 771 | 173 |
| 1500 | 59.1 | 750 | 29.5 | 1590 | 1069 | 190 | 140 | 619 | 139 | 253 | 187 | 826 | 186 |
| 1600 | 63.0 | 800 | 31.5 | 1810 | 1217 | 216 | 159 | 661 | 149 | 288 | 212 | 881 | 198 |
| 1800 | 70.9 | 900 | 35.4 | 2290 | 1540 | 273 | 201 | 743 | 167 | 364 | 268 | 991 | 223 |
| 2000 | 78.7 | 1000 | 39.4 | 2827 | 1901 | 337 | 249 | 826 | 186 | 449 | 331 | 1101 | 248 |
| 2400 | 94.5 | 1200 | 47.2 | 4072 | 2739 | 485 | 358 | 991 | 223 | 647 | 477 | 1321 | 297 |

Values are for single units, L = 1m. Other sizes and fender lengths are available on request. Please ask TekMarine for details.



Fixings

D: up to 500mm (20in.)



D: 500–1600mm (20–64in.)



D: over 1600mm (64in.)*



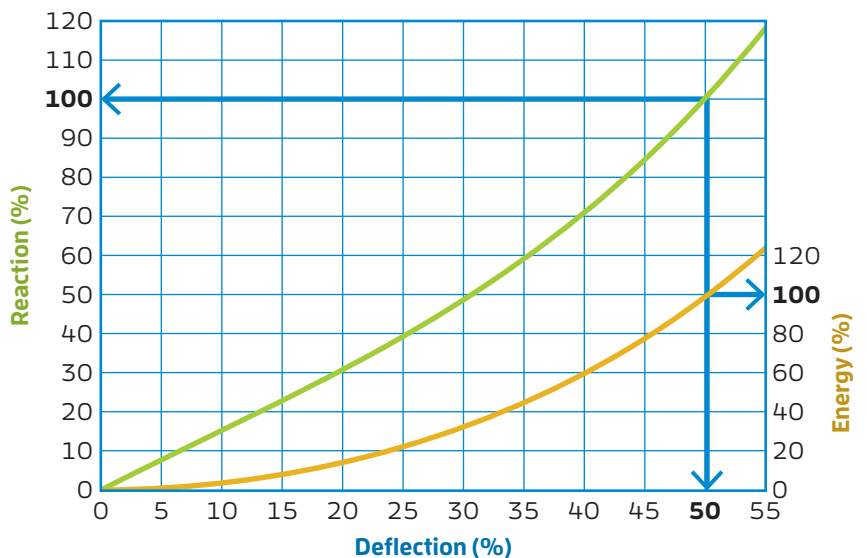
*Custom designed for each project.

| D | | Chain | Shackle |
|-----|------|-------|---------|
| mm | in | mm | mm |
| 100 | 3.9 | 14 | 16 |
| 150 | 5.9 | 16 | 16 |
| 200 | 7.9 | 18 | 19 |
| 250 | 9.8 | 20 | 22 |
| 300 | 11.8 | 24 | 28 |
| 400 | 15.7 | 28 | 35 |
| 500 | 19.7 | 32 | 38 |
| 600 | 23.6 | 32 | 44 |

| D | | L | | Internal Bar | Chain | Shackle |
|------|------|------|------|--------------|-------|---------|
| mm | in | mm | in | mm | mm | mm |
| 800 | 31.5 | 1000 | 39.4 | 35 | 24 | 28 |
| | | 1500 | 59.1 | 45 | 28 | 35 |
| | | 2000 | 78.7 | 55 | 32 | 38 |
| | | 2500 | 98.4 | 65 | 38 | 44 |
| | | 3000 | 118 | 70 | 40 | 50 |
| 900 | 35.4 | 1000 | 39.4 | 40 | 24 | 28 |
| | | 1500 | 59.1 | 50 | 28 | 35 |
| | | 2000 | 78.7 | 60 | 32 | 38 |
| | | 2500 | 98.4 | 70 | 38 | 44 |
| | | 3000 | 118 | 80 | 40 | 50 |
| 1000 | 39.4 | 1000 | 39.4 | 45 | 28 | 35 |
| | | 1500 | 59.1 | 55 | 32 | 38 |
| | | 2000 | 78.7 | 65 | 38 | 44 |
| | | 2500 | 98.4 | 75 | 40 | 50 |
| | | 3000 | 118 | 85 | 40 | 50 |
| 1200 | 47.2 | 1000 | 39.4 | 50 | 28 | 35 |
| | | 1500 | 59.1 | 65 | 38 | 44 |
| | | 2000 | 78.7 | 75 | 40 | 50 |
| | | 2500 | 98.4 | 85 | 40 | 50 |
| | | 3000 | 118 | 100 | 50 | 56 |
| 1400 | 55.1 | 1000 | 39.4 | 65 | 38 | 44 |
| | | 1500 | 59.1 | 70 | 38 | 44 |
| | | 2000 | 78.7 | 80 | 40 | 50 |
| | | 2500 | 98.4 | 90 | 50 | 56 |
| | | 3000 | 118 | 100 | 52 | 64 |
| 1600 | 64.0 | 1000 | 39.4 | 75 | 40 | 50 |
| | | 1500 | 59.1 | 80 | 40 | 50 |
| | | 2000 | 78.7 | 90 | 40 | 50 |
| | | 2500 | 98.4 | 110 | 50 | 56 |
| | | 3000 | 118 | 120 | 52 | 64 |

Performance

| Deflection(%) | Reaction(%) | Energy(%) |
|---------------|-------------|-----------|
| 0 | 0 | 0 |
| 5 | 8 | 1 |
| 10 | 15 | 4 |
| 15 | 23 | 8 |
| 20 | 31 | 14 |
| 25 | 39 | 22 |
| 30 | 49 | 33 |
| 35 | 59 | 45 |
| 40 | 71 | 60 |
| 45 | 84 | 78 |
| 50 | 100 | 100 |
| 55 | 118 | 125 |





Foam Fender Technology

The same advanced materials technology goes into every TekMarine foam fender and buoy. A filament-reinforced outer layer shields the closed-cell polyethylene foam core. While the fender's skin shrugs off wear and tear, the foam provides buoyancy and absorbs berthing energy.

Foam grades

With grades from Standard to Ultra High Capacity, you can select a fender for any application. Softer grades provide a gentler reaction, while stiffer grades can cope with much higher impact energies.

Durable skin

The polyurethane elastomer skin provides a highly durable, non-marking surface. It is available in a wide choice of colors.

Reinforcement

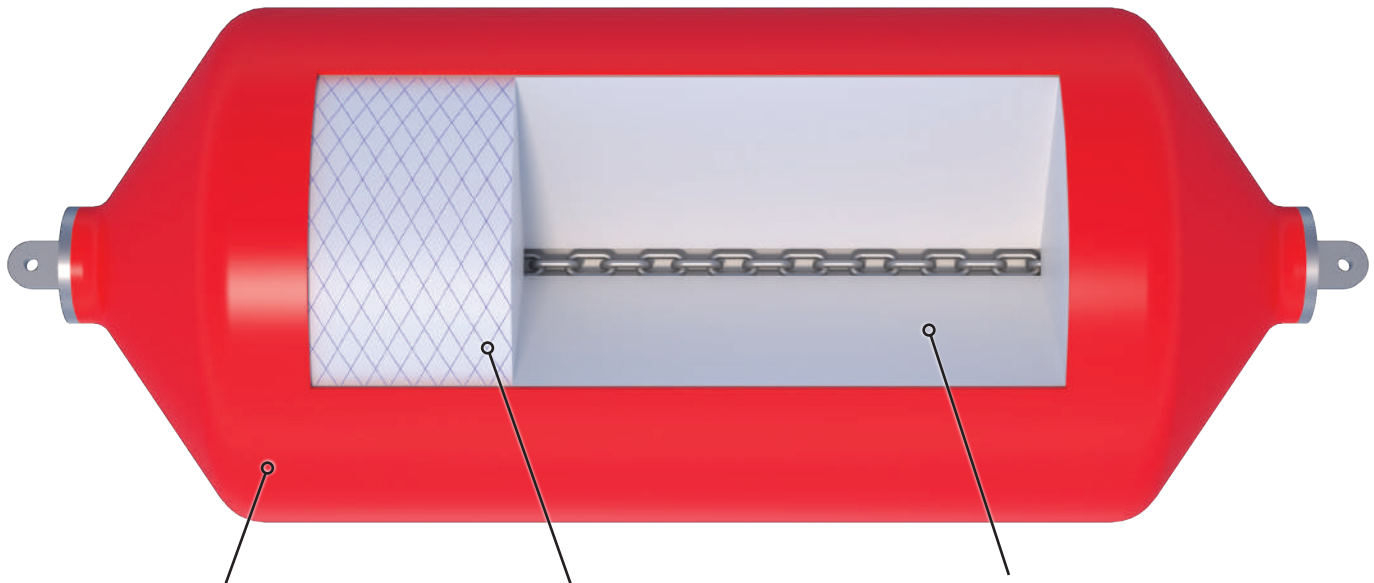
Each reinforcing filament is wound at a precise angle and tension into the elastomer skin, forming a multi-directional, many layered "net" that distributes stresses across the fender during impact.

Buoyancy

The fully protected, closed-cell foam construction limits water ingress even if the tough outer layer is punctured. In the unlikely event of severe damage the fender will stay afloat until repairs can be made.

Long life

Every TekGuard fender should work reliably for many years. If the fender does suffer damage during extreme weather or a difficult berthing maneuver, it can be returned to the factory for refurbishment and then redeployed.



Polyurethane elastomer skin

| Property | Requirement |
|---------------------|---------------|
| Hardness | 75–95 Shore A |
| Tensile strength | >13.8 MPa |
| Elongation at break | >350% |
| Tear strength | >32 kN/m |
| Working life | >10000 cycles |
| Abrasion resistance | >100 NBS |

Reinforcing filament

| Property | Requirement |
|---------------------|-------------|
| Size of filament | 2520 denier |
| Tensile strength | >230 N |
| Elongation at break | >16% |
| Winding angle | 45–60° |
| Spacing | <4 mm |

Polyethylene foam core

| Property | Requirement |
|----------------------|------------------------------------|
| Density | 58–70 kg/m ³ |
| Tensile strength | >414 kPa |
| Elongation at break | >140% |
| Water absorption | <1kg/m ² of cut surface |
| Compressive strength | >140 kN/m ² (at 50%) |
| Working temperature | –30 to +70°C |

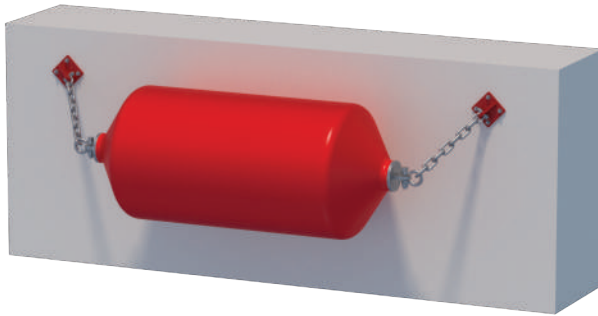
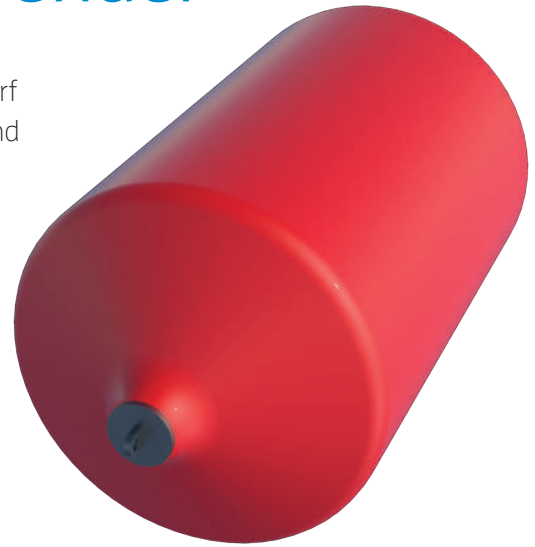


TJPF TekGuard Foam Fender

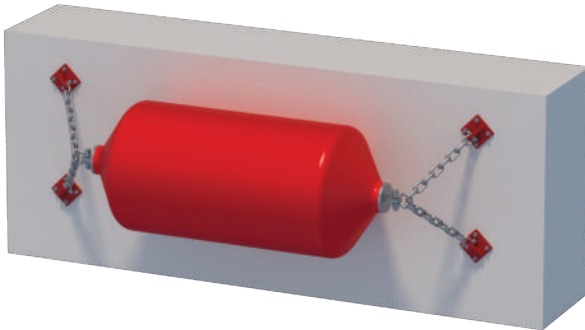
TekGuard Foam Fenders are used for ship-to-ship maneuvers and wharf protection. Their tough, non-marking skins come in white, naval gray and high visibility colors. They resist UV and ozone damage and will not deflate or sink.

Low hull pressures prevent damage to incoming vessels, and the TekGuard fender's non-marking skin will not damage the paintwork of liners, passenger ferries or yachts.

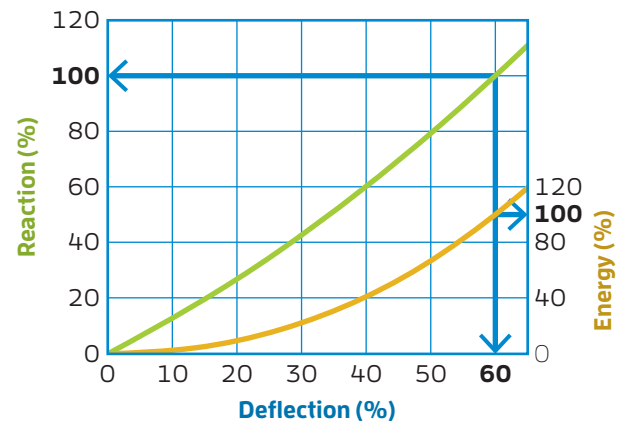
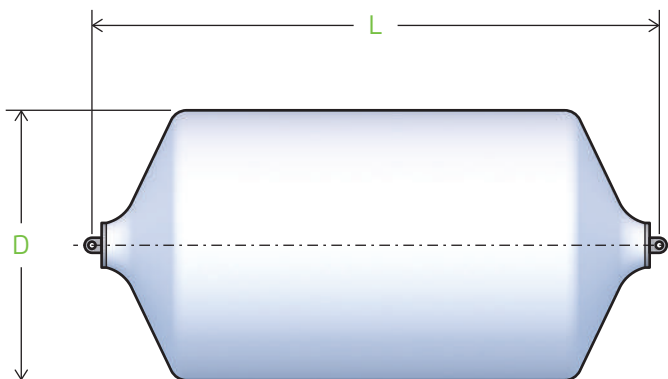
They are deployed either floating or suspended, and are easy to relocate. At the end of its service life a TekGuard fender can simply be returned for refurbishment and put back to work.



TekGuard fenders can be suspended from a single pair of chains, attached to brackets or U-anchors. This allows the fender to rise and fall with changes in water level. It is the recommended option in sites with high tidal ranges.



TekGuard fenders can be fixed in place by attaching them to paired chains at either end. This is suitable for berths where the fender is mounted above the water level or there is a low tidal range.



TJPF Dimensions and Performance

| ØD | | Low Reaction | | | | Standard Capacity | | | | High Capacity | | | | Safe working load | |
|-----------|---------|--------------|--------|----------|------|-------------------|--------|----------|------|---------------|--------|----------|------|-------------------|-----|
| | | Energy | | Reaction | | Energy | | Reaction | | Energy | | Reaction | | | |
| m | ft | kNm | ft.kip | kN | kips | kNm | ft.kip | kN | kips | kNm | ft.kip | kN | kips | kips | kN |
| 0.6 × 1.2 | 2 × 4 | 9 | 7 | 53 | 12 | 15 | 11 | 89 | 20 | 19 | 14 | 116 | 26 | 42 | 9.5 |
| 0.6 × 1.8 | 2 × 6 | 15 | 11 | 89 | 20 | 24 | 18 | 147 | 33 | 31 | 23 | 191 | 43 | 42 | 9.5 |
| 0.6 × 2.4 | 2 × 8 | 20 | 15 | 125 | 28 | 34 | 25 | 209 | 47 | 45 | 33 | 271 | 61 | 42 | 9.5 |
| 0.6 × 3.0 | 2 × 10 | 26 | 19 | 160 | 36 | 43 | 32 | 267 | 60 | 57 | 42 | 347 | 78 | 42 | 9.5 |
| 0.9 × 1.5 | 3 × 5 | 26 | 19 | 120 | 27 | 42 | 31 | 200 | 45 | 54 | 40 | 263 | 59 | 42 | 9.5 |
| 0.9 × 1.8 | 3 × 6 | 31 | 23 | 129 | 29 | 53 | 39 | 214 | 48 | 69 | 51 | 276 | 62 | 42 | 9.5 |
| 0.9 × 2.4 | 3 × 8 | 45 | 33 | 182 | 41 | 75 | 55 | 303 | 68 | 98 | 72 | 392 | 88 | 76 | 17 |
| 0.9 × 3.0 | 3 × 10 | 58 | 43 | 236 | 53 | 96 | 71 | 392 | 88 | 125 | 92 | 507 | 114 | 76 | 17 |
| 0.9 × 3.7 | 3 × 12 | 71 | 52 | 289 | 65 | 118 | 87 | 481 | 108 | 153 | 113 | 623 | 140 | 76 | 17 |
| 0.9 × 4.3 | 3 × 14 | 84 | 62 | 343 | 77 | 140 | 103 | 570 | 128 | 182 | 134 | 739 | 166 | 76 | 17 |
| 1.2 × 1.8 | 4 × 6 | 49 | 36 | 151 | 34 | 81 | 60 | 249 | 56 | 106 | 78 | 325 | 73 | 76 | 17 |
| 1.2 × 2.4 | 4 × 8 | 72 | 53 | 223 | 50 | 121 | 89 | 369 | 83 | 157 | 116 | 481 | 108 | 76 | 17 |
| 1.2 × 3.0 | 4 × 10 | 96 | 71 | 298 | 67 | 160 | 118 | 494 | 111 | 207 | 153 | 641 | 144 | 76 | 17 |
| 1.2 × 3.7 | 4 × 12 | 119 | 88 | 365 | 82 | 198 | 146 | 605 | 136 | 258 | 190 | 788 | 177 | 107 | 24 |
| 1.2 × 4.9 | 4 × 16 | 165 | 122 | 503 | 113 | 275 | 203 | 841 | 189 | 358 | 264 | 1095 | 246 | 151 | 34 |
| 1.2 × 6.1 | 4 × 20 | 212 | 156 | 645 | 145 | 353 | 260 | 1077 | 242 | 458 | 338 | 1402 | 315 | 151 | 34 |
| 1.5 × 2.4 | 5 × 8 | 110 | 81 | 267 | 60 | 183 | 135 | 445 | 100 | 239 | 176 | 579 | 130 | 76 | 17 |
| 1.5 × 3.0 | 5 × 10 | 146 | 108 | 356 | 80 | 244 | 180 | 596 | 134 | 317 | 234 | 774 | 174 | 107 | 24 |
| 1.5 × 3.7 | 5 × 12 | 183 | 135 | 445 | 100 | 305 | 225 | 743 | 167 | 397 | 293 | 966 | 217 | 107 | 24 |
| 1.5 × 4.3 | 5 × 14 | 218 | 161 | 534 | 120 | 365 | 269 | 890 | 200 | 475 | 350 | 1157 | 260 | 151 | 34 |
| 1.5 × 4.9 | 5 × 16 | 255 | 188 | 623 | 140 | 424 | 313 | 1037 | 233 | 552 | 407 | 1348 | 303 | 151 | 34 |
| 1.5 × 5.5 | 5 × 18 | 290 | 214 | 712 | 160 | 484 | 357 | 1184 | 266 | 629 | 464 | 1540 | 346 | 222 | 50 |
| 1.8 × 3.7 | 6 × 12 | 244 | 180 | 498 | 112 | 407 | 300 | 828 | 186 | 529 | 390 | 1077 | 242 | 151 | 34 |
| 1.8 × 4.3 | 6 × 14 | 296 | 218 | 601 | 135 | 494 | 364 | 1001 | 225 | 641 | 473 | 1304 | 293 | 151 | 34 |
| 1.8 × 4.9 | 6 × 16 | 347 | 256 | 708 | 159 | 579 | 427 | 1179 | 265 | 752 | 555 | 1535 | 345 | 222 | 50 |
| 1.8 × 5.5 | 6 × 18 | 400 | 295 | 814 | 183 | 666 | 491 | 1357 | 305 | 865 | 638 | 1767 | 397 | 311 | 70 |
| 1.8 × 6.1 | 6 × 20 | 450 | 332 | 917 | 206 | 751 | 554 | 1531 | 344 | 976 | 720 | 1989 | 447 | 311 | 70 |
| 2.1 × 4.3 | 7 × 14 | 396 | 292 | 690 | 155 | 660 | 487 | 1153 | 259 | 858 | 633 | 1500 | 337 | 222 | 50 |
| 2.1 × 4.9 | 7 × 16 | 466 | 344 | 814 | 183 | 778 | 574 | 1357 | 305 | 1011 | 746 | 1767 | 397 | 222 | 50 |
| 2.1 × 5.5 | 7 × 18 | 537 | 396 | 939 | 211 | 895 | 660 | 1562 | 351 | 1163 | 858 | 2029 | 456 | 311 | 70 |
| 2.1 × 6.1 | 7 × 20 | 607 | 448 | 1059 | 238 | 1013 | 747 | 1767 | 397 | 1316 | 971 | 2296 | 516 | 311 | 70 |
| 2.1 × 6.7 | 7 × 22 | 678 | 500 | 1184 | 266 | 1129 | 833 | 1971 | 443 | 1468 | 1083 | 2563 | 576 | 311 | 70 |
| 2.4 × 3.7 | 8 × 12 | 433 | 319 | 659 | 148 | 720 | 531 | 1095 | 246 | 936 | 690 | 1424 | 320 | 311 | 70 |
| 2.4 × 4.3 | 8 × 14 | 503 | 371 | 770 | 173 | 839 | 619 | 1282 | 288 | 1091 | 805 | 1664 | 374 | 311 | 70 |
| 2.4 × 4.9 | 8 × 16 | 597 | 440 | 912 | 205 | 994 | 733 | 1517 | 341 | 1292 | 953 | 1971 | 443 | 311 | 70 |
| 2.4 × 5.5 | 8 × 18 | 689 | 508 | 1050 | 236 | 1148 | 847 | 1753 | 394 | 1493 | 1101 | 2278 | 512 | 311 | 70 |
| 2.4 × 6.1 | 8 × 20 | 782 | 577 | 1193 | 268 | 1303 | 961 | 1989 | 447 | 1693 | 1249 | 2585 | 581 | 311 | 70 |
| 2.4 × 6.7 | 8 × 22 | 875 | 645 | 1335 | 300 | 1458 | 1075 | 2225 | 500 | 1895 | 1398 | 2893 | 650 | 489 | 110 |
| 2.7 × 4.3 | 9 × 14 | 633 | 467 | 859 | 193 | 1056 | 779 | 1433 | 322 | 1372 | 1012 | 1860 | 418 | 311 | 70 |
| 2.7 × 4.9 | 9 × 16 | 724 | 534 | 983 | 221 | 1207 | 890 | 1638 | 368 | 1569 | 1157 | 2127 | 478 | 311 | 70 |
| 2.7 × 5.5 | 9 × 18 | 839 | 619 | 1139 | 256 | 1399 | 1032 | 1900 | 427 | 1820 | 1342 | 2470 | 555 | 311 | 70 |
| 2.7 × 6.1 | 9 × 20 | 956 | 705 | 1299 | 292 | 1593 | 1175 | 2163 | 486 | 2072 | 1528 | 2812 | 632 | 489 | 110 |
| 2.7 × 6.7 | 9 × 22 | 1072 | 791 | 1455 | 327 | 1787 | 1318 | 2425 | 545 | 2323 | 1713 | 3155 | 709 | 489 | 110 |
| 3.0 × 4.9 | 10 × 16 | 880 | 649 | 1072 | 241 | 1466 | 1081 | 1789 | 402 | 1905 | 1405 | 2327 | 523 | 311 | 70 |
| 3.0 × 5.5 | 10 × 18 | 1024 | 755 | 1250 | 281 | 1706 | 1258 | 2083 | 468 | 2217 | 1635 | 2706 | 608 | 311 | 70 |
| 3.0 × 6.1 | 10 × 20 | 1167 | 861 | 1424 | 320 | 1946 | 1435 | 2376 | 534 | 2530 | 1866 | 3088 | 694 | 489 | 110 |
| 3.0 × 6.7 | 10 × 22 | 1311 | 967 | 1602 | 360 | 2186 | 1612 | 2670 | 600 | 2842 | 2096 | 3471 | 780 | 489 | 110 |
| 3.0 × 7.3 | 10 × 24 | 1474 | 1087 | 1798 | 404 | 2455 | 1811 | 2999 | 674 | 3099 | 2286 | 3783 | 850 | 489 | 110 |
| 3.4 × 5.5 | 11 × 18 | 1205 | 889 | 1339 | 301 | 2009 | 1482 | 2229 | 501 | 2613 | 1927 | 2897 | 651 | 489 | 110 |
| 3.4 × 6.1 | 11 × 20 | 1380 | 1018 | 1531 | 344 | 2299 | 1696 | 2550 | 573 | 2903 | 2141 | 3315 | 745 | 489 | 110 |
| 3.4 × 6.7 | 11 × 22 | 1554 | 1146 | 1727 | 388 | 2590 | 1910 | 2875 | 646 | 3366 | 2483 | 3738 | 840 | 489 | 110 |
| 3.4 × 7.3 | 11 × 24 | 1695 | 1250 | 1878 | 422 | 2824 | 2083 | 3133 | 704 | 3673 | 2709 | 4076 | 916 | 489 | 110 |
| 3.7 × 6.1 | 12 × 20 | 1760 | 1298 | 1891 | 425 | 2933 | 2163 | 3151 | 708 | 3813 | 2812 | 4094 | 920 | 489 | 110 |
| 3.7 × 7.3 | 12 × 24 | 2111 | 1557 | 2270 | 510 | 3518 | 2595 | 3783 | 850 | 4575 | 3374 | 4917 | 1105 | 489 | 110 |
| 4.0 × 7.9 | 13 × 26 | 2636 | 1944 | 2630 | 591 | 4393 | 3240 | 4383 | 985 | 5711 | 4212 | 5700 | 1281 | 489 | 110 |
| 4.3 × 8.5 | 14 × 28 | 3254 | 2400 | 3017 | 678 | 5423 | 4000 | 5029 | 1130 | 7050 | 5200 | 6537 | 1469 | 489 | 110 |

Custom sizes are available on request. Please ask TekMarine for details.

TJPF Dimensions and Performance

| ØD | | Extra High Capacity | | | | Super High Capacity | | | | Ultra High Capacity | | | | Safe working load | |
|-----------|---------|---------------------|--------|----------|------|---------------------|--------|----------|------|---------------------|--------|----------|------|-------------------|-----|
| | | Energy | | Reaction | | Energy | | Reaction | | Energy | | Reaction | | | |
| m | ft | kNm | ft.kip | kN | kips | kNm | ft.kip | kN | kips | kNm | ft.kip | kN | kips | kips | kN |
| 0.6 × 1.2 | 2 × 4 | 28 | 21 | 169 | 38 | 39 | 29 | 231 | 52 | 50 | 37 | 303 | 68 | 42 | 9.5 |
| 0.6 × 1.8 | 2 × 6 | 46 | 34 | 280 | 63 | 64 | 47 | 383 | 86 | 83 | 61 | 498 | 112 | 42 | 9.5 |
| 0.6 × 2.4 | 2 × 8 | 65 | 48 | 396 | 89 | 88 | 65 | 543 | 122 | 115 | 85 | 712 | 160 | 42 | 9.5 |
| 0.6 × 3.0 | 2 × 10 | 83 | 61 | 507 | 114 | 113 | 83 | 694 | 156 | 148 | 109 | 908 | 204 | 42 | 9.5 |
| 0.9 × 1.5 | 3 × 5 | 80 | 59 | 383 | 86 | 110 | 81 | 521 | 117 | 142 | 105 | 681 | 153 | 42 | 9.5 |
| 0.9 × 1.8 | 3 × 6 | 100 | 74 | 405 | 91 | 137 | 101 | 556 | 125 | 180 | 133 | 725 | 163 | 42 | 9.5 |
| 0.9 × 2.4 | 3 × 8 | 142 | 105 | 574 | 129 | 194 | 143 | 788 | 177 | 254 | 187 | 1028 | 231 | 76 | 17 |
| 0.9 × 3.0 | 3 × 10 | 183 | 135 | 743 | 167 | 251 | 185 | 1019 | 229 | 327 | 241 | 1331 | 299 | 76 | 17 |
| 0.9 × 3.7 | 3 × 12 | 224 | 165 | 912 | 205 | 306 | 226 | 1250 | 281 | 401 | 296 | 1633 | 367 | 76 | 17 |
| 0.9 × 4.3 | 3 × 14 | 266 | 196 | 1081 | 243 | 363 | 268 | 1482 | 333 | 475 | 350 | 1936 | 435 | 76 | 17 |
| 1.2 × 1.8 | 4 × 6 | 155 | 114 | 472 | 106 | 212 | 156 | 650 | 146 | 277 | 204 | 846 | 190 | 76 | 17 |
| 1.2 × 2.4 | 4 × 8 | 229 | 169 | 703 | 158 | 313 | 231 | 961 | 216 | 411 | 303 | 1255 | 282 | 76 | 17 |
| 1.2 × 3.0 | 4 × 10 | 304 | 224 | 939 | 211 | 416 | 307 | 1286 | 289 | 544 | 401 | 1678 | 377 | 76 | 17 |
| 1.2 × 3.7 | 4 × 12 | 376 | 277 | 1148 | 258 | 515 | 380 | 1575 | 354 | 672 | 496 | 2056 | 462 | 107 | 24 |
| 1.2 × 4.9 | 4 × 16 | 523 | 386 | 1598 | 359 | 716 | 528 | 2185 | 491 | 936 | 690 | 2861 | 643 | 151 | 34 |
| 1.2 × 6.1 | 4 × 20 | 670 | 494 | 2047 | 460 | 917 | 676 | 2799 | 629 | 1199 | 884 | 3662 | 823 | 151 | 34 |
| 1.5 × 2.4 | 5 × 8 | 348 | 257 | 846 | 190 | 476 | 351 | 1157 | 260 | 622 | 459 | 1513 | 340 | 76 | 17 |
| 1.5 × 3.0 | 5 × 10 | 464 | 342 | 1135 | 255 | 635 | 468 | 1549 | 348 | 830 | 612 | 2029 | 456 | 107 | 24 |
| 1.5 × 3.7 | 5 × 12 | 580 | 428 | 1411 | 317 | 793 | 585 | 1931 | 434 | 1037 | 765 | 2528 | 568 | 107 | 24 |
| 1.5 × 4.3 | 5 × 14 | 693 | 511 | 1691 | 380 | 948 | 699 | 2314 | 520 | 1241 | 915 | 3026 | 680 | 151 | 34 |
| 1.5 × 4.9 | 5 × 16 | 807 | 595 | 1971 | 443 | 1104 | 814 | 2697 | 606 | 1443 | 1064 | 3524 | 792 | 151 | 34 |
| 1.5 × 5.5 | 5 × 18 | 919 | 678 | 2247 | 505 | 1258 | 928 | 3079 | 692 | 1646 | 1214 | 4023 | 904 | 222 | 50 |
| 1.8 × 3.7 | 6 × 12 | 773 | 570 | 1571 | 353 | 1058 | 780 | 2154 | 484 | 1383 | 1020 | 2812 | 632 | 151 | 34 |
| 1.8 × 4.3 | 6 × 14 | 938 | 692 | 1905 | 428 | 1283 | 946 | 2603 | 585 | 1679 | 1238 | 3404 | 765 | 151 | 34 |
| 1.8 × 4.9 | 6 × 16 | 1100 | 811 | 2243 | 504 | 1505 | 1110 | 3066 | 689 | 1969 | 1452 | 4009 | 901 | 222 | 50 |
| 1.8 × 5.5 | 6 × 18 | 1265 | 933 | 2581 | 580 | 1731 | 1277 | 3529 | 793 | 2263 | 1669 | 4615 | 1037 | 311 | 70 |
| 1.8 × 6.1 | 6 × 20 | 1428 | 1053 | 2910 | 654 | 1952 | 1440 | 3978 | 894 | 2554 | 1884 | 5207 | 1170 | 311 | 70 |
| 2.1 × 4.3 | 7 × 14 | 1254 | 925 | 2189 | 492 | 1716 | 1266 | 2995 | 673 | 2245 | 1656 | 3920 | 881 | 222 | 50 |
| 2.1 × 4.9 | 7 × 16 | 1479 | 1091 | 2581 | 580 | 2023 | 1492 | 3529 | 793 | 2647 | 1952 | 4615 | 1037 | 222 | 50 |
| 2.1 × 5.5 | 7 × 18 | 1700 | 1254 | 2968 | 667 | 2327 | 1716 | 4063 | 913 | 3042 | 2244 | 5309 | 1193 | 311 | 70 |
| 2.1 × 6.1 | 7 × 20 | 1924 | 1419 | 3355 | 754 | 2633 | 1942 | 4592 | 1032 | 3444 | 2540 | 6008 | 1350 | 311 | 70 |
| 2.1 × 6.7 | 7 × 22 | 2146 | 1583 | 3747 | 842 | 2937 | 2166 | 5126 | 1152 | 3840 | 2832 | 6702 | 1506 | 311 | 70 |
| 2.4 × 3.7 | 8 × 12 | 1367 | 1008 | 2083 | 468 | 1870 | 1379 | 2857 | 642 | 2447 | 1805 | 3720 | 836 | 311 | 70 |
| 2.4 × 4.3 | 8 × 14 | 1594 | 1176 | 2434 | 547 | 2182 | 1609 | 3333 | 749 | 2854 | 2105 | 4357 | 979 | 311 | 70 |
| 2.4 × 4.9 | 8 × 16 | 1889 | 1393 | 2884 | 648 | 2584 | 1906 | 3947 | 887 | 3379 | 2492 | 5158 | 1159 | 311 | 70 |
| 2.4 × 5.5 | 8 × 18 | 2182 | 1609 | 3333 | 749 | 2986 | 2202 | 4557 | 1024 | 3905 | 2880 | 5963 | 1340 | 311 | 70 |
| 2.4 × 6.1 | 8 × 20 | 2476 | 1826 | 3778 | 849 | 3388 | 2499 | 5171 | 1162 | 4429 | 3267 | 6764 | 1520 | 311 | 70 |
| 2.4 × 6.7 | 8 × 22 | 2770 | 2043 | 4228 | 950 | 3790 | 2795 | 5785 | 1300 | 4956 | 3655 | 7565 | 1700 | 489 | 110 |
| 2.7 × 4.3 | 9 × 14 | 2007 | 1480 | 2719 | 611 | 2746 | 2025 | 3725 | 837 | 3592 | 2649 | 4873 | 1095 | 311 | 70 |
| 2.7 × 4.9 | 9 × 16 | 2293 | 1691 | 3111 | 699 | 3137 | 2314 | 4259 | 957 | 4103 | 3026 | 5567 | 1251 | 311 | 70 |
| 2.7 × 5.5 | 9 × 18 | 2659 | 1961 | 3609 | 811 | 3638 | 2683 | 4940 | 1110 | 4758 | 3509 | 6461 | 1452 | 311 | 70 |
| 2.7 × 6.1 | 9 × 20 | 3028 | 2233 | 4107 | 923 | 4142 | 3055 | 5625 | 1264 | 5416 | 3995 | 7351 | 1652 | 489 | 110 |
| 2.7 × 6.7 | 9 × 22 | 3395 | 2504 | 4610 | 1036 | 4646 | 3427 | 6306 | 1417 | 6075 | 4481 | 8246 | 1853 | 489 | 110 |
| 3.0 × 4.9 | 10 × 16 | 2785 | 2054 | 3400 | 764 | 3811 | 2811 | 4650 | 1045 | 4983 | 3675 | 6083 | 1367 | 311 | 70 |
| 3.0 × 5.5 | 10 × 18 | 3240 | 2390 | 3956 | 889 | 4435 | 3271 | 5416 | 1217 | 5799 | 4277 | 7080 | 1591 | 311 | 70 |
| 3.0 × 6.1 | 10 × 20 | 3697 | 2727 | 4517 | 1015 | 5059 | 3731 | 6177 | 1388 | 6615 | 4879 | 8081 | 1816 | 489 | 110 |
| 3.0 × 6.7 | 10 × 22 | 4153 | 3063 | 5073 | 1140 | 5682 | 4191 | 6942 | 1560 | 7431 | 5481 | 9078 | 2040 | 489 | 110 |
| 3.0 × 7.3 | 10 × 24 | 4530 | 3341 | 5536 | 1244 | 6199 | 4572 | 7574 | 1702 | 8348 | 6157 | 10199 | 2292 | 489 | 110 |
| 3.4 × 5.5 | 11 × 18 | 3818 | 2816 | 4236 | 952 | 5224 | 3853 | 5798 | 1303 | 6832 | 5039 | 7578 | 1703 | 489 | 110 |
| 3.4 × 6.1 | 11 × 20 | 4370 | 3223 | 4851 | 1090 | 5979 | 4410 | 6635 | 1491 | 7818 | 5766 | 8669 | 1948 | 489 | 110 |
| 3.4 × 6.7 | 11 × 22 | 4920 | 3629 | 5460 | 1227 | 6733 | 4966 | 7476 | 1680 | 8805 | 6494 | 9772 | 2196 | 489 | 110 |
| 3.4 × 7.3 | 11 × 24 | 5368 | 3959 | 5954 | 1338 | 7346 | 5418 | 8152 | 1832 | 9602 | 7082 | 10653 | 2394 | 489 | 110 |
| 3.7 × 6.1 | 12 × 20 | 5571 | 4109 | 5990 | 1346 | 7624 | 5623 | 8192 | 1841 | 9971 | 7354 | 10711 | 2407 | 489 | 110 |
| 3.7 × 7.3 | 12 × 24 | 6686 | 4931 | 7187 | 1615 | 9148 | 6747 | 9835 | 2210 | 11962 | 8823 | 12861 | 2890 | 489 | 110 |
| 4.0 × 7.9 | 13 × 26 | 8346 | 6156 | 8330 | 1872 | 11421 | 8424 | 11396 | 2561 | 14936 | 11016 | 14903 | 3349 | 489 | 110 |
| 4.3 × 8.5 | 14 × 28 | 10304 | 7600 | 9554 | 2147 | 14101 | 10400 | 13074 | 2938 | 18439 | 13600 | 17097 | 3842 | 489 | 110 |

Custom sizes are available on request. Please ask TekMarine for details.



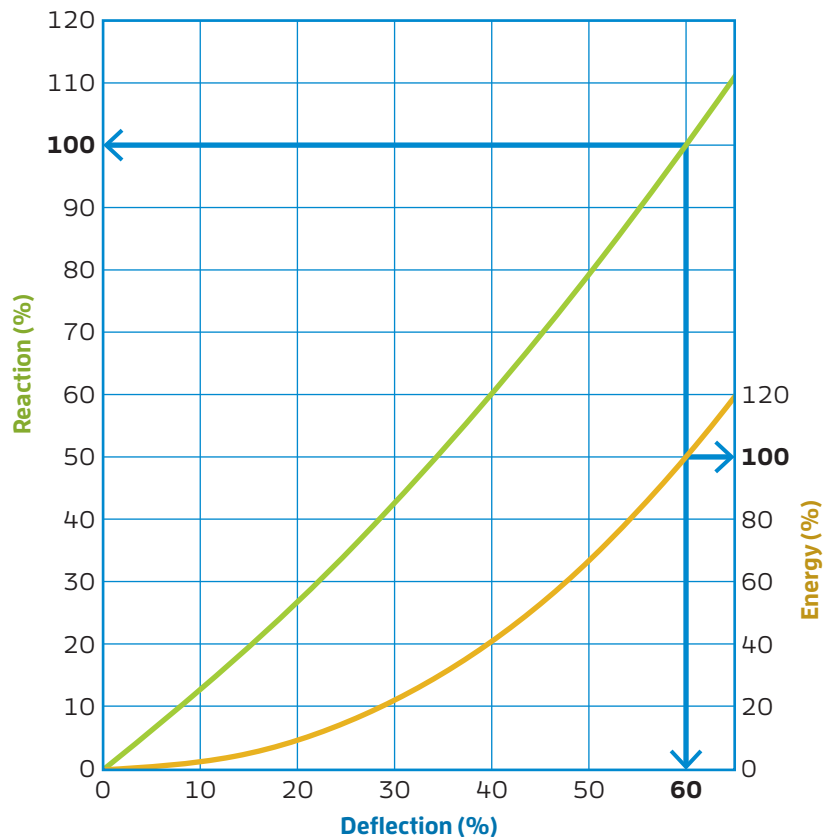
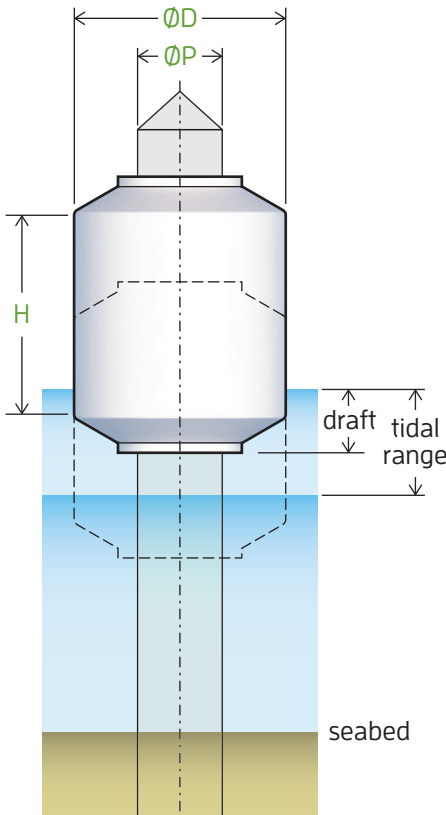
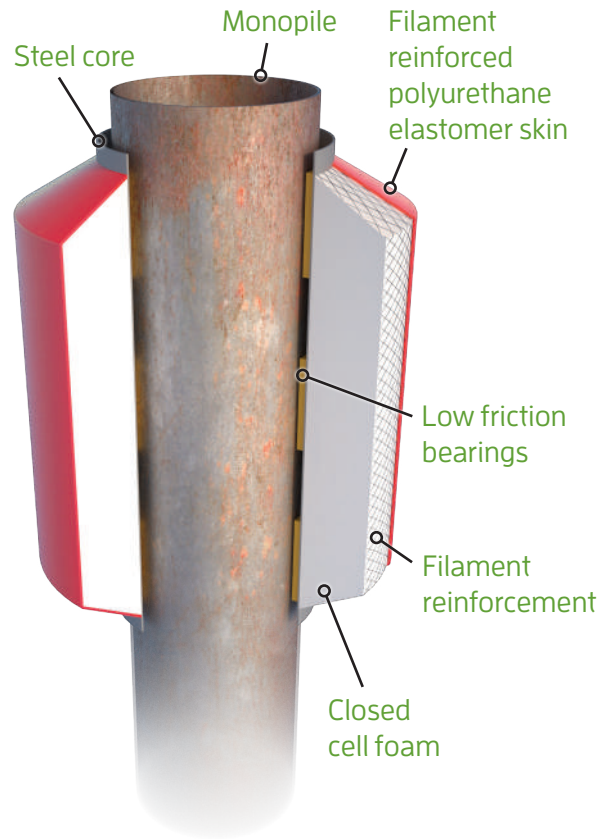
TJDF Donut Fender

TJDF Donut Fenders guide vessels at lock entrances, berth approaches and turning points. The donut floats around a tubular pile and follows changes in the water level.

Installation could not be easier: simply lower the fender over the monopile until it floats.

The donut's durable, low-friction bearings allow free movement with minimal maintenance. Its closed-cell foam core makes the donut impossible to sink, burst or deflate. The filament-reinforced, polyurethane elastomer skin is exceptionally tough.

TJDF Donut Fenders are available in a range of foam grades and high visibility colors.



Dimensions and Performance

| ØD | | ØP | | H | | Standard Capacity | | | | High Capacity | | | | Extra High Capacity | | | | Super High Capacity | | | | Ultra High Capacity | | | |
|-----|-----|-----|-----|-----|-----|-------------------|--------|----------|------|---------------|--------|----------|------|---------------------|--------|----------|------|---------------------|--------|----------|------|---------------------|--------|----------|------|
| | | | | | | Energy | | Reaction | | Energy | | Reaction | | Energy | | Reaction | | Energy | | Reaction | | Energy | | Reaction | |
| ft | m | ft | m | ft | m | kNm | ft.kip | kN | kips | kNm | ft.kip | kN | kips | kNm | ft.kip | kN | kips | kNm | ft.kip | kN | kips | kNm | ft.kip | kN | kips |
| 4.5 | 1.4 | 2.0 | 0.6 | 2.0 | 0.6 | 5.4 | 4.0 | 80.1 | 18.0 | 9.8 | 7.0 | 129 | 29.0 | 13.7 | 10.0 | 196 | 44.0 | 20.6 | 15.0 | 294 | 66.0 | 27.5 | 20.0 | 400 | 90.0 |
| 4.5 | 1.4 | 2.0 | 0.6 | 3.0 | 0.9 | 8.1 | 6.0 | 120 | 27.0 | 13.7 | 10.0 | 191 | 43.0 | 20.6 | 15.0 | 294 | 66.0 | 29.4 | 22.0 | 440 | 99.0 | 40.2 | 30.0 | 601 | 135 |
| 4.5 | 1.4 | 2.0 | 0.6 | 4.0 | 1.2 | 10.8 | 8.0 | 156 | 35.0 | 17.7 | 13.0 | 258 | 58.0 | 27.5 | 20.0 | 391 | 88.0 | 40.2 | 30.0 | 587 | 132 | 54.0 | 40.0 | 801 | 180 |
| 4.5 | 1.4 | 2.0 | 0.6 | 5.0 | 1.5 | 13.6 | 10.0 | 196 | 44.0 | 21.6 | 16.0 | 320 | 72.0 | 34.3 | 25.0 | 489 | 110 | 50.0 | 37.0 | 734 | 165 | 69.7 | 51.0 | 1001 | 225 |
| 4.5 | 1.4 | 2.0 | 0.6 | 6.0 | 1.8 | 16.3 | 12.0 | 236 | 53.0 | 27.5 | 20.0 | 387 | 87.0 | 40.2 | 30.0 | 587 | 132 | 59.8 | 44.0 | 881 | 198 | 82.4 | 61.0 | 1201 | 270 |
| 4.5 | 1.4 | 2.0 | 0.6 | 7.0 | 2.1 | 19.0 | 14.0 | 276 | 62.0 | 31.4 | 23.0 | 449 | 101 | 47.1 | 35.0 | 685 | 154 | 70.6 | 52.0 | 1023 | 230 | 96.1 | 71.0 | 1401 | 315 |
| 4.5 | 1.4 | 2.0 | 0.6 | 8.0 | 2.4 | 21.7 | 16.0 | 316 | 71.0 | 35.3 | 26.0 | 516 | 116 | 54.0 | 40.0 | 783 | 176 | 80.4 | 59.0 | 1170 | 263 | 110 | 81.0 | 1601 | 360 |
| 5.0 | 1.5 | 2.5 | 0.8 | 2.0 | 0.6 | 6.8 | 5.0 | 93.4 | 21.0 | 10.8 | 8.0 | 151 | 34.0 | 16.7 | 12.0 | 227 | 51.0 | 23.5 | 17.0 | 343 | 77.0 | 32.4 | 24.0 | 467 | 105 |
| 5.0 | 1.5 | 2.5 | 0.8 | 3.0 | 0.9 | 9.5 | 7.0 | 138 | 31.0 | 14.7 | 11.0 | 227 | 51.0 | 23.5 | 17.0 | 343 | 77.0 | 35.3 | 26.0 | 512 | 115 | 47.1 | 35.0 | 698 | 157 |
| 5.0 | 1.5 | 2.5 | 0.8 | 4.0 | 1.2 | 13.6 | 10.0 | 182 | 41.0 | 20.6 | 15.0 | 303 | 68.0 | 31.4 | 23.0 | 458 | 103 | 47.1 | 35.0 | 685 | 154 | 63.8 | 47.0 | 934 | 210 |
| 5.0 | 1.5 | 2.5 | 0.8 | 5.0 | 1.5 | 16.3 | 12.0 | 231 | 52.0 | 25.5 | 19.0 | 374 | 84.0 | 39.2 | 29.0 | 569 | 128 | 57.9 | 43.0 | 854 | 192 | 80.4 | 59.0 | 1165 | 262 |
| 5.0 | 1.5 | 2.5 | 0.8 | 6.0 | 1.8 | 20.3 | 15.0 | 276 | 62.0 | 31.4 | 23.0 | 449 | 101 | 47.1 | 35.0 | 685 | 154 | 70.6 | 52.0 | 1023 | 230 | 96.1 | 71.0 | 1401 | 315 |
| 5.0 | 1.5 | 2.5 | 0.8 | 7.0 | 2.1 | 23.0 | 17.0 | 320 | 72.0 | 36.3 | 27.0 | 525 | 118 | 54.0 | 40.0 | 801 | 180 | 81.4 | 60.0 | 1197 | 269 | 113 | 83.0 | 1633 | 367 |
| 5.0 | 1.5 | 2.5 | 0.8 | 8.0 | 2.4 | 27.1 | 20.0 | 369 | 83.0 | 40.2 | 30.0 | 601 | 135 | 62.8 | 46.0 | 912 | 205 | 93.2 | 69.0 | 1366 | 307 | 128 | 94.0 | 1864 | 419 |
| 6.0 | 1.8 | 3.0 | 0.9 | 2.0 | 0.6 | 9.5 | 7.0 | 107 | 24.0 | 16.7 | 12.0 | 174 | 39.0 | 24.5 | 18.0 | 262 | 59.0 | 35.3 | 26.0 | 391 | 88.0 | 49.1 | 36.0 | 534 | 120 |
| 6.0 | 1.8 | 3.0 | 0.9 | 3.0 | 0.9 | 14.9 | 11.0 | 156 | 35.0 | 23.5 | 17.0 | 258 | 58.0 | 35.3 | 26.0 | 391 | 88.0 | 54.0 | 40.0 | 587 | 132 | 73.6 | 54.0 | 801 | 180 |
| 6.0 | 1.8 | 3.0 | 0.9 | 4.0 | 1.2 | 19.0 | 14.0 | 209 | 47.0 | 31.4 | 23.0 | 343 | 77.0 | 47.1 | 35.0 | 520 | 117 | 71.6 | 53.0 | 783 | 176 | 98.1 | 72.0 | 1068 | 240 |
| 6.0 | 1.8 | 3.0 | 0.9 | 5.0 | 1.5 | 24.4 | 18.0 | 262 | 59.0 | 39.2 | 29.0 | 427 | 96.0 | 59.8 | 44.0 | 654 | 147 | 89.3 | 66.0 | 974 | 219 | 122 | 90.0 | 1335 | 300 |
| 6.0 | 1.8 | 3.0 | 0.9 | 6.0 | 1.8 | 28.5 | 21.0 | 316 | 71.0 | 47.1 | 35.0 | 516 | 116 | 71.6 | 53.0 | 783 | 176 | 107 | 79.0 | 1170 | 263 | 146 | 108 | 1601 | 360 |
| 6.0 | 1.8 | 3.0 | 0.9 | 7.0 | 2.1 | 33.9 | 25.0 | 369 | 83.0 | 55.9 | 41.0 | 601 | 135 | 84.4 | 62.0 | 912 | 205 | 125 | 92.0 | 1366 | 307 | 171 | 126 | 1864 | 419 |
| 6.0 | 1.8 | 3.0 | 0.9 | 8.0 | 2.4 | 39.3 | 29.0 | 418 | 94.0 | 62.8 | 46.0 | 685 | 154 | 95.2 | 70.0 | 1041 | 234 | 142 | 105 | 1561 | 351 | 195 | 144 | 2131 | 479 |
| 7.0 | 2.1 | 3.5 | 1.1 | 3.0 | 0.9 | 20.3 | 15.0 | 178 | 40.0 | 32.4 | 24.0 | 289 | 65.0 | 50.0 | 37.0 | 440 | 99.0 | 75.5 | 56.0 | 658 | 148 | 103 | 76.0 | 899 | 202 |
| 7.0 | 2.1 | 3.5 | 1.1 | 4.0 | 1.2 | 25.8 | 19.0 | 236 | 53.0 | 45.1 | 33.0 | 387 | 87.0 | 66.7 | 49.0 | 587 | 132 | 100 | 74.0 | 881 | 198 | 137 | 101 | 1201 | 270 |
| 7.0 | 2.1 | 3.5 | 1.1 | 5.0 | 1.5 | 32.5 | 24.0 | 294 | 66.0 | 55.9 | 41.0 | 485 | 109 | 84.4 | 62.0 | 734 | 165 | 127 | 93.0 | 1099 | 247 | 171 | 126 | 1499 | 337 |
| 7.0 | 2.1 | 3.5 | 1.1 | 6.0 | 1.8 | 39.3 | 29.0 | 356 | 80.0 | 66.7 | 49.0 | 578 | 130 | 100 | 74.0 | 881 | 198 | 151 | 111 | 1317 | 296 | 206 | 152 | 1797 | 404 |
| 7.0 | 2.1 | 3.5 | 1.1 | 7.0 | 2.1 | 46.1 | 34.0 | 414 | 93.0 | 77.5 | 57.0 | 676 | 152 | 118 | 87.0 | 1028 | 231 | 177 | 130 | 1539 | 346 | 240 | 177 | 2100 | 472 |
| 7.0 | 2.1 | 3.5 | 1.1 | 8.0 | 2.4 | 52.9 | 39.0 | 472 | 106 | 88.3 | 65.0 | 774 | 174 | 134 | 99.0 | 1174 | 264 | 201 | 148 | 1757 | 395 | 274 | 202 | 2398 | 539 |
| 7.5 | 2.3 | 4.0 | 1.2 | 3.0 | 0.9 | 23.0 | 17.0 | 196 | 44.0 | 36.3 | 27.0 | 320 | 72.0 | 55.9 | 41.0 | 489 | 110 | 84.4 | 62.0 | 734 | 165 | 114 | 84.0 | 1001 | 225 |
| 7.5 | 2.3 | 4.0 | 1.2 | 4.0 | 1.2 | 29.8 | 22.0 | 262 | 59.0 | 49.1 | 36.0 | 427 | 96.0 | 74.6 | 55.0 | 654 | 147 | 111 | 82.0 | 974 | 219 | 152 | 112 | 1335 | 300 |
| 7.5 | 2.3 | 4.0 | 1.2 | 5.0 | 1.5 | 38.0 | 28.0 | 329 | 74.0 | 60.8 | 45.0 | 538 | 121 | 93.2 | 69.0 | 814 | 183 | 139 | 103 | 1219 | 274 | 190 | 140 | 1668 | 375 |
| 7.5 | 2.3 | 4.0 | 1.2 | 6.0 | 1.8 | 44.7 | 33.0 | 396 | 89.0 | 73.6 | 54.0 | 645 | 145 | 111 | 82.0 | 979 | 220 | 163 | 120 | 1464 | 329 | 230 | 169 | 1997 | 449 |
| 7.5 | 2.3 | 4.0 | 1.2 | 7.0 | 2.1 | 52.9 | 39.0 | 458 | 103 | 85.3 | 63.0 | 752 | 169 | 131 | 96.0 | 1139 | 256 | 195 | 144 | 1708 | 384 | 267 | 197 | 2331 | 524 |
| 7.5 | 2.3 | 4.0 | 1.2 | 8.0 | 2.4 | 61.0 | 45.0 | 525 | 118 | 98.1 | 72.0 | 859 | 193 | 149 | 110 | 1303 | 293 | 224 | 165 | 1953 | 439 | 305 | 225 | 2665 | 599 |
| 8.3 | 2.5 | 4.5 | 1.4 | 3.0 | 0.9 | 27.1 | 20.0 | 218 | 49.0 | 45.1 | 33.0 | 356 | 80.0 | 67.7 | 50.0 | 538 | 121 | 102 | 75.0 | 805 | 181 | 138 | 102 | 1099 | 247 |
| 8.3 | 2.5 | 4.5 | 1.4 | 4.0 | 1.2 | 36.6 | 27.0 | 289 | 65.0 | 59.8 | 44.0 | 472 | 106 | 89.3 | 66.0 | 716 | 161 | 135 | 100 | 1072 | 241 | 184 | 136 | 1468 | 330 |
| 8.3 | 2.5 | 4.5 | 1.4 | 5.0 | 1.5 | 44.7 | 33.0 | 360 | 81.0 | 74.6 | 55.0 | 592 | 133 | 113 | 83.0 | 894 | 201 | 168 | 124 | 1343 | 302 | 231 | 170 | 1833 | 412 |
| 8.3 | 2.5 | 4.5 | 1.4 | 6.0 | 1.8 | 54.2 | 40.0 | 432 | 97.0 | 89.3 | 66.0 | 707 | 159 | 135 | 100 | 1077 | 242 | 202 | 149 | 1610 | 362 | 277 | 204 | 2197 | 494 |
| 8.3 | 2.5 | 4.5 | 1.4 | 7.0 | 2.1 | 63.7 | 47.0 | 507 | 114 | 104 | 77.0 | 827 | 186 | 157 | 116 | 1254 | 282 | 236 | 174 | 1877 | 422 | 323 | 238 | 2567 | 577 |
| 8.3 | 2.5 | 4.5 | 1.4 | 8.0 | 2.4 | 73.2 | 54.0 | 578 | 130 | 120 | 88.0 | 943 | 212 | 181 | 133 | 1432 | 322 | 270 | 199 | 2149 | 483 | 369 | 272 | 2931 | 659 |
| 9.0 | 2.7 | 5.0 | 1.5 | 3.0 | 0.9 | 32.5 | 24.0 | 236 | 53.0 | 53.0 | 39.0 | 387 | 87.0 | 80.4 | 59.0 | 587 | 132 | 121 | 89.0 | 881 | 198 | 164 | 121 | 1201 | 270 |
| 9.0 | 2.7 | 5.0 | 1.5 | 4.0 | 1.2 | 43.4 | 32.0 | 316 | 71.0 | 70.6 | 52.0 | 516 | 116 | 107 | 79.0 | 783 | 176 | 162 | 119 | 1170 | 263 | 220 | 162 | 1601 | 360 |
| 9.0 | 2.7 | 5.0 | 1.5 | 5.0 | 1.5 | 54.2 | 40.0 | 396 | 89.0 | 88.3 | 65.0 | 645 | 145 | 134 | 99.0 | 979 | 220 | 201 | 148 | 1464 | 329 | 274 | 202 | 1997 | 449 |
| 9.0 | 2.7 | 5.0 | 1.5 | 6.0 | 1.8 | 65.1 | 48.0 | 472 | 106 | 106 | 78.0 | 774 | 174 | 162 | 119 | 1174 | 264 | 241 | 178 | 1757 | 395 | 330 | 243 | 2398 | 539 |
| 9.0 | 2.7 | 5.0 | 1.5 | 7.0 | 2.1 | 75.9 | 56.0 | 552 | 124 | 124 | 91.0 | 903 | 203 | 187 | 138 | 1370 | 308 | 281 | 207 | 2051 | 461 | 384 | 283 | 2798 | 629 |
| 9.0 | 2.7 | 5.0 | 1.5 | 8.0 | 2.4 | 86.8 | 64.0 | 632 | 142 | 141 | 104 | 1032 | 232 | 215 | 158 | 1566 | 352 | 322 | 237 | 2344 | 527 | 440 | 324 | 3198 | 719 |

Custom sizes are available on request. Please ask TekMarine for details.



TJCQ Pneumatic Fenders

TekMarine TJCQ Pneumatic Fenders are highly successful for ship-to-ship operations and for large tidal variations. They provide temporary or permanent protection and are simple to deploy. Their low hull pressure and reaction, rough weather performance and durability make TJCQ Pneumatic Fenders favorites for naval use.

Pneumatic fenders also cope well with shear and with bow flares – energy absorption is unchanged at compression angles of up to 15°. They maintain a high, stable standoff.

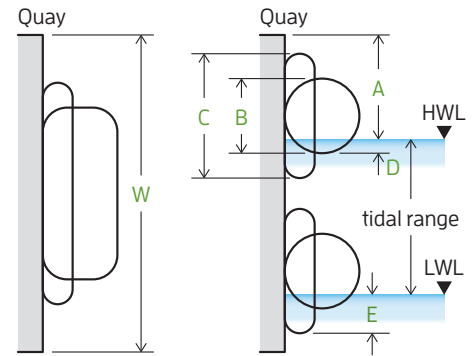
Pneumatic fenders are easy to transport. They can be shipped and stored deflated.

Available in many sizes, either 50kPa or 80kPa initial internal pressures, and with optional chain-tire nets, there is a pneumatic fender for any application. Black and naval gray finishes are available for all sizes.

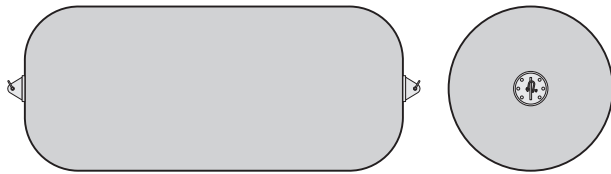


Installation dimensions

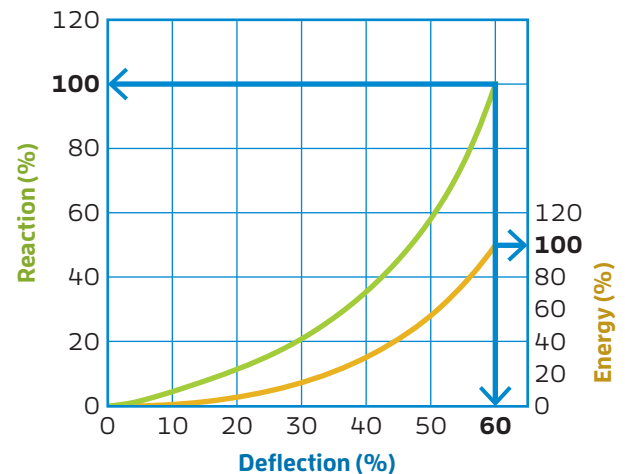
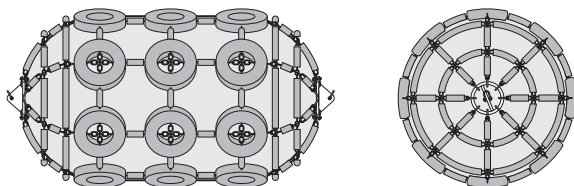
| Size | | A | | B | | C | | D | | E | | W | |
|-------------|------------|------|------|------|------|------|------|-----|-----|------|-----|------|------|
| mm | ft | mm | ft | mm | ft | mm | ft | mm | ft | mm | ft | mm | ft |
| 1000 × 1500 | 3 × 5 | 975 | 3.2 | 950 | 3.1 | 1350 | 4.4 | 200 | 0.7 | 375 | 1.2 | 2000 | 6.6 |
| 1200 × 2000 | 4 × 6.5 | 1200 | 3.9 | 1140 | 3.7 | 1620 | 5.3 | 220 | 0.7 | 430 | 1.4 | 2600 | 8.5 |
| 1500 × 2500 | 5 × 8 | 1525 | 5.0 | 1420 | 4.7 | 2050 | 6.7 | 250 | 0.8 | 525 | 1.7 | 3250 | 10.7 |
| 2000 × 3500 | 6.5 × 11.5 | 2050 | 6.7 | 1900 | 6.2 | 2700 | 8.9 | 300 | 1.0 | 650 | 2.1 | 4500 | 14.8 |
| 2500 × 4000 | 8 × 13 | 2490 | 8.2 | 2380 | 7.8 | 3380 | 11.1 | 450 | 1.5 | 890 | 2.9 | 5200 | 17.1 |
| 3300 × 6500 | 11 × 21 | 3380 | 11.1 | 3140 | 10.3 | 4460 | 14.6 | 500 | 1.6 | 1080 | 3.5 | 8500 | 27.9 |



Sling (netless)



Chain-tire net



TJCQ Performance (50kPa)

| Size | | Energy | | Reaction | | Hull Pressure | | Safety Valve Pressure Setting | | Testing Pressure | | Weight (Chain Tire Net type) | | | | Weight (Sling Type) | | Body Thickness | |
|------------|-----------|--------|--------|----------|------|---------------|------|----------------------------------|------|------------------|------|------------------------------|-------|-----------|-------|---------------------|------|----------------|------|
| | | | | | | | | | | | | Fender Body | | Chain Net | | | | | |
| mm | ft | kNm | ft.kip | kN | kips | kPa | psi | kPa | psi | kPa | psi | kg | lbs | kg | lbs | kg | lbs | mm | in |
| 300×600 | 1.0×2.0 | 0.5 | 0.4 | 24 | 5.4 | 134 | 19.4 | Not applicable for smaller sizes | | 200 | 29.0 | 15 | 33.1 | - | - | 20 | 44.1 | 12 | 0.47 |
| 500×1000 | 1.6×3.3 | 6 | 4.4 | 64 | 14.4 | 132 | 19.1 | | | 200 | 29.0 | 24 | 52.9 | 121 | 267 | 35 | 77.2 | 12 | 0.47 |
| 600×1000 | 2.0×3.3 | 8 | 5.9 | 74 | 16.6 | 126 | 18.3 | | | 200 | 29.0 | 28 | 61.7 | 132 | 291 | 39 | 86.0 | 12 | 0.47 |
| 700×1500 | 2.3×4.9 | 17 | 12.5 | 137 | 30.8 | 135 | 19.6 | | | 200 | 29.0 | 50 | 110 | 165 | 364 | 60 | 132 | 13 | 0.51 |
| 800×1500 | 2.6×4.9 | 24 | 17.7 | 158 | 35.5 | 132 | 19.1 | | | 200 | 29.0 | 64 | 141 | 280 | 617 | 72 | 159 | 14 | 0.55 |
| 1000×1500 | 3.3×4.9 | 33 | 24.3 | 182 | 40.9 | 122 | 17.7 | | | 200 | 29.0 | 80 | 176 | 220 | 485 | 107 | 236 | 14 | 0.55 |
| 1000×2000 | 3.3×6.6 | 46 | 33.9 | 257 | 57.8 | 132 | 19.1 | | | 200 | 29.0 | 97 | 214 | 242 | 534 | 124 | 273 | 14 | 0.55 |
| 1200×2000 | 3.9×6.6 | 64 | 47.2 | 297 | 66.8 | 126 | 18.3 | | | 200 | 29.0 | 144 | 317 | 352 | 776 | 171 | 377 | 14 | 0.55 |
| 1200×3000 | 3.9×9.8 | 109 | 80.4 | 482 | 108 | 134 | 19.4 | | | 200 | 29.0 | 250 | 551 | 435 | 959 | 280 | 617 | 14 | 0.55 |
| 1350×2500 | 4.4×8.2 | 104 | 76.7 | 427 | 96 | 130 | 18.9 | | | 200 | 29.0 | 220 | 485 | 385 | 849 | 264 | 582 | 15 | 0.59 |
| 1500×2500 | 4.9×8.2 | 125 | 92.2 | 464 | 104 | 126 | 18.3 | | | 200 | 29.0 | 243 | 536 | 484 | 1067 | 287 | 633 | 16 | 0.63 |
| 1500×3000 | 4.9×9.8 | 156 | 115 | 579 | 130 | 132 | 19.1 | | | 200 | 29.0 | 275 | 606 | 583 | 1285 | 319 | 703 | 16 | 0.63 |
| 1500×4000 | 4.9×13.1 | 230 | 170 | 815 | 183 | 130 | 18.9 | | | 200 | 29.0 | 330 | 728 | 690 | 1521 | 380 | 838 | 16 | 0.63 |
| 1700×3000 | 5.6×9.8 | 195 | 144 | 639 | 144 | 128 | 18.6 | | | 200 | 29.0 | 319 | 703 | 638 | 1407 | 363 | 800 | 16 | 0.63 |
| 1700×7200 | 5.6×23.6 | 516 | 381 | 1621 | 364 | 133 | 19.3 | | | 200 | 29.0 | 760 | 1676 | - | - | 810 | 1786 | 16 | 0.63 |
| 2000×3000 | 6.6×9.8 | 260 | 192 | 727 | 163 | 122 | 17.7 | | | 200 | 29.0 | 403 | 888 | 990 | 2183 | 469 | 1034 | 16 | 0.63 |
| 2000×3500 | 6.6×11.5 | 314 | 232 | 875 | 197 | 128 | 18.6 | | | 200 | 29.0 | 445 | 981 | 1056 | 2328 | 502 | 1107 | 17 | 0.67 |
| 2000×4000 | 6.6×13.1 | 361 | 266 | 1020 | 229 | 125 | 18.1 | | | 200 | 29.0 | 490 | 1080 | 1150 | 2535 | 540 | 1190 | 16 | 0.63 |
| 2000×6000 | 6.6×19.7 | 611 | 451 | 1631 | 367 | 136 | 19.7 | | | 200 | 29.0 | 658 | 1451 | 1650 | 3638 | 720 | 1587 | 16 | 0.63 |
| 2500×4000 | 8.2×13.1 | 676 | 499 | 1381 | 310 | 137 | 19.9 | | | 175 | 25.4 | 250 | 36.3 | 992 | 2187 | 1364 | 3007 | 1188 | 2619 |
| 2500×5500 | 8.2×18.0 | 962 | 710 | 2019 | 454 | 148 | 21.5 | 175 | 25.4 | 250 | 36.3 | 1199 | 2643 | 2035 | 4486 | 1452 | 3201 | 18 | 0.71 |
| 2500×9100 | 8.2×29.9 | 1631 | 1203 | 3482 | 783 | 140 | 20.3 | 175 | 25.4 | 250 | 36.3 | 2150 | 4740 | 3467 | 7643 | 2230 | 4916 | 18 | 0.71 |
| 3000×5000 | 9.8×16.4 | 1136 | 838 | 2021 | 454 | 154 | 22.3 | 175 | 25.4 | 250 | 36.3 | 1520 | 3351 | 1800 | 3968 | 1640 | 3616 | 19 | 0.75 |
| 3300×4500 | 10.8×14.8 | 1198 | 884 | 1884 | 424 | 130 | 18.9 | 175 | 25.4 | 250 | 36.3 | 1606 | 3541 | 1881 | 4147 | 2024 | 4462 | 20 | 0.79 |
| 3300×6500 | 10.8×21.3 | 1850 | 1365 | 3015 | 678 | 146 | 21.2 | 175 | 25.4 | 250 | 36.3 | 2057 | 4535 | 2827 | 6232 | 2475 | 5456 | 20 | 0.79 |
| 3300×10600 | 10.8×34.8 | 3128 | 2307 | 5257 | 1182 | 158 | 22.9 | 175 | 25.4 | 250 | 36.3 | 2816 | 6208 | 5126 | 11301 | 3366 | 7421 | 22 | 0.87 |
| 4500×7000 | 14.8×23.0 | 3302 | 2436 | 3796 | 853 | 133 | 19.3 | 175 | 25.4 | 250 | 36.3 | 3740 | 8245 | 4290 | 9458 | 3880 | 8554 | 24 | 0.94 |
| 4500×9000 | 14.8×29.5 | 4847 | 3575 | 5747 | 1292 | 146 | 21.2 | 175 | 25.4 | 250 | 36.3 | 4334 | 9555 | 5929 | 13071 | - | - | 24 | 0.94 |
| 4500×12000 | 14.8×39.4 | 6602 | 4870 | 7984 | 1795 | 154 | 22.3 | 175 | 25.4 | 205 | 29.7 | 5269 | 11616 | 7689 | 16951 | - | - | 24 | 0.94 |

TJCQ Performance (80kPa)

| Size | | Energy | | Reaction | | Hull Pressure | | Safety Valve Pressure Setting | | Testing Pressure | | Weight (Chain Tire Net type) | | | | Weight (Sling Type) | | Body Thickness | | | |
|------------|-----------|--------|--------|----------|------|---------------|------|----------------------------------|------|------------------|------|------------------------------|-------|-----------|-------|---------------------|------|----------------|------|----|------|
| | | | | | | | | | | | | Fender Body | | Chain Net | | | | | | | |
| mm | ft | kNm | ft.kip | kN | kips | kPa | psi | kPa | psi | kPa | psi | kg | lbs | kg | lbs | kg | lbs | mm | in | | |
| 300×600 | 1.0×2.0 | 0.6 | 0.4 | 31 | 7.0 | 173 | 25.1 | Not applicable for smaller sizes | | 250 | 36.3 | 17 | 37.5 | - | - | 20 | 44.1 | 13 | 0.51 | | |
| 500×1000 | 1.6×3.3 | 8 | 5.9 | 85 | 19.1 | 174 | 25.2 | | | 250 | 36.3 | 26 | 57.3 | 121 | 267 | 37 | 81.6 | 13 | 0.51 | | |
| 600×1000 | 2.0×3.3 | 11 | 8.1 | 98 | 22.0 | 166 | 24.1 | | | 250 | 36.3 | 30 | 66.1 | 132 | 291 | 42 | 92.6 | 13 | 0.51 | | |
| 700×1500 | 2.3×4.9 | 24 | 17.7 | 180 | 40.5 | 177 | 25.7 | | | 250 | 36.3 | 52 | 115 | 165 | 364 | 63 | 139 | 14 | 0.55 | | |
| 800×1500 | 2.6×4.9 | 31 | 22.9 | 204 | 45.9 | 180 | 26.1 | | | 250 | 36.3 | 71 | 157 | 280 | 617 | 83 | 183 | 15 | 0.59 | | |
| 1000×1500 | 3.3×4.9 | 45 | 33.2 | 239 | 53.7 | 160 | 23.2 | | | 250 | 36.3 | 84 | 185 | 220 | 485 | 111 | 245 | 15 | 0.59 | | |
| 1000×2000 | 3.3×6.6 | 64 | 47.2 | 338 | 76.0 | 174 | 25.2 | | | 250 | 36.3 | 101 | 223 | 242 | 534 | 129 | 284 | 15 | 0.59 | | |
| 1200×2000 | 3.9×6.6 | 89 | 65.6 | 390 | 87.7 | 166 | 24.1 | | | 250 | 36.3 | 149 | 328 | 352 | 776 | 176 | 388 | 15 | 0.59 | | |
| 1200×3000 | 3.9×9.8 | 140 | 103 | 623 | 140 | 185 | 26.8 | | | 250 | 36.3 | 275 | 606 | 435 | 959 | 310 | 683 | 16 | 0.63 | | |
| 1350×2500 | 4.4×8.2 | 144 | 106 | 561 | 126 | 170 | 24.7 | | | 250 | 36.3 | 226 | 498 | 385 | 849 | 270 | 595 | 17 | 0.67 | | |
| 1500×2500 | 4.9×8.2 | 174 | 128 | 610 | 137 | 166 | 24.1 | | | 250 | 36.3 | 268 | 591 | 484 | 1067 | 312 | 688 | 17 | 0.67 | | |
| 1500×3000 | 4.9×9.8 | 218 | 161 | 761 | 171 | 174 | 25.2 | | | 250 | 36.3 | 339 | 747 | 583 | 1285 | 355 | 783 | 17 | 0.67 | | |
| 1500×4000 | 4.9×13.1 | 296 | 218 | 1053 | 237 | 176 | 25.5 | | | 250 | 36.3 | 363 | 800 | 690 | 1521 | 378 | 833 | 17 | 0.67 | | |
| 1700×3000 | 5.6×9.8 | 272 | 201 | 840 | 189 | 168 | 24.4 | | | 250 | 36.3 | 348 | 767 | 638 | 1407 | 392 | 864 | 17 | 0.67 | | |
| 1700×7200 | 5.6×23.6 | 668 | 493 | 2096 | 471 | 170 | 24.7 | | | 250 | 36.3 | 795 | 1753 | - | - | 845 | 1863 | 18 | 0.71 | | |
| 2000×3000 | 6.6×9.8 | 363 | 268 | 955 | 215 | 160 | 23.2 | | | 250 | 36.3 | 413 | 911 | 990 | 2183 | 479 | 1056 | 19 | 0.75 | | |
| 2000×3500 | 6.6×11.5 | 438 | 323 | 1150 | 259 | 168 | 24.4 | | | 250 | 36.3 | 454 | 1001 | 1056 | 2328 | 520 | 1146 | 19 | 0.75 | | |
| 2000×4000 | 6.6×13.1 | 520 | 384 | 1380 | 310 | 173 | 25.1 | | | 250 | 36.3 | 505 | 1113 | 1150 | 2535 | 535 | 1179 | 19 | 0.75 | | |
| 2000×6000 | 6.6×19.7 | 791 | 583 | 2109 | 474 | 170 | 24.7 | | | 230 | 33.4 | 300 | 43.5 | 724 | 1596 | 1650 | 3638 | 810 | 1786 | 18 | 0.71 |
| 2500×4000 | 8.2×13.1 | 944 | 696 | 1815 | 408 | 180 | 26.1 | | | 230 | 33.4 | 300 | 43.5 | 1111 | 2449 | 1364 | 3007 | 1309 | 2886 | 20 | 0.79 |
| 2500×5500 | 8.2×18.0 | 1343 | 991 | 2653 | 596 | 195 | 28.3 | 230 | 33.4 | 300 | 43.5 | 1353 | 2983 | 2035 | 4486 | 1606 | 3541 | 20 | 0.79 | | |
| 2500×9100 | 8.2×29.9 | 2293 | 1691 | 4505 | 1013 | 199 | 28.9 | 230 | 33.4 | 300 | 43.5 | 2360 | 5203 | 3467 | 7643 | 2450 | 5401 | 20 | 0.79 | | |
| 3000×5000 | 9.8×16.4 | 1593 | 1175 | 2608 | 586 | 185 | 26.8 | 230 | 33.4 | 300 | 43.5 | 1670 | 3682 | 1800 | 3968 | 1850 | 4079 | 21 | 0.83 | | |
| 3300×4500 | 10.8×14.8 | 1673 | 1234 | 2476 | 557 | 171 | 24.8 | 230 | 33.4 | 300 | 43.5 | 1892 | 4171 | 1881 | 4147 | 2299 | 5068 | 22 | 0.87 | | |
| 3300×6500 | 10.8×21.3 | 2583 | 1905 | 3961 | 890 | 191 | 27.7 | 230 | 33.4 | 300 | 43.5 | 2420 | 5335 | 2827 | 6232 | 2827 | 6232 | 22 | 0.87 | | |
| 3300×10600 | 10.8×34.8 | 4366 | 3220 | 6907 | 1553 | 208 | 30.2 | 230 | 33.4 | 300 | 43.5 | 3333 | 7348 | 5126 | 11301 | 3872 | 8536 | 23 | 0.91 | | |
| 4500×7000 | 14.8×23.0 | 4608 | 3399 | 4988 | 1121 | 174 | 25.2 | 230 | 33.4 | 300 | 43.5 | 4136 | 9118 | 4301 | 9482 | 4350 | 9590 | 26 | 1.02 | | |
| 4500×9000 | 14.8×29.5 | 6766 | 4991 | 7551 | 1698 | 192 | 27.8 | 230 | 33.4 | 300 | 43.5 | 4818 | 10622 | 5929 | 13071 | - | - | 26 | 1.02 | | |
| 4500×12000 | 14.8×39.4 | 9218 | 6799 | 14490 | 3257 | 202 | 29.3 | 230 | 33.4 | 300 | 43.5 | 5863 | 12926 | 7689 | 16951 | - | - | 26 | 1.02 | | |

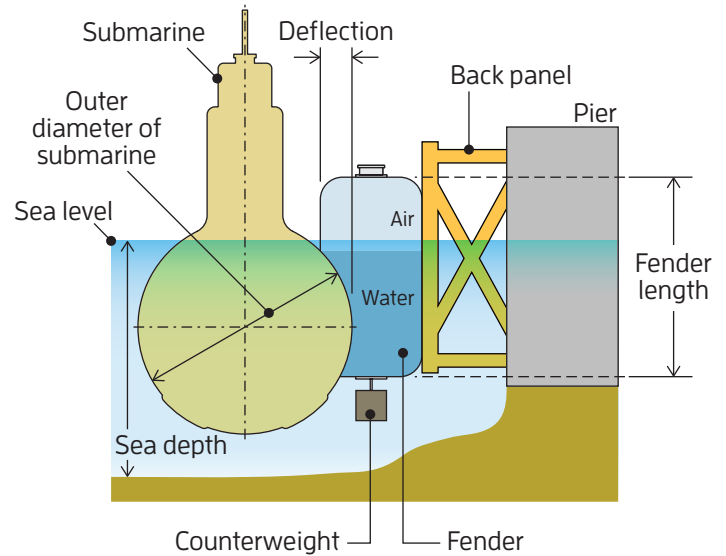


TJHF Hydropneumatic Fenders

TekMarine TJHF Hydropneumatic Fenders are designed for vessels, such as submarines, that make contact with fenders below the waterline.

Fenders are part-filled with water and ballasted to float vertically. Performance can be tuned by changing the water-to-air ratio and initial pressure.

TekMarine strongly recommends that a detailed study is carried out for each application.

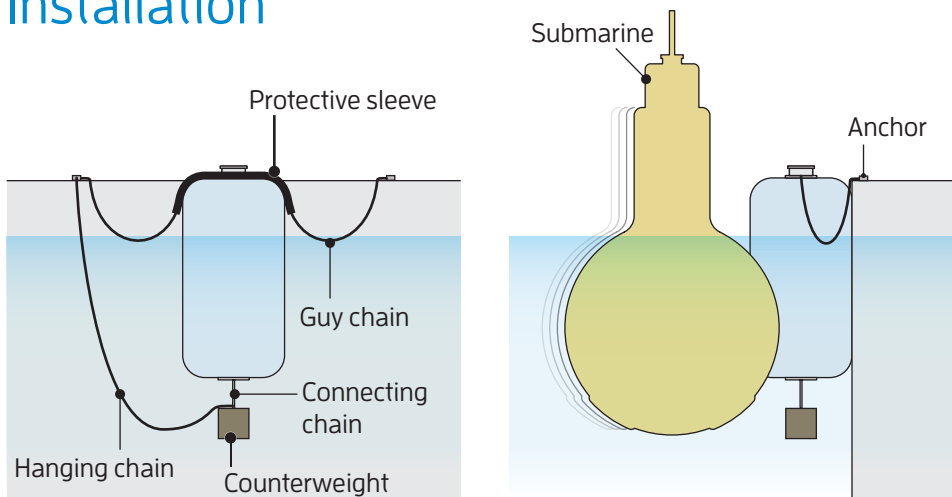


Dimensions and Performance

| Diameter × Length | | Air filled (no water) | | | | Partially water filled | | | | | |
|-------------------|-------------|-----------------------|--------|---------|----------|------------------------|-----------|--------|---------|----------|------|
| | | Water:Air | Energy | | Reaction | | Water:Air | Energy | | Reaction | |
| mm | ft | | kNm | ft.kips | kN | kips | | kNm | ft.kips | kN | kips |
| 1700 × 7200 | 5.6 × 23.6 | 0 : 100 | 560 | 413 | 1810 | 407 | 65 : 35 | 134 | 99 | 611 | 137 |
| 2000 × 6000 | 6.6 × 19.7 | 0 : 100 | 647 | 477 | 1766 | 397 | 65 : 35 | 155 | 114 | 599 | 135 |
| 2500 × 5500 | 8.2 × 18.0 | 0 : 100 | 928 | 684 | 2037 | 458 | 65 : 35 | 223 | 164 | 687 | 154 |
| 3300 × 6500 | 10.8 × 21.3 | 0 : 100 | 1913 | 1411 | 3169 | 712 | 55 : 45 | 616 | 454 | 1247 | 280 |
| 3300 × 10500 | 10.8 × 34.4 | 0 : 100 | 3120 | 2301 | 5170 | 1162 | 65 : 35 | 589 | 434 | 1275 | 287 |

Performance varies with the vessel hull shape, water to air ratio, gas mixture (ie. N₂), and the initial pressure. Performances are given for an initial pressure of 0.5bar (7.1 psi) and are indicative only. Please speak to TekMarine about your exact requirements.

Installation



Openings at the upper and lower flanges allow water to charge and discharge.

A pressure relief valve allows the controlled release of air in the event of over-compression.

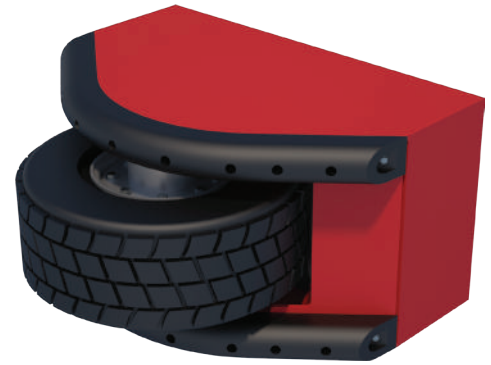


TJZD-A Wheel Fenders

TekMarine TJZD-A Wheel Fenders guide vessels safely into berths and narrow channels, such as dry-docks or lock entrances, or around corners. On contact, the wheel slides back against concealed rollers for higher energy absorption than a traditional Roller Fender and a very low rolling resistance.

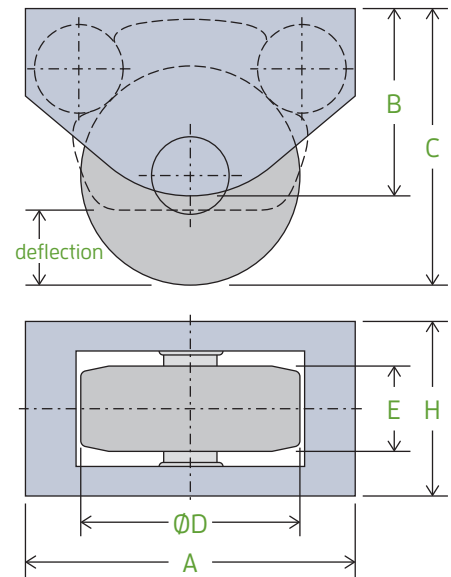
Fenders can be grouped vertically to deal with high water-level variations, or side-by-side to guide vessels along a channel. For large hull angles, fenders can be mounted at an angle.

Every Wheel Fender installation is custom designed. Please ask TekMarine about the best choice of tire size, casing and layout for your project.



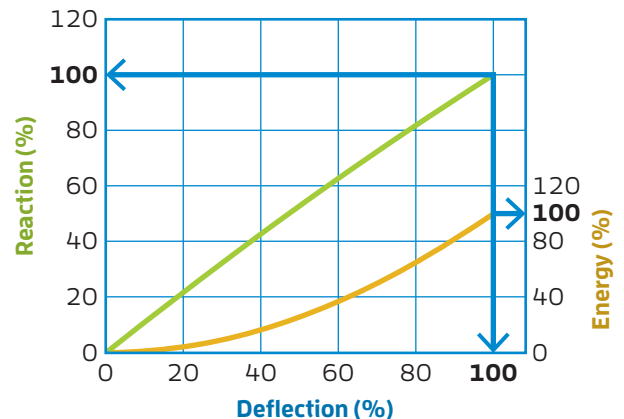
Dimensions

| Size | | A | | B | | C | | ØD | | E | | H | |
|-----------|------------|------|------|------|------|------|------|------|------|-----|------|------|------|
| mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| 110 × 45 | 4.3 × 1.8 | 1700 | 66.9 | 1000 | 39.4 | 1450 | 57.1 | 1080 | 42.5 | 460 | 18.1 | 900 | 35.4 |
| 130 × 50 | 5.1 × 2.0 | 2000 | 78.7 | 1200 | 47.2 | 1750 | 68.9 | 1300 | 51.2 | 510 | 20.1 | 1000 | 39.4 |
| 175 × 70 | 6.9 × 2.8 | 2650 | 104 | 1500 | 59.1 | 2200 | 86.6 | 1750 | 68.9 | 690 | 27.2 | 1150 | 45.3 |
| 200 × 75 | 7.9 × 3.0 | 2750 | 108 | 1750 | 68.9 | 2550 | 100 | 1980 | 78.0 | 760 | 29.9 | 1250 | 49.2 |
| 250 × 100 | 9.8 × 3.9 | 3350 | 132 | 2200 | 86.6 | 3200 | 126 | 2550 | 100 | 970 | 38.2 | 1600 | 63.0 |
| 290 × 110 | 11.4 × 4.3 | 4200 | 165 | 2500 | 98.4 | 3750 | 148 | 2900 | 114 | 900 | 35.4 | 1700 | 66.9 |



Performance

| Size | | Energy | | Reaction | | Deflection | | Pressure | |
|-----------|------------|--------|--------|----------|------|------------|------|----------|------|
| mm | in | kNm | ft.kip | kN | kips | mm | in | bar | psi |
| 110 × 45 | 4.3 × 1.8 | 33 | 24.3 | 150 | 33.7 | 400 | 15.7 | 5.5 | 79.8 |
| 130 × 50 | 5.1 × 2.0 | 61 | 45.0 | 220 | 49.5 | 500 | 19.7 | 3.5 | 50.8 |
| 175 × 70 | 6.9 × 2.8 | 100 | 73.8 | 315 | 70.8 | 600 | 23.6 | 4.8 | 69.6 |
| 200 × 75 | 7.9 × 3.0 | 220 | 162 | 590 | 133 | 700 | 27.6 | 5.5 | 79.8 |
| 250 × 100 | 9.8 × 3.9 | 440 | 325 | 920 | 207 | 925 | 36.4 | 5.5 | 79.8 |
| 290 × 110 | 11.4 × 4.3 | 880 | 649 | 1300 | 292 | 1200 | 47.2 | 5.8 | 84.1 |



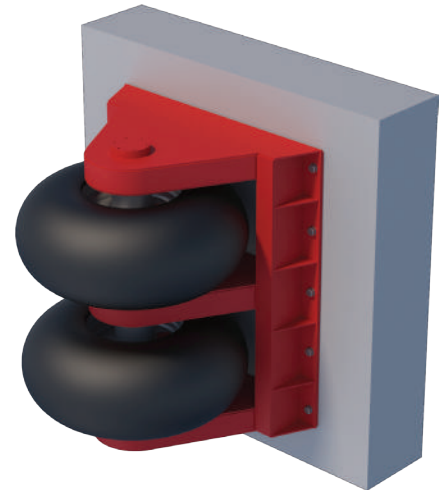


TJZD-B Roller Fenders

TekMarine TJZD-B Roller Fenders are often used to protect lock and dry-dock entrances and narrow channels, and for effective corner protection. The bearings are made from stainless steel and a low-friction composite, and sit safely inside a rugged steel casing. The design allows for minimal rolling resistance and years of safe operation with little maintenance.

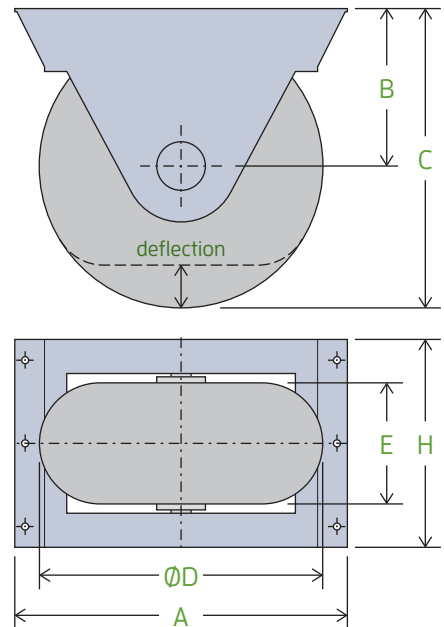
Fenders can be grouped vertically to deal with high tidal variations, or side-by-side to guide vessels along a channel. For large hull angles, fenders can be mounted at an angle.

All Roller Fenders are custom designed. Please ask TekMarine about the best choice of size, casing and layout for your project.



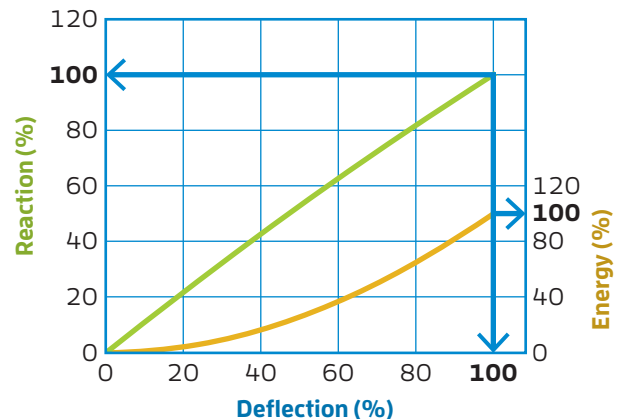
Dimensions

| Size | | A | | B | | C | | ØD | | E | | H | |
|-----------|-----------|------|------|------|------|------|------|------|------|-----|------|------|------|
| mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in |
| 110 × 45 | 4.3 × 1.8 | 1250 | 49.2 | 610 | 24.0 | 1150 | 45.3 | 1080 | 42.5 | 460 | 18.1 | 800 | 31.5 |
| 130 × 50 | 5.1 × 2.0 | 1530 | 60.2 | 740 | 29.1 | 1400 | 55.1 | 1320 | 52.0 | 510 | 20.1 | 950 | 37.4 |
| 140 × 60 | 5.5 × 2.4 | 1600 | 63.0 | 765 | 30.1 | 1450 | 57.1 | 1370 | 53.9 | 610 | 24.0 | 1000 | 39.4 |
| 175 × 70 | 6.9 × 2.8 | 2050 | 80.7 | 975 | 38.4 | 1850 | 72.8 | 1750 | 68.9 | 690 | 27.2 | 1250 | 49.2 |
| 200 × 75 | 7.9 × 3.0 | 2300 | 90.6 | 1110 | 43.7 | 2100 | 82.7 | 1980 | 78.0 | 765 | 30.1 | 1400 | 55.1 |
| 250 × 100 | 9.8 × 3.9 | 3000 | 118 | 1425 | 56.1 | 2700 | 106 | 2550 | 100 | 895 | 35.2 | 1800 | 70.9 |



Performance

| Size | | Energy | | Reaction | | Deflection | | Pressure | |
|-----------|-----------|--------|--------|----------|------|------------|------|----------|------|
| mm | in | kNm | ft.kip | kN | kips | mm | in | bar | psi |
| 110 × 45 | 4.3 × 1.8 | 13 | 9.6 | 175 | 39.3 | 152 | 6.0 | 5.5 | 79.8 |
| 130 × 50 | 5.1 × 2.0 | 22 | 16.2 | 200 | 45.0 | 230 | 9.1 | 3.5 | 50.8 |
| 140 × 60 | 5.5 × 2.4 | 20 | 14.8 | 210 | 47.2 | 205 | 8.1 | 3.5 | 50.8 |
| 175 × 70 | 6.9 × 2.8 | 37 | 27.3 | 345 | 77.6 | 225 | 8.9 | 4.8 | 69.6 |
| 200 × 75 | 7.9 × 3.0 | 100 | 73.8 | 765 | 172 | 270 | 10.6 | 5.5 | 79.8 |
| 250 × 100 | 9.8 × 3.9 | 170 | 125 | 1000 | 225 | 345 | 13.6 | 5.5 | 79.8 |

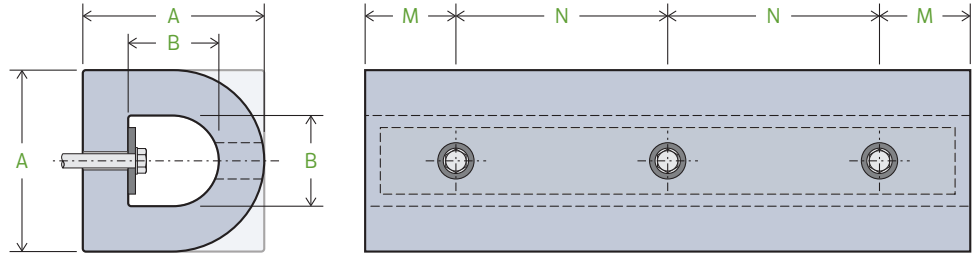








Profile Fenders

Profile Fenders are used for smaller vessels and lighter applications. They are usually bolted to the structure, either through the top or sides of the fender. Available in various sections including D and square, they can be supplied in almost any length then cut and drilled as needed.

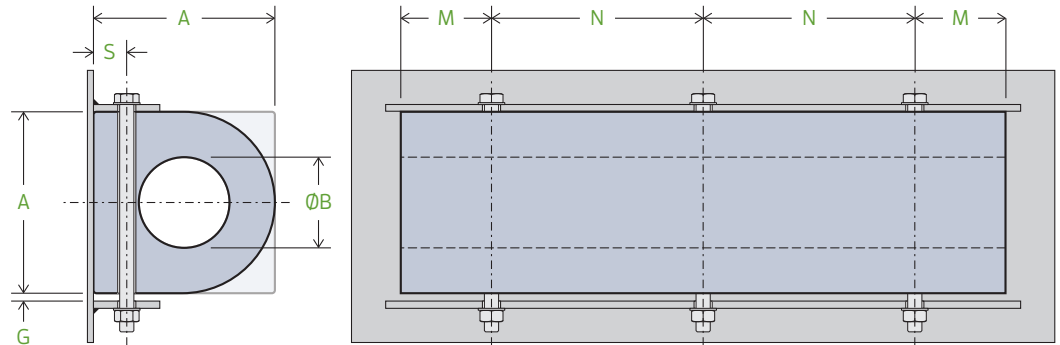
TJDD 
 TJSD 







| A | | B | | M | | N | | Bolt | Weight | | | | Performance | | | | | | | |
|-----|------|-----|-----|---------|---------|---------|-----------|------|--|------|--|------|--|------|----------|------|--|------|----------|------|
| | | | | | | | | | TJDD  | | TJSD  | | TJDD  | | | | TJSD  | | | |
| mm | in | mm | in | mm | in | mm | in | | kg | lb | kg | lb | Energy | | Reaction | | Energy | | Reaction | |
| 100 | 3.9 | 50 | 2.0 | 90-130 | 3.7-5.3 | 200-300 | 8.2-12.2 | M12 | 8.0 | 17.6 | 9.3 | 20.5 | 1.4 | 1.0 | 76 | 17.0 | 2.6 | 1.9 | 137 | 30.8 |
| 150 | 5.9 | 75 | 3.0 | 110-150 | 4.5-6.1 | 250-350 | 10.2-14.3 | M16 | 18.1 | 39.9 | 21.0 | 46.3 | 3.1 | 2.3 | 114 | 25.6 | 6.5 | 4.8 | 205 | 46.1 |
| 200 | 7.9 | 100 | 3.9 | 130-180 | 5.3-7.3 | 300-400 | 12.2-16.3 | M20 | 32.1 | 70.8 | 37.3 | 82.2 | 5.6 | 4.1 | 152 | 34.2 | 11.3 | 8.3 | 273 | 61.4 |
| 250 | 9.8 | 125 | 4.9 | 140-200 | 5.7-8.2 | 350-450 | 14.3-18.4 | M24 | 50.2 | 111 | 58.3 | 129 | 8.9 | 6.6 | 190 | 42.7 | 17.6 | 13.0 | 345 | 77.6 |
| 300 | 11.8 | 150 | 5.9 | 140-200 | 5.7-8.2 | 350-450 | 14.3-18.4 | M24 | 72.3 | 159 | 83.9 | 185 | 12.8 | 9.4 | 232 | 52.2 | 25.3 | 18.7 | 413 | 92.8 |
| 350 | 13.8 | 175 | 6.9 | 140-200 | 5.7-8.2 | 350-450 | 14.3-18.4 | M30 | 98.4 | 217 | 114 | 251 | 17.6 | 13.0 | 270 | 60.7 | 34.3 | 25.3 | 504 | 113 |
| 400 | 15.7 | 200 | 7.9 | 140-200 | 5.7-8.2 | 350-450 | 14.3-18.4 | M30 | 129 | 284 | 149 | 328 | 23.2 | 17.1 | 305 | 68.6 | 45.1 | 33.3 | 590 | 133 |
| 500 | 19.7 | 250 | 9.8 | 140-200 | 5.7-8.2 | 350-450 | 14.3-18.4 | M36 | 201 | 443 | 233 | 514 | 36.0 | 26.6 | 384 | 86.3 | 70.3 | 51.9 | 737 | 166 |

Values are for single units, L=1m.

TJDO 
 TJSO 



| A | | ØB | | G | | S | | M | | N | | Bolt | Weight | | | | Performance | | | | | | | |
|-----|------|-----|-----|----|-----|----|-----|---------|---------|---------|-----------|------|--|------|--|------|--|------|----------|------|--|------|----------|------|
| | | | | | | | | | | | | | TJDO  | | TJSO  | | TJDO  | | | | TJSO  | | | |
| mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | | kg | lb | kg | lb | Energy | | Reaction | | Energy | | Reaction | |
| 100 | 3.9 | 50 | 2.0 | 10 | 0.4 | 25 | 1.0 | 90-130 | 3.7-5.3 | 200-300 | 8.2-12.2 | M12 | 9.9 | 21.8 | 11.1 | 24.5 | 1.9 | 1.4 | 154 | 34.7 | 2.8 | 2.1 | 173 | 38.9 |
| 150 | 5.9 | 75 | 3.0 | 12 | 0.5 | 30 | 1.2 | 110-150 | 4.5-6.1 | 250-350 | 10.2-14.3 | M16 | 20.0 | 44.1 | 22.9 | 50.5 | 4.2 | 3.1 | 233 | 52.4 | 6.4 | 4.7 | 260 | 58.5 |
| 200 | 7.9 | 100 | 3.9 | 15 | 0.6 | 45 | 1.8 | 130-180 | 5.3-7.3 | 300-400 | 12.2-16.3 | M20 | 37.4 | 82.5 | 42.6 | 93.9 | 7.5 | 5.5 | 315 | 70.8 | 11.2 | 8.3 | 343 | 77.1 |
| 250 | 9.8 | 125 | 4.9 | 20 | 0.8 | 50 | 2.0 | 140-200 | 5.7-8.2 | 350-450 | 14.3-18.4 | M24 | 57.2 | 126 | 65.3 | 144 | 11.8 | 8.7 | 390 | 87.7 | 17.6 | 13.0 | 435 | 97.8 |
| 300 | 11.8 | 150 | 5.9 | 25 | 1.0 | 60 | 2.4 | 140-200 | 5.7-8.2 | 350-450 | 14.3-18.4 | M24 | 81.3 | 179 | 92.9 | 205 | 16.9 | 12.5 | 474 | 107 | 25.3 | 18.7 | 520 | 117 |
| 350 | 13.8 | 175 | 6.9 | 25 | 1.0 | 70 | 2.8 | 140-200 | 5.7-8.2 | 350-450 | 14.3-18.4 | M30 | 110 | 241 | 118 | 259 | 23.0 | 17.0 | 545 | 123 | 34.2 | 25.2 | 605 | 136 |
| 400 | 15.7 | 200 | 7.9 | 30 | 1.2 | 80 | 3.1 | 140-200 | 5.7-8.2 | 350-450 | 14.3-18.4 | M30 | 142 | 313 | 154 | 339 | 29.3 | 21.6 | 625 | 141 | 45.0 | 33.2 | 688 | 155 |
| 500 | 19.7 | 250 | 9.8 | 40 | 1.6 | 90 | 3.5 | 140-200 | 5.7-8.2 | 350-450 | 14.3-18.4 | M36 | 208 | 459 | 240 | 529 | 46.5 | 34.3 | 790 | 178 | 70.2 | 51.8 | 865 | 194 |



Values are for single units, L=1m.

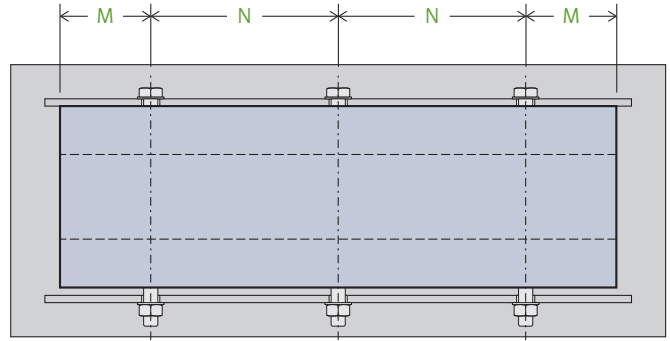
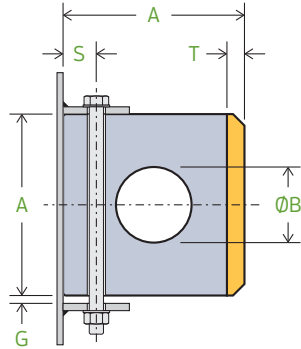




Composite Fenders

Composite Fenders combine a rubber body permanently bonded to a low-friction UHMW-PE face pad. The rubber body absorbs berthing energy while the facing reduces shear forces.

TJCA

Hollow 
 Solid 

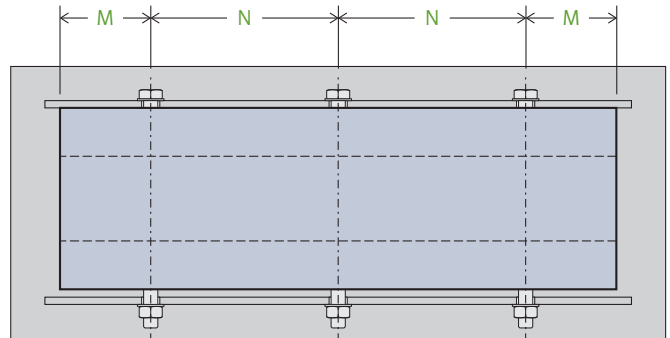
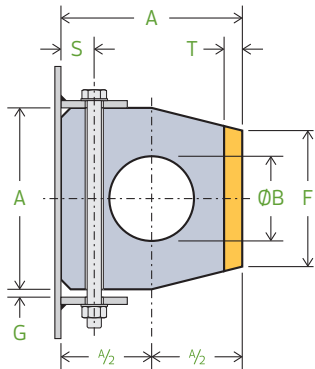




| A | | ØB* | | G | | S | | T | | M | | N | | Standard length | | Flat bar | | Bolt | Weight | | | |
|-----|------|-----|-----|----|-----|----|-----|----|-----|---------|---------|---------|-----------|-----------------|-----|----------|-----------|------|--|------|---|------|
| mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | | Hollow  | | Solid  | |
| kg | lb | kg | lb | kg | lb | kg | lb | kg | lb | kg | lb | kg | lb | kg | lb | kg | lb | | kg | lb | kg | lb |
| 100 | 3.9 | 30 | 1.2 | 10 | 0.4 | 25 | 1.0 | 20 | 0.8 | 90-130 | 3.5-5.1 | 200-300 | 7.9-11.8 | 3000 | 118 | 50 × 6 | 2.0 × 0.2 | M12 | 10.3 | 22.7 | 11.1 | 24.5 |
| 150 | 5.9 | 65 | 2.6 | 12 | 0.5 | 30 | 1.2 | 20 | 0.8 | 110-150 | 4.3-5.9 | 250-350 | 9.8-13.8 | 3000 | 118 | 60 × 8 | 2.4 × 0.3 | M16 | 21.5 | 47.4 | 27.0 | 59.5 |
| 200 | 7.9 | 75 | 3.0 | 20 | 0.8 | 45 | 1.8 | 25 | 1.0 | 130-180 | 5.1-7.1 | 300-400 | 11.8-15.7 | 3000 | 118 | 80 × 10 | 3.1 × 0.4 | M20 | 40.2 | 88.6 | 48.0 | 106 |
| 250 | 9.8 | 100 | 3.9 | 25 | 1.0 | 50 | 2.0 | 30 | 1.2 | 140-200 | 5.5-7.9 | 350-450 | 13.8-17.7 | 2000 | 79 | 100 × 6 | 3.9 × 0.2 | M24 | 60.2 | 133 | 75.0 | 165 |
| 300 | 11.8 | 125 | 4.9 | 30 | 1.2 | 60 | 2.4 | 30 | 1.2 | 140-200 | 5.5-7.9 | 350-450 | 13.8-17.7 | 3700 | 146 | 110 × 12 | 4.3 × 0.5 | M24 | 92.1 | 203 | 108 | 238 |

Values are for single units, L=1m. *Dimension applies to hollow fenders only.

TJCB

Hollow 
 Solid 



| A | | ØB* | | F | | G | | S | | T | | M | | N | | Standard length | | Flat bar | | Bolt | Weight | | | |
|-----|-----|-----|-----|-----|-----|----|-----|----|-----|----|-----|---------|---------|---------|----------|-----------------|-----|----------|-----------|------|--|------|---|------|
| mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | | Hollow  | | Solid  | |
| kg | lb | kg | lb | kg | lb | kg | lb | kg | lb | kg | lb | kg | lb | kg | lb | kg | lb | kg | lb | | kg | lb | kg | lb |
| 80 | 3.1 | 42 | 1.7 | 60 | 2.4 | 6 | 0.2 | 25 | 1.0 | 10 | 0.4 | 90-130 | 3.5-5.1 | 200-300 | 7.9-11.8 | 2000 | 79 | 45 × 6 | 1.8 × 0.2 | M12 | 5.4 | 11.9 | 7.0 | 15.4 |
| 100 | 3.9 | 45 | 1.8 | 74 | 2.9 | 8 | 0.3 | 25 | 1.0 | 10 | 0.4 | 90-130 | 3.5-5.1 | 200-300 | 7.9-11.8 | 2000 | 79 | 45 × 6 | 1.8 × 0.2 | M12 | 8.4 | 18.5 | 11.0 | 24.3 |
| 120 | 4.7 | 65 | 2.6 | 88 | 3.5 | 10 | 0.4 | 30 | 1.2 | 12 | 0.5 | 110-150 | 4.3-5.9 | 250-350 | 9.8-13.8 | 2000 | 79 | 60 × 8 | 2.4 × 0.3 | M16 | 12.2 | 26.9 | 15.8 | 34.8 |
| 150 | 5.9 | 73 | 2.9 | 110 | 4.3 | 12 | 0.5 | 30 | 1.2 | 15 | 0.6 | 110-150 | 4.3-5.9 | 250-350 | 9.8-13.8 | 3000 | 118 | 60 × 8 | 2.4 × 0.3 | M16 | 19.7 | 43.4 | 24.8 | 54.7 |

Values are for single units, L=1m. *Dimension applies to hollow fenders only.

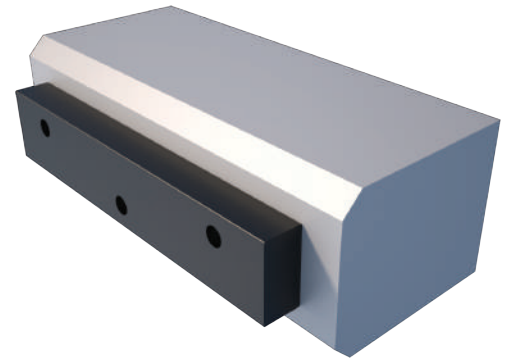


HD-PE Sliding Fenders

TekMarine HD-PE Fenders are durable, low friction strips that wear better and last longer than traditional timbers. HD-PE does not rot, split or suffer from marine borer infestation.

HD-PE Fenders are ideal for workboat berths, waterways and lock entrances and as components in larger fender installations.

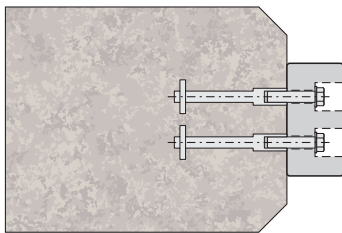
HD-PE is easy to machine and install onto concrete, steel or timber substrates. Better still, HD-PE is fully recyclable after its working life, and is a cost-effective alternative to tropical hardwoods.



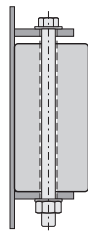
Fixing

HD-PE Fenders are equally at home mounted on concrete, steel plate or beam structures, or as a timber facing. Please ask TekMarine about the most suitable drilling diameters and fixings for your project.

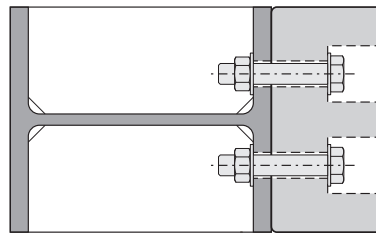
Concrete



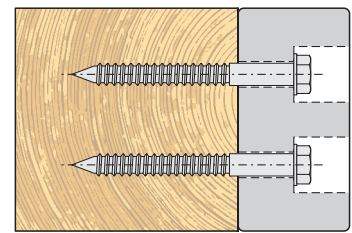
Plate



Beam



Timber



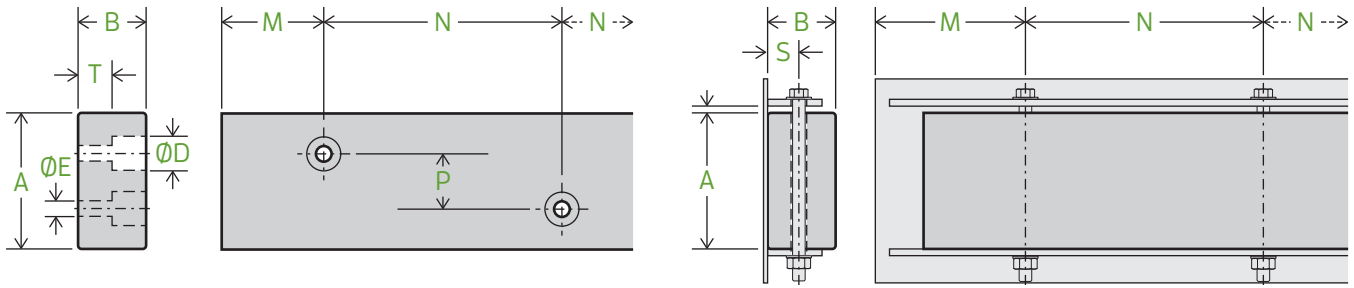
Physical Properties

| Property | Test method | Typical results | Unit |
|--------------------------------|--------------------------------------|-----------------------------------|-------------------|
| Abrasion index (sand slurry) | ISO DIS 15527 | ~400 | - |
| Density | ISO 1183-1 | 0.91-0.94 | g/cm ³ |
| Dynamic friction (wet plastic) | ISO 8295 | 0.20-0.25 | - |
| Molecular weight | Light diffusion method ASTM D6474 | ~200,000 >4 × 10 ⁻⁶ | g/mol |
| Operating temperature | Not applicable | -20 to +70 | °C |
| Shore hardness | DIN 53505/ISO 868 | 48-50 | Shore D |
| Thermal expansion | DIN 53752/ISO 3146 | 2 × 10 ⁻⁴ | K ⁻¹ |
| Yield strength | DIN 53504/ISO 527 | 10-15 | MPa |

Typical results are for virgin HD-PE. Actual values for Sliding Fenders can differ due to the proportion of recycled materials used in their manufacture.

For a comparison of the friction properties of various materials, please refer to p51.

HD-PE Dimensions



| A | | B | | ØD | | ØE | | L | | M | | N | | P | | S | | T | | Flat Bar | | Bolt | Weight | |
|-----|------|-----|------|----|-----|----|-----|------|-----|---------|-----|---------|-------|-------|-------|-----|-----|----|-----|----------|---------|------|--------|------|
| mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | | kg | lb |
| 50 | 2.0 | 50 | 2.0 | 32 | 1.3 | 16 | 0.6 | 5500 | 217 | 75-125 | 3-5 | 250-300 | 10-12 | 0 | 0 | 25 | 1.0 | - | - | - | - | M12 | 2.3 | 5.1 |
| 60 | 2.4 | 60 | 2.4 | 32 | 1.3 | 16 | 0.6 | 5500 | 217 | 75-125 | 3-5 | 250-300 | 10-12 | 0 | 0 | 30 | 1.2 | - | - | - | - | M12 | 3.3 | 7.3 |
| 70 | 2.8 | 50 | 2.0 | 32 | 1.3 | 16 | 0.6 | 2500 | 98 | 75-125 | 3-5 | 250-300 | 10-12 | 0 | 0 | 25 | 1.0 | - | - | - | - | M12 | 3.3 | 7.3 |
| 70 | 2.8 | 70 | 2.8 | 32 | 1.3 | 16 | 0.6 | 6500 | 256 | 75-125 | 3-5 | 250-300 | 10-12 | 0 | 0 | 35 | 1.4 | - | - | - | - | M12 | 4.5 | 9.9 |
| 80 | 3.1 | 60 | 2.4 | 32 | 1.3 | 16 | 0.6 | 5000 | 197 | 75-125 | 3-5 | 250-300 | 10-12 | 0 | 0 | 30 | 1.2 | - | - | - | - | M12 | 4.5 | 9.9 |
| 100 | 3.9 | 50 | 2.0 | 32 | 1.3 | 16 | 0.6 | 5500 | 217 | 75-125 | 3-5 | 250-300 | 10-12 | 0 | 0 | 25 | 1.0 | - | - | - | - | M12 | 4.7 | 10.4 |
| 100 | 3.9 | 65 | 2.6 | 32 | 1.3 | 16 | 0.6 | 5500 | 217 | 75-125 | 3-5 | 250-300 | 10-12 | 0 | 0 | 30 | 1.2 | - | - | - | - | M12 | 6.1 | 13.4 |
| 100 | 3.9 | 100 | 3.9 | 32 | 1.3 | 16 | 0.6 | 6000 | 236 | 75-125 | 3-5 | 250-300 | 10-12 | 0 | 0 | 50 | 2.0 | 32 | 1.3 | 50×6 | 2×0.25 | M12 | 9.3 | 20.5 |
| 120 | 4.7 | 80 | 3.1 | 40 | 1.6 | 20 | 0.8 | 5000 | 197 | 100-150 | 4-6 | 300-350 | 12-14 | 0 | 0 | 40 | 1.6 | - | - | - | - | M16 | 8.9 | 19.6 |
| 120 | 4.7 | 120 | 4.7 | 40 | 1.6 | 20 | 0.8 | 6000 | 236 | 100-150 | 4-6 | 300-350 | 12-14 | 0 | 0 | 60 | 2.4 | 40 | 1.6 | 65×10 | 2.5×0.4 | M16 | 13.4 | 29.5 |
| 140 | 5.5 | 70 | 2.8 | 40 | 1.6 | 20 | 0.8 | 5500 | 217 | 100-150 | 4-6 | 300-350 | 12-14 | 0-50 | 0-2.0 | 35 | 1.4 | - | - | - | - | M16 | 9.1 | 20.1 |
| 160 | 6.3 | 70 | 2.8 | 40 | 1.6 | 20 | 0.8 | 5000 | 197 | 100-150 | 4-6 | 300-350 | 12-14 | 0-70 | 0-2.8 | 35 | 1.4 | - | - | - | - | M16 | 10.4 | 22.9 |
| 160 | 6.3 | 160 | 6.3 | 40 | 1.6 | 20 | 0.8 | 6000 | 236 | 100-150 | 4-6 | 300-350 | 12-14 | 0-80 | 0-3.1 | 80 | 3.1 | 40 | 1.6 | 80×10 | 3.1×0.4 | M16 | 24.1 | 53.1 |
| 170 | 6.7 | 120 | 4.7 | 40 | 1.6 | 20 | 0.8 | 5500 | 217 | 100-150 | 4-6 | 300-350 | 12-14 | 0-80 | 0-3.1 | 60 | 2.4 | 40 | 1.6 | 65×10 | 2.5×0.4 | M16 | 19.0 | 41.9 |
| 175 | 6.9 | 150 | 5.9 | 50 | 2.0 | 23 | 0.9 | 4000 | 157 | 125-175 | 5-7 | 350-450 | 14-18 | 0-80 | 0-3.1 | 75 | 3.0 | 40 | 1.6 | 80×10 | 3.1×0.4 | M20 | 24.2 | 53.4 |
| 180 | 7.1 | 70 | 2.8 | 50 | 2.0 | 23 | 0.9 | 5000 | 197 | 125-175 | 5-7 | 350-450 | 14-18 | 0-80 | 0-3.1 | 35 | 1.4 | - | - | - | - | M20 | 11.7 | 25.8 |
| 180 | 7.1 | 180 | 7.1 | 50 | 2.0 | 23 | 0.9 | 6000 | 236 | 125-175 | 5-7 | 350-450 | 14-18 | 0-80 | 0-3.1 | 90 | 3.5 | 46 | 1.8 | 80×10 | 3.1×0.4 | M20 | 30.2 | 66.6 |
| 190 | 7.5 | 110 | 4.3 | 50 | 2.0 | 23 | 0.9 | 5000 | 197 | 125-175 | 5-7 | 350-450 | 14-18 | 0-90 | 0-3.5 | 55 | 2.2 | 46 | 1.8 | 80×10 | 3.1×0.4 | M20 | 19.4 | 42.8 |
| 200 | 7.9 | 75 | 3.0 | 50 | 2.0 | 23 | 0.9 | 5000 | 197 | 125-175 | 5-7 | 350-450 | 14-18 | 0-100 | 0-3.9 | 35 | 1.4 | 46 | 1.8 | - | - | M20 | 14.0 | 30.9 |
| 200 | 7.9 | 100 | 3.9 | 50 | 2.0 | 23 | 0.9 | 6000 | 236 | 125-175 | 5-7 | 350-450 | 14-18 | 0-100 | 0-3.9 | 50 | 2.0 | 46 | 1.8 | 80×10 | 3.1×0.4 | M20 | 18.6 | 41.0 |
| 200 | 7.9 | 150 | 5.9 | 50 | 2.0 | 23 | 0.9 | 5500 | 217 | 125-175 | 5-7 | 350-450 | 14-18 | 0-100 | 0-3.9 | 75 | 3.0 | 46 | 1.8 | 80×10 | 3.1×0.4 | M20 | 27.9 | 61.5 |
| 200 | 7.9 | 200 | 7.9 | 50 | 2.0 | 23 | 0.9 | 6000 | 236 | 125-175 | 5-7 | 350-450 | 14-18 | 0-100 | 0-3.9 | 100 | 3.9 | 46 | 1.8 | 80×10 | 3.1×0.4 | M20 | 37.6 | 82.9 |
| 210 | 8.3 | 165 | 6.5 | 50 | 2.0 | 23 | 0.9 | 2000 | 79 | 150-200 | 6-8 | 450-550 | 18-22 | 0-130 | 0-5.1 | 80 | 3.1 | 46 | 1.8 | 80×10 | 3.1×0.4 | M20 | 31.9 | 70.3 |
| 250 | 9.8 | 150 | 5.9 | 65 | 2.6 | 28 | 1.1 | 6500 | 256 | 150-200 | 6-8 | 450-550 | 18-22 | 0-130 | 0-5.1 | 75 | 3.0 | 46 | 1.8 | 80×10 | 3.1×0.4 | M24 | 34.8 | 76.7 |
| 250 | 9.8 | 160 | 6.3 | 65 | 2.6 | 28 | 1.1 | 5000 | 197 | 150-200 | 6-8 | 450-550 | 18-22 | 0-130 | 0-5.1 | 80 | 3.1 | 46 | 1.8 | 80×10 | 3.1×0.4 | M24 | 37.2 | 82.0 |
| 250 | 9.8 | 250 | 9.8 | 65 | 2.6 | 28 | 1.1 | 5000 | 197 | 150-200 | 6-8 | 450-550 | 18-22 | 0-130 | 0-5.1 | 125 | 4.9 | 56 | 2.2 | 100×10 | 3.9×0.4 | M24 | 58.1 | 128 |
| 300 | 11.8 | 100 | 3.9 | 65 | 2.6 | 28 | 1.1 | 5500 | 217 | 150-200 | 6-8 | 450-550 | 18-22 | 0-160 | 0-6.3 | 50 | 2.0 | - | - | - | - | M24 | 27.9 | 61.5 |
| 300 | 11.8 | 210 | 8.3 | 70 | 2.8 | 36 | 1.4 | 5000 | 197 | 175-225 | 7-9 | 500-600 | 20-24 | 0-160 | 0-6.3 | 105 | 4.1 | 56 | 2.2 | 100×12 | 3.9×0.5 | M30 | 58.6 | 129 |
| 300 | 11.8 | 300 | 11.8 | 70 | 2.8 | 36 | 1.4 | 5000 | 197 | 175-225 | 7-9 | 500-600 | 20-24 | 0-160 | 0-6.3 | 105 | 4.1 | 72 | 2.8 | 100×12 | 3.9×0.5 | M30 | 84.6 | 187 |
| 440 | 17.3 | 160 | 6.3 | 70 | 2.8 | 36 | 1.4 | 2000 | 79 | 175-225 | 7-9 | 500-600 | 20-24 | 0-160 | 0-6.3 | 80 | 3.1 | - | - | - | - | M30 | 66.8 | 147 |

Values are for single units, L=1m.



UHMW-PE Facings

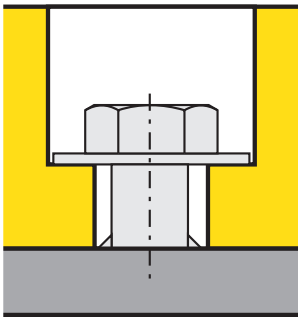
TekMarine protects every fender panel with top quality UHMW-PE (Ultra High Molecular Weight Polyethylene) facings. Impact resistant and very low in friction, UHMW-PE allows vessels to move smoothly past a fender system without snagging or abrasion. It is also popular for heavy duty impact protection where fenders are not required.

Easy to machine and install, UHMW-PE comes in many colors and several quality grades.

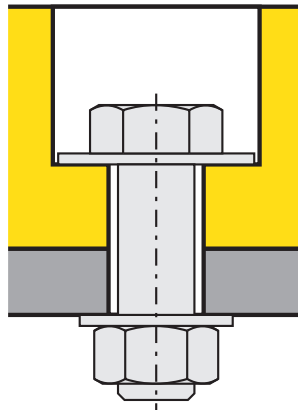
UHMW-PE does not rot, split or decay and does not suffer from UV or ozone damage. It is fully recyclable.



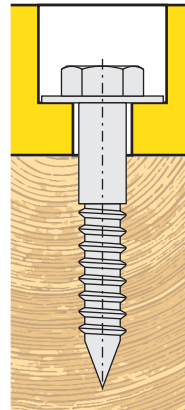
Steel panel with welded stud



Open steel structure



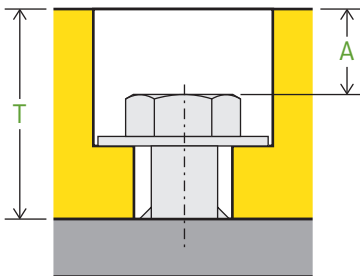
Timber structure



The fixing type depends on the underlying structure. Welded studs or stronger 'blind boss' fixings are used for steel panels. Oversize washers are recommended when bolting through open steel structures.

Fixings are available in various steel grades and finishes: please ask TekMarine for more details.

Wear Allowances



| T | A |
|-----|----|
| 30 | 5 |
| 40 | 10 |
| 50 | 15 |
| 70 | 25 |
| 100 | 40 |

A small increase in the thickness of UHMW-PE can dramatically improve the working life of the facing, protecting the fender and structure for longer.

Physical Properties

| Property | Test method | Metric | | | US Units | | |
|------------------------------|---------------|-------------------|------------------------|------------------------|-----------------------|------------------------|------------------------|
| | | Unit | Virgin | Recycled | Unit | Virgin | Recycled |
| Density | ASTM D-792 | kg/m ³ | 930 | 945 | lb/ft ³ | 58.01 | 58.9 |
| Molecular Weight | Viscosimetric | g/mol | 4.2 × 10 ⁶ | 4.2 × 10 ⁶ | g/mol | 4.2 × 10 ⁶ | 4.2 × 10 ⁶ |
| Yield Strength | ASTM D-638 | MPa | 21 | 20 | psi | 3050 | 2900 |
| Ultimate Strength | ASTM D-638 | MPa | 40 | 34.3 | psi | 5800 | 4974 |
| Elongation at Break | ASTM D-638 | % | 250 | 218 | % | 250 | 218 |
| Impact Strength | ASTM D-4020 | kJ/m ² | 70 | 50 | ft-lb/in ² | 34 | 24 |
| Tensile Impact | DIN 53448 | kJ/m ² | 2200 | 1600 | ft-lb/in ² | 1050 | 762 |
| Abrasion Index (Sand Slurry) | ASTM 965 | AR-01 Steel=100 | 90 | 116 | AR-01 Steel=100 | 90 | 116 |
| Hardness | ASTM D-2240 | Type D | 68 | 70 | Type D | 68 | 70 |
| Static Friction | ASTM D-1894 | - | 0.15 | 0.15-0.20 | - | 0.15 | 0.15-0.20 |
| Dynamic Friction | ASTM D-1894 | - | 0.12 | 0.14-0.16 | - | 0.12 | 0.14-0.16 |
| Operating Temperature | | °C | -80 to +80 | -80 to +80 | °F | -112 to 176 | -112 to 176 |
| Thermal Expansion | ASTM D-696 | K ⁻¹ | 2.0 × 10 ⁻⁴ | 1.8 × 10 ⁻⁴ | °F ⁻¹ | 1.1 × 10 ⁻⁴ | 1.1 × 10 ⁻⁴ |
| Melting Point | ASTM D-3417 | °C | 137-143 | 137-143 | °F | 278-289 | 278 |
| Water Absorption | ASTM D-570 | % | 0 | 0 | % | 0 | 0 |

Friction comparisons

| Material | Coefficient of friction against steel (μ) |
|----------------|---|
| UHMW-PE | 0.15-0.2 |
| HD-PE | 0.3 |
| Nylon | 0.2 |
| Rubber | 0.6-0.7 |
| Timber | 0.4 |
| Steel | 0.5 |

The coefficient of friction of UHMW-PE varies according to the material grade and the pressure applied to the panel's surface.

These coefficients of friction only apply to smooth contact surfaces.

Source: BS 6349-4:2014

For more information please consult TekMarine.



TJT Tug Cylindrical Fenders

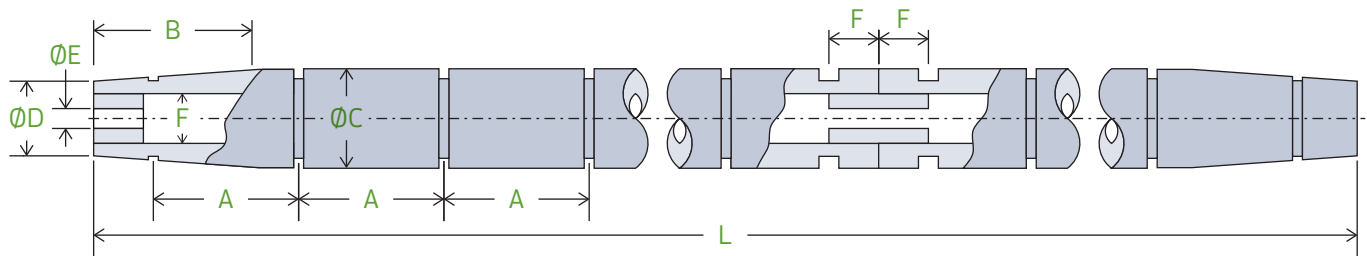
Modern tugs frequently use large cylindrical fenders as their main pushing fenders to bow and stern. The rounded section maintains a constant contact against flared vessel hulls, and work just as well with straight-sided vessels.

The fender is attached by a chain running along the fender's central bore, and straps or chains in special grooves around the fender circumference. Fender ends may be tapered.

TJT Tug Cylindrical Fenders are available in diameters up to 1000mm (3' 3") and continuous or jointed lengths.



Dimensions

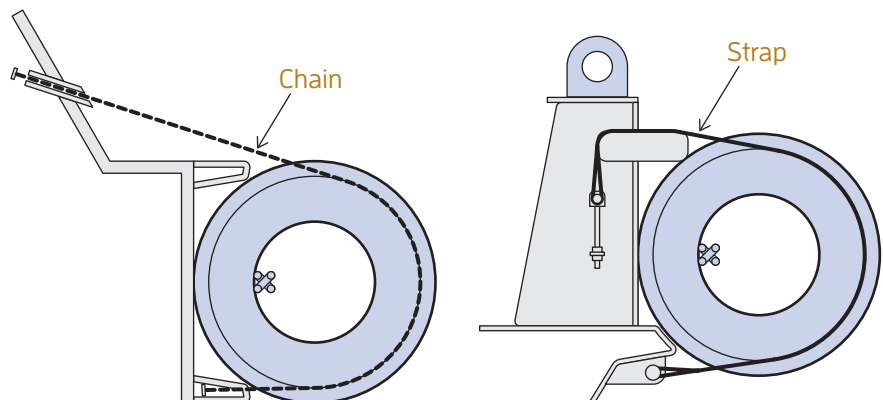


| A | | B | | ØC | | ØD | | ØE | | F | | Weight | |
|------|------|------|------|------|------|-----|------|-----|-----|-----|------|--------|------|
| mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | kg | lb |
| 570 | 22.4 | 500 | 19.7 | 250 | 9.8 | 190 | 7.5 | 75 | 3.0 | 125 | 4.9 | 46 | 101 |
| 600 | 23.6 | 700 | 27.6 | 300 | 11.8 | 225 | 8.9 | 75 | 3.0 | 150 | 5.9 | 65 | 143 |
| 650 | 25.6 | 800 | 31.5 | 380 | 15.0 | 280 | 11.0 | 100 | 3.9 | 190 | 7.5 | 105 | 231 |
| 670 | 26.4 | 800 | 31.5 | 400 | 15.7 | 300 | 11.8 | 100 | 3.9 | 200 | 7.9 | 116 | 256 |
| 700 | 27.6 | 850 | 33.5 | 450 | 17.7 | 350 | 13.8 | 100 | 3.9 | 225 | 8.9 | 147 | 324 |
| 730 | 28.7 | 900 | 35.4 | 500 | 19.7 | 375 | 14.8 | 100 | 3.9 | 250 | 9.8 | 181 | 399 |
| 800 | 31.5 | 900 | 35.4 | 600 | 23.6 | 450 | 17.7 | 125 | 4.9 | 300 | 11.8 | 255 | 562 |
| 930 | 36.6 | 1000 | 39.4 | 800 | 31.5 | 600 | 23.6 | 125 | 4.9 | 400 | 15.7 | 453 | 999 |
| 1000 | 39.4 | 1100 | 43.3 | 900 | 35.4 | 675 | 26.6 | 150 | 5.9 | 450 | 17.7 | 573 | 1263 |
| 1060 | 41.7 | 1200 | 47.2 | 1000 | 39.4 | 750 | 29.5 | 150 | 5.9 | 500 | 19.7 | 707 | 1559 |

Values are for single units, L=1m.

Attachment

A chain is run through the longitudinal bore of the cylindrical fender, attached to the hull at either end and tensioned using turnbuckles. Larger fenders are secured via chains or straps running around the grooves in the fender surface.

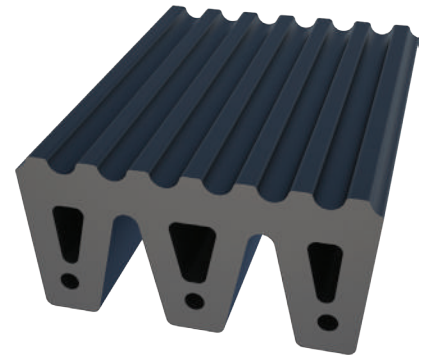




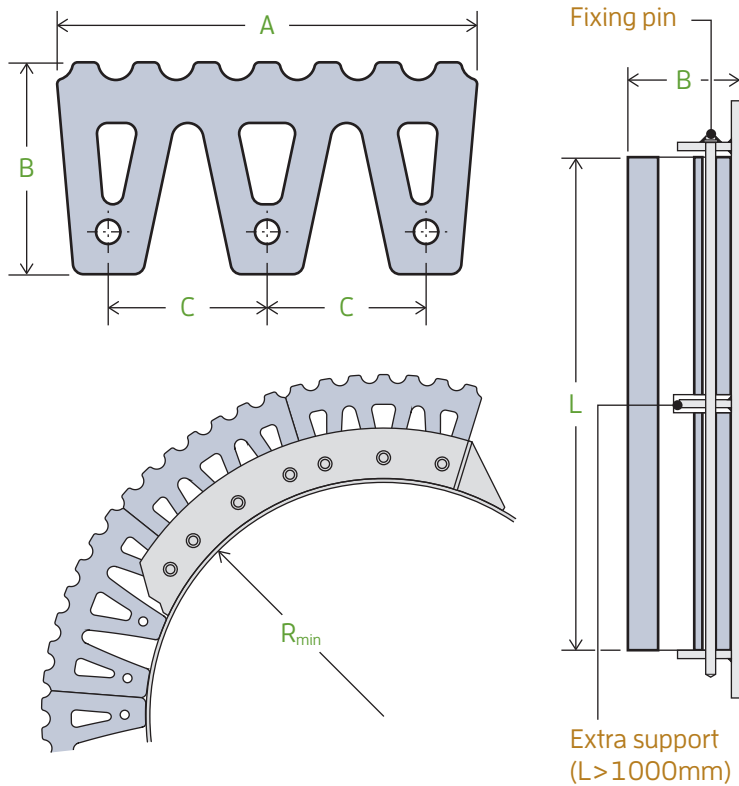
M Fenders

The large, flexible faces of M-Fenders exert low hull pressures when pushing vessels. They are grooved for a soft and flexible contact face, which firmly grips the vessel's hull. The M-Fender attaches securely to the tug via fixing pins running through each of its three legs.

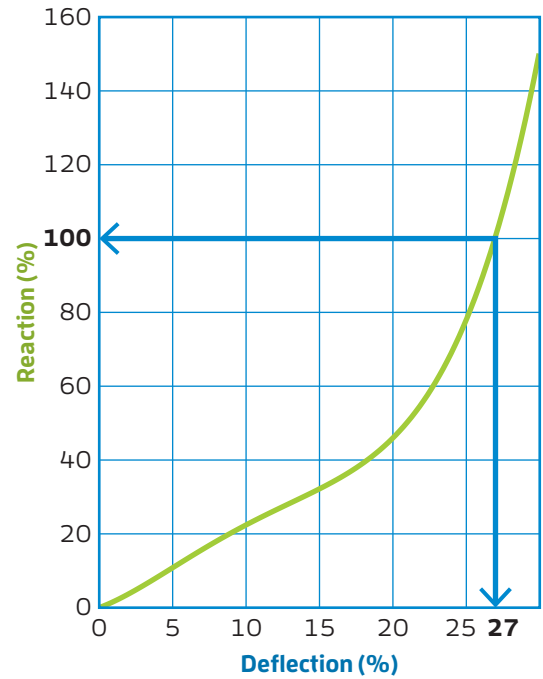
M-Fenders have a low weight per contact area. They can be fitted around very tight curves, fixed with pins that run through central bore holes. An intermediate support is recommended where length is over 1000mm (3' 3").



Dimensions and Fixings



Performance



| A | | B | | C | | L _{max} | | Weight | |
|-----|------|-----|------|-----|------|------------------|------|--------|-----|
| mm | in | mm | in | mm | in | mm | in | kg | lb |
| 400 | 15.7 | 200 | 7.9 | 150 | 5.9 | 2000 | 78.7 | 56 | 123 |
| 500 | 19.7 | 250 | 9.8 | 190 | 7.5 | 2000 | 78.7 | 89 | 196 |
| 600 | 23.6 | 300 | 11.8 | 230 | 9.1 | 2000 | 78.7 | 132 | 291 |
| 800 | 31.5 | 400 | 15.7 | 305 | 12.0 | 2100 | 82.7 | 235 | 518 |

| Pin dia. | | Flat bar | | R _{min} | |
|----------|-----|----------|-----------|------------------|------|
| mm | in | mm | in | mm | in |
| 20 | 0.8 | 100 × 15 | 1.0 × 0.2 | 450 | 17.7 |
| 24 | 0.9 | 125 × 20 | 1.3 × 0.2 | 550 | 21.7 |
| 30 | 1.2 | 150 × 20 | 1.5 × 0.2 | 650 | 25.6 |
| 40 | 1.6 | 150 × 20 | 1.5 × 0.2 | 900 | 35.4 |

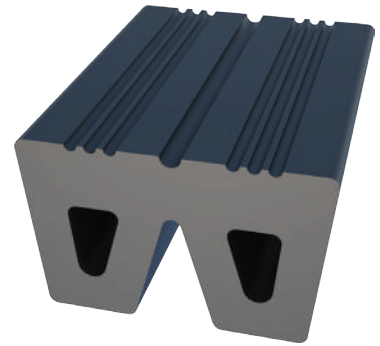
Values are for single units, L = 1m.



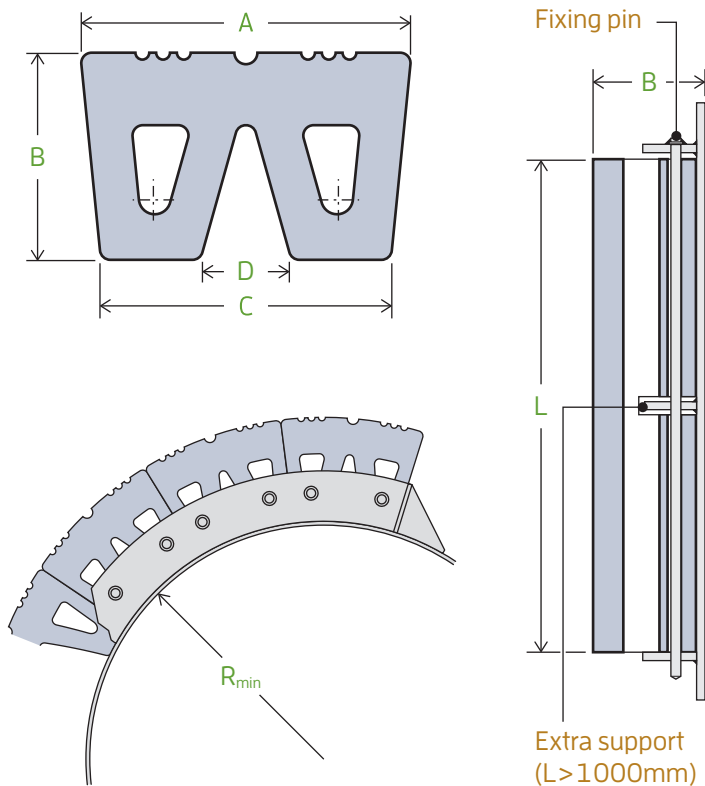
W Fenders

One of the world's most popular tug fender designs, the W-Fender is built for extreme conditions. Its open-bore profile makes installation simple around almost any hull shape.

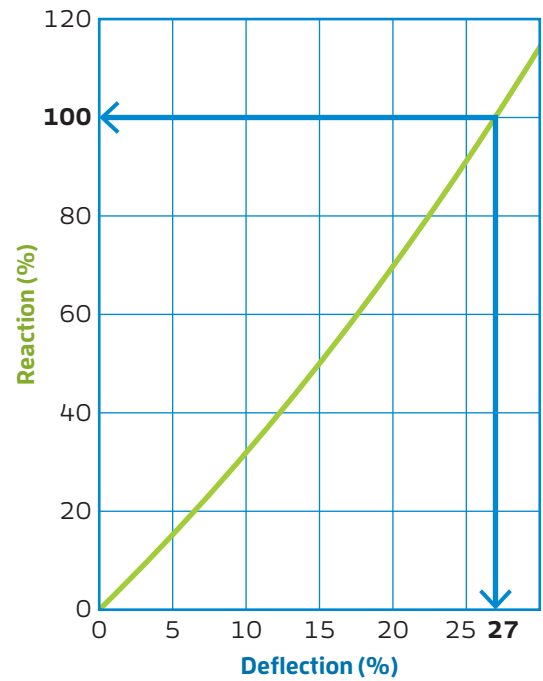
W-Fenders are fitted using pins that run through central bore holes. An intermediate support is recommended for fenders over 1000mm (3' 3") long.



Dimensions and Fixings



Performance



| A | | B | | C | | D | | L _{max} | | Weight | |
|-----|------|-----|------|-----|------|-----|-----|------------------|------|--------|-----|
| mm | in | mm | in | mm | in | mm | in | mm | in | kg | lb |
| 320 | 12.6 | 200 | 7.9 | 280 | 11.0 | 100 | 3.9 | 2000 | 78.7 | 51 | 112 |
| 400 | 15.7 | 250 | 9.8 | 350 | 13.8 | 110 | 4.3 | 2000 | 78.7 | 81 | 179 |
| 480 | 17.7 | 300 | 11.8 | 426 | 16.8 | 135 | 5.3 | 2000 | 78.7 | 120 | 265 |
| 500 | 19.7 | 450 | 17.7 | 420 | 16.5 | 90 | 3.5 | 2000 | 78.7 | 180 | 397 |

| Pin dia. | | Flat bar | | R _{min} | |
|----------|-----|----------|-----------|------------------|------|
| mm | in | mm | in | mm | in |
| 25 | 1.0 | 100 × 20 | 3.9 × 0.2 | 600 | 23.6 |
| 30 | 1.2 | 120 × 20 | 4.7 × 0.2 | 800 | 31.5 |
| 40 | 1.6 | 140 × 20 | 5.5 × 0.2 | 900 | 35.4 |
| 40 | 1.6 | 150 × 20 | 5.9 × 0.2 | 1000 | 39.4 |

Values are for single units, L=1m.

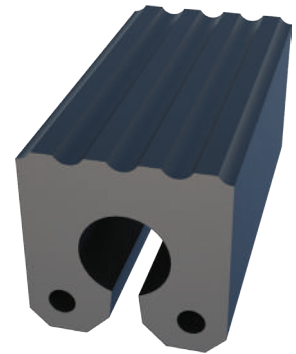


Block Fenders

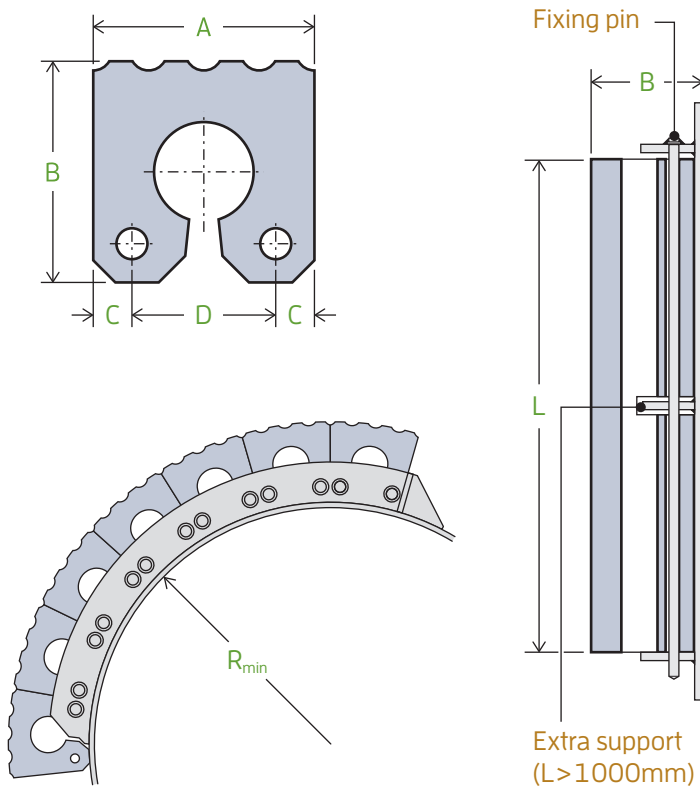
The Block Fender's instantly recognizable 'keyhole' section handles the most demanding tug operations. Block Fenders have optional smooth or grooved faces to suit different friction requirements, and can be fitted with low-friction UHMW-PE facings for heavy seas.

As well as tugs, Block Fenders are commonly fitted to pilings and similar structures to form a simple, reliable protective face.

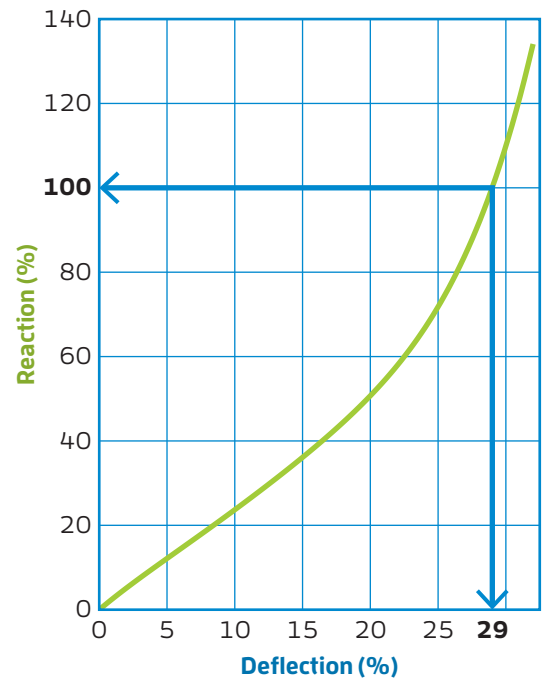
An intermediate support is recommended for fenders over 1000mm (3' 3") long.



Dimensions and Fixings



Performance



| A | | B | | C | | L _{max} | | Weight | |
|-----|------|-----|------|----|-----|------------------|------|--------|-----|
| mm | in | mm | in | mm | in | mm | in | kg | lb |
| 200 | 7.9 | 200 | 7.9 | 35 | 1.4 | 2000 | 78.7 | 33 | 73 |
| 250 | 9.8 | 250 | 9.8 | 50 | 2.0 | 2000 | 78.7 | 54 | 119 |
| 300 | 11.8 | 300 | 11.8 | 60 | 2.4 | 1750 | 68.9 | 80 | 176 |
| 350 | 13.8 | 350 | 13.8 | 70 | 2.8 | 2000 | 78.7 | 114 | 251 |

| Pin dia. | | Flat bar | | R _{min} | |
|----------|-----|----------|-----------|------------------|------|
| mm | in | mm | in | mm | in |
| 20 | 0.8 | 100 × 15 | 3.9 × 0.2 | 450 | 17.7 |
| 24 | 0.9 | 125 × 20 | 4.9 × 0.2 | 600 | 23.6 |
| 30 | 1.2 | 150 × 20 | 5.9 × 0.2 | 800 | 31.5 |
| 40 | 1.6 | 175 × 25 | 6.9 × 0.2 | 1000 | 39.4 |

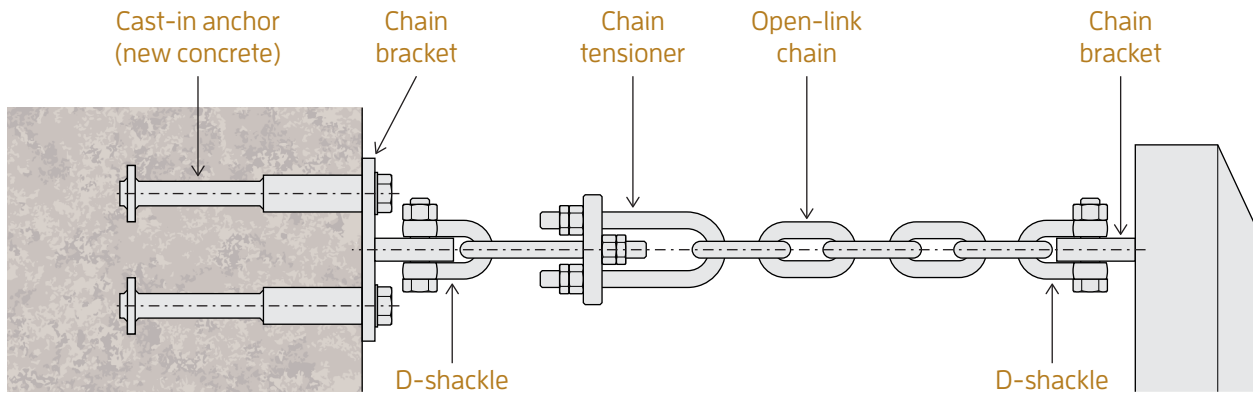
Values are for single units, L=1m.



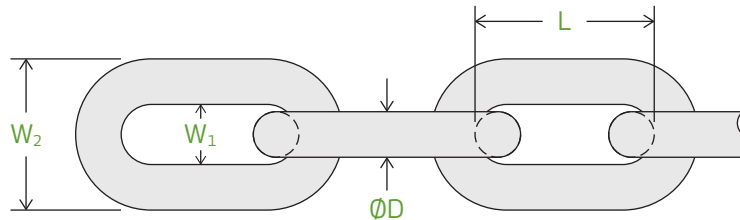
Anchors and Fixings

A fender system relies on the best quality fixings and accessories to perform properly. Large or heavy-duty fenders need chain systems to manage shear, tension and weight. These comprise open or stud-link chain, tensioners and shackles. Cast-in or resin anchors connect the chain systems and brackets to the quay structure. Various material grades and finishes are available: please ask TekMarine for details.

Typical chain system

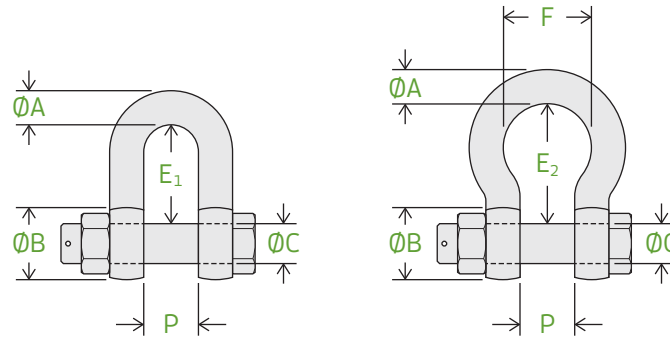


Chains



| ØD | W ₁ | W ₂ | L = 4D | Weight | W ₁ | W ₂ | L = 5D | Weight | MBL | |
|----|----------------|----------------|--------|--------|----------------|----------------|--------|--------|------|------|
| | | | | | | | | | SL2 | SL3 |
| mm | mm | mm | mm | kg/m | mm | mm | mm | kg/m | kN | kN |
| 14 | 20 | 48 | 56 | 3.8 | 21 | 49 | 70 | 3.7 | 124 | 154 |
| 16 | 22 | 54 | 64 | 5.0 | 24 | 56 | 80 | 4.8 | 160 | 202 |
| 18 | 25 | 61 | 72 | 6.3 | 27 | 63 | 90 | 6.0 | 209 | 262 |
| 20 | 28 | 68 | 80 | 7.8 | 30 | 70 | 100 | 7.5 | 264 | 330 |
| 22 | 31 | 75 | 88 | 9.4 | 33 | 77 | 110 | 9.0 | 304 | 380 |
| 25 | 35 | 85 | 100 | 12.1 | 38 | 88 | 125 | 11.6 | 393 | 491 |
| 28 | 39 | 95 | 112 | 15.2 | 42 | 98 | 140 | 14.6 | 492 | 616 |
| 30 | 42 | 102 | 120 | 17.4 | 45 | 105 | 150 | 16.7 | 566 | 706 |
| 32 | 45 | 109 | 128 | 19.8 | 48 | 112 | 160 | 19.0 | 644 | 804 |
| 35 | 49 | 119 | 140 | 23.8 | 53 | 123 | 175 | 22.8 | 770 | 964 |
| 38 | 53 | 129 | 152 | 28.0 | 57 | 133 | 190 | 26.9 | 900 | 1130 |
| 40 | 56 | 136 | 160 | 31.0 | 60 | 140 | 200 | 29.8 | 1010 | 1260 |
| 45 | 63 | 153 | 180 | 39.3 | 68 | 158 | 225 | 37.7 | 1275 | 1590 |
| 50 | 70 | 170 | 200 | 48.5 | 75 | 175 | 250 | 46.5 | 1570 | 1960 |
| 55 | 77 | 187 | 220 | 58.6 | 83 | 193 | 275 | 56.4 | 1900 | 2380 |
| 60 | 84 | 204 | 240 | 70.0 | 90 | 210 | 300 | 67.0 | 2260 | 2770 |

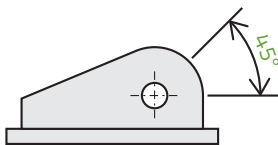
Shackles



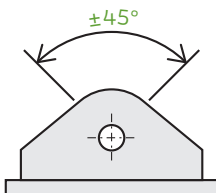
| ØA | ØB | ØC | P | D-shackle | | Bow shackle | | | NBL |
|----|-----|----|-----|----------------|--------|----------------|-----|--------|------|
| | | | | E ₁ | Weight | E ₂ | F | Weight | |
| mm | mm | mm | mm | mm | kg | mm | mm | kg | kN |
| 13 | 26 | 16 | 22 | 43 | 0.4 | 51 | 32 | 0.4 | 120 |
| 16 | 32 | 19 | 27 | 51 | 0.7 | 64 | 43 | 0.8 | 195 |
| 19 | 38 | 22 | 31 | 59 | 1.1 | 76 | 51 | 1.3 | 285 |
| 22 | 44 | 25 | 36 | 73 | 1.5 | 83 | 58 | 1.9 | 390 |
| 25 | 50 | 28 | 43 | 85 | 2.6 | 95 | 68 | 2.8 | 510 |
| 28 | 56 | 32 | 47 | 90 | 3.3 | 108 | 75 | 3.8 | 570 |
| 32 | 64 | 35 | 51 | 94 | 4.7 | 115 | 83 | 5.3 | 720 |
| 35 | 70 | 38 | 57 | 115 | 6.2 | 133 | 95 | 7.0 | 810 |
| 38 | 76 | 42 | 60 | 127 | 7.6 | 146 | 99 | 8.8 | 1020 |
| 45 | 90 | 50 | 74 | 149 | 12.8 | 178 | 126 | 15.0 | 1500 |
| 50 | 100 | 57 | 83 | 171 | 18.2 | 197 | 138 | 20.7 | 2100 |
| 57 | 114 | 65 | 95 | 190 | 27.8 | 222 | 160 | 29.3 | 2550 |
| 65 | 130 | 70 | 105 | 203 | 35.1 | 254 | 180 | 64.5 | 3330 |

Brackets

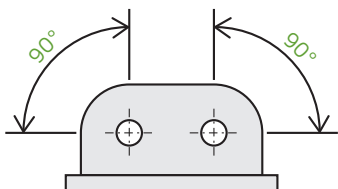
BSO



BSC

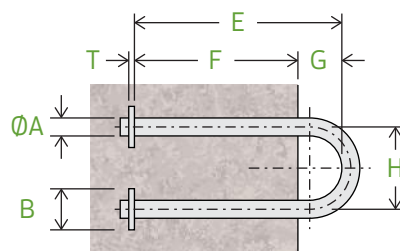


BDB



Brackets are purpose designed for every project. Please ask TekMarine for details.

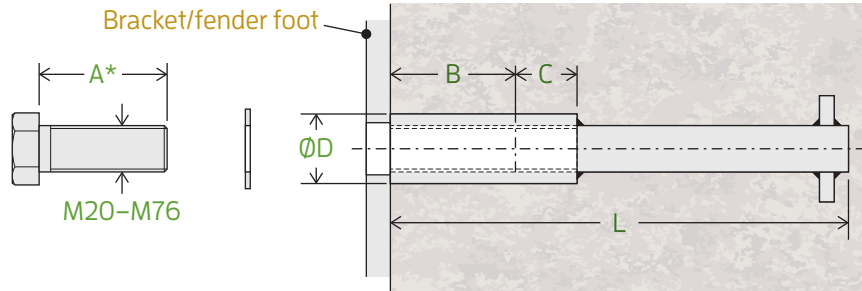
U-anchors



| ØA | E | F | G | H | B | T | Weight | NBL |
|----|-----|-----|-----|-----|-----|----|--------|------|
| mm | mm | mm | mm | mm | mm | mm | kg | kN |
| 26 | 320 | 260 | 60 | 104 | 50 | 12 | 3.4 | 209 |
| 30 | 370 | 300 | 70 | 120 | 50 | 15 | 5.1 | 264 |
| 34 | 410 | 340 | 70 | 136 | 60 | 15 | 7.3 | 304 |
| 36 | 430 | 360 | 70 | 144 | 60 | 20 | 8.6 | 393 |
| 42 | 510 | 420 | 90 | 168 | 70 | 20 | 13.7 | 492 |
| 44 | 540 | 440 | 100 | 176 | 80 | 20 | 16.1 | 566 |
| 48 | 580 | 480 | 100 | 192 | 80 | 25 | 20.5 | 644 |
| 50 | 610 | 500 | 110 | 200 | 90 | 25 | 23.7 | 770 |
| 56 | 680 | 560 | 120 | 224 | 100 | 30 | 33.4 | 900 |
| 60 | 730 | 600 | 130 | 240 | 110 | 30 | 41.1 | 1010 |
| 66 | 800 | 660 | 140 | 264 | 120 | 35 | 54.8 | 1275 |
| 74 | 900 | 740 | 160 | 296 | 130 | 40 | 76.9 | 1570 |

Anchors

Anchors are available in galvanized or stainless steel finishes, in various strength grades and in metric or inch sizes. Ask TekMarine for details if the required specification is not listed.



Cast-in type

Cast-in anchors are preferred for new concrete structures. The threaded anchor links via a long tail to an anchor plate, for even load distribution.

* Dimension A varies according to the thickness of the bracket or fender foot and should always be calculated.

| Anchor | B | C | ØD | L | Weight |
|--------|-----|----|-----|-----|--------|
| mm | mm | mm | mm | mm | kg |
| M20 | 50 | 20 | 30 | 214 | 0.9 |
| M24 | 60 | 25 | 35 | 258 | 1.5 |
| M30 | 70 | 30 | 45 | 318 | 2.7 |
| M36 | 80 | 40 | 55 | 328 | 4.2 |
| M42 | 85 | 45 | 65 | 416 | 6.9 |
| M48 | 100 | 50 | 75 | 431 | 10.2 |
| M56 | 105 | 60 | 85 | 436 | 14.0 |
| M64 | 128 | 80 | 100 | 600 | 29.8 |
| M76 | 152 | 90 | 114 | 700 | 46.1 |

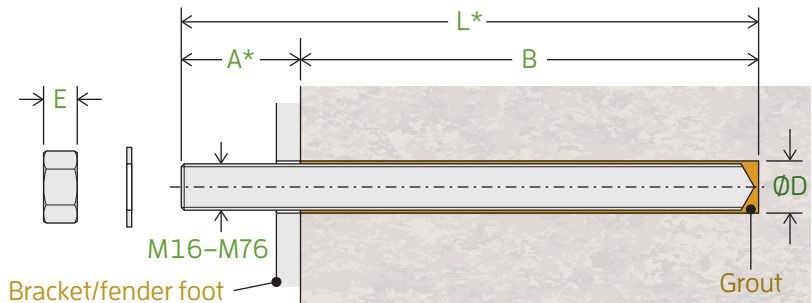
Chemical type

Chemical anchors are used for existing concrete structures.

Please ask about glass grout capsules and other grouting systems.

For an accurately drilled hole, allow for grout wastage of 10%–30%, depending on grout type.

* Dimensions A and L depend on the bracket/fender foot thickness and the concrete grade, and should always be calculated.

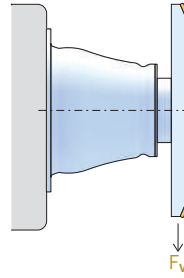


| Anchor | B | ØD | E | Grout |
|--------|-----|----|----|-------|
| mm | mm | mm | mm | ml |
| M16 | 140 | 20 | 13 | 16 |
| M20 | 170 | 24 | 16 | 23 |
| M24 | 210 | 28 | 19 | 34 |
| M30 | 280 | 35 | 24 | 71 |
| M36 | 360 | 42 | 29 | 132 |
| M42 | 420 | 50 | 34 | 243 |
| M48 | 460 | 54 | 38 | 221 |
| M56 | 500 | 64 | 45 | 377 |
| M64 | 560 | 72 | 51 | 479 |
| M76 | 670 | 84 | 61 | 674 |



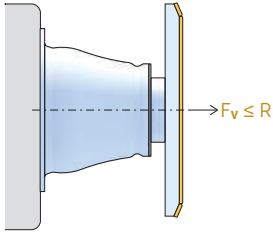
Design Considerations

Chains can assist in controlling the compression geometry of fenders in some applications. Please ask TekMarine for more details.



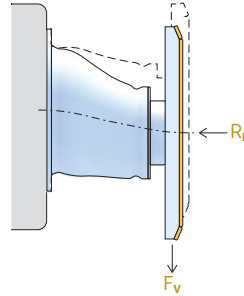
Weight support

Fenders can support large static weights. We recommend weight support chains for panels heavier than the rubber fender.



Tension

When the tension will exceed the fender's rated reaction force, then tension chains are strongly recommended.

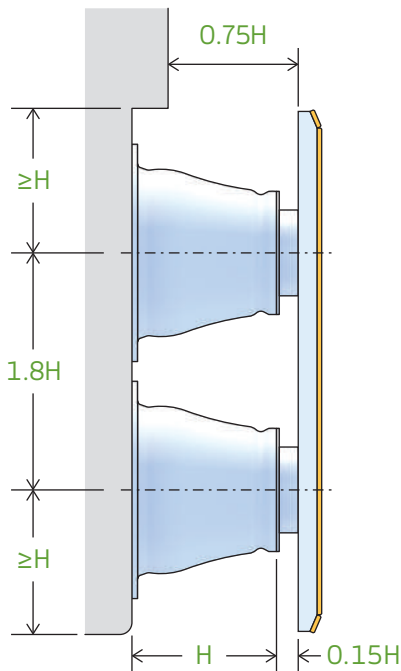


Shear

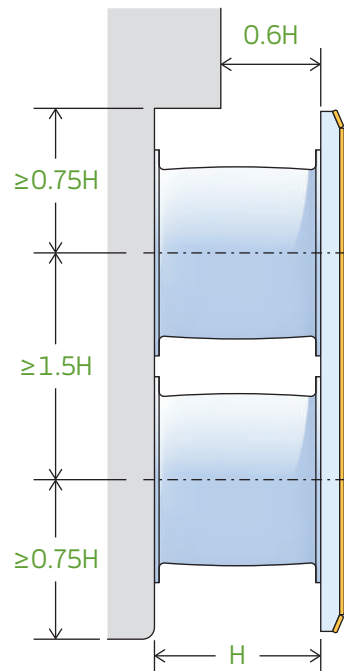
Fenders remain stable with vertical or horizontal shear forces. Shear chains may be needed for some applications and fender layouts.

Clearances

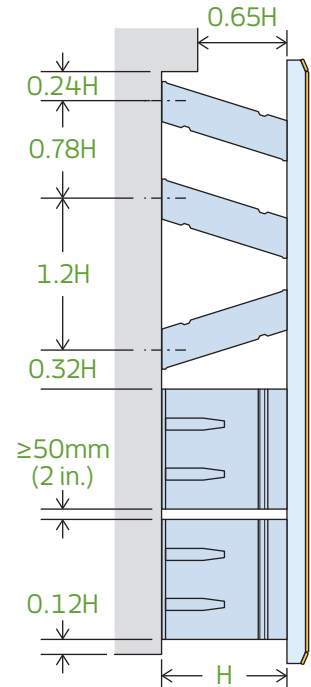
TJCO Cone



TJSC Cell



TJUE Element



Fenders should not contact each other when compressed. Neither fenders nor panel should touch the quay face during compression. Adequate space should be allowed for chains and other fender features. Overhanging hull features such as bow flares and beltings (strakes) should also be considered.

The values given in the diagrams indicate minimum clearances between fenders, with respect to fender height. Values are for guidance only and should be calculated and checked in each case.



Rubber Properties

Every TekMarine rubber fender unit uses the highest quality Natural Rubber (NR) and/or Styrene-butadiene (SBR) based compounds. These meet or exceed the performance requirements of the main international fender specifications such as PIANC and EAU-E 62 "Acceptance Requirements for Fender Elastomers". The table below shows typical specifications for laboratory prepared and tested specimens.

Please consult TekMarine about other fender compounds such as EPDM, Butyl, Neoprene and Polyurethane.

Material samples for laboratory test purposes are prepared differently to rubber fender units. Please ask TekMarine for details.

| Property | Test method | Conditions | Requirements | Unit |
|---------------------------------|--|---|---------------------|---------|
| Tensile Strength | ASTM D412 Die C; AS 1180.2; BS 903.A2; ISO 37; JIS K6251 Item 3, Dumbell 3 | Original | ≥ 16.0 | MPa |
| | | Aged for 96 hours at 70°C | ≥ 12.8 | |
| Elongation at Break | ASTM D 412 Die C; AS 1180.2; BS 903.A2; ISO 37; JIS K 6251 Item 3, Dumbell 3 | Original | ≥ 400 | % |
| | | Aged for 96 hours at 70°C | ≥ 320 | |
| Hardness | ASTM D 2240; AS1683.15.2; BS 903.A6; ISO 815; JIS K 6301 Item 5A Tester | Original | ≤ 78° | Shore A |
| | | Aged for 96 hours at 70°C | original value +6° | |
| Compression Set | ASTM D 395; AS1683.13B; BS903.A6; ISO 815; JIS K6262 Item 10 | Aged for 22 hours at 70°C | ≤ 30 | % |
| | DIN 53517 | Aged for 24 hours at 70°C | ≤ 40 | |
| Tear Resistance | ASTM D624; AS1683.12; BS903.A3; ISO 34.1; JIS K6301 Item 9; Test Piece A | Die B | ≥ 70 | kN/m |
| Ozone Resistance | ASTM D1149; AS1683.24; BS903.43; DIN 53509; ISO 143/1 | 1ppm at 20% strain at 40°C for 100 hours | no visible cracking | n/a |
| Seawater Resistance (Hardness) | ASTM D 471; BS ISO 1817 | 28 days in artificial seawater at 95°C ±2°C | ≤ ±10° | Shore A |
| Seawater Resistance (Volume) | | | ≤ +10/-5 | % |
| Abrasion Resistance | BS 903.A9 | Method B | ≤ 0.5 | cc |
| Bond Strength (Steel to Rubber) | BS 903.A21 | Method B | ≥ 7 | N/mm |



Tolerances

Standard manufacturing and performance tolerances apply to all TekMarine fenders. TekMarine may agree to smaller tolerances in special cases. Please ask TekMarine for tolerances of types not listed below.

| Fender Type | Property | Tolerance | |
|-------------------------------------|----------------------|----------------------------------|----------------------|
| TJCO, TJSC, TJUE, TJDA-A and TJDA-B | All dimensions | ±3% or ±2mm (whichever greater) | |
| | Bolt hole spacing | ±2mm | |
| TJCY | Outside diameter | ±4% | |
| | Inside diameter | ±4% | |
| | Length | ±40mm | |
| TJDD, TJSD, TJDO and TJSO | Cross-section | ±4% | |
| | Length | ±2% or ±10mm (whichever greater) | |
| | Drilled hole centers | ±4mm (non-cumulative) | |
| | Counterbore depth | ±4mm (under-head depth) | |
| TJCA, TJCB | Cross-section | ±3% or ±2mm (whichever greater) | |
| | Length | ±2% or ±25mm (whichever greater) | |
| | Drilled hole centers | ±4mm (non-cumulative) | |
| | Counterbore depth | ±4mm (under-head depth) | |
| HD-PE fenders | Cross-section | ±4% | |
| | Length | ±2% or ±20mm (whichever greater) | |
| | Drilled hole centers | ±4mm (non-cumulative) | |
| | Counterbore depth | ±4mm (under-head depth) | |
| UHMW-PE panels | Length and width | (cut panels) | ±5mm (cut pads) |
| | | (uncut sheets) | ±20mm (uncut sheets) |
| | Planed thickness | ≤ 30mm | ±0.2mm |
| | | 31–100mm | ±0.3mm |
| | | ≥ 100mm | ±0.5mm |
| | Unplaned thickness | ≤ 30mm | ±2.5mm |
| | | 31–100mm | ±4.0mm |
| ≥ 100mm | | ±6.0mm | |
| Drilled hole centers | | ±2mm (non-cumulative) | |
| Counterbore depth | | ±2mm (under-head depth) | |
| M, W and Block fenders | Cross-section | ±3% or ±2mm (whichever greater) | |
| | Length | ±3% or ±20mm (whichever greater) | |
| | Fixing hole centers | ±3mm | |
| | Fixing hole diameter | ±3mm | |

Performance

| Fender Type | Property | Tolerance |
|-------------------------------------|---------------------------------|-----------|
| TJCO, TJSC, TJUE, TJDA-A and TJDA-B | Reaction, energy and deflection | ±10% |
| Cylindricals (wrapped) | Reaction, energy and deflection | ±10% |
| Cylindricals (extruded) | Reaction, energy and deflection | ±10% |
| Porfile fenders | Reaction, energy and deflection | ±10% |
| Pneumatic fenders | Reaction and energy | ±10% |
| Foam fenders | Reaction and energy | ±15% |

Unless otherwise listed or agreed with TekMarine, tolerances are ±20%.

Testing

Testing of molded¹ and wrapped cylindrical² fenders is conducted in-house, with an option for third party witnessing, using full size fenders in accordance with the PIANC 2002³ guidelines below.

- All fender units have a unique serial number which can be traced back to manufacturing and testing records.
- Fenders are tested under direct (vertical) compression using the Constant Velocity (CV) method.
- The test specimen shall be broken-in by deflected three or more times to at least its rated deflection. After break-in cycles the fender specimen is allowed to recover for at least one hour.
- Axial compression test speed is 2 cm/min ± 8cm/min.
- The test specimen is temperature stabilized to 23°C ± 5°C.⁴
- Reaction force⁵ is recorded at intervals to at least a deflection at which the permitted⁶ minimum energy absorption is achieved.
- Energy absorption⁵ is determined as the integral of reaction and deflection, calculated using Simpson's Rule. The results of a pre-compression cycle⁶ and subsequent break-in compression cycle(s) are not recorded.
- The fender performance shall be determined from a single measured compression cycle and pass if the reaction force is less than the maximum permitted⁷ reaction force and more than the minimum permitted⁷ energy absorption.⁸
- Sampling is 10% of fenders (rounded up to a unit).⁹
- If any sample does not satisfy the specifications, sampling of the remainder is increased to 20% of fenders (rounded up to a unit), excluding non-compliant units.
- If any further sample does not satisfy the specifications, 100% of remaining samples will be tested. Only units which satisfy the specifications shall be passed for shipment. The non-compliant fenders will be rejected.

- 1 Molded fenders include TJCO, TJSC, TJUE, TJDA-A and TJDA-B fenders. TJCO, TJSC, TJDA-A and TJDA-B fenders are tested singly. TJUE fenders are tested in pairs.
- 2 Excluding TJTB tug cylindrical fenders.
- 3 Permanent International Association of Navigation Congress Report of the International Commission for Improving the Design of Fender Systems (Guidelines for the design of Fender systems: 2002, Appendix A).
- 4 Where the ambient temperature is outside this range, fenders shall be normalized to this temperature range in a conditioning room for a suitable period (according to fender size), or performance values may be adjusted according to the temperature correction factor tables.
- 5 Reaction forces (and the corresponding, calculated energy absorption) shall be the exact recorded value and not corrected or otherwise adjusted for speed, unless the project specifications require otherwise.
- 6 Pre-compression testing involves a single 'run in' cycle up to the catalogue rated deflection. The reaction force is not recorded.
- 7 Maximum permitted reaction force is the catalogue value plus the applicable manufacturing tolerance. Minimum permitted energy absorption is the catalogue value minus the applicable manufacturing tolerance.
- 8 The deflection at which the minimum permitted energy absorption is achieved may differ from the nominal 'rated' deflection indicated in the catalogue for the corresponding fender type. Actual deflection is not considered as a pass/fail criterion.
- 9 Testing to PIANC protocols is included within the fender price. Higher testing frequencies, third party witnessing and temperature stabilization costs shall be paid by the purchaser.



Unit Conversions

Length

| | m | ft | in |
|---------------|----------|----------|----------|
| 1 m = | 1 | 3.281 | 39.37 |
| 1 ft = | 0.3048 | 1 | 12 |
| 1 in = | 0.0245 | 0.0833 | 1 |

Force

| | kN | tonne-f | ton-f |
|--------------------|----------|----------|----------|
| 1 kN = | 1 | 0.102 | 0.225 |
| 1 tonne-f = | 9.81 | 1 | 2.2046 |
| 1 ton-f = | 4.45 | 0.454 | 1 |

Area

| | m ² | ft ² | in ² |
|---------------------------|------------------------|------------------------|-----------------|
| 1 m² = | 1 | 10.764 | 1550 |
| 1 ft² = | 0.0929 | 1 | 144 |
| 1 in² = | 645.2×10 ⁻⁶ | 6.944×10 ⁻³ | 1 |

Energy

| | kNm | tf-m | ft.kip |
|-------------------|----------|----------|----------|
| 1 kNm = | 1 | 0.102 | 0.7376 |
| 1 tf-m = | 9.81 | 1 | 7.233 |
| 1 ft.kip = | 1.36 | 0.138 | 1 |

Volume

| | m ³ | ft ³ | in ³ |
|---------------------------|-------------------------|------------------------|-----------------|
| 1 m³ = | 1 | 35.315 | 61024 |
| 1 ft³ = | 0.0283 | 1 | 1728 |
| 1 in³ = | 16.387×10 ⁻⁶ | 578.7×10 ⁻⁶ | 1 |

Pressure

| | kPa | t/m ² | kip/ft ² |
|-------------------------------|----------|------------------|---------------------|
| 1 kPa = | 1 | 0.102 | 0.0209 |
| 1 t/m² = | 9.81 | 1 | 0.205 |
| 1 kip/ft² = | 47.9 | 4.88 | 1 |

Velocity

| | m/s | ft/s | km/h | mph | knot |
|-----------------|----------|----------|----------|----------|----------|
| 1 m/s = | 1 | 3.2808 | 3.6 | 2.2369 | 1.9438 |
| 1 ft/s = | 0.3048 | 1 | 1.0973 | 0.6818 | 0.5925 |
| 1 km/h = | 0.2778 | 0.9113 | 1 | 0.6214 | 0.54 |
| 1 mph = | 0.447 | 1.4667 | 1.6093 | 1 | 0.869 |
| 1 knot = | 0.5144 | 1.6878 | 1.852 | 1.1508 | 1 |

Acceleration

| | g | m/s ² | ft/s ² |
|-----------------------------|----------|------------------|-------------------|
| 1 g = | 1 | 9.807 | 32.17 |
| 1 m/s² = | 0.102 | 1 | 3.281 |
| 1 ft/s² = | 0.031 | 0.3048 | 1 |

Important note

US customary units are listed for your convenience in this catalog, however figures in metric prevail throughout.

Useful software

At the time of publication, third-party unit conversion tools include:

Convert for Windows: <https://joshmadison.com/convert-for-windows/>

NumericalChameleon: <http://sourceforge.net/projects/numchameleon/>

TekMarine offers no warranty for nor makes any claims as to accuracy or fitness for purpose of these programs.



TEKMARINE



TEKMARINE SYSTEMS LLC
9595 Six Pines Drive, Suite 8210
The Woodlands
Houston, TX 77380, USA

phone +1 832 631-6104
email sales@tekmarine.com
web www.tekmarine.com

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