



Table I: Rectangular Bar
Fire Resistance Period: 30 Minutes

Thickness (mm) Required for a Design Temperature of

| Section Factor (m-I) | 300°C | 330°C | 350°C | 400°C | 450°C | 500°C | 512°C | 520°C | 521°C | 547°C | 550°C | 600°C | 620°C | 650°C | 700°C | 750°C |
|----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) |
| 30 | 0.564 | 0.377 | 0.259 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 35 | 0.615 | 0.425 | 0.306 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 40 | 0.669 | 0.475 | 0.354 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 45 | 0.726 | 0.528 | 0.405 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 50 | 0.786 | 0.584 | 0.458 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 55 | 0.851 | 0.643 | 0.514 | 0.230 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 60 | 0.921 | 0.705 | 0.573 | 0.282 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 65 | 0.995 | 0.772 | 0.635 | 0.336 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 70 | 1.075 | 0.842 | 0.701 | 0.392 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 75 | 1.161 | 0.917 | 0.770 | 0.450 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 80 | 1.253 | 0.997 | 0.843 | 0.510 | 0.252 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 85 | 1.354 | 1.082 | 0.921 | 0.572 | 0.308 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 90 | 1.463 | 1.174 | 1.003 | 0.637 | 0.366 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 95 | 1.582 | 1.272 | 1.091 | 0.705 | 0.424 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 100 | 1.712 | 1.378 | 1.184 | 0.775 | 0.484 | 0.268 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 105 | 1.781 | 1.439 | 1.241 | 0.824 | 0.526 | 0.303 | 0.255 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 110 | 1.860 | 1.504 | 1.300 | 0.876 | 0.570 | 0.340 | 0.290 | 0.258 | 0.255 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 115 | 1.993 | 1.573 | 1.364 | 0.931 | 0.617 | 0.379 | 0.328 | 0.295 | 0.291 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 120 | 2.132 | 1.647 | 1.432 | 0.989 | 0.667 | 0.421 | 0.369 | 0.335 | 0.331 | 0.230 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 125 | 2.276 | 1.726 | 1.504 | 1.052 | 0.721 | 0.467 | 0.413 | 0.378 | 0.373 | 0.269 | 0.257 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 130 | 2.426 | 1.811 | 1.582 | 1.119 | 0.779 | 0.516 | 0.460 | 0.424 | 0.419 | 0.310 | 0.298 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 135 | 2.583 | 1.940 | 1.665 | 1.191 | 0.841 | 0.569 | 0.511 | 0.473 | 0.469 | 0.356 | 0.343 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 140 | 2.746 | 2.100 | 1.755 | 1.269 | 0.908 | 0.626 | 0.566 | 0.527 | 0.522 | 0.405 | 0.392 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 145 | 2.917 | 2.267 | 1.856 | 1.353 | 0.980 | 0.688 | 0.626 | 0.586 | 0.581 | 0.458 | 0.445 | 0.241 | 0.225 | 0.225 | 0.225 | 0.225 |
| 150 | 3.095 | 2.443 | 2.032 | 1.443 | 1.059 | 0.755 | 0.691 | 0.650 | 0.644 | 0.517 | 0.503 | 0.290 | 0.225 | 0.225 | 0.225 | 0.225 |
| 155 | 3.282 | 2.627 | 2.217 | 1.542 | 1.144 | 0.829 | 0.763 | 0.720 | 0.714 | 0.581 | 0.567 | 0.345 | 0.264 | 0.225 | 0.225 | 0.225 |
| 160 | 3.477 | 2.820 | 2.412 | 1.650 | 1.238 | 0.910 | 0.842 | 0.797 | 0.791 | 0.652 | 0.637 | 0.405 | 0.321 | 0.225 | 0.225 | 0.225 |
| 165 | 3.682 | 3.023 | 2.619 | 1.767 | 1.341 | 1.000 | 0.929 | 0.882 | 0.876 | 0.731 | 0.715 | 0.473 | 0.384 | 0.251 | 0.225 | 0.225 |
| 170 | - | 3.238 | 2.837 | 1.940 | 1.454 | 1.099 | 1.026 | 0.977 | 0.971 | 0.819 | 0.803 | 0.548 | 0.454 | 0.315 | 0.225 | 0.225 |
| 175 | - | 3.464 | 3.069 | 2.198 | 1.579 | 1.210 | 1.134 | 1.084 | 1.077 | 0.918 | 0.901 | 0.633 | 0.534 | 0.387 | 0.225 | 0.225 |

- Results are applicable for both vertical and horizontal rods. For vertical results, it may be possible to optimise the loadings needed – consult your Nullifire representative if required.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



**Table 2: Rectangular Bar
Fire Resistance Period: 45 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor (m-I) | 300°C | 330°C | 350°C | 400°C | 450°C | 500°C | 512°C | 520°C | 521°C | 547°C | 550°C | 600°C | 620°C | 650°C | 700°C | 750°C |
|----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) |
| 30 | 1.259 | 1.080 | 0.965 | 0.693 | 0.431 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 35 | 1.330 | 1.146 | 1.028 | 0.748 | 0.484 | 0.231 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 40 | 1.405 | 1.215 | 1.093 | 0.805 | 0.537 | 0.285 | 0.226 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 45 | 1.485 | 1.288 | 1.162 | 0.864 | 0.592 | 0.339 | 0.281 | 0.244 | 0.239 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 50 | 1.571 | 1.365 | 1.234 | 0.925 | 0.647 | 0.393 | 0.335 | 0.298 | 0.293 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 55 | 1.662 | 1.447 | 1.309 | 0.988 | 0.704 | 0.448 | 0.390 | 0.352 | 0.347 | 0.227 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 60 | 1.759 | 1.533 | 1.389 | 1.053 | 0.762 | 0.503 | 0.444 | 0.407 | 0.402 | 0.282 | 0.268 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 65 | 1.878 | 1.624 | 1.473 | 1.121 | 0.821 | 0.559 | 0.499 | 0.461 | 0.457 | 0.337 | 0.323 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 70 | 2.088 | 1.721 | 1.562 | 1.192 | 0.882 | 0.615 | 0.555 | 0.516 | 0.511 | 0.391 | 0.377 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 75 | 2.311 | 1.824 | 1.655 | 1.265 | 0.943 | 0.671 | 0.610 | 0.571 | 0.566 | 0.446 | 0.432 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| 80 | 2.547 | 2.011 | 1.754 | 1.340 | 1.006 | 0.728 | 0.666 | 0.627 | 0.622 | 0.500 | 0.486 | 0.275 | 0.225 | 0.225 | 0.225 | 0.225 |
| 85 | 2.798 | 2.227 | 1.871 | 1.419 | 1.071 | 0.785 | 0.722 | 0.682 | 0.677 | 0.554 | 0.539 | 0.328 | 0.250 | 0.225 | 0.225 | 0.225 |
| 90 | 3.066 | 2.457 | 2.080 | 1.501 | 1.137 | 0.843 | 0.778 | 0.737 | 0.732 | 0.607 | 0.593 | 0.380 | 0.303 | 0.225 | 0.225 | 0.225 |
| 95 | 3.352 | 2.702 | 2.302 | 1.586 | 1.204 | 0.901 | 0.835 | 0.793 | 0.788 | 0.661 | 0.646 | 0.432 | 0.355 | 0.243 | 0.225 | 0.225 |
| 100 | 3.657 | 2.962 | 2.538 | 1.675 | 1.273 | 0.960 | 0.891 | 0.849 | 0.844 | 0.714 | 0.699 | 0.483 | 0.406 | 0.294 | 0.225 | 0.225 |
| 105 | 3.819 | 3.120 | 2.694 | 1.751 | 1.339 | 1.017 | 0.946 | 0.903 | 0.897 | 0.764 | 0.748 | 0.526 | 0.447 | 0.331 | 0.225 | 0.225 |
| 110 | - | 3.284 | 2.858 | 1.832 | 1.409 | 1.077 | 1.005 | 0.960 | 0.955 | 0.817 | 0.801 | 0.572 | 0.490 | 0.370 | 0.225 | 0.225 |
| 115 | - | 3.455 | 3.028 | 1.993 | 1.484 | 1.142 | 1.068 | 1.022 | 1.016 | 0.874 | 0.857 | 0.620 | 0.536 | 0.413 | 0.225 | 0.225 |
| 120 | - | 3.633 | 3.206 | 2.179 | 1.564 | 1.211 | 1.135 | 1.087 | 1.081 | 0.935 | 0.918 | 0.673 | 0.585 | 0.458 | 0.257 | 0.225 |
| 125 | - | 3.819 | 3.393 | 2.375 | 1.649 | 1.285 | 1.207 | 1.158 | 1.152 | 1.000 | 0.983 | 0.730 | 0.639 | 0.507 | 0.299 | 0.225 |
| 130 | - | - | 3.588 | 2.581 | 1.740 | 1.365 | 1.285 | 1.234 | 1.228 | 1.071 | 1.053 | 0.791 | 0.697 | 0.560 | 0.345 | 0.225 |
| 135 | - | - | 3.793 | 2.799 | 1.839 | 1.452 | 1.369 | 1.317 | 1.310 | 1.147 | 1.129 | 0.857 | 0.760 | 0.618 | 0.394 | 0.225 |
| 140 | - | - | - | 3.030 | 2.059 | 1.545 | 1.460 | 1.406 | 1.399 | 1.231 | 1.211 | 0.930 | 0.828 | 0.681 | 0.448 | 0.225 |
| 145 | - | - | - | 3.274 | 2.303 | 1.646 | 1.559 | 1.503 | 1.496 | 1.321 | 1.301 | 1.009 | 0.903 | 0.751 | 0.508 | 0.225 |
| 150 | - | - | - | 3.534 | 2.564 | 1.757 | 1.667 | 1.609 | 1.602 | 1.420 | 1.400 | 1.096 | 0.985 | 0.827 | 0.573 | 0.233 |
| 155 | - | - | - | 3.810 | 2.846 | 1.917 | 1.785 | 1.726 | 1.718 | 1.529 | 1.508 | 1.191 | 1.076 | 0.911 | 0.646 | 0.290 |
| 160 | - | - | - | - | 3.149 | 2.209 | 2.000 | 1.863 | 1.846 | 1.649 | 1.627 | 1.297 | 1.176 | 1.004 | 0.726 | 0.353 |
| 165 | - | - | - | - | 3.477 | 2.527 | 2.315 | 2.174 | 2.156 | 1.783 | 1.759 | 1.415 | 1.288 | 1.108 | 0.816 | 0.425 |
| 170 | - | - | - | - | 3.832 | 2.874 | 2.657 | 2.513 | 2.494 | 2.033 | 1.980 | 1.548 | 1.413 | 1.226 | 0.918 | 0.506 |
| 175 | - | - | - | - | - | 3.254 | 3.032 | 2.883 | 2.863 | 2.389 | 2.334 | 1.697 | 1.554 | 1.359 | 1.033 | 0.599 |

- Results are applicable for both vertical and horizontal rods. For vertical results, it may be possible to optimise the loadings needed – consult your Nullifire representative if required.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



**Table 3: Rectangular Bar
Fire Resistance Period: 60 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor (m ⁻¹) | 300°C | 330°C | 350°C | 400°C | 450°C | 500°C | 512°C | 520°C | 521°C | 547°C | 550°C | 600°C | 620°C | 650°C | 700°C | 750°C |
|-----------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) |
| 30 | 2.059 | 1.784 | 1.671 | 1.389 | 1.111 | 0.834 | 0.769 | 0.726 | 0.720 | 0.580 | 0.563 | 0.297 | 0.225 | 0.225 | 0.225 | 0.225 |
| 35 | 2.239 | 1.887 | 1.749 | 1.456 | 1.170 | 0.890 | 0.824 | 0.781 | 0.775 | 0.634 | 0.617 | 0.353 | 0.249 | 0.225 | 0.225 | 0.225 |
| 40 | 2.427 | 2.056 | 1.832 | 1.524 | 1.231 | 0.946 | 0.880 | 0.835 | 0.830 | 0.689 | 0.672 | 0.409 | 0.306 | 0.225 | 0.225 | 0.225 |
| 45 | 2.624 | 2.232 | 1.985 | 1.596 | 1.292 | 1.002 | 0.935 | 0.890 | 0.885 | 0.743 | 0.726 | 0.464 | 0.362 | 0.225 | 0.225 | 0.225 |
| 50 | 2.832 | 2.416 | 2.158 | 1.669 | 1.355 | 1.059 | 0.991 | 0.946 | 0.940 | 0.797 | 0.780 | 0.518 | 0.417 | 0.267 | 0.225 | 0.225 |
| 55 | 3.050 | 2.611 | 2.340 | 1.746 | 1.419 | 1.117 | 1.047 | 1.001 | 0.995 | 0.851 | 0.834 | 0.572 | 0.471 | 0.322 | 0.225 | 0.225 |
| 60 | 3.281 | 2.815 | 2.530 | 1.825 | 1.485 | 1.174 | 1.103 | 1.057 | 1.051 | 0.905 | 0.888 | 0.625 | 0.525 | 0.377 | 0.225 | 0.225 |
| 65 | 3.525 | 3.030 | 2.730 | 1.970 | 1.552 | 1.232 | 1.159 | 1.112 | 1.106 | 0.959 | 0.941 | 0.677 | 0.578 | 0.431 | 0.225 | 0.225 |
| 70 | 3.782 | 3.256 | 2.941 | 2.144 | 1.620 | 1.291 | 1.216 | 1.168 | 1.162 | 1.012 | 0.994 | 0.729 | 0.629 | 0.483 | 0.243 | 0.225 |
| 75 | - | 3.496 | 3.162 | 2.326 | 1.690 | 1.350 | 1.273 | 1.224 | 1.218 | 1.065 | 1.047 | 0.780 | 0.680 | 0.535 | 0.298 | 0.225 |
| 80 | - | 3.749 | 3.395 | 2.517 | 1.761 | 1.409 | 1.330 | 1.280 | 1.274 | 1.118 | 1.100 | 0.830 | 0.731 | 0.586 | 0.352 | 0.225 |
| 85 | - | - | 3.641 | 2.716 | 1.834 | 1.469 | 1.387 | 1.337 | 1.330 | 1.171 | 1.152 | 0.880 | 0.780 | 0.636 | 0.405 | 0.225 |
| 90 | - | - | - | 2.925 | 1.984 | 1.530 | 1.445 | 1.393 | 1.387 | 1.224 | 1.205 | 0.929 | 0.829 | 0.685 | 0.457 | 0.225 |
| 95 | - | - | - | 3.145 | 2.153 | 1.590 | 1.503 | 1.450 | 1.443 | 1.276 | 1.257 | 0.977 | 0.878 | 0.733 | 0.507 | 0.225 |
| 100 | - | - | - | 3.375 | 2.328 | 1.652 | 1.561 | 1.507 | 1.500 | 1.329 | 1.309 | 1.025 | 0.925 | 0.780 | 0.557 | 0.268 |
| 105 | - | - | - | 3.581 | 2.526 | 1.730 | 1.638 | 1.582 | 1.575 | 1.399 | 1.378 | 1.086 | 0.983 | 0.834 | 0.604 | 0.306 |
| 110 | - | - | - | 3.797 | 2.735 | 1.815 | 1.719 | 1.662 | 1.655 | 1.473 | 1.452 | 1.151 | 1.045 | 0.891 | 0.654 | 0.346 |
| 115 | - | - | - | - | 2.957 | 1.982 | 1.807 | 1.748 | 1.740 | 1.553 | 1.532 | 1.221 | 1.111 | 0.953 | 0.708 | 0.389 |
| 120 | - | - | - | - | 3.191 | 2.203 | 1.975 | 1.840 | 1.832 | 1.639 | 1.617 | 1.296 | 1.182 | 1.019 | 0.766 | 0.436 |
| 125 | - | - | - | - | 3.440 | 2.438 | 2.209 | 2.064 | 2.045 | 1.732 | 1.708 | 1.377 | 1.259 | 1.090 | 0.828 | 0.487 |
| 130 | - | - | - | - | 3.704 | 2.689 | 2.459 | 2.310 | 2.291 | 1.831 | 1.807 | 1.465 | 1.343 | 1.168 | 0.896 | 0.542 |
| 135 | - | - | - | - | - | 2.957 | 2.726 | 2.573 | 2.554 | 2.069 | 2.010 | 1.560 | 1.433 | 1.252 | 0.970 | 0.603 |
| 140 | - | - | - | - | - | 3.245 | 3.011 | 2.855 | 2.836 | 2.343 | 2.285 | 1.664 | 1.531 | 1.344 | 1.051 | 0.669 |
| 145 | - | - | - | - | - | 3.554 | 3.318 | 3.157 | 3.137 | 2.637 | 2.578 | 1.777 | 1.639 | 1.445 | 1.139 | 0.742 |
| 150 | - | - | - | - | - | - | 3.646 | 3.481 | 3.461 | 2.951 | 2.891 | 1.977 | 1.757 | 1.555 | 1.236 | 0.823 |
| 155 | - | - | - | - | - | - | - | 3.831 | 3.810 | 3.288 | 3.227 | 2.296 | 1.942 | 1.678 | 1.344 | 0.912 |
| 160 | - | - | - | - | - | - | - | - | - | 3.651 | 3.588 | 2.636 | 2.273 | 1.814 | 1.464 | 1.013 |
| 165 | - | - | - | - | - | - | - | - | - | - | - | 3.000 | 2.627 | 2.109 | 1.598 | 1.127 |
| 170 | - | - | - | - | - | - | - | - | - | - | - | 3.392 | 3.006 | 2.465 | 1.749 | 1.256 |
| 175 | - | - | - | - | - | - | - | - | - | - | - | 3.813 | 3.414 | 2.843 | 1.984 | 1.404 |

- Results are applicable for both vertical and horizontal rods. For vertical results, it may be possible to optimise the loadings needed – consult your Nullifire representative if required.

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**Table 4: Rectangular Bar
Fire Resistance Period: 75 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor (m-I) | 300°C | 330°C | 350°C | 400°C | 450°C | 500°C | 512°C | 520°C | 521°C | 547°C | 550°C | 600°C | 620°C | 650°C | 700°C | 750°C |
|----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) |
| 30 | 3.436 | 3.076 | 2.865 | 2.325 | 1.791 | 1.491 | 1.420 | 1.370 | 1.364 | 1.208 | 1.190 | 0.888 | 0.768 | 0.586 | 0.269 | 0.225 |
| 35 | 3.648 | 3.268 | 3.046 | 2.482 | 1.870 | 1.549 | 1.476 | 1.426 | 1.419 | 1.262 | 1.243 | 0.941 | 0.821 | 0.640 | 0.329 | 0.225 |
| 40 | 3.871 | 3.468 | 3.236 | 2.646 | 2.014 | 1.608 | 1.533 | 1.481 | 1.475 | 1.316 | 1.296 | 0.993 | 0.873 | 0.694 | 0.388 | 0.225 |
| 45 | - | 3.678 | 3.433 | 2.817 | 2.161 | 1.666 | 1.590 | 1.537 | 1.531 | 1.369 | 1.349 | 1.044 | 0.925 | 0.747 | 0.445 | 0.225 |
| 50 | - | - | 3.640 | 2.994 | 2.313 | 1.726 | 1.647 | 1.593 | 1.587 | 1.422 | 1.402 | 1.094 | 0.976 | 0.798 | 0.501 | 0.225 |
| 55 | - | - | 3.857 | 3.178 | 2.468 | 1.785 | 1.704 | 1.650 | 1.643 | 1.475 | 1.454 | 1.144 | 1.026 | 0.849 | 0.556 | 0.225 |
| 60 | - | - | - | 3.371 | 2.628 | 1.846 | 1.762 | 1.706 | 1.699 | 1.528 | 1.507 | 1.194 | 1.075 | 0.899 | 0.610 | 0.259 |
| 65 | - | - | - | 3.572 | 2.792 | 1.985 | 1.819 | 1.763 | 1.756 | 1.580 | 1.559 | 1.242 | 1.124 | 0.948 | 0.662 | 0.314 |
| 70 | - | - | - | 3.781 | 2.961 | 2.127 | 1.921 | 1.820 | 1.813 | 1.633 | 1.611 | 1.290 | 1.171 | 0.996 | 0.713 | 0.368 |
| 75 | - | - | - | - | 3.135 | 2.270 | 2.059 | 1.920 | 1.902 | 1.685 | 1.663 | 1.338 | 1.218 | 1.043 | 0.763 | 0.420 |
| 80 | - | - | - | - | 3.313 | 2.414 | 2.198 | 2.057 | 2.039 | 1.737 | 1.714 | 1.385 | 1.265 | 1.089 | 0.812 | 0.469 |
| 85 | - | - | - | - | 3.497 | 2.561 | 2.339 | 2.194 | 2.176 | 1.789 | 1.766 | 1.431 | 1.311 | 1.135 | 0.860 | 0.517 |
| 90 | - | - | - | - | 3.687 | 2.708 | 2.480 | 2.332 | 2.314 | 1.840 | 1.817 | 1.477 | 1.356 | 1.179 | 0.907 | 0.564 |
| 95 | - | - | - | - | 3.882 | 2.857 | 2.624 | 2.471 | 2.452 | 1.962 | 1.901 | 1.522 | 1.400 | 1.223 | 0.953 | 0.609 |
| 100 | - | - | - | - | - | 3.008 | 2.769 | 2.611 | 2.591 | 2.091 | 2.030 | 1.567 | 1.444 | 1.266 | 0.998 | 0.652 |
| 105 | - | - | - | - | - | 3.240 | 2.999 | 2.838 | 2.819 | 2.315 | 2.254 | 1.646 | 1.519 | 1.337 | 1.060 | 0.703 |
| 110 | - | - | - | - | - | 3.485 | 3.243 | 3.078 | 3.059 | 2.551 | 2.490 | 1.731 | 1.600 | 1.412 | 1.126 | 0.758 |
| 115 | - | - | - | - | - | 3.745 | 3.502 | 3.333 | 3.314 | 2.800 | 2.739 | 1.822 | 1.686 | 1.493 | 1.197 | 0.818 |
| 120 | - | - | - | - | - | - | 3.776 | 3.603 | 3.584 | 3.064 | 3.003 | 2.036 | 1.779 | 1.580 | 1.274 | 0.882 |
| 125 | - | - | - | - | - | - | - | - | 3.871 | 3.344 | 3.282 | 2.303 | 1.933 | 1.674 | 1.358 | 0.951 |
| 130 | - | - | - | - | - | - | - | - | - | 3.641 | 3.579 | 2.585 | 2.208 | 1.775 | 1.448 | 1.027 |
| 135 | - | - | - | - | - | - | - | - | - | - | - | 2.884 | 2.499 | 1.947 | 1.546 | 1.110 |
| 140 | - | - | - | - | - | - | - | - | - | - | - | 3.201 | 2.806 | 2.243 | 1.653 | 1.201 |
| 145 | - | - | - | - | - | - | - | - | - | - | - | 3.537 | 3.133 | 2.554 | 1.770 | 1.301 |
| 150 | - | - | - | - | - | - | - | - | - | - | - | - | 3.481 | 2.883 | 1.977 | 1.412 |
| 155 | - | - | - | - | - | - | - | - | - | - | - | - | 3.851 | 3.231 | 2.304 | 1.535 |
| 160 | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.599 | 2.633 | 1.673 |
| 165 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2.965 | 1.829 |
| 170 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.298 | 2.124 |
| 175 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.633 | 2.398 |

- Results are applicable for both vertical and horizontal rods. For vertical results, it may be possible to optimise the loadings needed – consult your Nullifire representative if required.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



**Table 5: Rectangular Bar
Fire Resistance Period: 90 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor (m-I) | 300°C | 330°C | 350°C | 400°C | 450°C | 500°C | 512°C | 520°C | 521°C | 547°C | 550°C | 600°C | 620°C | 650°C | 700°C | 750°C |
|----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) |
| 30 | - | - | - | 3.716 | 3.174 | 2.536 | 2.365 | 2.245 | 2.230 | 1.837 | 1.816 | 1.480 | 1.344 | 1.138 | 0.785 | 0.374 |
| 35 | - | - | - | - | 3.333 | 2.675 | 2.500 | 2.380 | 2.365 | 1.955 | 1.903 | 1.528 | 1.393 | 1.188 | 0.839 | 0.435 |
| 40 | - | - | - | - | 3.496 | 2.816 | 2.636 | 2.515 | 2.500 | 2.085 | 2.033 | 1.576 | 1.441 | 1.236 | 0.892 | 0.492 |
| 45 | - | - | - | - | 3.663 | 2.958 | 2.773 | 2.651 | 2.636 | 2.215 | 2.163 | 1.624 | 1.488 | 1.283 | 0.943 | 0.548 |
| 50 | - | - | - | - | 3.834 | 3.102 | 2.912 | 2.788 | 2.772 | 2.345 | 2.292 | 1.671 | 1.534 | 1.330 | 0.994 | 0.601 |
| 55 | - | - | - | - | - | 3.247 | 3.052 | 2.925 | 2.909 | 2.474 | 2.422 | 1.717 | 1.580 | 1.376 | 1.043 | 0.652 |
| 60 | - | - | - | - | - | 3.393 | 3.193 | 3.063 | 3.047 | 2.604 | 2.551 | 1.763 | 1.625 | 1.421 | 1.091 | 0.701 |
| 65 | - | - | - | - | - | 3.542 | 3.336 | 3.201 | 3.185 | 2.733 | 2.679 | 1.808 | 1.670 | 1.465 | 1.138 | 0.749 |
| 70 | - | - | - | - | - | 3.691 | 3.480 | 3.340 | 3.324 | 2.862 | 2.808 | 1.864 | 1.713 | 1.508 | 1.183 | 0.794 |
| 75 | - | - | - | - | - | 3.843 | 3.625 | 3.480 | 3.463 | 2.991 | 2.936 | 1.983 | 1.756 | 1.551 | 1.228 | 0.838 |
| 80 | - | - | - | - | - | - | 3.772 | 3.620 | 3.603 | 3.120 | 3.064 | 2.101 | 1.799 | 1.592 | 1.272 | 0.880 |
| 85 | - | - | - | - | - | - | - | 3.761 | 3.744 | 3.249 | 3.191 | 2.216 | 1.841 | 1.634 | 1.315 | 0.921 |
| 90 | - | - | - | - | - | - | - | - | - | 3.378 | 3.319 | 2.329 | 1.944 | 1.674 | 1.357 | 0.961 |
| 95 | - | - | - | - | - | - | - | - | - | 3.507 | 3.446 | 2.440 | 2.054 | 1.713 | 1.398 | 0.999 |
| 100 | - | - | - | - | - | - | - | - | - | 3.635 | 3.572 | 2.550 | 2.162 | 1.752 | 1.438 | 1.035 |
| 105 | - | - | - | - | - | - | - | - | - | - | 3.837 | 2.803 | 2.408 | 1.839 | 1.515 | 1.101 |
| 110 | - | - | - | - | - | - | - | - | - | - | - | 3.069 | 2.667 | 2.081 | 1.598 | 1.171 |
| 115 | - | - | - | - | - | - | - | - | - | - | - | 3.349 | 2.939 | 2.346 | 1.687 | 1.246 |
| 120 | - | - | - | - | - | - | - | - | - | - | - | 3.644 | 3.226 | 2.623 | 1.783 | 1.328 |
| 125 | - | - | - | - | - | - | - | - | - | - | - | - | 3.529 | 2.913 | 1.970 | 1.416 |
| 130 | - | - | - | - | - | - | - | - | - | - | - | - | 3.848 | 3.218 | 2.293 | 1.512 |
| 135 | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.539 | 2.617 | 1.618 |
| 140 | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.876 | 2.943 | 1.733 |
| 145 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.271 | 1.895 |
| 150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.601 | 2.312 |
| 155 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2.661 |
| 160 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2.956 |
| 165 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.209 |
| 170 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.429 |
| 175 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.622 |

- Results are applicable for both vertical and horizontal rods. For vertical results, it may be possible to optimise the loadings needed – consult your Nullifire representative if required.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



**Table 6: Rectangular Bar
Fire Resistance Period: IO5 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor (m-I) | 300°C | 330°C | 350°C | 400°C | 450°C | 500°C | 512°C | 520°C | 521°C | 547°C | 550°C | 600°C | 620°C | 650°C | 700°C | 750°C |
|----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) |
| 30 | - | - | - | - | - | - | 3.867 | 3.773 | 3.761 | 3.380 | 3.339 | 2.473 | 2.063 | 1.691 | 1.302 | 0.875 |
| 35 | - | - | - | - | - | - | - | - | - | 3.509 | 3.468 | 2.596 | 2.189 | 1.735 | 1.349 | 0.924 |
| 40 | - | - | - | - | - | - | - | - | - | 3.638 | 3.596 | 2.716 | 2.312 | 1.778 | 1.396 | 0.972 |
| 45 | - | - | - | - | - | - | - | - | - | 3.767 | 3.725 | 2.834 | 2.431 | 1.820 | 1.441 | 1.018 |
| 50 | - | - | - | - | - | - | - | - | - | - | 3.852 | 2.950 | 2.548 | 1.902 | 1.486 | 1.061 |
| 55 | - | - | - | - | - | - | - | - | - | - | - | 3.064 | 2.661 | 2.039 | 1.529 | 1.103 |
| 60 | - | - | - | - | - | - | - | - | - | - | - | 3.176 | 2.772 | 2.166 | 1.572 | 1.144 |
| 65 | - | - | - | - | - | - | - | - | - | - | - | 3.285 | 2.880 | 2.285 | 1.613 | 1.183 |
| 70 | - | - | - | - | - | - | - | - | - | - | - | 3.393 | 2.985 | 2.396 | 1.654 | 1.220 |
| 75 | - | - | - | - | - | - | - | - | - | - | - | 3.499 | 3.088 | 2.500 | 1.693 | 1.256 |
| 80 | - | - | - | - | - | - | - | - | - | - | - | 3.602 | 3.188 | 2.598 | 1.732 | 1.291 |
| 85 | - | - | - | - | - | - | - | - | - | - | - | 3.705 | 3.286 | 2.690 | 1.770 | 1.325 |
| 90 | - | - | - | - | - | - | - | - | - | - | - | 3.805 | 3.381 | 2.777 | 1.807 | 1.357 |
| 95 | - | - | - | - | - | - | - | - | - | - | - | - | 3.474 | 2.859 | 1.843 | 1.389 |
| 100 | - | - | - | - | - | - | - | - | - | - | - | - | 3.565 | 2.937 | 1.964 | 1.419 |
| 105 | - | - | - | - | - | - | - | - | - | - | - | - | 3.846 | 3.208 | 2.281 | 1.498 |
| 110 | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.493 | 2.601 | 1.583 |
| 115 | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.790 | 2.922 | 1.674 |
| 120 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.245 | 1.773 |
| 125 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.570 | 2.088 |
| 130 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2.711 |
| 135 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.181 |
| 140 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.549 |
| 145 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.844 |
| 150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 155 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 160 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 165 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 170 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 175 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

- Results are applicable for both vertical and horizontal rods. For vertical results, it may be possible to optimise the loadings needed – consult your Nullifire representative if required.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



Table 7: Circular Bar
Fire Resistance Period: 30 Minutes

Thickness (mm) Required for a Design Temperature of

| Bar Diameter (mm) | 300°C | 330°C | 350°C | 400°C | 450°C | 500°C | 512°C | 520°C | 521°C | 547°C | 550°C | 600°C | 620°C | 650°C | 700°C | 750°C |
|-------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) |
| 25 | - | 3.732 | 3.190 | 1.799 | 1.367 | 1.012 | 0.932 | 0.884 | 0.878 | 0.722 | 0.704 | 0.427 | 0.318 | 0.214 | 0.214 | 0.214 |
| 30 | 3.465 | 2.648 | 2.118 | 1.443 | 1.057 | 0.749 | 0.678 | 0.637 | 0.632 | 0.495 | 0.479 | 0.236 | 0.214 | 0.214 | 0.214 | 0.214 |
| 35 | 2.679 | 1.905 | 1.633 | 1.174 | 0.826 | 0.551 | 0.489 | 0.452 | 0.447 | 0.325 | 0.311 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 40 | 2.094 | 1.595 | 1.386 | 0.963 | 0.646 | 0.398 | 0.342 | 0.308 | 0.303 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 45 | 1.724 | 1.381 | 1.186 | 0.793 | 0.503 | 0.276 | 0.225 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 50 | 1.525 | 1.203 | 1.020 | 0.654 | 0.387 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 55 | 1.359 | 1.054 | 0.881 | 0.537 | 0.290 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 60 | 1.217 | 0.928 | 0.762 | 0.438 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 65 | 1.095 | 0.818 | 0.660 | 0.353 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 70 | 0.989 | 0.723 | 0.570 | 0.279 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 75 | 0.959 | 0.702 | 0.554 | 0.270 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 80 | 0.929 | 0.681 | 0.538 | 0.261 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 85 | 0.901 | 0.660 | 0.522 | 0.252 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 90 | 0.873 | 0.640 | 0.506 | 0.243 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 95 | 0.845 | 0.620 | 0.490 | 0.234 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 100 | 0.818 | 0.600 | 0.475 | 0.225 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 105 | 0.792 | 0.581 | 0.459 | 0.216 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 110 | 0.766 | 0.562 | 0.444 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 115 | 0.741 | 0.543 | 0.429 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 120 | 0.717 | 0.524 | 0.413 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 125 | 0.693 | 0.505 | 0.398 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 130 | 0.669 | 0.487 | 0.384 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 135 | 0.646 | 0.469 | 0.369 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |

- Results are applicable for both vertical and horizontal rods. For vertical results, it may be possible to optimise the loadings needed – consult your Nullifire representative if required.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



**Table 8: Circular Bar
Fire Resistance Period: 45 Minutes**

Thickness (mm) Required for a Design Temperature of

| Bar Diameter (mm) | 300°C | 330°C | 350°C | 400°C | 450°C | 500°C | 512°C | 520°C | 521°C | 547°C | 550°C | 600°C | 620°C | 650°C | 700°C | 750°C |
|-------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) |
| 25 | - | - | - | - | - | 3.319 | 2.955 | 2.728 | 2.699 | 1.970 | 1.888 | 1.473 | 1.340 | 1.135 | 0.787 | 0.279 |
| 30 | - | - | - | - | 2.935 | 1.793 | 1.706 | 1.650 | 1.643 | 1.469 | 1.449 | 1.133 | 1.014 | 0.833 | 0.529 | 0.214 |
| 35 | - | - | - | 2.987 | 1.820 | 1.465 | 1.387 | 1.338 | 1.332 | 1.177 | 1.158 | 0.878 | 0.770 | 0.609 | 0.340 | 0.214 |
| 40 | - | 3.772 | 3.278 | 2.134 | 1.528 | 1.209 | 1.139 | 1.095 | 1.090 | 0.949 | 0.933 | 0.679 | 0.582 | 0.436 | 0.214 | 0.214 |
| 45 | 3.854 | 3.073 | 2.599 | 1.685 | 1.296 | 1.006 | 0.942 | 0.901 | 0.896 | 0.768 | 0.753 | 0.520 | 0.431 | 0.299 | 0.214 | 0.214 |
| 50 | 3.269 | 2.523 | 2.072 | 1.466 | 1.106 | 0.839 | 0.780 | 0.742 | 0.738 | 0.619 | 0.606 | 0.391 | 0.308 | 0.214 | 0.214 | 0.214 |
| 55 | 2.792 | 2.079 | 1.733 | 1.283 | 0.948 | 0.700 | 0.646 | 0.610 | 0.606 | 0.496 | 0.483 | 0.282 | 0.214 | 0.214 | 0.214 | 0.214 |
| 60 | 2.396 | 1.762 | 1.551 | 1.127 | 0.815 | 0.583 | 0.532 | 0.498 | 0.494 | 0.391 | 0.380 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 65 | 2.062 | 1.595 | 1.394 | 0.994 | 0.701 | 0.482 | 0.435 | 0.403 | 0.399 | 0.302 | 0.291 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 70 | 1.794 | 1.450 | 1.258 | 0.878 | 0.603 | 0.395 | 0.350 | 0.320 | 0.316 | 0.224 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 75 | 1.754 | 1.424 | 1.239 | 0.869 | 0.598 | 0.391 | 0.347 | 0.317 | 0.313 | 0.221 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 80 | 1.715 | 1.399 | 1.220 | 0.860 | 0.593 | 0.388 | 0.344 | 0.313 | 0.310 | 0.219 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 85 | 1.677 | 1.374 | 1.201 | 0.851 | 0.588 | 0.384 | 0.340 | 0.310 | 0.307 | 0.216 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 90 | 1.640 | 1.349 | 1.183 | 0.842 | 0.583 | 0.380 | 0.337 | 0.307 | 0.303 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 95 | 1.604 | 1.325 | 1.164 | 0.833 | 0.579 | 0.377 | 0.334 | 0.304 | 0.300 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 100 | 1.568 | 1.301 | 1.146 | 0.824 | 0.574 | 0.373 | 0.330 | 0.301 | 0.297 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 105 | 1.533 | 1.277 | 1.128 | 0.815 | 0.569 | 0.369 | 0.327 | 0.298 | 0.294 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 110 | 1.499 | 1.254 | 1.110 | 0.805 | 0.564 | 0.365 | 0.323 | 0.295 | 0.291 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 115 | 1.466 | 1.231 | 1.092 | 0.796 | 0.559 | 0.361 | 0.320 | 0.291 | 0.288 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 120 | 1.434 | 1.208 | 1.074 | 0.787 | 0.554 | 0.358 | 0.316 | 0.288 | 0.285 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 125 | 1.402 | 1.185 | 1.056 | 0.778 | 0.549 | 0.354 | 0.313 | 0.285 | 0.281 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 130 | 1.371 | 1.163 | 1.039 | 0.769 | 0.543 | 0.350 | 0.309 | 0.282 | 0.278 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |
| 135 | 1.341 | 1.141 | 1.022 | 0.760 | 0.538 | 0.346 | 0.306 | 0.278 | 0.275 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 | 0.214 |

- Results are applicable for both vertical and horizontal rods. For vertical results, it may be possible to optimise the loadings needed – consult your Nullifire representative if required.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



**Table 9: Circular Bar
Fire Resistance Period: 60 Minutes**

Thickness (mm) Required for a Design Temperature of

| Bar Diameter (mm) | 300°C | 330°C | 350°C | 400°C | 450°C | 500°C | 512°C | 520°C | 521°C | 547°C | 550°C | 600°C | 620°C | 650°C | 700°C | 750°C |
|-------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) |
| 25 | - | - | - | - | - | - | - | - | - | - | - | - | 3.637 | 2.776 | 1.719 | 1.128 |
| 30 | - | - | - | - | - | - | - | - | - | 3.693 | 3.618 | 2.427 | 2.010 | 1.671 | 1.317 | 0.820 |
| 35 | - | - | - | - | - | 3.337 | 3.071 | 2.908 | 2.887 | 2.374 | 2.314 | 1.662 | 1.533 | 1.339 | 1.023 | 0.591 |
| 40 | - | - | - | - | 3.316 | 2.325 | 2.111 | 1.977 | 1.960 | 1.706 | 1.685 | 1.376 | 1.259 | 1.082 | 0.798 | 0.415 |
| 45 | - | - | - | 3.538 | 2.468 | 1.735 | 1.659 | 1.610 | 1.603 | 1.449 | 1.430 | 1.148 | 1.040 | 0.879 | 0.620 | 0.275 |
| 50 | - | - | - | 2.825 | 1.835 | 1.502 | 1.432 | 1.387 | 1.381 | 1.238 | 1.221 | 0.961 | 0.861 | 0.713 | 0.477 | 0.214 |
| 55 | - | 3.789 | 3.313 | 2.266 | 1.607 | 1.308 | 1.242 | 1.201 | 1.195 | 1.063 | 1.047 | 0.805 | 0.712 | 0.575 | 0.358 | 0.214 |
| 60 | - | 3.273 | 2.817 | 1.817 | 1.423 | 1.143 | 1.083 | 1.043 | 1.038 | 0.914 | 0.899 | 0.673 | 0.586 | 0.459 | 0.259 | 0.214 |
| 65 | 3.582 | 2.840 | 2.404 | 1.635 | 1.265 | 1.003 | 0.946 | 0.908 | 0.904 | 0.787 | 0.773 | 0.560 | 0.479 | 0.360 | 0.214 | 0.214 |
| 70 | 3.186 | 2.472 | 2.055 | 1.477 | 1.129 | 0.881 | 0.827 | 0.792 | 0.787 | 0.677 | 0.664 | 0.462 | 0.386 | 0.275 | 0.214 | 0.214 |
| 75 | 3.031 | 2.377 | 2.000 | 1.468 | 1.126 | 0.878 | 0.825 | 0.790 | 0.785 | 0.675 | 0.662 | 0.461 | 0.385 | 0.275 | 0.214 | 0.214 |
| 80 | 2.895 | 2.295 | 1.952 | 1.459 | 1.123 | 0.876 | 0.823 | 0.787 | 0.783 | 0.673 | 0.660 | 0.460 | 0.384 | 0.274 | 0.214 | 0.214 |
| 85 | 2.775 | 2.223 | 1.912 | 1.449 | 1.119 | 0.874 | 0.820 | 0.785 | 0.781 | 0.671 | 0.658 | 0.459 | 0.384 | 0.274 | 0.214 | 0.214 |
| 90 | 2.667 | 2.160 | 1.876 | 1.440 | 1.116 | 0.871 | 0.818 | 0.783 | 0.779 | 0.669 | 0.656 | 0.458 | 0.383 | 0.274 | 0.214 | 0.214 |
| 95 | 2.570 | 2.104 | 1.845 | 1.431 | 1.113 | 0.869 | 0.816 | 0.781 | 0.776 | 0.667 | 0.654 | 0.457 | 0.382 | 0.274 | 0.214 | 0.214 |
| 100 | 2.483 | 2.054 | 1.817 | 1.422 | 1.110 | 0.866 | 0.814 | 0.779 | 0.774 | 0.665 | 0.652 | 0.456 | 0.382 | 0.274 | 0.214 | 0.214 |
| 105 | 2.404 | 2.009 | 1.796 | 1.413 | 1.107 | 0.864 | 0.811 | 0.777 | 0.772 | 0.663 | 0.650 | 0.455 | 0.381 | 0.273 | 0.214 | 0.214 |
| 110 | 2.332 | 1.968 | 1.775 | 1.404 | 1.104 | 0.861 | 0.809 | 0.774 | 0.770 | 0.661 | 0.648 | 0.454 | 0.381 | 0.273 | 0.214 | 0.214 |
| 115 | 2.266 | 1.931 | 1.755 | 1.395 | 1.100 | 0.859 | 0.807 | 0.772 | 0.768 | 0.659 | 0.646 | 0.453 | 0.380 | 0.273 | 0.214 | 0.214 |
| 120 | 2.206 | 1.898 | 1.735 | 1.386 | 1.097 | 0.856 | 0.804 | 0.770 | 0.766 | 0.657 | 0.644 | 0.452 | 0.379 | 0.273 | 0.214 | 0.214 |
| 125 | 2.150 | 1.867 | 1.714 | 1.377 | 1.094 | 0.854 | 0.802 | 0.768 | 0.763 | 0.655 | 0.642 | 0.451 | 0.379 | 0.273 | 0.214 | 0.214 |
| 130 | 2.098 | 1.839 | 1.694 | 1.368 | 1.091 | 0.851 | 0.800 | 0.766 | 0.761 | 0.653 | 0.640 | 0.450 | 0.378 | 0.273 | 0.214 | 0.214 |
| 135 | 2.050 | 1.813 | 1.674 | 1.358 | 1.087 | 0.848 | 0.797 | 0.763 | 0.759 | 0.651 | 0.638 | 0.449 | 0.377 | 0.272 | 0.214 | 0.214 |

- Results are applicable for both vertical and horizontal rods. For vertical results, it may be possible to optimise the loadings needed – consult your Nullifire representative if required.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



Table IO: Circular Bar
Fire Resistance Period: 75 Minutes

Thickness (mm) Required for a Design Temperature of

| Bar Diameter (mm) | 300°C | 330°C | 350°C | 400°C | 450°C | 500°C | 512°C | 520°C | 521°C | 547°C | 550°C | 600°C | 620°C | 650°C | 700°C | 750°C |
|-------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) |
| 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2.285 |
| 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.682 | 2.538 | 1.542 |
| 35 | - | - | - | - | - | - | - | - | - | - | - | 3.418 | 3.004 | 2.424 | 1.705 | 1.220 |
| 40 | - | - | - | - | - | - | - | - | - | 3.378 | 3.319 | 2.413 | 2.086 | 1.729 | 1.400 | 0.972 |
| 45 | - | - | - | - | - | 3.344 | 3.116 | 2.976 | 2.958 | 2.523 | 2.472 | 1.775 | 1.648 | 1.458 | 1.159 | 0.775 |
| 50 | - | - | - | - | 3.504 | 2.599 | 2.406 | 2.287 | 2.271 | 1.901 | 1.855 | 1.531 | 1.413 | 1.239 | 0.964 | 0.614 |
| 55 | - | - | - | 3.851 | 2.825 | 2.029 | 1.863 | 1.791 | 1.784 | 1.630 | 1.610 | 1.328 | 1.218 | 1.056 | 0.803 | 0.482 |
| 60 | - | - | - | 3.247 | 2.284 | 1.704 | 1.633 | 1.588 | 1.582 | 1.438 | 1.419 | 1.156 | 1.053 | 0.903 | 0.668 | 0.370 |
| 65 | - | - | 3.787 | 2.749 | 1.841 | 1.523 | 1.457 | 1.414 | 1.409 | 1.273 | 1.256 | 1.009 | 0.912 | 0.771 | 0.553 | 0.274 |
| 70 | - | 3.799 | 3.331 | 2.333 | 1.655 | 1.367 | 1.304 | 1.264 | 1.258 | 1.131 | 1.114 | 0.881 | 0.790 | 0.658 | 0.453 | 0.214 |
| 75 | - | 3.606 | 3.177 | 2.271 | 1.653 | 1.365 | 1.303 | 1.263 | 1.257 | 1.129 | 1.113 | 0.880 | 0.790 | 0.658 | 0.453 | 0.214 |
| 80 | - | 3.439 | 3.044 | 2.219 | 1.652 | 1.364 | 1.302 | 1.261 | 1.256 | 1.128 | 1.112 | 0.879 | 0.789 | 0.658 | 0.453 | 0.214 |
| 85 | - | 3.294 | 2.930 | 2.175 | 1.650 | 1.363 | 1.301 | 1.260 | 1.255 | 1.127 | 1.111 | 0.879 | 0.789 | 0.657 | 0.453 | 0.214 |
| 90 | 3.773 | 3.167 | 2.830 | 2.137 | 1.649 | 1.362 | 1.299 | 1.259 | 1.254 | 1.126 | 1.110 | 0.878 | 0.788 | 0.657 | 0.453 | 0.214 |
| 95 | 3.619 | 3.054 | 2.742 | 2.104 | 1.648 | 1.361 | 1.298 | 1.258 | 1.253 | 1.124 | 1.108 | 0.877 | 0.788 | 0.657 | 0.453 | 0.214 |
| 100 | 3.481 | 2.953 | 2.664 | 2.075 | 1.646 | 1.359 | 1.297 | 1.257 | 1.251 | 1.123 | 1.107 | 0.876 | 0.787 | 0.657 | 0.453 | 0.214 |
| 105 | 3.356 | 2.862 | 2.594 | 2.049 | 1.645 | 1.358 | 1.296 | 1.256 | 1.250 | 1.122 | 1.106 | 0.876 | 0.787 | 0.657 | 0.453 | 0.214 |
| 110 | 3.242 | 2.780 | 2.531 | 2.026 | 1.643 | 1.357 | 1.295 | 1.254 | 1.249 | 1.121 | 1.105 | 0.875 | 0.786 | 0.657 | 0.453 | 0.214 |
| 115 | 3.137 | 2.706 | 2.474 | 2.006 | 1.642 | 1.356 | 1.293 | 1.253 | 1.248 | 1.119 | 1.103 | 0.874 | 0.786 | 0.657 | 0.453 | 0.214 |
| 120 | 3.041 | 2.638 | 2.423 | 1.987 | 1.641 | 1.355 | 1.292 | 1.252 | 1.247 | 1.118 | 1.102 | 0.873 | 0.785 | 0.657 | 0.453 | 0.214 |
| 125 | 2.952 | 2.576 | 2.375 | 1.971 | 1.639 | 1.353 | 1.291 | 1.251 | 1.246 | 1.117 | 1.101 | 0.873 | 0.785 | 0.656 | 0.453 | 0.214 |
| 130 | 2.871 | 2.519 | 2.332 | 1.955 | 1.638 | 1.352 | 1.290 | 1.250 | 1.244 | 1.116 | 1.100 | 0.872 | 0.784 | 0.656 | 0.453 | 0.214 |
| 135 | 2.795 | 2.466 | 2.293 | 1.941 | 1.636 | 1.351 | 1.288 | 1.248 | 1.243 | 1.114 | 1.098 | 0.871 | 0.784 | 0.656 | 0.453 | 0.214 |

- Results are applicable for both vertical and horizontal rods. For vertical results, it may be possible to optimise the loadings needed – consult your Nullifire representative if required.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



**Table II: Circular Bar
Fire Resistance Period: 90 Minutes**

Thickness (mm) Required for a Design Temperature of

| Bar Diameter (mm) | 300°C | 330°C | 350°C | 400°C | 450°C | 500°C | 512°C | 520°C | 521°C | 547°C | 550°C | 600°C | 620°C | 650°C | 700°C | 750°C |
|-------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) |
| 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2.889 |
| 35 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.122 | 1.883 |
| 40 | - | - | - | - | - | - | - | - | - | - | - | - | 3.635 | 3.069 | 2.213 | 1.529 |
| 45 | - | - | - | - | - | - | - | - | - | - | - | 3.095 | 2.762 | 2.286 | 1.698 | 1.274 |
| 50 | - | - | - | - | - | - | 3.854 | 3.707 | 3.688 | 3.235 | 3.182 | 2.407 | 2.122 | 1.765 | 1.452 | 1.067 |
| 55 | - | - | - | - | - | 3.348 | 3.140 | 3.012 | 2.996 | 2.601 | 2.554 | 1.883 | 1.725 | 1.538 | 1.248 | 0.896 |
| 60 | - | - | - | - | 3.616 | 2.759 | 2.577 | 2.465 | 2.450 | 2.104 | 2.060 | 1.639 | 1.520 | 1.346 | 1.077 | 0.751 |
| 65 | - | - | - | - | 3.052 | 2.281 | 2.121 | 2.022 | 2.009 | 1.759 | 1.738 | 1.457 | 1.346 | 1.182 | 0.932 | 0.628 |
| 70 | - | - | - | 3.531 | 2.582 | 1.887 | 1.781 | 1.736 | 1.730 | 1.584 | 1.565 | 1.299 | 1.194 | 1.041 | 0.806 | 0.521 |
| 75 | - | - | - | 3.363 | 2.511 | 1.881 | 1.781 | 1.736 | 1.729 | 1.583 | 1.564 | 1.299 | 1.194 | 1.041 | 0.806 | 0.521 |
| 80 | - | - | - | 3.223 | 2.451 | 1.876 | 1.781 | 1.735 | 1.729 | 1.583 | 1.564 | 1.298 | 1.194 | 1.041 | 0.806 | 0.521 |
| 85 | - | - | - | 3.104 | 2.401 | 1.872 | 1.781 | 1.735 | 1.729 | 1.583 | 1.563 | 1.298 | 1.193 | 1.041 | 0.806 | 0.521 |
| 90 | - | - | 3.784 | 3.001 | 2.358 | 1.868 | 1.781 | 1.735 | 1.729 | 1.582 | 1.563 | 1.298 | 1.193 | 1.041 | 0.806 | 0.521 |
| 95 | - | - | 3.639 | 2.912 | 2.321 | 1.865 | 1.781 | 1.735 | 1.729 | 1.582 | 1.562 | 1.297 | 1.193 | 1.041 | 0.806 | 0.521 |
| 100 | - | 3.851 | 3.511 | 2.834 | 2.288 | 1.862 | 1.780 | 1.735 | 1.729 | 1.581 | 1.562 | 1.297 | 1.193 | 1.041 | 0.806 | 0.521 |
| 105 | - | 3.715 | 3.396 | 2.764 | 2.259 | 1.860 | 1.780 | 1.735 | 1.728 | 1.581 | 1.562 | 1.296 | 1.192 | 1.040 | 0.806 | 0.521 |
| 110 | - | 3.592 | 3.293 | 2.703 | 2.234 | 1.858 | 1.780 | 1.734 | 1.728 | 1.580 | 1.561 | 1.296 | 1.192 | 1.040 | 0.806 | 0.521 |
| 115 | - | 3.480 | 3.199 | 2.647 | 2.211 | 1.856 | 1.780 | 1.734 | 1.728 | 1.580 | 1.561 | 1.295 | 1.192 | 1.040 | 0.806 | 0.521 |
| 120 | - | 3.378 | 3.114 | 2.597 | 2.191 | 1.854 | 1.780 | 1.734 | 1.728 | 1.580 | 1.560 | 1.295 | 1.191 | 1.040 | 0.806 | 0.521 |
| 125 | 3.755 | 3.284 | 3.037 | 2.552 | 2.172 | 1.852 | 1.780 | 1.734 | 1.728 | 1.579 | 1.560 | 1.295 | 1.191 | 1.040 | 0.806 | 0.521 |
| 130 | 3.643 | 3.199 | 2.966 | 2.511 | 2.155 | 1.851 | 1.780 | 1.734 | 1.727 | 1.579 | 1.559 | 1.294 | 1.191 | 1.040 | 0.806 | 0.521 |
| 135 | 3.539 | 3.120 | 2.901 | 2.473 | 2.140 | 1.850 | 1.780 | 1.733 | 1.727 | 1.578 | 1.559 | 1.294 | 1.191 | 1.040 | 0.806 | 0.521 |

- Results are applicable for both vertical and horizontal rods. For vertical results, it may be possible to optimise the loadings needed – consult your Nullifire representative if required.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



Table I2: Circular Bar
Fire Resistance Period: IO5 Minutes

Thickness (mm) Required for a Design Temperature of

| Bar Diameter (mm) | 300°C | 330°C | 350°C | 400°C | 450°C | 500°C | 512°C | 520°C | 521°C | 547°C | 550°C | 600°C | 620°C | 650°C | 700°C | 750°C |
|-------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) | DFT (mm) |
| 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 35 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.211 |
| 40 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.503 | 2.335 |
| 45 | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.519 | 2.672 | 1.774 |
| 50 | - | - | - | - | - | - | - | - | - | - | - | 3.591 | 3.256 | 2.779 | 2.055 | 1.520 |
| 55 | - | - | - | - | - | - | - | - | - | 3.775 | 3.723 | 2.926 | 2.634 | 2.212 | 1.693 | 1.310 |
| 60 | - | - | - | - | - | - | 3.720 | 3.585 | 3.567 | 3.152 | 3.104 | 2.403 | 2.142 | 1.789 | 1.487 | 1.133 |
| 65 | - | - | - | - | - | 3.350 | 3.155 | 3.035 | 3.019 | 2.649 | 2.605 | 1.981 | 1.779 | 1.594 | 1.311 | 0.981 |
| 70 | - | - | - | - | 3.691 | 2.863 | 2.688 | 2.581 | 2.566 | 2.235 | 2.194 | 1.717 | 1.599 | 1.424 | 1.159 | 0.851 |
| 75 | - | - | - | - | 3.518 | 2.776 | 2.617 | 2.519 | 2.506 | 2.202 | 2.164 | 1.717 | 1.598 | 1.424 | 1.159 | 0.851 |
| 80 | - | - | - | - | 3.375 | 2.702 | 2.556 | 2.467 | 2.455 | 2.175 | 2.140 | 1.717 | 1.598 | 1.424 | 1.159 | 0.851 |
| 85 | - | - | - | - | 3.253 | 2.639 | 2.504 | 2.422 | 2.411 | 2.150 | 2.118 | 1.717 | 1.598 | 1.424 | 1.159 | 0.851 |
| 90 | - | - | - | - | 3.149 | 2.584 | 2.459 | 2.383 | 2.372 | 2.129 | 2.099 | 1.717 | 1.598 | 1.424 | 1.159 | 0.851 |
| 95 | - | - | - | 3.720 | 3.059 | 2.536 | 2.420 | 2.348 | 2.338 | 2.111 | 2.082 | 1.717 | 1.598 | 1.424 | 1.159 | 0.851 |
| 100 | - | - | - | 3.593 | 2.980 | 2.494 | 2.385 | 2.318 | 2.309 | 2.094 | 2.068 | 1.717 | 1.598 | 1.424 | 1.159 | 0.851 |
| 105 | - | - | - | 3.480 | 2.911 | 2.456 | 2.353 | 2.291 | 2.282 | 2.080 | 2.054 | 1.717 | 1.598 | 1.424 | 1.159 | 0.851 |
| 110 | - | - | - | 3.379 | 2.849 | 2.422 | 2.326 | 2.267 | 2.258 | 2.066 | 2.043 | 1.717 | 1.598 | 1.424 | 1.159 | 0.851 |
| 115 | - | - | - | 3.288 | 2.793 | 2.392 | 2.300 | 2.245 | 2.236 | 2.054 | 2.032 | 1.717 | 1.598 | 1.424 | 1.159 | 0.851 |
| 120 | - | - | 3.806 | 3.207 | 2.744 | 2.365 | 2.278 | 2.225 | 2.217 | 2.044 | 2.022 | 1.717 | 1.598 | 1.424 | 1.159 | 0.851 |
| 125 | - | - | 3.699 | 3.133 | 2.699 | 2.340 | 2.257 | 2.207 | 2.199 | 2.034 | 2.013 | 1.717 | 1.597 | 1.424 | 1.159 | 0.851 |
| 130 | - | - | 3.600 | 3.066 | 2.658 | 2.317 | 2.238 | 2.190 | 2.183 | 2.025 | 2.005 | 1.717 | 1.597 | 1.424 | 1.159 | 0.851 |
| 135 | - | 3.773 | 3.509 | 3.004 | 2.620 | 2.296 | 2.221 | 2.175 | 2.168 | 2.016 | 1.998 | 1.716 | 1.597 | 1.424 | 1.159 | 0.851 |

- Results are applicable for both vertical and horizontal rods. For vertical results, it may be possible to optimise the loadings needed – consult your Nullifire representative if required.

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