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# SC901 Loading Tables

## EN13381-10 – Protection of Solid Bars

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Smart Protection

**Table I: Circular Solid Bar**  
**Fire Resistance Period: 15 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) |
| 15                | 4.771    | 3.927    | 3.449    | 2.638    | 2.226    | 1.871    | 1.766    | 1.696    | 1.687    | 1.416    | 1.387    | 0.851    | 0.670    | 0.477    | 0.477    | 0.477    |
| 20                | 3.714    | 2.889    | 2.438    | 1.691    | 1.246    | 0.871    | 0.771    | 0.706    | 0.697    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 25                | 2.899    | 2.047    | 1.641    | 0.915    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 30                | 2.246    | 1.581    | 1.254    | 0.652    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 35                | 1.804    | 1.257    | 0.982    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 40                | 1.485    | 1.019    | 0.780    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 45                | 1.243    | 0.836    | 0.625    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 50                | 1.054    | 0.692    | 0.501    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 55                | 0.902    | 0.576    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 60                | 0.778    | 0.479    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 65                | 0.674    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 70                | 0.585    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 75                | 0.541    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 80                | 0.501    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 85                | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 90                | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 95                | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 100               | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 105               | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 110               | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 115               | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 120               | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 125               | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 130               | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 135               | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

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**Table 2: Circular Solid 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) |
| 15                | -        | -        | -        | -        | 5.375    | 4.746    | 4.589    | 4.513    | 4.504    | 4.251    | 4.224    | 3.679    | 3.449    | 3.012    | 2.388    | 1.646    |
| 20                | -        | -        | -        | 4.666    | 3.728    | 2.936    | 2.809    | 2.739    | 2.730    | 2.495    | 2.470    | 2.021    | 1.859    | 1.560    | 1.060    | 0.477    |
| 25                | -        | 5.431    | 4.804    | 3.280    | 2.474    | 1.929    | 1.809    | 1.742    | 1.734    | 1.514    | 1.492    | 1.114    | 0.980    | 0.757    | 0.477    | 0.477    |
| 30                | 5.546    | 4.439    | 3.788    | 2.555    | 1.932    | 1.466    | 1.367    | 1.312    | 1.304    | 1.120    | 1.102    | 0.790    | 0.675    | 0.485    | 0.477    | 0.477    |
| 35                | 4.741    | 3.641    | 2.999    | 2.096    | 1.550    | 1.146    | 1.062    | 1.014    | 1.008    | 0.849    | 0.834    | 0.563    | 0.477    | 0.477    | 0.477    | 0.477    |
| 40                | 4.066    | 2.995    | 2.537    | 1.751    | 1.265    | 0.911    | 0.838    | 0.796    | 0.791    | 0.651    | 0.638    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 45                | 3.493    | 2.582    | 2.180    | 1.483    | 1.045    | 0.731    | 0.667    | 0.630    | 0.625    | 0.501    | 0.488    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 50                | 3.006    | 2.255    | 1.897    | 1.267    | 0.870    | 0.590    | 0.533    | 0.499    | 0.494    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 55                | 2.662    | 1.990    | 1.666    | 1.091    | 0.727    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 60                | 2.381    | 1.771    | 1.475    | 0.944    | 0.608    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 65                | 2.145    | 1.587    | 1.314    | 0.819    | 0.508    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 70                | 1.945    | 1.430    | 1.176    | 0.713    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 75                | 1.842    | 1.361    | 1.120    | 0.669    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 80                | 1.748    | 1.297    | 1.067    | 0.626    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 85                | 1.661    | 1.235    | 1.015    | 0.584    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 90                | 1.581    | 1.178    | 0.966    | 0.542    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 95                | 1.507    | 1.123    | 0.918    | 0.500    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 100               | 1.438    | 1.071    | 0.872    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 105               | 1.374    | 1.021    | 0.827    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 110               | 1.314    | 0.974    | 0.784    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 115               | 1.258    | 0.929    | 0.743    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 120               | 1.206    | 0.886    | 0.703    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 125               | 1.157    | 0.845    | 0.664    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 130               | 1.110    | 0.806    | 0.627    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 135               | 1.066    | 0.768    | 0.590    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
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**Table 3: Circular Solid 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) |
| 15                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.463    | 4.503    |
| 20                | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.641    | 5.605    | 4.856    | 4.557    | 3.921    | 2.975    | 2.253    |
| 25                | -        | -        | -        | -        | 5.562    | 4.426    | 4.149    | 4.008    | 3.991    | 3.475    | 3.419    | 2.726    | 2.560    | 2.276    | 1.825    | 1.175    |
| 30                | -        | -        | -        | 5.277    | 4.049    | 2.985    | 2.848    | 2.774    | 2.765    | 2.531    | 2.509    | 2.116    | 1.977    | 1.743    | 1.361    | 0.811    |
| 35                | -        | -        | 5.700    | 4.155    | 2.984    | 2.432    | 2.314    | 2.251    | 2.242    | 2.039    | 2.021    | 1.690    | 1.568    | 1.366    | 1.030    | 0.536    |
| 40                | -        | 5.497    | 4.793    | 3.277    | 2.515    | 2.026    | 1.923    | 1.867    | 1.860    | 1.681    | 1.665    | 1.375    | 1.265    | 1.086    | 0.782    | 0.477    |
| 45                | -        | 4.743    | 4.044    | 2.756    | 2.153    | 1.715    | 1.624    | 1.574    | 1.568    | 1.408    | 1.393    | 1.133    | 1.032    | 0.869    | 0.588    | 0.477    |
| 50                | 5.344    | 4.102    | 3.415    | 2.414    | 1.865    | 1.470    | 1.388    | 1.343    | 1.337    | 1.193    | 1.179    | 0.941    | 0.847    | 0.696    | 0.477    | 0.477    |
| 55                | 4.762    | 3.552    | 2.932    | 2.134    | 1.630    | 1.271    | 1.197    | 1.156    | 1.151    | 1.019    | 1.006    | 0.785    | 0.697    | 0.556    | 0.477    | 0.477    |
| 60                | 4.252    | 3.074    | 2.633    | 1.900    | 1.435    | 1.107    | 1.040    | 1.002    | 0.997    | 0.876    | 0.864    | 0.656    | 0.572    | 0.477    | 0.477    | 0.477    |
| 65                | 3.801    | 2.775    | 2.381    | 1.702    | 1.270    | 0.969    | 0.908    | 0.873    | 0.868    | 0.755    | 0.744    | 0.547    | 0.477    | 0.477    | 0.477    | 0.477    |
| 70                | 3.399    | 2.530    | 2.165    | 1.533    | 1.130    | 0.851    | 0.795    | 0.762    | 0.758    | 0.653    | 0.643    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 75                | 3.182    | 2.430    | 2.090    | 1.485    | 1.091    | 0.814    | 0.757    | 0.724    | 0.719    | 0.611    | 0.600    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 80                | 2.995    | 2.336    | 2.018    | 1.437    | 1.052    | 0.777    | 0.719    | 0.684    | 0.679    | 0.567    | 0.555    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 85                | 2.858    | 2.246    | 1.949    | 1.391    | 1.013    | 0.738    | 0.679    | 0.643    | 0.639    | 0.522    | 0.509    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 90                | 2.733    | 2.162    | 1.882    | 1.344    | 0.973    | 0.698    | 0.638    | 0.601    | 0.596    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 95                | 2.616    | 2.081    | 1.817    | 1.298    | 0.933    | 0.657    | 0.596    | 0.558    | 0.553    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 100               | 2.508    | 2.005    | 1.755    | 1.253    | 0.893    | 0.616    | 0.553    | 0.514    | 0.508    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 105               | 2.407    | 1.933    | 1.695    | 1.208    | 0.852    | 0.573    | 0.509    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 110               | 2.313    | 1.864    | 1.637    | 1.163    | 0.811    | 0.530    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 115               | 2.224    | 1.798    | 1.582    | 1.119    | 0.770    | 0.485    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 120               | 2.142    | 1.735    | 1.527    | 1.076    | 0.728    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 125               | 2.064    | 1.675    | 1.475    | 1.033    | 0.686    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 130               | 1.991    | 1.618    | 1.425    | 0.990    | 0.643    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 135               | 1.922    | 1.563    | 1.376    | 0.948    | 0.600    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |

Above figures are applicable to horizontal and vertical bars.

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 4: Circular Solid 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) |
| 15                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 20                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.400    |
| 25                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 4.948    | 3.730    | 2.520    |
| 30                | -        | -        | -        | -        | -        | -        | 5.544    | 5.419    | 5.405    | 4.941    | 4.893    | 3.962    | 3.608    | 3.001    | 2.574    | 1.966    |
| 35                | -        | -        | -        | -        | 5.492    | 4.349    | 4.079    | 3.942    | 3.925    | 3.448    | 3.402    | 2.817    | 2.676    | 2.440    | 2.069    | 1.549    |
| 40                | -        | -        | -        | 5.623    | 4.347    | 3.240    | 3.007    | 2.938    | 2.929    | 2.710    | 2.692    | 2.354    | 2.229    | 2.023    | 1.691    | 1.224    |
| 45                | -        | -        | -        | 4.688    | 3.446    | 2.698    | 2.581    | 2.519    | 2.511    | 2.314    | 2.298    | 1.999    | 1.885    | 1.700    | 1.397    | 0.963    |
| 50                | -        | -        | 5.474    | 3.919    | 2.860    | 2.350    | 2.244    | 2.188    | 2.180    | 2.003    | 1.988    | 1.717    | 1.612    | 1.443    | 1.161    | 0.750    |
| 55                | -        | 5.535    | 4.786    | 3.276    | 2.533    | 2.067    | 1.971    | 1.920    | 1.914    | 1.751    | 1.737    | 1.488    | 1.391    | 1.233    | 0.969    | 0.571    |
| 60                | -        | 4.927    | 4.193    | 2.857    | 2.262    | 1.834    | 1.747    | 1.700    | 1.693    | 1.544    | 1.531    | 1.299    | 1.207    | 1.059    | 0.808    | 0.477    |
| 65                | 5.739    | 4.394    | 3.677    | 2.585    | 2.033    | 1.638    | 1.558    | 1.514    | 1.508    | 1.370    | 1.358    | 1.139    | 1.052    | 0.911    | 0.672    | 0.477    |
| 70                | 5.231    | 3.922    | 3.224    | 2.353    | 1.837    | 1.471    | 1.397    | 1.356    | 1.351    | 1.222    | 1.210    | 1.003    | 0.919    | 0.786    | 0.556    | 0.477    |
| 75                | 4.953    | 3.728    | 3.075    | 2.301    | 1.801    | 1.441    | 1.367    | 1.326    | 1.320    | 1.190    | 1.178    | 0.962    | 0.874    | 0.733    | 0.491    | 0.477    |
| 80                | 4.693    | 3.543    | 2.969    | 2.249    | 1.765    | 1.410    | 1.336    | 1.295    | 1.289    | 1.156    | 1.144    | 0.918    | 0.827    | 0.679    | 0.477    | 0.477    |
| 85                | 4.449    | 3.368    | 2.882    | 2.197    | 1.729    | 1.379    | 1.305    | 1.263    | 1.257    | 1.122    | 1.109    | 0.873    | 0.777    | 0.622    | 0.477    | 0.477    |
| 90                | 4.221    | 3.202    | 2.798    | 2.146    | 1.692    | 1.347    | 1.272    | 1.230    | 1.224    | 1.086    | 1.072    | 0.826    | 0.726    | 0.562    | 0.477    | 0.477    |
| 95                | 4.006    | 3.043    | 2.717    | 2.096    | 1.655    | 1.314    | 1.239    | 1.196    | 1.190    | 1.049    | 1.035    | 0.777    | 0.672    | 0.498    | 0.477    | 0.477    |
| 100               | 3.803    | 2.940    | 2.639    | 2.047    | 1.618    | 1.280    | 1.205    | 1.161    | 1.155    | 1.010    | 0.995    | 0.726    | 0.615    | 0.477    | 0.477    | 0.477    |
| 105               | 3.612    | 2.844    | 2.563    | 1.997    | 1.581    | 1.246    | 1.170    | 1.125    | 1.119    | 0.970    | 0.954    | 0.672    | 0.556    | 0.477    | 0.477    | 0.477    |
| 110               | 3.431    | 2.753    | 2.490    | 1.949    | 1.543    | 1.210    | 1.134    | 1.088    | 1.082    | 0.928    | 0.912    | 0.616    | 0.494    | 0.477    | 0.477    | 0.477    |
| 115               | 3.260    | 2.667    | 2.420    | 1.901    | 1.505    | 1.174    | 1.097    | 1.050    | 1.044    | 0.884    | 0.868    | 0.557    | 0.477    | 0.477    | 0.477    | 0.477    |
| 120               | 3.098    | 2.584    | 2.352    | 1.853    | 1.466    | 1.137    | 1.059    | 1.010    | 1.004    | 0.839    | 0.821    | 0.495    | 0.477    | 0.477    | 0.477    | 0.477    |
| 125               | 2.972    | 2.505    | 2.286    | 1.806    | 1.427    | 1.099    | 1.019    | 0.969    | 0.963    | 0.791    | 0.773    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 130               | 2.872    | 2.430    | 2.223    | 1.759    | 1.388    | 1.060    | 0.979    | 0.927    | 0.920    | 0.742    | 0.723    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |
| 135               | 2.778    | 2.357    | 2.161    | 1.713    | 1.348    | 1.019    | 0.937    | 0.884    | 0.877    | 0.690    | 0.670    | 0.477    | 0.477    | 0.477    | 0.477    | 0.477    |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table 5: Circular Solid 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) |
| 15                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 20                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 25                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 30                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 4.799    | 3.339    |
| 35                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.035    | 4.713    | 4.065    | 3.190    | 2.562    |
| 40                | -        | -        | -        | -        | -        | 5.409    | 5.134    | 5.003    | 4.987    | 4.533    | 4.488    | 3.678    | 3.379    | 2.960    | 2.600    | 2.126    |
| 45                | -        | -        | -        | -        | 5.452    | 4.306    | 4.041    | 3.906    | 3.889    | 3.433    | 3.393    | 2.865    | 2.738    | 2.531    | 2.205    | 1.776    |
| 50                | -        | -        | -        | -        | 4.531    | 3.421    | 3.166    | 3.033    | 3.024    | 2.813    | 2.797    | 2.494    | 2.378    | 2.189    | 1.889    | 1.489    |
| 55                | -        | -        | -        | 5.045    | 3.772    | 2.864    | 2.745    | 2.684    | 2.676    | 2.484    | 2.469    | 2.192    | 2.084    | 1.910    | 1.630    | 1.249    |
| 60                | -        | -        | -        | 4.366    | 3.135    | 2.561    | 2.453    | 2.397    | 2.389    | 2.212    | 2.198    | 1.942    | 1.841    | 1.679    | 1.414    | 1.046    |
| 65                | -        | -        | 5.336    | 3.782    | 2.795    | 2.307    | 2.208    | 2.155    | 2.148    | 1.984    | 1.971    | 1.732    | 1.636    | 1.483    | 1.232    | 0.872    |
| 70                | -        | 5.559    | 4.782    | 3.275    | 2.544    | 2.090    | 1.998    | 1.950    | 1.943    | 1.790    | 1.778    | 1.552    | 1.461    | 1.316    | 1.075    | 0.721    |
| 75                | -        | 5.321    | 4.594    | 3.173    | 2.511    | 2.067    | 1.976    | 1.928    | 1.921    | 1.768    | 1.755    | 1.522    | 1.427    | 1.276    | 1.024    | 0.647    |
| 80                | -        | 5.096    | 4.415    | 3.077    | 2.478    | 2.044    | 1.954    | 1.906    | 1.899    | 1.745    | 1.732    | 1.490    | 1.392    | 1.234    | 0.970    | 0.568    |
| 85                | -        | 4.881    | 4.244    | 3.004    | 2.445    | 2.020    | 1.931    | 1.882    | 1.876    | 1.721    | 1.708    | 1.457    | 1.355    | 1.191    | 0.913    | 0.484    |
| 90                | -        | 4.678    | 4.082    | 2.949    | 2.411    | 1.995    | 1.907    | 1.859    | 1.852    | 1.697    | 1.683    | 1.423    | 1.317    | 1.145    | 0.853    | 0.477    |
| 95                | 5.566    | 4.484    | 3.927    | 2.894    | 2.378    | 1.970    | 1.882    | 1.834    | 1.828    | 1.671    | 1.657    | 1.387    | 1.277    | 1.096    | 0.789    | 0.477    |
| 100               | 5.318    | 4.299    | 3.779    | 2.840    | 2.344    | 1.944    | 1.857    | 1.809    | 1.802    | 1.645    | 1.630    | 1.350    | 1.235    | 1.046    | 0.722    | 0.477    |
| 105               | 5.084    | 4.122    | 3.637    | 2.787    | 2.309    | 1.918    | 1.831    | 1.783    | 1.776    | 1.617    | 1.602    | 1.311    | 1.191    | 0.992    | 0.650    | 0.477    |
| 110               | 4.863    | 3.954    | 3.502    | 2.734    | 2.274    | 1.891    | 1.805    | 1.756    | 1.750    | 1.588    | 1.572    | 1.270    | 1.144    | 0.936    | 0.573    | 0.477    |
| 115               | 4.654    | 3.793    | 3.372    | 2.682    | 2.239    | 1.863    | 1.777    | 1.728    | 1.722    | 1.558    | 1.542    | 1.227    | 1.095    | 0.876    | 0.492    | 0.477    |
| 120               | 4.456    | 3.639    | 3.248    | 2.630    | 2.204    | 1.835    | 1.749    | 1.699    | 1.693    | 1.527    | 1.510    | 1.182    | 1.044    | 0.813    | 0.477    | 0.477    |
| 125               | 4.267    | 3.491    | 3.128    | 2.579    | 2.169    | 1.805    | 1.720    | 1.670    | 1.664    | 1.495    | 1.477    | 1.134    | 0.990    | 0.746    | 0.477    | 0.477    |
| 130               | 4.088    | 3.349    | 3.020    | 2.528    | 2.133    | 1.775    | 1.690    | 1.639    | 1.633    | 1.461    | 1.442    | 1.084    | 0.933    | 0.675    | 0.477    | 0.477    |
| 135               | 3.918    | 3.213    | 2.946    | 2.478    | 2.096    | 1.745    | 1.659    | 1.608    | 1.602    | 1.425    | 1.406    | 1.031    | 0.872    | 0.599    | 0.477    | 0.477    |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table 6: Circular Solid 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) |
| 15                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 20                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 25                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 30                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 35                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.364    | 4.448    |
| 40                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.784    | 5.471    | 4.805    | 3.954    | 3.027    |
| 45                | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.366    | 5.320    | 4.507    | 4.216    | 3.684    | 3.013    | 2.588    |
| 50                | -        | -        | -        | -        | -        | 5.160    | 4.889    | 4.755    | 4.739    | 4.294    | 4.253    | 3.526    | 3.260    | 2.935    | 2.616    | 2.228    |
| 55                | -        | -        | -        | -        | 5.426    | 4.278    | 4.016    | 3.883    | 3.866    | 3.424    | 3.388    | 2.896    | 2.778    | 2.587    | 2.291    | 1.927    |
| 60                | -        | -        | -        | -        | 4.656    | 3.542    | 3.289    | 3.158    | 3.140    | 2.880    | 2.865    | 2.585    | 2.475    | 2.299    | 2.021    | 1.672    |
| 65                | -        | -        | -        | 5.302    | 4.000    | 2.976    | 2.857    | 2.797    | 2.789    | 2.598    | 2.584    | 2.324    | 2.220    | 2.055    | 1.791    | 1.454    |
| 70                | -        | -        | -        | 4.695    | 3.436    | 2.710    | 2.600    | 2.544    | 2.536    | 2.359    | 2.345    | 2.101    | 2.003    | 1.846    | 1.595    | 1.264    |
| 75                | -        | -        | -        | 4.557    | 3.370    | 2.694    | 2.586    | 2.530    | 2.523    | 2.347    | 2.333    | 2.082    | 1.980    | 1.819    | 1.557    | 1.208    |
| 80                | -        | -        | -        | 4.425    | 3.308    | 2.678    | 2.571    | 2.516    | 2.509    | 2.334    | 2.320    | 2.062    | 1.957    | 1.790    | 1.518    | 1.148    |
| 85                | -        | -        | 5.690    | 4.300    | 3.249    | 2.661    | 2.556    | 2.502    | 2.495    | 2.321    | 2.307    | 2.042    | 1.933    | 1.760    | 1.476    | 1.083    |
| 90                | -        | -        | 5.493    | 4.181    | 3.192    | 2.644    | 2.541    | 2.487    | 2.480    | 2.308    | 2.293    | 2.020    | 1.908    | 1.728    | 1.432    | 1.015    |
| 95                | -        | -        | 5.306    | 4.068    | 3.139    | 2.626    | 2.525    | 2.472    | 2.465    | 2.294    | 2.279    | 1.997    | 1.882    | 1.695    | 1.385    | 0.941    |
| 100               | -        | 5.705    | 5.127    | 3.959    | 3.088    | 2.609    | 2.509    | 2.456    | 2.450    | 2.280    | 2.264    | 1.974    | 1.854    | 1.659    | 1.335    | 0.861    |
| 105               | -        | 5.497    | 4.956    | 3.856    | 3.040    | 2.590    | 2.492    | 2.440    | 2.434    | 2.265    | 2.249    | 1.949    | 1.825    | 1.622    | 1.282    | 0.776    |
| 110               | -        | 5.297    | 4.792    | 3.757    | 3.006    | 2.571    | 2.475    | 2.424    | 2.417    | 2.249    | 2.233    | 1.923    | 1.795    | 1.583    | 1.226    | 0.683    |
| 115               | -        | 5.107    | 4.635    | 3.663    | 2.974    | 2.552    | 2.458    | 2.406    | 2.400    | 2.233    | 2.216    | 1.896    | 1.763    | 1.542    | 1.166    | 0.582    |
| 120               | -        | 4.924    | 4.485    | 3.572    | 2.942    | 2.532    | 2.439    | 2.389    | 2.383    | 2.216    | 2.199    | 1.868    | 1.729    | 1.498    | 1.102    | 0.477    |
| 125               | 5.592    | 4.750    | 4.340    | 3.485    | 2.910    | 2.512    | 2.421    | 2.370    | 2.365    | 2.198    | 2.180    | 1.838    | 1.694    | 1.452    | 1.034    | 0.477    |
| 130               | 5.380    | 4.582    | 4.202    | 3.402    | 2.877    | 2.491    | 2.401    | 2.352    | 2.346    | 2.180    | 2.161    | 1.806    | 1.656    | 1.403    | 0.960    | 0.477    |
| 135               | 5.178    | 4.421    | 4.069    | 3.322    | 2.844    | 2.470    | 2.381    | 2.332    | 2.327    | 2.160    | 2.142    | 1.773    | 1.616    | 1.351    | 0.881    | 0.477    |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table 7: Circular Solid 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) |
| 15                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 20                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 25                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 30                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 35                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 40                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.712    | 4.993    |
| 45                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.334    | 4.473    | 3.743    |
| 50                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.144    | 4.852    | 4.287    | 3.576    | 2.967    |
| 55                | -        | -        | -        | -        | -        | -        | 5.583    | 5.448    | 5.433    | 4.992    | 4.949    | 4.199    | 3.930    | 3.472    | 2.953    | 2.605    |
| 60                | -        | -        | -        | -        | -        | 4.993    | 4.725    | 4.591    | 4.575    | 4.137    | 4.099    | 3.431    | 3.187    | 2.919    | 2.627    | 2.299    |
| 65                | -        | -        | -        | -        | 5.408    | 4.258    | 3.999    | 3.867    | 3.850    | 3.418    | 3.384    | 2.917    | 2.805    | 2.627    | 2.351    | 2.036    |
| 70                | -        | -        | -        | -        | 4.746    | 3.628    | 3.377    | 3.248    | 3.230    | 2.927    | 2.913    | 2.650    | 2.544    | 2.377    | 2.115    | 1.807    |
| 75                | -        | -        | -        | -        | 4.644    | 3.586    | 3.350    | 3.228    | 3.211    | 2.925    | 2.911    | 2.642    | 2.534    | 2.361    | 2.091    | 1.768    |
| 80                | -        | -        | -        | 5.773    | 4.549    | 3.547    | 3.324    | 3.209    | 3.194    | 2.923    | 2.909    | 2.634    | 2.523    | 2.346    | 2.065    | 1.727    |
| 85                | -        | -        | -        | 5.615    | 4.458    | 3.510    | 3.300    | 3.191    | 3.177    | 2.921    | 2.906    | 2.626    | 2.511    | 2.329    | 2.039    | 1.682    |
| 90                | -        | -        | -        | 5.464    | 4.371    | 3.475    | 3.277    | 3.175    | 3.162    | 2.919    | 2.904    | 2.617    | 2.499    | 2.311    | 2.010    | 1.634    |
| 95                | -        | -        | -        | 5.320    | 4.289    | 3.442    | 3.255    | 3.159    | 3.147    | 2.917    | 2.901    | 2.607    | 2.487    | 2.293    | 1.980    | 1.583    |
| 100               | -        | -        | -        | 5.183    | 4.211    | 3.411    | 3.235    | 3.145    | 3.134    | 2.914    | 2.899    | 2.598    | 2.474    | 2.273    | 1.949    | 1.528    |
| 105               | -        | -        | -        | 5.052    | 4.136    | 3.381    | 3.216    | 3.131    | 3.121    | 2.912    | 2.896    | 2.588    | 2.460    | 2.253    | 1.915    | 1.469    |
| 110               | -        | -        | -        | 4.927    | 4.065    | 3.353    | 3.197    | 3.117    | 3.108    | 2.910    | 2.893    | 2.577    | 2.446    | 2.231    | 1.879    | 1.405    |
| 115               | -        | -        | -        | 4.808    | 3.997    | 3.326    | 3.180    | 3.105    | 3.096    | 2.907    | 2.890    | 2.566    | 2.430    | 2.208    | 1.841    | 1.335    |
| 120               | -        | -        | 5.722    | 4.693    | 3.932    | 3.301    | 3.163    | 3.093    | 3.085    | 2.904    | 2.887    | 2.554    | 2.414    | 2.184    | 1.800    | 1.259    |
| 125               | -        | -        | 5.552    | 4.583    | 3.869    | 3.276    | 3.147    | 3.082    | 3.075    | 2.902    | 2.884    | 2.542    | 2.397    | 2.159    | 1.756    | 1.176    |
| 130               | -        | -        | 5.390    | 4.477    | 3.810    | 3.253    | 3.132    | 3.071    | 3.065    | 2.899    | 2.881    | 2.529    | 2.380    | 2.131    | 1.709    | 1.085    |
| 135               | -        | 5.630    | 5.234    | 4.376    | 3.752    | 3.231    | 3.118    | 3.060    | 3.055    | 2.896    | 2.877    | 2.515    | 2.361    | 2.102    | 1.659    | 0.984    |

Above figures are applicable to horizontal and vertical bars.

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.





# SC901 Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table 8: Circular Solid Bar**  
**Fire Resistance Period: 120 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) |
| 15                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 20                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 25                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 30                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 35                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 40                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 45                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.317    |
| 50                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.732    | 4.848    | 4.224    |
| 55                | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.648    | 5.352    | 4.757    | 4.014    | 3.445    |
| 60                | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.571    | 5.525    | 4.744    | 4.472    | 3.976    | 3.361    | 2.925    |
| 65                | -        | -        | -        | -        | -        | 5.599    | 5.325    | 5.189    | 5.174    | 4.737    | 4.696    | 3.996    | 3.746    | 3.336    | 2.911    | 2.617    |
| 70                | -        | -        | -        | -        | -        | 4.874    | 4.608    | 4.474    | 4.458    | 4.027    | 3.990    | 3.366    | 3.137    | 2.907    | 2.634    | 2.351    |
| 75                | -        | -        | -        | -        | -        | 4.794    | 4.542    | 4.415    | 4.400    | 3.994    | 3.960    | 3.360    | 3.135    | 2.904    | 2.624    | 2.329    |
| 80                | -        | -        | -        | -        | 5.789    | 4.719    | 4.480    | 4.360    | 4.346    | 3.964    | 3.932    | 3.353    | 3.134    | 2.901    | 2.613    | 2.306    |
| 85                | -        | -        | -        | -        | 5.667    | 4.648    | 4.422    | 4.308    | 4.295    | 3.936    | 3.906    | 3.347    | 3.132    | 2.898    | 2.601    | 2.281    |
| 90                | -        | -        | -        | -        | 5.550    | 4.582    | 4.367    | 4.259    | 4.247    | 3.909    | 3.881    | 3.341    | 3.130    | 2.894    | 2.589    | 2.254    |
| 95                | -        | -        | -        | -        | 5.439    | 4.519    | 4.315    | 4.213    | 4.202    | 3.884    | 3.857    | 3.335    | 3.129    | 2.891    | 2.576    | 2.226    |
| 100               | -        | -        | -        | -        | 5.333    | 4.459    | 4.266    | 4.169    | 4.159    | 3.860    | 3.835    | 3.329    | 3.127    | 2.887    | 2.562    | 2.195    |
| 105               | -        | -        | -        | -        | 5.233    | 4.402    | 4.219    | 4.128    | 4.119    | 3.838    | 3.814    | 3.324    | 3.126    | 2.883    | 2.548    | 2.162    |
| 110               | -        | -        | -        | -        | 5.137    | 4.348    | 4.175    | 4.089    | 4.080    | 3.817    | 3.794    | 3.319    | 3.124    | 2.879    | 2.532    | 2.126    |
| 115               | -        | -        | -        | -        | 5.045    | 4.297    | 4.133    | 4.052    | 4.044    | 3.797    | 3.775    | 3.314    | 3.123    | 2.875    | 2.515    | 2.088    |
| 120               | -        | -        | -        | -        | 4.957    | 4.248    | 4.093    | 4.016    | 4.009    | 3.777    | 3.757    | 3.309    | 3.122    | 2.870    | 2.498    | 2.045    |
| 125               | -        | -        | -        | 5.681    | 4.873    | 4.202    | 4.055    | 3.983    | 3.976    | 3.759    | 3.740    | 3.304    | 3.120    | 2.865    | 2.479    | 1.999    |
| 130               | -        | -        | -        | 5.553    | 4.792    | 4.158    | 4.019    | 3.951    | 3.945    | 3.742    | 3.723    | 3.299    | 3.119    | 2.860    | 2.458    | 1.948    |
| 135               | -        | -        | -        | 5.430    | 4.715    | 4.115    | 3.985    | 3.920    | 3.915    | 3.725    | 3.708    | 3.295    | 3.118    | 2.854    | 2.436    | 1.892    |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table 9: Rectangular Solid Bar  
Fire Resistance Period: 15 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor up to m <sup>2</sup> | 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                                  | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 35                                  | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 40                                  | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 45                                  | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 50                                  | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 55                                  | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 60                                  | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 65                                  | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 70                                  | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 75                                  | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 80                                  | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 85                                  | 0.557    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 90                                  | 0.697    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 95                                  | 0.860    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 100                                 | 1.049    | 0.625    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 105                                 | 1.134    | 0.697    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 110                                 | 1.223    | 0.773    | 0.546    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 115                                 | 1.317    | 0.852    | 0.617    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 120                                 | 1.416    | 0.936    | 0.693    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 125                                 | 1.520    | 1.025    | 0.773    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 130                                 | 1.631    | 1.118    | 0.857    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 135                                 | 1.748    | 1.218    | 0.947    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 140                                 | 1.872    | 1.323    | 1.041    | 0.507    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 145                                 | 2.005    | 1.434    | 1.142    | 0.593    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 150                                 | 2.146    | 1.553    | 1.249    | 0.682    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 155                                 | 2.296    | 1.680    | 1.364    | 0.778    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 160                                 | 2.457    | 1.816    | 1.486    | 0.878    | 0.503    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 165                                 | 2.511    | 1.857    | 1.521    | 0.902    | 0.518    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 170                                 | 2.568    | 1.900    | 1.558    | 0.927    | 0.534    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 175                                 | 2.628    | 1.946    | 1.597    | 0.954    | 0.550    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table 9: Rectangular Solid Bar**  
**Fire Resistance Period: 15 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor<br>up to m <sup>2</sup> | 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<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) |
| 180                                    | 2.692       | 1.994       | 1.638       | 0.982       | 0.567       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 185                                    | 2.759       | 2.045       | 1.681       | 1.011       | 0.586       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 190                                    | 2.831       | 2.099       | 1.726       | 1.042       | 0.605       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 195                                    | 2.907       | 2.156       | 1.774       | 1.075       | 0.626       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 200                                    | 2.988       | 2.217       | 1.825       | 1.110       | 0.648       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 205                                    | 3.068       | 2.281       | 1.880       | 1.147       | 0.672       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 210                                    | 3.138       | 2.350       | 1.937       | 1.186       | 0.697       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 215                                    | 3.213       | 2.423       | 1.998       | 1.228       | 0.724       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 220                                    | 3.296       | 2.501       | 2.064       | 1.273       | 0.754       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 225                                    | 3.386       | 2.585       | 2.134       | 1.321       | 0.785       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 230                                    | 3.485       | 2.675       | 2.209       | 1.372       | 0.819       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 235                                    | 3.594       | 2.773       | 2.290       | 1.428       | 0.856       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 240                                    | 3.716       | 2.878       | 2.377       | 1.487       | 0.896       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 245                                    | 3.851       | 2.992       | 2.471       | 1.552       | 0.940       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 250                                    | 4.004       | 3.108       | 2.573       | 1.621       | 0.989       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 255                                    | 4.176       | 3.229       | 2.684       | 1.697       | 1.042       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 260                                    | 4.373       | 3.366       | 2.805       | 1.781       | 1.101       | 0.513       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 265                                    | 4.599       | 3.522       | 2.938       | 1.872       | 1.167       | 0.546       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 270                                    | 4.862       | 3.699       | 3.085       | 1.972       | 1.240       | 0.584       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 275                                    | 5.172       | 3.904       | 3.248       | 2.084       | 1.324       | 0.628       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table IO: Rectangular Solid Bar**  
**Fire Resistance Period: 30 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor up to m <sup>2</sup> | 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                                  | 0.810    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 35                                  | 0.899    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 40                                  | 0.996    | 0.565    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 45                                  | 1.101    | 0.670    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 50                                  | 1.215    | 0.783    | 0.502    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 55                                  | 1.340    | 0.903    | 0.626    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 60                                  | 1.478    | 1.032    | 0.755    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 65                                  | 1.630    | 1.171    | 0.892    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 70                                  | 1.800    | 1.320    | 1.036    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 75                                  | 1.989    | 1.482    | 1.189    | 0.583    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 80                                  | 2.201    | 1.657    | 1.351    | 0.736    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 85                                  | 2.442    | 1.848    | 1.522    | 0.892    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 90                                  | 2.717    | 2.057    | 1.705    | 1.052    | 0.573    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 95                                  | 3.035    | 2.286    | 1.899    | 1.214    | 0.731    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 100                                 | 3.309    | 2.539    | 2.107    | 1.380    | 0.886    | 0.522    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 105                                 | 3.414    | 2.659    | 2.214    | 1.469    | 0.967    | 0.597    | 0.525    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 110                                 | 3.525    | 2.785    | 2.327    | 1.563    | 1.052    | 0.675    | 0.601    | 0.552    | 0.546    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 115                                 | 3.640    | 2.917    | 2.446    | 1.661    | 1.141    | 0.756    | 0.681    | 0.632    | 0.625    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 120                                 | 3.762    | 3.055    | 2.571    | 1.763    | 1.234    | 0.842    | 0.765    | 0.715    | 0.708    | 0.554    | 0.539    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 125                                 | 3.891    | 3.176    | 2.703    | 1.871    | 1.332    | 0.931    | 0.852    | 0.802    | 0.795    | 0.638    | 0.623    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 130                                 | 4.026    | 3.302    | 2.843    | 1.984    | 1.434    | 1.025    | 0.943    | 0.893    | 0.886    | 0.726    | 0.711    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 135                                 | 4.170    | 3.434    | 2.991    | 2.102    | 1.541    | 1.123    | 1.039    | 0.988    | 0.981    | 0.819    | 0.803    | 0.522    | 0.490    | 0.490    | 0.490    | 0.490    |
| 140                                 | 4.321    | 3.573    | 3.135    | 2.227    | 1.654    | 1.226    | 1.140    | 1.088    | 1.081    | 0.916    | 0.900    | 0.613    | 0.504    | 0.490    | 0.490    | 0.490    |
| 145                                 | 4.482    | 3.720    | 3.278    | 2.359    | 1.773    | 1.334    | 1.246    | 1.194    | 1.187    | 1.018    | 1.001    | 0.710    | 0.600    | 0.490    | 0.490    | 0.490    |
| 150                                 | 4.652    | 3.875    | 3.430    | 2.498    | 1.898    | 1.449    | 1.357    | 1.304    | 1.297    | 1.125    | 1.107    | 0.811    | 0.700    | 0.536    | 0.490    | 0.490    |
| 155                                 | 4.833    | 4.038    | 3.590    | 2.645    | 2.030    | 1.569    | 1.475    | 1.421    | 1.414    | 1.237    | 1.219    | 0.917    | 0.806    | 0.639    | 0.490    | 0.490    |
| 160                                 | 5.026    | 4.211    | 3.759    | 2.800    | 2.170    | 1.696    | 1.598    | 1.544    | 1.537    | 1.356    | 1.338    | 1.029    | 0.917    | 0.747    | 0.490    | 0.490    |
| 165                                 | 5.136    | 4.302    | 3.841    | 2.871    | 2.229    | 1.744    | 1.644    | 1.588    | 1.581    | 1.396    | 1.377    | 1.059    | 0.943    | 0.766    | 0.490    | 0.490    |
| 170                                 | 5.253    | 4.398    | 3.928    | 2.946    | 2.292    | 1.795    | 1.692    | 1.635    | 1.627    | 1.438    | 1.418    | 1.090    | 0.970    | 0.786    | 0.490    | 0.490    |
| 175                                 | 5.377    | 4.500    | 4.020    | 3.025    | 2.358    | 1.849    | 1.744    | 1.685    | 1.677    | 1.482    | 1.462    | 1.124    | 0.999    | 0.808    | 0.494    | 0.490    |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table IO: Rectangular Solid Bar**  
**Fire Resistance Period: 30 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor up to m <sup>2</sup> | 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) |
| 180                                 | 5.509    | 4.608    | 4.118    | 3.109    | 2.427    | 1.906    | 1.798    | 1.738    | 1.730    | 1.529    | 1.509    | 1.160    | 1.031    | 0.831    | 0.502    | 0.490    |
| 185                                 | 5.650    | 4.723    | 4.222    | 3.198    | 2.501    | 1.967    | 1.856    | 1.794    | 1.786    | 1.580    | 1.559    | 1.198    | 1.064    | 0.856    | 0.511    | 0.490    |
| 190                                 | 5.801    | 4.846    | 4.333    | 3.292    | 2.580    | 2.032    | 1.918    | 1.854    | 1.846    | 1.634    | 1.613    | 1.240    | 1.101    | 0.883    | 0.520    | 0.490    |
| 195                                 | -        | 4.977    | 4.451    | 3.393    | 2.663    | 2.101    | 1.984    | 1.919    | 1.910    | 1.692    | 1.670    | 1.285    | 1.140    | 0.913    | 0.531    | 0.490    |
| 200                                 | -        | 5.118    | 4.577    | 3.500    | 2.752    | 2.175    | 2.055    | 1.988    | 1.979    | 1.755    | 1.732    | 1.333    | 1.182    | 0.945    | 0.542    | 0.490    |
| 205                                 | -        | 5.269    | 4.712    | 3.615    | 2.847    | 2.255    | 2.131    | 2.062    | 2.053    | 1.822    | 1.799    | 1.386    | 1.229    | 0.979    | 0.555    | 0.490    |
| 210                                 | -        | 5.432    | 4.857    | 3.738    | 2.949    | 2.341    | 2.213    | 2.142    | 2.132    | 1.895    | 1.872    | 1.443    | 1.279    | 1.017    | 0.568    | 0.490    |
| 215                                 | -        | 5.607    | 5.013    | 3.870    | 3.060    | 2.433    | 2.302    | 2.229    | 2.219    | 1.975    | 1.950    | 1.506    | 1.335    | 1.059    | 0.584    | 0.490    |
| 220                                 | -        | 5.798    | 5.182    | 4.013    | 3.195    | 2.533    | 2.398    | 2.323    | 2.312    | 2.061    | 2.036    | 1.575    | 1.396    | 1.106    | 0.601    | 0.490    |
| 225                                 | -        | -        | 5.365    | 4.167    | 3.341    | 2.642    | 2.503    | 2.425    | 2.414    | 2.155    | 2.130    | 1.650    | 1.463    | 1.157    | 0.620    | 0.490    |
| 230                                 | -        | -        | 5.564    | 4.334    | 3.497    | 2.761    | 2.617    | 2.537    | 2.526    | 2.259    | 2.233    | 1.735    | 1.538    | 1.215    | 0.641    | 0.490    |
| 235                                 | -        | -        | 5.780    | 4.516    | 3.666    | 2.890    | 2.742    | 2.659    | 2.648    | 2.374    | 2.346    | 1.828    | 1.622    | 1.280    | 0.666    | 0.490    |
| 240                                 | -        | -        | -        | 4.714    | 3.849    | 3.032    | 2.880    | 2.795    | 2.783    | 2.500    | 2.473    | 1.934    | 1.717    | 1.353    | 0.694    | 0.490    |
| 245                                 | -        | -        | -        | 4.932    | 4.047    | 3.221    | 3.032    | 2.944    | 2.933    | 2.642    | 2.613    | 2.052    | 1.824    | 1.437    | 0.727    | 0.490    |
| 250                                 | -        | -        | -        | 5.171    | 4.263    | 3.429    | 3.235    | 3.126    | 3.111    | 2.800    | 2.771    | 2.188    | 1.947    | 1.534    | 0.765    | 0.490    |
| 255                                 | -        | -        | -        | 5.437    | 4.500    | 3.657    | 3.460    | 3.351    | 3.336    | 2.980    | 2.950    | 2.343    | 2.090    | 1.647    | 0.811    | 0.490    |
| 260                                 | -        | -        | -        | 5.732    | 4.760    | 3.905    | 3.706    | 3.597    | 3.582    | 3.214    | 3.177    | 2.524    | 2.256    | 1.780    | 0.867    | 0.490    |
| 265                                 | -        | -        | -        | -        | 5.047    | 4.179    | 3.976    | 3.867    | 3.852    | 3.488    | 3.453    | 2.736    | 2.453    | 1.940    | 0.936    | 0.490    |
| 270                                 | -        | -        | -        | -        | 5.366    | 4.481    | 4.273    | 4.163    | 4.149    | 3.791    | 3.757    | 2.989    | 2.691    | 2.136    | 1.023    | 0.490    |
| 275                                 | -        | -        | -        | -        | 5.721    | 4.816    | 4.602    | 4.492    | 4.477    | 4.126    | 4.093    | 3.319    | 2.983    | 2.381    | 1.138    | 0.490    |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table II: Rectangular Solid Bar  
Fire Resistance Period: 45 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor<br>up to m <sup>1</sup> | 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<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) |
| 30                                     | 1.899       | 1.488       | 1.217       | 0.571       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 35                                     | 2.032       | 1.615       | 1.345       | 0.712       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 40                                     | 2.175       | 1.750       | 1.480       | 0.855       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 45                                     | 2.331       | 1.894       | 1.621       | 1.001       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 50                                     | 2.502       | 2.048       | 1.769       | 1.149       | 0.564       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 55                                     | 2.688       | 2.213       | 1.925       | 1.300       | 0.729       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 60                                     | 2.893       | 2.389       | 2.089       | 1.454       | 0.893       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 65                                     | 3.129       | 2.579       | 2.262       | 1.611       | 1.054       | 0.502       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 70                                     | 3.394       | 2.784       | 2.445       | 1.772       | 1.213       | 0.683       | 0.564       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 75                                     | 3.662       | 3.005       | 2.638       | 1.935       | 1.370       | 0.856       | 0.744       | 0.667       | 0.657       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 80                                     | 3.932       | 3.248       | 2.843       | 2.101       | 1.525       | 1.022       | 0.914       | 0.842       | 0.833       | 0.607       | 0.585       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 85                                     | 4.204       | 3.491       | 3.061       | 2.271       | 1.678       | 1.180       | 1.077       | 1.009       | 1.000       | 0.787       | 0.767       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 90                                     | 4.478       | 3.732       | 3.285       | 2.444       | 1.830       | 1.333       | 1.232       | 1.167       | 1.159       | 0.956       | 0.937       | 0.566       | 0.490       | 0.490       | 0.490       | 0.490       |
| 95                                     | 4.754       | 3.972       | 3.505       | 2.621       | 1.979       | 1.479       | 1.379       | 1.317       | 1.309       | 1.114       | 1.096       | 0.747       | 0.607       | 0.490       | 0.490       | 0.490       |
| 100                                    | 5.032       | 4.211       | 3.723       | 2.801       | 2.127       | 1.620       | 1.521       | 1.460       | 1.452       | 1.263       | 1.246       | 0.913       | 0.782       | 0.585       | 0.490       | 0.490       |
| 105                                    | 5.179       | 4.346       | 3.854       | 2.922       | 2.236       | 1.718       | 1.617       | 1.556       | 1.548       | 1.355       | 1.337       | 1.000       | 0.867       | 0.668       | 0.490       | 0.490       |
| 110                                    | 5.333       | 4.487       | 3.992       | 3.049       | 2.349       | 1.821       | 1.717       | 1.655       | 1.647       | 1.451       | 1.433       | 1.090       | 0.957       | 0.755       | 0.490       | 0.490       |
| 115                                    | 5.495       | 4.634       | 4.135       | 3.180       | 2.467       | 1.928       | 1.821       | 1.759       | 1.751       | 1.551       | 1.533       | 1.184       | 1.050       | 0.846       | 0.505       | 0.490       |
| 120                                    | 5.665       | 4.789       | 4.285       | 3.319       | 2.591       | 2.040       | 1.931       | 1.868       | 1.859       | 1.656       | 1.637       | 1.283       | 1.147       | 0.940       | 0.597       | 0.490       |
| 125                                    | -           | 4.951       | 4.443       | 3.464       | 2.721       | 2.157       | 2.045       | 1.981       | 1.972       | 1.765       | 1.745       | 1.385       | 1.248       | 1.038       | 0.692       | 0.490       |
| 130                                    | -           | 5.120       | 4.608       | 3.616       | 2.857       | 2.280       | 2.165       | 2.100       | 2.091       | 1.880       | 1.859       | 1.493       | 1.354       | 1.141       | 0.791       | 0.490       |
| 135                                    | -           | 5.299       | 4.781       | 3.776       | 3.000       | 2.409       | 2.290       | 2.225       | 2.216       | 2.000       | 1.979       | 1.605       | 1.465       | 1.248       | 0.895       | 0.490       |
| 140                                    | -           | 5.487       | 4.963       | 3.945       | 3.164       | 2.545       | 2.422       | 2.355       | 2.346       | 2.126       | 2.104       | 1.723       | 1.581       | 1.361       | 1.004       | 0.510       |
| 145                                    | -           | 5.685       | 5.155       | 4.123       | 3.346       | 2.687       | 2.561       | 2.493       | 2.483       | 2.258       | 2.235       | 1.846       | 1.703       | 1.478       | 1.118       | 0.621       |
| 150                                    | -           | -           | 5.357       | 4.310       | 3.541       | 2.837       | 2.707       | 2.637       | 2.628       | 2.397       | 2.374       | 1.976       | 1.831       | 1.602       | 1.238       | 0.739       |
| 155                                    | -           | -           | 5.570       | 4.508       | 3.751       | 2.995       | 2.860       | 2.790       | 2.780       | 2.543       | 2.519       | 2.112       | 1.965       | 1.732       | 1.364       | 0.864       |
| 160                                    | -           | -           | 5.796       | 4.718       | 3.976       | 3.202       | 3.022       | 2.950       | 2.940       | 2.697       | 2.672       | 2.256       | 2.107       | 1.868       | 1.496       | 0.998       |
| 165                                    | -           | -           | -           | 4.841       | 4.097       | 3.321       | 3.132       | 3.035       | 3.025       | 2.777       | 2.752       | 2.324       | 2.171       | 1.924       | 1.538       | 1.020       |
| 170                                    | -           | -           | -           | 4.971       | 4.224       | 3.447       | 3.258       | 3.157       | 3.142       | 2.861       | 2.836       | 2.397       | 2.239       | 1.984       | 1.584       | 1.044       |
| 175                                    | -           | -           | -           | 5.109       | 4.358       | 3.580       | 3.391       | 3.290       | 3.276       | 2.951       | 2.925       | 2.475       | 2.313       | 2.049       | 1.633       | 1.070       |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table II: Rectangular Solid Bar  
Fire Resistance Period: 45 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor up to m <sup>2</sup> | 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) |
| 180                                 | -        | -        | -        | 5.254    | 4.499    | 3.719    | 3.531    | 3.430    | 3.416    | 3.047    | 3.020    | 2.559    | 2.391    | 2.118    | 1.686    | 1.098    |
| 185                                 | -        | -        | -        | 5.408    | 4.648    | 3.867    | 3.678    | 3.578    | 3.564    | 3.198    | 3.158    | 2.649    | 2.476    | 2.193    | 1.743    | 1.129    |
| 190                                 | -        | -        | -        | 5.572    | 4.807    | 4.022    | 3.833    | 3.734    | 3.720    | 3.357    | 3.318    | 2.745    | 2.567    | 2.273    | 1.805    | 1.163    |
| 195                                 | -        | -        | -        | 5.747    | 4.974    | 4.187    | 3.998    | 3.899    | 3.885    | 3.525    | 3.487    | 2.849    | 2.665    | 2.361    | 1.873    | 1.200    |
| 200                                 | -        | -        | -        | -        | 5.152    | 4.362    | 4.172    | 4.074    | 4.060    | 3.703    | 3.666    | 2.962    | 2.772    | 2.455    | 1.947    | 1.241    |
| 205                                 | -        | -        | -        | -        | 5.341    | 4.547    | 4.357    | 4.259    | 4.246    | 3.893    | 3.857    | 3.104    | 2.888    | 2.559    | 2.028    | 1.286    |
| 210                                 | -        | -        | -        | -        | 5.543    | 4.745    | 4.553    | 4.456    | 4.443    | 4.094    | 4.059    | 3.309    | 3.015    | 2.672    | 2.118    | 1.337    |
| 215                                 | -        | -        | -        | -        | 5.759    | 4.955    | 4.762    | 4.666    | 4.653    | 4.308    | 4.274    | 3.527    | 3.212    | 2.797    | 2.218    | 1.394    |
| 220                                 | -        | -        | -        | -        | -        | 5.180    | 4.986    | 4.890    | 4.878    | 4.536    | 4.503    | 3.759    | 3.443    | 2.935    | 2.328    | 1.459    |
| 225                                 | -        | -        | -        | -        | -        | 5.422    | 5.225    | 5.130    | 5.117    | 4.781    | 4.749    | 4.008    | 3.690    | 3.108    | 2.453    | 1.534    |
| 230                                 | -        | -        | -        | -        | -        | 5.680    | 5.481    | 5.386    | 5.374    | 5.043    | 5.012    | 4.274    | 3.954    | 3.358    | 2.593    | 1.620    |
| 235                                 | -        | -        | -        | -        | -        | -        | 5.757    | 5.662    | 5.650    | 5.325    | 5.295    | 4.561    | 4.238    | 3.626    | 2.753    | 1.720    |
| 240                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.628    | 5.599    | 4.869    | 4.544    | 3.914    | 2.937    | 1.838    |
| 245                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.201    | 4.873    | 4.225    | 3.179    | 1.981    |
| 250                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.562    | 5.230    | 4.561    | 3.477    | 2.155    |
| 255                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.617    | 4.926    | 3.799    | 2.373    |
| 260                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.323    | 4.147    | 2.655    |
| 265                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.757    | 4.524    | 3.031    |
| 270                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 4.935    | 3.369    |
| 275                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.383    | 3.725    |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table I2: Rectangular Solid Bar**  
**Fire Resistance Period: 60 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor up to m <sup>1</sup> | 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                                  | 2.988    | 2.602    | 2.368    | 1.814    | 1.237    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 35                                  | 3.216    | 2.764    | 2.523    | 1.966    | 1.402    | 0.690    | 0.499    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 40                                  | 3.476    | 2.936    | 2.686    | 2.120    | 1.565    | 0.893    | 0.718    | 0.591    | 0.574    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 45                                  | 3.738    | 3.143    | 2.856    | 2.278    | 1.726    | 1.087    | 0.925    | 0.809    | 0.794    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 50                                  | 4.002    | 3.392    | 3.036    | 2.438    | 1.885    | 1.271    | 1.119    | 1.014    | 1.000    | 0.647    | 0.607    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 55                                  | 4.268    | 3.639    | 3.268    | 2.601    | 2.042    | 1.446    | 1.303    | 1.206    | 1.193    | 0.870    | 0.835    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 60                                  | 4.536    | 3.885    | 3.500    | 2.768    | 2.197    | 1.614    | 1.477    | 1.386    | 1.374    | 1.075    | 1.044    | 0.490    | 0.490    | 0.490    | 0.490    | 0.490    |
| 65                                  | 4.806    | 4.129    | 3.728    | 2.937    | 2.350    | 1.773    | 1.641    | 1.556    | 1.545    | 1.265    | 1.236    | 0.652    | 0.490    | 0.490    | 0.490    | 0.490    |
| 70                                  | 5.078    | 4.372    | 3.953    | 3.120    | 2.501    | 1.926    | 1.798    | 1.717    | 1.706    | 1.441    | 1.414    | 0.875    | 0.647    | 0.490    | 0.490    | 0.490    |
| 75                                  | 5.352    | 4.613    | 4.175    | 3.318    | 2.650    | 2.072    | 1.946    | 1.869    | 1.858    | 1.604    | 1.580    | 1.077    | 0.867    | 0.532    | 0.490    | 0.490    |
| 80                                  | 5.628    | 4.852    | 4.394    | 3.509    | 2.797    | 2.212    | 2.087    | 2.012    | 2.002    | 1.757    | 1.733    | 1.259    | 1.065    | 0.755    | 0.490    | 0.490    |
| 85                                  | -        | 5.090    | 4.610    | 3.695    | 2.943    | 2.346    | 2.222    | 2.149    | 2.139    | 1.899    | 1.876    | 1.425    | 1.244    | 0.954    | 0.490    | 0.490    |
| 90                                  | -        | 5.326    | 4.823    | 3.875    | 3.091    | 2.475    | 2.350    | 2.278    | 2.268    | 2.032    | 2.010    | 1.577    | 1.405    | 1.133    | 0.677    | 0.490    |
| 95                                  | -        | 5.561    | 5.033    | 4.049    | 3.247    | 2.599    | 2.473    | 2.401    | 2.391    | 2.157    | 2.136    | 1.716    | 1.552    | 1.295    | 0.866    | 0.490    |
| 100                                 | -        | 5.795    | 5.240    | 4.219    | 3.396    | 2.717    | 2.590    | 2.518    | 2.508    | 2.275    | 2.253    | 1.845    | 1.687    | 1.442    | 1.035    | 0.490    |
| 105                                 | -        | -        | 5.405    | 4.371    | 3.546    | 2.839    | 2.709    | 2.636    | 2.625    | 2.388    | 2.366    | 1.950    | 1.791    | 1.543    | 1.131    | 0.561    |
| 110                                 | -        | -        | 5.576    | 4.530    | 3.703    | 2.966    | 2.832    | 2.758    | 2.748    | 2.506    | 2.483    | 2.060    | 1.899    | 1.647    | 1.232    | 0.654    |
| 115                                 | -        | -        | 5.756    | 4.696    | 3.870    | 3.108    | 2.962    | 2.886    | 2.876    | 2.629    | 2.606    | 2.175    | 2.012    | 1.756    | 1.336    | 0.751    |
| 120                                 | -        | -        | -        | 4.871    | 4.046    | 3.274    | 3.107    | 3.020    | 3.010    | 2.758    | 2.734    | 2.295    | 2.130    | 1.870    | 1.445    | 0.854    |
| 125                                 | -        | -        | -        | 5.054    | 4.233    | 3.452    | 3.280    | 3.187    | 3.174    | 2.893    | 2.868    | 2.420    | 2.254    | 1.988    | 1.559    | 0.962    |
| 130                                 | -        | -        | -        | 5.246    | 4.432    | 3.643    | 3.467    | 3.372    | 3.360    | 3.033    | 3.008    | 2.551    | 2.382    | 2.112    | 1.678    | 1.076    |
| 135                                 | -        | -        | -        | 5.448    | 4.643    | 3.849    | 3.669    | 3.574    | 3.561    | 3.225    | 3.191    | 2.688    | 2.517    | 2.242    | 1.802    | 1.197    |
| 140                                 | -        | -        | -        | 5.661    | 4.868    | 4.071    | 3.889    | 3.793    | 3.781    | 3.440    | 3.406    | 2.832    | 2.658    | 2.377    | 1.932    | 1.325    |
| 145                                 | -        | -        | -        | -        | 5.108    | 4.313    | 4.128    | 4.033    | 4.020    | 3.677    | 3.642    | 2.983    | 2.806    | 2.519    | 2.068    | 1.460    |
| 150                                 | -        | -        | -        | -        | 5.365    | 4.575    | 4.389    | 4.295    | 4.283    | 3.938    | 3.903    | 3.198    | 2.961    | 2.668    | 2.211    | 1.604    |
| 155                                 | -        | -        | -        | -        | 5.641    | 4.862    | 4.677    | 4.584    | 4.572    | 4.228    | 4.194    | 3.477    | 3.180    | 2.824    | 2.361    | 1.758    |
| 160                                 | -        | -        | -        | -        | -        | 5.176    | 4.993    | 4.904    | 4.892    | 4.553    | 4.519    | 3.787    | 3.484    | 2.989    | 2.519    | 1.921    |
| 165                                 | -        | -        | -        | -        | -        | 5.345    | 5.162    | 5.073    | 5.062    | 4.725    | 4.693    | 3.964    | 3.660    | 3.110    | 2.597    | 1.979    |
| 170                                 | -        | -        | -        | -        | -        | 5.523    | 5.339    | 5.251    | 5.240    | 4.907    | 4.875    | 4.149    | 3.845    | 3.286    | 2.681    | 2.041    |
| 175                                 | -        | -        | -        | -        | -        | 5.709    | 5.526    | 5.438    | 5.427    | 5.098    | 5.067    | 4.344    | 4.039    | 3.470    | 2.772    | 2.109    |

Above figures are applicable to horizontal and vertical bars.

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.





# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table I2: Rectangular Solid Bar**  
**Fire Resistance Period: 60 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor up to m <sup>2</sup> | 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) |
| 180                                 | -        | -        | -        | -        | -        | -        | 5.722    | 5.635    | 5.625    | 5.299    | 5.269    | 4.549    | 4.243    | 3.665    | 2.870    | 2.182    |
| 185                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.511    | 5.482    | 4.765    | 4.459    | 3.869    | 2.976    | 2.263    |
| 190                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.735    | 5.707    | 4.993    | 4.686    | 4.085    | 3.121    | 2.351    |
| 195                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.235    | 4.926    | 4.313    | 3.331    | 2.447    |
| 200                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.490    | 5.180    | 4.554    | 3.552    | 2.554    |
| 205                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.761    | 5.449    | 4.810    | 3.786    | 2.673    |
| 210                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.735    | 5.082    | 4.033    | 2.806    |
| 215                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.370    | 4.295    | 2.955    |
| 220                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.678    | 4.573    | 3.159    |
| 225                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 4.868    | 3.421    |
| 230                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.183    | 3.697    |
| 235                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.519    | 3.987    |
| 240                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 4.293    |
| 245                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 4.616    |
| 250                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 4.957    |
| 255                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.318    |
| 260                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.701    |
| 265                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 270                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 275                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table I3: Rectangular Solid Bar**  
**Fire Resistance Period: 75 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor<br>up to m <sup>2</sup> | 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<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) |
| 30                                     | 4.591       | 4.044       | 3.734       | 3.060       | 2.593       | 1.985       | 1.816       | 1.701       | 1.686       | 1.268       | 1.220       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 35                                     | 4.856       | 4.292       | 3.971       | 3.287       | 2.750       | 2.160       | 2.001       | 1.896       | 1.882       | 1.505       | 1.463       | 0.490       | 0.490       | 0.490       | 0.490       | 0.490       |
| 40                                     | 5.122       | 4.539       | 4.205       | 3.507       | 2.904       | 2.326       | 2.175       | 2.077       | 2.065       | 1.719       | 1.682       | 0.803       | 0.490       | 0.490       | 0.490       | 0.490       |
| 45                                     | 5.390       | 4.785       | 4.435       | 3.718       | 3.059       | 2.484       | 2.338       | 2.247       | 2.235       | 1.914       | 1.880       | 1.095       | 0.720       | 0.490       | 0.490       | 0.490       |
| 50                                     | 5.660       | 5.028       | 4.662       | 3.922       | 3.254       | 2.634       | 2.493       | 2.406       | 2.395       | 2.092       | 2.062       | 1.348       | 1.018       | 0.490       | 0.490       | 0.490       |
| 55                                     | -           | 5.270       | 4.885       | 4.120       | 3.438       | 2.778       | 2.638       | 2.555       | 2.544       | 2.256       | 2.227       | 1.570       | 1.275       | 0.753       | 0.490       | 0.490       |
| 60                                     | -           | 5.511       | 5.105       | 4.310       | 3.613       | 2.914       | 2.776       | 2.696       | 2.685       | 2.406       | 2.379       | 1.766       | 1.498       | 1.024       | 0.490       | 0.490       |
| 65                                     | -           | 5.750       | 5.322       | 4.495       | 3.779       | 3.045       | 2.907       | 2.828       | 2.817       | 2.546       | 2.520       | 1.941       | 1.693       | 1.259       | 0.503       | 0.490       |
| 70                                     | -           | -           | 5.536       | 4.674       | 3.937       | 3.196       | 3.031       | 2.953       | 2.942       | 2.675       | 2.650       | 2.097       | 1.866       | 1.464       | 0.772       | 0.490       |
| 75                                     | -           | -           | 5.747       | 4.847       | 4.088       | 3.338       | 3.167       | 3.075       | 3.062       | 2.795       | 2.770       | 2.238       | 2.020       | 1.645       | 1.005       | 0.490       |
| 80                                     | -           | -           | -           | 5.014       | 4.231       | 3.470       | 3.297       | 3.206       | 3.194       | 2.907       | 2.882       | 2.366       | 2.158       | 1.805       | 1.208       | 0.490       |
| 85                                     | -           | -           | -           | 5.177       | 4.369       | 3.594       | 3.420       | 3.329       | 3.317       | 3.011       | 2.986       | 2.482       | 2.283       | 1.948       | 1.387       | 0.623       |
| 90                                     | -           | -           | -           | 5.334       | 4.500       | 3.710       | 3.535       | 3.444       | 3.432       | 3.121       | 3.091       | 2.589       | 2.396       | 2.077       | 1.547       | 0.817       |
| 95                                     | -           | -           | -           | 5.487       | 4.625       | 3.819       | 3.644       | 3.553       | 3.541       | 3.229       | 3.199       | 2.686       | 2.498       | 2.193       | 1.689       | 0.985       |
| 100                                    | -           | -           | -           | 5.636       | 4.745       | 3.922       | 3.748       | 3.655       | 3.643       | 3.330       | 3.300       | 2.776       | 2.592       | 2.299       | 1.817       | 1.132       |
| 105                                    | -           | -           | -           | 5.819       | 4.931       | 4.098       | 3.919       | 3.825       | 3.813       | 3.495       | 3.465       | 2.901       | 2.715       | 2.417       | 1.929       | 1.237       |
| 110                                    | -           | -           | -           | -           | 5.126       | 4.285       | 4.103       | 4.008       | 3.996       | 3.673       | 3.642       | 3.031       | 2.842       | 2.539       | 2.046       | 1.347       |
| 115                                    | -           | -           | -           | -           | 5.333       | 4.485       | 4.299       | 4.203       | 4.191       | 3.864       | 3.832       | 3.214       | 2.975       | 2.667       | 2.167       | 1.462       |
| 120                                    | -           | -           | -           | -           | 5.552       | 4.699       | 4.509       | 4.413       | 4.401       | 4.070       | 4.038       | 3.419       | 3.151       | 2.800       | 2.294       | 1.583       |
| 125                                    | -           | -           | -           | -           | 5.784       | 4.928       | 4.736       | 4.640       | 4.628       | 4.293       | 4.261       | 3.640       | 3.380       | 2.939       | 2.426       | 1.711       |
| 130                                    | -           | -           | -           | -           | -           | 5.174       | 4.980       | 4.884       | 4.873       | 4.536       | 4.504       | 3.879       | 3.625       | 3.110       | 2.564       | 1.846       |
| 135                                    | -           | -           | -           | -           | -           | 5.440       | 5.244       | 5.149       | 5.138       | 4.800       | 4.769       | 4.139       | 3.889       | 3.373       | 2.708       | 1.989       |
| 140                                    | -           | -           | -           | -           | -           | 5.727       | 5.531       | 5.438       | 5.427       | 5.090       | 5.059       | 4.423       | 4.174       | 3.652       | 2.860       | 2.140       |
| 145                                    | -           | -           | -           | -           | -           | -           | -           | 5.753       | 5.742       | 5.409       | 5.379       | 4.734       | 4.482       | 3.948       | 3.018       | 2.300       |
| 150                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | 5.761       | 5.732       | 5.076       | 4.815       | 4.262       | 3.308       | 2.470       |
| 155                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | 5.454       | 5.178       | 4.597       | 3.634       | 2.651       |
| 160                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | 5.575       | 4.954       | 3.970       | 2.845       |
| 165                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | 5.802       | 5.170       | 4.171       | 2.938       |
| 170                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | 5.396       | 4.381       | 3.039       |
| 175                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | 5.635       | 4.601       | 3.238       |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table I3: Rectangular Solid Bar**  
**Fire Resistance Period: 75 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor<br>up to m <sup>2</sup> | 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<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) |
| 180                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | 4.831       | 3.454       |
| 185                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | 5.074       | 3.679       |
| 190                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | 5.329       | 3.914       |
| 195                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | 5.597       | 4.159       |
| 200                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | 4.414       |
| 205                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | 4.681       |
| 210                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | 4.961       |
| 215                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | 5.254       |
| 220                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | 5.560       |
| 225                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 230                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 235                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 240                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 245                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 250                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 255                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 260                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 265                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 270                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 275                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table I4: Rectangular Solid Bar**  
**Fire Resistance Period: 90 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor up to m <sup>2</sup> | 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                                  | -        | 5.702    | 5.413    | 4.843    | 4.323    | 3.673    | 3.453    | 3.364    | 3.353    | 3.012    | 2.988    | 2.157    | 1.709    | 0.747    | 0.490    | 0.490    |
| 35                                  | -        | -        | 5.637    | 5.038    | 4.498    | 3.846    | 3.620    | 3.536    | 3.525    | 3.197    | 3.167    | 2.385    | 1.998    | 1.174    | 0.490    | 0.490    |
| 40                                  | -        | -        | -        | 5.226    | 4.663    | 4.003    | 3.774    | 3.693    | 3.683    | 3.370    | 3.342    | 2.579    | 2.236    | 1.514    | 0.490    | 0.490    |
| 45                                  | -        | -        | -        | 5.407    | 4.818    | 4.147    | 3.916    | 3.837    | 3.827    | 3.524    | 3.497    | 2.746    | 2.435    | 1.791    | 0.573    | 0.490    |
| 50                                  | -        | -        | -        | 5.582    | 4.965    | 4.278    | 4.047    | 3.969    | 3.959    | 3.662    | 3.636    | 2.890    | 2.605    | 2.021    | 0.944    | 0.490    |
| 55                                  | -        | -        | -        | 5.752    | 5.105    | 4.400    | 4.169    | 4.091    | 4.081    | 3.787    | 3.761    | 3.017    | 2.750    | 2.214    | 1.246    | 0.490    |
| 60                                  | -        | -        | -        | -        | 5.237    | 4.512    | 4.283    | 4.204    | 4.193    | 3.900    | 3.874    | 3.161    | 2.877    | 2.380    | 1.498    | 0.490    |
| 65                                  | -        | -        | -        | -        | 5.363    | 4.616    | 4.389    | 4.308    | 4.298    | 4.003    | 3.976    | 3.299    | 2.988    | 2.523    | 1.711    | 0.589    |
| 70                                  | -        | -        | -        | -        | 5.483    | 4.712    | 4.489    | 4.406    | 4.395    | 4.097    | 4.070    | 3.420    | 3.104    | 2.648    | 1.893    | 0.864    |
| 75                                  | -        | -        | -        | -        | 5.597    | 4.802    | 4.582    | 4.496    | 4.486    | 4.183    | 4.156    | 3.529    | 3.235    | 2.758    | 2.050    | 1.088    |
| 80                                  | -        | -        | -        | -        | 5.705    | 4.886    | 4.669    | 4.581    | 4.571    | 4.262    | 4.235    | 3.626    | 3.351    | 2.855    | 2.187    | 1.276    |
| 85                                  | -        | -        | -        | -        | 5.809    | 4.965    | 4.751    | 4.661    | 4.650    | 4.336    | 4.307    | 3.714    | 3.456    | 2.942    | 2.309    | 1.435    |
| 90                                  | -        | -        | -        | -        | -        | 5.038    | 4.829    | 4.736    | 4.724    | 4.404    | 4.375    | 3.794    | 3.551    | 3.021    | 2.416    | 1.571    |
| 95                                  | -        | -        | -        | -        | -        | 5.108    | 4.902    | 4.806    | 4.794    | 4.467    | 4.437    | 3.867    | 3.637    | 3.121    | 2.512    | 1.689    |
| 100                                 | -        | -        | -        | -        | -        | 5.173    | 4.971    | 4.872    | 4.860    | 4.526    | 4.495    | 3.934    | 3.716    | 3.229    | 2.599    | 1.792    |
| 105                                 | -        | -        | -        | -        | -        | 5.388    | 5.183    | 5.083    | 5.072    | 4.734    | 4.703    | 4.142    | 3.934    | 3.457    | 2.727    | 1.913    |
| 110                                 | -        | -        | -        | -        | -        | 5.617    | 5.409    | 5.309    | 5.298    | 4.957    | 4.926    | 4.365    | 4.167    | 3.696    | 2.859    | 2.039    |
| 115                                 | -        | -        | -        | -        | -        | -        | 5.652    | 5.552    | 5.541    | 5.197    | 5.166    | 4.605    | 4.414    | 3.947    | 2.998    | 2.172    |
| 120                                 | -        | -        | -        | -        | -        | -        | -        | 5.812    | 5.801    | 5.456    | 5.426    | 4.863    | 4.678    | 4.211    | 3.238    | 2.313    |
| 125                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.737    | 5.707    | 5.142    | 4.960    | 4.490    | 3.538    | 2.460    |
| 130                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.444    | 5.263    | 4.785    | 3.845    | 2.616    |
| 135                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.772    | 5.588    | 5.096    | 4.161    | 2.780    |
| 140                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.426    | 4.486    | 2.955    |
| 145                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.775    | 4.820    | 3.295    |
| 150                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.164    | 3.749    |
| 155                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.517    | 4.147    |
| 160                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 4.499    |
| 165                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 4.727    |
| 170                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 4.964    |
| 175                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.210    |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table I4: Rectangular Solid Bar**  
**Fire Resistance Period: 90 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor up to m <sup>2</sup> | 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) |
| 180                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.466    |
| 185                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.733    |
| 190                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 195                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 200                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 205                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 210                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 215                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 220                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 225                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 230                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 235                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 240                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 245                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 250                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 255                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 260                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 265                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 270                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 275                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table I5: Rectangular Solid Bar  
Fire Resistance Period: IO5 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor up to m <sup>2</sup> | 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                                  | -        | -        | -        | -        | -        | 5.788    | 5.422    | 5.402    | 5.398    | 5.290    | 5.289    | 4.808    | 4.462    | 3.224    | 1.350    | 0.490    |
| 35                                  | -        | -        | -        | -        | -        | -        | 5.507    | 5.480    | 5.476    | 5.345    | 5.341    | 4.868    | 4.560    | 3.482    | 1.770    | 0.490    |
| 40                                  | -        | -        | -        | -        | -        | -        | 5.585    | 5.552    | 5.547    | 5.394    | 5.387    | 4.918    | 4.641    | 3.687    | 2.084    | 0.490    |
| 45                                  | -        | -        | -        | -        | -        | -        | 5.658    | 5.617    | 5.612    | 5.438    | 5.428    | 4.959    | 4.708    | 3.853    | 2.326    | 0.501    |
| 50                                  | -        | -        | -        | -        | -        | -        | 5.724    | 5.678    | 5.672    | 5.477    | 5.465    | 4.995    | 4.765    | 3.990    | 2.519    | 0.972    |
| 55                                  | -        | -        | -        | -        | -        | -        | 5.787    | 5.733    | 5.727    | 5.512    | 5.497    | 5.026    | 4.814    | 4.105    | 2.677    | 1.309    |
| 60                                  | -        | -        | -        | -        | -        | -        | -        | 5.785    | 5.777    | 5.544    | 5.527    | 5.053    | 4.856    | 4.204    | 2.808    | 1.562    |
| 65                                  | -        | -        | -        | -        | -        | -        | -        | -        | 5.824    | 5.573    | 5.554    | 5.076    | 4.893    | 4.289    | 2.918    | 1.760    |
| 70                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.600    | 5.579    | 5.097    | 4.926    | 4.363    | 3.013    | 1.918    |
| 75                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.624    | 5.601    | 5.116    | 4.955    | 4.428    | 3.147    | 2.047    |
| 80                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.647    | 5.622    | 5.133    | 4.981    | 4.486    | 3.296    | 2.155    |
| 85                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.668    | 5.641    | 5.148    | 5.004    | 4.538    | 3.427    | 2.246    |
| 90                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.687    | 5.659    | 5.162    | 5.025    | 4.584    | 3.543    | 2.325    |
| 95                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.705    | 5.675    | 5.174    | 5.044    | 4.626    | 3.646    | 2.393    |
| 100                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.721    | 5.691    | 5.186    | 5.062    | 4.664    | 3.739    | 2.452    |
| 105                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.437    | 5.321    | 4.927    | 4.030    | 2.589    |
| 110                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.706    | 5.597    | 5.202    | 4.327    | 2.732    |
| 115                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.493    | 4.633    | 2.883    |
| 120                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.798    | 4.947    | 3.042    |
| 125                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.269    | 3.726    |
| 130                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.600    | 4.305    |
| 135                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 4.789    |
| 140                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.199    |
| 145                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.551    |
| 150                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 155                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 160                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 165                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 170                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 175                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table I5: Rectangular Solid Bar**  
**Fire Resistance Period: IO5 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor<br>up to m <sup>2</sup> | 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<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) |
| 180                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 185                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 190                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 195                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 200                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 205                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 210                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 215                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 220                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 225                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 230                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 235                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 240                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 245                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 250                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 255                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 260                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 265                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 270                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 275                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |

Above figures are applicable to horizontal and vertical bars.

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.



# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table IG: Rectangular Solid Bar**  
**Fire Resistance Period: 120 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor up to m <sup>1</sup> | 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                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.143    | 1.502    |
| 35                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.191    | 2.108    |
| 40                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.225    | 2.414    |
| 45                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.251    | 2.599    |
| 50                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.272    | 2.723    |
| 55                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.289    | 2.812    |
| 60                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.303    | 2.878    |
| 65                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.314    | 2.930    |
| 70                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.324    | 2.972    |
| 75                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.332    | 3.006    |
| 80                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.340    | 3.034    |
| 85                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.346    | 3.152    |
| 90                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.352    | 3.350    |
| 95                                  | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.357    | 3.516    |
| 100                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.362    | 3.658    |
| 105                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.673    | 4.722    |
| 110                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | 5.486    |
| 115                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 120                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 125                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 130                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 135                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 140                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 145                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 150                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 155                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 160                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 165                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 170                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |
| 175                                 | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        | -        |

Above figures are applicable to horizontal and vertical bars.

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.





# SC90I Loading Tables

## EN13381-10 – Protection of Solid Bars

**Nullifire**  
Smart Protection

**Table IG: Rectangular Solid Bar**  
**Fire Resistance Period: 120 Minutes**

Thickness (mm) Required for a Design Temperature of

| Section Factor<br>up to m <sup>2</sup> | 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<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) | DFT<br>(mm) |
| 180                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 185                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 190                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 195                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 200                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 205                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 210                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 215                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 220                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 225                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 230                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 235                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 240                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 245                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 250                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 255                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 260                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 265                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 270                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |
| 275                                    | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           | -           |

Above figures are applicable to horizontal and vertical bars.

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.