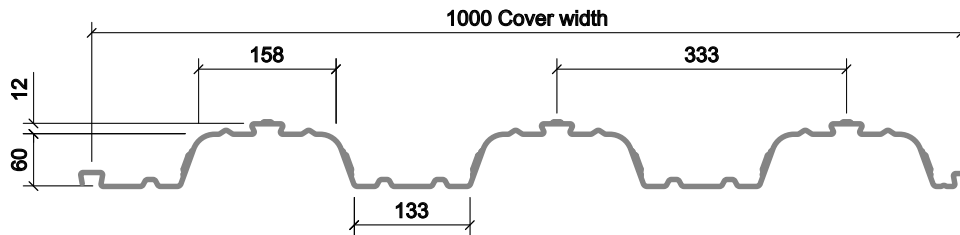


TR60⁺™



Description

The TR60 profile was SMD's first trapezoidal profile, added to our product range in 1992. Further research and development in recent years has seen our trapezoidal products evolve into the TR+ range. The TR60+ profile enables un-propped spans in excess of 3.5m.

Benefits

- Reduced concrete volume
- Enhanced speed of installation due to the 1m cover width
- Trough stiffeners positioned to ensure central stud position
- TAB-Deck™ fibre concrete option

Gauges

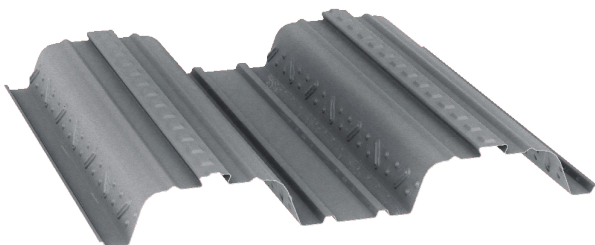
- 0.9mm
- 1.0mm
- 1.2mm

Specification

- 1000mm cover width
- 60mm deep (72mm to top re-entrant)

Steel Grade

- S350
- S450



Finishes

- Galvanised (Z275)
- HD (ZM310)

Profile Properties

| Nominal Thickness mm | Design Thickness (bare steel) mm | Weight of Profile kg/m ² | Weight of Profile kN/m ² | Height of Neutral Axis mm | Area of Steel mm ² /m | Moment of Inertia cm ⁴ /m |
|----------------------|----------------------------------|-------------------------------------|-------------------------------------|---------------------------|----------------------------------|--------------------------------------|
| 0.9 | 0.86 | 10.03 | 0.098 | 33.6 | 1216 | 93.5 |
| 1.0 | 0.96 | 11.12 | 0.109 | 33.6 | 1355 | 102.1 |
| 1.2 | 1.16 | 13.33 | 0.131 | 33.7 | 1633 | 119.8 |

Section properties are calculated assisted by testing in accordance with Eurocode 3.

Fire Insulation Thickness

Minimum Insulation Thickness (x) of Concrete (mm)

| Fire Rating | NWC | LWC |
|-------------|-----|-----|
| 1.0 Hour | 60 | 60 |
| 1.5 Hour | 70 | 70 |
| 2.0 Hour | 80 | 80 |
| 3.0 Hour | 115 | 100 |
| 4.0 Hour | 130 | 115 |



The image and table above details the minimum insulation thickness required to suit fire design criteria in accordance with SCI PN005c-GB or BS5950 Part 8.

Concrete Volume and Weight

| Slab Depth mm | Volume of Concrete m ³ /m ² | Weight of Concrete (Normal Weight) | | Weight of Concrete (Lightweight) | |
|------------------|--|------------------------------------|--------------------------|----------------------------------|--------------------------|
| | | Wet (kN/m ²) | Dry (kN/m ²) | Wet (kN/m ²) | Dry (kN/m ²) |
| 130 | 0.096 | 2.40 | 2.31 | 1.93 | 1.84 |
| 150 | 0.116 | 2.90 | 2.79 | 2.33 | 2.22 |
| 200 | 0.166 | 4.15 | 3.99 | 3.34 | 3.17 |

Deflection – This table is based on concrete poured to a constant thickness and does not take account for deflection of the decking or supporting beams (as a guide, to account for the deflection of the decking, a concrete volume of span/250 should be added to the figures indicated). Concrete Weight – These tables indicate concrete weight only and do not include the weight of decking or reinforcement. Concrete weights are based on the concrete densities specified in BS EN 1991-1-1 as follows: Normal Weight Concrete – 2550kg/m³ (wet) and 2450 kg/m³ (dry). Lightweight Concrete – 2050kg/m³ (wet) and 1950 kg/m³ (dry).

Load Tables (Eurocode)

Steel Grade S350 – Normal Weight Concrete

Total Unfactored Applied Load (kN/m²) Maximum Permissible Span (m)

| Span Condition | Fire Rating (hours) | Slab Depth (mm) | Mesh | Total Unfactored Applied Load (kN/m ²) Maximum Permissible Span (m) | | | | | | | | | | | |
|----------------|---------------------|-----------------|----------|---|-------|-------|-------|-------------|-------|-------|-------|-------------|-------|-------|-------|
| | | | | 0.9mm Gauge | | | | 1.0mm Gauge | | | | 1.2mm Gauge | | | |
| | | | | 3.5 | 5.0 | 7.5 | 10.0 | 3.5 | 5.0 | 7.5 | 10.0 | 3.5 | 5.0 | 7.5 | 10.0 |
| Single** | 1.0 | 130 | A142 | 3.125 | 3.125 | 2.796 | 2.519 | 3.383 | 3.383 | 2.870 | 2.585 | 3.746 | 3.746 | 3.011 | 2.711 |
| | | 150 | A193 | 3.006 | 3.006 | 3.006 | 2.843 | 3.203 | 3.203 | 3.203 | 2.914 | 3.562 | 3.562 | 3.562 | 3.046 |
| | | 200 | A393 | 2.688 | 2.688 | 2.688 | 2.688 | 2.866 | 2.866 | 2.866 | 2.866 | 3.219 | 3.219 | 3.219 | 3.219 |
| | 2.0 | 150 | A193 | 3.006 | 3.006 | 2.366 | 2.145 | 3.203 | 3.203 | 2.414 | 2.188 | 3.562 | 3.562 | 2.503 | 2.269 |
| | | 170 | A252 | 2.883 | 2.883 | 2.649 | 2.410 | 3.054 | 3.054 | 2.695 | 2.453 | 3.407 | 3.407 | 2.788 | 2.531 |
| | | 200 | A393 | 2.688 | 2.688 | 2.688 | 2.688 | 2.866 | 2.866 | 2.866 | 2.866 | 3.219 | 3.219 | 3.219 | 3.219 |
| Double | 1.0 | 130 | A142 | 3.455 | 3.455 | 2.796 | 2.519 | 3.788 | 3.788 | 2.870 | 2.585 | 4.238 | 4.238 | 3.011 | 2.711 |
| | | 150 | A193 | 3.230 | 3.230 | 3.141 | 2.843 | 3.546 | 3.546 | 3.219 | 2.914 | 3.996 | 3.996 | 3.366 | 3.046 |
| | | 200 | A393 | 2.804 | 2.804 | 2.804 | 2.804 | 3.085 | 3.085 | 3.085 | 3.085 | 3.602 | 3.602 | 3.602 | 3.602 |
| | 2.0 | 150 | A193 | 3.230 | 3.116 | 2.366 | 2.145 | 3.546 | 3.180 | 2.414 | 2.188 | 3.996 | 3.296 | 2.503 | 2.269 |
| | | 170 | A252 | 3.040 | 3.040 | 2.649 | 2.410 | 3.341 | 3.341 | 2.695 | 2.453 | 3.895 | 3.608 | 2.788 | 2.531 |
| | | 200 | A393 | 2.804 | 2.804 | 2.804 | 2.804 | 3.085 | 3.085 | 3.085 | 3.085 | 3.602 | 3.602 | 3.407 | 3.116 |
| Double | 1.0 | 130 | HE 1/50* | 3.455 | 3.455 | 3.130 | 2.825 | 3.788 | 3.788 | 3.200 | 2.880 | 4.238 | 4.238 | 3.320 | 3.000 |
| | | 150 | HE 1/50* | 3.230 | 3.230 | 3.230 | 3.230 | 3.546 | 3.546 | 3.546 | 3.290 | 3.996 | 3.996 | 3.750 | 3.400 |
| | | 200 | HE 1/50* | 2.804 | 2.804 | 2.804 | 2.804 | 3.085 | 3.085 | 3.085 | 3.085 | 3.602 | 3.602 | 3.602 | 3.602 |
| | 2.0 | 150 | HE 1/50* | 3.230 | 3.230 | 2.710 | 2.455 | 3.340 | 3.340 | 2.550 | 2.480 | 3.996 | 3.730 | 2.830 | 2.550 |
| | | 170 | HE 1/50* | 3.040 | 3.040 | 3.040 | 2.815 | 3.341 | 3.341 | 3.130 | 2.850 | 3.895 | 3.895 | 3.310 | 2.920 |
| | | 200 | HE 1/50* | 2.804 | 2.804 | 2.804 | 2.804 | 3.085 | 3.085 | 3.085 | 3.085 | 3.602 | 3.602 | 3.610 | 3.440 |

Figures shown in red are governed by the normal (composite) or fire stages, greater spans can be achieved by increasing reinforcement or fibre type/dosage - refer to SMD Elements® Design Software, Elements® Span Check App or The SMD White Book for more extensive design information.

For full design notes relating to these tables refer to SMD's The White Book, Floor Deck Design Guide and Tables.

* TAB-Deck™ fibre concrete spans are based on a dosage of 30kg/m³ - For further guidance refer to the TAB-Deck™ design manual at www.smdltd.co.uk.

** Single span design limits indicated are based on single span deck with the slab being continuous over at least one internal support (end span condition). For true single span slabs with no continuity, refer to SMD Elements® Design Software as additional bottom reinforcement will be required.