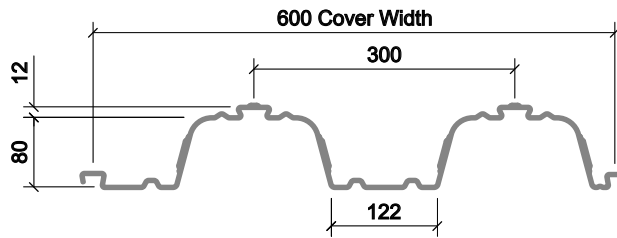




Product Data Sheet SMD Profile Details and Sectional Properties

TR80⁺™



Description

Initially added to our product range in 2002, the original TR80 has undergone further research and development, evolving to the popular TR80+ profile in use today. This 80mm deep trapezoidal profile offers long un-propped spans reducing the number of structural support members required, making it a popular choice for low to medium storey buildings.

Benefits

- Reduced concrete volume compared to other deck available
- 140mm slab depth required to achieve a typical one hour fire rating
- TAB-Deck™ fibre concrete option

Gauges

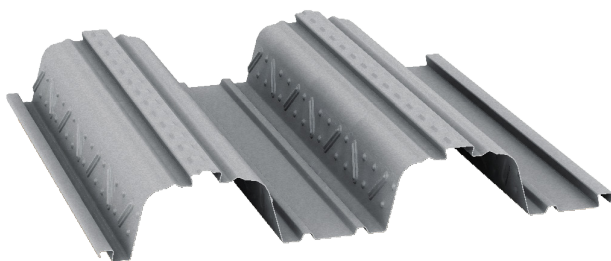
- 0.9mm
- 1.0mm
- 1.2mm

Specification

- 600mm cover width
- 80mm deep (92mm to top re-entrant)

Steel Grade

- S350
- S450



Finishes

- Galvanised (Z275)
- HD (ZM310)
- Crushed Ends Option
- Plastisol (PF)

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	11.33	0.111	42.30	1385	172.9
1.0	0.96	12.54	0.123	42.40	1539	192.3
1.2	1.16	15.06	0.148	42.50	1860	231.1

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)
140	0.096	2.40	2.31	1.93	1.84
150	0.106	2.65	2.55	2.13	2.03
200	0.156	3.90	3.75	3.14	2.98

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	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	140	A142	3.883	3.883	2.922	2.633	4.180	4.180	3.000	2.703	4.430	4.430	3.149	2.839
		150	A142	3.781	3.781	3.054	2.757	4.069	4.069	3.133	2.835	4.343	4.343	3.296	2.976
		200	A252	3.219	3.219	3.219	3.219	3.625	3.625	3.625	3.625	4.000	4.000	4.000	3.969
	2.0	160	A193	3.657	3.172	2.407	2.180	3.969	3.234	2.457	2.226	4.261	3.366	2.562	2.319
		180	A252	3.494	3.453	2.668	2.426	3.781	3.781	2.719	2.469	4.120	4.077	2.819	2.562
		200	A252	3.219	3.219	2.883	2.633	3.625	3.625	2.899	2.649	4.000	4.000	3.007	2.746
Double	1.0	140	A142	4.284	3.930	2.922	2.633	4.549	4.031	3.000	2.703	5.170	4.234	3.149	2.839
		150	A142	4.137	4.077	3.054	2.757	4.521	4.180	3.133	2.835	5.019	4.391	3.296	2.976
		200	A252	3.562	3.562	3.562	3.461	3.907	3.907	3.883	3.538	4.534	4.534	4.054	3.695
	2.0	160	A193	4.000	3.172	2.407	2.180	4.358	3.234	2.457	2.226	4.804	3.366	2.562	2.319
		180	A252	3.761	3.453	2.668	2.426	4.125	3.523	2.719	2.469	4.653	3.649	2.819	2.562
		200	A252	3.562	3.562	2.883	2.633	3.907	3.703	2.899	2.649	4.534	3.843	3.007	2.746
Double	1.0	140	HE 1/50*	4.284	4.284	3.205	2.890	4.549	4.410	3.280	2.960	5.170	4.600	3.400	3.070
		150	HE 1/50*	4.137	4.137	3.410	3.090	4.515	4.515	3.486	3.150	5.019	5.019	3.620	3.270
		200	HE 1/50*	3.562	3.562	3.562	3.562	3.907	3.907	3.907	3.907	4.534	4.534	4.534	4.200
	2.0	160	HE 1/50*	3.770	3.520	2.665	2.420	3.820	3.580	2.710	2.450	3.970	3.670	2.810	2.535
		180	HE 1/50*	3.761	3.761	3.010	2.740	4.125	3.975	3.070	2.800	4.350	4.100	3.150	2.850
		200	HE 1/50*	3.562	3.562	3.390	3.100	3.907	3.905	3.440	3.130	4.520	4.520	3.530	3.200

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.