

DESIGN TABLES FOR Permacomposites FRP PROFILE TYPES

Table with 2 columns: Property and Value. Properties include Modulus of Elasticity, Tensile strength, Compressive strength, Flexural Tensile and Compressive strength, Shear Strength, Allowable Shear at WLL, Density, and Creep Factor.

To use Tables below

- 1. Guess a section for the Span length required.
2. Decide maximum tolerable deflection, dmax.
3. Determine proportion of load (including self weight of FRP section) which is Long Term, kr.
4. Determine instantaneous deflection, dinst, which including Long Term load will produce maximum tolerable deflection in the Long Term.
5. For the section selected, from the Table below, determine the design UDL, 'w' which includes the design self weight and which produces dinst.
6. If w x Span < max allow WLL the section is acceptable, although you may try to find a smaller acceptable section.
7. If the Table gives a ' - ' indication you have a short stiff section which has less than Span/1000 instantaneous deflection at max WLL. You may use any w x Span < max allow WLL, but if you need to know the deflection more precisely than 'less than instantaneous Span/1000' you need to do engineering calculations, or choose a less stiff section.
8. If the Table gives a blank section, you have quite a flexible section for that Span, such that the self weight does give instantaneous deflections exceeding Span/1000.
9. Either choose a stiffer section, or do engineering calculations, which are likely to show large deflections.

* max allow WLL is the maximum allowable Working Live Load, which in this case includes all transient and permanent loads, including the section weight. max allow WLL > w x Span

Note: These calculations assume that the section is supported transversely with sufficient continuity such that compression flange buckling does not occur and that channels and equal angles bend about their horizontal Neutral Axis parallel to the flange.



Main design tables for FRP profiles. The table is organized into sections: I-BEAM, WIDE FLANGE I-BEAM, PARALLEL FLANGE CHANNEL, SQUARE HOLLOW SECTION, EQUAL ANGLE, and CIRCULAR HOLLOW SECTION. Each section contains a grid of data for various dimensions and load capacities.