

Solar Ground-Mount Structures & Helical Piles

Roll-formed rails, posts and driven foundations for ground PV

Ground-mounted PV structures: roll-formed posts and rails carrying the module table, founded either on driven/helical piles or on concrete. The pile is what resists uplift, so the foundation and the structure are designed together.

Structure

Element	Typical form	Notes
Piles	Helical or driven steel piles, hot-dip galvanised	Sized for uplift and lateral load from the pile test
Posts	Roll-formed C or U sections on the pile head	Raking posts where the table is tilted
Rails / purlins	Roll-formed C or Z sections	Spacing set by the module clamp positions
Bracing	Diagonal bracing in the array plane	Carries the wind load to the foundations
Module clamps	Mid and end clamps	Matched to the module frame, not a generic clamp

Design inputs

Governing load	Wind uplift is normally the governing case; snow decides the section size in snow regions
Ground	Soil conditions decide the pile type, embedment and whether a pile test is required
Galvanising	Hot-dip galvanised to ISO 1461 for buried and exposed steel
Tolerances	Pile position tolerances matter because the rails and clamps have limited adjustment

Standards referenced

ISO 1461 (hot dip galvanised coatings) · EN 1991-1-4 / ASCE 7 (wind actions) · EN 1993-1-3 and AISI S100 (cold-formed steel design)
· EN 1997 and EN 14199 where pile design and execution apply · IEC 62817 for tracker mechanical design where trackers are involved

Need a quote? Send the module size and layout, wind and snow loads, soil report and total MWp or pile count.

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