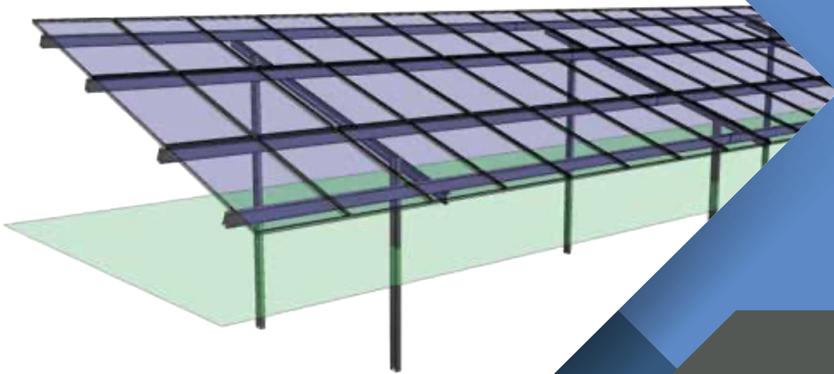


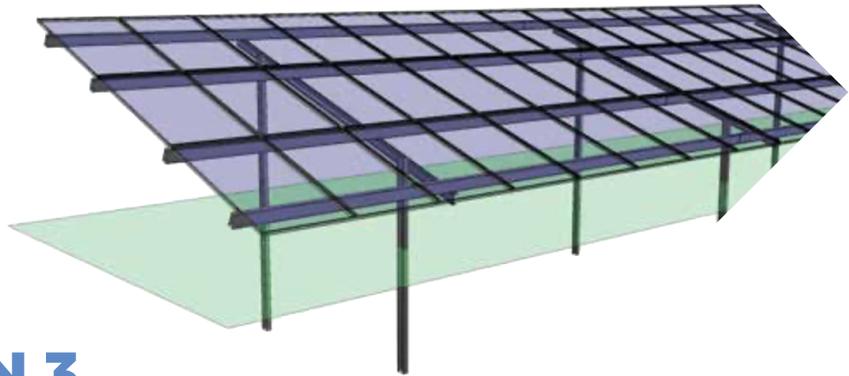


Yokohama Solar Solutions



FS DUO GEN 3

PRODUCT SHEET



FS DUO GEN 3

FURTHER DEVELOPMENT AND THE THIRD GENERATION OF THE STEEL TWIN-SUPPORT SYSTEM

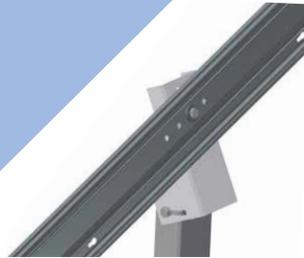
- No soil sealing, extremely short assembly times and high efficiency
- Optimises and reduces the number of components
- Wide span thanks to the high-tensile steel
- Suitable for challenging ground and terrain conditions
- Integrated cable duct in purlin and girder

Yokohama Solar Solutions substructures are renowned for their high level of structural safety, ease of assembly, long lifespan and efficiency. The previous generation of the mounting system has been used successfully in projects all over the world with a total output of several gigawatts. With Generation 3, we have been able to provide even more advantages for the user by reducing the amount of material used, making the assembly easier and improving the cable routing.

Optimising an already optimised system

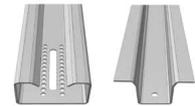
Saving costs without losing quality – that's our top priority. We have been able to significantly reduce material and assembly costs by using high-tensile steels, which are usually only used in the automotive and mechanical engineering sectors, and with the carefully thought-out optimisation of the profile geometries. Thanks to the integrated cable ducts in purlin and girders, it's easier to lay the cable wires in the rack and no expensive cable ties are needed. The use of zinc-magnesium alloys as corrosion protection guarantees a long service life. The optimised connections allow for a quicker assembly.

1000 possible uses - 1 system



Yokohama Solar Solutions operates worldwide. Factories and branches across all continents, as well as a standardisation of our product portfolio, ensures that all customers get the same level of quality and service regardless of where they are in the world. Local sourcing at a high-end level!

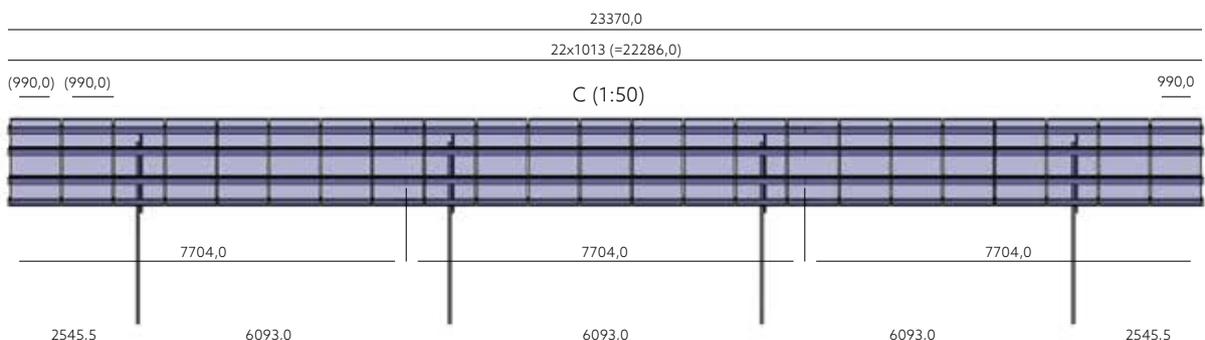
Structural safety is our number 1 priority

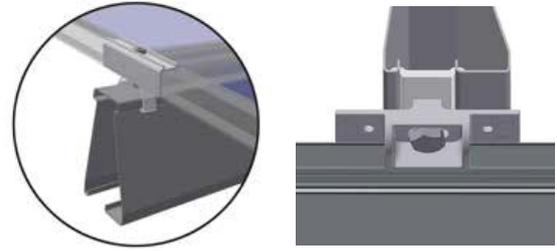


Even when used on the worst possible ground conditions, the system guarantees structural safety. This means that all components can still be fully used which contributes to the high economic efficiency! The tilt head can easily compensate for steep slopes of up to 25°. Using the geological survey that you provide, we calculate the necessary depth of foundation. We also use the topography to calculate the post length and the chemical soil analysis to develop the perfect coating system for the profile. The optimal ram foundations for your project can be chosen based on the ground hardness thanks to the SRF and FG foundation posts that we offer. When it comes to the load determination, we of course base it on the locally applicable regulations, which we always keep up-to-date in our global database.

The advantages of the FS Duo twin-support system

2 is better than 1 – this also applies to PV construction! The FS Duo twin-support system allows for a significantly more precise static adjustment of the individual components, which directly influences the economic efficiency. Larger spans and module tables reduce material usage and make service and maintenance easier.

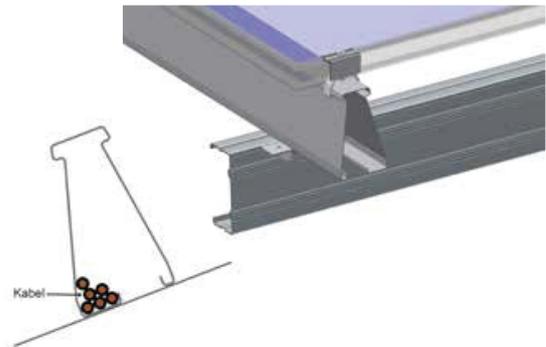




In order to reduce the time needed to assemble the connections, we've again really focused on the small details. It's not necessary to drill on the building site and most connections are made using clamps. This makes the assembly significantly easier and it saves money!

Optimising the purlins

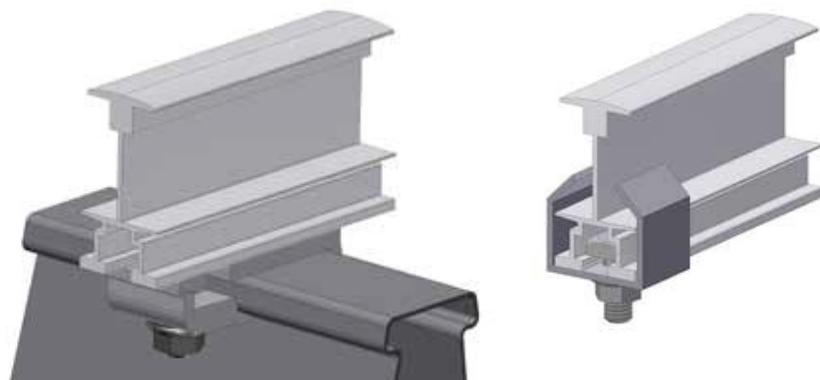
The purlins represent the largest cost component on the rack. Thanks to the optimised geometries and the high-tensile steel, the new module bearing rails can reach spans of up to 6.5 m without a problem. In addition, it's no longer necessary to orient the position of the connectors according to the static conditions thanks to the reinforced rail connectors.



All purlin lengths are cut to the same length. This makes them easier to handle on the building site. The geometry of the purlins also makes it possible to lay the cable wires in the purlin so that they are protected from the elements, and even UV radiation.

Horizontal module assembling with plug-in rafters

In order to make horizontal module assembling even easier, we developed the rafter plug-in system. The assembling of the modules can be done entirely without ladders or lifting platforms and therefore meets all health and safety requirements – not to mention it saves a significant amount of assembly time. Available for frame thicknesses 30 & 40 mm. For frameless modules or modules without approval for storage on the short sides, the rafter systems with module clamps are still available.



Technical details

Material	<ul style="list-style-type: none"> - Ram foundations: Steel, treated through continuous hot-dip galvanizing in accordance with DIN EN 10327 - Girders / purlins: Steel, coated with zinc-magnesium alloy, alternatively treated through continuous hot-dip galvanizing in accordance with DIN EN 10327 - Fastening elements, screws: Zinc-scale coated steel, aluminium - Module clamps: Aluminium - Rafter profiles: Aluminium
Construction	<ul style="list-style-type: none"> - Options for the precise adjustment to the ram foundation result - Overall lower cost constructed based on the static optimisation - Components for a fast and simple installation
Accessories	<ul style="list-style-type: none"> - Cable fastening, zinc-magnesium & zinc repair paint
Logistics	<ul style="list-style-type: none"> - Optimal transfer to the building site, on-time delivery according to customer requirements
Delivery and services	<ul style="list-style-type: none"> - Individual structural design of the rack based on country-specific standards - Delivery of all installation materials - Creation of a terrain model using external topography
Structural analysis	<ul style="list-style-type: none"> - Individual structural analysis of the terrain based on an external soil survey - Individual structural analysis of the system based on the regional load values - Load assumptions according to DIN EN 19990 (Eurocode 1), DIN EN 1993 (Eurocode 3), DIN EN 1999 (Eurocode 9) and other, relevant, country-specific standards - Profile geometries with a highly-efficient use of materials - Verification of all construction components based on FEM calculations and laboratory tests - Optional: Vibration simulation under wind load - Optional: Earthquake simulation
Terrain maintenance	<ul style="list-style-type: none"> - Grazing with sheep is possible without a problem thanks to the large strut spans and greater distance from the ground

For more information, see www.ysolar.co.jp.



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