Flat roof, pitched roof and ground mount structures for flexible and fast installations
**Pitched roof, flat roof, ground-mounted — system-based mounting solutions by S:FLEX**

S:FLEX mounting systems stand for functionality based on simple assembly and largely preconfigured components. They provide flexible solutions for both flat and pitched roofs as well as for ground-mounted installations.

Fast installation, low freight and storage costs, optimal structural values and a long service life — these are the features that we pay attention to when manufacturing our proven components and developing new systems and parts.

Our mounting systems for sheet metal roofing are manufactured in a particularly material-saving manner and with optimal ergonomics. Using our suitably trimmed, pre-drilled trapezoidal sheet metal rail (module mounting in portrait orientation), the HK 125 mounting rail (module mounting in landscape orientation) or the HK 125 XL (for extended roof clearance), PV systems can be installed quickly and cleanly on all common types of trapezoidal sheeting.

For cost-efficient installation of modules without roof penetration on roofs with standing seam profiles, we offer the S:FLEX standing seam clamps. Ideal for direct module mounting with our clickable end and middle clamps, they can also be used in combination with our rails and cross adapter clamps.

Our flexibly adjustable roof hooks for PV installation on pitched roofs with different tile coverings cover all requirements, even for constructions with narrow rafters or to accommodate particularly high loads.

The S:FLEX Flat Direct System for pitched roofs can be installed with minimal ballasting and without roof penetration on pitched roofs with foil or bitumen coverings and sandwich elements. This makes it especially suitable for commercial buildings with low load-bearing capacities. The structural properties of Flat Direct with air gaps between the modules produce a suction effect in the direction of the roof and achieve the best possible rear ventilation. If necessary, special ridge connectors, counterweights or mechanical couplings can be used to ensure additional safety when anchoring.

The S:FLEX Delta Triangle was designed for installing elevated systems on flat and slightly inclined roofs. Available with pitch angles from 5° to 45°, it is delivered pre-assembled, but folded up — thus significantly reducing transport costs.

And for low-ballast mounting on flat roofs, the aerodynamic LEICHTmount Rail 2.0 is an innovative solution that is available for systems with south as well as east-west orientation.

**PV frame technology by professionals for practitioners – from pre-assembled components to fully customised solutions!**
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Application:
Pitched roof with tiles

Fastening:
Roof hook on rafters (min. rafter width 36 mm)

Roof pitch:
Up to 60 degrees

Module type:
Framed and frameless modules

Module orientation:
Landscape / portrait

Layers of rails:
Single / double layer, cross rail installation

Advantages:
– Every size of module array possible
– Height compensation: 40–58 mm in the batten zone / 21 mm in the rail zone
– For all common rafter distances
System for tiled roofs
Mounting with roof hook Hybrid for high loads

Application:
Pitched roof with tiles

Fastening:
Roof hook on rafters (min. rafter width 45 mm)

Roof pitch:
Up to 60 degrees

Module type:
Framed and frameless modules

Module orientation:
Landscape / portrait

Layers of rails:
Single / double layer, cross rail installation

Advantages:
- Suitable for particularly high loads
- Use of metal roof tiles provides additional protection for the roof covering
- Every size of module array possible
- Height compensation: 46–61 mm in the batten zone / 21 mm in the rail zone
- For all common rafter distances
Pitched roof mounting kit
Mounting kit for tiled roofs

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**Application:**
Roof mounted / pitched roofs with tiles (optionally also available for plain tile, slate tile and sheet metal roofing)

**Module type:**
Framed and frameless modules

**Module orientation:**
Portrait/landscape

**Roof pitch:**
Up to 60°

**Advantages:**
- Flexible and universal application thanks to basic and extension sets containing all components for individual configurations
- Simple planning without the time-consuming preparation of parts lists
Application:
Pitched roof with tiles

Fastening:
Module supports on new transverse beams

Roof pitch:
10 to 50 degrees

Module type:
Framed modules

Module orientation:
Portrait/landscape

Advantages:
– Every size of module array possible
– Certified to provide a complete seal to the roof according to CSTB
– For all common rafter distances
– For all common module sizes
– Optionally include module earthing
– Roof edge connections via the system
System for standing seam sheet metal roofing  
Mounting with standing seam clamps

**Application:**
- Standing seam clamp 2.1: Seamed roofing, e.g. standing seam, round seam, angle seam
- Standing seam clamp DCO and CL: Industrial metal roof systems, e.g. Domitec/GBS, Klip-Lok 700, RibRoof 465

**Fastening:**
Non-penetrative

**Module type:**
Framed modules

**Module orientation:**
Landscape/portrait (for clamping on the short side)

**Layers of rails:**
Single layer

**Advantages:**
- Modules mounted directly to the standing seam clamps
- No rails necessary
- Low material/logistics/installation costs
- Quick mounting
- No roof penetration
System for standing seam sheet metal roofing
Mounting with single layer substructure

**Application:**
Standing seam clamp 2.1: Seamed roofing, e.g. standing seam, round seam, angle seam
Standing seam clamp DCO and CL: Industrial metal roof systems, e.g. Domitec/GBS, Klip-Lok 700, RibRoof 465

**Fastening:**
Non-penetrative

**Module type:**
Framed modules

**Module orientation:**
Landscape/portrait (for clamping on the short side)

**Layers of rails:**
Double layer, cross rail installation

**Advantages:**
- Low material/installation costs
- Length of rails 3150 mm to 6200 mm
- High rigidity rails suitable for heavier loads
- No roof penetration
System for trapezoidal sheet roofs
Mounting using high-bead rails ST-AK 1/12

Application:
Trapezoidal sheet metal

Fastening:
Screwed or riveted onto raised corrugations

Module type:
Framed modules

Module orientation:
Landscape

Layers of rails:
Single layer

Advantages:
- Low material / fitting costs
- Every size of module array possible
- Rail lengths of 180 mm, 3150 mm and 6200 mm
- Rail segments 180 mm (ST-AK 1/12 complete / l=180 mm) are supplied prefabricated with 3 x 2 holes (5 mm / 6.5 mm / 8.5 mm) and EPDM sealing tape covered bottom side

Mounting rail ST-AK 1/12
l=180 mm

End clamp AK II Klick 30-50 A

Mid clamp AK II Klick 30-50 A

Sheet metal screw 4,5x25
System for trapezoidal sheet and corrugated sheet roofs
Mounting using trapezoidal sheet metal rails

**Application:**
Trapezoidal and corrugated sheet metal

**Fastening:**
Screwed or riveted onto raised corrugations

**Module type:**
Framed and frameless modules

**Module orientation:**
Landscape / portrait

**Layers of rails:**
Single / double layer, cross rail installation

**Advantages:**
- Low material / fitting costs
- Every size of module array possible
- Rail lengths of 395 mm, 3150 mm and 6200 mm
- High rigidity rails suitable for heavier loads
- Rail segments 395 mm (Trapezoidal sheet metal AK complete / l=395 mm) are supplied prefabricated with 24 holes (5 mm) and EPDM sealing tape covered bottom side
System for trapezoidal sheet roofs
Mounting using high-bead rails HK 125

Application:
Trapezoidal sheet metal

Fastening:
Screwed onto raised corrugations

Module type:
Framed modules

Module orientation:
Landscape

Layers of rails:
Single layer

Advantages:
- Low material / fitting costs
- 24 mm height provide better rear ventilation, simplify cable routing and enable installation even on slightly corrugated roof coverings
- Rail lengths of 125 mm, 295 mm and 4600 mm
- High-bead rails HK l=125 mm complete are supplied prefabricated with 2 x 2 holes (5 mm / 6.5 mm) and EPDM sealing tape covered bottom side

HS rail HK 125 complete
End clamp AK II Klick 30-50 A
Mid clamp AK II Klick 30-50 A
Sheet metal screw 4,5x25
Application:
Trapezoidal sheet metal

Fastening:
Screwed or riveted onto raised corrugations

Module type:
Framed modules

Module orientation:
Landscape

Layers of rails:
Single layer

Advantages:
- Low material/fitting costs
- Rail heights of 50 or 100 mm guarantee a sufficient distance from the roof covering for optimal rear ventilation and use at high temperatures
- Floating mounting with brackets reduces the number of expansion joints and enables optimal use of the roof area
- High-bead rails covered with protective fleece
- Brackets come pre-drilled and with EPDM sealing tape covered bottom side
Application:
Trapezoidal and corrugated sheet metal

Fastening:
Screwed or riveted onto raised corrugations

Module type:
Framed and frameless modules

Module orientation:
Portrait/landscape

Layers of rails:
Single/double layer, cross rail installation

Advantages:
– Low fitting costs
– Every size of module array possible
– Height adjustable via elongated hole in the sheet metal bracket
– Sheet metal brackets are supplied prefabricated with 2 holes (5 mm) and EPDM sealing tape covered bottom side
System for fibre-cement, trapezoidal sheet and sandwich roofs
Mounting with hanger bolts or solar fasteners

**Application:**
Fibre-cement boards/sandwich elements/trapezoidal sheet metal

**Fastening:**
Hanger bolts/solar fasteners with brackets

**Module type:**
Framed and frameless modules

**Module orientation:**
Landscape/portrait

**Layers of rails:**
Single/double layer, cross rail installation

**Advantages:**
- Low fitting costs
- Height adjustable
- Suitable for large distances between rafters
- Solar fastener type A or hanger bolts for wood rafters / solar fastener type BZ for metal rafters
Application:
Trapezoidal sheet metal

Fastening:
Riveted or screwed with sheet metal screws to the raised seams

Module type:
Framed modules

Module orientation:
Portrait/landscape

Module pitch:
5° with portrait installation/7° with landscape installation

Layers of rails:
Single layer

Advantages:
– Additional raise on slightly inclined roofs
– Optimised rear ventilation and module pitch
– Low material and fitting costs
– Variable length of module rows
– Trapezoidal sheet metal rail Lift is supplied prefabricated with 26 holes (5 mm) and EPDM sealing tape covered bottom side
System for corrugated roof tile and barrel roofs
Mounting using trapezoidal sheet metal rail Vario

Application:
Corrugated roof tile and curved trapezoidal sheet metal
(barrel roofs with a radius larger than 3.5m)

Fastening:
Riveted or screwed with sheet metal screws to the raised seams

Module type:
Framed modules

Module orientation:
Portrait/landscape

Layers of rails:
Single layer

Advantages:
– Tension-free installation on curved roofs
– Tension-free installation on corrugated roof tiles
– Perfectly adapted to the roof shape
– Trapezoidal sheet metal rail Vario is supplied prefabricated with 26 holes (5 mm) and EPDM sealing tape covered bottom side
System for fibre-cement, trapezoidal sheet and sandwich roofs
Mounting with hanger bolts and Delta triangle

Application:
Fibre-cement boards/sandwich elements/trapezoidal sheet metal

Pitch:
Available in increments of 5° up to 45°, other angles available upon request

Module type:
Framed and frameless modules

Module orientation:
Portrait/landscape

Advantages:
– Free choice of size and position of the module array possible
– Perfect also for small systems of 1, 2, 4 or 8 modules
– Triangles are shipped folded up for less freight and storage costs
System for trapezoidal sheet and corrugated sheet roofs
Mounting with trapezoidal sheet metal rail and Delta triangle

Application:
Trapezoidal and corrugated sheet metal

Pitch:
Available in increments of 5° up to 45°, other angles available upon request

Module type:
Framed and frameless modules

Module orientation:
Portrait/landscape

Advantages:
– Free choice of size and position of the module array possible
– Perfect also for small systems of 1, 2, 4 or 8 modules
– Triangles are shipped folded up for less freight and storage costs
Application:
Pitched roofs with foil/bitumen roofing and sandwich elements; other roof types upon request

Fastening:
Parallel to the roof, non-penetrative; additional ballast

Roof pitch:
Up to 30 degrees

Module type:
Framed modules (frameless modules upon request)

Module orientation:
Portrait (landscape upon request)

Layers of rails:
Double layer

Advantages:
– No roof penetration
– Minimised additional ballast thanks to aerodynamic optimisation
– Perfect for east-west orientation like saddle roof, double-sided
– Optional roof connection points extend the potential uses
System for foil, bitumen and sandwich roofs
Mounting using Flat Direct with Assembly Posts

Assembly post + ridge rail

Mono-pitch roof
Butterfly roof, double-sided
Butterfly roof, single-sided
Saddle roof, double-sided
Saddle roof, single-sided
... and other roof types

Assembly post

Bracket 60mm M10

Covering
System for flat roofs
LEICHTmount RAIL 2.0 S for mounting with low ballast

**Application:**
Flat roof with foil, bitumen, gravel, green roof, metal, concrete, open spaces

**Module orientation:**
South

**Inclination:**
10° / 15°

**Module type:**
Framed modules

**Building height:**
25 m max. (up to 50 m upon request)

**Roof inclination:**
5° max.

**Edge clearance:**
Fitting in the roof edge and corner regions possible

**System size:**
2 modules min. / 20x20 m module area max.

**Advantages:**
- No roof penetration
- Low area load / minimised ballast thanks to aerodynamic design
- Optimised load distribution through ground rails
- Suitable for all common module sizes
LEICHTmount RAIL 2.0 EW System for flat roofs

Application:
Flat roof with foil, bitumen, gravel, green roof, metal, concrete, open spaces

Module orientation:
East–West

Inclination:
10° / 15°

Module type:
Framed modules

Building height:
25 m max. (up to 50 m upon request)

Roof inclination:
5° max.

Edge clearance:
Fitting in the roof edge and corner regions possible

System size:
2 module pairs min. / 20x20 m module area max.

Advantages:
– No roof penetration
– Low area load / minimised ballast thanks to aerodynamic design
– Optimised load distribution through ground rails
– Suitable for all common module sizes
Aerodynamic ground mount system
LEICHTmount Ground Mount S for south-oriented installations

**Application:**
Ground Mount System

**Module orientation:**
South

**Module tilt:**
15° / 20°

**Module type:**
Framed modules

**Max. ground slope:**
20°

**System size:**
2 x 3 modules min.

**Advantages:**
- No pile driving or major excavation work needed
- Suitable for a wide range of surfaces such as earth, gravel, concrete
- Reduced transport and storage costs thanks to low volume packaging
Aerodynamic ground mount system

LEICHTmount Ground Mount EW for east/west-oriented installations

Application:
Ground Mount System

Module orientation:
East–West

Module tilt:
10°

Module type:
Framed modules

Max. ground slope:
20°

System size:
2 x 4 modules min.

Advantages:
– No pile driving or major excavation work needed
– Suitable for a wide range of surfaces such as earth, gravel, concrete
– Reduced transport and storage costs thanks to low volume packaging
Carport Single
Carport with one row of parking spaces

Parking spaces:
5 cars, customised parking space width

Roof measurements:
approx. 8.50 m x 16.00 m (approx. 136 m²)
Project-related detailed planning

Roof pitch:
10°

Module orientation:
Landscape/portrait

Entrance height:
2.65 m / 3.35 m (1 base / 2 bases)

Material:
Galvanised steel

Roofing material:
Structural trapezoidal steel sheet

Advantages:
– Low-cost installation without foundation work, even on existing parking areas
– Two different entry heights
– Comfortable parking thanks to slim V-tube construction with integrated collision protection
– Integration option for lightning protection system
Carport Double
Carport with two rows of parking spaces

Parking spaces:
10 cars, customised parking space width

Roof measurements:
approx. 12.50 m x 16.00 m (approx. 200 m²)
Project-related detailed planning

Roof pitch:
10°

Module orientation:
Landscape/portrait

Entrance height:
2.65 m / 3.35 m (1 base / 2 bases)

Material:
Galvanised steel

Roofing material:
Structural trapezoidal steel sheet

Advantages:
– Low-cost installation without foundation work, even on existing parking areas
– Two different entry heights
– Comfortable parking thanks to slim V-tube construction with integrated collision protection
– Integration option for lightning protection system
Ground mount system kit
Customisable kits for ground mounted installations

**Application:**
Ground mount, off-grid and on-grid systems

**Kit configurations:**
Solar generator size from 2x2 to 2x22 modules

**Module type:**
Framed modules

**Module orientation:**
Portrait

**Module pitch:**
20°, 25° and 30° – individually selectable

**Construction:**
Elevated or parallel to the ground

**Foundation:**
Rammed foundation, concrete foundation

**Advantages:**
- Standardised system configuration
- No separate system statics calculations needed
- Packaging units are optimised for transport and storage
Ground mount system
With rammed post, ground screw and concrete foundations

**Application:**
Ground mount

**Module type:**
Framed and frameless modules

**Module orientation:**
Portrait/landscape

**Wind/snow load:**
Up to 2.4 kN/m²

**Module pitch:**
0° – 60° in north-south direction
Pitches beyond 60° are possible on request

**Terrain slope:**
Max. 6° in east-west direction in standard construction / max. 50° with suitable constructive measures

**Module field size:**
Portrait: max. 3 modules one above the other and 40 m long,
landscape: max. 6 modules one above the other and 40 m long

**Foundation:**
– Rammed foundation
– Concrete foundation
– Screw foundation