



## Mounting System MCG 3.0 Membrane-Connected Glass



System description

## SUNOVA MCG 3.0 System

The SUNOVA MCG 3.0 system is a lightweight fixation system for lightweight construction flat roofs without penetration

The crystalline photovoltaic modules are installed at an optimum inclination of 20° to the roof. Being preassembled to a large degree, they are quick and easy to install.

### Standards and regulations

The applicable standards and regulations must be observed.

- Observe the manufacturer's technical documentation and mounting instructions. If this system description differs in certain points from the manufacturer's documentation, these deviations apply only to the SUNOVA system described in this documentation.
- The installer (roofer and electrician) and the planner are responsible for ensuring that the general acknowledged rules of technology and the applicable safety regulations are observed.

### Disclaimer regarding information about product and system

All data in our product information is based on our current knowledge and experience. Because of the wide range of possible influencing factors in the use of our products, the user must thoroughly inspect the application and strictly observe the installation and usage instructions. The product information does not represent legally binding assurances of certain properties or the suitability for specific applications other than those described in our product-specific documentation. The recipient or user of our products is responsible for observing any industrial property rights and applicable laws and regulations relating to the product and its use. In addition, our General Terms of Sale and Delivery and our Warranty Conditions apply.

### Fields of application:

- Newly-built or newly re-roofed roofs
- Existing FPO or PVC roof membrane on flat roofs with mechanical fixation
- Flat roofs with 1 to 5 degrees inclination
- Lightweight roofs – weight-loading 16 kg/m<sup>2</sup>
- Crystalline framed modules

### Not suitable for:

(please inquire for other SUNOVA systems)

- Shed roofs, sloping roofs – roof slope > 5°
- Roof areas with water retention up to the connection boxes or connectors
- Existing roofs with bitumen, EPDM, Evalon or other flexible waterproofing membranes
- Fully adhered roof systems
- Glass-glass PV laminates

### Requirements for mounting on flat roofs

#### Wind uplift according to DIN 1055 and relevant national standards

In the MCG 3.0 system the wind uplift forces are transmitted to the synthetic roof membrane, which channels these forces through the mechanical fixation into the roof structure. The mechanical fixation and the synthetic membrane must be laid out according to DIN 1055.

#### Snow load according to DIN 1055 and relevant national standards

Snow loads must be reliably absorbed by the weight-bearing substructure. To ensure transmission of the load, the thermal insulation must be sufficiently stable under load.

#### Synthetic membrane

The synthetic membrane is an integral component of the system. The selected product must be of sufficient quality and durability.

Roof membrane	New	Existing
Supporting substructure	Structural verification according to DIN 1055, taking into consideration: + 16 kg/m <sup>2</sup> mounting system MCG 3.0	
Vapor barrier	Design according to building construction; no change through the MCG 3.0 system	
Thermal insulation	Tread-proof	
Compressive load at 5 mm compression	F <sub>p</sub> ≥ 650 N (DIN EN 12430)	
Synthetic membrane	Sarnafil TS 77-20 (recommended)	FPO or PVC Other waterproofing membranes are not suitable! Expected lifespan > 20 yrs.
Fixation method	Sika line-fixaton (recommended)	Point, seam or line fixation
Synthetic membrane	Design and execution according to DIN 1055 – only mechanical fixation permissible. Do not use fully adhered systems.	
Inclination range flat roof	1° (recommended) ...5° 2%...9%	
PV-modules	Crystalline modules with frame Only SUNOVA-approved products	

## Structural design

The structural layout of the mounting system is determined to a large extent by the wind and snow loads acting on the installation. These outside influences on building components are defined by the DIN 1055 standard. The applied forces must be individually determined for each project and for the layout of the mounting system. For details, refer to the DIN 1055 standard. Please use the relevant standards for snow load and wind uplift in your country.

## Snow loads

The following factors affect the calculation of snow loads:

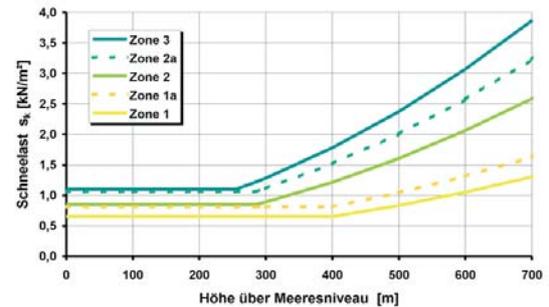
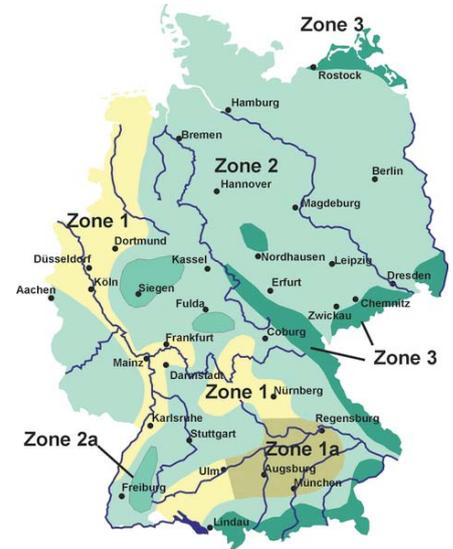
- Snow load zone
- Height above sea level
- Roof shape and inclination
- Position (special roof shapes)

The snow load zones for Germany according to DIN are shown in the chart on the right.

The snow load zone for flat roofs also depends on the installation's height above sea level.

Important: For other roof shapes or inclinations the specifications according to DIN apply.

## Snow load zones



## Wind load

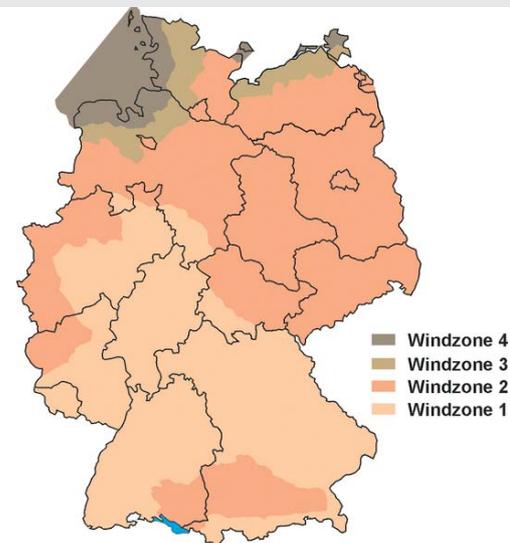
The following factors affect the wind forces on the installation:

- Wind zone
- Height above sea level
- Roof shape and inclination
- Position (center/edge of roof)
- Terrain category (surrounding buildings)
- Height of parapet

On request we can support you with specific calculations for the wind suction and thrust forces for your project.

Based on this design analysis, the required number of rail fasteners is determined.

## Wind load zones



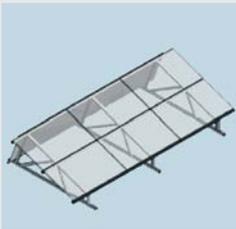
Components  
for fitting the  
substructure



SUNOVA rail fastener  
FPH-FPO  
PPH-PVC



MCG 3.0 – 900  
Triangular frames,  
transverse profiles  
and back panel



MCG 3.0 – 1400  
Triangular frames,  
transverse profiles  
and back panel

## Fitting the substructure

### Tools:

- Chalk line
- Tape measure
- Allen key 6mm
- Try square
- Hand hot-air welder
- Cleaning kit

### Important:

When welding the rail fasteners onto existing synthetic waterproof sheeting, clean the sheeting according to manufacturer's instructions.

Caution: Operations 1 and 2 must always be performed together. If the frames are transported or stored without back panel, they can become damaged.

### Installation:

To achieve an optimum southerly alignment of the panels, the MCG 3.0 frames can be laid either at right angles to or parallel with the inclination of the flat roof.

Before installing the frames, draw the position of the frames onto the roof with a chalk line.

Caution: Operations 1 and 2 must always be performed together. If the frames are transported or stored without back panel, they can become damaged.

1. Fit the screws for the back panels into the prefitted nuts on the triangular frames and engage the back panels.
2. Fit the predrilled transverse profiles to the triangular frames with hexagon socket screws and using the nuts prefitted to the frames.
3. Position on the roof and align with a try square.
4. Weld the profile retainers onto the waterproofing sheeting with hot air. Especially when preparing the seams of the waterproofing sheeting for welding, observe the manufacturer's instructions.



## Fitting the modules

### Tools:

- Allen key, 6 mm
- Crimping tool

### Important:

Double-check that all connectors are correctly and firmly seated.

### Installation:

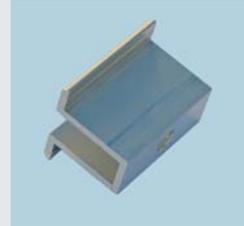
1. Insert the profile retainers into the transverse profiles and prefit the end clamps to the lower transverse profile.
2. Fit the lower row of modules.
3. Lay and connect the DC cables according to the cabling diagram, making sure that the plugs are connected correctly. Secure the plugs to the frame and subframe with cable ties.
4. Fit the center clamps and position the upper row of modules.
5. Lay and connect the DC cables according to the cabling diagram, making sure that the plugs are connected correctly. Secure the plugs to the frame and subframe with cable ties.
6. Fit the end clamps to the upper transverse profile and tighten all screws.



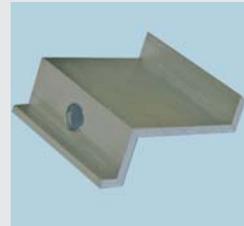
### Components for fitting the modules



Cable clips  
UV- and temperature-resistant



SUNOVA  
center clamp



SUNOVA  
end clamp



Aluminum  
sliding block M8



Hexagon socket  
screw M8 V4A