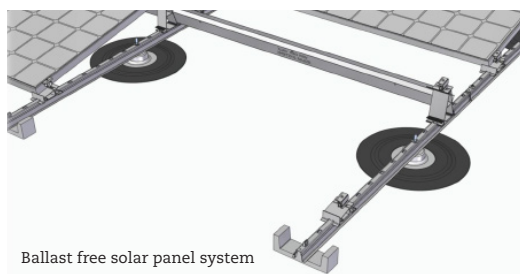




ValkSolarFix Low Ballast free mounting system for flat and pitched roofs



Ballast free solar panel system

Application Matrix ValkSolarFix Low

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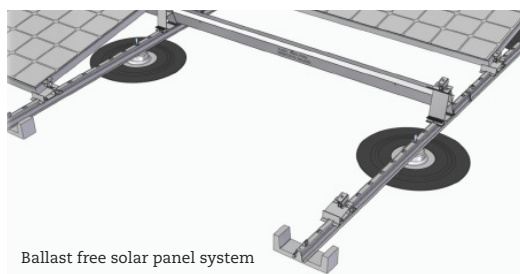
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Application Matrix ValkSolarFix Low

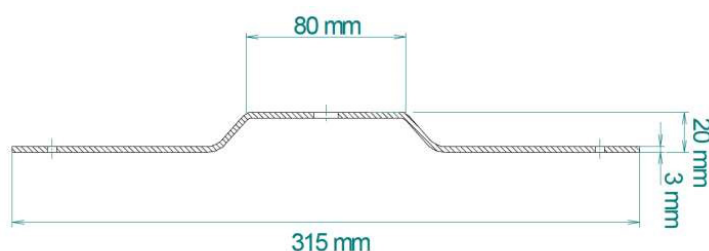
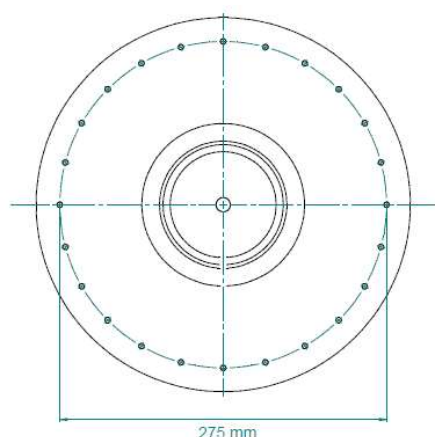
Solar support anchor

This patented Solar Support anchor has been developed for the mechanical fastening of solar panels, but can also be used for fastening guardrail, roof units and cage ladders. Fasteners are available for flat and pitched roofs, with or without insulation.

The permissible forces on the Solarfix Low in combination with various fasteners have been tested and determined by the testing & certifying international notified body DEKRA Testing and Certification GmbH.

Technical information

- Placement on top of the roofing material
- Aluminium 3 mm thickness
- Concrete roof; 1 piece M10 mechanical anchor
- Wooden or steel plate roof; 1 piece M10 toggle bolt or special screws
- Rosette of roofing material to be applied by installer or roofer
- Rhepanol hfk, Rhenofol CV, Polyfin FPO roofing material
- Bitume, EPDM roofing material
- PVC coating or PVC cover on Solarfix Low available in case of PVC roofing material
- Advice rosette Ø 540 mm outer diameter and Ø 130 mm inner diameter
- Height 20 mm
- Flat top surface Ø 80 mm
- Suitable for installation at height and in case of light roofing constructions
- Various types of fasteners tested by DEKRA Testing and Certification GmbH



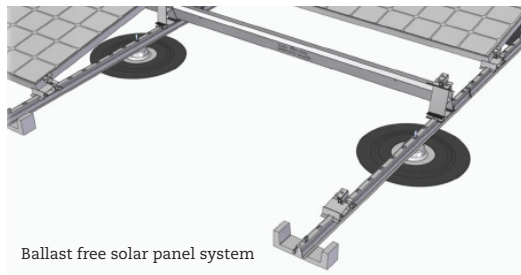
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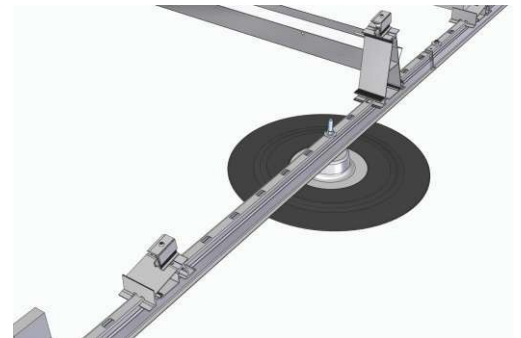
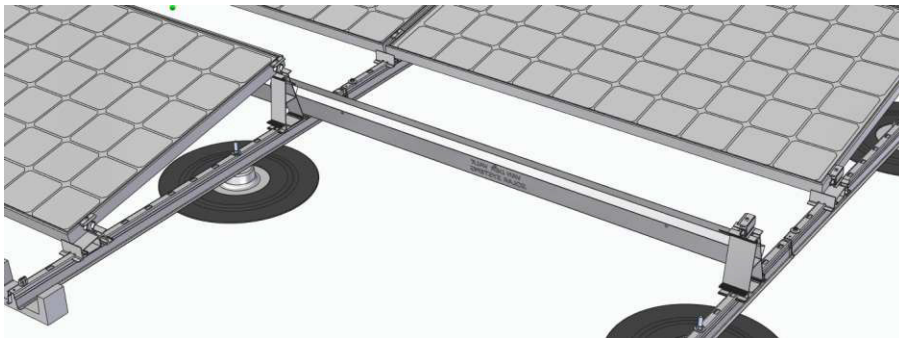
Application Matrix ValkSolarFix Low

General mounting regulations

The mounting method and sequence for placing and mounting the Solarfix Low on various roof constructions are shown in the installation manual. The requirements for the different types of surfaces are mentioned therein. During the installation of the Solarfix Low mounting anchors it is very important that each individual Solarfix is fitted correctly and with the fasteners prescribed and tested by Eyecatcher.

Installation design ballast-free system

The number of required Solarfix supports and the position of it needs to be determined by the manufacturer and / or supplier of the frames for the solar panels. The registered and permissible values for the fasteners must be used, as shown in the Application Matrix. In the installation design with fixed solar panels, the specific wind related loads for the given project are considered in terms of; geographic location, landscape category, building type, etc. However, for effective and cost-efficient planning, the specific load on each console or group of consoles is also important as the design load can vary quite radically through the roof area. This method is especially relevant for larger installations.



For installations with warm roofs where a horizontal load has been defined that must be limited by the application of a number of roof supports, it is necessary that the total load for each interconnected group of consoles is assessed. Based on this overall evaluation it is possible to determine the specific horizontal force that will affect each specific console. This result is compared to the console limit for the current installation.

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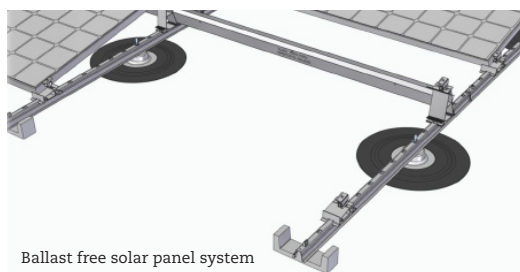
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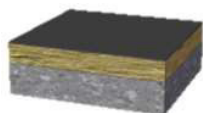
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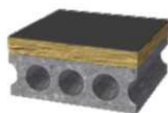
Application Matrix ValkSolarFix Low

Type of roof structures

It is important to determine the roof construction prior to the project and to conclude what type of roof is involved; flat roof, with or without insulation or a pitched roof (> 5 degrees to 75 degrees). In addition, the roof structure must be checked and concluded which type of roofing and insulation are involved, and whether it concerns a solid concrete roof floor, hollow core slab floor, metal or wooden roof floor.



Massive concrete floor



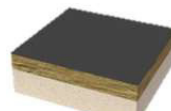
Hollow core slab floor



Metal roof floor



Wooden roof floor



Aerated concrete roof floor

For roofs with insulation (warm roofs), the insulation thickness must be determined, considering with the slope in the insulation. Often there are different insulation thicknesses, which determine the length or lengths of the fasteners to be used.

Horizontal forces and displacement of anchor mounting

For mounting the Solarfix Low on warm roofs, the maximum load is usually determined by the stiffness of the fastening element, i.e. directly related to the insulation thickness. The design criteria for this type of installation are normally determined by the acceptable horizontal displacement of the console from the general roof surface. The relationship between the load and displacement for different insulation thicknesses for the Solarfix Low mounting anchors is displayed in the Application Matrix. However, it should be emphasized in this regard that the values in the matrix are based on a correct confirmation of the correct and the correct by Eyecatcher prescribed fastener in the roof construction.

The bending and / or horizontal displacement of a toggle anchor in a steel plate or wooden roof is higher as for a more rigid connection in a concrete roof floor, because of the space in the hole that must be drilled.

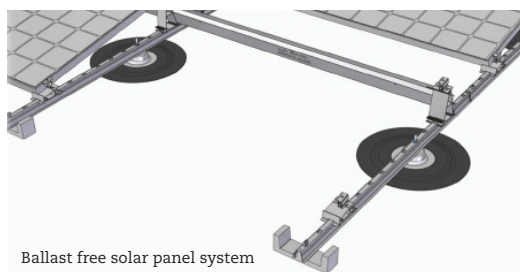
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Application Matrix ValkSolarFix Low

ValkSolarfix Low various types of fixations



Installation solid concrete
or hollow concrete roof



Installation in wooden
or steel plate roof construction



Installation in aerated concrete
roof construction



Installation in wooden
or steel plate roof construction

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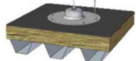




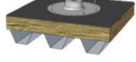









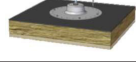









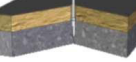




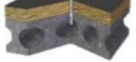





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Application Matrix ValkSolarFix Low

Explanation of the Application Matrix can be found on page 9.

| ROOFTYPE Flat | Pitch roof surface | Roof construction | Insulation thickness | Fastener & Installation Method | Forces and displacement | Note Frame height |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------|
|  |  0° - 5° | Steel plate  | PIR - Rockwool - EPS insulation  | 6x Screws  | Mounting height: 0 - 50 mm Fv = 6,0 kN Fh = 4,79 kN | |
|  |  0° - 5° | Steel plate  | PIR - Rockwool - EPS insulation  | 6x Screws  | Mounting height: 0 - 95 mm Fv = 6,0 kN Fh = 3,62 kN | Mounting height: 95 - 150 mm Fv = 3,0 kN Fh = 1,63 kN |
|  |  0° - 5° | Steel plate  | PIR - Rockwool - EPS insulation  | 1x Toggle anchor  | Mounting height: 0 - 95 mm Fv = 11,0 kN Fh = 6,23 kN | Mounting height: 95 - 150 mm Fv = 5,5 kN Fh = 3,11 kN |
|  |  0° - 5° | Wood  | PIR - Rockwool - EPS insulation  | 8x Screws  | Mounting height: 0 - 95 mm Fv = 7,0 kN Fh = 6,21 kN | Mounting height: 95 - 150 mm Fv = 3,5 kN Fh = 3,10 kN |
|  |  0° - 5° | Wood  | PIR - Rockwool - EPS insulation  | 1x Toggle anchor  | Mounting height: 0 - 95 mm Fv = 11,0 kN Fh = 6,23 kN | Mounting height: 95 - 100 mm Fv = 5,5 kN Fh = 3,11 kN |
|  |  0° - 5° | Concrete  | PIR - Rockwool - EPS insulation  | 1x Concrete anchor  | Mounting height: 0 - 95 mm Fv = 17,8 kN Fh = 6,21 kN | Mounting height: 95 - 150 mm Fv = 8,9 kN Fh = 3,10 kN |
|  |  0° - 5° | Hollow core slab  | PIR - Rockwool - EPS insulation  | 1x Concrete anchor  | Mounting height: 0 - 95 mm Fv = 17,8 kN Fh = 6,21 kN | Mounting height: 95 - 150 mm Fv = 8,9 kN Fh = 3,10 kN |
|  |  0° - 5° | Aerated concrete  | PIR - Rockwool - EPS insulation  | 6x Aerated concrete screws  | Mounting height: 0 - 95 mm Fv = 12 kN Fh = 6,7 kN | Mounting height: 95 - 150 mm Fv = 6,0 kN Fh = 3,35 kN |

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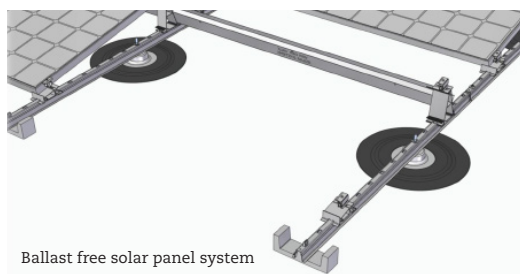
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| ROOFTYPE Pitched | Pitch roof surface | Roof construction | Insulation thickness | Fastener & Installation Method | Forces and displacement | Note Frame height |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------------------------|
|  |  5° - 35° | Steel plate  | PIR - Rockwool - EPS insulation  | 6x Screws  | Mounting height: 0 - 50 mm Fv = 6,0 kN Fh = 3,62 kN | |
|  |  5° - 35° | Steel plate  | PIR - Rockwool - EPS insulation  | 1x Toggle anchor  | Mounting height: 0 - 50 mm Fv = 11,0 kN Fh = 6,23 kN | |
|  |  35° - 75° | Steel plate  | PIR - Rockwool - EPS insulation  | 6x Screws  | Mounting height: 0 - 95 mm Fv = 4,2 kN Fh = 2,5 kN | Mounting height: 95 - 150 mm Fv = 2,1 kN Fh = 1,25 kN |
|  |  35° - 75° | Steel plate  | PIR - Rockwool - EPS insulation  | 1x Toggle anchor  | Mounting height: 0 - 95 mm Fv = 7,7 kN Fh = 4,4 kN | Mounting height: 95 - 150 mm Fv = 3,35 kN Fh = 2,2 kN |
|  |  5° - 35° | Wood  | PIR - Rockwool - EPS insulation  | 8x Screws  | Mounting height: 0 - 50 mm Fv = 7,0 kN Fh = 6,21 kN | |
|  |  35° - 75° | Wood  | PIR - Rockwool - EPS insulation  | 8x Screws  | Mounting height: 0 - 95 mm Fv = 4,9 kN Fh = 4,3 kN | Mounting height: 95 - 150 mm Fv = 2,45 kN Fh = 2,15 kN |
|  |  5° - 35° | Wood  | PIR - Rockwool - EPS insulation  | 1x Toggle anchor  | Mounting height: 0 - 95 mm Fv = 11,0 kN Fh = 6,23 kN | Mounting height: 95 - 150 mm Fv = 5,5 kN Fh = 3,11 kN |
|  |  5° - 35° | Concrete  | PIR - Rockwool - EPS insulation  | 1x Concrete anchor  | Mounting height: 0 - 50 mm Fv = 17,8 kN Fh = 6,21 kN | |
|  |  35° - 75° | Concrete  | PIR - Rockwool - EPS insulation  | 1x Concrete anchor  | Mounting height: 0 - 95 mm Fv = 12,5 kN Fh = 4,3 kN | Mounting height: 95 - 150 mm Fv = 6,25 kN Fh = 2,15 kN |
|  |  5° - 35° | Hollow core slab  | PIR - Rockwool - EPS insulation  | 1x Concrete anchor  | Mounting height: 0 - 50 mm Fv = 17,8 kN Fh = 6,21kN | |
|  |  35° - 75° | Hollow core slab  | PIR - Rockwool - EPS insulation  | 1x Concrete anchor  | Mounting height: 0 - 95 mm Fv = 12,5 kN Fh = 4,3 kN | Mounting height: 95 - 150 mm Fv = 6,25 kN Fh = 2,15 kN |
|  |  5° - 35° | Aerated concrete  | PIR - Rockwool - EPS insulation  | 6x Aerated concrete screws  | Mounting height: 0 - 95 mm Fv = 12 kN Fh = 6,7 kN | Mounting height: 95 - 150 mm Fv = 6,0 kN Fh = 3,35 kN |
|  |  35° - 75° | Aerated concrete  | PIR - Rockwool - EPS insulation  | 6x Aerated concrete screws  | Mounting height: 0 - 95 mm Fv = 8,4 kN Fh = 4,7 kN | Mounting height: 95 - 150 mm Fv = 4,2 kN Fh = 2,35 kN |



Application Matrix ValkSolarFix Low

Explanation application matrix ValkSolarfix Low



= Flat roof



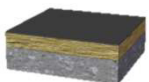
= Pitched roof



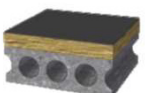
= Roof angle



= Insulation, roofing, Solarfix Low



= Solid concrete roof construction, insulation, roofing



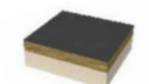
= Hollow concrete roof construction, insulation, roofing



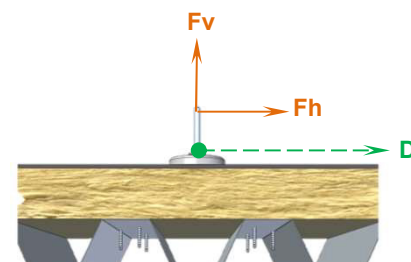
= Wooden roof construction, insulation, roofing



= Steel plate roof construction, insulation, roofing



= Aerated concrete roof construction, insulation, roofing



Fv= Verticalforce (kN)
 Fh= Horizontalforce (kN)
 D = Displacement Solarfix Low (mm)

Terms and conditions application matrix

- Requirements for concrete roof floor are: minimum C20 / 25 quality.
- Steel plate roof thickness between 0,5 mm to 2,5 mm thickness and maximum 2,5 mm in case of overlapping metal sheets.
- The minimum thickness of wooden roof constructions is 18 mm OSB of Underlayment.
- Each type of roofing construction must withstand the forces in the application matrix. If it can not be determined, a pull test on site is advised.
- It is advised that the roofer that holds the warranty on the roof performs the waterproofing or else an expert company, so that the waterproofing is guaranteed.
- The force values are only applicable in case the mechanical fixations of Eyecatcher are being used to install the Solarfix Low.
- The values of the forces for the screws apply to the first moment one of the screws was pulled out of the roof construction or in case of the ValkSolarfix Low starting to deform. Destructive forces of the fixations and the Solarfix Low will be higher.
- Additional forces from the rosette are not included in the registered force values.
- For the correct installation of the Solarfix Low the Installation Manual must be followed.

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