SmartSolarBox
The Power-Package

Technical information

Pressure on roof-insulation with SmartSolarBox V5.0

In the case of flat roofs with external insulation, the permanent compressive strength of the roof insulation determines the necessary support surface for the solar installation:

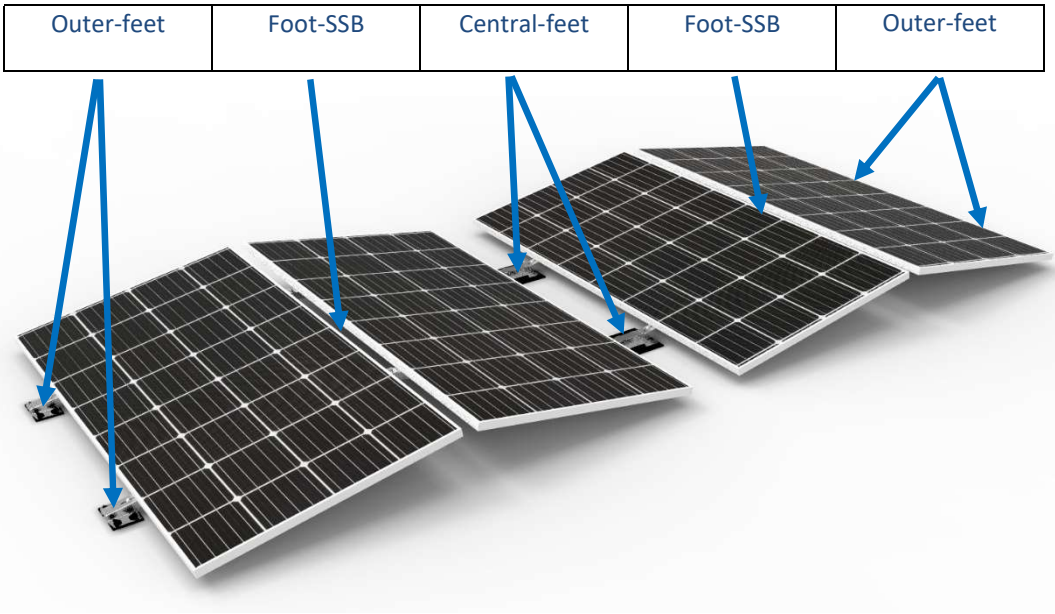
Insulation-Material	Typical value for Typical permanent compression*
Mineral fibre	9 - 20 kN/m²
EPS	10 - 62 kN/m²
PUR/PIR	20 - 30 kN/m²
XPS	60 - 250 kN/m²
Foam glass	400 kN/m²

*) these figures are only guidelines - please check the manufacturer's information!

Since the contact surface of the SmartSolarBox cannot be changed, the compatibility of the SmartSolarBox with the roof sealing and the insulation material used must be checked carefully. When determining the maximum bearing pressure, both the area and the dead weight of the solar modules plus the expected snow load must be taken into consideration.

Smartvolt AG rejects any liability for damage resulting from inadequate planning and installation.

Support points SmartSolarBox:



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The SmartSolarBox V5.0 in the version "corner" has the highest integrated ballast of 48.25kg per solar module and thus also causes the highest bearing pressure. In systems with higher ballast requirements, additional ballast elements are installed in the system network, which come to lie directly on the roof surface. In addition, the expected snow load causes, in most cases, significantly higher weight forces than the self-weight of the system including ballast.

Technical data SmartSolarBox:

System weight SSB4 in version “corner” (excluding PV-modules):	211kg
Total contact area (all areas summed up):	1884cm^2

Assumption for calculation example support pressure (440Wp PV-module 1134x1722x30mm):

Weight per solar module:	21.5kg
Surface area of solar module:	1.95m^2
Expected snow load on the roof:	0.70kN/m^2

	Contact surface [cm2]	Weight distribution additional snow load [%]	Weight force SSB4 corner incl. PV-module [N]	Max. Pressure on insulation without snow [N/m2] == [PA]	Weight force snow [N]	Max. Pressure on insulation including snow [N/m2] == [PA]
Outer foot left	94	6.25%	151.6	16133	341.7	52487
Outer foot right	94	6.25%	151.6	16133	341.7	52487
Foot SSB	470	25.00%	896.8	19080	1366.9	48164
Central foot left	284	12.50%	258.1	9088	683.5	33153
Central foot right	284	12.50%	258.1	9088	683.5	33153
Foot SSB	470	25.00%	896.8	19080	1366.9	48164
Outer foot left	94	6.25%	151.6	16133	341.7	52487
Outer foot right	94	6.25%	151.6	16133	341.7	52487

Distributed weight of the SmartSolarBox: 33.78kg/m2 (without snow)

Please be aware: If your project does not need maximum ballast – maximum pressure as well as distributed weight will be a lot lower!

Technical changes reserved.
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