

Technical information – Bearing pressure 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:

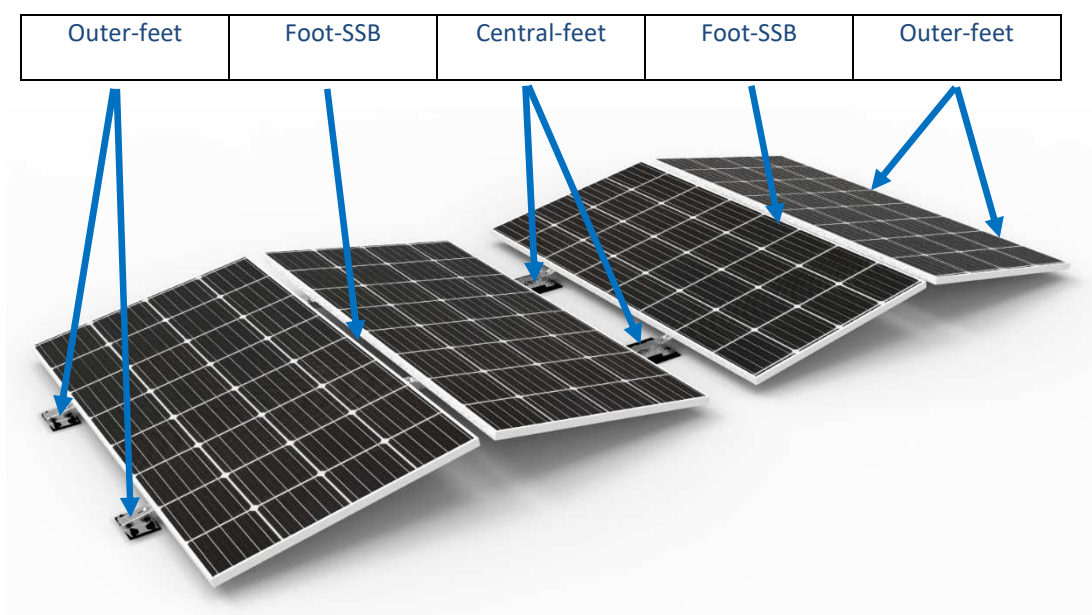
Insulation-Material	Typical value for Typical permanent compression*
Mineral fibre	9 - 20 kN/m ²
EPS	10 - 62 kN/m ²
PUR/PIR	20 - 30 kN/m ²
XPS	60 - 250 kN/m ²
Foam glass	400 kN/m ²

*) 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:



SmartSolarBox

The Power-Package

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): 226kg
 Total contact area (all areas summed up): 1960cm²

Assumption for calculation example support pressure (440Wp PV-module 1134x1727x30mm):

Weight per solar module: 21.5kg
 Surface area of solar module: 1.95m²
 Expected snow load on the roof: 0.85kN/m²

	Contact surface	Weight distribution snow load	Weight force	Bearing pressure	Weight force	Bearing pressure
	[cm ²]	[%]	SSB4 Corner incl. PV-module [N]	without snow [kN/m ²]	snow [N]	including snow [kN/m ²]
Outer foot left	90	6.25%	191.2	21.2	415.0	67.4
Outer foot right	90	6.25%	191.2	21.2	415.0	67.4
Foot SSB	470	25.00%	764.9	16.3	1659.8	51.6
Central foot left	280	12.50%	382.5	13.7	829.9	43.3
Central foot right	280	12.50%	382.5	13.7	829.9	43.3
Foot SSB	470	25.00%	764.9	16.3	1659.8	51.6
Outer foot left	90	6.25%	191.2	21.2	415.0	67.4
Outer foot right	90	6.25%	191.2	21.2	415.0	67.4
Total	1880	100.00%	3059.7		6639.3	

Distributed load of the SmartSolarBox: 0.35kN/m² (without snow)

Technical changes reserved.
 14/03/2024 Version 1.1

© 2024 Smartvolt AG

This document is the property of Smartvolt AG and may not be passed on to third parties without consent.

Smartvolt AG
 Byfangstrasse 3
 3360 Herzogenbuchsee
 Schweiz

Tel.: +41 62 961 92 10
 Mail: info@smartvolt.ch
 www.smartvolt.ch


Smartvolt AG
 The Path to Smart Energy