Solar modules from Bosch Solar Energy.

Powerful performance – high stability.
Bosch Solar Module c-Si M 60+ S
EU56117

This solar module sets itself apart with the following qualities:

Aesthetics – pleasing to the eye thanks to its sophisticated black design with silver Bosch brand name applied to the front side of the module

Top output performance thanks to its high-performance solar cells from Bosch in 156 mm x 78 mm format

Convenient to install and saves time thanks to its ergonomically shaped aluminium frame with concealed clamp

Our certificates – quality stamped in writing
Bosch Solar Energy modules go through strict quality tests during the different stages of production according to international standards.

Quality
Salt corrosion resistance tested
Ammonia resistance tested

Product features
Performance sorting –0/+4.99 Wp
Temperature coefficient $P_{mpp} -0.42 \%/K$

Value chain
Crystal – Wafer – Cell – Module

Components
Black anodized aluminum frame With drainage corner, black back sheet, LHS, MC4, Bosch Solar Cell M 3BB

Warranty
10 years product and 25 years performance guarantee
(90% up to 10 years, 80% up to 25 years)

Power classes
275 – 285 Wp
Bosch Solar Module c-Si M 60+ S  |  EU56117

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**Weak light performance:**

<table>
<thead>
<tr>
<th>Intensity [W/m²]</th>
<th>Vmpp [%]</th>
<th>Impp [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>800</td>
<td>–0.08</td>
<td>–20</td>
</tr>
<tr>
<td>600</td>
<td>–0.47</td>
<td>–40</td>
</tr>
<tr>
<td>400</td>
<td>–1.43</td>
<td>–60</td>
</tr>
<tr>
<td>200</td>
<td>–4.11</td>
<td>–80</td>
</tr>
<tr>
<td>100</td>
<td>–7.46</td>
<td>–90</td>
</tr>
</tbody>
</table>

The electrical data applies for 25 °C and AM 1.5.

**Crystalline solar module**

- **Performance classes**: 275 Wp, 280 Wp, 285 Wp
- **Performance sorting**: –0/+4.99 Wp
- **Structure**: Glass-foil laminate
  - Black anodized aluminum frame with drainage corner
  - Junction box (IP65) with 3 bypass diodes
  - Weather-resistant back sheet (black)
- **Cells**: 120x monocrystalline solar cells in 156 mm x 78 mm format
- **Mechanical load**: 7 200 Pa superimposed load, 2 400 Pa suction load, in accordance with IEC 61215 (based on the extended text)

**Electrical characteristics for STC1:**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>275 Wp</td>
<td>275</td>
<td>30.91</td>
<td>8.90</td>
<td>38.61</td>
<td>9.38</td>
<td>25</td>
</tr>
<tr>
<td>280 Wp</td>
<td>280</td>
<td>31.16</td>
<td>8.99</td>
<td>38.87</td>
<td>9.47</td>
<td>25</td>
</tr>
</tbody>
</table>

Reduction in module efficiency with decrease in irradiation level from 1000 W/m² to 200 W/m² (at 25 °C): –0.59 % (absolute); measuring tolerance Pmpp ±3 %, other parameters ±5 %

**Electrical characteristics for NOCT1:**

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>275 Wp</td>
<td>199.80</td>
<td>28.40</td>
<td>31.12</td>
<td>7.56</td>
</tr>
<tr>
<td>280 Wp</td>
<td>203.49</td>
<td>28.63</td>
<td>31.33</td>
<td>7.63</td>
</tr>
<tr>
<td>285 Wp</td>
<td>207.12</td>
<td>28.87</td>
<td>31.54</td>
<td>7.71</td>
</tr>
</tbody>
</table>

NOCT. Nominal Operating Cell Temperature 48.4 °C; Irradiation level 800 W/m², AM 1.5, temperature 20 °C, wind speed 1 m/s, electrical open circuit operation

**Thermal characteristics:**

<table>
<thead>
<tr>
<th>Temperature coefficient TK [%/K]</th>
<th>Pmpp [-0.42]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uoc</td>
<td>–0.31</td>
</tr>
<tr>
<td>Isc</td>
<td>0.031</td>
</tr>
</tbody>
</table>

**Dimensions2:**

1 Electrical parameters are typical mean values from historical production data. No guarantee is made for the accuracy of this data for future production batches.
2 Drawings are not to scale. For detailed dimensions and tolerances, see above.

Notes on assembly:
- See installation and operating manual at: www.bosch-solarenergy.com
- Horizontal and vertical assembly possible
- System voltage max. 1 000 V
- Operating temperature range –40 to 85 °C

The Bosch Solar Energy AG installation and operating instructions must be followed. Bosch Solar Energy AG accepts no liability for damage to equipment operated in conjunction with solar modules from Bosch Solar Energy AG without regard to the technical datasheets. Subject to technical modifications in the course of product development and mistakes/errors.

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