PHOENIX SOLAR – PHX-160/170/175

Solar modules are the key element of every solar power system as they convert sunlight into electricity. Their quality, reliability and performance are therefore critical for the yield and profit of your system. Polycrystalline solar modules provide reliable performance based on more than 40 years of use and have a long track-record of delivering excellent yields.

Phoenix Solar selects the best solar modules from leading international manufacturers based on strict quality criteria. They are tested by our own technical experts as well as independent institutes. This provides you with investment security whilst optimising your return at the same time.

The advantages at a glance:

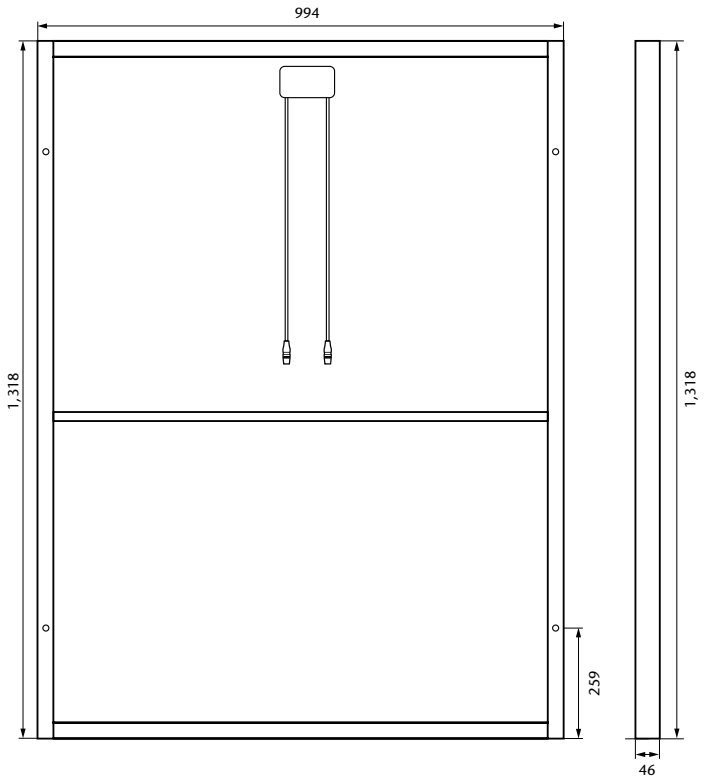
- 162, 170 and 175 Wp output
- Tested in a RAL certificated process, independent of the manufacturer
- High-performance modules consisting of polycrystalline cells with an efficiency of up to 13 % and an anti-reflective coating
- Expansion joints in the conductor strands ensure high resistance in the event of extreme temperature fluctuations
- Highly robust, non-corroding, double-reinforced aluminium frame and tempered glass for extreme climate conditions
- 25-year performance guarantee* based on 80 % of the minimum performance
- 10-year performance guarantee* based on 90 % of the minimum performance

* Our terms and conditions of guarantee apply

Experience that pays

Phoenix Solar or your local Phoenix Solar partner individually match the solar modules and all additional system components to ensure that you get the ideal system to meet your requirements. All of our sales partners have a considerable amount of expertise and many years of experience in solar technology and have been personally chosen by us according to the strictest quality criteria.

Parameters



Mechanical parameters

Length [mm]	1,318 ± 3
Width [mm]	994 ± 3
Depth [mm]	46 ± 0.8
Depth with connection socket [mm]	46
Weight [kg]	16
Connection socket (material/number of diodes)	PPE, PPO/3
Positive cable (manufacturer/length [mm]/ cable cross-section [mm²])	CE/900 (± 50)/4
Negative cable (manufacturer/length [mm]/ cable cross-section [mm²])	CE/900 (± 50)/4
Plug connector (manufacturer/type)	MC PV-KBT3II/KST3II
Front cover (material/thickness [mm])	Low-iron glass/3
Cell type (quantity/technology)	48/polycristalline
Cell embedding (material)	Ethylen Vinyl Acetate (EVA)
Rear cover (material)	Foil
Frame (material/profile type)	Aluminium/ hollow section

Manufacturer's guarantee

Product guarantee	5-year product guarantee
Performance guarantee	10 years at 90 % of the minimal rated power output* 25 years at 80 % the minimal rated power output*

* Our terms and conditions of guarantee apply

Qualifications and Certificates

IEC 61215
IEC 61730

phoenix SOLAR

Located in Sulzemoos near Munich, Germany, Phoenix Solar AG is an international leading photovoltaic systems company. Many years of experience in planning, constructing and operating large-scale photovoltaic power plants in combination with a quality management system involving independent laboratories make the company's products and systems a secure capital investment.

Electrical parameters

Electrical parameters for STC (1,000 W/m², 25 (+/- 2)° C, AM 1.5 according to EN/IEC 60904-3)

Article number	100295	100990	100996
Power output [P_{mpp}]	162	170	175
Power output tolerances [%]	+ 10 / - 5	+ 10 / - 5	+ 10 / - 5
Efficiency [%]	12.80	12.98	13.40
Max. voltage V_{mpp} [V]	22.70	23.30	23.30
Max. current I_{mpp} [A]	7.14	7.33	7.52
Open circuit voltage V_{oc} [V]	28.80	29.30	29.40
Short circuit current I_{sc} [A]	7.95	8.04	8.10

Electrical parameters for 800 W/m², NOCT, AM 1.5 according to EN/IEC 60904-3
NOCT = Nominal Operating Cell Temperature, cell temperature under nominal operating conditions

Max. power output P_{mpp} [Wp]	112.50	118.10	121.50
Max. voltage V_{mpp} [V]	19.80	20.30	20.40
Max. current I_{mpp} [A]	5.68	5.81	10.41
Open circuit voltage V_{oc} [V]	25.80	26.30	26.40
Short circuit current I_{sc} [A]	6.52	6.59	6.64

Reverse current loading capability I_R [A]	15
Max. permissible system voltage V_{sys} [V]	1,000

Parameters for the thermal characteristics

NOCT [° C]	47.5
Temperature coefficient of the short circuit current I_{sc} [%/K]	+ 0.053
Temperature coefficient of the open circuit voltage V_{oc} [%/K]	- 0.357
Temperature coefficient of the MPP power P_{mpp} [%/K]	- 0.485

Operating conditions

Max. operating temperature [° C]	- 40 to + 90
Max. snow load [Pa]	2,400
Max. wind load [Pa]	2,400

PLANNING GUIDE

The module array displayed below applies specifically to Phoenix Solar PHX160/170/175 modules, including the distances for connecting them together (using the Tecto-Sun mounting system, scale: 1:100).

Notes on use: Draw a scale diagram of the roof (1:100) with all the details (windows, dormer windows, chimneys, etc.) on transparent paper and place it over this module array. Copy the intersecting points of the grid on the roof diagram and connect them with a line. If the roof diagram is larger than the grid, it can be moved as required. Doing this allows you to determine the maximum allocation of modules while taking shading and objects on the roof into account.