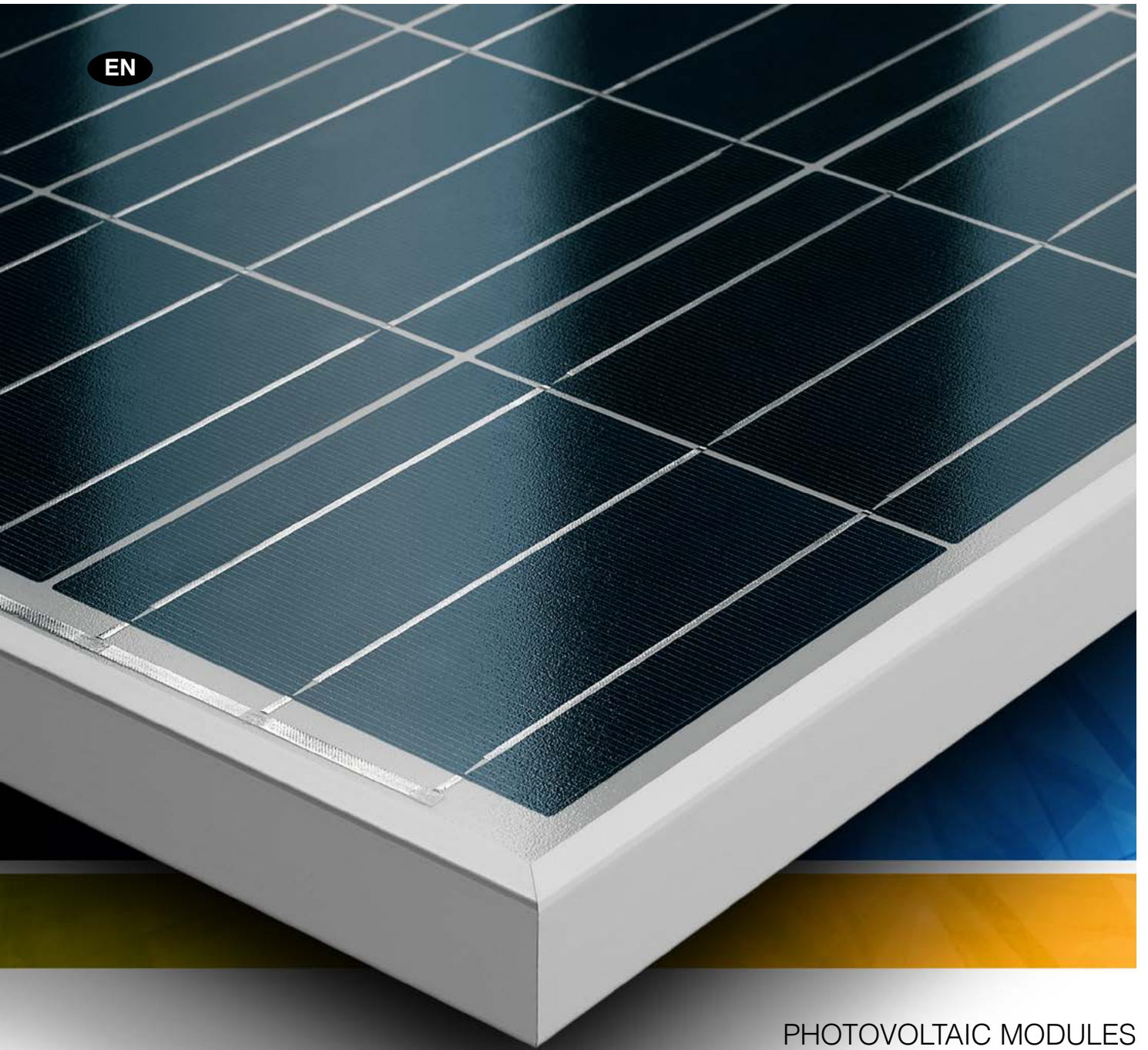


EN



PHOTOVOLTAIC MODULES

XHP

Invent
ENERGY IN ACTION

XHP

MODULES INVENT XHP: 0/+6% OF GUARANTEED YIELD

The Solar Modules Xhp are characterized by an optimum quality on their manufacture and on their components.

They are provided with positive tolerance (only 0/+6%). This ensures that the module will in any case, produce the same or more than the declared one energy, with consequent advantages for purchasers.

- Power tolerance **0/+6%**
- Warranty **25 years** on power, **12 years** on product
- Tested at a pressure of **5400Pa**
- Tested with hail **25 mm** Ø
- Prismatic glass high transmittance
- Nanoclean Treatment

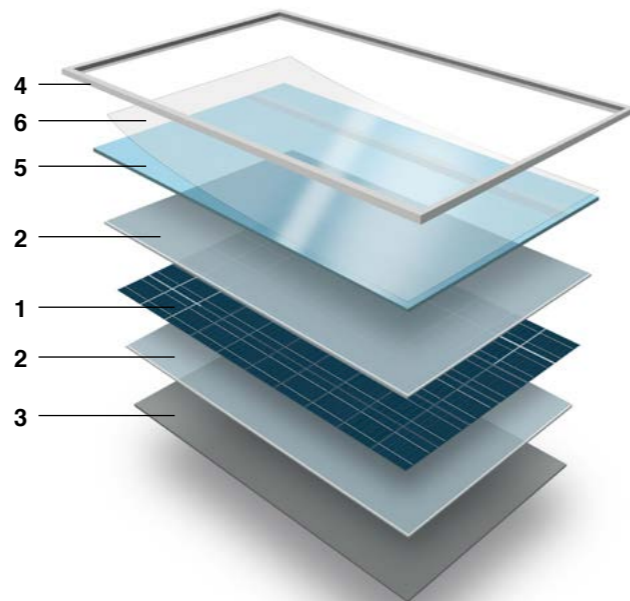
XHP QUALITY

XHP panel consists of 60 polycrystalline silicon photovoltaic cells (1), which generate high power in each module.

Cells are laminated between two layers of EVA (ethylene-vinyl acetate) (2). In addition, a polyester laminate (PYE) (3) guarantees an effective sealing of the module and a long durability, creating a barrier to oxygen and moisture.

The structure (4), is available in different oxidations, it is made of a solid aluminum alloy, stress-resistant and corrosion-resistant, and easy to fasten. The front part of the module consists of tempered solar glass (5), high light transmittance and treated with the procedure NanoClean (6).

On the back of the module, a junction box is fixed, equipped with bypass diode, which prevents the overheating of the individual cells (hot spot). It is resistant to changes in temperature within a range of - 40° C, + 85°C, with a degree of protection IP65. It is equipped with fast connections ("plug & play") which helps to speed up the installation of modules, and with two cables, each 100cm long.



INDIVIDUALLY TESTED

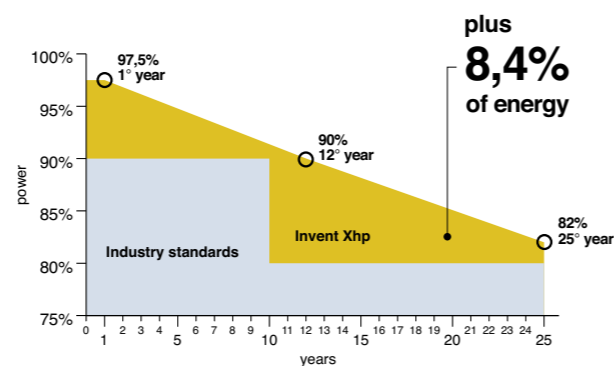
Each module is tested by a solar simulator that generates a flash of 1000W/m2 and quantifies its power.

Invent's Photovoltaic modules can be packed, on request, divided by sorting 2Wp per package. This allows further Photovoltaic system's yield increase.

WARRANTY

Power is guaranteed: 97,5% the first year, the 12th year >= 90%, the 25th year >= 82% of the power.

Invent grants a 12 year warranty for manufacturing defects and materials.



NANOCLEAN TREATMENT

To guarantee the high efficiency of the photovoltaic system among the years, the modules Invent are treated with a special nano-technologic procedure to keep the modules clean.



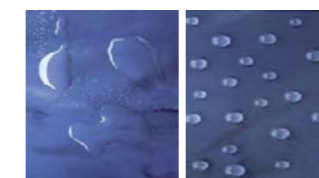
Surfaces treated with NanoClean do not absorb neither water nor oil. The nanotechnologic treatment allows the surfaces to gather the dirt or the limescale facilitating the periodic cleaning. In the images the difference of water and limescale reaction on treated and untreated surfaces is visible.

Limescale



UNTREATED TREATED

Water



UNTREATED TREATED

MODULES CLEANING

Nanoclean, when applied on the module's surface, greatly facilitates the module's cleaning due to:

- spherical shape of dirt on the surface
- easy removal of limescale, soap, stains and dirt in general
- reduction of cleaning efforts
- less aggressive cleaners (neutral ph) are required.

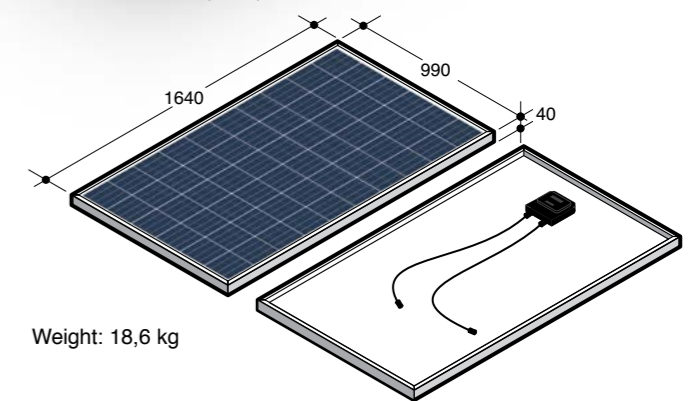
HOW TO APPLY THE TREATMENT

NanoClean is applied by spraying or manually with an absorbent cloth, hardening (polymerization) happens in about 6 hours at room temperature.

After polymerization, the surfaces should be cleaned with neutral products or soft acid cleaners, avoiding to use chlorine and peroxide or abrasive cleaners.

NANOCLEAN IS PERMANENT when used in a proper way.

DIMENSIONS (mm)



TECHNICAL DATA

Module's name	X250HP	
Power class	Wp	250
Nominal tension	Vmp	31,02
Nominal power	A	8,06
No load voltage	Voc	36,99
Short-circuit current	A(Isc)	8,62
Full load voltage	V	1.000
Short-circuit current's temperature coefficient	Pm	- 0,45% /°C
No load voltage's temperature coefficient	Vc	0,04% /°C
Power's temperature coefficient	Voc	- 0,33% /°C
Power tolerance		0/+6%
Efficiency	%	15,40
NOCT		47 ± 2 °C

Values obtained under standard conditions: 1.000 W/m - 25°C - AM 1,5

CERTIFICATIONS

Invent photovoltaic modules are certified according to the European standard **IEC 61215 (Ed.2)**.

Safety tests were performed according to **CEI EN 61730** (Safety class II).

In the laboratories Eurotest and Albarubens the modules successfully pass all tests demonstrating high resistance to different types of stress.



EN 61215 (2005) - 10.17

Hail resistance test

ice ball of 25mm launched at a speed of 23,0 m/s-1 directed to 11 points of impact.



EN 61215 (2005) - 10.16

Mechanical load test

the module is subjected to a pressure of 5400 Pa.



EN 61730-2 (2007) - MST 21

Temperature test

5 hours exposure to 1,000 Wm



EN 61215 (2005) - 10.11

Thermal cycle test (50 and 200 cycles)

50 and 200 cycles from - 40°C to +85°C with the supply current peak STC during 200 cycles.



EN 61215 (2005) - 10.13

Damp heat test

the module is put into operation with an ambient temperature of 85°C and relative humidity of 85%.



EN 61215 (2005) - 10.12

Moisture and freezing test

the module is put into service with an ambient temperature of - 45°C and relative humidity of 85%.

Certifying authorities:



Certifying authorities:
ISO 9001:2008
BS OHSAS 18001:2007
ISO 14001:2004



Invent is a PV CYCLE's member

Credits



WELL-TECH 2007
Premio all'Innovazione Tecnologica

Invent
ENERGY IN ACTION

Invent srl

via A. Volta, 54 - 30020 Noventa di Piave (Ve) - Italy
Tel. +39.0421.307393 - Fax +39.0421.572963

www.inventsrl.com
sales@inventsrl.it

