

Have sun!

On modules & mounting systems  
**15 years  
combination  
warranty**



#### Extended performance warranty

Guaranteed higher long-term electricity profits owed to TOPCon technology.

#### Higher low light output

Even in low light conditions, for example at dusk and on cloudy days, increased power production is ensured.

#### Bifacial power generation

Up to 25% higher yield caused by double-sided active module, which absorbs sunlight with the front and the back.

#### Better cell protection

The front and back glass layer protects the cells from damaging and environmental impacts.

[Product datasheet](#)

# IBC MonoSol 405 - 420 ES10-HC-N BF

High-quality double-glazed solar modules made of monocrystalline half-cut cells.

Online shop:  
Find our products and further information here.

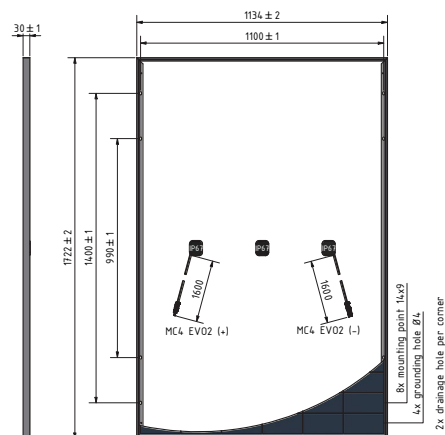


#### You also benefit from:

- a positive power tolerance (-0/+5W)
- increased mechanical stability (5400 Pa)
- a German guarantor
- 100% proved quality
- a 30-year performance warranty
- a 25-year product warranty



Have sun!



IBC MonoSol	405 ES10- HC-N BF	410 ES10- HC-N BF	415 ES10- HC-N BF	420 ES10- HC-N BF
Article number	2006200005	2006200003 2006200006	2006200007	2006200008

#### Electrical data (STC)<sup>2</sup>

	405	410	415	420
STC Power Pmax (Wp)	405	410	415	420
STC Nominal Voltage Umpp (V)	31.3	31.5	31.7	31.9
STC Nominal Current Impp (A)	12.95	13.02	13.10	13.17
STC Open Circuit Voltage Uoc (V)	37.3	37.5	37.7	37.9
STC Short Circuit Current Isc (A)	13.75	13.82	13.91	13.98
Module Efficiency (%)	20.67	20.92	21.25	21.51
Power Tolerance (W)	-0/+5	-0/+5	-0/+5	-0/+5

#### Electrical data (NMOT)

	405	410	415	420
NMOT (°C)	42	42	42	42
800 W/m <sup>2</sup> NMOT AM 1.5 Power Pmax (Wp)	307	311	315	318
800 W/m <sup>2</sup> NMOT AM 1.5 Nominal Voltage Umpp (V)	29.4	29.6	29.8	30.0
800 W/m <sup>2</sup> NMOT AM 1.5 Open Circuit Voltage Uoc (V)	35.7	35.8	36.0	36.2
800 W/m <sup>2</sup> NMOT AM 1.5 Short Circuit Current Isc (A)	11.09	11.14	11.22	11.27
Relative Efficiency Reduction at 200 W/m <sup>2</sup> (%)	≤ 5	≤ 5	≤ 5	≤ 5

#### Temperature coefficient (linear)

	0.046	0.046	0.046	0.046
Tempcoeff Isc (%/°C)	0.046	0.046	0.046	0.046
Tempcoeff Uoc (mV/°C)	-96.98	-97.50	-98.02	-98.75
Tempcoeff Pmpp (%/°C)	-0.32	-0.32	-0.33	-0.33

#### Operating conditions

Max. System Voltage (V)	1500
Application Class	A
Reverse Current Ir (A)	25
Fuse protection from parallel strings	2
Protection class	II (DIN EN 61140)
Fire protection	Class C (IEC 61730-ANSI/UL790)

#### Mechanical properties

Dimensions (L × W × H in mm)	1722 × 1134 × 30
Weight (kg)	24,5
Max. Test load, Push/Pull (Pa)	5400/2400
Max. Design load <sup>2</sup> , Push/Pull (Pa)	3600/1600
Front sheet (mm)	2.0 (low-iron photovoltaic glass and anti-reflective coating)
Frame	anodized aluminium, sturdy hollow-chamber frame
Cells	12 × 9 mono-crystalline silicon cells
Connection type	EVO2

#### Warranties and certification

Product warranty	25 years <sup>1</sup>
Performance warranty	30 years <sup>1</sup>
Annual degradation	year 1 1,0% year 2-30 0,4%
Certification	IEC 61215, IEC 61730-1/-2, ISO 9001, ISO 14001, OHSAS 18001

#### Packaging information

Number of modules per pallet	36
Number of pallets per 40' container	26
Dimensions incl. pallet (L × W × H in mm)	1764 x 1140 x 1254
Gross weight incl. double pallet (kg)	918
Stackability per pallet	2-fold

1) The linear power and product warranty are only valid for installations within Europe and Japan. The warranty requires installation according to the valid installation instructions. Standard test conditions: 1000 W/m<sup>2</sup> irradiation with a spectral distribution of AM 1.5 and a cell temperature of 25°C. 800 W/m<sup>2</sup>, NOCT. Information according to EN 60904-3 (STC). All values according to DIN EN 50380. Errors and changes reserved. The precise conditions and content can be taken from the respectively valid version of the product and power warranty, which you can obtain from your IBC Premium Partner.

2) Loads according to IEC 61215-2:2016, max. design load

3) Measurement tolerances +/- 3% at STC: 1000 W/m<sup>2</sup>, 25 +/- 2 °C, AM 1.5

Your Premium Partner