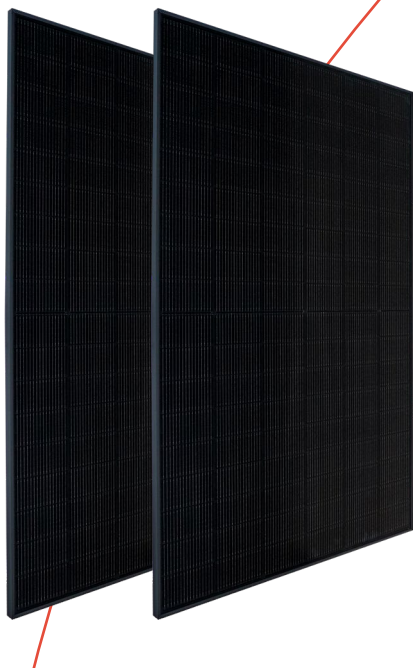


Have sun!

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.

Optimized temperature coefficient

More power generation at hot temperatures by TOPCon technology.

Aesthetic design

Elegant black design for a homogeneous and high-quality appearance.

[Product datasheet](#)

IBC MonoSol 415 | 420 MS10- HC-N Black

Elegant black design and
high-performance in combination.

Online shop:
Find our products
and further
information here.

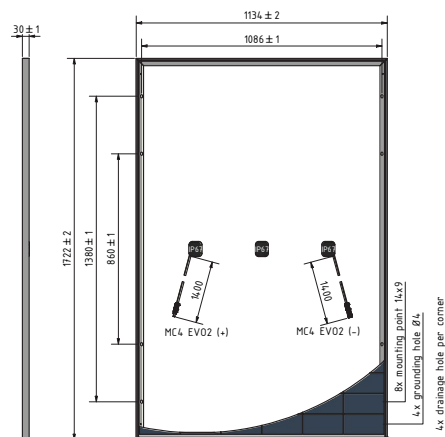


You also benefit from:

- a positive power tolerance (-0/+3%)
- increased mechanical stability (5400 Pa)
- a German guarantor
- 100% proved quality
- a 25-year performance warranty
- a 10-year product warranty



Have sun!



IBC MonoSol	415 MS10-HC-N Black	420 MS10-HC-N Black	Operating conditions	
Article number	2002800115	2002800116	Max. System Voltage (V)	1000
Electrical data (STC)³			Application Class	A
STC Power P _{max} (Wp)	415	420	Reverse Current I _r (A)	25
STC Nominal Voltage U _{mp} (V)	31.85	32.04	Fuse protection from parallel strings	2
STC Nominal Current I _{mp} (A)	13.03	13.11	Protection class	II (DIN EN 61140)
STC Open Circuit Voltage U _{oc} (V)	37.96	38.15	Fire protection	Class C (IEC 61730-ANSI/UL790)
STC Short Circuit Current I _{sc} (A)	13.74	13.8	Mechanical properties	
Module Efficiency (%)	21.25	21.51	Dimensions (L × W × H in mm)	1722 × 1134 × 30
Power Tolerance (%)	-0/+3	-0/+3	Weight (kg)	22.0
Electrical data (NMOT)			Max. Test load, Push/Pull (Pa)	5400/2400
NMOT (°C)	45	45	Max. Design load ² , Push/Pull (Pa)	3600/1600
800 W/m ² NMOT AM 1.5 Power P _{max} (Wp)	312	316	Front sheet (mm)	3.2 (low-iron photovoltaic glass and anti-reflective coating)
800 W/m ² NMOT AM 1.5 Nominal Voltage U _{mp} (V)	29.78	29.97	Frame	anodized aluminium, sturdy hollow-chamber frame
800 W/m ² NMOT AM 1.5 Open Circuit Voltage U _{oc} (V)	36.06	36.24	Cells	12 × 9 mono-crystalline silicon cells
800 W/m ² NMOT AM 1.5 Short Circuit Current I _{sc} (A)	11.09	11.14	Connection type	MC4
Relative Efficiency Reduction at 200 W/m ² (%)	3.0	3.0	Warranties and certification	
Temperature coefficient (linear)			Product warranty	10 years ¹
Tempcoeff I _{sc} (%/°C)	0.046	0.046	Performance warranty	30 years ¹
Tempcoeff U _{oc} (mV/°C)	-94.90	-95.38	Annual degradation	year 1 1.0% year 2-30 0.4%
Tempcoeff P _{mp} (%/°C)	-0.3	-0.3	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)	1782 × 1140 × 1249
			Gross weight incl. double pallet (kg)	837
			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/m² irradiation with a spectral distribution of AM 1.5 and a cell temperature of 25°C. 800 W/m², 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/m², 25 +/- 2 °C, AM 1.5

Your Premium Partner