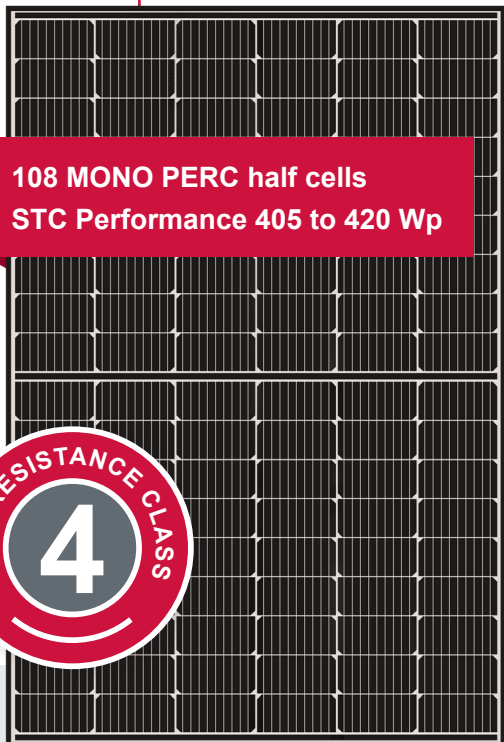


**e** MX HD  
**CLASSIC**

**108 MONO PERC half cells  
STC Performance 405 to 420 Wp**



**Heavy Duty**  
**Withstands highest loads**

- 1,5 t load with only 23 kg module weight (8.000 Pa acc. IEC Test, approx 1,5 t)
- Strong module performance that is retained even after extreme physical stress
- More stability due to a stronger frame
- Extreme resistance to loads, such as high snowpacks
- Better shading properties due to halfstring technology & Module Shadow Protection
- More power through use of multi-busbar technology and halfcut solar cells
- Optimized used cell surface due to fine round wires
- Anodized black module frame
- Manufactured in Austria



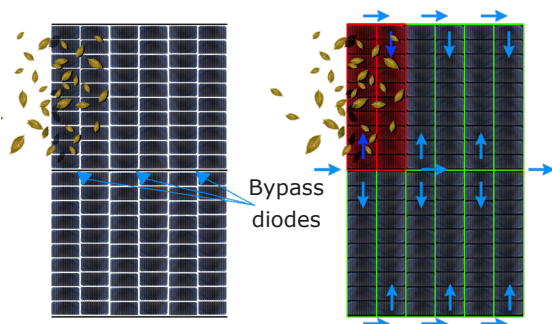
**e.STAK®**  
**Strong, Stable and Sustainable.**

The e.STAK stacking and packaging system from energetica ensures that the modules arrive at their destination stable and without microcracks: In the stack, the specially developed frame profiles of the modules interlock. In combination with the film, they form a stable unit.

Slipping of the modules on the pallet becomes virtually impossible. The packaging material is reduced to the bare minimum. Moreover, the film used is made of biogenic plastic.

**Halfcut panel technology**

**Significantly improved behavior during partial shading:** If one half of the module is shaded, the second half of the module still generates full power.



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## e.Classic MX HD Technical data

### Electrical data (STC)

Type	405	410	415	420
Maximum power $P_{Max}$ [Wp]	405	410	415	420
MPP voltage $U_{MPP}$ [V]	31.16	31.31	31.46	31.61
MPP current $I_{MPP}$ [A]	13.00	13.09	13.19	13.29
Open circuit voltage $U_{OC}$ [V]	36.93	37.08	37.23	37.38
Short circuit current $I_{SC}$ [A]	13.61	13.70	13.80	13.89
Module efficiency $\eta_{Modul}$ [%]	20.68%	20.93%	21.19%	21.45%
Performance sorting [Wp]	0/+5	0/+5	0/+5	0/+5

These measurements are valid under standard test conditions STC. All electrical data  $\pm 10\%$ . Measurement uncertainty  $P_{MPP}$  ( $P_{Max}$ ):  $\pm 3\%$ , (Airmass AM 1.5; radiation of  $1000W/m^2$ ; cell temperature  $25^\circ C$ )

### Electrical data (NMOT)

Type	405	410	415	420
Maximum power ( $P_{Max}$ ) [Wp]	306.6	310.3	314.1	317.9
MPP voltage $U_{MPP}$ [V]	28.90	29.04	29.18	29.32
MPP current $I_{MPP}$ [A]	10.60	10.68	10.76	10.84
Open circuit voltage ( $V_{OC}$ ) [V]	34.86	35.00	35.15	35.29
Short circuit current $I_{SC}$ [A]	10.90	10.97	11.05	11.12

NMOT (Nominal Module Operating Temperature): Irradiance  $800 W/m^2$ , ambient temperature  $20^\circ C$ , wind speed  $1 m/s$ . All technical data  $\pm 10\%$

### Permissible operating conditions

Temperature range	$-40^\circ C$ to $+90^\circ C$
Maximum system voltage	1,000 V, opt. 1,500 V
Test load $I_{max}$	tested according to IEC up to 8 kPa snow / 2,4 kPa wind
Breaking load	$> 10,0$ kPa
Hail resistance class 4*	hailstone up to 40 mm $\varnothing$ at 27 m/s $v_{impact}$
maximum reverse current	25 A

\*Tests ongoing.

### Temperature coefficient (Tc)

Tc short circuit current $\alpha$	$0.05\%/^\circ C$
Tc open circuit voltage $\beta$	$-0.26\%/^\circ C$
Tc maximum power $\gamma$	$-0.33\%/^\circ C$
NMOT	$43.5^\circ C \pm 2$

Note: This data sheet is a preliminary document and may still be adjusted until market launch. energetica Industries has the sole right to make these changes at any time without prior notice. The data given are without guarantee. Product illustrations are symbolic images and may differ in appearance and data from the original.

 qualityaustria

**SYSTEM CERTIFIED**

ISO 9001:2015 No.25533/0  
ISO 14001:2015 No.04292/0  
ISO 45001:2018 No.01106/0

### Certifications (pending)

Certifications / product tests	IEC 61215, IEC 61730
	IEC 62716 (Ammonia corrosion test)
	IEC 61701 (Salt mist corrosion test)
	EN 61000-4-2
	EN 61000-4-4
	EN 61000-4-5
Module fire performance	EN 61000-4-6
	Safety Class II
	PID, LID, LeTID
	Class C

### Warranties

Product warranty	17 years
Output warranty of $P_{MAX}$ (Measurement tolerance $\pm 3\%$ )	25 years linear acc. warranty conditions

### Mechanical Data

Dimensions (HxWxD)	1,724 x 1,136 x 36 mm
Weight	23 kg
Front glass	transparent tempered anti-reflective glass 3.2 mm
Backsheet	highly reflective PET
Frame	black anodized aluminum
Cells	108 high efficiency solar half cells
Cell type	mono PERC, 10 busbars
Bypass control	3 diodes
Modul connector	4 mm <sup>2</sup> solar cabel (+,-) 1,200 mm
Connectors	multi-contact MC4, IP65 (IP68) (original Stäubli)
Origin	Made in Austria

### Paletts / Truck load

Pieces per palett	30
Pieces per truck	840

