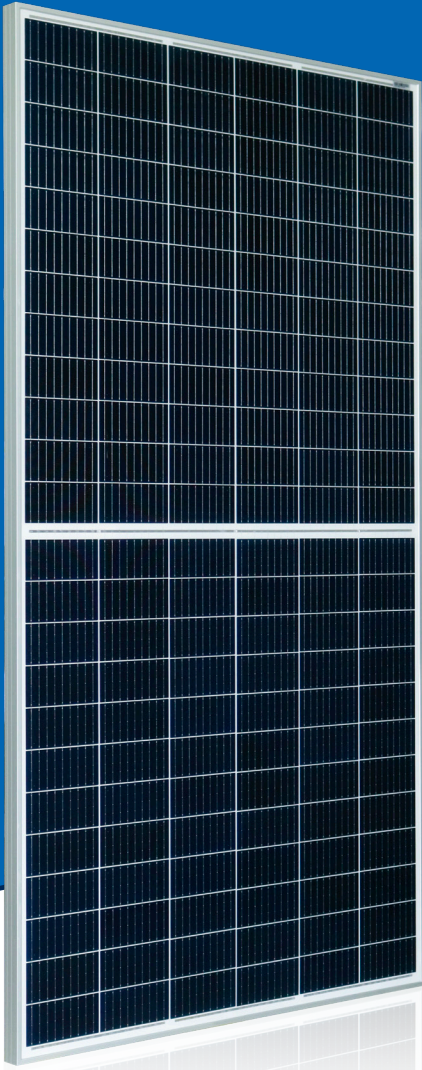


# AstroTwins™

Enjoy the Energy of the Universe

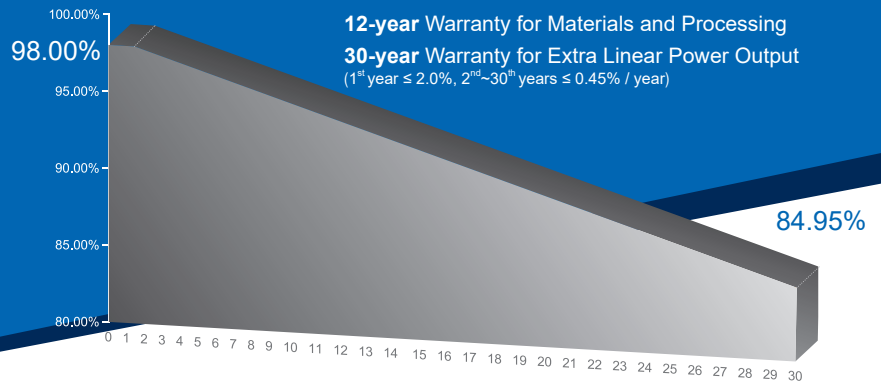


## 400W~415W

P-type Monocrystalline PV Module

CHSM72M(DG)/F-BH Series (158.75)

CHSM72M(DG)/F-BH is bifacial module with white glazed glass



### KEY FEATURES

- OUTPUT POSITIVE TOLERANCE**  
 Guaranteed 0~+5W positive tolerance ensure power output reliability.
- EXCELLENT WEATHER RESISTANCE**  
 Reduce the cell micro cracking and extended product warranty.
- BIFACIAL POWER**  
 The backside makes use of the reflected and scattered light from the surroundings, the modules can yield up to 5%~30% power more, depending on the albedo.
- REDUCE INTERNAL MISMATCH LOSS**  
 Reduce mismatch loss and improve output.
- APPLICABLE FOR MULTI DIFFERENT ENVIRONMENTS**  
 The wide range of applications, such as BIPV, vertical installation, snow area, high humidity area and strong sandstorm area, etc.
- SNAIL TRAIL RESISTANCE**  
 Reduce the probability of snail trails with zero water vapor transmittance.

### COMPREHENSIVE CERTIFICATES



First solar company which passed the TUV Nord IEC/TS 62941 certification audit.

For Global Market



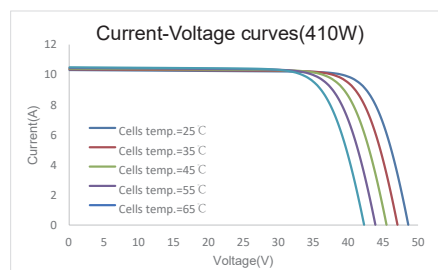
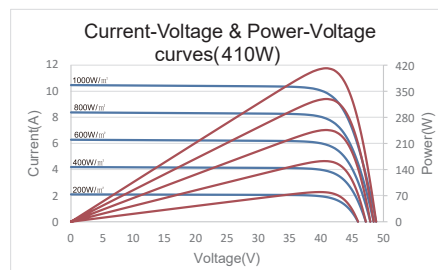
**ASTRONERGY**  
A CHNT COMPANY

## ELECTRICAL SPECIFICATIONS

Power rating (front)	400 Wp		405 Wp		410 Wp		415 Wp	
Testing Condition	Front	Back	Front	Back	Front	Back	Front	Back
STC rated output ( $P_{mpp}/Wp$ )*	400	282	405	285	410	289	415	292
Rated voltage ( $V_{mpp}/V$ ) at STC	40.67	40.88	40.89	41.10	41.10	41.31	41.31	41.52
Rated current ( $I_{mpp}/A$ ) at STC	9.84	6.89	9.91	6.94	9.98	6.99	10.05	7.04
Open circuit voltage ( $V_{oc}/V$ ) at STC	48.24	46.82	48.42	46.99	48.60	47.17	48.78	47.34
Short circuit current ( $I_{sc}/A$ ) at STC	10.30	7.22	10.38	7.28	10.46	7.33	10.54	7.39
Module efficiency	19.4%	13.7%	19.7%	13.8%	19.9%	14.0%	20.2%	14.2%
Temperature coefficient ( $P_{mpp}$ )	- 0.35%/°C							
Temperature coefficient ( $I_{sc}$ )	+0.04%/°C							
Temperature coefficient ( $V_{oc}$ )	- 0.28%/°C							
Nominal module operating temperature (NMOT)	44±2°C							
Maximum system voltage (IEC/UL)	1500V <sub>DC</sub>							
Number of diodes	3							
Junction box IP rating	IP 68							
Maximum series fuse rating	20 A							

STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, AM=1.5

## CURVE



## ELECTRICAL SPECIFICATIONS (Integrated power)

$P_{mpp}$ gain	$P_{mpp}$	$V_{mpp}$	$I_{mpp}$	$V_{oc}$	$I_{sc}$
5%	431 Wp	41.10 V	10.47 A	48.60 V	10.98 A
10%	451 Wp	41.10 V	10.97 A	48.60 V	11.51 A
15%	472 Wp	41.00 V	11.50 A	48.70 V	12.03 A
20%	492 Wp	41.00 V	12.00 A	48.70 V	12.55 A
25%	513 Wp	41.00 V	12.50 A	48.70 V	13.08 A

Electrical characteristics with different rear power gain (reference to 410W)

## PACKING SPECIFICATIONS

① Weight (module only)	26.3 kg
② Packing unit	36 pcs / box
Weight of packing unit (for 40'HQ container)	994 kg
Number of modules per 40'HQ container	792 pcs

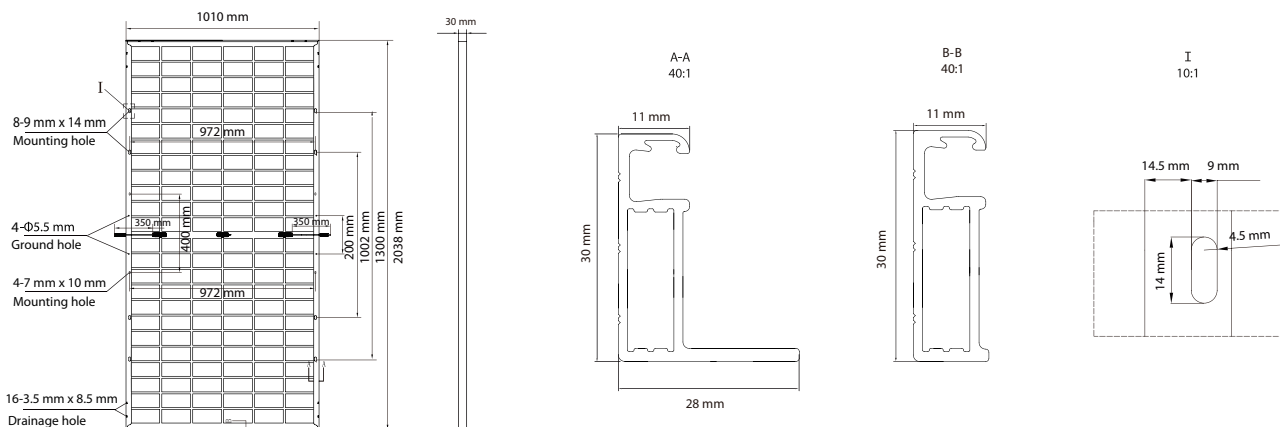
① Tolerance +/- 1.0kg  
② Subject to sales contract

## MECHANICAL SPECIFICATIONS

Outer dimensions (L x W x H)	2038 x 1010 x 30 mm
Frame technology	Aluminum, silver anodized
Glass thickness	2.0 mm
Cable length (IEC/UL)	Portrait: 350 mm Landscape: 1200 mm
Cable diameter (IEC/UL)	4 mm <sup>2</sup> / 12 AWG
① Maximum mechanical test load	5400 Pa (front) / 2400 Pa (back)
Connector type (IEC/UL)	MC4 compatible

① Refer to Astronergy crystalline installation manual or contact technical department.  
Maximum Mechanical Test Load=1.5×Maximum Mechanical Design Load.

## MODULE DIMENSION DETAILS



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