



**Hanover  
Solar**®

# Half is More

Get More Output with Our Half Cut Cells Panels

**25**  
YEARS

80% of Linear Power Output Warranty

**30**  
YEARS  
for Glass Glass Panels

**12**  
YEARS

90% of Linear Power Output Warranty

**12**  
YEARS

Product Warranty



Double Glass Structure that reduce snail tracks



Half Cut Technology can reduce the internal power loss



Microcrack resistant - Triple EL Tested



PV Cycle - Recycle



Excellent Low Irradiance Performance



IEC 61215 IEC 61730-1 IEC 61730-2



ISO9001 Quality Management System



ISO14001 Environmental Management System



ISO18001 Occupational Health/Safeth System



Positive Tolerance 0/+5w guaranteed



Anti Light Pollution



Hail Protect Test by 98km/h Speed



Anti Oxidation Corrosion



Junction Box IP68 with 1100mm Cable



1500V System Voltage IEC standard



Fire Test Level 1 ( Fire Class A )



Multiple Busbar to maximize the overall performances



Excellent Mechanical Load 2400Pa / Snow 5400PA /Panel

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Bundesministerium  
für Wirtschaft  
und Technologie

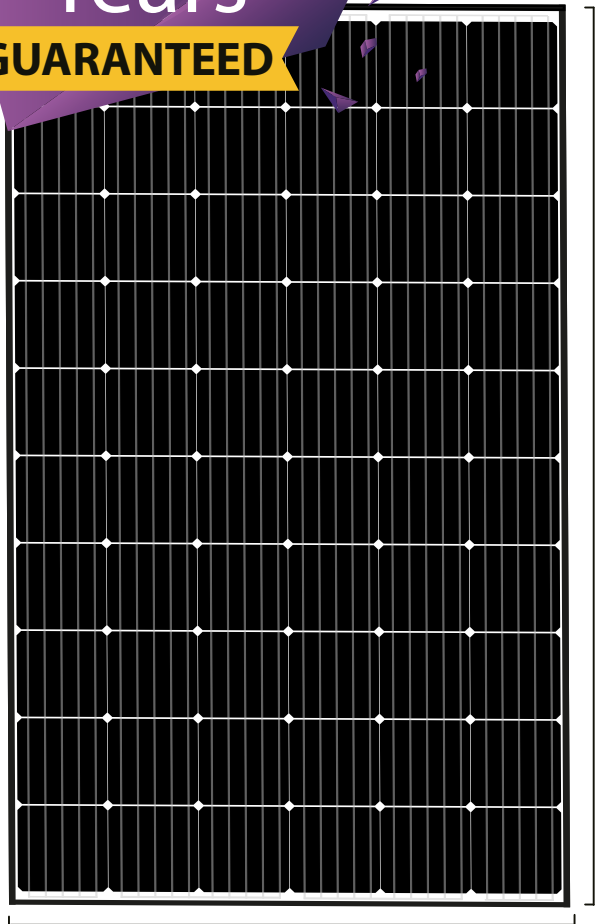




# MONO Glass Glass Bifacial

# 30 Years

## GUARANTEED



1002

1665

Weight 24.3kg

### Packaging Configuration

| PACKAGE | 40GP    | PALLET |
|---------|---------|--------|
| PCS     | 812 PCS | 58 PCS |

### High Efficiency 330W Glass Glass Panels

Up to 25% additional power gain from back side, depending on the albedo

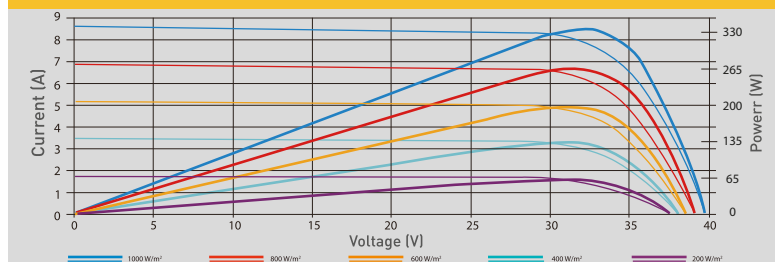
### Electrical Characteristics

| Item No.   | Pmax | Vmpp   | Impp  | Voc     | Isc   | Cell%  |
|------------|------|--------|-------|---------|-------|--------|
| HS330M-30D | 330W | 38.64V | 9.52A | 44..32V | 9.82A | 22.38% |

### Mechanical Characteristics

|                           |   |
|---------------------------|---|
| Solar Cell                | Monocrystalline (158.5 x 158.5 mm)          |
| Cells Quantity            | 60 (6 x 10)                                 |
| Dimensions                | 1665 x 1002 x 35 mm                         |
| Glass                     | 2+2 mm                                      |
| Frame                     | Anodized aluminium alloy                    |
| Junction Box              | TÜV Certified IP68                          |
| Series Fuse Rating        | 20A x 3 diodes                              |
| Maximum System Voltage    | 1500V DC TÜV                                |
| Output Cables             | 1100 mm / 4.0 mm <sup>2</sup>               |
| Test Standard Condition   | AM=1.5 E=1000/ m <sup>2</sup> TC=25°C       |
| NOCT                      | 45°C +/- 2°C                                |
| Temperature Coefficients: | Pmax -0.43%/°C; Voc -0.32%/°C; Isc 0.05%/°C |

### I-V Curve



CAUTION: read the installation instruction before using the product.

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**MONO  
Half Cut  
Black**

**25  
Years**

**GUARANTEED**

**High Efficiency PERC Half Cut Mono Cells**

**Electrical Characteristics**

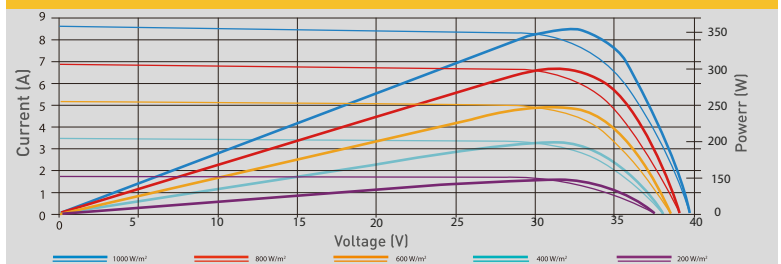
| Item no.      | Pmax | Vmp   | Imp    | Voc   | Isc    | Mod. Efficiency |
|---------------|------|-------|--------|-------|--------|-----------------|
| HS360M-60-166 | 360W | 33.70 | 10.69A | 41.1V | 11.53A | 19.8%           |
| HS365M-60-166 | 365W | 33.90 | 10.77A | 41.3V | 11.63A | 20.0%           |
| HS370M-60-166 | 370W | 34.10 | 10.86A | 41.5V | 11.72A | 20.3%           |
| HS375M-60-166 | 375W | 34.20 | 10.98A | 41.6V | 11.85A | 20.6%           |
| HS380M-60-166 | 380W | 34.30 | 11.09A | 41.7V | 11.98A | 20.9%           |

**Mechanical Characteristics**

|                         |                                       |
|-------------------------|---------------------------------------|
| Solar Cell              | Monocrystalline (166 x 83 mm)         |
| Cells Quantity          | 120 (6 x 20)                          |
| Dimensions              | 1755 x 1038 x 35 mm                   |
| Glass                   | High Transmission Tempered Glass      |
| Frame                   | Anodized Aluminium Alloy 35mm         |
| Backsheet               | Black                                 |
| Junction Box            | TÜV Certified IP68                    |
| Series Fuse Rating      | 20A x 3 diodes                        |
| Maximum System Voltage  | 1500V DC TÜV                          |
| Output Cables           | 1100 mm / 4.0 mm <sup>2</sup>         |
| Test Standard Condition | AM=1.5 E=1000/ m <sup>2</sup> TC=20°C |
| NOCT                    | 45°C +/- 2°C                          |

Temperature Coefficients: Pmax -0.39%/K Voc -0.29%/K; Isc 0.049%/K

**I-V Curve**



**Packaging Configuration**

| PACKAGE | 40'HQ Container | PALLET |
|---------|-----------------|--------|
| PCS     | 806 PCS         | 31 PCS |

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Weight 19.5 kg

1038

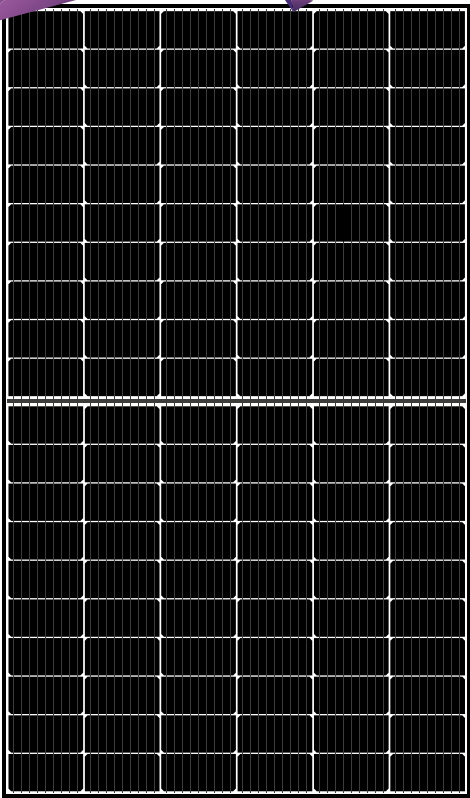
1755



**MONO  
Glass Glass  
Bifacial**

**30  
Years**

**GUARANTEED**



1038

1755

Weight 22.5 kg

### Packaging Configuration

| PACKAGE | 40'HQ Container | PALLET |
|---------|-----------------|--------|
| PCS     | 935 PCS         | 36 PCS |

### High Efficiency PERC Half Cut Mono Cells

Up to 25% additional power gain from back side, depending on the albedo

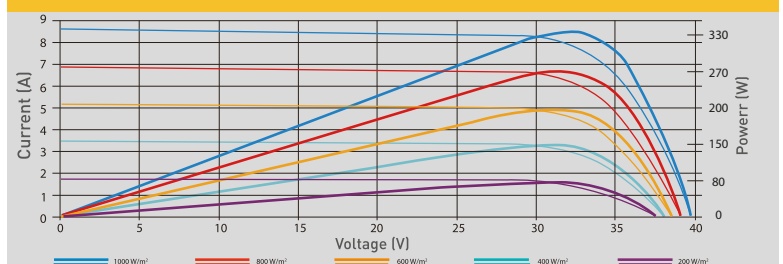
#### Electrical Characteristics

| Item no.          | Pmax | Vmp   | Imp    | Voc   | Isc    | Mod. Efficiency |
|-------------------|------|-------|--------|-------|--------|-----------------|
| HS360M-60-166GP-F | 360W | 33.70 | 10.69A | 41.1V | 11.53A | 19.3%           |
| HS365M-60-166GP-F | 365W | 33.90 | 10.77A | 41.3V | 11.63A | 19.5%           |
| HS370M-60-166GP-F | 370W | 34.10 | 10.86A | 41.5V | 11.72A | 19.8%           |
| HS375M-60-166GP-F | 375W | 34.20 | 10.98A | 41.6V | 11.85A | 20.1%           |
| HS380M-60-166GP-F | 380W | 34.30 | 11.09A | 41.7V | 11.98A | 20.3%           |

#### Mechanical Characteristics

|                           |  |
|---------------------------|--|
| Solar Cell                | Monocrystalline (166 x 83 mm)            |
| Cells Quantity            | 120 (6 x 20)                             |
| Dimensions                | 1755 x 1038 x 30 mm                      |
| Glass                     | High Transmission Tempered Glass         |
| Frame                     | Anodized Aluminium Alloy 30mm            |
| Backsheet                 | Transparent Glass                        |
| Junction Box              | TÜV Certified IP68                       |
| Series Fuse Rating        | 20A x 3 diodes                           |
| Maximum System Voltage    | 1500V DC TÜV                             |
| Output Cables             | 1100 mm / 4.0 mm <sup>2</sup>            |
| Test Standard Condition   | AM=1.5 E=1000/ m <sup>2</sup> TC=20°C    |
| NOCT                      | 45°C +/- 2°C                             |
| Temperature Coefficients: | Pmax -0.39%/K Voc -0.29%/K; Isc 0.049%/K |

### I-V Curve



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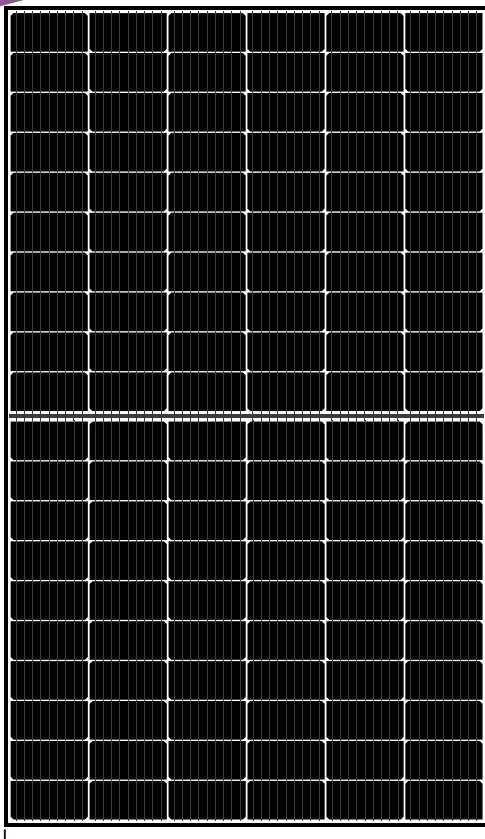
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**MONO  
Half  
Cut**

**25  
Years**

**GUARANTEED**



Weight 19.5 kg

1038

**High Efficiency PERC Half Cut Mono Cells**

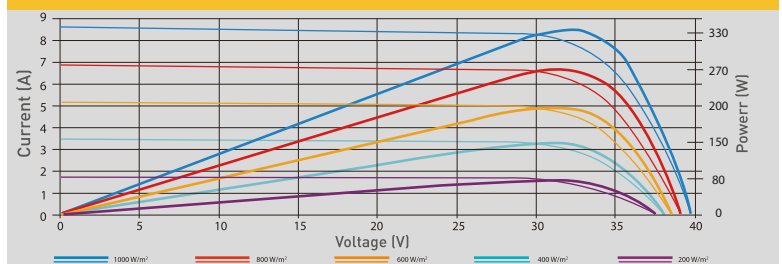
**Electrical Characteristics**

| Item no.      | Pmax | Vmp   | Imp    | Voc   | Isc    | Mod. Efficiency |
|---------------|------|-------|--------|-------|--------|-----------------|
| HS360M-60-166 | 360W | 33.70 | 10.69A | 41.1V | 11.53A | 19.8%           |
| HS365M-60-166 | 365W | 33.90 | 10.77A | 41.3V | 11.63A | 20.0%           |
| HS370M-60-166 | 370W | 34.10 | 10.86A | 41.5V | 11.72A | 20.3%           |
| HS375M-60-166 | 375W | 34.20 | 10.98A | 41.6V | 11.85A | 20.6%           |
| HS380M-60-166 | 380W | 34.30 | 11.09A | 41.7V | 11.98A | 20.9%           |

**Mechanical Characteristics**

|  |                                       |
|--|---------------------------------------|
| Solar Cell   | Monocrystalline (166 x 83 mm)         |
| Cells Quantity   | 120 (6 x 20)                          |
| Dimensions   | 1755 x 1038 x 35 mm                   |
| Glass  | High Transmission Tempered Glass      |
| Frame  | Anodized Aluminium Alloy 35mm         |
| Backsheet  | White                                 |
| Junction Box   | TÜV Certified IP68                    |
| Series Fuse Rating   | 20A x 3 diodes                        |
| Maximum System Voltage   | 1500V DC TÜV                          |
| Output Cables  | 1100 mm / 4.0 mm <sup>2</sup>         |
| Test Standard Condition  | AM=1.5 E=1000/ m <sup>2</sup> TC=20°C |
| NOCT   | 45°C +/- 2°C                          |
| Temperature Coefficients: Pmax -0.39%/K Voc -0.29%/K; Isc 0.049%/K |                                       |

**I-V Curve**



**Packaging Configuration**

| PACKAGE | 40'HQ Container | PALLET |
|---------|-----------------|--------|
| PCS     | 806 PCS         | 31 PCS |

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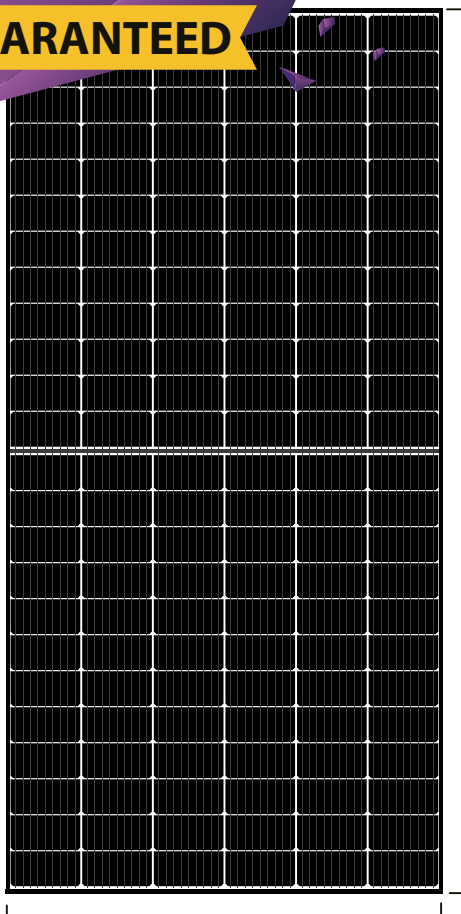
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**MONO  
Half Cut  
144 Cells**

**30  
Years**

**GUARANTEED**



1038

2094

Weight 23.5 kg

### Packaging Configuration

| PACKAGE | 40'HQ Container | PALLET |
|---------|-----------------|--------|
| PCS     | 682 PCS         | 31PCS  |

### High Efficiency PERC Half Cut Mono Cells

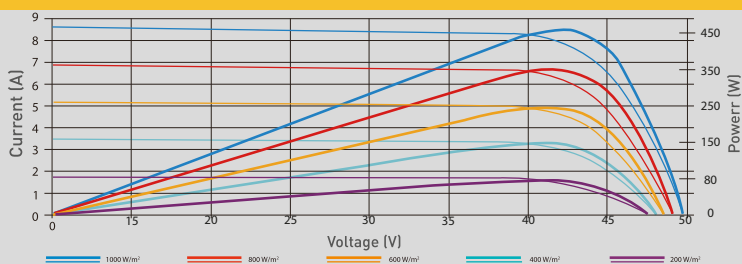
#### Electrical Characteristics

| Item no.      | Pmax | Vmp   | Imp    | Voc   | Isc    | Mod. Efficiency |
|---------------|------|-------|--------|-------|--------|-----------------|
| HS435M-72-166 | 435W | 40.70 | 10.70A | 49.6V | 11.53A | 20.0%           |
| HS440M-72-166 | 440W | 40.90 | 10.77A | 49.8V | 11.60A | 20.2%           |
| HS445M-72-166 | 445W | 41.00 | 10.86A | 49.9V | 11.72A | 20.5%           |
| HS450M-72-166 | 450W | 41.10 | 10.96A | 50.0V | 11.83A | 20.7%           |
| HS455M-72-166 | 455W | 41.20 | 11.06A | 50.1V | 11.96A | 20.9%           |

#### Mechanical Characteristics

|  |                                       |
|--|---------------------------------------|
| Solar Cell   | Monocrystalline (166 x 83 mm)         |
| Cells Quantity   | 144 (6 x 24)                          |
| Dimensions   | 2094 x 1038 x 35 mm                   |
| Glass  | High Transmission Tempered Glass      |
| Frame  | Anodized Aluminium Alloy 35mm         |
| Backsheet  | White                                 |
| Junction Box   | TÜV Certified IP68                    |
| Series Fuse Rating   | 20A x 3 diodes                        |
| Maximum System Voltage   | 1500V DC TÜV                          |
| Output Cables  | 1100 mm / 4.0 mm <sup>2</sup>         |
| Test Standard Condition  | AM=1.5 E=1000/ m <sup>2</sup> TC=20°C |
| NOCT   | 45°C +/- 2°C                          |
| Temperature Coefficients: Pmax -0.39%/K Voc -0.29%/K; Isc 0.049%/K |                                       |

#### I-V Curve



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