

# Aufbauübersicht für Elektrogeräte und Maschinen

## Data form for electrical equipment and machinery



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**Auftraggeber/ Applicant:** Everexceed Industrial Company Limited  
Unit E, 3/F, Good Harvest Centre, 33 On Chuen Street, Fanling, N.T., Hong Kong

**Geräteart/ Type of equipment:** Mono-crystalline Silicon Photovoltaic (PV) Module

**Typenbezeichnung/ Type/model:**

- a) 96 cells module: ESM220S-125, ESM225S-125, ESM230S-125, ESM235S-125, ESM240S-125, ESM245S-125, ESM250S-125, ESM255S-125, ESM260S-125, ESM265S-125, ESM270S-125
- b) 72 cells module: ESM155S-125, ESM160S-125, ESM165S-125, ESM170S-125, ESM175S-125, ESM180S-125, ESM185S-125, ESM190S-125, ESM195S-125, ESM200S-125
- c) 36 cells module: ESM80S-125, ESM85S-125, ESM90S-125, ESM95S-125, ESM100S-125

**Rated Output Power at STC:** a) 220 W, 225 W, 230 W, 235 W, 240 W, 245 W, 250 W, 255 W, 260 W, 265 W, 270 W  
b) 155 W, 160 W, 165 W, 170 W, 175 W, 180 W, 185 W, 190 W, 195 W, 200 W  
c) 80 W, 85 W, 90 W, 95 W, 100 W

**Min. Value of Output Power or Deviation at STC:** N/A

**Maximum System Voltage:** 1000 V d.c.

**Max. over-current protection rating:** 15 A

**Module Dimensions (L x W x H):**  
a) 1580 x 1062 x 45 [mm]  
b) 1580 x 808 x 45 [mm]  
c) 1200 x 554 x 45 [mm]

**Weight:**  
a) 19.0 kg (approx)  
b) 15.0 kg (approx)  
c) 9.25 kg (approx)

**Cell technology:**

Monocrystalline Silicon	<input checked="" type="checkbox"/>
Polycrystalline Silicon	<input type="checkbox"/>
Thin-film (amorphous Silicon)	<input type="checkbox"/>
CIGS	<input type="checkbox"/>
CdTe	<input type="checkbox"/>
Other	<input type="checkbox"/>

**Application classes:**

Class	A:	General access, hazardous voltage, hazardous power applications	<input checked="" type="checkbox"/>
Class	B:	Restricted access, hazardous voltage, hazardous power applications	<input type="checkbox"/>

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Projektleiter / Project Engineer: Symbol Zhao

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Class	C: Limited voltage, limited power applications	<input type="checkbox"/>	
Types of terminations:	Type A: wire of flying lead	<input type="checkbox"/>	
	Type B: tags, threaded stubs, screws, etc.	<input type="checkbox"/>	
	Type C: connector	<input checked="" type="checkbox"/>	
	Junction box	<input checked="" type="checkbox"/>	
Protection devices:	By-pass Diode	<input checked="" type="checkbox"/>	
	Fuse	<input type="checkbox"/>	
	Other	<input type="checkbox"/>	
Fire safety class:	Class A	<input type="checkbox"/>	
	Class B	<input type="checkbox"/>	
	Class C	<input checked="" type="checkbox"/>	
Frame:	Framed	<input checked="" type="checkbox"/>	
	Frameless	<input type="checkbox"/>	
Mechanical load tested:	2400 Pa	<input checked="" type="checkbox"/>	
	5400 Pa	<input type="checkbox"/>	
Module Design - Minimum Distances:	Between cells:	1.5 mm	
	Between cell and edge of laminate:	17.5 mm	
	Between any current carrying part and edge of laminate:	15 mm	
Materials:	Superstrate	Tempered Glass	<input checked="" type="checkbox"/>
		Normal Glass	<input type="checkbox"/>
		Other: _____	<input type="checkbox"/>
	Encapsulant	EVA	<input checked="" type="checkbox"/>
		Other	<input type="checkbox"/>
	Substrate	TPT	<input type="checkbox"/>
		TPE	<input type="checkbox"/>
		Other: <u>PET / PET/ EVA</u>	<input checked="" type="checkbox"/>
	Frame	Aluminium	<input checked="" type="checkbox"/>
		Other: _____	<input type="checkbox"/>

Supplementary information: N/A

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Sicherheitsrelevante Bauteile: (Schalter, Temperaturregler, Heizkörper, Stecker, Fassungen, Leitungen, Kondensatoren, Motoren und sonstige Wicklungen z.B. Transformatoren, Magnetspulen)  
(Not-Aus Geräte, 2-Handsteuerungen, Verriegelungsschalter, Sicherheits-Lichtschranken, Sicherheitsventile, Programmierbare Steuerungen-SPS, hydraulische Steuerungen, pneumatische Steuerungen ....)  
Safety relevant components: (switch, temperature regulator, heating element, plug, socket, wiring, capacitor, motors and other components with windings e.g. transformers, coils)  
(emergency off devices, 2-hand-control-devices, interlock switches, safety light barriers, safety valves, programmable electronic controllers -PLC, hydraulic controllers, pneumatic controllers .....

Bauteil/ Kind of component	Hersteller/ Manufacturer	Angaben über Typ, Stromstärke, Leistung, Transformatorspezifikationsnummer, Isolationsklasse/ Information about type, current, power, transformer specification number, insulating class	Prüfzeichen von Test mark from (VDE, BSI, UL etc.)
1. Solar Cell	China Sunergy(Nanjing) Co., Ltd.	Mono-Si, Cell type: CSUN-HP-S125-Dia165 Cell dimensions L x W: 125 x 125 (mm) Cell thickness: 215(+40, -20) (µm) Cell area: 154.83 cm <sup>2</sup> Two bus-bars, diagonal 165 mm	Tested with appliance
2. Superstrate	CSG Holding Co., Ltd.	Type: CSGSG3.2ML, Material: tempered glass Thickness: 3.2 mm	Tested with appliance
3. Substrate (backsheet)	Coveme S.p.a.	Type: DyMat PYE Material: PET/Adhesive/PET/Adhesive/EVA Thickness: 50/11/125/11/100 (mm) Max. permissible system voltage: 1035 V d.c., white.	TÜV test report
4. Encapsulant	Bridgestone Corporation	Material: EVA, S11 Thickness: 0.5 mm	Tested with appliance
5. Junction box	Zhejiang Renhe Photovoltaic Technology Co., Ltd.	Type: PV-RH0502B, 1000 V d.c., 9.5 A, -40 to +85°C, IP65	TÜV R 50191067
6. Adhesive for junction box	Tonsan Adhesive Inc.	Material: 1527, Silicone sealant for PV modules RTI.: 105°C	Tested with appliance
7. Cable for photovoltaic equipment	Zhejiang Renhe Photovoltaic Technology Co., Ltd.	Type: PV1-F, 1 x 4.0 mm <sup>2</sup> , 1.8kV d.c., -40 to +90°C	TÜV R 50155557
8. Connector for Photovoltaic system	Zhejiang Renhe Photovoltaic Technology Co., Ltd.	Type: 05-6 , 1000 V d.c., 16 A, -40 to +90°C IP65	TÜV R 50179396
9. Bypass diode	Yangzhou Yangjie Electronic Technology Co., Ltd.	Schottky, Type: 10SQ050 Max. peak reverse voltage 50 V, Forward Rectified current 10 A. Max junction temperature 200°C Cells per bypass diode: a) 24, b) 24, c) 18 No. of bypass diodes: a) 4, b) 3, c) 2	Tested with appliance
10. Cell interconnector	Kunming SLT Science and Technology Co., Ltd.	Cross section: 2 x 0.15 (mm) Material: T1 copper, Sn96.5Ag3Cu0.5	Tested with appliance
11. String connector	Kunming SLT Science and Technology Co., Ltd.	Cross section: 5 x 0.2 (mm) Material: T1 copper, Sn99RE	Tested with appliance

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Bauteil/ Kind of component	Hersteller/ Manufacturer	Angaben über Typ, Stromstärke, Leistung, Transformatorspezifikationsnummer, Isolationsklasse/ Information about type, current, power, transformer specification number, insulating class	Prüfzeichen von Test mark from (VDE, BSI, UL etc.)
12. Soldering material	Kunming SLT Science and Technology Co., Ltd.	Type: NCF-A001	Tested with appliance
13. Fixing Tape	TERAOKA SEISAKUSHO CO., LTD.	Type: 631S	Tested with appliance
14. Insulated sheet	Coveme S.p.a.	Type: DyMat PYE Material: PET/Adhesive/PET/Adhesive/EVA Thickness: 50/11/125/11/100 (mm) Max. permissible system voltage: 1035 V d.c., white.	TÜV test report
15. Frame	Jiangyin Shengtong Aluminium Industrial Co., Ltd.	Material: Anodized aluminum 6063-T5	Tested with appliance
16. Adhesive for frame	Tonsan Adhesive Inc.	Material: 1527, Silicone sealant for PV modules RTI: 105°C	Tested with appliance
17. Coding rule of S/N	<p><u>2012</u>    <u>1207</u>    <u>871</u></p> <p>Production Number</p> <p>Month &amp; Date</p> <p>Year</p>		
18. Markings as below: a) Rating label			

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<p>b) Serial No. code bar</p> <p>c) Grounding symbol</p> <p>d) Warning label attached on the cable</p>			

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Product Electrical Ratings at STC:						
Module	ESM220S-125	ESM225S-125	ESM230S-125	ESM235S-125	ESM240S-125	ESM245S-125
open-circuit voltage [V]:	58.56	58.56	59.52	59.52	59.52	59.52
short-circuit current [A]:	4.95	5.06	5.20	5.29	5.40	5.51
voltage at max. power [V]:	48.00	48.00	48.00	48.00	48.00	48.00
current at max. power [A]:	4.59	4.69	4.80	4.90	5.00	5.11
max. power (with tolerance) [W]:	220±5%	225±5%	230±5%	235±5%	240±5%	245±5%
Module	ESM250S-125	ESM255S-125	ESM260S-125	ESM265S-125	ESM270S-125	-
open-circuit voltage [V]:	60.10	60.10	60.10	60.20	60.20	-
short-circuit current [A]:	5.63	5.70	5.80	5.90	6.00	-
voltage at max. power [V]:	48.00	48.50	48.80	48.90	49.00	-
current at max. power [A]:	5.21	5.26	5.33	5.42	5.51	-
max. power (with tolerance) [W]:	250±5%	255±5%	260±5%	265±5%	270±5%	-
Module	ESM155S-125	ESM160S-125	ESM165S-125	ESM170S-125	ESM175S-125	ESM180S-125
open-circuit voltage [V]:	43.34	43.92	43.92	43.92	43.92	44.64
short-circuit current [A]:	4.68	4.80	4.95	5.10	5.25	5.40
voltage at max. power [V]:	36.00	36.00	36.00	36.00	36.00	36.00
current at max. power [A]:	4.31	4.45	4.59	4.73	4.87	5.00
max. power (with tolerance) [W]:	155±5%	160±5%	165±5%	170±5%	175±5%	180±5%
Module	ESM185S-125	ESM190S-125	ESM195S-125	ESM200S-125	-	-
open-circuit voltage [V]:	44.88	45.00	46.00	46.20	-	-
short-circuit current [A]:	5.40	5.50	5.60	5.64	-	-
voltage at max. power [V]:	36.00	36.00	36.52	37.20	-	-
current at max. power [A]:	5.14	5.28	5.34	5.38	-	-
max. power (with tolerance) [W]:	185±5%	190±5%	195±5%	200±5%	-	-

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Product Electrical Ratings at STC:						
Module	ESM80S-125	ESM85S-125	ESM90S-125	ESM95S-125	ESM100S-125	-
open-circuit voltage [V]:	21.96	21.96	22.32	22.35	22.40	-
short-circuit current [A]:	4.80	5.10	5.40	5.70	5.90	-
voltage at max. power [V]:	18.00	18.00	18.00	18.20	18.50	-
current at max. power [A]:	4.45	4.73	5.00	5.22	5.41	-
max. power (with tolerance) [W]:	80±5%	85±5%	90±5%	95±5%	100±5%	-

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