

# SUNON

## SPECIFICATION FOR APPROVAL

### FOR REFERENCE

**CUSTOMER :**

**MODEL NO : CM036-20003N**

**DESCRIPTION : Thermal Module**

**DIMENSIONS : 223.4X177.8X15.6 mm**

**SUNON SPEC. NO. : C01003940G-00**

**CUSTOMER APPROVAL NO. :**

**APPROVED BY**  
**CUSTOMER :**  
**(AUTHORIZED)**

<b>DRAWN</b>  Fei Fei	<b>CHECKED</b>  Qian	<b>APPROVED</b>  Jordan	<b>SPEC. NO</b>	<b>C01003940G-00</b>
			<b>ISSUED DATE</b>	<b>12. 20. 2021</b>
			<b>EDITION</b>	<b>0</b>
			<b>REVISION DATE</b>	

建準電機工業股份有限公司

SUNONWEALTH ELECTRIC MACHINE INDUSTRY CO., LTD.

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**SPECIFICATION FOR APPROVAL****CHECK LIST**

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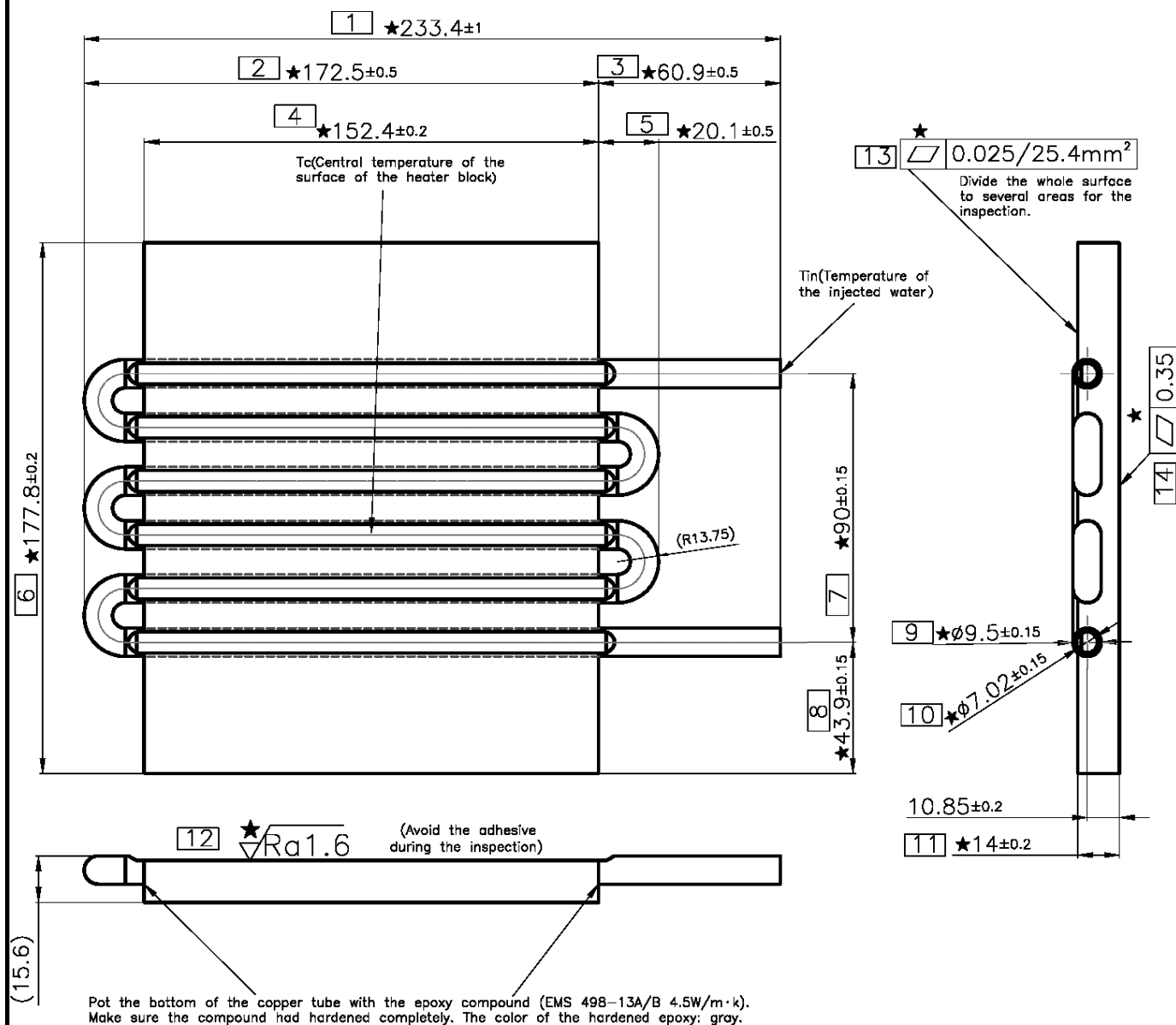
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**MODEL : CM036-20003N****1.SPECIFICATIONS**

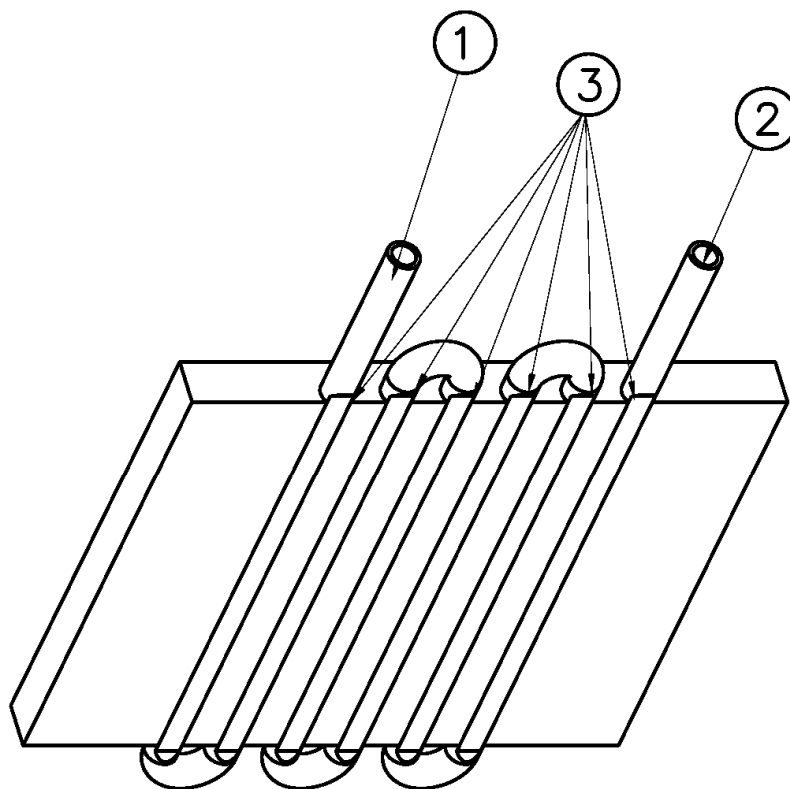
1. Application	N/A		
2. Heat Sink Dimension	177.8X172.5X14 mm		
3. Heat Sink Material	AL1050		
4. Cooling Method	N/A		
5. Thermal Grease / PAD	N/A		
6. Fan Dimension	N/A		
7. Fan Speed (with Heat Sink)	N/A		
8. Fan Airflow ( with Heat Sink )	N/A		
9. Fan Rating Voltage	N/A		
10. Fan Rating Current ( with Heat Sink )	N/A		
11. Fan Power Consumption ( with Heat Sink )	N/A		
12. Fan Bearing Type	N/A		
13. Fan Connector	N/A		
21. Cooling Module Noise	N/A		
15. Fan Operating Voltage Range	N/A		
16. Operating Temperature	-10 to + 70 deg. C		
17. Storage Temperature	-40 to + 70 deg. C		
18. Weight	1194 g		
19. Life Expectance	N/A		
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## 2.DIMENSION



UNIT: mm

## 2.DIMENSION



3	環氧樹脂	epoxy	EMS 498-13A/B 4.5W/m·k	—
2	散熱片	AL1050	177.8*172.5*14 HF	1
1	銅管	C1100	ø9.5*ø7.02*1241.07 HF	1
項次 ITEM	名 稱 NAME	材質 MATERIAL	規 格 SPECIFICATION	數量 QTY
零 件 表 PART DETAIL LIST				

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# 3.FAI & CPK TEST

## 1. FAI TEST

### FAI DATA SHEET

Part Number :	QM_6PASS	Supplier :		Date:	2021/4/23	New:	
Part Description :		ISR No :		Cavity / Tool		Revised:	
Revision :		Material Spec:		Inspector		Resubmission:	

MOI-Method of inspection abbreviation: HG = Height gauge, MIC = Micrometer, DC = Dial Caliper, P = Protractor, OC = Optical Comparator, CG = Checking Gauge, CMM = Coordinate Measuring Machine,  
 OMM = Optical Coordinate Measuring Machine, HT = Hardness Trestler, TG = Thickness Gauge, VIS = Visual, PG = Plug Gauge,

OTHER:

DRAWING LOCATION	NOMINAL	+TOL	-TOL	Sample Number					Deviation from Nominal					Mean	% Tolerance		Accept/Reject		Inspection Method
				1	2	3	4	5	1	2	3	4	5		UPPER	LOWER	HIGH	LOW	
1	233.40	1.000	1.000	233.720	234.300	233.900	233.790	234.070	0.320	0.900	0.500	0.390	0.670		90%	0%	Alert	Accept	CMM
2	172.50	0.500	0.500	172.940	173.000	172.750	172.890	172.880	0.440	0.500	0.250	0.390	0.380		100%	0%	Alert	Accept	CMM
3	60.90	0.500	0.500	60.960	61.080	61.080	60.890	60.910	0.060	0.180	0.180	-0.010	0.010		36%	2%	Accept	Accept	CMM
4	152.40	0.200	0.200	152.540	152.410	152.380	152.440	152.470	0.140	0.010	-0.020	0.040	0.070		70%	10%	Alert	Accept	CMM
5	20.10	0.500	0.500	19.610	19.720	20.270	19.850	19.670	-0.490	-0.380	0.170	-0.250	-0.430		34%	98%	Accept	Alert	CMM
6	177.80	0.200	0.200	177.650	177.920	177.870	177.790	177.910	-0.150	0.120	0.070	-0.010	0.110		60%	75%	Accept	Alert	CMM
7	90.00	0.150	0.150	90.020	90.010	90.060	89.960	89.940	0.020	0.010	0.060	-0.040	-0.060		40%	40%	Accept	Accept	CMM
8	43.90	0.150	0.150	43.837	43.823	44.050	43.927	43.956	-0.063	-0.077	0.150	0.027	0.056		100%	51%	Alert	Accept	CMM
9	9.50	0.150	0.150	9.591	9.585	9.366	9.551	9.583	0.091	0.085	-0.134	0.051	0.083		61%	89%	Accept	Alert	CMM
10	7.02	0.150	0.150	7.051	7.023	6.912	6.986	7.081	0.031	0.003	-0.108	-0.034	0.061		41%	72%	Accept	Alert	CMM
11	14.00	0.200	0.200	14.170	14.200	14.110	14.200	14.180	0.170	0.200	0.110	0.200	0.180		100%	0%	Alert	Accept	CMM
12	1.60	0.000	1.600	0.460	0.455	0.619	0.646	0.628	-1.140	-1.145	-0.981	-0.954	-0.972		-	72%	Accept	Alert	CMM
13-1	0.025	0.000	0.025	0.008	0.020	0.025	0.010	0.011	-0.017	-0.005	0.000	-0.015	-0.014		-	70%	Alert	Alert	CMM
13-2	0.025	0.000	0.025	0.006	0.009	0.008	0.007	0.010	-0.019	-0.017	-0.017	-0.018	-0.015		-	78%	Accept	Alert	CMM
13-3	0.025	0.000	0.025	0.006	0.010	0.007	0.020	0.010	-0.019	-0.015	-0.018	-0.005	-0.015		-	76%	Accept	Alert	CMM
13-4	0.025	0.000	0.025	0.005	0.006	0.006	0.025	0.007	-0.021	-0.019	-0.019	0.000	-0.018		-	82%	Alert	Alert	CMM
13-5	0.025	0.000	0.025	0.005	0.007	0.007	0.009	0.006	-0.020	-0.018	-0.018	-0.017	-0.019		-	80%	Accept	Alert	CMM
13-6	0.025	0.000	0.025	0.004	0.006	0.007	0.009	0.007	-0.021	-0.019	-0.018	-0.016	-0.018		-	83%	Accept	Alert	CMM
13-7	0.025	0.000	0.025	0.004	0.007	0.006	0.006	0.007	-0.021	-0.018	-0.019	-0.019	-0.018		-	83%	Accept	Alert	CMM
13-8	0.025	0.000	0.025	0.007	0.007	0.007	0.007	0.009	-0.018	-0.018	-0.018	-0.018	-0.016		-	74%	Accept	Alert	CMM
13-9	0.025	0.000	0.025	0.014	0.005	0.009	0.009	0.006	-0.011	-0.020	-0.017	-0.016	-0.019		-	79%	Accept	Alert	CMM
13-10	0.025	0.000	0.025	0.006	0.011	0.010	0.005	0.007	-0.020	-0.014	-0.015	-0.020	-0.018		-	82%	Accept	Alert	CMM
13-11	0.025	0.000	0.025	0.006	0.007	0.008	0.009	0.007	-0.019	-0.018	-0.017	-0.016	-0.018		-	77%	Accept	Alert	CMM
13-12	0.025	0.000	0.025	0.006	0.007	0.006	0.008	0.009	-0.019	-0.018	-0.019	-0.017	-0.016		-	78%	Accept	Alert	CMM
14	0.35	0.000	0.350	0.186	0.183	0.228	0.223	0.171	-0.164	-0.167	-0.122	-0.127	-0.179		-	51%	Accept	Accept	CMM

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### 3.FAI & CPK TEST

#### 1.CPK TEST

Model : CM036-20003N(INC-6PASS)

日期 : 2021/11/16

Try mm

No	1	2	3	4	5
(Project)	Size#4	Size#7	Size#11	Differential pressure	air-tight test
Central value of the spec	152.400	90.000	14.000		
UCL	152.600	90.150	14.200	500.000	0.020
LCL	152.200	89.850	13.800		
UNIT (unit)	mm	mm	mm	Kpa	Mpa
ave	152.402	89.999	13.995	327.631	0.000
max	152.450	90.047	14.047	338.672	0.000
min	152.352	89.952	13.950	315.937	0.000
1	152.446	89.971	13.954	324.4	0.0
2	152.413	90.027	13.950	325.5	0.0
3	152.374	89.968	14.029	334.2	0.0
4	152.427	89.965	14.011	324.0	0.0
5	152.380	89.991	14.030	317.1	0.0
6	152.372	90.020	13.966	331.3	0.0
7	152.371	90.047	13.977	331.7	0.0
8	152.397	90.014	13.999	335.1	0.0
9	152.358	90.023	14.000	328.1	0.0
10	152.444	90.022	14.012	325.5	0.0
11	152.406	90.040	14.015	328.3	0.0
12	152.408	89.970	13.966	326.7	0.0
13	152.410	90.035	14.006	325.4	0.0
14	152.430	90.046	13.956	338.0	0.0
15	152.370	89.952	14.042	327.6	0.0
16	152.450	90.017	13.959	326.8	0.0
17	152.385	90.003	14.026	333.9	0.0
18	152.422	90.032	13.970	325.5	0.0
19	152.390	89.954	13.982	320.2	0.0
20	152.359	90.014	14.033	338.7	0.0
21	152.377	89.976	13.967	321.6	0.0
22	152.358	89.977	13.953	327.9	0.0
23	152.396	90.045	13.986	328.0	0.0
24	152.421	89.960	14.036	333.6	0.0
25	152.420	89.963	14.024	315.9	0.0
26	152.434	89.986	14.047	325.5	0.0
27	152.401	90.012	14.013	328.2	0.0
28	152.352	90.040	14.020	329.1	0.0
29	152.389	90.009	13.960	322.2	0.0
30	152.439	89.969	13.985	325.5	0.0
31	152.365	89.979	14.024	328.3	0.0
32	152.386	89.962	13.976	326.7	0.0
33	152.449	89.983	14.029	325.4	0.0
34	152.417	90.003	13.956	338.0	0.0
35	152.448	89.987	13.963	323.0	0.0

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### 3.FAI & CPK TEST

#### 2.CPK TEST

Model : CM036-20003N(INC-6PASS)

日期 : 2021/11/16

Control run

No	1	2	3	4	5
(Project)	Size#4	Size#7	Size#11	Differential pressure	air-tight test
Central value of the spec	152.400	90.000	14.000		
UCL	152.600	90.150	14.200	500.000	0.020
LCL	152.200	89.850	13.800		
UNIT (unit)	mm	mm	mm	Kpa	Mpa
ave	152.401	89.996	14.000	327.663	0.000
max	152.447	90.047	14.046	338.672	0.000
min	152.353	89.952	13.952	315.937	0.000
1	152.374	89.999	13.952	324.4	0.0
2	152.358	90.047	14.010	325.5	0.0
3	152.353	89.977	14.018	334.2	0.0
4	152.415	89.952	13.993	324.0	0.0
5	152.442	89.972	14.001	317.1	0.0
6	152.433	90.015	14.013	331.3	0.0
7	152.376	89.979	13.969	331.7	0.0
8	152.353	89.990	13.996	335.1	0.0
9	152.445	89.965	13.987	328.1	0.0
10	152.443	89.961	13.995	325.5	0.0
11	152.360	90.031	13.960	328.3	0.0
12	152.401	89.990	14.009	326.7	0.0
13	152.403	90.026	14.011	325.4	0.0
14	152.445	90.024	14.022	338.0	0.0
15	152.442	89.998	13.971	327.6	0.0
16	152.387	90.014	13.990	326.8	0.0
17	152.447	89.963	14.019	333.9	0.0
18	152.359	89.957	14.028	325.5	0.0
19	152.444	89.958	14.039	320.2	0.0
20	152.359	89.975	14.046	338.7	0.0
21	152.424	90.008	13.955	321.6	0.0
22	152.441	90.021	14.016	327.9	0.0
23	152.411	90.027	14.021	328.0	0.0
24	152.356	89.962	14.018	333.6	0.0
25	152.443	89.996	14.004	315.9	0.0
26	152.369	90.012	13.983	325.5	0.0
27	152.416	89.958	14.040	328.2	0.0
28	152.391	90.043	13.961	329.1	0.0
29	152.403	89.966	14.028	322.2	0.0
30	152.374	89.983	13.990	324.2	0.0
31	152.436	90.022	13.969	325.5	0.0
32	152.359	90.041	14.033	328.3	0.0
33	152.391	90.007	13.959	326.7	0.0
34	152.390	89.983	13.972	325.4	0.0
35	152.377	90.032	14.029	338.0	0.0

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# 3.FAI & CPK TEST

## Quality comprehensive confirmation DATA SHEET

Control run, Try run, Mass n

Approve

Review

Prepare

Model : CM036-2000(N)(NC-6PASS)

NO	Project(mm)	Control run								Try run								Reference
		Spec	Average	Standard deviation σ	Max	Min	NO.	Project ability cp cpk		Spec	Average	Standard deviation σ	Max	Min	NO.	Project ability cp cpk		
1	Size#4	152.20~152.60mm	152.401	0.034	152.447	152.353	35	1.961	1.956	152.20~152.60mm	152.402	0.030	152.450	152.352	35	2.209	2.189	
2	Size#7	89.851~90.151mm	89.996	0.029	90.047	89.952	35	1.734	1.686	89.851~90.151mm	89.999	0.030	90.047	89.952	35	1.659	1.647	
3	Size#11	13.80~14.20mm	14.000	0.027	14.046	13.952	35	2.467	2.464	13.80~14.20mm	13.995	0.031	14.047	13.950	35	2.158	2.103	
4	Differential pressure	≤500Kpa	327.663	5.370	338.672	315.937	35	15.517	10.697	≤500Kpa	327.631	5.396	338.672	315.937	35	15.444	10.649	
5	air-tight test	≤0.020Mpa	0.000	0.000	0.000	0.000	35	#DIV/0!	#DIV/0!	≤0.020Mpa	0.000	0.000	0.000	0.000	35	#DIV/0!	#DIV/0!	

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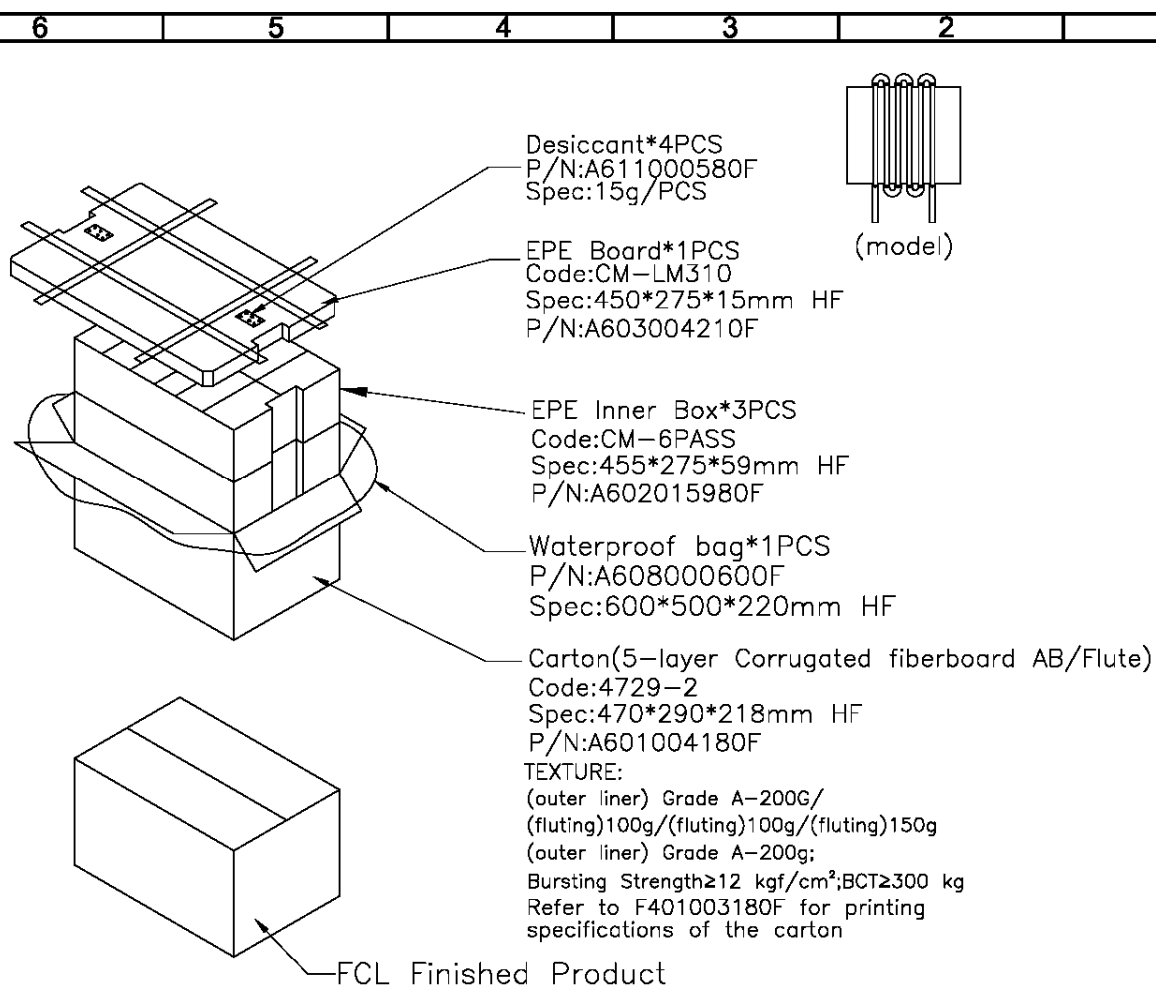
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## 4.Package



## Procedure:

- Step:①Place the waterproof bag inside the carton,  
and put desiccants at each corner of the carton.
- ②Put finished products inside the EPE Inner box,  
2 units per tray, 3 trays stacked in total.  
Place a EPE board on the top,with BOPP tapes for wrapping.
- ③Place desiccants at each top corner of the EPE board  
and organize the bag opening.  
Finish the packing by sealing the carton with BOPP packing tapes.

Parts and raw materials used in this  
product shall not contain any prohibited  
and hazardous substance pertained to  
<List of Environmental Hazardous  
Substance Inspection Techniques and  
Standards> of Sunonwealth Electric  
Machine Industry Co., Ltd.

## 注意事項 NOTICE

Applicable Client:

For Customization

Applicable Model:

CM036-20003N

★: With this mark,  
inspect the dimension.

SPEC. of MC	P/N of MC	QTY	Cuft	Code	Carton: Corrugate Fiberboard/ EPE Inner Box
470*290*218	A601004180F	6	1.05	4729-2	材 質 MATERIAL

適 用 範 圍  
SCOPE

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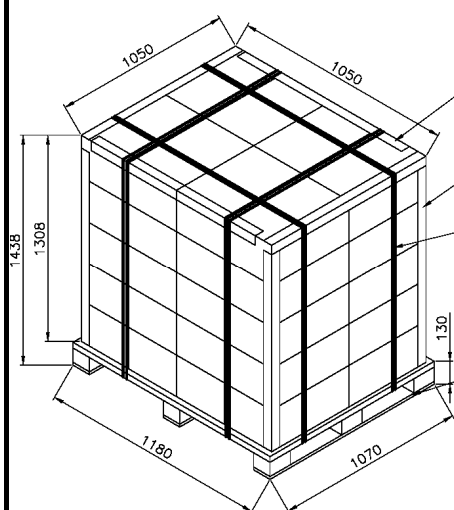
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## 4.Package



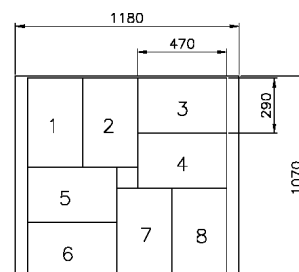
L-shaped pallet edge boards\*4PCS  
Spec:50\*50\*1000\*5mm GN  
P/N:A611000270G

L-shaped pallet edge boards\*4PCS  
Spec:50\*50\*1200\*5mm GN  
P/N:A611000720F

Packing Strap

Smoked wood pallet:  
Spec:1180\*1070\*130mm GN  
P/N:A609000560G

Carton Layout



NOTICE:

1. 8 cartons per layer, 6 layers in total (48 Carton/Pallet).
2. Tightly wrap around the pallet with wrapping films.

NO.	Model	SPEC. of carton	Carton/Pallet	pcs/Carton	pcs/Pallet	N.W	G.W
1.	CM036-20003N	470*290*218	48	6	288	344	407

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# Notes

## I. SPECIFICATION MODIFICATION

1. SUNON offers engineering assistance on module installation and cooling system design.
2. All changes, modifications and/or revisions to the specifications, if any, are incorporated in the attached specifications.
3. No changes, modifications and/or revisions to these specifications are effective absent agreement, by both SUNON and the customer, in writing.
4. This module will be shipped in accordance with the attached specification unless SUNON and the customer have agreed otherwise, in writing, as specified in Paragraph 3, above.

## II. OTHER

1. DO NOT operate this module in proximity to hazardous materials such as organic silicon, cyanogens, formalin, phenol, or corrosive gas environments including, but not limited to, H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, or Cl<sub>2</sub>.
2. Unless otherwise noted, all testing of this module is conducted at 25°C ambient temperature and sixty-five percent (65%) relative humidity.
3. DO NOT store this module in an environment with high humidity. This module must be stored in accordance with the attached specifications regarding storage temperature. If this module is stored for more than 6 months, SUNON recommends functional testing before using.
4. SUNON reserves the right to use components from multiple sources at its discretion. The use of components from other sources will not affect the specifications as described herein.

## III. WARRANTY

This module is warranted against all defects which are proved to be fault in our workmanship and material for one year from the date of our delivery. The sole responsibility under the warranty shall be limited to the repair of the module or the replacement thereof, at SUNON's sole discretion. SUNON will not be responsible for the failures of its module due to improper handling, misuse or the failure to follow specifications or instructions for use. In the event of warranty claim, the customer shall immediately notify SUNON for verification. SUNON will not be responsible for any consequential damage to the customer's equipment as a result of any module proven to be defective.

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## Declaration of RoHS

### Control declaration of environment- related substances/ materials

1. In accordance with the Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU, Sunon product have complied with law and discipline not to employ the forbidden substances, and restrict the allowable concentration of some limited substances deliberately in our components.

No	Substance		Criteria
1	CFCs & HCFCs (ozone depleting substances)		Forbidden
2	Chlorinated Organic Solvent		Forbidden
3	Lead and its compounds	Plastic (Frame, Impeller, wire harness, etc.)	<100ppm
		Solder	<1000ppm
		Steel alloy	<3500ppm
		Aluminium alloy	<4000ppm
		Copper alloy	<4wt%
4	Cadmium and its compounds	Solder	<20ppm
		Parts composed of metals containing zinc (e.g. brass, zinc for die casting)	<100ppm
		Plastic	<5ppm
5	PBBs and PBDEs		Forbidden
6	PCB and PCT		Forbidden
7	CP, Short-chain Chlorinated paraffins C10-13, Cl $\geq$ 48 wt%		Forbidden
8	Mirex		Forbidden
9	PCN		Forbidden
10	Hexavalent Chromium compounds		<100ppm
11	Mercury and its compounds		Forbidden
12	Asbestos		Forbidden
13	Organic Tin compounds		Forbidden
14	Azo compounds		Forbidden
15	TBBP-A in external case plastic parts of products (PCB is exempted)		<1000ppm
16	Nickel in external case parts, which are likely to result in prolonged skin exposure		<1000ppm
17	Hexabromocyclododecane (HBCDD)		<1000ppm
18	Di-butyl Phthalate (DBP)		<1000ppm
19	Benzyl butyl Phthalate (BBP)		<1000ppm
20	Di-ethylhexyl Phthalate (DEHP)		<1000ppm
21	Di-isobutyl Phthalate (DIBP)		<1000ppm

SUNONWEALTH ELECTRIC  
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