Listing Constructional Data Report (CDR)

1.0 Reference and Address			
Report Number	201228108GZU-001	Original Issued: 21-Jun-2021	Revised: None
Standard(s)	Household And Similar Electrical Appliances, Part 1: General Requirements [UL 60335-1:2016 Ed.6] Safety of Household and Similar Appliances - Part 1: General Requirements [CSA C22.2#60335-1:2016 Ed.2] Household and Similar Electrical Appliances - Part 2 - 40: Particular Requirements for Electrical Heat Pumps, Air-Conditioners, and Dehumidifiers [UL 60335-2-40:2019 Ed.3] Household and Similar Electrical Appliances - Safety - Part 2-40: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers [CSA C22.2#60335-2-40:2019 Ed.3]		

Applicant	Zymbo (Zhong Shan) Electrical Mfg.,Co.,Ltd	Manufacturer	**Zymbo (Zhong Shan) Electrical Mfg.,Co.,Ltd**
Address	Guangfeng Industrial Estate, Shalang, Xiqu, Zhongshan City, Guangdong	Address	Guangfeng Industrial Estate, Shalang, Xiqu, Zhongshan City, Guangdong
Country	China	Country	China
Contact	Mr. qiuhuisheng	Contact	Mr. qiuhuisheng
Phone	86 15913445575	Phone	86 15913445575
FAX	NA	FAX	NA
Email	qhs@zymbo.cn	Email	qhs@zymbo.cn

2.0 Product Description

Product	Fan Coil Unit
Brand name	ZYMBO
Description	The products covered by this report are Fan Coil Units rated 115V, 60 Hz, intended for indoor and household use, permanently connected to power supply source with field wiring and leads
Models	HW 400, HW 600, HW 800, FS 200, FS 400, FS 600, FS 800
Model Similarity	Series HW are identical to Series FS except that appearance, Heat exchanger and overall size. Difference between HW 400, HW 600, HW 800 are Heat exchanger and overall size. Difference between FS 200, FS 400, FS 600, FS 800 are Heat exchanger and overall size.

Ratings

Models	Voltage	Frequency	Fan motor (FLA)	MCA	MOP
HW 400	115 V	60 Hz	0.24 A	3 A	3 A
HW 600	115 V	60 Hz	0.26 A	3 A	3 A
HW 800	115 V	60 Hz	0.26 A	3 A	3 A
FS 200	115 V	60 Hz	0.24 A	3 A	3 A
FS 400	115 V	60 Hz	0.24 A	3 A	3 A
FS 600	115 V	60 Hz	0.26 A	3 A	3 A
FS 800	115 V	60 Hz	0.26 A	3 A	3 A

Other Ratings

models	Max. Allowable Pressure (Mpa/PSIG)	size(WxHxD)/ inch
HW 400	0.6 MPa/87 PSIG	34.4 X 15.1 X4.7
HW 600	0.6 MPa/87 PSIG	41.9 X 15.1 X4.7
HW 800	0.6 MPa/87 PSIG	49.5 X 15.1 X4.7
FS 200	0.6 MPa/87 PSIG	26.8 X 21.8 X 4.7
FS 400	0.6 MPa/87 PSIG	34.4 X 21.8 X 4.7
FS 600	0.6 MPa/87 PSIG	41.9 X 21.8 X 4.7
FS 800	0.6 MPa/87 PSIG	49.5 X 21.8 X 4.7

3.0 Product Photographs

Photo 1 - External view of model FS 800, also represents other "FS" series models except overall demension.

Photo 2 - External view of model FS 800, also represents other "FS" series models except overall demension.

Photo 3 - External view of model FS 800, also represents other "FS" series models except overall demension.

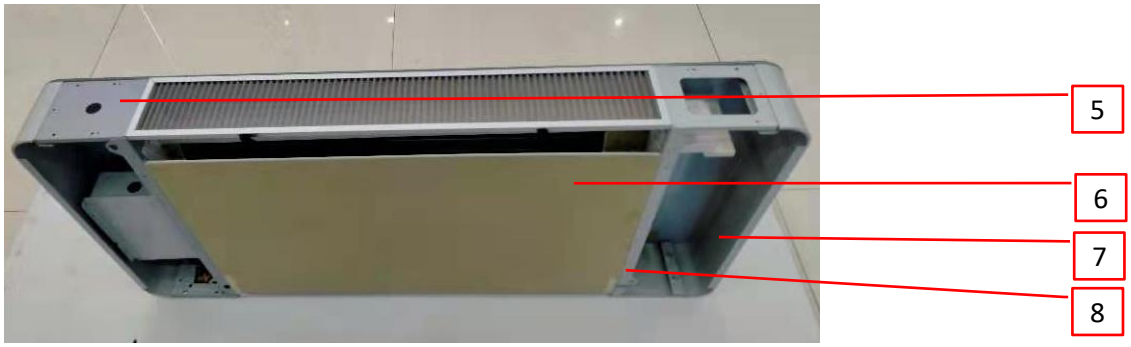


Photo 4 - External view of model FS 800, also represents other "FS" series models except overall demension.

3.0 Product Photographs

Photo 5 - Internal view of model FS 800, also represents other "FS" series models except overall demension.

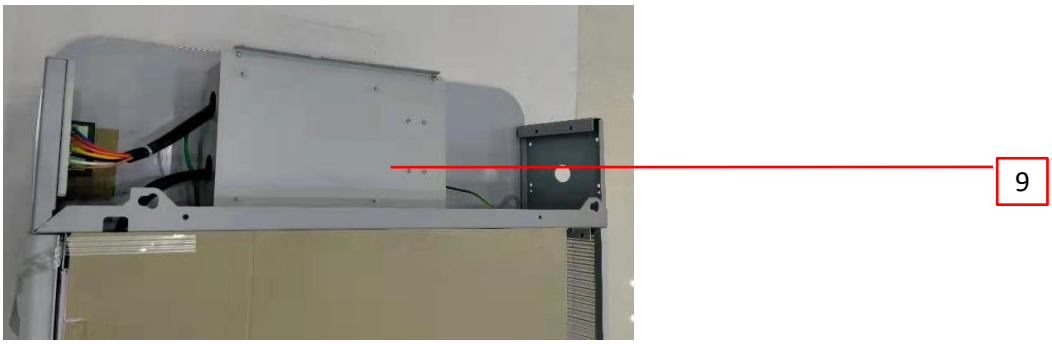


Photo 6 - Internal view of model FS 800, also represents other "FS" series models except overall demension.

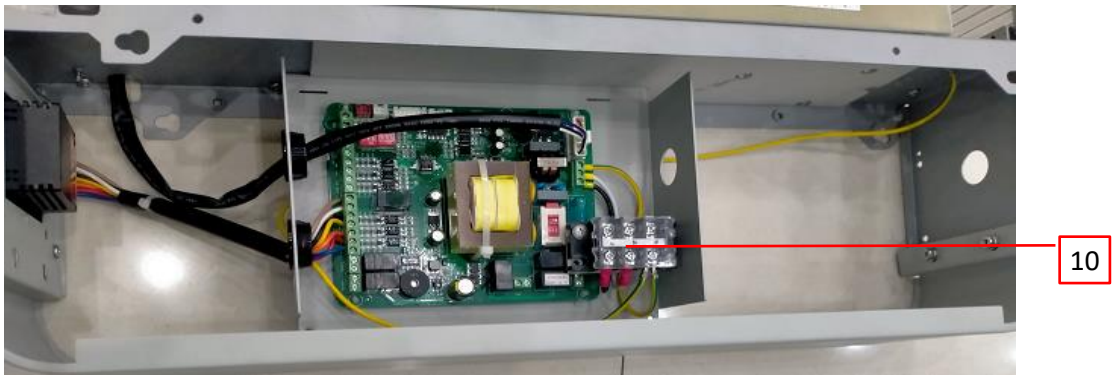


Photo 7 - Internal view of model FS 800, also represents other "FS" and "HW" series models except overall demension.

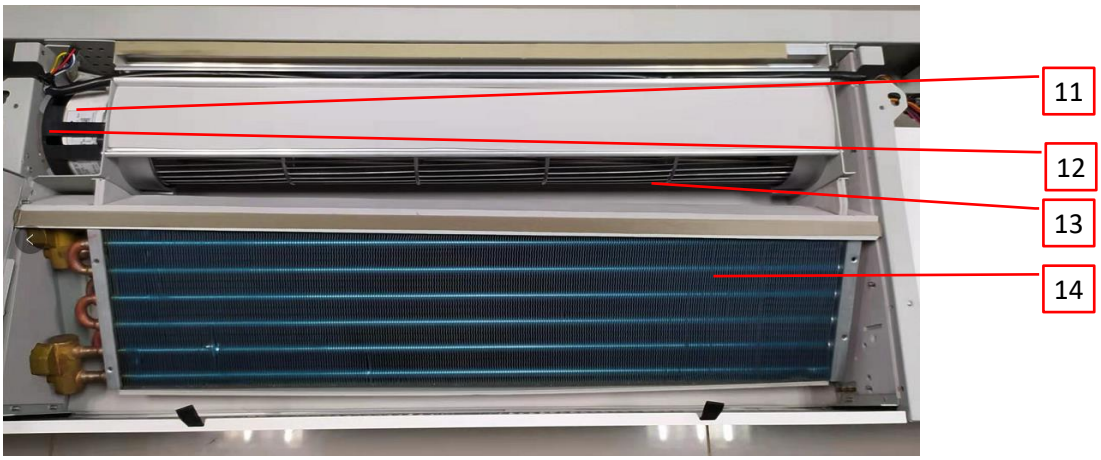


Photo 8-External view of model HW 400, also represents other "HW" series models except overall demension

3.0 Product Photographs

Photo 9-External view of model HW 400, also represents other "HW" series models except overall demension

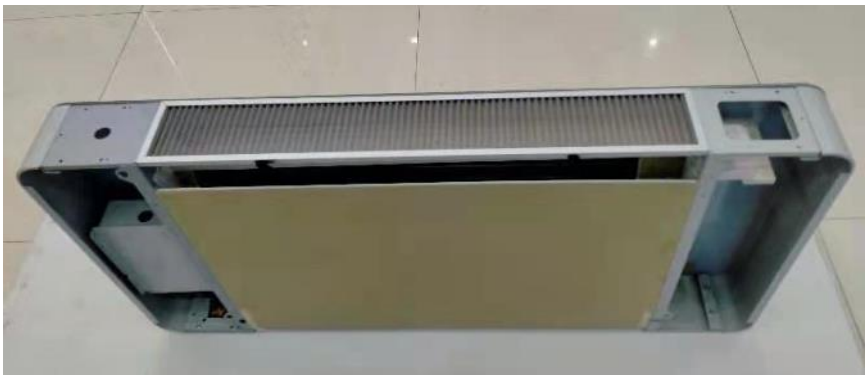


Photo 10-Internal view of model HW 400, also represents other "HW" series models except overall demension

Photo 11 - Internal view of model HW 400, also represents other "HW" series models.

3.0 Product Photographs

Photo 12 - Mainboard view of Series "FS" and "HW"

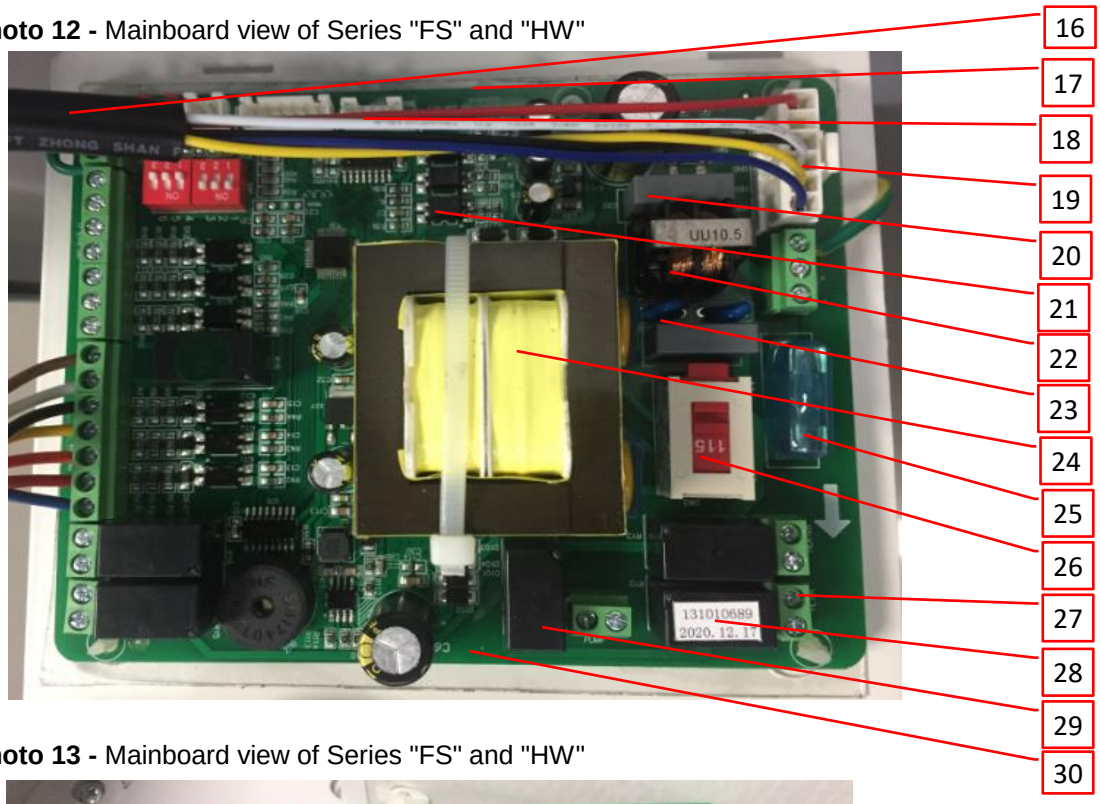


Photo 13 - Mainboard view of Series "FS" and "HW"

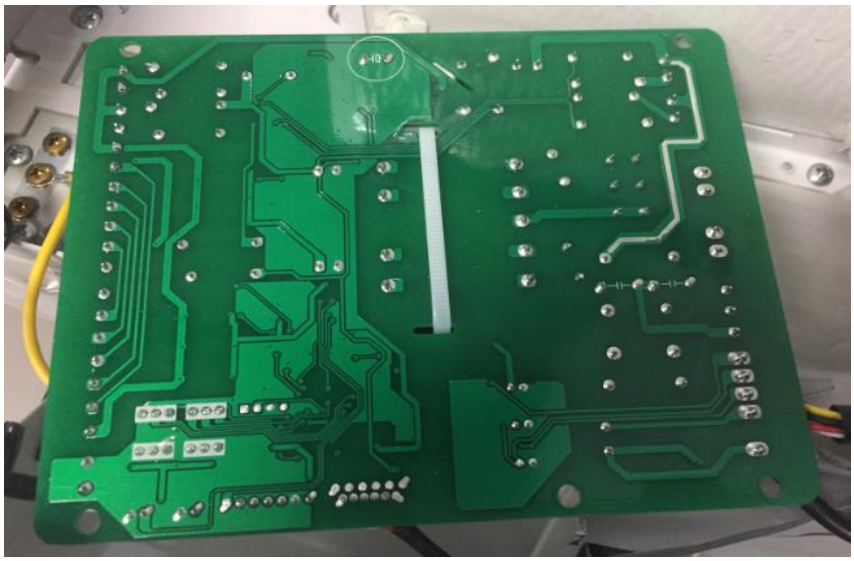


Photo 14 - Unlisted Component Fan Motor ZWR15-A56.

3.0 Product Photographs

Photo 15 - Unlisted Component Fan Motor ZWR15-A56.

Photo 16 - Unlisted Component Transformer ILT48-240400.

4.0 Critical Components						
# Photo	Item no.[1]	Name	Manufacturer/ trademark[2]	Type / model[2]	Technical data and securement means	Mark(s) of conformity [3]
1	1	Front Enclosure (Glass)	Zhongshan Digaonuo	Tempered glass	Single lay tempered glass, thickness 3 mm.	NR
			Zhongshan Ruixin	Tempered glass		NR
1	2	Front Enclosure (Metal)(not shown)	Various	Various	Made of painting steel sheet, thickness 1.0 mm, secured to other enclosure by screws.	NR
1	3	Marking label (not show)	KUNSHAN CHENGYA PRINTING CO LTD (MH28252)	CY-001	Suitable for affixed on painting steel sheet, rated -40~100°C, indoor use.	cURus
			Various	Various	Suitable for affixed on painting steel sheet, rated -40~100°C, indoor use.	cURus
1	4	Air Outlet Grille	Various	Various	Made of painted sheet steel, openings max. width 12.4 mm.	NR
3	5	Conduit Mounting Plate	Various	Various	Made of painting steel sheet, thickness 1.0 mm. Provide one conduit openings with diameter 22.2 mm.	NR
3	6	Rear enclosure	Various	Various	Made of painting steel sheet covered with felt, thickness 0.8 mm, secured to other enclosure by screws.	NR
3	7	Side enclosure	Various	Various	Made of painting steel sheet, thickness 1.0 mm, secured to other enclosure by screws.	NR
3	8	Metal Frame	Various	Various	Made of painting steel sheet, thickness 1.2 mm, secured to other enclosure by screws.	NR
5	9	Electrical box	Various	Various	Made of painted sheet steel, thickness 1.2 mm.	NR
6	10	Terminal block	HOPPY ELECTRONICS (SHANGHAI) CO LTD (E163737)	HP-T3061	300 V, 25 A, 10-20 AWG, FW2, 3-bit, For copper wire	cURus
7	11	Fan motor	ZHUHAI KAIBANG MOTOR MFG CO LTD	ZWR15-A56	DC160V, 0.55 A, 15 W	See 5.0
7	12	Fan motor holder	KINGFA SCI & TECH CO LTD (E171666)	HF-606	ABS, all color, V-0, 60°C, thickness 2.0 mm.	cURus
7	13	Fan Impeller	Various	Various	Made of Galvanized steel, thickness 0.5 mm, Φ=90 mm, length 388 mm for HW 400, length 580 mm for HW 600, length 772 mm for HW 800, length 196 mm for FS 200, length 388 mm for FS 400, length 580 mm for FS 600, length 772 mm for FS 800.	NR

4.0 Critical Components						
# Photo	Item no.[1]	Name	Manufacturer/ trademark[2]	Type / model[2]	Technical data and securement means	Mark(s) of conformity [3]
7	14	Heat exchanger	Various	Various	consist of copper tube and aluminium pieces. Outer diameter of copper tube is 9.52 mm and wall thickness 0.115 mm	NR
8	15	Air Outlet Grille	Various	Various	Made of painted sheet rod, openings max. width 8 mm.	NR
12	16	PVC tube	Various	Various	600 V, 105 ºC, VW-1, thickness 0.8 mm.	cURus
12	17	Main board	ADDISON TECHNOLOGY (ZHONGSHAN) CO LTD	Re-600	Included below item 19 ~item 30.	NR
12	18	Internal wiring	Various	1015	300 V, 105 °C, VW-1, 18-22 AWG for fan motor, 600 V, 105 °C,18-22 AWG for transformer, 18-22 AWG for other loads.	cURus
				1430		cURus
12	19	Quick connector	YUEQING JIADE ELECTRONICS CO LTD	VH-6Y	250V, 7A, suitable for 22~28 AWG copper wires.	cURus
			YUEQING REDSTAR ELECTRONICS CO LTD (E362723)	39600-6Y		cURus
12	20	X capacitor	NISTRONICS (JIANGXI) CO LTD (E338685)	MPR	275K, 104M	cURus
			DAIN ELECTRONICS CO LTD (E147776)	MPX	104K, 275V	cURus
			DONGGUAN CITY DAFU ELECTRONICS CO LTD (E465278)	MPX	104K, 275V	cURus
12	21	Optical Isolators	Sharp Corporation (E64380)	PC817C	5000 Vac isolation	cURus
12	22	Inductor	Guangdong Haoer Electronics Co., Ltd.	UU10.5-125A	20 mH, 125 A.	NR
12	23	Y capacitor	JYH CHUNG ELECTRONICS CO LTD (E187963)	JY	222M, 300V	cURus
			MURATA MFG CO LTD (E37921)	KY	222M300V	cURus
			DONGGUAN CITY DAFU ELECTRONICS CO LTD (E465278)	CT7	222M, 300V	cURus
12	24	Transformer	SHENZHEN RONGWEIXIN TECHNOLOGY CO LTD	ILT48-240400	Input: 115V~ Output 1: 24V, 0.4 mA, Output 2: 15V, 0.15 mA. Class 2 transformer.	See 5.0

4.0 Critical Components

# Photo	Item no.[1]	Name	Manufacturer/ trademark[2]	Type / model[2]	Technical data and securement means	Mark(s) of conformity [3]
12	25	Fuse	DONGGUAN BETTER ELECTRONICS TECHNOLOGY CO LTD (E300003)	522	5A, 250V	cURus
			XC ELECTRONICS (SHENZHEN) CORP LTD (E249609)	5TE	5A, 250V	cURus
12	26	Switch	CANAL ELECTRONIC CO LTD (E81103)	SL14-22AM-1AN	12A 125/250VAC	cURus
12	27	Terminal block	DEGSONELECTRONICS CO LTD (E228872)	DG126-5.0	300 V, 10 A, 26-14AWG, for copper wire.	cURus
12	28	Relay	XIAMEN HONGFA ELECTROACOUSTIC CO LTD (E134517)	HF32F	5A, 250VAC	cURus
				JZC-32F	5A, 250VAC	cURus
			SONG CHUAN PRECISION CO LTD (E88991)	307-1AH-C	5A, 250VAC	cURus
12	29	Varistor	GUANGDONG FENGHUA ADVANCED TECHNOLOGY HOLDING CO LTD. XIANHUA NEW SENSITIVE COMPONENTS BRANCH (E325462)	FNR-14K271	Volts: 175V, Vn(Vdc): 270V	cURus
			BRIGHTKING (SHENZHEN) CO LTD (E327997)	271KD14	Volts: 175V, Vn(Vdc): 270V	cURus
12	30	PCB	Various	Various	V-0, 130°C, thickness 1.6 mm, met UL 796.	cURus

NOTES:

1) Not all item numbers are indicated (called out) in the photos, as their location is obvious.

2) “Various“ means any type, from any manufacturer that complies with the "Technical data and securement means" and meets the "Mark(s) of conformity" can be used.

3) Indicates specific marks to be verified, which assures the agreed level of surveillance for the component. "NR" - indicates Unlisted and only visual examination is necessary. "See 5.0" indicates Unlisted components or assemblies to be evaluated periodically refer to section 5.0 for details.

5.0 Critical Unlisted CEC Components

INSULATED COIL

Photo #	Item no.	Name	Manufacturer/Trademark	Type / model
7	11	Fan motor	ZHUHAI KAIBANG MOTOR MFG CO LTD	ZWR15-A56
Electrical Rating:		DC160V, 0.55 A, 15 W		Insulation class A
Component Standard used:		UL 60335-1:2016 Ed.6, UL 60335-2-40:2017 Ed.2 and CSA C22.2#60335-1:2016 Ed.2, CSA C22.2#60335-2-40:2017 Ed.2		

MATERIALS LIST

Component	Manufacturer	Type/model	Dimensions/thickness/ assembly information
Plastic Enclosure	Various	Various	Bmc material, any color, V-0, 130 °C, min thick 1.2 mm
Metal Enclosure	Various	Various	Made of painted sheet steel, thickness 1.2 mm.
Slot Insulation	ASAHI KASEI CORP	FG171	PA66, all color, V-0, 130 °C,min thick 1.0 mm
Magnet wire	Various	Various	Polyurethane coated copper wire, ANSI type MW 75, Rated 155 °C
Lead wires	Various	1430	300 V,105 °C, 22 AWG, VW-1
PVC Sleeving	Various	Various	PVC, 600V, 105°C, VW-1
PCB	Various	Various	V-0, 130°C, thickness 1.6 mm
IPM	ROHM	BM6248FS	600 V, 1.5 A.

WINDING(S) RESISTANCE

Winding Designation	Wire Size (AWG or mm^2)	Wire Type	Turns	Volts	Amps	DC resistance (Ω) +/- 10%:
--	Ø 0.29 mm	--	--	--	--	46.7

VERIFICATION PROCESS

Frequency: **Annual**	Test Site: **CEC**	Number of samples to test: **1**

Test Name	Test Parameters		
Winding resistance	See resistance per winding above.		
Dielectric Strength	Apply voltage Between	Test Voltage	Test Time
	live part to dead metal part	1340 Vac	60 s

INSULATED COIL

Photo #	Item no.	Name	Manufacturer/Trademark	Type / model
12	24	Transformer	SHENZHEN RONGWEIXIN TECHNOLOGY CO LTD	ILT48-240400
Electrical Rating:		Input: 115V~ Output 1: 24V, 0.4 mA, Output 2: 15V, 0.15 mA. Class 2 transformer.		Insulation class A
Component Standard used:		UL 5085-3, 1st Ed., & CSA C22.2 No. 66.3-06, Rev. Nov 30, 2012		

MATERIALS LIST

Component	Manufacturer	Type/model	Dimensions/thickness/assembly

5.0 Critical Unlisted CEC Components			
Insulating Tape	SHENZHEN XINHUAHUI ADHESIVE TECHNOLOGY CO LTD PLASTIC CO. LTD.	HMT803	130 °C, measured thickness 0.025 mm
Widing	Various	Various	Polyurethane coated copper wire, ANSI type MW 75, Rated 130 °C
Thermal Fuse	HONG HU BLUELIGHT ELECTRONIC CO. ,LTD.	RH115-2	250 V, 2 A, 115 °C
	ZHONGSHAN JOINT-FORCE ELECTRON CO. ,LTD.	L20	
		M20	
Bobbin	ASAHI KASEI CORP	FG171	PA66, all color, V-0, 130 °C,min thick 1.0 mm

WINDING(S) RESISTANCE

Winding Designation	Wire Size	Wire Type	Turns	Volts	Amps	DC resistance (Ω) +/- 10%:
Primary magnet wire	Φ 0.17mm Φ 0.12mm	UEW	--	--	--	68.4, 162.5
Secondary magnet wire	secondary 1: Φ 0.37mm secondary 2: Φ 0.20mm	UEW	--	--	--	secondary 1: 3.5; secondary 2: 8.4

VERIFICATION PROCESS

Frequency: **Annual**	Test Site: **CEC**	Number of samples to test: **1**

Test Name	Test Parameters		
Winding resistance	See resistance per winding above.		
Dielectric Strength	Apply voltage Between	Test Voltage	Test Time
	Primary to core	1230 V	60 Seconds
	Primary to secondary	2500 V	60 Seconds
	Secondary to core	500 V	60 Seconds

6.0 Critical Features

Recognized Component - A component part, which has been previously evaluated by an accredited certification body with restrictions and must be evaluated as part of the basic product considering the restrictions as specified by the Conditions of Acceptability.

Listed Component - A component part, which has been previously Listed or Certified by an accredited Certification Organization with no restrictions and is used in the intended application within its ratings.

Unlisted Component - A part that has not been previously evaluated to the appropriate designated component standard. It may also be a Listed or Recognized component that is being used outside of its evaluated Listing or component recognition.

Critical Features/Components - An essential part, material, subassembly, system, software, or accessory of a product that has a direct bearing on the product's conformance to applicable requirements of the product standard.

Construction Details - For specific construction details, reference should be made to the photographs and descriptions. All dimensions are approximate unless specified as exact or within a tolerance. In addition to the specific construction details described in this Report, the following general requirements also apply.

1. Spacing - In primary circuits, 1.2mm minimum clearance is maintained for fuction insulation, basic insulation and supplementary insulation. 1.5mm minimum clearance is maintained for reinforced insulation. 2.4 mm creepage distance is maintained for basic and supplementary insulation. 2.2 mm creepage distance is maintained for function insulation. 4.8 mm creepage distance is maintained for reinforced insulation.

2. Mechanical Assembly - Components such as switches, fuseholders, connectors, wiring terminals and display lamps are mounted and prevented from shifting or rotating by the use of lockwashers, starwashers, or other mounting format that prevents turning of the component.

3. Corrosion Protection - All ferrous metal parts are protected against corrosion by painting, plating or the equivalent.

4. Accessibility of Live Parts - All uninsulated live parts in primary circuitry are housed within a non-metallic enclosure constructed with no openings other than those specifically described in Sections 4 and 5.

5. Grounding - All exposed dead-metal parts and all dead-metal parts within the enclosure that are exposed are connected to the equipment grounding terminal.

6. Internal Wiring - Internal wiring is routed away from sharp or moving parts. Internal wiring leads terminating in soldered connections are made mechanically secure prior to soldering. Recognized Component separable (quick disconnect) connectors of the positive detent type, closed loop connectors, or other types specifically described in the text of this report are also acceptable as internal wiring terminals. At points where internal wiring passes through metal walls or partitions, the wiring insulation is protected against abrasion or damage by plastic bushings or grommets.

7. Schematics - Refer to Illustration No(s). 3-4 for schematics requiring verification during Field Representative Inspection Audits.

8. Markings - The product is marked on a labeling system as described in item no. 3 of Section 4.0 as follows:
   - applicant's name, brand name
   - model number
   - date of manufacture
   - Max. Allowable Pressure
   - electrical ratings (volts, current, frequency, Fan motor FLA, MCA, MOP)

   For details, refer to Illustration No. 1

9. Cautionary Markings - The following are required:
   Refer to Illustration 2 for details.

11. Installation, Operating and Safety Instructions - Instructions for installation and use of this product are provided by the manufacturer. Installation must be performed in accordance with the requirements of NEC and CEC by authorized personnel only.

7.0 Illustrations

Illustration 1 - Markings

ZYMBO		
Fan coil unit		
Machine model	**Reverso FS 200**	
Code	**FS 200**	
Color	White	Silver
Power Supply	115V~60Hz	
Power Absorption	28W	
Fan Motor FLA	0.24A	
Cooling capacity *	3000Btu/h	
Heating capacity **	3750Btu/h	
Air flow Min-Max	80-180m3/h (47-106CFM)	
SPL Min-Max	20.5-34.3dB(A)	
Net weigh	14kg (30.9lb)	
Max. Allowable Pressure	0.6MPa (87PSIG)	
MCA	3A	
MOP	3A	
* Condition test:Room 27℃-47%UR. Water IN-OUT 7-12℃ * *Condition test:Room 20℃. Water IN 50℃.Water flow like cooling		
Date of Manufacture: 02/2021		

Note: The above marking is representative for the applicant, other models listed in section 2.0 are same as the above except for model number and different ratings which are listed in section 2.0.

7.0 Illustrations

Illustration 2 - Caution Marking.

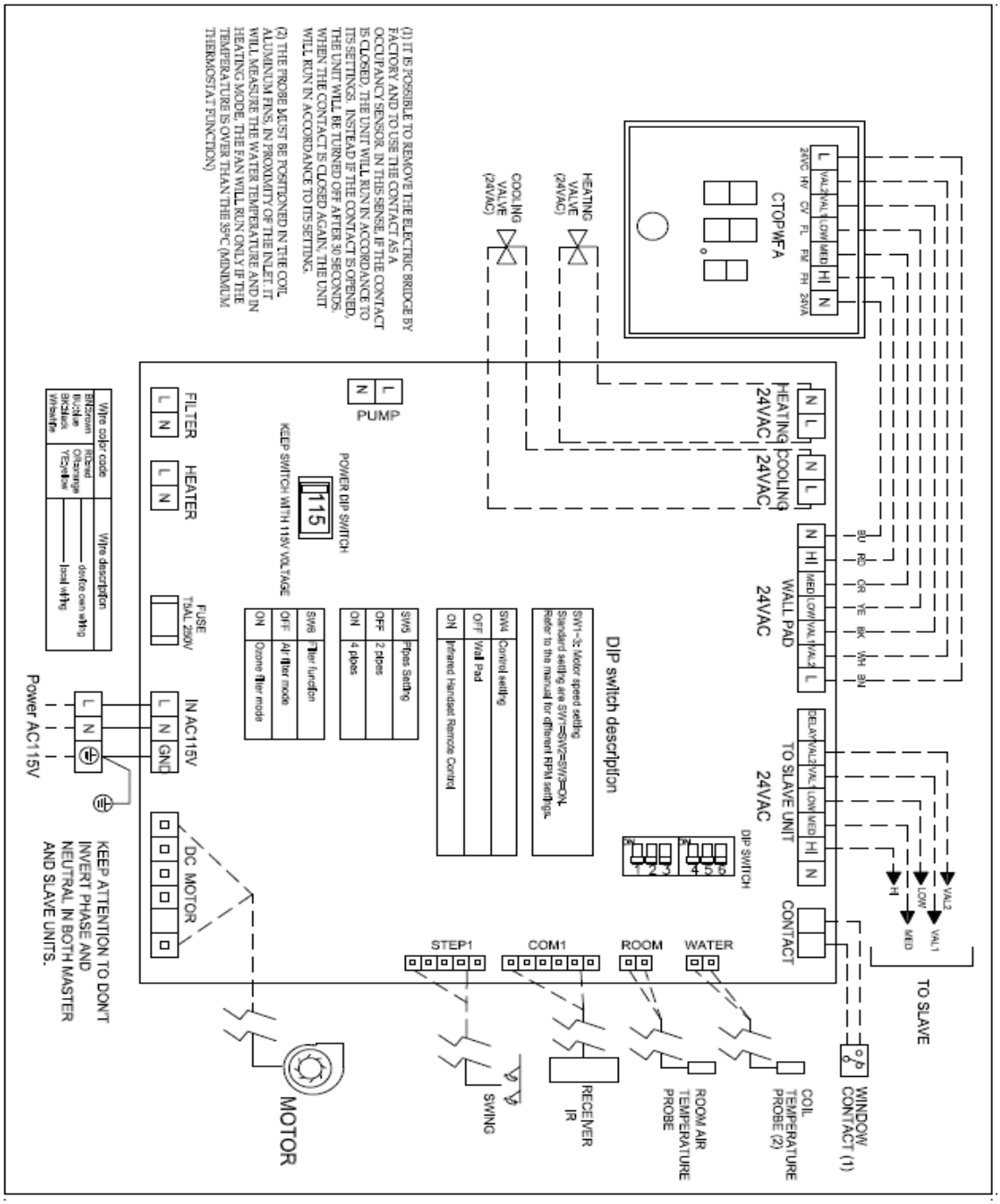
Paste on all panels providing access to hazardous voltage uninsulated live parts.

WARNING: RISK OF ELECTRIC SHOCK. CAN CAUSE INJURY OR DEATH. DISCONNECT All REMOTE ELECTRIC POWER SUPPLIES BEFORE SERVICING

AVERTISSEMENT. RISQUE DE CHOCS ÉLECTRIQUES.
PEUT CAUSER DES BLESSURES ET MÊME ENTRAÎNER LA
MORT. COUPER LES SOURCES D'ALIMENTATION À DISTANCE AVANT LE DÉPANNAGE

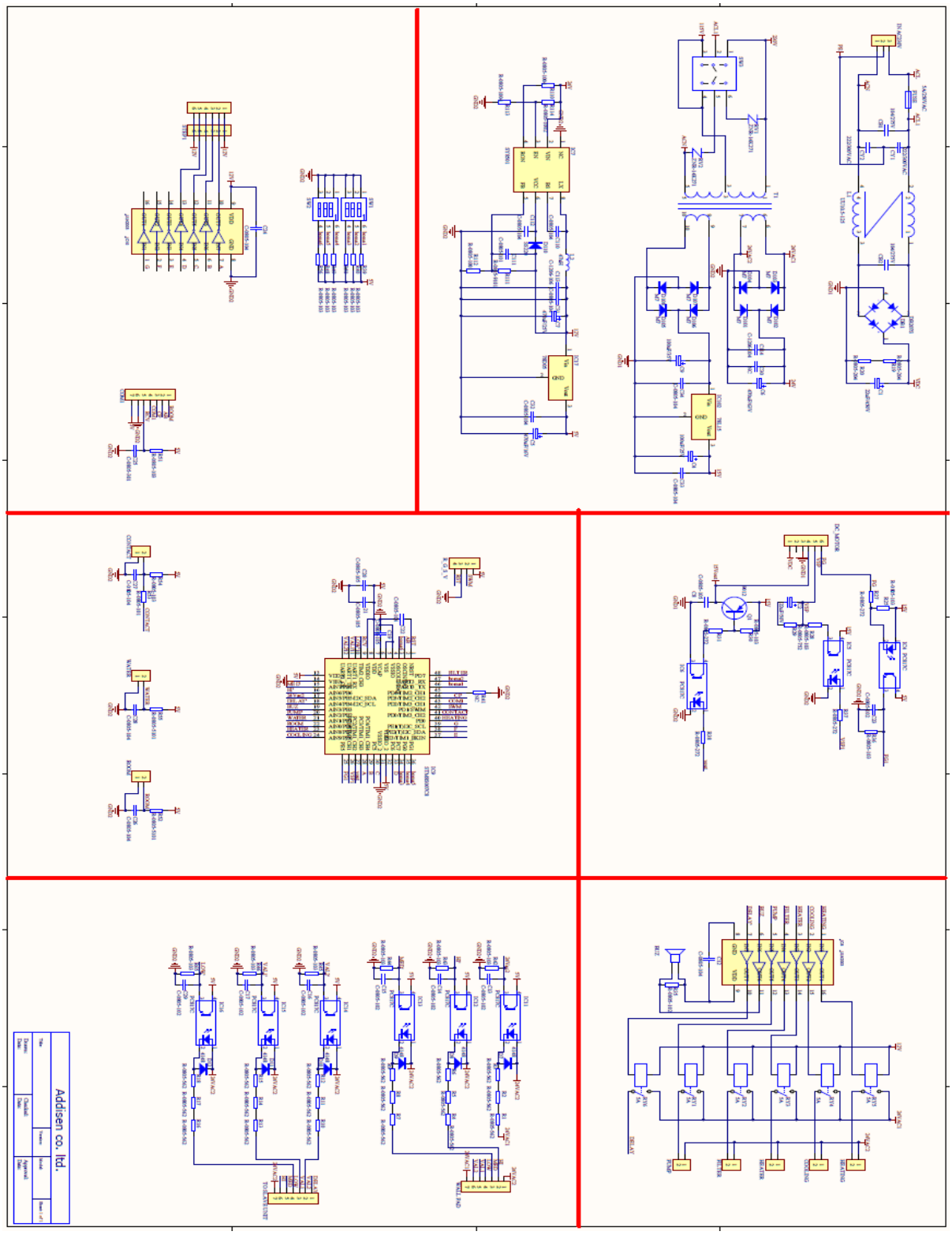
Note: The letters of the above marking are not less than 3.2 mm in height.

Illustration 3 - wiring diagram.



7.0 Illustrations

Illustration 4 - PCB schematic diagram.



7.0 Illustrations

Illustration 5.1 - Drawing of Heat exchanger of HW 400.

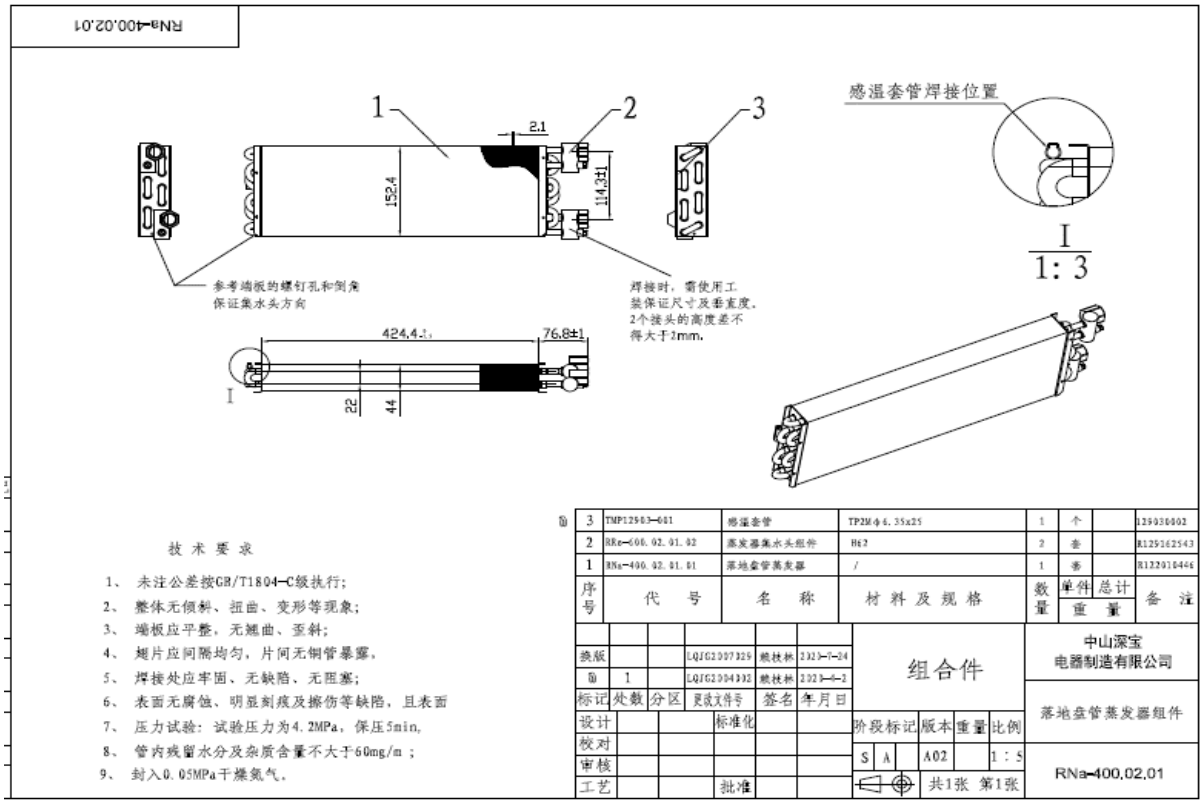
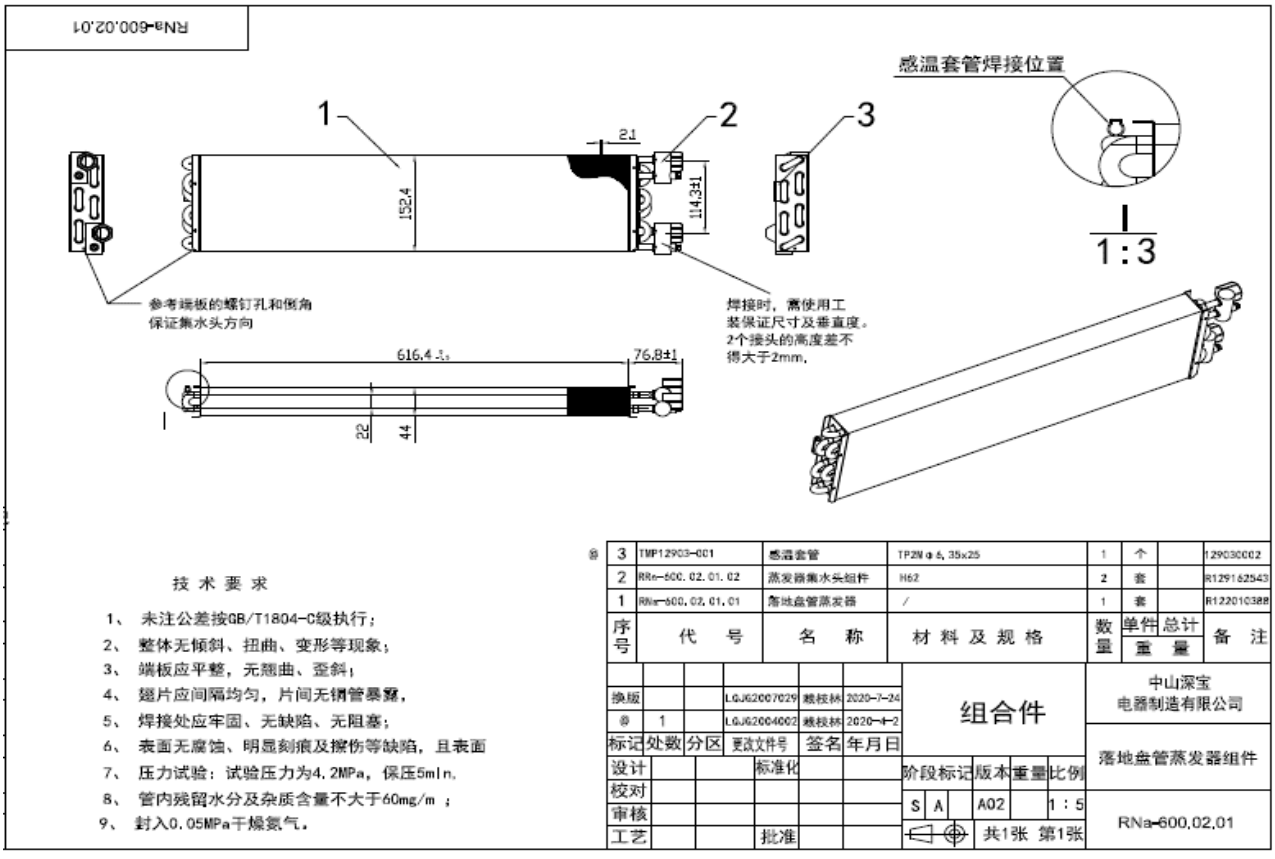


Illustration 5.2 - Drawing of Heat exchanger of HW 600.



7.0 Illustrations

Illustration 5.3 - Drawing of Heat exchanger of HW 800.

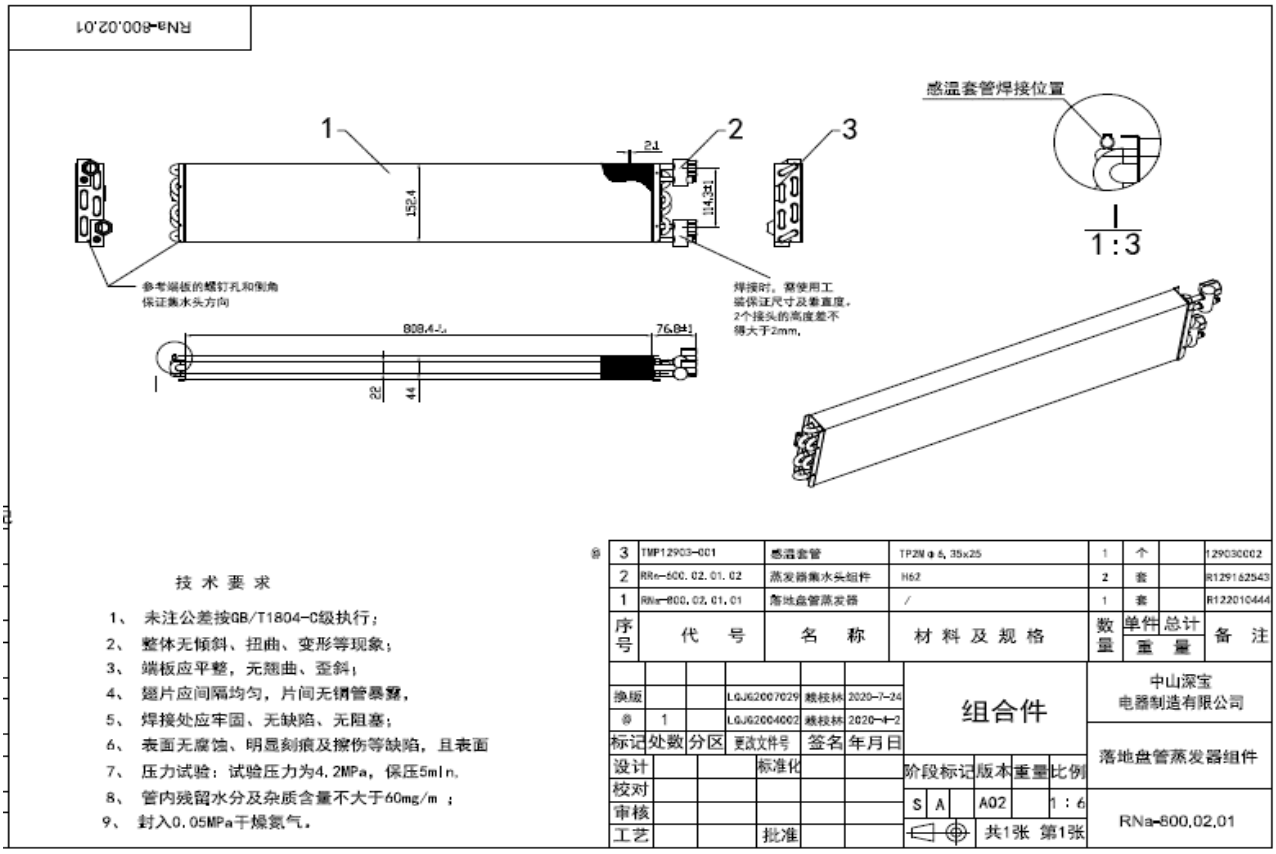
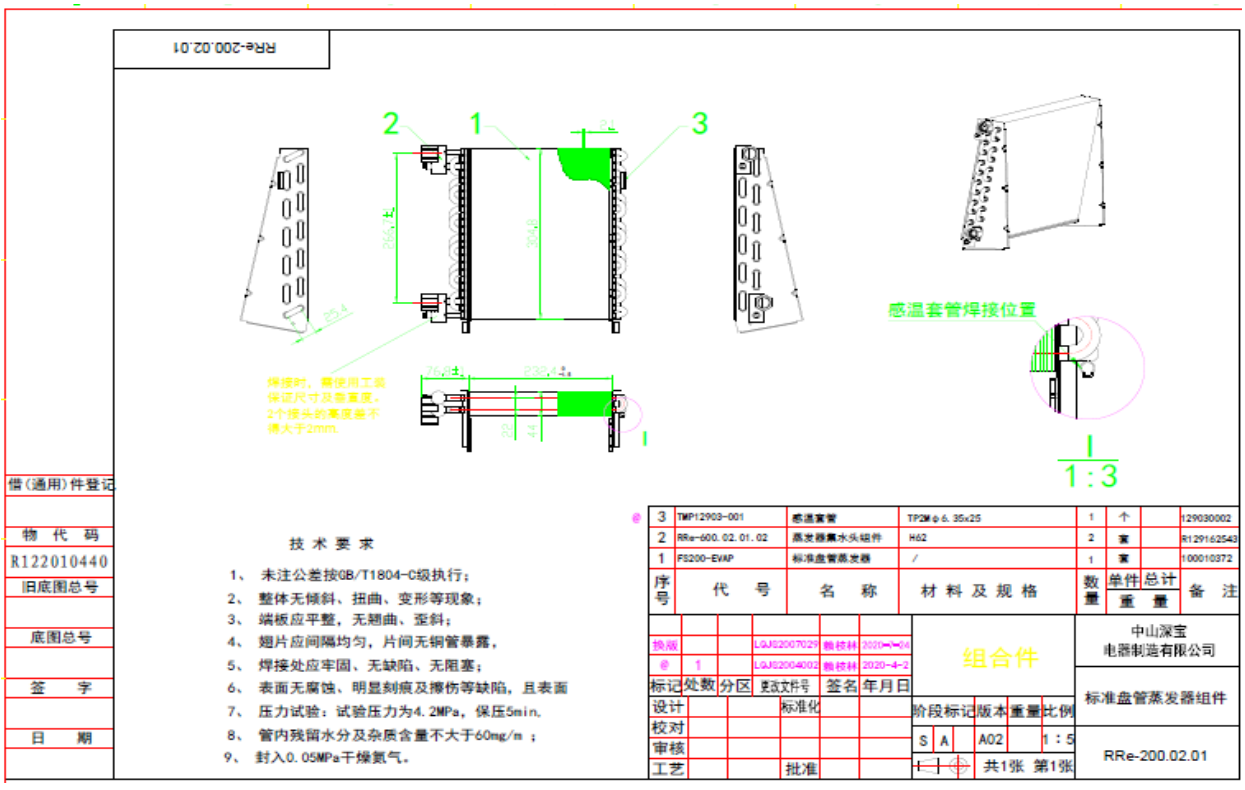


Illustration 5.4 - Drawing of Heat exchanger of FS 200.



7.0 Illustrations

Illustration 5.5 - Drawing of Heat exchanger of FS 400.

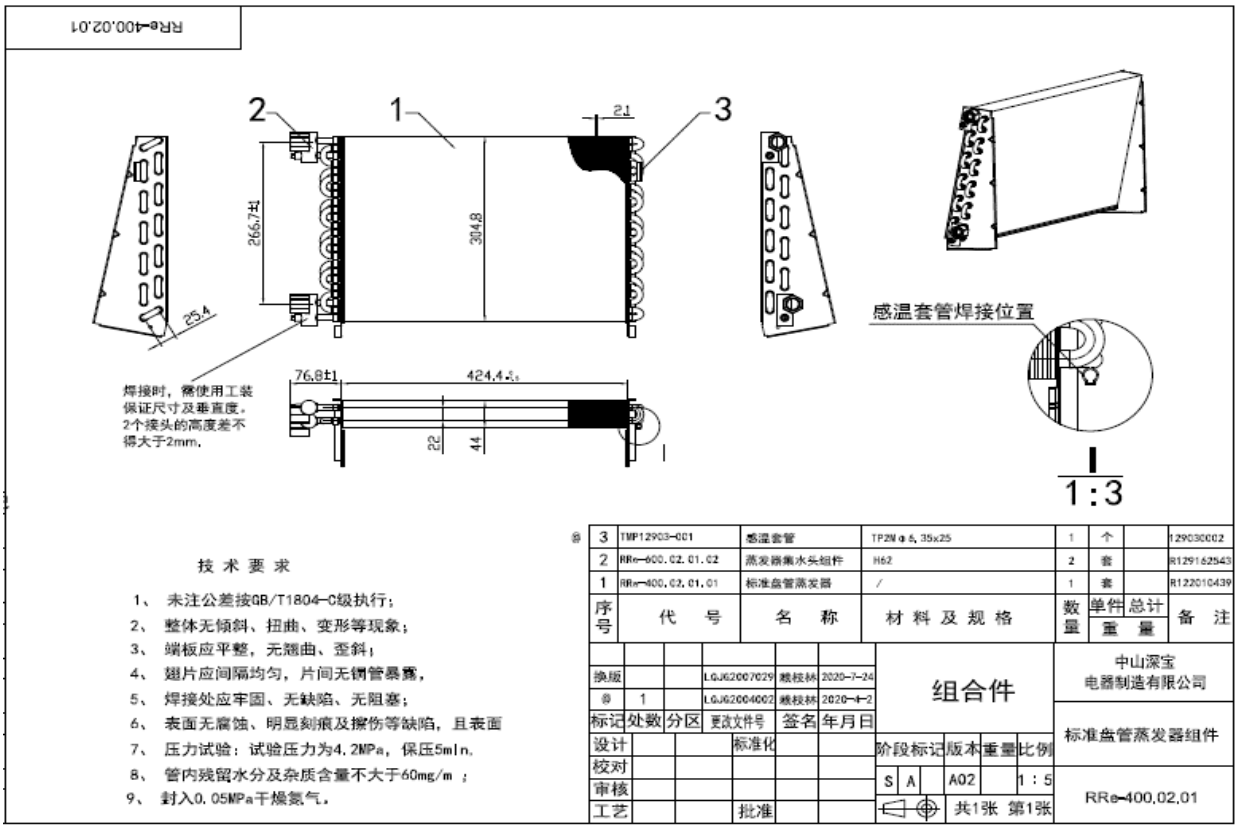
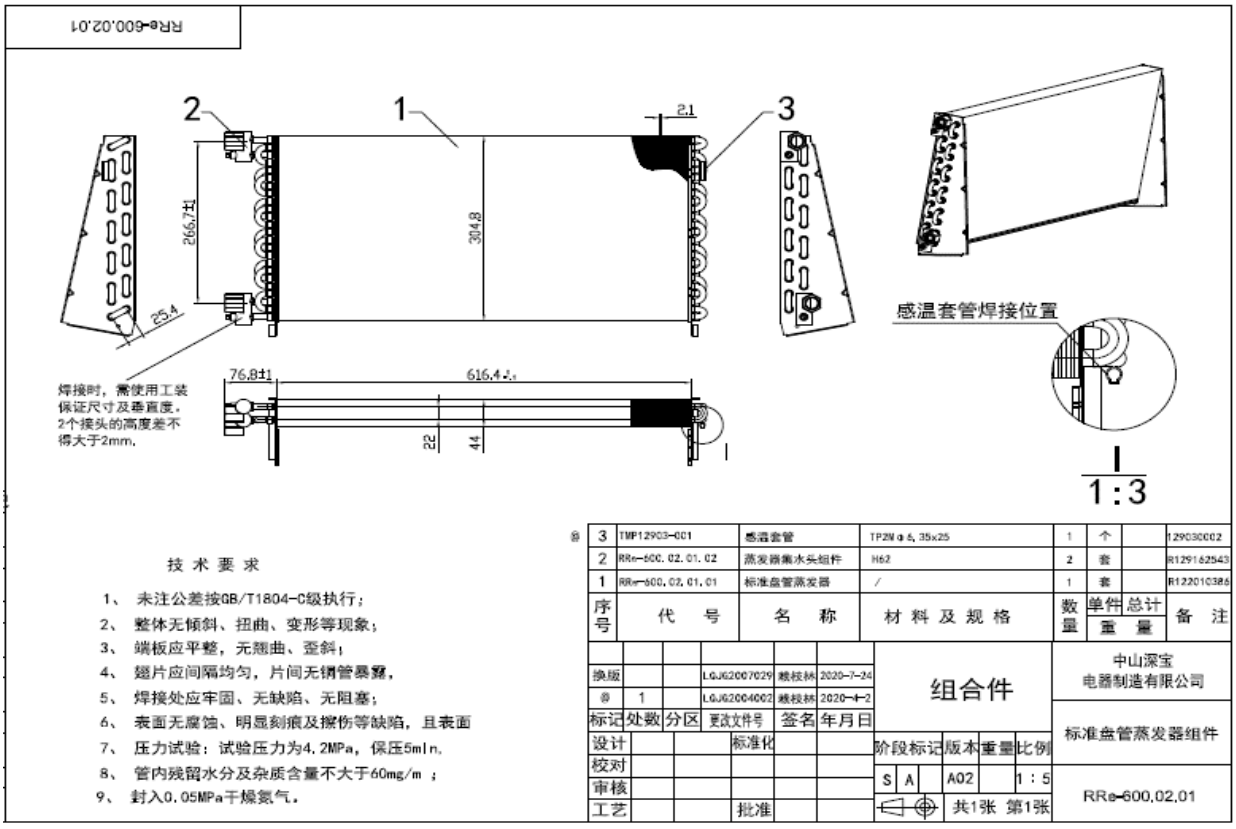


Illustration 5.6 - Drawing of Heat exchanger of FS 600.



7.0 Illustrations

Illustration 5.7 - Drawing of Heat exchanger of FS 800.

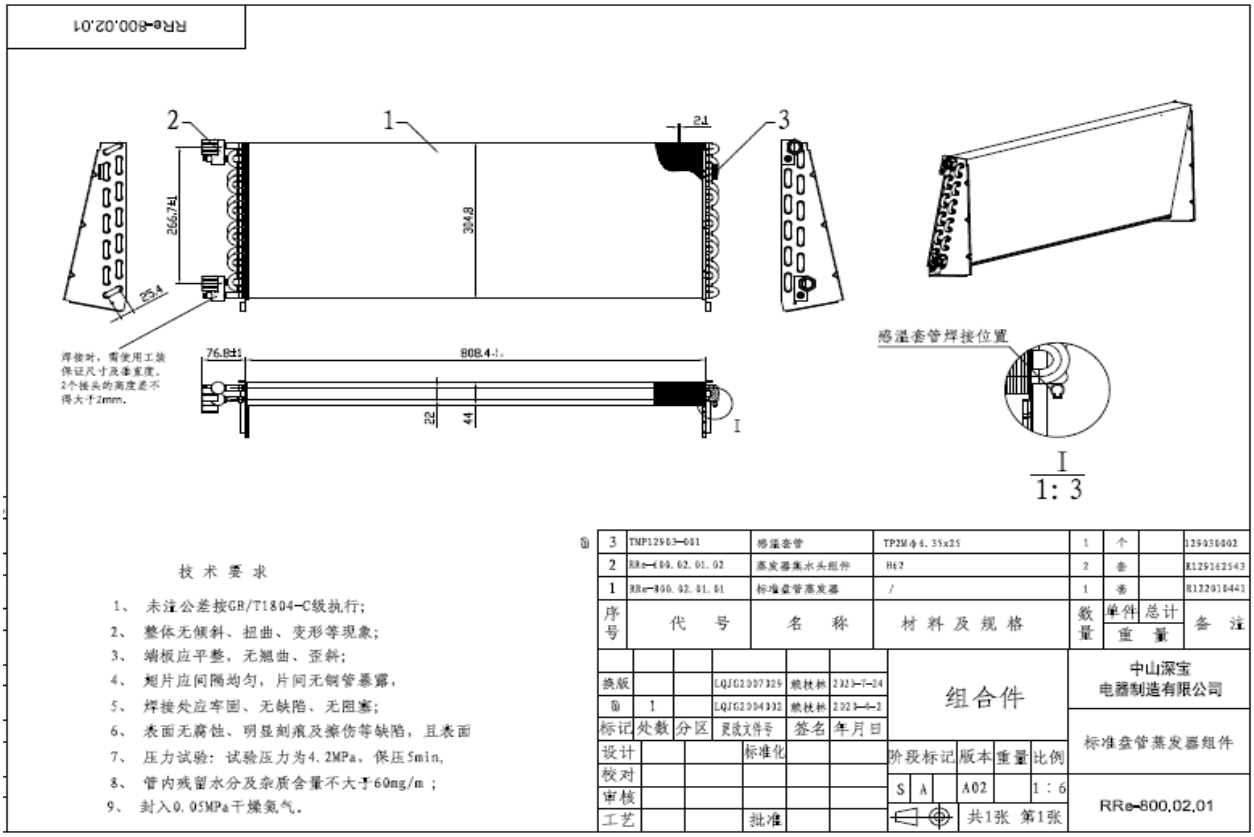


Illustration 6 - Important instruction.

1. INTRODUCTION – INTRODUCTION - INTRODUCCIÓN

Congratulations for choosing a fancoil REVERSO.
This manual contains important information for the transportation, installation, use and maintenance of units. Failure to follow the instructions given in this manual and/or unprofessional installation may invalidate the warranty. The manufacture cannot be responsible for any direct or indirect damages related to units installed by unskilled or unauthorised persons.
At the time of delivery check that the appliance is in perfect condition, complete in all parts and responding to your order. Any claims must be submitted in writing no later than 8 days after the date of delivery.
The appliance shall be installed in accordance with national wiring regulations.
The fan-coil units are exclusively built for air heating, filtering, cooling and dehumidification.
They are not suitable for any other purpose.
The fan-coil unit may not be used:
-for outdoor air treatment
- for installation in too much moist rooms
- for installation in explosive atmospheres
- for installation in corrosive atmospheres
Make sure that the environment where the appliance is installed does not contain substances that cause the corrosion of the aluminium fins , and the metal frame.
The appliances are supplied with hot/cold water depending on whether the environment is being heated/cooled.
This appliace is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
Children should be supervised to ensure that they do not play with the appliance.
The manufacturer/seller cannot be held liable for any loss or damage caused as a result of incorrect installation, operation or maintenance of the fan coil units or due to any non-compliance with this User Information Manual or any inspection, repair and maintenance requirement.
This booklet must always accompany the appliance, being considered an integral part of such.

8.0 Test Summary					
Evaluation Period	Dec.28, 2020 - June 21, 2021			Project No.	201228108GZU
Sample Rec. Date	Dec.28, 2020	Condition	Prototype	Sample ID.	S201228108-001~015
Test Location	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch Room 02, &101/E201/E301/E401/E501/E601/E701/E801 of Room 01 1-8/F., No. 7-2, Caipin Road, Science City, GETDD Guangzhou, Guangdong, China				
Test Procedure	Testing Lab				
Determination of the result includes consideration of measurement uncertainty from the test equipment and methods. The product was tested as indicated below with results in conformance to the relevant test criteria.					
The following tests were performed:					

Test Description	UL 60335-1:2016 Ed.6, UL 60335-2-40:2019 Ed.3 and CSA C22.2#60335-1:2016 Ed.2, CSA C22.2#60335-2-40: 2019 Ed.3 /Clause	UL 5085-3, 1st Ed., and CSA C22.2 No. 66.3-06, Rev. Nov 30, 2012	
Marking and instructions - Marking legible and durable test	7.14	--	--
Protection against access to live parts	8	--	--
Starting of motor-operated appliances	9	--	--
Power input and current	10	--	--
Heating	11	--	--
Leakage current and electric strength at operating temperature	13	--	--
Moisture resistance – Overflow test	15.3	--	--
Moisture resistance – Spillage test	15.101	--	--
Leakage current and electric strength	16	--	--
Motor rotor - locked test	19.7(1)	--	--
Abnormal operation – Fault conditions of electronic circuits test	19.11.1 & 19.11.2	--	--
Abnormal operation – Current fuse reliability test	19.12		
Abnormal operation – Acceptance conditions after all abnormal operation tests	19.13	--	--
Abnormal operating under extreme temperature conditions	19.103	--	--
Stability and mechanical hazards – Mechanical hazards test	20.2 & 20.2DV	--	--
Mechanical strength – Impact test	21.1	--	--
6.8 J Impact test to non-metallic enclosure	21.1DV.3	--	--
91 kg static load test to top surface of appliances (other than dehumidifier)	21.101DV.3	--	--
111 N force test to guards	21.101DV.5	--	--
Static load test to appliances intended to be suspended from the wall or ceiling	21.101DV.9	--	--
Construction – Non-detachable parts push and pull test	22.11	--	--
Construction – Handles, knobs, grips and levels pull test	22.12	--	--
Water pressure test on water and stream containing heat exchanger	22.135DV	--	--
Internal wiring – Insulation test	23.5	--	--
Terminals for external conductors - Torque test	26.3	--	--
Provision for earthing – Ground impedance test	27.5	--	--
Screws and connections – Screws torque test	28.1	--	--
Clearances distance	29.1	--	--
Creepage distance	29.2	--	--
Resistance to heat and fire – Ball pressure test	30.1	--	--

8.0 Test Summary			
Resistance to heat and fire – Glow-wire Test Record	30.2.1 & 30.2.3	--	--
Resistance to heat and fire – Needle flame test	30.2.4	--	--
Nichrome wire test	Annex 101.DVI.3	--	--
Open-Circuit Secondary Voltage Test	--	27	--
Output Current and Power Test - Maximum current output of inherently limited transformer	--	28.1	--
Rated Secondary Current Test	--	30	--
Rated Output Heating Test	--	31	--
Dielectric Voltage-Withstand Test	--	32	--
Overload Heating Test	--	33	--
Dielectric Voltage-Withstand After Overload Heating Test	--	34	--

8.1 Signatures

A representative sample of the product covered by this report has been evaluated and found to comply with the applicable requirements of the standards indicated in Section 1.0.

Completed by:	John Li	Reviewed by:	Sunny Zhou
Title:	Sr. Project Engineer	Title:	Technical Manager
Signature:		Signature:	

9.0 Correlation Page For Multiple Listings	
The following products, which are identical to those identified in this report except for model number and Listee name, are authorized to bear the ETL label under provisions of the Intertek Multiple Listing Program.	
BASIC LISTEE	Zymbo (Zhong Shan) Electrical Mfg.,Co.,Ltd
Address	Guangfeng Industrial Estate, Shalang, Xiqu, Zhongshan City, Guangdong
Country	China
Product	Fan Coil Unit

MULTIPLE LISTEE 1	None
Address	
Country	
Brand Name	
ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 1 MODELS	BASIC LISTEE MODELS

MULTIPLE LISTEE 2	None
Address	
Country	
Brand Name	
ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 2 MODELS	BASIC LISTEE MODELS

MULTIPLE LISTEE 3	None
Address	
Country	
Brand Name	
ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 3 MODELS	BASIC LISTEE MODELS

10.0 General Information

The Applicant and Manufacturer have agreed to produce, test and label ETL Listed products in accordance with the requirements of this Report. The Manufacturer has also agreed to notify Intertek and to request authorization prior to using alternate parts, components or materials.

COMPONENTS

Components used shall be those itemized in this Intertek report covering the product, including any amendments and/or revisions.

LISTING MARK

The ETL Listing mark applied to the products shall either be separable in form, such as labels purchased from Intertek, or on a product nameplate or other media only as specifically authorized by Intertek. Use of the mark is subject to the control of Intertek.

The mark must include the following four items:

1) applicable country identifiers "US" and/or "C" or "US", "C" and "EU"
2) the word "Listed" or "Classified" or "Recognized Component" (whichever is appropriate)
3) a control number issued by Intertek
4) a product descriptor that identifies the standards used for certification. Example:

For US standards, the words, “Conforms to” shall appear with the standard number along with the word, “ Standard” or “Std.” Example: “Conforms to ANSI/UL Std. XX.”

For Canadian standards, the words “Certified to CAN/CSA Standard CXX No. XX.” shall be used, or abbreviated, “Cert. to CAN/CSA Std. CXX No. XX.”

Can be used together when both standards are used.

If all standards on the ATM have the same standard title, the shared title or its abbreviation may be used in place of the examples above. Example: "Medical Electrical Equipment" or "MEE"; "Information Technology Equipment" or "ITE"; "Audio/Video Information And Communication Technology Equipment" or "A/V ICTE".

Note: A facsimile must be submitted to Intertek, Attn: Follow-up Services for approval prior to use. The facsimile need not have a control number. A control number will be issued **after signed Certification Agreements** have been received by the Follow-up Services office, approval of the facsimile of your proposed Listing Mark, satisfactory completion of the Listing Report, and scheduling of a factory assessment in your facility.

MANUFACTURING AND PRODUCTION TESTS

Manufacturing and Production Tests shall be performed as required in this Report.

FOLLOW-UP SERVICE

Periodic unannounced audits of the manufacturing facility (and any locations authorized to apply the mark) shall be scheduled by Intertek. An audit report shall be issued after each visit. Special attention will be given to the following:

1. Conformance of the manufactured product to the descriptions in this Report.
2. Conformance of the use of the ETL mark with the requirements of this Report and the Certification Agreement.
3. Manufacturing changes.
4. Performance of specified Manufacturing and Production Tests.

In the event that the Intertek representative identifies non-conformance(s) to any provision of this Report, the Applicant shall take one or more of the following actions:

1. Correct the non-conformance.
2. Remove the ETL Mark from non-conforming product.
3. Contact the issuing product safety evaluation center for instructions.

10.1 Evaluation of Unlisted Components

Because Unlisted Components are uncontrolled, and they do not fall under a third party follow up program, Intertek may require these components to be tested and/or evaluated at least once annually, more often for certain components, as part of the independent certification process. The Unlisted Components in Section 5.0 require testing and/or evaluation as indicated.

The Applicant will be notified, in writing, via the applicable contact methods, as defined in Section 1.0, when these components must be selected and sent to Component Evaluation Center (CEC) for re-evaluation.

Due to particular testing requirements, some components may be requested to be shipped to specific labs. Thus, specific shipment destination(s) for each sample will be provided in the written notification.

Managing CEC Location:
Intertek Testing Services Shenzhen Limited Guangzhou Branch
ETL Component Evaluation Center
Room 02, &101/E201/E301/E401/E501/E601/E701/E801 of Room 01 1-8/F., No. 7-2, Caipin Road, Science City

GETDD Guangzhou, Guangdong, China
Attn: Ms. Joey Kuang
Sample Disposition: Due to the destructive nature of the testing, all samples will be discarded at the conclusion of testing unless, the manufacturer specifically requests the return of the samples. The request for return must accompany the initial component shipment.

11.0 Manufacturing and Production Tests

The manufacturer agrees to conduct the following Manufacturing and Production Tests as specified:

Required Tests

Earth Continuity Test,
Electric strength test,
Functional Test
Pressure Tests for Leakage and Strength

11.1 Earth Continuity Test

Method

Each product listed below shall be subjected to a test to determine that there is continuity between accessible dead-metal parts of the product and the grounding pin or blade of the attachment plug.

If all accessible dead metal is connected, only a single test need be performed. A visual or audible device (ohmmeter, buzzer, etc.) may be used to indicate grounding continuity.

Products Requiring Earth Continuity Test:

All products covered by this Report.

11.2 Electric strength test

Method

One hundred percent of production of the products covered by this Report shall be subjected to a routine production line dielectric withstand test.

The test shall be conducted on products, which are fully assembled. Prior to applying the test potential, all switches, contactors, relays, etc., should be closed so that all primary circuits are energized by the test potential. If all primary circuits cannot be tested at one time, then separate applications of the test potential shall be made.

The test voltage specified below shall be applied between primary circuits and accessible dead-metal parts. The test voltage may be gradually increased to the specified value but must be maintained at the specified value for one second or one minute as required.

Test Equipment

The test equipment shall incorporate a transformer with an essentially sinusoidal output, a means to indicate the applied test potential, and an audible and/or visual indicator of dielectric breakdown.
The test equipment shall incorporate a voltmeter in the output circuit to indicate directly the applied test potential if the rated output of the test equipment is less than 500VA.
If the rated output of the test equipment is 500VA or more, the applied test potential may be indicated by either:
1 - a voltmeter in the primary circuit;
2 - a selector switch marked to indicate the test potential; or
3 - a marking in a readily visible location to indicate the test potential for test equipment having a single test potential output.
In cases 2 and 3, the test equipment shall include a lamp or other visual means to indicate that the test potential is present at the test equipment output. All test equipment shall be maintained in current calibration.

Products Requiring Electric strength test:

Product (All products covered by this Report.)	**Test Voltage**	**Test Time**
BASIC INSULATION only	1240 VAC	1 s
DOUBLE or REINFORCED INSULATION	2000 VAC	1 s

11.3 Functional Test

Method

The correct functioning of an appliance is checked by inspection or by an appropriate test if the incorrect connection or adjustment of components has safety implications.
NOTE Examples are verification of the correct direction of motor rotation and the appropriate operation of interlock switches. This does not require testing of thermal controls or PROTECTIVE DEVICES.

Products Requiring Pressure Tests for Functional Test:

All products covered by this Report.

11.4 Pressure Tests for Leakage and Strength

Method

All refrigerant-containing parts of each unit shall be tested and proved tight at no less than the maximum allowable pressure as determined in Annex EE.2 on the high pressure side and Annex EE.4 on the low pressure side, but not less than the saturated pressure at 51,7°C on the high pressure side and 26,5°C on the low pressure side.

If the test described in Clause ADV.101.1 is conducted prior to reforming or bending of the coil assembly, the test shall be repeated on at least one finished coil assembly from each production run, but no less than four times per year. Records of such tests shall be made available for review.

The leakage test on the complete unit may be conducted at the maximum allowable pressure as determined in Annex EE.4 if final assembly of the unit is completed with flare-type fittings or telescoped tubing joints that are sealed with silver solder, brazing, welding, or equivalent means. In this case, any components located on higher pressure sections of the system shall be individually tested by either the unit manufacturer or the manufacturer of the part at no less than the marked design pressure in which those components are used.

Sample refrigerant-containing parts of the shell type, including compressor shells, that have an inside diameter greater than 76 mm shall be subjected to the strength test in Clause ADV.101.5. Pressure vessels bearing the ASME Code U or UM symbol need not be tested.

The test specified in Clause ADV.101.4 shall be conducted on at least one sample of each size and type. The sample shall not fail when subjected to pressures specified in the requirements for the strength test. These tests shall be conducted at least once every three months on current production and at least once a year on limited production. Records of such tests shall be made available for review.

For appliances or components applied in compliance with Clause EE.5 of Annex EE continued compliance shall be demonstrated periodically by testing of randomly sampled appliance from production at least one time per year.

For multi-split appliances using flammable refrigerants in compliance with Annex 101.DVG, compliance with Clause EE.5 of Annex EE indoor coil assemblies shall be demonstrated periodically by testing of indoor coil assemblies randomly sampled from production at least 3 times per year.

For the periodic tests of ADV.101.2, ADV.101.5, ADV.101.8 and ADV.101.9, in the event of failure, corrective action shall be taken and randomly selected samples from production shall be tested at least once per month until three consecutive samples pass the test.

Products Requiring Pressure Tests for Leakage and Strength:

All products covered by this Report.

12.0 Revision Summary				
The following changes are in compliance with the declaration of Section 8.1:				
Date/ Proj # Site ID	Project Handler/ Reviewer	Section	Item	Description of Change
				None