223800 江苏省宿迁市 宿迁经济技术开发区南京路4019号 江苏韩电电器有限公司 QAManager或其他UL相關負責人



Q A Manager JIANGSU HANDIAN ELECTRIC APPLIANCE CO., LTD NO. 4019, NANJING ROAD, SUQIAN NATIONA SUQIAN JIANGSU 223800 CHINA

Date: 2019/09/13 Subscriber: None PartySite: 2326303 File No: SA44289 Project No: 19SR5200720 PD No: 19050678 Type: R PO Number:

### Subject: Initial Production Inspection

PLEASE NOTE: YOU ARE NOT AUTHORIZED TO SHIP ANY PRODUCTS BEARING ANY UL MARKS UNTIL THE INITIAL PRODUCTION INSPECTION HAS BEEN SUCCESSFULLY CONDUCTED BY THE UL FIELD REPRESENTATIVE.

An Initial Production Inspection (IPI) is an inspection that must be conducted prior to the first shipment of products bearing the UL Mark. This is to ensure that products being manufactured are in accordance with UL's requirements including the Follow-Up Service Procedure. After the UL Representative has verified compliance of your product(s), authorization will be granted for shipment of product(s) bearing the appropriate UL Marks as denoted in the Procedure.

Inspections at your plant will be conducted under the supervision of LAKER HU, UL INSPECTION CENTER NANJING, CHINA NATIONAL IMPORT & EXPORT, COMMODITIES INSPECTION CORP,

1 BAIXIA RD, 8TH FL, NANJING, JIANGSU, China, 210001., PHONE: 25-5234-5767, FAX: 25-5234-5769, EMAIL:UL.InspectionCenter521@ul.com

Marks as needed may be obtained from UL LABEL CENTER GUANGZHOU, ROOM 3006-3007, TIMES PROPERTY CENTER, NO 410 DONGFENG RD MIDDLE, GUANGZHOU, GUANGDONG, China, 510030. PHONE: 208-348-7088, FAX: 208-348-7088, EMAIL: LABELCENTER.GUZ@UL.COM, ATTN: T WEN

Please file revised pages and illustrations in place of material of like identity. New material should be filed in its proper numerical order.

NOTE: Follow-Up Service Procedure revisions DO NOT include Cover Pages, Test Records and Conclusion Pages. Report revisions DO NOT include Authorization Pages, Indices, Section General Pages and Appendixes.

Please review this material and report any inaccuracies to QIAN NA CHEN (EXT. 0), referring to the above Project and/or PD Numbers.

This material is provided on behalf of UL LLC(UL) or any authorized licensee of UL.

SUZ File

UL INSPECTION CENTER 521

Production Date:UNKNOWNContact:Hunter ChenPhone:86-15968023089EMail:hunter@cnkeg.com

# ADDENDUM TO TRANSMITTAL LETTER

Q A Manager JIANGSU HANDIAN ELECTRIC APPLIANCE CO., LTD NO. 4019, NANJING ROAD, SUQIAN NATIONA SUQIAN JIANGSU 223800 CHINA

Date:	2019/09/13
Subscriber:	None
PartySite:	2326303
File No:	SA44289
Project No:	19SR5200720
PD No:	19050678
Type:	R
PO Number:	

# Subject: Initial Production Inspection

The following material resulting from the investigation under the above numbers is enclosed.

Issue Date	Vol	Sec	Pages	Revised Date
	1		Revised Authorization Page(s)	2019/09/09
2015/01/27 ***	71		Add New Manufacturer	
`Manufactu	urer Pa	arty Site	# 2326303 was added."	

# **Follow-Up Service Procedure**

# DO NOT DISCARD THIS PAGE

# It is important to keep UL Procedures and Test Reports up-to-date as new or revised pages are received. Correct maintenance will decrease the amount of time the UL Representative spends when visiting your facility.

UL LLC offers MyHome @UL, a dedicated website providing secure access to online tools and databases that can help simplify your compliance activities. You can customize your personal MyHome @UL page to include the content needed most, including timely information about certification updates and links to other Web sites you visit regularly. Visit <a href="http://my.home.ul.com/">http://my.home.ul.com/</a> to sign up today!

PAGES (in content order)	FUNCTION	HOW TO UPDATE
Authorization Page	Displays the Product Category, the type of Follow-Up Service (Type R=Reexamination / Type L=Label), the File Number and the Volume Number associated with each Applicant's, Manufacturer's and Listee's company name and address.	Replace existing page by matching the UL File Number and Volume Number. Discard the older page (refer to "Issued" or "Revised" date).
Addendum to Authorization Page*	Lists the additional names and addresses of manufacturing locations, when multiple locations exist	Replace existing page by matching the UL File Number and Volume Number. Discard the older page (refer to "Issued" or "Revised" date).
Listing Mark Data (LMD), Classification Mark Data (CMD) or Recognized Component Mark Data (RCMD) Pages <sup>*</sup>	Used only for products covered under Type R Service. Displays the correct LMD, CMD, or RCMD Mark, the Control Number for Listed and Classified categories and additional information regarding minimum size, application, procurement, and any other optional markings, in addition to the UL Mark.	Replace existing page by matching the UL File Number and Volume Number. Discard the older page (refer to "Issued" or "Revised" date).
Multiple Listing (ML) Correlation Sheet	Correlates product model numbers between those products made by a Manufacturer for the Basic Applicant and those supplied to another company, the Multiple Listee.	Replace, add or delete page(s) with most current "Issued" or "Revised" date.
Index <sup>*</sup>	Catalogs the contents of the Procedure by some logical means, i.e. Section Number, Report Reference Number, or Issue Date.	Replace present page by matching the UL File Number, Volume Number, Page Number and most current "Revised" date.
Appendices <sup>*#</sup> (App.)	Contains instructions for the Manufacturer and UL Representative concerning specific responsibilities and required periodic tests. May also outline tests to be conducted on samples to be forwarded to UL's facilities.	Replace present page by matching the UL File Number, Volume Number, Appendix letter (eg. App. A), Page Number and most current "Revised" date.
	Standardized Appendix Pages are the same for all manufacturers within a particular product category.	Replace present page by matching the Appendix letter (eg. App. A), Page Number and most current "Revised" date.
Follow-Up Inspection Instructions (FUII) Pages	Contains information similar to that in the Appendices. FUII Pages are issued as part of the Procedure when a UL Standard is used in conjunction with the Procedure, and are the same for all manufacturers within a particular category.	Replace present pages by matching the Page Number and most current "Issued" or "Revised" date.
Section General <sup>*#</sup> (Sec. Gen.)	Contains description, requirements, identifications and/or specifications that are common to all products covered by the entire volume and supplements the information provided in the Description Section.	Replace present page by matching the UL File Number, Volume Number, Page Number and most current "Revised" date.
Description, or Section (Sec.)*	Contains the specific description of one or more products or systems. This includes written text supplemented by photographs, drawings, etc., as necessary, to define features that affect compliance with the applicable requirements.	Replace present page by matching the UL File Number, Volume Number, Section Number, Page Number and most current "Issued" date.

\* The above page(s) may not appear in all UL Follow-Up Service Procedures; UL's Conformity Assessment Services staff determines their inclusion. # These pages are combined in the **Generic Inspection Instructions** for International Style Reports, identified, as example by Vol. X1, X2, etc.

PLEASE NOTIFY YOUR LOCAL UL OFFICE OF ANY CHANGES IN CONTACT NAME, COMPANY NAME OR ADDRESS, SO THIS MATERIAL AND IMPORTANT INFORMATION CONTINUES TO BE DELIVERED TO YOUR FACILITY WITHOUT INTERRUPTION.



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Issued: 2015-01-28 Revised: 2019-09-12

FOLLOW-UP SERVICE PROCEDURE (TYPE R)

HOUSEHOLD REFRIGERATORS AND FREEZERS (SHZZ, SHZZ7)

Manufacturer: SEE ADDENDUM FOR MANUFACTURER LOCATIONS

1202231 (Party Site) Applicant: NINGBO HAN DIAN ELECTRIC APPLIANCE CO LTD East Guanhaiwei Industrial Zone, CiXi Ningbo Zhejiang 315314 CHINA 1202231 (Party Site) SAME AS APPLICANT Listee:

Use of the Mark

This Follow-Up Service Procedure authorizes the above Manufacturer(s) to use the marking specified by UL LLC, or any authorized licensee of UL LLC, including the UL Contracting Party, only on products when constructed, tested and found to be in compliance with the requirements of this Follow-Up Service Procedure and in accordance with the terms of the applicable service agreement with UL Contracting Party. The UL Contracting Party for Follow-Up Services is listed in the addendum to this Follow-Up Service Procedure ("UL Contracting Party"). UL Contracting Party and UL LLC are referred to jointly herein as "UL."

It is the responsibility of the Applicant, Manufacturer(s), and Listee/Classified Co. to make sure that only the products meeting the aforementioned requirements bear the authorized Marks of UL LLC, or any authorized licensee of UL LLC.

	File	SA44289	Vol 1	
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Auth. Page 2

Issued: 2015-01-28 Revised: 2019-09-12

#### Additional Responsibilities

Additional responsibilities, duties and requirements for the Applicant and Manufacturers are defined under Additional Resources at the following web-site: <a href="http://www.ul.com/fus">http://www.ul.com/fus</a>. Manufacturers without Internet access may obtain the current version of these documents from their local UL customer service representative or UL field representative. For assistance, or to obtain a paper copy of these documents or the Follow-Up Service Terms referenced below, please contact UL's Customer Service at <a href="http://www.ul.com/aboutul/locations/">http://www.ul.com/aboutul/locations/</a>, select a location and enter your request, or call the number listed for that location.

### Acceptance of Follow-Up Services

The Applicant and the specified Manufacturer(s) and any Listee/Classified Co. in this Follow-Up Service Procedure must agree to receive Follow-Up Services from UL Contracting Party. If your applicable service agreement is a Global Services Agreement ("GSA"), the Applicant, the specified Manufacturer(s) and any Listee/Classified Co. will be bound to a Service Agreement for Follow-Up Services upon the earliest by any Subscriber of a) use of the prescribed UL Mark, b) acceptance of the factory inspection, or c) payment of the Follow-Up Service fees. The Service Agreement incorporates such GSA, this Follow-Up Service Procedure and the Follow-Up Service Terms which can be accessed by clicking the following link: <u>http://services.ul.com/fus-service-terms</u>. In all other events, Follow-Up Services will be governed by and incorporate the terms of your applicable service agreement and this Follow-Up Service Procedure.

Use and Ownership of the Follow-Up Service Procedure

This Follow-Up Service Procedure, and any subsequent revisions, is the property of UL and is not transferable. This Follow-Up Service Procedure contains confidential information for use only by the Applicant, the specified Manufacturer(s), and representatives of UL and is not to be used for any other purpose. It is provided to the Subscribers with the understanding that it is not to be copied, either wholly or in part unless specifically allowed, and that it will be returned to UL, upon request.

Definition of Terms

Capitalized terms used but not defined herein have the meanings set forth in the GSA and the applicable Service Terms or any other applicable UL service agreement.

No Third Party Liability

UL shall not incur any obligation or liability for any loss, expense or damages, including incidental, consequential or punitive damages arising out of or in connection with the use or reliance upon this Follow-Up Service Procedure to anyone other than the above Manufacturer(s) as provided in the agreement between UL LLC or an authorized licensee of UL LLC, including UL Contracting Party, and the Manufacturer(s).

#### Certification Body

UL LLC has signed below solely in its capacity as the certification body to indicate that this Follow-Up Service Procedure fulfills the requirements for certification documentation issued by the certification body.

Bruce A. Mahrenholz Director Conformity Assessment Programs (CPO) UL LLC File SA44289 Vol 1 Addendum To Page 1 Issued: 2015-01-28 Authorization Page Revised: 2019-09-12 LOCATION 1202231 (Party Site) NINGBO HAN DIAN ELECTRIC APPLIANCE CO LTD East Guanhaiwei Industrial Zone, CiXi Ningbo Zhejiang 315314 CHINA Factory ID: NONE UL Contracting Party for above site is: UL GmbH 2326303 (Party Site) Jiangsu Handian Electric Appliance Co., Ltd No. 4019, Nanjing Road, SuQian National Economic And Technological Development Area Suqian Jiangsu 223800 CHINA Factory ID: JKEG UL Contracting Party for above site is: UL GmbH

(FILE IMMEDIATELY AFTER AUTHORIZATION PAGE)

### LISTING MARK

The Listing Mark consists of four elements placed in close proximity and shall appear on Listed products only.

The word "LISTED" shall be in either the four or six o'clock position with respect to the UL symbol (see example below). Minimum size of the Listing Mark is not specified, as long as it is legible. The minimum height of the registered trademark symbol ® shall be 3/64 of an inch. When the overall diameter of the UL symbol is less than 3/8 of an inch, the trademark symbol may be omitted if it is not legible. Camera-ready artwork and relative proportions are available online at www.ul.com.



XXXX = The control number assigned by UL, . SA44289

The product identity is: "HOUSEHOLD REFRIGERATOR," "ACCESSORY FOR HOUSEHOLD REFRIGERATOR," "HOUSEHOLD FREEZER" or "ACCESSORY FOR HOUSEHOLD FREEZER."

For rebuilt products, the word "REBUILT," "REMANUFACTURED" or "RECONDITIONED" precedes the product identity.

The product identity may appear elsewhere on the product when the other three elements are directly and permanently applied to the product by stamping, molding, ink-stamping, silk screening or similar process or part of the nameplate that includes the rating or the catalog or model designation.

A separable Listing Mark (not part of a nameplate and in the form of decals, stickers or labels) shall always include the four elements.

#### PROCUREMENT

The manufacturer may reproduce the Mark or obtain it from an authorized label supplier. Authorized label suppliers can be found online at www.ul.com.

#### (FILE IMMEDIATELY AFTER AUTHORIZATION PAGE)

### LISTING MARK

The Listing Mark consists of four elements placed in close proximity and shall appear on Listed products only.

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The Canadian/US symbol shall be used if both Canadian and US coverage is authorized (see example below).



The Canadian symbol shall be used if only Canadian coverage is authorized (see example below).



XXXX = The control number assigned by UL, . SA44289

The product identity is: "HOUSEHOLD REFRIGERATOR," "ACCESSORY FOR HOUSEHOLD REFRIGERATOR," "HOUSEHOLD FREEZER" or "ACCESSORY FOR HOUSEHOLD FREEZER."

For rebuilt products, the word "REBUILT," "REMANUFACTURED" or "RECONDITIONED" precedes the product identity.

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The manufacturer may reproduce the Mark or obtain it from an authorized label supplier. Authorized label suppliers can be found online at www.ul.com.

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			(US and/or
			CN)
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71R, $KS=123R$ , $KS=$			
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APPENDIX A

PRODUCT COVERED:

Household refrigerators.

MANUFACTURER AND PRODUCTION TESTS:

# LEAKAGE TEST

The manufacturer shall conduct a Leakage Test on each Listed unit at not less than the minimum test pressures tabulated below or the marked nameplate design pressure, whichever are greater.

Exception: If the final assembly is completed with telescoped tubing joints which are sealed with silver solder or brazing or joined by flare fittings, the leakage tests on the complete system may be at not less than the tabulated low-side pressure providing the high-side assembly is individually subjected to the high-side leakage test indicated.

	Minimum Leakage Te	est Pressure, psig
Refrigerant Employed	High Side	Low Side
R600a	250	88

#### PRODUCTION LINE DIELECTRIC WITHSTAND TEST

The manufacturer shall conduct a Dielectric Withstand Test upon each Listed Unit. A 60 Hz potential as indicated below shall be applied between high-voltage live parts and dead-metal parts for a period of one minute, except that the time of application of the potential may be reduced to one second if the value of the test potential is 120 percent of the value shown.

- A. 1000 V for units rated 250 V or less.
- B. 1000 V plus twice the rated voltage for units rated over 250 V.

For units employing low-voltage circuits, the test is to be conducted with the low-voltage circuit connected to the cabinet, chassis, or other dead metal parts so that the potential which is applied between the high-voltage live parts and dead-metal parts will simultaneously be applied between high-voltage live parts and low-voltage circuits. File SA44289 Vol. 1 App. A Page 2 Issued: 2015-01-27

If the unit employs components such as a solid-state control which can be damaged by the dielectric(s) potential, the test may be conducted before the component is electrical connected. However, a random sampling of each day's production is to be tested with the components electrically connected to assure compliance.

# PRODUCTION LINE GROUNDING CONTINUITY TEST

The manufacturer shall test each unit which has power supply cord to assure electric continuity between the device (chassis or frame) and the grounding blade of the attachment-plug cap.

An indicating device such as an ohmmeter, low-voltage battery-buzzer combination, or equipment, may be employed in the test.

Results - A grounding continuity shall be observed on each unit.

### ASBESTOS MATERIALS:

These products do not employ any asbestos materials.

# LIQUID-FILLED CAPACITORS:

These products do not employ any liquid-filled capacitors.

#### GENERAL

#### PRODUCT COVERED:

 $\ensuremath{\mathsf{Household}}$  refrigerators and freezers as described in all the following sections.

GENERAL:

Installation and operating instructions are provided with each unit. Installation requirements are as described in each individual section.

#### CORROSION PROTECTION:

All ferrous metal parts used to support or retain electrical components in position are protected against corrosion by metallic or nonmetallic coatings, such as plating or painting.

All ferrous metal parts used as enclosures or to support or retain electrical components in position in a unit for outdoor use are formed of Recognized (DTHW2) G90U steel or G60U steel with one coat of paint. All refrigerant containing components and tubing formed of steel are protected against corrosion by metallic or nonmetallic coatings, such as plating or painting.

Method of Joining - All tubing and refrigerant containing components are joined by means of brazing, soldering or SAE forged flare type fittings.

Copper-aluminum transition joints (if employed) are taped, painted, covered by heat shrink tubing, or otherwise similarly sealed to prevent galvanic corrosion.

# ELECTRICAL SPACINGS:

Except where noted in the individual sections, the spacings between uninsulated live parts of opposite polarity and between uninsulated live parts and dead-metal parts are not less than 1/8 in. through air, 1/4 in. over-surface, and 1/4 in. to the enclosure.

Spacing at Oil-Filled Run Capacitor - The minimum spacing from terminals with wiring to live or dead-metal parts or enclosure in a direction perpendicular to the capacitor cover is 9/16 in. (14.3 mm).

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# NAMEPLATE AND MARKING MATERIAL:

Unless otherwise noted in the individual sections, the nameplate is constructed of aluminum or steel secured to the unit by metal screws or metal rivets or is a Recognized (PGDQ2), (PGJI2) (PGGU2) Marking and Labeling System, secured to an appropriate surface material as indicated in the RCD.

The nameplate is located such that it is visible and legible without requiring the use of tools for removal of panels, covers, etc.

# INTERCONNECTING TUBING:

All tubing of the refrigeration system shall be copper or steel wall thickness not less than indicated in the following table.

Outside	Copper					
Inches mm	Protected (+) Unprotected Inches (mm) Inches (mm)		Steel Inches (mm)			
1/4 (6.4)	0.0245 (0.622)	0.0265 (0.673)	0.025 (0.64)			
5/16 (7.9)	0.0245 (0.622)	0.0265 (0.673)	0.025 (0.64)			
3/8 (9.5)	0.0245 (0.622)	0.0265 (0.673)	0.025 (0.64)			
1/2 (12.7)	0.0245 (0.622)	0.0285 (0.724)	0.025 (0.64)			
5/8 (15.9)	0.0315 (0.800)	0.0315 (0.800)	0.032 (0.81)			
3/4 (19.1)	0.0315 (0.800)	0.0385 (0.978)	0.032 (0.81)			
7/8 (22.2)	0.0410 (1.041)	0.0410 (1.041)	0.046 (1.17)			
1 (25.4)	0.0460 (1.168)	0.0460 (1.168)	-			

(+) Within the product.

Nominal wall thickness of tubing will have to be greater than the thickness indicated to maintain the minimum wall thickness.

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### WIRING:

General - Except as noted in individual reports, all wiring is Recognized (AVLV2), (ZKLU2), (ZPFW2) appliance wiring material or is Listed. If not AWM, wires or cords shall be Type AC, ACL, ACT, FFH-2, TF, TFF, TFN, TFFN, SF-2, SFF-2. RH, RHH, RHW, THW, XHHW, MTW, THW-MTW, THWN, PF, PFF, PGF, PGFF, TW, S, SE, S0, SOO, ST, STO, STOO, SJ, SJE, SJO, SJOO, SJT, SJTO, SJTOO, SP-3, SPE-3, and SPT-3. All wiring, unless otherwise specified, is suitable for a minimum of 300 V. It is installed and positively routed in such a manner that it will not be immersed in water and is not subject to mechanical damage due to contact with sharp edges or abrasive surfaces.

# BONDING FOR GROUNDING:

All units shall have provision for the grounding of all exposed or accessible noncurrent-carrying metal parts that are likely to become energized and that may be contacted by the user or by service personnel during service operations likely to be performed when the refrigerator is energized.

Uninsulated metal parts, such as cabinets, electrical enclosures, motor frames and mounting brackets, controller mounting brackets, heater element sheaths, capacitors and other electrical components, interconnecting tubing, and piping, valves and plumbing accessories, and refrigerant-containing parts are to be bonded for grounding if they may be contacted by the user or service personnel.

Exception: The following metal parts need not be grounded:

- A. Adhesive-attached metal-foil markings, screws, handles, and the like, that are located on the outside of enclosures or cabinets and isolated from electrical components or wiring by grounded metal parts so that they are not likely to become energized.
- B. Isolated metal parts, such as motor controller magnet frames and armatures or small assembly screws that are positively separated from wiring and uninsulated live parts.
- C. Cabinets, panels, and covers that do not enclose uninsulated live parts if wiring is positively separated from the cabinet, panel, or cover so that such parts are not likely to become energized.
- D. Panels and covers that are insulated from electrical components and wiring by an insulating barrier of vulcanized fiber, varnished cloth, phenolic composition, or similar materials not less that 0.028 in. (0.71 mm) thick and secured in place.

The bonding is achieved in the following manner:

- A. Bonding with screws:
  - 1. Two or more screws that fasten the parts together.
  - 2. Parts fastened together by one screw. Two full threads of the screw must be in contact with the metal.
  - If surface of metal under screwheads is painted, a toothed lock washer or toothed surface under the screwhead penetrates the paint.
- B. Brazing or welding.
- C. Bonding by one or more bolts. Contact with metal is provided as described in Item A, Subitem 3.

D. Forced metal-to-metal contact, i.e. interlocking, swaging, percussion

welding, spot-welding, etc.

E. Metal-to-metal contact bonding with the use of multiple bearing. pin-type (piano-cover) hinge.

F. Bonding through rigid or flexible steel conduit with Listed electrical

fittings. Locknuts used on the conduit shall penetrate any paint

or

insulated coating on the surface of the part to which the conduit is

connected.

G. Copper grounding conductors, as follows:

Except as indicated in the individual Reports, all bonding conductors

are No. 18 AWG conductor with green colored insulation terminating in

eyelet type connectors at each end.

H. Other methods, as noted in the individual Sections.

# DATE CODE:

All units are marked with a date of manufacture. The information may be in code and shall be located on or near the nameplate. Details as follows:

The year and month of manufacturer are marked on the unit nameplate.

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				Revised:	2017-08-07

COMMON COMPONENTS:

The following is a description of the components which are common to all or virtually all of the Reports within the volume.

All units employ Classified (SLGV) refrigerant as designated in the individual Reports.

ASBESTOS:

No asbestos of any kind is employed in these units unless noted in the individual sections.

### TRADEMARK DESIGNATION:

The following trademark, trade name, or File Number may be used to identify products described in this Procedure.

Haier



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		and Report		Revised:	2019-05-08

DESCRIPTION

PRODUCT COVERED:

USL, CNL Household refrigerator, Model KS-91R, KS-48R, KS-71R, KS-123R, KS-71R1, NN8HO, NPGCA, NPGB9, NPYYD, NPYYA, NPYYN, NPYX9, NPYYO, NPYX7.

#### GENERAL:

The model covered by this Report is intended for free-standing in household use. Defrost is accomplished manually or semi-automatically. During semi-automatic defrost, the defrost cycle is manually initiated and automatically terminated, with automatic resumption of normal refrigeration at the conclusion of defrost operation. Manual initiation is realized by pressing the small shaft on main shaft of the thermostat.

The model employs Refrigerant R-600a (flammable refrigerant, classified as Class 3 "Higher Flammability" by ASHRAE34) and was evaluated following additional requirements of Supplement SA of UL 250. The cooling system is considered a protected cooling system.

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

For Models: All except Model KS-48R (Equipped with compressor, model L22C5L)

Products designated USL have been investigated using requirements contained in the Standard for Household Refrigerators and Freezers, UL250, Tenth Edition.

Products designated CNL have been investigated using requirements contained in Standard for Refrigeration Equipment, CAN/CSA C22.2 No. 63-93, Fourth Edition.

For Model: KS-48R (Equipped with compressor, model L22C5L only)

Products designated USL have been investigated using requirements contained in the Standard for UL 60335-1:11 SAFETY OF HOUSEHOLD AND SIMILAR APPLIANCES, PART 1: GENERAL REQUIREMENTS - Edition 5 and UL 60335-2-24 SAFETY REQUIREMENTS FOR HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES, PART 2: PARTICULAR REQUIREMENTS FOR REFRIGERATING APPLIANCES, ICE-CREAM APPLIANCES AND ICE-MAKERS - Edition 2.

Products designated CNL have been investigated using requirements contained in Standard for CSA C22.2 NO. 60335-1-11 SAFETY OF HOUSEHOLD AND SIMILAR APPLIANCES, PART 1: GENERAL REQUIREMENTS - Edition 5 and CSA C22.2 NO. 60335-2-24 SAFETY REQUIREMENTS FOR HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES, PART 2: PARTICULAR REQUIREMENTS FOR REFRIGERATING APPLIANCES, ICE-CREAM APPLIANCES AND ICE-MAKERS - Edition 2.

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		and Report		Revised:	2019-05-08

### RATINGS:

See MARKING.

#### INSTRUCTIONS:

Each unit is provided with installation and operating instructions.

The instructions include the following wording regarding the use of extension cords (+): Do not use an extension cord, or similar words.

(+) - Cord connected units only.

MODEL DIFFERENCES:

Model KS-71R1 is identical to KS-71R except for cabinet door.
Model NN8HO is identical to KS-48R.
Model NPGCA is identical to model KS-71R1 except for model designation.
Model NPGB9 is identical to model KS-91R except for model designation.
Model NPYYD is identical to model KS-48R except for model designation.
Model NPYYA is identical to model KS-48R except for model designation.
Model NPYYA is identical to model KS-71R1 except for model designation.
Model NPYYA is identical to model KS-71R1 except for model designation.
Model NPYY9 is identical to model KS-71R1 except for model designation.
Model NPYY0 is identical to model KS-91R except for model designation.
Model NPYY0 is identical to model KS-91R except for model designation.

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# CONSTRUCTION DETAILS:

Electrical Spacings - Unless otherwise noted in this Report, the spacings between uninsulated live parts of opposite polarity and between uninsulated live parts and dead-metal parts are not less than 1/8 in. through air, 1/4 in. oversurface, and 1/4 in. to the enclosure.

10 MARKING:

10-5 Nam	eplate Marking	Recognized	(PGDQ2,8 d	or PGJI2, 8	)
Model		KS-91R	KS-48R	KS-71R	KS-123R
Material					
Manufac	turer	Various			
Recogni	zed Designation	Various			
Locatio	n	Inside cab	inet		
Secured By		Adhesive			
Listee Name		NINGBO HAN	DIAN ELECTF	RIC APPLIAN	CE CO., LTD
Refrigera	nt				
- Туре		R600a	R600a	R600a	R600a
- Amoun	t	0.74 oz (21g)	0.63 oz (18g)	0.74 oz (21g)	0.81 oz (23g)
Design Pr	essure				
High Si	de, psig	250	218	218	218
Low Side	e, psig	88	58	58	58
Electrica	l Rating				
V		115	115	115	115
A -		1.0	0.6	1.0	0.8
Frequen	cy, Hz	60	60	60	60

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10 MARKING - (Cont'd)

10-5 Nameplate Marking Recognized (PGDQ2,8 or PGJI2, 8)

Model	KS-48R - Alternate	KS-71R1				
Material			•			
Manufacturer	Various					
Recognized Designation	Various					
Location	Inside cabi	net				
Secured By	Adhesive	Adhesive				
Listee Name	NINGBO HANDIAN ELECTRIC APPLIANCE CO., LTD				TD	
Refrigerant						
- Туре	R600a	R600a				
- Amount	0.63 oz (18g)	0.74 oz (21g)				
Design Pressure						
High Side, psig	218	218				
Low Side, psig	58	58				
Electrical Rating						
V	115	115				
A -	0.6	1.0				
Frequency, Hz	60	60				

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10-10 Special Marking

A. Type or Material	
Manufacturer	Various
Recognized Designation	Various
Location	Unit Rear, above machine compartment
Quote Marking	

1) DANGER - Risk Of Fire Or Explosion. Flammable Refrigerant Used. Do Not Use Mechanical Devices To Defrost Refrigerator. Do Not Puncture Refrigerant Tubing.

2) DANGER - Risk Of Fire Or Explosion. Flammable Refrigerant Used. To Be Repaired Only By Trained Service Personnel. Do Not Puncture Refrigerant Tubing.



3) □CAUTION - Risk Of Fire Or Explosion. Flammable Refrigerant Used. Consult Repair Manual/Owner's Guide Before Attempting To Service This Product. All Safety Precautions Must be Followed.
4) □CAUTION - Risk Of Fire Or Explosion. Dispose Of Property In Accordance With Federal Or Local Regulations. Flammable Refrigerant Used.
5) □CAUTION - Risk Of Fire Or Explosion Due To Puncture Of Refrigerant Tubing; Follow Handling Instructions Carefully. Flammable Refrigerant Used.

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в.	Type or Ma	aterial				
	Location	1	A	process tube	on a compres	sor.
	Quote Ma	arking				
A pro Match inch)	ocess tube c ning System from the c	on a compres (PMS) No. 1 compressor.	ssor shall be pa 185. The Color m	inted or colo ark shall ext	ored red, Pan cend at least	tone® 2.5 cm (1
с.	Type or Ma	aterial				
	Manufact	urer	Va	rious		
	Recogniz	ed Designat	tion Va:	rious		
	Location	1	Sh	ipping Cartor	1	
	Quote Ma	arking				

CAUTION - Risk Of Fire Or Explosion Due To Puncture Of Refrigerant Tubing; Follow Handling Instructions Carefully. Flammable Refrigerant Used.

# D. Type or Material

Models	KS-48R
Manufacturer	Various
Recognized Designation	Various
Location	Unit Rear
Quote Marking	

The type of flammable insulation blowing gas - CYCLOPENTANE.

Comments: The height of the letters used for the marking of the type of flammable insulation blowing gas shall be at least 40 mm.

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20	ENCLOSURES	:						
20-5	Ultimate End	closur	e					
Model				KS-91R	KS-48R	KS-71R	KS-123R	
Appro door)	oximate Physic , H x W x D,	cal Si mm.	ze (including	831 x 490 x 445	501 x 470 x 445	676 x 445 x 470	831 x 524 x 532	
20-10	) Unit Base (d	cabine	t base)					
Model				All				
Material				Steel				
Thick	iness, mm.			Min. 0.4				
Corro	sion Protect:	ion (M	ethod)	GALVANIZEI	OR PAIN	NT COATING		
Bondi	ng for Ground	ding (	Method)	Screw-conr compartmer	nected wi nt base	th machine	3	

20-15 Machine compartment base

Model	All
Material	Steel
Thickness, mm.	Min. 0.8
Corrosion Protection (Method)	GALVANIZED
Bonding for Grounding (Method)	Grounded by the power cord

20-20 Unit Sides/Top/Machine Compartment Top

Model	All
Material	Steel
Thickness, mm.	Min. 0.25
Corrosion Protection (Method)	Galvanized or Paint Coating
Bonding for Grounding (Method)	Screw-connected with unit base.

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20-25 Unit Rear
-----------------

Model	KS-91R	KS-48R	KS-71R	KS-123R	
Material	Steel				
Thickness, mm.		Min.	0.25		
Compressor Compartment Opening H x W, mm.	210 x 370	195 x 375	195 x 375	230 x 450	
Corrosion Protection (Method)	Galv	anized or	Paint Co	bating	
Bonding for Grounding (Method)	Inco	rporate w	ith unit	sides	

20-30 Cabinet Liner

ModelAllMaterialPolymeric, see Section 30 for details.Bonding for Grounding (Method)Not required

All

Steel

Min. 0.4

Paint or Pre-painted

20-35 Unit Doors

Model

Material

Thickness, mm.

Corrosion Protection (Method)

20-40 Cabinet Door Liner

Model

Material (+)

Bonding for Grounding (Method)

All					
Polymeric,	see	Section	30	for	details.
Not require	ed				

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20-50 Door Hinges						
Model			All			
Top and Bottom Him	See Ill.	2 for de	tails			
20-60 Control Enc.	losure					
Model			KS-91R	KS-48R	KS-71R	KS-123R
Location			Located cabinet	at top of	unit insi	lde
Material (+)		Polymeric, see Section 30 for details.				
Physical Size, L :	x W x H, mm	1	108 x 74 x50	95 x 70 x 92	50 x 70 x 95	150 x 50 x 70
Thickness, mm.			2.5			
Method of Securement			Screwed to unit cabinet by 1 screw			
Components Within			Thermostat			

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20-	0-65 Freezer/Fresh Food Compartment Assembly								
*Mo	odel			KS-91R <b>KS-48R, KS-71R, KS-123R</b>					
A.	Freezer Company	rtment Cove	r						
	Location			Cover the evaporator in front					
	Material			Polymeric, see Section 30 for details.					
	Method of Secu	urement		Pivot on cabinet liner and thermostat enclosure					
Mod	lel			KS-91R					
в.	Drip Tray			See Ill. 3 for c	letails for	KS-91R			
	Location			Beneath the evaporator in fresh food compartment					
	Material			Polymeric, see S	Section 30 f	or details.			
	Method of Secu	urement		Integral guides and on the contr	formed in t	he cabinet sure.			

20-70 Lamp Guard

Model	KS-123R
Location	Located at top of unit inside cabinet
No. of Lamp Guard:	1
Material +	Polymeric, see Section 30 for details
Dimension, W x L x H, mm	59x82x53
Thickness, mm. +	2.0
Method of Securement	Secured to Cabinet Liner by screws
Components Within	LED and lamp holder

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30 NONMETALLIC COMPONENTS:

Model	All
Cabinet Liner, Door Liner (Vacuum Formed)	Recognized (QMFZ2)
Manufacturer	Various
Material Designation	Various
Thickness, mm. (minimum) +	1.5
*Flammability Classification (minimum)	НВ

+ - Minimum thickness of sheet stock before forming.

*Model	KS-91R
Thermostat Enclosure, Control Enclosure	Recognized (QMFZ2)
Manufacturer	Chi Mei Corporation (E56070)
Material Designation	PA-765 or PA-765A
Thickness, mm. (minimum)	2.0
Flammability Classification (minimum)	5VA
*	

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30 NONMETALLIC COMPONENTS	:					
Model		KS-48R, KS-71R, KS	-123R			
Thermostat Enclosure, Contro Enclosure	1	Recognized (QMFZ2)				
Manufacturer		NINGBO LG YONGXING (E203955)	CHEMICAL	CO LTD		
Material Designation	-	LUPOY ER5001RF(#)				
Thickness, mm. (minimum)	-	3.0				
Flammability Classificatic (minimum)	n -	5VA				
Model	_	All				
Crisper, Door Shelves, Freez Compartment Cover, Drip Tray	er	Recognized (QMFZ2)				
Manufacturer		Various				
Material Designation	-	Various				
Flammability Classificatic (minimum)	on	НВ				
	_					
Model		KS-123R				
Lamp Guard		Recognized (QMFZ2	)			
Manufacturer		CHI MEI CORPORATI	ON (E5607	0)		
Material Designation		PH-872A				
Thickness, mm. (minimum)		2.5				
Flammability Classificatio	n	V-0				

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30-5 Isolation From Ignition Sources

Model

All

All units wiring is Recognized (AVLV2, AVLV8 or CSA Certified) and rated VW-1, FT-1 or Listed SJT (rated FT-1 or FT-2) power cord. All wiring is routed and secured within the machine compartment or the cabinet liner. All wire splices are totally insulated and there are no exposed live parts. There are no open coils or exposed high voltage parts.

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# 40 - REFRIGERATION SYSTEM:

# 40-5 Condenser

Model	KS-91R
Manufacturer	CHANGZHOU RONGWEI
Corrosion Protection (Method)	Paint
Bonding for Grounding (Method)	Grounded through tubing to the compressor
Type of Construction	Continuous Tubing (See Ill.4 for details)
Tubing Material	Steel
Tubing OD, mm.	4
Tubing Wall Thickness, mm.	0.5
Total Tube Length, mm.	Approximate 5410
Design pressure, psig	250

# 40-10 Evaporator

Model	KS-91R
Manufacturer	NINGBO ZHENGXIN
Corrosion Protection (Method)	Paint
Mounting (Method)	Screws
Bonding for Grounding (Method)	Grounded through tubing to the compressor
Type of Construction	Tube on plate
Plate Material	Plastic
Plate Thickness, mm.	0.1
Tubing Material	Aluminum
Tubing OD, mm.	N/A
Tubing Wall Thickness, mm.	0.6
Design pressure, psig	88
Other Dimensions	See Ill. 5 for details

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40 - REFRIGERATION SYSTEM:	
40-5 Condenser	
Model	KS-48R, KS-71R, KS-123R
Manufacturer	NINGBO SHUBO ELECTRIC CO LTD
Corrosion Protection (Method)	Paint
Bonding for Grounding (Method)	Grounded through tubing to the compressor
Type of Construction	Continuous Tubing
Tubing Material	Steel
Tubing OD, mm.	4
Tubing Wall Thickness, mm.	0.5
Total Tube Length, mm.	2500-3600
Design pressure, psig	218
40-10 Evaporator	
Model	KS-48R, KS-71R, KS-123R
Manufacturer	NINGBO SHUBO ELECTRIC CO LTD
Corrosion Protection (Method)	Paint
Mounting (Method)	Screws
Bonding for Grounding (Method)	Grounded through tubing to the compressor
Type of Construction	Tube on plate
Plate Material	Steel
Plate Thickness, mm.	0.1
Tubing Material	Steel
Tubing OD, mm.	11
Tubing Wall Thickness, mm.	0.2
Design pressure, psig	58

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# 40-15 Pressure Relief

Model	All
Means Provided	Soldered or Brazed Joint
Location	All tube connections

# 40-20 Drier/Filter

Model	All
Manufacturer	CIXI JIASHENG CO., LTD
Cat. No. (SMGT, SMGT7)	N/A
Material	Copper
Length, mm.	85
OD, mm.	19
Wall Thickness, mm.	Min. 0.5
Design pressure, psig	250
Location	Machine compartment, near compressor
Corrosion Protection (Method)	Inherent
Other Dimensions	See Ill. 6 for details

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40-25 Interconnecting Tubing

Model

All

Material

Coppe	r
Outside Diameter,	Minimum Wall
in.	Thickness, in.
1/4, 5/16, 3/8, 1/2	0.0245
5/8, 3/4	0.0315
7/8	0.0410

# 40-30 Refrigerant Control

Model	All
Capillary Tube - No. Provided	1
Material	Copper
* ID, mm.	1.8
*Wall Thickness, mm.	0.6
Length, mm.	2000~2800

# 40-35 Refrigeration System Joints

Model

Method of Joining

All Soldered

File	SA44289	Vol. 1	Sec. 1 and Report	Page 12	Issued: Revised:	2015-01-27 2015-12-31
50	MOTOR -	COMPRESSOR A	SSEMBLY:			
50-5	Compress	or		Recognized (SLI	S2)	
*Mode	1		_	KS-91R		
Manuf	acturer			Jiangsu Baixue E Co., Ltd	lectric Appl	iances
Desig	nation		_	VY35R00A		
Elect	rical Rat	ing	_			
Vol	ts		_	115		
RLA	. (Not for	Inspector U	se)	0.78		
LRA			_	6.0		
Pha	se		_	1		
Сус	le		_	60		
Bondi	ng for Gr	ounding (Met	hod) -	No. 18 AWG green from compressor base. Each end secured with a c with nut. Eyele are provided wit washers to break	colored gro terminal blo of the groun losed eyelet ts on painte h serrated-h the paint.	ound wire ock to unit nd wire is and screw ed surfaces nead
Overl	oad Prote	ctor		External, Recogn	nized (YFZW2	)
Manuf	acturer			Hang Zhou Star S Appliance Co., 1	Shuaier Elec Ltd(E213160)	tric
Desig	nation			DRB21N61A1		
Locat	ion			Compressor Term:	inal Enclosu	re
Comme	nts			This model was e IEC 60079-15 for	evaluated ac r ignition p	cording to rotection.
Compr	essor Sta	rt Assist De	vice	Recognized (SDF)	¥2)	
Туре				РТС Туре		
Manuf	acturer			Hang Zhou Star S Appliance Co., 1	Shuaier Elec Ltd. (E23237	tric 1)
Desig	nation			QP2-4R7		
Locat	ion			Compressor Term	inal Enclosu	re

[x] Part of Recognized motor-compressor assembly.

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50 MOTOR - COMP.	RESSOR AS	SEMBLY:			
50-5 Compressor		Re	ecognized (SLIS	52)	
Model		KS-48R			
Manufacturer		Huangshi Dongbe Ltd. <b>(SA12805)</b>	ei Electrical App	pliance Co.,	
Designation		DG40BY1A			
Electrical Rating					
Volts		110-127			
RLA (Not for Inspe	ctor Use)	0.7			
LRA		4.2			
Phase		1			
Cycle		60			
Bonding for Groundin (Method)	g	No. 18 AWG gree terminal block wire is secured nut. Eyelets o serrated-head w	en colored ground to unit base. B with a closed e on painted surfac vashers to break	d wire from c Each end of t eyelet and so ces are provi the paint.	ompressor he ground rew with ded with
Overload Protector		External			
Manufacturer		CHANGSHU TIANYI	N ELECTROMECHANI	ICAL CO LTD	
Designation		ZHB60-120P4.7+			
Location		Compressor Term	inal Enclosure		
Comments		This model was ignition protect	evaluated accord	ling to IEC 6	0079-15 for
+ - TIANYIN models Z	HB60-120P4	.7 is a combinat	ion motor start	and thermal	protector

+ - TIANYIN models ZHB60-120P4.7 is a combination motor start and thermal protector devices.

ATCELIIACE	Al	ternate	
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Overload Protector	External
Manufacturer	HANG ZHOU STAR SHUAIER ELECTRIC APPLIANCE CO LTD
Designation	DRB21N61A
Location	Compressor Terminal Enclosure
Comments	This model was evaluated according to IEC 60079-15 for ignition protection.
Compressor Start Assist Device	Recognized (SDFY2)
Туре	PTC Type
Manufacturer	HANG ZHOU STAR SHUAIER ELECTRIC APPLIANCE CO LTD
Designation	QP2-4R7
Location	Compressor Terminal Enclosure

\*[x] Part of Recognized motor-compressor assembly.
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50 MOTOF	R - COMPRESSOR .	ASSEMBLY:			
50-5 Compr	ressor		Recognized (SLIS2	2)	
Model			KS-48R (Alternate)	KS-71R1	
Manufacture	er		JINGZHOU TIANKE RE (SA34011)	EFRIGERATIC	ON CO LTD
Designation	1		QD35C5		
Electrical	Rating				
Volts			115		
RLA (Not	for Inspector	Use)	0.65		
LRA		_	2.8		
Phase			1		
Cycle		_	60		
Bonding for	r Grounding (Me	thod) -	No. 18 AWG green of from compressor to base. Each end of secured with a clo with nut. Eyelets are provided with washers to break t	colored gro erminal blo the grour osed eyelet s on painte serrated-h the paint.	ound wire ock to unit ad wire is and screw ed surfaces head
Overload Pr	rotector		External		
Manufacture	er		GUANGZHOU SENBAO CO LTD	ELECTRICAL	APPLIANCES
Designation	1		BT35-120A61D3		
Location			Compressor Termin	al Enclosu	re
Comments			This model was ev IEC 60079-15 for	aluated ac ignition p	cording to rotection.
Compressor	Start Assist D	evice	Recognized (SDFY2	)	
Туре			РТС Туре		
Manufacture	er		GUANGZHOU SENBAO CO LTD	ELECTRICAL	APPLIANCES
Designation	1		QP2-4.7		
Location			Compressor Termin	al Enclosu	re

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50 MOTOR - COMPRESSOR ASSE	EMBLY:			
50-5 Compressor	R	ecognized (SLIS2	2)	
Model	KS	-48R		
Manufacturer	Hu (S	ayi Compressor A13324)	(jingzhou)	Co Ltd
Designation	L2	2C5L		
Electrical Rating				
Volts	11	0-120		
RLA (Not for Inspector Use)	0.	58		
LRA	2.	7		
Phase	1			
Cycle	60			
Bonding for Grounding (Method	d) No fr ba se wi ar wa	. 18 AWG green of om compressor te se. Each end of cured with a clo th nut. Eyelets e provided with shers to break t	colored gro erminal blo the grour osed eyelet s on painte serrated-h the paint.	ound wire ock to unit nd wire is and screw ed surfaces head
Overload Protector	E	xternal		
Manufacturer	GI	JANGZHOU SENBAO D LTD	ELECTRICAL	APPLIANCES
Designation	B	I35-120A61D3		
Location	Co	ompressor Termin	al Enclosu	re
Comments	T] I]	nis model was ev EC 60079-15 for	aluated ac ignition p	cording to rotection.
Compressor Start Assist Devic	ce Re	ecognized (SDFY2	:)	
Туре	P	ГС Туре		
Manufacturer	GI	JANGZHOU SENBAO D LTD	ELECTRICAL	APPLIANCES
Designation	Q	P2-4.7		
Location	Co	ompressor Termin	al Enclosu	re

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50 MOTOR - COMPRESSOR ASSEM	3LY:
50-5 Compressor	Recognized (SLIS2)
Model	KS-71R
Manufacturer	Jiangsu Baixue Electric Appliances Co., Ltd
Designation	VY35R00A
Electrical Rating	
Volts	115
RLA (Not for Inspector Use)	0.78
LRA	6.0
Phase	1
Cycle	60
Bonding for Grounding (Method)	No. 18 AWG green colored ground wire from compressor terminal block to unit base. Each end of the ground wire is secured with a closed eyelet and screw with nut. Eyelets on painted surfaces are provided with serrated-head washers to break the paint.
Overload Protector	External, Recognized (YFZW2)
Manufacturer	Hang Zhou Star Shuaier Electric Appliance Co., Ltd(E213160)
Designation	DRB21N61A1
Location	Compressor Terminal Enclosure
Comments	This model was evaluated according to IEC 60079-15 for ignition protection.
Compressor Start Assist Device	Recognized (SDFY2)
Туре	PTC Type
Manufacturer	Hang Zhou Star Shuaier Electric Appliance Co., Ltd. (E232371)
Designation	QP2-4R7
Location	Compressor Terminal Enclosure

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50	MOTOR - COM	PRESSOR ASS	SEMBLY:			
50-5	Compressor			Recognized (SLIS2	)	
Model				KS-123R		
Manuf	acturer		_	Huangshi Dongbei E Co., Ltd.	lectrical	Appliance
Desig	nation		-	AG60BY2		
Elect	rical Rating		-			
Vol	ts			110-120		
RLA	(Not for Ins	spector Use	) -	0.7		
LRA			-	4.5		
Pha	se		-	1		
Сус	le		-	60		
Bondi	ng for Ground	ding (Metho		No. 18 AWG green of from compressor te base. Each end of secured with a clo with nut. Eyelets are provided with washers to break t	colored gro erminal blo the groun sed eyelet on painte serrated-h che paint.	ound wire ock to unit nd wire is and screw ed surfaces head
Overl	oad Protector	c		External		
Manuf	acturer			CHANGSHU TIANYIN LTD	ELECTROMEC	HANICAL CO
Desig	nation			ZHB54-120P4.7+		
Locat	ion			Compressor Termin	al Enclosu	re
Comme	nts			This model was ev IEC 60079-15 for	aluated ac ignition p	cording to rotection.

+ - TIANYIN models <code>ZHB54-120P4.7</code> is a combination motor start and thermal protector devices.

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70 ELECTRICAL COMPONENTS:						
70-5 Temperature Controller	(manually	defrost)	Recogni	zed (SDFY2	2,8)	
Model		All				
Use (Loads Controlled)		Compresso	r			
Manufacturer		JIUJIANG CO., LTD(	HENGTONG E225669)	AUTOCONTR	OL DEVICE	
*Designation		WPF24 Ser	ies	WDF24 S	eries	
Electrical Rating, V ac, FLA,	LRA	125/6/36				
Location (Physical)		Inside re within th	frigerato ermostat	or compart enclosure	ment and	
Mounting		Screws to	thermost	tat enclos	ure.	
Bonding for Grounding (Method	)	A green/y to the th to the gr compresso	ellow gro ermostat ounding t r.	ound wire mounting terminal o	is secured plate and f the	
Marked Switch Positions		0,1,2,3,4	,5,6,7			
Comments		This mode IEC 60079	l was eva -15 for :	aluated ac ignition p	cording to rotection.	
70-10 LED Modules	Recogni	zed (OOQA2)	)			
Model	KS-123R					
Number	1					
Manufacturer	NINGBO	PINLIANG L	IGHTING C	CO LTD (E4	80906)	
Recognized Model No.	PL-E12-	SL-001				
No. of LED	0-6					
Ratings	120V,60	Hz,19mA,1.	4W			
Location	In the	fresh food	compartm	nent		

Note: The screw shell is connected to the grounded side of the power supply.

Mounting

Snap-fit into Lampholder

File SA44289	Vol. 1	Sec. 1 and Report	Page 13A	Issued: Revised:	2015-01-27 2016-08-10
70-30 Door Switch	es	Recogniz	ed (WOYR2, 8)		
Model		KS-123R			
Use (Loads Contro	lled)	Lamps			
Manufacturer		ZHEJIANG LTD (E23	CHANGDECHENG 9938)	ELECTRIC APP	LIANCES CO
Designation		HC-050K.	4		
Rating		125V , 6	0Hz, 5A		
Location (Physica	1)	Cabinet	Liner (Fresh F	ood Compartm	ent)
Mounting		Rectangu rectangu	lar switch is lar opening	snap-fitted	into
Comments		This mod 60079-15	el was evaluat for ignition	ed according protection.	to IEC
70-35 Lampholder		R	ecognized (SEV	7S2)	
Model		K	S-123R		
Manufacturer		Z	HEJIANG CHANGD PPLIANCES CO L	ECHENG ELECT TD (E350599)	RIC
Designation		E	12-3	E12-1	
Rating		1	25V,75W		
Location		I	n the fresh fo	od compartme	nt
Mounting		S E	nap-fit into T nclosure	emperature C	Controller
Prevented from tu	rning by:	L	amp cover		

Note: The screw shell is connected to the grounded side of the power supply.

80 INTERNAL WIRING:

80-5 - Types

All wiring is minimum No. 18 AWG(+) Recognized (AVLV2,8) or CSA certified appliance wiring material rated VW-1 and FT-1 or Listed cords. Wiring is rated minimum 300V, 90C with 0.8mm thick insulation. Wiring which is color-coded green or green with one or more yellow stripes is employed on grounding conductors only.

80-10 - Wiring Methods

All wiring is installed and positively routed in such a manner that it is not subject to mechanical damage due to contact with sharp edges, abrasive surfaces, vibrating or moving parts. Exposed lengths of ripped parallel conductors do not exceed 3 in.

Wiring which is completely enclosed within steel conduit, metal raceways, metallic tubing, cabinet walls, or other separate electrical enclosures employs 2/64 in. thick (minimum) electrical insulation unless specified differently in this Report.

Wiring which is not completely enclosed as specified above employs 4/64 in. thick (minimum) electrical insulation unless specified differently in this Report.

Cords or appliance wiring material employed in the refrigerated compartment has 4/64 in. thick (minimum) electrical insulation and is located or protected so as not to be subjected to contact by product containers, removable shelves, and the like.

Green or green with yellow stripe wire may be employed only as grounding conductors. Splices are not employed in grounding conductors unless otherwise noted in the Report.

Holes for the passage of wires or cords through walls, panels or barriers have smooth, rounded surfaces or are provided with smoothly rounded bushings.

All splices are mechanically secured to a fixed member or located in a separate enclosure.

Unless otherwise noted all wires terminate in quick-connect or eyelet type materials.

Wiring is connected in such a way as to ensure proper polarity will be maintained throughout unit, cord, and attachment plug.

All

Wiring diagrams shown in ILL.

See Ill.8 for details

Model

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90 SUPPLY CONNECTIONS:	
90-5 Cord Connected Unit	
Model	All
Power Supply Cord Set	Listed
Туре	SE, SO, SOO, ST, STO, STOO, SJ, SJE, SJO, SJOO, SJT, SJTO, SJTOO, SP-3, SPE-3, SPT-3
Size, AWG	18
Attachment Plug Rating, V, A	125V, 15A
Strain Relief Means	Supply cord is pressed between a two- piece plastic clamp that is secured to the cabinet base by two screws.
Cord Length, ft	5 (1.5m) minimum, 10 (3.0m)maximum
Grounding Conductor Color	Green With or Without Yellow Stripes
Securement of Grounding Conductor	
Location	On the Unit base
Means	Screw, See Fig.5 for details

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100 SHELVING AND DRAWERS:

100-5 Shelves

# \*Model

A. Location Cabinet Uppe Material Glass Manufacturer Jiangsu zhon Dimensions, mm. (D x W), 250 x 373 Approximate Thickness, mm. 4.0 \*No. of Shelves N/A Method of Support Integral gui liner Method of Restraint Plastic stud

All	
Cabinet Upper	Cabinet Lower
Glass	
Jiangsu zhongke r	ruiteng Co.,ltd
250 x 373	180 x 373
4.0	4.0
N/A	N/A
Integral guides f liner	formed in the cabinet
Plastic stud on k	back of shelf

100-10 Crisper- Optional

*Model	All
Location	Bottom of unit cabinet
Material	Plastic, see Section 30 for details
Dimensions, mm. (D x W x H) Approximate	132 x 355 x 205
Thickness, mm.	3.5

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100-6 Door Rack As Shelf

## \*Model

- Α. Location Dimensions, mm. (H x W x D) Number
- в. Location Dimensions, mm.  $(H \times W \times D)$ Number
- С. Location Dimensions, mm. (H x W x D) Number
- D. Location Dimensions, mm. (H x W x D) Number
- Ε. Location Dimensions, mm. (H x W x D) Number

All			
Upper Part of I	Door l	iner	
44 x 95 x 333			
1			
Middle Part of	Door	liner	
44 x 95 x 333			
1			
Bottom Part of	Door	liner	
44 x 95 x 333			
1			
Bottom Part of	Door	liner	
44 x 245 x 333			
1			
Bottom Part of	Door	liner	
44 x 245 x 145			 
1			

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		and Report		Revised:	2017-11-07

# INDEX OF FIGURES

Fig.	Description
1	Overall view (Event)
Ţ	Overall view (Front)
2	Overall view (Back)
3	Freezer/Fresh Food Compartment Assembly view
4	Compressor compartment construction overview
5	Power Supply Cord Securement Method

## INDEX OF ILLUSTRATIONS

Ill.	Description							
1	Manual Instruction							
2	Door Hinge							
3	Drip Tray							
4	Condenser							
5	Evaporator							
6	Drier/Filter							
7	IEC 60079-15 (for Group II A gases or the flammable							
	refrigerant) Certificate of compressor overload protector model DRB21N61A1 <b>and DRB21N61A</b>							
8	Wiring diagram							
9	Enclosure of thermostat							
10	IEC 60079-15 (for Group II A gases or the flammable refrigerant) Certificate of compressor overload protector model ZHB54-120P4 7							
11	IEC 60079-15 (for Group II A gases or the flammable refrigerant) Certificate of thermostat model WD Series							
12	IEC 60079-15 (for Group II A gases or the flammable refrigerant) Certificate of door switch model HC-050K.4							
13	IEC 60079-15 (for Group II A gases or the flammable refrigerant) Certificate of thermostat model WP and WPF Series							
14	IEC 60079-15 (for Group II A gases or the flammable refrigerant) Certificate of compressor overload protector model BT*-***D*							





N151275112





N151275114



N151275115

# **User Manual**

Model Number: KS-91R

REFRIGERATOR

BEFORE USE, PLEASE READ AND FOLLOW ALL SAFETY RULES AND OPERATING INSTRUCTIONS.

1

## KS-91R

Dear customers,

Thank you for purchasing our product. In order to ensure your safety and achieve the best using effect, please read this instruction manual carefully.

Before you start:

- Read all the instructions before using. Keep this manual for future reference.
- Warning: Never try to use this appliance for applications or in a way which is not described in the instruction, otherwise severe hazards may occur.
- Do not use the appliance in a dusty environment or in an explosive atmosphere (inflammable gases, vapors, vapors from organic solvents).
- This appliance is intended for HOUSEHOLD USE ONLY and not for commercial or industrial use.

General safety advice

 Keep the appliance out of reach for children! Do not allow children to play with appliance.

This appliance 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.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or

instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without

supervision.

- Unplug the appliance from outlet when not in use, before putting on or taking off parts, before cleaning.
- Make sure to place the plug all the way into socket when connecting your appliance.
- Insert the plug into a single grounded socket.

2

- Never use the appliance in place where combustible and inflammable materials are kept.
- For safety reason, be sure to repair or replace parts at an authorized service dealers.
- If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its services agent.
- The motor is permanently lubricated and will require no oil.
- The appliance must be positioned so that the plug is accessible.
- Please according to local regulations regarding disposal of the appliance for its flammable blowing gas. Before you scrap the appliance, please take off the doors to prevent children trapped.
- WARNING Keep ventilation openings, in the appliance enclosure or in the builtin structure, clear of obstruction.
- WARNING Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.
- WARNING Do not damage the refrigerant circuit.
- WARNING Do not use electrical appliances inside the food storage compartments of the appliance, unless they are of the type recommended by the manufacturer.

Warning: If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.

The refrigerator should use the extension cords.

GANGER: Risk of child entrapment. Before you throw away your old refrigerator: Take off the doors

Leave the shelves in place so that children may not easily climb inside.

This appliance is intended to be used in household and similar applications such as

- staff kitchen areas in shops, offices and other working environments;

- farm houses and by clients in hotels, motels and other residential type environments;
- bed and breakfast type environments;
- catering and similar non-retail applications.

3

# Tips and Hints

- 1.Fresh foods such as fish and meat can be frozen to maintain freshness, and keep the nutrients in the food.
- 2.Food should be wrapped in aluminum foil, or some other type of airtight packing.
- 3.Do not allow frozen food in freezer to touch foods just placed into freezer. It can damage the food.
- 4. Frozen foods from the store should be placed in the freezer promptly, so they do not thaw.
- 5.Never place fresh vegetables and fruits into the freezer as they can get freezer burn.

### II. Caution Of Safety

1. Individual single-phase socket must be used. It should be reliably connected to a grounding wire.

Caution: Do not connect grounding wire to a water or gas pipe.

- 2. No storing strong base, strong acid, organic solvent and corrosive goods together with food.
- 3. Do not pour water directly onto the freezer, which may cause declining of insulation and corrosiveness.
- 4. When the refrigerator will no be used for a long time, disconnect the power cord then clean it. Please examine the wiring circuit before using it.
- 5. Refer to the Trouble Shooting references when the unit is facing some problems. Do not attempt to solve the problem on your own, please refer to certified technician only.
- 6. When handling, moving and use the refrigerator, please be care of the refrigerant tubing, it should not be damaged.

#### III. Caution for using.

- 1. Unpack all packages before using the refrigerator. Do not topple it over more than 60° while moving it. Even though it can be moved slowly with the universal wheels under its base, the wheels were not meant for uneven ground usage which may damage it and other parts if used vigorously.
- 2. Place the freezer at your desired place and do not operate it for at least 1 hour. The refrigerator should be installed in the environment of good ventilation, cool and dry. Avoid placing it nearby heat generating equipment and under direct sunlight. When installing, the universal wheels should be padded firmly so as to avoid excess vibration and noise.
- 3. After 1 hour the refrigerator should be run emptily upon initial operation. Please turn the thermostat knob to 7 and food can be stored just after 4 hours of initial running. Food must occupy 1/3 of the storage area and evenly arranged. They must be wrapped in plastic bags to obtain the original freshness and taste.

4

4. Temperature can be adjusted by using the thermostat. Clock wised turning will decrease the temperature whilst anti-clockwise to increase. Figures shown indicate the temperature level: 3-5 for normal, 0 for stop running and 6 for continuously running.

Caution: No 7 can only be used if the foods need to be frozen quickly.

- 5. Do not frequently open and shut the refrigerator door to avoid lost of cooling effect and to save energy.
- 6. The surface and inside of the refrigerator should be kept clean at all time to avoid body rust.
- 7. Generally, clean the refrigerator after every 30-45 days of usage. Please use soft cloth moistened in neutral soapsuds or detergent.

Caution: Please unplug the power cord before cleaning the unit.

5

#### Warranty Information

The manufacturer provides warranty in accordance with the legislation of the customer's own country of residence, with a minimum of 1 year (Germany: 2 years), starting from the date on which the appliance is sold to the end user.

The warranty only covers defects in material or workmanship.

The repairs under warranty may only be carried out by an authorized service centre. When making a claim under the warranty, the original bill of purchase (with purchase date) must be submitted.

The warranty will not apply in cases of:

- Normal wear and tear
- Incorrect use, e.g. overloading of the appliance, use of non-approved accessories
- Use of force, damage caused by external influences

- Damage caused by non-observance of the user manual, e.g. connection to an unsuitable mains supply or non-compliance with the installation instructions

- Partially or completely dismantled appliances

## **Correct Disposal of this product**

This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

6

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																	1 . 表面平射 2 . 侧接处料 3 . 表面终侧	5、光洁,无毛 *国、可靠; (彩谷处理;	. <b>Ņ</b> ;
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# IBEXU Institut für Sicherheitstechnik GmbH

Sec. 1

And Report

An-Institut der Technischen Universität Bergakademie Freiberg



# REPORT

## IB-07-8-021

# about the experimental testing of enclosed-break devices (Translation)

Temperature controller type DRB series

Freiberg, 22 May 2007 Hi/Diet/Leh

Dipl.-Ing. (FH) Hille Editor

This document consists of:

6 pages text 2 Annexes

This document may only be distributed in its entirety. Extractions from this document require the written consent of the IBExU GmbH. In case of dispute, the German text shall prevail.

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Prüflaboratorium und Zertifizierungsstelle für Geräte und Schutzsysteme zur bestammagsgemäßen Verwendung in öxclicalomsgefähltetes Bereichen in Sinne ver RL 94-97-6G "Benannte Stelle" (EU-Kenn-Nr. 0637)

đ

**IBExU** Institut für Sicherheitstechnik GmbH IB-07-8-021 Page 2 REPORT IB-07-8-021 about the experimental testing of enclosed-break devices 1 Order The VDE Prüf- and Zertifizierungsinstitut in 63069 Offenbach (GERMANY) engaged with the letter 5001300-4510-0004/83602 of 26 February 2007 the IBExU Institut für Sicherheitstechnik GmbH with the experimental testing of the Temperature controller type DRB series in explosive atmosphere regarding the proof of type of protection enclosed-break devices according to IEC/EN 60079-15:2005, paragraph 33.4. 2 **Test item** Temperature controller **DRB** series Type: 250 V Voltage: Current: max. 14 A cos phi: 0.6 --20 °C up to max. 150 °C Service temperature range: -

#### 3 Test documents

- Letter 5001300-4510-0004/83602 of the customer of 26 February 2007
- EN 60079-15:2005 (complies with IEC 60079-15:2005, ed. 3)
- 7 pieces of Temperature controller type DRB-42V61A1

The test items were delivered to IBExU on 01 March 2007.

#### 4 Test execution

4.1 <u>Objectives</u>

It was the task to examine experimentally the ignition safety (the non-ignition of an explosive atmosphere) of the Temperature controllers for gases and vapors of the Group IIA with the parameters specified under chapter 2.

The bases of the test are the requirements in IEC/EN 60079-15:2005, Paragraph 33.4, for enclosed-break devices.

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In the context of these examinations there was not the task to check the constructive requirements for apparatus in type of protection "n" (apparatus for zone 2) for the compliance with IEC/EN 60079-15.

### 4.2 Description of the test item

The Temperature controllers serve for the protection of motor compressors at refrigerating appliances. A special black plastic base serves as support part of the functional parts, a plastic lid is pressed in on the top side. Inside is a bimetal contact bridge and below is a heating element. At one side of the plastic case a plug contact 6.3 mm is led to the outside and on the lid is a second contact as a socket. Heating element and bimetal plate are connected with the motor winding in row. All gaps were sealed with glue.

The free internal volume of the switch chamber is less than 20 cm<sup>3</sup> (about 1 cm<sup>3</sup>). The enclosures of the test samples were equipped with a thread and a hose connection. So it was possible to fill the switch chamber with the test gas. A second bore hole with hose connection serves for the discharge of the test gas during the purging and also for the uptake of the thermocouple.

#### 4.3 Requirements in IEC/EN 60079-15:2005

Enclosed-break devices are devices, which incorporate electrical contacts that are made and broken. These devices will withstand an internal explosion of the flammable gas or vapor which may enter it without suffering damage and without communicating the internal explosion to the external flammable gas or vapor.

Before the tests any removable seals have to be removed. Any remaining non-metallic parts will have been subjected to the conditioning test described in paragraph 33.3.2. These parts have to be stored continuously for four weeks in an ambience of 90 % relative humidity and at a temperature of 10 K above the maximum temperature in rated service. In case of a maximum service temperature above 85 °C the period of four weeks specified above will be replaced by a period of two weeks at 95 °C and 90 % relative humidity followed by a period of two weeks at a temperature of 10 K above the maximum temperature in rated service. After that, a storage for 24 hrs at a temperature of 5 K below the minimal ambient temperature shall be carried out.

Then the test of the enclosed-break devices according to paragraph 33.4.3 will be carried out. The explosive gas atmosphere fixed for the Group IIA, IIB or IIC has to be ignited inside the device by the operation of the enclosed contacts when connected to the maximum rated source of energy, power and load in terms of voltage, current, frequency and power factor.

A make and break test shall be repeated 10 times with a fresh gas mixture for each test.

After the test the device shall show no visible signs of damage; no external ignition shall occur and there shall be no failure to clear the arc when the switch contacts are opened.

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#### 4.4 Description of the test equipment

The test equipment is schematically shown in annex 1 of this report. It consists of the following equipment and means of work:

#### Explosion chamber

The explosion chamber essentially consists of a cylindrical container (Piacryl) with a bursting foil mounted on the top. The volume amounts 18 dm<sup>3</sup>.

In the base plate and at the cylinder are introduced and sealed the instrument leads and the supply lines.

#### Conditioning of the test gas mixture

The explosive gas atmosphere required for the Group IIA (6.5 %  $\pm$  0.5 % ethylene, 93.5 %  $\pm$  0.5 % air) was processed in the explosion chamber by volumetric gas conditioning. Dosage equipment with Digital Mass Flow Controllers served for this.

The homogeneous mixture conditioning was ensured by flushing the explosion chamber and the test item with the explosive gas/air mixture. The burning gas quota (ethylene) in the explosion chamber was checked in addition for the maintenance of the permissible tolerance with gas interferometer according to Rayleigh-Haber-Löwe.

## Measuring device for electrical parameters

The predefined electrical load of the switching contacts was made by switching on ohmic resistors and inductances in the AC circuit.

With a Wide Band Power Analyzer D 6100 (manufacturer: Norma) the required parameters current, voltage and power factor were measured during the examining operation and registered with an 8-channel recorder type LR 8100 (manufacturer: YOKOGAWA). The ignition in the test item was perceived acoustically and recorded by the temperature rise by means of a thermocouple. For that, a thermocouple was introduced into the tube connection at the test item after the mixture conditioning. The temperature course was recorded with the recorder LR 8100.

#### Test of thermal endurance

The test of thermal endurance occurs in conditioning and refrigeration cabinets which are also used for the thermal endurance tests according to EN 60079-0.

All used measuring instruments are included in the Quality Management System of IBExU certified according to ISO 9001. They are checked in regular intervals.

#### 4.5 Test procedure and results

#### 4.5.1 Test of thermal endurance

According to IEC/EN 60079-15, 33.3.2 the test samples were stored for two weeks at 95 °C heat and 90 % rel. humidity, two weeks at 160 °C heat as well as for 24 hrs at -25 °C cold. No damages were noticed at the following visual examination.

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#### 4.5.2 Pre-test

Before the ignition tests specified in IEC/EN 60079-15 were carried out it had to be made sure that the appearing switching spark in the case can be considered as an effective ignition source for the test gas. To this, pre-tests were carried out at a Temperature controller, whose enclosure was opened.

At the test parameters 250 V AC, 14 A and  $\cos \varphi 0.6$  the ignition of the explosive gas mixture caused by the break spark could be proved (see Annex 2.1).

4.5.3 Type test

The tests were carried out on 02 May 07. In accordance with IEC/EN 60079-15, 33.4.3.2 eleven tests have to be carried out with a sample, which has the most adverse dimensions permitted by the construction drawings. There are no statements regarding the gaps of the test samples. To make sure the test results, four test samples were included into the test program.

The respective Temperature controller (originally closed) to be tested was put into the explosion chamber. The specified explosive gas atmosphere required for the Group IIA ( $6.5 \pm 0.5$ ) % ethylene/air mixture was processed in the explosion chamber and in the enclosure of the test item.

The contacts of the Temperature controller were operated with the preset test parameters. The ignition of the explosive gas atmosphere inside the test item occurred by the break spark.

The test results are summarised in the table. For some tests the test parameters are recorded in the annexes 2.2 and 2.5. Sec. 1

And Report

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Test sample	Taota	Elec	trical parame	Ignition of the explosive atmosphere		
	Tests	U [V] I [A]		cos φ	Inside the test item	outside
1a	2	250	14	0.6	yes	no
1 b	1	250	14	0.6	yes	no
1 c	1	250	14	0.6	yes	no
2	11	250	14	0.6	yes	no
3	11	250	14	0.6	yes	no
4	11	250	14	0.6	yes	no

Only two respectively one ignition tests could be carried out with test samples 1a, 1b and 1c, because the Temperature controller did not work then any more.

At none of the ignition tests the explosion triggered in the enclosure of the Temperature controllers was transfered to the outer explosive atmosphere. No damages were noticed at the case.

#### 5 Summary

It was noticed with the examinations that the Temperature controller type DRB series at the conditions mentioned under 2 has the ignition safety (the non-ignition of an explosive atmosphere) fixed in IEC/EN 60079-15:2005 according to type of protection enclosed-break device for gases and vapors of the Group IIA. The explosions triggered inside the switching chamber by the break spark did not ignite the explosive mixture surrounding the device.

The assessment of the constructive design of the Temperature controllers regarding to the compliance with the requirements of IEC/EN60079-15 for apparatus of the type of protection "n" (apparatus for zone 2) was not object of these examinations.

The test result exclusively refers to the Temperature controller type DRB series specified under chapter 2.

### Annexes

Annex 1 Annex 2 Schematic setup of the test equipment Representation of the test parameters (4 sheets)

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IBExU Institut für Sicherheitstechnik GmbH Annex 2, Page 2 to report IB-07-8-021 Recorder speed: 5 sec/Sct. 1 P E Range 0 ... 1000 V Range 0 ... 30 A Range 1<sub>cap</sub> ... 0 ... 1<sub>in</sub> Range 0 ... 100 °C Range 0 ... 100 °C s i čase M 18+0-3-001 Test parameters Test No. 1.01 900 . 1 iltic VI. P. Derrekvrauche Tonseruparrenter DES-dikiel 2 - Current
 3 - Power factor
 4 - Temperature test chamber
 5 - Temperature test item 2 2 5 4 1 - Voltage Remarks: 1736 S-1-1 09

Sec. 1 And Report

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Sec. 1 And Report

IBExU Institut für Sicherheitstechnik GmbH Annex 2, Page 4 to report IB-07-8-021 Recorder speed: 5 sec/Sct. 1484 209-4 120 mill 400 Range 0 ... 1000 V Range 0 ... 30 A Range 1<sub>aps</sub> ... 0 ... 1<sub>ind</sub> Range 0 ... 100 °C Range 0 ... 100 °C 15-37-5-01 Test parameters Test No. 3.08 3.12 W. S. Aandwradde Tewynstryweigt NW-2001at. WE (C) Current
 Power factor
 Temperature test chamber
 Temperature test item 5 È 4 1 - Voltage Remarks: ŧ!

IBEXU Institut für Sicherheitstechnik GmbH Annex 2, Page 5 to report IB-07-8-021 Recorder speed: 5 sec/Sct.  ${d_{\mu\nu}^{(n)}}$ izhee Par E Range 0 ... 1000 V Range 0 ... 30 A Range 1<sub>sap</sub> ... 0 ... 1<sub>ind</sub> Range 0 ... 100 °C Range 0 ... 100 °C -3 -2 120-00-00-01 Test parameters Test No. 4.10 B-PASIEL LUE () () 20127 M. D Zienkistaadie Terribulurrister Voltage
 Current
 Power factor
 Temperature test chamber
 Temperature test item ۍ ۲ **–** 4 Remarks: 12





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Name und Sitz des Genehmigungs-Inhs Changehu Tianyin Electromecha CHANGSHU, Jiangsu, CHINA	bers / Name and registered seat of the Certificate nicel Co. Ltd., No.8 Yingbin Road, Xing	<i>holder</i> ang Town, 215513
Aktenzeichen / File ref. 5006507-4510-0008 / 157687	/ FG31 / BAU 201	Anderung / up <i>deted</i> Detum / 1-12-08 2011-
Dieses Biett glit nur in Verbindt This supplement is only valid it	ung mit Blatt 1 des Zeichengenehmigung n conjunction with page 1 of the Certific	isausweises Nr. 400333 Sate No. 40033314.
Motorstartrelais, elektrisch Motor starting relay, elect	betrieben rically operated	
Typ(en) / Type(s):		
ZH* *		
Zweck des RS Purpose of control	Motorstertrelais PTC / Motorprotekto Motor starting relay PTC / motor pr	r Kombination stector combination
Bemessungsspannung Reted voltage	AC 110/250 V	
Bemessungsstrom	15 A, cos phi 0,6 (En- und Aussch Motorprotektor: max. 12 A (Enscheitstrom), Anschlu	aitan, blockiertar Motor), iss 1/2 - 3
Rated current	15 A, p.f. 0.6 (making and breaking Moter protector. max. 12 A (inrush current), Termina	i. locked rotor current), I 1/2 - 3
Merkmele der automatischen Wirkungsweise Features of automatic action	1.C / 3.C	
Anzahi der eutomatischen Zutlan	10.000 (Metorprotektor)	
Number of automatic cycles	10.000 (motor protector)	
Temperaturgrenzen des Schaltkopfes Temperature limits of the switch head	Tmin 0°C; Tmax 130°C	ζ.
Konstruktion	eingebautes RS mit PTC-Thermistor . Integriertes RS	1
Construction	incorporated control with PTC-therm	istor /

Fortsetzung siehe Blatt 3 / continued on page 3

VDE Prif- und Zertifisionangeinstitus GmbH \* Toeting and Certification Institute Merianstrasse 25, D-63066 (Meribsch

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N161445055

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Slatt / page 2

File SA44289 Vol. 1

And Report

Zeichengenehmigung			Certificate A 40033314	7 Bract 7 Io. page 4 3
Name und Sitz des Genehmigungs-Inhab Changshu Tianyin Bectromechar CHANGSHU, Jiangsu, CHINA	ers / Name and registered seat of the Gar licel Co. Ltd., No.8 Yingbin Road,	t <i>ilicate holder</i> Xingang Tow	n, 215513	
Aktenzeichen / File ver. 5006507-4510-0008 / 157687	/ FG31 / BAU	letzte Änderung 2011-12-08	/ updated Da 2:	atum / Døre 011-09-13
Dieses Blatt gilt nur in Verbindu This supplement is only valid in	ng mit Blatt 1 des Zeichengenehm conjunction with page 1 of the C	higungsausweit Sertificata No.	ses Nr. 40( 40033374	)33314
Verschmutzungsgrød Degree of pollution	2			
Überspannungskategoria Overvollage category	<u>31</u>			
Anschluss Type of terminal	Flachstecker 6,3x0.8 mm, 4,8x tabs 6,3 x 0,8mm, 4,8x0,8 m	(0,8 mm; Pina m; pin termina	nschlüsse <i>tions</i>	
Kriechstromfestigkeit Tracking resistance	Siehe Anlage 2 See appendix 2			
Glühdrahtprüfung (GWT) Glow-wire test (GW7)	Siehe Anlage 2 See appendix 2			
Weitere Angeben siehe Anlage Further information see appendix	1 * 2			
Anmerkung	Zum Enbau in Geräte der Schu	utzklasse I.		
	Die Beurteilung der Anschlüsse Motorprotektor muss bei der Pr erfolgen.	zum Verdicht rüfung des Ha	er und ushaltgeräte	28
	Geprüft als umschlossene Scha IEC / EN 60079-15:2005, Abs	iteinrichtung n chnitt 33.4, G	ach ruppe IIA.	
	integrierter Motorprotektor gepr	üft nach EN 6	0730-2-4:2	2007

Fortsetzung siehe Blatt 4 / confinued on page 4 VDE 1999- und Zentifizierungeinstitut Ginish \* Yesting and Contification Institute

\$1

Meneristresse 28, D-63069 Offenbach

Phane + 48 (0) 69 83 66-0 Telefax + 48 (0) 69 83 08-565

### EC Declaration of Conformity

issuer's name and address:

	Changshu Tianyin Bectromechanical Co. Ltd. No.8 Yingbin Road, Xingang Town 215513 CHANGSHU Jiangsu CHINA
Product:	Motor starting relay, electrically operated
Type designation:	ZH* *

Type designation:

The designated product is in conformity with the European Directive:

#### 2006/95/EC

## "Council Directive on the harmonization of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits".

The technical documentation and full compliance with the standards listed below proves the conformity of the product with the requirements of the above-mentioned EC Directive:

DIN EN 60730-1 (VDE 6631-1):2008-06; EN 60730-1:2000+ A1+ A12+ A13+ A14+ A16+ A2:2008 DIN EN 60730-2-10 (VDE 0631-2-10):2008-06; EN 60730-2-10:2007

The VDE Testing and Certification Institute (EU Identification No.0366), Merianstr. 28, 63069 Offenbach (Germany), has tested and certified the product.

Last two digits of the year in which the CE marking was affixed:

Certificate No. Ale Reference 40033314 5006507-4510-0008 / 157687 / FG31 / BAU

(Place, Date)

(Legally binding signature of the issuer)

VDE Prüf- und Zeichengenehm	Zertifizierungsinstitut igung		Ausweis-Nr. / Certificate No. 40033314	Baiblatt / Supplemen
Name und Sitz des Geneh Changshu Tianyin Be CHANGSHU, Jiangsu	migungs-inhabers / Name and registered seet of the Cer Ctromechanical CoLtd., No.8 Yingbin Road, , CHINA	tificate holder Xingang Towi	n, 215513	
Aktenzeichen / <i>File ref.</i> 5008507-4510-0008	/ 157687 / FG31 / BAU	letzte Änderung . 2011-12-08	/ updated Datu 201	im / Dete   1-09-13
Dieses Belblatt ist Be This supplement is p	standtell des Zeichengenehmigungsausweises art of the Certificate No. 40033314.	Nr. 4003331	4.	
Notorstattralais, a Motor statting rai	lektrisch betrieben ay, electrically operated			
Fartigungsstätte(n) Piace(s) of menufact:	ure			
Reierenz/Reference 30002843	Changshu Tianyin Bectromechanical Co. Ud. No.8 Yingbin Road, Xingang Town 215513 CHANGSHU Jiangsu CHINA	· .		
VDE Prüf- und Zertifi VDE Testing and Cer Fachgebiet FG31 Section FG31	zierungsinstitut GmbH tification institute			
			· .	

VDE Prif- and Zerliftzierungeinskitur Ginbit \* Tesking and Cerliftzation institute

Meriansirasse 18, D-60069 Offenbarn

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REPORT

IB-14-8-055

about the experimental testing of enclosed-break devices

Motor protectors type DRB\*\*\*A\*/BT\*\_\*\*\*D\* and DRB\*\*\*B\*/BT\*\_\*\*\*G\*

(Translation)

C161936308

Freiberg, 03 September 2014 Hi/Diet/Leh

Dipl.-Ing. (FH) Hille Editor

Prüftaboratorium und Zertifitzierungsstelle für Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung napolisongsfärtneten Bereichen missime von RL JavierG (ATEX 100a) "Benannte Stelle" (EU-Kenn-Nr. 0637)

IBEXU Institut für Sicherheitstechnik GmbH Fuchsmulanewag (7) 20 - 05699 freiaberg Tel∷ (0 37 31) 38 05-0 Fax: (0 37 31) 2 36 50 E-Mail: post@ibexu.de, http://www.ibexu.de

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7 pages text 2 Annexes

This document consists of:

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Institut für Sicherheitstechnik GmbH

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REPORT

# IB-14-8-055

about the experimental testing of enclosed-break devices

## Order ~

VDE Global Services Guangzhou in China engaged with e-mail of 23 April 2014 the IBExU Institut für Sicherheitstechnik GmbH with the experimental testing of the Motor protectors type DRB\*\*\*A\*/BT\*-\*\*\*D\* and DRB\*\*\*B\*/BT\*-\*\*\*G\* in explosive atmosphere regarding the proof of type of protection enclosed-break devices according to IEC/EN 60079-15:2010, paragraph 22.4.

# Test item 2

Motor protectors type DRB\*\*\*A\*/BT\*-\*\*\*D\* and DRB\*\*\*B\*/BT\*-\*\*\*G\*

suangzhou Senbao Electrical Appliances Co., Ltd. henolic EA 5555J (Shanghai European-Asian Synthetic faterial)	lack BT 4308G20 (Jiangyin Jihua New Material Co.Ltd.)	/hite 50 V AC	4 A OT 18 A 2 A OT 0 5	°C up to 155 °C
- Manufacturer: - Enclosure material:	<ul> <li>Enclosure colour:</li> <li>Cover material:</li> </ul>	- Cover colour: - Voltade:	- Current: - Power factor	- Service temperature range:

#### C161936308

# Test documents ო

- . . . . .

- Quotation AN-14-9-207 of 02 April 2014 Order with E-Mail of 23 April 2014 Order confirmation with letter of 23 April 2014 Declaration of the manufacturer of 15 April 2014 VDE certificate No. 40017545 of 27 April 06 with add. of 16 July 2012 EN 60079-15:2010 (compiles with IEC 60079-15:2010, ed. 4) 6 Motor protectors type BT180-160A61D3 (EXel 275/14) 6 Motor protectors type BT180-160A61G3 (EXel 275/14)
  - .
    - .

    - .

The test items were delivered to IBExU on 22 May 2014.

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	IBEXU	Institut für Sicherheitstechnik GmbH
		IB-14-8-055 Page 3
	4 Test execution	
	4.1 <u>Objectives</u>	
	It was the task to execute the experimental testing for required in IEC/EN 60335-2-24, Annex CC on the N specified under chapter 2. Basis of the test are the paragraph 22.4.	enclosed-break devices for Group IIA Motor protectors with the parameters a requirements in IEC/EN 60079-15,
	In the context of these examinations there was not t quirements for apparatus in type of protection "n" (ap with IEC/EN 60079-15.	the task to check the constructive re- paratus for zone 2) for the compliance
	4.2 Description of the test item	
ſ	The Motor protectors are thermally acting motor protec hermetically enclosed motor-compressors. A special part of the functional parts of the motor protectors. Ir enclosure is closed by a second, white moulded part pins. Both enclosure parts are forming a circulating g tracts are led to the outside as a 6.3 mm plug contact The free internal volume of the switch chamber is les	tion devices for hermetically and semi- black plastic base serves as support aside is a bimetal contact bridge. The t, which is heat-sealed via two plastic jap, which is glued. The terminal con- and as a socket. s than 20 cm <sup>3</sup> (about 1 cm <sup>3</sup> ).
7161		Contraction
936308		
	Motor protector type BT140-160A61D3	



IBEXU	nstitut für Sicherheitstechnik GmbH
4.4 Description of the test equipment	
The test equipment is schematically shown in anne following equipment and means of work:	1 of this report. It consists of the
Test of thermal endurance	
The test of thermal endurance to heat and cold occur also used for the thermal endurance tests according t	in conditioning cabinets, which are EN 60079-0.
Explosion chamber	
The explosion chamber essentially consists of a cylindr foil mounted on the top. The volume amounts 18 dm <sup>3</sup> in the base plate and on the cylinder are introduced amounts used to the cylinder are introduced amounts.	al container (Piacryl) with a bursting sealed the instrument leads and the
conditioning of the test gas mixture	
The explosive gas atmosphere required for the Group 0.5 % air) was processed in the explosion chamber by equipment with Digital Mass Flow Controllers served	A (6.5 % ± 0.5 % Ethylene, 93.5 % ± olumetric gas conditioning. Dosage r this.
The homogeneous mixture conditioning was ensured t the test item with the explosive gas/air mixture. The co explosion chamber was checked in addition for the mai with a gas interferometer according to Rayleigh-Habe	flushing the explosion chamber and bustible gas quota (Ethylene) in the enance of the permissible tolerance Löwe (PM 0301).
Measuring device for electrical parameters	
The predefined electrical load of the switching contac resistors and inductances in the AC circuit. With a measuring transmitter (PM 0458; PM 0459; current, voltage and power factor were measured o registered with the data acquisition device MW100 0542/0635).	s was made by switching on ohmic M 0475) the required parameters tring the examining operation and (manufacturer: YOKOGAWA, PM
The ignition in the test item was perceived acoustically by means of a thermocouple. For that, a thermocouple tion on the test item after the mixture conditioning. Th with the recorder.	nd recorded by the temperature rise as introduced into the tube connec- temperature course was recorded
All used measuring instruments are included in the Qi certified according to ISO 9001. They are checked in	ality Management System of IBExU gular intervals.

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4.5 Test procedure and results	
4.5.1 Test of thermal endurance	
According to IEC/EN 60079-15, 22.3.1 test samples were stored 336 $(^{+30}I_{-0})$ hrs $(^{+30}I_{-0})$ hrs at +165 °C heat as well as fi	and a maximum service temperature of +155 °C the s at +95 °C heat and 90 % rel. humidity, following 336 or 24 hrs at -5 °C cold.
No damages at the test samples were	noticed at the following visual inspection.
4.5.2 Pre-test	
Before the ignition tests specified in IE sure that the appearing switching spark source for the test gas. To this, pre-test cover was removed.	C/EN 60079-15 were carried out it had to be made in the case can be considered as an effective ignition is were carried out at a Motor protector, at which the
At the test parameters 250 V AC, 14 a caused by the break spark could be pr	nd cos $\phi$ 0.7 the ignition of the explosive gas mixture oved (see Annex 2.1).
4.5.3 Type test	
The tests were carried out from 23 until 22.4.3.2 eleven tests have to be carri- dimensions permitted by the constructi gaps of the test samples. To make su included in the test program.	30 July 2014. In accordance with IEC/EN 60079-15 ed out with a sample, which has the most adverse on drawings. There are no statements regarding the re the test results, four test samples per type were
The Motor protector (originally closed) the specified explosive gas atmosphere remixture was processed in the explosion	o be tested was put into the explosion chamber. The equired for the Group IIA ( $6.5\pm0.5$ ) % Ethylene/ai r chamber and in the enclosure of the test item.
The contacts of the Motor protectors v ignition of the explosive gas atmosphe	vere operated with the preset test parameters. The inside the test item occurred by the break spark.
The test results are summarised in the corded in the	e table. For some tests the test parameters are re-

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						IB-14-8-055 Page 7
Test	ŀ	Elec	ctrical para	meters	Ignition of the e	xplosive atmos- ere
sample	lests	[2] N	[A]	cos φ	inside the test item	outside
			BT14(	0-160A61D3		
	11	250	14	0.7	yes	ou
2	11	250	14	0.7	yes	ou
m	11	250	14	0.7	yes	ou
4	1	250	14	0.7	yes	ou
			BT18(	0-160A61G3		
7	11	250	18	0.95	yes	ou
ę	1	250	18	0.95	yes	ou
4	1	250	18	0.95	yes	ou
5	11	250	18	0.95	yes	no
At none of was transfe <b>5 Surr</b>	the ignitior erred to the <b>mary</b>	n tests the e outer exp	explosion t plosive atm	triggered in t osphere.	he enclosure of th	e Motor protector
The Motor mentioned according t vapors of th spark did n	protectors under 2 w o IEC/EN ( ne Group II iot ignite th	type DRB /ere subje 60079-15: A. The exp ie explosiv	***A*/BT*- cted to the 2010, para plosions trig e mixture s	***D* and DF experiments graph 22.4. T ggered inside surrounding t	R8***B*/BT*_***G* al tests for enclos hey passed the te the switching cha he device.	at the conditions ed-break devices sts for gases and mber by the break
The assess with the rec ratus for zc	sment of th quirements one 2) was	e construc t of IEC/EN not object	tive design 1 60079-15 t of these e	of the Motor for apparatu xaminations.	protectors regardi s of the type of pro	ng the compliance itection "n" (appa-
The test re-	sult refers	exclusivel	y to the Mo	tor protector	s specified under	chapter 2.

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Schematic setup of the test equipment Representation of the test parameters (9 Sheet) **Annexes** Annex 1 Annex 2



Annex 1 to report IB-14-8-055

Annex 1: Schematic setup of the test equipment

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Annex 2, Sheet 03 to report IB-14-8-055

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test sample



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DESCRIPTION

PRODUCT COVERED:

USL, CNL Freestanding type household freezer, Models KS-35F

#### GENERAL:

The model covered by this Report is intended for freestanding in household use. Defrost is accomplished manually.

The model employs Refrigerant R-600a (flammable refrigerant, classified as Class 3 "Higher Flammability" by ASHRAE34) and was evaluated following additional requirements of Supplement SA of UL 250. The cooling system is considered a protected cooling system.

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

Products designated USL have been investigated using requirements contained in the Standard for Household Refrigerators and Freezers, UL250, Tenth Edition.

Products designated CNL have been investigated using requirements contained in Standard for Refrigeration Equipment, CAN/CSA C22.2 No. 63-93, Fourth Edition.

RATINGS:

See MARKING.

#### INSTRUCTIONS:

Each unit is provided with installation and operating instructions.

The instructions include the following wording regarding the use of extension cords (+): Do not use an extension cord, or similar words.

(+) - Cord connected units only.

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#### CONSTRUCTION DETAILS:

Electrical Spacings - Unless otherwise noted in this Report, the spacings between uninsulated live parts of opposite polarity and between uninsulated live parts and dead-metal parts are not less than 1/8 in. through air, 1/4 in. oversurface, and 1/4 in. to the enclosure.

10 MARKING:

10-5 Nameplate Marking	Recognized (PGDQ2,8 or PGJI2, 8)
Model	KS-35F
Material	
Manufacturer	Various
Recognized Designation	Various
Location	Inside cabinet
Secured By	Adhesive
Listee Name	Ningbo HANDIAN ELECTRIC APPLIANCE Co., Ltd
Refrigerant	
- Туре	R600a
- Amount	1.13 oz (32g)
Design Pressure	
High Side, psig	218
Low Side, psig	88
Electrical Rating	
V	115
A -	1.0
Frequency, Hz	60

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10-10 Special Marking

A. Type or Material

Manufacturer	Various
Recognized Designation	Various
Location	Unit Rear, above machine compartment

Quote Marking

1)  $\Box \textsc{DANGER}$  - Risk Of Fire Or Explosion. Flammable Refrigerant Used. To Be Repaired Only By Trained Service Personnel. Do Not Puncture Refrigerant Tubing.



2) CAUTION - Risk Of Fire Or Explosion. Flammable Refrigerant Used. Consult Repair Manual/Owner's Guide Before Attempting To Service This Product. All Safety Precautions Must be Followed.
3) CAUTION - Risk Of Fire Or Explosion. Dispose Of Property In Accordance With Federal Or Local Regulations. Flammable Refrigerant Used.
4) CAUTION - Risk Of Fire Or Explosion Due To Puncture Of Refrigerant Used.
4) CAUTION - Risk Of Fire Or Explosion Due To Puncture Of Refrigerant Used.
COmments The markings shall be in letters no less than 3.2 mm high;
B. Type or Material

· Type of flacefie

Location

A process tube on a compressor.

Quote Marking

A process tube on a compressor shall be painted or colored red, Pantone® Matching System (PMS) No. 185. The Color mark shall extend at least 2.5 cm (1 inch) from the compressor.

C. Type or Material

Manufacturer	Various
Recognized Designation	Various
Location	Shipping Carton
Quote Marking	
CAUTION - Risk Of Fire Or Explosion Due Follow Handling Instructions Carefully.	To Puncture Of Refrigerant Tubing; Flammable Refrigerant Used.
Comments	The markings shall be in letters no less than 3.2 mm high.

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20 ENCLOS	SURES:				
20-5 Ultimat	e Enclosure				
Model			KS-35F		
Approximate P door), H x W	Physical Size (i x D, mm.	including	490 x 500 x 430		
20-10 Unit Ba	ase (cabinet bas	se)			
Model		_	KS-35F		
Material		_	Steel		
Thickness, mm	n.	_	Min. 0.4		
Corrosion Pro	otection (Method	d)	Galvanized or Pa	int Coating	
Bonding for G	Grounding (Metho	od)	Screw-connected compartment base	with machin	e
20-15 Machine	e compartment ba	ase			
Model		_	KS-35F		
Material			Steel		
Thickness, mm	n.	- -	Min. 0.8		
Corrosion Pro	otection (Method	1)	Galvanized		
Bonding for G	Grounding (Metho	od)	Grounded by the	power cord	

20-20 Unit Sides/Top/Machine Compartment Top/ Machine Compartment Sides

Model	KS-35F
Material	Steel
Thickness, mm.	Min. 0.25
Corrosion Protection (Method)	Galvanized or Paint Coating
Bonding for Grounding (Method)	Screw-connected with unit base.

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20-25 Unit Rear						
Model	KS-35F					
Material	Steel					
Thickness, mm.	Min. 0.25					
Compressor Compartment Opening H x W, mm.	180 x 450					
Corrosion Protection (Method)	Galvanized or Paint Coating					
Bonding for Grounding (Method)	Incorporate with unit sides					
20-30 Cabinet Liner						
Model	KS-35F					
Material	Polymeric, see Item 30 for details.					
Bonding for Grounding (Method)	Not required					
20-35 Unit Doors						
Model	KS-35F					
Material	Steel					
Thickness, mm.	Min. 0.4					
Corrosion Protection (Method)	Paint or Pre-painted					
20-40 Cabinet Door Liner						
Model	KS-35F					
Material (+)	Polymeric, see Item 30 for details.					
Bonding for Grounding (Method)	Not required					
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--------------------------	--------------	----------------------	---	--	--	--
20-50 Door Hing	es					
Model			KS-35F			
Top and Bottom 1	Hinge		See Ill. 1 for details			
20-60 Control E Model	nclosure		KS-35F			
Location			Located at below the rear of unit outside cabinet			
Material (+)			Polymeric, see Item 30 for details.			
Physical Size,	L x W x H, m	าเม	70 x 40 x 100			
Thickness, mm.			2.5			
Method of Securement			Screwed with unit rear by 2 screw			
Components With	in		Thermostat			

Fil	e SA44289	Vol. 1	Sec. 2 and Report	Page 7	Issued:	2015-09-30
20-	65 Freezer	Compartment	Assembly			
Мос	lel			KS-35F,see Fig. 1		
Α.	Freezer Con	npartment Cov	er			
	Location			Cover the evaporat	or in from	nt
	Material			Polymeric, see Ite	m 30 for d	details.
	Method of S	Securement		Pivot on cabinet l	iner	

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30 NONMETALLIC COMPONENTS:

Model	KS-35F		
Cabinet Liner, Door Liner (Vacuum Formed)	Recognized (QMFZ2)		
Manufacturer	Various		
Material Designation	Various		
Thickness, mm. (minimum) +	1.6		
Flammability Classification (minimum)	НВ		

+ - Minimum thickness of sheet stock before forming.

Model	KS-35F		
Thermostat Enclosure, Control Enclosure	Recognized (QMFZ2)		
Manufacturer	NINGBO LG YONGXING CHEMICAL CO LTD (E203955)		
Material Designation	LUPOY ER5001RF(#)		
Thickness, mm. (minimum)	3.0		
Flammability Classification (minimum)	5VA		

30-5 Isolation From Ignition Sources

# Model

KS-35F

All units wiring is Recognized (AVLV2, AVLV8 or CSA Certified) and rated VW-1, FT-1 or Listed SJT (rated FT-1 or FT-2) power cord. All wiring is routed and secured within the machine compartment or the cabinet liner. All wire splices are totally insulated and there are no exposed live parts. There are no open coils or exposed high voltage parts.

and	Report
40 - REFRIGERATION SYSTEM:	
40-5 Condenser	
Model	KS-35F
Manufacturer	NINGBO SHUBO ELECTRIC CO LTD
Corrosion Protection (Method)	Paint

Steel

4

0.5

218

Approximate 3065

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Bonding for Grounding (Method) Type of Construction Tubing Material Tubing OD, mm. Tubing Wall Thickness, mm. Total Tube Length, mm.

Design pressure, psig

40-10 Evaporator

Model
Manufacturer
Corrosion Protection (Method)
Mounting (Method)
Bonding for Grounding (Method)
Type of Construction
Tubing Material
Tubing OD, mm.
Tubing Wall Thickness, mm.
Design pressure, psig
Other Dimensions

KS-35F
NINGBO SHUBO ELECTRIC CO LTD
Paint
Adhesive by aluminum foil tape
Grounded through tubing to the compressor
Continuous Tubing
Aluminum
7.5
0.4
88
See Ill. 3 for details

Grounded through tubing to the compressor

Continuous Tubing (See Ill.2 for details)

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40-15 Pressure 1	Relief				
Model			KS-35F		
Means Provided			Soldered or Braz	ed Joint	
Location			All tube connect	ions	
40-20 Drier/Fil	lter				
Model			KS-35F		
Manufacturer			Cixi Jiasheng I Co., Ltd.	Electric Ap	pliance
Cat. No. (SMGT,	SMGT7)		N/A		
Material			Copper		
Length, mm.			85		
OD, mm.			18.5		
Wall Thickness,	mm.		Min. 0.9		
Design pressure,	, psig		870		
Location			High side of ref	rigeration	system
Corrosion Prote	ction (Method	)	Inherent		
Other Dimension:	S		See Ill. 4 for	details	

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40-25 Interconnecting Tubing

40-30 Refrigerant Control

Model

KS-35F

Material

Copper				
Outside Diameter,	Minimum Wall			
in.	Thickness, in.			
1/4, 5/16, 3/8, 1/2	0.0245			
5/8, 3/4	0.0315			
7/8	0.0410			

Model	KS-35F			
Capillary Tube - No. Provided	1			
Material	Copper			
OD, mm.	1.8			
Wall Thickness, mm.	0.63			
Length, mm.	170			

40-35 Refrigeration System Joints

Model

Method of Joining

KS-35F	
Soldered	

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50 MOTOR - COMPRESSOR ASSEMBLY:	
50-5 Compressor	Recognized (SLIS2)
Model	KS-35F
Manufacturer	Huangshi Dongbei Electrical Appliance Co., Ltd.
Designation	AG60BY2
Electrical Rating	
Volts	110-120
RLA (Not for Inspector Use)	0.7
LRA	4.5
Phase	1
Cycle	60
Bonding for Grounding (Method)	No. 18 AWG green colored ground wire from compressor terminal block to unit base. Each end of the ground wire is secured with a closed eyelet and screw with nut. Eyelets on painted surfaces are provided with serrated-head washers to break the paint.
Overload Protector	External
Manufacturer	CHANGSHU TIANYIN ELECTROMECHANICAL CO LTD
Designation	ZHB54-120P4.7+
Location	Compressor Terminal Enclosure
Comments	This model was evaluated according to IEC 60079-15 for ignition protection.

+ - TIANYIN models <code>ZHB54-120P4.7</code> is a combination motor start and thermal protector devices.

[x] Part of Recognized motor-compressor assembly.

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70 ELECTRICAL C	COMPONENTS:					
70-5 Temperature	Controller	(manually	defrost)	Recogniz	zed (SDFY2	2,8)
Model			KS-35F			
Use (Loads Control	lled)		Compresso	<u>c</u>		
Manufacturer			JIUJIANG H CO., LTD(H	HENGTONG E225669)	AUTO CONTI	ROL DEVICE
Designation			WD,WD-K,WI	₽,WP-K		
Electrical Rating,	V ac, FLA,	LRA	125/6/36			
Location (Physical	L)		Inside mad thermostat	chine com c enclosu	partment a re	and within
Mounting			Screws to	thermost	at enclos	ure.
Bonding for Ground	ling (Methoo	1)	A green/ye to the the to the gro compresso	ellow gro ermostat ounding t	und wire mounting p erminal of	is secured plate and f the
Marked Switch Posi	itions		0,1,2,3,4	,5,6,7		

80 INTERNAL WIRING:

80-5 - Types

All wiring is minimum No. 18 AWG(+) Recognized (AVLV2,8) or CSA certified appliance wiring material rated VW-1 and FT-1 or Listed cords. Wiring is rated minimum 300V, 90C with 0.8mm thick insulation. Wiring which is color-coded green or green with one or more yellow stripes is employed on grounding conductors only.

80-10 - Wiring Methods

All wiring is installed and positively routed in such a manner that it is not subject to mechanical damage due to contact with sharp edges, abrasive surfaces, vibrating or moving parts. Exposed lengths of ripped parallel conductors do not exceed 3 in.

Wiring which is completely enclosed within steel conduit, metal raceways, metallic tubing, cabinet walls, or other separate electrical enclosures employs 2/64 in. thick (minimum) electrical insulation unless specified differently in this Report.

Wiring which is not completely enclosed as specified above employs 4/64 in. thick (minimum) electrical insulation unless specified differently in this Report.

Cords or appliance wiring material employed in the refrigerated compartment has 4/64 in. thick (minimum) electrical insulation and is located or protected so as not to be subjected to contact by product containers, removable shelves, and the like.

Green or green with yellow stripe wire may be employed only as grounding conductors. Splices are not employed in grounding conductors unless otherwise noted in the Report.

Holes for the passage of wires or cords through walls, panels or barriers have smooth, rounded surfaces or are provided with smoothly rounded bushings.

All splices are mechanically secured to a fixed member or located in a separate enclosure.

Unless otherwise noted all wires terminate in quick-connect or eyelet type materials.

Wiring is connected in such a way as to ensure proper polarity will be maintained throughout unit, cord, and attachment plug.

Wiring diagrams shown in ILL.

See Ill.5 for details

Model

KS-35F

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90 SUPPLY CONNECTIONS:				
90-5 Cord Connected Unit				
Model		KS-35F		
Power Supply Cord Set		Listed		
Туре		SJT		
Size, AWG		18		
Attachment Plug Rating, V	, A	125V, 15		
Strain Relief Means		Metal clamp, min 9.0 mm wide with screwed on rear	imum 0.5 mm hemmed edg of unit.	n thick and ges and
Cord Length, ft		5 Minimum, 10 Ma	ximum	
Grounding Conductor Color		Green With or Wi	thout Yello	w Stripes
Securement of Grounding Con	ductor	Secured to the b	ottom by sc	crews
Location		Unit base.		
Means		Unit base in mac	hine compar	rtment

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INDEX OF FIGURES

Fig.	Description
1	Freezer Compartment Assembly view

# INDEX OF ILLUSTRATIONS

Ill.	Description
1	Door Hinge
1A	Door Hinge
2	Condenser
3	Evaporator
4	Drier/Filter
5	Wiring diagram
6	IEC 60079-15 (for Group II A gases or the flammable refrigerant) Certificate of compressor overload protector model ZH series
7	IEC 60079-15 (for Group II A gases or the flammable refrigerant) Certificate of thermostat model WD series



N151399750

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		<u>BC1</u> BC1	23.52		/ A	; 	****		5 5 1. 未販早餐 2. 軟能林等 3. 未販早餐 3. 未販早餐 45 3-2.5/Q 	2.35-A ∦			2	
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<u> </u>			BC123.8



Sec. 2 ILL And Report







Sec. 2 ILL-5 And Report

# Refrigerator





TECHNICAL DATA				
Model	KS-35F			
RATED VOLTAGE	115 V~			
RATED FREQUENCY	60Hz			
RATED CURRENT	0. 6Λ			
REFRIGERANT/AMOUNT	R600a/16g			

Ningbo Han Dian Electric Appliance Co.,Ltd.



VDE Prüf- und Zertifizi Zeichengenehmigung	erungsinstitut	Ausweis-Nr. / Certificate No. 40033314	Blatt / page 2
Name und Sitz des Genshmigungs-Inhal Changshu Tianyin Electromachas CHANGSHU, Jiangsu, CHINA	pers / Name and registered seat of the Certificate nicel Co. Ltd., No.8 Yingbin Road, Xinga	<sup>holder</sup> ng Town, 215513	
Aktenzeichen / File ref. 5006507-4510-0008 / 157687	letzte / FG31 / BAU 2011	Anderung / updated Datu -12-08 201	m / Dər 1-09-1
Dieses Blatt gilt nur in Verbindt This supplement is only valid in	ing mit Blatt 1 des Zeichengenehmigung conjunction with page 1 of the Certific	sausweises Nr. 4003 ste No. 40033374.	3314
Motorstartrelais, elektrisch Motor starting relay, electi	betrieben rically operated		
iyp(an) / iype(s):			
ZH* *			
Zwieck des RS Purpose of control	Motorstertrelais PTC / Motorprotektor Motor starting relay PTC / motor pro	· Kombination tector combination	
Bemessungsspannung Reted voltage	AC 110/250 V		
Bemeesungestrom	15 A, cos phi 0,6 (En- und Ausscha Motorprotektor: max. 12 A (Einschaltstrom), Anschlu:	ilten, blockierter Meli ss 1/2 - 3	or),
Rated current	15 A. p.f. 0.6 (making and breaking, Motor protector, may 12 A discuss current). Terminal	locked rotor current	አ
Merkmale der automatischen Wirkungsweise Festures of automatic schon	1.C / 3.C		
Anzahi der automatischen Zyklan	10.000 (Metorprotektor)		
Number of automatic cycles	10.000 (motor protector)		
Temperaturgrenzen des Schaltkopfes	Tmin 0°C; Tmax 130°C		
Temperature limits of the switch head			
Konstruktion	eingebautes RS mit PTC-Thermistor /		
Construction	incorporated control with PTC-thermi- integrated RS	stor /	

Fortsetzung siehe Blatt 3 / continued on page 3

VDE Prif- und Zerliftsberorgebreitet Gentift \* Toeting and Cerliftsberorgebreitet Marianstrasse 22, D-20085 Offertund

Phone - 49 (0) 88 83 08-0 Telefax + 49 (0) 88 93 06-655

N151399758

File SA44289 Vol. 1

Sec. 2 And Report

VDE Prüf- und Zertifizi Zeichengenehmigung	ierungsinstitut	Auswei Centifio 40033	s-Nr. / No No. 3314
Name und Sitz des Genehmigungs-Inha Changshu Tianyin Bectromecha CHANGSHU, Jiangsu, CHINA	bers / Name and registered seat o nical Co. Ltd., No.8 Yingbir	f the Certificate holder 9 Road, Xingang Town, 215	513
Aktenzeichen / File røf. 5006507-4510-0008 / 157687	/ FG31 / BAU	letzte Änderung / <i>update</i> 2011-12-08	r Datur 201
Dieses Blatt gilt nur in Verbindi This supplement is only valid in	ung mit Blatt 1 des Zeichen • conjunction with page 1 c	genehmigungsausweises Nr. If the Certificate No. 40033	40033 374.
Verschmutzungsgræd	2		
Degree of pollution			
Oberspannungskategoria Overvoltage category	81		
Anschluss Type of terminal	Flachstecker 6,3x0,8 mi tabs 6,3 x 0,8mm, 4,8)	m, 4,8x0,8 mm; Pinanschiüs x0,8 mm; pin terminstions	se
Kriechstromfestigkeit Tracking resistance	Siehe Anlage 2 See appendix 2		
Glühdrahtprüfung (GWT) Glow-wire test (GW7)	Siehe Anlage 2 See appendix 2		
Weltere Angaben siehe Anlage Further information see appendix	1 * 2		
Anmerkung	Zum Enbau in Geräte d	er Schutzklasse I.	
	Die Beurteilung der Anse Motorprotektor muss be erfolgen.	chlüsse zum Verdichter und i der Prüfung des Haushaltge	rätes
	Geprüft als umschlossen IEC / EN 60079-15:200	e Schalteinrichtung nach 5. Abschnitt 33.4, Gruppe I	iA.
	integrierter Motorprotekt	or geprüft nach EN 60730-2	-4:200

Fortsetzung siehe Blatt 4 / confinued on page 4 VDE 1969- und Zertifikerungeinstitut GmitH \* Yesting and Contification Institute

51

Menanstrease 28, D-63069 Offerbach

Phone + 48 (6) 69 83 06-0 Telefax + 48 (0) 59 23 08-565

N151399758

And Report

*Date* )9-13

# EC Declaration of Conformity

issuer's name and address:

	Changshu Hanyih Bectromechanicai Co. Ltd. No.8 Yingbin Road, Xingang Town 215513 CHANGSHU Jiangsu CHINA			
Product:	Motor starting relay, electrically operated			
Type designation:	Z++* *			

Type designation:

The designated product is in conformity with the European Directive:

#### 2006/95/EC

# "Council Directive on the harmonization of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits".

The technical documentation and full compliance with the standards listed below proves the conformity of the product with the requirements of the above-mentioned EC Directive:

DIN EN 60730-1 (VDE 6631-1):2008-06; EN 60730-1:2000+ A1+ A12+ A13+ A14+ A16+ A2:2008 DIN EN 60730-2-10 (VDE 0631-2-10):2008-06; EN 60730-2-10:2007

The VDE Testing and Certification Institute (EU Identification No.0366), Merianstr. 28, 63069 Offenbach (Germany), has tested and certified the product.

Last two digits of the year in which the CE marking was affixed:

Certificate No. Ale Reference 40033314 5006507-4510-0008 / 157687 / FG31 / BAU

(Place, Date)

(Legally binding signature of the issuer)

Zeichengenehm	igung		Certificate 400333	a No. Supplen 14
Name und Sitz des Ganeh Changshu Tianyin Be CHANGSHU, Jiangsu	migungs-inhabers / Name and registered seet of the ectromechanical CoLtd., No.8 Yingbin Re , CHINA	e Certificate holo bad, Xingang	er Town, 2155 <sup>-</sup>	13
Aktenzeichen / <i>File ref.</i> 5006507-4510-0008	/ 157887 / FG31 / BAU	letzte And 2011-12	erung / updated -08	Datum / Date 2011-09-13
Dieses Belblatt ist Be This supplement is p	standtell des Zeichengenehmigungsauswei art of the Certificate No. 40033314.	ises Nr. 400	33314.	
Motorstartrelais, e Motor starting rei	elektrisch betrieben ay, electrically operated			
Fertigungastätte(n) Place(s) of manufacti				
Referenz/Reference 30002843	Changshu Tianyin Bectromechanical Co. Ltd. No.8 Yingbin Road, Xingang Town 215513 CHANGSHU Jiangsu CHINA			
VDE Prüf- und Zertift VDE Testing and Cer Fachgebiet FG31 Section FG31	zierungsinstitut GmbH tification Institute			

VDE Prif- and Zerliftzierungeinskitur Ginbit \* Tesking and Cerliftzation institute

Merianstrasse 28. 0-63069 Offenbern

Phone + 49 (0) 60 83 00-0 Felefax + 48 (0) 69 83 06-855



法。李诺率仅对与认可文件和样品一致的产品有效。——鉴结解结 输入数码 蓝细囊伤

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		and Report		Revised:	2016-05-27

DESCRIPTION

PRODUCT COVERED:

\*USL, CNL Recessed type household refrigerator-freezer, Models HRB10N2AGV, HRB10N2BGS, HRB10N2BGV, HRB10N2BGB, HRB10N2BGW, HRB10N2CGV, HRB10N2CGW.

#### MODEL DIFFERENCES:

Model HRB10N2BGS, HRB10N2BGV, HRB10N2BGB, HRB10N2BGW, HRB10N2CGV, HRB10N2CGW are similar to model HRB10N2AGV, except for the color of the enclosure.

GENERAL:

\*This is **recessed**, cord-connected refrigerator intended for use as household refrigerator. It has automatic electric defrost heater and intended for indoor use.

These units employ automatic defrost through defrost timer, the defrost cycle will initiate while the compressor runs continuously for 12 hours, the compressor will stop and fans will not stop during defrost period; The defrost cycle will terminate while the temperature of temperature limiter reaches 12 degree C.

\* The model employs Refrigerant R-600a (flammable refrigerant, classified as Class 3 "Higher Flammability" by ASHRAE34) and was evaluated following additional requirements of Supplement SA of UL 250. The cooling system is considered a **unprotected** cooling system.

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

Products designated USL have been investigated using requirements contained in the Standard for Household Refrigerators and Freezers, UL 250.

Products designated CNL have been investigated using requirements contained in Standard for Refrigeration Equipment, CAN/CSA C22.2 No. 63-93.

RATINGS:

See MARKING.

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# INSTRUCTIONS:

Each unit is provided with installation and operating instructions.

The instructions include the following wording regarding the use of extension cords (+): Do not use an extension cord, or similar words.

(+) - Cord connected units only.

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CONSTRUCTION DETAILS:

Electrical Spacings - Unless otherwise noted in this Report, the spacings between uninsulated live parts of opposite polarity and between uninsulated live parts and dead-metal parts are not less than 1/8 in. through air, 1/4 in. oversurface, and 1/4 in. to the enclosure.

10 MARKING:

10-5 Nameplate Marking	Recognized (PGDQ2)			
*Model	All			
Material				
Manufacturer	Various			
Recognized Designation	Various			
Location	Cabinet Rear			
Secured By	Adhesive backing			
Listee Name	NINGBO HANDIAN ELECTRIC APPLIANCE CO., LTD			
Refrigerant				
- Туре	R600a			
* - Amount	1.48 oz (42g)			
Design Pressure				
High Side, psig	362.6			
Low Side, psig	127.6			
Electrical Rating				
V	115			
A - (Refrigeration)(Total)	1.6			
Frequency, Hz	60			
Frequency, Hz	60			

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10-10 Special Marking

\*Model

A. Type or Material

-			
	Manufacturer	See	e Section General
	Recognized Designation	See	e Section General
	Location	On	nameplate or separate paper label
*	Quote Marking		

ALL

B. Type or Material

Manufacturer	See Section General
Recognized Designation	See Section General
Location	Unit side, above machine compartment

Quote Marking

a) DANGER - Risk Of Fire or Explosion. Flammable Refrigerant Used. Do Not Use Mechanical Devices To Defrost Refrigerator. Do Not Puncture Refrigerant Tubing.

b) DANGER - Risk Of Fire Or Explosion. Flammable Refrigerant Used. To Be Repaired Only By Trained Service Personnel. Do Not Puncture Refrigerant Tubing.



c) CAUTION - Risk Of Fire Or Explosion. Flammable Refrigerant Used. Consult Repair Manual/Owner's Guide Before Attempting To Service This Product. All Safety Precautions Must be Followed.

d) CAUTION - Risk Of Fire Or Explosion. Dispose Of Property In Accordance With Federal Or Local Regulations. Flammable Refrigerant Used.
e) CAUTION - Risk Of Fire Or Explosion Due To Puncture Of Refrigerant Tubing; Follow Handling Instructions Carefully. Flammable Refrigerant Used.

C. Type or Material

Manufacturer	See Section General
Recognized Designation	See Section General
Location	Shipping carton

Quote Marking

CAUTION - Risk Of Fire Or Explosion Due To Puncture Of Refrigerant Tubing; Follow Handling Instructions Carefully. Flammable Refrigerant Used.

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20	ENCLOSURES:					
20-5	Ultimate En	closure				
*Mode	el			ALL		
Appro door)	ximate Physi , H x W x D,	cal Size (i mm.	ncluding -	1950 x 600 x 570		
20-10	) Unit Base					
*Mode	el			ALL		
Mater	rial			Steel		
Thick	ness, mm.		<u>-</u>	Minimum 0.4		
Corro	sion Protect	ion (Method	1)	Zinc Coated		
Bondi	ng for Ground	ding (Metho	od)	Screw-connected compartment base	with machin	e
20-15	0 Unit Sides/	Тор				
*Mode	21			ALL		
Matei	rial			Steel		
Thick	mess, mm.			Minimum 0.4		

Corrosion Protection (Method)

Bonding for Grounding (Method)

Steel
Minimum 0.4
Zinc Coated
Screw-connected with unit base

\_\_\_\_\_

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20-20 Unit Rear

ALL
Steel
Minimum 0.3
250 x 500
Zinc Coated
Screw-connected with unit base

20-25 Cabinet Liner/ Door Liner

*Model	ALL						_
Material +	Polymeric,	See	Section	30	for	details	_
Thickness, mm. +	2						

20-30 Unit Doors

*Model	ALL
Material	Steel
Thickness, mm.	0.5
Corrosion Protection (Method)	Zinc Coated
Bonding for Grounding (Method)	Secured to Unit Side by Door Hinges

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							Issued:	2015-10-29
20-3	5 Door H:	inges			See ILLS.	1 and 1.	A	
20-4	0 Door La	atching	Device	2	Recognized	d (SROT2	)	
*Mod	el				ALL			
Туре					Magnetic (	Gasket		

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20-45 Drip Pan

*Model	ALL
Location	Inside Machine Compartment, upon the shell of Compressor
Material +	Polymeric, see Section 30 for details
Dimension, W x D x H, mm	282x120x80
Thickness, mm. +	2.0
Method of Securement	Secured to Compressor by screws.
Comments	The drip pan is not flat to make sure the water flows along the intended side of it when overflow.
20-50 Evaporator Fan Guard	
*Model	ALL
Location	Inside freezer food compartment

Location	Inside
Material +	Polymer
Overall Dimension, W x H, mm	12 x12
Thickness, mm.	2.0
Openings, Number and Size	6 and 2
Method of Securement	Secured

ALL				
Inside freezer food compartment				
Polymeric, see Section 30 for details				
12 x12				
2.0				
6 and 22 mm x 90mm				
Secured to Cabinet Liner by screws				

20-55 Evaporator Fan Motor Enclosure (Freezer Food Compartment)

*Model	ALL
Location	Between Evaporator Fan Guard and Cabinet Liner
Material +	Polymeric, see Section 30 for details
Thickness, mm.	2.0
Method of Securement	Integrally molded with Evaporator Fan Guard and brackets.
Component within	Evaporator Fan Motor

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20-60 Temperature Controller Enclosure

*Model	ALL		
Location	In fresh food compartment		
Material +	Polymeric, see Section 30 for details		
Dimension, W x D x H, mm	135x59x53		
Thickness, mm. +	2		
Method of Securement	Secured to Cabinet Liner by screws		
Component within	Thermostat		
20-65 Lamp Guard			
*Model	ALL		
Location	In fresh food compartment		
No. of Lamp Guard:	1		
Material +	Polymeric, see Section 30 for details		
Dimension, W x L x H, mm	59x82x53		

2.0

Dimension, W x L x H, mm

Thickness, mm. +

Method of Securement Secured to Cabinet Liner by screws LED and lamp holder Components Within

20-70 Defrost Timer Control Box

*Model	ALL			
Location	In machine compartment			
Material +	Polymeric, see Section 30 for details			
Cover Dimension, W x D x H, mm	90x13x190			
Housing Dimension, W x D x H, mm	80x37x140			
Thickness, mm. +	2.0			
Method of Securement	Secured to Unlit rear by screws.			
Component within	Defrost Timer and wirings			

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20-75 Capacitor Enclosure

*Model	ALL
Material	Steel
Overall Dimension, Lx W x H, mm	35 x 35 x 60
Thickness, mm	0.5
Corrosion Protection (Method)	Galvanized or Painted
Method of Securement	Secured to the bottom by screws
Bonding for Grounding (Method)	Screwed to machine compartment.
Bonding for Grounding (Method)	Screwed to machine compartment.

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30 NONMETALLIC	COMPONENTS	:			
*Model			ALL		
Cabinet/Door Liner	(Vacuum F	ormed)	Recognized	(QMFZ2)	
Manufacturer			Various		
Material Designa	tion		Various		
Thickness, mm. (	minimum) +		1.6		

Evaporator Fan Motor Enclosure Manufacturer

Material Designation Thickness, mm. (minimum) Flammability Classification (minimum)

1.6
НВ
Recognized (QMFZ2)
NINGBO LG YONGXING CHEMICAL CO LTD (E203955)
LUPOY ER5001RF(#)
3.0
5VA

+ - Minimum thickness of sheet stock before forming.

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*Model			ALL			
			Recognized (QM	FZ2)		
Temperature Cont	croller Encl	osure				
Manufacturer			NINGBO LG YONGXING CHEMICAL CO LTD (E203955)			
Material Desig	gnation		LUPOY ER5001RF	(#)		
Thickness, mm. (minimum)			3.0			
Flammability Classification			5VA			
Lamp Guard		Recognized (QMFZ2)				
Manufacturer		CHI MEI CORPORATION (E56070)				
Material Designation		PH-872A				
Thickness, mm. (minimum)		2.5				
Flammability Classification			V-0			
Defrost Timer Co	ontrol Box		Recognized (QMI	FZ2)		
Manufacturer		NINGBO LG YONGXING CHEMICAL CO LTD (E203955)				
Material Designation			LUPOY ER5001RF(#)			
Thickness, mm. (minimum)		3.0				
Flammability Classification			5VA			
Drip Pan			Recognized (QMI	FZ2)		
Manufacturer			CHI MEI CORPORA	ATION (E5607	70)	
Material Desig	gnation		PH-879			
Thickness, mm.	. (minimum)		1.5			
Flammability (	Classificati	on (minimum)	V-0			

+ - Minimum thickness of sheet stock before forming.
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|--------------|--------|------------|---------|----------|------------|
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30-5 Isolation From Ignition Sources

\*Model

ALL

All units wiring is Recognized (AVLV2, AVLV8 or CSA Certified) and rated VW-1, FT-1 or Listed SJT (rated FT-1 or FT-2) power cord. All wiring is routed and secured within the machine compartment or the cabinet liner. All wire splices are totally insulated and there are no exposed live parts. There are no open coils or exposed high voltage parts.

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40 REFRIGERATION SYSTEM:							
40-5	Condenser			Recognized (SLSV2)			
*Mode	el			ALL Ningbo Shubo Electric CO., LTD			
Manufacturer				Ningbo Shubo Electric CO., LTD			
Recognized Designation			BCD302W.8				
Corrosion Protection (Method)			Galvanized or P	ainted			
Mounting (Method)				Secured to Unli	t rear by sc	rews	
Bonding for Grounding (Method)			od)	Through tubing	to compresso	r	
*Type of Construction				[Wire on tube]			
Physical Size, W x H, mm.			478 x 1430				
Nur	Number of Passes			24			
Tubing Material			Steel				

4.7

12672

Tubing Material Tubing OD, mm. Tubing Wall Thickness, mm. + Total Tube Length, mm.

+ - Not required if a Recognized Component.

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ALL

\*Model Manufacturer Recognized Designation Corrosion Protection (Method) Mounting (Method) Bonding for Grounding (Method) Type of Construction Fin on Tube Number of Tubes High Number of Tubes Deep Physical Size, Finned Section, mm.

40-10 Evaporator

Tubing Material Tubing OD, mm.

Recognized Designation

Mounting (Method)

(After Forming) Material

Tubing OD, mm.

Wall Thickness, mm. +

Roll bond

Tubing Wall Thickness, mm. +

Corrosion Protection (Method)

Bonding for Grounding (Method)

Size of Plate, W x H x D, mm.

Recognized (SLSV2)

N	ingbo Shubo Electric CO., LTD
В	CD302W.5a
Ρā	ainted
Se	ecured to cabinet liner by screws
Τł	hrough tubing to compressor
ן של	Fin on tube] <del>[Tube on plate] [Roll</del> <del>ond]</del>
21	73
60	0
28	85 x 310 x 60
A	luminum
6	
0	.5
B	CD302W.1.3a
Pá	ainted
Se	ecured to cabinet liner by screws
Tł	hrough tubing to compressor
4	50 x 1150 x11
A	luminum
6	
0.	.5

+ - Information required if not a Recognized Component

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40-15 Pressure Relief

*Model	ALL
Means Provided	Soldered or Brazed Joint
Location	Refrigeration Tubing

#### 40-20 [Drier] [Filter and Strainer] [Accumulator]

ALL
Cixi Jiasheng Electric Appliance Co., Ltd.
Copper
100
18.5
0.9
High side of refrigeration system
Inherent

ALL

#### 40-25 Interconnecting Tubing

#### \*Model

Material

Copper		
Outside Diameter,	Minimum Wall	
in.	Thickness, in.	
1/4, 5/16, 3/8, 1/2	0.0245	
5/8, 3/4	0.0315	
7/8	0.0410	

40-30 Refrigerant Control

\*Model ALL Capillary Tube - No. Provided 1 Material Copper OD, mm. 1.8 Wall Thickness, mm. 0.55 Length, mm. 2000

40-35 Refrigeration System Joints

#### \*Model

Method of Joining 50 MOTOR - COMPRESSOR ASSEMBLY:

## ALL

Soldered or brazed connections

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50-5 Compresso:	r		Recognized (SLIS2	)	
*Model			ALL		
Manufacturer			WANBAO GROUP COMP	RESSOR CO	LTD
Designation			ETB90U6		
Electrical Ratio	ng				
Volts			115		
RLA (Not for 1	Inspector Us	e)	1.3		
LRA			24.7		
Phase			1		
Cycle			60		
Bonding for Grou	unding (Meth	od) -	Minimum No. 18 AW plugged onto comp compartment Base.	IG wire scr pressor and	ewed or machine
Overload Protect	tor(+)		<del>[Internal]</del> [Exter	nal]+	
Manufacturer			GUANGZHOU SENBAO CO LTD (E218930)	ELECTRICAL	APPLIANCES
Designation			BT140-120		
Location			Compressor Termin	al Enclosu	re
Comments		-	This model was ev IEC 60079-15 for	aluated ac ignition p	cording to rotection.
Compressor Star	t Assist Dev	ice (+)			
Туре			РТС Туре		
Manufacturer			Changshu Tianyin Co.,Ltd (SA33532)	Electromec	hanical
Designation			TY-QZ-007		
Location		-	Compressor Termin	al Enclosu	re
Run Capacitor (·	+)		(CZDS2, 8)		
Туре			Dry Type		
Manufacturer			Various		
Designation			Various		
Rating, uF, V			8, 250		
Location			Machine Compartme	nt, unit b	ase.
		-			

(+) - Part of Recognized motor-compressor assembly.

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60 FAN MOTOR ASSEMBLY:				
60-5 Evaporator Fan Motor				
*Model	ALL			
No. Provided	1			
Manufacturer	ALL 1 JIANGSU WILLTORN TECH CO LTD ZYD-2J-6.5 115V, 60Hz, 6.5W XEIT2, 8 Impedance Protection No Secured to the Evaporator Fan Motor Enclosure by screws.			
Recognized Designation	ZYD-2J-6.5			
Rating	115V, 60Hz, 6.5W			
Recognized	XEIT2, 8			
Overheating Protection (Not for Inspector Use)	Impedance Protection			
Burnout Tested by Motor Manufacturer?	No			
Mounting	Secured to the Evaporator Fan Motor Enclosure by screws.			
omments This model motor is no need to do a Burnout Test for Impedance Protecte Motor as described in UL 250,Section 9.13 because it is enclosed by 5V material.				
60-10 Evaporator Fan Blade				
*Model	ALL			
Diameter, mm:	100			
No. of Blades:	4			

Method of securement

Pressed onto the motor shaft.

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70 ELECTRICAL COMPONENTS:

70-5 Thermostat

Recognized (SDFY2, 8)

*Model	ALL
Use (Loads Controlled)	Compressor
Manufacturer	JIUJIANG HENGTONG AUTO CONTROL DEVICE CO., LTD(E225669)
Designation	WD Series
Rating, FLA/LRA/V ac	6/36/125
Location	In the fresh food compartment
Mounting	Snap-fit into Temperature Controller Enclosure
Marked Switch Positions	0,1,2,3,4,5,6,7
Comments	This model was evaluated according to IEC 60079-15 for ignition protection.

70-10 Electric Defrost Heater Recognized (UBJY2)

\*Model

Manufacturer

Sheath Material/Thickness, mm.

Designation

Rating V/W

Total Length, mm

OD., mm.

Heater Terminals

Туре

Location

Comments:

Securement Means:

#### ALL

Anhui Anze Electric Inc (E351617)
SUS304, SUS310S, SUS321, SUS316L, Nickel Alloy 800, Nickel Alloy 840/0.5
RGQX
140
600
6.6

### Rubber

Mounted to the left side of evaporator
Maximum Watt density is 5.0 W/cm2; Heater
Element Protection located under
evaporator and protected by an aluminum
barrier
Snap fit to the heater bracket

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70-15 Heater Over-temperature Controls

A:

*Model	ALL
Туре	Automatic Temperature Regulating Thermostat
Recognized	XAPX2, 8
Use (Loads Controlled)	Defrost Heater
Manufacturer	DONGGUAN KAINYI ELECTRONIC SCI & TECH CO LTD (E343948)
Designation	KI31-012-B3-125V 16A
*Ratings, FLA/Vac	125V 16A
Location	Above the Evaporator
Mounting	Tied to Evaporator

В:

*Model	ALL	
Туре	Thermal Cutoff	
Recognized	XCMQ2, 8	
Number	1	
Manufacturer	AUPO ELECTRONICS LTD (E140847)	THERM-O-DISC INC, SUB OF EMERSON ELECTRIC CO (E40667)
Recognized Model No.	BF73	G4A01077C
Opening Temperature, °C	73	77
Rating (V ac, A)	250, 10	120, 14
Location	Above the Evaporator	
Mounting	Tied to Evaporator	

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70-20 Defrost Timer Recognized (SDFY2, 8)

*Model		ALL		
Use (Loads Cor	ntrolled)	Electric Defrost Heater		
Manufacturer	-	SONXIE (ZHENJIANG) ELECTRIC C	CO LTD (E188801)	
Designation	-	DBZF series		
Rating	-	10A, 100-120V, 50/60Hz		
Location		above machine compartment		
Mounting		Secured to Defrost Timer Encl	osure by screws	
Defrost Cycle		12 hours		
Comments	This model was evaluated according to IEC 60079-15 for ignition protection.			
70-25 LED Modu	lles	Recognized (OOQA2)		
*Model		ALL		
Number		1		
Manufacturer	CHUANDONG MAGNETIC ELECTRONIC CO LTD NINGBO PINLIANG (E349336) LIGHTING CO LTD (E480906)			
Recognized Model No.	Models 520ABXDEFG Models 521ABXDEFG PL-E12-SL-001			
No. of LED	0-6			
Ratings	120V,60Hz, 10mA,	1.0 W 120V,60Hz,12mA,1.4W	120V,60Hz,19mA,1.4W	
Location		In the fresh food compartmen	nt	
Mounting		Snap-fit into Lampholder		

Note: The screw shell is connected to the grounded side of the power supply.

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```
70-30 Door Switches Recognized(WOYR2, 8)
```

*Model	ALL	
Use (Loads Controlled)	Lamps	
Manufacturer	ZHEJIANG CHANGDECHENG ELE LTD (E239938)	ECTRIC APPLIANCES CO
Designation	НС-050К.5 Н	С-050К.4
Rating	125V , 60Hz, 5A	
Location (Physical)	Cabinet Liner (Fresh Food	d Compartment)
Mounting	Rectangular switch is sna rectangular opening	ap-fitted into
Comments	This model was evaluated 60079-15 for ignition pro	according to IEC otection.

70-35 Lampholder

Recognized (SEVS2)

*Model	ALL		
Manufacturer	ZHEJIANG CHANGDECHENG ELECTRIC APPLIANCES CO LTD (E350599)		
Designation	E12-3 E12-1		
Rating	125V,75W		
Location	In the fresh food compartment		
Mounting	Snap-fit into Temperature Controller Enclosure		
Prevented from turning by: Lamp cover			

Note: The screw shell is connected to the grounded side of the power supply.

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80 INTERNAL WIRING:

80-5 Types

Recognized (AVLV2) appliance wiring material(1), Listed cords or Listed insulated wiring as described below. Wiring which is color-coded green or green with one or more yellow stripes is employed on grounding conductors only.

\*Model

ALL

				Insulation (4)		
	Wire	Wire	Minimum	Minimum Wall	Minimum	
	Туре	Style	Wire Size	Thickness,	Temperature	Minimum
Key No.	(2)	No. (3)	AWG	mm.	Rating, °C	Rating, V
1	AWM	1015	18	1.6	105	300

(1) Acceptable for refrigeration use.

(2) Appliance wiring material, cord type or Listed wire type.

(3) Applies only to Recognized appliance wiring material.

(4) Information on the voltage and temperature ratings for the insulation of wiring that has a marked National Electrical Code Type designation need not be provided.

(+) Integral with Recognized fan motor.

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80-10 Wiring Methods

All wiring is installed and positively routed in such a manner that it is not subject to mechanical damage due to contact with sharp edges, abrasive surfaces, vibrating or moving parts. Exposed lengths of ripped parallel conductors do not exceed 3 in.

Wiring which is completely enclosed within steel conduit, metal raceways, metallic tubing, cabinet walls, or other separate electrical enclosures employs 2/64 in. thick (minimum) electrical insulation unless specified differently in this Report.

Wiring which is not completely enclosed as specified above employs 4/64 in. thick (minimum) electrical insulation unless specified differently in this Report.

Cords or appliance wiring material employed in the refrigerated compartment has 4/64 in. thick (minimum) electrical insulation and is located or protected so as not to be subjected to contact by product containers, removable shelves, and the like.

Green or green with yellow stripe wire may be employed only as grounding conductors. Splices are not employed in grounding conductors unless otherwise noted in the Report.

Holes for the passage of wires or cords through walls, panels or barriers have smooth, rounded surfaces or are provided with smoothly rounded bushings.

All splices are mechanically secured to a fixed member or located in a separate enclosure.

Unless otherwise noted all wires terminate in quick-connect or eyelet type materials.

Wiring diagrams shown in \*Model

ILL5			
ALL			

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\*Model

ALL

Wiring is employed as follows:

			Specify all details of wire routing including locations and types of
			clamps, means of isolating from
No. From	Specify the	electrical	combustible materials, Recognized
Previous	components o	connected to	splice and wire connecting lead
Page	the wiring	described	terminations, etc.
Key No.	From	То	Details
1/2	Power Supply Cord	Compressor, Capacitor	Machine compartment. Wiring is tied to prevent movement.
1/2	Defrost Timer	Compressor	Connected by Harness Connector and secured in the Defrost Timer Control Box.
1/2	Thermostat	Compressor	Wire routed through Thermal Insulation (recessed in cabinet liner) and tied to prevent movement.
1/2	Defrost Timer	Defrost Heater	Wire routed through Thermal Insulation (recessed in cabinet liner), Connected by Harness Connector and tied to prevent movement.
1/2	Defrost timer	Evaporator	Machine compartment. Wiring is tied to prevent movement.
1/2	Switch	LED	Wire routed through Thermal Insulation from lamp switch to LED, connected by Harness Connector and secured inside Lamp Guard.
1/2	Harness Connector	Evaporator Fan Motor	Routed through Thermal Insulation to fan motor and securely tied completed away from moving blades and from openings in Evaporator Fan Guard.

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90 SUPPLY C	ONNECTIONS:							
90-5 Cord Conn	ected Unit							
*Model			ALL					
Power Supply C	ord Set		Listed					
Туре			SJT					
Size, AWG			18					
Attachment P	lug Rating, V,	A	125V, 15					
Strain Relie	f Means		Metal clamp, minimum 0.5 mm thick and 9.0 mm wide with hemmed edges and screwed on rear of unit.					
Cord Length,	ft		5 Minimum, 10 Maximum					
Grounding Co:	nductor Color		Green With or Without Yellow Stripes					
Securement of	Grounding Cond	luctor	Secured to the bottom by screws					
Location			Unit base.					
Means			Unit base in machine compartment					

File SA44289 Vol. 1 Sec. 3 Page 27 Issued: 2015-10-29 Revised: 2016-05-27 and Report 100 SHELVING AND DRAWERS: 100-5 Shelves \*Model ALL Location Α. Fresh Food Compartment Material Glass Shelf Dimensions, (L x W), mm. 500x300 Glass Thickness, mm. 4 Frame Thickness, Minimum, mm. 2 No. of Shelves 4 Method of Support Cabinet liner Method of Restraint Snap fit to cabinet liner supporters Note - ANSI 297.1 glass is available in three categories, Class A, B, or C. Any Class is acceptable. 100-10 Drawers \*Model ALL Location Fresh Food Compartment Material Polymeric Dimensions, mm.  $(D \times W \times H)$ 165x480x320 3 Thickness, mm. No. of Drawers 1 Method of Support Mounted to cabinet liner Method of Restraint NA

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100-10 Drawers

*Mode	1	ALL				
Locat	ion	Freezer Food Compartment				
Mater	ial	Polymeric				
Dimen	sions, mm. (D x W x H)	210x420x208				
Thick	ness, mm.	3				
No. o	f Drawers	3				
Metho	d of Support	Mounted to cabinet liner				
Metho	d of Restraint	NA				
100-1	5 Door Shelves					
*Mode	1	ALL				
Α.	Location	Fresh Food Compartment				
	Dimensions, mm. (D x W)	113 x 465				

3

3

Dimensions, mm. (D x W) Thickness, mm. Number

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4	Drier/Filter				
5	Wiring diagram				
6	IEC 60079-15 (for Group II A gases or the flammable				
	refrigerant) Certificate of compressor overload				
	protector model BT140-120				
7	IEC 60079-15 (for Group II A gases or the flammable				
	refrigerant) Certificate of thermostat model WD and				
8	WDF Series				
	IEC 60079-15 (for Group II A gases or the flammable				
	refrigerant) Certificate of defrost timer model DBZ				
*9	Series				
	IEC 60079-15 (for Group II A gases or the flammable				
	refrigerant) Certificate of door switch model HC-				
	050K.4 and HC-050K.5				



F150237913



F150237914



F150237915

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#### N161502012

## Prüf- und Zertifizierungsinstitut

Sec. 3

ZEICHENGENEHMIGUNG MARKS APPROVAL Guangzhou Senbao Electrical Appliances Co., Ltd. No. 2 Donghua Road, Donghu Anzhi Section Huashan Town, Huadu Distr. 510880 GUANGZHOU CITY CHINA ist berechtigt, für ihr Produkt / is authorized to use for their product Motorschutzeinrichtung für hermetisch und halbhermetisch gekapselte Motorverdichter, thermisch Motor protector for motor-compressors of hermetic and semi-hermetic type, thermal die hier abgebildeten markenrechtlich geschützten Zeichen für die ab Blatt 2 aufgeführten Typen zu benutzen / the legally protected Marks as shown below for the types referred to on page 2 ff. Geprüft und zertifiziert nach / Tested and certified according to DIN EN 60730-1 (VDE 0631-1):2009-06; EN 60730-1:2000+ A1+ A12+ A13+ A14+ A16+ A2 DIN EN 60730-2-4 (VDE 0631-2-4):2008-08; EN 60730-2-4:2007 Aktenzeichen: 2488700-4510-0005 / 169407 File ref.: VDE Prüf- und Zertifizierungsinstitut GmbH Ausweis-Nr. 40017545 Blatt 1 VDE Testing and Certification Institute Certificate No. Page Zertifizierungsstelle / Certification Weiters Bedingungen siehe Rückseite und Folgeblätter / further conditions see overleaf and following pages Offenbach, 2006-04-27 VDE Zertifikate sind nur gültig bei Veröffentlichung unter: VDE certificates are valid only when published on: (letzte Änderung/updated 2012-07-16 ) http://www.vde.com/zertifikat http://www.vde.com/certificate 111.

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Zeichengenehmigung	40017545

Name und Sitz des Genehmigungs-Inhabers / Name andregistered seat of the Certificate holder Guangzhou Senbao Electrical Appliances Co., Ltd., No. 2 Donghua Road, Donghu Anzhi Section, Huashan Town, Huadu Distr., 510880 GUANGZHOU CITY, Guangdong, CHINA

Aktenzeichen / *File ref.* 2488700-4510-0005 / 169407 / FG31 / BAU letzte Änderung / updatedDatum / Date2012-07-162006-04-27

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Dieses Blatt gilt nur in Verbindung mit Blatt 1 des Zeichengenehmigungsausweises Nr. 40017545 This supplement is only valid in conjunction with page 1 of the Certificate No. 40017545.

#### Motorschutzeinrichtung für hermetisch und halbhermetisch gekapselte Motorverdichter, thermisch Motor protector for motor-compressors of hermetic and semi-hermetic type, thermal

Typ(en) / Type(s):

1) DRB\* \* \* A\* 2) BT\* -\* \* \* D\* 3) DRB\* \* \* B\* 4) BT\* -\* \* \* G\* Thermisch wirkende Motor-Schutzeinrichtung Zweck des RS Purpose of control Thermal motor protector AC 250 V Bemessungsspannung Rated voltage Bemessungsstrom 1) und 2) 14A cos phi 0,7 (induktive Last) 3) und 4) 18A cos phi 0,95 (ohmsche Last) 1) and 2) 14A p. f. 0,7 (inductive load) Rated current 3) and 4) 18A p. f. 0,95 (resistive load) Merkmale der automatischen 3.C Wirkungsweise Features of automatic action Anzahl der automatischen 1) und 2) 10.000 Zyklen 3) und 4) 5.000 Number of automatic cycles 1) and 2) 10.000 3) and 4) 5.000 zum Einbau in Geräte der Schutzklasse I Schutz gegen elektrischen Schlag Protection against electric for incorporation in Class I equipment shock Temperaturgrenzen des Tmin 0℃; Tmax 155℃ Schaltkopfes Temperature limits of the switch head Fortsetzung siehe Blatt 3 / continued on page 3

Merianstrasse 28, D-63069 Offenbach

Phone + 49 (0) 69 83 06-0 Telefax + 49 (0) 69 83 06-555

F150237923

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Zeich	nenger	nehm	igung

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And Report

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 Aktenzeichen / File ref.
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 Datum / Date

 2488700-4510-0005 / 169407 / FG31 / BAU
 2012-07-16
 2006-04-27

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Konstruktion integriertes RS Construction integrated control Fühlerart Bimetall Kind of sensing element bimetal Verschmutzungsgrad 2 Degree of pollution Überspannungskategorie Ш Overvoltage category Anschluss Pin und Flachstecker 6,3 x 0,8 mm; 4,8 x 0,8 mm; blankes Messing Type of terminal Pin and tabs 6,3 x 0,8 mm; 4,8 x 0,8 mm; pure brass Schalterart einpoliger Öffner Contact configuration SPST n.c. Kriechstromfestigkeit siehe Anlage 2 Tracking resistance see appendix 2 Glühdrahtprüfung (GWT) siehe Anlage 2 Glow-wire test (GWT) see appendix 2 1 + 2 Weitere Angaben siehe Anlage Further information see appendix

Fortsetzung siehe Blatt 4 / continued on page 4

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Zeichengenehmigung	40017545

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Aktenzeichen / File ref. letzte Änderung / updated Datum / Date 2488700-4510-0005 / 169407 / FG31 / BAU 2012-07-16 2006-04-27

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Anmerkung	<ol> <li>Die Beurteilung der Anschlüsse zum Verdichter muss bei der Pr</li></ol>
	2. Geprüft als umschlossene Schalteinrichtung nach IEC/EN 60079-15:2005, Abschnitt 33.4, Gruppe IIA, mit 18 A und folgenden Kunststoffen: siehe Anlage Nr. 2
	3. Typ BT und DRB sind konstruktiv gleich, aber mit alternativer Typenbezeichnung.
Remark	1. The assessment of the connections to the compressor has to be done during the evaluation of the household appliance.
	2. Tested as enclosed-break device according to IEC/EN 60079-15:2005, Clause 33.4, Group IIA, at 18 A and following plastics: see appendix No. 2
	3. Type BT and DRB are of the same construction but with alternative type designation.

Dieser Zeichengenehmigungs-Ausweis bildet eine Grundlage für die EG-Konformitätserklärung und CE-Kennzeichnung durch den Hersteller oder dessen Bevollmächtigten und bescheinigt die Konformität mit den grundlegenden Schutzanforderungen der EG-Niederspannungsrichtlinie 2006/95/EG mit ihren Änderungen.

This Marks Approval is a basis for the EC Declaration of Conformity and the CE Marking by the manufacturer or his agent and proves the conformity with the essential safety requirements of the EC Low-Voltage Directive 2006/95/EC including amendments.

VDE Prüf- und Zertifizierungsinstitut GmbH VDE Testing and Certification Institute Fachgebiet FG31 Section FG31

VDE Prüf- und Zertifizierungsinstitut GmbH \* Testing and Certification Institute

Merianstrasse 28, D-63069 Offenbach

Phone + 49 (0) 69 83 06-0 Telefax + 49 (0) 69 83 06-555

VDE Prüf-	und	Zertifizierungsinstitut	
Zeichenge	nehm	igung	

Sec. 3

And Report

Name und Sitz des Genehmigungs-Inhabers / Name andregistered seat of the Certificate holder Guangzhou Senbao Electrical Appliances Co., Ltd., No. 2 Donghua Road, Donghu Anzhi Section, Huashan Town, Huadu Distr., 510880 GUANGZHOU CITY, Guangdong, CHINA

Aktenzeichen / File ref.	letzte Änderung / updated	Datum / Date
2488700-4510-0005 / 169407 / FG31 / BAU	2012-07-16	2006-04-27

Dieses Beiblatt ist Bestandteil des Zeichengenehmigungsausweises Nr. 40017545. *This supplement is part of the Certificate No. 40017545.* 

#### Motorschutzeinrichtung für hermetisch und halbhermetisch gekapselte Motorverdichter, thermisch Motor protector for motor-compressors of hermetic and semi-hermetic type, thermal

Fertigungsstätte(n) *Place(s) of manufactur*e

Referenz/*Reference*  **30005555** Guangzhou Senbao Electrical Appliances Co., Ltd. No. 2 Donghua Road, Donghu Anzhi Section Huashan Town, Huadu Distr. 510880 GUANGZHOU CITY Guangdong CHINA

VDE Prüf- und Zertifizierungsinstitut GmbH VDE Testing and Certification Institute Fachgebiet FG31 Section FG31

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Ausweis-Nr. / Beiblatt / Certificate No. Supplement 40017545 Sec. 3

And Report

VDE Prüf- und Zertifizierungsinstitut	Ausweis-Nr. / Certificate No.	Infoblatt /
Zeichengenehmigung	40017545	IIIIO SHEEL

Name und Sitz des Genehmigungs-Inhabers / Name andregistered seat of the Certificate holder Guangzhou Senbao Electrical Appliances Co., Ltd., No. 2 Donghua Road, Donghu Anzhi Section, Huashan Town, Huadu Distr., 510880 GUANGZHOU CITY, Guangdong, CHINA

 Aktenzeichen / File ref.
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 Datum / Date

 2488700-4510-0005 / 169407 / FG31 / BAU
 2012-07-16
 2006-04-27

Dieses Blatt gilt nur in Verbindung mit Blatt 1 des Zeichengenehmigungsausweises Nr. 40017545 This supplement is only valid in conjunction with page 1 of the Certificate No. 40017545.

## Genehmigung zum Benutzen des auf Seite 1 abgebildeten markenrechtlich geschützten Zeichens des VDE:

Grundlage für die Benutzung sind die Allgemeinen Geschäftsbedingungen (AGB) der VDE Prüf- und Zertifizierungsinstitut GmbH (www.vde.com\AGB-Institut). Das Recht zur Benutzung erstreckt sich nur auf die bezeichnete Firma mit den genannten Fertigungsstätten und die oben aufgeführten Produkte mit den zugeordneten Bezeichnungen. Die Fertigungsstätte muss so eingerichtet sein, dass eine gleichmäßige Herstellung der geprüften und zertifizierten Ausführung gewährleistet ist.

Die Genehmigung ist so lange gültig wie die VDE-Bestimmungen gelten, die der Zertifizierung zugrunde gelegen haben, sofern sie nicht auf Grund anderer Bedingungen aus der VDE Prüf- und Zertifizierungsordnung (PM102) zurückgezogen werden muss.

Der Gültigkeitszeitraum einer VDE-GS-Zeichengenehmigung kann auf Antrag verlängert werden. Bei gesetzlichen und / oder normativen Änderungen kann die VDE-GS-Zeichengenehmigung ihre Gültigkeit zu einem früheren als dem angegebenen Datum verlieren.

Produkte, die das Biozid Dimethylfumarat (DMF) enthalten, dürfen gemäß der Kommissionsentscheidung 2009/251/EG nicht mehr in den Verkehr gebracht oder auf dem Markt bereitgestellt werden.

Der VDE-Zeichengenehmigungsausweis wird ausschließlich auf der ersten Seite unterzeichnet.

#### Approval to use the legally protected Mark of the VDE as shown on the first page:

Basis for the use are the general terms and conditions of the VDE Testing and Certification Institute (www.vde.com\terms-institute). The right to use the mark is granted only to the mentioned company with the named places of manufacture and the listed products with the related type references. The place of manufacture shall be equipped in a way that a constant manufacturing of the certified construction is assured.

The approval is valid as long as the VDE specifications are in force, on which the certification is based on, unless it is withdrawn according to the VDE Testing and Certification Procedure (PM102E).

The validity period of a VDE-GS-Mark Approval may be prolonged on request. In case of changes in legal and / or normative requirements, the validity period of a VDE-GS-Mark Approval may be shortened.

Products containing the biocide dimethylfumarate (DMF) may not be marketed or made available on the EC market according to the Commission Decision 2009/251/EC. The approval is solely signed on the first page.



法。李诺率仅对与认可文件和样品一致的产品有效。——鉴结解结 输入数码 蓝细囊伤

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<ul> <li>制造厂家 前往未然肺电离有限公司。 前往市份结长(3).</li> <li>产品名称 化苯定电器</li> <li>型号规格 DOZ 230V 8A</li> <li>防爆标志 Exel 21A13</li> <li>产品标准 32.763.42 2008</li> <li>产品标准 32.763.42 2008</li> <li>光 基 图号 SDF1000101</li> <li>经对上述产品 图样及股关文件的事 登和桦晶检验。确认符合下列标准: G38836.8 2003 经运程 (特殊运行用单行资格 5.8 %), ***********************************</li></ul>				X	NEx10.275	443号:(				
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DESCRIPTION

PRODUCT COVERED:

USL, CNL Free standing type household freezer, Models BD-100, BD-155, BD-200.

### GENERAL:

These units are cord-connected household chest-type freezers. No automated defrost systems are employed.

The model employs Refrigerant R-600a (flammable refrigerant, classified as Class 3 "Higher Flammability" by ASHRAE34) and was evaluated following additional requirements of Supplement SA of UL 250. The cooling system is considered a protected cooling system.

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

Products designated USL have been investigated using requirements contained in the Standard for Household Refrigerators and Freezers, UL250, Tenth Edition.

Products designated CNL have been investigated using requirements contained in Standard for Refrigeration Equipment, CAN/CSA C22.2 No. 63-93, Fourth Edition.

#### RATINGS:

See MARKING.

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### INSTRUCTIONS:

Each unit is provided with installation and operating instructions.

The instructions include the following wording regarding the use of extension cords (+): Do not use an extension cord, or similar words.

(+) - Cord connected units only.

#### CONSTRUCTION DETAILS:

Electrical Spacings - Unless otherwise noted in this Report, the spacings between uninsulated live parts of opposite polarity and between uninsulated live parts and dead-metal parts are not less than 1/8 in. through air, 1/4 in. oversurface, and 1/4 in. to the enclosure.

File S	SA44289	Vol. 1	Sec. 4 and Repo	rt	Page 3	Iss	ued:	2015-12-31	
10		MARKING:	_						
10-5	Nameplate	Marking	Recogniz	zed (PGD	Q2,8)				
Model			BD-100		BD-155		BD-20	00	
Mater	ial								
Manu	ıfacturer		Various						
Reco	ognized Des	signation	Various						
Loca	ation		Unit rea	Unit rear					
Secu	ired By		Adhesive Rear of unit						
Liste	e Name		NINGBO H	NINGBO HANDIAN ELECTRIC APPLIANCE CO., LTD					
Refriq	gerant								
- T <u>-</u>	ype		R600a						
– Ar	nount		1.52 oz	(43g)	1.90 oz	(54 g)	2.01	oz (57 g)	
Design	n Pressure	(Optional)							
Higł	n Side, psi	g	218						
Low	Side, psic	3	58						
Elect	rical Ratir	ng							
V			115						
A -			0.9		0.95		0.95		
(Refr	igeration)	(Total)							
Free	quency, Hz		60						

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```
10-10 Special Marking
```

A. Type or Material

Manufacturer

Various

Recognized Designation

Location

Various

Unit Rear, above machine compartment

Quote Marking

1) DANGER - Risk Of Fire Or Explosion. Flammable Refrigerant Used. To Be Repaired Only By Trained Service Personnel. Do Not Puncture Refrigerant Tubing.



2) CAUTION - Risk Of Fire Or Explosion. Flammable Refrigerant Used. Consult Repair Manual/Owner's Guide Before Attempting To Service This Product. All Safety Precautions Must be Followed.
3) CAUTION - Risk Of Fire Or Explosion. Dispose Of Property In Accordance With Federal Or Local Regulations. Flammable Refrigerant Used.
4) CAUTION - Risk Of Fire Or Explosion Due To Puncture Of Refrigerant Tubing; Follow Handling Instructions Carefully. Flammable Refrigerant Used.
Comments The markings shall be in letters no less than 3.2 mm high;

The perpendicular height of the triangle containing the "Caution, risk of fire" sign shall be at least 15 mm.

B. Type or Material

Location

A process tube on a compressor.

Quote Marking

A process tube on a compressor shall be painted or colored red, Pantone® Matching System (PMS) No. 185. The Color mark shall extend at least 2.5 cm (1 inch) from the compressor.

C. Type or Material

Manufacturer	Various
Recognized Designation	Various
Location	Shipping Carton
Quote Marking	
CAUTION - Risk Of Fire Or Explosion Due Follow Handling Instructions Carefully.	To Puncture Of Refrigerant Tubing; Flammable Refrigerant Used.
Comments	The markings shall be in letters no less than $3.2$ mm high.

File SA44289 Vol. 1 a	Sec. 4 nd Report	Page 5	Issued:	2015-12-31
20 ENCLOSURES:				
20-5 Ultimate Enclosure				
Model	BD-100	BD-155	BD-2	200
Approximate Physical Size (including door), H x W x D, r	835 x 632 x nm <u>565</u>	835 x 822 565	x 835 565	x 1012 x
20-10 Unit Base				
Model	All			
Material	Steel			
Thickness, mm	0.4			
Corrosion Protection (Method)	Galvanized			
Bonding for Grounding (Method)	Screws conn	ected to compa	artment ba	ise.
20-15 Compressor compartment k Model	Dase			
Material	Steel			
Thickness, mm	0.5			
Corrosion Protection (Method)	Galvanized			
Bonding for Grounding (Method)	Mechanical	screw connecte	ed to the	grounding
	conductor o	f the Power Su	upply cord	- I.
20-20 Unit Sides				
Model	All			
Material	Sheet Steel			
Thickness, mm	0.5			
Corrosion Protection (Method)	Painted or	coated		
Bonding for Grounding (Method)	Bonding to	compressor cor	npartment	base by
	self-trappe	d screws.		

20-25 Unit Rear

Model Material Thickness, mm Corrosion Protection (Method) Bonding for Grounding (Method)

All
Sheet Steel
0.5
Painted or coated
Bonding to compressor compartment base
by self-trapped screws. Integral part
of cabinet side.

20-30 Cabinet Liner

Model	All
Material	Embossed Aluminum foil
Thickness, mm	0.38
Corrosion Protection (Method)	Inherent
Bonding for Grounding (Method)	Not applicable

20-35 Unit Doors

Model Material Thickness, mm Corrosion Protection (Method) Bonding for Grounding (Method) All Sheet Steel 0.5 Painted or coated Not applicable

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20-40 Cabinet Doo	r Liner				
Model Material + Thickness, mm + Bonding for Groun	ding (Metho	od)	All Polymeric 2.0 Not applicab	le	
20-45 Door Hinges					
Model Material Dimension Comments		-	All Steel See Ill.1 fo Right side h spring and 1	r detail inge has a cou eft side does	nterweight not have.
20-50 Door Latchi	ng Device				
Model Type Manufacturer + - If polymeri	c, see Sect	zion 30 for	All Magnetic gas Various details.	ket	
20-55 Compressor	Compartment	Guard			
Model Material Thickness, mm Compressor Compar Corrosion Protect Securement & Bond	tment Openi ion (Method ing for Gro	ing W x D, m d) bunding (Met	BD-155 Mesh s 0.5 m <u>380x17</u> Painte hod) By 4 s	BD-100 teel sheet 0 d or coated elf screws to	BD-200

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20-60 Thermostat Enclosure

Model All Location Inside of compressor compartment Material + Polymeric 140 x 80 Physical Size, L x W x H, mm 2.5 Thickness, mm. Method of Securement Bundle to thermostat with tie cord. Bonding for Grounding (Method) Not applicable Components Within Thermostat

20-65 Thermostat Installation Panel

Model	All
Location	Front side of unit
Material +	Polymeric
Thickness, mm +	2.0
Method of Securement	Secured to the unit front by three tabs.
Bonding for Grounding (Method)	Not applicable

+ - If polymeric, see Section 30 for details.

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30 NONMETA	LLIC COMPONENT	S:			
Model		-	All		
Cabinet Door Manufacture Material De Flammabilit (minimum)	Liner (Vacuum i r signation y Classificatio	Formed) on	Recognized (QMFZ2) Various ABS HB		
Thermostat En Installation Manufacture	closure /Thermo Panel r	ostat	Recognized (QMFZ2, NINGBO LG YONGXING (E203955)	.8) G CHEMICAL CO	LTD
Material De Thickness, Flammabilit (minimum)	signation mm (minimum) (· y Classificatio	+) on	LUPOY ER5001RF(#) 3.0 5VA		
Doorframe, Do Manufacture Material De Flammabilit (minimum)	or Hinge Enclos r signation y Classificatio	sure on	Recognized (QMFZ2, Various Various HB	8)	

(+) - Minimum thickness of sheet stock before forming.

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30-5 Isolation From Ignition Sources

Model

All

All units wiring is Recognized (AVLV2, AVLV8 or CSA Certified) and rated VW-1, FT-1 or Listed SJT (rated FT-1 or FT-2) power cord. All wiring is routed and secured within the machine compartment or the cabinet liner. All wire splices are totally insulated and there are no exposed live parts. There are no open coils or exposed high voltage parts.

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40 REFRIGERATION SYSTEM:

40-5 Condenser

Model	BD-100	BD-155	BD-200
Manufacturer	NINGBO SHUBO	) ELECTRIC CO LT	D
Corrosion Protection (Method)	Galvanized		
Mounting (Method)	Adhere to th	ne unit sides by	aluminum foil.
Bonding for Grounding (Method)	Through refr	rigerant tubing	to compressor.
Type of Construction	Tube		
Tube on Plate			
Physical Size, W x H, mm	1250x580	1440x580	1630x580
Plate Material	Steel		
Plate Thickness, mm	0.5		
Tubing Material	Iron		
Tubing OD, mm	4		
Tubing Wall Thickness, mm	0.5		
Total Tube Length, mm	15000-20000		

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		and Report			

# 40-10 Evaporator

Model	BD-100	BD-155	BD-200
Manufacturer	NINGBO SHUB	O ELECTRIC CO LTD	
Corrosion Protection (Method)	Galvanized		
Mounting (Method)	Adhere to t	he unit sides by a	luminum foil.
Bonding for Grounding (Method)	Through ref	rigerant tubing to	compressor.
Type of Construction	Tube		
Physical Size, L, mm (Before	16000-25000		
Forming)			
Physical Size, W x H x D, mm	635 x 524 x	824 x 524 x	1060x 585 x
(After Forming)	677	677	677
Tubing Material	Aluminum		
Tubing OD, mm	7.5		
Tubing Wall Thickness, mm	0.75		
Total Tube Length, mm	16000-25000		

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		and Report			

40-15 Pressure Relief

ModelAllMeans ProvidedSoldered or Brazed JointLocationAll tube connections

40-20 Drier/Filter

Model	All
Manufacturer	CIXI JIASHENG CO., LTD
Cat. No. (SMGT, SMGT7)	N/A
Material	Copper
Length, mm.	100
OD, mm.	19
Wall Thickness, mm.	Min. 0.5
Design pressure, psig	250
Location	Machine compartment, near compressor
Corrosion Protection (Method)	Inherent
Other Dimensions	See Ill. 2 for details

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		and Report			

40-25 Interconnecting Tubing

40-30 Refrigerant Control

Model

Material

All

Copper		
Outside Diameter,	Minimum Wall	
in.	Thickness, in.	
1/4, 5/16, 3/8, 1/2	0.0245	
5/8, 3/4	0.0315	
7/8	0.0410	

Model Capillary Tube - No. Provided	All 1
Material	Copper
ID, mm.	1.8
Wall Thickness, mm.	0.55
Length, mm.	2450

40-35 Refrigeration System Joints

Model Method of Joining

All		
Soldered		_

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50 MOTOR - COMPRESSOR A	ASSEMBLY:			
50-5 Compressor		Recognized (SLIS	52, 8)	
Model *Manufacturer	-	BD-100 Jiangsu Baixue E Ltd(SA13327)	Electric App	liances Co
Designation Electrical Rating Volts RLA (Not for Inspector U LRA Phase Cycle Bonding for Grounding (Met	- Jse) - - - - :hod) -	KY51R16G 115 1 4.4 1 60 No. 18 AWG green from compressor base. Each end secured with a co with nut. Eyele are provided wit washers to break	n colored gr terminal bl of the grou closed eyele ets on paint ch serrated- the paint.	cound wire ock to unit and wire is et and screw d surfaces thead
Overload Protector + Manufacturer	-	External HANG ZHOU STAR S	SHUAIER ELEC	TRIC
Designation Location Comments	-	APPLIANCE CO., I DRB21N61A1 Compressor Termi This model was ¢ IEC 60079-15 for	LTD(E213160) Lnal Enclosu evaluated ac c ignition p	cording to protection.
Compressor Start Assist De Type Manufacturer	evice	Recognized (SDFY PTC Type Hang Zhou Star S Appliance Co., I	22) Shuaier Elec Std. (E23237	tric 1)
Location	-	<u>yrz-487</u> Compressor Termi	lnal Enclosu	ire

+ - Part of Recognized motor-compressor assembly.

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50	MOTOR - COME	RESS	OR AS	SEMBLY:				
50-5	Compressor				Recognized	d (SLIS2,	8)	
Model *Manu Desig Elect Vol RLA LRA Pha Cyc Bondi	L ufacturer gnation trical Rating Lts A (Not for Ins A ase cle ing for Ground	pecto	or Usa (Metha	e) od)	BD-155 Jiangsu Ba Ltd(SA1332 KY61R16G 115 1 5.9 1 60 No. 18 AWG	aixue Elec 27) G green co	ctric App	liances Co
					from compr base. Eac secured wi with nut. are provid washers to	cessor ten ch end of th a clos Eyelets ded with s break th	rminal bl the grou sed eyele on paint serrated- he paint.	ock to unit nd wire is t and screw ed surfaces head
Over]	load Protector	+			External			
Manui	facturer				HANG ZHOU	STAR SHUA	AIER ELEC (E213160)	TRIC
Desig Locat Comme	gnation tion ents				DRB27N61A1 Compressor This model IEC 60079-	Terminal was eval	l Enclosu luated ac gnition p	re cording to rotection.
Compi Type Manui	ressor Start A facturer	ssis <sup>.</sup>	t Dev:	ice	Recognized PTC Type Hang Zhou Appliance	d (SDFY2) Star Shua Co., Ltd	aier Elec . (E23237	tric 1)
Desig Locat	gnation tion				QP2-4R7 Compressor	Terminal	l Enclosu	re

+ - Part of Recognized motor-compressor assembly.

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50 MOTOR - COMPRESSOR ASSEMBLY:	
50-5 Compressor	Recognized (SLIS2, 8)
Model	BD-200
*Manufacturer	Jiangsu Baixue Electric Appliances Co Ltd(SA13327)
Designation	KY71C16V
Electrical Rating	
Volts	115
RLA (Not for Inspector Use)	0.8
LRA	7.5
Phase	1
Cycle Dending for Grounding (Mathed)	
Bonding for Grounding (Method)	No. 18 AWG green colored ground wire from compressor terminal block to unit base. Each end of the ground wire is secured with a closed eyelet and screw with nut. Eyelets on painted surfaces are provided with serrated-head washers to break the paint.
Overload Protector +	External
Manufacturer	HANG ZHOU STAR SHUAIER ELECTRIC
	APPLIANCE CO., LTD(E213160)
Designation	DRB28N61A1
Location	Compressor Terminal Enclosure
Comments	This model was evaluated according to IEC 60079-15 for ignition protection.
Compressor Start Assist Device	Recognized (SDFY2)
Туре	PTC Type
Manufacturer	Hang Zhou Star Shuaier Electric
Designation	Appliance Co., Ltd. (E232371)
Location	Qr2-4K/ Compressor Terminal Enclosure
+ - Part of Recognized motor-comp	ressor assembly.
50-10 Run Capacitor Rev	cognized (CZDS2,8)
Model	BD-200
Compressor	KY71C16V
Manufacturer	Various
Model designation	Various
Туре	Dry
Rating	10µF 250V
Location	Compressor Compartment Base
Securement	secured by a self-tapped Screw and a tab

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70 ELECTRICAL COMPONENTS:

70-5 Temperature Controller Model Use (Loads Controlled) Manufacturer

Designation

Electrical Rating, V ac, FLA, LRA Location (Physical)

Mounting Bonding for Grounding (Method)

Marked Switch Positions Comments

Recognized (SDFY2,8)
All
Compressor
JIUJIANG HENGTONG AUTOCONTROL DEVICE
CO., LTD(E225669)
WPF31 Series WDF31 Series
125/6/36
Inside refrigerator compartment and
within thermostat enclosure
Screws to thermostat enclosure.
A green/yellow ground wire is secured
to the thermostat mounting plate and
to the grounding terminal of the
compressor.
0,1,2,3,4,5,6,7
This model was evaluated according to
IEC 60079-15 for ignition protection.

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(Optional)	
	All
	Various
	Various
	1
	115 V ac
	68, 0.15
	(Optional)

80 INTERNAL WIRING:

80-5 - Types

All wiring is minimum No. 18 AWG(+) Recognized (AVLV2,8) or CSA certified appliance wiring material rated VW-1 and FT-1 or Listed cords. Wiring is rated minimum 300V, 90C with 0.8mm thick insulation. Wiring which is color-coded green or green with one or more yellow stripes is employed on grounding conductors only.

80-10 - Wiring Methods

All wiring is installed and positively routed in such a manner that it is not subject to mechanical damage due to contact with sharp edges, abrasive surfaces, vibrating or moving parts. Exposed lengths of ripped parallel conductors do not exceed 3 in.

Wiring which is completely enclosed within steel conduit, metal raceways, metallic tubing, cabinet walls, or other separate electrical enclosures employs 2/64 in. thick (minimum) electrical insulation unless specified differently in this Report.

Wiring which is not completely enclosed as specified above employs 4/64 in. thick (minimum) electrical insulation unless specified differently in this Report.

Cords or appliance wiring material employed in the refrigerated compartment has 4/64 in. thick (minimum) electrical insulation and is located or protected so as not to be subjected to contact by product containers, removable shelves, and the like.

Green or green with yellow stripe wire may be employed only as grounding conductors. Splices are not employed in grounding conductors unless otherwise noted in the Report.

Holes for the passage of wires or cords through walls, panels or barriers have smooth, rounded surfaces or are provided with smoothly rounded bushings.

All splices are mechanically secured to a fixed member or located in a separate enclosure.

Unless otherwise noted all wires terminate in quick-connect or eyelet type materials.

Wiring is connected in such a way as to ensure proper polarity will be maintained throughout unit, cord, and attachment plug.

All

Wiring diagrams shown in ILL.

See Ill.3 for details

Model

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90 SUPPLY CONNECTIONS:				
90-5 Cord Connected Unit				
Model Power Supply Cord Set Type		All Listed SE, SO, SOO, ST, S SJO, SJOO, SJT, SJ SPE-3, SPT-3	TO, STOO, TO, SJTOO	SJ, SJE, , SP-3,
Size, AWG Attachment Plug Rating, V, A Strain Relief Means	-	18 125V, 15A Supply cord is pre piece plastic clam the cabinet base b	ssed betw p that is y two scr	een a two- secured to ews.
Cord Length, ft Grounding Conductor Color	-	5 (1.5m) minimum, Green With or With	10 (3.0m)) out Yello	maximum w Stripes
Securement of Grounding Conduc Location Means	tor	On the Unit base		
1104110		00101		

File	SA44289	Vol. 1	Sec. 4 and Report	Page 22	Issued:	2015-12-31
100	SHELVING ANI	D DRAWERS:				
100-5	5 Basket (opt:	ional)				

### Model

A. Location Material

All			
Inside	freezing	compartment	
Paintir	ng Steel		

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IEC 60079-15 (for Group II A gases or the flammable refrigerant)
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IEC 60079-15 (for Group II A gases or the flammable refrigerant)
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1	Shows Overall View of model BD-100



N161445116









N161445130



N161445131



N161445132

TECHNISCHE

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IBEXU Institut für Sicherheitstechnik GmbH

An-Institut der Technischen Universität Bergakademie Freiberg

# REPORT

# IB-06-8-090

# about the experimental testing of enclosed-break devices

# Motor protector type DRB-B series

(Translation)

Freiberg, 15 January 2007 Hi/Lieb/Leh

Dipl.-Ing. (FH) Hille

Dipl.-Ing. (FH) Hill Editor

This document consists of:

6 Pages text 2 Annexes

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Prüflaboratorium und Zertifizierungsstelle für Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen im Sinne von RL.94/9/EG "Benannte Stelle" (EU-Kenn-Nr. 0637)

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# REPORT IB-06-8-090 about the experimental testing of enclosed-break devices (Translation)

#### 1 Order

The VDE Prüf- und Zertifizierungsinstitut in 63069 Offenbach (GERMANY) engaged with the letter of 22 November 2006 the IBExU Institut für Sicherheitstechnik GmbH with the experimental testing of the Motor protector type DRB-B series in explosive atmosphere regarding the proof of type of protection "enclosed-break devices" according to IEC/EN 60079-15:2005, paragraph 33.4.

#### 2 **Test item**

Motor protector

- **DRB-B** series Type:
- Voltage:
- Current:
- cos phi:

250 V

- max. 20 A
- 0.6
  - -20 °C up to max. 160 °C Service temperature range:

#### **Test documents** 3

- Letter 5001300-4510-0003/81174 of the customer of 22 November 2006 ~
- EN 60079-15:2005 (complies with IEC 60079-15:2005, ed. 3)
- 8 pieces of Motor protector type DRB-B200-160

The test items were delivered to IBExU on 24 November 2006.

#### 4 **Test execution**

#### 4.1 **Objectives**

It was the task to examine experimentally the ignition safety (the non-ignition of an explosive atmosphere) of the Motor protector for gases and vapors of the Group IIA with the parameters specified under chapter 2.

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The bases of the test are the requirements in IEC/EN 60079-15: 2005, paragraph 33.4 for enclosed-break devices.

In the context of these examinations there was not the task to check the constructive requirements for apparatus in type of protection "n" (apparatus for zone 2) for the compliance with IEC/EN 60079-15.

### 4.2 Description of the test item

The Motor protectors serve for the protection of motor compressors at cooling equipment. A special black plastic base serves as support part of the functional parts of the Motor Protectors. On the top is glued in a plastic lid. Inside is a bimetal contact bridge and below is a heating element. On the back side of the enclosure two plug contacts are led to the outside. Heating element and bimetal plate are connected with the motor winding in row.

The free internal volume of the switch chamber is less than 20 cm<sup>3</sup> (about 1 cm<sup>3</sup>). The enclosure of the test item was equipped with a thread and a hose connection. So it was possible to fill the switch chamber with the test gas. A second bore hole with hose connection serves for the discharge of the test gas during the purging and also for the uptake of the thermocouple.

#### 4.3 Requirements in IEC/EN 60079-15:2005

Enclosed-break devices are devices, which incorporate electrical contacts that are made and broken. These devices will withstand an internal explosion of the flammable gas or vapor which may enter it without suffering damage and without communicating the internal explosion to the external flammable gas or vapor.

Before the tests any removable seals have to be removed. Any remaining non-metallic parts will have been subjected to the conditioning test described in paragraph 33.3.2. These parts have to be storaged continuously for four weeks in an ambience of 90 % relative humidity and at a temperature of 10 K above the maximum temperature in rated service. In case of a maximum service temperature above 85 °C the period of four weeks specified above will be replaced by a period of two weeks at 95 °C and 90 % relative humidity followed by a period of two weeks at a temperature of 10 K above the maximum temperature in rated service. After that, a storage for 24 hrs at a temperature of 5 K below the minimal ambient temperature shall be carried out.

Then the test of the enclosed-break devices according to paragraph 33.4.3 will be carried out. The explosive gas atmosphere fixed for the Group IIA, IIB or IIC has to be ignited inside the device by the operation of the enclosed contacts when connected to the maximum rated source of energy, power and load in terms of voltage, current, frequency and power factor.

A make and break test shall be repeated 10 times with a fresh gas mixture for each test.



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After the test the device shall show no visible signs of damage; no external ignition shall occur and there shall be no failure to clear the arc when the switch contacts are opened.

#### 4.4 Description of the test equipment

The test equipment is schematically shown in annex 1 of this report. It consists of the following equipment and means of work:

### Explosion chamber

The explosion chamber essentially consists of a cylindrical container (Piacryl) with a bursting foil mounted on the top. The volume amounts 18 dm<sup>3</sup>.

In the base plate and at the cylinder are introduced and sealed the instrument leads and the supply lines.

### Conditioning of the test gas mixture

The explosive gas atmosphere required for the Group IIA ( $6.5 \% \pm 0.5 \%$  Ethylene,  $93.5 \% \pm 0.5 \%$  air) was processed in the explosion chamber by volumetric gas conditioning. Dosage equipment with Digital Mass Flow Controllers served for this.

The homogeneous mixture conditioning was ensured by flushing the explosion chamber and the test item with the explosive gas/air mixture. The burning gas quota (Ethylene) in the explosion chamber was checked in addition for the maintenance of the permissible tolerance with gas interferometer according to Rayleigh-Haber-Löwe.

# Measuring device for electrical parameters

The predefined electrical load of the switching contacts was made by switching on ohmic resistors and inductances in the AC circuit.

With a Wide Band Power Analyzer D 6100 (manufacturer: Norma) the required parameters current, voltage and power factor were measured during the examining operation and registered with an 8-channel recorder type LR 8100 (manufacturer: YOKOGAWA). The ignition in the test item was perceived acoustically and recorded by the temperature rise by means of a thermocouple. For that, a thermocouple was introduced into the tube connection at the test item after the mixture conditioning. The temperature course was recorded with the recorder LR 8100.

### Test of thermal endurance

The test of thermal endurance occurs in conditioning and refrigeration cabinets which are also used for the thermal endurance tests according to EN 60079-0.

All used measuring instruments are included in the Quality Management System of IBExU certified according to ISO 9001. They are checked in regular intervals.

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#### 4.5 Test procedure and results

The tests were carried out substitutionally for the complete series DRB-B on the type with maximum current and maximum switch temperature (type DRB-B200-160).

### 4.5.1 Test of thermal endurance

According to IEC/EN 60079-15, 33.3.2 the test samples were stored for two weeks at 95 °C heat and 90 % rel. humidity, two weeks at 170 °C as well as for 24 hrs at -25 °C cold. No damages could be noticed at the following visual examination.

### 4.5.2 Pre-test

Before the ignition tests specified in IEC/EN 60079-15 were carried out it had to be made sure that the appearing switching spark in the case can be considered as an effective ignition source for the test gas. To this, pre-tests were carried out at a Motor protector, whose enclosure was opened.

At the test parameters 250 V AC, 20.0 A and  $\cos \varphi$  0.6 the ignition of the explosive gas mixture caused by the break spark could be proved (see Annex 2.1).

### 4.5.3 Type test

The tests were carried out on 11 and 12 January 2007. In accordance with IEC/EN 60079-15, 33.4.3.2 eleven tests have to be carried out with a sample, which have the most adverse dimensions permitted by the construction drawings. There are no statements regarding the gaps of the test samples. To make sure the test results, four test samples were included into the test program.

The respective Motor protector (originally closed) to be tested was put into the explosion chamber. The specified explosive gas atmosphere required for the Group IIA ( $6.5 \pm 0.5$ ) % ethylene/air mixture was processed in the explosion chamber and in the enclosure of the test item.

The contacts of the Motor protectors were operated with the preset test parameters. The ignition of the explosive gas atmosphere inside the test item occurred by the break spark.

The test results are summarised in the table. For some tests the test parameters are recorded in the annexes 2.2 up to 2.5.

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Test sample	Tests	Electrical parameters			Ignition of the explosive atmosphere	
		U [V]	I [A]	cos φ	Inside the test item	outside
1	11	250	20.0	0.6	yes	no
2	11	250	20.0	0.6	yes	no
3	11	250	20.0	0.6	yes	no
4	11	250	20.0	0.6	yes	no

At none of the ignition tests the explosion triggered in the enclosure of the Motor protector was transfered to the outer explosive atmosphere. No damages were noticed at the case.

#### 5 Summary

It was noticed with the examinations that the Motor protector type DRB-B series at the conditions mentioned under 2 has the ignition safety (the non-ignition of an explosive atmosphere) fixed in IEC/EN 60079-15:2005 according to type of protection enclosed-break device for gases and vapors of the Group IIA. The explosions triggered inside the switching chamber by the break spark occurred no external ignitions of the outer explosive atmosphere.

The assessment of the constructive design of the Motor protector regarding to the compliance with the requirements of IEC/EN60079-15 for apparatus of the type of protection "n" (apparatus for zone 2) was not object of these examinations.

The test result exclusively refers to the Motor protector specified under chapter 2 type DRB-B series.

#### Annexes

Annex 1	Schematic setup of the test equipment
Annex 2	Representation of the test parameters (5 sheets)

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Annex 1 to report IB-06-8-090






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File SA44289	Vol. 1	Sec. 5	Page 1	Issued:	2017-10-26
		and Report		Revised:	2017-01-05

DESCRIPTION

PRODUCT COVERED: USL, CNL Household refrigerator, Model KS-158R, **KS-91R**.

GENERAL:

The model covered by this Report is intended for free-standing in household use. Defrost is accomplished manually or semi-automatically. During semi-automatic defrost, the defrost cycle is manually initiated and automatically terminated, with automatic resumption of normal refrigeration at the conclusion of defrost operation. Manual initiation is realized by pressing the small shaft on main shaft of the thermostat.

Refrigeration tubing or other devices through which the refrigerant is intended to be serviced shall be painted or colored red, Pantone® Matching System (PMS) No. 185. This color shall be present at all places where service puncturing or otherwise creating an opening in the refrigerant circuit might be expected. In the case of a process tube on a compressor, the color mark shall extend at least 2.5 cm (1 inch) from the compressor.

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

USL - Products designated USL have been investigated using requirements contained in the Standard for Household and Similar Electrical Appliances, Part 2: Particular Requirements for Refrigerating Appliances, Ice-Cream Appliances and Ice-Makers, UL 60335-2-24, and for Safety of Household and Similar Electrical Appliances, Part 1: General Requirements, UL 60335-1.

CNL - Products designated CNL have been investigated using requirements contained in Standard for Household and Similar Electrical Appliances, Part 2: Particular Requirements for Refrigerating Appliances, Ice-Cream Appliances and Ice-Makers, CAN/CSA-22.2 No.60335-2-24-06, and for Safety of Household and Similar Electrical Appliances, Part 1: General Requirements, CAN/CSA-22.2 No.60335-1-11.

RATINGS:

See MARKING.

MODEL DIFFERENCES:

Only a model

INSTRUCTIONS:

Each unit is provided with installation and operating instructions, refer to ILL. 1.

The instructions include the following wording regarding the use of extension cords: Do not use extension cords or ungrounded (two prong) adapters.

The instructions shall state the substance of the following:

This appliance 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.

If the SUPPLY CORD is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified person in order to avoid a hazard.

A child entrapment warning statement shall be included in either the operating instructions or in a use and care manual provided with each refrigerator and shall include the following or equivalent wording:

\* Take off the doors

\* Leave the shelves in place so that children may not easily climb inside.

For models which use FLAMMABLE REFRIGERANTS, the instructions shall include information pertaining to the installation, handling, servicing and disposal of the appliance. The instructions shall also include the substance of the warnings listed below.

- WARNING: Keep ventilation openings, in the appliance enclosure or in the built-in structure, clear of obstruction.

- WARNING: Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.

- WARNING: Do not damage the refrigerant circuit.

- WARNING: Do not use electrical appliances inside the food storage compartments of the appliance, unless they are of the type recommended by the manufacturer.

For appliances which use flammable insulation blowing gases, the instructions shall include information regarding disposal of the appliance.

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10 MARKING:				
10-5 Nameplate Marking		Recognized (PGDQ2,	. 8)	
Model		KS-158R		
Material				
Manufacturer		See Sec. Gen.		
Recognized Designation		See Sec. Gen.		
Location		Unit Rear or side		
Secured By		Adhesive		
Listee Name		See cover page		
Refrigerant				
- Туре		R600a		
- Amount, oz (g)		<b>1.06</b> (30)		
Design Pressure				
High Side, psig (Not required	)	363		
Low Side, psig (Not required)		127		
Electrical Rating				
V		115		
A - (Refrigeration)(Total)		2.0		
Frequency, Hz		60		
Note (for reference only)		01		

Note	Condenser	Evaporator	Capillary	Compressor
01	ILL. 3	ILL. 2	Cap1	L48C5L

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10	MARKING:					
10-5	Nameplate M	larking		Recognized (PGDQ2,	8)	
Model	-			KS-91R		
Mater	rial					
Mar	nufacturer			See Sec. Gen.		
Rec	cognized Desi	gnation		See Sec. Gen.		
Loc	cation			Unit Rear or side		
Sec	cured By			Adhesive		
Liste	ee Name			See cover page		
Refri	gerant					
- 1	Туре			R600a		
- Z	Amount, oz (g	l)		0.74 (21)		
Desig	gn Pressure					
Hig	gh Side, psig	(Not requ	ired)	250		
Lov	/ Side, psig	(Not requir	red)	88		
Elect	rical Rating	ſ				
V				115		
A -	- (Refrigerat	ion)(Total)	)	1.0		
Fre	equency, Hz			60		
Note	(for referen	ice only)		@2		

Note	Condenser	Evaporator	Capillary	Compressor
02	ILL. 3A	ILL. 2A	Cap1	VY35R16G

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10-10	) Special	Marking					
Model	_			KS-158R			
A.	Type or	Material		Printed			
	Locati	on		Adjacent	to the lamp c	over	
	Quote	Marking		10 W Max	or equivalent		
Model	_			All			
в.	Type or	Material		Same as i	nameplate or m	old on un	it rear
	Manufa	icturer		See Sec.	Gen.		
	Recogn	nized Desi	Ignation	See Sec.	Gen.		
	Locati	on		Unit Rea	r		
	Quote	Marking		C-PANTANI	Ξ		

height

Comments

Letter size not less than 16.2 mm in

Model

All models employed with refrigerant R600a

с.	Type or Material	Same as nameplate
	Manufacturer	See Sec. Gen.
	Recognized Designation	See Sec. Gen.
	Location	Near the evaporator
	Quote Marking	DANGER - Risk Of Fire or Explosion. Flammable Refrigerant Used. Do Not Use Mechanical Devices To Defrost Refrigerator. Do Not Puncture Refrigerant Tubing.
	Comments	letters no less than 6.4 mm high
D.	Type or Material	Same as nameplate
	Manufacturer	See Sec. Gen.
	Recognized Designation	See Sec. Gen.
	Location	On the unit back, near compressor compartment
	Quote Marking	DANGER - Risk Of Fire Or Explosion. Flammable Refrigerant Used. To Be

Tubing.

Comments

Model

All models employed with refrigerant R600a  $\,$ 

Repaired Only By Trained Service

Personnel. Do Not Puncture Refrigerant

CAUTION - Risk Of Fire Or Explosion. Flammable Refrigerant Used. Consult Repair Manual/Owner's Guide Before Attempting To Service This Product. All Safety Precautions Must be Followed. letters no less than 6.4 mm high

Type of Material	Same as nameprate
Manufacturer	See Sec. Gen.
Recognized Designation	See Sec. Gen.
Location	On the unit back, near compressor compartment
Quote Marking	CAUTION - Risk Of Fire Or Explosion. Dispose Of Property In Accordance With Federal Or Local Regulations. Flammable Refrigerant Used.
Comments	letters no less than 6.4 mm high
	Manufacturer Recognized Designation Location Quote Marking Comments

Same as nameplate

10-10 Special Marking (CONT'D)

- F. Type or Material
  - Manufacturer Recognized Designation Location

Quote Marking

Comments

G. Type or Material Manufacturer Recognized Designation Location

Quote Marking

_
See Sec. Gen.
See Sec. Gen.
On the unit back, near compressor
compartment and shipping carton
CAUTION - Risk Of Fire Or Explosion Due
To Puncture Of Refrigerant Tubing; Follow
Handling Instructions Carefully.
Flammable Refrigerant Used.
letters no less than 6.4 mm high

ling	•
	compartment
	On the unit back, near compressor
d Designation	See Sec. Gen.
rer	See Sec. Gen.
erial	Same as nameplate



Same as nameplate

See Sec. Gen.

See Sec. Gen.

Comments

Sign shall be at least 16.2 mm high.

H. Type or Material Manufacturer Recognized Designation Location

> Quote Marking Comments

On the unit back, near compressor compartment R600a Letters no less than 16.2 mm high. Printed or coated

I. Type or Material Location Comments

Compressor process	tube
Compressor process in red, Pantone® Ma No. 185	tube shall be printed tching System (PMS)

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20 ENCLOSURES:

20-5 Ultimate Enclosure

Model	KS-158R	KS-91R
Approximate Physical Size (including door), H x W x D, mm	865 x 596 x 593	831 x 490 x 445

20-10 Unit Base and Compressor Compartment Top

*Model	KS-158R	KS-91R	
Material	Steel	Steel	
Thickness, mm	Min. 0.25	Min. 0.4	
Corrosion Protection (Method)	Galvanized OR PANT COATEING		
Bonding for Grounding (Method)	Screw-connected with machine compartment base		

20-15 Compressor Compartment Base

Model	All
Material	Steel
Thickness, mm	Min. 0.8
Corrosion Protection (Method)	GALVANIZED
Bonding for Grounding (Method)	Grounded by the power cord

20-20 Unit Sides and Top/Compartment Top

Model	All
Material	Steel
Thickness, mm	Min. 0.25
Corrosion Protection (Method)	Galvanized or Paint Coating
Bonding for Grounding (Method)	Screw-connected with unit base.
comment	Unit sides and unit top is molded in an integrated body

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20-25 Unit Rear				
Model			KS-158R	KS-91R
Material			Steel	Steel
Thickness, mm			Min. 0.25	Min. 0.25
Compressor Compar mm	tment Open	ing H x W,	202 x 520	210 x 370
Corrosion Protect	ion (Metho	d)	Galvanized or Pair	nt Coating
Bonding for Groun	ding (Meth	od)	Incorporate with	unit sides
20-30 Cabinet Lin	ler		7 1 1	
Model			All Dlastic Cas Itam	
Material		-	Plastic, See Item	30 for details
20-35 Unit Doors				
Model			KS-158R, <b>KS-91R</b>	
Material			Steel	
Thickness, mm			Min. 0.4	
Corrosion Protect	ion (Metho	d)	Paint or Pre-pain	ted
Bonding for Groun	ding (Meth	od)	Not required	
20-40 Cabinet Doo	or Liner			
Model			KS-158R, <b>KS-91R</b>	
Material		-	Plastic, See Item	30 for details
20-50 Door Hinges	5			
Model			KS-158R	KS091R
Top and Bottom Hi	nge		See Ill. 4 for	See Ill. 4A for

Тор	and	Bottom	Hinge	
-----	-----	--------	-------	--

20-55 Door Latching Device

*Model	All
Туре	magnetic gasket
Comments	Around the unit door

details

details

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20-60 Control Enclosure

Model Location

Material Physical Size, L x W x H, mm Method of Securement

Openings

Components Within

Illustration NO.

20-65 Condensate water tray

Model Location

Material Method of Securement

Illustration NO.

20-70 Lamp Guard

Model Location No. of Lamp Guard: Material + Dimension, W x L x H, mm Thickness, mm. + Method of Securement Components Within Illustration NO.

KS-158R	KS-91R
Left of Cabinet Liner, See Fig.4	Located at top of unit inside cabinet
Plastic, See Item	30 for details
215 x 55 x 57	108 x 74 x 50
By tabs and screw	Secured to unit cabinet by 1 screw
One, protected by Lamp Guard	None
Thermostat, Lamp holder, Lamp	Thermostat
ILL. 5	ILL. 5A

KS-158R	
Compressor Compartment Top, above compressor	
Plastic, See Item	30 for details
by screws to machine compartment	
ILL. 6	

KS-158R
Located at left of unit inside cabinet
1
Polymeric, see Section 30 for details
55x86x55
2.5
Secured to Cabinet Liner by screws
lamp holder
ILL. 12

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20-75 Condenser Fan Motor Bracket

Model	KS-158R
Location	Located at Compressor Compartment
No. of Motor Bracket:	1
Material +	Polymeric, see Section 30 for details
Dimension, W x L x H, mm	162x77.5x203
Thickness, mm. +	2.0
Method of Securement	Secured to base and top of Compressor Compartment by screws
Illustration NO.	ILL. 13

20-80 Drip tray

Model Location

Material Method of Securement

Illustration NO.

KS-91R	
Beneath the evaporator in fresh food	
compartment	
Plastic, See Item	30 for details
Integral guides formed in the cabinet and on the controller enclosure	
ILL. 6A	

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30 NONMETALLIC	C COMPONENT	S:					
Model			KS-158R, KS-91R				
Cabinet Liner (Va	acuum Forme	d)	Recognized (QMF	'Z2)			
Manufacturer			Various				
Material Design	nation		Various				
Thickness, mm (	(minimum) +		1.5				
Flammability Cl (minimum)	lassificati	on	НВ				
Cabinet Door Line	er(Vacuum F	ormed)	Recognized (QMF	'Z2)			
Manufacturer		-	Various				
Material Design	nation		Various				
Thickness, mm (	(minimum) +	-	1.5				
Flammability Cl (minimum)	lassificati	on	НВ				
Control Enclosure	2	-	Recognized (QMFZ2)				
Manufacturer			Chi Mei Corporation (E56070)				

Material Designation Thickness, mm (minimum) Flammability Classification (minimum)

PA-765 or PA-765A 2.0

5VB

+ - Minimum thickness of sheet stock before forming.

## Model

Lamp guard Manufacturer Material Designation Thickness, mm (minimum) Flammability Classification (minimum) Condensate water tray, **Drip tray** Manufacturer Material Designation Thickness, mm (minimum) Flammability Classification (minimum)

KS-158R
Recognized (QMFZ2)
CHI MEI CORPORATION (E56070)
PH-872A
2.5
V-0
Recognized (QMFZ2)
Various
Various
1.2
HB

+ - Minimum thickness of sheet stock before forming.

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Model				KS-158R		
Condenser fan bra	cket			Recognized (QMFZ	2)	
Manufacturer				Chi Mei Corporat	ion (E56070)	
Material Designa	ation			PA-765 or PA-765	A	

Thickness, mm (minimum)

Flammability Classification (minimum)

30-5 Isolation From Ignition Sources

Model

All

2.0 5VB

All units wiring is Recognized (AVLV2, AVLV8 or CSA Certified) and rated VW-1, FT-1 or Listed SJT (rated FT-1 or FT-2) power cord. All wiring is routed and secured within the machine compartment or the cabinet liner. All wire splices are totally insulated and there are no exposed live parts. There are no open coils or exposed high voltage parts.

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REFRIGERATION SYSTEM: 40

40-5 Condenser

#### Model

Manufacturer Corrosion Protection (Method) Mounting (Method)

Bonding for Grounding (Method) Type of Construction Tube on Plate Plate Material Tubing Material Tubing OD, mm Tubing Wall Thickness, mm Total Tube Length, mm Illustration No. Test Pressure, MPa

KS-158R CHANGZHOU RONGWEI Galvanized Secured by aluminum adhesive tapes to the sides of the Unit and foamed in place Through tubing to compressor See Unit Sides and Top

Galvanized steel 4.76 0.71 Approximate 8900 ILL. 3 9.7

40-10 Evaporator

Model KS-158R Manufacturer See cover page Corrosion Protection (Method) Inherent Secured by screws to the liner. Mounting (Method) Bonding for Grounding (Method) Through tubing to compressor Type of Construction Roll bond Material Aluminum 1.0 Thickness, mm 383 x 523 Size, mm ILL. 2 Illustration No. 3.7 Test Pressure, MPa

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KS-91R

40 REFRIGERATION SYSTEM:

40-5 Condenser

## Model

Manufacturer Corrosion Protection (Method) Bonding for Grounding (Method) Type of Construction Tubing Material Tubing OD, mm Tubing Wall Thickness, mm Total Tube Length, mm Illustration No. Design Pressure, psig KS-91R CHANGZHOU RONGWEI Painted Through tubing to compressor Continuous tubing Steel 4 0.5 Approximate 5410 ILL. 3a 250

40-10 Evaporator

# Model

Manufacturer Corrosion Protection (Method) Mounting (Method) Bonding for Grounding (Method) Type of Construction Plate Material Plate thickness, mm Tubing Material Tubing Wall Thickness, mm Illustration No. Design Pressure, psig

NINGBO ZHENGXIN
Painted
Secured by screws to the liner.
Through tubing to compressor
Tube on plate
Plastic
0.1
Aluminum
0.6
ILL. 2a
88

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40-15 Pressure Relief

Model	KS-158R, <b>KS-91R</b>			
Means Provided	Soldered or Brazed Joint			
Location	Refrigeration tubi	ng joints		
40-20 Drier				
Model	KS-158R	KS-91R		
Manufacturer	See cover page	CIXI JIASHENG CO., LTD		
Material	Copper			
Length, mm	100 <b>85</b>			
OD, mm	19	19		
Wall Thickness, mm	0.5			
Location	In Machine Compartment, near the compressor			
Corrosion Protection (Method)	Inherent			
Illustration No.	ILL. 7	ILL.7a		
Tested strength, MPa	9.7	14.9		

Capillary Tube - No. Provided Material Wall Thickness, mm

Length, mm Capillary No. (For reference only)

40-30 Refrigerant Control

Model

ID, mm

40-35 Refrigeration System Joints

KS-158R	KS-91R
1	
Copper	
1.9	1.8
0.6	0.6
2200	2000
Cap 1	

Model	KS-158R, KS-91R
*Method of Joining	Brazed Joint

Note: Copper-aluminum transition joints are painted to prevent galvanic corrosion.

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50	MOTOR - COM	PRESSOR ASS	SEMBLY:						
50-5	Compressor			Recognized (SLIS2	)				
Model			_	KS-158R					
Manuf	acturer		_	Huayi Compressor (SA13324)	(jingzhou)	Co Ltd			
Desig	nation		_	L48C5L					
Elect	rical Rating		-						
Vol	ts		-	115					
RLA	(Not for In	spector Use	e)	1.44					
LRA			_	6.0					
Pha	se		-	1					
Сус	le		-	60					
Bondi	ng for Ground	ding (Metho	od) -	Through a bonding conductor with a screw to Machine Compartment					
Overl	oad Protecto:	r (YFZW2, 8	3)	External+					
Manuf	acturer			Hang Zhou Star Shuaier Electric Appliance Co., Ltd (E213160)					
Desig	nation		-	DRB19P61A1					
Locat	ion		-	Compressor Termina	al Enclosu	re			
Note			-	For Certificates of IEC 60079-15, please refer to ILL. 8					
Compr	essor Start A	Assist Dev:	ice+	Recognized (SDFY2	, 8)				
Туре			_	РТС Туре					
Manuf	acturer			GUANGZHOU SENBAO I CO LTD (SA233078)	ELECTRICAL	APPLIANCES			
Desig	nation		-	QP2-4.7 (QP2-4.7G) used by the appli	12, the Mo cant)	del name			
Locat	ion		-	Compressor Termina	al Enclosu	re			

+ Part of Recognized motor-compressor assembly.

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50	MOTOR - COM	PRESSOR AS	SEMBLY:					
50-5	Compressor			Recognized (SLIS2)	)			
Mode	1			KS-91R				
Manu:	facturer			JIANGSU BAIXUE ELH LTD (SA13327)	ECTRIC APP	LIANCES CO		
Desig	gnation			VY35R16G				
Elect	trical Rating							
Vol	lts			115				
RL	A (Not for Ins	spector Us	e)	0.65				
LR	Α			3.5				
Pha	ase			1				
Сус	cle			60				
Bond	ing for Ground	ding (Meth	.od)	Through a bonding conductor with a screw to Machine Compartment				
Over	load Protecto:	r (YFZW2,	8)	External+				
Manu:	facturer			Hang Zhou Star Shuaier Electric Appliance Co., Ltd (E213160)				
Desig	gnation			DRB18B61A1				
Locat	tion			Compressor Termina	al Enclosu	re		
Note			-	For Certificates of please refer to II	of IEC 600 LL. 8A	79-15,		
Comp	ressor Start A	Assist Dev	ice+	Recognized (SDFY2,	, 8)			
Туре				РТС Туре				
Manu:	facturer			HANGZHOU STAR SHUA APPLIANCE CO., LTI	AIER ELECT D (E232371	RIC )		
Desig	gnation			QP2-4R7				
Locat	tion		-	Compressor Termina	al Enclosu	re		

+ Part of Recognized motor-compressor assembly.

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60-05 Condenser Fan Motor- Recognized (XEIT2, 8)

*Model	KS-158R
Manufacturer	JIANGSU WILLTORN TECH CO LTD (E479445)
Designation	ZYD-2J-6.5SF
Ratings	115 Vac, 60 Hz, 6.5 W, Class A
Protection	Impedance protected
Leads	No. 18 AWG, Type 1015 / TEW, each lead wire is protected with a PVC sleeving.
Mounting	The fan Screw mounted to a Fan bracket which is measured 162 mm by 203 mm with a 110 mm dia. opening for the fan blades.
Note	Motor is enclosed by rear cover of the compressor compartment and is not accessible from the outside.

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70	ELECTRICAL	COMPON	IENTS:						
70-5 (The:	Temperature rmostat)	Contr	coller		Recognized (SDFY2	) (XAPX2)			
Model	-				KS-158R, <b>KS-91R</b>				
Use	(Loads Contro	lled)			Compressor				
Manufacturer					JIUJIANG HENGTONG AUTOCONTROL DEVICE CO LTD (E225669)				
Desig	gnation				WPF24 series, WDF	24 series			
Ratir	ng, V ac, FLA	, LRA			125/6/36				
Locat	cion (Physica	1)			Inside refrigerat within thermostat	or compart enclosure	ment and		
Mount	ing				Screws to thermostat enclosure.				
Bonding for Grounding (Method)				d)	A green/yellow ground wire is secured to the thermostat mounting plate and to the grounding terminal of the compressor.				
Marke	ed Switch Pos	itions	5		0,1,2,3,4,5,6,7				
Note					Located in ungrou supply	nded side	of power		
Comme	ents				This model was evaluated according to IEC 60079-15 for ignition protection.				

Note: For Thermostat's Certificates of IEC 60079-15, please refer to ILL. 9.

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70	ELECTRICAL (	COMPON	ENTS:				
70-5 (Ther	Temperature mostat)	Contr	oller		Recognized (SDFY2)	(XAPX2)	
Model					KS-91R		
Use (	Loads Contro	lled)			Compressor		
Manuf	acturer				CHANGZHOU THERMOST APPLIANCE CO LTD (H	ER ELECTRI E188259)	ICAL
Desig	nation				WPF24 series, WDF24	4 series	
Ratin	g, V ac, FLA	, LRA			125/6/36		
Locat	ion (Physical	1)			Inside refrigerator within thermostat e	r comparti enclosure	ment and
Mount	ing				Screws to thermosta	at enclos	ure.
Bonding for Grounding (Method)			A green/yellow ground wire is secured to the thermostat mounting plate and to the grounding terminal of the compressor.				
Marke	d Switch Pos:	itions			0,1,2,3,4,5,6,7		
Note					Located in unground supply	ded side (	of power
Comme	ents				This model was eval IEC 60079-15 for ig	luated acongnition p	cording to rotection.

Note: For Thermostat's Certificates of IEC 60079-15, please refer to ILL. 9A, 9B.

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70-10 Switches - Recognized (WOYR2, 8)

Use (Loads Controlled)LampManufacturerZHEJIANG CHANGDECHENG ELECTRIC APPLIANCI LTD (E239938)DesignationHC-050K.4Rating125V , 60Hz, 5ALocation (Physical)Cabinet Liner (Fresh Food Compartment)MountingRectangular switch is snap-fitted into rectangular openingNoteLocated in the ungrounded side of power supplyNote: For Switch's Certificatesof IEC 60079-15, please refer to ILL. 1070-15 Lamp holderRecognized (SEVS2)ModelKS-158RManufacturerZHEJIANG CHANGDECHENG ELECTRIC APPLIANCES CO LTD (E350599)DesignationE12-3,E12-1				
ManufacturerZHEJIANG CHANGDECHENG ELECTRIC APPLIANCI LTD (E239938)DesignationHC-050K.4Rating125V , 60Hz, 5ALocation (Physical)Cabinet Liner (Fresh Food Compartment)MountingRectangular switch is snap-fitted into rectangular openingNoteLocated in the ungrounded side of power supplyNote: For Switch's Certificatesof IEC 60079-15, please refer to ILL. 1070-15 Lamp holderRecognized (SEVS2)ModelKS-158R ZHEJIANG CHANGDECHENG ELECTRIC APPLIANCES CO LTD (E350599)DesignationE12-3, E12-1				
DesignationHC-050K.4Rating125V , 60Hz, 5ALocation (Physical)Cabinet Liner (Fresh Food Compartment)MountingRectangular switch is snap-fitted into rectangular openingNoteLocated in the ungrounded side of power supplyNote: For Switch's Certificatesof IEC 60079-15, please refer to ILL. 1070-15 Lamp holderRecognized (SEVS2)ModelKS-158R ZHEJIANG CHANGDECHENG ELECTRIC APPLIANCES CO LTD (E350599)DesignationE12-3,E12-1	IANG CHANGDECHENG ELECTRIC APPLIANCES CO (E239938)			
Rating125V , 60Hz, 5ALocation (Physical)Cabinet Liner (Fresh Food Compartment)MountingRectangular switch is snap-fitted into rectangular openingNoteLocated in the ungrounded side of power supplyNote: For Switch's Certificatesof IEC 60079-15, please refer to ILL. 1070-15 Lamp holderRecognized (SEVS2)ModelKS-158RManufacturerZHEJIANG CHANGDECHENG ELECTRIC APPLIANCES CO LTD (E350599)DesignationE12-3, E12-1				
Location (Physical)Cabinet Liner (Fresh Food Compartment)MountingRectangular switch is snap-fitted into rectangular openingNoteLocated in the ungrounded side of power supplyNote: For Switch's Certificatesof IEC 60079-15, please refer to ILL. 1070-15 Lamp holderRecognized (SEVS2)ModelKS-158RManufacturerZHEJIANG CHANGDECHENG ELECTRIC APPLIANCES CO LTD (E350599)DesignationE12-3, E12-1				
MountingRectangular switch is snap-fitted into rectangular openingNoteLocated in the ungrounded side of power supplyNote: For Switch's Certificatesof IEC 60079-15, please refer to ILL. 1070-15 Lamp holderRecognized (SEVS2)ModelKS-158RManufacturerZHEJIANG CHANGDECHENG ELECTRIC APPLIANCES CO LTD (E350599)DesignationE12-3, E12-1				
NoteLocated in the ungrounded side of power supplyNote: For Switch's Certificates of IEC 60079-15, please refer to ILL. 1070-15 Lamp holderRecognized (SEVS2)ModelKS-158RManufacturerZHEJIANG CHANGDECHENG ELECTRIC APPLIANCES CO LTD (E350599)DesignationE12-3, E12-1				
Note: For Switch's Certificates of IEC 60079-15, please refer to ILL. 10 70-15 Lamp holder Recognized (SEVS2) Model <u>KS-158R</u> Manufacturer ZHEJIANG CHANGDECHENG ELECTRIC APPLIANCES CO LTD (E350599) E12-3,E12-1				
70-15 Lamp holderRecognized (SEVS2)ModelKS-158RManufacturerZHEJIANG CHANGDECHENG ELECTRIC APPLIANCES CO LTD (E350599)DesignationE12-3, E12-1				
ModelKS-158RManufacturerZHEJIANG CHANGDECHENG ELECTRIC APPLIANCES CO LTD (E350599)DesignationE12-3,E12-1				
ManufacturerZHEJIANG CHANGDECHENG ELECTRIC APPLIANCES CO LTD (E350599)DesignationE12-3,E12-1				
Designation E12-3,E12-1				
Rating 125V,75W				
Location In the fresh food compartment				
Mounting Snap-fit into Temperature Contro. Enclosure	ler			
Prevented from turning by: Snap-fit into Temperature contro	ler			
Note: The screw shell is connected to the grounded side of the power sup	oly.			

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80 INTERNAL WIRING:

80-5 Types

Recognized (AVLV2) appliance wiring material(1), Listed cords or Listed insulated wiring as described below. Wiring which is color-coded green or green with one or more yellow stripes is employed on grounding conductors only.

Model

All

				Insulation (4)			
	Wire	Wire	Minimum	Minimum Wall	Minimum		
	Туре	Style	Wire Size	Thickness,	Temperature	Minimum	
Key No.	(2)	No. (3)	AWG (5)	mm	Rating, °C	Rating, V	
1	AWM	1015	18	0.8	105	300	

(1) Acceptable for refrigeration use.

(2) Appliance wiring material, cord type or Listed wire type.

(3) Applies only to Recognized appliance wiring material.

(4) Information on the voltage and temperature ratings for the insulation of wiring that has a marked National Electrical Code Type designation need not be provided.

(5) The minimum size of Lead wire for lamp assembly is 20 AWG.

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80-10 Wiring Methods

All wiring is installed and positively routed in such a manner that it is not subject to mechanical damage due to contact with sharp edges, abrasive surfaces, vibrating or moving parts. Exposed lengths of ripped parallel conductors do not exceed 3 mm

Wiring which is completely enclosed within steel conduit, metal raceways, metallic tubing, cabinet walls, or other separate electrical enclosures employs 2/64 mm thick (minimum) electrical insulation unless specified differently in this Report.

Wiring which is not completely enclosed as specified above employs 4/64 mm thick (minimum) electrical insulation unless specified differently in this Report.

Cords or appliance wiring material employed in the refrigerated compartment has 4/64 mm thick (minimum) electrical insulation and is located or protected so as not to be subjected to contact by product containers, removable shelves, and the like.

Green or green with yellow stripe wire may be employed only as grounding conductors. Splices are not employed in grounding conductors unless otherwise noted in the Report.

Holes for the passage of wires or cords through walls, panels or barriers have smooth, rounded surfaces or are provided with smoothly rounded bushings.

All splices are mechanically secured to a fixed member or located in a separate enclosure.

Unless otherwise noted all wires terminate in quick-connect or eyelet type materials.

Wiring diagrams shown in Model ILL.14, ILL.14a KS-158R, KS-91R

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Model

All

Wiring is employed as follows:

			Specify all details of wire routing including locations and types of clamps,
No. From	Specify the electrical		means of isolating from combustible
Previous	components o	connected to	materials, Recognized splice and wire
Page	the wiring	described	connecting lead terminations, etc.
Key No.	From	То	Details
1	Power	Compressor	All splices employ recognized connectors
	supply		and are insulated. The wire connector was
	cord		located in Compressor Terminal Enclosure
1	Compressor	Thermostat	Routed within cabinet liner, all splices
		, lamp	employ recognized connectors and are
			insulated. Wiring was enclosed by
			recognized insulation tube which at least
			1mm thick.
1	Thermostat	lamp	Routed within cabinet liner, all splices
		switch	employ recognized connectors and are
			insulated.
1	Lamp	Lamp	Routed within cabinet liner, all splices
	Switch	-	employ recognized connectors and are
			insulated.

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90 SUPPLY CONNECTIONS:

90-5 Cord Connected Unit

Model

Power Supply Cord Set Type

Size, AWG Attachment Plug Rating, V, A Strain Relief Means

Cord Length, ft Grounding Conductor Color Securement of Grounding Conductor Location Means KS-158R, KS-91R Listed SE, SO, SOO, ST, STO, STOO, SJ, SJE, SJO, SJOO, SJT, SJTO, SJTOO, SP-3, SPE-3, SPT-3 18 125, 15 Supply cord is pressed between a twopiece plastic clamp that is secured to the cabinet base by two screws. 5 Minimum, 10 Maximum Green With or Without Yellow Stripes On the Unit base Screw, See Fig.5 for details

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KS-158R

100 SHELVING AND DRAWERS:

100-5 Shelves

# Model

Α. Location Material Glass 345 x 507 Dimensions, mm (D x W) Thickness, mm 4.0 No. of Shelves 1 Method of Support liner Method of Restraint Illustration No. ILL. 15 Model KS-158R в. Location Material Glass Dimensions, mm (D x W) 223 x 502 No. of Shelves 1

Method of Support Method of Restraint

Illustration No. Comments Refrigeration CompartmentGlass345 x 5074.01Support on both sides by Unit CabinetlinerBy slot on the end of both sidesILL. 15KS-158RRefrigeration CompartmentGlass223 x 5021Support on both sides by Unit CabinetlinerNot requiredILL. 16

Served as drawer cover

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100	SHELVING ANI	D DRAW	ERS:				
100-5	Shelves						
Model					KS-91R		
Α.	Location				Cabinet Upper	Cabinet	Lower
	Material				Glass		
	Manufacture	r			Jiangsu Zhongke R	uiteng Co.	, Ltd
	Dimensions,	mm (D	) x W)		250 x 373	180 x 3'	73
	Thickness, n	nm			4.0	4.0	
	No. of Shel	ves			N/A		
	Method of S	upport			Integral guides f liner	ormed in th	ne cabinet
	Method of Re	estrai	.nt		Plastic stud on b	ack of she	lf
100-6	Crisper- Opt	cional					
*Mode	1				KS-91R		
Locat	ion				Bottom of unit ca	binet	
Mater	ial				Plastic, see Sect	ion 30 for	details
Dimen Appro	sions, mm. (I ximate	O x W	х Н)		132 x 355 x 205		

Thickness, mm.

3.5

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100-10 Drawers

Model		KS-158R			
Location		Bottom of Refrigeration Compartment			
Mater	ial	Plastic			
Numbe	r	1			
Method of Support		Lie on the bottom of Refrigeration Compartment			
Metho	d of Restraint	Not required			
Comments		Optional, may be not provided			
Dimensions, mm. (D x W x H) Approximate.		506 x 219 x 195			
Illus	tration No.	ILL. 17			
100-2	0 Door Shelves				
Model		KS-158R			
A.	Location	Refrigeration Compartment Door			
	Comment	Door liner is used			
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100-20 Door Rack As Shelf

## \*Model

- A. Location
  Dimensions, mm. (H x W x D)
  Number
- B. Location
  Dimensions, mm. (H x W x D)
  Number
- C. Location
  Dimensions, mm. (H x W x D)
  Number
- D. Location Dimensions, mm. (H x W x D) Number
- E. Location
  Dimensions, mm. (H x W x D)
  Number

KS-91R
Upper Part of Door liner
44 x 95 x 333
1
Middle Part of Door liner
44 x 95 x 333
1
Bottom Part of Door liner
44 x 95 x 333
1
Bottom Part of Door liner
44 x 245 x 333
1
Bottom Part of Door liner
44 x 245 x 145

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Figure Index

Fig. No.	Comments
1	Unit Front
2	Unit Rear
3	Unit Front with door open
4	Unit of Control Enclosure
5	Unit of compressor compartment

Comment: the figures of model KS-91R refer to SA44289-20150127-Fig.1, Fig.2, Fig.3, Fig.4 and Fig.5.

### Illustration Index

Ill. No.	Comments						
1	Instruction Manual of model KS-158R						
2	Evaporator of model KS-158R						
2a	Evaporator of model KS-91R						
3	Condenser of model KS-158R						
3a	Condenser of model KS-91R						
4	Door Hinges of model KS-158R						
4a	Door Hinges of model KS-91R						
5	Control Enclosure of model KS-158R						
5a	Control enclosure of model KS-91R						
6	Condensate water tray of model KS-158R						
6a	Drip Tray of model KS-91R						
7	Drier of model KS-158R						
_							
7a	Drier/filter of model KS-91R						
<b>7a</b> 8	IEC 60079-15 certificate for OLP of compressor model L48C5L						
7a 8 8a	Drier/filter of model KS-91RIEC 60079-15 certificate for OLP of compressor model L48C5LIEC 60079-15 certificate for OLP of compressor model VY35R16G						
7a 8 8a 9, 9a, 9b	Drier/filter of model KS-91RIEC 60079-15 certificate for OLP of compressor model L48C5LIEC 60079-15 certificate for OLP of compressor model VY35R16GIEC 60079-15 certificate for Thermostat						
<b>7a</b> 8 <b>8a</b> <b>9, 9a, 9b</b> 10	Drier/filter of model KS-91RIEC 60079-15 certificate for OLP of compressor model L48C5LIEC 60079-15 certificate for OLP of compressor model VY35R16GIEC 60079-15 certificate for ThermostatIEC 60079-15 certificate for Switches						
7a 8 8a 9, 9a, 9b 10 11	Drier/filter of model KS-91RIEC 60079-15 certificate for OLP of compressor model L48C5LIEC 60079-15 certificate for OLP of compressor model VY35R16GIEC 60079-15 certificate for ThermostatIEC 60079-15 certificate for SwitchesIEC 60079-15 certificate for lamp holder						
7a 8 8a 9, 9a, 9b 10 11 12	Drier/filter of model KS-91RIEC 60079-15 certificate for OLP of compressor model L48C5LIEC 60079-15 certificate for OLP of compressor model VY35R16GIEC 60079-15 certificate for ThermostatIEC 60079-15 certificate for SwitchesIEC 60079-15 certificate for lamp holderLamp guard of model KS-158R						
<b>7a</b> 8 <b>8a</b> <b>9, 9a, 9b</b> 10 11 12 13	Drier/filter of model KS-91RIEC 60079-15 certificate for OLP of compressor model L48C5LIEC 60079-15 certificate for OLP of compressor model VY35R16GIEC 60079-15 certificate for ThermostatIEC 60079-15 certificate for SwitchesIEC 60079-15 certificate for lamp holderLamp guard of model KS-158RCondenser Fan motor bracket						
<b>7a</b> 8 <b>8a 9, 9a, 9b</b> 10 11 12 13 14	Drier/filter of model KS-91RIEC 60079-15 certificate for OLP of compressor model L48C5LIEC 60079-15 certificate for OLP of compressor model VY35R16GIEC 60079-15 certificate for ThermostatIEC 60079-15 certificate for SwitchesIEC 60079-15 certificate for lamp holderLamp guard of model KS-158RCondenser Fan motor bracketWiring Diagram of model KS-158R						
7a 8 8a 9, 9a, 9b 10 11 12 13 14 14 14a	Drier/filter of model KS-91RIEC 60079-15 certificate for OLP of compressor model L48C5LIEC 60079-15 certificate for OLP of compressor model VY35R16GIEC 60079-15 certificate for ThermostatIEC 60079-15 certificate for SwitchesIEC 60079-15 certificate for lamp holderLamp guard of model KS-158RCondenser Fan motor bracketWiring Diagram of model KS-158RMarking label and Wiring Diagram of model KS-91R						
7a 8 8a 9, 9a, 9b 10 11 12 13 14 14 14a 15	Drier/filter of model KS-91RIEC 60079-15 certificate for OLP of compressor model L48C5LIEC 60079-15 certificate for OLP of compressor model VY35R16GIEC 60079-15 certificate for ThermostatIEC 60079-15 certificate for SwitchesIEC 60079-15 certificate for lamp holderLamp guard of model KS-158RCondenser Fan motor bracketWiring Diagram of model KS-158RMarking label and Wiring Diagram of model KS-91RShelf A						
7a 8 8a 9, 9a, 9b 10 11 12 13 14 14 14a 15 16	Drier/filter of model KS-91RIEC 60079-15 certificate for OLP of compressor model L48C5LIEC 60079-15 certificate for OLP of compressor model VY35R16GIEC 60079-15 certificate for ThermostatIEC 60079-15 certificate for SwitchesIEC 60079-15 certificate for lamp holderLamp guard of model KS-158RCondenser Fan motor bracketWiring Diagram of model KS-158RMarking label and Wiring Diagram of model KS-91RShelf AShelf B						











## **User Manual**

Model Number:

KS-158R

Refrigerator

BEFORE USE, PLEASE READ AND FOLLOW ALL SAFETY RULES AND OPERATING INSTRUCTIONS.

Dear customers,

Thank you for purchasing our product. In order to ensure your safety and achieve the best using effect, please read this instruction manual carefully.

Before you start:

- Read all the instructions before using. Keep this manual for future reference.
- Warning: Never try to use this appliance for applications or in a way which is not described in the instruction, otherwise severe hazards may occur.
- Do not use the appliance in a dusty environment or in an explosive atmosphere (inflammable gases, vapors, vapors from organic solvents).
- This appliance is intended for HOUSEHOLD USE ONLY and not for commercial or industrial use.

General safety advice

### IMPORTANT SAFETY INSTRUCTIONS

# A WARNING

To reduce the risk of fire, electrical shock,or injuryfollow these basic precautions when using your refrigerator

- WARNING----DANGER: Never allow children to play with, operate,or crawl inside the refrigerator.Risk of child entrapment. Before you throw away your old refrigerator or freezer:
- Take off the doors
- Leave the shelves in place so that children may not easily climb inside.

### This warning is not for EUROPEAN market:

This appliance 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.

Do not use extension cords or ungrounded (two prong) adapters with this appliance. If the power cord is too short, have a qualified electrician install an outlet near the appliance. Use of an extension can negatively affect the unit's performance.



### This warning is only for EUROPEAN market only:

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or

instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without

supervision.

- Unplug the appliance from outlet when not in use, before putting on or taking off parts, before cleaning.
- Make sure to place the plug all the way into socket when connecting your appliance.
- Insert the plug into a single grounded socket.
- Never use the appliance in place where combustible and inflammable materials are kept.
- For safety reason, be sure to repair or replace parts at an authorized service dealers.
- If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its services agent.
- The motor is permanently lubricated and will require no oil.
- The appliance must be positioned so that the plug is accessible.
- Please according to local regulations regarding disposal of the appliance for its flammable blowing gas. Before you scrap the appliance, please take off the doors to prevent children trapped.

This appliance is intended to be used in household and similar applications such as

- staff kitchen areas in shops, offices and other working environments;
- farm houses and by clients in hotels, motels and other residential type environments;
- bed and breakfast type environments;
- catering and similar non-retail applications.

## Tips and Hints

- 1. Fresh foods such as fish and meat can be frozen to maintain freshness, and keep the nutrients in the food.
- 2.Food should be wrapped in aluminum foil, or some other type of airtight packing.
- 3.Do not allow frozen food in freezer to touch foods just placed into freezer. It can damage the food.
- 4.Frozen foods from the store should be placed in the freezer promptly, so they do not thaw.
- 5.Never place fresh vegetables and fruits into the freezer as they can get freezer burn.

### II.Caution Of Safety

1.Individual single-phase socket must be used. It should be reliably connected to a grounding wire.

Caution: Do not connect grounding wire to a water or gas pipe.

- 2. no storing strong base, strong acid, organic solvent and corrosive goods together with food.
- 3.Do not pour water directly onto the freezer, which may cause declining of insulation and corrosiveness.
- 4.When the refrigerator will no be used for a long time, disconnect the power cord then clean it. Please examine the wiring circuit before using it.
- refer to the Trouble Shooting references when the unit is facing some problems. Do not attempt to solve the problem on your own, please refer to certified technician only.

### III. Caution for using.

- 1.Unpack all packages before using the refrigerator. Do not topple it over more than 60° while moving it. Even though it can be moved slowly with the universal wheels under its base, the wheels were not meant for uneven ground usage which may damage it and other parts if used vigorously.
- 2.Place the freezer at your desired place and do not operate it for at least 1 hour.The refrigerator should be installed in the environment of good ventilation, cool and dry. Avoid placing it nearby heat generating equipment and under direct sunlight. When installing, the universal wheels should be padded firmly so as to avoid excess vibration and noise.
- 3.After 1 hour the refrigerator should be run emptily upon initial operation. Please turn the thermostat knob to 7 and food can be stored just after 4 hours of initial running. Food must occupy 1/3 of the storage area and evenly arranged. They must be wrapped in plastic bags to obtain the original freshness and taste.
- 4.Temperature can be adjusted by using the thermostat. Clock wised turning will decrease the temperature whilst anti-clockwise to increase. Figures shown indicate the temperature level: 3-5 for normal, 0 for stop running and 6 for continuously running.

### Caution: No 7 can only be used if the foods need to be frozen quickly.

- 5.Do not frequently open and shut the refrigerator door to avoid lost of cooling effect and to save energy.
- 6.The surface and inside of the refrigerator should be kept clean at all time to avoid body rust.
- 7.Generally, clean the refrigerator after every 30-45 days of usage. Please use soft cloth moistened in neutral soapsuds or detergent.

Caution: Please unplug the power cord before cleaning the unit.

Warranty Information

The manufacturer provides warranty in accordance with the legislation of the customer's own country of residence, with a minimum of 1 year (Germany: 2 years), starting from the date on which the appliance is sold to the end user.

The warranty only covers defects in material or workmanship.

The repairs under warranty may only be carried out by an authorized service centre. When making a claim under the warranty, the original bill of purchase (with purchase date) must be submitted.

The warranty will not apply in cases of:

- Normal wear and tear

Vol. 1

- Incorrect use, e.g. overloading of the appliance, use of non-approved accessories

- Use of force, damage caused by external influences

- Damage caused by non-observance of the user manual, e.g. connection to an unsuitable mains supply or non-compliance with the installation instructions

- Partially or completely dismantled appliances

### **Correct Disposal of this product**

This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

> Ningbo Han Dian Electric Appliance Co., Ltd. East Guanhaiwei Industrial Zone, Cixi, Ningbo, 315314 P.R. China

Sec. 5 ILL-2 And Report







File SA44289



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# IBEXU Institut für Sicherheitstechnik GmbH

An-Institut der Technischen Universität Bergakademie Freiberg

### REPORT

### IB-11-8-107

### about the experimental testing of enclosed-break devices

### Motor protector type DRB

(Translation)

Freiberg, 10 November 2011 Hi/Diet/Leh

Dipl.-Ing. (FH) Hille Editor

This document consists of:

7 pages text 2 Annexes

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Prüflaboratorium und Zertifizierungsstelle für Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen im Sinne von RL 94/9/EC (ATEX 100a) "Benannte Stelle" (EU-Kenn-Nr. 0637)

Institut für Sicherheitstechnik GmbH

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### REPORT

### IB-11-8-107

#### about the experimental testing of enclosed-break devices

### 1 Order

VDE Prüf- und Zertifizierungsinstitut in 63069 Offenbach (GERMANY) engaged with the letter 5001300-4510-0004/148374 FG31/mlh-wah of 27 September 2011 the IBExU Institut für Sicherheitstechnik GmbH with the experimental testing of the Motor protectors type DRB in explosive atmosphere regarding the proof of type of protection enclosed-break devices according to IEC/EN 60079-15:2010, paragraph 22.4.

### 2 Test item

Motor protector

-	Type:	DRB		
<b>-</b> 1.	Manufacturer:	Hang Zhou Star Shi	uaier Electric Appliar	nce Co. Ltd
-	Material:			
	Base:	Phenolic 25378	Phenolic EA5555J	
	Cover:	PET2550GN	PET FR530	PET4308-G20
-	Voltage:	120 V AC	250 V AC	
-	Current:	45 A	20 A	
-	cos phi:	0.6		
-	Service temperature range:	0 °C up to 160 °C		

### 3 Test documents

- Order with letter 5001300-4510-0004/148374 FG31/mlh-wah of 27 September 2011
- VDE-Kurzprüfschein No. 5001300-4510-0004/148374 "Temperaturbeständigkeitstest nach Abs. 22.3.1" of 26 September 2011
- EN 60079-15:2010 (complies with IEC 60079-15:2010, ed. 4)
- 5 pieces of Motor protectors type DRB40X61A1 (1) (Test sample-No. EXel 473/11)
- 5 pieces of Motor protectors type DRB40X61A1 (4) (Test sample-No. EXel 474/11)
- 5 pieces of Motor protectors type DRB40X61B1 (5) (Test sample-No. EXel 475/11)
- 5 pieces of Motor protectors type DRB40X61B1 (8) (Test sample-No. EXel 476/11)
- 5 pieces of Motor protectors type DRB40X61A1 (13) (Test sample-No. EXel 477/11)
- 5 pieces of Motor protectors type DRB40X61A1 (14) (Test sample-No. EXel 478/11)
- 5 pieces of Motor protectors type DRB40X61B1 (15) (Test sample-No. EXel 479/11)
- 5 pieces of Motor protectors type DRB40X61B1 (16) (Test sample-No. EXel 480/11)
- 5 pieces of Motor protectors type DRB40X61A1 (17) (Test sample-No. EXel 481/11)
   5 pieces of Motor protectors type DRB40X61A1 (12) (Test sample-No. EXel 481/11)
- 5 pieces of Motor protectors type DRB40X61A1 (18) (Test sample-No. EXel 482/11)
   5 pieces of Motor protectors type DRB40X61B1 (19) (Test sample-No. EXel 483/11)
- 5 pieces of Motor protectors type DRB40X61A1 (20) (Test sample-No. EXel 484/11)

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The test items were delivered to IBExU on 29 September 2011.

### 4 Test execution

### 4.1 Objectives

It was the task to examine experimentally the ignition safety (the non-ignition of an explosive atmosphere) of the Motor protectors for gases and vapors of the Group IIA with the parameters specified under chapter 2.

Basis of the test are the requirements in IEC/EN 60079-15, Paragraph 22.4 for enclosed-break devices.

In the context of these examinations there was not the task to check the constructive requirements for apparatus in type of protection "n" (apparatus for zone 2) for the compliance with IEC/EN 60079-15.

### 4.2 Description of the test item

The Motor protector serves for the protection of motor compressors at refrigerating appliances. A special black plastic base serves as support part of the functional parts of the Motor protectors. Inside is a bimetal contact bridge. The enclosure is closed by a second, white moulded part, which is heat-sealed via two plastic pins. Both enclosure parts form a circulating gap, which is glued with a brown plastic resin. All other gaps are also closed with the same plastic resin. The terminal contacts are led to the outside as a 6.3 mm plug contact and as a socket.

The free internal volume of the switch chamber is less than 20 cm<sup>3</sup> (about 1 cm<sup>3</sup>).





Motor protector type DRB40X61A1 (1) PM1-2

The enclosures of the test samples were equipped with a hose connection via a borehole. It serves to purge the switch chamber with the test gas and also for the uptake of the thermo-couple.

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### 4.3 Requirements in IEC/EN 60079-15

An enclosed-break device is a device incorporating electrical contacts that are made and broken. These devices will withstand an internal explosion of the flammable gas or vapor which may enter it without suffering damage and without communicating the internal explosion to the external flammable gas or vapour.

Before the tests any removable seals have to be removed. Any remaining non-metallic parts have to be subjected to the conditioning test described in paragraph 22.3.1. These parts have to be stored continuously for 672 ( $^{+30}/_{-0}$ ) hrs in an ambience of (90±5) % relative humidity and at a temperature of (10±2) K above the maximum temperature in rated service.

In case of a maximum service temperature above 85 °C the above specified storage of 672 (<sup>+30</sup>/<sub>-0</sub>) hrs will be replaced by a period of 336 (<sup>+30</sup>/<sub>-0</sub>) hrs at a temperature of (95±2) °C and (90±5) % relative humidity followed by a period of 336 (<sup>+30</sup>/<sub>-0</sub>) hrs at a temperature of (10±2) K above the maximum temperature in rated service. After that, a storage for 24 hrs at a temperature of 5 K below the minimal ambient temperature shall be carried out according to EN 60079-0, 26.9.

Then the test of the enclosed-break devices according to paragraph 22.4.3 will be carried out. The explosive gas atmosphere fixed for the Group IIA, IIB or IIC has to be ignited inside the device by the operation of the enclosed contacts when connected to the maximum rated source of energy, power and load in terms of voltage, current, frequency and power factor.

A make and break test shall be repeated 10 times with a fresh gas mixture for each test. After the test, the device shall show no visible signs of damage; no external ignition shall occur and there shall be no failure to clear the arc when the switch contacts are opened.

### 4.4 Description of the test equipment

The test equipment is schematically shown in annex 1 of this report. It consists of the following equipment and means of work:

### Explosion chamber

The explosion chamber essentially consists of a cylindrical container (Piacryl) with a bursting foil mounted on the top. The volume amounts 18 dm<sup>3</sup>.

In the base plate and on the cylinder are introduced and sealed the instrument leads and the supply lines.

### Conditioning of the test gas mixture

The explosive gas atmosphere required for the Group IIA (6.5  $\% \pm 0.5 \%$  Ethylene, 93.5  $\% \pm 0.5 \%$  air) was processed in the explosion chamber by volumetric gas conditioning. Dosage equipment with Digital Mass Flow Controllers served for this.

The homogeneous mixture conditioning was ensured by flushing the explosion chamber and the test item with the explosive gas/air mixture. The combustible gas quota (Ethylene) in the explosion chamber was checked in addition for the maintenance of the permissible tolerance with a gas interferometer according to Rayleigh-Haber-Löwe (PM 0301).

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### Measuring device for electrical parameters

The predefined electrical load of the switching contacts was made by switching on ohmic resistors and inductances in the AC circuit.

With a Wide Band Power Analyzer D 6133 M (manufacturer: Norma, PM 0010) the required parameters current, voltage and power factor were measured during the test and registered with the data acquisition device MW100 (manufacturer: YOKOGAWA, PM 0542).

The ignition in the test item was perceived acoustically and recorded by the temperature rise by means of a thermocouple. For that, a thermocouple was introduced into the tube connection on the test item after the mixture conditioning. The temperature course was recorded with the recorder.

### Test of thermal endurance

The test of thermal endurance was carried out by the VDE Prüf- und Zertifizierungsinstitut.

All used measuring instruments are included in the Quality Management System of IBExU certified according to ISO 9001. They are checked in regular intervals.

### 4.5 Test procedure and results

#### 4.5.1 Test of thermal endurance

The test of thermal endurance was carried out by the VDE Prüf- und Zertifizierungsinstitut. According to IEC/EN 60079-15, 22.3.1 the test samples were storaged for 336 ( $^{+30}/_{-0}$ ) hrs at 95 °C heat and 90 % rel. humidity, 336 ( $^{+30}/_{-0}$ ) hrs at 170 °C as well as 24 hrs at -10 °C cold (see VDE-Kurzprüfschein).

### 4.5.2 Pre-test

Before the ignition tests specified in IEC/EN 60079-15 were carried out it had to be made sure that the appearing switching spark in the case can be considered as an effective ignition source for the test gas. To this, pre-tests were carried out at a Motor protector (Test sample 1-5), whose enclosure was opened.

At the test parameters 250 V AC, 15 A and  $\cos \varphi$  0.6 the ignition of the explosive gas mixture caused by the break spark could be proved (see Annex 2.1).

### 4.5.3 Type test

The tests were carried out from 11 October until 18 October 2011. In accordance with IEC/EN 60079-15, 22.4.3.2 eleven tests have to be carried out with a sample, which has the most adverse dimensions permitted by the construction drawings. There are no statements regarding the gaps of the test samples. To make sure the test results, two test samples per material combination were included in the test program.

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The respective Motor protector (originally closed) to be tested was put into the explosion chamber. The specified explosive gas atmosphere required for the Group IIA ( $6.5 \pm 0.5$ ) % Ethylene/air mixture was processed in the explosion chamber and in the enclosure of the test item.

The contacts of the Motor protectors were operated with the preset test parameters. The ignition of the explosive gas atmosphere inside the test item occurred by the break spark.

The test results are summarised in the table. For some tests the test parameters are recorded in the annexes 2.2 up to 2.13.

Test	Mat	erial	Cap.	Tests	Ρ	Electric	rs	Ignition of the explosive atmos- phere		
oumpio	Base	Cover			U [V]	I [A]	cos φ	Inside the test item	outside	
1-1	Phenolic 25378		low	11	250	15	0.6	yes	no	
4-1	Phenolic EA5555J	PET2550	low	11	250	15	0.6	yes	no	
5-1	Phenolic 25378	GN-30	high	11	250	15	0.6	yes	no	
8-1	Phenolic EA5555J		high	11	250	15	0.6	yes	no	
13-1	Phenolic 25378		low	11	250	15	0.6	yes	no	
14-1	Phenolic EA5555J	PETFR	low	11	250	15	0.6	yes	no	
15-1	Phenolic 25378	530	high	11	250	15	0.6	yes	no	
16-1	Phenolic EA5555J		high	11	250	15	0.6	yes	no	
17-1	Phenolic 25378		low	11	250	15	0.6	yes	no	
18-1	Phenolic EA5555J	PBT4308-	low	11	250	15	0.6	yes	no	
19-1	Phenolic 25378	G20	high	11	250	15	0.6	yes	no	
20-1	Phenolic EA5555J		high	11	250	15	0.6	yes	no	

At none of the test samples the explosion triggered in the enclosure of the Motor protector was transferred to the outer explosive atmosphere.

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### 5 Summary

It was noticed with the tests that the Motor protector type DRB at the conditions mentioned under 2 has the ignition safety (the non-ignition of an explosive atmosphere) fixed in IEC/EN 60079-15:2010 according to type of protection enclosed-break device for gases and vapors of the Group IIA. The explosions triggered inside the switching chamber by the break spark did not ignite the explosive mixture surrounding the device.

The assessment of the constructive design of the Motor protector regarding the compliance with the requirements of IEC/EN 60079-15 for apparatus of the type of protection "n" (apparatus for zone 2) was not object of these examinations.

The test result refers exclusively to the Motor protector specified under chapter 2.

### Annexes

Annex 1	Schematic setup of the test equipment
Annex 2	Representation of the test parameters (13 Sheet)

Sec. 5

And Report

IB-15-8-049 Annex 1

## Annex 1: Schematic setup of the test equipment



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Anlage 2, Blatt 1 zum Bericht IB-11-8-107

### Versuchsparameter PM 1-5 Versuch Nr. 01

Sec. 5

And Report


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Anlage 2, Blatt 2 zum Bericht IB-11-8-107

#### Versuchsparameter PM 1-1 Versuch Nr. 11

Sec. 5



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Anlage 2, Blatt 3 zum Bericht IB-11-8-107

# Versuchsparameter PM 4-1 Versuch Nr. 11

Sec. 5



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Anlage 2, Blatt 4 zum Bericht IB-11-8-107

#### Versuchsparameter PM 5-1 Versuch Nr. 07

Sec. 5



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Anlage 2, Blatt 5 zum Bericht IB-11-8-107

#### Versuchsparameter PM 8-1 Versuch Nr. 06

Sec. 5



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Anlage 2, Blatt 6 zum Bericht IB-11-8-107

# Versuchsparameter PM 13-1 Versuch Nr. 01

Auft Auft Prüf Typ: Prüf	rag-N raggo gege must	Nr.: eber: ensta :er-N	nd: r.:	IB-11-8 VDE P Motorp DRB40 Ex.el. 4	3-107 rüf- u orotek 0X61, 477-1	und ktor A1	Zertifizi (13)	erinstit	ut	Mes PM- Mes PM-	sgerät: Nr.: sgerät: Nr.:	MW1 PM 0 Powe PM 0	00 542 er Anal 010	yser D 6100
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Anlage 2, Blatt 7 zum Bericht IB-11-8-107

# Versuchsparameter PM 14-1 Versuch Nr. 05

Auft Auft Prüf Typ: Prüf	rag-N ragge gege : fmust	Nr.: eber: ensta :er-N	nd: r.:	IB-11-& VDE P Motorp DRB40 Ex.el. 4	8-107 rrüf- und protekto 0X61A1 478-11	d Zertifizi r (14)	erinstitu	t	Mes PM- Mes PM-	sgerät: Nr.: sgerät: Nr.:	MW1 PM 0 Powe PM 0	00 9542 er Anal 9010	yser D 6100
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- 00	38	- 00	38							- Vor	~~~~		
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Anlage 2, Blatt 8 zum Bericht IB-11-8-107

# Versuchsparameter PM 15-1 Versuch Nr. 07

Auft Auft Prüf Typ: Prüf	rag-N ragg gege musl	Nr.: eber: ensta ter-N	nd: r.:	IB-11-8 VDE P Motorp DRB40 Ex.el. 4	8-107 rüf- ur protekt 0X61B 479-11	nd Zertifiz or 1 (15) I	tierinstit	ut	Mes PM- Mes PM-	ssgerät: -Nr.: ssgerät: -Nr.:	MW1 PM 0 Powe PM 0	00 542 er Anal 010	lyser D 6100
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00	35	8	35							- ~~~~			
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Anlage 2, Blatt 9 zum Bericht IB-11-8-107

# Versuchsparameter PM 16-1 Versuch Nr. 06

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Anlage 2, Blatt 10 zum Bericht IB-11-8-107

#### Versuchsparameter PM 17-1 Versuch Nr. 09

Sec. 5



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Anlage 2, Blatt 11 zum Bericht IB-11-8-107

# Versuchsparameter PM 18-1 Versuch Nr. 07

Auft Auft Prüf Typ: Prüf	rag-N ragge gege : fmust	lr.: eber: ensta er-N	nd: r.:	IB-11-8 VDE Pr Motorpi DRB40 Ex.el. 4	-107 rüf- u rotel X61 82-7	7 unc ktor A1 11	l Zertifizi r (18)	erinstit	ut	Me PN Me PN	ssgerät: I-Nr.: ssgerät: I-Nr.:	MW1 PM 0 Powe PM 0	100 )542 er Anal )010	yser D 6100
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Anlage 2, Blatt12 zum Bericht IB-11-8-107

# Versuchsparameter PM 19-1 Versuch Nr. 04

Auft Auft Prüf Typ: Prüf	rag-N ragge gege must	lr.: ∋ber: ensta er-N	nd: r.:	IB-11-8 VDE P Motorp DRB40 Ex.el. 4	3-107 rüf- uno orotekto )X61B1 483-11	d Zertifizie or I (19)	erinstitu	ut	Mes PM- Mes PM-	ssgerät: ·Nr.: ssgerät: ·Nr.:	MW PM ( Powe PM (	00 542 er Anal 0010	yser D 6100
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Anlage 2, Blatt13 zum Bericht IB-11-8-107

# Versuchsparameter PM 20-1 Versuch Nr. 02

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	240-		16											
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300	180-	20	12						cos phi					
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1/01	120-	1/02	8											
- 00	90-	- 00	6											
W1	60-	W1	4											
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# IBEXU Institut für Sicherheitstechnik GmbH

An-Institut der Technischen Universität Bergakademie Freiberg



# REPORT

#### IB-07-8-021

# about the experimental testing of enclosed-break devices (Translation)

Temperature controller type DRB series

Freiberg, 22 May 2007 Hi/Diet/Leh

Dipl.-Ing. (FH) Hille Editor

This document consists of:

6 pages text 2 Annexes

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Prüflaboratorium und Zertifizierungsstelle für Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährteten Bereichen im Sinne von RL 94/9/EG "Benannte Stelle" (EU-Kenn-Nr. 0637)

0]

IBEXU Institut für Sicherheitstechnik GmbH IB-07-8-021 Page 2 REPORT IB-07-8-021 about the experimental testing of enclosed-break devices Order 1 The VDE Prüf- and Zertifizierungsinstitut in 63069 Offenbach (GERMANY) engaged with the letter 5001300-4510-0004/83602 of 26 February 2007 the IBExU Institut für Sicherheitstechnik GmbH with the experimental testing of the Temperature controller type DRB series in explosive atmosphere regarding the proof of type of protection enclosed-break devices according to IEC/EN 60079-15:2005, paragraph 33.4. 2 Test item Temperature controller DRB series Type: 250 V Voltage: Current: max. 14 A cos phi: 0.6 -Service temperature range: -20 °C up to max. 150 °C \_ **Test documents** 3 Letter 5001300-4510-0004/83602 of the customer of 26 February 2007 -EN 60079-15:2005 (complies with IEC 60079-15:2005, ed. 3) 7 pieces of Temperature controller type DRB-42V61A1 The test items were delivered to IBExU on 01 March 2007. 4 **Test execution** 4.1 **Objectives** It was the task to examine experimentally the ignition safety (the non-ignition of an explosive atmosphere) of the Temperature controllers for gases and vapors of the Group IIA with the parameters specified under chapter 2. The bases of the test are the requirements in IEC/EN 60079-15:2005, Paragraph 33.4, for enclosed-break devices. 02



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IB-07-8-021 Page 3

In the context of these examinations there was not the task to check the constructive requirements for apparatus in type of protection "n" (apparatus for zone 2) for the compliance with IEC/EN 60079-15.

#### 4.2 Description of the test item

The Temperature controllers serve for the protection of motor compressors at refrigerating appliances. A special black plastic base serves as support part of the functional parts, a plastic lid is pressed in on the top side. Inside is a bimetal contact bridge and below is a heating element. At one side of the plastic case a plug contact 6.3 mm is led to the outside and on the lid is a second contact as a socket. Heating element and bimetal plate are connected with the motor winding in row. All gaps were sealed with glue.

The free internal volume of the switch chamber is less than 20 cm<sup>3</sup> (about 1 cm<sup>3</sup>). The enclosures of the test samples were equipped with a thread and a hose connection. So it was possible to fill the switch chamber with the test gas. A second bore hole with hose connection serves for the discharge of the test gas during the purging and also for the uptake of the thermocouple.

#### 4.3 Requirements in IEC/EN 60079-15:2005

Enclosed-break devices are devices, which incorporate electrical contacts that are made and broken. These devices will withstand an internal explosion of the flammable gas or vapor which may enter it without suffering damage and without communicating the internal explosion to the external flammable gas or vapor.

Before the tests any removable seals have to be removed. Any remaining non-metallic parts will have been subjected to the conditioning test described in paragraph 33.3.2. These parts have to be stored continuously for four weeks in an ambience of 90 % relative humidity and at a temperature of 10 K above the maximum temperature in rated service. In case of a maximum service temperature above 85 °C the period of four weeks specified above will be replaced by a period of two weeks at 95 °C and 90 % relative humidity followed by a period of two weeks at a temperature of 10 K above the maximum temperature in rated service. After that, a storage for 24 hrs at a temperature of 5 K below the minimal ambient temperature shall be carried out.

Then the test of the enclosed-break devices according to paragraph 33.4.3 will be carried out. The explosive gas atmosphere fixed for the Group IIA, IIB or IIC has to be ignited inside the device by the operation of the enclosed contacts when connected to the maximum rated source of energy, power and load in terms of voltage, current, frequency and power factor.

A make and break test shall be repeated 10 times with a fresh gas mixture for each test.

After the test the device shall show no visible signs of damage; no external ignition shall occur and there shall be no failure to clear the arc when the switch contacts are opened.

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04

#### 4.4 Description of the test equipment

The test equipment is schematically shown in annex 1 of this report. It consists of the following equipment and means of work:

#### Explosion chamber

The explosion chamber essentially consists of a cylindrical container (Piacryl) with a bursting foil mounted on the top. The volume amounts 18 dm<sup>3</sup>.

In the base plate and at the cylinder are introduced and sealed the instrument leads and the supply lines.

#### Conditioning of the test gas mixture

The explosive gas atmosphere required for the Group IIA ( $6.5\% \pm 0.5\%$  ethylene,  $93.5\% \pm 0.5\%$  air) was processed in the explosion chamber by volumetric gas conditioning. Dosage equipment with Digital Mass Flow Controllers served for this.

The homogeneous mixture conditioning was ensured by flushing the explosion chamber and the test item with the explosive gas/air mixture. The burning gas quota (ethylene) in the explosion chamber was checked in addition for the maintenance of the permissible tolerance with gas interferometer according to Rayleigh-Haber-Löwe.

# Measuring device for electrical parameters

The predefined electrical load of the switching contacts was made by switching on ohmic resistors and inductances in the AC circuit.

With a Wide Band Power Analyzer D 6100 (manufacturer: Norma) the required parameters current, voltage and power factor were measured during the examining operation and registered with an 8-channel recorder type LR 8100 (manufacturer: YOKOGAWA). The ignition in the test item was perceived acoustically and recorded by the temperature rise by means of a thermocouple. For that, a thermocouple was introduced into the tube connection at the test item after the mixture conditioning. The temperature course was recorded with the recorder LR 8100.

#### Test of thermal endurance

The test of thermal endurance occurs in conditioning and refrigeration cabinets which are also used for the thermal endurance tests according to EN 60079-0.

All used measuring instruments are included in the Quality Management System of IBExU certified according to ISO 9001. They are checked in regular intervals.

#### 4.5 Test procedure and results

#### 4.5.1 Test of thermal endurance

According to IEC/EN 60079-15, 33.3.2 the test samples were stored for two weeks at 95 °C heat and 90 % rel. humidity, two weeks at 160 °C heat as well as for 24 hrs at -25 °C cold. No damages were noticed at the following visual examination.

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#### 4.5.2 Pre-test

Before the ignition tests specified in IEC/EN 60079-15 were carried out it had to be made sure that the appearing switching spark in the case can be considered as an effective ignition source for the test gas. To this, pre-tests were carried out at a Temperature controller, whose enclosure was opened.

At the test parameters 250 V AC, 14 A and  $\cos \varphi$  0.6 the ignition of the explosive gas mixture caused by the break spark could be proved (see Annex 2.1).

4.5.3 Type test

The tests were carried out on 02 May 07. In accordance with IEC/EN 60079-15, 33.4.3.2 eleven tests have to be carried out with a sample, which has the most adverse dimensions permitted by the construction drawings. There are no statements regarding the gaps of the test samples. To make sure the test results, four test samples were included into the test program.

The respective Temperature controller (originally closed) to be tested was put into the explosion chamber. The specified explosive gas atmosphere required for the Group IIA ( $6.5 \pm 0.5$ ) % ethylene/air mixture was processed in the explosion chamber and in the enclosure of the test item.

The contacts of the Temperature controller were operated with the preset test parameters. The ignition of the explosive gas atmosphere inside the test item occurred by the break spark.

The test results are summarised in the table. For some tests the test parameters are recorded in the annexes 2.2 and 2.5.



Institut für Sicherheitstechnik GmbH

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Test	Tanto	Elec	trical parame	eters	Ignition of th atmos	ne explosive sphere
sample	Tests	U [V]	I [A]	cos φ	Inside the test item	outside
1 a	2	250	14	0.6	yes	no
1 b	1	250	14	0.6	yes	no
1 c	1	250	14	0.6	yes	no
2	11	250	14	0.6	yes	no
3	11	250	14	0.6	yes	no
4	11	250	14	0.6	yes	no

Only two respectively one ignition tests could be carried out with test samples 1a, 1b and 1c, because the Temperature controller did not work then any more.

At none of the ignition tests the explosion triggered in the enclosure of the Temperature controllers was transfered to the outer explosive atmosphere. No damages were noticed at the case.

#### 5 Summary

It was noticed with the examinations that the Temperature controller type DRB series at the conditions mentioned under 2 has the ignition safety (the non-ignition of an explosive atmosphere) fixed in IEC/EN 60079-15:2005 according to type of protection enclosed-break device for gases and vapors of the Group IIA. The explosions triggered inside the switching chamber by the break spark did not ignite the explosive mixture surrounding the device.

The assessment of the constructive design of the Temperature controllers regarding to the compliance with the requirements of IEC/EN60079-15 for apparatus of the type of protection "n" (apparatus for zone 2) was not object of these examinations.

The test result exclusively refers to the Temperature controller type DRB series specified under chapter 2.

#### Annexes

Annex 1 Annex 2 Schematic setup of the test equipment Representation of the test parameters (4 sheets)





Sec. 5 And Report

IBExU Institut für Sicherheitstechnik GmbH Annex 2, Page 1 to report IB-07-8-021 Recorder speed: 5 sec/Sct. 18-07-8-021 = 120-6-M PDC 111:00 2 jud. Range 0 ... 1000 V Range 0 ... 30 A Range 1<sub>tep.</sub> ... 0 ... 1<sub>in</sub> Range 0 ... 100 °C Range 0 ... 100 °C Test parameters Pre-test . G 11:00 40 30andvarsuche Tevennummeter DRB-4206181 Voltage
 Current
 Power factor
 Temperature test chamber
 Temperature test item 5 9 4 Remarks: 08 IBExU Institut für Sicherheitstechnik GmbH Annex 2, Page 2 to report IB-07-8-021 Recorder speed: 5 sec/Sct. [m] E. Range 0 ... 1000 V Range 0 ... 30 A Range 1<sub>cap</sub> ... 0 ... 1<sub>in</sub> Range 0 ... 100 °C Range 0 ... 100 °C 120mm/H 120-8-40-81 Test parameters Test No. 1.01 ug S 11212 (1). 01 Chendwersuche Temperaturrester D88-4246181 2 Voltage
 Current
 Power factor
 Temperature test chamber
 Temperature test item S -4 Remarks: 0) Sec. 5 And Report

IBExU

Institut für Sicherheitstechnik GmbH





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IBExU

Annex 2, Page 4 to report IB-07-8-021



.





#### 编号: CNEx13.4305X

九江恒通自动控制器有限公司 制造单位 地址: 九江市开发区城西港区港兴路 18号 产品名称 防爆温度控制器 型号规格 WDF 250VAC 50/60HZ 5A 防爆标志 Ex nC IIA T1 Gc 产品标准 HTQBEx-2011 总装图号 LB11-HT 经对上述产品图样及技术文件的审查和样品检验,确认符合下列标准:

IEC60079-0: 2007 爆炸性环境 第0部分: 设备 通用要求 IEC60079-15: 2010 爆炸性环境 第15部分: 由"n"型保护的设备

记事	1.该产品适用于制冷剂为 R600a 的电冰箱中。 2.防爆温度控制器安装后插脚应有可靠防护,满足 IP54 要求。
本证有效期	2013年12月30日至2018年12月29日
颁发日期	2013 年 12 月 30 日



注: 本证书仅对与认可文件和样品一致的产品有效。 登陆网站 输入数码 查询真伪 6276 4550 0312 3694 查询方式: www.china-ex.com Sec. 5



	CERTI		⊾ ®
	of Cor	formity TÜVRheinla	ane
	Registration No.:	AK 50365587 0001	
	Report No.:	15090828 000	
Holder:	Changzhou Huishai No. 99, Xinsi Road Changzhou, Jiangs P.R. China	ng Electric Co., Ltd. d, Xinbei District u Province	
Product:	<u>Temperature Control</u> Temperature controller use	ed in refrigerator	
Identification:	Type Designation: WD/ (Chang	WP Series zhou Huishang Electric Co., Ltd.(Logo	›) <b>)</b>
	Serial No.:N/A		
	Remark: Refer to test (Test specification:I 22.3.1.1, 22.4.3.1, 2	report GC 15090828 for details. EC/EN 60079-15: 2010, 5.1, 6.5.1, 2.4.3.2)	
Tested acc. to:	IEC 60079-15:2010		
The certificate of confor is in conformity with th assessment of the produ conformity.	mity refers to the above me e assessment requirement m uction of the product and do	ntioned product. This is to certify that the sp entioned above. This certificate does not impl ses not permit the use of a TÜV Rheinland m	)eci ly lark
Date29.11.2016	 _	Certification Body	, 7
TÜV Rheinland L	GA Products GmbH	- Tillystraße 2 - 90431 Nürnberg	- 

Sec. 5

**TUV**Rheinland Date : 29/11/2016 Our ref. : QXY 01 Changzhou Huishang Electric Co., Date Ltd. Your ref.: No. 99, Xinsi Road, Xinbei District Changzhou, Jiangsu Province P.R. Chiņa Ref : AK Certificate of Conformity Type of Equipment : Temperature controller used in refrigerator Model Designation : See Certificate Certificate No. : AK 50365587 0001 Report No. : 15090828 000 Dear Ladies and Gontlemen, With kind regards, Certification Body Xn Sh K Zhang Xiaolong AUN Rheinian Enclosure 0 Cation 0 B 10/020 04.08 
TÜV,TUEV and TUV are registered trademarks. Utilisation and application requires prior approval.

	防退合物江
国家防爆	的漆石俗址
	编号: CNEx15.3951X
制造单位	常州汇商电器有限公司 (江苏省常州市新北区新四路 99 号)
产品名称	防爆压力式温度控制器
型号规格	WD 250VAC 6A
防爆标志	Ex nC IIA T1 Ge
产品标准	Q/HS001-2015
总装图号	WD-001
记事	1.本证书可代表产品:防爆标志: Ex nC IIA T1 Gc。 WD 250VAC 6A、WP 250VAC 6A。 2.该产品适用于制冷剂为 R600a 的电冰箱中。 3.本产品使用时应保证温度控制器接线插脚与外部设备连接时的插 拔力不小于 15N。
	2015年12月12日至2020年12月11日
本证有效期	
本证有效期 颁发日期	2015年12月12日
本证有效期 颁发日期 中 心 主 任	2015年12月12日

国家防爆	
-	编号: CNEx13.0199X
制造单位	常州西玛特电器有限公司
产品名称	(希州新北区春江镇魏州新华村) 防爆压力式温度控制器
型号规格	WDF 250V AC 6A
防爆标志	Ex nC II A TI Ge
产品标准	Q/3204 BPH 005-2012
总装图号	WD.02
IEC60079-0; 2 IEC60079-15;	007《爆炸性环境 第 0 部分: 设备 通用要求》 2010《爆炸性环境 第 15 部分: "n"型保护的设备》
iEC60079-0; 2 IEC60079-15; 记 事	007《爆炸性环境 第 0 部分: 设备 通用要求》 2010《爆炸性环境 第 15 部分: "n"型保护的设备》 本产品适用于 R600a 制冷剂系列电冰箱。
ユンバユン() un IEC60079-0; 2 IEC60079-15; 记 事 本证有效期	<ul> <li>007《爆炸性环境 第 0 部分: 设备 通用要求》</li> <li>2010《爆炸性环境 第 15 部分: "n"型保护的设备》</li> <li>本产品适用于 R600a 制冷剂系列电冰箱。</li> <li>2015 年 1 月 26 日至 2020 年 1 月 25 日</li> </ul>
IEC60079-0: 2       IEC60079-15:       记 事       本证有效期       颁发日期	<ul> <li>007《爆炸性环境 第 0 部分: 设备 通用要求》</li> <li>2010《爆炸性环境 第 15 部分: "n"型保护的设备》</li> <li>本产品适用于 R600a.制冷剂系列电冰箱。</li> <li>2015 年 1 月 26 日至 2020 年 1 月 25 日</li> <li>2015 年 1 月 26 日</li> </ul>
<ul> <li>注:(1) 12(2) 141</li> <li>IEC60079-0; 2</li> <li>IEC60079-15;</li> <li>记 事</li> <li>本证有效期</li> <li>颁发日期</li> <li>中心主任</li> </ul>	007《爆炸性环境 第0部分: 没备 通用要求》 2010《爆炸性环境 第15部分: "n"型保护的设备》 本产品适用于 R600a 制冷剂系列电冰箱。 2015年1月26日至2020年1月25日 2015年1月26日
正C60079-0: 2         IEC60079-15:         记 事         本证有效期         颁发日期         中心主任         (Ex)	007《爆炸性环境 第 15 部分: "n" 型保护的设备》         本产品适用于 R600a 制冷剂系列电冰箱。         本产品适用于 R600a 制冷剂系列电冰箱。         2015年1月26日至2020年1月25日         2015年1月26日         ジロジェ         家防爆电气产品质量监督检验

9575 2575 1342 6288 查询方式: www.china-ex.com

Sec. 5 ILL-And Report





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# 防爆电气设备 防爆合格证

# 编号: CNEx16.2597X

制	造	单	位	浙江昌德成电器有限公司 (浙江省乐清市虹桥镇东工业区(钱家洋))
产		名	称	防爆门灯开关
型	号	规	格	HC-050K.4 250V AC 2.5A/125V AC 5A
防	爆	标	志	Ex nC II A T1 Gc
ř	뮵	标	准	Q/CDC.004-2016
总	装	冬	号	5399-3603130300

经对上述产品图样及技术文件的审查和样品检验,确认符合下列标准: GB3836.1-2010《爆炸性环境 第 1 部分:设备 通用要求》 GB3836.8-2014《爆炸性环境 第 8 部分: 由"n"型保护的设备》

记事	<ol> <li>本证可代表产品:防爆标志: Ex nC II A T1 Ge HC-050K.4, HC-050K.5, 250V AC 2.5A/125V AC 5A。</li> <li>本产品适用于 R600a 制冷剂系列电冰箱。</li> </ol>
本证有效期	2016年8月19日至2021年8月18日
颁发日期	2016年8月19日
中 心 主 任	JA Press
Ex CQST NAN YANG	国家防爆电气产品质 监督检验中心 <sup>地址:中国河南省南阳市仲景北路20号 邮政编码: 473008</sup> 电话: 0377-63258564 传真: 0377-63208175 Http://www.china-ex.com

注:本证书仅对与认可文件和样品一致的产品有效。 登陆网站 输入数码 查询真伪 5308 8538 1107 8017 查询方式: www.china-ex.com

	CERTIFICATE OF CONFORMITY
》/为/泰 ~	
	Cert. No.: CNEx 14.3155X
Manufacturer	SHENZHEN GOODPAL ELECTRONICS CO.,LTD (Address: C Rm,28/F, 3th Building, Scientific R &D Garden of Chines Technology Developing Institute, South 1th Road of Hi & New-Tech Zone Shenzhen, P.R.China)
Name of Product	Push switch
Type of Product	P29 250VAC 6A
Marking	Ex nC IIA T1 Gc
Standard	Q/BR 02-2014
Drawing No. The drawings, technic safety as below: IEC 60079-0: 2011 E IEC 60079-15: 2010	P29-00.00 cal documents and the samples are verified and certified according to standard(s) for Explosive atmospheres - Part 0: Equipment - General requirements Explosive atmospheres - Part 15: Equipment protection by type of protection 'n'
Drawing No. The drawings, technic safety as below: IEC 60079-0: 2011 E IEC 60079-15: 2010	P29-00.00 cal documents and the samples are verified and certified according to standard(s) for Explosive atmospheres - Part 0: Equipment - General requirements Explosive atmospheres - Part 15: Equipment protection by type of protection 'n' This product is applicable to the refrigerator series with coolant 8600a
Drawing No. The drawings, technic safety as below: IEC 60079-0: 2011 E IEC 60079-15: 2010 Note 1. 2.	P29-00.00 cal documents and the samples are verified and certified according to standard(s) for Explosive atmospheres - Part 0: Equipment - General requirements Explosive atmospheres - Part 15: Equipment protection by type of protection 'n' This product is applicable to the refrigerator series with coolant R600a. This certification also covers the following models: Ex-marking: Ex nC IIA T1 Ge
Drawing No. The drawings, technic safety as below: IEC 60079-0: 2011 E IEC 60079-15: 2010 Note 1. 2.	P29-00.00 cal documents and the samples are verified and certified according to standard(s) for Explosive atmospheres - Part 0: Equipment - General requirements Explosive atmospheres - Part 15: Equipment protection by type of protection 'n' This product is applicable to the refrigerator series with coolant R600a. This certification also covers the following models: Ex-marking: Ex nC IIA T1 Gc P29, 250VAC, 6A, 250VAC, 2.5A.
Drawing No. The drawings, technic safety as below: IEC 60079-0: 2011 E IEC 60079-15: 2010 Note 1. 2. Valid Date Free	P29-00.00 cal documents and the samples are verified and certified according to standard(s) for Explosive atmospheres - Part 0: Equipment - General requirements Explosive atmospheres - Part 15: Equipment protection by type of protection 'n' This product is applicable to the refrigerator series with coolant R600a. This certification also covers the following models: Ex-marking: Ex nC IIA T1 Gc P29, 250VAC, 6A, 250VAC, 2.5A.
Drawing No. The drawings, technia safety as below: IEC 60079-0: 2011 E IEC 60079-15: 2010 Note 1. 2. Valid Date Fro Issue Date No	P29-00.00 cal documents and the samples are verified and certified according to standard(s) for Explosive atmospheres - Part 0: Equipment - General requirements Explosive atmospheres - Part 15: Equipment protection by type of protection 'n' This product is applicable to the refrigerator series with coolant R600a. This certification also covers the following models: Ex-marking: Ex nC IIA T1 Gc P29, 250VAC, 6A, 250VAC, 2.5A.
Drawing No. The drawings, technic safety as below: IEC 60079-0: 2011 E IEC 60079-15: 2010 Note 1. 2. Valid Date Fro Issue Date Not	P29-00.00 cal documents and the samples are verified and certified according to standard(s) for Explosive atmospheres - Part 0: Equipment - General requirements Explosive atmospheres - Part 15: Equipment protection by type of protection 'n' This product is applicable to the refrigerator series with coolant R600a. This certification also covers the following models: Ex-marking: Ex nC IIA T1 Gc P29, 250VAC, 6A, 250VAC, 2.5A. om Nov 26, 2014 to Nov 25, 2019 ov. 26, 2014
Drawing No. The drawings, technic safety as below: IEC 60079-0: 2011 E IEC 60079-15: 2010 Note 1. 2. Valid Date From State Note Director	P29-00.00 cal documents and the samples are verified and certified according to standard(s) for Explosive atmospheres - Part 0: Equipment - General requirements Explosive atmospheres - Part 15: Equipment protection by type of protection 'n' This product is applicable to the refrigerator series with coolant R600a. This certification also covers the following models: Ex-marking: Ex nC IIA T1 Gc P29, 250VAC, 6A, 250VAC, 2.5A. on Nov 26, 2014 to Nov 25, 2019 ov. 26, 2014
Drawing No. The drawings, technic safety as below: IEC 60079-0: 2011 E IEC 60079-15: 2010 Note 1. 2. Valid Date From the second	P29-00.00 cal documents and the samples are verified and certified according to standard(s) for Explosive atmospheres - Part 0: Equipment - General requirements Explosive atmospheres - Part 15: Equipment protection by type of protection 'n' This product is applicable to the refrigerator series with coolant R600a. This certification also covers the following models: Ex-marking: Ex nC IIA T1 Gc P29, 250VAC, 6A, 250VAC, 2.5A. om Nov 26, 2014 to Nov 25, 2019 ov. 26, 2014 THIS PROTECTED FLECENCIAL PRODUCTS

Sec. 5 ILL-2 And Report



# Electrical Apparatus for Explosive Atmospheres

#### Cer. No.: CNEx14.2665X

Manufacturer	Zhejiang Changdecheng Electric Appliances Co.,Ltd. (Add: East-town Zone,Hongqiao,Yueqing,Zhejiang,China)	
Name of Product	Explosion-proof Door Switch	
Type of Product	E12-3 E12-1	
Marking	Ex nC IIA T1 Ge	
Standard	Q/CDC.002-2014	

Drawing No.

The drawings, technical documents and the samples are verified and certified according to standard(s) for safety as below: IEC60079-0: 2007 Explosive atmospheres – Part 0: Equipment–General requirements

IEC60079-0: 2	2007	Explosive atmospheres – Part 0: Equipment–General requirements.
IEC60079-15:	2010	Explosive atmospheres - Part 15: Equipment protection by type of protection "n".
		그는 것 같은 것 같

Note

This product can be used only in Refrigerator that adopt R600a as refrigerant.

Valid Date

From October 28, 2014 to October 27, 2019

Issue Date

October 28, 2014

Director



# CHINA NATIONAL QUALITY SUPERVISION AND TEST CENTRE FOR EXPLOSION PROTECTED ELECTRICAL PRODUCTS

Address: No.20 North Zhongjing Rd, Nanyang, Henan 473008), P.R. China Tel: 0377-63258564 Fax: 0377-63208175 Http://www.china-ex.com

Note: This certificate is only valid for the products which identify with the sample(s) tested and verified. Holder(s) of this certificate have the responsibility to ensure the products complying with relavant standard(s).

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HanDian Electric Appliance Co.,Ltd.



# Refrigerator

Ningbo HanDian Electric Appliance Co., Ltd.







File SA44289	Vol. 1	Sec. 6	Page 1	Issued:	2017-11-25
		and Report		Revised:	2019-05-08

DESCRIPTION

PRODUCT COVERED:

USL, CNL Household Refrigerator-freezer Models KD-93F, NPWHI, NPYXX, NPYXU.

GENERAL:

The model is cord-connected household Refrigerator-freezer, No automated defrost systems are employed. The model employs Refrigerant R-600a (flammable refrigerant, classified as Class3 "Higher Flammability" by ASHRAE34). The volume of the Refrigeration compartment is 63.6L and the volume of the freezer compartment is 25.2L.

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

USL - Products designated USL have been investigated using requirements contained in the Standard for Safety of Household and Similar Electrical Appliances, Part 1: General Requirements, UL 60335-1, and for Household and Similar Electrical Appliances, Part 2: Particular Requirements for Refrigerating Appliances, Ice-Cream Appliances and Ice-Makers, UL 60335-2-24.

CNL - Products designated CNL have been investigated using requirements contained in Standard for Safety of Household and Similar Electrical Appliances, Part 1: General Requirements, CAN/CSA-22.2 No.60335-1:11, and for Household and Similar Electrical Appliances, Part 2: Particular Requirements for Refrigerating Appliances, Ice-Cream Appliances and Ice-Makers, CAN/CSA-22.2 No.60335-2-24-06.

RATINGS:

See MARKING.

File SA44289	Vol. 1	Sec. 6	Page 2	Issued:	2017-11-25
		and Report			

#### INSTRUCTIONS:

Instructions shall be provided with the appliance so that the appliance can be used safely. If it is necessary to take precautions during user maintenance, appropriate details shall be given. Refer to ILL. 1 for details.

The instruction shall provide the following information.

- This appliance 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.
- If the SUPPLY CORD is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified person in order to avoid a hazard.
- 3. A child entrapment warning statement shall be included in either the operating instructions or in a use and care manual provided with each refrigerator and shall include the following or equivalent wording: \*Take off the doors \*Leave the shelves in place so that children may not easily climb inside.
- 4. For appliances which use flammable insulation blowing gases, the instructions shall regarding disposal of the appliance.
- 5. For appliances which use flammable refrigerants, the instructions the instructions shall include information pertaining to the installation, handling, servicing and disposal of the appliance.

6. For models used with Refrigerant R600a, the instruction shall provide following warning.

- WARNING: Keep ventilation openings, in the appliance enclosure or in the built-in structure, clear of obstruction.

- WARNING: Do not damage the refrigerant circuit.

- WARNING: Do not use electrical appliances inside the food storage compartments of the appliance, unless they are of the type recommended by the manufacturer.

7. The instructions include the following wording or equivalent regarding the use of extension cords: Do not use extension cords or ungrounded (two prong) adapters.

For units to be sold in Canada, instruction shall be in English and French.

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		and Report		New:	2019-05-08

MODEL DIFFERENCES:

Model NPWHI is identical to model KD-93F except for model designation. Model NPYXX is identical to model KD-93F except for model designation. Model NPYXU is identical to model KD-93F except for model designation.

File S.	A44289	Vol. 1	Sec. 6 and Report	P	age 3	Issued:	2017-11-25		
CONSTR	UCTION DETA	ILS:							
10 1	MARKING:								
10-5	Nameplate Ma	arking		Recogn	ized (PGI	Q2,8)			
Model				KD-93F					
Materi	al		-						
Manufacturer				See Sec. Gen.					
Recognized Designation				See Sec. Gen.					
Location			Unit Rear or unit sides or side of Refrigeration compartment cabinet liner						
Secu	red By			Adhesi	ve				
Listee	Name		-	See Cover Page					
Refrig	erant								
- Tyj	pe		-	R600a					
- Am	ount, g		-	34					
Design	Pressure								
High	Side, psig	(Not require	ed)	362.5					
Low	Side, psig	(Not required	d)	127.6					
Electr	ical Rating								
V			-	115					
A -	(Refrigerat	ion)(Total)	-	2.0					
Freq	uency, Hz			60					
Date C	ode		-	Year a	nd Week				

Models above assembled with the following refrigeration system:

Nameplate	Compressor	Cond. ILL.	Evap. ILL.	Capillary Code
footnote				No.
01	VY53R16B	3	4	CT1

KD-93F

### 10-10 Special Marking

#### Model

1A.	Type or Material	Same as nameplate or mold on rear cabinet
	Manufacturer	See Sec. Gen.
	Recognized Designation	See Sec. Gen.
	Location	Unit side
	Quote Marking	Cyclopentane
	Marking Letter Size	Min. 16.2 mm in height
Model		KD-93F
2A.	Type or Material	Same as nameplate or mold on unit rear
	Manufacturer	See Sec. Gen.
	Recognized Designation	See Sec. Gen.
	Location	Near any evaporator can be contacted by the consumer
	Quote Marking	DANGER - Risk Of Fire Or Explosion.
		Flammable Refrigerant Used. Do Not Use
		Mechanical Devices To Defrost Refrigerator.
		Do Not Puncture Refrigerant Tubing.
	Marking Letter Size	Min. 6.4 mm in height
	Special Comments	This marking is optional for models which
		the evaporator cannot be contacted by
		consumer.
2В.	Type or Material	Same as nameplate or mold on unit rear
	Manufacturer	See Sec. Gen.
	Recognized Designation	See Sec. Gen.
	Location	Unit Rear, near the machine compartment
	Quote Marking	DANGER - Risk Of Fire Or Explosion.
		Flammable Refrigerant Used. To Be Repaired
		Only By Trained Service Personnel. Do Not
		Puncture Refrigerant Tubing.
	Marking Letter Size	Min. 6.4 mm in height
2C.	Type or Material	Same as nameplate or mold on unit rear
	Manufacturer	See Sec. Gen.
	Recognized Designation	See Sec. Gen.
	Location	Unit Rear, near the machine compartment
	Quote Marking or equivalent	CAUTION - Risk Of Fire Or Explosion.
		Flammable Refrigerant Used. Consult Repair
		Manual/Owner's Guide Before Attempting To
		Service This Product. All Safety
		Precautions Must be Followed.
	Marking Letter Size	Min. 6.4 mm in height

10-10 Special Marking (Cont'd)

Model

2D. Type or Material Manufacturer Recognized Designation Location Quote Marking

Marking Letter Size

- 2E. Type or Material Manufacturer Recognized Designation Location Quote Marking
- Marking Letter Size 2F. Type or Material Manufacturer Recognized Designation Location Quote Marking or equivalent

Marking Letter Size

KD-93F Same as nameplate or mold on unit rear See Sec. Gen. See Sec. Gen. Unit Rear, near the machine compartment CAUTION - Risk Of Fire Or Explosion. Dispose Of Properly In Accordance With The Applicable Federal Or Local Regulations. Flammable Refrigerant Used. Min. 6.4 mm in height Same as nameplate or mold on unit rear See Sec. Gen. See Sec. Gen. Near any exposed refrigerant tubing CAUTION - Risk Of Fire Or Explosion Due To Puncture Of Refrigerant Tubing; Follow Handling Instructions Carefully. Flammable Refrigerant Used. Min. 6.4 mm in height Same as nameplate See Sec. Gen. See Sec. Gen.

Unit Rear, near the machine compartment



Min. 16.2 mm in height

2G.	Type or Material	Painted or colored
	Location	Refrigeration service tube
Marking		Refrigeration tubing or other devices through
	which the refrigerant is intended to be	
		serviced shall be painted or colored red,
		Pantone® Matching System (PMS) No. 185. This
		color shall be present at all places where
		service puncturing or otherwise creating an
		opening in the refrigerant circuit might be
		expected. In the case of a process tube on a
		compressor, the color mark shall extend at
		least 2.5 cm (1 inch) from the compressor.

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20	ENCLOSURES:						
20-5	Ultimate End	closure					
Model				KD-93F			
Appro (incl	ximate Physic uding door),	cal Size H x W x D, n	nm	834 x 4	75 x 535		
20-10	Unit Base						
Model			_	All			
Mater	ial		_	Steel			
Thick	ness, mm.		_	Minimum	0.4		
Corro	sion Protect	ion (Method)	_	Zinc Coa	ated		
Bondi	ng for Ground	ling (Method)	_	Screw-co base	onnected w	ith machine c	compartment
20-15	Unit Sides/5	Гор					
Model			_	All			
Mater	ial		_	Steel			
Thick	ness, mm.		_	Minimum	0.4		
Corro	sion Protect	ion (Method)	_	Painted			
Bondi	ng for Ground	ding (Method)	_	Screw-co	onnected w	ith unit base	e .
20-20	Compressor S	Support Plate	2				

Model Material Minimum Thickness, mm Corrosion Protection (Method) Bonding for Grounding (Method)

Marking

All Steel Minimum 1.0 Painted or Zinc Coated By grounding wiring of the power supply cord. Protective earth symbol shall be adjutant to the earthing terminal

File SA44289 Vol. 1 Sec. 6 and Repo	Page 7 Issued: 2017-11-25 rt				
20-25 Unit Rear					
Model	KD-93F				
Material	Steel				
Thickness, mm	Minimum 0.25				
Compressor Compartment Opening H x W, mm	203 x 410				
Corrosion Protection (Method)	Zinc Coated				
Bonding for Grounding (Method)	By screws or rivets to Compressor Compartment Sides				
20-30 Cabinet Liner					
Model	All				
Material	Polymeric, See Section 30 for details				
20-35 Unit Doors					
Model	All				
Material	Steel				
Thickness, mm	2				
Corrosion Protection (Method)	Painted				
Bonding for Grounding (Method)	Not Required				
20-40 Cabinet Door Liner					
Model	KD-93F				
Material	Polymeric, See Section 30 for details				
20-45 Door Hinges	See ILL.2 for detail.				
20-50 Compressor Compartment Sides					
Model	All				
Material	Steel				
Thickness, mm	Minimum 0.25				
Corrosion Protection (Method)	Zinc Coated				
Bonding for Grounding (Method)	By screws or bolts or rivets to Unit Sides				
20-55 Door Latching Device					
Model	KD-93F				
Туре	Magnetic gasket				
Comments	Around Freezer and refrigerator Compartment door.				

File SA44289	Vol. 1	Sec. 6 and Repor	Page 8 t	Issued:	2017-11-25		
20-60 Thermostat Model Location Material Method of Secure Components Withi Comments	ement n	- - - - -	KD-93F In fresh food co Polymeric, See S Secured to Cabin thermostat and S See FIG.6 for de	ompartment Section 30 f net Liner by Lampholder etails	for details screws		
20-65 Drip Pan Model Location Material Dimension, W x D x H, mm Thickness, mm. + Method of Securement Comments			ALL Inside Machine Compartment, above Compressor Polymeric, see Section 30 for details 230 x 100 x 53 2.0 Clipped on the compressor by buckle. The drip pan is not flat to make sure the water flows along the intended side of it when overflow.				
20-70 Lamp Guai	rd						
Model			KD-93F				
Location			In fresh food	compartment			
No. Of Lamp Guar	rd:		1				
Material			Polymeric, see	Section 30	for details		
Dimension, W x L x H, mm			59x82x53				
Thickness, mm	-		2.0				
Method of Secure	ement		Secured to The and tab	rmostat Box	by screw		
Components Withi	n		Lampholder				
Comments			See ILL.12 for	details			

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30 NONMETALLIC COMPONENTS:

Model	KD-93F
Cabinet Liner (Vacuum Formed)	Recognized (QMFZ2)
Manufacturer	Various
Material Designation	ABS
Thickness, mm. (minimum) +	1.5
Flammability Classification (minimum)	HB
Door Liner (Vacuum Formed)	Recognized (QMFZ2)
Manufacturer	Various
Material Designation	Various
Thickness,mm. (minimum) +	1.0
Flammability Classification (minimum)	HB
Thermostat Box body	Recognized (QMFZ2)
Manufacturer	Chi Mei Corporation (E56070)
Material Designation	PA-765
Thickness, mm (minimum)	2.0
Flammability Classification (minimum)	5VB

+ - Minimum thickness of sheet stock before forming.

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NONMETALLIC COMPONENTS (CON'T):									
KD-	-93F								
ent Rec	cognized (QMFZ2)								
Vai	rious								
Vai	Various								
HB									
KD-	-93F								
Rec	Recognized (QMFZ2)								
CHI	CHI MEI CORPORATION (E56070)								
PH-	PH-879								
2.0	)								
V-(	)								
	Sec. 6 and Report ON'T): ent Rec Van Van HB KD- Rec CHI PH- 2.0 V-0	Sec. 6 Page 10 and Report ON'T): Ent KD-93F Recognized (QMFZ2) Various HB KD-93F Recognized (QMFZ2) CHI MEI CORPORATIO PH-879 2.0 V-0	Sec. 6 Page 10 Issued: and Report ON'T): MD-93F ent Recognized (QMFZ2) Various Various HB KD-93F Recognized (QMFZ2) CHI MEI CORPORATION (E56070 PH-879 2.0 V-0						

30-5 Isolation From Ignition Sources

Model

All

All units wiring is Recognized (AVLV2, AVLV8 or CSA Certified) and rated VW-1, FT-1 or Listed SJT (rated FT-1 or FT-2) power cord. All wiring is routed and secured within the machine compartment or the cabinet liner. All wiring connectors shall be recognized with suitable rating. All wire splices are totally insulated and there are no exposed live parts. There are no open coils or exposed high voltage parts.

File SA44289	Vol. 1	Sec. 6 and Report	Page 11	Issued:	2017-11-25		
40 REFRIG	ERATION SYSTEM:						
40-5 Conden	ser	Re	cognized				
Model		KI	93F				
Manufacturer		CH	ENGHONG Electr	cic Co., Ltd	l		
Corrosion Pr	otection (Method	l) Ga	lvanization				
Mounting (Me	thod)	Su	pported by the d embedded in	e cabinet li the foam ma	ner bracket terial		
Bonding for	Grounding (Metho	od) Th	rough tubing t	o compresso	r		
Type of Cons	truction	Tu	be on plate				
Tube on plat	e	Ur	it Left Side	Unit Ri	aht Side		
Physical S	ize, mm	70	5*420	705*420	9		
Plate Mate	rial	St	Steel				
Plate Thic	kness, mm	0.	0.5				
Tubing Mat	erial	Ga	Galvanized steel				
Tubing OD,	mm	4	4				
Tubing Wal	l Thickness,	0.	0.5				
Total Tube L	ength, mm	10	10100				
Comments		Se	e ILL. 3 for d	letails			
+ - Inform	ation required i	f not a Recogr	nized Component	-			
40-10 Evapor	ator	Re	Recognized (SLSV2)				
Model		KI	)-93F				
Manufacturer		CH	CHENGYUAN Electric Co., Ltd				
Corrosion Pr	otection (Method	l) In	Inherent				
Mounting (Me	thod)	Su	Supported by the cabinet liner bracket and Embedded in the foam material				
Bonding for	Grounding (Metho	od) Th	rough tubing t	compresso	r		
Type of Cons	truction	Τυ	be on plate				
Tubing Mater	ial	Al	uminum				
Tubing OD, m	m	7.	5				
Tubing Wall	Thickness, mm	0.	75				
Total Tube L	ength, mm	41	.00				
Comments		Se	e ILL. 4 for d	letails.			

+ - Not required if a Recognized Component.

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40-15 Pressure Re	lief						
Model			KD-93F				
Means Provided			Soldered or B	razed Joint			
Location			Refrigeration	tubing joints			
40-20 Drier							
Model			KD-93F				
Material			Copper				
Length, mm.			85				
OD, mm.			16				
Wall Thickness, m	m		0.5				
Location			Machine Compartment				
Corrosion Protect	ion (Method)		Inherent				
40-25 Refrigerant	Control						
Model			KD-93F				
Capillary Tube - 1	No. Provided		1				
Material			Copper				
OD, mm			1.9				
Wall Thickness,	mm		0.55				
Length, mm			2000				
Capillary Tubing ( inspector use)	Code (Not fo	r	CT1				
40-30 Refrigeratio	on System Jo	ints					
Model			KD-93F				
Method of Joining			Soldered or B	razed Joint			
		-	Refrigeration	tubing joints	5		

Note: Copper-aluminum transition joints are painted or enclosed by sleeve to prevent galvanic corrosion.

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50 MOTOR - COMPRESSOR ASSEMBI	-Y:
50-5 Compressor	Recognized (SLIS2, 8)
Model	KD-93F
Manufacturer	JIANGSU BAIXUE ELECTRIC APPLIANCES CO LTD(SA13327)
Designation	VY53R16B
Electrical Rating Volts	115
RLA (Not for Inspector Use)	0.9
LRA	5.4
Phase	1
Cycle	60
Bonding for Grounding (Method)	No. 18 AWG green colored ground wire from compressor terminal block to unit base. Each end of the ground wire is secured with a closed eyelet and screw with nut. Eyelets on painted surfaces are provided with serrated-head washers to break the paint
Overload Protector	External, Recognized (YFZW2, 8)
Manufacturer	Hangzhou Star Shuaier (E213160)
Designation	DRB21N61A1
Location	Compressor Terminal Enclosure
Special Comments (Not for Inspec Use)	The OLP complies with IEC 60079-15, Group IIA used. See ILL. 7.
Compressor Start Assist Device+	Recognized (SDFY2, 8)
Model	KD-93F
Туре	PTC
Manufacturer	HANGZHOU STAR SHUAIER ELECTRIC
Designation	APPLIANCE CU., LTD (E2323/1)
Designation	<u>Vrz-4K</u> / Compressor Terminal Enclosuro
	COMPLESSOL LETWINGT FUCTOSATE

File	SA44289	Vol. 1	Sec. 6 Page 14 Issued: 2017-11-25 and Report
70	ELECTRICAL	COMPONENTS:	
70-5	Temperature	Controller	Recognized (SDFY2, 8)
Model Use (	Loads Control	led)	KD-93F Compressor
Manuf	acturer		JIUJIANG HENGTONG AUTO CONTROL DEVICE CO., LTD(E225669)
Desig Ratin Locat Mount Bondi	nation Ig, FLA/LRA/V Lion (Physical Ling Ing for Ground	ac ) ing (Method)	WDF series 6A/36A/125V In the fresh food compartment Screws to thermostat enclosure. A green/yellow ground wire is secured to the thermostat mounting plate and to the grounding
Speci	al Comments		terminal of the compressor. This model complies with IEC 60079-15. See ILL. 9
Note: 70-25	Located in Lamp holder	ungrounded side	e of power supply Recognized (SEVS2, 8)
Model			KD-93F
Manuf	acturer		ZHEJIANG CHANGDECHENG ELECTRIC APPLIANCES CO LTD (E350559)
Desig	nation		E12-1, E12-3
Ratin	ıg		125V, 75W
Locat	ion		In the fresh food compartment
Mount	ing		Snap-fit into Temperature Controller Enclosure
Preve	ented from tur	ning by:	By retaining groove
			This model complies with IEC 60079-15. (See ILL. 10)
70-30	Door Switch	es	Recognized (WOYR2, 8)
Model			KD-93F
Use (	Loads Control	led)	Lamps
Manuf	acturer		ZHEJIANG CHANGDECHENG ELECTRIC APPLIANCES CO LTD (E239938)
Desig	nation		HC-050K.4
Ratin	ıg		125V , 60Hz, 5A
Locat	ion (Physical	)	Cabinet Liner (Fresh Food Compartment)
Mount	ing		Rectangular switch is snap-fitted into rectangular opening
Comme	ents		The switch complies with IEC 60079-15. (See ILL. 8).

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80 INTERNAL WIRING:

80-5 Types

Recognized (AVLV2) appliance wiring material(1), Listed cords or Listed insulated wiring as described below. Wiring which is color-coded green or green with one or more yellow stripes is employed on grounding conductors only.

Model

All

				II		
	Wire	Wire	Minimum	Minimum Wall	Minimum	
	Туре	Style	Wire Size	Thickness,	Temperature	Minimum
Key No.	(2)	No. (3)	AWG	mm	Rating, °C	Rating, V
1	AWM	1015	18	0.79	105	600
2	AWM	1007	18	2.0	80	300

(1) Acceptable for refrigeration use.

(2) Appliance wiring material, cord type or Listed wire type.

(3) Applies only to Recognized appliance wiring material.

(4) Information on the voltage and temperature ratings for the insulation of wiring that has a marked National Electrical Code Type designation need not be provided.

(+) Integral with Recognized fan motor.

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80-10 Wiring Methods

All wiring is installed and positively routed in such a manner that it is not subject to mechanical damage due to contact with sharp edges, abrasive surfaces, vibrating or moving parts. Exposed lengths of ripped parallel conductors do not exceed 3 mm.

Wiring, wiring connectors which are accessible without tools shall be protected with supplementary electrical insulation. 1 mm thick (minimum) electrical insulation is required unless specified differently in this Report.

Supplementary tubing used as electrical insulation as mentioned as above shall be secured on both ends by positive means. (cable tie, heat shrink, etc.)

All wiring connectors shall be Recognized with suitable rating and enclose live part totally.

Green or green with yellow stripe wire may be employed only as grounding conductors. Splices are not employed in grounding conductors unless otherwise noted in the Report.

Holes for the passage of wires or cords through walls, panels or barriers have smooth, rounded surfaces or are provided with smoothly rounded bushings.

All splices are mechanically secured to a fixed member or located in a separate enclosure.

Unless otherwise noted all wires terminate in quick-connect or eyelet type materials.

Wiring diagrams shown in ILL. Model 5 KD-93 File SA44289 Vol. 1 Sec. 6 Page 17 Issued: 2017-11-25 and Report

80-10 Wiring Methods (CONT'D)

Model

All

Wiring is employed as follows:

			Specify all details of wire routing			
No From	Specify the	alactrical	means of isolating from combustible			
NO. PIOM	specity the	erectricar				
Previous	components o	connected to	materials, Recognized splice and wire			
Page	the wiring	described	connecting lead terminations, etc.			
Key No.	From	То	Details			
1	Power	Compressor	Wiring located in machine compartment			
	supply		shall be enclosed by supplementary			
	cord		insulation (YDPU2, 8, Rated 1mm thick			
			minimum, VW-1, 600V minimum).			
2	Compressor	Lamp	Routed within cabinet liner. Wiring			
			located in machine compartment and			
			evaporator compartment shall be enclosed			
			by supplementary insulation(YDPU2, 8,			
			Rated 1mm thick minimum, VW-1, 600V			
			minimum).			
2	Compressor	Temperatur	Routed within cabinet liner. Wiring			
		e control	located in machine compartment and			
			evaporator compartment shall be enclosed			
			by supplementary insulation(YDPU2, 8,			
			Rated 1mm thick minimum VW-1 600V			
			minimum)			

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90 SUPPLY CONNECTIONS:	
90-5 Cord Connected Unit	
Model	KD-93F
Power Supply Cord Set	Listed ELBZ, 7
Туре	SJT
Size, AWG	18
Attachment Plug Rating, V, A	125V,15A
Strain Relief Means	Supply cord is pressed between a two- piece plastic clamp that is secured to the cabinet base by two screws. refer to ILL.11 for dimension
Cord Length, ft	5 Minimum, 10 Maximum
Grounding Conductor Color	Green With or Without Yellow Stripes
Securement of Grounding Conductor	
Location	Compressor Support Plate
Means	By screw and ring

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100	SHELVING AN	ND DRAWERS:				
100-5	Shelves					
Model			K	ID-93F		
Α.	Location		R	efrigeration Compa	rtment	
	Material		G	lass	Glass	
	Dimensions, W),Approxim	, mm. (D x mate	3	91x280	391×180	
	Thickness,	mm.	3	.2	3.2	
	No. of She	lves	1		1	
	Method of S	Support	I 1	ntegral guides for iner	med in the cabinet	
	Method of 1	Restraint	В	By slot on the end of both sides		
100-1	0 Crisper di	rawer - Optic	onal			
Model			A	.11		
Locat	ion		В	ottom of unit cabi	net	
Mater	ial		P	lastic, see Sectio	n 30 for details	
Dimen Appro	sions, mm. ximate	(D x W x H)	1	60x394x200		
Thick	ness, mm.		2	.0		
No. o	f Drawers		1			
Metho Shelv	d of Support es See 100-1	t (If Cantile 15)	ever D F	)irect support on t Treezer Food Compar	he bottom of tment	
Metho	d of Restra	int	N	I/A		

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## Figure Index

Fig. No.	Comments
1	Unit Front
2	Unit Front with door open
3	Unit Rear
4	Unit Upper
5	Unit Left
6	Control Box
7	Compressor terminal cover
8	Machine Compartment

#### Illustration Index

ILL. No.	Comments
1	Instruction Manual
2	Door Hinges
3	Condenser
4	Evaporator
5	Wiring Diagram and Nameplate
6	Exploded View
7	IEC 60079-15 (for Group IIA gases or the flammable
	refrigerant) Certificate of compressor overload
	protector model DRB21N61A1
8	IEC 60079-15 (for the flammable refrigerant R600a)
	Certificate of Switch
9	IEC 60079-15 (for the flammable refrigerant R600a)
	Certificate of Thermostat
10	IEC 60079-15 (for the flammable refrigerant R600a)
	Certificate of lamp holder
11	Strain Relief Device
12	Lamp guard



C172055599













C172055605



# **User Manual**

Model Number: KD-93F

Refrigerator-Freezer

BEFORE USE, PLEASE READ AND FOLLOW ALL SAFETY RULES AND OPERATING INSTRUCTIONS.

Dear customers,

1
Thank you for purchasing our product. In order to ensure your safety and achieve the best using effect, please read this instruction manual carefully.

Before you start:

- Read all the instructions before using. Keep this manual for future reference.
- Warning: Never try to use this appliance for applications or in a way which is not described in the instruction, otherwise severe hazards may occur.
- Do not use the appliance in a dusty environment or in an explosive atmosphere (inflammable gases, vapors, vapors from organic solvents).
- This appliance is intended for HOUSEHOLD USE ONLY and not for commercial or industrial use.

General safety advice

• Keep the appliance out of reach for children! Do not allow children to play with appliance.

This warning is not for EUROPEAN market:

This appliance 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. This warning is only for EUROPEAN market only:

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or

instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without

supervision.

- Unplug the appliance from outlet when not in use, before putting on or taking off parts, before cleaning.
- Make sure to place the plug all the way into socket when connecting your appliance.
- Insert the plug into a single grounded socket.
- Never use the appliance in place where combustible and inflammable materials are kept.
- For safety reason, be sure to repair or replace parts at an authorized service dealers.

2

- If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its services agent.
- The motor is permanently lubricated and will require no oil.
- The appliance must be positioned so that the plug is accessible.
- Please according to local regulations regarding disposal of the appliance for its flammable blowing gas. Before you scrap the appliance, please take off the doors to prevent children trapped.

This appliance is intended to be used in household and similar applications such as

- staff kitchen areas in shops, offices and other working environments;
- farm houses and by clients in hotels, motels and other residential type environments;
- bed and breakfast type environments;
- catering and similar non-retail applications.

Leave the shelves in place so that children may not easily climb inside.

 WARNING: Keep ventilation openings, in the appliance enclosure or in the built-in structure, clear of obstruction.

- WARNING: Do not use mechanical devices or other means to accelerate the defrosting

process, other than those recommended by the manufacturer

- WARNING: Do not damage the refrigerant circuit.

- WARNING: Do not damage the refrigerant circuit.

Do not use extension cords or ungrounded (two prong) adapter

## . Tips and Hints

3

- 1.Fresh foods such as fish and meat can be frozen to maintain freshness, and keep the nutrients in the food
- 2.Food should be wrapped in aluminum foil, or some other type of airtight packing.
- 3.Do not allow frozen food in freezer to touch foods just placed into freezer. It can damage the food.
- 4. Frozen foods from the store should be placed in the freezer promptly, so they do not thaw.
- 5.Never place fresh vegetables and fruits into the freezer as they can get freezer burn.

II. Caution Of Safety

 $1.\ensuremath{\text{Individual single-phase socket}}$  must be used. It should be reliably connected to a grounding wire.

Caution: Do not connect grounding wire to a water or gas pipe.

- 2. no storing strong base, strong acid, organic solvent and corrosive goods together with food.
- 3.Do not pour water directly onto the freezer, which may cause declining of insulation and corrosiveness.
- 4.When the refrigerator will no be used for a long time, disconnect the power cord then clean it. Please examine the wiring circuit before using it.
- 5. refer to the Trouble Shooting references when the unit is facing some problems. Do not attempt to solve the problem on your own, please refer to certified technician only.
- III. Caution for using.
  - 1. Unpack all packages before using the refrigerator. Do not topple it over more than 60° while moving it. Even though it can be moved slowly with the universal wheels under its base, the wheels were not meant for uneven ground usage which may damage it and other parts if used vigorously.
  - 2.Place the freezer at your desired place and do not operate it for at least 1 hour. The refrigerator should be installed in the environment of good ventilation, cool and dry. Avoid placing it nearby heat generating equipment and under direct sunlight. When installing, the universal wheels should be padded firmly so as to avoid excess vibration and noise.
  - 3.After 1 hour the refrigerator should be run emptily upon initial operation. Please turn the thermostat knob to 7 and food can be stored just after 4 hours of initial running. Food must occupy 1/3 of the storage area and evenly arranged. They must be wrapped in plastic bags to obtain the original freshness and taste.

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4.Temperature can be adjusted by using the thermostat. Clock wised turning will decrease the temperature whilst anti-clockwise to increase. Figures shown indicate the temperature level: 3-5 for normal, 0 for stop running and 6 for continuously running.

Caution: No 7 can only be used if the foods need to be frozen quickly.

- 5.Do not frequently open and shut the refrigerator door to avoid lost of cooling effect and to save energy.
- 6.The surface and inside of the refrigerator should be kept clean at all time to avoid body rust.
- 7.Generally, clean the refrigerator after every 30-45 days of usage. Please use soft cloth moistened in neutral soapsuds or detergent.

Caution: Please unplug the power cord before cleaning the unit.

The lamp cannot be replaced by the user or anyother people .

### Warranty Information

The manufacturer provides warranty in accordance with the legislation of the customer's own country of residence, with a minimum of 1 year (Germany: 2 years), starting from the date on which the appliance is sold to the end user.

The warranty only covers defects in material or workmanship.

The repairs under warranty may only be carried out by an authorized service centre. When making a claim under the warranty, the original bill of purchase (with purchase date) must be submitted.

The warranty will not apply in cases of:

- Normal wear and tear
- Incorrect use, e.g. overloading of the appliance, use of non-approved accessories
- Use of force, damage caused by external influences

5

Damage caused by non-observance of the user manual, e.g. connection to an unsuitable mains supply or non-compliance with the installation instructions
Partially or completely dismantled appliances

Correct Disposal of this product

This marking indicates that this product should not be disposed with other household wastes. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

 Old appliances still have some residual value. An environmentally friendly method of disposal will ensure that valuable raw materials can be recovered and used again.
 The refrigerant used in your appliance and insulation materials requires special disposal procedures. Ensure that none of the pipes on the back of the appliance are damaged prior to disposal. Up to date information concerning options for disposing of your old appliance and packaging from the new one can be obtained from your local council office.

Service:

If you have any problems , please address the website www.kaifeng.com, and contact with KEG service.

Ningbo Han Dian Electric Appliance Co., Ltd. East Guanhaiwei Industrial Zone, Cixi, Ningbo, 315314 P.R. China

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Ningbo HanDian Electric Appliance Co., Ltd.





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IBEXU Institut für Sicherheitstechnik GmbH An-Institut der Technischen Universität Bergekertemke Freiberg

Sec. 6

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## REPORT

## IB-07-8-022

# about the experimental testing of enclosed-break devices (Translation)

Temperature controller type DRB series

Freiberg, 22 May 2007 Hi/Diet/Leh

Dipl.-ing. (FH) Hille Editor

This document consists of:

6 pages text 2 Annexes

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Profilaboratorium und Zerüffzierungsstelle ab Gerlis auf Schutzgeitene auf bedommensstellen Sesendung in enformengelittenfen Brauchen in Street um RL-61-7943 "Bemannte Stelle" (EU-Kenne-Nr. 0637)

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IBEXU Institut für Sicherheitstechnik GmbH Page 2 REPORT 18-07-8-022 about the experimental testing of enclosed-break devices 1 Order The VDE Prüf- and Zertifizierungsinstitut in 63069 Offenbach (GERMANY) engaged with the letter 5001300-4510-0004/83602 of 26 February 2007 the IBExU Institut für Sicherheitstechnik GmbH with the experimental testing of the Temperature controller type DRB series in explosive atmosphere regarding the proof of type of protection enclosed-break devices according to IEC/EN 60079-15:2005, paragraph 33.4. 2 **Test item** Temperature controller **DRB** series Type: ~ 120 V Voltage: --max. 20 A Current: cos phi: 0.6--20 °C up to max. 150 °C Service temperature range: . **Test documents** 3 Letter 5001300-4510-0004/83602 of the customer of 26 February 2007 EN 60079-15:2005 (complies with IEC 60079-15:2005, ed. 3) 7 pieces of Temperature controller type DRB-42V61A1 The test items were delivered to IBExU on 01 March 2007. 4 **Test execution** 4.1 **Objectives** It was the task to examine experimentally the ignition safety (the non-ignition of an explosive atmosphere) of the Temperature controllers for gases and vapors of the Group IIA with the parameters specified under chapter 2. The bases of the test are the requirements in IEC/EN 60079-15:2005, Paragraph 33.4, for enclosed-break devices. 02-

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In the context of these examinations there was not the task to check the constructive requirements for apparatus in type of protection "n" (apparatus for zone 2) for the compliance with IEC/EN 60079-15.

## 4.2 Description of the test item

The Temperature controllers serve for the protection of motor compressors at refrigerating appliances. A special black plastic base serves as support part of the functional parts, a plastic lid is pressed in on the top side. Inside is a bimetal contact bridge and below is a heating element. At one side of the plastic case a plug contact 6.3 mm is led to the outside and on the lid is a second contact as a socket. Heating element and bimetal plate are connected with the motor winding in row. All gaps were sealed with glue.

The free internal volume of the switch chamber is less than 20 cm<sup>3</sup> (about 1 cm<sup>3</sup>). The enclosures of the test samples were equipped with a thread and a hose connection. So it was possible to fill the switch chamber with the test gas. A second bore hole with hose connection serves for the discharge of the test gas during the purging and also for the uptake of the thermocouple.

## 4.3 Requirements in IEC/EN 60079-15:2005

Enclosed-break devices are devices, which incorporate electrical contacts that are made and broken. These devices will withstand an internal explosion of the flammable gas or vapor which may enter it without suffering damage and without communicating the internal explosion to the external flammable gas or vapor.

Before the tests any removable seals have to be removed. Any remaining non-metallic parts will have been subjected to the conditioning lest described in paragraph 33.3.2. These parts have to be stored continuously for four weeks in an ambience of 90 % relative humidity and at a temperature of 10 K above the maximum temperature in rated service. In case of a maximum service temperature above 85 °C the period of four weeks pecified above will be replaced by a period of two weeks at 95 °C and 90 % relative humidity followed by a period of two weeks at 95 °C and 90 % relative humidity followed by a period of two weeks at a temperature of 10 K above the maximum temperature in rated service. After that, a storage for 24 hrs at a temperature of 5 K below the minimal ambient temperature temperature of out.

Then the test of the enclosed-break devices according to paragraph 33.4.3 will be carried out. The explosive gas atmosphere fixed for the Group IIA, IIB or IIC has to be ignited inside the device by the operation of the enclosed contacts when connected to the maximum rated source of energy, power and load in terms of voltage, current, frequency and power factor.

A make and break test shall be repeated 10 times with a fresh gas mixture for each test.

After the test the device shall show no visible signs of damage; no external ignition shall occur and there shall be no failure to clear the arc when the switch contacts are opened.

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## 4.4 Description of the test equipment

The test equipment is schematically shown in annex 1 of this report. It consists of the following equipment and means of work:

## Explosion chamber

The explosion chamber essentially consists of a cylindrical container (Placryl) with a bursting foil mounted on the top. The volume amounts 18 dm<sup>3</sup>.

in the base plate and at the cylinder are introduced and sealed the instrument leads and the supply lines.

#### Conditioning of the test gas mixture

The explosive gas atmosphere required for the Group IIA (6.5 %  $\pm$  0.5 % ethylene, 93.5 %  $\pm$  0.5 % air) was processed in the explosion chamber by volumetric gas conditioning. Dosage equipment with Digital Mass Flow Controllers served for this.

The homogeneous mixture conditioning was ensured by Ilushing the explosion chamber and the test item with the explosive gas/air mixture. The burning gas quota (ethylene) in the explosion chamber was checked in addition for the maintenance of the permissible tolerance with gas interferometer according to Rayleigh-Haber-Löwe.

## Measuring device for electrical parameters

The predefined electrical load of the switching contacts was made by switching on ohmic resistors and inductances in the AC circuit.

With a Wide Band Power Analyzer D 6100 (manufacturer: Norma) the required parameters current, voltage and power factor were measured during the examining operation and registered with an 8-channel recorder type LR 8100 (manufacturer: YOKOGAWA). The ignition in the test item was perceived acoustically and recorded by the temperature rise by means of a thermocouple. For that, a thermocouple was introduced into the tube connection at the test item after the mixture conditioning. The temperature course was recorded with the recorder LR 8100.

#### Test of thermal endurance

The test of thermal endurance occurs in conditioning and refrigeration cabinets which are also used for the thermal endurance tests according to EN 60079-0.

All used measuring instruments are included in the Quality Management System of IBExU certified according to ISO 9001. They are checked in regular intervals.

### 4.5 Test procedure and results

#### 4.5.1 Test of thermal endurance

According to IEC/EN 60079-15, 33.3.2 the test samples were stored for two weeks at 95 °C heat and 90 % rel. humidity, two weeks at 160 °C heat as well as for 24 hrs at -25 °C cold. No damages were noticed at the following visual examination.

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## 4.5.2 Pre-test

Before the ignition tests specified in IEC/EN 60079-15 were carried out it had to be made sure that the appearing switching spark in the case can be considered as an effective ignition source for the test gas. To this, pre-tests were carried out at a Temperature controller, whose enclosure was opened.

At the test parameters 120 V AC, 20A and  $\cos \varphi$  0.6 the ignition of the explosive gas mixture caused by the break spark could be proved (see Annex 2.1).

## 4.5.3 Type test

The tests were carried out on 02 May 07. In accordance with IEC/EN 60079-15, 33.4.3.2 eleven tests have to be carried out with a sample, which has the most adverse dimensions permitted by the construction drawings. There are no statements regarding the gaps of the test samples. To make sure the test results, four test samples were included into the test program.

The respective Temperature controller (originally closed) to be tested was put into the explosion chamber. The specified explosive gas atmosphere required for the Group IIA ( $6.5 \pm 0.5$ ) % ethylene/air mixture was processed in the explosion chamber and in the enclosure of the test item.

The contacts of the Temperature controller were operated with the preset test parameters. The ignition of the explosive gas atmosphere inside the test item occurred by the break spark.

The test results are summarised in the table. For some tests the test parameters are recorded in the annexes 2.2 and 2.5. Sec. 6

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Test	Taata	Elec	trical parame	Ignition of the explosive atmosphere		
sample	16565	U [V]	I [A]	cos φ	Inside the test item	outside
1 a	2	120	14	0.6	yes	no
1 b	1	120	14	0.6	yes	no
1 c	1	130	14	0.6	yes	no
2	11	120	14	0.6	yes	no
3	11	120	14	0.6	yes	no
4	11	120	14	0.6	yes	no

Only two respectively one ignition tests could be carried out with test samples 1a, 1b and 1c , because the Temperature controller did not work then any more.

At none of the ignition tests the explosion triggered in the enclosure of the Temperature controllers was transfered to the outer explosive atmosphere. No damages were noticed at the case.

## 5 Summary

It was noticed with the examinations that the Temperature controller type DRB series at the conditions mentioned under 2 has the ignition safety (the non-ignition of an explosive atmosphere) fixed in IEC/EN 60079-15:2005 according to type of protection enclosed-break device for gases and vapors of the Group IIA. The explosions triggered inside the switching chamber by the break spark did not ignite the explosive mixture surrounding the device.

The assessment of the constructive design of the Temperature controllers regarding to the compliance with the requirements of IEC/EN60079-15 for apparatus of the type of protection "n" (apparatus for zone 2) was not object of these examinations.

The test result exclusively refers to the Temperature controller type DRB series specified under chapter 2.

## Annexes

Annex 1 Annex 2 Schematic setup of the test equipment Representation of the test parameters (4 sheets)

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IBEXU institut für Sicherheitstechnik GmbH Annex 1 to report 18-07-8-021 8-Channel Recorder LR 8100 Explosive Atmosphere Hose Pump Outlet Thermocouples Annex 1: Schematic setup of the test equipment NN 87 \*\*\*\*\*\* Venting Explosion Chamber Power analyzer Venting Foil Test item Check of the burning gas quota with Gas interferomater œ Conditioning of the Explosive Atmosphere Docaçie Valve Power supply Control Gas X  $\delta \rangle$ 



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