

<b>TEST REPORT</b> <b>IEC 60335-1</b> <b>Safety of household and similar electrical appliances</b>	
<b>Report Number</b> .....	: HC.T210105065CE-S
<b>Date of issue</b> .....	: January 5, 2021
<b>Total number of pages</b> .....	: 181
<b>Name of Testing Laboratory preparing the Report</b> .....	Shenzhen HC testing technology Co., LTD. XingZhongBao Business Building,Fuyong Avenue, Fuyong Street,Bao'an District,ShenZhen,Guangdong,China
<b>Applicant's name</b> .....	: Zhejiang Feiniu Fitness Equipment Co. LTD
<b>Address</b> .....	: Block 2, Huzhai Long, Jiaodao Town, Wuyi County, Jinhua City, Zhejiang Province
<b>Test specification:</b>	
<b>Standard</b> .....	: IEC 60335-1:2010/COR1:2010/COR2:2010 /AMD1:2013/COR1:2014/AMD2:2016/COR1:2016
<b>Test procedure</b> .....	: Type test
<b>Non-standard test method</b> .....	: N/A
<b>Test Report Form No.</b> .....	: IEC60335_1X
<b>Master TRF</b> .....	: Dated 2016-10
<b>Copyright © 2016 IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE System). All rights reserved.</b>  This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.  If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.	
<b>General disclaimer:</b>	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.	

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building,Fuyong Avenue,Fuyong Street,Bao'an District,ShenZhen,Guangdong,China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

Test item Description.....:	Treadmill
Trademark.....:	N/A
Model and/or type reference.....:	F400, F380, F1
Manufacturer.....:	Zhejiang Feiniu Fitness Equipment Co. LTD
Address.....:	Block 2, Huzhai Long, Jiaodao Town, Wuyi County, Jinhua City, Zhejiang Province
Rating(s).....:	AC 220-240V~,50/60Hz,Max.625W
<b>Testing procedure and testing location</b>	
Test Laboratory.....:	Shenzhen HC testing technology Co., LTD
Testing location.....:	XingZhongBao Business Building,Fuyong Avenue,Fuyong Street,Bao'an District,ShenZhen,Guangdong,China
Tested by.....:	Duck zhang/Test Engineer
Checked by.....:	Edward tang/Project Engineer
Approved by.....:	Peter Liu/Project Manager
	
<b>Client</b>	
Name.....:	Zhejiang Feiniu Fitness Equipment Co. LTD.
Address.....:	Block 2, Huzhai Long, Jiaodao Town, Wuyi County, Jinhua City, Zhejiang Province
<b>List of Attachments(including a total number of pages in each attachment):</b>	
<b>Attachment No.1:</b> EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES(12 pages).	
<b>Attachment No.2:</b> The test report IEC 60204-1(15 pages).	
<b>Attachment No.3:</b> The test report ISO 12100:2010(61 pages).	
<b>Attachment No.4:</b> European group differences and national differences of IEC 60204-1 and ISO 12100:2010(4 pages).	
<b>Attachment No.5:</b> Product photos(2 pages).	
<b>Summary of testing:</b> Tests performed(name of test and test clause): The submitted samples were found to comply with The requirements of: -Electrical safety IEC 60335-1:2010/COR1:2010/COR2:2010 /AMD1:2013/COR1:2014/AMD2:2016/COR1:2016 EN60335-1:2012+A11:2014+A13:2017	<b>Testing location:</b>  Shenzhen HC testing technology Co., LTD. XingZhongBao Business Building,Fuyong Avenue,Fuyong Street,Bao'an District, ShenZhen,Guangdong,China

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building,Fuyong Avenue,Fuyong Street,Bao'an District,ShenZhen,Guangdong,China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

**Summary of compliance with National Differences (List of countries addressed):**

List of countries addressed: National Differences and Group Differences as per CB bulletin. See attachment of National and Group Differences for details

**Copy of marking plate:**

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

<b>Product</b>	treadmill	<b>Model name</b>	<b>F400</b>
<b>Voltage</b>	220-240V~	<b>Trade Mark</b>	NA
<b>Frequency</b>	50Hz	<b>Rated current</b>	3A
<b>Manufacturer: Zhejiang Feiniu Fitness Equipment Co. LTD</b>			
<b>Address: Block 2, Huzhai Long, Jiaodao Town, Wuyi County, Jinhua City, Zhejiang Province</b>			
			

**Remarks:**

Markings of all models are identical except for the model and outward.

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Test item particulars</b> ..... : -	
<b>Classification of installation and use</b> ..... : Stationary appliance, Class I	
<b>Supply Connection</b> ..... : Detachable power cord with a plug used	
<b>Possible test case verdicts:</b>	
- test case does not apply to the test object..... : N/A	
- test object does meet the requirement ..... : P (Pass)	
- test object does not meet the requirement..... : F (Fail)	
<b>Testing</b> .....	
<b>Date of receipt of test item</b> ..... : 2020-12-18	
<b>Date (s) of performance of tests</b> ..... : From 2020-12-18 to 2021-1-5	
<b>General remarks:</b>	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.	
Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	
<b>Manufacturer's Declaration per sub-clause 4.2.5 of IEC60335-1:</b>	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided..... :	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
<b>When differences exist; they shall be identified in the General product information section.</b>	
<b>Name and address of factory (ies)</b> ..... : <b>Block 2, Huzhai Long, Jiaodao Town, Wuyi County, Jinhua City, Zhejiang Province</b>	
<b>General product information:</b>	
1. The appliance is used indoor only.	
2. The appliance connects to main supply by detachable power cord with a plug.	
3. The laboratory ambient for testing: 23.0-25.0°C, 60%-73%R.H	
4. All tests are conducted on model F400, the other model same as the main model except the appearance and the enclosure dimension.	

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
<b>5</b>	<b>GENERAL CONDITIONS FOR THE TESTS</b>		
	Tests performed according to clause 5, e.g. nature of supply, sequence of testing, etc.		P
<b>6</b>	<b>CLASSIFICATION</b>		
6.1	Protection against electric shock: Class 0, 0I, I, II, III.....:	Class I	P
	For a class III construction with a detachable power supply part the appliance is classified according to the detachable power supply part		N/A
6.2	Protection against harmful ingress of water	IPX0	N/A
<b>7</b>	<b>MARKING AND INSTRUCTIONS</b>		
7.1	Rated voltage or voltage range (V).....:	220-240V	P
	Symbol for nature of supply, or.....:	~	P
	Rated frequency (Hz) .....	50Hz	P
	Rated power input (W), or .....		N/A
	Rated current (A) .....	3A	P
	Manufacturer's or responsible vendor's name, trademark or identification mark .....	Zhejiang Feiniu Fitness Equipment Co. LTD	P
	Model or type reference.....:	F400	P
	Symbol IEC 60417-5172, for class II appliances		N/A
	IP number, other than IPX0 .....	IPX0	N/A
	Symbol IEC 60417-5180, for class III appliances, unless		N/A
	the appliance is operated by batteries only, or		N/A
	for appliances powered by rechargeable batteries recharged in the appliance		N/A
	Symbol IEC 60417-5018, for class II and class III appliances incorporating a functional earth		N/A
	Symbol IEC 60417-5036, for the enclosure of electrically-operated water valves in external hose-sets for connection of an appliance to the water mains, if the working voltage exceeds extra-low voltage		N/A
7.2	Warning for stationary appliances for multiple supply		N/A
	Warning placed in vicinity of terminal cover		N/A
7.3	Range of rated values marked with the lower and upper limits separated by a hyphen	220-240V	P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Different rated values marked with the values separated by an oblique stroke		N/A
7.4	Appliances adjustable for different rated voltages or rated frequencies, the voltage or the frequency setting is clearly discernible		N/A
	Requirement met if frequent changes are not required and the rated voltage or rated frequency to which the appliance is to be adjusted is determined from a wiring diagram		N/A
7.5	Appliances with more than one rated voltage or one or more rated voltage ranges, marked with rated input or rated current for each rated voltage or range, unless		P
	the power input or current are related to the arithmetic mean value of the rated voltage range		N/A
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		P
7.6	Correct symbols used		P
	Symbol for nature of supply placed next to rated voltage		P
	Symbol for class II appliances placed unlikely to be confused with other marking		N/A
	Units of physical quantities and their symbols according to international standardized system		P
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply, unless		N/A
	correct mode of connection is obvious		N/A
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		--
	- marking of terminals exclusively for the neutral conductor (letter N)		N/A
	- marking of protective earthing terminals (symbol IEC 60417-5019)		P
	- marking of functional earthing terminals (symbol IEC 60417-5018)		N/A
	- marking not placed on removable parts		P
7.9	Marking or placing of switches which may cause a hazard		P
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means .....		P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	This applies also to switches which are part of a control		N/A
	If figures are used, the off position indicated by the figure 0		P
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		P
7.11	Indication for direction of adjustment of controls		N/A
7.12	Instructions for safe use provided		P
	Details concerning precautions during user maintenance		P
	The instructions state that:		--
	- the appliance is not to be used 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		P
	- children being supervised not to play with the appliance		P
	For a part of class III construction supplied from a detachable power supply unit, the instructions state that the appliance is only to be used with the unit provided		N/A
	Instructions for class III appliances state that it must only be supplied at SELV, unless		N/A
	it is a battery-operated appliance, the battery being charged outside the appliance		N/A
	For appliances for altitudes exceeding 2000 m, the maximum altitude is stated.....:		N/A
	The instructions for appliances incorporating a functional earth states that the appliance incorporates an earth connection for functional purposes only		N/A
7.12.1	Sufficient details for installation supplied		N/A
	For an appliance intended to be permanently connected to the water mains and not connected by a hose-set, this is stated		N/A
	If different rated voltages or different rated frequencies are marked, the instructions state what action to be taken to adjust the appliance		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
7.12.2	Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules		N/A
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions state that the fixed wiring must be protected		N/A
7.12.4	Instructions for built-in appliances:		--
	- dimensions of space		N/A
	- dimensions and position of supporting and fixing		N/A
	- minimum distances between parts and surrounding structure		N/A
	- minimum dimensions of ventilating openings and arrangement		N/A
	- connection to supply mains and interconnection of separate components		N/A
	- allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless		N/A
	a switch complying with 24.3		N/A
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		N/A
	Replacement cord instructions, type Y attachment		P
	Replacement cord instructions, type Z attachment		N/A
7.12.6	Caution in the instructions for appliances incorporating a non-self-resetting thermal cut-out that is reset by disconnection of the supply mains, if this cut-out is required to comply with the standard		N/A
7.12.7	Instructions for fixed appliances stating how the appliance is to be fixed		N/A
7.12.8	Instructions for appliances connected to the water mains:		--
	- max. inlet water pressure (Pa) .....:		N/A
	- min. inlet water pressure, if necessary (Pa) .....:		N/A
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N/A
7.12.9	Instructions specified in 7.12 and from 7.12.1 to 7.12.8 appear together before any other instructions supplied with the appliance		P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	These instructions may be supplied with the appliance separately from any functional use booklet		N/A
	They may follow the description of the appliance that identifies parts, or follow the drawings/sketches		N/A
	In addition, instructions are also available in an alternative format such as on a website or on request from the user in a format such as a DVD		N/A
	In addition, instructions are also available in an alternative format such as on a website or in a format such as a DVD .....		P
7.13	Instructions and other texts in an official language	English language	P
7.14	Markings clearly legible and durable:		P
	Signal words WARNING, CAUTION, DANGER in uppercase having a height as specified .....		P
	Uppercase letter of the text explaining the signal word not smaller than 1,6 mm .....		P
	Moulded in, engraved, or stamped markings either raised above or have a depth below the surface of at least 0,25 mm, unless		N/A
	contrasting colours are used		N/A
	Markings checked by inspection, measurement and rubbing test as specified		P
7.15	Markings on a main part		P
	Marking clearly discernible from the outside, if necessary after removal of a cover		P
	For portable appliances, cover can be removed or opened without a tool		N/A
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		P
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		N/A
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading		P
	The symbol IEC 60417-5018 placed next to the symbol IEC 60417-5172 or IEC 60417-5180		N/A
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
<b>8</b>	<b>PROTECTION AGAINST ACCESS TO LIVE PARTS</b>		
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	Requirement applies for all positions, detachable parts removed		P
	Lamps behind a detachable cover not removed, if conditions met		N/A
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N/A
	Use of test probe B of IEC 61032, with a force not exceeding 1 N: no contact with live parts		P
	Use of test probe B of IEC 61032 through openings, with a force of 20N: no contact with live parts		P
8.1.2	Use of test probe 13 of IEC 61032, with a force not exceeding 1 N, through openings in class 0 appliances and class II appliances/constructions: no contact with live parts		P
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		P
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61032, with a force not exceeding 1 N: no contact with live parts of visible glowing heating elements or supporting parts		N/A
	For a single switching action obtained by a switching device, requirements as specified		N/A
	For appliances with a supply cord and without a switching device, the single switching action may be obtained by the withdrawal of the plug		N/A
8.1.4	Accessible part not considered live if:		--
	- safety extra-low a.c. voltage: peak value not exceeding 42.4 V		N/A
	- safety extra-low d.c. voltage: not exceeding 42.4 V		P
	- or separated from live parts by protective impedance		P
	If protective impedance: d.c. current not exceeding 2 Ma, and		N/A
	a.c. peak value not exceeding 0.7 mA		P
	- for peak values over 42.4 V up to and including 450 V, capacitance not exceeding 0,1 $\mu$ F		P
	- for peak values over 450 V up to and including 15 Kv, discharge not exceeding 45 $\mu$ C		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>IEC 60335-1</b>			
Clause	Requirement + Test	Result - Remark	Verdict
	- for peak values over 15Kv, the energy in the discharge not exceeding 350 Mj		N/A
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		--
	- built-in appliances		N/A
	- fixed appliances		N/A
	- appliances delivered in separate units		N/A
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only		P
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
<b>9</b>	<b>STARTING OF MOTOR-OPERATED APPLIANCES</b>		
	Requirements and tests are specified in part 2 when necessary		N/A
<b>10</b>	<b>POWER INPUT AND CURRENT</b>		
10.1	Power input at normal operating temperature, rated voltage and normal operation not deviating from rated power input by more than shown in table 1 ...:	(see appended table)	P
	If the power input varies throughout the operating cycle and the maximum value of the power input exceeds, by a factor greater than two, the arithmetic mean value of the power input occurring during a representative period, the power input is the maximum value that is exceeded for more than 10 % of the representative period		N/A
	Otherwise the power input is the arithmetic mean value		N/A
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		P
	the rated power input is related to the arithmetic mean value		N/A
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2 .....	(see appended table)	N/A
	If the current varies throughout the operating cycle and the maximum value of the current exceeds, by a factor greater than two, the arithmetic mean value of the current occurring during a representative period, the current is the maximum value that is exceeded for more than 10 % of the representative period		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Otherwise the current is the arithmetic mean value		N/A
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N/A
	the rated current is related to the arithmetic mean value of the range		N/A
<b>11</b>	<b>HEATING</b>		
11.1	No excessive temperatures in normal use		P
11.2	The appliance is held, placed or fixed in position as described .....		P
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless		N/A
	the windings are non-uniform or it is difficult to make the necessary connections		N/A
11.4	Heating appliances operated under normal operation at 1.15 times rated power input (W) .....		N/A
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V) .....	1.06x240V	P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V) .....		N/A
11.7	Operation duration corresponding to the most unfavourable conditions of normal use		P
11.8	Temperature rises monitored continuously and not exceeding the values in table 3 .....	(see appended table)	P
	If the temperature rise of a motor winding exceeds the value of table 3, or		N/A
	if there is doubt with regard to classification of insulation,		N/A
	tests of Annex C are carried out		N/A
	Sealing compound does not flow out		P
	Protective devices do not operate, except		P
	components in protective electronic circuits tested for the number of cycles specified in 24.1.4		N/A
<b>13</b>	<b>LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE</b>		
13.1	Leakage current not excessive and electric strength adequate		P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>IEC 60335-1</b>			
Clause	Requirement + Test	Result - Remark	Verdict
	Heating appliances operated at 1.15 times the rated power input (W) .....		N/A
	Motor-operated appliances and combined appliances supplied at 1.06 times the rated voltage (V).....	1.06x240V	P
	Protective impedance and radio interference filters disconnected before carrying out the tests		P
13.2	The leakage current is measured by means of the circuit described in Figure 4 of IEC 60990:1999		P
	For class 0I appliances and class I appliances, except parts of class II construction, C may be replaced by a low impedance ammeter		P
	Leakage current measurements .....	(see appended table)	P
13.3	The appliance is disconnected from the supply		P
	Electric strength tests according to table 4.....	(see appended table)	P
	No breakdown during the tests		P
<b>14</b>	<b>TRANSIENT OVERVOLTAGES</b>		
	Appliances withstand the transient over-voltages to which they may be subjected		N/A
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6 .....	(see appended table)	N/A
	No flashover during the test, unless		N/A
	of functional insulation if the appliance complies with clause 19 with the clearance short-circuited		N/A
<b>15</b>	<b>MOISTURE RESISTANCE</b>		
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance	IPX0	N/A
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		N/A
	No trace of water on insulation which can result in a reduction of clearances or creepage distances below values specified in clause 29		N/A
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529.....		N/A
	Water valves containing live parts in external hoses for connection of an appliance to the water mains tested as specified for IPX7 appliances		N/A
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Built-in appliances installed according to the instructions		N/A
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		N/A
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		N/A
	For IPX3 appliances, the base of wall mounted appliances is placed at the same level as the pivot axis of the oscillating tube		N/A
	For IPX4 appliances, the horizontal centre line of the appliance is aligned with the pivot axis of the oscillating tube, and		N/A
	for appliances normally used on the floor or table, the movement is limited to two times 90° for a period of 5 min, the support being placed at the level of the pivot axis of the oscillating tube		N/A
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N/A
	Appliances normally fixed to a ceiling are mounted underneath a horizontal unperforated support, the pivot axis of the oscillating tube located at the level of the underside of the support, and		N/A
	for IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Detachable parts subjected to the relevant treatment with the main part		N/A
	However, if a part has to be removed for user maintenance and a tool is needed, this part is not removed		N/A
15.2	Spillage of liquid does not affect the electrical insulation		N/A
	Spillage solution comprising water containing approximately 1 % NaCl and 0,6 % rinsing agent		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Appliances incorporating an appliance inlet tested with or without an connector, whichever is most unfavourable		N/A
	Detachable parts are removed		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Overfilling test with additional amount of the solution, over a period of 1 min (l) .....		N/A
	The appliance withstands the electric strength test of 16.3		N/A
	No trace of water on insulation that can result in a reduction of clearances or creepage distances below values specified in clause 29		N/A
15.3	Appliances proof against humid conditions		P
	Checked by test Cab: Damp heat steady state in IEC 60068-2-78		P
	Detachable parts removed and subjected, if necessary, to the humidity test with the main part		N/A
	Humidity test for 48 h in a humidity cabinet	25°C, 93%, 48hours	P
	Reassembly of those parts that may have been removed		N/A
	The appliance withstands the tests of clause 16		P
<b>16</b>	<b>LEAKAGE CURRENT AND ELECTRIC STRENGTH</b>		
16.1	Leakage current not excessive and electric strength adequate		P
	Protective impedance disconnected from live parts before carrying out the tests		P
	Tests carried out at room temperature and not connected to the supply		P
16.2	Single-phase appliances: test voltage 1.06 times rated voltage (V) .....	1.06x240V	P
	Three-phase appliances: test voltage 1.06 times rated voltage divided by $\sqrt{3}$ (V) .....		N/A
	Leakage current measurements .....	(see appended table)	P
	Limit values doubled if:		--
	- all controls have an off position in all poles, or		N/A
	- the appliance has no control other than a thermal cut-out, or		N/A
	- all thermostats, temperature limiters and energy regulators do not have an off position, or		N/A
	- the appliance has radio interference filters		N/A
	With the radio interference filters disconnected, the leakage current do not exceed limits specified.....	(see appended table)	N/A
16.3	Electric strength tests according to table 7.....	(see appended table)	P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>IEC 60335-1</b>			
Clause	Requirement + Test	Result - Remark	Verdict
	Test voltage applied between the supply cord and inlet bushing and cord guard and cord anchorage as specified.....:	(see appended table)	P
	No breakdown during the tests		P
<b>17</b>	<b>OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS</b>		
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use .....	(see appended table)	P
	Appliance supplied with 1.06 or 0.94 times rated voltage under the most unfavourable short-circuit or overload likely to occur in normal use (V).....:		P
	Basic insulation is not short-circuited		P
	Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K		P
	Temperature of the winding not exceeding the value specified in table 8		P
	However, limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N/A
<b>18</b>	<b>ENDURANCE</b>		
	Requirements and tests are specified in part 2 when necessary		N/A
<b>19</b>	<b>ABNORMAL OPERATION</b>		
19.1	The risk of fire, mechanical damage or electric shock under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe .....	(see appended table)	P
	Appliances incorporating heating elements subjected to the tests of 19.2 and 19.3, and		N/A
	if the appliance also has a control that limit the temperature during clause 11 it is subjected to the test of 19.4, and		N/A
	if applicable, to the test of 19.5		N/A
	Appliances incorporating PTC heating elements are also subjected to the test of 19.6		N/A
	Appliances incorporating motors subjected to the tests of 19.7 to 19.10, as applicable		P
	Appliances incorporating electronic circuits subjected to the tests of 19.11 and 19.12, as applicable		P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building,Fuyong Avenue,Fuyong Street,Bao'an District,ShenZhen,Guangdong,China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Appliances incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11		N/A
	Appliances incorporating voltage selector switches subjected to the test of 19.15		N/A
	Unless otherwise specified, the tests are continued until a non-self-resetting thermal cut-out operates, or		N/A
	until steady conditions are established		P
	If a heating element or intentionally weak part becomes open-circuited, the relevant test is repeated on a second sample		N/A
19.2	Test of appliances with heating elements with restricted heat dissipation; test voltage (V), power input of 0.85 times rated power input (W) .....		N/A
19.3	Test of 19.2 repeated; test voltage (V), power input of 1.24 times rated power input (W) .....		N/A
19.4	Test conditions as in clause 11, any control limiting the temperature during tests of clause 11 short-circuited		N/A
19.5	Test of 19.4 repeated on Class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the sheath		N/A
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N/A
	The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during the test of 19.4		N/A
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions		N/A
	The working voltage of the PTC heating element is increased by 5% and the appliance is operated until steady conditions are re-established. The voltage is then increased in similar steps until 1.5 times working voltage or until the PTC heating element ruptures (V).....		N/A
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque, or		N/A
	locking moving parts of other appliances		P
	Locked rotor, capacitors open-circuited one at a time		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Test repeated with capacitors short-circuited one at a time, unless		N/A
	the capacitor is of class S2 or S3 of IEC 60252-1		N/A
	Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed .....		N/A
	An electronic timer or programmer that operates to ensure compliance with the test before the maximum period under the conditions of Clause 11 is reached, is a protective electronic circuit		N/A
	Other appliances supplied with rated voltage for a period as specified.....		P
	Winding temperatures not exceeding values specified in table 8.....	(see appended table)	P
19.8	Multi-phase motors operated at rated voltage with one phase disconnected		N/A
19.9	Running overload test on appliances incorporating motors intended to be remotely or automatically controlled or liable to be operated continuously		N/A
	Motor-operated and combined appliances for which 30.2.3 is applicable and that use overload protective devices relying on electronic circuits to protect the motor windings, are also subjected to the test		N/A
	Winding temperatures not exceeding values as specified .....	(see appended table)	N/A
19.10	Series motor operated at 1.3 times rated voltage for 1 min (V) .....		N/A
	During the test, parts not being ejected from the appliance		N/A
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless		P
	they comply with the conditions specified in 19.11.1		N/A
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8, unless		N/A
	restarting does not result in a hazard		N/A
	Appliances having a device with an off position obtained by electronic disconnection, or a device placing the appliance in a stand-by mode, subjected to the tests of 19.11.4		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	If the safety of the appliance under any of the fault conditions depends on the operation of a miniature fuse-link complying with IEC 60127, the test of 19.12 is carried out		P
	During and after each test the following is checked:		--
	- the temperature of the windings do not exceed the values specified in table 8		P
	- the appliance complies with the conditions specified in 19.13		P
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		N/A
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided both of the following conditions are met:		--
	- the base material of the printed circuit board withstands the test of Annex E		N/A
	- any loosened conductor does not reduce clearance or creepage distances between live parts and accessible metal parts below the values specified in clause 29		N/A
19.11.1	Fault conditions a) to g) in 19.11.2 are not applied to circuits or parts of circuits meeting both of the following conditions:		--
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		N/A
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction of other parts of the appliance does not rely on the correct functioning of the electronic circuit		N/A
19.11.2	Fault conditions applied one at a time, the appliance operating under conditions specified in clause 11, but supplied at rated voltage, duration of the tests as specified:		--
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in clause 29		N/A
	b) open circuit at the terminals of any component		P
	c) short circuit of capacitors, unless		P
	they comply with IEC 60384-14		N/A
	d) short circuit of any two terminals of an electronic component, other than integrated circuits		P
	This fault condition is not applied between the two circuits of an optocoupler		P
	e) failure of triacs in the diode mode		P

## TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	f) failure of microprocessors and integrated circuits		P
	g) failure of an electronic power switching device		N/A
	Each low power circuit is short-circuited by connecting the low-power point to the pole of the supply source from which the measurements were made		N/A
19.11.3	If the appliance incorporates a protective electronic circuit that operates to ensure compliance with clause 19, the appliance is tested as specified		N/A
19.11.4	Appliances having a device with an off position obtained by electronic disconnection, or		N/A
	a device that can be placed in the stand-by mode,		P
	subjected to the tests of 19.11.4.1 to 19.11.4.7, the device being set in the off position or in the stand-by mode		P
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7, the tests being carried out after the protective electronic circuit has operated, except that		N/A
	appliances operated for 30 s or 5 min during the test of 19.7 are not subjected to the tests for electromagnetic phenomena.		N/A
	Surge protective devices disconnected, unless		N/A
	They incorporate spark gaps		N/A
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4		P
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, at frequency ranges specified		P
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as specified		P
19.11.4.4	The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5, test level 3 or 4 as specified		P
	An open circuit test voltage of 2 Kv is applicable for the line-to-line coupling mode		P
	An open circuit test voltage of 4 Kv is applicable for the line-to-earth coupling		P
	Earthed heating elements in class I appliances disconnected		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3		P
19.11.4.6	Appliances having a rated current not exceeding 16 A are subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-11		P
	Appliances having a rated current exceeding 16 A are subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-34		N/A
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2		N/A
19.11.4.8	The appliance is supplied at rated voltage and operated under normal operation. After 60s the power supply is reduced to a level such that the appliance ceases to respond or parts controlled by the programmable component cease to operate		N/A
	The appliance continues to operate normally, or		N/A
	requires a manual operation to restart		N/A
19.12	If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 60127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A).....:		P
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts		P
	Temperature rises not exceeding the values shown in table 9 .....	(see appended table)	P
	Compliance with clause 8 not impaired		P
	If the appliance can still be operated it complies with 20.2		P
	Insulation, other than of class III appliances or class III constructions that do not contain live parts, withstands the electric strength test of 16.3, the test voltage as specified in table 4:		--
	- basic insulation (V) .....	1000V	P
	- supplementary insulation (V).....:	1750V	P
	- reinforced insulation (V) .....	3000V	P
	After operation or interruption of a control, clearances and reepage distances across the functional insulation withstand the electric strength test of 16.3, the test voltage being twice the working voltage		N/A
	The appliance does not undergo a dangerous malfunction, and		P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	no failure of protective electronic circuits, if the appliance is still operable		N/A
	Appliances tested with an electronic switch in the off position, or in the stand-by mode:		--
	- do not become operational, or		N/A
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4		N/A
	If the appliance contains lids or doors that are controlled by one or more interlocks, one of the interlocks may be released provided that:		--
	- the lid or door does not move automatically to an open position when the interlock is released, and		N/A
	- the appliance does not start after the cycle in which the interlock was released		N/A
19.14	Appliances operated under the conditions of clause 11, any contactor or relay contact operating under the conditions of clause 11 being short-circuited		N/A
	For a relay or contactor with more than one contact, all contacts are short-circuited at the same time		N/A
	A relay or contactor operating only to ensure the appliance is energized for normal use is not short-circuited		N/A
	If more than one relay or contactor operates in clause 11, they are short-circuited in turn		N/A
19.15	For appliances with a mains voltage selector switch, the switch is set to the lowest rated voltage position and the highest value of rated voltage is applied		N/A
<b>20</b>	<b>STABILITY AND MECHANICAL HAZARDS</b>		
20.1	Appliances having adequate stability		P
	Tilting test through an angle of 10°, appliance placed on an inclined plane/horizontal support, not connected to the supply mains; appliance does not overturn		P
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N/A
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N/A
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury		P
	Protective enclosures, guards and similar parts are non-detachable, and		P
	have adequate mechanical strength		P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Enclosures that can be opened by overriding an interlock are considered to be detachable parts		N/A
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard by unexpected closure		N/A
	Not possible to touch dangerous moving parts with the test probe described		P
<b>21</b>	<b>MECHANICAL STRENGTH</b>		
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	Checked by applying 3 blows to every point of the enclosure like to be weak, in accordance with test Ehb of IEC 60068-2-75, spring hammer test, with an impact energy of 0,5 J	(see appended table)	P
	The appliance shows no damage impairing compliance with this standard, and		P
	compliance with 8.1, 15.1 and clause 29 not impaired		P
	If doubt, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N/A
	If necessary, repetition of groups of three blows on a new sample		N/A
21.2	Accessible parts of solid insulation having strength to prevent penetration by sharp implements		P
	Test not applicable if the thickness of supplementary insulation is at least 1 mm and reinforced insulation at least 2 mm		P
	The insulation is tested as specified, and does withstand the electric strength test of 16.3		N/A
<b>22</b>	<b>CONSTRUCTION</b>		
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled	IPX0	N/A
22.2	Stationary appliance: means to ensure all-pole disconnection from the supply being provided:		--
	- a supply cord fitted with a plug, or		P
	- a switch complying with 24.3, or		N/A
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided, or		N/A
	- an appliance inlet		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Single-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase, permanently connected class 01 and class I appliances, connected to the phase conductor		N/A
22.3	Appliance provided with pins: no undue strain on socket-outlets		N/A
	Applied torque not exceeding 0.25 Nm		N/A
	Pull force of 50N to each pin after the appliance has been placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm		N/A
	Each pin subjected to a torque of 0.4Nm; the pins are not rotating, unless		N/A
	rotating does not impair compliance with this standard		N/A
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		N/A
22.5	No risk of electric shock when touching pins, for appliances having a capacitor with rated capacitance equal to or greater than 0,1 $\mu$ F, the appliance being disconnected from the supply at the instant of voltage peak		P
	Voltage not exceeding 34 V (V).....:	8V	P
	If compliance relies on the operation of an electronic circuit, the electromagnetic phenomena tests of 19.11.4.3 and 19.11.4.4 are applied		N/A
	The discharge test is then repeated three times, voltage not exceeding 34 V (V) .....		N/A
22.6	Electrical insulation not affected by condensing water or leaking liquid		N/A
	Electrical insulation of Class II appliances not affected if a hose ruptures or seal leaks		N/A
	In case of doubt, test as described		N/A
22.7	Adequate safeguards against the risk of excessive pressure in appliances containing liquid or gases or having steam-producing devices		N/A
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use		N/A
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances, unless		P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	the substance has adequate insulating properties		N/A
22.10	Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance, if:		N/A
	- a non-self-resetting thermal cut-out is required by the standard, and		N/A
	- a voltage maintained non-self-resetting thermal cut-out is used to meet it		N/A
	Non-self-resetting thermal motor protectors have a trip-free action, unless		N/A
	they are voltage maintained		N/A
	Reset buttons of non-self-resetting controls so located or protected that accidental resetting is unlikely		N/A
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		P
	Obvious locked position of snap-in devices used for fixing such parts		N/A
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		N/A
	Tests as described		P
22.12	Handles, knobs etc. fixed in a reliable manner, if loosening result in a hazard		P
	Removing or fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible, if resulting in a hazard		P
	A choking hazard does not apply to appliances for commercial use		N/A
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		P
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		P
	If the part is removed and can be contained within the small parts cylinder, it is considered to be a choking hazard		N/A
22.13	Unlikely that handles, when gripped as in normal use, make the operator's hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P
	No exposed pointed ends of self-tapping screws or other fasteners, likely to be touched by the user in normal use or during user maintenance		P
22.15	Storage hooks and the like for flexible cords smooth and well rounded		N/A
*22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands and no undue wear of contacts	No such parts	N/A
	Cord reel tested with 6000 operations, as specified		N/A
	Electric strength test of 16.3, voltage of 1000 V applied		N/A
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N/A
22.18	Current-carrying parts and other metal parts resistant to corrosion		P
22.19	Driving belts not relied upon to provide the required level of insulation, unless		P
	constructed to prevent inappropriate replacement		N/A
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless		N/A
	material used is non-corrosive, non-hygroscopic and non-combustible		N/A
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless		P
	impregnated		N/A
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements		N/A
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements, except in class III appliances or class III constructions that do not contain live parts, adequately supported		N/A
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		N/A
22.25	Sagging heating conductors, except in class III appliances or class III constructions that do not contain live parts, cannot come into contact with accessible metal parts		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
22.26	For class III constructions the insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation		N/A
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N/A
22.28	Metal parts of Class II appliances conductively connected to gas pipes or in contact with water, separated from live parts by double or reinforced insulation		N/A
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		N/A
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		P
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		P
22.31	Neither clearances nor reepage distances over supplementary and reinforced insulation reduced below values specified in clause 29 as a result of wear		P
	Neither clearances nor reepage distances between live parts and accessible parts reduced below values for supplementary insulation if wires, screws etc. become loose		P
*22.32	Supplementary and reinforced insulation constructed or protected against pollution so that clearances or reepage distances are not reduced below the values in clause 29		P
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that reepage distances are not reduced below values specified in 29.2		N/A
	Ceramic material not tightly sintered, similar materials or beads alone not used as supplementary or reinforced insulation		N/A
	Ceramic and similar porous material in which heating conductors are embedded is considered to be basic insulation, not reinforced insulation		N/A
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
22.33	Conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts are not in direct contact with live parts, or		N/A
	unearthed metal parts separated from live parts by basic insulation only		N/A
	Electrodes not used for heating liquids		N/A
	For class II constructions, conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts, not in direct contact with basic or reinforced insulation, unless		N/A
	the reinforced insulation consists of at least 3 layers		N/A
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation, unless		N/A
	the reinforced insulation consists of at least 3 layers		N/A
	An air layer not used as basic or supplementary insulation in a double insulation system if likely to be bridged by leaking liquid		N/A
22.34	Shafts of operating knobs, handles, levers etc. not live, unless		P
	the shaft is not accessible when the part is removed		N/A
22.35	For other than class III constructions, handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation		P
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of a failure of basic insulation, are either adequately covered by insulation material or their accessible parts are separated from their shafts or fixings by supplementary insulation		N/A
	This requirement does not apply to handles, levers and knobs on stationary appliances and cordless appliances, other than those of electrical components, provided they are reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N/A
	Insulating material covering metal handles, levers and knobs withstand the electric strength test of 16.3 for supplementary insulation		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
22.36	For appliances other than class III, handles continuously held in the hand in normal use so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless		P
	they are separated from live parts by double or reinforced insulation		N/A
22.37	Capacitors in Class II appliances not connected to accessible metal parts and their casings, if of metal, separated from accessible metal parts by supplementary insulation, unless		P
	the capacitors comply with 22.42		P
22.38	Capacitors not connected between the contacts of a thermal cut-out		N/A
22.39	Lamp holders used only for the connection of lamps		N/A
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible		P
	If the appliance cannot operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation being fitted with a switch for stopping the operation. The actuating member of the switch being easily visible and accessible		N/A
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components		P
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		P
	Resistors checked by the test of 14.1 a) in IEC 60065		P
	Capacitors checked by the tests for class Y capacitors in IEC 60384-14		P
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N/A
22.44	Appliances not having an enclosure that is shaped or decorated like a toy		P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.3 due to deformation as a result of an external force applied to the enclosure		P
*22.46	For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1		N/A
	Software that contains measures to control the fault/error conditions specified in table R.2 is to be specified in parts 2 for particular constructions or to address specific hazards		N/A
	These requirements are not applicable to software used for functional purpose or compliance with clause 11		N/A
*22.47	Appliances connected to the water mains withstand the water pressure expected in normal use		N/A
	No leakage from any part, including any inlet water hose		N/A
*22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water		N/A
22.49	For remote operation, the duration of operation is to be set before the appliance can be started, unless		N/A
	the appliance switches off automatically or can operate continuously without hazard		N/A
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		N/A
22.51	There is a control on the appliance manually adjusted to the setting for remote operation before the appliance can be operated in this mode		N/A
	There is a visual indication showing that the appliance is adjusted for remote operation		N/A
	These requirements not necessary on appliances that can operate as follows, without giving rise to a hazard:		--
	- continuously, or		N/A
	- automatically, or		N/A
	- remotely		N/A
22.52	Socket-outlets on appliances accessible to the user in accordance with the socket-outlet system used in the country in which the appliance is sold		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
22.53	Class II appliances and class III appliances that incorporate functionally earthed parts have at least double insulation or reinforced insulation between live parts and the functionally earthed parts		N/A
22.54	Button cells and batteries designated R1 not accessible without the aid of a tool, unless		N/A
	the cover of their compartment can only be opened after at least two independent movements have been applied simultaneously		N/A
22.55	Devices operated to stop the intended function of the appliance, if any, are distinguished from other manual devices by means of shape, size, surface texture or position .....		P
	The requirement concerning position does not preclude use of a push on push off switch		N/A
	An indication when the device has been operated is given by:		--
	– tactile feedback from the actuator or from the appliance, or		P
	– reduction in heat output; or		N/A
	– audible and visible feedback		P
22.56	Detachable power supply part provided with the part of class III construction		N/A
22.57	The properties of non-metallic materials do not degrade from exposure to UV-C radiation, as specified in Annex T		N/A
	This requirement does not apply to glass, ceramics or similar materials		N/A
<b>23</b>	<b>INTERNAL WIRING</b>		
23.1	Wireways smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		P
	Wire holes in metal well-rounded or provided with bushings		N/A
	Wiring effectively prevented from coming into contact with moving parts		N/A
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges		N/A
	Beads inside flexible metal conduits contained within an insulating sleeve		N/A
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Flexible metallic tubes not causing damage to insulation of conductors		N/A
	Open-coil springs not used		N/A
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N/A
	No damage after 10 000 flexings for conductors flexed during normal use, or		N/A
	100 flexings for conductors flexed during user maintenance		N/A
	Electric strength test of 16.3, 1000 V between live parts and accessible metal parts		N/A
	Not more than 10% of the strands of any conductor broken, and		N/A
	not more than 30% for wiring supplying circuits that consume no more than 15W		N/A
23.4	Bare internal wiring sufficiently rigid and fixed		N/A
23.5	The insulation of internal wiring subjected to the supply mains voltage withstanding the electrical stress likely to occur in normal use		P
	Basic insulation electrically equivalent to the basic insulation of cords complying with IEC 60227 or IEC 60245, or		N/A
	no breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P
	For class II construction, the requirements for supplementary insulation and reinforced insulation apply,		N/A
	except that the sheath of a cord complying with IEC 60227 or IEC 60245 may provide supplementary insulation.		N/A
	A single layer of internal wiring insulation does not provide reinforced insulation		P
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by clamping at both ends, or		N/A
	be such that it can only be removed by breaking or cutting		N/A
23.7	The colour combination green/yellow only used for earthing conductors		P
23.8	Aluminium wires not used for internal wiring		P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



<b>IEC 60335-1</b>			
Clause	Requirement + Test	Result - Remark	Verdict
23.9	Stranded conductors not consolidated by soldering where they are subjected to contact pressure, unless		P
	the contact pressure is provided by spring terminals		N/A
23.10	The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, at least equivalent to that of light polyvinyl chloride sheathed flexible cord (60227 IEC 52)		N/A
<b>24</b>	<b>COMPONENTS</b>		
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components .....	(see appended table)	P
	Motors not required to comply with IEC 60034-1, they are tested as part of the appliance		P
	Relays tested as part of the appliance, or		N/A
	alternatively acc. To IEC 60730-1, and meeting the additional requirements in IEC 60335-1		N/A
	The requirements of Clause 29 apply between live parts of components and accessible parts of the appliance		P
	Components can comply with the requirements for clearances and creepage distances for functional insulation in the relevant component standard		P
	30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections		P
	Components that have not been previously tested to comply with the IEC standard for the relevant component are tested according to the requirements of 30.2		P
	Components that have been previously tested to comply with the resistance to fire requirements in the IEC standard for the relevant component need not be retested provided the specified conditions are met		P
	If these conditions are not satisfied, the component is tested as part of the appliance.		P
	Power electronic converter circuits not required to comply with IEC 62477-1, they are tested as part of the appliance		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	If components have not been tested and found to comply with relevant IEC standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		N/A
	For components mentioned in 24.1.1 to 24.1.9 no additional tests specified in the relevant component standard are necessary other than those specified in 24.1.1 to 24.1.9		P
	Components not tested and found to comply with relevant IEC standard and components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		P
	Lampholders and starterholders that have not being tested and found to comply with the relevant IEC standard, tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant IEC standard		N/A
	No additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of IEC 60320-1 and IEC 60309		P
24.1.1	Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, comply with IEC 60384-14		P
	If the capacitors have to be tested, they are tested according to Annex F		N/A
24.1.2	Transformers in associated switch mode power supplies comply with Annex BB of IEC 61558-2-16		P
	Safety isolating transformers comply with IEC 61558-2-6		P
	If they have to be tested, they are tested according to Annex G		P
24.1.3	Switches comply with IEC 61058-1, the number of cycles of operation being at least 10 000		P
	If they have to be tested, they are tested according to Annex H		N/A
	If the switch operates a relay or contactor, the complete switching system is subjected to the test		N/A
	If the switch only operates a motor starting relay complying with IEC 60730-2-10 with the number of cycles of a least 10 000 as specified, the complete switching system need not be tested		N/A
24.1.4	Automatic controls comply with IEC 60730-1 with the relevant part 2. The number of cycles of operation being at least:		--

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- thermostats:	10 000	N/A
	- temperature limiters:	1 000	N/A
	- self-resetting thermal cut-outs:	300	N/A
	- voltage maintained non-self-resetting thermal cut-outs:	1 000	N/A
	- other non-self-resetting thermal cut-outs:	30	N/A
	- timers:	3 000	N/A
	- energy regulators:	10 000	N/A
	The number of cycles for controls operating during clause 11 need not be declared, if the appliance meets the requirements of this standard when they are short-circuited		N/A
	Thermal motor protectors are tested in combination with their motor under the conditions specified in Annex D		N/A
	For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, the degree of protection declared for subclause 6.5.2 of IEC 60730-2-8 is IPX7		N/A
	Thermal cut-outs of the capillary type comply with the requirements for type 2.K controls in IEC 60730-2-9		N/A
24.1.5	Appliance couplers comply with IEC 60320-1		N/A
	However, for class II appliances classified higher than IPX0, the appliance couplers comply with IEC 60320-2-3		N/A
	Interconnection couplers comply with IEC 60320-2-2		N/A
24.1.6	Small lamp holders similar to E10 lampholders comply with IEC 60238, the requirements for E10 lampholders being applicable		N/A
24.1.7	For remote operation of the appliance via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151		N/A
24.1.8	The relevant standard for thermal links is IEC 60691		N/A
	Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of Clause 19		N/A
24.1.9	Contactors and relays, other than motor starting relays, tested as part of the appliance		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	They are also tested in accordance with Clause 17 of IEC 60730-1, the number of cycles of operations in 24.1.4 selected according to the contactor or relay function in the appliance .....		N/A
24.2	Appliances not fitted with:		--
	- switches, automatic controls or power supplies in flexible cords		P
	- devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		P
	- thermal cut-outs that can be reset by soldering, unless		N/A
	the solder has a melting point of at least 230 °C		N/A
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and have a contact separation in all poles, providing full disconnection under overvoltage category III conditions		N/A
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		N/A
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance, and used accordingly		N/A
	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load		N/A
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42 V		N/A
	In addition, the motors comply with the requirements of Annex I		N/A
24.7	Detachable hose-sets for connection of appliances to the water mains comply with IEC 61770		N/A
	They are supplied with the appliance		N/A
	Appliances intended to be permanently connected to the water mains not connected by a detachable hose-set		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
24.8	Motor running capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with a motor winding, not causing a hazard in event of a failure		N/A
	One or more of the following conditions are to be met:		--
	- the capacitors are of class S2 or S3 according to IEC 60252-1		N/A
	- the capacitors are housed within a metallic or ceramic enclosure		N/A
	- the distance of separation of the outer surface to adjacent non-metallic parts exceeds 50 mm		N/A
	- adjacent non-metallic parts within 50 mm withstand the needle-flame test of Annex E		N/A
	- adjacent non-metallic parts within 50 mm classified as at least V-1 according to IEC 60695-11-10		N/A
<b>25</b>	<b>SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS</b>		
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		--
	- supply cord fitted with a plug, the current rating and voltage rating of the plug being not less than the corresponding ratings of its associated appliance		P
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance, or		N/A
	- pins for insertion into socket-outlets		N/A
25.2	Appliance not provided with more than one means of connection to the supply mains		P
	Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown		N/A
25.3	Appliance intended to be permanently connected to fixed wiring provided with one of the following means for connection to the supply mains:		--
	- a set of terminals allowing the connection of a flexible cord		N/A
	- a fitted supply cord		N/A
	- a set of supply leads accommodated in a suitable compartment		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- a set of terminals for the connection of cables of fixed wiring, cross-sectional areas specified in 26.6, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N/A
	- a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate types of cable or conduit, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N/A
	For a fixed appliance constructed so that parts can be removed to facilitate easy installation, this requirement is met if it is possible to connect the fixed wiring without difficulty after a part of the appliance has been fixed to its support		N/A
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10 (mm) .....		N/A
	Introduction of conduit or cable does not reduce clearances or reepage distances below values specified in clause 29		N/A
25.5	Method for assembling the supply cord to the appliance:		--
	- type X attachment		N/A
	- type Y attachment		P
	- type Z attachment, if allowed in relevant part 2		N/A
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N/A
	For multi-phase appliances supplied with a supply cord and that are intended to be permanently connected to fixed wiring, the supply cord is assembled to the appliance by type Y attachment		N/A
25.6	Plugs fitted with only one flexible cord		P
25.7	Supply cords, other than for class III appliances, being one of the following types:		--
	- rubber sheathed (at least 60245 IEC 53)		N/A
	- polychloroprene sheathed (at least 60245 IEC 57)		N/A
	- polyvinyl chloride sheathed. Not used if they are likely to touch metal parts having a temperature rise exceeding 75 K during the test of clause 11		--
	<ul style="list-style-type: none"> <li>light polyvinyl chloride sheathed cord (60227 IEC 52), for appliances not exceeding 3 kg</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>ordinary polyvinyl chloride sheathed cord (60227 IEC 53), for other appliances</li> </ul>	H05VV-F	P

## TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- heat resistant polyvinyl chloride sheathed. Not used for type X attachment other than specially prepared cords		--
	<ul style="list-style-type: none"> <li>heat-resistant light polyvinyl chloride sheathed cord (60227 IEC 56), for appliances not exceeding 3 kg</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), for other appliances</li> </ul>		N/A
	- halogen-free, low smoke, thermoplastic insulated and sheathed		--
	<ul style="list-style-type: none"> <li>light duty halogen-free low smoke flexible cable (62821 IEC 101) for circular cable and (62821 IEC 101f) for flat cable</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>Ordinary duty halogen-free low smoke flexible cable (62821 IEC 102) for circular cable and (62821 IEC 102f) for flat cable</li> </ul>		N/A
	Supply cords for class III appliances adequately insulated		N/A
	Test with 500 V for 2 min for supply cords of class III appliances that contain live parts		N/A
25.8	Nominal cross-sectional area of supply cords not less than table 11; rated current (A); cross-sectional area (mm <sup>2</sup> ).....:	Rated current: 1.82A; Cross-sectional area: 3G0.75 mm <sup>2</sup>	P
25.9	Supply cords not in contact with sharp points or edges		P
25.10	Supply cord of class I appliances have a green/yellow core for earthing		P
	In multi-phase appliances, the colour of the neutral conductor of the supply cord is blue		N/A
	Where additional neutral conductors are provided in the supply cord:		--
	– other colours may be used for these additional neutral conductors;		N/A
	– all of the neutral conductors and line conductors are identified by marking using the alpha numeric notation specified in IEC 60445		N/A
	– the supply cord is fitted to the appliance		N/A
25.11	Conductors of supply cords not consolidated by soldering where they are subject to contact pressure, unless		P
	the contact pressure is provided by spring terminals		N/A
25.12	Insulation of the supply cord not damaged when moulding the cord to part of the enclosure		P
25.13	Inlet openings so constructed as to prevent damage to the supply cord		P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	If it is not evident that the supply cord can be introduced without risk of damage, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		N/A
	If unsheathed supply cord, a similar additional bushing or lining is required, unless the appliance is		N/A
	class 0, or		N/A
	a class III appliance not containing live parts		N/A
25.14	Supply cords moved while in operation adequately protected against excessive flexing		N/A
	Flexing test, as described:		--
	- applied force (N).....:		N/A
	- number of flexings.....:		N/A
	The test does not result in:		--
	- short-circuit between the conductors, such that the current exceeds a value of twice the rated current		N/A
	- breakage of more than 10% of the strands of any conductor		N/A
	- separation of the conductor from its terminal		N/A
	- loosening of any cord guard		N/A
	- damage to the cord or the cord guard		N/A
	- broken strands piercing the insulation and becoming accessible		N/A
25.15	For appliances with supply cord and appliances to be permanently connected to fixed wiring by a flexible cord, conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		P
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		P
	Pull and torque test of supply cord:		--
	- fixed appliances: pull 100 N; torque (not on automatic cord reel) (Nm).....:		N/A
	- other appliances: values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm) .....	24.92kg, 100N, 0.35Nm	P
	Cord not damaged and max. 2 mm displacement of the cord	0.12mm	P
25.16	Cord anchorages for type X attachments constructed and located so that:		--
	- replacement of the cord is easily possible		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- it is clear how the relief from strain and the prevention of twisting are obtained		N/A
	- they are suitable for different types of supply cord		N/A
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless		N/A
	they are separated from accessible metal parts by supplementary insulation		N/A
	- the cord is not clamped by a metal screw which bears directly on the cord		N/A
	- at least one part of the cord anchorage securely fixed to the appliance, unless		N/A
	it is part of a specially prepared cord		N/A
	- screws which have to be operated when replacing the cord do not fix any other component, unless		N/A
	the appliance becomes inoperative or incomplete or the parts cannot be removed without a tool		N/A
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N/A
	- for class 0, 0I and I appliances they are of insulating material or are provided with an insulating lining, unless		N/A
	failure of the insulation of the cord does not make accessible metal parts live		N/A
	- for class II appliances they are of insulating material, or		N/A
	if of metal, they are insulated from accessible metal parts by supplementary insulation		N/A
	After the test of 25.15, under the conditions specified, the conductors have not moved by more than 1 mm in the terminals		N/A
25.17	Adequate cord anchorages for type Y and Z attachment, test with the cord supplied with the appliance		P
25.18	Cord anchorages only accessible with the aid of a tool, or		P
	Constructed so that the cord can only be fitted with the aid of a tool		N/A
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N/A
	Tying the cord into a knot or tying the cord with string not used		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
25.20	The conductors of the supply cord for type Y and Z attachment insulated from accessible metal parts		P
25.21	Space for supply cord for type X attachment or for connection of fixed wiring constructed:		--
	- to permit checking of conductors with respect to correct positioning and connection before fitting any cover		N/A
	- so there is no risk of damage to the conductors or their insulation when fitting the cover		N/A
	- for portable appliances, so that the uninsulated end of a conductor, if it becomes free from the terminal, prevented from contact with accessible metal parts		N/A
	2 N test to the conductor for portable appliances; no contact with accessible metal parts		N/A
25.22	Appliance inlets:		--
	- live parts not accessible during insertion or removal		N/A
	Requirement not applicable to appliance inlets complying with IEC 60320-1		N/A
	- connector can be inserted without difficulty		N/A
	- the appliance is not supported by the connector		N/A
	- not for cold conditions if temp. rise of external metal parts exceeds 75 K during clause 11, unless		N/A
	the supply cord is unlikely to touch such metal parts		N/A
25.23	Interconnection cords comply with the requirements for the supply cord, except that:		N/A
	- the cross-sectional area of the conductors is determined on the basis of the maximum current during clause 11		N/A
	- the thickness of the insulation may be reduced		N/A
	- for class I or class II appliance with class III construction, the cross sectional areas of the conductors need not comply with 25.8 if specified conditions are met		N/A
	If necessary, electric strength test of 16.3		N/A
25.24	Interconnection cords not detachable without the aid of a tool if compliance with this standard is impaired when they are disconnected		N/A
25.25	Dimensions of pins that are inserted into socket-outlets compatible with the dimensions of the relevant socket-outlet.		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Dimensions of pins and engagement face in accordance with the dimensions of the relevant plug in IEC/TR 60083		N/A
<b>26</b>	<b>TERMINALS FOR EXTERNAL CONDUCTORS</b>		
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors		P
	Terminals only accessible after removal of a non-detachable cover, except		P
	for class III appliances that do not contain live parts		N/A
	Earthing terminals may be accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection		N/A
26.2	Appliances with type X attachment and appliances for the connection of cables of fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless		N/A
	the connections are soldered		N/A
	Screws and nuts not used to fix any other component, except		N/A
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N/A
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone, unless		N/A
	barriers provided so that neither clearances nor reepage distances between live parts and other metal parts reduced below the values for supplementary insulation if the conductor becomes free at the soldered joint		N/A
26.3	Terminals for type X attachment and for connection of cables of fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure but without damaging the conductor		N/A
	Terminals fixed so that when the clamping means is tightened or loosened:		--
	- the terminal does not become loose		N/A
	- internal wiring is not subjected to stress		N/A
	- neither clearances nor reepage distances are reduced below the values in clause 29		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Compliance checked by inspection and by the test of subclause 9.6 of IEC 60999-1, the torque applied being equal to two-thirds of the torque specified (Nm) .....		N/A
	No deep or sharp indentations of the conductors		N/A
26.4	Terminals for type X attachment, except those having a specially prepared cord and those for the connection of cables of fixed wiring, no special preparation of conductors such as by soldering, use of cable lugs, eyelets or similar, and		N/A
	so constructed or placed that conductors prevented from slipping out when clamping screws or nuts are tightened		N/A
26.5	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard		N/A
	Stranded conductor test, 8 mm insulation removed		N/A
	No contact between live parts and accessible metal parts and,		N/A
	for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N/A
26.6	Terminals for type X attachment and for connection of cables of fixed wiring suitable for connection of conductors with cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm <sup>2</sup> ).....		N/A
	If a specially prepared cord is used, terminals need only be suitable for that cord		N/A
26.7	Terminals for type X attachment, except in class III appliances not containing live parts, accessible after removal of a cover or part of the enclosure		N/A
26.8	Terminals for the connection of fixed wiring, including the earthing terminal, located close to each other		N/A
26.9	Terminals of the pillar type constructed and located as specified		N/A
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless		N/A
	conductors ends fitted with means suitable for screw terminals		N/A
	Pull test of 5 N to the connection		N/A
26.11	For type Y and Z attachment, soldered, welded, crimped or similar connections may be used		P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	For Class II appliances, the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N/A
	If soldering, welding or crimping alone used, barriers provided so that clearances and creepage distances between live parts and other metal parts are not reduced below the values for supplementary insulation if the conductor becomes free		N/A
<b>27</b>	<b>PROVISION FOR EARTHING</b>		
27.1	Accessible metal parts of Class 0I and I appliances permanently and reliably connected to an earthing terminal or earthing contact of the appliance inlet	Class I	P
	Earthing terminals and earthing contacts not connected to the neutral terminal		P
	Class 0, II and III appliances have no provision for protective earthing		N/A
	Class II appliances and class III appliances can incorporate an earth for functional purposes		N/A
	Safety extra-low voltage circuits not earthed, unless		N/A
	protective extra-low voltage circuits		N/A
27.2	Clamping means of earthing terminals adequately secured against accidental loosening		P
	Terminals for the connection of external equipotential bonding conductors allow connection of conductors of 2.5 to 6 mm <sup>2</sup> , and		N/A
	- do not provide earthing continuity between different parts of the appliance, and		N/A
	- conductors cannot be loosened without the aid of a tool		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
27.3	For a detachable part having an earth connection and being plugged into another part of the appliance, the earth connection is made before and separated after current-carrying connections when removing the part		N/A
	For appliances with supply cords, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		P
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
*27.4	No risk of corrosion resulting from contact between parts of the earthing terminal and the copper of the earthing conductor or other metal		P
	Parts providing earthing continuity, other than parts of a metal frame or enclosure, have adequate resistance to corrosion		P
	If of steel, these parts provided with an electroplated coating with a thickness at least 5 $\mu\text{m}$		N/A
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N/A
	In the body of the earthing terminal is a part of a frame or enclosure of aluminium or aluminium alloys, precautions taken to avoid risk of corrosion		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
27.5	Low resistance of connection between earthing terminal and earthed metal parts		P
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided the clearances of basic insulation are based on the rated voltage of the appliance		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
	Resistance not exceeding 0,1 $\Omega$ at the specified low-resistance test ( $\Omega$ ).....:	49m $\Omega$	P
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand-held appliances.		N/A
	They may be used to provide earthing continuity in other appliances if at least two tracks are used with independent soldering points and the appliance complies with 27.5 for each circuit		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
<b>28</b>	<b>SCREWS AND CONNECTIONS</b>		
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium		P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Diameter of screws of insulating material min. 3 mm		N/A
	Screws of insulating material not used for any electrical connections or connections providing earthing continuity	No insulating material	N/A
	Screws used for electrical connections or connections providing earthing continuity screwed into metal		P
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N/A
	For type X attachment, screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw impairs basic insulation		N/A
	For screws and nuts; torque-test as specified in table 14.....:	(see appended table)	P
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure is not transmitted through non-ceramic insulating material liable to shrink or distort, unless		P
	there is resiliency in the metallic parts to compensate for shrinkage or distortion of the insulating material		N/A
	This requirement does not apply to electrical connections in circuits of appliances for which:		--
	<ul style="list-style-type: none"> <li>30.2.2 is applicable and that carry a current not exceeding 0,5 A</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>30.2.3 is applicable and that carry a current not exceeding 0,2 A</li> </ul>		N/A
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		P
	Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread		N/A
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer		N/A
	Thread-cutting, thread rolling and space threaded screws may be used in connections providing earthing continuity provided it is not necessary to disturb the connection:		--
	- in normal use,		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- during user maintenance,		N/A
	- when replacing a supply cord having a type X attachment, or		N/A
	- during installation		N/A
	At least two screws being used for each connection providing earthing continuity, unless		P
	the screw forms a thread having a length of at least half the diameter of the screw		N/A
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		P
	This requirement does not apply to screws in the earthing circuit if at least two screws are used, or		P
	if an alternative earthing circuit is provided		N/A
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if the connections are subjected to torsion		N/A
<b>29</b>	<b>CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION</b>		
	Clearances, creepage distances and solid insulation withstand electrical stress		P
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), Annex J applies .....		N/A
	The microenvironment is pollution degree 1 under type 1 protection		N/A
	For type 2 protection, the spacing between the conductors before the protection is applied is not less than the values specified in Table 1 of IEC 60664-3		N/A
	These values apply to functional, basic, supplementary and reinforced insulation.....:		N/A
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless .....	(see appended table)	P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14		N/A
	However, if the distances are affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500V and above are increased by 0,5 mm and the impulse voltage test is not applicable		N/A

## TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	For appliances intended for use at altitudes exceeding 2 000 m, the clearances in Table 16 is increased according to the relevant multiplier values in Table A.2 of IEC 60664-1		N/A
	Impulse voltage test is not applicable:		--
	- when the microenvironment is pollution degree 3, or		N/A
	- for basic insulation of class 0 and class 01 appliances, or		N/A
	- to appliances intended for use at altitudes exceeding 2 000 m		N/A
	Appliances are in overvoltage category II		P
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		P
	The values of table 16 or the impulse voltage test of clause 14 are applicable.....:	(see appended table)	P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1,0 mm if the microenvironment is pollution degree 1		N/A
	Lacquered conductors of windings considered to be bare conductors		N/A
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16:	(see appended table)	P
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, using the next higher step for rated impulse voltage:	(see appended table)	P
	For double insulation, with no intermediate conductive part between basic and supplementary insulation, clearances are measured between live parts and the accessible surface, and the insulation system is treated as reinforced insulation		P
29.1.4	Clearances for functional insulation are the largest values determined from:		--
	- table 16 based on the rated impulse voltage.....:	(see appended table)	P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		N/A

## TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	the microenvironment is pollution degree 3, or		N/A
	the distances can be affected by wear, distortion, movement of the parts or during assembly		P
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
	Lacquered conductors of windings considered to be bare conductors		P
	However, clearances at crossover points are not measured		P
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		N/A
29.1.5	Appliances having higher working voltages than rated voltage, clearances for basic insulation are the largest values determined from:		--
	- table 16 based on the rated impulse voltage.....:		N/A
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1 or Clause 4 of IEC 60664-4, the clearances of supplementary insulation are not less than those specified for basic insulation		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1, the clearances of reinforced insulation dimensioned as specified in Table F.7a are to withstand 160% of the withstand voltage required for basic insulation		N/A
	If clearances for basic insulation are selected from Clause 4 of IEC 60664-4, the clearances of reinforced insulation are twice the value required for basic insulation		N/A
	If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage		N/A
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation are based on the working voltage used as the rated voltage in table 15		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree .....	(see appended table)	P
	Pollution degree 2 applies, unless		P
	- precautions taken to protect the insulation; pollution degree 1		N/A
	- insulation subjected to conductive pollution; pollution degree 3		N/A
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
	In a double insulation system, the working voltage for both the basic and supplementary insulation is taken as the working voltage across the complete double insulation system		P
29.2.1	Creepage distances of basic insulation not less than specified in table 17.....	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 17.....		N/A
	Except for pollution degree 1, corresponding creepage distance not less than the minimum specified for the clearance in table 16, if the clearance has been checked according to the test of clause 14 .....		N/A
29.2.2	Creepage distances of supplementary insulation at least those specified for basic insulation in table 17, or .....	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable .....		N/A
29.2.3	Creepage distances of reinforced insulation at least double those specified for basic insulation in table 17, or .....	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable .....		N/A
29.2.4	Creepage distances of functional insulation not less than specified in table 18.....	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 18.....		N/A
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
29.3	Supplementary and reinforced insulation have adequate thickness, or a sufficient number of layers, to withstand the electrical stresses		P
	Compliance checked:		--
	- by measurement, in accordance with 29.3.1, or		P
	- by an electric strength test in accordance with 29.3.2, or		P
	- for insulation, other than single layer internal wiring insulation, by an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3, and		N/A
	for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, or		N/A
	- by an assessment of the thermal quality of the material according to 29.3.3 combined with an electric strength test in accordance with 23.5, for each single layer internal wiring insulation touching each other, or		N/A
	- as specified in subclause 6.3 of IEC 60664-4 for insulation that is subjected to any periodic voltage having a frequency exceeding 30 kHz		N/A
29.3.1	Supplementary insulation have a thickness of at least 1 mm		P
	Reinforced insulation have a thickness of at least 2 mm		P
29.3.2	Each layer of material withstand the electric strength test of 16.3 for supplementary insulation		P
	Supplementary insulation consist of at least 2 layers		N/A
	Reinforced insulation consist of at least 3 layers		P
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N/A
	the electric strength test of 16.3		N/A
	If the temperature rise during the tests of clause 19 does not exceed the value specified in table 3, the test of IEC 60068-2-2 is not carried out		N/A
29.3.4	Thickness of accessible parts of reinforced insulation consisting of a single layer not less than specified in table 19.....:		N/A
<b>30</b>	<b>RESISTANCE TO HEAT AND FIRE</b>		
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	parts of thermoplastic material providing supplementary or reinforced insulation		P
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2		P
	External parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C).....:	(see appended table 30.1)	P
	Parts supporting live parts tested at 40°C plus the maximum temperature rise determined during the test of clause 11, or at 125 °C, whichever is the higher; temperature (°C).....:	(see appended table 30.1)	P
	Parts of thermoplastic material providing supplementary or reinforced insulation tested at 25 °C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C).....:	(see appended table 30.1)	P
30.2	Parts of non-metallic material resistant to ignition and spread of fire		P
	This requirement does not apply to:		--
	parts having a mass not exceeding 0,5 g, provided the cumulative effect is unlikely to propagate flames that originate inside the appliance by propagating flames from one part to another, or		P
	decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance		P
	Compliance checked by the test of 30.2.1, and in addition:		P
	- for attended appliances, 30.2.2 applies		P
	- for unattended appliances, 30.2.3 applies		N/A
	For appliances for remote operation, 30.2.3 applies		N/A
	For base material of printed circuit boards, 30.2.4 applies		N/A
30.2.1	Parts of non-metallic material subjected to the glow-wire test of IEC 60695-2-11 at 550°C	(see appended table 30.2)	P
	However, test not carried out if the material is classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 550 °C, or		N/A
	the material is classified at least HB40 according to IEC 60695-11-10		N/A
	Parts for which the glow-wire test cannot be carried out need to meet the requirements in ISO 9772 for material classified HBF		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
30.2.2	Appliances operated while attended, parts of non-metallic material supporting current-carrying connections, and		P
	parts of non-metallic material within a distance of 3mm of such connections,		P
	subjected to the glow-wire test of IEC 60695-2-11 with appropriate severity level:	(see appended table 30.2)	--
	- 750 °C, for connections carrying a current exceeding 0,5 A during normal operation		P
	- 650 °C, for other connections		N/A
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least:		--
	- 750 °C, for connections carrying a current exceeding 0,5 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	The glow-wire test is also not carried out on small parts. These parts are to:		--
	- comprise material having a glow-wire flammability index of at least 750 °C, or 650 °C as appropriate, or		N/A
	- comply with the needle-flame test of Annex E, or	(see appended table 30.2/30.2.4)	N/A
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10.....:		N/A
	Glow-wire test not applicable to conditions as specified .....		N/A
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		N/A
	The tests are not applicable to conditions as specified .....		N/A
30.2.3.1	Parts of non-metallic material supporting connections carrying a current exceeding 0,2 A during normal operation, and		N/A
	parts of non-metallic material, other than small parts, within a distance of 3 mm,		N/A
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850 °C	(see appended table 30.2)	N/A
	Glow-wire applied to an interposed shielding material, if relevant		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 850 °C		N/A
30.2.3.2	Parts of non-metallic material supporting connections, and		N/A
	parts of non-metallic material within a distance of 3mm,		N/A
	subjected to the glow-wire test of IEC 60695-2-11 with appropriate severity level:	(see appended table 30.2)	--
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	However, the glow-wire test of 750 °C or 650 °C as appropriate, is not carried out on parts of material fulfilling both or either of the following classifications:		--
	- a glow-wire ignition temperature according to IEC 60695-2-13 of at least:		N/A
	<ul style="list-style-type: none"> <li>775 °C, for connections carrying a current exceeding 0,2 A during normal operation</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>675 °C, for other connections</li> </ul>		N/A
	- a glow-wire flammability index according to IEC 60695-2-12 of at least:		N/A
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	The glow-wire test is also not carried out on small parts. These parts are to:		--
	- comprise material having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- comprise material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- comply with the needle-flame test of Annex E, or		N/A
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
	The consequential needle-flame test of Annex E applied to non-metallic parts that encroach within the vertical cylinder placed above the centre of the connection zone and on top of the non-metallic parts supporting current-carrying connections, and parts of non-metallic material within a distance of 3 mm of such connections if these parts are those:		--

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>IEC 60335-1</b>			
Clause	Requirement + Test	Result - Remark	Verdict
	- parts that withstood the glow-wire test of IEC 60695-2-11 of 750 °C or 650 °C as appropriate, but produce a flame that persist longer than 2 s, or		N/A
	- parts that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts, that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts for which the needle-flame test of Annex E was applied, or		N/A
	- small parts for which a material classification of V-0 or V-1 was applied		N/A
	However, the consequential needle-flame test is not carried out on non-metallic parts, including small parts, within the cylinder that are:		--
	- parts having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- parts comprising material classified as V-0 or V-1 according to IEC 60695-11-10, or		N/A
	- parts shielded by a flame barrier that meets the needle-flame test of Annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
30.2.4	Base material of printed circuit boards subjected to the needle-flame test of Annex E	(see appended table 30.2/30.2.4)	N/A
	Test not applicable to conditions as specified .....	V-0	P
<b>31</b>	<b>RESISTANCE TO RUSTING</b>		
	Relevant ferrous parts adequately protected against rusting		P
	Tests specified in part 2 when necessary		N/A
<b>32</b>	<b>RADIATION, TOXICITY AND SIMILAR HAZARDS</b>		
	Appliance does not emit harmful radiation or present a toxic or similar hazard due to their operation in normal use		N/A
	Compliance is checked by the limits or tests specified in part 2, if relevant		N/A
<b>A</b>	<b>ANNEX A (INFORMATIVE) ROUTINE TESTS</b>		
	Description of routine tests to be carried out by the manufacturer		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
<b>B</b>	<b>ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE RECHARGED IN THE APPLIANCE</b>		
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		N/A
	Three forms of construction covered:		--
	a) Appliance supplied directly from the supply mains or a renewable energy source, the battery charging circuitry and other supply unit circuitry incorporated within the appliance		N/A
	b) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the part of the appliance containing the battery		N/A
	c) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the detachable supply unit		N/A
3.1.9	Appliance operated under the following conditions:		--
	- the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		N/A
	- the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate		N/A
	-if possible, the appliance is supplied from the supply mains through its battery charger, the battery being initially discharged to such an extent that the appliance cannot operate. The appliance is operated as specified in relevant part 2		N/A
	- if the appliance incorporates inductive coupling between two parts that are detachable from each other, the appliance is supplied from the supply mains with the detachable part removed		N/A
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		N/A
5.B.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances		N/A
7.1	Battery compartment for batteries intended to be replaced by the user, marked with battery voltage (V) and polarity of the terminals.....: :		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	The positive terminal indicated by symbol IEC 60417-5005 and the negative terminal by symbol IEC 60417-5006		N/A
	Appliances intending to be supplied from a detachable supply unit marked with symbol IEC 60417-6181 and its type reference along with symbol ISO 7000-0790 (2004-01), or		N/A
	use only with <model designation> supply unit .....		N/A
7.6	Additional symbols		N/A
7.12	The instructions give information regarding charging		N/A
	Instructions for appliances incorporating batteries intended to be replaced by the user include required information		N/A
	Instructions for appliances containing non user-replaceable batteries state the substance of the following:		--
	This appliance contains batteries that are only replaceable by skilled persons		N/A
	Instructions for appliances containing non-replaceable batteries shall state the substance of the following:		--
	This appliance contains batteries that are non-replaceable		N/A
	For appliances intending to be supplied from a detachable supply unit for the purposes of recharging the battery, the type reference of the detachable supply unit is stated along with the following:		--
	WARNING: For the purposes of recharging the battery, only use the detachable supply unit provided with this appliance		N/A
	If the symbol for detachable supply unit is used, its meaning is explained		N/A
7.15	Markings placed on the part of the appliance connected to the supply mains		N/A
	The type reference of the detachable supply unit is placed in close proximity to the symbol		N/A
8.2	Appliances having batteries that according to the instruction may be replaced by the user need only have basic insulation between live parts and the inner surface of the battery compartment		N/A
	If the appliance can be operated without batteries, double or reinforced insulation required		N/A
11.7	The battery is charged for the period stated in the instructions or 24 h .....		N/A
11.8	Temperature rise of the battery surface does not exceed the limit in the battery manufacturer's specification; measured (K); limit (K).....		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	If no limit specified, the temperature rise does not exceed 20 K; measured (K) .....		N/A
19.1	Appliances subjected to tests of 19.B.101, 19.B.102 and 19.B.103		N/A
19.10	Not applicable		N/A
19.B.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		N/A
19.B.102	For appliances having batteries that can be removed without the aid of a tool, short-circuit of the terminals of the battery, the battery being fully charged,		N/A
19.B.103	Appliances having batteries replaceable by the user supplied at rated voltage under normal operation with the battery removed or in any position allowed by the construction		N/A
19.13	The battery does not rupture or ignite		N/A
21.B.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength		N/A
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-31, the number of falls being:		N/A
	- 100, if the mass of the part does not exceed 250 g (g) .....		N/A
	- 50, if the mass of the part exceeds 250 g .....		N/A
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N/A
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N/A
25.13	An additional lining or bushing not required for interconnection cords in class III appliances or class III constructions operating at safety extra-low voltage not containing live parts		N/A
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N/A
	For other parts, 30.2.2 applies		N/A
<b>C</b>	<b>ANNEX C (NORMATIVE) AGEING TEST ON MOTORS</b>		
	Tests, as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding		N/A
	Test conditions as specified		N/A
<b>D</b>	<b>ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS</b>		

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Applicable to appliances having motors that incorporate thermal motor protectors necessary for compliance with the standard		N/A
	Test conditions as specified		N/A
<b>E</b>	<b>ANNEX E (NORMATIVE) NEEDLE-FLAME TEST</b>		
	Needle-flame test carried out in accordance with IEC 60695-11-5, with the following modifications:		--
7	Severities		--
	The duration of application of the test flame is 30 s ± 1 s		N/A
9	Test procedure		--
9.1	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1		N/A
9.2	The first paragraph does not apply		N/A
	If possible, the flame is applied at least 10 mm from a corner		N/A
9.3	The test is carried out on one specimen		N/A
	If the specimen does not withstand the test, the test may be repeated on two additional specimens, both withstanding the test		N/A
11	Evaluation of test results		N/A
	The duration of burning not exceeding 30 s		N/A
	However, for printed circuit boards, the duration of burning not exceeding 15 s		N/A
<b>F</b>	<b>ANNEX F (NORMATIVE) CAPACITORS</b>		
	Capacitors likely to be permanently subjected to the supply voltage, and used for radio interference suppression or voltage dividing, comply with the following clauses of IEC 60384-14, with the following modifications:		--
1.5	Terms and definitions		N/A
1.5.3	Class X capacitors tested according to subclass X2		N/A
1.5.4	This subclause is applicable		N/A
1.6	Marking		N/A
	Items a) and b) are applicable		N/A
3.4	Approval testing		N/A
3.4.3.2	Table 3 is applicable as described		N/A
4.1	Visual examination and check of dimensions		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	This subclause is applicable		N/A
4.2	Electrical tests		N/A
4.2.1	This subclause is applicable		N/A
4.2.5	This subclause is applicable		N/A
4.2.5.2	Only table 11 is applicable		N/A
	Values for test A apply		N/A
	However, for capacitors in heating appliances the values for test B or C apply		N/A
4.12	Damp heat, steady state		N/A
	This subclause is applicable		N/A
	Only insulation resistance and voltage proof are checked		N/A
4.13	Impulse voltage		N/A
	This subclause is applicable		N/A
4.14	Endurance		N/A
	Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 are applicable		N/A
4.14.7	Only insulation resistance and voltage proof are checked		N/A
	No visible damage		N/A
4.17	Passive flammability test		N/A
	This subclause is applicable		N/A
4.18	Active flammability test		N/A
	This subclause is applicable		N/A
<b>G</b>	<b>ANNEX G (NORMATIVE) SAFETY ISOLATING TRANSFORMERS</b>		
	The following modifications to this standard are applicable for safety isolating transformers:		--
7	Marking and instructions		P
7.1	Transformers for specific use marked with:		--
	-name, trademark or identification mark of the manufacturer or responsible vendor.....:		P
	-model or type reference .....		P
17	Overload protection of transformers and associated circuits		--
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		N/A
22	Construction		--

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		P
29	Clearances, creepage distances and solid insulation		--
29.1, 29.2, 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply		P
	For insulated winding wires complying with subclause 19.12.3 of IEC 61558-1 there are no requirements for clearances or creepage distances		P
	For windings providing reinforced insulation, the distance specified in item 2c of table 13 of IEC 61558-1 is not assessed		P
	For safety isolating transformers subjected to periodic voltages with a frequency exceeding 30 kHz, the clearances, creepage distances and solid insulation values specified in IEC 60664-4 are applicable, if greater than the values specified in items 2a, 2c and 3 in table 13 of IEC 61558-1		P
<b>H</b>	<b>ANNEX H (NORMATIVE) SWITCHES</b>		
	Switches comply with the following clauses of IEC 61058-1, as modified below:		--
	The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N/A
	Before being tested, switches are operated 20 times without load		N/A
8	Marking and documentation		--
	Switches are not required to be marked		N/A
	However, a switch that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference		N/A
13	Mechanism		--
	The tests may be carried out on a separate sample		N/A
15	Insulation resistance and dielectric strength		--
15.1	Not applicable		N/A
15.2	Not applicable		N/A
15.3	Applicable for full disconnection and micro-disconnection		N/A
17	Endurance		--
	Compliance is checked on three separate appliances or switches		N/A
	For 17.2.4.4, the number of cycles declared according to 7.1.4 is 10 000, unless		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335.....:		N/A
	Switches for operation under no load and which can be operated only by a tool, and		N/A
	switches operated by hand that are interlocked so that they cannot be operated under load,		N/A
	are not subjected to the tests		N/A
	However, switches without this interlock are subjected to the test of 17.2.4.4 for 100 cycles of operation		N/A
	Subclauses 17.2.2 and 17.2.5.2 not applicable		N/A
	The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in IEC 60335-1		N/A
	The temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1 (K) .....		N/A
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		--
	Clause 20 is applicable to clearances across full disconnection and micro-disconnection		N/A
	It is also applicable to creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in Table 24		N/A
<b>I</b>	<b>ANNEX I (NORMATIVE) MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE</b>		
	The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance:		--
8	Protection against access to live parts		N/A
8.1	Metal parts of the motor are considered to be bare live parts		N/A
11	Heating		--
11.3	The temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N/A
11.8	The temperature rise of the body of the motor, where in contact with insulating material, not exceeding values in table 3 for the relevant insulating material		N/A
16	Leakage current and electric strength		--
16.3	Insulation between live parts of the motor and its other metal parts is not subjected to the test		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
19	Abnormal operation		--
19.1	The tests of 19.7 to 19.9 are not carried out		N/A
19.1.101	Appliance operated at rated voltage with each of the following fault conditions:		--
	- short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N/A
	- short circuit of each diode of the rectifier		N/A
	- open circuit of the supply to the motor		N/A
	- open circuit of any parallel resistor, the motor being in operation		N/A
	Only one fault simulated at a time, the tests carried out consecutively		N/A
22	Construction		--
22.1.101	For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation		N/A
	Compliance checked by the tests specified for double and reinforced insulation		N/A
<b>J</b>	<b>ANNEX J (NORMATIVE) COATED PRINTED CIRCUIT BOARDS</b>		
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications:		--
5.7	Conditioning of the test specimens		--
	When production samples are used, three samples of the printed circuit board are tested		N/A
5.7.1	Cold		--
	The test is carried out at -25 °C		N/A
5.7.3	Rapid change of temperature		N/A
	Severity 1 is specified		N/A
5.9	Additional tests		N/A
	This subclause is not applicable		N/A
<b>K</b>	<b>ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES</b>		
	The information on overvoltage categories is extracted from IEC 60664-1		P
	Overvoltage category is a numeral defining a transient overvoltage condition		P
	Equipment of overvoltage category IV is for use at the origin of the installation		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Equipment of overvoltage category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements		N/A
	Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation		P
	If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies		N/A
	Equipment of overvoltage category I is equipment for connection to circuits in which measures are taken to limit transient overvoltages to an appropriate low level		N/A
<b>L</b>	<b>ANNEX L (INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES</b>		
	Information for the determination of clearances and reepage distances		P
<b>M</b>	<b>ANNEX M (NORMATIVE) POLLUTION DEGREE</b>		
	The information on pollution degrees is extracted from IEC 60664-1		P
	Pollution		--
	The microenvironment determines the effect of pollution on the insulation, taking into account the macroenvironment		P
	Means may be provided to reduce pollution at the insulation by effective enclosures or similar		P
	Minimum clearances specified where pollution may be present in the microenvironment		P
	Degrees of pollution in the microenvironment		P
	For evaluating reepage distances, the following degrees of pollution in the microenvironment are established:		--
	- pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence		N/A
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected		P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected		N/A
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N/A
<b>N</b>	<b>ANNEX N (NORMATIVE) PROOF TRACKING TEST</b>		
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		--
7	Test apparatus		--
7.3	Test solutions		--
	Test solution A is used		P
10	Determination of proof tracking index (PTI)		--
10.1	Procedure		--
	The proof voltage is 100V, 175V, 400V or 600V ...:	175V	P
	The test is carried out on five specimens		P
	In case of doubt, additional test with proof voltage reduced by 25V, the number of drops increased to 100		N/A
10.2	Report		--
	The report states if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		N/A
<b>O</b>	<b>ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30</b>		
	Description of tests for determination of resistance to heat and fire		P
<b>P</b>	<b>ANNEX P (INFORMATIVE) GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN TROPICAL CLIMATES</b>		
	Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150V, intended to be used in countries having a tropical climate and that are marked with symbol IEC 60417-6332		N/A
	Modifications may also be applied to class 1 appliances having a rated voltage exceeding 150V, intended to be used in countries having a tropical climate and that are marked with symbol IEC 60417-6332, if liable to be connected to a supply mains that excludes the protective earthing conductor		N/A
5.7	The ambient temperature for the tests of clauses 11 and 13 is 40 +3/0 °C		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
7.1	The appliance marked with symbol IEC 60417-6332		N/A
7.12	The instructions state that the appliance is to be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30 Ma		N/A
	The instructions state that the appliance is considered to be suitable for use in countries having a tropical climate, but may also be used in other countries		N/A
	If symbol IEC 60417-6332 is used, its meaning is explained		N/A
11.8	The values of Table 3 are reduced by 15 K		N/A
13.2	The leakage current for class I appliances not exceeding 0,5 Ma		N/A
15.3	The value of t is 37 °C		N/A
16.2	The leakage current for class I appliances not exceeding 0,5 Ma (Ma):		N/A
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N/A
<b>Q</b>	<b>ANNEX Q (INFORMATIVE) SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS</b>		
	Description of tests for appliances incorporating electronic circuits		P
<b>R</b>	<b>ANNEX R (NORMATIVE) SOFTWARE EVALUATION</b>		
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 validated in accordance with the requirements of this annex		N/A
R.1	Programmable electronic circuits using software		N/A
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 constructed so that the software does not impair compliance with the requirements of this standard		N/A
R.2	Requirements for the architecture		N/A
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 use measures to control and avoid software-related faults/errors in safety-related data and safety-related segments of the software		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
R.2.1.1	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.2 have one of the following structures:		N/A
	- single channel with periodic self-test and monitoring		N/A
	- dual channel (homogenous) with comparison		N/A
	- dual channel (diverse) with comparison		N/A
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 have one of the following structures:		N/A
	- single channel with functional test		N/A
	- single channel with periodic self-test		N/A
	- dual channel without comparison		N/A
R.2.2	Measures to control faults/errors		N/A
R.2.2.1	When redundant memory with comparison is provided on two areas of the same component, the data in one area is stored in a different format from that in the other area		N/A
R.2.2.2	Programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.2 and that use dual channel structures with comparison, have additional fault/error detection means for any fault/errors not detected by the comparison		N/A
R.2.2.3	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, means are provided for the recognition and control of errors in transmissions to external safety-related data paths		N/A
R.2.2.4	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the programmable electronic circuits incorporate measures to address the fault/errors in safety-related segments and data indicated in table R.1 and R.2 as appropriate		N/A
R.2.2.5	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, detection of a fault/error occur before compliance with clause 19 is impaired		N/A
R.2.2.6	The software is referenced to relevant parts of the operating sequence and the associated hardware functions		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
R.2.2.7	Labels used for memory locations are unique		N/A
R.2.2.8	The software is protected from user alteration of safety-related segments and data		N/A
R.2.2.9	Software and safety-related hardware under its control is initialized and terminates before compliance with clause 19 is impaired		N/A
R.3	Measures to avoid errors		N/A
R.3.1	General		N/A
	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the following measures to avoid systematic fault in the software are applied		N/A
	Software that incorporates measures used to control the fault/error conditions specified in table R.2 is inherently acceptable for software required to control the fault/error conditions specified in table R.1		N/A
R.3.2	Specification		N/A
R.3.2.1	Software safety requirements:	Software Id:	N/A
	The specification of the software safety requirements includes the descriptions listed		N/A
R.3.2.2	Software architecture		N/A
R.3.2.2.1	The specification of the software architecture includes the aspects listed - techniques and measures to control software faults/errors (refer to R.2.2); - interactions between hardware and software; - partitioning into modules and their allocation to the specified safety functions; - hierarchy and call structure of the modules (control flow); - interrupt handling; - data flow and restrictions on data access; - architecture and storage of data; - time-based dependencies of sequences and data	Document ref. No:	N/A
R.3.2.2.2	The architecture specification is validated against the specification of the software safety requirements by static analysis		N/A
R.3.2.3	Module design and coding		N/A
R.3.2.3.1	Based on the architecture design, software is suitably refined into modules		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Software module design and coding is implemented in a way that is traceable to the software architecture and requirements		N/A
R.3.2.3.2	Software code is structured		N/A
R.3.2.3.3	Coded software is validated against the module specification by static analysis		N/A
	The module specification is validated against the architecture specification by static analysis		N/A
R.3.3.3	Software validation		N/A
	The software is validated with reference to the requirements of the software safety requirements specification		N/A
	Compliance is checked by simulation of:		N/A
	- input signals present during normal operation		N/A
	- anticipated occurrences		N/A
	- undesired conditions requiring system action		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict

TABLE R.1 <sup>e</sup> – GENERAL FAULT/ERROR CONDITIONS						
Component <sup>a</sup>	Fault/error	Acceptable measures <sup>b, c</sup>	Definitions	Document reference for applied measure	Document reference for applied test	Ver-dict
1 CPU 1.1 Registers	Stuck at	Functional test, or periodic self-test using either: - static memory test, or - word protection with single bit redundancy	H.2.16.5 H.2.16.6 H.2.19.6 H.2.19.8.2			N/A
1.2 VOID						N/A
1.3 Programme counter	Stuck at	Functional test, or Periodic self-test, or Independent time-slot monitoring, or Logical monitoring of the programme sequence	H.2.16.5 H.2.16.6 H.2.18.10.4 H.2.18.10.2			N/A
2 Interrupt handling and execution	No interrupt or too frequent interrupt	Functional test, or time-slot monitoring	H.2.16.5 H.2.18.10.4			N/A
3 Clock	Wrong frequency (for quartz synchronized clock: harmonics/sub-harmonics only)	Frequency monitoring, or time slot monitoring	H.2.18.10.1 H.2.18.10.4			N/A
4. Memory 4.1 Invariable memory	All single bit faults	Periodic modified checksum, or multiple checksum, or word protection with single bit redundancy	H.2.19.3.1 H.2.19.3.2 H.2.19.8.2			N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China  
Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1						
Clause	Requirement + Test			Result - Remark		Verdict
4.2 Variable memory	DC fault	Periodic static memory test, or word protection with single bit redundancy	H.2.19.6 H.2.19.8.2			N/A
4.3 Addressing (relevant to variable and invariable memory)	Stuck at	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A
5 Internal data path	Stuck at	Word protection with single bit redundancy	H.2.19.8.2			N/A
5.1 VOID						N/A
5.2 Addressing	Wrong address	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A
6 External communicat ion	Hamming distance 3	Word protection with multi-bit redundancy, or  CRC – single work, or  Transfer redundancy, or  Protocol test	H.2.19.8.1  H.2.19.4.1 H.2.18.2.2 H.2.18.14			N/A
6.1 VOID						N/A
6.2 VOID						N/A
6.3 Timing	Wrong point in time          Wrong sequence	Time-slot monitoring, or scheduled transmission  Time-slot and logical monitoring, or  comparison of redundant communication channels by either:  - reciprocal comparison  - independent hardware comparator  Logical monitoring, or time-slot monitoring, or Scheduled transmission	H.2.18.10.4  H.2.18.18 H.2.18.10.3   H.2.18.15 H.2.18.3  H.2.18.10.2 H.2.18.10.4 H.2.18.18			N/A
7 Input/output periphery	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



IEC 60335-1						
Clause	Requirement + Test		Result - Remark			Verdict
7.1 VOID						N/A
7.2 Analog I/O						N/A
7.2.1 A/D and D/A- converter	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			
7.2.2 Analog multiplexer	Wrong addressing	Plausibility check	H.2.18.13			N/A
8 VOID						N/A
9 Custom chips <sup>d</sup> e.g. ASIC, GAL, gate array	Any output outside the static and dynamic functional specification	Periodic self-test	H.2.16.6			N/A
NOTE A Stuck-at fault model denotes a fault model representing an open circuit or a non-varying signal level. A DC fault model denotes a stuck-at fault model incorporating short circuit between signal lines.						
a) For fault/error assessment, some components are divided into their sub-functions.						
b) For each sub-function in the table, the Table R.2 measure will cover the software fault/error.						
c) Where more than one measure is given for a sub-function, these are alternatives.						
d) To be divided as necessary by the manufacturer into sub-functions.						
e) Table R.1 is applied according to the requirements of R.1 to R.2.2.9 inclusive.						

<b>S</b>	<b>ANNEX S (NORMATIVE) BATTERY OPERATED APPLIANCES POWERED BY BATTERIES THAT ARE NON-RECHARGEABLE OR NOT RECHARGED IN THE APPLIANCE</b>		
	The following modifications to this standard are applicable for battery-operated appliances where the batteries are either non-rechargeable (primary batteries), or		N/A
	rechargeable batteries (secondary batteries) that are not recharged in the appliance		N/A
5.8.1	If the supply terminals for the connection of the battery have no indication of polarity, the more unfavourable polarity is applied		N/A
5.S.101	Appliances intended for use with a battery box are tested with the battery box supplied with the appliance or with the battery box recommended in the instructions		N/A
5.S.102	Appliances are tested as motor-operated appliances.		N/A
7.1	Appliances marked with the battery voltage (V) and the polarity of the terminals, unless .....		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	the polarity is irrelevant		N/A
	Appliances also marked with:		N/A
	– name, trade mark or identification mark of the manufacturer or responsible vendor.....: .....		N/A
	– model or type reference .....		N/A
	– IP number according to degree of protection against ingress of water, other than IPX0 .. .....		N/A
	– type reference of battery or batteries.....: .....		N/A
	If relevant, the positive terminal is indicated by the symbol IEC 60417-5005 and the negative terminal by the symbol IEC 60417-5006		N/A
	If appliances use more than one battery, they are marked to indicate correct polarity connection of the batteries		N/A
7.6	Additional symbols		N/A
7.12	The instructions contain the following, as applicable:		--
	– the types of batteries that may be used... .....		N/A
	– how to remove and insert the batteries		N/A
	– non-rechargeable batteries are not to be recharged		N/A
	– rechargeable batteries are to be removed from the appliance before being charged		N/A
	– different types of batteries or new and used batteries are not to be mixed		N/A
	– batteries are to be inserted with the correct polarity		N/A
	– exhausted batteries are to be removed from the appliance and safely disposed of		N/A
	– if the appliance is to be stored unused for a long period, the batteries are removed		N/A
	– the supply terminals are not to be short-circuited		N/A
11.5	Appliances are supplied with the most unfavourable supply voltage between		--
	– 0,55 and 1,0 times the battery voltage, if the appliance can be used with non-rechargeable batteries		N/A
	– 0,75 and 1,0 times battery voltage, if the appliance is designed for use with rechargeable batteries only		N/A
	The values specified in Table S.101 for the internal resistance per cell of the battery is taken into account		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
19.1	The tests are carried out with the battery fully charged unless otherwise specified		N/A
19.13	The battery does not rupture or ignite		N/A
19.S.101	Appliances are supplied with the voltage specified in 11.5. The supply terminals having an indication of polarity are connected to the opposite polarity, unless		N/A
	such a connection is unlikely to occur due to the construction of the appliance		N/A
19.S.102	For appliances with provision for multiple batteries, one or more of the batteries are reversed and the appliance is operated, if reversal of batteries is allowed by the construction		N/A
25.5	The flexible leads or flexible cord used to connect an external battery or battery box in is connected to the appliance by a type X attachment		N/A
25.13	This requirement is not applicable to the flexible leads or flexible cord connecting external batteries or a battery box with an appliance		N/A
25.S.101	Appliances have suitable means for connection of the battery. If the type of battery is marked on the appliance, the means of connection is suitable for this type of battery		N/A
26.5	Terminal devices in an appliance for the connection of the flexible leads or flexible cord connecting an external battery or battery box are so located or shielded that there is no risk of accidental connection between supply terminals		N/A
30.2.3.2	There is no battery in the area of the vertical cylinder used for the consequential needle flame test, unless		N/A
	the battery is shielded by a barrier that meets the needle flame test of Annex E, or		N/A
	that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
<b>T</b>	<b>ANNEX T (NORMATIVE) UV-C RADIATION EFFECT ON NON-METALLIC MATERIALS</b>		
	Requirements for non-metallic materials subject to direct or reflected UV-C radiation exposure and whose mechanical and electrical properties are relied upon for compliance with the		N/A
	Does not apply to glass, ceramic and similar materials		N/A
	Tested as specified in ISO 4892-1 and ISO 4892-2, with the following modifications:		--
	Modifications to ISO 4892-1:		--

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.6	The UV-C emitter is a low pressure mercury lamp with a quartz envelope having a continuous spectral irradiance of 10 W/m <sup>2</sup> at 254 nm		N/A
	Subclause 5.1.6.1 and Table 1 are not applicable		N/A
5.2.4	The black-panel temperature shall be 63 °C +/- 3 °C		N/A
5.3.1	Humidification of the chamber air is specified in part 2 when necessary		N/A
9	This clause is not applicable		N/A
	Modifications to ISO 4892-2:		--
7.1	At least three test specimens are tested		N/A
	Ten samples of internal wiring is tested		N/A
7.2	The specimens are attached to the specimen holders such that they are not subject to any stress		N/A
7.3	Apparatus prepared as specified		N/A
	The test specimens and, if used, the irradiance-measuring instrument are exposed for 1 000 h		N/A
7.4	If used, a radiometer is mounted and calibrated such that it measures the irradiance at the exposed surface of the test specimen		N/A
7.5	Material properties and test methods for parts providing mechanical support or impact resistance as specified in Table T.1		N/A
	Material properties and test method for electrical insulation of internal wiring as specified in Table T.2		N/A
8	This clause is not applicable		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict

10.1	TABLE: Power input deviation					N/A
Input deviation of/at:	P rated (W)	P measured (W)	$\Delta P$	Required $\Delta P$	Remark	
--	--	--	--	--	--	
--	--	--	--	--	--	

Supplementary information:

10.2	TABLE: Current deviation					P
Current deviation of/at:	I rated (A)	I measured (A)	$\Delta I$	Required $\Delta I$	Remark	
220V/50Hz	3.5	3.2	-8.5%	+20%	--	
230V/50Hz	3.5	3.3	-5.7%	+20%	--	
240V/50Hz	3.5	3.4	-2.8%	+20%	--	
--	--	--	--	--	--	

Supplementary information:

11.8	TABLE: Heating test			P
	Test voltage (V).....:	1.06X240V		—
	Ambient (°C).....:	t1=23.8°C, t2=24.0°C		—
Thermocouple locations:		Max. temperature rise measured, $\Delta T$ (K)	Max. temperature rise limit, $\Delta T$ (K)	
Power cord separation		6.9	50	
Pins of appliance for insertion into socket-outlets		8.7	45	
Surface of power switch		5.4	60	
Ambient of power switch		13.6	T125-25=100	
Internal wire		23.1	T105-25=80	
Traction motor winding		42.3	115	
Vibration Motor winding Moto		40.3	115	
Electrolytic capacitor		26.7	T105-25=80	
Main PCB near IC		36.1	105	
Optocoupler		23.1	T100-25=75	
Transformer winding		46.2	Class B, 85	
Transformer core		45.8	Class B, 85	
Enclosure inside near motor		26.3	Cl.30	
Enclosure outside near motor		21.1	74	
Handle		5.6	50	

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Control panel	5.8	60
	Control panel PCB	12.3	105
	Test corner	8.9	65
Supplementary information:			

11.8	TABLE: Heating test, resistance method					N/A
	Test voltage (V).....:			--		—
	Ambient, t1 (°C) .....			--		—
	Ambient, t2 (°C) .....			--		—
Temperature rise of winding:		R1 (Ω)	R2 (Ω)	Δ T (K)	Max. Δ T (K)	Insulation class
	--	--	--	--	--	--
	--	--	--	--	--	--
	--	--	--	--	--	--
	--	--	--	--	--	--
Supplementary information:						

13.2	TABLE: Leakage current			P
	Heating appliances: 1.15 x rated input (W)....:		--	—
	Motor-operated and combined appliances: 1.06 x rated voltage (V) .....		1.06x240V	—
Leakage current between:			I (mA)	Max. allowed I (mA)
L/N to accessible metal parts			0.820/0.810	3.5 mA
L/N to metal foil covered of accessible plastic enclosure, switch			0.005/0.005	0.35 mA peak
Supplementary information:				

13.3	TABLE: Dielectric strength		P
Test voltage applied between:		Test potential applied (V)	Breakdown / flashover (Yes/No)
Live parts to accessible metal parts		1000	No
Live parts to metal foil covered of accessible plastic enclosure, switch		3000	No
Supplementary information:			

14	TABLE: Transient overvoltages	N/A
----	-------------------------------	-----

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict

Clearance between:	CI (mm)	Required CI (mm)	Rated impulse voltage (V)	Impulse test voltage (V)	Flashover (Yes/No)
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--

Supplementary information:

16.2	TABLE: Leakage current		P
	Single phase appliances: 1.06 x rated voltage (V) .....	1.06x240V	—
	Three phase appliances 1.06 x rated voltage divided by $\sqrt{3}$ (V).....	--	—
Leakage current between:		I (mA)	Max. allowed I (mA)
Live parts to accessible metal parts		0.850	3.5 rms
Live parts to metal foil covered of accessible plastic enclosure, switch		0.005	0.25 rms

Supplementary information:

16.3	TABLE: Dielectric strength		P
Test voltage applied between:		Test potential applied (V)	Breakdown / flashover (Yes/No)
Live parts to accessible metal parts		1250	No
Live parts to metal foil covered of accessible plastic enclosure, switch		3000	No

Supplementary information:

17	TABLE: Overload protection		P
	Test voltage (V) .....	1.06x240V	—
	Ambient, t1 (°C) .....	24.3	—
	Ambient, t2 (°C) .....	24.8	—
Thermocouple locations:		Max. temperature rise measured, $\Delta T$ (K)	Max. temperature rise limit, $\Delta T$ (K)
Power cord		15.6	65
Transformer winding		89.1	175°C
Transformer core		87.6	175°C

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

<b>17</b>	<b>TABLE: Overload protection, resistance method</b>					N/A
	Test voltage (V).....:		--			—
	Ambient, t1 (°C) .....		--			—
	Ambient, t2 (°C) .....		--			—
	<b>Temperature of winding:</b>	<b>R1 (Ω)</b>	<b>R2 (Ω)</b>	<b>Δ T (K)</b>	<b>T (°C)</b>	<b>Max. T (°C)</b>
	--	--	--	--	--	--
	--	--	--	--	--	--
	--	--	--	--	--	--
	--	--	--	--	--	--
Supplementary information:						

<b>19</b>	<b>Abnormal operation conditions</b>						P
<b>Operational characteristics</b>			<b>YES/NO</b>	<b>Operational conditions</b>			
Are there electronic circuits to control the appliance operation?			Yes				
Are there “off” or “stand-by” position?			Stand-by				
The unintended operation of the appliance results in dangerous malfunction?			No				
<b>Sub-clause</b>	<b>Operating conditions description</b>	<b>Test results description</b>	<b>PEC description</b>	<b>EMP 19.11.4</b>	<b>Software type required</b>	<b>19.11.3 PEC</b>	<b>Final result</b>
<b>19.2</b>	N.A	N.A	N.A	N.A	N.A	N.A	N.A
<b>19.3</b>	N.A	N.A	N.A	N.A	N.A	N.A	N.A
<b>19.4</b>	N.A	N.A	N.A	N.A	N.A	N.A	N.A
<b>19.5</b>	N.A	N.A	N.A	N.A	N.A	N.A	N.A
<b>19.6</b>	N.A	N.A	N.A	N.A	N.A	N.A	N.A
<b>19.7</b>	Lock motor	No hazard	N.A	N.A	N.A	N.A	Pass
<b>19.8</b>	N.A	N.A	N.A	N.A	N.A	N.A	N.A
<b>19.9</b>	N.A	N.A	N.A	N.A	N.A	N.A	N.A
<b>19.10</b>	N.A	N.A	N.A	N.A	N.A	N.A	N.A
<b>19.11.2</b>	Test with specified	No hazard	N.A	N.A	N.A	N.A	Pass
<b>19.11.4.8</b>	N.A	N.A	N.A	N.A	N.A	N.A	N.A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China  
 Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



IEC 60335-1							
Clause	Requirement + Test				Result - Remark		Verdict

19.14	N.A	N.A	N.A	N.A	N.A	N.A	N.A
-------	-----	-----	-----	-----	-----	-----	-----

Supplementary information:

<b>19.7-a</b>	<b>TABLE: Abnormal operation, locked rotor/moving parts (Traction motor)</b>					P
	<b>Test voltage (V)</b> .....:		240V		—	
	<b>Ambient, t1 (°C)</b> .....		24.2°C		—	
	<b>Ambient, t2 (°C)</b> .....		24.7°C		—	

Temperature of winding:	R1 (Ω)	R2 (Ω)	Δ T (K)	T (°C)	Max. T (°C)
Winding of motor	--	--	96.3	121.0	240°C
Power cord	--	--	18.9	43.6	150
Enclosure inside near motor	--	--	35.1	59.8	Cl.30
Test corner	--	--	14.8	39.5	150

Supplementary information: Lock lift motor

<b>19.7-b</b>	<b>TABLE: Abnormal operation, locked rotor/moving parts (Vibration motor)</b>					P
	<b>Test voltage (V)</b> .....:		240V		—	
	<b>Ambient, t1 (°C)</b> .....		24.2°C		—	
	<b>Ambient, t2 (°C)</b> .....		24.7°C		—	

Temperature of winding:	R1 (Ω)	R2 (Ω)	Δ T (K)	T (°C)	Max. T (°C)
Winding of motor	--	--	94.1	118.8	240°C
Power cord	--	--	17.5	42.2	150
Enclosure inside near motor	--	--	33.2	57.9	Cl.30
Test corner	--	--	13.5	38.2	150

Supplementary information: Lock lift motor

<b>19.9</b>	<b>TABLE: Abnormal operation, running overload</b>					N/A
	<b>Test voltage (V)</b> .....:		--		—	
	<b>Ambient, t1 (°C)</b> .....		--		—	
	<b>Ambient, t2 (°C)</b> .....		--		—	

Temperature of winding:	R1 (Ω)	R2 (Ω)	Δ T (K)	T (°C)	Max. T (°C)
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

19.13	TABLE: Abnormal operation, temperature rises		N/A
Thermocouple locations:	Max. temperature rise measured, $\Delta T$ (K)	Max. temperature rise limit, $\Delta T$ (K)	
--	--	--	
--	--	--	
--	--	--	
--	--	--	

Supplementary information:

21.1	TABLE: Impact resistance			P
Impacts per surface	Surface tested	Impact energy (Nm)	Comments	
Three times	Plastic enclosure	0.5Nm	No damage	

Supplementary information:

24.1	TABLE: Critical components information					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>	
Plastic enclosure	Jiangyin Jihua New Material Co.,Ltd	PBT4308G30	V-0, 130°C	UL 94 UL 746	UL E139063	
Power cord	SHANGYU JINTAO ELECTRON CO.,LTD	H05VV-F	3x0.75mm <sup>2</sup> , 250/400V	AS/NZS 3191	ESV170111	
Plug	Shangyu Jintao Electron Co.,Ltd	A3-10	250V~, 10A	AS/NZS 3112	ESO120467	
Power switch	Zhejiang Zhongxun Electronics Co.,Ltd	KCD1	10A 125V~; 6A 250V~	EN 61058-1	TUV R 50014632	
Motor	JiangXi ZhongYang Electrical Appliance Co.,Ltd	ZYT52465G1 80	Class F, DC180V, 4200rpm	IEC 60335-1	CGS T184011802	
Motor	LEMMAR ELECTRICAL TECHNOLOGY CO.,LTD	ZY90B-2	Class F, DC180V, 3800rpm	IEC 60335-1	Test with appliance	
PCB	SHENZHEN XING ZHI GUANG INDUSTRIAL DEVELOPMENT CO LTD	XZG-1	FR-4; V-0; 130°C;Min. Thickness: 1.6mm	IEC / EN 60335-1	UL E350388	

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building,Fuyong Avenue,Fuyong Street,Bao'an District,ShenZhen,Guangdong,China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1					
Clause	Requirement + Test			Result - Remark	Verdict
Alternative	WENZHOU RUIHAO ELECTRONICS CO LTD	RH-D	FR-4; V-0; 130°C; Min. Thickness: 1.6mm	IEC / EN 60335-1	Test with appliance UL E339059
Optocoupler	SHARP CORP ELECTRONIC COMPONENTS GROUP	PC817	T110	EN 60747-5-5	VDE 40008087
Alternative	Everlight Electronics Co., Ltd.	EL817	T110	EN 60747-5-5	VDE132249
Internal wire	KAI TAT INDUSTRIES CO	UL2464	80°C 300V AWG24	UL 758	UL E214382
Fuse	Sun Electric Co.	5H	250VAC; 10A	IEC/EN 60127-1 IEC/EN 60127-2	TUV J50220933
Alternative	Walter Electronic Co.,Ltd.	TSC	250VAC; 10A; T; H; Rated capacity: 1500A	IEC/EN 60127-1 IEC/EN 60127-2	VDE 40016670
Transformer	Dongguan Dpower Electronics Co., Ltd	ET00288P	Class B	IEC 60335-1	Test with appliance
-Bobbin	South-East	MF11-C	V-0, 150°C	IEC 60335-1	Test with appliance UL E137137
-Winging	TA WIN	UEW, Polyurethane	130°C	IEC 60335-1	Test with appliance UL E152187
Supplementary information:					
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

28.1	TABLE: Threaded part torque test				P
Threaded part identification:	Diameter of thread (mm)	Column number (I, II, or III)	Applied torque (Nm)		
Fixed enclosure	4.82	II	2.0Nm		
Fixed PCB	2.92	II	0.5Nm		
Fixed earthing	3.89	II	1.2Nm		
Supplementary information:					

29.1	TABLE: Clearances					P
	Overvoltage category .....					—
		Type of insulation:				
Rated impulse voltage (V):	Min. cl (mm)	Basic (mm)	Supplementary (mm)	Reinforced (mm)	Functional (mm)	Verdict / Remark

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1						
Clause	Requirement + Test	Result - Remark				Verdict
330	0,2* / 0,5 / 0,8**	--	--	--	--	N/A
500	0,2* / 0,5 / 0,8**	--	--	--	--	N/A
800	0,2* / 0,5 / 0,8**	--	--	--	--	N/A
1 500	0,5 / 0,8** / 1,0***	--	--	--	--	N/A
2 500	<u>1,5</u> / 2,0***	>2.0m m	>2.0mm	--	>2.0mm	P
4 000	<u>3,0</u> / 3,5***	--	--	>3.5mm	--	P
6 000	5,5 / 6,0***	--	--	--	--	N/A
8 000	8,0 / 8,5***	--	--	--	--	N/A
10 000	11,0 / 11,5***	--	--	--	--	N/A

Supplementary information:

\*) For tracks on printed circuit boards if pollution degree 1 and 2  
 \*\*) For pollution degree 3  
 \*\*\*) If the construction is affected by wear, distortion, movement of the parts or during assembly

29.2	TABLE: Creepage distances, basic, supplementary and reinforced insulation										P
Working voltage (V):	Creepage distance (mm)							Type of insulation			
	Pollution degree										
	1	2			3			Type of insulation			
		Material group			Material group						
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*	B**	S**	R**	Verdict
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9		—	—	N/A
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9	—		—	N/A
≤50	0,36	1,2	1,7	2,4	3,0	3,4	3,8	—	—		N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4		—	—	N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4	—		—	N/A
125	0,56	1,5	2,1	3,0	3,8	4,2	4,8	—	—		N/A
250	0,56	1,25	1,8	<u>2,5</u>	3,2	3,6	4,0	>2.5	—	—	P
250	0,56	1,25	1,8	<u>2,5</u>	3,2	3,6	4,0	—	>2.5	—	P
250	1,12	2,5	3,6	<u>5,0</u>	6,4	7,2	8,0	—	—	>5.0	P
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3		—	—	N/A
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	—		—	N/A
400	2,0	4,0	5,6	8,0	10,0	11,2	12,6	—	—		N/A
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0		—	—	N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1											
Clause	Requirement + Test							Result - Remark			Verdict
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	—		—	N/A
500	2,6	5,0	7,2	10,0	12,6	14,2	16,0	—	—		N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0		—	—	N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	—		—	N/A
>630 and ≤800	3,6	6,4	9,0	12,6	16,0	18,0	20,0	—	—		N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5		—	—	N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	—		—	N/A
>800 and ≤1000	4,8	8,0	11,2	16,0	20,0	22,0	25,0	—	—		N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0		—	—	N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	—		—	N/A
>1000 and ≤1250	6,4	10,0	14,2	20,0	25,0	28,0	32,0	—	—		N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0		—	—	N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	—		—	N/A
>1250 and ≤1600	8,4	12,6	18,0	25,0	32,0	36,0	40,0	—	—		N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0		—	—	N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	—		—	N/A
>1600 and ≤2000	11,2	16,0	22,0	32,0	40,0	44,0	50,0	—	—		N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0		—	—	N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	—		—	N/A
>2000 and ≤2500	15,0	20,0	28,0	40,0	50,0	56,0	64,0	—	—		N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0		—	—	N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	—		—	N/A
>2500 and ≤3200	20,0	25,0	36,0	50,0	64,0	72,0	80,0	—	—		N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0		—	—	N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	—		—	N/A
>3200 and ≤4000	25,0	32,0	44,0	64,0	80,0	90,0	100,0	—	—		N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0		—	—	N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	—		—	N/A
>4000 and ≤5000	32,0	40,0	56,0	80,0	100,0	112,0	126,0	—	—		N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0		—	—	N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	—		—	N/A
>5000 and ≤6300	40,0	50,0	72,0	100,0	126,0	142,0	160,0	—	—		N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0		—	—	N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1												
Clause	Requirement + Test							Result - Remark			Verdict	
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	—		—	N/A	
>6300 and ≤8000	50,0	64,0	90,0	126,0	160,0	180,0	200,0	—	—		N/A	
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0		—	—	N/A	
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	—		—	N/A	
>8000 and ≤10000	64,0	80,0	112,0	160,0	200,0	220-240,0	250,0	—	—		N/A	
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0		—	—	N/A	
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	—		—	N/A	
>10000 and ≤12500	80,0	100,0	142,0	200,0	250,0	280,0	320,0	—	—		N/A	
Supplementary information:												
*) Material group IIIb is allowed if the working voltage does not exceed 50 V												
**) B = Basic insulation, S = Supplementary insulation, R = Reinforced insulation												

29.2	TABLE: Creepage distances, functional insulation								P
Working voltage (V):	Creepage distance (mm)							Verdict / Remark	
	Pollution degree								
	1	2			3				
		Material group			Material group				
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*		
≤10	0,08	0,4	0,4	0,4	1,0	1,0	1,0	N/A	
50	0,16	0,56	0,8	1,1	1,4	1,6	1,8	N/A	
125	0,25	0,71	1,0	1,4	1,8	2,0	2,2	N/A	
250	0,42	1,0	1,4	<u>2,0</u>	2,5	2,8	3,2	P	
400	0,75	1,6	2,2	3,2	4,0	4,5	5,0	N/A	
500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	N/A	
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	N/A	
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	N/A	
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	N/A	
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	N/A	
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	N/A	
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	N/A	
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	N/A	
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	N/A	
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	N/A	

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1									
Clause	Requirement + Test							Result - Remark	Verdict
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	N/A	
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	N/A	
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	N/A	
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	N/A	
Supplementary information:									
*) Material group IIIb is allowed if the working voltage does not exceed 50 V									

30.1	TABLE: Ball Pressure Test of Thermoplastics							P
Allowed impression diameter (mm) .....							—	
Object/ Part No./ Material	Manufacturer/ trademark		Test temperature (°C)		Impression diameter (mm)			
Enclosure	See table 24.1		75		1.0			
Power switch	See table 24.1		125		1.1			
Transformer bobbin	See table 24.1		125		0.8			
PCB	See table 24.1		125		0.8			
Wire connector	See table 24.1		125		1.2			
Motor bobbin (Motor model 7712-8S )	--		125		1.2			
Motor bobbin (Motor model ZY90B-2 )	--		125		1.3			
Support motor plastic part	--		75		1.1			
Supplementary information:								

30.2	TABLE: Resistance to heat and fire - Glow wire tests							P
Object/ Part No./ Material	Manufacturer / trademark	Glow wire test (GWT); (°C)						Verdict
		550	650		750		850	
			te	ti	te	ti		
Enclosure	See table 24.1	X No flame	--	--	--	--	--	Pass
Power switch	See table 24.1	--	--	--	0s	0s	--	Pass
Transformer bobbin	See table 24.1	--	--	--	0s	0s	--	Pass
Wire connector	See table 24.1	--	--	--	0s	0s	--	Pass
Motor bobbin	--	--	--	--	0s	0s	--	Pass

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

IEC 60335-1								
Clause	Requirement + Test					Result - Remark		Verdict
Support motor plastic part	See table 24.1	X No flame	--	--	--	--	--	Pass
Silicone terminal sheath	See table 24.1	--	--	--	0s	0s	--	Pass
Cord anchorage	--	X No flame	--	--	--	--	--	Pass
Object/ Part No./ Material	Manufacturer / trademark	Glow-wire flammability index (GWFI), °C				GW ignition temp. (GWIT), °C		Verdict
		550	650	750	850	675	775	
The test specimen passed the glow wire test (GWT) with no ignition [(te – ti) ≤ 2s] (Yes/No) :								Yes
If no, then surrounding parts passed the needle-flame test of annex E (Yes/No).....:								No
The test specimen passed the test by virtue of most of the flaming material being withdrawn with the glow-wire (Yes/No)? .....								Yes
Ignition of the specified layer placed underneath the test specimen (Yes/No)..... :								No
Supplementary information:								
- 550 °C GWT not relevant (or applicable) to parts of material classified at least HB40 or if relevant HBF								
- The GWIT pre-selection option, the 850 °C GWFI pre-selection option, and the 850 °C GWT are not relevant (or applicable) for attended appliances								

30.2/30.2.4	TABLE: Needle- flame test (NFT)					N/A
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict	
--	--	--	--	--	--	
--	--	--	--	--	--	
--	--	--	--	--	--	
--	--	--	--	--	--	
Supplementary information:						
- NFT not relevant (or applicable) for Parts of material classified as V-0 or V-1						
- NFT not relevant (or applicable) for Base material of PCBs classified as V-0 or if relevant VTM-0						

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

Attachment No.1: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES			
Clause	Requirement - Test	Result - Remark	Verdict

<b>ATTACHMENT TO TEST REPORT IEC 60335-1</b> <b>EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b> (Household and similar electrical appliances – Safety – Part 1: GENERAL REQUIREMENTS)			
<b>Differences according to</b> ..... : EN 60335-1: 2012+A11: 2014+A13: 2017; EN 62233: 2008;			
<b>Attachment Form No.</b> .... : IEC60335_1X			
<b>Attachment Originator</b> ..... : VDE Testing and Certification Institute			
<b>Master Attachment</b> ..... : Date 2016-10			
<b>Copyright 2016 IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE System). All rights reserved.</b>			

CENELEC COMMON MODIFICATIONS (EN)			
6.1	Delete “class 0” and “class 01”	Class I	P
7.1	Single-phase appliances to be connected to the supply mains: 230 V covered	220-240V	P
	Multi-phase appliances to be connected to the supply mains: 400 V covered		N/A
7.10	Devices used to start/stop operational functions of the appliance distinguished from other manual devices by means of shape, size, surface texture, position, etc.		P
	An indication that the device has been operated is given by:		P
	• a tactile feedback, or		N/A
	• an audible and visual feedback		P
7.12	The instructions include the substance of the following:		P
	- 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		P
	- children shall not play with the appliance		P
	- cleaning and user maintenance shall not be made by children without supervision		P
7.12.Z1	The specific instructions related to the safe operation of this appliance is collated together in the front section of the user instructions		P
	The height of the characters, measured on the capital letters, is at least 3 mm		P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.1: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b>			
Clause	Requirement - Test	Result - Remark	Verdict
	These instructions are also available in an alternative format, e.g. on a website		P
8.1.1	Also test probe 18 of EN 61032 is applied		P
	The appliance being in every possible position during the test except that		P
	appliances normally used on the floor and having a mass exceeding 40 kg are not tilted		N/A
	The force on the probe in the straight position is increased to 10 N when probe 18 is used		P
	When using test probe 18 the appliance is fully assembled as in normal use without any parts removed, and		P
	parts intended to be removed for user maintenance are also not removed		P
8.2	Compliance is checked by applying the test probes of EN 61032		P
	For built-in appliances and fixed appliances, the test probe B and probe 18 of EN 61032 are applied only after installation		N/A
11.8	Footnotes to "External enclosure of motor-operated appliances" to be taken into account		N/A
15.1.2	Appliances with an automatic cord reel tested with the cord in the most unfavourable position so that the reeling of the wet cord may affect electrical insulation during operation, the cord not being dried before reeling		N/A
20.2	When using the test probe similar to test probe B with a circular stop face, the accessories and detachable covers are removed		N/A
	Test probe 18 applied with a force of 2,5N on the appliance fully assembled		N/A
24.1	Components comply with the safety requirements specified in the relevant standards as far as they reasonably apply		P
	The requirements of Clause 29 of this standard apply between live parts of components and accessible parts of the appliance.		P
	The requirements of 30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections inside components		P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.1: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b>			
Clause	Requirement - Test	Result - Remark	Verdict
	Components that have not been previously tested or do not comply with the standard for the relevant component are tested according to the requirements of 30.2		P
	Components that have been previously tested and shown to comply with the resistance to fire requirements in the standard for the relevant component need not be retested provided that:		P
	- the severity specified in the component standard is not less than the severity specified in 30.2, and		N/A
	- the test report for the component states whether it complied with the standard for the relevant component with or without flame, flames not exceeding 2 s during the test are ignored		N/A
	Unless components have been previously tested and found to comply with the relevant standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		N/A
	For components mentioned in 24.1.1 to 24.1.9, no additional tests specified in the relevant standard for the component are necessary other than those specified in 24.1.1 to 24.1.9		P
	Components that have not been separately tested and found to comply with the relevant standard, and		P
	components that are not marked or not used in accordance with their marking,		N/A
	are tested in accordance with the conditions occurring in the appliance, the number of samples being that required by the relevant standard		P
	Lamp holders and starter holders that have not been previously tested and found to comply with the relevant standard are tested as a part of the appliance and additionally comply with the gauging and interchangeability requirements of the relevant standard under the conditions occurring in the appliance		N/A
	Where the relevant standard specifies these gauging and interchangeability requirements at elevated temperatures, the temperatures measured during the tests of Clause 11 are used		P
	Plugs and socket-outlets and other connecting devices of interconnection cords are not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1, or		P
	with connectors and appliance inlets complying with the standard sheets of IEC 60320-1,		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.1: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b>			
Clause	Requirement - Test	Result - Remark	Verdict
	if direct supply to these parts from the supply mains gives rise to a hazard		N/A
24.1.7	If the remote operation of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is EN 41003		N/A
	Compliance with Clause 8 of this standard is not impaired by connecting the appliance to a device covered by EN 41003		N/A
24.Z1	For motor running capacitors (IEC 60252-1 type P2) with a metallic enclosure having an overpressure fuse the flame testing of internal plastic parts supporting current carrying connections as required in 30.2.2 and 30.2.3.1 is not necessary		N/A
25.6	Supply cords of single-phase portable appliances having a rated current not exceeding 16 A, fitted with a plug complying with the following standard sheets of IEC/TR 60083:		N/A
	- for Class I appliances: standard sheet C2b, C3b or C4		N/A
	- for Class II appliances: standard sheet C5 or C6:		N/A
25.7	Rubber sheathed cords (60245 IEC 53) are not suitable for appliances intended to be used outdoors or when they are liable to be exposed to significant amount of ultraviolet radiation		N/A
	Halogen-free thermoplastic compound sheathed supply cords have properties at least those of:		N/A
	<ul style="list-style-type: none"> <li>halogen-free thermoplastic compound sheathed cords (H03Z1Z1H2-F or H03Z1Z1-F), for appliances having a mass not exceeding 3 kg</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>halogen-free thermoplastic compound sheathed cords (H05Z1Z1H2-F or H05Z1Z1-F), for other appliances</li> </ul>		N/A
	Cross-linked halogen-free compound sheathed supply cords have properties at least those of cross-linked halogen-free compound sheathed cords (H07ZZ-F)		N/A
26.11	Conductors connected by soldering are not considered to be positioned or fixed so that reliance is not placed upon the soldering alone to maintain them in position unless they are held in place near the terminals independently of the solder		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.1: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b>			
Clause	Requirement - Test	Result - Remark	Verdict
29.3.Z1	Appliance constructed so that if there is a possibility of damaging the insulation during installation, the insulation withstands the scratch and penetration test of 21.2		N/A
32	Compliance regarding electromagnetic fields is checked according to EN 62233		P
Annex I, 19.1.101	The appliance is supplied at rated voltage and operated under normal operation with each of the fault conditions specified		N/A
	The duration of the test is as specified in 19.7		N/A

<b>ZA</b>	<b>ANNEX ZA (NORMATIVE) SPECIAL NATIONAL CONDITIONS</b>		P
	<b>Norway</b>		N/A
19.5	The test is also applicable to appliances intended to be permanently connected to fixed wiring		N/A
	<b>Norway</b>		N/A
22.2	The second paragraph of this subclause, dealing with single-phase, permanently connected class I appliances having heating elements, is not applicable due to the supply system		N/A
	<b>All CENELEC countries</b>		P
25.6 and 25.25	Information concerning National plug and socket-outlets is available from the CENELEC website. Normative national requirements concerning plug and socket-outlets are shown in the relevant National standard		P
	<b>Ireland and United Kingdom</b>		P
25.8	In the table, the lines for 10 A and 16 A are replaced by:		P
	> 10 and ≤ 13 1,25 (1,0) <sup>p</sup>		P
	> 13 and ≤ 16 1,5 (1,0) <sup>p</sup>		N/A
<b>ZB</b>	<b>ANNEX ZB (INFORMATIVE) A-DEVIATIONS</b>		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.1: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b>			
Clause	Requirement - Test	Result - Remark	Verdict
	<b>Ireland</b>		N/A
25.6	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs complying with I.S. 401:1997, or equivalent, to be fitted to domestic appliances		N/A
	<b>United Kingdom</b>		P
25.6	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs to BS 1363 to be fitted to domestic appliances. It also allows plugs to BS 4573 and EN 50075 to be fitted to shavers and toothbrushes		P
<b>ZC</b>	<b>ANNEX ZC (NORMATIVE) NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS</b>		P
	A list of referenced documents in this standard		P
	Normative references to international publications with their corresponding European publications		P
<b>ZD</b>	<b>ANNEX ZD (INFORMATIVE) IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS</b>		P
	A table with IEC and CENELEC code designations for flexible cords		P
<b>ZE</b>	<b>ANNEX ZE (INFORMATIVE) SPECIFIC ADDITIONAL REQUIREMENTS FOR APPLIANCES AND MACHINES INTENDED FOR COMMERCIAL USE</b>		N/A
7.1	Business name and full address of the manufacturer and, where applicable, his authorized representative.....:		N/A
	Model or type reference.....:		N/A
	Serial number, if any.....:		N/A
	Production year		N/A
	Designation of the appliance .....		N/A
7.12	Instructions provided with the appliance so that the appliance can be used safely		N/A
	The instructions contain at least the following information:		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.1: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b>			
Clause	Requirement - Test	Result - Remark	Verdict
	- the business name and full address of the manufacturer and, where applicable, his authorized representative		N/A
	- model or type reference of the appliance as marked on the appliance itself, except for the serial number		N/A
	- the designation of the appliance together with its explanation in case it is given by a combination of letters and/or numbers		N/A
	- the general description of the appliance, when needed due to the complexity of the appliance		N/A
	- specific precautions if required during installation, operation, adjusting, user maintenance, cleaning, repairing or moving		N/A
	- when needed drawings, diagrams, descriptions and explanations necessary for the safe use and user maintenance of the appliance		N/A
	- the possible reasonably foreseeable misuse and, whenever relevant, a warning against the effects it may have on the safe use of the appliance		N/A
	The words "Original instructions" appear on the language version(s) verified by the manufacturer or by the authorized representative		N/A
	When a translation of the original instructions has been provided by a person introducing the appliance on the market; the meaning of the sentence "Translation of the original instructions" appear in the relevant instructions delivered with the appliance		N/A
	The instructions for maintenance/service to be done by specialized personnel, mandated by the manufacturer or the authorized representative may be supplied in only one Community language which the specialized personnel understand		N/A
	The instructions indicate the type and frequency of inspections and maintenance required for safe operation including the preventive maintenance measures		N/A
7.12.ZE1	If needed for specific appliances, the following information to be given:		N/A
	<ul style="list-style-type: none"> <li>on use, transportation, assembly, dismantling when out of service, testing or foreseeable breakdowns, if these operations have consequences on stability of the appliance in order to avoid overturning, falling or uncontrolled movements of the appliance or of its component parts</li> </ul>		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



<b>Attachment No.1: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b>			
Clause	Requirement - Test	Result - Remark	Verdict
	<ul style="list-style-type: none"> <li>on how to maintain adequate mechanical stability when in use, during transportation, assembly, dismantling, scrapping and any other action involving the appliance</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>on the protective measures to be taken by the user, including, where appropriate, the personal protective equipment to be provided</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>on the operating method to be followed in the event of accident or breakdown; if a blockage is likely to occur the operating method to safely unblock the appliance</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>on the specifications on the spare parts to be used, when these affect the health and safety of the operator</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>on airborne noise emissions, determined and declared in accordance with the relevant Part 2, which includes:</li> </ul>		N/A
	- the A-weighted emission sound pressure level at workstations, where this exceeds 70 dB(A)..... ;		N/A
	- where this level does not exceed 70 dB(A), this fact is indicated		N/A
	- the peak C-weighted instantaneous sound pressure value at workstations, where this exceeds 63 Pa (130 dB in relation to 20 $\mu$ Pa) .....		N/A
	- the A-weighted sound power level emitted by the machinery, where the A-weighted emission sound pressure level at workstations exceeds 80 dB(A).....:		N/A
7.12.ZE2	The instructions includes a warning to disconnect the appliance from its power source during service and when replacing parts		N/A
	If the removal of the plug is foreseen, it is clearly indicated that the removal of the plug has to be such that an operator can check from any of the points to which he has access that the plug remains removed		N/A
	If this is not possible, due to the construction of the appliance or its installation, a disconnection with a locking system in the isolated position is provided		N/A
19.11.4.8	The appliance continues to operate, without causing any hazard to the user, from the same point in its operating cycle at which the voltage fluctuation occurred, or		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.1: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b>			
Clause	Requirement - Test	Result - Remark	Verdict
	a manual operation is required to restart it		N/A
20.1	Appliances and their components and fittings have adequate mechanical stability during transportation, assembly, dismantling and any other action involving the appliance		N/A
20.2	Dangerous moving transmission parts safeguarded either by design or guards		N/A
	When guards are used, they are fixed guards, interlocking movable guards or protective devices		N/A
	Moving parts directly involved in the function of the appliance which cannot be made completely inaccessible fitted with:		N/A
	- fixed guards or interlocking movable guards preventing access to those sections of the parts that are not used in the work, and		N/A
	- adjustable guards restricting access to those sections of the moving parts where access is necessary		N/A
	Interlocking movable guards used where frequent access is required		N/A
21.1	Appliances and their components and fittings have adequate mechanical strength and is constructed to withstand such rough handling that may be expected in normal use, during transportation, assembly, dismantling, scrapping and any other action involving the appliance		N/A
22.ZE.1	For appliances provided with a seat, the seat gives adequate stability		N/A
	The distance between the seat and the control devices capable of being adapted to the operator		N/A
22.ZE.2	For appliances provided with separate devices for the start and the stop functions, the stop function is unambiguously identifiable and does always override the start function		N/A
	For appliances provided with one device performing the start and the stop function, the stop function is unambiguously identifiable and does always override the start function		N/A
22.ZE.3	Appliances designed in such a way that incorrect mounting is avoided, if this can lead to an unsafe situation		N/A
	If this is not possible, information on the correct mounting is given directly on the part and/or the enclosure		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.1: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b>			
Clause	Requirement - Test	Result - Remark	Verdict
22.ZE.4	Where the weight, size or shape prevents appliances from being moved manually, they are fitted with attachments for lifting gear, or		N/A
	so designed that they can be fitted with such attachments, or		N/A
	be shaped in such a way that standard lifting gear can easily be used		N/A
	Appliances to be moved manually are constructed or equipped so that they can be moved easily and safely		N/A
22.ZE.5	The fixing systems of fixed guards which prevent access to dangerous moving transmission parts only removable with the use of tools		N/A
	If such guards have to be removed by the user for routine cleaning or maintenance their fixing systems remain attached to the fixed guards or to the machine after removal		N/A
	Where possible, guards are incapable of remaining in place without their fixings		N/A
	This does not apply if, after removal of the screws, or if the component is incorrectly repositioned, the appliance becomes inoperative		N/A
	Movable guards are interlocked		N/A
	The interlocking devices prevent the start of hazardous appliance functions until the guards are fixed in their position, and give a stop command whenever they are no longer closed		N/A
	Where it is possible for an operator to reach the danger zone before the risk due to hazardous appliance functions has ceased, movable guards associated with a guard locking device in addition to an interlocking device that:		N/A
	- prevents the start of hazardous appliance functions until the guard is closed and locked, and		N/A
	- keeps the guard closed and locked until the risk of injury from the hazardous appliance functions has ceased		N/A
	Interlocking movable guards remain attached to the appliance when open, and		N/A
	they are designed and constructed in such a way that they can be adjusted only by means of an intentional action		N/A
22.ZE.6	Interlocking movable guards designed in such a way that the absence or failure of one of their components prevents starting or stops the hazardous appliance functions		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.1: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b>			
Clause	Requirement - Test	Result - Remark	Verdict
	The guard is opened to the extent needed to cause the interlocking to operate and is then closed, the number of operations being defined in the specific Part 2 .....		N/A
	After this test any defect that may be expected in normal use is applied to the interlock system, including interruption of the supply, only one defect being simulated at a time		N/A
	After these tests the interlock system is fit for further use		N/A
22.ZE.7	Adjustable guards restricting access to areas of the moving parts strictly necessary for the work are:		N/A
	- adjustable manually or automatically, depending on the type of work involved, and		N/A
	- readily adjustable without the use of tools		N/A
22.ZE.8	In case of interruption, re-establishment after an interruption or fluctuation in whatever manner of the power supply, the appliance does not restart		N/A
	However, automatic restarting of the operation is allowed if the appliance may continue to operate, without causing any hazard to the user, from the same point in its operating cycle at which the voltage interruption or fluctuation occurred		N/A
22.ZE.9	Appliances fitted with means to isolate them from all energy sources		N/A
	Such isolators are clearly identified, and		N/A
	they are capable of being locked if reconnection endanger persons		N/A
	After the energy source is disconnected, it is possible to dissipate any energy remaining or stored in the circuits of the appliance without risk to persons		N/A
<b>ZF</b>	<b>ANNEX ZF (INFORMATIVE) CRITERIA APPLIED FOR THE ALLOCATION OF PRODUCTS COVERED BY STANDARDS IN THE EN 60335 SERIES UNDER LVD OR MD</b>		P
	List of standards under CENELEC/TC61 with the allocation under the LVD (Low Voltage Directive) or the MD (Machinery Directive) .....		P
<b>ZG</b>	<b>ANNEX ZG (NORMATIVE) UV APPLIANCES</b>		N/A
	The following modifications to this standard apply to appliances having UV emitters		N/A

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.1: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b>			
Clause	Requirement - Test	Result - Remark	Verdict
	This annex is not applicable to appliances covered by the scopes of IEC 60335-2-27, IEC 60335-2-59 or IEC 60335-2-109		N/A
7.12.ZG	The instructions for appliances incorporating UVC emitters include the substance of the following: WARNING — This appliance contains a UV emitter. Do not stare at the light source		N/A
32	For appliances incorporating UV emitters the manufacturer delivers a declaration providing evidence that the plastic material exposed to the radiation is UV resistant		N/A
<b>ZZA</b>	<b>ANNEX ZZ (INFORMATIVE) COVERAGE OF ESSENTIAL REQUIREMENTS OF EC DIRECTIVES</b>		P
	Relationship between this European standard and the safety objectives of Directive 2014/35/EU [2014 OJ L96] aimed to be covered		P
<b>ZZB</b>	Relationship between this European standard and the essential requirements of Directive 2006/42/EC aimed to be covered		P
<b>ZZC</b>	Relationship between this European standard and the General Product Safety Directive 2001/95/EC aimed to be covered		P

<b>Annex EN 62233:2008</b>			
Clause	Requirement + Test	Result - Remark	Verdict
<b>EMF- ELECTROMAGNETICS FIELDS</b>			
	The tested product also complies with the requirements of EN 62233:2008		P
	Limit.....100%	Measured max. : 2.306%	P

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building,Fuyong Avenue,Fuyong Street,Bao'an District,ShenZhen,Guangdong,China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



Attachment No.2: IEC 60204-1			
Clause	Requirement – Test	Result - Remark	Verdict

**TEST REPORT**  
**IEC 60204-1**  
**Safety of Machinery – Electrical equipment of machines**  
**Part 1: General requirements**

**Test specification Standard** ..... : IEC 60204-1: 2016  
**Test procedure** ..... : IEC 60204-1: 2016  
**Procedure deviation**..... : N/A

1	Scope		--
	This standard applies to the application electrical and electronic equipment and systems to machines.	The product is within the scope of IEC 60204-1 for industrial use.	<b>Pass</b>

4	General requirements		--
4.1	General		<b>Pass</b>
4.2	Selection of equipment		<b>Pass</b>
4.3	The electrical equipment shall operate correctly under full load.	According to marking on the equipment and function test, the electrical equipment would operate correctly.	<b>Pass</b>
4.3.1	a.c. supplies	AC supplies	<b>Pass</b>
	Voltage variations: 0,9 - 1,1		<b>Pass</b>
	Frequency variation: 0,99 - 1,01 0,98 - 1,02	Ditto	<b>N/A</b>
	Harmonics distortion: 10% 2nd to 5th harmonics 12% 6th to 30th harmonics	Ditto	<b>N/A</b>
	Voltage unbalance in 3-phase supplies	Ditto	<b>N/A</b>
	Voltage impulses (1,5ms.....)	Ditto	<b>N/A</b>
	Voltage interruption (3ms)	Ditto	<b>N/A</b>
	Voltage dips (20%)	Ditto	<b>N/A</b>
4.3.2	d.c. supplies		<b>N/A</b>
	From batteries:		<b>N/A</b>
	Voltage variations: 0,85 - 1,15 0,7 - 1,2		<b>N/A</b>
	Voltage interruption (5ms)		<b>N/A</b>
	From converting equipment		<b>N/A</b>
	Voltages variations: 0,85 - 1,15 0,7 - 1,2		<b>N/A</b>



<b>Attachment No.2: IEC 60204-1</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	Voltage interruption (5ms)		<b>N/A</b>
	Ripple (0,05% of nom. voltage)		<b>N/A</b>
4.4	Physical environment and operating condition	Reference to instruction	--
4.4.1	Electromagnetic compatibility (EMC)		<b>Pass</b>
	Withstand test specified in EN61004-6-4 , EN61000-6-2	Complies	<b>Pass</b>
4.4.2.	Temperature, between 5°C to 40 °C Average temp. not more than +35°C	According to the instruction manual, this machine is designed within this range.	<b>Pass</b>
	Temperature, between 5°C to 40 °C	Ditto	<b>Pass</b>
4.4.3.	Humidity:	Ditto	<b>Pass</b>
4.4.4.	Altitude: max 1000m	Ditto	<b>Pass</b>
4.4.5.	Contaminants: Adequate protection against the ingress of solid bodies and liquids.	The clause has been met. metal enclosure used and comply with IPX0 requirement according to EN 60529	<b>Pass</b>
4.4.6.	Ionizing and non-ionizing radiation: When the equipment is subject to radiation	Not applicable	<b>N/A</b>
4.4.7.	Vibration, shock and bump.		<b>Pass</b>
4.5	Transportation and storage. -25 to +55 °C and short periods up to +70 °C		<b>Pass</b>
4.6	Provisions for handling. Suitable means for handling by cranes or similar equipment.		<b>N/A</b>
4.7	Installation and operation Suppliers instruction	All the electrical equipment have been installed, and operated in accordance with the supplier's manual.	<b>Pass</b>
<b>5.0</b>	<b>Incoming supply conductors termination and devices for disconnecting and switching of.</b>		<b>--</b>
5.1	Incoming supply conductor termination		<b>--</b>
	Single or multiple power supply		<b>Pass</b>
	Separate terminals	Separate terminals have been provided.	<b>Pass</b>
	Plug provided with the machine	Not applicable	<b>N/A</b>
	Neutral conductor labelled and marked in installation instruction.		<b>N/A</b>
	Connection between protective earth and neutral.		<b>N/A</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



<b>Attachment No.2: IEC 60204-1</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	Identification of incoming supply connection.		<b>Pass</b>
5.2	External protective conductor terminal	No such terminals	<b>N/A</b>
	The placing of the terminal		<b>N/A</b>
	Size of the terminal		<b>N/A</b>
	Marking of the external protective conductor with letters "PE"		<b>N/A</b>
	Other protective terminals shall be marked with the symbol 417-IEC-5019 or by use of bicolour combination GREEN-AND-YELLOW		<b>N/A</b>
5.3	Supply disconnecting (isolating) device		<b>--</b>
5.3.1	Hand operated disconnect device for each incoming device.		<b>Pass</b>
	Interlocks		<b>N/A</b>
5.3.2	a) Switch-disconnecting device                      b) A disconnect with auxiliary device                      c) Circuit breaker d) Plug / socket combination.		<b>Pass</b>
5.3.3	Requirements		<b>--</b>
5.3.3.1	General		<b>N/A</b>
	Marked with "I" and "O"		<b>N/A</b>
	When "Off" then all conductors are open		<b>N/A</b>
	Have an external operating handle. Not emergency stop device and not RED.		<b>N/A</b>
	Means to be locked in "OFF" position		<b>N/A</b>
	Disconnect all live conductors		<b>N/A</b>
	Breaking capacity		<b>N/A</b>
5.3.3.2	Power operated circuit-breakers		<b>N/A</b>
	Means for manual operation		<b>N/A</b>
	Manual as well as remote closing		<b>N/A</b>
5.3.4	Disconnect device shall be easily accessible. 0,6 and 1,9 m		<b>Pass</b>
5.3.5	Excepted circuits - lightning - plug / Socked circuits - Undervoltage protection - Circuits supplying equipment - Control circuits -	No excepted circuit	<b>N/A</b>
	Warning label for excepted circuits - Warning label at disconnect device - Warning label at each circuit - Statement in maintenance manual	Not applicable	<b>N/A</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358





<b>Attachment No.2: IEC 60204-1</b>			
Clause	Requirement – Test	Result - Remark	Verdict
5.4	Not applicable		<b>N/A</b>
5.5	Devices for disconnecting electrical equipment		<b>N/A</b>
5.6	Protection against unauthorized, inadvertent and/or mistaken connection		<b>N/A</b>
<b>6</b>	<b>Protection against electric shock</b>		<b>--</b>
6.1	General: Protections against: - direct contact; and - indirect contact		<b>Pass</b>
6.2	Protection against direct contact. 6.2.1. and 6.2.2. are applicable and 6.2.3. shall be applied		<b>Pass</b>
6.2.1	Protection by enclosures.		<b>Pass</b>
	Minimum protection : IP4X or IPXXB		<b>N/A</b>
a)	Use of key or tool for access for skilled persons.		<b>N/A</b>
	Minimum requirement inside doors: IP1X or IPXXA		<b>N/A</b>
	Minimum requirement inside doors for live parts which are likely to be touched: IP2X or IPXXB		<b>Pass</b>
	Rooms used as enclosures which are accessible only to skilled persons, then IEC 364-4-41, IEC 364-4-47 and EN 60439-1 apply.	Not applicable	<b>N/A</b>
b)	Interlocking of doors		<b>N/A</b>
	Device or tools to defeat the interlock		<b>N/A</b>
	Disconnect device shall be protected against direct contact to at least IP2X or IPXXB		<b>N/A</b>
	Warning sign according to 18.2		<b>N/A</b>
c)	without use of key or tool		<b>N/A</b>
	Protected against direct contact to at least IP2X or IPXXB		<b>N/A</b>
	Where barriers are used then tool or disconnect device are required.		<b>N/A</b>
6.2.2	Protection by insulation of live parts		<b>Pass</b>
	Live part shall be covered by insulation which withstand mechanical, chemical, electrical and thermal stresses during normal service conditions.		<b>Pass</b>
	Protection against residual voltages		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.2: IEC 60204-1</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	After disconnection the voltage shall drop to 60V or less within 5 second.		<b>Pass</b>
	Exemption: Components with stored charge of 60 $\mu$ C or less or - If the rate of discharge does interfere with the proper function of the equipment.	- No this situation	<b>N/A</b>
	Warning notice located on or adjacent to the enclosure.	No this situation	<b>N/A</b>
	Plugs: Discharge time shall not exceed 1 second.	No this situation	<b>N/A</b>
	Exemption: The conductors are protected against direct contact to at least IP2X or IPXXB.	No this situation	<b>N/A</b>
6.3	Protection against indirect contact		<b>Pass</b>
	Hazardous condition when insulation fails between live parts and exposed conductive parts.	According to clause 6.3.2. and 6.3.3. to fulfil with statement.	<b>Pass</b>
	Each circuit or part one of 6.3.1, 6.3.2 or 6.3.3 shall be applied.	See following test	<b>Pass</b>
6.3.1	Protection by automatic disconnection of supply.	No device of able automatic disconnection of supply	<b>N/A</b>
	Protective bonding circ		<b>N/A</b>
	Protective device for automatic disconnection of the supply in case of insulation failure.		<b>N/A</b>
	Co-ordination between type of power supply and disconnect device accordance with 413.1 of IEC 364-4-41		<b>N/A</b>
6.3.2	Protection by use of Class II equipment or by equivalent insulation		<b>N/A</b>
	- Use of class II electrical device or reinforced or by equivalent insulation.		<b>N/A</b>
	- Use of switchgear and controlgear assemblies		<b>N/A</b>
	- application of supplementary or reinforced insulation according to IEC 364-4-41		<b>N/A</b>
6.3.3	Protection by electrical separation		<b>Pass</b>
	Electrical separation by an individual circuit to prevent shock current through contact with exposed conductive parts. IEC 364-4-41 shall apply.		<b>Pass</b>
TRF No. IEC60335_1X			

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.2: IEC 60204-1</b>			
Clause	Requirement – Test	Result - Remark	Verdict
6.4	Protection by use of PELV (Protective Extra Low Voltage).	PELV circuit(For electric scooter )	<b>N/A</b>
	<p>PELV shall satisfy all of the following conditions:</p> <p>a) Max 25 Vac or 60Vdc</p> <p>b) Max current when failure to 1A a.c. or 0,2A d.c.</p> <p>c) Max 80 mm<sup>2</sup> of area not protected.</p> <p>d) Only indoor with dry condition.</p> <p>e) Source of supply shall be insulated according to with higher voltage according to 6.3.3 and 15.1.3</p> <p>f) PELV circuit shall be bonded to protective earth.</p> <p>g) Exposed conductive parts associated with PELV shall be insulated or bonded.</p> <p>h) Plugs and socket outlets:</p> <p>1) Plugs shall not be able to enter other sockets than in PELV circuits</p> <p>2) Socket outlets shall exclude plugs from other circuits than PELV</p> <p>i) Where this circuits are used as control circuits then they shall also fulfil the relevant requirements of clause 9.</p>		<b>N/A</b>
<b>7</b>	<b>Protection of equipment</b>		<b>--</b>
7.1	General		<b>Pass</b>
7.2	Overcurrent protection		<b>Pass</b>
7.2.1	Supply conductors		<b>Pass</b>
	The supplier is not responsible for the overcurrent device for the supply conductors.		<b>Pass</b>
	Installation diagram with data necessary for selection of overcurrent protective device.		<b>Pass</b>
7.2.2	Power circuits		<b>Pass</b>
	All live conductors except earthed neutral conductor shall be protected against overcurrent.		<b>Pass</b>
	Cross section area for Neutral conductor is at least equal to or equivalent to that of the phase conductors. It is not necessary		<b>N/A</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.2: IEC 60204-1</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	For Neutral conductors smaller than phase conductors then IEC 60364-4-473 shall apply	The clause has been met.	<b>Pass</b>
	For IT power system it is generally necessary to provide an overcurrent protection.	No IT power system	<b>N/A</b>
7.2.3	Control circuits		<b>Pass</b>
	Conductors for control circuits connected to supply voltage shall be protected against overcurrent according to 7.2.2		<b>Pass</b>
	Control circuits feed through a transformer		<b>Pass</b>
7.2.4	Socket outlets and their associated conductors		<b>N/A</b>
	Overcurrent protection is required for socket outlets		<b>N/A</b>
	Provided in phase conductors	Not applicable	<b>N/A</b>
7.2.5	Local lightning circuits		<b>Pass</b>
	Separate protected by overcurrent device		<b>Pass</b>
7.2.6	Transformers		<b>Pass</b>
	Transformers shall be protected against overcurrent in accordance with IEC 76-5 and EN 60742		<b>Pass</b>
7.2.7	Location of overcurrent protective device		<b>Pass</b>
	Overcurrent protective device shall be located where the conductors are connected to the power supply.		<b>Pass</b>
7.2.8	Overcurrent protective device		<b>Pass</b>
	The breaking capacity		<b>Pass</b>
7.2.9	Rating and setting of overcurrent device		<b>Pass</b>
7.3	Overload protection of motors		<b>Pass</b>
7.4	Abnormal temperature protection		<b>Pass</b>
7.5	Protection against supply interruption or voltage reduction and subsequent restoration		<b>Pass</b>
7.6	Motor overspeed protection		<b>Pass</b>
7.7	Earth fault/residual current protection	Not applicable	<b>N/A</b>
7.8	Phase sequence port	Not applicable	<b>N/A</b>
7.9	Protection against overvoltages due to lightning and to switching surges	Not applicable	<b>N/A</b>
<b>8</b>	<b>Equipotent bonding</b>		<b>--</b>
8.1	General		<b>Pass</b>
8.2	Protective bonding circuit		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.2: IEC 60204-1</b>			
Clause	Requirement – Test	Result - Remark	Verdict
8.2.1	General		<b>Pass</b>
8.2.2	Protective conductors		<b>Pass</b>
8.2.3	Continuity of the protective bonding circuit		<b>Pass</b>
8.2.4	Exclusion of switching devices from the protective bonding circuit	No this device	<b>N/A</b>
8.2.5	Parts which need not to be connected to the protective bonding circuit		<b>Pass</b>
8.2.6	Interruption of the protective bonding circuits		<b>Pass</b>
	Protective conductor connecting points		<b>Pass</b>
8.2.7	Mobile machines		<b>Pass</b>
8.2.8	Additional protective bonding requirements for electrical equipment having earth leakage currents higher than 10mA a.c. or d.c.		<b>N/A</b>
8.3	Bonding to the protective circuit for operational purposes	No this situation	<b>N/A</b>
8.4	insulation failures Measures to limit the effects of high leakage current		<b>N/A</b>
8.5	Bonding to a common reference potential	No this situation	<b>N/A</b>
8.6	Electrical interference	No this situation	<b>N/A</b>
<b>9</b>	<b>Control circuits and control functions</b>		<b>--</b>
9.1	Control circuits		<b>--</b>
9.1.1	Control circuit supply		<b>Pass</b>
9.1.2	Control circuit voltages		<b>Pass</b>
9.1.3	Protections		<b>Pass</b>
9.1.4	Connection to control devices		<b>Pass</b>
9.2	Control function		<b>Pass</b>
9.2.1	Start functions		<b>Pass</b>
9.2.2	Stop functions		<b>Pass</b>
9.2.3	Operating modes		<b>N/A</b>
9.2.4	Suspensions of safeguards		<b>N/A</b>
9.2.5	Operation		<b>Pass</b>
9.2.5.1	General		<b>Pass</b>
9.2.5.2	Start		<b>Pass</b>
	Interlocks		<b>N/A</b>
	Machines which require more than one control station to indicate a start.	Not applicable	<b>N/A</b>
9.2.5.3	Stop		<b>Pass</b>
	Interlocks		<b>N/A</b>
	The reset of the stop function		<b>N/A</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.2: IEC 60204-1</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	Machines which require more than one control station to indicate a start.	Not applicable, only one starts.	<b>N/A</b>
9.2.5.4	Emergency stop		<b>Pass</b>
9.2.5.5	Monitoring of command actions		<b>N/A</b>
9.2.6	Other control functions		<b>Pass</b>
9.2.6.1	Hold-to-run controls		<b>N/A</b>
9.2.6.2	Two-hand control		<b>N/A</b>
9.2.6.3	Enabling control		<b>N/A</b>
9.2.6.4	Combined start and stop controls		<b>N/A</b>
9.2.7	Cableless control		<b>N/A</b>
9.3	Protective interlocks		<b>N/A</b>
9.3.1	Restoration of interlocked safeguards		<b>N/A</b>
9.3.2	Overtravel limits		<b>N/A</b>
9.3.3	Operation of auxiliary functions		<b>N/A</b>
9.3.4	Interlocks between different operations and for contrary motions		<b>N/A</b>
9.3.5	Reverse current breaking		<b>N/A</b>
9.4	Control functions in case of failure		<b>N/A</b>
9.4.1	General requirements		<b>N/A</b>
9.4.2	Measures to minimize risk in case of failure		<b>N/A</b>
9.4.2.1	Use of proven circuit techniques and components		<b>N/A</b>
9.4.2.2	Provision of redundancy		<b>N/A</b>
9.4.2.3	Use of diversity		<b>N/A</b>
9.4.2.4	Functional test		<b>N/A</b>
9.4.3	Protection against maloperations due to earth faults and voltage interruption		<b>N/A</b>
9.4.3.1	Earth faults		<b>N/A</b>
9.4.3.2	Voltage interruptions		<b>N/A</b>
9.4.3.3	Loss of circuit continuity		<b>N/A</b>
<b>10</b>	<b>Operator interface and machine mounted control devices</b>		<b>--</b>
10.1	General	Comply with requirement	<b>Pass</b>
10.1.1	Location and mounting		<b>Pass</b>
10.1.2	Protection		<b>Pass</b>
10.1.3	Position sensors	Not applicable	<b>N/A</b>
10.2	Push-buttons		<b>Pass</b>
10.2.1	Colours		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.2: IEC 60204-1</b>			
Clause	Requirement – Test	Result - Remark	Verdict
10.2.2	Markings	Markings are compliance with EN-417	<b>Pass</b>
10.3	Indicator lights and displays		<b>Pass</b>
10.3.1	Modes of use		<b>Pass</b>
10.3.2	Colours		<b>Pass</b>
10.3.3	Flashing lights		<b>Pass</b>
10.4	Illuminated push-buttons		<b>N/A</b>
10.5	Rotary control devices	Not applicable	<b>N/A</b>
10.6	Start devices	They are constructed to minimize inadvertent operation.	<b>Pass</b>
10.7	Emergency stop devices		<b>Pass</b>
10.7.1	Location of emergency stop devices E		<b>N/A</b>
10.7.2	Types		<b>N/A</b>
10.7.3	Colour of actuators		<b>N/A</b>
10.7.4	Local operation of the supply disconnecting device to effect emergency stop	Not applicable	<b>N/A</b>
10.7.5	Use of means of disconnection	No this situation	<b>N/A</b>
10.8	Emergency switching off device		<b>N/A</b>
10.8.1	Location	Operation location	<b>N/A</b>
10.8.2	Types		<b>N/A</b>
10.8.3	Colour of actuators		<b>N/A</b>
10.8.4	Local operation of the supply disconnecting device to effect emergency switching off		<b>N/A</b>
10.9	Enabling control device	No this situation	<b>N/A</b>
<b>11</b>	<b>Electronic equipment</b>		<b>--</b>
11.1	General		<b>Pass</b>
11.2	Basic requirements	Indications of state about input and output are supplied.	<b>Pass</b>
11.2.2	Electronic control equipment		<b>Pass</b>
11.2.3	Equipotent bonding		<b>N/A</b>
11.3	Programmable equipment	Not applicable	<b>N/A</b>
11.3.1	Programmable controllers	Not applicable	<b>N/A</b>
11.3.2	Memory retention and protection	The clause has been met.	<b>Pass</b>
11.3.3	Programming equipment	Not applicable	<b>N/A</b>
11.3.4	Software verification	Software verification has been carried out.	<b>N/A</b>
11.3.5	Use in safety-related functions	It has been tested.	<b>Pass</b>
<b>11</b>	<b>Controlgear: location, mounting and enclosures</b>		<b>--</b>
TRF No. IEC60335_1X			

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.2: IEC 60204-1</b>			
Clause	Requirement – Test	Result - Remark	Verdict
11.1	General requirements		<b>Pass</b>
11.2	Location and mounting		<b>Pass</b>
11.2.1	Accessibility and maintenance	Not applicable	<b>N/A</b>
11.2.2	Segregation		<b>Pass</b>
11.2.3	Heating effects		<b>Pass</b>
11.3	Degrees of protection		<b>Pass</b>
11.4	Enclosures, doors and openings		<b>Pass</b>
11.5	Access to controlgear Minimum dimension of gangways	No this situation	<b>N/A</b>

<b>12</b>	<b>Conductors and cables</b>		<b>--</b>
12.1	General requirements		<b>Pass</b>
12.1	General requirements	Suitable for the operating condition.	<b>Pass</b>
12.2	Conductors		<b>Pass</b>
12.3	Insulation		<b>Pass</b>
12.4	Current carrying capacity in normal service		<b>Pass</b>
12.5	Voltage drop		<b>Pass</b>
12.6	Minimum cross-section area		<b>Pass</b>
12.6	Flexible cables		<b>Pass</b>
12.6.1	General		<b>Pass</b>
12.6.2	Mechanical rating		<b>Pass</b>
12.6.3	Current-carrying capacity of cables wound on drums		<b>Pass</b>
12.7	Collector wires, collector bars and slip-ring assemblies		<b>N/A</b>
12.7.1	Protection of against direct contact		<b>Pass</b>
12.7.2	Protective conductor circuit	Not applicable	<b>N/A</b>
12.7.3	Protective conductor current collectors	Not applicable	<b>N/A</b>
12.7.4	Removable current collectors with a disconnecter function	Not applicable	<b>N/A</b>
12.7.5	Clearances in air ( IEC60664-1)		<b>Pass</b>
12.7.6	Creepage distance (IEC60664-1)		<b>Pass</b>
12.7.7	Conductor system section	Not applicable	<b>N/A</b>
12.7.8	Construction and installation		<b>Pass</b>

<b>13</b>	<b>Wiring practices</b>		<b>--</b>
13.1	Connection and routing		<b>Pass</b>
13.1.1	General requirements	Compliance by inspection	<b>Pass</b>
13.1.2	Conductor and cable runs	Compliance by inspection	<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



<b>Attachment No.2: IEC 60204-1</b>			
Clause	Requirement – Test	Result - Remark	Verdict
13.1.3	Conductors of different circuits	Compliance by inspection	<b>Pass</b>
13.2	Identification of conductors		<b>Pass</b>
13.2.1	General requirements	Conductors can be identifiable	<b>Pass</b>
13.2.2	Identification of the protective conductor		<b>Pass</b>
13.2.3	Identification of Neutral conductor		<b>Pass</b>
13.2.4	Identification by colour		<b>Pass</b>
13.3	Wiring inside enclosures	Compliance by inspection	<b>Pass</b>
13.4	Wiring outside enclosures		<b>Pass</b>
13.4.1	General requirements	IP is the same with enclosure.	<b>Pass</b>
13.24.2	External ducts	Compliance by inspection	<b>Pass</b>
13.4.3	Connection to moving elements of the machine	No this situation	<b>N/A</b>
13.4.4	Interconnection of devices on the machine	Compliance by inspection	<b>Pass</b>
13.4.5	Plug and socket connection		<b>Pass</b>
13.4.6	Dismantling for shipment	Compliance by inspection of instruction manual	<b>Pass</b>
13.4.7	Additional conductors	Not applicable	<b>N/A</b>
13.5	Ducts, connection and junction boxes		<b>Pass</b>
13.5.1	General requirements	No sharp edges	<b>Pass</b>
13.5.2	Percentage fill of ducts	Suitable	<b>Pass</b>
13.5.3	Rigid metal conduit and fittings	Conduits are securely held in place.	<b>Pass</b>
13.5.4	Flexible metal conduit and fittings		<b>Pass</b>
13.5.5	Flexible non-metal conduit and fittings		<b>N/A</b>
13.5.6	Cable trunking systems		<b>Pass</b>
13.5.7	Machines compartments and cable trunking systems	Not applicable	<b>N/A</b>
13.5.8	Connection boxes and other boxes		<b>Pass</b>
13.5.9	Motor connection boxes		<b>Pass</b>
<b>14</b>	<b>Electric motors and associated equipment</b>		<b>--</b>
14.1	General requirements ( IEC60034)		<b>Pass</b>
14.2	Motor enclosures		<b>Pass</b>
14.3	Motor dimensions (IEC60072)		<b>Pass</b>
14.4	Motor mounting and compartments		<b>Pass</b>
14.5	Criteria for motor selections		<b>N/A</b>
14.6	Protective devices for mechanical brakes		<b>N/A</b>
<b>15</b>	<b>Accessories and lightning</b>		

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.2: IEC 60204-1</b>			
Clause	Requirement – Test	Result - Remark	Verdict
15.1	Accessories	No accessories	<b>N/A</b>
15.2	Local lightning of the machines and equipment		<b>N/A</b>
15.2.1	General		<b>N/A</b>
15.2.2	Supply		<b>N/A</b>
15.2.3	Protection		<b>N/A</b>
15.2.4	Fittings		<b>N/A</b>
<b>16</b>	<b>Marking, warning signs and reference designation</b>		<b>--</b>
16.1	General--Nameplates, marking and identification plates	Nameplates, marking and identification plates have been provided.	<b>Pass</b>
16.2	Warning signs		<b>Pass</b>
16.2.1	Electric shock hazard	Machine is marked with warning signs.	<b>Pass</b>
16.2.2	Hot surfaces hazard	Machine is marked with warning signs.	<b>Pass</b>
16.3	Functional identification	According to symbol of panel and instruction manual, it is met.	<b>Pass</b>
16.4	Marking of control equipment	Marking of equipment is checked by inspection.	<b>Pass</b>
16.5	Reference designations	The clause has been met.	<b>Pass</b>
<b>17</b>	<b>Technical documentation</b>		<b>--</b>
17.1	General	English approved	<b>Pass</b>
17.2	Information to be provided	The clause has been met.	<b>Pass</b>
17.3	Requirements applicable to all documentation	These documents are: Installation diagram, Circuit diagram, Parts list of electrical components, Marking, Instruction manual	<b>Pass</b>
18.4	Basic information	Information is fulfilled.	<b>Pass</b>
17.4	Installation diagram Documents	Installation diagram is checked by inspection.	<b>Pass</b>
17.5	System (bloc) diagram Overview diagrams and function diagrams	The clause has been met.	<b>Pass</b>
17.6	Circuit diagrams	Circuit diagram is checked by inspection.	<b>Pass</b>
17.7	Operating manual	Operating of instruction manual is checked by inspection.	<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.2: IEC 60204-1</b>			
Clause	Requirement – Test	Result - Remark	Verdict
17.8	Maintenance manual	Maintenance of instruction manual is checked by inspection.	<b>Pass</b>
17.9	Part list	Parts list of electrical components is checked by inspection.	<b>Pass</b>
<b>18</b>	<b>Verification</b>		<b>--</b>
18.1	General	See the following test reports of annex A	<b>Pass</b>
18.2	Continuity of the protective bonding circuit	circuit Refer to the Test report	<b>Pass</b>
18.3	Insulation resistance test	Refer to the Test report	<b>Pass</b>
18.4	Voltage	Refer to the Test report	<b>Pass</b>
18.5	Protection against residual voltages	Refer to the Test report	<b>Pass</b>
18.6	Functional	Functional tests have carried out.	<b>Pass</b>
18.7	Retesting	Refer to instruction manual, being the fulfilment with this statement.	<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

Attachment No.2: IEC 60204-1			
Clause	Requirement – Test	Result - Remark	Verdict

## Annex A – Test tables

19.2 for IEC 60204-1	TABLE: Continuity of the protective bonding circuit			N
Location	Current(A)	Frequency(Hz)	Time(s)	Measured
Between PE terminal and relevant points that are part of the protective bonding circuit	-	-	-	-

19.3 for IEC 60204-1	TABLE: Insulation resistance tests			P
Location	Voltage(V) d.c.	Frequency(Hz)	Time(s)	Measured insulation resistance(MΩ)
Between power circuit conductors and protective bonding circuit	500	--	60	>100
Between secondary power circuit conductors to protective bonding circuit	500	--	60	>100

19.4 for IEC 60204-1	TABLE: voltage tests		P
test voltage applied between:	Test Voltage (V) a.c / d.c	Breakdown	
The conductors of all circuits and the protective bonding circuits	1000VAC/50Hz/1min	NO	

## Test equipments:

Equipment Name	Model No.	Series No.	Last Cal date	Next Cal date
Withstanding/insulation	TOS9201	KA003974	2018-10-09	2019-10-08
40A ground current tester	GFM-40AC	429981	2018-10-09	2019-10-08
Sound Level Tester	DT-805	6050394	2018-10-09	2019-10-08

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

Attachment No.3: ISO 12100: 2010			
Clause	Requirement – Test	Result - Remark	Verdict

## TEST REPORT

## ISO 12100: 2010

## Safety of machinery. General principles for design. Risk assessment and risk reduction

Test specification Standard ..... ISO 12100:2010;

Test procedure ..... Compliance with ISO 12100:2010

Procedure deviation ..... N/A

1	<b>Scope</b>	--
2	<b>Normative references</b>	--
3	<b>Terms and definitions</b>	--
4	<b>Strategy for risk assessment and risk reduction</b>	--
5	<b>Risk assessment</b>	--
5.1	<b>General</b>	--
	Risk assessment comprises (see Figure 1) - risk analysis, comprising 1) determination of the limits of the machinery (see 5.3), 2) hazard identification (5.4 and Annex B), and 3) risk estimation (see 5.5), and - risk evaluation (see 5.6).	<b>Pass</b>
	Risk analysis provides information required for the risk evaluation, which in turn allows judgments to be made about whether or not risk reduction is required.	<b>Pass</b>
	These judgments shall be supported by a qualitative or, where appropriate, quantitative estimate of the risk associated with the hazards present on the machinery.	<b>Pass</b>
	The risk assessment shall be documented according to Clause 7.	<b>Pass</b>
5.2	<b>Information for risk assessment</b>	--
	The information for risk assessment should include the following.	--
	a) <b>Related to machinery description:</b> 1) user specifications; 2) anticipated machinery specifications, including i) a description of the various phases of the whole life cycle of the machinery, ii) design drawings or other means of establishing the nature of the machinery, and iii) required energy sources and how they are supplied; 3) documentation on previous designs of similar machinery, if relevant; 4) information for use of the machinery, as available.	<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	<b>b) Related to regulations, standards and other applicable documents:</b> 1) applicable regulations; 2) relevant standards; 3) relevant technical specifications; 4) relevant safety data sheets.		<b>Pass</b>
	<b>c) Related to experience of use:</b> 1) any accident, incident or malfunction history of the actual or similar machinery; 2) the history of damage to health resulting, for example, from emissions (noise, vibration, dust, fumes, etc.), chemicals used or materials processed by the machinery; 3) the experience of users of similar machines and, whenever practicable, an exchange of information with the potential users.		<b>Pass</b>
	<b>d) Relevant ergonomic principles.</b>		--
	The information shall be updated as the design develops or when modifications to the machine are required.		<b>Pass</b>
	Comparisons between similar hazardous situations associated with different types of machinery are often possible, provided that sufficient information about hazards and accident circumstances in those situations is available.		<b>Pass</b>
	For quantitative analysis, data from databases, handbooks, laboratories or manufacturers' specifications may be used, provided that there is confidence in the suitability of the data. Uncertainty associated with these data shall be indicated in the documentation (see Clause 7).		<b>Pass</b>
<b>5.3</b>	<b>Determination of limits of machinery</b>		--
<b>5.3.1</b>	<b>General</b>		-
	Risk assessment begins with the determination of the limits of the machinery, taking into account all the phases of the machinery life. This means that the characteristics and performances of the machine or a series of machines in an integrated process, and the related people, environment and products, should be identified in terms of the limits of machinery as given in 5.3.2 to 5.3.5.		<b>Pass</b>
<b>5.3.2</b>	<b>Use limits</b>		--
	Use limits include the intended use and the reasonably foreseeable misuse. Aspects to be taken into account include the following:		--
	a) the different machine operating modes and different intervention procedures for the users, including interventions required by malfunctions of the machine;		<b>N/A</b>
	b) the use of the machinery (for example, industrial, non-industrial and		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result - Remark</b>	<b>Verdict</b>
	domestic) by persons identified by sex, age, dominant hand usage, or limiting physical abilities (visual or hearing impairment, size, strength, etc.);		
	c) the anticipated levels of training, experience or ability of users including 1) operators, 2) maintenance personnel or technicians, 3) trainees and apprentices, and 4) the general public;		<b>N/A</b>
	d) exposure of other persons to the hazards associated with the machinery where it can be reasonably foreseen: 1) persons likely to have a good awareness of the specific hazards, such as operators of adjacent machinery; 2) persons with little awareness of the specific hazards but likely to have a good awareness of site safety procedures, authorized routes, etc., such as administration staff; 3) persons likely to have very little awareness of the machine hazards or the site safety procedures, such as visitors or members of the general public, including children.		<b>Pass</b>
	If specific information is not available in relation to b), above, the manufacturer should take into account general information on the intended user population (for example, appropriate anthropometric data).		<b>Pass</b>
<b>5.3.3</b>	<b>Space limits</b>		<b>--</b>
	Aspects of space limits to be taken into account include a) the range of movement, b) space requirements for persons interacting with the machine, such as during operation and maintenance, c) human interaction such as the operator–machine interface, and d) the machine–power supply interface.		<b>Pass</b>
<b>5.3.4</b>	<b>Time limits</b>		<b>--</b>
	Aspects of time limits to be taken into account include a) the life limit of the machinery and/or of some of its components (tooling, parts that can wear, electromechanical components, etc.), taking into account its intended use and reasonably foreseeable misuse, and b) recommended service intervals.		<b>Pass</b>
<b>5.3.5</b>	<b>Other limits</b>		<b>--</b>
	Examples of other limits include a) properties of the material(s) to be processed, b) housekeeping — the level of cleanliness required, and		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	c) environmental — the recommended minimum and maximum temperatures, whether the machine can be operated indoors or outdoors, in dry or wet weather, in direct sunlight, tolerance to dust and wet, etc.		
<b>5.4</b>	<b>Hazard identification</b>		--
	After determination of the limits of the machinery, the essential step in any risk assessment of the machinery is the systematic identification of reasonably foreseeable hazards (permanent hazards and those which can appear unexpectedly), hazardous situations and/or hazardous events during all phases of the machine life cycle, i.e.: - transport, assembly and installation; - commissioning; - use; - dismantling, disabling and scrapping.		<b>Pass</b>
	Only when hazards have been identified can steps be taken to eliminate them or to reduce risks. To accomplish this hazard identification, it is necessary to identify the operations to be performed by the machinery and the tasks to be performed by persons who interact with it, taking into account the different parts, mechanisms or functions of the machine, the materials to be processed, if any, and the environment in which the machine can be used.		<b>Pass</b>
	The designer shall identify hazards taking into account the following.		--
	a) <b>Human interaction during the whole life cycle of the machine</b> Task identification should consider all tasks associated with every phase of the machine life cycle as given above. Task identification should also take into account, but not be limited to, the following task categories: - setting; - testing; - teaching/programming; - process/tool changeover; - start-up; - all modes of operation; - feeding the machine; - removal of product from machine; - stopping the machine; - stopping the machine in case of emergency; - recovery of operation from jam or blockage; - restart after unscheduled stop; - fault-finding/trouble-shooting (operator intervention); - cleaning and housekeeping;		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	- preventive maintenance; - corrective maintenance.		
	All reasonably foreseeable hazards, hazardous situations or hazardous events associated with the various tasks shall then be identified. Annex B gives examples of hazards, hazardous situations and hazardous events to assist in this process. Several methods are available for the systematic identification of hazards. See also ISO/TR 14121-2.		<b>Pass</b>
	In addition, reasonably foreseeable hazards, hazardous situations or hazardous events not directly related to tasks shall be identified.		<b>Pass</b>
	EXAMPLE Seismic events, lightning, excessive snow loads, noise, break-up of machinery, hydraulic hose burst.		<b>Pass</b>
	<b>b) Possible states of the machine</b>		--
	These are as follows: 1) the machine performs the intended function (the machine operates normally); 2) the machine does not perform the intended function (i.e. it malfunctions) due to a variety of reasons, including - variation of a property or of a dimension of the processed material or of the workpiece, - failure of one or more of its component parts or services, - external disturbances (for example, shocks, vibration, electromagnetic interference), - design error or deficiency (for example, software errors), - disturbance of its power supply, and - surrounding conditions (for example, damaged floor surfaces).		<b>Pass</b>
	<b>c) Unintended behaviour of the operator or reasonably foreseeable misuse of the machine</b>		--
	Examples include - loss of control of the machine by the operator (especially for hand-held or mobile machines), - reflex behaviour of a person in case of malfunction, incident or failure during the use of the machine, - behaviour resulting from lack of concentration or carelessness, - behaviour resulting from taking the “line of least resistance” in carrying out a task, - behaviour resulting from pressures to keep the machine running in all circumstances, and - behaviour of certain persons (for example, children, disabled persons).		<b>Pass</b>
<b>5.5</b>	<b>Risk estimation</b>		--

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

Attachment No.3: ISO 12100: 2010			
Clause	Requirement – Test	Result - Remark	Verdict
<b>5.5.1</b>	<b>General</b>		--
	After hazard identification, risk estimation shall be carried out for each hazardous situation by determining the elements of risk given in 5.5.2. When determining these elements, it is necessary to take into account the aspects given in 5.5.3.		<b>Pass</b>
	If standardized (or other suitable) measurement methods exist for an emission, they should be used, in conjunction with existing machinery or prototypes, to determine emission values and comparative emission data. This makes it possible for the designer to <ul style="list-style-type: none"> <li>- estimate the risk associated with the emissions,</li> <li>- evaluate the effectiveness of the protective measures implemented at the design stage,</li> <li>- provide potential buyers with quantitative information on emissions in the technical documentation, and</li> <li>- provide users with quantitative information on emissions in the information for use.</li> </ul>		<b>Pass</b>
	Hazards other than emissions that are described by measurable parameters can be dealt with in a similar manner.		<b>Pass</b>
<b>5.5.2</b>	<b>Elements of risk</b>		--
<b>5.5.2.1</b>	<b>General</b>		--
	The risk associated with a particular hazardous situation depends on the following elements: <ol style="list-style-type: none"> <li>a) the severity of harm;</li> <li>b) the probability of occurrence of that harm, which is a function of <ol style="list-style-type: none"> <li>1) the exposure of person(s) to the hazard,</li> <li>2) the occurrence of a hazardous event, and</li> <li>3) the technical and human possibilities to avoid or limit the harm.</li> </ol> </li> </ol>		<b>Pass</b>
	The elements of risk are shown in Figure 3. Additional details are given in 5.5.2.2, 5.5.2.3 and 5.5.3. <div style="text-align: center; margin-top: 20px;"> <pre> graph TD     R[RISK related to the considered hazard] --- F[Is a function of]     F --- S[SEVERITY OF HARM that can result from the considered hazard]     F --- P[PROBABILITY OF OCCURRENCE of that harm]     P --- E[Exposure of person(s) to the hazard]     P --- O[the occurrence of a hazardous event]     P --- L[the possibility to avoid or limit the harm]     </pre> </div>		--
	Figure 3 — Elements of risk		

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
<b>5.5.2.2</b>	<b>Severity of harm</b>		--
	The severity can be estimated by taking into account the following:		--
	a) the severity of injuries or damage to health, for example, - slight, - serious, - death.		<b>N/A</b>
	b) the extent of harm, for example, to - one person, - several persons.		<b>N/A</b>
	When carrying out a risk assessment, the risk from the most likely severity of the harm that is likely to occur from each identified hazard shall be considered, but the highest foreseeable severity shall also be taken into account, even if the probability of such an occurrence is not high.		<b>N/A</b>
<b>5.5.2.3</b>	<b>Probability of occurrence of harm</b>		--
<b>5.5.2.3.1</b>	<b>Exposure of persons to the hazard</b>		--
	The exposure of a person to the hazard influences the probability of the occurrence of harm. Factors to be taken into account when estimating the exposure are, among others, a) the need for access to the hazard zone (for normal operation, correction of malfunction, maintenance or repair, etc.), b) the nature of access (for example, manual feeding of materials), c) the time spent in the hazard zone, d) the number of persons requiring access, and e) the frequency of access.		<b>Pass</b>
<b>5.5.2.3.2</b>	<b>Occurrence of a hazardous event</b>		--
	The occurrence of a hazardous event influences the probability of occurrence of harm. Factors to be taken into account when estimating the occurrence of a hazardous event are, among others, a) reliability and other statistical data, b) accident history, c) history of damage to health, and d) comparison of risks (see 5.6.3).		<b>Pass</b>
<b>5.5.2.3.3</b>	<b>Possibility of avoiding or limiting harm</b>		--
	The possibility of avoiding or limiting harm influences the probability of occurrence of harm. Factors to be taken into account when estimating the possibility of avoiding or limiting harm are, among others, the following:		--
	a) different persons who can be exposed to the hazard(s), for example, - skilled,		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	- unskilled;		
	b) how quickly the hazardous situation could lead to harm, for example, - suddenly, - quickly, - slowly;		<b>N/A</b>
	c) any awareness of risk, for example, - by general information, in particular, information for use, - by direct observation, - through warning signs and indicating devices, in particular, on the machinery;		<b>Pass</b>
	d) the human ability to avoid or limit harm (for example, reflex, agility, possibility of escape);		<b>Pass</b>
	e) practical experience and knowledge, for example, - of the machinery, - of similar machinery, - no experience.		<b>Pass</b>
<b>5.5.3</b>	<b>Aspects to be considered during risk estimation</b>		<b>--</b>
<b>5.5.3.1</b>	<b>Persons exposed</b>		<b>--</b>
	Risk estimation shall take into account all persons (operators and others) for whom exposure to the hazard is reasonably foreseeable.		<b>Pass</b>
<b>5.5.3.2</b>	<b>Type, frequency and duration of exposure</b>		<b>--</b>
	The estimation of the exposure to the hazard under consideration (including long-term damage to health) requires analysis of, and shall account for, all modes of operation of the machinery and methods of working. In particular, the analysis shall account for the needs for access during loading/unloading, setting, teaching, process changeover or correction, cleaning, fault-finding and maintenance.		<b>Pass</b>
	The risk estimation shall also take into account tasks, for which it is necessary to suspend protective measures.		<b>Pass</b>
<b>5.5.3.3</b>	<b>Relationship between exposure and effects</b>		
	The relationship between an exposure to a hazard and its effects shall be taken into account for each hazardous situation considered. The effects of accumulated exposure and combinations of hazards shall also be considered. When considering these effects, risk estimation shall, as far as practicable, be based on appropriate recognized data.		<b>Pass</b>
	NOTE 1 Accident data can assist in establishing the probability and severity of injury associated with the use of a particular type of machinery with a particular type of protective measure. NOTE 2 Zero accident data is, however, no guarantee of the low probability and severity of an injury.		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
<b>5.5.3.4</b>	<b>Human factors</b>		--
	Human factors can affect risk and shall be taken into account in the risk estimation, including, for example,		--
	a) the interaction of person(s) with the machinery, including correction of malfunction, b) interaction between persons, c) stress-related aspects, d) ergonomic aspects, e) the capacity of persons to be aware of risks in a given situation depending on their training, experience and ability, f) fatigue aspects, and g) aspects of limited abilities (due to disability, age, etc.).		<b>Pass</b>
	Training, experience and ability can affect risk; nevertheless, none of these factors shall be used as a substitute for hazard elimination, risk reduction by inherently safe design measure or safeguarding, wherever these protective measures can be practicably implemented.		<b>Pass</b>
<b>5.5.3.5</b>	<b>Suitability of protective measures</b>		--
	Risk estimation shall take into account the suitability of protective measures and shall a) identify the circumstances which can result in harm, b) whenever appropriate, be carried out using quantitative methods to compare alternative protective measures (see ISO/TR 14121-2), and c) provide information that can assist with the selection of appropriate protective measures.		<b>Pass</b>
	When estimating risk, those components and systems identified as immediately increasing the risk in case of failure need special attention.		<b>Pass</b>
	When protective measures include work organization, correct behaviour, attention, application of personal protective equipment (PPE), skill or training, the relatively low reliability of such measures compared with proven technical protective measures shall be taken into account in the risk estimation.		
<b>5.5.3.6</b>	<b>Possibility of defeating or circumventing protective measures</b>		--
	For the continued safe operation of a machine, it is important that the protective measures allow its easy use and do not hinder its intended use. Otherwise, there is a possibility that protective measures might be bypassed in order for maximum utility of the machine to be achieved.		<b>N/A</b>
	Risk estimation shall take account of the possibility of defeating or circumventing protective measures. It shall also take account of the incentive to defeat or circumvent protective measures when, for example,		<b>N/A</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result - Remark</b>	<b>Verdict</b>
	a) the protective measure slows down production or interferes with another activity or preference of the user, b) the protective measure is difficult to use, c) persons other than the operator are involved, or d) the protective measure is not recognized by the user or not accepted as being suitable for its function.		
	Whether or not a protective measure can be defeated depends on both the type of protective measure, such as an adjustable guard or programmable trip device, and its design details.		<b>N/A</b>
	Protective measures that use programmable electronic systems introduce additional possibilities of defeat or circumvention if access to safety-related software is not appropriately restricted by design and monitoring methods. Risk estimation shall identify where safety-related functions are not separated from other machine functions and shall determine the extent to which access is possible. This is particularly important when remote access for diagnostic or process correction purposes is required.		<b>N/A</b>
<b>5.5.3.7</b>	<b>Ability to maintain protective measures</b>		<b>--</b>
	Risk estimation shall consider whether the protective measures can be maintained in the condition necessary to provide the required level of protection.		<b>Pass</b>
	NOTE If the protective measure cannot easily be maintained in correct working order, this can encourage the defeat or circumvention of the protective measure in order to allow continued use of the machinery.		<b>Pass</b>
<b>5.5.3.8</b>	<b>Information for use</b>		<b>--</b>
	Risk estimation shall take into account the information for use, as available. See also 6.4.		<b>Pass</b>
<b>5.6</b>	<b>Risk evaluation</b>		<b>--</b>
<b>5.6.1</b>	<b>General</b>		<b>--</b>
	After risk estimation has been completed, risk evaluation shall be carried out to determine if risk reduction is required. If risk reduction is required, then appropriate protective measures shall be selected and applied (see Clause 6). As shown in Figure 1, the adequacy of the risk reduction shall be determined after applying each of the three steps of risk reduction described in Clause 6. As part of this iterative process, the designer shall also check whether additional hazards are introduced or other risks increased when new protective measures are applied. If additional hazards do occur, they shall be added to the list of identified hazards and appropriate protective measures will be required to address them.		<b>Pass</b>
	Achieving the objectives of risk reduction and a favourable outcome of		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	risk comparison applied when practicable gives confidence that risk has been adequately reduced.		
<b>5.6.2</b>	<b>Adequate risk reduction</b>		<b>--</b>
	Application of the three-step method described in 6.1 is essential in achieving adequate risk reduction.		<b>Pass</b>
	Following the application of the three-step method, adequate risk reduction is achieved when <ul style="list-style-type: none"> <li>- all operating conditions and all intervention procedures have been considered,</li> <li>- the hazards have been eliminated or risks reduced to the lowest practicable level,</li> <li>- any new hazards introduced by the protective measures have been properly addressed,</li> <li>- users are sufficiently informed and warned about the residual risks (see 6.1, step 3),</li> <li>- protective measures are compatible with one another,</li> <li>- sufficient consideration has been given to the consequences that can arise from the use in a nonprofessional/ non-industrial context of a machine designed for professional/industrial use, and</li> <li>- the protective measures do not adversely affect the operator's working conditions or the usability of the machine.</li> </ul>		<b>Pass</b>
<b>5.6.3</b>	<b>Comparison of risks</b>		<b>--</b>
	As part of the process of risk evaluation, the risks associated with the machinery or parts of machinery can be compared with those of similar machinery or parts of machinery, provided the following criteria apply: <ul style="list-style-type: none"> <li>- the similar machinery is in accordance with the relevant type-C standard(s);</li> <li>- the intended use, reasonably foreseeable misuse and the way both machines are designed and constructed are comparable;</li> <li>- the hazards and the elements of risk are comparable;</li> <li>- the technical specifications are comparable;</li> <li>- the conditions for use are comparable.</li> </ul>		<b>Pass</b>
	The use of this comparison method does not eliminate the need to follow the risk assessment process as described in this International Standard for the specific conditions of use. For example, when a band saw used for cutting meat is compared with a band saw used for cutting wood, the risks associated with the different material shall be assessed.		<b>Pass</b>
<b>6</b>	<b>Risk reduction</b>		<b>--</b>
<b>6.1</b>	<b>General</b>		<b>--</b>
	The objective of risk reduction can be achieved by the elimination of		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	hazards, or by separately or simultaneously reducing each of the two elements that determine the associated risk: - severity of harm from the hazard under consideration; - probability of occurrence of that harm.		
	All protective measures intended for reaching this objective shall be applied in the following sequence, referred to as the three-step method (see also Figures 1 and 2).		<b>Pass</b>
	<b>Step 1: Inherently safe design measures</b>		--
	Inherently safe design measures eliminate hazards or reduce the associated risks by a suitable choice of design features of the machine itself and/or interaction between the exposed persons and the machine. See 6.2.		<b>Pass</b>
	NOTE 1 This stage is the only one at which hazards can be eliminated, thus avoiding the need for additional protective measures such as safeguarding or complementary protective measures.		--
	<b>Step 2: Safeguarding and/or complementary protective measures</b>		--
	Taking into account the intended use and the reasonably foreseeable misuse, appropriately selected safeguarding and complementary protective measures can be used to reduce risk when it is not practicable to eliminate a hazard, or reduce its associated risk sufficiently, using inherently safe design measures. See 6.3.		<b>Pass</b>
	<b>Step 3: Information for use</b>		--
	Where risks remain despite inherently safe design measures, safeguarding and the adoption of complementary protective measures, the residual risks shall be identified in the information for use. The information for use shall include, but not be limited to, the following: - operating procedures for the use of the machinery consistent with the expected ability of personnel who use the machinery or other persons who can be exposed to the hazards associated with the machinery; - the recommended safe working practices for the use of the machinery and the related training requirements adequately described; - sufficient information, including warning of residual risks for the different phases of the life of the machinery; - the description of any recommended personal protective equipment, including detail as to its need as well as to training needed for its use.		<b>Pass</b>
	Information for use shall not be a substitute for the correct application of inherently safe design measures, safeguarding or complementary protective measures.		<b>Pass</b>
	NOTE 2 Adequate protective measures associated with each of the operating modes and intervention procedures reduce the possibility of		--

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	operators being induced to use hazardous intervention techniques in case of technical difficulties.		
<b>6.2</b>	<b>Inherently safe design measures</b>		--
<b>6.2.1</b>	<b>General</b>		--
	Inherently safe design measures are the first and most important step in the risk reduction process. This is because protective measures inherent to the characteristics of the machine are likely to remain effective, whereas experience has shown that even well-designed safeguarding can fail or be violated and information for use may not be followed.		<b>Pass</b>
	Inherently safe design measures are achieved by avoiding hazards or reducing risks by a suitable choice of design features for the machine itself and/or interaction between the exposed persons and the machine.		<b>Pass</b>
	NOTE See 6.3 for safeguarding and complementary measures that can be used to achieve the risk reduction objectives in the case where inherently safe design measures are not sufficient (see 6.1 for the three-step method).		--
<b>6.2.2</b>	<b>Consideration of geometrical factors and physical aspects</b>		--
<b>6.2.2.1</b>	<b>Geometrical factors</b>		--
	Such factors include the following.		--
	a) The form of machinery is designed to maximize direct visibility of the working areas and hazard zones from the control position — reducing blind spots, for example — and choosing and locating means of indirect vision where necessary (mirrors, etc.) so as to take into account the characteristics of human vision, particularly when safe operation requires permanent direct control by the operator, for example: - the travelling and working area of mobile machines; - the zone of movement of lifted loads or of the carrier of machinery for lifting persons; - the area of contact of the tool of a hand-held or hand-guided machine with the material being worked.		<b>Pass</b>
	The design of the machine shall be such that, from the main control position, the operator is able to ensure that there are no exposed persons in the danger zones.		<b>Pass</b>
	b) The form and the relative location of the mechanical components parts: for instance, crushing and shearing hazards are avoided by increasing the minimum gap between the moving parts, such that the part of the body under consideration can enter the gap safely, or by reducing the gap so that no part of the body can enter it (see ISO 13854 and ISO 13857).		<b>Pass</b>
	c) Avoiding sharp edges and corners, protruding parts: in so far as their		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result - Remark</b>	<b>Verdict</b>
	purpose allows, accessible parts of the machinery shall have no sharp edges, no sharp angles, no rough surfaces, no protruding parts likely to cause injury, and no openings which can “trap” parts of the body or clothing. In particular, sheet metal edges shall be deburred, flanged or trimmed, and open ends of tubes which can cause a “trap” shall be capped.		
	d) The form of the machine is designed so as to achieve a suitable working position and provide accessible manual controls (actuators).		<b>Pass</b>
<b>6.2.2.2</b>	<b>Physical aspects</b>		--
	Such aspects include the following: a) limiting the actuating force to a sufficiently low value so that the actuated part does not generate a mechanical hazard; b) limiting the mass and/or velocity of the movable elements, and hence their kinetic energy; c) limiting the emissions by acting on the characteristics of the source using measures for reducing 1) noise emission at source (see ISO/TR 11688-1), 2) the emission of vibration at source, such as redistribution or addition of mass and changes of process parameters [for example, frequency and/or amplitude of movements (for hand-held and hand-guided machinery, see CR 1030-1)], 3) the emission of hazardous substances, including the use of less hazardous substances or dust-reducing processes (granules instead of powders, milling instead of grinding), and 4) radiation emissions, including, for example, avoiding the use of hazardous radiation sources, limiting the power of radiation to the lowest level sufficient for the proper functioning of the machine, designing the source so that the beam is concentrated on the target, increasing the distance between the source and the operator or providing for remote operation of the machinery [measures for reducing emission of non-ionizing radiation are given in 6.3.4.5 (see also EN 12198-1 and EN 12198-3)].		<b>Pass</b>
<b>6.2.3</b>	<b>Taking into account general technical knowledge of machine design</b>		--
	This general technical knowledge can be derived from technical specifications for design (standards, design codes, calculation rules, etc.), which should be used to cover		--
	mechanical stresses such as - stress limitation by implementation of correct calculation, construction and fastening methods as		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	regards, for example, bolted assemblies and welded assemblies, - stress limitation by overload prevention (bursting disk, pressure-limiting valves, breakage points, torque-limiting devices, etc.), - avoiding fatigue in elements under variable stresses (notably cyclic stresses), and - static and dynamic balancing of rotating elements,		
	b) materials and their properties such as - resistance to corrosion, ageing, abrasion and wear, - hardness, ductility, brittleness, - homogeneity, - toxicity, and - flammability, and		<b>Pass</b>
	c) emission values for - noise, - vibration, - hazardous substances, and - radiation.		<b>Pass</b>
	When the reliability of particular components or assemblies is critical for safety (for example, ropes, chains, lifting accessories for lifting loads or persons), stress limits shall be multiplied by appropriate working coefficients.		<b>Pass</b>
<b>6.2.4</b>	<b>Choice of appropriate technology</b>		--
	One or more hazards can be eliminated or risks reduced by the choice of the technology to be used in certain applications such as the following:		--
	a) on machines intended for use in explosive atmospheres, using - appropriately selected pneumatic or hydraulic control system and machine actuators, - intrinsically safe electrical equipment (see IEC 60079-11);		<b>N/A</b>
	b) for particular products to be processed (for example, by a solvent), by using equipment that ensures the temperature will remain far below the flash point;		<b>N/A</b>
	c) the use of alternative equipment to avoid high noise levels, such as - electrical instead of pneumatic equipment, - in certain conditions, water-cutting instead of mechanical equipment.		<b>N/A</b>
<b>6.2.5</b>	<b>Applying principle of positive mechanical action</b>		--
	Positive mechanical action is achieved when a moving mechanical component inevitably moves another component along with it, either by direct contact or via rigid elements. An example of this is positive opening operation of switching devices in an electrical circuit (see IEC		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	60947-5-1 and ISO 14119).		
	NOTE Where a mechanical component moves and thus allows a second component to move freely (for example, by gravity or spring force), there is no positive mechanical action of the first component on the second.		<b>Pass</b>
<b>6.2.6</b>	<b>Provisions for stability</b>		--
	Machines shall be designed so that they have sufficient stability to allow them to be used safely in their specified conditions of use. Factors to be taken into account include <ul style="list-style-type: none"> <li>- the geometry of the base,</li> <li>- the weight distribution, including loading,</li> <li>- the dynamic forces due to movements of parts of the machine, of the machine itself or of elements held by the machine which can result in an overturning moment,</li> <li>- vibration,</li> <li>- oscillations of the centre of gravity,</li> <li>- characteristics of the supporting surface in case of travelling or installation on different sites (ground conditions, slope, etc.), and</li> <li>- external forces, such as wind pressure and manual forces.</li> </ul>		<b>Pass</b>
	Stability shall be considered in all phases of the life cycle of the machine, including handling, travelling, installation, use, dismantling, disabling and scrapping.		<b>Pass</b>
	Other protective measures for stability relevant to safeguarding are given in 6.3.2.6.		<b>Pass</b>
<b>6.2.7</b>	<b>Provisions for maintainability</b>		--
	When designing a machine, the following maintainability factors shall be taken into account to enable maintenance of the machine: <ul style="list-style-type: none"> <li>- accessibility, taking into account the environment and the human body measurements, including the dimensions of the working clothes and tools used;</li> <li>- ease of handling, taking into account human capabilities;</li> <li>- limitation of the number of special tools and equipment.</li> </ul>		<b>Pass</b>
<b>6.2.8</b>	<b>Observing ergonomic principles</b>		--
	Ergonomic principles shall be taken into account in designing machinery so as to reduce the mental or physical stress of, and strain on, the operator. These principles shall be considered when allocating functions to operator and machine (degree of automation) in the basic design.		<b>Pass</b>
	NOTE Also improved are the performance and reliability of operation and hence the reduction in the probability of errors at all stages of machine use.		--
	Account shall be taken of body sizes likely to be found in the intended		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	user population, strengths and postures, movement amplitudes, frequency of cyclic actions (see ISO 10075 and ISO 10075-2).		
	All elements of the operator–machine interface, such as controls, signalling or data display elements, shall be designed to be easily understood so that clear and unambiguous interaction between the operator and the machine is possible. See EN 614-1, EN 13861 and IEC 61310-1.		<b>Pass</b>
	The designer's attention is particularly drawn to following ergonomic aspects of machine design.		--
	a) Avoid the necessity for stressful postures and movements during the use of the machine (for example, providing facilities to adjust the machine to suit the various operators).		<b>Pass</b>
	b) Design machines, especially hand-held and mobile machines, so as to enable them to be operated easily, taking into account human effort, actuation of controls and hand, arm and leg anatomy.		<b>Pass</b>
	c) Limit as far as possible noise, vibration and thermal effects such as extreme temperatures.		<b>Pass</b>
	d) Avoid linking the operator's working rhythm to an automatic succession of cycles.		<b>Pass</b>
	e) Provide local lighting on or in the machine for the illumination of the working area and of adjusting, setting-up and frequent maintenance zones when the design features of the machine and/or its guards render the ambient lighting inadequate. Flicker, dazzling, shadows and stroboscopic effects shall be avoided if they can cause a risk. If the position or the lighting source has to be adjusted, its location shall be such that it does not cause any risk to persons making the adjustment.		<b>Pass</b>
	f) Select, locate and identify manual controls (actuators) so that - they are clearly visible and identifiable, and appropriately marked where necessary (see 6.4.4), - they can be safely operated without hesitation or loss of time and without ambiguity (for example, a standard layout of controls reduces the possibility of error when an operator changes from a machine to another one of similar type having the same pattern of operation), - their location (for push-buttons) and their movement (for levers and hand wheels) are consistent with their effect (see IEC 61310-3), and - their operation cannot cause additional risk. See also ISO 9355-3		<b>Pass</b>
	Where a control is designed and constructed to perform several different actions — namely, where there is no one-to-one correspondence (for example, keyboards) — the action to be performed shall be clearly		<b>N/A</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	displayed and subject to confirmation where necessary.		
	Controls shall be so arranged that their layout, travel and resistance to operation are compatible with the action to be performed, taking account of ergonomic principles. Constraints due to the necessary or foreseeable use of personal protective equipment (such as footwear, gloves) shall be taken into account.		<b>Pass</b>
	g) Select, design and locate indicators, dials and visual display units so that - they fit within the parameters and characteristics of human perception, - information displayed can be detected, identified and interpreted conveniently, i.e. long-lasting, distinct, unambiguous and understandable with respect to the operator's requirements and the intended use, and - the operator is able to perceive them from the control position.		<b>Pass</b>
<b>6.2.9</b>	<b>Electrical hazards</b>		--
	For the design of the electrical equipment of machines, IEC 60204-1 gives general provisions about disconnection and switching of electrical circuits and for protection against electric shock. For requirements related to specific machines, see corresponding IEC standards (for example, IEC 61029, IEC 60745 or IEC 60335).		<b>N/A</b>
<b>6.2.10</b>	<b>Pneumatic and hydraulic hazards</b>		--
	Pneumatic and hydraulic equipment of machinery shall be designed so that		--
	- the maximum rated pressure cannot be exceeded in the circuits (using, for example, pressure-limiting devices), - no hazard results from pressure fluctuations or increases, or from loss of pressure or vacuum, - no hazardous fluid jet or sudden hazardous movement of the hose (whiplash) results from leakage or component failures, - air receivers, air reservoirs or similar vessels (such as ingas-loaded accumulators) comply with the applicable design standard codes or regulations for these elements, - all elements of the equipment, especially pipes and hoses, are protected against harmful external effects, - as far as possible, reservoirs and similar vessels (for example, gas-loaded accumulators) are automatically depressurized when isolating the machine from its power supply (see 6.3.5.4) and, if not possible, means are provided for their isolation, local depressurizing and pressure indication (see also ISO 14118:2000, Clause 5), and - all elements which remain under pressure after isolation of the machine from its power supply are provided with clearly identified exhaust		<b>N/A</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	devices, and there is a warning label drawing attention to the necessity of depressurizing those elements before any setting or maintenance activity on the machine.		
	NOTE See also ISO 4413 and ISO 4414.		--
<b>6.2.11</b>	<b>Applying inherently safe design measures to control systems</b>		--
<b>6.2.11.1</b>	<b>General</b>		--
	The design measures of the control system shall be chosen so that their safety-related performance provides a sufficient amount of risk reduction (see ISO 13849-1 or IEC 62061).		<b>Pass</b>
	The correct design of machine control systems can avoid unforeseen and potentially hazardous machine behaviour.		<b>Pass</b>
	Typical causes of hazardous machine behaviour are - an unsuitable design or modification (accidental or deliberate) of the control system logic, - a temporary or permanent defect or failure of one or several components of the control system, - a variation or a failure in the power supply of the control system, and - inappropriate selection, design and location of the control devices.		<b>Pass</b>
	Typical examples of hazardous machine behaviour are - unexpected start-up (see ISO 14118), - uncontrolled speed change, - failure to stop moving parts, - dropping or ejection of part of the machine or of a workpiece clamped by the machine, and - machine action resulting from inhibition (defeating or failure) of protective devices.		<b>Pass</b>
	In order to prevent hazardous machine behaviour and to achieve safety functions, the design of control systems shall comply with the principles and methods presented in this subclause (6.2.11) and in 6.2.12. These principles and methods shall be applied singly or in combination as appropriate to the circumstances (see ISO 13849-1, IEC 60204-1 and IEC 62061).		<b>Pass</b>
	Control systems shall be designed to enable the operator to interact with the machine safely and easily. This requires one or several of the following solutions: - systematic analysis of start and stop conditions; - provision for specific operating modes (for example, start-up after normal stop, restart after cycle interruption or after emergency stop, removal of the workpieces contained in the machine, operation of a part of the machine in case of a failure of a machine element);		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	<ul style="list-style-type: none"> <li>- clear display of the faults;</li> <li>- measures to prevent accidental generation of unexpected start commands (for example, shrouded start device) likely to cause dangerous machine behaviour (see ISO 14118:2000, Figure 1);</li> <li>- maintained stop commands (for example, interlock) to prevent restarting that could result in dangerous machine behaviour (see ISO 14118:2000, Figure 1).</li> </ul>		
	An assembly of machines may be divided into several zones for emergency stopping, for stopping as a result of protective devices and/or for isolation and energy dissipation. The different zones shall be clearly defined and it shall be obvious which parts of the machine belong to which zone. Likewise, it shall be obvious which control devices (for example, emergency stop devices, supply disconnecting devices) and/or protective devices belong to which zone. The interfaces between zones shall be designed such that no function in one zone creates hazards in another zone which has been stopped for an intervention.		<b>Pass</b>
	Control systems shall be designed to limit the movements of parts of the machinery, the machine itself, or workpieces and/or loads held by the machinery, to the safe design parameters (for example, range, speed, acceleration, deceleration, load capacity). Allowance shall be made for dynamic effects (swinging of loads, etc.).		<b>Pass</b>
	<p>For example:</p> <ul style="list-style-type: none"> <li>- the travelling speed of mobile pedestrian controlled machinery other than remote-controlled shall be compatible with walking speed;</li> <li>- the range, speed, acceleration and deceleration of movements of the person-carrier and carrying vehicle for lifting persons shall be limited to non-hazardous values, taking into account the total reaction time of the operator and the machine;</li> <li>- the range of movements of parts of machinery for lifting loads shall be kept within specified limits.</li> </ul> <p>When the machinery contains various elements that can be operated independently, the control system shall be designed to prevent risks arising out of a lack of coordination (for example, collision prevention system).</p>		<b>Pass</b>
<b>6.2.11.2</b>	<b>Starting of an internal power source/switching on an external power supply</b>		<b>--</b>
	The starting of an internal power source or switching-on of an external power supply shall not result in a hazardous situation.		<b>Pass</b>
	<p>For example:</p> <ul style="list-style-type: none"> <li>- starting the internal combustion engine shall not lead to movement of a</li> </ul>		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	mobile machine; - connection to mains electricity supply shall not result in the starting of working parts of a machine. See IEC 60204-1:2005, 7.5 (see also Annexes A and B).		
<b>6.2.11.3</b>	<b>Starting/stopping of a mechanism</b>		--
	The primary action for starting or accelerating the movement of a mechanism should be performed by the application or an increase of voltage or fluid pressure, or — if binary logic elements are considered — by passage from state 0 to state 1 (where state 1 represents the highest energy state).		<b>Pass</b>
	The primary action for stopping or slowing down should be performed by removal or reduction of voltage or fluid pressure, or — if binary logic elements are considered — by passage from state 1 to state 0 (where state 1 represents the highest energy state).		<b>N/A</b>
	In certain applications, such as high-voltage switchgear, this principle cannot be followed, in which case other measures should be applied to achieve the same level of confidence for the stopping or slowing down.		<b>N/A</b>
	When, in order for the operator to maintain permanent control of deceleration, this principle is not observed (for example, a hydraulic braking device of a self-propelled mobile machine), the machine shall be equipped with a means of slowing and stopping in case of failure of the main braking system.		<b>Pass</b>
<b>6.2.11.4</b>	<b>Restart after power interruption</b>		--
	If a hazard could be generated, the spontaneous restart of a machine when it is re-energized after power interruption shall be prevented (for example, by use of a self-maintained relay, contactor or valve).		<b>Pass</b>
<b>6.2.11.5</b>	<b>Interruption of power supply</b>		--
	Machinery shall be designed to prevent hazardous situations resulting from interruption or excessive fluctuation of the power supply. At least the following requirements shall be met: - the stopping function of the machinery shall remain; - all devices whose permanent operation is required for safety shall operate in an effective way to maintain safety (for example, locking, clamping devices, cooling or heating devices, power-assisted steering of self-propelled mobile machinery); - parts of machinery or workpieces and/or loads held by machinery which are liable to move as a result of potential energy shall be retained for the time necessary to allow them to be safely lowered.		<b>Pass</b>
<b>6.2.11.6</b>	<b>Use of automatic monitoring</b>		--
	Automatic monitoring is intended to ensure that a safety function or		<b>N/A</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	functions implemented by a protective measure do not fail to be performed if the ability of a component or an element to perform its function is diminished, or if the process conditions are changed such that hazards are generated.		
	Automatic monitoring either detects a fault immediately or carries out periodic checks so that a fault is detected before the next demand upon the safety function. In either case, the protective measure can be initiated immediately or delayed until a specific event occurs (for example, the beginning of the machine cycle).		<b>N/A</b>
	The protective measure may be, for example, - the stopping of the hazardous process, - preventing the restart of this process after the first stop following the failure, or - the triggering of an alarm.		<b>N/A</b>
<b>6.2.11.7</b>	<b>Safety functions implemented by programmable electronic control systems</b>		<b>--</b>
<b>6.2.11.7.1</b>	<b>General</b>		<b>--</b>
	A control system that includes programmable electronic equipment (for example, programmable controllers) can, where appropriate, be used to implement safety functions at machinery. Where a programmable electronic control system is used, it is necessary to consider its performance requirements in relation to the requirements for the safety functions. The design of the programmable electronic control system shall be such that the probability of random hardware failures and the likelihood of systematic failures that can adversely affect the performance of the safety-related control function(s) is sufficiently low. Where a programmable electronic control system performs a monitoring function, the system behaviour on detection of a fault shall be considered (see also the IEC 61508 series for further guidance).		<b>Pass</b>
	NOTE Both ISO 13849-1 and IEC 62061, specific to machinery safety, provide guidance applicable to programmable electronic control systems.		<b>--</b>
	The programmable electronic control system should be installed and validated to ensure that the specified performance [for example, safety integrity level (SIL) in IEC 61508] for each safety function has been achieved. Validation comprises testing and analysis (for example, static, dynamic or failure analysis) to show that all parts interact correctly to perform the safety function and that unintended functions do not occur.		<b>Pass</b>
<b>6.2.11.7.2</b>	<b>Hardware aspects</b>		<b>--</b>
	The hardware (including, for example, sensors, actuators and logic solvers) shall be selected, and/or designed		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	and installed, to meet both the functional and performance requirements of the safety function(s) to be performed, in particular, by means of - architectural constraints (the configuration of the system, its ability to tolerate faults, its behaviour on detection of a fault, etc.), - selection, and/or design, of equipment and devices with an appropriate probability of dangerous random hardware failure, and - the incorporation of measures and techniques within the hardware so as to avoid systematic failures and control systematic faults.		
<b>6.2.11.7.3</b>	<b>Software aspects</b>		--
	The software, including internal operating software (or system software) and application software, shall be designed so as to satisfy the performance specification for the safety functions (see also IEC 61508-3).		<b>Pass</b>
	Application software should not be reprogrammable by the user. This may be achieved by use of embedded software in a non-reprogrammable memory [for example, micro-controller, application-specific integrated circuit (ASIC)].		<b>Pass</b>
	When the application requires reprogramming by the user, the access to the software dealing with safety functions should be restricted (for example, by locks or passwords for the authorized persons).		<b>N/A</b>
<b>6.2.11.8</b>	<b>Principles relating to manual control</b>		--
	These are as follows.		--
	a) Manual control devices shall be designed and located according to the relevant ergonomic principles given in 6.2.8, item f).		<b>Pass</b>
	b) A stop control device shall be placed near each start control device. Where the start/stop function is performed by means of a hold-to-run control, a separate stop control device shall be provided when a risk can result from the hold-to-run control device failing to deliver a stop command when released.		<b>Pass</b>
	c) Manual controls shall be located out of reach of the danger zones (see IEC 61310-3), except for certain controls where, of necessity, they are located within a danger zone, such as emergency stop or teach pendant.		<b>Pass</b>
	d) Whenever possible, control devices and control positions shall be located so that the operator is able to observe the working area or hazard zone. 1) The driver of a ride-on mobile machine shall be able to actuate all control devices required to operate the machine from the driving position, except for functions which can be controlled more safely from other positions. 2) On machinery intended for lifting persons, controls for lifting and		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	lowering and, if appropriate, for moving the carrier shall generally be located in the carrier. If safe operation requires controls to be situated outside the carrier, the operator in the carrier shall be provided with the means of preventing hazardous movements.		
	e) If it is possible to start the same hazardous element by means of several controls, the control circuit shall be so arranged that only one control is effective at a given time. This applies especially to machines which can be manually controlled by means of, among others, a portable control unit (such as a teach pendant), with which the operator can enter danger zones.		<b>Pass</b>
	f) Control actuators shall be designed or guarded so that their effect, where a risk is involved, cannot occur without intentional operation (see ISO 9355-1, ISO 9355-3 and ISO 447).		<b>Pass</b>
	g) For machine functions whose safe operation depends on permanent, direct control by the operator, measures shall be implemented to ensure the presence of the operator at the control position (for example, by the design and location of control devices)..		<b>Pass</b>
	h) For cableless control, an automatic stop shall be performed when correct control signals are not received, including loss of communication (see IEC 60204-1)		<b>N/A</b>
<b>6.2.11.9</b>	<b>Control mode for setting, teaching, process changeover, fault-finding, cleaning or maintenance</b>		<b>--</b>
	Where, for setting, teaching, process changeover, fault-finding, cleaning or maintenance of machinery, a guard has to be displaced or removed and/or a protective device has to be disabled, and where it is necessary for the purpose of these operations for the machinery or part of the machinery to be put into operation, the safety of the operator shall be achieved using a specific control mode which simultaneously a) disables all other control modes, b) permits operation of the hazardous elements only by continuous actuation of an enabling device, a two-hand control device or a hold-to-run control device, c) permits operation of the hazardous elements only in reduced risk conditions (for example, reduced speed, reduced power/force, step-by-step, for example, with a limited movement control device), and d) prevents any operation of hazardous functions by voluntary or involuntary action on the machine's sensors.		<b>N/A</b>
	NOTE For some special machinery other protective measures can be appropriate.		<b>--</b>
	This control mode shall be associated with one or more of the following		<b>N/A</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	measures: - restriction of access to the danger zone as far as possible; - emergency stop control within immediate reach of the operator; - portable control unit (teach pendant) and/or local controls (allowing sight of the controlled elements).		
	See IEC 60204-1.		<b>N/A</b>
<b>6.2.11.10</b>	<b>Selection of control and operating modes</b>		
	If machinery has been designed and built to allow for its use in several control or operating modes requiring different protective measures and/or work procedures (for example, to allow for adjustment, setting, maintenance, inspection), it shall be fitted with a mode selector which can be locked in each position. Each position of the selector shall be clearly identifiable and shall exclusively allow one control or operating mode.		<b>N/A</b>
	The selector may be replaced by another selection means which restricts the use of certain functions of the machinery to certain categories of operators (for example, access codes for certain numerically controlled functions).		<b>N/A</b>
<b>6.2.11.11</b>	<b>Applying measures to achieve electromagnetic compatibility (EMC)</b>		<b>--</b>
	For guidance on electromagnetic compatibility, see IEC 60204-1 and IEC 61000-6.		<b>N/A</b>
<b>6.2.11.12</b>	<b>Provision of diagnostic systems to aid fault-finding</b>		<b>--</b>
	Diagnostic systems to aid fault-finding should be included in the control system so that there is no need to disable any protective measure.		<b>N/A</b>
	NOTE Such systems not only improve availability and maintainability of machinery, they also reduce the exposure of maintenance staff to hazards.		<b>--</b>
<b>6.2.12</b>	<b>Minimizing probability of failure of safety functions</b>		<b>--</b>
<b>6.2.12.1</b>	<b>General</b>		<b>--</b>
	Safety of machinery is not only dependent on the reliability of the control systems but also on the reliability of all parts of the machine.		<b>Pass</b>
	The continued operation of the safety functions is essential for the safe use of the machine. This can be achieved by the measures given in 6.2.12.2 to 6.2.12.4.		<b>Pass</b>
<b>6.2.12.2</b>	<b>Use of reliable components</b>		<b>--</b>
	“Reliable components” means components which are capable of withstanding all disturbances and stresses associated with the usage of the equipment in the conditions of intended use (including the environmental conditions), for the period of time or the number of operations fixed for the use, with a low probability of failures generating a		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	hazardous malfunctioning of the machine. Components shall be selected taking into account all factors mentioned above (see also 6.2.13).		
	NOTE 1 “Reliable components” is not a synonym for “well-trying components” (see ISO 13849-1:2006, 6.2.4). NOTE 2 Environmental conditions for consideration include impact, vibration, cold, heat, moisture, dust, corrosive and/or abrasive substances, static electricity and magnetic and electric fields. Disturbances which can be generated by those conditions include insulation failures and temporary or permanent failures in the function of control system components.		--
<b>6.2.12.3</b>	<b>Use of “oriented failure mode” components</b>		--
	“Oriented failure mode” components or systems are those in which the predominant failure mode is known in advance and which can be used so that the effect of such a failure on the machine function can be predicted.		<b>N/A</b>
	NOTE In some cases, it will be necessary to take additional measures to limit the negative effects of such a failure.		--
	The use of such components should always be considered, particularly in cases where redundancy (see 6.2.12.4) is not employed.		<b>N/A</b>
<b>6.2.12.4</b>	<b>Duplication (or redundancy) of components or subsystems</b>		--
	In the design of safety-related parts of the machine, duplication (or redundancy) of components may be used so that, if one component fails, another component or components continue to perform the respective function(s), thereby ensuring that the safety function remains available.		<b>N/A</b>
	In order to allow the proper action to be initiated, component failure shall be detected by automatic monitoring (see 6.2.11.6) or in some circumstances by regular inspection, provided that the inspection interval is shorter than the expected lifetime of the components.		<b>N/A</b>
	Diversity of design and/or technology can be used to avoid common cause failures (for example, from electromagnetic disturbance) or common mode failures.		<b>N/A</b>
<b>6.2.13</b>	<b>Limiting exposure to hazards through reliability of equipment</b>		--
	Increased reliability of all component parts of machinery reduces the frequency of incidents requiring intervention, thereby reducing exposure to hazards.		<b>Pass</b>
	This applies to power systems (operative part, see Annex A) as well as to control systems, and to safety functions as well as to other functions of machinery.		<b>Pass</b>
	Safety-related components (for example, certain sensors) of known reliability shall be used.		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	The elements of guards and of protective devices shall be especially reliable, as their failure can expose persons to hazards, and also because poor reliability would encourage attempts to defeat them.		<b>Pass</b>
<b>6.2.14</b>	<b>Limiting exposure to hazards through mechanization or automation of loading (feeding)/unloading (removal) operations</b>		--
	Mechanization and automation of machine loading/unloading operations and, more generally, of handling operations — of workpieces, materials or substances — limits the risk generated by these operations by reducing the exposure of persons to hazards at the operating points.		<b>N/A</b>
	Automation can be achieved by, for example, robots, handling devices, transfer mechanisms and air-blast equipment. Mechanization can be achieved by, for example, feeding slides, push-rods and hand-operated indexing tables.		<b>N/A</b>
	While automatic feeding and removal devices have much to offer in preventing accidents to machine operators, they can create danger when any faults are being corrected. Care shall be taken to ensure that the use of these devices does not introduce further hazards, such as trapping or crushing, between the devices and parts of the machine or workpieces/materials being processed. Suitable safeguards (see 6.3) shall be provided if this cannot be ensured.		<b>N/A</b>
	Automatic feeding and removal devices with their own control systems and the control system of the associated machine shall be interconnected after thorough study of how all safety functions are performed in all the control and operation modes of the entire equipment.		<b>N/A</b>
<b>6.2.15</b>	<b>Limiting exposure to hazards through location of setting and maintenance points outside danger zones</b>		--
	The need for access to danger zones shall be minimized by locating maintenance, lubrication and setting points outside these zones.		<b>Pass</b>
<b>6.3</b>	<b>Safeguarding and complementary protective measures</b>		--
<b>6.3.1</b>	<b>General</b>		--
	Guards and protective devices shall be used to protect persons whenever an inherently safe design measure does not reasonably make it possible either to remove hazards or to sufficiently reduce risks. Complementary protective measures involving additional equipment (for example, emergency stop equipment) may have to be implemented.		<b>Pass</b>
	NOTE The different kinds of guards and protective devices are defined in 3.27 and 3.28.		--
	Certain safeguards may be used to avoid exposure to more than one hazard.		<b>Pass</b>
	EXAMPLE A fixed guard preventing access to a zone where a		--

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	mechanical hazard is present used to reduce noise levels and collect toxic emissions.		
<b>6.3.2</b>	<b>Selection and implementation of guards and protective devices</b>		--
<b>6.3.2.1</b>	<b>General</b>		--
	This subclause gives guidelines for the selection and the implementation of guards and protective devices the primary purpose of which is to protect persons against hazards generated by moving parts, according to the nature of those parts (see Figure 4) and to the need for access to the danger zone(s).		<b>Pass</b>
	The exact choice of a safeguard for a particular machine shall be made on the basis of the risk assessment for that machine.		<b>Pass</b>
	In selecting an appropriate safeguard for a particular type of machinery or hazard zone, it shall be borne in mind that a fixed guard is simple and shall be used where the access of an operator into a danger zone is not required during the normal operation (operation without malfunction) of the machinery.		<b>Pass</b>
	As the need for frequency of access increases, this inevitably leads to the fixed guard not being replaced. This requires the use of an alternative protective measure (movable interlocking guard, sensitive protective equipment).		<b>Pass</b>
	A combination of safeguards can sometimes be required. For example, where, in conjunction with a fixed guard, a mechanical loading (feeding) device is used to feed a workpiece into a machine, thereby removing the need for access to the primary hazard zone, a trip device can be required to protect against the secondary drawing-in or shearing hazard between the mechanical loading (feeding) device, when reachable, and the fixed guard.		<b>Pass</b>
	Consideration shall be given to the enclosure of control positions or intervention zones to provide combined protection against several hazards including a) hazards from falling or ejected objects, using, for example, protection in the form of a falling object protection structure (FOPS), b) emission hazards (protection against noise, vibration, radiation, substances hazardous to health, etc.), c) hazards due to the environment (protection against heat, cold, foul weather, etc.), d) hazards due to tipping over or rolling over of machinery, using, for example, protection in the form of roll-over or tip-over protection structures (ROPS and TOPS).		<b>N/A</b>
	The design of enclosed work stations, such as cabs and cabins, shall		<b>N/A</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	take into account ergonomic principles concerning visibility, lighting, atmospheric conditions, access, posture.		
<b>6.3.2.2</b>	<b>Where access to the hazard zone is not required during normal operation</b>		--
	Where access to the hazard zone is not required during normal operation of the machinery, safeguards should be selected from the following: a) fixed guards (see also ISO 14120); b) interlocking guards with or without guard locking (see also 6.3.3.2.3, ISO 14119 and ISO 14120); c) self-closing guards (see ISO 14120:2002, 3.3.2); d) sensitive protective equipment, such as electrosensitive protective equipment (see IEC 61496) or pressure-sensitive protective devices (see ISO 13856).		<b>N/A</b>
<b>6.3.2.3</b>	<b>Where access to the hazard zone is required during normal operation</b>		--
	Where access to the hazard zone is required during normal operation of the machinery, safeguards should be selected from the following: a) interlocking guards with or without guard locking (see also ISO 14119, ISO 14120 and 6.3.3.2.3 of this document); b) sensitive protective equipment, such as electrosensitive protective equipment (see IEC 61496); c) adjustable guards; d) self-closing guards (see ISO 14120:2002, 3.3.2); e) two-hand control devices (see ISO 13851); f) interlocking guards with a start function (control guard) (see 6.3.3.2.5).		<b>Pass</b>
<b>6.3.2.4</b>	<b>Where access to the hazard zone is required for machine setting, teaching, process changeover, fault-finding, cleaning or maintenance</b>		--
	As far as possible, machines shall be designed so that the safeguards provided for the protection of the production operator also ensure the protection of personnel carrying out setting, teaching, process changeover, fault-finding, cleaning or maintenance, without hindering them in the performance of their task. Such tasks shall be identified and considered in the risk assessment as parts of the use of the machine (see 5.2).		<b>Pass</b>
	NOTE Isolation and energy dissipation for machine shut-down (see 6.3.5.4, and also ISO 14118:2000, 4.1 and Clause 5) ensure the highest level of safety when carrying out tasks (especially maintenance and		--

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	repair tasks) that do not require the machine to remain connected to its power supply.		
<b>6.3.2.5</b>	<b>Selection and implementation of sensitive protective equipment</b>		--
<b>6.3.2.5.1</b>	<b>Selection</b>		--
	Due to the great diversity of the technologies on which their detection function is based, all types of sensitive protective equipment are far from being equally suitable for safety applications. The following provisions are intended to provide the designer with criteria for selecting, for each application, the most suitable device(s).		<b>N/A</b>
	Types of sensitive protective equipment include - light curtains, - scanning devices, for example, laser scanners, - pressure-sensitive mats, and - trip bars, trip wires.		<b>N/A</b>
	Sensitive protective equipment can be used - for tripping purposes, - for presence sensing, - for both tripping and presence sensing, or - to re-initiate machine operation — a practice subject to stringent conditions.		<b>N/A</b>
	NOTE Some types of sensitive protective equipment can be unsuitable either for presence sensing or for tripping purposes.		--
	The following characteristics of the machinery, among others, can preclude the sole use of sensitive protective equipment: - tendency for the machinery to eject materials or component parts; - necessity to guard against emissions (noise, radiation, dust, etc.); - erratic or excessive machine stopping time; - inability of a machine to stop part-way through a cycle.		<b>N/A</b>
<b>6.3.2.5.2</b>	<b>Implementation</b>		--
	Consideration should be given to a) the size, characteristics and positioning of the detection zone (see ISO 13855, which deals with the positioning of some types of sensitive protective equipment), b) the reaction of the device to fault conditions (see IEC 61496 for electrosensitive protective equipment), c) the possibility of circumvention, and d) detection capability and its variation over the course of time (as a result, for example, of its susceptibility to different environmental conditions such as the presence of reflecting surfaces, other artificial light sources and sunlight or impurities in the air).		<b>N/A</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	NOTE 1 IEC 61496 defines the detection capability of electrosensitive protective equipment.		--
	Sensitive protective equipment shall be integrated in the operative part and associated with the control system of the machine so that <ul style="list-style-type: none"> <li>- a command is given as soon as a person or part of a person is detected,</li> <li>- the withdrawal of the person or part of a person detected does not, by itself, restart the hazardous machine function(s), and therefore the command given by the sensitive protective equipment is maintained by the control system until a new command is given,</li> <li>- restarting the hazardous machine function(s) results from the voluntary actuation by the operator of a control device placed outside the hazard zone, where this zone can be observed by the operator,</li> <li>- the machine cannot operate during interruption of the detection function of the sensitive protective equipment, except during muting phases, and</li> <li>- the position and the shape of the detection field prevents, possibly together with fixed guards, a person or part of a person from entering or being present in the hazard zone without being detected.</li> </ul>		<b>N/A</b>
	NOTE 2 Muting is the temporary automatic suspension of a safety function(s) by safety-related parts of the control system (see ISO 13849-1).		<b>N/A</b>
	For detailed consideration of the fault behaviour of, for example, active optoelectronic protective devices, IEC 61496 should be taken into account.		<b>N/A</b>
<b>6.3.2.5.3</b>	<b>Additional requirements for sensitive protective equipment when used for cycle initiation</b>		
	In this exceptional application, the starting of the machine cycle is initiated by the withdrawal of a person or of the detected part of a person from the sensing field of the sensitive protective equipment, without any additional start command, hence deviating from the general requirement given in the second point of the dashed list in 6.3.2.5.2, above. After switching on the power supply, or when the machine has been stopped by the tripping function of the sensitive protective equipment, the machine cycle shall be initiated only by voluntary actuation of a start control.		<b>N/A</b>
	Cycle initiation by sensitive protective equipment shall be subject to the following conditions: <ul style="list-style-type: none"> <li>a) only active optoelectronic protective devices (AOPDs) complying with IEC 61496 series shall be used;</li> <li>b) the requirements for an AOPD used as a tripping and presence-</li> </ul>		<b>N/A</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result - Remark</b>	<b>Verdict</b>
	<p>sensing device (see IEC 61496) are satisfied — in particular, location, minimum distance (see ISO 13855), detection capability, reliability and monitoring of control and braking systems;</p> <p>c) the cycle time of the machine is short and the facility to re-initiate the machine upon clearing of the sensing field is limited to a period commensurate with a single normal cycle;</p> <p>d) entering the sensing field of the AOPD(s) or opening interlocking guards is the only way to enter the hazard zone;</p> <p>e) if there is more than one AOPD safeguarding the machine, only one of the AOPDs is capable of cycle re-initiation;</p> <p>f) with regard to the higher risk resulting from automatic cycle initiation, the AOPD and the associated control system comply with a higher safety-related performance than under normal conditions.</p>		
	<p>NOTE 1 The hazard zone as referred to in d) is any zone where the hazardous function (including ancillary equipment and transmission elements) is initiated by clearing of the sensing field.</p> <p>NOTE 2 See also IEC/TS 62046.</p>		--
<b>6.3.2.6</b>	<b>Protective measures for stability</b>		--
	<p>If stability cannot be achieved by inherently safe design measures such as weight distribution (see 6.2.6), it shall be maintained by the use of protective measures such as</p> <ul style="list-style-type: none"> <li>- anchorage bolts,</li> <li>- locking devices,</li> <li>- movement limiters or mechanical stops,</li> <li>- acceleration or deceleration limiters,</li> <li>- load limiters, and</li> <li>- alarms warning of the approach to stability or tipping limits.</li> </ul>		<b>Pass</b> <b>anchorage bolts,</b>
<b>6.3.2.7</b>	<b>Other protective devices</b>		--
	<p>When a machine requires continuous control by the operator (for example, mobile machines, cranes) and an error of the operator can generate a hazardous situation, this machine shall be equipped with the necessary devices to enable the operation to remain within specified limits, in particular</p> <ul style="list-style-type: none"> <li>- when the operator has insufficient visibility of the hazard zone,</li> <li>- when the operator lacks knowledge of the actual value of a safety-related parameter (distance, speed, mass, angle, etc.), and</li> <li>- when hazards can result from operations other than those controlled by the operator.</li> </ul>		<b>N/A</b>
	<p>The necessary devices include</p> <p>a) devices for limiting parameters of movement (distance, angle, velocity,</p>		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result - Remark</b>	<b>Verdict</b>
	<p>acceleration),</p> <p>b) overloading and moment limiting devices,</p> <p>c) devices to prevent collisions or interference with other machines,</p> <p>d) devices for preventing hazards to pedestrian operators of mobile machinery or other pedestrians,</p> <p>e) torque limiting devices, and breakage points to prevent excessive stress of components and assemblies,</p> <p>f) devices for limiting pressure or temperature,</p> <p>g) devices for monitoring emissions,</p> <p>h) devices to prevent operation in the absence of the operator at the control position,</p> <p>i) devices to prevent lifting operations unless stabilizers are in place,</p> <p>j) devices to limit inclination of the machine on a slope, and</p> <p>k) devices to ensure that components are in a safe position before travelling.</p>		
	Automatic protective measures triggered by such devices that take operation of the machinery out of the control of the operator (for example, automatic stop of hazardous movement) should be preceded or accompanied by a warning signal to enable the operator to take appropriate action (see 6.4.3).		<b>N/A</b>
<b>6.3.3</b>	<b>Requirements for design of guards and protective devices</b>		<b>--</b>
<b>6.3.3.1</b>	<b>General requirements</b>		<b>--</b>
	Guards and protective devices shall be designed to be suitable for the intended use, taking into account mechanical and other hazards involved. Guards and protective devices shall be compatible with the working environment of the machine and designed so that they cannot be easily defeated. They shall provide the minimum possible interference with activities during operation and other phases of machine life, in order to reduce any incentive to defeat them.		<b>Pass</b>
	NOTE For additional information, see ISO 14120, ISO 13849-1, ISO 13851, ISO 14119, ISO 13856, IEC 61496 and IEC 62061.		<b>--</b>
	<p>Guards and protective devices shall</p> <p>a) be of robust construction,</p> <p>b) not give rise to any additional hazard,</p> <p>c) not be easy to bypass or render non-operational,</p> <p>d) be located at an adequate distance from the danger zone (see ISO 13855 and ISO 13857),</p> <p>e) cause minimum obstruction to the view of the production process, and</p> <p>f) enable essential work to be carried out for the installation and/or replacement of tools and for maintenance by allowing access only to the</p>		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	area where the work has to be carried out — if possible, without the guard having to be removed or protective device having to be disabled.		
	For openings in the guards, see ISO 13857.		<b>Pass</b>
<b>6.3.3.2</b>	<b>Requirements for guards</b>		--
<b>6.3.3.2.1</b>	<b>Functions of guards</b>		--
	The functions that guards can achieve are - prevention of access to the space enclosed by the guard, and/or - containment/capture of materials, workpieces, chips, liquids which can be ejected or dropped by the machine, and reduction of emissions (noise, radiation, hazardous substances such as dust, fumes, gases) that can be generated by the machine.		<b>Pass</b>
	Additionally, they could need to have particular properties relating to electricity, temperature, fire, explosion, vibration, visibility (see ISO 14120) and operator position ergonomics (for example, usability, operator's movements, postures, repetitive movements).		<b>Pass</b>
<b>6.3.3.2.2</b>	<b>Requirements for fixed guards</b>		--
	Fixed guards shall be securely held in place either - permanently (for example by welding), or - by means of fasteners (screws, nuts) making removal/opening impossible without using tools; they should not remain closed without their fasteners (see ISO 14120).		<b>Pass</b>
	NOTE A fixed guard can be hinged to assist in its opening.		--
<b>6.3.3.2.3</b>	<b>Requirements for movable guards</b>		--
	Movable guards which provide protection against hazards generated by moving transmission parts shall a) as far as possible when open remain fixed to the machinery or other structure (generally by means of hinges or guides), and b) be interlocking (with guard locking when necessary) (see ISO 14119). See Figure 4.		<b>N/A</b>
	Movable guards against hazards generated by non-transmission moving parts shall be designed and associated with the machine control system so that - moving parts cannot start up while they are within the operator's reach and the operator cannot reach moving parts once they have started up, with this able to be achieved by interlocking guards, with guard locking when necessary, - they can be adjusted only by an intentional action, such as the use of a tool or a key, and - the absence or failure of one of their components either prevents starting of the moving parts or stops them, with this able to be achieved		<b>N/A</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	by automatic monitoring (see 6.2.11.6). See Figure 4 and ISO 14119.		
<b>6.3.3.2.4</b>	<b>Requirements for adjustable guards</b>		--
	Adjustable guards may only be used where the hazard zone cannot for operational reasons be completely enclosed.		<b>N/A</b>
	Manually adjustable guards shall be - designed so that the adjustment remains fixed during a given operation, and - readily adjustable without the use of tools.		<b>N/A</b>
<b>6.3.3.2.5</b>	<b>Requirements for interlocking guards with a start function (control guards)</b>		--
	An interlocking guard with a start function may only be used provided that a) all requirements for interlocking guards are satisfied (see ISO 14119), b) the cycle time of the machine is short, c) the maximum opening time of the guard is preset to a low value (for example, equal to the cycle time) and, when this time is exceeded, the hazardous function(s) cannot be initiated by the closing of the interlocking guard with a start function and resetting is necessary before restarting the machine, d) the dimensions or shape of the machine do not allow a person, or part of a person, to stay in the hazard zone or between the hazard zone and the guard while the guard is closed (see ISO 14120), e) all other guards, whether fixed (removable type) or movable, are interlocking guards, f) the interlocking device associated with the interlocking guard with a start function is designed such that — for example, by duplication of position detectors and use of automatic monitoring (see 6.2.11.6) — its failure cannot lead to an unintended/unexpected start-up, and g) the guard is securely held open (for example, by a spring or counterweight) such that it cannot initiate a start while falling by its own weight.		<b>N/A</b>
<b>6.3.3.2.6</b>	<b>Hazards from guards</b>		--
	Care shall be taken to prevent hazards which could be generated by - the guard construction (sharp edges or corners, material, noise emission, etc.), - the movements of the guards (shearing or crushing zones generated by power-operated guards and by heavy guards which are liable to fall).		<b>Pass</b>
<b>6.3.3.3</b>	<b>Technical characteristics of protective devices</b>		--
	Protective devices shall be selected or designed and connected to the control system such that correct implementation of their safety		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	function(s) is ensured.		
	Protective devices shall be selected on the basis of their having met the appropriate product standard (for example, IEC 61496 for active optoelectronic protective devices) or shall be designed according to one or several of the principles formulated in ISO 13849-1 or IEC 62061.		<b>Pass</b>
	Protective devices shall be installed and connected to the control system so that they cannot be easily defeated.		<b>Pass</b>
<b>6.3.3.4</b>	<b>Provisions for alternative types of safeguards</b>		<b>Pass</b>
	Provisions should be made to facilitate the fitting of alternative types of safeguards on machinery where it is known that it will be necessary to change the safeguards because of the range of work to be carried out.		
<b>6.3.4</b>	<b>Safeguarding to reduce emissions</b>		--
<b>6.3.4.1</b>	<b>General</b>		--
	If the measures for the reduction of emissions at source specified in 6.2.2.2 are not adequate, the machine shall be provided with additional protective measures (see 6.3.4.2 to 6.3.4.5).		<b>Pass</b>
<b>6.3.4.2</b>	<b>Noise</b>		--
	Additional protective measures against noise include - enclosures (see ISO 15667), - screens fitted to the machine, and - silencers (see ISO 14163).		<b>Pass</b>
<b>6.3.4.3</b>	<b>Vibration</b>		--
	Additional protective measures against vibration include - vibration isolators, such as damping devices placed between the source and the exposed person, - resilient mounting, and - suspended seats.		<b>N/A</b>
	For measures for vibration isolation of stationary industrial machinery see EN 1299.		<b>N/A</b>
<b>6.3.4.4</b>	<b>Hazardous substances</b>		--
	Additional protective measures against hazardous substances include - encapsulation of the machine (enclosure with negative pressure), - local exhaust ventilation with filtration, - wetting with liquids, and - special ventilation in the area of the machine (air curtains, cabins for operators). See ISO 14123-1.		<b>Pass</b>
<b>6.3.4.5</b>	<b>Radiation</b>		--
	Additional protective measures against radiation include - use of filtering and absorption, and		<b>N/A</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	- use of attenuating screens or guards.		
<b>6.3.5</b>	<b>Complementary protective measures</b>		--
<b>6.3.5.1</b>	<b>General</b>		--
	Protective measures which are neither inherently safe design measures, nor safeguarding (implementation of guards and/or protective devices), nor information for use, could have to be implemented as required by the intended use and the reasonably foreseeable misuse of the machine. Such measures include, but are not limited to, those dealt with in 6.3.5.2 to 6.3.5.6.		<b>Pass</b>
<b>6.3.5.2</b>	<b>Components and elements to achieve emergency stop function</b>		--
	If, following a risk assessment, a machine needs to be fitted with components and elements to achieve an emergency stop function for enabling actual or impending emergency situations to be averted, the following requirements apply: - the actuators shall be clearly identifiable, clearly visible and readily accessible; - the hazardous process shall be stopped as quickly as possible without creating additional hazards, but if this is not possible or the risk cannot be reduced, it should be questioned whether implementation of an emergency stop function is the best solution; - the emergency stop control shall trigger or permit the triggering of certain safeguard movements where necessary.		<b>N/A</b>
	NOTE For more detailed provisions, see ISO 13850.		--
	Once active operation of the emergency stop device has ceased following an emergency stop command, the effect of this command shall be sustained until it is reset. This reset shall be possible only at the location where the emergency stop command has been initiated. The reset of the device shall not restart the machinery, but shall only permit restarting.		<b>N/A</b>
	More details for the design and selection of electrical components and elements to achieve the emergency stop function are provided in IEC 60204.		<b>N/A</b>
<b>6.3.5.3</b>	<b>Measures for the escape and rescue of trapped persons</b>		--
	Measures for the escape and rescue of trapped persons may consist, among others, of - escape routes and shelters in installations generating operator-trapping hazards, - arrangements for moving some elements by hand, after an emergency stop, - arrangements for reversing the movement of some elements,		<b>N/A</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	- anchorage points for descender devices, - means of communication to enable trapped operators to call for help.		
<b>6.3.5.4</b>	<b>Measures for isolation and energy dissipation</b>		--
	Machines shall be equipped with the technical means to achieve isolation from power supply(ies) and dissipation of stored energy by means of the following actions: a) isolating (disconnecting, separating) the machine (or defined parts of the machine) from all power supplies; b) locking (or otherwise securing) all the isolating units in the isolating position; c) dissipating or, if this is not possible or practicable, restraining (containing) any stored energy which can give rise to a hazard; d) verifying, by means of safe working procedures, that the actions taken according to a), b) and c) above have produced the desired effect. See ISO 14118:2000, Clause 5, and IEC 60204-1:2005, 5.5 and 5.6.		<b>N/A</b>
<b>6.3.5.5</b>	<b>Provisions for easy and safe handling of machines and their heavy component parts</b>		--
	Machines and their component parts which cannot be moved or transported by hand shall be provided or be capable of being provided with suitable attachment devices for transport by means of lifting gear.		<b>Pass</b>
	These attachments may be, among others, - standardized lifting appliances with slings, hooks, eyebolts, or tapped holes for appliance fixing, - appliances for automatic grabbing with a lifting hook when attachment is not possible from the ground, - fork locating devices for machines to be transported by a lift truck, - lifting and stowing gear and appliances integrated into the machine.		<b>Pass</b>
	Parts of machinery which can be removed manually in operation shall be provided with means for their safe removal and replacement. See also 6.4.4 c), item 3).		<b>Pass</b>
<b>6.3.5.6</b>	<b>Measures for safe access to machinery</b>		--
	Machinery shall be so designed as to enable operation and all routine tasks relating to setting and/or maintenance to be carried out as far as possible by a person remaining at ground level.		<b>Pass</b>
	Where this is not possible, machines shall have built-in platforms, stairs or other facilities to provide safe access for those tasks; however, care should be taken to ensure that such platforms or stairs do not give access to danger zones of machinery.		<b>Pass</b>
	The walking areas shall be made from materials which remain as slip resistant as practicable under working conditions and, depending on the height from the ground, shall be provided with suitable guard-rails (see		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	ISO 14122-3).		
	In large automated installations, particular attention shall be given to safe means of access, such as walkways, conveyor bridges or crossover points.		<b>N/A</b>
	Means of access to parts of machinery located at height shall be provided with collective means of protection against falls (for example, guard-rails for stairways, stepladders and platforms and/or safety cages for ladders). As necessary, anchorage points for personal protective equipment against falls from height shall also be provided (for example, in carriers of machinery for lifting persons or with elevating control stations).		<b>Pass</b>
	Openings shall, whenever possible, open towards a safe position. They shall be designed to prevent hazards due to unintended opening.		<b>Pass</b>
	The necessary aids for access shall be provided (steps, handholds, etc.). Control devices shall be designed and located to prevent their being used as aids for access.		<b>Pass</b>
	When machinery for lifting goods and/or persons includes landings at fixed levels, these shall be equipped with interlocking guards for preventing falls when the platform is not present at a level. Movement of the lifting platform shall be prevented while the guards are open.		<b>N/A</b>
	For detailed provisions see ISO 14122.		--
<b>6.4</b>	<b>Information for use</b>		--
<b>6.4.1</b>	<b>General requirements</b>		--
<b>6.4.1.1</b>	Drafting information for use is an integral part of the design of a machine (see Figure 2). Information for use consists of communication links, such as texts, words, signs, signals, symbols or diagrams, used separately or in combination to convey information to the user. Information for use is intended for professional and/or non-professional users.		<b>Pass</b>
	NOTE See also IEC 62079 for structuring and presentation of information for use.		--
<b>6.4.1.2</b>	Information shall be provided to the user about the intended use of the machine, taking into account, notably, all its operating modes.		<b>Pass</b>
	The information shall contain all directions required to ensure safe and correct use of the machine. With this in view, it shall inform and warn the user about residual risk.		<b>Pass</b>
	The information shall indicate, as appropriate, - the need for training, - the need for personal protective equipment, and - the possible need for additional guards or protective devices (see Figure 2, Footnote d).		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	It shall not exclude uses of the machine that can reasonably be expected from its designation and description and shall also warn about the risk which would result from using the machine in other ways than the ones described in the information, especially considering its reasonably foreseeable misuse.		<b>Pass</b>
<b>6.4.1.3</b>	Information for use shall cover, separately or in combination, transport, assembly and installation, commissioning, use of the machine (setting, teaching/programming or process changeover, operation, cleaning, fault-finding and maintenance) and, if necessary, dismantling, disabling and scrapping.		<b>Pass</b>
<b>6.4.2</b>	<b>Location and nature of information for use</b>		--
	Depending on the risk, the time when the information is needed by the user and the machine design, it shall be decided whether the information — or parts thereof — are to be given a) in/on the machine itself (see 6.4.3 and 6.4.4), b) in accompanying documents (in particular instruction handbook, see 6.4.5), c) on the packaging, d) by other means such as signals and warnings outside the machine.		<b>Pass</b>
	Standardized phrases shall be considered where important messages such as warnings are given (see also IEC 62079).		<b>Pass</b>
<b>6.4.3</b>	<b>Signals and warning devices</b>		--
	Visual signals, such as flashing lights and audible signals such as sirens may be used to warn of an impending hazardous event such as machine start-up or overspeed. Such signals may also be used to warn the operator before the triggering of automatic protective measures (see 6.3.2.7).		<b>N/A</b>
	It is essential that these signals a) be emitted before the occurrence of the hazardous event, b) be unambiguous, c) be clearly perceived and differentiated from all other signals used, and d) be clearly recognized by the operator and other persons.		<b>N/A</b>
	The warning devices shall be designed and located such that checking is easy. The information for use shall prescribe regular checking of warning devices.		<b>N/A</b>
	The attention of designers is drawn to the possibility of “sensorial saturation”, which can result from too many visual and/or acoustic signals and which can also lead to defeating the warning devices.		<b>N/A</b>
	NOTE Consultation of the user on this subject is often necessary.		--
<b>6.4.4</b>	<b>Markings, signs (pictograms) and written warnings</b>		--

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	Machinery shall bear all markings which are necessary		--
	a) for its unambiguous identification, including at least 1) the name and address of the manufacturer, 2) the designation of series or type, and 3) the serial number, if any,		<b>Pass</b>
	b) in order to indicate its compliance with mandatory requirements, comprising 1) marking, and 2) written indications, such as the authorized representative of the manufacturer, designation of the c) for its safe use, for example, 1) maximum speed of rotating parts, 2) maximum diameter of tools, 3) mass (in kilograms) of the machine itself and/or of removable parts, 4) maximum working load, 5) necessity of wearing personal protective equipment, 6) guard adjustment data, and 7) frequency of inspection.		<b>Pass</b>
	Information printed directly on the machine should be permanent and remain legible throughout the expected life of the machine.		<b>Pass</b>
	Signs or written warnings indicating only “Danger” shall not be used.		<b>Pass</b>
	Markings, signs and written warnings shall be readily understandable and unambiguous, especially as regards the part of the function(s) of the machine to which they are related. Readily understandable signs (pictograms) should be used in preference to written warnings.		<b>Pass</b>
	Signs and pictograms should only be used if they are understood in the culture in which the machinery is to be used.		<b>Pass</b>
	Written warnings shall be drawn up in the language(s) of the country in which the machine will be used for the first time and, on request, in the language(s) understood by operators.		<b>Pass</b>
	NOTE In some countries the use of specific language(s) is covered by legal requirements.		--
	Markings shall comply with recognized standards (for example, ISO 2972 or ISO 7000, for pictograms, symbols and colours in particular).		<b>Pass</b>
	See IEC 60204-1 as regards marking of electrical equipment.		<b>Pass</b>
	See ISO 4413 and ISO 4414 for hydraulic and pneumatic equipment.		<b>Pass</b>
<b>6.4.5</b>	<b>Accompanying documents (in particular — instruction handbook)</b>		<b>N/A</b>
<b>6.4.5.1</b>	<b>Contents</b>		--
	The instruction handbook or other written instructions (for example, on the packaging) shall contain, among others, the following:		<b>Pass</b>
	a) information relating to transport, handling and storage of the machine,		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	such as 1) storage conditions for the machine, 2) dimensions, mass value(s), position of the centre(s) of gravity, and 3) indications for handling (for example, drawings indicating application points for lifting equipment);		
	b) information relating to installation and commissioning of the machine, such as 1) fixing/anchoring and dampening of noise and vibration requirements, 2) assembly and mounting conditions, 3) space needed for use and maintenance, 4) permissible environmental conditions (for example, temperature, moisture, vibration, electromagnetic radiation), 5) instructions for connecting the machine to power supply (particularly on protection against electrical overloading), 6) advice on waste removal/disposal, and 7) if necessary, recommendations related to protective measures which have to be implemented by the user — for example, additional safeguards (see Figure 2, Footnote d), safety distances, safety signs and signals;		<b>Pass</b>
	c) information relating to the machine itself, such as 1) detailed description of the machine, its fittings, guards and/or protective devices, 2) the comprehensive range of applications for which the machine is intended, including prohibited usages, if any, taking into account variations of the original machine if appropriate, 3) diagrams (especially schematic representation of safety functions), 4) data on noise and vibration generated by the machine, and on radiation, gases, vapours and dust emitted by it, with reference to the measuring methods (including measurement uncertainties) used, 5) technical documentation of electrical equipment (see IEC 60204), and 6) documents attesting that the machine complies with mandatory requirements;		<b>Pass</b>
	d) information relating to the use of the machine, such as that related to or describing 1) intended use, 2) manual controls (actuators),		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	3) setting and adjustment, 4) modes and means for stopping (especially emergency stop), 5) risks which could not be eliminated by the protective measures implemented by the designer, 6) particular risks which can be generated by certain applications, by the use of certain fittings, and about specific safeguards necessary for such applications, 7) reasonably foreseeable misuse and prohibited applications, 8) fault identification and location, for repair and for restarting after an intervention, and 9) personal protective equipment needed to be used and the training that is required;		
	e) information for maintenance, such as 1) the nature and frequency of inspections for safety functions, 2) specification of the spare parts to be used when these can affect the health and safety of operators, 3) instructions relating to maintenance operations which require a definite technical knowledge or particular skills and hence need to be carried out exclusively by skilled persons (for example, maintenance staff, specialists), 4) instructions relating to maintenance actions (replacement of parts, etc.) which do not require specific skills and hence may be carried out by users (for example, operators), and 5) drawings and diagrams enabling maintenance personnel to carry out their task rationally (especially fault-finding tasks);		<b>Pass</b>
	f) information relating to dismantling, disabling and scrapping;		<b>Pass</b>
	g) information for emergency situations, such as 1) the operating method to be followed in the event of accident or breakdown, 2) the type of fire-fighting equipment to be used, and 3) a warning of possible emission or leakage of hazardous substance(s) and, if possible, an indication of means for fighting their effects;		<b>Pass</b>
	h) maintenance instructions provided for skilled persons [item e) 3) above] and maintenance instructions provided for unskilled persons [item e) 4) above], that need to appear clearly separated from each other.		<b>Pass</b>
<b>6.4.5.2</b>	<b>Production of instruction handbook</b>		--
	The following applies to the production and presentation of the instruction handbook. a) The type font and size of print shall ensure the best possible legibility. Safety warnings and/or cautions should be emphasized by the use of		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result - Remark</b>	<b>Verdict</b>
	<p>colours, symbols and/or large print.</p> <p>b) The information for use shall be given in the language(s) of the country in which the machine will be used for the first time and in the original version. If more than one language is to be used, each should be readily distinguished from another, and efforts should be made to keep the translated text and relevant illustration together.</p> <p>NOTE In some countries the use of specific language(s) is covered by legal requirements.</p> <p>c) Whenever helpful to the understanding, text should be supported by illustrations. These illustrations should be supplemented with written details enabling, for example, manual controls (actuators) to be located and identified. They should not be separated from the accompanying text and should follow sequential operations.</p> <p>d) Consideration should be given to presenting information in tabular form where this will aid understanding. Tables should be adjacent to the relevant text.</p> <p>e) The use of colours should be considered, particularly in relation to components requiring quick identification.</p> <p>f) When information for use is lengthy, a table of contents and/or an index should be provided.</p> <p>g) Safety-relevant instructions which involve immediate action should be provided in a form readily available to the operator.</p>		
<b>6.4.5.3</b>	<b>Drafting and editing information for use</b>		<b>--</b>
	<p>The following applies to the drafting and editing of information for use.</p> <p>a) Relationship to model: the information shall clearly relate to the specific model of machine and, if necessary, other appropriate identification (for example, by serial number).</p> <p>b) Communication principles: when information for use is being prepared, the communication process “see – think – use” should be followed in order to achieve the maximum effect and should follow sequential operations. The questions, “How?” and “Why?” should be anticipated and the answers provided.</p> <p>c) Information for use shall be as simple and as brief as possible, and should be expressed in consistent terms and units with a clear explanation of unusual technical terms.</p> <p>d) When it is foreseen that a machine will be put to non-professional use, the instructions should be written in a form that is readily understood by the non-professional user. If personal protective equipment is required for the safe use of the machine, clear advice should be given, for example, on the packaging as well as on the machine, so that this information is prominently displayed at the point of sale.</p>		<b>Pass</b>

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



<b>Attachment No.3: ISO 12100: 2010</b>			
Clause	Requirement – Test	Result - Remark	Verdict
	e) Durability and availability of the documents: documents giving instructions for use should be produced in durable form (i.e. they should be able to survive frequent handling by the user). It can be useful to mark them “keep for future reference”. Where information for use is kept in electronic form (CD, DVD, tape, hard disk, etc.), information on safety-related issues that need immediate action shall always be backed up with a hard copy that is readily available.		
<b>7</b>	<b>Documentation of risk assessment and risk reduction</b>		--
	The documentation shall demonstrate the procedure that has been followed and the results that have been achieved. This includes, when relevant, documentation of		--
	a) the machinery for which the risk assessment has been made (for example, specifications, limits, intended use); b) any relevant assumptions that have been made (loads, strengths, safety factors, etc.); c) the hazards and hazardous situations identified and the hazardous events considered in the risk assessment; d) the information on which risk assessment was based (see 5.2): 1) the data used and the sources (accident histories, experience gained from risk reduction applied to similar machinery, etc.); 2) the uncertainty associated with the data used and its impact on the risk assessment; e) the risk reduction objectives to be achieved by protective measures; f) the protective measures implemented to eliminate identified hazards or to reduce risk; g) residual risks associated with the machinery; h) the result of the risk assessment (see Figure 1); i) any forms completed during the risk assessment.		<b>Pass</b>
	Standards or other specifications used to select protective measures referred to in f) above should be referenced.		<b>Pass</b>
	NOTE No requirement is given in this International Standard to deliver the risk assessment documentation together with the machine. See ISO/TR 14121-2 for information on documentation.		--

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

<b>Attachment No.3: ISO 12100: 2010</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result - Remark</b>	<b>Verdict</b>

## **TABLE OF CONTENTS**

### **I. Introduction**

### **II. Risk assessment Methodology**

### **III. Assessment Result**

### **IV. Measures to eliminate the risk & its improvement.**

Attachment No.3: ISO 12100: 2010			
Clause	Requirement – Test	Result - Remark	Verdict

## I. Introduction.

In general this risk assessment report for the machines listed in previous page made by Shenzhen HC testing technology Co., LTD. was carried out in accordance with the requirements of Machinery Directive and the standards of ISO 14121-1, in which an explicit risk level is evaluated with 4 factors described in next clause.

After the first assessment, some measures to eliminate the risks are given for the modification of machine or of relative documents with taking into account the explicit C-type EN standard or related B-type standard.

While taking appropriate provisions for the existing risks, the procedures and principles to eliminate the risk according to the most general B-type standard for any kind of machine:

- First step: consider the possibility of eliminating risk at design stage.
- Second step: if impossible, protect the dangerous zone with appropriate design of safety guard or safety device.
- Third step: if above impossible, give warning signs to draw attention of operators about the residual risks.

In addition, some check list drawn from the explicit C-type IEC standards, which are found suitable for or near the characteristic of this machine, maybe used to help developing the provisions for the elimination of the risks.

Finally the risk assessment was carried out again to ensure this machine and its relative documents are totally compliance with the Machinery Directive.

Attachment No.3: ISO 12100: 2010			
Clause	Requirement – Test	Result - Remark	Verdict

## II. Risk assessment Methodology

The risk assessment is based on the method recommended in ISO 14121-1 and, in which the 4 factors S-A-G-W are used to evaluate the level of risk. The meaning of those is described in the following:

(A) S: Severity of the possible harm.

- S1: Slight (normally reversible) injury or damage to health.
- S2: Serious (normally irreversible) injury or damage to health, or cause one man dies.
- S3: Cause a few men die.
- S4: Catastrophe or many men die.

(B) A: Frequency of exposure.

- A1: Seldom to quite often.
- A2: Frequent to continuous.

(C) G: Possibilities of avoidance.

- G1: Possible to be avoided.
- G2: Impossible to be avoided.

(D) W: Probability of occurrence of an event that can cause harm.

- W1: Low (So unlikely, it can be assumed occurrence may not be experienced.)
- W2: Medium (likely to occur sometime in life time of an item)
- W3: High (likely to occur frequently)

The decision for the level of risk could be made in according to the following Fig

TRF No. IEC60335\_1X

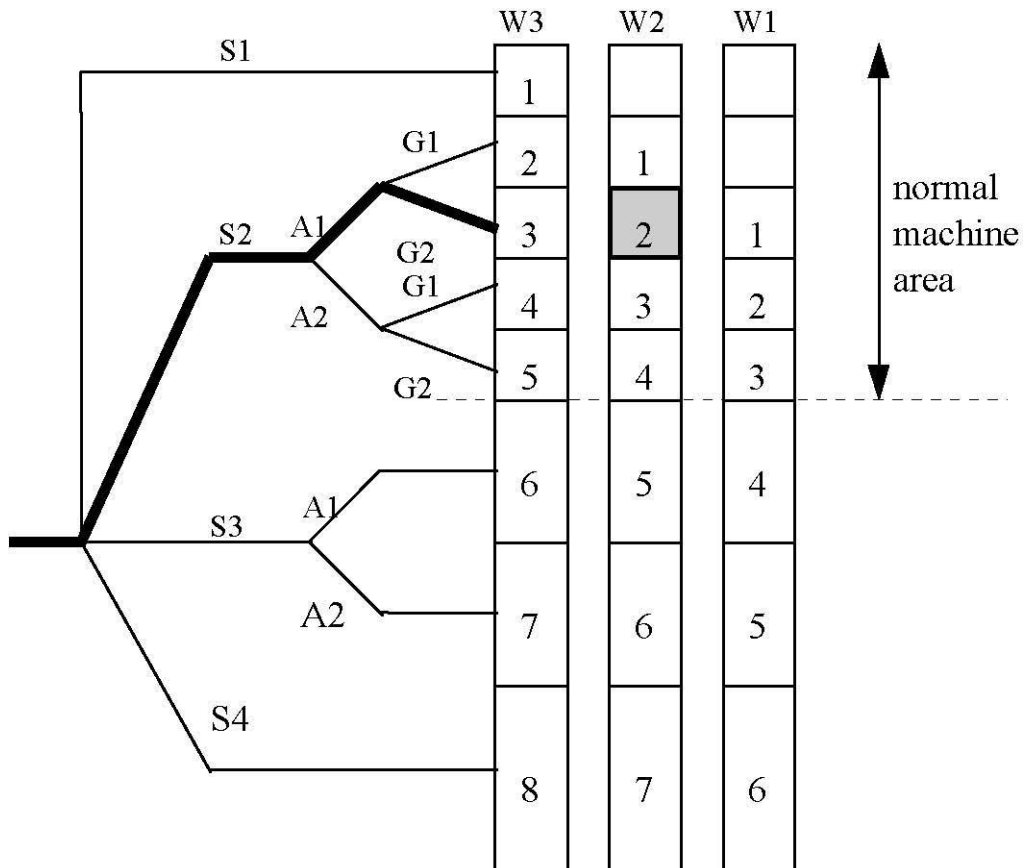
Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

## Attachment No.3: ISO 12100: 2010

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------



Corresponding measures:

1 : Protected by warning

2 : Protected by guard and warning

3 : Consider another design, adopt the best one, add both guard and warning

4 : Consider another two designs, adopt the best one, add both guard and warning

5 : Consider another three or more designs, adopt the one add both guard and warning

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

## Attachment No.3: ISO 12100: 2010

Clause	Requirement – Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

### III. Assessment Result

Please see the following Table

Mechanical hazards								
1.0.1	Mechanical hazards due to machine part or work piece.	N/A		-	-	-	-	-
1.0.2	Mechanical hazards due to accumulation of energy under pressure.	N/A		-	-	-	-	-
1.1	Crushing / Squeezing	Injury on hand		S1	A1	G2	W2	-
1.2	Shearing	N/A		-	-	-	-	-
1.3	Cutting or severing	N/A		-	-	-	-	-
1.4	Entanglement	N/A		-	-	-	-	-
1.5	Drawing-in or Trapping	N/A		-	-	-	-	-
1.6	Impact	Injury on hand		S1	A1	G2	W2	-
1.7	Stabbing or puncture	N/A		-	-	-	-	-
1.8	Friction or abrasion	N/A		-	-	-	-	-
1.9	High pressure fluid injection	N/A		-	-	-	-	-
1.10	Ejection of parts (of machinery and processed material/work piece)	N/A		-	-	-	-	-
1.11	Loss of stability (of machinery and machine parts).	N/A		-	-	-	-	-
1.12	Slip, trip and fall hazards in relationship with machinery (because	N/A		-	-	-	-	-

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

**Attachment No.3: ISO 12100: 2010**

Clause	Requirement – Test	Result - Remark						Verdict
	of their mechanical nature)							
<b>Electrical hazards</b>								
2.1	Electrical contact: direct	Serious injury to human	Electric circuit contact when power on	S2	A2	G2	W2	4
2.2	Electrical contact: indirect	ditto	Electric circuit contact when insulation failure.	S2	A2	G2	W2	4
2.3	Approach to live part under high voltage	ditto		S2	A2	G2	W1	3
2.4	Electrostatic phenomena	N/A		-	-	-	-	-
2.5	Thermal radiation or other phenomena such as projection of molten particles and chemical effects from short-circuits, overloads etc.	N/A		-	-	-	-	-
<b>Thermal hazards</b>								
3.1	Burns and scalds, by a possible contact of persons by flames or explosions and also by radiation of heat sources	Injury to human		S1	A1	G1	W1	-
3.2	Health-damaging effects by hot or cold work environment	N/A		-	-	-	-	-
<b>Hazards generated by noise</b>								
4.1	Hearing losses (deafness), other physiological disorders (e.g. loss of balance, loss of awareness)	N/A		-	-	-	-	-

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

Attachment No.3: ISO 12100: 2010								
Clause	Requirement – Test		Result - Remark					Verdict
4.2	Health-damaging effects by hot or cold work environment	N/A		-	-	-	-	-
<b>Hazards generated by vibration</b>								
5.1	Use of hand-held machines resulting in a variety of neurological and vascular disorder	N/A		-	-	-	-	-
5.2	Whole body vibration, particular when combined with poor postures	N/A		-	-	-	-	-
<b>Hazards generated by vibration</b>								
6.1	Low / high frequency, radio frequency radiation, microwaves	N/A		-	-	-	-	-
6.2	Infrared, visible and ultraviolet Light	N/A		-	-	-	-	-
6.3	X and gamma rays	N/A		-	-	-	-	-
6.4	Alpha, beta rays, electron or ion beams, neutrons	N/A		-	-	-	-	-
6.5	Lasers	N/A	No such lasers	-	-	-	-	-
<b>Hazards generated by materials and substances processed, used or exhausted by machinery</b>								
7.1	Hazards resulting from contact with or inhalation of harmful fluids, gases, mists, fumes and dusts	N/A	Harmful fumes and dusts will be emission when processing the workpiece.	S2	A2	G1	W2	3
7.2	fire and explosion	Serious injury to human	When machine processes the workpiece made by flammable material	S2	A2	G1	W2	-3
7.3	Biological and	N/A		-	-	-	-	-

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



## Attachment No.3: ISO 12100: 2010

Clause	Requirement – Test	Result - Remark					Verdict	
	micro-biological (viral or bacterial)							
<b>Hazards generated by neglecting ergonomic principles in machine design (mismatch of machinery with human characteristics and abilities)</b>								
8.1	Unhealthy posture or excessive efforts	N/A		-	-	-	-	-
8.2	Inadequate with hand-arm or foot-leg anatomy	N/A		-	-	-	-	-
8.3	Neglected use of personal protection equipment	N/A		-	-	-	-	-
8.4	Inadequate local lighting	Injury to human		S2	A2	G1	W1	2
8.5	Mental overload or under-load, stress etc.	N/A		-	-	-	-	-
8.6	Human errors, human behavior	Injury to human		S2	A2	G1	W1	2
8.7	Inadequate design, location or identification of manual controls	N/A		-	-	-	-	-
8.8	Inadequate design or location of visual display units	N/A		-	-	-	-	-
<b>Combination of hazards</b>								
9.1	Unhealthy posture or excessive efforts	N/A		-	-	-	-	-
<b>Unexpected start-up, unexpected overrun / over-speed</b>								
10.1	Failure/disorder of control system (unexpected start-up, unexpected overrun)	Injury to human		S2	A2	G2	W2	4
10.2	Restoration of energy supply after an interruption.	N.A		-	-	-	-	-
10.3	External influence on	N/A		-	-	-	-	-

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

Attachment No.3: ISO 12100: 2010								
Clause	Requirement – Test		Result - Remark					Verdict
	electrical equipment							
10.4	Other external influences (Gravity, wind, etc.)	N/A		-	-	-	-	-
10.5	Errors in the software	N/A		S2	A2	G2	W1	3
10.6	Errors made by the operator (due to mismatch of machine with human characteristic and abilities, see 8.6)	N/A		S2	A2	G2	W2	4
<b>Impossibility of stopping the machine in the best possible condition</b>								
11	Impossibility of stopping the machine in the best possible condition	N/A		-	-	-	-	-
<b>Variations in the rotational speed of tools</b>								
12	Variations in the rotational speed of tools	N/A		-	-	-	-	-
<b>Failure of the power supply</b>								
13	Failure of the power supply	N.A		-	A2	G2	W2	-
<b>Failure of the control circuit</b>								
14	Failure of the control circuit	Injury to human		S2	A2	G2	W2	4
<b>Errors of fitting</b>								
15	Errors of fitting	N/A		-	-	-	-	-
<b>Break-up during operation</b>								
16	Break-up during operation	N/A		-	-	-	-	-
<b>Falling or ejected objects or fluids</b>								
17	Falling or ejected	Injury		-	-	-	-	-

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

Attachment No.3: ISO 12100: 2010								
Clause	Requirement – Test	Result - Remark	Verdict					
	objects or fluids	to human						
<b>Loss of stability / overturning of machinery</b>								
18	Loss of stability / overturning of machinery	N/A		-	-	-	-	-
<b>Slip, trip and fall of persons (related to machine)</b>								
19	Slip, trip and fall of persons (related to machine)	N/A		-	-	-	-	-
<b>Additional hazards, hazardous situation and hazardous events due to mobility</b>								
20.1	Movement when starting the engine	N/A		-	-	-	-	-
20.2	Movement without a driver at the driving position	N/A		-	-	-	-	-
20.3	Movement without all parts in a safe position	N/A		-	-	-	-	-
20.4	Excessive speed of pedestrian controlled machinery	N/A		-	-	-	-	-
20.5	Excessive oscillations when moving	N/A		-	-	-	-	-
20.6	Insufficient ability of machinery to be slowed down, stopped and immobilized.	N/A		-	-	-	-	-
<b>Linked to the work position (including driving station) on the machine</b>								
21.1	Fall of persons during access to (or at/from) the work station	N/A		-	-	-	-	-
21.2	Exhaust gases/lack of oxygen at the work position	N/A		-	-	-	-	-
21.3	Fire (flammability of the cab, lack of extinguishing means)	N/A		-	-	-	-	-

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

Attachment No.3: ISO 12100: 2010								
Clause	Requirement – Test		Result - Remark					Verdict
21.4	Mechanical hazards at the work position: a) contact with the wheels; b) rollover; c) fall of objects, penetration by objects; d) break-up of parts rotating a high speed; e) contact of persons with machine parts or tools (pedestrian controlled machines).	N/A		-	-	-	-	-
21.5	Insufficient visibility from the work positions	N/A		-	-	-	-	-
21.6	Inadequate lighting.	N/A		-	-	-	-	-
21.7	Inadequate seating	N/A		-	-	-	-	-
21.8	Noise at the work position	N/A		-	-	-	-	-
21.9	Vibration at the work position	N/A		-	-	-	-	-
21.10	Insufficient means for evacuation / emergency exit	N/A		-	-	-	-	-
<b>Due to the control system</b>								
22.1	Inadequate location of manual controls	N/A		-	-	-	-	-
22.2	Inadequate design of manual controls and their mode of operation	N/A		-	-	-	-	-
<b>From handling the machine (lack of stability)</b>								
23	From handling the machine (lack of stability)	N/A		-	-	-	-	-
<b>Due to the power source and to the transmission of power</b>								
24.1	Hazards from the	N/A		-	-	-	-	-

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

Attachment No.3: ISO 12100: 2010								
Clause	Requirement – Test		Result - Remark					Verdict
	engine and the batteries							
24.2	Hazards from transmission of power between machines	N/A		-	-	-	-	-
24.3	Hazards from coupling and towing	N/A		-	-	-	-	-
<b>From / to third persons</b>								
25.1	Unauthorized start-up / use	N/A		-	-	-	-	-
25.2	Drift of a part away from its stopping position	N/A		-	-	-	-	-
25.3	Lack of inadequacy of visual or acoustic warning means	N/A		-	-	-	-	-
<b>Insufficient instructions for the driver / operator</b>								
26	Insufficient instructions for the driver / operator	N/A		-	-	-	-	-
<b>Mechanical hazards and hazardous events</b>								
27.1	From load falls, collisions, machine tipping caused by;	N/A		-	-	-	-	-
27.1.1	lack of stability	N/A		-	-	-	-	-
27.1.2	uncontrolled loading - overturning moments exceeded	N/A		-	-	-	-	-
27.1.3	uncontrolled amplitude of movements	N/A		-	-	-	-	-
27.1.4	unexpected / unintended movement of loads	N/A		-	-	-	-	-
27.1.5	inadequate holding devices / accessories	N/A		-	-	-	-	-
27.1.6	Collision of more than one machine	N/A		-	-	-	-	-

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

Attachment No.3: ISO 12100: 2010								
Clause	Requirement – Test		Result - Remark					Verdict
27.2	From access of persons to load support	N/A		-	-	-	-	-
27.3	From derailment	N/A		-	-	-	-	-
27.4	From insufficient mechanical strength of parts	N/A		-	-	-	-	-
27.5	From inadequate design of pulleys, drums.	N/A		-	-	-	-	-
27.6	From inadequate selection of chains, ropes, lifting and accessories and their inadequate integration into the machine	N/A		-	-	-	-	-
27.7	From lowering of the load under the control of friction brake	N/A		-	-	-	-	-
27.8	From abnormal conditions of assembly/ testing/ use/ maintenance	N/A		-	-	-	-	-
27.9	From the effect of load on persons (impact by load or counterweight)	N/A		-	-	-	-	-
<b>Electrical hazards</b>								
28	From lighting	N/A		-	-	-	-	-
<b>Hazards generated by neglecting ergonomic principle</b>								
29	Insufficient visibilities form the driving position.	N/A		-	-	-	-	-
<b>Additional hazards, hazardous situations and hazardous events due to underground work</b>								
30	Mechanical hazards and hazardous events due	N/A		-	-	-	-	-

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

Attachment No.3: ISO 12100: 2010								
Clause	Requirement – Test	Result - Remark					Verdict	
	to:							
30.1	Lack of stability of powered roof supports	N/A		-	-	-	-	-
30.2	Falling accelerator or brake control of machinery running on rails	N/A		-	-	-	-	-
30.3	Falling or lack of deadman's control of machinery running on rails	N/A		-	-	-	-	-
<b>Restricted movement of persons</b>								
31	Restricted movement of persons	N/A		-	-	-	-	-
<b>Fire and explosion</b>								
32	Fire and explosion	Injury to human	When machine processes the workpiece made by flammable material	S2	A2	G1	W2	3
<b>Emission of dust, gases etc.</b>								
33	Emission of dust, gases etc.	Injury to human	Harmful fumes and dusts will be emission when processing the workpiece.	S2	A2	G1	W2	3
<b>Additional hazards, hazardous situations and hazardous events due to the lifting or moving of persons</b>								
34	Mechanical hazards and hazardous events due to:	-		-	-	-	-	-
34.1	Inadequate mechanical strength and inadequate working coefficient	N/A		-	-	-	-	-
34.2	Failing of loading control	N/A		-	-	-	-	-

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

Attachment No.3: ISO 12100: 2010									
Clause	Requirement – Test		Result - Remark						Verdict
34.3	Failing of controls in person carrier (function, priority)	N/A		-	-	-	-	-	-
34.4	Overspeed of person carrier	N/A		-	-	-	-	-	-
<b>Falling of person from person carrier</b>									
35	Falling of person from person carrier	N/A		-	-	-	-	-	-
<b>Falling or overturning of person carrier</b>									
36	Falling or overturning of person carrier	N/A		-	-	-	-	-	-
<b>Human error, human behavior</b>									
37	Human error, human behavior	N/A		-	-	-	-	-	-

Note:

- 1) For the risk marked with “N/A”, either
  - a) it means the risk has been eliminated by general design and manufacture of machine. The harm caused these risks may not be considered. or
  - b) The risk is not applicable for the machine under assessment.
- 2) This list is fully completed compared to the list presented in Annex A of ISO 14121-1.

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



Attachment No.4: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES OF IEC 60204-1 and ISO 12100: 2010			
Clause	Requirement - Test	Result - Remark	Verdict

#### IV. Measures to eliminate the risk & its improvement.

Working Phase	Operation:	√	Maintenance:	√	Other:	
<b>Id No.</b>	2.1	<b>Factors:</b>	S2-A2-G2-W2	<b>Level:</b>		4
<b>Description</b>	Electrical contact directly					
<b>Where / When</b>	Electric circuit contact when power on					
<b>Measures</b>	- To design the electrical circuit and electrical equipment according to IEC 60204-1 - Place warning label					
<b>Reference</b>	IEC 60204-1					
<b>Improvement</b>	<b>Factors:</b>		S2-A2-G2-W1	<b>Level:</b>		3

Working Phase	Operation:	√	Maintenance:	√	Other:	
<b>Id No.</b>	2.2	<b>Factors:</b>	S2-A2-G2-W2	<b>Level:</b>		4
<b>Description</b>	Electrical contact indirectly					
<b>Where / When</b>	Electric circuit contact when insulation failure					
<b>Measures</b>	- To design the electrical circuit and electrical equipment according to IEC 60204-1 - Place warning label					
<b>Reference</b>	IEC 60204-1					
<b>Improvement</b>	<b>Factors:</b>		S2-A2-G2- W1	<b>Level:</b>		3

Working Phase	Operation:	√	Maintenance:	√	Other:	
<b>Id No.</b>	2.3	<b>Factors:</b>	S2-A2-G2-W1	<b>Level:</b>		3
<b>Description</b>	Approach to the live part under high voltage.					
<b>Where / When</b>	- The source of power supply is still live when power is disconnected.					
<b>Measures</b>	- To design the electrical circuit and electrical equipment according to IEC 60204-1 - To perform test for protection against residual voltage					
<b>Reference</b>	IEC 60204-1 6.2.4					

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building,Fuyong Avenue,Fuyong Street,Bao'an District,ShenZhen,Guangdong,China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

Attachment No.4: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES OF IEC 60204-1 and ISO 12100: 2010			
Clause	Requirement - Test	Result - Remark	Verdict

Working Phase	Operation:	√	Maintenance:	√	Other:	
<b>Id No.</b>	3.1	<b>Factors:</b>	S1-A1-G1-W1	<b>Level:</b>		-
<b>Description</b>	Burns and scalds, by a possible contact of persons by flames or explosions and also by radiation of heat sources					
<b>Where / When</b>	High temperature of ventilation hot wind.					
<b>Measures</b>	- Verify the temperature lower than 40 °C - Place warning label					
<b>Reference</b>	-					
<b>Improvement</b>	<b>Factors:</b>	S1-A1-G1-W1	<b>Level:</b>			-

Working Phase	Operation:	√	Maintenance:	√	Other:	
<b>Id No.</b>	7.1	<b>Factors:</b>	S2-A2-G1-W2	<b>Level:</b>		3
<b>Description</b>	Hazards resulting from contact with or inhalation of harmful fluids, gases, mists, fumes and dusts.					
<b>Where / When</b>	Harmful fumes and dusts will be emission when processing the workpiece.					
<b>Measures</b>	- Design a internal exhaust device or interface with external exhaust device - Instruct the information and precaution for processing workpiece in use manual.					
<b>Reference</b>	ISO 12100-1, -2					

Working Phase	Operation:	√	Maintenance:	√	Other:	
<b>Id No.</b>	7.2	<b>Factors:</b>	S2-A2-G1-W2	<b>Level:</b>		3
<b>Description</b>	Fire and explosion					
<b>Where / When</b>	When machine processes the workpiece made by flammable material					
<b>Measures</b>	- Instruct the information and precaution for processing workpiece in user manual..					
<b>Reference</b>	IEC 60204-1					
<b>Improvement</b>	<b>Factors:</b>	S1-A2-G1-W1	<b>Level:</b>			1

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

Attachment No.4: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES OF IEC 60204-1 and ISO 12100: 2010			
Clause	Requirement - Test	Result - Remark	Verdict

<b>Working Phase</b>	<b>Operation:</b>	√	<b>Maintenance</b>	√	<b>Other:</b>	
<b>Id No.</b>	10.2	<b>Factors:</b>	S2-A2-G2-W2	<b>Level:</b>		4
<b>Description</b>	Hazards caused by the restoration of energy after interruption.					
<b>Where / When</b>	Automatic emission of laser beam while energy supply recovery.					
<b>Measures</b>	<ul style="list-style-type: none"> <li>- Prohibit the restart directly of laser beam while energy supply recovery through the design of electrical circuit.</li> <li>- Perform the functional test</li> </ul>					
<b>Reference</b>	IEC 60204-1					
<b>Improvement</b>	<b>Factors:</b>		S2-A1-G1-W1	<b>Level:</b>		-

<b>Working Phase</b>	<b>Operation:</b>	√	<b>Maintenance</b>	√	<b>Other:</b>	
<b>Id No.</b>	10.5	<b>Factors:</b>	S2-A2-G2-W1	<b>Level:</b>		3
<b>Description</b>	Hazards caused by the error in the software.					
<b>Where / When</b>	Errors in the software to unexpected emit laser beam.					
<b>Measures</b>	<ul style="list-style-type: none"> <li>- Perform software functional test</li> <li>- Let the working of protective guard over the controls by software.</li> </ul>					
<b>Reference</b>	-					
<b>Improvement</b>	<b>Factors:</b>		S2-A1-G1-W1	<b>Level:</b>		-

<b>Working Phase</b>	<b>Operation:</b>	√	<b>Maintenance</b>	√	<b>Other:</b>	
<b>Id No.</b>	10.6	<b>Factors:</b>	S2-A2-G2-W2	<b>Level:</b>		4
<b>Description</b>	Hazards caused by Errors made by the operator					
<b>Where / When</b>	Human exposure in laser beam area without guard.					
<b>Measures</b>	<ul style="list-style-type: none"> <li>- . Require the operator should be trained and skilled in user manual.</li> <li>- Provide the interlock protection</li> </ul>					
<b>Reference</b>	IEC 60204-1					
<b>Improvement</b>	<b>Factors:</b>		S2-A1-G1-W1	<b>Level:</b>		-

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358

**Attachment No.4: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES OF IEC 60204-1 and ISO 12100: 2010**

Clause	Requirement - Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

<b>Working Phase</b>	<b>Operation:</b>	√	<b>Maintenance</b>	√	<b>Other:</b>	
<b>Id No.</b>	32	<b>Factors:</b>	S2-A2-G1-W2	<b>Level:</b>		3
<b>Description</b>	Fire and explosion					
<b>Where / When</b>	When machine processes the workpiece made by flammable material					
<b>Measures</b>	- Instruct the information and precaution for processing workpiece in use manual					
<b>Reference</b>	-					
<b>Improvement</b>	<b>Factors:</b>		S2-A2-G1-W1	<b>Level:</b>		2

<b>Working Phase</b>	<b>Operation:</b>	√	<b>Maintenance</b>	√	<b>Other:</b>	
<b>Id No.</b>	33	<b>Factors:</b>	S2-A2-G1-W2	<b>Level:</b>		3
<b>Description</b>	Emission of dust, gases etc					
<b>Where / When</b>	Harmful fumes and dusts will be emission when processing the workpiece.					
<b>Measures</b>	- Design a internal exhaust device or interface with external exhaust device - Instruct the information and precaution for processing workpiece in use manual					
<b>Reference</b>	-					
<b>Improvement</b>	<b>Factors:</b>		S2-A2-G1-W1	<b>Level:</b>		-

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358



Attachment No.5: Product Photos

Details of: External view



-----END OF REPORT-----

TRF No. IEC60335\_1X

Shenzhen HC testing technology Co., LTD.

Add: XingZhongBao Business Building, Fuyong Avenue, Fuyong Street, Bao'an District, ShenZhen, Guangdong, China

Http://www.szhc-test.com Email:HC-test@139.COM Tel:4008 823 358