TEST REPORT

EN 60335-1:2012+A11:2014

EN 60335-2-51:2003+A1:2008+A2:2012

Household and similar electrical appliances —

Safety —Part 1: General requirements

Part 2-51: Particular requirements for stationary circulation pumps for heating and service water installations

Report	
Report reference No. ..... :	SCC(15)-50108A-21-10-LVD
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Testing location ..... :	No.45 Wenming Dong Road Longquanyi Chengdu 610100 P. R. China
Client	
Name ..... :	Taizhou XINWILO Electric Motor Co.,Ltd.
Address ..... :	Nianmuyang, Daxi Town, Wenling City, Zhejiang Province, China
Client	
Name ..... :	Taizhou WESTONE Machinery & Electric Co.,Ltd.
Address ..... :	Shangma industrial zone, Economic development area, Wenling, Zhejiang, China
Test specification	
Standard..... :	EN 60335-1:2012+A11:2014
	EN 60335-2-51:2003+A1:2008+A2:2012
Test procedure ..... :	LVD (2014/35/EU)
Procedure deviation..... :	N.A.
Non-standard test method..... :	N.A.
Test report form/blank test report	
Test report form No. ..... :	SCC60335-2-51
TRF modified by..... :	CHINA CEPREI (SICHUAN) LABORATRY
Master TRF ..... :	SCC/ITD/KD
Copyright blank test report..... :	This report is based on a blank test report prepared by CEPREISC using information obtained from the TRF originator.

Test item	
Type of test object .....:	Water Pump
Trademark .....:	/
Model and/or type reference.....:	WRS25/4-180
Manufacturer .....:	Taizhou WESTONE Machinery & Electric Co.,Ltd.
Rating(s).....:	~220-240V 50Hz IP42
Equipment mobility.....:	Stationary appliance
Operating condition.....:	Continuous
Tested for IT power systems .....:	No
IT testing, phase-phase voltage (V) :	N.A.
Class of equipment .....:	Class I
Protection against ingress of water ..:	IP42
Testing	
Date of receipt of test item .....:	Jul. 18, 2015
Date(s) of performance of test.....:	Jul. 18, 2015 – Aug. 9, 2015

Possible test case verdicts

Test case does not apply to the test object..... : N(.A.)

Test object does meet the requirement..... : P(ass)

Test object does not meet the requirement..... : F(ail)

General remarks

"(see remark #)" refers to a remark appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

The test results presented in this report relate only to the object tested.

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Brief description of the tested sample(s):

Ambient temperature: 22℃ humidity: 55%

Complete test was conducted on WRS25/4-180.

WRS15/4-130, WRS15/6-130, WRS20/4-130, WRS20/6-130, WRS25/4-130, WRS25/4-180, WRS25/6-130, WRS25/6-180, WRS25/8-180, WRS32/4-180, WRS32/6-180, WRS32/8-180, WRS15/4 EAC, WRS15/6 EAC, WRS20/4 EAC, WRS20/6 EAC, WRS25/4 EAC, WRS25/6 EAC, WRS32/4 EAC, WRS32/6 EAC,WRS15/9-Z, WRS15/11-Z, WRS20/13, WRS20/15, W15G-10, W15G-15, W15G-18, W15GR-10, W15GR-15, W15GR-18,
WRS40-370-F, WRS40-550-F, WRS40-750-F, WRS50-750-F,

WRS40-1100-F, WRS50-1100-F, WRS40-1500-F, WRS50-1500-F

are family products. They belong to the same circuit type except the difference in power capacity, main transformer, debugging parameters and the dimension. One of products is different with another product in size shape .they are all the same in other ways.

Clause	Requirement-Test	Result-Remark	Verdict

EN 60335-1:2012+A11:2014, EN 60335-2-51:2003+A1:2008+A2:2012

5.	**GENERAL CONDITIONS FOR THE TESTS**		**P**
	Tests performed in accordance with Cl. 5: correct ambient temperature range, nature of supply, testing sequence, most unfavourable conditions, etc.		P
5.101	Circulation pumps having a three-phase motor that does not incorporate a protective device are installed with an appropriate device, in accordance with the instructions.	Comply with the requirements	P

6.	**CLASSIFICATION**		**P**
6.1	Circulation pumps shall be class I, class II or class III.	Class I	P
6.2	Circulation pumps shall be at least IPX2	IP22	P
6.101	Circulation pumps shall be of one of the classes shown in Table 101.	TF110	P

7.	**MARKING AND INSTRUCTIONS**		**P**
7.1	Rated voltage/voltage range (V) .....:	~ 220-240V	P
	Symbol for nature of supply, unless the rated frequency is marked.....	~	P
	Rated frequency/rated frequency range (Hz) . :	50Hz	P
	Rated input (W)/rated current. .....:	76W	P
	Name, trade mark or identification mark of the manufacturer or responsible vendor .....:	Taizhou WESTONE Machinery & Electric Co.,Ltd.	P
	Model or type reference.....:	WRS25/4-180	P
	Symbol for Class II	Class I	N
	The TF class	TF110	P
	The direction of the water flow	40l/min	P
	The direction of rotation		N
	The rated current	0.33A	P
7.2	Warning (stationary appliances for multiple supply)	Not applicable	N
7.3.	Marking of limits of the voltage range (operation without adjustment)/different rated voltages (operation with adjustment)		N
7.4	If the appliances can be adjusted for different rated voltages, the voltage to which the appliance is adjusted shall be clearly discernible		N
7.5	Marking of rated input for each rated voltage /voltage range		N
	Marking of upper and lower limits of rated input if difference > 10%/of the mean value of the range if difference ≤ 10 %		N
	Marking of upper and lower limits of the rated input so that the relation between input and voltage is clear		N
7.6	Correct symbols used		P
7.7	Wiring diagram showing supply connection, by more than two supply conductors or multiple supply		N

Clause	Requirement-Test	Result-Remark	Verdict
7.8	Neutral conductor terminals marked by ”N”		N
	Marking of earthing terminals	Pass muster	P
	Marking not placed on removable parts		P
7.9	Comprehensible marking or placing of switches when operation might cause a hazard.....:		P
7.10	Indications of switches and regulating devices by use of figures, letters or other .....:		N
	The figure 0 indicates only ”off” position, if figures are used for the different positions		N
	Higher figures indicate greater output, input, speed, etc.		N
7.11	Indication for direction of adjustment of controls	Pass muster	P
7.12	Instructions for use shall be provided with the appliance so that the appliance can be used safely	English instruction	P
	The substance of the instructions for class I portable pumps for cleaning and other maintenance of swimming pools	Pass muster Comply with the requirements	P
	The maximum period of operation and the minimum rest period states of the instructions for pumps marked with a temperature exceeding 35 ℃.		N
	This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.		N
	Children should be supervised to ensure that they do not play with the appliance.		N
7.12.1	The installation instructions shall state the substance of the following :	Comply with the requirements	P
	The maximum flow rate or total head	45l/min	P
	The maximum ambient temperature at which the pump is to be used	-25-45℃	P
	The maximum system pressure		P
	The intended orientation of the pump		P
	A protective device is to be installed in the fixed wiring and its characteristics are to be specified	Pass muter	P
7.12.2	Stationary appliance without cord and plug and all poles must be incorporated in the fixed writing in accordance with the wiring rules.	Comply with the requirements	P
7.12.3	Indication of connection by means of wires with appropriate T-marking		N
7.12.4	Information for built-in appliances with regard to:	Not built-in appliance.	N
	- dimensions of the space for the appliance		N
	- dimensions and position of the supporting and fixing means		N
	- minimum distances between appliance’s and surrounding parts		N
	- minimum dimensions and correct arrangement of ventilating openings		N

Clause	Requirement-Test	Result-Remark	Verdict
	- connection to the supply and interconnection of separate components		N
	- necessity of accessible plug after installation		N
7.12.5	Instructions about the replacement of the supply cord according to the type of attachment		P
7.13	Instruction sheet and other required texts in official language	English	P
7.14	Marking easily legible and durable	Pass muster	P
	Marking withstands rubbing-test with water and petroleum spirit (2 x 15 s)		P
	Marking plates show no curling and can not be removed easily		P
7.15	Marking on main part of the appliance or on a panel that can be removed for installation or service		P
	Marking clearly discernible from the outside or after removal of a cover (without the aid of a tool for portable appliances)		P
	For stationary and fixed appliances, the name of the manufacturer, etc. shall be visible when the appliance is installed for normal use	Pass muster	P
	Indications for switches and controls in vicinity of components. Not placed on removable parts if misleading	Not applicable	N
7.16	Marking of a possible replaceable thermal or fuse link clearly visible with regard to replacing the link	Not applicable	N

8.	**PROTECTION AGAINST ACCESSIBILITY TO LIVE PARTS**		**P**
8.1	Adequate protection against accidental contact with live parts	The PUMP supplies are according with the standard EN60335-1 and it is class I appliance.	P
8.1.1	Adequate protection for all positions in normal use		P
	Protection against contact with live parts of the lamp cap, during insertion or removal of lamps behind a detachable cover		N
	Adequate protection of live parts covered or not by lacquer, enamel, etc. (use of test finger)		P
8.1.2	Adequate protection of live parts of Class 0,Class II appliances or Class II constructions , except for access to lamp caps and socket-outlets (use of test pin)		N
	Test pin applied to openings in earthed metal enclosures with a coating of enamel or lacquer		N
8.1.3	Adequate protection of live parts of visibly glowing heating elements (use of test probe)	No heating elements.	N
8.1.4	An accessible part is not live if:		N
	- it is supplied at safety extra-low voltage (a.c., peak value $\leq$ 42,4 V; d.c., voltage $\leq$ 42,4 V), or		N
	- it is separated from live parts by protective impedance:		N

Clause	Requirement-Test	Result-Remark	Verdict
	- a.c., current peak value ≤ 0,7 mA d.c., current ≤ 2 mA		N
	- For 42,4 V < voltage peak value ≤ 450 V, capacitance ≤ 0,1 μF - For 450 V < voltage peak value ≤ 15 kV, discharge ≤ 45 μC		N
8.1.5	Protection of live parts of built-in appliances, fixed appliances and appliances delivered in separate units at least by basic insulation.		N
8.2	Class II appliances and constructions protected against accidental contact with:		N
	- basic insulation		N
	- metal parts separated of live parts by basic insulation		N
	Parts separated from live parts by double or reinforced insulation can be touched		N
9.	**STARTING OF MOTOR-OPERATED APPLIANCES**		**P**
	See the EN 60034: 2010 test reports		P
10.	**POWER INPUT AND CURRENT**		**P**
10.1	Power input not deviating from rated input by more than shown in table 1	(See appended table)	P
10.2	Current not deviating from rated current by more than shown in table 2		N
11.	**HEATING**		**P**
11.1	Appliances and their surroundings shall not attain excessive temperatures in normal use.	(See appended table)	P
11.2	Hand-held appliances are held in their normal position of use.	No such hand-held appliance	N
11.3	Temperature rises determined by thermocouple and resistance method.		P
11.4	Heating appliances are operated under normal operation at 1.15 times rated power input		N
11.5	Moter-operated appliances are operated under normal operation and supplied with the most unfavourable voltage between 0,94 and 1,06 rated voltage		P
11.6	Combined appliances are operated under normal operation and supplied with the most unfavourable voltage between 0,94 and 1,06 rated voltage		N
11.7	Pumps are operated with the liquid maintained at the temperature marked on the pump until steady conditions are established.		P
11.8	During the test, the temperature rises are monitored continuously and shall not exceed the values shown in table 3 (For pumps marked with a liquid temperature exceeding 35 ℃, the temperature rise of the external enclosure is not measured) .	(See appended table)	P

Clause	Requirement-Test	Result-Remark	Verdict
	Compliance is checked by the tests of annex C if: - temperature of motor winding exceeds values shown in table 3 - if there is doubt about the classification of the insulation system of a motor		P
	Protective devices shall not operate and sealing compound shall not flow out.		P
	The temperature rise limits of pumps located within the enclosure of a boiler are reduced by the difference between the ambient temperature at which the test is carried out and 25 °C.	Comply with the requirements	P
	The temperature rise of the external enclosure is not measured.		P
	For circulation pumps in which water flows through the motor, the temperature rise limits for windings are increased by 5 K. The temperature rise limits are increased further by	Comply with the requirements	P
	– 5 K, if the winding insulation is class B;		N
	– 10 K, if the winding insulation is class F or H.		P
12.	**VOID**		**N**
13.	**LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE**		**P**
13.1	Adequate electric strength and leakage current not too excessive (tests 13.2 and 13.3)	(See appended table)	P
	Appliance normally operated for the duration specified in 11.7		P
	Heating appliances operated at 1,15 times the power input		N
	Motor-operated and combined appliances supplied at 1,06 times the rated voltage	(See appended table)	P
	Three-phase appliances tested as single-phase appliances, if needed		N
	Protective impedance and radio interference filters disconnected before tests	None	N
13.2	Leakage current measurements	(see appended table)	P
13.3	Electric strength test of insulation	(see appended table)	P
	No breakdown during the test		P
14.	**TRANSIENT OVERVOLTAGES**		**N**
	Appliances shall withstand the transient overvoltage to which they may be subjected.		N
	The impulse test voltage is applied three times for each polarity with intervals of at least 1s.		N
15.	**MOISTURE RESISTANCE**		**P**
15.1	Enclosure provides the degree of moisture protection in accordance with the classification of the appliance		P

Clause	Requirement-Test	Result-Remark	Verdict
	After test, no trace of water on insulation which could reduced the creepage distances and clearances below values of clause 29 of part 1	(see appended table)	P
	The appliance withstands the electric strength test	(see appended table)	P
15.1.1	Tests in accordance with IEC60529 in appliances other than IPX0, as specified	IP42	P
	IPX1 appliances as described in subclause 14.2.1		N
	IPX2 appliances as described in subclause 14.2.2		N
	IPX3 appliances as described in subclause 14.2.3		N
	IPX4 appliances as described in subclause 14.2.4		P
	IPX5 appliances as described in subclause 14.2.5		N
	IPX6 appliances as described in subclause 14.2.6		N
	IPX7 appliances as described in subclause 14.2.7		N
	Shower-boost pumps are subjected to the appropriate test of IEC 60529 both at rest and in operation while supplied at rated voltage.		P
15.1.2	Hand-hold appliances are turned continuously through the most unfavourable posionns during the test.		N
	Built-in appliances are installed in accordance with the instruction.		N
	Other appliances are tested accordance with the regulation.		N
	Pumps classfied IPX4 are tested with the inlet connected to the outlet by means of a tube filled with water.		N
	Submersible pumps are immersed for 24 h in water containing approximately 1 % NaCl and having a temperatuyre of 30 ℃ ± 5 ℃.	(see appended table)	P
15.2	Spillage of liquid does not affect the electrical insulation		P
	After test, no trace of water on insulation which could reduced the creepage distances and clearances below values of clause 29 of part 1		P
	The electric strength test		P
15.3	The appliance provides protection against humid conditions(submersible pumps are not subjected to the test).		N

16.	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		**P**
16.1	Adequate electric strength and leakage current not too excessive (tests 16.2 and 16.3)	(See appended table)	P
	Protective impedance disconnected before tests		N
	Tests made at room temperature and with the appliance disconnected from supply		P
16.2	Leakage current measurements	(see appended table)	P
16.3	Insulation subjected to a 1 min test voltage according to table 5	(see appended table)	P
	No breakdown during test		P

Clause	Requirement-Test	Result-Remark	Verdict
17.	**OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS**		**N**
	No excessive temperatures in transformer or associated circuits in event of short-circuits at 1,06 or 0,94 U-rated		N
	The temperature of rise of the insulation of the conductors of SELV circuits shall not exceed the relevant value specified in table 3 by more than 15K.		N
	The temperature of windings shall not exceed the values specified in table 8.		N
18.	**ENDURANCE**		**N**
	Not applicable	Not applicable	N
19.	**ABNORMAL OPERATION**		**P**
19.1	Appliances structures shall avoid the risk of fire, mechanical damage due to abnormal or careless operation.		P
	Electronic circuits shall be designed and applied so that a fault condiontion will not render the appliance unsafe		N
	Appliances with heating elements are subjected to 19.2 to 19.6		N
	Appliances with motors are subjected to 19.7 to 19.10		P
	Appliances with electronic circuits are also subjected to 19.11 and 19.12		N
	Pumps are also subjected to 19.101 and 19.102		P
	Compliance with the tests is checked in 19.13		P
19.2	Appliances with heating elements are tested with restricted heat disspation.The supply voltage is that required to provide a power input of 0.85 times rated power and the voltage is maintained throughout the test.	No heating elements	N
19.3	The test of 19.2 is repeated but with a supply voltage equal to that required to provide a power input of 1,24 times rated power		N
19.4	The appliance is tested under the condition specified in clause 11. Any control that limits the temperature during the test of clause 11 is short-circuited.		N
19.5	The test of 19.4 is repeated on class 0I appliances and class I appliances incorporating tubular sheathed or embedded heating elements		N
19.6	Appliances with PTC heating elements are supplied at rated voltage until steady conditions with regard to power input and temperature are established		N
19.7	The appliance is operated under stalled conditions by:		P
	-locking the rotor if the locker rotor torque is smaller than the full load torque	5 min	P
	-locking moving parts of other appliances		N

Clause	Requirement-Test	Result-Remark	Verdict
	During the test, the temperature of the winding shall not exceed the value in table 8	(see appended table)	P
19.8	One phase of appliances incorporating three-phase motors is disconnected		N
19.9	Not applicable		N
19.10	Appliances incorporating series motirs are operated with the lowest possible load and supplied at 1,3 times rated voltage for 1 min, the parts not be ejected.		N
19.11	Evaluation of the fault conditions of 19.11.2 for electronic circuits, unless complying with 19.11.1	No electronic circuits	N
	If the appliance incorporates a protective electronic circuit, the tests specified in 19.11.3		N
	Windings' temperature not exceeding values shown in table 8		N
	Appliance withstands the test: a conductor of PCB becomes open-circuited and all three conditions are met		N
19.11.1	Conditions a)to f) in19.11.2 are not applied to circuits or parts of circuits when both of the following conditions are met:		N
	- the electronic circuit is a low-power circuit		N
	- protection against electric shock, etc. does not rely on the correct functioning of the electronic circuit		N
19.11.2	Fault test (appliance operated as in clause 11 at rated voltage):		N
	-short circuit of functional insulations if clearances or creepage distances are less than the values specified in clause 29		N
	-open circuit at the terminals of any component		N
	-short circuit of capacitors,unless they comply with IEC 60384-14		N
	-short circuit of any two terminals of an electronic component,other than an integrated circuit		N
	-failure of triacs in the diode mode		N
	-failure of an integrated circuit		N
	PTC's, NTC's and VDR's resistors not short-circuited if used as specified by manufacturer		N
19.11.3	If the appliance incorporates a protective electronic circuit which operates to ensure compliance with clause 19,the relevant test is repeated with a single fault simulated,as indicated in a) to f) of 19.11.2		N
19.12	If safety depends on fuse-link, test of 19.11.2 repeated with fuse-link replaced by ammeter		N
	Current $\leq$ 2,1 rated current of fuse-link, circuit not adequately protected (fuse-link short-circuited)		N
	Current $\geq$ 2,75 rated current of fuse-link, circuit adequately protected		N
	2,1 < current < 2,75 rated current, fuse-link short-circuited and test carried out during specified time		N

Clause	Requirement-Test		Result-Remark	Verdict
19.13	Duing the tests the appliance shall not emit flames,molten metal,or poisonous or ignitable gas in hazardous amounts and temperature rises shall not exceed the values shown in table 9		(see appended table)	P
	Electric strength test (except for class III appliances)	1000 V (basic insulation)	L/N-metal encloser of pump	P
		2750 V (supplementary insulation)		N
		3750V (reinforced insulation)	L/N-encloser of control box	P
19.101	Circulation pumps are supplied at rated voltage and operated at approximately half the maximum system pressure for 5 min, after which the water is drained off and the operation continued for 7 h. The system is replenished with water and the pump operated again for 5 min at approximately half the maximum system pressure.		Comply with the requirements	P
	If the pump becomes inoperable during the test, it is disconnected from the supply and the system filled with water.		Pass muster	P

20.	**STABILITY AND MECHANICAL HAZARDS**		**P**
20.1	Adequate stability used on a surface such as the floor or a table(submersible pumps are not subjected to the test)		P
	Test through an angle of 10° (appliance placed on an inclined plane/horizontal plane)		P
	Position of doors and quantity of liquid most unfavourable		N
	The appliance does not overturn		P
	Test repeated with an angle of inclination of 15°		P
	Tests of clause 11 in overturned position		N
	Temperature rises don't exceed the values shown in table 9		N
20.2	Moving parts adequately positioned or enclosed as to provide protection against personal injury	Having adequately protection	P
	Protective enclosures,guards and similar parts shall be non-detachable parts and shall have adequate mechanical strength	Having adequate mechanical strength	P
	Self-resetting thermal cut-outs and overcurrent protective devices not incorporated if their unexpected closure might cause danger		N
	Dangerous moving parts can not be touched with test-finger	Can not be touched	P

21.	**MECHANICAL STRENGTH**		**P**
	The appliance has an adequate mechanical strength and is constructed to withstand rough handling		P
	No damage after three blows with an impact energy 1,0 J ± 0,04 J	No damage.	P
	Inspection and electric strength test.		P
	Test repeated on new sample if there is doubt about above results		N

Clause	Requirement-Test	Result-Remark	Verdict
22.	**CONSTRUCTION**		**P**
22.1	Appliance marked with first numeral of IP system shall comply with IEC 60529	IP42	P
22.2	For stationary appliances, all-pole disconnection must be ensured by:		P
	- a supply cord with a plug		P
	- a switch complying with 24.3		N
	- a disconnection statement in the instruction sheet for fixed wiring		N
	- an appliance coupler		N
	Single-pole switches or protective devices which disconnect the heating element, shall be connected in the phase conductor		N
22.3	No undue strain on socket-outlets caused by appliance provided with pins (torque test not exceeding 0,25 Nm)		N
	Placed in a heating cabinet for 1h at 70℃±2℃, then withstand a pull force of 50N for 1min and a torque of 0,4Nm for 1min to each pin. The pins not displaced by more than 1mm and not ratate.		N
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins to be introduced into socket-outlets		N
22.5	Test to check there is no risk of electric shock when touching the pins of the plug (10 times) The voltage shall not exceed 34V.	The voltage is 21.6V.	P
22.6	Electrical insulation not affected by condensing water or leaking liquid	No affected	P
	Electrical insulation of Class II appliances and constructions not affected in case of a hose rupture or seal leak		N
	The seal is removed from the shaft of class II pumps.The pump is supplied at rated voltage and operated for 10 min with the maximum head that can be achived.The pump shall then withstand the electric strength test of 16.3.		N
	Shower-boost pumps having a separate enclosure shall have a drain hole in the enclosure positioned so that the water can drain out without impairing electrical insulation,unless water cannot accumulate within the enclosure in nomal use.		N
22.7	Appliance containing liquid or gases or provided with steam-producing devices incorporate safeguards against risk of excessive pressure		P
22.8	Electrical connections in appliances likely to be cleaned not subjected to pulling during cleaning		N
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar		P
	For insulation exposed to oil or grease, these shall have adequate insulating properties		N

Clause	Requirement-Test	Result-Remark	Verdict
22.10	Accidental resetting of reset buttons of non-self-resetting controls unlikely to occur if this might result in a hazard		P
22.11	Non-detachable parts ensuring degree of protection against electric shock, moisture or contact with moving parts are fixed in a reliable manner and withstand mechanical stress of normal use		P
	Snap-in devices have an obvious locked position		P
	Fixing properties of snap-in devices do not deteriorate		P
	Push force applied for 10 s:..... N	50N	P
	Pull force applied for 10 s:..... N	50N	P
	Test fingernail inserted and slid sideways in any aperture or joint (10 N)		P
	For unlikely axial pull, test fingernail inserted in any aperture or joint (10 N), pulled for 10 s with the loop (30 N)		N
	For likely twisting force, torque applied.....Nm	4Nm	P
22.12	Handles, knobs etc. fixed in a reliable manner		N
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		N
	Axial pull unlikely in normal use ..15N .....:		N
	Axial pull likely to be applied.....30N.....:		N
22.13	Contact between operator's hand and parts having a temperature rise exceeding value allowed for handles unlikely to occur		N
22.14	No ragged or sharp edges that could create a hazard for the user	No sharp edges	P
	No exposed pointed ends of self-tapping screws or other fasteners liable to be touched by user		P
22.15	Storage hooks and the like for flexible cords smooth and well-rounded		P
22.16	Automatic cord reels cause no:	No automatic cord reels	N
	- undue abrasion or damage to the sheath of the flexible cord		N
	- breakage of conductor strands		N
	- undue wear of contatcs		N
	Reel operated 6 000 times		N
	Cord withstands electric strength test of 16.3 at 1000 V		N
22.17	Spacers which prevent the appliance from overheating walls can not be removed from the outside by hand or with a screwdriver or a spanner	No such components	N
22.18	Current-carrying parts and other metal parts resistant to corrosion under normal conditions of use		N
22.19	Driving belts not used as electrical insulation, unless its design prevents inappropiate replacement	No such components	N

Clause	Requirement-Test	Result-Remark	Verdict
22.20	Contact between live parts and thermal insulation prevented unless the material is non-corrosive, non-hygroscopic and non-combustible.		N
22.21	No unimpregnated wood, cotton, silk, ordinary paper and fibrous or hygroscopic material used as insulation	Not used such material.	P
22.22	Appliances shall not contain asbestos.	Not contain asbestos	P
22.23	Oils containing polychlorinated biphenyl (PCB) not used	Not used in appliance	P
22.24	Bare heating elements adequately supported to prevent contact with accessible metal parts in case of rupture or sagging	No such elements	N
22.25	No contact between sagging heating conductors and accessible metal parts possible (except for Class III appliances)		N
22.26	Parts at safety extra-low voltage of Class II appliances, with parts of Class III, separated of live parts by double or reinforced insulation		N
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N
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
22.29	Class II appliances permanently connected to fixed wiring: constructed so that required degree of protection against electric shock is maintained after installation		N
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being damaged, or		N
	constructed so that they cannot be replaced in an incorrect position or omitted		N
22.31	Creepage distances and clearances over supplementary and reinforced insulation not reduced below specified values (29.1) as a result of wear	Not reduced	P
	Creepage distances and clearances over supplementary and reinforced insulation not reduced to less than 50 % of values (29.1) if wires, screws etc. become loose		P
22.32	Supplementary and reinforced insulation designed or protected against deposition or dirt or dust (29.1)		P
	Ceramic material not tightly sintered or similar not used as supplementary or reinforced insulation: test to determine if ceramic material is tightly sintered (I-SH 01)		N
	Trace of dye test: immersed the ceramic pieces into a solution containing 1g of fuchsine in each 100g of methylated spirit.		N
	Supplementary insulation made of natural or synthetic rubber resistant to ageing or arranged and dimensioned so that creepage distances are not reduced below specified values (29.2)		N

Clause	Requirement-Test	Result-Remark	Verdict
	Oxygen bomb test at 70 °C ± 1 °C for 96h, and left at room temperature for at least 16h.		N
22.33	No direct contact between conductive liquids accessible in normal use and live parts		P
	Electrodes shall not be used for heating liquids.		N
	No direct contact between conductive liquids accessible in normal use and basic or reinforced insulation (Class II constructions)		P
	No contact between conductive liquids in contact with live parts and reinforced insulation (Class II constructions)		N
22.34	Shafts of knobs, handles, levers and similar parts not live unless they are not accessible when the parts is removed		N
22.35	Handles, levers and knobs not live if an insulation fault occurs (except for Class III constructions)		N
	Metal handles, etc shall be adequately insulated or their accessible parts separated from shafts by supplementary insulation		N
	The requirement does not apply to handles, levers and knobs of stationary appliances reliably connected to an earthing terminal or separated from live parts by earthed metal		N
22.36	No likely contact between operator's hand holding a handle and metal parts unless separated from live parts by double or reinforced insulation (except for Class III appliances)		N
22.37	Capacitors not connected to accessible metal parts; metal casings separated from accessible metal parts by supplementary insulation (for Class II)		N
	Not for capacitors with protective impedance complying with 22.42		N
22.38	Capacitors not connected between the contacts of a thermal cut-out		N
22.39	Lampholders only used for lamps' connection		N
22.40	Motor-operated and combined appliances fitted with a switch for the motor（not applicable to submersible pumps and vertical wet pit pumps）		N
22.41	Appliances shall not incorporate components, other than lamps, containing mercury.		N
22.42	Protective impedance consists of at least two separate components of unchangeable impedance		N
	If any of the components is short-circuited or open-circuited values of 8.1.4 shall not be exceeded		N
22.43	Accidental changing of voltage setting unlikely to occur		N
22.44	Appliances shall not have an enclosure that is shaped and decorated so that the appliance is likely to be treated as a toy by children		P

Clause	Requirement-Test	Result-Remark	Verdict
22.45	When air is used as reinforced insulation,the appliance shall be constructed so that clearances cannot be reduced below the values specified in 29.1.3 due to deformation as a result of an external force applied to the enclosure		P
22.101	Circulation pumps shall withstand the water pressure occurring in normal use.	Pass muster	P
23	**INTERNAL WIRING**		**P**
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
	Wiring prevented from coming into contact with moving parts		P
23.2	Beads etc. On live wires cannot change their position, and are not resting on sharp edges or corners	No beads.	N
	Beads inside flexible metal conduits provided with insulating sleeves		N
23.3	Parts movable relatively to each other not causing undue stress to electrical connections and internal conductors	No such parts	N
	Flexible metallic tubes not causing damage to insulation of conductors		N
	Open-coil springs not used; if used, an adequate insulating lining shall be provided for the conductors		N
	No damage after 10 000 or 100 flexings		N
	Electric strength test of 16.3 (1000 V between live parts and metal parts)		N
23.4	Bare internal wiring rigid and fixed to avoid reduction of creepage distances and clearances below values of 29.1		N
23.5	Insulation of internal wiring withstands electrical stress in normal use		P
	Insulation electrically equivalent to the one complying with IEC 60227 or IEC 60245, or		P
	electric strength test (2000 V between conductor and metal foil around the insulation for 15 min)		P
23.6	Sleeving used as supplementary insulation retained in position by positive means		N
23.7	Green/yellow conductors only used for earthing conductors		P
23.8	Aluminium wires not used for internal wiring	No aluminium wires	P
23.9	No lead-tin soldering of stranded conductors where they are subjected to contact pressure, unless clamping means so designed that there is no risk of bad contact		N

24.	**COMPONENTS**		P
24.1	Components comply with relevant IEC standards	(see appended table)	P

Clause	Requirement-Test	Result-Remark	Verdict
24.1.1	Fixed capacitors for radio interference suppression comply with IEC 60384-14. (test with annex F)		N
24.1.2	The relevant standard for safety isolating transformers is IEC61558-2-6. (test with annex G)		N
24.1.3	Switches comply with IEC 61058-1 and the number of cycles of operation be at least 10 000 (test with annex H) .Level switches are subjected to 50000 cycles of operation.	No switches	N
24.1.4	Test of automatic controls according to 11.3.5 to 11.3.8 and clause 17 of IEC 60730 as type 1 controls.	No automatic controls	N
	-thermostats.....10 000 cycles		N
	-temperature limiters.....1000 cycles		N
	-self-resetting thermal cut-outs.....300 cycles		N
	-non-self-resetting thermal cut-outs.....30 cycles		N
	-timers.....3000 cycles		N
	-energy regulators.....10 000 cycles		N
24.1.5	Appliance couplers comply with IEC60320		N
24.1.6	Small lampholders similar to E10 comply with requirements for E10 lampholders		N
24.2	Appliance shall not be fitted with: - switches or automatic controls in flexible cords,but level switches may be incorporated in interconnection cords.		P
	- devices that cause 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 a soldering operation.		P
24.3	Switches of stationary appliances disconnecting all poles shall be connected to the supply terminals, with at least 3 mm contact separation in each pole		N
24.4	Plugs and socket-outlets for heating elements and extra-low voltage circuits not interchangeable with plugs and socket-outlets listed in IEC 60083 or connectors and appliance inlets complying with IEC 60320		N
24.5	Capacitors in auxiliary wingdings of motors shall be used in accordance with their rated markings.		N
	Capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with a motor winding shall be of class P1 or P2 of IEC 60252.		N
	Voltage across capacitor in series with a motor winding does not exceed 1,1 times its rated voltage		N
24.6	Motors with an inadequate basic insulation comply with annex I		N

25.	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CABLES AND CORDS**	**P**

Clause	Requirement-Test	Result-Remark	Verdict
25.1	Appliances, other than those intended to be permanently connected to fixed wiring, shall be provided with one of the following means for connection to the supply mains:		P
	- supply cord fitted with a plug;		P
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance;		P
	- pins for insertion into socket-outlets.	No such socket-outlets	N
	Submersible pumps,other than class III pumps,shall be provided with a supply cord fitted with a plug.	Pass muster	P
25.2	Appliance not provided with more than one means of connection to the supply except for stationary appliances for multiple supply (electric strength test of 1250 V between each means of connection)		N
25.3	Connection of supply wires possible after the appliance has been fixed to its support		P
	Appliance provided with: - a set of terminals allowing the connection of cables of fixed wiring having the nominal cross-sectional areas specified in 26.6.		P
	- a set of terminals allowing the connection of a flexible cord;		P
	Submersible pumps,other than class III pumps,shall be provided with a flexible cord.		P
25.4	For rated current not exceeding 16 A, cable and conduit entries suitable for cables and conduits according to table 10		N
	Introduction of conduit or cable does not affect the protection against electric shock or reduce creepage distances and clearances below values specified in 29		N
25.5	Type of power supply cord attachment: X, Y or Z:	Type Y	P
	Type X attachment not used for flat twin tinsel cords		N
25.6	Plug shall not be fitted with more than one flexible cord		N
	A plug of single-phase portable appliances having a rated current not exceeding 16A comply with the standard sheets of IEC 60083.		N
25.7	Supply cords not lighter than specified in standard		N
	PVC cords not used for appliances where the temperature rise of metal parts exceeds 75 K during test of clause 11 (except if cord is not likely to touch metal parts or it is appropriate for higher temperatures and used type Y or Z attachment)		N

Clause	Requirement-Test	Result-Remark	Verdict
	For pumps intended for outdoor use and pumps intended for use in swimming pools,other than class III pumps,the supply cord shall be polychloroprene sheathed or equivalent synthetic elastomer and not be lighter than heavy polychloroprene sheathed cord(code designation 60245 IEC 66).However,fixed pumps having a rated power input not exceeding 1 kW and portable pumps having a mass not exceeding 5 kg may be fitted with ordinary polychloroprene sheathed cord(code designation 60245 IEC 57).	Pass muster Comply with the requirements	P
	For pumps intended for indoor use,except table fontain pumps,aquarium pumps,shower-boost pumps and class III pumps,the supply cord shall be polychloroprene sheathed or equibalent synthetic elastomer and not be lighter than ordinary polychloroprene sheathed cord (code designation 60245 IEC 57).		N
25.8	Nominal cross-sectional area of power supply cords according to table 11 (current.....A):	pass muster $3\times0.75mm^2$	P
	The supply cord of submersible pumps intended for outdoor use,orher than class III pumps,shall have a length of at least 10 m.	Pass muster	P
25.9	Supply cords not in contact with sharp points or edges of the appliance	Pass muster	P
25.10	For Class I appliances, supply cord provided with a green/yellow core for earthing purposes	Pass muster	P
25.11	Conductors of supply cords not consolidates by lead-tin soldering where they are subject to contact pressure, unless no risk of bad contacts due to cold flow of the solder		P
25.12	Insulation of the supply cord not damaged when moulding the cord to the enclosure		P
25.13	Inlet openings for supply cords shall be constructed so that the sheath of the supply cord can be introduced without risk of damage		P
	Unless the enclosure at the inlet opening is insulating material,a non-detachable lining or non-detachable bushing shall be provided that complies with 29.3 for supplementary insulation		P
	If the supply cord is unsheathed, a similar additional bushing or lining is required, unless class 0 appliances		P
25.14	Appliance which is moved while in operation constructed to ensure protection to the cord against flexing		P
	Flexing test, 20000 cycles for Z type, otherwise 10000 cycles, with loading .....N	10N	P
	The test shall not result in:		P
	-a short circuit between the conductors		P
	-a breakage of more than 10% of the strands of any conductor		P
	-separation of the conductor from its terminal		P

Clause	Requirement-Test	Result-Remark	Verdict
	-loosening of any cord guard		P
	-damage to the cord or cord guard which could impair compliance with this standard		P
	-broken strands piercing the insulation and becoming accessible		P
25.15	Conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorages	No such cord anchorages	N
	Cord or internal parts of appliance not damaged when cord pushed into the appliance		N
	Pull force applied 25 times to supply cord .....:		N
	Torque applied to supply cord (Nm).....:		N
	No damage of the cord		N
	Max. 2 mm displacement of cord		N
25.16	Cord anchorages for type X attachments constructed and located so that		N
	- replacement of the cord is easily possible		N
	- it is clear how the relief from strain and the prevention of twisting are obtained		N
	- they are suitable for different types of cord		N
	- the cord cannot touch the clamping screws		N
	- the cord is not clamped by a metal screw bearing on the cord		N
	- one part of the cord anchorage is securely fixed to the appliance		N
	- screws operated to replace the cord do not fix other components		N
	- test of 25.15 is withstood even if labyrinths can be bypassed		N
	- they are insulated, unless a failure of the cord's insulation does not make accessible metal parts live (Class 0, Class 0I and Class I appliances)		N
	- they are insulated; if of metal, they have a supplementary insulation (Class II appliances)		N
	After the test, the conductors not moved more than 1 mm in the terminals		N
25.17	Adequate cord anchorages, for type Y and Z		P
25.18	Cord anchorages accessible only with the aid of a tool or cord fitted only with the aid of a tool		P
25.19	Glands not used as cord anchorages in portable appliances, for type X attachment	Type Y	N
	Tying the cord into a knot or tying the cord with string is not allowed		N
25.20	For type Y and Z attachment, insulated conductors of the supply cord have an additional insulation:		P
	- basic insulation for Class 0, Class 0I and Class I appliances		P
	- supplementary insulation for Class II appliances		N

Clause	Requirement-Test	Result-Remark	Verdict
25.21	Space for supply cables or cord for type X attachment designed to permit checking of conductors with respect to correct connections and no risk of damage	Type Y	N
	Portable appliance: no possible contact of uninsulated end of conductor with accessible metal parts, or		N
	Test by loosening clamping screws and nuts and applying a 2 N force to the conductor		N
25.22	Appliance inlets located so that:		P
	- live parts are not accessible during insertion or removal of the connector,		P
	- connector easily inserted,		P
	- appliance is not supported by the connector		P
	-appliance inlet not for cold conditions if metal parts exceed 75 K during test of clause 11, unless supply cord not likely to touch metal parts		P
25.23	Interconnection cords comply with requirements for supply cord, except as specified	.	N
	Electric strength test of 16.3		N
25.24	Interconnection cords not detachable without the aid of a tool		P
25.25	The dimensions of pins of appliances that are inserted into socket-outlets shall be compatible with the dimensions of the relevant socket-outlet. Dimensions of the pins and engagement face are to be in accordance with the dimensions of the relevant plug listed in IEC 60083.	Pass muster Comply with the requirements	P

26.	**TERMINALS FOR EXTERNAL CONDUCTORS**		**P**
26.1	Appliance shall provided with terminals or equally effective devices for the connection of external conductors	Pass muster	P
	The terminals shall only be accessible after the removal of a non-detachable cover		P
26.2	Appliances having type X attachment and for connection to fixed wiring shall be provided with terminals, unless the connections are soldered		N
	Screws, nuts serve only for fixing of conductors		N
	Soldered connections used for connection if these positioned or fixed so that reliance is not placed upon soldering alone		N
	Soldering alone used if creepage distances and clearances cannot be reduced below the values specified for supplementary insulation if the conductor becomes free at the soldered joint		N
26.3	Terminals for type X attachment and those for connection to fixed wiring shall be constructed so that clamp the conductor between metal surfaces with sufficient contact pressure but without causing damage to the conductor		N

Clause	Requirement-Test	Result-Remark	Verdict
	The terminals shall be fixed so that when the clamping means is tightened or loosened		N
	- terminals prevented from working loose		N
	- internal wiring not subjected to stress		N
	- creepage distances and clearances not reduced below values specified in 29		N
26.4	No special preparation of conductors required, and conductors prevented from slipping out (for type X attachment except with prepared cord and for connection to fixed wiring)		N
26.5	No risk of accidental connection between live parts and metal parts in case of escape of a wire of a stranded conductor (type X attachment)		N
	Stranded conductor test (8 mm insulation removed)		N
26.6	Terminals for type X attachment and for connection to fixed wiring shall allow the connection fo conductors having the nominal cross-sectional areas shown in table 13 (rated current.....5.2..A):		N
	Specially prepared cord used: terminals suitable for only that type of cord		N
26.7	Terminals for type X attachment shall be accessible after removal of a cover off part of the enclosure		N
26.8	Terminals, including earthing terminal, for the connection to fixed wiring located close to each other		N
26.9	Pillar type terminals constructed and located so that conductor end visible, or		N
	can pass beyond threaded hole at least half the screw diameter or 2,5 mm		N
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords		P
	Terminals for supply cord suitable: connections show no damage after 5 N pull		P
26.11	For appliances having type Y attachment or type Z attachment, soldered, welded, crimped or similar connections may be used for the connection of external conductors		P
	For Class II appliances, conductor positioned or fixed so that reliance is not placed upon soldering, crimping or welding alone		N
	Soldering, welding or crimping alone used if creepage distances and clearances cannot be reduced below te values specified for supplementary insulation if the conductor becomes free at the joint or slips		P

27.	**PROVISION FOR EARTHING**		**P**
27.1	Accessible metal parts connected to earthing terminals (Class 0I and I appliances)		P
	Earthing terminals not connected to neutral terminal		P
	Class 0, II and III appliances have no provision for earthing		N

Clause	Requirement-Test	Result-Remark	Verdict
	SELV circuits shall not be earthed unless PELV circuits		N
27.2	The clamping means of earthing terminals shall be adequately secured against accidental loosening		P
	Terminals used for the connection of external equipotential bonding conductors allow connection of conductors of 2,5 to 6 mm^2, and		P
	do not provide earthing continuity between different parts of appliance		P
	Conductors cannot be loosened without a tool		P
27.3	Current-carrying conductors become taut before earthing conductor		P
27.4	No corrosion risk from contact between parts of earthing terminals and copper or other metal		P
	Parts providing earthing continuity of coated or uncoated metal with adequate resistance to corrosion		P
	Parts of steel at essential areas provided with electroplated coating of at least 5 μm		P
	Parts of steel for contact pressure adequately protected against rusting		P
	In case of aluminum alloys precautions taken to avoid risk of corrosion.		P
27.5	Low resistance between connection of earthing terminal and earthed metal parts (max. 0,1Ω)	0.071Ω	P
	If the clearances of basic insulation in PELV circuit are based on the rated voltage of the appliance, this requirement does not apply to connections providing earthing continuity in the PELV circuit.		P
27.6	The printed conductors of printed circuit boards shall not be used to provide earthing continuity in hand-held appliances.		P

28.	**SCREWS AND CONNECTIONS**		**P**
28.1	Fixings and electrical connections etc. withstand mechanical stresses	(see appended table)	P
	Screws not soft metal or liable to creep (Zn or Al)		P
	Diameter of screws of insulating material at least 3 mm		N
	Screws of insulating material not used for electrical connection		N
	Screws transmitting electrical contact pressure screw into metal		N
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N
	Screws to be removed for the replacement of the supply cord with a type X attachment or for user maintenance not of insulating material if their replacement by a metal screw can impair basic insulation		N

Clause	Requirement-Test	Result-Remark	Verdict
	Screws and nuts withstand torque-test, no damage after the test.	No damage	P
	number of times.....:	10	P
	torque (table 14) (Nm).....:	1.2	P
28.2	Contact pressure not transmitted through insulating material liable to shrink or distort, unless shrinkage or distortion compensated		P
	This requirement does not apply to electrical connections in circuits carrying a current not exceeding 0,5A.		N
28.3	Clamping means provided if space-threaded (sheet metal) screws used for the connection of current-carrying parts		N
	Thread-cutting (self-tapping) screws used for the connection if they generate a full form standard machine screw thread.		N
	Thread-cutting (self-tapping) screws used for the connection if the thread is formed by a swaging action.		N
	Use of space-threaded or thread-cutting screws for earthing continuity according to specification		N
28.4	Screws and nuts for mechanical connection secured against loosening		N
	Rivets for electrical connections subject to torsion secured against loosening		N

29.	**CREEPAGE DISTANCES, CLEARANCES AND SOLID INSULATION**		**P**
	Appliances shall be constructed so that the clearances, creepage distances and solid insulation are adequate to withstand the electrical stresses to which the appliance is liable to be subjected.	Comply with the requirements	P
	If coatings are used on printed circuit boards to protect the microenvironment (type 1 protection) or to provide basic insulation (type 2 protection), Annex J applies. The microenvironment is pollution degree 1 under type 1 protection. For type 2 protection, the spacing between the conductors before the protection is applied shall not be less than the values as specified in Table 1 of IEC 60664-3. These values apply to functional insulation, basic insulation, supplementary insulation as well as reinforced insulation.	Comply with the requirements	P
29.1	Clearances shall not be less than the values specified in Table 16, taking into account the rated impulse voltage for the overvoltage categories of Table 15, unless, for basic insulation and functional insulation, they comply with the impulse voltage test of Clause 14. However, if the construction is such that the distances could be affected by wear, by distortion, by movement of the parts or during assembly, the clearances for rated impulse voltages of 1 500 V and above are increased by 0,5 mm and the impulse voltage test is not applicable.	(see appended table) Overvoltage category : II	

Clause	Requirement-Test	Result-Remark	Verdict
29.1.1	The clearances of basic insulation shall be sufficient to withstand the overvoltages likely to occur during use, taking into account the rated impulse voltage. The values of Table 16, or the impulse voltage test of Clause 14, are applicable.	Comply with the requirements	P
29.1.2	Clearances of supplementary insulation shall be not less than those specified for basic insulation in table 16		N
29.1.3	Clearances of reinforced insulation shall be not less than those specified for basic insulation in table 16, but using the next higher step for rated impulse voltage as a reference	(see appended table)	P
29.1.4	The clearances for functional insulation are the largest values determined from		P
	– Table 16 based on the rated impulse voltage;		P
	– Table F.7a in IEC 60664-1 based on the steady -state voltage or recurring peak voltage expected to occur across it, if the frequency of the steady-state voltage or recurring peak voltage does not exceeds 30 kHz;		P
	– Clause 4 of IEC 60664-4 based on the steady-state voltage or recurring peak voltage expected to occur across it, if the frequency of the steady-state voltage or recurring peak voltage exceeds 30 kHz.		P
29.1.5	For appliances having higher working voltages than rated voltage,the voltage used for determining clearances from table 16 shall be the sum of the rated impulse voltage and the difference between the peak value of the working votage and the peak value of the rated voltage		N
	For circuits supply with a voltage lower than rated voltage, clearances are based on the working voltage which is used as the rated voltage in table 15.		N
29.2	Appliances shall be constructed so that creepage distances are not less than those appropriate for the working voltage, taking into account the material group and the pollution degree.	(see appended table)	P
29.2.1	Creepage distances of basic insulation shall not be less than those specified in table 17		P
29.2.2	Creepage distances of supplementary insulation shall be at least those specified for basic insulation in table 17		N
29.2.3	Creepage distances of reinforced insulation shall be at least double those specified for basic insualtion in table 17	(see appended table)	P
29.2.4	Creepage distances of functional insulation shall be not less than those specified in table 18		N
29.3	Solid insulation shall have a minimum thickness of 1 mm for supplementary insualtion and 2 mm for reinforced insulation		N
	Not apply to supplementary insulation consists of at least two layers and each of layers withstands the electric strength test of 16.3		N

Clause	Requirement-Test	Result-Remark	Verdict
	Not apply to reinforced insulation consists of at least three layers and any two layers withstands the electric strength test of 16.3		N
	Not apply to the insulation which the maximum temperature rise during the tests of 19 does not exceed the value in 11.8		N
	Not apply to the insulation withstands electric strength test of 16.3 after conditioned for 168h		N
30.	**RESISTANCE TO HEAT AND FIRE**		**P**
30.1	External parts of non-metallic material , parts of insulating material supporting live parts and parts of thermoplastic material for supplementary or reinforced insulation, resistant to heat	Effectively esistant to heat	P
	Ball pressure-test Diameter of impression not exceeding 2 mm.	0.42mm	P
30.2	Parts of non-metallic material resistant to ignition and spread of fire, except trims, knobs, etc.		P
30.2.1	The glow-wire test at 550°C for parts of non-metallic material		P
30.2.2	The glow-wire test at 750°C for connections that carry a current exceeding 0,5A during normal operation.(Not applicable)		N
	The glow-wire test at 650°C for other connections(Not applicable)		N
30.2.3	Appliances that are operated while unattended are tested as specified in 30.2.3.1 and 30.2.3.2		P
30.2.3.1	The glow-wire test at least 850°C according to IEC 60695-11-5(Annex E)		P
30.2.3.2	The glow-wire test of IEC60695-2-11 at 750°C for connections which carry a current exceeding 0,2A		P
	The glow-wire test of IEC60695-2-11 at 650°C for other connections		N
	The needle-flame test not for parts of material classified as V-0 or V-1 according to IEC 60695-11-10		N
30.2.4	The base material of printed circuit board is subjected to the needle-flame test of annex E.		N
31.	**RESISTANCE TO RUSTING**		**N**
	Relevant ferrous parts adequately protected against rusting		N
	Rusting test: surfaces show no sign of rust		N
32.	**RADIATION, TOXICITY AND SIMILAR HAZARDS**		**N**
	Appliaces shall not emit harmful radiation or present a toxic or similar hazard		N
A	**ANNEX A: ROUTINE TESTS**		N

Clause	Requirement-Test	Result-Remark	Verdict
B	**ANNEX B: APPLIANCES POWERED BY RECHARGEABLE BATTERIES**		**N**
5.101	When appliances are supplied from the supply mains, they are tested as specified for motor-operated appliances.		N
7.1	The battery compartment shall be marked with the battery voltage and the polarity of the terminals.		N
7.12	The instructions shall give information regarding charging.		N
	The instructions for batteries intended to be replaced by the user shall include the following:		N
	-the type reference of the battery		N
	-the orientation of the battery with regard to polarity		N
	-the method of replacing batteries		N
	-details regarding safe disposal of used batteries		N
	-warning against using non-rechargeable batteries		N
	-how to deal with leaking batteries		N
	The instructions for batteries that are hazardous to the environment shall give details on how to remove the battery and shall state that:		N
	-the battery must be removed from the appliance before it is scrapped		N
	-the appliance must be disconnected from the supply mains when removing the battery		N
	-the battery is to be disposed of safely		N
7.15	Markings shall be placed on the part of the appliance that is connected to the supply mains.		N
8.2	Appliances having batteries that according to the instructions may be replaced by the user need only have basic insulation. If the appliance can be operated without the batteries, double or reinforced insulation is required.		N
11.7	The battery is charged for the period stated in the instructions or for 24h, whichever is longer.		N
19.1	Appliances are also subjected to the tests of 19.101, 19.102, and 19.103.		N
19.10	Not applicable.		N
19.101	Appliances are supplied at rated voltage and charged for 168h.		N
19.102	For appliances having batteries that can be removed without the aid of a tool, and having terminals that can be short-circuited by a thin straight bar, the terminals of the battery are short-circuited, the battery being fully charged.		N
19.103	Appliances having batteries that are replaceable by the user are supplied at rated voltage and operated under normal operation but with the battery removed or in any position allowed by the construction.		N
21.101	Appliances having pins for insertion into socket-outlets shall have adequate mechanical strength.		N

Clause	Requirement-Test	Result-Remark	Verdict
	Free ball test: 100 number (≤ 250g) 50 number (>250g)		N
25.13	An additional lining or bushing is not necessary for interconnection cords operating at SELV.		N
30.2	For parts of the appliance that are connected to the supply mains during the charging period, 30.2.3 applies. For other parts, 30.2.2 applies.		N

C	**ANNEX C: AGEING TEST ON MOTORS**		**P**
	Test made on 6 samples		P
	Rotor locked; current through rotor and stator winding (temperature of the winding equal to the maximum temperature rise of clause 11 + 25 K)		P
	Temperature further increased by ¡-.....K total time during which current is passing ¡-.....h		P
	Total time diivided into four equal periods of ¡-.....h		P
	48 h humidity treatment of 15.3 after each period		P
	Electric strength test of 16.3 (¡-.....V)		P
	After each period and before humidity treatment, measured leakage current ≤ 0,5 Ma		P
	Possible fifth period for five remaining motors followed by humidity treatment and electric strength test		P

D	**ANNEX D: ALTERNATIVE REQUIREMENTS FOR PROTECTED MOTORS**		**N**
	The test of 19.7 is carried out on a separate sample.		N
	The temperatures shall not exceed the values in 19.7.		N
	The motor protector shall operate reliably and shall comply with the requirements of clause 8. No flame shall be emitted.		N
	The electric strength test.		N

E	**ANNEX E: NEEDLE FLAME TEST**		**N**
	Needle-flame test in accordance with IEC 60695-2-2 modified as specified		N
	Piece of white pine-wood board covered with a layer of tissue paper used when burning or glowing particles are likely to fall		N
	Test flame applied for 30 s ± 1 s		N
	Tip of test flame in contact with surface of specimen		N
	During application of test flame, burner not moved		N
	Test repeated with two more specimens, both of which withstand the test		N
	The duration of burning shall not exceed 30s. For PCB, it shall not exceed 15s.		N
	No ignition of the tissue paper or scorching of the pinewood board		N

Clause	Requirement-Test	Result-Remark	Verdict
F	**ANNEX F: CAPACITORS**		**N**
	The following clauses and subclauses of IEC 60384-14 apply to capacitors likely to be permanently subjected to the supply mains voltage and used for radio interference suppression or for voltage dividing purposes with the following modifications		N
	SECTION ONE – GENERAL		
1.5	Terminology		N
1.5.3	Applicable. Class X capacitors tested according to sub-Class X2		N
1.5.4	Applicable		N
1.6	Marking		N
	Items a) and b) are applicable		N
	SECTION THREE - QUALITY ASSESSMENT PROCEDURES		
3.4.3.2	Tests		N
	Table II is applicable as follows:		N
	- group 0: subclause 4.1, 4.2 and 4.2.5		N
	- group 1A: subclause 4.1.1		N
	- group 2: subclause 4.12		N
	- group 3: subclause 4.13 and 4.14		N
	- group 6: subclause 4.17		N
	- group 7: subclause 4.18		N
	SECTION FOUR – TEST AND MEASUREMENT PROCEDURES		
4.1	Visual examination and check of dimensions		N
	Applicable		N
4.2	Electrical tests		N
4.2.1	Applicable		N
4.2.5	Applicable		N
4.2.5.2	Only Table IX applicable. Values for test A apply, for capacitors in heating appliances the values for test B or C apply		N
4.12	Applicable, only insulation resistance and voltage proof are checked (see Table XIII)		N
4.13	Applicable, when capacitors are used for voltage dividing purposes, the impulse voltage is applied to the terminals of the appliance		N
4.14	Applicable, together with subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7		N
4.17	Applicable		N
4.18	Applicable		N

G	**ANNEX G: SAFETY ISOLATING TRANSFORMERS**		**N**
	Safety isolating transformers, tested with the appliance, comply with this standard and the following additional requirements		N
7	Marking and instructions		N
7.1	Marking of transformers for specific use:		N

Clause	Requirement-Test	Result-Remark	Verdict
	- name		N
	- trademark/identification mark of manufacturer or responsible vendor		N
	- model or type reference		N
17	Overload protection of transformers and associated equipment		N
	The temperature limits specified for the windings do not apply to fail-safe transformers		N
	Such transformers comply with 15.5 of IEC 61558-1		N
22	Construction		N
29	Creepage distances, clearances and distances through insulation		N
29.1	The distances specified on Table 13 of IEC 61558-1, items 2a, 2b and 3 apply		N

H	**ANNEX H: SWITCHES**		**N**
	Switches tested with the appliance comply with this standard and the following clauses of IEC 61058-1, as modified below:		N
	- the tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N
	- before being tested in the appliance, switches are operated 20 times without load		N
8	Marking and documentation		N
	Switches are not required to be marked except, that incorporated switches shall be marked with the manufacturer's name or trademark and the type reference		N
13	Mechanism		N
15	Insulation resistance and electric strength		N
15.1	Not applicable		N
15.2	Not applicable		N
15.3	Applicable for full disconnection micro-disconnection		N
17	Endurance		N
	Applicable, at the end of the tests, temperature rise of the terminals not increased by more than 30 K		N
20	Clearances, creepage distances and distances through insulation		N
	Applicable for creepage distances and clearances for live parts of different potential only, as stated in table 18 for operational insulation, and across full disconnection and micro-disconnection		N

I	**ANNEX I: MOTORS HAVING BASIC INSULATIONTHAT IS INADAQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE**		**P**
8	Protection against access to live parts		P
11.3	Determined the temperature rise of the body of the motor instead of the temperature rise of the windings.		P
11.8	The temperature rise of the body shall not exceed the values in table 3.		P
16.3	The insulation between live parts of the motor and the metal parts is not applicable.		P

Clause	Requirement-Test	Result-Remark	Verdict
19.1	The tests of 19.7 to 19.9 are not carried out.		P
19.101	Short circuit of the terminals of the motor		P
	Short circuit of each diode of the rectifier		P
	Open circuit of the supply to the motor		P
	Open circuit of any parallel resistor		P
22.101	For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit shall be insulated from accessible parts of the appliance by double insulation or reinforced insulation.		P
J	**ANNEX J: COATED PRINTED CIRCUIT BOARDS**		**N**
	The coated PCB shall comply with IEC 60664-3.		N
K	**ANNEX K: OVERVOLTAGE CATEGORIES**		**P**
	Overvoltage category I, II, III, or IV.	Overvoltage category II	P
M	**ANNEX M: POLLUTION DEGREE**		**P**
	Pollution degree 1, 2, 3, or 4.	Pollution degree 2	P
N	**ANNEX N: PROOF TRACKING TEST**		**N**
	The proof tracking test is carried out in accordance with IEC 60112.		N

Clause	Requirement-Test	Result-Remark	Verdict
ZA	**ANNEX ZA: SPECIAL NATIONAL CONDITIONS**		**N**
7.12	DENMARK: requirements regarding marking tag of power supply cord and connecting of earthing wire		N
19.5	NORWAY: the test is also applicable to appliances intended to be permanently connected to fixed wiring		N
22.2	FRANCE, NORWAY: the second paragraph of this subclause dealing with single-phase Class I appliances with heating elements is not applicable due to the supply system		N
25.6	BELGIUM, FRANCE, GREECE, UNITED KINGDOM: plugs according to Standard Sheet C2b not allowed		N
	AUSTRIA, GERMANY, FINLAND, ICELAND, IRELAND, ITALY, LUXEMBOURG, NETHERLANDS, NORWAY, PORTUGAL, SPAIN, SWEDEN, SWITZERLAND, UNITED KINGDOM: plugs according to Standard C3b not allowed		N
	DENMARK: supply cords of single-phase portable appliances having a rated current not exceeding 10 A provided with a plug according to the following:		N
	Class I appliances: Section 107-2-D1 Standard Sheet DK2-1a		N
	For appliances covered by a Part 2 of EN 60335, also plugs in accordance with IEC 83, Standard Sheet C2b or C4 are allowed		N
	Class II appliances: IEC 83, Standard Sheet C5 or C6		N
	Stationary single-phase appliances, having a rated current not exceeding 10 A, and provided with a plug, the plug is in accordance with the requirements above		N
	Multi-phase appliances and single-phase appliances having a rated current exceeding 10 A, and provided with a plug, the plug is in accordance with the requirements below:		N
	Class I appliances: Section 107-2-D1, Standard Sheet DK6-1a/EN 60309-2, Standard Sheet 2-II, 2-IV		N
	Class II appliances: Section 107-2-D1, Standard Sheet DK6-1a/2-II, 2-IV		N
	IRELAND: plug is in accordance with Standard Sheets B1 (15A), B2 and C2b		N
	SPAIN: Appliances having a rated current not exceeding 6 A, provided with a plug complying with UNE 20315:		N
	for Class I appliances: Figure 7C		N
	for Class II appliances: Figure 15A		N
	Class I appliances having a rated current not exceeding 16 A, provided with a plug complying with Standard UNE 20 315 Figure 7B		N
	SWITZERLAND: supply cords of portable household and similar electrical appliances, rated current not exceeding 10 A, provided with a plug complying with SEV 1011 or IEC 884-1 and one of the following dimension sheets:		N
	SEV 6542-2:1991 plug type 15 3P+N+PE 250/400 V, 10 A		N
	SEV 6532-2:1991 plug type 11 L+N 250 V, 10 A		N
	SEV 6532-2:1991 plug type 12 L+N+PE 250 V, 10 A		N
	UNITED KINGDOM: plug according to Standard Sheet B2 or C5 used (refer to Annex ZB)		N

Clause	Requirement-Test	Result-Remark	Verdict
25.8	IRELAND, UNITED KINGDOM: replacement of figures (rated current/cross-sectional area) in the table		N

ZB	ANNEX ZB: A-DEVIATIONS		N
3	SWITZERLAND: information about batteries		N
7.1	ITALY: the voltage is 220 V/380 V		N
	SPAIN: the voltages are 127 V/220 V and 220 V/380 V		N
7.12	IRELAND: information about required label attached to the supply cord, concerning the colour code of the wires		N
22.22	GERMANY: the amount of asbestos in the mass containing asbestos not exceeding 0,1%		N
	FINLAND: certain types of asbestos not used		N
24	SWEDEN: components containing mercury not used		N
25.6	UNITED KINGDOM: regulations concerning plugs to be fitted to domestic appliances		N

Clause	Requirement-Test	Result-Remark	Verdict

APPENDED TABLE:

10.1	TABLE: POWER INPUT					P
	supply voltage: ……..(V)		230			---
	frequency: ……(Hz)		50			---
	room temperature: ……(°C)		22			---
appliances	rated power input (W)	deviation (%)	measured power input (W)	measured deviation (%)	remark	
Pump	76	+20	74.25	-2.3	P	

10.2	TABLE: CURRENT					N
	supply voltage: ……..(V)					---
	frequency: ……(Hz)					---
	room temperature: ……(°C)					---
appliances	rated current (A)	deviation (%)	measured current (A)	measured deviation (%)	remark	

11.8	TABLE: HEATING			P
	room temperature t1 (°C) .....:	22		---
	room temperature t2 (°C) .....:	22		---
	Test voltage (V) ……..:	243.8		---
Parts measured:		Measured temperature rise (K)	Limit temperature rise (K)	
Enclosure of the pump		16.3	60	
wiring		10.3	50	
External wiring		7.8	50	
	winding temperature rise measurements:			P
	Room temperature (°C) ..... :	22		---
	Room temperature (°C) ..... :	22		

Temperature rise dT of winding:	dT K)	Required T (K)	Insulation class
Winding of the motor	63.3	115	F
Primary windings	67.8	115	F
Secondary windings	61.5	115	F

Clause	Requirement-Test	Result-Remark	Verdict

13.2	TABLE: LEAKAGE CURRENT AT OPERATING TEMPERATURE		P
	at 1,15 times rated input (W) .....:	N.A.	----
	at 1,06 times rated voltage (V) .....:	~243.8	----

measured between:	measured (mA)	limit (mA)
L/N-accessible surface connected metal foil	1.68	3.5

13.3	TABLE: ELECTRICAL INSULATION AT OPERATING TEMPERATURE	P

test voltage applied between:	test voltage (V)	result
L/N-basic insulation	1000	P

16.2	TABLE: LEAKAGE CURRENT MEASUREMENTS		P
	at 1,06 times rated voltage (V)..... :	~243.8	P

measured between:	measured (mA)	limit (mA)
L/N - accessible surface connected metal foil	1.68	3.5

16.3	TABLE: ELECTRIC STRENGTH TESTS	P

test voltage applied between:	test voltage (V)	result
L/N-basic insulation	1000	P

17.1	TABLE: OVERLOAD PROTECTION		N
	at 1,06 or 0,94 times rated voltage (V)..... :	-	N

Short-circuit of:	measured temperature (°C)	limit temperature (°C)	result
/	/	/	/

28.1	TABLE: TORQUE TEST FOR SCREWS AND NUTS			P
parts measured of screws and nuts	nominal diameter of screw (mm)	torque (N • m)	number of torque test	---
fixing the enclosure	3.91	1.2	10	P

Clause	Requirement-Test	Result-Remark	Verdict

29.1	TABLE: MINIMUM CLEARANCES		P
rated impulse voltage (V)	minimum clearance (mm)	measured result (mm)	---
330	0,5	/	N
500	0,5	/	N
800	0,5	/	N
1 500	0.5	/	N
2 500	1.5	basic insulation: 5.10 function insulation: 5.50	P
4 000	3,0	/	P
6 000	5.5	/	N
8 000	8,0	/	N
10 000	11,0	/	N

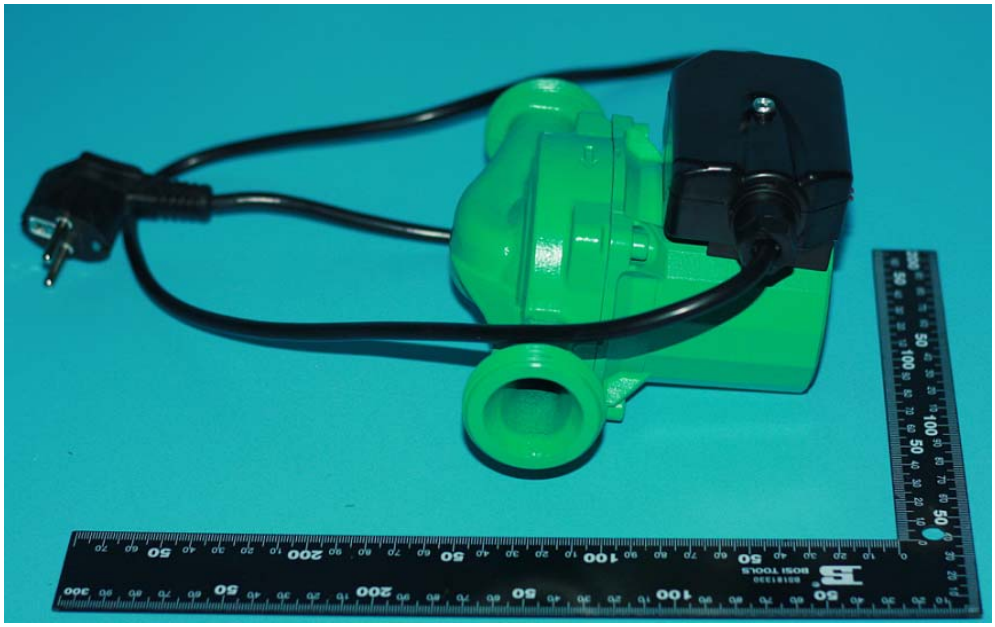
29.2	TABLE: MINIMUM CREEPAGE DISTANCES FOR BASIC INSULATION								P
working voltage (V)	Creepage distance (mm) pollution degree							measured result (mm)	---
	1	2			3				
		material group			material group				
		I	II	IIIa/IIIb	I	II	IIIa/IIIb		
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9	/	N
125	0,28	0,75	1,05	1,5	1,9	2.1	2,4	/	N
250	0,56	1,25	1,8	2,5	3,2	3,6	4.0	reinforced insulation: 7.10	P
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	/	N
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	/	N
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	/	N
>800 and ≤1 000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	/	N
>1 000 and ≤1 250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	/	N
>1 250 and ≤1 600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	/	N
>1 600 and ≤2 000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	/	N
>2 000 and ≤2 500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	/	N
>2 500 and ≤3 200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	/	N
>3 200 and ≤4 000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	/	N
>4 000 and ≤5 000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	/	N
>5 000 and ≤6 300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	/	N
>6 300 and ≤8 000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	/	N
>8 000 and ≤10 000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	/	N
>10 000 and ≤12 500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	/	N

Clause	Requirement-Test	Result-Remark	Verdict

29.2.4	TABLE: MINIMUM CREEPAGE DISTANCES FOR FUNCTIONAL INSULATION								P
working voltage (V)	Creepage distance (mm) pollution degree							measured result (mm)	---
	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		
50	0,16	0,56	0,8	1,1	1,4	1,6	1,8	/	N
125	0,25	0,71	1,0	1,4	1,8	2,0	2,2	/	N
250	0,42	1,0	1,4	2,0	2,5	2,8	3,2	7.10	P
400	0,75	1,6	2,2	3,2	4,0	4,5	5,0	/	N
500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	/	N
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	/	N
>800 and ≤1 000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	/	N
>1 000 and ≤1 250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	/	N
>1 250 and ≤1 600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	/	N
>1 600 and ≤2 000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	/	N
>2 000 and ≤2 500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	/	N
>2 500 and ≤3 200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	/	N
>3 200 and ≤4 000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	/	N
>4 000 and ≤5 000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	/	N
>5 000 and ≤6 300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	/	N
>6 300 and ≤8 000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	/	N
>8 000 and ≤10 000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	/	N
>10 000 and ≤12 500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	/	N

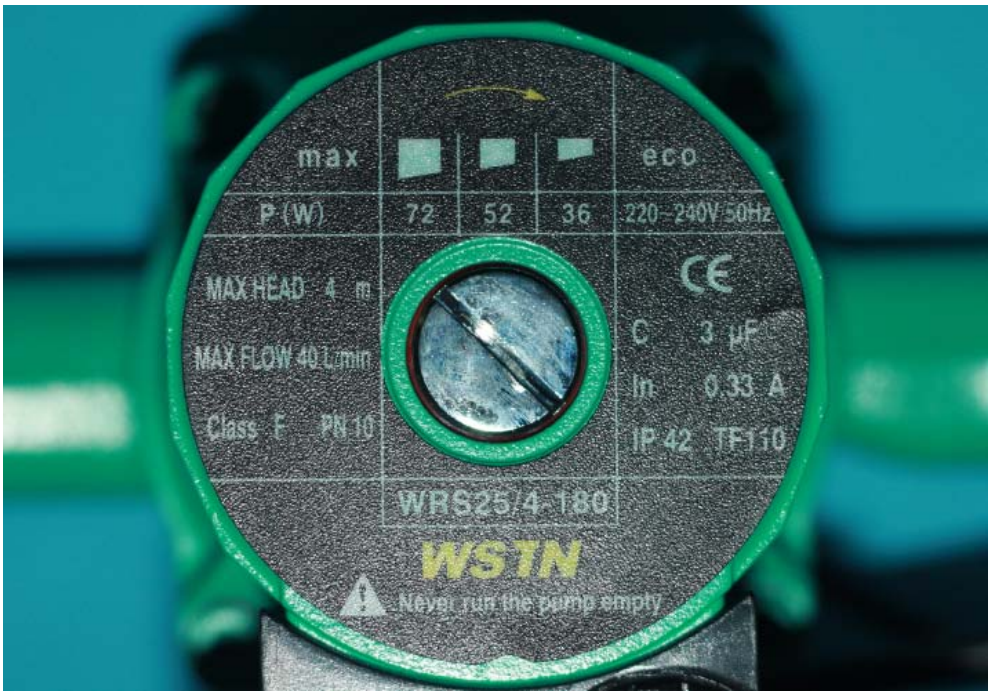
Photos of the sample

Photos of the sample



Photos of the sample

Photos of the sample



LIST OF INSTRUMENTS

NO	Equipment name	Type	Serial NO	period of validity
1	Digital AC Power Source	6200 series	Angui-004	2015.11.15
2	Radiation Tester	440RF/D	Angui-006	2015.12.9
3	Line Leakage Tester	7620	Angui-008	2015.11.14
4	Electrical Safety Compliance analyzer	7452	Angui-011	2015.11.14
5	Safely-testing instrument	ST-1001	Angui-012	2015.11.22
6	Digital display caliper	0.01㎜	Angui-014	2015.11.23
7	Dual display LCR instrument	ELC-131D	Angui-161	2015.9.22
8	Impact testing hammer	ST-1002	Angui-017	2015.11.29
9	Surge-insulation tester	NF2675	Angui-019	2015.9.19
10	Lecroy Storage Oscillocope	9304A	Angui-020	2015.11.7
11	Trillion-Ohm Instrument	ZC25B-3	Angui-022	2015.11.15
12	Digital temperature tester	DR030	Angui-024	2015.11.7
13	Program control combustion Instrument	CS-1	Angui-032	2015.11.29
14	Torque driver	RTD60CN	Angui-036	2015.11.23
15	Digital micrometer		Angui-013	2015.11.14
16	Pushing Tube-shaped ergometer	KL-10	Angui-038	2015.11.14
17	Noncontact thermometer	ST60	Angui-156	2015.11.14
18	Dynamometer	KL-2	Angui-040	2015.11.23
19	Dynamometer	TK-30	Angui-044	2015.11.23

LIST OF INSTRUMENTS

20	Alternating Moisture testing instrument	SDJ020	Angui-050	2015.11.23
21	Measuring instrument for temperature raise of live windings	RC-3	Angui-150	2015.11.23
22	Audio analyzer	VP-7720A	YPL03-01	2015.11.14
23	FM/AM signal generator	VP-8179B10	YXH01-01	2015.11.14
24	FM/AM signal generator	VP-8179B10	YXH01-02	2015.11.14
25	Frequency counter	500A	YPL-05-01	2015.11.23
26	Muitiplex srereo modulator	VP-7633A	YQT23-01	2015.11.23
27	WOW flutter meter	MK-668E	YDBW03-01	2015.11.23

EC Declaration of conformity

Council Directive 2014/35/EU on Low Voltage Directive

Applicant:Taizhou XINWILO Electric Motor Co.,Ltd.
Address:Nianmuyang, Daxi Town, Wenling City, Zhejiang Province, China

Manufacturer: Taizhou WESTONE Machinery & Electric Co.,Ltd.
Address: Shangma industrial zone, Economic development area, Wenling, Zhejiang, China

Certify that the product described is in conformity with the Directive 2014/35/EU
as amended

Product Name : Water Pump

Item No: WRS15/4-130, WRS15/6-130, WRS20/4-130, WRS20/6-130, WRS25/4-130, WRS25/4-180, WRS25/6-130, WRS25/6-180, WRS25/8-180, WRS32/4-180, WRS32/6-180, WRS32/8-180, WRS15/4 EAC, WRS15/6 EAC, WRS20/4 EAC, WRS20/6 EAC, WRS25/4 EAC, WRS25/6 EAC, WRS32/4 EAC, WRS32/6 EAC,WRS15/9-Z, WRS15/11-Z, WRS20/13, WRS20/15, W15G-10, W15G-15, W15G-18, W15GR-10, W15GR-15, W15GR-18,
WRS40-370-F, WRS40-550-F, WRS40-750-F, WRS50-750-F,
WRS40-1100-F, WRS50-1100-F, WRS40-1500-F, WRS50-1500-F

The product has been assessed by the application of the following standards:

EN 60335-1:2012+A11:2014

EN 60335-2-51:2003+A1:2008+A2:2012

Issue place and date

Company stamp and Signature
of authorized personnel

Notice

1. This test report shall be invalidation without the cachet of the testing laboratory.
2. This copied report shall be invalidation without sealed the cachet of the testing laboratory.
3. This report shall be invalidation without tester signature, reviewer signature and approver signature.
4. This altered report shall be invalidation.
5. Client shall put forward demurrer within 15days after received report. The testing laboratory shall refuse disposal if exceeded the time limit.
6. The test results presented in this report relate only to the object tested.

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