GUANGZHOU JOYEE SANITARY WARE CO., LTD.

CE-LVD TEST REPORT

Prepared For:	GUANGZHOU JOYEE SANITARY WARE CO., LTD. D228, Building 27, 38 Nanbian Road, Haizhu District, Guangzhou, China
Product Name:	Outdoor Spa
Trade Mark:	Joyee
Model:	Las vegas, more additional models see next page
Prepared By :	Shenzhen United Testing Technology Co., Ltd. 2F, Annex Bldg, Jiahuangyuan Tech Park, #365 Baotian 1 Rd, Tiegang Community, Xixiang Str, Bao'an District, Shenzhen, China
Test Date:	2020-03-06–2020-03-13
Date of Report :	2023-08-07
Report No.:	UNIA23072717SR-01

深圳市优检检测技术有限公司 Shenzhen United Testing Technology Co., Ltd. 检验检测专用章

Additional models	SG-7302AS, SG-7303AS, SG-7303A1S, SG-7303A2S, SG-7304AS, SG-7305AS, SG-7305A1S, SG-7306AS, SG-7306A1S, SG-7307AS, SG-7308AS, SG-7308A1S, SG-7309AS, SG-7302BS, SG-7305B1S, SG-7305B2S, SG-7306B1S, SG-7309BS, SG-7310B1S, SG-7310B2S, SG-7302CS, SG-7305CS, SG-7305C1S, SG-7305C2S, SG-7309CS, SG-7306CS, SC-7306C1S, SG-7310CS, SG-7310C1S, SG-7310C2S, SG-7311CS, SG-7303DS, SG-7304DS, SG-7305ES, SG-7305DS, SG-7309DS, SG-7310DS, SG-7303VS, SG-7305VS, SG-7306VS, SG-7301BS, SG-7301CS, SG-7305BWS, SG-7305BW-RS, SG-7305E-RS, SG-7312BWS, SG-7304HS, SG-9280S, SG-9281S, SG-SW395SS, SG-7305GS, SG-7305G1S, SG-7305G2S, SG-7305G3S, SG-7305G4S, SG-7305HS, SG-7310HS, SG-7305JS, SG-7305J1S, SG-7303FS, SG-7304FS, SG-7309FS, SG-7305TS, SG-7307BS, V1S, V2S, V3S, V4S, V5S, SG-7303ES, SG-7303E1S, SG-7303E2S, SG-7305C-RS, SG-7305D1S, SG-7305D-RS, SG-7306V-RS, SG-7310D-RS, SG-7309C-RS, SG-7312BW-RS, LIV-SPA-S22S, LIV-SPA-Y22S, SG-7301DS, SG-7301ES, SG-7302DS, SG-7303E3S, SG-7303F1S, SG-7304F1S, SG-7305H2S, SG-7305KS, SG-7309F1S, SG-7309GS, SG-7309G1S, SG-7309VS, SG-7313BWS, SG-7314BWS, SG-7315BWS, SG-7316BWS, SG-JD7320S, SG-SW395DS, SG-B398SS, SG-B398DS, SG-9505S, SG-7302ES, SG-7307FS, SG-2105S, SG-7301GS, SG-7301G1S, SG-7302GS, SG-7302G1S, SG-7303GS, SG-7306HS, SG-7306DS, SG-7306KS, SG-7306GS, SG-7307GS, SG-7308GS, SG-MP029S, SG-MP085S, SG-MP092S, SG-MP099S, AU-01S, SG-ITALY01S, SG-SY580S, SG-7330ES, SG-9280TS, SG-SW395D-BS, SG-B398BS, SG-466AS, SG-BW399AS, SG-BW399BS, SG-BW399CS, SG-BW600AS, SG-BW600BS, SG-BW600CS, SG-9506S, SG-9507S, SG-200S, HE4S, HE7S, HE102S, HE121S, HE201S, HE241S, HE542S, HE561S, AR542S, AR561S, FD121S, FD241S, GP4S, GP7S, GD-04S, SP201S, SW395BLS, SW395BL-TS, SG-7308DS, SG-7307F1S, SG-9505AS, SG-9281TS, SG-7301AB, SG-7302AB, SG-7303AB, SG-7303A1B, SG-7303A2B, SG-7304AB, SG-7305AB, SG-7305A1B, SG-7306AB, SG-7306A1B, SG-7307AB, SG-7308AB, SG-7308A1B, SG-7309AB, SG-7302BB, SG-7305B1B, SG-7305B2B, SG-7306B1B, SG-7309BB, SG-7310B1B, SG-7310B2B, SG-7302CB, SG-7305CB, SG-7305C1B, SG-7305C2B, SG-7309CB, SG-7306CB, SC-7306C1B, SG-7310CB, SG-7310C1B, SG-7310C2B, SG-7311CB, SG-7303DB, SG-7304DB, SG-7305EB, SG-7305DB, SG-7309DB, SG-7310DB, SG-7303VB, SG-7305VB, SG-7306VB, SG-7301BB, SG-7301CB, SG-7305BWB, SG-7305BW-RB, SG-7305E-RB, SG-7312BWB, SG-7304HB, SG-9280B, SG-9281B, SG-SW395SB, SG-7305GB, SG-7305G1B, SG-7305G2B, SG-7305G3B, SG-7305G4B, SG-7305HB, SG-7310HB, SG-7305JB, SG-7305J1B, SG-7303FB, SG-7304FB, SG-7309FB, SG-7305TB, SG-7307BB, V1B, V2B, V3B, V4B, V5B, SG-7303EB, SG-7303E1B, SG-7303E2B, SG-7305C-RB, SG-7305D1B, SG-7305D-RB, SG-7306V-RB, SG-7310D-RB, SG-7309C-RB, SG-7312BW-RB, LIV-SPA-S22B, LIV-SPA-Y22B, SG-2103, SG-7301DB, SG-7301EB, SG-7302DB, SG-7303E3B, SG-7303F1B, SG-7304F1B, SG-7305H2B, SG-7305KB, SG-7309F1B, SG-7309GB, SG-7309G1B, SG-7309VB, SG-7313BWB, SG-7314BWB, SG-7315BWB, SG-7316BWB, SG-JD7320B, SG-SW395DB, SG-B398SB, SG-B398DB, SG-9505B, SG-7302EB, SG-7307FB, SG-2105B, SG-7303GB, SG-7306HB, SG-7306DB, SG-7306KB, SG-MP029B, SG-MP085B, SG-MP092B, SG-MP099B, AU-01B, SG-SY580B, SG-7330EB, SG-7317BWB, SG-7318BWB, SG-7319BWB, SG-7321BWB, SG-7322BWB, SG-7323BWB, SG-7324BWB, SG-7325BWB, SG-7326BWB, SG-7327BWB, SG-7328BWB, SG-7329BWB, SG-7330BWB, SG-7331BWB, SG-7332BWB, SG-7333BWB, SG-7334BWB, SG-7335BWB, SG-7336BWB, SG-7337BWB, SG-7338BWB, SG-7339BWB, SG-7340BWB, SG-7341BWB, SG-7344BWB, SG-7345BWB, SG-7346BWB, SG-7347BWB, SG-7350BWB, SG-7351BWB, SG-7352BWB, SG-7353BWB, SG-7354BWB, SG-7355BWB, SG-7356BWB, SG-7357BWB, SG-7358BWB, SG-7360BWB, SG-7361BWB, SG-7362BWB, SG-7363BWB, SG-7364BWB, SG-9280TB, SG-SW395D-BB, SG-B398BB, SG-466AB, SG-BW399AB, SG-BW399BB, SG-BW399CB, SG-BW600AB, SG-BW600BB, SG-BW600CB, SG-9506B, SG-9507B, SG-200B, HE4B, HE7B, HE102B, HE121B, HE201B, HE241B, HE542B, HE561B, AR542B, AR561B, FD121B, FD241B, GP4B, GP7B, GD-04B, SP201B, SW395BLB, SW395BL-TB, SG-7342BWB, SG-7343BWB, SG-7308DB, SG-7307F1B, SG-9505AB, SG-9281TB, SG-6000T, SG-5000, J-01(Bremen), J-02A(Atlanta), J-02B(Las Vegas), J-03A(Houston), J-03B(Washington), J-07(London), J-08(Cambridge), SG340F, SP5260, SP5260-T, J-05, J-06, J-09, J-10, 7319D, SP102,

Additional models	Las vegas, Atlanta, Houston, Washington,Bremen, Antwerp, Genting, Baden, London, London-L, Seattle, Sydney, Wellington, San Diego, California, Manhattan, Lincoln, Lincoln-R, Leeds, Glasgow, Frankfurt, Pisa, Lyon, Boston, New York, Cologne, Alabama, Alaska, Florida, Austin, Omaha, Colmar, Marseille, Carcassonne, Annecy, Strasbourg, Lille, Toulouse, Detroit, Orlando, Ely, Queens County, Warsaw, Sicily, Bruges, Lindau, Ghent, Seville, Oxford, Granada, Lausanne, Lucerne, Bern, Stavanger, Helsinki, Malaga, Valencia, Krakow, Brussels, Oslo, Gothenburg, Aarhus, Espoo, Vantaa, Odense, Oulu, Linkoping, Rovaniemi, Tbilisi, Cascais, Sibiu, Namur, Rijeka, Heviz, Cork, Rochefort, Menorca, Podol, Podol-plus, Nante, Nante-plus, Columbus, Dover, Dover-plus, Venice, Nice, Vienna, Amsterdam, Prague, Prague-L, Barcelona, Budapest, Budapest-L, Macao, Macao-L, Florence, Florence-L, Brisbane, Copenhagen, Moscow, Munich, Geneva, Sao paulo, Manchester, Bordeaux, Hawaii, Melbourne, Dubai, Provence, Provence-PLUS, Zurich, Toronto, Toronto-PLUS, Rotterdam, Madrid, Berlin, Hamburg, Hamburg-L, Malta, Malta-L, St. Petersburg, Los Angeles, San Francisco, Santorini, Chicago, Milan, Vancouver, Edinburgh, Rome, Athens, Athens-L, Stockholm, Lisbon, Miami, Verona, Porto, Trieste, Split, Bodrum, Zagreb, J-17（Lincoln）, SG5850, SG6300(T), SG390(LAGOON SPA)

TEST REPORT
EN60335-2-60
Household and similar electrical appliances–Safety–
Part 2-60:Particular requirements for whirlpool baths and whirlpool spas

Report Reference No.....:	UNIA23072717SR-01
Date of issue.....:	Aug. 07, 2023
Testing Laboratory.....:	Shenzhen United Testing Technology Co., Ltd.
Address.....:	2F, Annex Bldg, Jiahuangyuan Tech Park, #365 Baotian 1 Rd, Tiegang Community, Xixiang Str, Bao'an District, Shenzhen, China
Applicant's name.....:	GUANGZHOU JOYEE SANITARY WARE CO., LTD.
Address.....:	D228, Building 27, 38 Nanbian Road, Haizhu District, Guangzhou, China
Test specification:	
Standard.....:	EN 60335-1:2012+A11:2014+ A13:2017+A1:2019+A2:2019 +A14:2019 EN 60335-2-60:2003+A1:2005+A2:2008+A11:2010+A12:2010 EN 62233:2008
Test procedure.....:	LVD
Non-standard test method……..:	Not applicable
Test Report Form No.....:	IECEN60335_2_60G
Test Report Form(s) Originator.....:	IMQ
MasterTRF.....:	Dated 2010-03

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Test item description.....:	Outdoor Spa
Trade Mark.....:	Joyee
Manufacturer/Address.....:	Same as applicant
Model/Type reference.....:	Las vegas, more additional models see page 2
Ratings.....:	220-240V~, 50/60Hz
Factory/Address.....:	Same as applicant

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
Test according to the following standards were carried out: IEC 60335-2-60: 2002+A1: 2004+A2: 2008 with IEC 60335-1: 2001+A1: 2004+A2: 2006 and EN 60335-2-60: 2003+A1: 2005+A2: 2008+A11: 2010+A12: 2010 with EN 60335-1:2012+A11:2014+ A13:2017+A1:2019+A2:2019+ A14:2019 EN 62233: 2008 Model SG-7303AB, SG-7303AS, SG-7304AB, SG-7304AS, SG-7307AB, SG-7307AS, SG-7309DB and SG-7309DS were subjected for full tests. Other models were subjected for construction checked.	Shenzhen United Testing Technology Co., Ltd. 2F, Annex Bldg, Jiahuangyuan Tech Park, #365 Baotian 1 Rd, Tiegang Community, Xixiang Str, Bao'an District, Shenzhen, China

Summary of compliance with National Differences

European group differences and national differences were taken into account.

Copy of marking plate





Note:
The labels of models which the last letter is “S” are the same as model SG-7301AS except model name and power.
The labels of models which the last letter is “B” are the same as model SG-7301AB except model name and power.

Test item particulars:

Classification of installation and use.....: Stationary appliance and indoor/outdoor used
Supply Connection.....: None supply cord, Y type attachment
Class of protection.....: Class I
Degree of protection.....: IPX5
Whirlpool bath.....: No
Whirlpool spa.....: Yes
Whirlpool spa located outdoor.....: Yes
Provided with blower.....: Yes
Provided with pump.....: Yes
Provided with chlorinator.....: No
Thermal cut-out.....: Yes
Heating element.....: Yes
External supplied hotwater.....: No
Automatically drained afte reach use.....: No
Level switch.....: No (electronicl evel switch)
Appliance with luminaries.....: Yes
Replaceable lamp.....: No

Possible test case verdicts:

-test case does not apply to the test object..: N(Not applicable)

-test object does meet the requirement.....: P(Pass)

-test object does not meet the requirement.: F(Fail)

Testing.....:

Date of receipt of test item.....: 2019-08-16

Date(s) of performance of tests.....: 2019-08-16–2020-03-13

General remarks:

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 testing laboratory. "(see Enclosure#)" refers to additional information appended to the report.
"(see appended table)"refers to a table appended to the report.

Through out this report a ☒ comma/ ☐ point is used as the decimal separator.

Appendix 1: EN 60335-1:2012+A11:2014+ A13:2017+A1:2019+A2:2019+ A14:2019
EN 62233: 2008+AC:2008;
Appendix 2: Photos.

This report only updates the applicant, manufacturer and their address, product name,adds model name and Trade Mark on the original report No.UNIA23041221SR-01. It does not affect the safety performance and does not require re-testing.Test data used in the original report.

General product information:

Stationary appliance and indoor/outdoor used.

Model which the last letter is “S” can operated for motor function and heater function at the same time.

Model which the last letter is “B” can operated separately for motor function or heater function only.

Motor function is operated with all pumps without heater.

Heater function is operated with heater and pump WTC50M. So lenoid

valve controller is connected to main controller SG-0007.

All models are have the difference of size, appearance and the follow table:

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7301AS	LP250(1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 5800W
SG-7302AS	LP200(1pc) WTC50M(1pc)	AP900	SG-0007	H30-R2	220-240V, 50/60Hz, 5650W
SG-7303AS	LP200(1pc) LP300(2pcs) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 9550W
SG-7303A1S	LP250(1pc) LP300(2pcs) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 9900W
SG-7303A2S	LP250(1pc) LP300(2pcs) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 9900W
SG-7304AS	LP200(1pc) LP250(1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 7300W
SG-7305AS	LP200(1pc) LP250(2pcs) WTC50M(1pc)	AP900	SG-0007	H30-R2	220-240V, 50/60Hz, 9350W
SG-7305A1S	LP200(1pc) LP250(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 9150W
SG-7306AS	LP200(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 6950W
SG-7306A1S	LP200(1pc) LP250(1pc) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 7000W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7307AS	LP250(1pc) LP300(2pcs) WTC50M(1pc)	AP900	SG-0007	H30-R2	220-240V, 50/60Hz, 10400W
SG-7308AS	LP250(1pc) WTC50M(1pc)	None	SG-0007	H30-R2	220-240V, 50/60Hz, 5100W
SG-7308A1S	LP200(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 6950W
SG-7309AS	LP250(2pcs) LP300(1pc) WTC50M(1pc)	AP900	SG-0007	H30-R2	220-240V, 50/60Hz, 10050W
SG-7302BS	LP300(1pc) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 5850W
SG-7305B1S	LP250(1pc) LP300(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 10200W
SG-7305B2S	LP250(1pc) LP300(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 10200W
SG-7306B1S	LP200(1pc) LP250(1pc) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 7000W
SG-7309BS	LP200(1pc) LP250(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 9150W
SG-7310B1S	LP250(1pc) LP300(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 10200W
SG-7310B2S	LP250(1pc) LP300(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 10200W
SG-7302CS	LP250(1pc) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 5500W
SG-7305CS	LP250(1pc) LP300(1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 8000W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7305C1S	LP250(1pc) LP300(1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 8000W
SG-7305C2S	LP250(1pc) LP300(1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 8000W
SG-7309CS	LP250(1pc) LP300(1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 8000W
SG-7306CS	LP250(1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 5800W
SG-7306C1S	LP300(1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 6150W
SG-7310CS	LP300(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 8350W
SG-7310C1S	LP300(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 8350W
SG-7310C2S	LP300(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 8350W
SG-7311CS	LP300(1pc) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 5850W
SG-7303DS	LP200(2pcs) LP150(1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 8050W
SG-7304DS	LP250(2pcs) LP300(1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 9850W
SG-7305ES	LP300(1pc) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 5850W
SG-7305DS	LP300(2pcs) LP250(1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 10200W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7309DS	LP250(3pcs) LP200(1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 11000W
SG-7310DS	LP300(2pcs) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 8050W
SG-7303VS	LP200(1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 5450W
SG-7305VS	LP300(1pc) WTC50M(1pc)	AP400, AP700	SG-0007	H30-R2	220-240V,50/60Hz, 6550W
SG-7306VS	LP300(1pc) WTC50M(1pc)	AP400, AP700	SG-0007	H30-R2	220-240V,50/60Hz, 6550W
SG-7301BS	LP250(1pc) WTC50M(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 5100W
SG-7301CS	LP300(2pcs) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 8050W
SG-7305BWS	LP300(2pcs) TDA50(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 8175W
SG-7305BW-RS	LP300(2pcs) TDA50(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 7775W
SG-7305E-RS	LP300(1pc) TDA50(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 5975W
SG-7312BWS	LP200(1pc) LP250(1pc) TDA50(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 7125W
SG-7304HS	LP300(1pc) LP200(1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 7650W
SG-9280S	LP300(4pcs) WTC50M(1pcs) WTC100-AB(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 10350W/5850W
SG-9281S	LP300(4pcs) WTC50M(1pcs) WTC100-AB(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 10350W/5850W
SG-SW395SS	LP300(4pcs) WTC100-AB(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 13250W
SG-7305GS	WP200-II (1pc) LP200(1pc)	--	SG-0007	H20-R2	220-240V, 50/60Hz, 5000W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7305G1S	WP200-II (1pc) LP200(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 6000W
SG-7305G2S	LP300(2pcs) WTC50M(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 7650W
SG-7305G3S	WP200-II (1pc) LP200(1pc)	--	SG-0007	H20-R2	220-240V, 50/60Hz, 5000W
SG-7305G4S	WP200-II (1pc) LP200(1pc)	--	SG-0007	H20-R2	220-240V, 50/60Hz, 5000W
SG-7305HS	WP200-II (1pc) LP200(1pc)	--	SG-0007	H20-R2	220-240V, 50/60Hz, 5000W
SG-7310HS	LP200(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 5700W
SG-7305JS	WP300-II (1pc) LP300(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 7400W
SG-7305J1S	WP200-II (1pc) LP200(1pc)	--	SG-0007	H20-R2	220-240V, 50/60Hz, 5000W
SG-7303FS	LP200(2pcs) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 6650W
SG-7304FS	LP250(1pc) LP200 (1pc) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 7000W
SG-7309FS	LP250(2pcs) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 7350W
SG-7305TS	LP300(2pcs) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 8050W
SG-7307BS	LP300(2pcs) LP250(1pc) LP200(1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 11700W
V1S	LP300(2pcs) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 8050W
V2S	LP300(2pcs) JA50(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 8170W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
V3S	WP300-II (1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 5200W
V4S	WP250-II (1pc) LP250(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 7100W
V5S	WP250-II (1pc) LP250(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 7100W
SG-7303ES	WP200-II (1pc) LP200(1pc)	--	SG-0007	H20-R2	220-240V, 50/60Hz, 5000W
SG-7303E1S	WP300-II (1pc) LP300 (1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 7400W
SG-7303E2S	LP300(2pcs) WTC50M(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 7650W
SG-7305C-RS	LP200(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 6950W
SG-7305D1S	LP300(2pcs) LP250 (1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 10200W
SG-7305D-RS	LP300 (2pcs) LP250(1pc) TDA50(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 9620W
SG-7306V-RS	LP300 (1pc) LP200(1pc) TDA50(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 7470W
SG-7310D-RS	LP250 (3pcs) TDA50 (1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 8920W
SG-7309C-RS	LP200 (2pcs) WTC50M (1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 6950W
SG-7312BW-RS	LP300 (1pc) LP250 (1pc) TDA50 (1pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 7820W
LIV-SPA-S22S	LP300(2pcs) TDA50 (1pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 8170W
LIV-SPA-Y22S	LP300(2pcs) TDA50 (1pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 8170W
SG-7301DS	LP300(2pcs) WTC50M (1pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 8050W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7301ES	LP300(2pcs) WTC50M (1pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 8050W
SG-7302DS	LP200(1pc) WTC50M (1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 5450W
SG-7303E3S	LP250(2pcs) WTC50M (1pc)	--	SG-0007	H30-R2	220-240V,50/60Hz, 6950W
SG-7303F1S	LP150(1pc) WP200-II(1pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 6000W
SG-7304F1S	LP200(1pc) WP200-II(1pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 6400W
SG-7309F1S	LP250(1pc) WP250-II(1pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 7100W
SG-7305H2S	LP200(2pcs) WTC50M (1pc)	--	SG-0007	H30-R2	220-240V,50/60Hz, 6250W
SG-7305KS	LP200(2pcs) WTC50M (1pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 6650W
SG-7309GS	WP300-II (1pc)	--	SG-0007	H30-R2	220-240V,50/60Hz, 5200W
SG-7309G1S	WP300-II (1pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 5600W
SG-7309VS	LP300(1pc) WTC50M (1pc)	--	SG-0007	H30-R2	220-240V,50/60Hz, 5450W
SG-7313BWS	LP200(3pcs) WTC50M (1pc)	--	SG-0007	H30-R2	220-240V,50/60Hz, 7750W
SG-7314BWS	LP200(3pcs) WTC50M (1pc)	--	SG-0007	H30-R2	220-240V,50/60Hz, 7750W
SG-7315BWS	LP250(2pcs) WTC50M (1pc)	--	SG-0007	H30-R2	220-240V,50/60Hz, 6950W
SG-7316BWS	LP250(2pcs) WTC50M (1pc)	--	SG-0007	H30-R2	220-240V,50/60Hz, 6950W
SG-JD7320S	LP250(2pcs) WTC50M (1pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 7350W
SG-SW395DS	LP300(4pcs) WTC100-AB (1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 13250W
SG-B398SS	LP300(4pcs) WTC100-AB (1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 13250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-B398DS	LP300(4pcs) WTC100-AB (1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 13250W
SG-9505S	LP300(1pc) LP200(1pc) DL112-PS8M-12 KA (1pc) WTC100-AB(1pc)	--	SG-0007	H30-R2	220-240V,50/60Hz, 12450W
SG-7302ES	LP200(2pc) WTC100-AB(1pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 7150W
SG-7307FS	LP300(2pc) WTC50M (1pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 8050W
SG-2105S	LP200(1pc) 1026080(1pc)	AP200	SG-0007	H20-R2	220-240V, 50/60Hz, 4700W
SG-7301GS	LP200(2pcs) WTC50M(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 6250W
SG-7301G1S	LP200(1pc) WTC50M(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 4650W
SG-7302GS	LP200(1pc) WTC50M(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 6250W
SG-7302G1S	LP200(1pc) WTC50M(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 4650W
SG-7303GS	WP300-II(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 5200W
SG-7306HS	WP250-II(1pc) LP300(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 7050W
SG-7306DS	LP300(1pc) LP250(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 9850W
SG-7306KS	LP200(2pcs) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 6650W
SG-7306GS	LP200 (1pc) LP300 (2pcs) WTC50M(1pc)	--	SG-0007	H30-R2	220-240V,50/60Hz, 9150W
SG-7307GS	LP200 (1pc) LP250 (2pcs) WTC50M(1pc)	--	SG-0007	H30-R2	220-240V,50/60Hz, 8450W
SG-7308GS	LP200 (1pc) LP250 (1pc) WTC50M(1pc)	--	SG-0007	H30-R2	220-240V,50/60Hz, 6600W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-MP029S	LP300(1pc) WTC50M(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 5850W
SG-MP085S	LP300(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 8350W
SG-MP092S	LP300(2pcs) LP200(1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 9850W
SG-MP099S	LP300(4pcs) WTC100-AB(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 12950W
AU-01S	DH1.0(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 4150W
SG-ITALY01S	LP200(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 4500W
SG-SY580S	LP250(1pc) LP300(1pc) WTC100-AB(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 7800W
SG-7330ES	LP300(1pc) LP200(3pcs) WTC100-AB(1pc)	AP900	SG-0007	H30-R2	220-240V, 50/60Hz, 11350W
SG-9280TS	LP300(1pc) DL112-PS8M-12 KA (1pc) WTC50M(1pc) WTC100-AB(1pc)	AP400	SG-0007	H30-R2	220-240V, 50/60Hz, 8750W/5850W
SG-SW395D-BS	LP300(2pcs) DL112-PS8M-12 KA (1pc) WTC100-AB(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 13150W
SG-B398BS	LP200(3pcs) WTC100-AB(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 8250W
SG-466AS	DL112-PS8M-12 KA (1pc) WTC100-AB(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 8750W
SG-BW399AS	LP300(3pcs) WTC100-AB(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 10350W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-BW399BS	LP300(3pcs) LP200(1pc) WTC100-AB(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 11850W
SG-BW399CS	LP300(3pcs) LP200(1pcs) WTC100-AB(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 11850W
SG-BW600AS	LP300(3pcs) WTC100-AB(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 10350W
SG-BW600BS	LP300(3pcs) LP200(1pc) WTC100-AB(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 11850W
SG-BW600CS	LP300(3pcs) LP200(1pc) WTC100-AB(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 11850W
SG-9506S	DL112-PS8M-12 KA (1pc) WTC100-AB(1pc)	--	SG-0007	SG50	220-240V, 50/60Hz, 10750W
SG-9507S	DL112-PS8M-12 KA (1pc) WTC100-AB(1pc)	--	SG-0007	SG50	220-240V, 50/60Hz, 10750W
SG-200S	LP300(1pc) WTC50M(1pc)	--	SG-0007	H30-R2	220-240V, 50/60Hz, 5450W
HE4S	WTC200-AB(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 6950W
HE7S	WTC200-AB(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 6950W
HE102S	WTC200-AB(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 6950W
HE121S	WTC200-AB(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 6950W
HE201S	WTC200-AB(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 6950W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
HE241S	WTC200-AB(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 6950W
HE542S	WTC200-AB(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 6950W
HE561S	WTC200-AB(2pcs) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V, 50/60Hz, 6950W
AR542S	LP300(3pcs) JA100(1pc)	AP700	--	H30-R2	220-240V, 50/60Hz, 11050W
AR561S	LP300(2pcs) JA100(1pc)	AP700	--	H30-R2	220-240V, 50/60Hz, 8850W
FD121S	LP300(2pcs) JA100(1pc)	AP700	--	H30-R2	220-240V, 50/60Hz, 8850W
FD241S	LP300(3pcs) JA100(1pc)	AP700	--	H30-R2	220-240V, 50/60Hz, 11050W
GP4S	LP300(2pcs) JA100(1pc)	AP700	--	H30-R2	220-240V, 50/60Hz, 8850W
GP7S	LP300(2pcs) JA100(1pc)	AP700	--	H30-R2	220-240V, 50/60Hz, 8850W
GD-04S	LP300(1pc) WTC200-AB(1pc)	AP700	--	H30-R2	220-240V, 50/60Hz, 7400W
SP201S	LP300(1pc) WTC200-AB(1pc)	AP700	--	H30-R2	220-240V, 50/60Hz, 7400W
SW395BLS	LP300(3pcs) LP200(1pc) WTC100-AB(1pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 12250W
SW395BL-TS	LP200(2pcs) DL112-PS8M-12KA (1pc) WTC100-AB(1pc)	--	SG-0007	H30-R2	220-240V,50/60Hz, 11750W
SG-7308DS	LP200(2pcs) LP150(1pc) WTC50M(1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 8050W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7307F1S	LP300(1pc) WP300-II(1pc)	AP700	SG-0007	H30-R2	220-240V,50/60Hz, 8100W
SG-9505AS	LP300(3pcs) LP200(2pcs) WTC100-AB(1 pc)	--	SG-0007	H30-R2	220-240V,50/60Hz, 13350W
SG-9281TS	LP300(1pc) DL112-PS8M-12KA (1pc) WTC100-AB(1 pc)	AP400	SG-0007	H30-R2	220-240V,50/60Hz, 11350W
SG-7301AB	LP250(1pc) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 2800W, Heater function: 3250W
SG-7302AB	LP200(1pc) WTC50M(1pc)	AP900	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 2650W, Heater function: 3250W
SG-7303AB	LP200(1pc) LP300(2pcs) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 6550W, Heater function: 3250W
SG-7303A1B	LP250(1pc) LP300(2pcs) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 6900W, Heater function: 3250W
SG-7303A2B	LP250(1pc) LP300(2pcs) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 6900W, Heater function: 3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7304AB	LP200(1pc) LP250(1pc) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4300W, Heater function: 3250W
SG-7305AB	LP200(1pc) LP250(2pcs) WTC50M(1pc)	AP900	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 6350W, Heater function: 3250W
SG-7305A1B	LP200(1pc) LP250(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 6150W, Heater function: 3250W
SG-7306AB	LP200(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3950W, Heater function: 3250W
SG-7306A1B	LP200(1pc) LP250(1pc) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4000W, Heater function: 3250W
SG-7307AB	LP250(1pc) LP300(2pcs) WTC50M(1pc)	AP900	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 7400W, Heater function: 3250W
SG-7308AB	LP250(1pc) WTC50M(1pc)	None	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 2100W, Heater function: 3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7308A1B	LP200(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3950W, Heater function: 3250W
SG-7309AB	LP250(2pcs) LP300(1pc) WTC50M(1pc)	AP900	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 7050W, Heater function: 3250W
SG-7302BB	LP300(1pc) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 2850W, Heater function: 3250W
SG-7305B1B	LP250(1pc) LP300(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 7200W, Heater function: 3250W
SG-7305B2B	LP250(1pc) LP300(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 7200W, Heater function: 3250W
SG-7306B1B	LP200(1pc) LP250(1pc) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4000W, Heater function: 3250W
SG-7309BB	LP200(1pc) LP250(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 6150W, Heater function: 3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7310B1B	LP250(1pc) LP300(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz Motor function: 7200W, Heater function: 3250W
SG-7310B2B	LP250(1pc) LP300(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz Motor function: 7200W, Heater function: 3250W
SG-7302CB	LP250(1pc) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 2500W, Heater function: 3250W
SG-7305CB,	LP250(1pc) LP300(1pc) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5000W, Heater function: 3250W
SG-7305C1B	LP250(1pc) LP300(1pc) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5000W, Heater function: 3250W
SG-7305C2B	LP250(1pc) LP300(1pc) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5000W, Heater function: 3250W
SG-7309CB	LP250(1pc) LP300(1pc) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5000W, Heater function: 3250W
SG-7306CB	LP250(1pc) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 2800W, Heater function: 3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7306C1B	LP300(1pc) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3150W, Heater function: 3250W
SG-7310CB	LP300(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5350W, Heater function: 3250W
SG-7310C1B	LP300(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5350W, Heater function: 3250W
SG-7310C2B	LP300(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5350W, Heater function: 3250W
SG-7311CB	LP300(1pc) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 2850W, Heater function: 3250W
SG-7303DB	LP200(2pcs) LP150(1pc) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5050W, Heater function: 3250W
SG-7304DB	LP250(2pcs) LP300(1pc) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 6850W, Heater function: 3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7305EB	LP300(1pc) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 2850W, Heater function: 3250W
SG-7305DB	LP300(2pcs) LP250(1pc) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 7200W, Heater function: 3250W
SG-7309DB	LP250(3pcs) LP200(1pc) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 8000W, Heater function: 3250W
SG-7310DB	LP300(2pcs) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5050W, Heater function: 3250W
SG-7303VB	LP200(1pc) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 2450W, Heater function: 3250W
SG-7305VB	LP300(1pc) WTC50M(1pc)	AP400, AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3550W, Heater function: 3250W
SG-7306VB	LP300(1pc) WTC50M(1pc)	AP400, AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3550W, Heater function: 3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated

SG-7301BB	LP250(1pc) WTC50M(1pc)		GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 2100W, Heater function: 3250W
SG-7301CB	LP300(2pcs) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5050W, Heater function: 3250W
SG-7305BWB	LP300(2pcs) TDA50(1pc)	AP400	GS5-GS510SZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5175W, Heater function: 3375W
SG-7305BW-RB	LP300(2pcs) TDA50(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4775W,
SG-7305E-RB	LP300(1pc) WTC50M (1pc)	AP400	BP21-BP601-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 2975W, Heater function: 3375W
SG-7312BWB	LP200(1pc) LP250(1pc) TDA50(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4125W, Heater function: 3375W
SG-7304HB	LP300(1pc) LP200(1pc) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4650W, Heater function: 3250W
SG-9280B	LP300(4pcs) WTC50M(1pc) WTC100-AB(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 7350W/2850W, Heater function: 3750W/3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated

SG-9281B	LP300(4pcs) WTC50M(1pc) WTC100-AB(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 7350W/2850W, Heater function: 3750W/3250W
SG-SW395SB	LP300(4pcs) WTC100-AB(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 10250W Heater function: 3750W
SG-7305GB	WP200-II (1pc) LP200(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3000W, Heater function: 3350W
SG-7305G1B	WP200-II (1pc) LP200(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3000W, Heater function: 3350W
SG-7305G2B	LP300(2pcs) WTC50M(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4650W, Heater function: 3250W
SG-7305G3B	WP200-II (1pc) LP200(1pc)	--	BP21-BW6013X1-RCA2.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3000W, Heater function: 2350W
SG-7305G4B	WP200-II (1pc) LP200(1pc)	--	BP21-BW6013X1-RCA2.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3000W, Heater function: 2350W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7305HB	WP200-II (1pc) LP200(1pc)	--	BP21-BW6013X 1-RCA2.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3000W, Heater function: 2350W
SG-7310HB	LP200(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 2700W, Heater function: 3250W
SG-7305JB	WP300-II (1pc) LP300(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4400W, Heater function: 3450W
SG-7305J1B	WP200-II (1pc) LP200(1pc)	--	BP21-BW6013X 1-RCA2.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3000W Heater function: 2350W
SG-7303FB	LP200(2pcs) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3650W, Heater function: 3250W
SG-7304FB	LP250(1pc) LP200 (1pc) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4000W, Heater function: 3250W
SG-7309FB	LP250(2pcs) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4350W, Heater function: 3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7305TB	LP300(2pcs) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5050W, Heater function: 3250W
SG-7307BB	LP300(2pcs) LP250(1pc) LP200(1pc) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 8700W, Heater function: 3250W
V1B	LP300(2pcs) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5050W, Heater function: 3250W
V2B	LP300(2pcs) JA50(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5170W, Heater function: 3370W
V3B	WP300-II (1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 2200W Heater function: 3450W
V4B	WP250-II (1pc) LP250(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4100W, Heater function: 3400W
V5B	WP250-II (1pc) LP250(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4100W, Heater function: 3400W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7303EB	WP200-II (1pc) LP200(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3000W, Heater function: 3350W
SG-7303E1B	WP300-II (1pc) LP300 (1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4400W, Heater function: 3450W
SG-7303E2B	LP300(2pcs) WTC50M(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4650W, Heater function: 3250W
SG-7305C-RB	LP200(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3950W, Heater function: 3250W
SG-7305D1B	LP300(2pcs) LP250 (1pc) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 7200W, Heater function: 3250W
SG-7305D-RB	LP300 (2pcs) LP250(1pc) TDA50(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 6620W Heater function: 3370W
SG-7306V-RB	LP300 (1pc) LP200(1pc) TDA50(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4470W, Heater function: 3370W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7310D-RB	LP250 (3pcs) TDA50 (1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5920W, Heater function: 3370W
SG-7309C-RB	LP200 (2pcs) WTC50M (1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3950W, Heater function: 3250W
SG-7312BW-RB	LP300 (1pc) LP250 (1pc) TDA50 (1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5120W, Heater function: 3370W
LIV-SPA-S22B	LP300(2pcs) TDA50 (1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5170W, Heater function: 3370W
LIV-SPA-Y22B	LP300(2pcs) TDA50 (1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5170W, Heater function: 3370W
SG-7301DB	LP300(2pcs) WTC50M (1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5050W, Heater function: 3250W
SG-7301EB	LP300(2pcs) WTC50M (1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5050W, Heater function: 3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7302DB	LP200(1pc) WTC50M (1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 2450W, Heater function: 3250W
SG-7303E3B	LP250(2pcs) WTC50M (1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3950W, Heater function: 3250W
SG-7303F1B	LP150(1pc) WP200-II(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3000W, Heater function: 3350W
SG-7304F1B	LP200(1pc) WP200-II(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3400W, Heater function: 3350W
SG-7309F1B	LP250(1pc) WP250-II(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4100W, Heater function: 3400W
SG-7305H2B	LP200(2pcs) WTC50M (1pc)	--	GS5-GS501Z-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3250W, Heater function: 3250W
SG-7305KB	LP200(2pcs) WTC50M (1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3650W, Heater function: 3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated

SG-7309GB	WP300-II(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 2200W, Heater function: 3250W
SG-7309G1B	WP300-II(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 2600W, Heater function: 3250W
SG-7309VB	LP300(1pc) WTC50M (1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 2450W, Heater function: 3250W
SG-7313BWB	LP200(3pcs) WTC50M (1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4750W, Heater function: 3250W
SG-7314BWB	LP200(3pcs) WTC50M (1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4750W, Heater function: 3250W
SG-7315BWB	LP250(2pcs) WTC50M (1pc)	--	GS5-GS501Z-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3950W, Heater function: 3250W
SG-7316BWB	LP250(2pcs) WTC50M (1pc)	--	GS5-GS501Z-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 3950W, Heater function: 3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-JD7320B	LP250(2pcs) WTC50M (1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4350W, Heater function: 3250W
SG-SW395DB	LP300(4pcs) WTC100-AB(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 10250W, Heater function: 3750W
SG-B398SB	LP300(4pcs) WTC100-AB(1pc)	AP700	GS5-GS523DZ-RCA-3.0K (BP21-BW6013X2-	Incorporated with main controller	220-240V,50/60Hz, Motor function: 10250W, Heater function: 3750W
SG-B398DB	LP300(4pcs) WTC100-AB(1pc)	AP700	GS5-GS523DZ-RCA-3.0K (BP21-BW6013X2-	Incorporated with main controller	220-240V,50/60Hz, Motor function: 10250W, Heater function: 3750W
SG-9505B	LP300(1pc) LP200(1pc) DL112-PS8M-12KA (1pc) WTC100-AB(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 9450W, Heater function: 3750W
SG-7302EB	LP200(2pcs) WTC100-AB(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 4150W, Heater function: 3750W
SG-7307FB	LP300(2pcs) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 5050W, Heater function: 3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-2105B	LP200(1pc) 1026080(1pc)	AP200	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：2700W Heater function：2000W
SG-7303GB	WP300-II(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：2200W Heater function：3450W
SG-7306HB	WP250-II(1pc) LP300(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：4050W Heater function：3400W
SG-7306DB	LP300(1pc) LP250(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：6850W Heater function：3250W
SG-7306KB	LP200(2pcs) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：3650W Heater function：3250W
SG-MP029B	LP300(1pc) WTC50M(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：2850W Heater function：3250W
SG-MP085B	LP300(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：5350W Heater function：3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-MP092B	LP300(2pcs) LP200(1pc) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：6850W Heater function：3250W
SG-MP099B	LP300(4pcs) WTC100-AB(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：9950W Heater function：3750W
AU-01B	DH1.0(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：1150W Heater function：3750W
SG-SY580B	LP250(1pc) LP300(1pc) WTC100-AB(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：4800W Heater function：3750W
SG-7330EB	LP300(1pc) LP200(3pcs) WTC100-AB(1pc)	AP900	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：8350W Heater function：3750W
SG-7317BWB	LP300(3pcs) WTC50M(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：6850W Heater function：3250W
SG-7318BWB	LP300(3pcs) WTC50M(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：6850W Heater function：3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7319BWB	LP300(3pcs) WTC50M(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 6850W Heater function: 3250W
SG-7321BWB	LP200(4pcs) WTC50M(1pc)	--	BP21-BW6013X2-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 6250W Heater function: 3250W
SG-7322BWB	LP200(4pcs) WTC50M(1pc)	--	BP21-BW6013X2-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 6250W Heater function: 3250W
SG-7323BWB	LP200(4pcs) WTC50M(1pc)	--	BP21-BW6013X2-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 6250W Heater function: 3250W
SG-7324BWB	LP300(2pcs) Stormforce 9(1pc) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 6150W Heater function: 3250W
SG-7325BWB	LP200(3pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 4750W Heater function: 3250W
SG-7326BWB	LP300(3pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 6850W Heater function: 3250W
SG-7327BWB	LP200(3pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 4750W Heater function: 3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7328BWB	Stormforce 9 (3pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 4750W Heater function: 3250W
SG-7329BWB	LP200(3pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 4750W Heater function: 3250W
SG-7330BWB	Stormforce 7 (2pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 2050W Heater function: 2250W
SG-7331BWB	Stormforce 9 (2pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 3250W Heater function: 2250W
SG-7332BWB	Stormforce 7 (2pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 2050W Heater function: 2250W
SG-7333BWB	Stormforce 9 (2pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 3250W Heater function: 2250W
SG-7334BWB	Stormforce 9 (2pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 3250W Heater function: 3250W
SG-7335BWB	Stormforce 9 (3pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 4750W Heater function: 3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7336BWB	Stormforce 9 (3pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 4750W Heater function: 3250W
SG-7337BWB	Stormforce 7 (2pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 2050W Heater function: 2250W
SG-7338BWB	Stormforce 9 (3pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 4750W Heater function: 3250W
SG-7339BWB	Stormforce 9 (3pcs) Stormforce 1(1pc))	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 4750W Heater function: 3250W
SG-7340BWB	Stormforce 9 (4pcs) Stormforce 1(1pc)	--	BP21-BW6013X2-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 6250W Heater function: 3250W
SG-7341BWB	Stormforce 9 (4pcs) Stormforce 1(1pc)	--	BP21-BW6013X2-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 6250W Heater function: 3250W
SG-7344BWB	WP300-II(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 2200W Heater function: 2450W
SG-7345BWB	WP300-II (1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 2200W Heater function: 2450W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7346BWB	LP300(3pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 6850W Heater function: 3250W
SG-7347BWB	LP200(3pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 4750W Heater function: 3250W
SG-7350BWB	Stormforce 9 (3pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 4750W Heater function: 3250W
SG-7351BWB	LP200(3pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 4750W Heater function: 3250W
SG-7352BWB	Stormforce 7 (2pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 2050W Heater function: 3250W
SG-7353BWB	Stormforce 9 (2pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 3250W Heater function: 3250W
SG-7354BWB	Stormforce 7 (2pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 2050W Heater function: 3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7355BWB	Stormforce 9 (2pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 3250W Heater function: 3250W
SG-7356BWB	Stormforce 9 (2pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 3250W Heater function: 3250W
SG-7357BWB	Stormforce 9 (3pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 4750W Heater function: 3250W
SG-7358BWB	Stormforce 9 (3pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 4750W Heater function: 3250W
SG-7360BWB	Stormforce 7 (2pcs) Stormforce 1(1pc))	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 2050W Heater function: 3250W
SG-7361BWB	Stormforce 9 (3pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 4750W Heater function: 3250W
SG-7362BWB	Stormforce 9 (3pcs) Stormforce 1(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 4750W Heater function: 3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-7363BWB	Stormforce 9 (4pcs) Stormforce 1(1pc)	--	BP21-BW6013X2-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 6250W Heater function: 3250W
SG-7364BWB	Stormforce 9 (4pcs) Stormforce 1(1pc)	--	BP21-BW6013X2-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 6250W Heater function: 3250W
SG-9280TB	LP300(1pc) DL112-PS8M-12 KA (1pc) WTC50M(1pc) WTC100-AB(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 5750W/2850W, Heater function: 3750W/3250W
SG-SW395D-BB	LP250(2pcs) DL112-PS8M-12 KA (1pc) WTC100-AB(1pc)	--	GS5-GS523DZ-RCA-3.0K (BP21-BW6013X1-RCA3.0K)	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 9450W Heater function: 3750W
SG-B398BB	LP300(3pcs) WTC100-AB(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 7350W Heater function: 3750W
SG-466AB	DL112-PS8M-12 KA (1pc) WTC100-AB(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 5750W Heater function: 3750W
SG-BW399AB	LP300(3pcs) WTC100-AB(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function: 7350W Heater function: 3750W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-BW399BB	LP300(3pcs) LP200(1pc) WTC100-AB(1pc)	--	BP21-BW6013X2-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：8850W Heater function：3750W
SG-BW399CB	LP300(3pcs) LP200(1pc) WTC100-AB(1pc)	--	BP21-BW6013X2-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：8850W Heater function：3750W
SG-BW600AB	LP300(3pcs) WTC100-AB(1pc)	--	BP21-BW6013X1-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：7350W Heater function：3750W
SG-BW600BB	LP300(3pcs) LP200(1pc) WTC100-AB(1pc)	--	BP21-BW6013X2-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：8850W Heater function：3750W
SG-BW600CB	LP300(3pcs) LP200(1pc) WTC100-AB(1pc)	--	BP21-BW6013X2-RCA3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：8850W Heater function：3750W
SG-9506B	DL112-PS8M-12KA (2pcs) WTC100-AB(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 10750W, Heater function: 3750W
SG-9507B	DL112-PS8M-12KA (2pcs) WTC100-AB(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 10750W, Heater function: 3750W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-200B	LP300(1pc) WTC50M(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：2450W Heater function：3250W
HE4B	WTC200-AB(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：2450W Heater function：3250W
HE7B	WTC200-AB(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：2450W Heater function：3250W
HE102B	WTC200-AB(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：2450W Heater function：3250W
HE121B	WTC200-AB(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：2450W Heater function：3250W
HE201B	WTC200-AB(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：2450W Heater function：3250W
HE241B	WTC200-AB(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：2450W Heater function：3250W
HE542B	WTC200-AB(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：2450W Heater function：3250W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
HE561B	WTC200-AB(2pcs) WTC50M(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：2450W Heater function：3250W
AR542B	LP300(3pcs) JA100(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：8050W Heater function：3750W
AR561B	LP300(2pcs) JA100(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：5850W Heater function：3750W
FD121B	LP300(2pcs) JA100(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：5850W Heater function：3750W
FD241B	LP300(3pcs) JA100(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：8050W Heater function：3750W
GP4B	LP300(2pcs) JA100(1pc)	AP700 (700W)	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：5850W Heater function：3750W
GP7B	LP300(2pcs) JA100(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：5850W Heater function：3750W
GD-04B	LP300(1pc) WTC200-AB(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：4400W Heater function：4500W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SP201B	LP300(1pc) WTC200-AB(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50/60Hz, Motor function：4400W Heater function：4500W
SW395BLB	LP300(3pcs) LP200(1pc) WTC100-AB(1pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V, 50-60Hz, Motor function：9250W Heater function：3750W
SW395BL-TB	LP200(2pcs) DL112-PS8M-12KA (1pc) WTC100-AB(1pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function:8750W, Heater function:3750W
SG-7342BWB	LP300 (2pcs) Stormforce 9(2pcs) WTC50M(1pc)	--	BP21-BW6013X2-RCA3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function:7650W, Heater function:3250W
SG-7343BWB	LP300 (2pcs) Stormforce 9(2pcs) WTC50M(1pc)	--	BP21-BW6013X2-RCA3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function:7650W, Heater function:3250W
SG-7308DB	LP200 (2pcs) LP150 (1pc) WTC50M(1pc)	AP700	BP21-BP2100G1-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function:5050W, Heater function:3250W
SG-7307F1B	LP300(1pc) WP300-II(1pc)	AP700	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function:5100W, Heater function:3450W

Model	Water pump model	Air pump model	Main control circuit	Heater model	Rated
SG-9505AB	LP300(3pcs) LP200(2pcs) WTC100-AB(1 pc)	--	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 10350W, Heater function: 3750W
SG-9281TB	LP300(1pc) DL112-PS8M-12KA (1pc) WTC100-AB(1 pc)	AP400	GS5-GS523DZ-RCA-3.0K	Incorporated with main controller	220-240V,50/60Hz, Motor function: 8350W Heater function: 3750W
SG-6000T	LP200 (1pc) DL112-PS8M-12KA(1pc) WTC-100AB(1 pc)	--	BP21-BP6013 G1-RCA3.0K	Incorporated with main controller	220-240V50/60HZ, Motor function: 1500W Heater function:3750W
SG-5000	LP200 (1pc) LP300(3pc) WTC-100AB(1 pc)	--	BP21-BP6013 G3-RCA3.0K	Incorporated with main controller	220-240V50/60HZ, Motor function:8100W Heater function:3750W
J-01(Bremen)	LP300(3pc) WTC200(1pc) WTC50M(1pc)	AP700	BP21-BP6013 G3-RCA3.0K	Incorporated with main controller	220-240V50/60HZ, Motor function: 8800W Heater function:3250W
J-02A(Atlanta)	WP300(1pc)	--	BP21-BP6013 G1-RCA3.0K	Incorporated with main controller	220-240V50/60HZ, Motor function: 2200W Heater function:3000W
J-02B(Las Vegas)	WTC200(1pc) WTC200(1pc) WTC50M(1pc)	AP400	BP21-BP6013 G3-RCA3.0K	Incorporated with main controller	220-240V50/60HZ, Motor function: 3400W Heater function:3250W

J-03A(Houston)	WP300(1pc)	--	BP21-BP6013 G1-RCA3.0K	Incorporated with main controller	220-240V50/60HZ, Motor function: 2200W Heater function:3000W
J-03B(Washington)	WTC200(1pc) WTC200(1pc) WTC50M(1pc)	AP400	BP21-BP6013 G3-RCA3.0K	Incorporated with main controller	220-240V50/60HZ, Motor function: 3400W Heater function:3250W
J-07(London)	LP300(3pc) WTC100AB(1pc)	--	BP21-BP6013 G31-RCA3.0K	Incorporated with main controller	220-240V50/60HZ, Motor function:6600W Heater function:3750W
J-08(Cambridge)	LP200(2pc) WTC50M(1pc)	--	BP21-BP6013 G3-RCA3.0K	Incorporated with main controller	220-240V50/60HZ, Motor function: 3000W Heater function:3250W
SG340F	LP300(3pc) WTC200AB(1pc)	AP700*2 or AP700 x1	BP21-BP2100 G1RCA3.0K or BP21P4BC-RCA3.0K	Incorporated with main controller	220-240V50/60HZ, Motor function: 10350W Heater function:3750W
SP5260	LP300(3pc) LP200(1pc) WTC-100AB(1pc)	AP400	BP21-BP21P4 BC-RCA3.0K	Incorporated with main controller	220-240V50/60HZ, Motor function:8850W Heater function:3400W
SP5260-T	LP200(1pc) DL112-PS8M-BG 12KA(1pc) WTC-100AB(1pc)	--	BP21-BP6013 G1-RCA3.0K	Incorporated with main controller	220-240V50/60HZ, Motor function:5050W Heater function:3000W
J-05	WTC200(3pc) WTC50M(1pc)	--	BP21-BP6013 G1-RCA3.0K	Incorporated with main controller	220-240V50/60HZ, Motor function: 2450W Heater function:2000W

J-06	WTC200(3pc) WTC50M(1pc)	--	BP21-BP6013G1-RCA3.0K	Incorporated with main controller	220-240V50/60HZ， Motor function: 4750W Heater function:3000W
J-09	LP300(1pc) WTC50M(1pc)	--	BP21-BP6013G1-RCA3.0K	Incorporated with main controller	220-240V50/60HZ， Motor function: 2450W Heater function:2000W
J-10	WTC200AB(1pc) WTC120AB(1pc) WTC50M(1pc)	--	BP21-BP6013G3-RCA3.0K	Incorporated with main controller	220-240V50/60HZ， Motor function: 2650W
7319D	LP250(3pc) LP200 (1pc) WTC50M (1pc)	AP700	BP21-BP21P4BC-RCA3.0K	Incorporated with main controller	220-240V50/60HZ， Motor function: 7300W Heater function: 3700W
SP102	LP300(1pc) WTC200(1pc) WTP100AB(1pc)	AP700	BP21-BP6013G3-RCA3.0K	Incorporated with main controller	220-240V50/60HZ， Motor function:4450W Heater function:3700W
J-17（Lincoln）	LP300(3pc) WTC50M (1pc)	AP700	BP21-BP6013G3-RCA3.0K	Incorporated with main controller	220-240V50/60HZ， Motor function:7550W Heater function:3000W
SG5850	LP300(4pc) WTC100AB (1pc)	AP700	BP21-BP21P4BC-RCA3.0K	Incorporated with main controller	220-240V50/60HZ， Motor function:10250W Heater function:3000W
SG6300(T)	LP300(1pc) WTC100AB (1pc) DL112-PS8M-BG12KA(1pc)	AP700	BP21-BP6013G1-RCA3.0K	Incorporated with main controller	220-240V50/60HZ， Motor function:6450W Heater function:3000W

SG390(LAGO ON SPA)	LP300(1pc) WTC50M (1pc)	AP700	BP21-BP6013G1-RCA3.0K	Incorporated with main controller	220-240V50/60HZ， Motor function:3150W Heater function:3000W

IEC60335-2-60			
Clause	Requirement+Test	Result-Remark	Verdict
5	**GENERAL CONDITIONS FOR THE TESTS**		P
	Tests performed according to cl.5,e.g.nature of supply, sequence of testing,etc.		P
5.7	If the tests are influenced by the temperature of the water, it is manteined at 40 °C (IEC 60335-2-60)		P
	Or at the maximum value allowed by the control (IEC 60335-2-60)	42°C formain controller SG-0007	P
6	**CLASSIFICATION**		P
6.1	Protection against electric shock: Class 0,0I,I,II,III.....:	ClassI	P
6.1	Portable appliances:protection against electric shock: ClassII,III.....: (IEC 60335-2-60)		N
	Stationary appliances:protection against electric shock: ClassI,II,III.....: (IEC 60335-2-60)	ClassI	P
6.2	Protection against harmful ingress of water		P
	Whirlpool bath and whirlpool spa appliances at least IPX5 (IEC 60335-2-60)	IPX5	P
	Other appliances at least IPX4 (IEC 60335-2-60)		N
7	**MARKING AND INSTRUCTIONS**		P
7.1	Rated voltage or voltage range(V).....:	220-240V	P
	Nature of supply.....:	~	P
	Rated frequency(Hz).....:	50/60Hz	P
	Rated power input(W):.....:	See page 6 to page 38	P
	Rated current(A).....:		N
	Manufacturer's or responsible vendor's name, trade mark or identification mark.....:	S&G	P
	Model or type reference.....:	See page 6 to page 38	P
	Symbol 5172 of IEC60417, for ClassII appliances		N
	IP number, other thanI PX0.....:	IPX5	P

IEC60335-2-60			
Clause	Requirement+Test	Result-Remark	Verdict
	The enclosure of electrically-operated water valves in corporated in external hose-sets for connection of an appliance to the water mains marked with symbol IEC 60417-5036(DB:2002-10) if their working voltage exceeds extra-low voltage. (IEC 60335-1/A1)		N
7.2	Warning for stationary appliances for multiple supply		N
	Warning placed in vicinity of terminal cover		N
7.3	Range of rated values marked with the lower and upper limits separated by ahyphen	220-240V	P
	Different rated values marked with the values separated by an oblique stroke	50/60Hz	P
7.4	Appliances adjustable for different rated voltages, the voltage setting is clearly discernible		N
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		N
	The power input is related to the arithmetic mean value of the rated voltage range(IEC60335-1/A2)		P
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		N
7.6	Correct symbols used		P
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply		N
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		P
	-marking of terminals exclusively for the neutral conductor(N)		P
	-marking of protective earthing terminals(symbol 5019 of IEC60417)		P
	-marking not placed on removable parts		P
7.9	Marking or placing of switches which may cause a hazard		N
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means.....:	By figure,letter and other visual means	P
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		N
7.11	Indication for direction of adjustment of controls		P

IEC60335-2-60			
Clause	Requirement+Test	Result-Remark	Verdict
7.12	Instructions for safe use provided		P
	The instructions state that:		P
	-the appliance is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have be engiven supervision or instruction(IEC 60335-1/A2)		P
	-children being supervised not to play with the appliance(IEC 60335-1/A2)		P
	Instructions providing cleaning details and other maintenance (IEC 60335-2-60)		P
	Instructions for portable appliances states that no part of the appliance is to be located above the bath during use(IEC 60335-2-60)		N
	Instructions for whirlpool spas providing information concerning: (IEC 60335-2-60)		P
	- Maintenance of water puruty, especially pH values and chlorine concentrations.		P
	- Cleaning and disinfection.		P
	- Use and installation of a cover.		P
	- Disposal of water.		P
	- Precaution to avoid damage due to water freezing.		P
	- Precaution to avoid damage when the appliance is left empty for an extended period.		P
7.12.1	Sufficient details for installation supplied		P
	Instructions for installation: (IEC 60335-2-60)		P
	-parts containing live parts, except parts supplied with safety extra-low voltage not exceeding 12 V, must be inaccessible to a person in the bath (IEC 60335-2-60)		P
	- earthed appliances must be permanently connected to fixed wiring (IEC 60335-2-60)		P
	-parts incorporating electrical components,except remote control devices, must be located or fixed so that they cannot fall into the bath. (IEC 60335-2-60)		P
	-the appliance should be supplied through a residual current device (RCD) with a rated tripping current not exceeding 30 mA (IEC 60335-2-60)		P
	Instruction giving details an how to follow the wiring rules. (IEC 60335-2-60)		P

IEC60335-2-60			
Clause	Requirement+Test	Result-Remark	Verdict
	Instructions ensuring that the installation is in the correct zone and that equipotential bonding is carried out. (IEC 60335-2-60)		P
	Instructions for installation how to fix the appliance (IEC 60335-2-60)		P
	Installation instructions for whirlpoolspas stating that:(IEC60335-2-60)		P
	- the floor has to becapable of supporting the expected load (IEC 60335-2-60)		P
	- an adequate drainage system has to be provided to deal with overflow water. (IEC 60335-2-60)		P
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 over voltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules		P
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50K during clause11; instructions stating that the fixed wiring must be protected		N
7.12.4	Instructions for built-in appliances:		N
	-dimensions of space		N
	-dimensions and position of supporting means		N
	-distances between parts and surrounding structure		N
	-dimensions of ventilation openings and arrangement		N
	-connection to supply mains and interconnection of separate components		N
	-necessity to allow disconnection of the appliance from the supply after installation by means of: (IEC60335-1/A1)		N
	Plug accessible after installation, or		N
	As witch in the fixed wiring in accordance with the wiring rules, unless		N
	As witch complying with 24.3 in corporated in the appliance		N
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		N
	Replacement cord instructions, type Y attachment		P
	Replacement cord instructions, type Z attachment		N

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Clause	Requirement+Test	Result-Remark	Verdict
7.12.6	Instructions for heating appliances incorporating a non-self-resettingthermal cut-out reset by disconnection of the supply mains contain the substance of the following: CAUTION: In order to avoid a hazard due to inadvertent resetting of the thermal cut-out, this appliance must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility. (IEC 60335-1/A1)		N
7.12.7	Instructions for fixed appliances state how the appliance is to be fixed to its support. (IEC 60335-1/A1)		P
7.12.8	Instructions for appliances connected to the water mains contain: (IEC60335-1/A1)		N
	-the maximum inlet water pressure, in pascals;		N
	- the minimum inlet water pressure, in pascals, if this is necessary for the correct operation of the appliance.		N
	Instructions for appliances connected to the water mains by detachable hose-sets state that the new hose-sets supplied with the appliance are to be used and that old hose-sets should not be reused. (IEC 60335-1/A1)		N
7.13	Instructions and other texts in an official language	English	P
7.14	Marking clearly legible and durable		P
7.15	Marking on a main part		P
	Marking clearly discernible from the outside, if necessary after removal of a cover		P
	For portable appliances, cover can bere moved or opened without a tool		N
	For stationary appliances, name, trademark or identification mark and model or typereference visible after installation		P
	For fixed appliances, name, trademark or identification mark and model or typereference visible after installation according to the instructions		P
	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

IEC60335-2-60			
Clause	Requirement+Test	Result-Remark	Verdict
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N
8	**PROTECTION AGAINST ACCESS TO LIVEPARTS**		P
8.1	Adequate protection against accidental contact with liveparts		P
8.1.1	Requirement applies for all positions, detachable parts removed		P
	Insertion or removal of lamps, protection against contact with liveparts of the lamp cap		N
	Use of test probe B of IEC61032: no contact with live parts		P
8.1.2	Use of test probe 13 of IEC61032 through openings in class 0 appliances and class II appliances/ constructions:no contact with liveparts		P
	Test probe 13 also applied through openings in earthed metal enclosure shaving an on-conductive coating:no contact with liveparts		N
8.1.3	For appliances other than classII, use of test probe 41 of IEC61032:no contact with liveparts of visible glowing heating elements		N
8.1.4	Energized parts regarded as liveparts (IEC60335-2-60)		P
8.1.5	Liveparts protected atleast by basic insulation before installation or assembly:		P
	-built-in appliances		N
	-fixed appliances		P
	-appliances delivered in separate units		N
8.2	Class II appliances and constructions constructed so that the reisadequate protection against accidental contact with basic insulation and metal parts separated from liveparts by basic insulation only		P
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
9	**STARTING OF MOTOR-OPERATED APPLIANCES**		N
	Requirements and test sarespecified in part 2 when necessary		N
	This clause of Part 1 is not applicable(IEC60335-2-60)		N

IEC60335-2-60			
Clause	Requirement+Test	Result-Remark	Verdict
10	**POWER INPUT AND CURRENT**		P
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
	Test for an appliance with one or more rated voltage ranges (IEC60335-1/A2)		P
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2		N
	Test for anappliance with one or more rated voltage ranges(IEC60335-1/A2)		N
11	**HEATING**		P
11.1	No excessive temperatures in normal use		P
11.2	Placing and mounting of appliance as described		P
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless		P
	The windings makes it difficult to make the necessary connections		N
11.4	Heating appliances operated under normal operation at 1,15 times rated power input.....:	(see appended table)	P
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage.....:	(see appended table)	P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage.....:	(see appended table)	P
11.7	Operation duration corresponding to the most unfavourable conditions of normal use		P
11.8	Temperature rises not exceeding values in table 3	(see appended tables)	P
	Temperature rise limit not applied to switches or controls tested in accordance with the conditions occurring in the appliance.(IEC60335-1/A1)		P
	Protective devices do not operate		P
	Components in protective electronic circuits are allowed to operate if they are tested for the number of cycles of operations pecified in 24.1.4 (IEC60335-1/A1)		N
	Sealing compound does not flow out		P

IEC60335-2-60			
Clause	Requirement+Test	Result-Remark	Verdict
	Protective devices do not operate, except		P
	Components in protective electronic circuits tested for the number of cycles specified in 24.1.4 (IEC60335-1/A1)		N
	In appliaces incorating heating element the water temperature at the inlet of the bath or spa not exceed 50 °C (IEC 60335-2-60)		P
13	**LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE**		P
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1,15 times rated power input.....:		P
	Motor-operated appliances and combined appliances supplied at 1,06 times rated voltage.....:		P
	Protective impedance and radio interference filters disconnected before carrying out the tests		P
13.2	Leakage current measured by means of the circuit described in figure 4 of IEC60990		P
	Leakage current measurements	(see appended table)	P
13.3	Electric strength tests according to table 4 (IEC60335-1/A1).	(see appended table)	P
	No break down during the tests		P
14	**TRANSIENT OVER VOLTAGES**		N
	Appliances with stand the transient over voltages to which they may be subjected		N
	Clearances having a value less than specified in Table 16 subjected to a nimpulse voltage test, the test voltage specified in table 6		N
	No flash over during the test, unless of functional insulation		N
	Incase of flash over of functional insulation, the appliance complies with clause 19 with the clearance shortcir cuited		N
15	**MOISTURE RESISTANCE**		P
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance		P

IEC60335-2-60			
Clause	Requirement+Test	Result-Remark	Verdict
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		P
	No trace of water on insulation which can result in a reduction of clearances and creepaged is tances below values specified in clause 29		P
	Traces of water on insulation in components operating at safety extra-low voltage not exceeding 12 V are ignored(IEC60335-2-60)		P
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC60529.....:	IPX5	P
	Water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains are subjected to the test specified for IPX7 appliances.(IEC60335-1/A1)		N
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N
	Built-in appliances installed according to the instructions		N
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		P
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		N
	For IPX4 appliances, the horizontal centreline of the appliance is aligned with the pivot axis of the oscillating tube		N
	For IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min (IEC 60335-1/A1)		N
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N
	Appliances with type X attachment fitted with a flexible cord as described		N
	Detachable parts tested as specified		P
	Whirlpool bath and whirlpool spas are tested without side panels fitted unless they are integral part of the appliance(IEC 60335-2-60)		P
15.2	Spillage of liquid does not affect the electrical insulation		P
	Appliances with type X attachment fitted with a flexible cord as described		N

IEC60335-2-60			
Clause	Requirement+Test	Result-Remark	Verdict
	Appliances in corporating an appliance inlet tested with or without an connector,whichever is most unfavourable		N
	Detachable parts removed		N
	Over fillingt est with additional amount of water, over a period of 1min		P
	The appliance withstands the electric strength test of 16.3		P
	No trace of water on insulation that can result in a reduction of clearances and creepaged istances below values specified in clause 29		P
15.3	Appliances proof against humid conditions		P
	Humidity test for 48 h in a humidity cabinet	25°C,93%R.H.	P
	The appliance withstands the tests of clause 16		P
16	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		P
16.1	Leakage current not excessive and electric strength adequate		P
	Protective impedance disconnected from liveparts before carrying out the tests		P
16.2	Single-phase appliances:test voltage 1,06 times rated voltage.....:	1,06x240V=254,4V	P
	Three-phase appliances: test voltage 1,06 times rated voltaged ivided by √3.....:		N
	Leakage current measurements	(see appended table)	P
16.3	Electric strength tests according to table 7	(see appended table)	P
	No breakdown during the tests		P
17	**OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS**		P
	No excessive temperatures in transformer or associated circuits in eventof short-circuits likely to occurin normal use	(see appended table)	P
	Appliance supplied with 1,06 or 0,94 times rated voltage and the most unfavourable short-circuit or overload likely to occur innormal use applied.....:	1,06x240V=254,4V	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 15K		P
	Temperature of the winding not exceeding the value specified in table 8,		P

IEC60335-2-60			
Clause	Requirement+Test	Result-Remark	Verdict
	However limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC61558-1		N
	Test repeated with chlorinator cells loaded so that The current is 95% of the lowest current that cause a protective device to operate.(IEC60335-2-60:2002/)		N
	Test continued until steady conditions are established(IEC60335-2-60:2002)		N
18	**ENDURANCE**		N
	This clause of Part 1 is not applicable(IEC60335-2-60)		N
19	**ABNORMAL OPERATION**		P
19.1	The risk of fire or mechanical damage under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe		P
	Appliances in corporating contactors or relays subjected to the test of 19.14,being carried out before the tests of 19.11(IEC60335-1/A2)		P
19.2	Test of appliance with heating elements with restricted heat dissipation;test voltage(V):power input of 0,85 times rated power input		P
	Appliances in which water is circulated,bath or spa is filled and operated,after which it is switched off and the bath emptied(IEC60335-2-60)		P
	Heating elements are then switched on (IEC60335-2-60)		P
	The pump being operated or at rest which ever more unfavourable(IEC60335-2-60)		P
	Appliances in which air is circulated,air inlets and outlets are blocked(IEC60335-2-60)		P
	Heating elements are then switched on (IEC60335-2-60)		P
19.3	Test of 19.2 repeated;test voltage(V):power input of 1,24 times rated power input		P
19.4	Test conditions as incl.11,any control limiting the temperature during tests of cl.11 short-circuited	Duration specified in Cl.11.7, the temperature sensor no operated	N
19.5	Test of 19.4 repeated on Class 0I and I appliances with tubulars heathed or embedded heating elements.No short-circuiting,but one end of the element connected to the elements sheath		P

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Clause	Requirement+Test	Result-Remark	Verdict
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		P
	The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-poled is connection occurs during the test of 19.4		P
19.6	Appliances with PTC Heating elements tested at rated voltage, establishing steady conditions		N
	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		N
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full loadtor queor locking moving parts of other appliances	Air pump	P
	Locked rotor,motor capacitors open-circuited or short-circuited,if required	Water pump	P
	Locked rotor,capacitors open-circuited one at a time		P
	Test repeated with capacitors short-circuited one at a time,if required		P
	Appliances with timer or programmer supplied with rated voltage for each of the tests,for a period equal to the maximum period allowed		P
	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
	The test is carried out with the bath or spa filled as specified fornormal operation.(IEC60335-2-60)		P
19.8	Three-phase motors operated at rated voltage with one phased is connected		N
19.9	Running overload test on appliances in corporating motors intended to be remotely or automatically controlled or liable to be operated continuously		N
	Winding temperatures not exceeding values as specified		N
19.10	Series motor operated at 1,3 times rated voltage for 1min.....:	Airpump	P
	During the test, parts not being ejected from the appliance		P

IEC60335-2-60			
Clause	Requirement+Test	Result-Remark	Verdict
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 they comply with the conditions specified in 19.11.1		P
	Appliances in corporating aprotective electronic circuit subjected to the tests of19.11.3 and 19.11.4 (IEC 60335-1/A2)		N
	Appliances having a switch with an off position obtained by electronic disconnection, or a switch that can place the appliance in a stand-by mode, are subjected to the tests of 19.11.4 (IEC 60335-1/A1)		N
	Appliances in corporating an electronic circuit that relies upon a programmable component to function correctly,subjected to the test of 19.11.4.8(IEC 60335-1/A2)		N
19.11.1	Before applying the fault conditions at of in19.11.2,it is checked if circuits or parts of circuit meet both of the following conditions:		P
	-the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15W according to the tests specified	Formain controller GS-0007: AfterCE1:6,4W, AfterCE2:5,6W, AfterCE3:5,3W, AfterCE4:4,9W, AfterCE6:6,0W; For solenoid valve controller: After CE14,4W; main controller GS5-GS523DZ-RCA-3.0K has been Approved.	P
	-the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction in other parts of the appliance does not rely on the correct functioning of the electronic circuit		P
19.11.2	Fault conditions applied one at a time,the appliance operated under conditions specified in cl.11,but supplied at rated voltage,the duration of the tests as specified:		P
	a)short circuit of functional insulation if clearances or creepage distances are less than the values specified in 29		N

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Clause	Requirement+Test	Result-Remark	Verdict
	b) open circuit at the terminals of any component	For main controller GS-0007: D1, D10, D16, CE5, CE3, CE4 CE1, CE2: normal operated; For solenoid valve controller: D34, CE1, D3, CE3, D8, CE5, D11, CE7, D20, CE10, D31: normal operated; Main controller GS5-GS523DZ-RCA-3.0K has been Approved.	P
	c) short circuit of capacitors, unless they comply with IEC 60384-14	For main controller GS-0007: CE5, CE3, CE4 CE1, CE2: fuse opened; For solenoid valve controller: CE1, CE3, CE5, CE7, CE10: fuse opened; Main controller GS5-GS523DZ-RCA-3.0K has been Approved.	P
	d) short circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition is not applied between the two circuits of an optocoupler	For main controller GS-0007: D1, D10, D16: fuse opened; For solenoid valve controller: D34, D3, D8, D11, D20, D31: fuse opened; Main controller GS5-GS523DZ-RCA-3.0K has been Approved.	P
	e) failure of triacs in the diode mode		P
	f) failure of an integrated circuit		P
	g) failure of an electronic power switching device		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
	During and after each test the following is checked:		N
	- the temperature rise of the windings do not exceed the values specified in table 8		N
	- the appliance complies with the conditions specified in 19.13		N
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		N

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Clause	Requirement+Test	Result-Remark	Verdict
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided all three of the following conditions are met:		N
	- the material of the printed circuit board withstands the burning test of annex E		N
	- any loosened conductor does not reduce the clearances or creepage distances between live parts and accessible metal parts below the values specified in cl. 29		N
	- the appliance withstands the tests of 19.11.2 with open-circuited conductor bridged		N
19.11.4	Appliances having a device with an off position obtained by electronic disconnection, or (IEC 60335-1/A2)		N
	a device that can be placed in the stand-by mode, (IEC 60335-1/A2)		N
	subjected to the tests of 19.11.4.1 to 19.11.4.7 (IEC 60335-1/A2)		N
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7, except that (IEC 60335-1/A1)		N
	Appliances that are operated for 30 s or 5 min during the test of 19.7 not subjected to the tests for electromagnetic phenomena (IEC 60335-1/A1)		N
	Surge arresters disconnected, unless they incorporate spark gaps (IEC 60335-1/A1)		N
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4 being applicable. Ten discharges having a positive polarity and ten discharges having a negative polarity are applied at each preselected point (IEC 60335-1/A1)		N
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, test level 3 being applicable (IEC 60335-1/A1)		N
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4 (IEC 60335-1/A1)		N
19.11.4.4	The power supply terminals of the appliance are subjected to voltage surges in accordance with IEC 61000-4-5 (IEC 60335-1/A1)		N
	Earthed heating elements in class I appliances are disconnected (IEC 60335-1/A1)		N

IEC60335-2-60			
Clause	Requirement+Test	Result-Remark	Verdict
	Test repeated at a level that is 95 % of the flashover voltage (IEC 60335-1/A1)		N
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6 (IEC 60335-1/A1)		N
19.11.4.6	The appliance is subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-11 (IEC 60335-1/A2)		N
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13 (IEC 60335-1/A1)		N
19.11.4.8	The appliance is supplied at rated voltage and operated under normal operation. After 60s the power supply is reduces to a level such that the appliance ceases to respond or a programmable component cease to operate. (IEC 60335-1/A2)		N
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) .....:	For main controller GS-0007: Rated current: 3A; Measured current: 9,7A For solenoid valve controller: Rated current: 2A; Measured current: 7,6A	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
	Enclosures not deformed to such an extent that compliance with cl. 8 is impaired		P
	If the appliance can still be operated it complies with 20.2		P
	Insulation, other than of class III appliance, withstand the electric strength test of 16.3, the test voltage specified in table 4:		P
	- basic insulation .....:	1000V	P
	- supplementary insulation.....:		N
	- reinforced insulation .....:	3000V	P
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstanding the electric strength test of 16.3. the test voltage being twice the working voltage (IEC 60335-1/A2)		P

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Clause	Requirement+Test	Result-Remark	Verdict
	The appliance does not undergo a dangerous malfunction, and (IEC 60335-1/A1)		P
	no failure of protective electronic circuits, if the appliance is still operable (IEC 60335-1/A1)		N
	Appliance tested with an electronic switch in off position, or in stand-by mode:		P
	do not become operational or (IEC 60335-1/A2)		P
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4 (IEC 60335-1/A2)		N
	The temperature at the inlet of whirlpool bath that have provision for water heating and whirlpool spas not exceed 55 °C when measured in accordance with clause 11. (IEC 60335-2-60)		P
19.14	Appliances operated under the conditions of Clause 11. Contactors or relays contacts operating under the conditions of clause 11 short-circuited (IEC 60335-1/A2)		P
20	**STABILITY AND MECHANICAL HAZARDS**		P
20.1	Adequate stability		P
	Tilting test through an angle of 10° (appliance placed on an inclined plane/horizontal plane); appliance does not overturn		P
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N
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		P
	Adequate mechanical strength and fixing of protective enclosures		P
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard, by unexpected reclosure		P
	Not possible to touch dangerous moving parts with test probe		P

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Clause	Requirement+Test	Result-Remark	Verdict
21	**MECHANICAL STRENGTH**		P
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	No damage after three blows applied to various parts of the enclosure, impact energy 0,5 ± 0,04 J		P
	If necessary, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N
	If necessary, repetition of groups of three blows on a new sample		N
	Whirlpool spas not intended for indoor use only, subjected to the impact test. (IEC 60335-2-60)		N
	The appliance has been mantained at a temperature of -10 °C for 24 h. (IEC 60335-2-60)		N
	If the appliance is too large for the conditioning room, parts of the appliance are tested separately. (IEC 60335-2-60)		N
	The impact test is carried out immediately after the conditionig without reassembly. (IEC 60335-2-60)		N
	For water containers that provide protection against access to live parts, the value of the impact energy is 1 J.		P
21.2	Accessible parts of solid insulation have sufficient strength to prevent penetration by sharp implements (IEC 60335-1/A1)		P
	Test as specified, unless		N
	thickness of at least 1 mm for supplementary insulation and at least 2 mm for reinforced insulation		P

22	**CONSTRUCTION**		P
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled	IPX5	P
22.2	Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:		P
	- a supply cord fitted with a plug		N
	- a switch complying with 24.3		N
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided		P
	- an appliance inlet		N

IEC60335-2-60			
Clause	Requirement+Test	Result-Remark	Verdict
	Singe-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 (IEC 60335-1/A2)		N
22.3	Appliance provided with pins: no undue strain on socket-outlets		N
	Applied torque not exceeding 0,25 Nm		N
	Pull force of 50 N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm		N
	Each pin subjected to a torque of 0,4 Nm; the pins are not rotating unless rotating does not impair compliance with the standard		N
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		N
22.5	No risk of electric shock when touching the pins of the plug, for appliances having a capacitor with rated capacitance exceeding 0,1μF, the appliance being disconnected from the supply at the instant of voltage peak (IEC 60335-1/A2)		N
22.6	Electrical insulation not affected by condensing water or leaking liquid		P
	Electrical insulation of Class II appliances not affected in case of a hose rupture or seal leak		P
22.7	Adequate safeguards against the risk of excessive pressure in appliances provided with steam-producing devices		N
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
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances		P
	Adequate insulating properties of oil or grease to which insulation is exposed		N
22.10	Voltage-mantained non-self-resetting thermal cut-outs is not reset by an automatic switching device incorporated in the appliance (IEC 60335-1/A1)		N

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Clause	Requirement+Test	Result-Remark	Verdict
	Non-self-resetting thermal motor protectors have a trip-free action unless they are voltage mantained (IEC 60335-1/A1)		N
	Location or protection of reset buttons of non-self-resetting controls is so that accidental resetting is unlikely		N
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		P
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		P
	Tests as described	Push 50N and Pull 50N for enclosure	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 force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		N
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		N
22.13	Unlikely that handles, when gripped as in normal use, make the operators hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		N
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 etc., liable 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
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands, no undue wear of contacts		N
	Cord reel tested with 6000 operations, as specified		N
	Electric strength test of 16.3, voltage of 1000 V applied		N

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Clause	Requirement+Test	Result-Remark	Verdict
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N
22.18	Current-carrying parts and other metal parts resistant to corrosion under normal conditions of use		P
22.19	Driving belts not used as electrical insulation		N
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible		N
	Compliance is checked by inspection and, if necessary, by appropriate test		N
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless impregnated		P
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements (IEC 60335-1/A2)		N
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements adequately supported		N
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		N
22.25	Sagging heating conductors cannot come into contact with accessible metal parts		N
22.26	The insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation		P
22.27	Parts connected by protective impedance separated by double or reinforced insulation		P
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 so constructed that the required degree of access to live parts is maintained after installation		N
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		P

IEC60335-2-60			
Clause	Requirement+Test	Result-Remark	Verdict
	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	Clearances and creepage distances over supplementary and reinforced insulation not reduced below values specified in clause 29 as a result of wear		P
	Clearances and creepage distances between live parts and accessible parts not reduced below values for supplementary insulation, if wires, screws etc. become loose		P
22.32	Supplementary and reinforced insulation designed or protected against deposition of dirt or dust		P
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N
	Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation		N
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N
	Insulating material in which heating conductors are embedded is considered to be basic insulation and not reinforced insulation (IEC 60335-1/A2)		N
22.33	Conductive liquids that are or may become accessible in normal use are not in direct contact with live parts		P
	Electrodes not used for heating liquids		N
	For class II constructions, conductive liquids that are or may become accessible in normal use, not in direct contact with basic or reinforced insulation		N
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation		N
	Conductive liquid in direct contact with live parts supplied at safety extra low voltage not exceeding 12 V. (IEC 60335-2-60/A1)		N
	Components accessible to the user in the bath or spa supplied at safety extra-low voltage not exceeding 12 V (IEC 60335-2-60/A1)		N

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Clause	Requirement+Test	Result-Remark	Verdict
22.34	Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed		N
22.35	Handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation (IEC 60335-1/A2)		N
	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 (IEC 60335-1/A2)		N
	This requirement does not apply to handles, levers and knobs on stationary appliances other than those of electrical components, provided they are either reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N
22.36	Handles continuously held in the hand in normal use are so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless they are separated from live parts by double or reinforced insulation		N
22.37	Capacitors in Class II appliances not connected to accessible metal parts, unless complying with 22.42		N
	Metal casings of capacitors in Class II appliances separated from accessible metal parts by supplementary insulation, unless complying with 22.42		N
22.38	Capacitors not connected between the contacts of a thermal cut-out		P
22.39	Lamp holders used only for the connection of lamps		N
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		N
	Unless the appliance can operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation being fitted with a switch. The actuating member of the switch being easily visible and accessible. (IEC 60335-1/A2)		N
22.41	No components, other than lamps, containing mercury		P

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Clause	Requirement+Test	Result-Remark	Verdict
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
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N
22.44	Appliances shall not have an enclosure that is shaped or decorated like a toy (IEC 60335-1/A2)		P
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.4 due to deformation as a result of an external force applied to the enclosure		P
22.46	Software used in protective electronic circuits is ..... : (IEC 60335-1/A1)		N
22.47	Applliances intended to be connected to the water mains withstand the water pressure in normal use (IEC 60335-1/A1)		N
22.48	Applliances intended to be connected to the water mains constructed to prevent backsiphonage of non-potable water into the water mains (IEC 60335-1/A1)		N
	Compliance checked by the relevant tests of IEC 61770 (IEC 60335-1/A1)		N
22.49	For remote operation, the duration of operation shall be set before the appliance can be started, unless		P
	the appliance switches off automatically or can operate continuously without hazard		P
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		P
22.51	A control on the appliance being manually adjusted to the setting for remote operation before the		N
	There is a visual indication showing that the appliance is adjusted for remote operation (IEC 60335-1/A2)		N
	Manual setting and visual indication not necessary on appliances that can operate as follows, without giving rise to a hazard: (IEC 60335-1/A2)		P
	- operate continuously,		P
	- operate automatically, or		N
	- be operated remotely		P

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Clause	Requirement+Test	Result-Remark	Verdict
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 (IEC 60335-1/A2)		N
22.101	Appliances in which air is circulated shall be constructed so that water cannot penetrate into the motor and come into contact with live parts or basic insulation (IEC 60335-2-60)		P
22.102	Whirlpool baths constructed that the quantity of water which remains not exceed 0,5 l or 0,2% of the capacity (IEC 60335-2-60/A1)		N
22.103	Whirlpool baths and whirlpool spas constructed that hair cannot be drawn into apertures (IEC 60335-2-60/A1)		P
22.104	Portable appliances shall be constructed to prevent a hazard resulting from objects penetrating the bottom surface. (IEC 60335-2-60/A1)		N
22.105	Whirlpool spas incorporating a water filtration system in order that the required level of water purity can be achieved. (IEC 60335-2-60/A1)		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		P
	Wiring effectively 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		N
	Beads inside flexible metal conduits contained within an insulating sleeve		N
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		N
	Flexible metallic tubes not causing damage to insulation of conductors		N
	Open-coil springs not used		N

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Clause	Requirement+Test	Result-Remark	Verdict
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N
	No damage after 10 000 flexings for conductors flexed during normal use or 100 flexings for conductors flexed during user maintenance		N
	Electric strength test, 1000 V between live parts and accessible metal parts		N
23.4	Bare internal wiring sufficiently rigid and fixed		N
23.5	The insulation of internal wiring withstanding the electrical stress likely to occur in normal use		P
	No breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by positive means		P
23.7	The colour combination green/yellow used only for earthing conductors		P
23.8	Aluminium wires not used for internal wiring		N
23.9	No lead-tin soldering of stranded conductors where they are subject to contact pressure, unless		P
	clamping means so constructed that there is no risk of bad contact due to cold flow of the solder		P
23.10	Insulation and sheath of internal wiring in external hoses for the connection to the water mains at least equivalent to light polyvinyl chloride sheathed flexible cord (60227 IEC 52) (IEC 60335-1/A1)		N
24	**COMPONENTS**		P
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components	(see appended table)	P
	Components not tested and found to comply with relevant IEC standard for the number of cycles specified are tested in accordance with 24.1.1 to 24.1.6		P
	Components not tested and found to comply with relevant IEC standard, components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		N

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Clause	Requirement+Test	Result-Remark	Verdict
	Lampholders and starterholders 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 (IEC 60335-1/A2)		N
24.1.1	Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, complying with IEC 60384-14, or		N
	tested according to annex F		N
24.1.2	Safety isolating transformers complying with IEC 61558-2-6, or		N
	tested according to annex G		P
24.1.3	Switches complying with IEC 61058-1, the number of cycles of operation being at least 10 000, or		P
	tested according to annex H		N
24.1.4	Automatic controls complying with IEC 60730-1 with relevant part 2. The number of cycles of operation being:		P
	- thermostats:		N
	- temperature limiters:		N
	- self-resetting thermal cut-outs:		N
	- voltage mantained non-self-resetting 1000 thermal cut-outs (60335-1/A1):		N
	- other non-self-resetting thermal cut-outs		N
	- timers:		N
	- energy regulators:		N
	Thermal motor protectors tested in combination with their motor under the conditions specified in Annex D (IEC 60335-1/A1)		P
	For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, degree of protection provided by enclosures declared for subclause 6.5.2 of IEC 60730-2-8 is IPX7 (IEC 60335-1/A1)		P
24.1.5	Appliance couplers complying with IEC 60320-1		N
	Interconnection couplers complying with IEC 60320-2-2 (IEC 60335-1/A1)		N
	However, appliances classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3		N

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Clause	Requirement+Test	Result-Remark	Verdict
24.1.6	Small lamp holders similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable		N
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 IEC 62151 (IEC 60335-1/A2)		N
24.1.8	The relevant standard for thermal links is IEC 60691. Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of Clause 19 (IEC 60335-1/A2)		N
24.1.9	Relays, other than motor starting relays, tested as part of the appliance (IEC 60335-1/A2)	Approved	N
	They are also tested in accordance with Clause 17 of IEC 60730-1, the number of operations in 24.1.4 selected according to the relay function in the appliance (IEC 60335-1/A2)		N
24.2	No switches or automatic controls in flexible cords		P
	No devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		P
	No thermal cut-outs that can be reset by soldering		P
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and having a contact separation in all poles, providing full disconnection under overvoltage category III conditions		N
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		N
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance and used accordingly		P
	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	Rated voltage: 450V, Measured voltage: 398V.	P
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 42V.		N

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Clause	Requirement+Test	Result-Remark	Verdict
	In addition, the motors are complying with the requirements of Annex I		N
24.7	Hose-sets for the connection to the water mains complying with IEC 61770 (IEC 60335-1/A1)		N
	Hose-sets supplied with the appliance (IEC 60335-1/A1)		N
24.101	Thermal cut-outs incorporated in appliances for compliance with 19.4 not self resetting		N
24.102	Class III appliances provided with a safety isolating transformer classified at least IPX4		N
25	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS**		P
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		N
	- supply cord fitted with a plug		N
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance		N
	- pins for insertion into socket-outlets		N
	Class I appliances shall only be provided with means for permanent connection to fixed wiring (IEC 60335-2-60)		P
25.2	Appliance not provided with more than one means of connection to the supply mains		N
	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
25.3	Connection of supply conductors for appliance intended to be permanently connected to fixed wiring possible after the appliance has been fixed to its support		P
	Appliance provided with a set of terminals for the connection of cables of fixed wiring, cross-sectional areas specified in 26.6		N
	Appliance provided with a set of terminals allowing the connection of a flexible cord		P
	Appliance provided with a set of supply leads accommodated in a suitable compartment		N
	Appliance provided with a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate type of cable or conduit		N

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Clause	Requirement+Test	Result-Remark	Verdict
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimensions according to table 10		N
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in 29		N
25.5	Method for assemble supply cord with the appliance:		P
	- type X attachment		N
	- type Y attachment		P
	- type Z attachment		N
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N
25.6	Plugs fitted with only one flexible cord		N
25.7	Supply cords being one of the following types: (IEC 60335-1/A2)		N
	- rubber sheathed (at least 60245 IEC 53)		N
	- polychloroprene sheathed (at least 60245 IEC 57)		N
	- cross-linked polyvinyl chloride sheathed (at least 60245 IEC 87)		N
	Polyvinyl chloride sheathed: Not used if they are likely to touch metal parts having a temperature rise exceeding 75K during the test of Clause 11. (IEC 60335-1/A2)		N
	- light polyvinyl chloride sheathed cord (at least 60227 IEC 52), appliances not exceeding 3 kg		N
	- ordinary polyvinyl chloride sheathed cord (at least 60227 IEC 53), other appliances		N
	Heat resistant polyvinyl chloride sheathed: Not used for type X attachment other than specially prepared cords. (IEC 60335-1/A2)		N
	- Heat-resistant light polyvinyl chloride sheathed cord (at least 60227 IEC 56), appliances not exceeding 3 kg		N
	- heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), other appliances		N
25.8	Nominal cross-sectional area of supply cords according to table 11; rated current (A); cross-sectional area (mm²)..... :		N
25.9	Supply cord not in contact with sharp points or edges		N
25.10	Green/yellow core for earthing purposes in Class I appliance		N

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Clause	Requirement+Test	Result-Remark	Verdict
25.11	Conductors of supply cords not consolidated by lead-tin soldering where they are subject to contact pressure, unless		N
	clamping means so constructed that there is no risk of bad contacts due to cold flow of the solder		N
25.12	Moulding the cord to part of the enclosure does not damage the insulation of the supply cord		N
25.13	Inlet opening so shaped as to prevent damage to the supply cord		N
	Unless the enclosure at the inlet opening is of insulating material, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		N
	If unsheathed supply cord, a similar additional bushing or lining is required, unless		N
	the appliance is class 0		N
25.14	Supply cords adequately protected against excessive flexing		N
	Flexing test:		N
	- applied force (N) ..... :		N
	- number of flexings ..... :		N
	The test does not result in:		N
	- short circuit between the conductors		N
	- breakage of more than 10% of the strands of any conductor		N
	- separation of the conductor from its terminal		N
	- loosening of any cord guard		N
	- damage, within the meaning of the standard, to the cord or the cord guard		N
	- broken strands piercing the insulation and becoming accessible		N
25.15	Conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		N
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		N
	Pull and torque test of supply cord, values shown in table 12: pull (N); torque (not on automatic cord reel) (Nm) ..... :		N

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Clause	Requirement+Test	Result-Remark	Verdict
	Max. 2 mm displacement of the cord, and conductors not moved more than 1 mm in the terminals		N
	Creepage distances and clearances not reduced below values specified in 29.1		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
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from accessible metal parts by supplementary insulation		N
	- the cord is not clamped by a metal screw which bears directly on the cord		N
	- at least one part of the cord anchorage securely fixed to the appliance, unless part of a specially prepared cord		N
	- screws which have to be operated when replacing the cord do not fix any other component, if applicable		N
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N
	- for Class 0, 0I and I appliances: they are of insulating material or are provided with an insulating lining, unless a failure of the insulation of the cord does not make accessible metal parts live		N
	- for Class II appliances: they are of insulating material, or if of metal, they are insulated from accessible metal parts by supplementary insulation		N
25.17	Adequate cord anchorages for type Y and Z attachment	Type Y	P
25.18	Cord anchorages only accessible with the aid of a tool, or		N
	so constructed that the cord can only be fitted with the aid of a tool		P
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N
	Tying the cord into a knot or tying the cord with string not used		N
25.20	Conductors of the supply cord for type Y and Z attachment adequately additionally insulated		N

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Clause	Requirement+Test	Result-Remark	Verdict
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, no risk of damage to the conductors when fitting the cover, no contact with accessible metal parts if a conductor becomes loose, etc.		N
	For portable appliances, the uninsulated end of a conductor prevented from any contact with accessible metal parts, unless the end of the cord is such that the conductors are unlikely to slip free		N
25.22	Appliance inlet:		N
	- live parts not accessible during insertion or removal		N
	- connector can be inserted without difficulty		N
	- the appliance is not supported by the connector		N
	- is not for cold conditions if temp. rise of external metal parts exceeds 75 K, unless the supply cord is not likely to touch such metal parts		N
25.23	Interconnection cords comply with the requirements for the supply cord, except as specified		P
	If necessary, electric strength test of 16.3		N
25.24	Interconnection cords not detachable without the aid of a tool if compliance with the standard is impaired when they are disconnected		P
25.25	Dimensions of pins compatible with the dimensions of the relevant socket-outlet. Dimensions of pins and engagement face in accordance with the relevant plug in IEC 60083		N
26	**TERMINALS FOR EXTERNAL CONDUCTORS**		P
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		P
	Earthing terminals accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection (IEC 60335-1/A1)		N

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Clause	Requirement+Test	Result-Remark	Verdict
26.2	Appliances with type X attachment and appliances for connection to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless the connections are soldered		P
	Screws and nuts serve only to clamp supply conductors, except		P
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone		N
	Soldering alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free at the soldered joint		N
26.3	Terminals for type X attachment and for connection to fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure and without damaging the conductor		P
	Terminals for type X attachment and those for connection to fixed wiring so fixed that when tightening or loosening the clamping means:		P
	- the terminal does not loosen		P
	- internal wiring is not subjected to stress		P
	- clearances and creepage distances are not reduced below the values in 29		P
	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.		P
26.4	Terminals for type X attachment, except those with a specially prepared cord, and those for connection to fixed wiring, no special preparation of conductors required, and so constructed or placed that conductors prevented from slipping out		P
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
	Stranded conductor test, 8 mm insulation removed		N
	No contact between live parts and accessible metal parts and, for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N

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Clause	Requirement+Test	Result-Remark	Verdict
26.6	Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to table 13		P
	Terminals only suitable for a specially prepared cord		N
26.7	Terminals for type X attachment accessible after removal of a cover or part of the enclosure		N
26.8	Terminals for the connection to fixed wiring, including the earthing terminal, located close to each other		P
26.9	Terminals of the pillar type constructed and located as specified		P
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless conductors ends fitted with a device suitable for screw terminals		P
	Pull test of 5 N to the connection		P
26.11	For type Y and Z attachment: soldered, welded, crimped and similar connections may be used		N
	For Class II appliances: the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N
	For Class II appliances: soldering, welding or crimping alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free		N
27	**PROVISION FOR EARTHING**		P
27.1	Accessible metal parts of Class 0I and I appliances, permanently and reliably connected to an earthing terminal or contact of the appliance inlet		P
	Earthing terminals not connected to neutral terminal		P
	Class 0, II and III appliance have no provision for earthing		N
	Safety extra-low voltage circuits not earthed, unless protective extra-low voltage circuits	Not earthed	P
27.2	Clamping means 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 mm², and		P
	do not provide earthing continuity between different parts of the appliance		P

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Clause	Requirement+Test	Result-Remark	Verdict
	Conductors cannot be loosened without the aid of a tool		P
	Class I appliances provided with a terminal for the connection of external equipotential bonding conductors (IEC 60335-2-60)		P
27.3	For detachable parts, earth connection made and separated before the current-carrying connections (IEC 60335-1/A1)		N
	For appliances with supply cord, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		P
27.4	No risk of corrosion resulting from contact between metal of earthing terminal and other metal		P
	Adequate resistance to corrosion of coated or uncoated parts providing earthing continuity, other than parts of a metal frame or enclosure		P
	Parts of steel providing earthing continuity provided at the essential areas with an electroplated coating, thickness at least 5 µm		N
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N
	In case of aluminium alloys precautions taken to avoid risk of corrosion		N
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 that clearances of basic insulation are based on the rated voltage of the appliance		P
	Resistance not exceeding 0,1 Ω at the specified low-resistance test	0,041Ω	P
27.6	The printed conductors of printed circuit boards shall not be used to provide earthing continuity in hand-held appliances. (IEC 60335-1/A2)		N
	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 (IEC 60335-1/A2)		N

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Clause	Requirement+Test	Result-Remark	Verdict
28	SCREWS AND CONNECTIONS		P
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
	Diameter of screws of insulating material min. 3 mm		N
	Screws of insulating material not used for any electrical connection or connections providing earthing continuity		N
	Screws used for electrical connections or connections providing earthing continuity screw into metal		P
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N
	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 can impair basic insulation		N
	For screws and nuts; test as specified	(see appended table)	P
28.2	Electrical connections and connections providing earthing continuity constructed so that 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 0,5 A		N
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		N
	Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread (IEC 60335-1/A2)		N
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer(IEC 60335-1/A2)		N
	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: (IEC 60335-1/A2)		N
	- in normal use,		N
	- during user maintenance,		N

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Clause	Requirement+Test	Result-Remark	Verdict
	- when replacing a supply cord having a type X attachment, or		N
	- during installation		N
	At least two screws being used for each connection providing earthing continuity, unless (IEC 60335-1/A2)		N
	the screw forms a thread having a length of at least half the diameter of the screw (IEC 60335-1/A2)		N
	Thread-cutting and space-threaded screws may be used in connections providing earthing continuity, provided unnecessary to disturb the connection and at least two screws are used for each connection		N
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		N
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if subjected to torsion		N
29	**CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION**		P
	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.....: (IEC 60335-1/A2)		N
	The microenvironment is pollution degree 1 under Type 1 coating (IEC 60335-1/A2)		N
	No clearance or creepage distance requirements under Type 2 coating (IEC 60335-1/A2)		N
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		P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14		N
	However, if the construction is 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		P

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Clause	Requirement+Test	Result-Remark	Verdict
	Impulse voltage test not applicable:		P
	- for basic insulation of class 0 and class 01 appliances		N
	Appliances are in overvoltage category II		P
	Clearances less than specified in table 16 not allowed for basic insulation of class 0 and class 0I appliances,		N
	or if pollution degree 3 is applicable		P
	Compliance is checked by inspection and measurements as specified		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage	(see appended table)	P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1mm if the microenvironment is pollution degree 1		N
	Lacquered conductors of windings assumed to be bare conductors		P
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, but using the next higher step for rated impulse voltage	(see appended table)	P
29.1.4	For functional insulation, the values of table 16 are applicable, unless	(see appended table)	P
	the appliance complies with clause 19 with the functional insulation short-circuited		N
	Clearances at crossover points of lacquered conductors not measured		P
	Clearance between surfaces of PTC heating elements may be reduced to 1 mm		N
	Lacquered conductors of windings assumed to be bare conductors		P
29.1.5	Appliances having higher working voltage than rated voltage, the voltage used for determining clearances from table 16 is the sum of the rated impulse voltage and the difference between the peak value of the working voltage and the peak value of the rated voltage		N

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Clause	Requirement+Test	Result-Remark	Verdict
	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
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation based on the working voltage used as the rated voltage in table 15		N
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree		P
	Pollution degree 3 applies, unless (IEC 60335-2-60)		P
	Pollution degree 2	For main controller	P
	Pollution degree 1		N
	Compliance is checked by inspection and measurements as specified		P
29.2.1	Creepage distances of basic insulation not less than specified in table 17	(see appended table)	P
	Expept for pollution degree 1, 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
29.2.2	Creepage distances of supplementary insulation at least as specified for basic insulation in table 17	(see appended table)	P
29.2.3	Creepage distances of reinforced insulation at least double as specified for basic insulation in table 17	(see appended table)	P
29.2.4	Creepage distances of functional insulation not less than specified in table 18	(see appended table)	P
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		N
29.3	Supplementary and reinforced insulation having adequate thickness, or a sufficient number of layers, to withstand the electrical stresses (IEC 60335-1/A2):		P
	Compliance checked by:		P
	- measurement, in accordance with 29.3.1, or		P
	- an electric strength test in accordance with 29.3.2, or		P

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Clause	Requirement+Test	Result-Remark	Verdict
	- an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3 (EN 60335-1/A12):		N
29.3.1	Supplementary insulation having a thickness of at least 1 mm		N
	Reinforced insulation having 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 consisting of at least 2 layers		N
	Reinforced insulation consisting 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
	the electric strength test of 16.3		N
	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
30	**RESISTANCE TO HEAT AND FIRE**		P
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	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: 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)	P
	Parts supporting live parts: 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)	P
	Parts of thermoplastic material providing supplementary or reinforced insulation, 25 °C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C) ..... :		N
30.2	Parts of non-metallic material adequately resistant to ignition and spread of fire (IEC 60335-1/A2)		P

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Clause	Requirement+Test	Result-Remark	Verdict
	This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance (IEC 60335-1/A2)		P
	Compliance checked by the test of 30.2.1. In addition: (IEC 60335-1/A2)		P
	- attended appliances, 30.2.2 applies		N
	- unattended appliances, 30.2.3 applies		P
	Appliances for remote operation, 30.2.3 applies		N
	Base material of printed circuit board, 30.2.4 applies		P
30.2.1	Glow-wire test of IEC 60695-2-11 at 550 °C, unless	(see appended table)	P
	the material is classified at least HB40 according to IEC 60695-11-10		N
	Parts for which the glow-wire test cannot be carried out meet the requirements in ISO9772 for category HBF material		N
30.2.2	Appliances operated while attended, parts of non-metallic material supporting current-carrying connections, and parts of non-metallic material within a distance of 3mm of such connections, are subjected to the glow-wire test of IEC 60695-2-11. (IEC 60335-1/A2)		N
	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: (IEC 60335-1/A2)		N
	- 750°C, for connections carrying a current exceeding 0,5 A during normal operation		N
	- 650°C, for other connections		N
	Test as specified for an interposed shielding material		N
	When the glow-wire test of IEC 60695-2-11 is carried out, the temperatures are: (IEC 60335-1/A2)		N
	-750°C, for connections carrying a current exceeding 0,5A during normal operation		N
	-650°C, for other connections		N
	Test not applicable to conditions as specified		N
	Test not applicable to conditions as specified (IEC 60335-2-60)		N
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		P

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Clause	Requirement+Test	Result-Remark	Verdict
	Test not applicable to conditions as specified		N
30.2.3.1	Parts of insulating material supporting connections carrying a current exceeding 0,2 A during normal operation, and		P
	parts of non-metallic material within a distance of 3mm, (IEC 60335-1/A2)		P
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850°C (IEC 60335-1/A2)	(see appended table)	P
	Glow-wire test not carried out on parts of material classified as having a glow-wire flammability index of at least 850°C according to IEC 60695-2-12 (IEC 60335-1/A2)		N
	Glow-wire test not carried out on small parts that comply with the needle-flame test of Annex E or on small parts of material classified as V-0 or V-1 according to IEC 60695-11-10 (IEC 60335-1/A2)		N
	Test as specified for an interposed shielding material		P
30.2.3.2	Parts of non-metallic material supporting current-carrying connections, and (IEC 60335-1/A2)		P
	parts of non-metallic material within a distance of 3mm,		P
	subjected to glow-wire test of IEC 60695-2-11		P
	Test not carried out on material having a glow-wire ignition temperature according to IEC 60695-2-13 of at least: (IEC 60335-1/A2)		N
	-775°C, for connections carrying a current exceeding 0,2A during normal operation		N
	-675°C, for other connections		N
	When the glow-wire test of IEC 60695-2-11 is carried out, the temperatures are:		P
	750°C, for connections carrying a current exceeding 0,2 A during normal operation	(see appended table)	P
	650°C, for other connections		N
	Parts that during the test produce a flame persisting longer than 2 s, tested as specified		N
	If a flame persists longer than 2 s during the test, parts above the connection, as specified, subjected to the needle-flame test of annex E, unless		N
	the material is classified as V-0 or V-1 according to IEC 60695-11-10		N

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Clause	Requirement+Test	Result-Remark	Verdict
30.2.4	Base material of printed circuit boards subjected to needle-flame test of annex E		P
	Test not applicable to conditions as specified		P
31	**RESISTANCE TO RUSTING**		P
	Relevant ferrous parts adequately protected against rusting		P
32	**RADIATION, TOXICITY AND SIMILAR HAZARDS**		P
	Appliance shall not emit harmful radiation, present a toxic or similar hazard due to their operation in normal use (IEC 60335-1/A2)	Ozon capacity:1,0x10^{-6}	P
	Relevant tests specified in part 2, if necessary (IEC 60335-1/A2)		P
A	**ANNEX A (INFORMATIVE) ROUTINE TESTS**		N
	Description of routine tests to be carried out by the manufacturer		N
B	**ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES**		N
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		N
	This annex does not apply to battery chargers		N
3.1.9	Appliance operated under the following conditions:		N
	-the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		N
	-the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate		N
	-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
	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

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Clause	Requirement+Test	Result-Remark	Verdict
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		N
5.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances		N
7.1	Battery compartment for batteries intended to be replaced by the user, marked with battery voltage and polarity of the terminals		N
7.12	The instructions for appliances incorporating batteries intended to be replaced by the user includes required information		N
	Details about how to remove batteries containing materials hazardous to the environment given		N
7.15	Markings placed on the part of the appliance connected to the supply mains		N
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
	If the appliance can be operated without batteries, double or reinforced insulation required		N
11.7	The battery is charged for the period described		N
19.1	Appliances subjected to tests of 19.101, 19.102 and 19.103		N
19.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		N
19.102	Short-circuiting of the terminals of the battery, being fully charged, for appliances having batteries that can be removed without the aid of a tool		N
19.103	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
21.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength, checked according to procedure 2 of IEC 68-2-32		N
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-32, the number of falls being:		N
	- 100, the mass of part does not exceed 250 g		N
	- 50, the mass of part exceeds 250 g		N
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N

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Clause	Requirement+Test	Result-Remark	Verdict
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N
25.13	An additional lining or bushing not required for interconnection cords operating at safety extra-low voltage		N
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N
	For other parts, 30.2.2 applies		
C	**ANNEX C (NORMATIVE)** **AGEING TEST ON MOTORS**		N
	Tests, as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding		N
D	**ANNEX D (NORMATIVE)** **THERMAL MOTOR PROTECTORS**		P
	Applicable to appliances having motors that incorporate thermal motor protectors		P
E	**ANNEX E (NORMATIVE)** **NEEDLE-FLAME TEST** (IEC 60335-1/A2)		P
	Needle-flame test carried out in accordance with IEC 60695-2-2, with the following modifications:		P
7	Severities		P
	The duration of application of the test flame is 30 s ± 1 s		P
9	Test procedure		P
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		P
9.2	The first paragraph does not apply		P
	If possible, the flame is applied at least 10 mm from a corner		P
9.3	The test is carried out on one specimen		P
	If the specimen does not withstand the test, the test may be repeated on two further specimens, both withstanding the test		N
11	Evaluation of test results		P
	The duration of burning not exceeding 30 s		N
	However, for printed circuit boards, the duration of burning not exceeding 15 s		P

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Clause	Requirement+Test	Result-Remark	Verdict
F	**ANNEX F (NORMATIVE)** **CAPACITORS**		N
	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:		N
1.5	Terminology		N
1.5.3	Class X capacitors tested according to subclass X2		N
1.5.4	This subclause is applicable		N
1.6	Marking		N
	Items a) and b) are applicable		N
3.4	Approval testing		N
3.4.3.2	Table II is applicable as described		N
4.1	Visual examination and check of dimensions		N
	This subclause is applicable		N
4.2	Electrical tests		N
4.2.1	This subclause is applicable		N
4.2.5	This subclause is applicable		N
4.2.5.2	Only table IX is applicable		N
	Values for test A apply		N
	However, for capacitors in heating appliances the values for test B or C apply		N
4.12	Damp heat, steady state		N
	This subclause is applicable		N
	Only insulation resistance and voltage proof are checked		N
4.13	Impulse voltage		N
	This subclause is applicable		N
4.14	Endurance		N
	Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 applicable		N
4.14.7	Only insulation resistance and voltage proof are checked		N
	Visual examination, no visible damage		N

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Clause	Requirement+Test	Result-Remark	Verdict
4.17	Passive flammability test		N
	This subclause is applicable		N
4.18	Active flammability test		N
	This subclause is applicable		N
G	**ANNEX G (NORMATIVE)** **SAFETY ISOLATING TRANSFORMERS**		P
	The following modifications to this standard are applicable for safety isolating transformers:		P
7	Marking and instructions		P
7.1	Transformers for specific use marked with:		N
	-name, trademark or identification mark of the manufacturer or responsible vendor		N
	-model or type reference		N
17	Overload protection of transformers and associated circuits		P
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		P
22	Construction		P
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		P
29	Clearances, creepage distances and solid insulation		P
29.1, 29.2 and 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply	2a: >10mm, 2c: >10mm, 3: >10mm	P
H	**ANNEX H (NORMATIVE)** **SWITCHES**		N
	Switches comply with the following clauses of IEC 61058-1, as modified:		N
	-The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N
	-Before being tested, switches are operated 20 times without load		N
8	Marking and documentation		N
	Switches are not required to be marked		N
	However, switches that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference		N
13	Mechanism		N
	The tests may be carried out on a separate sample		N

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Clause	Requirement+Test	Result-Remark	Verdict
15	Insulation resistance and dielectric strength		N
15.1	Not applicable		N
15.2	Not applicable		N
15.3	Applicable for full disconnection and micro-disconnection		N
17	Endurance		N
	Compliance is checked on three separate appliances or switches		N
	For 17.2.4.4, the number of cycles is 10 000, unless otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335		N
	Switches for operation under no load and which can be operated only by a tool and switches operated by hand that are interlocked so that they cannot be operated under load, are not subjected to the tests		N
	Subclauses 17.2 and 17.2.5.2 are not applicable (IEC 60335-1/A1)		N
	The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in IEC 60335-1 (IEC 60335-1:2001/A1)		N
	Temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1		N
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		N
	This clause is applicable to clearances and creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in table 24		N
I	**ANNEX I (NORMATIVE) MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE**		N
	The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance:		N
8	Protection against access to live parts		N
8.1	Metal parts of the motor are considered to be bare live parts		N
11	Heating		N

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Clause	Requirement+Test	Result-Remark	Verdict
11.3	Temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N
11.8	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
16	Leakage current and electric strength		N
16.3	Insulation between live parts of the motor and its other metal parts not subjected to the test		N
19	Abnormal operation		N
19.1	The tests of 19.7 to 19.9 not carried out		N
19.101	Appliance operated at rated voltage with each of the following fault conditions:		N
	- short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N
	- short circuit of each diode of the rectifier		N
	- open circuit of the supply to the motor		N
	- open circuit of any parallel resistor, the motor being in operation		N
	Only one fault simulated at a time, the tests carried out consecutively		N
22	Construction		N
22.101	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
	Compliance checked by the tests specified for double and reinforced insulation		N
J	**ANNEX J (NORMATIVE)** **COATED PRINTED CIRCUIT BOARDS** (IEC 60335-1/A2)		N
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications:		N
5.7	Conditioning of the test specimens		N
	When production samples are used, three samples of the printed circuit board are tested		N
5.7.1	Cold		N
	The test is carried out at -25°C		N
5.7.3	Rapid change of temperature		N

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Clause	Requirement+Test	Result-Remark	Verdict
	Severity 1 is specified		N
5.9	Additional tests		N
	This subclause is not applicable		N
K	**ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES**		P
	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
	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
	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
	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
L	**ANNEX L (INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES**		P
	Sequences for the determination of clearances and creepage distances		P
M	**ANNEX M (NORMATIVE) POLLUTION DEGREE**		P
	The information on pollution degrees is extracted from IEC 60664-1		P
	Pollution		P
	The microenvironment determines the effect of pollution on the insulation, taking into account the microenvironment		P

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Clause	Requirement+Test	Result-Remark	Verdict
	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 creepage distances, the following degrees of pollution in the microenvironment are established:		P
	- pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence		N
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected	For Main controller	P
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected		P
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N
N	**ANNEX N (NORMATIVE) PROOF TRACKING TEST**		P
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		P
7	Test apparatus		P
7.3	Test solutions		P
	Test solution A is used		P
10	Determination of proof tracking index (PTI)		P
10.1	Procedure		P
	Voltage is 100 V, 175 V, 400 V or 600 V .....:	175V	P
	Last paragraph of clause 3 applies		P
	The test is carried out on five specimens		P
	In case of doubt, additional test with voltage reduced by 25 V, the number of drops increased to 100		N
10.2	Report		P
	The report stating if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		N

IEC60335-2-60			
Clause	Requirement+Test	Result-Remark	Verdict
O	**ANNEX O (INFORMATIVE)** **SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30**		P
	Description of tests for determination of resistance to heat and fire		P
P	**ANNEX P (INFORMATIVE)** **GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMATES** **(IEC 60335-1:2001/A1)**		N
	Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WDaE		N
	Modifications may also be applied to class 1 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WdaE, if liable to be connected to a supply mains that excludes the protective earthing conductor		N
5	General conditions for the tests		N
5.7	The ambient temperature for the tests of Clauses 11 and 13 is 40 $^{+3}/_{0}$ °C		N
7	Marking and instructions		N
7.1	The appliance marked with the letters WDaE		N
7.12	The instructions state that the appliance is to be supplied through a RCD having a rated residual operating current not exceeding 30 mA		N
	The instructions state that the appliance is considered to be suitable for use in countries having a warm damp equable climate, but may also be used in other countries		N
11	Heating		N
11.8	The values of Table 3 are reduced by 15 K		N
13	Leakage current and electric strength at operating temperature		N
13.2	The leakage current for class I appliances not exceeding 0,5 mA		N
15	Moisture resistance		N
15.3	The value of t is 37 °C		N
16	Leakage current and electric strength		N
16.2	The leakage current for class I appliances not exceeding 0,5 mA		N
19	Abnormal operation		N

IEC60335-2-60			
Clause	Requirement+Test	Result-Remark	Verdict
19.13	The Leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N
Q	**ANNEX Q (INFORMATIVE)** **SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS** **(IEC 60335-1/A1)**		N
	Description of tests for appliances incorporating electronic circuits		N
R	**ANNEX Q (INFORMATIVE)** **SOFTWARE EVALUATION** **(IEC 60335-1/A1)**		N
	Software evaluated in accordance with the following clauses of Annex H of IEC 60730-1, as modified		N
H.2	Definitions		N
	Only definitions H.2.16 to H.2.20 applicable		N
H.7	Information		N
	Only footnotes 12) to 18) of Table 7.2, as modified, applicable		N
H.11.12	Controls using software		N
	All the subclauses of H.11.12, as modified, except H.11.12.6 and H.11.12.6.1, applicable		N
H.11.12.7	Delete text		N
H.11.12.7.1	For appliances using software class C having a single channel with self-test and monitoring structure, the manufacturer provides the measures necessary to address the fault/errors in safety related segments and data		N
H.11.12.8	Software fault/error detection occurs before compliance with 19.13 of IEC 60335-1 is impaired		N
H.11.12.8.1	Replace text		N
H.11.12.13	Software and safety related hardware under its control initializes and terminates before compliance with 19.13 of IEC 60335-1 is impaired		N
ANNEX EMF			P
	The Tested product also complies to the requirements of IEC 62233:2005		P
	Limit ……100%	Measured max. : 12,9%	P

10.1	TABLE: Power input deviation				P
Input deviation of/at:	P rated (W)	P measured (W)	dP	Required dP	Remark
230V / 50Hz	10400	10298	-1,0%	+15%	SG-7307AS
230V / 60Hz	10400	10284	-1,1%	+15%	
230V / 50Hz	7300	7211	-1,2%	+15%	SG-7304AS
230V / 60Hz	7300	7204	-1,3%	+15%	
230V / 50Hz	9550	9423	-1,3%	+15%	SG-7303AS
230V / 60Hz	9550	9412	-1,4%	+15%	
230V / 50Hz	11000	10876	-1,1%	+15%	SG-7309DS
230V / 60Hz	11000	10862	-1,3%	+15%	
230V / 50Hz	7400	7314	-1,2%	+15%	SG-7307AB Motor function
230V / 60Hz	7400	7312	-1,2%	+15%	
230V / 50Hz	3250	3164	-2,6%	-10%, +5%	SG-7307AB Heater function
230V / 60Hz	3250	3160	-2,8%	-10%, +5%	
230V / 50Hz	4300	4217	-1,9%	+15%	SG-7304AB Motor function
230V / 60Hz	4300	4211	-2,1%	+15%	
230V / 50Hz	3250	3162	-2,7%	-10%, +5%	SG-7304AB Heater function
230V / 60Hz	3250	3161	-2,7%	-10%, +5%	
230V / 50Hz	6550	6468	-1,3%	+15%	SG-7303AB Motor function
230V / 60Hz	6550	6465	-1,3%	+15%	
230V / 50Hz	3250	3165	-2,6%	-10%, +5%	SG-7303AB Heater function
230V / 60Hz	3250	3160	-2,8%	-10%, +5%	
230V / 50Hz	8000	6959	-13,0%	+15%	SG-7309DB Motor function
230V / 60Hz	8000	6953	-13,1%	+15%	
230V / 50Hz	3250	3168	-2,5%	-10%, +5%	SG-7309DB Heater function
230V / 60Hz	3250	3164	-2,6%	-10%, +5%	

10.2	TABLE: Current deviation				N
Current deviation of/at:	I rated (A)	I measured (A)	dI	Required dI	Remark

11.8 (a)	TABLE: Heating test, thermocouples (SG-7309DS)		P
	Test voltage (V) ..... :	1,06x240V=254,4V	—
	Ambient (°C)..... :	T1: 23,1; T2: 23,3	—
Thermocouple locations	dT (K)	Max. dT (K)	

Terminal block	33	For cl.30.1
X-capacitor (T105)	32	80
Fuse supportor at internal wire connected to transformer	8	For cl.30.1
Relay 1 (JQX-105F-1) (T85)	26	60
Relay 2 (JQC-3F-12VDC-1ZS) (T85)	18	60
Relay 3 (HF32F) (T85)	21	60
Fuse supportor on PCB	12	For cl.30.1
Main PCB in main controller	33	120
PCB of control panel	4	120
PCB in solenoid valve controller	20	120
Transformer winding (ZMB0925) (class 130)	31	85
Input wire of transformer (ZMB0925) (T105)	18	80
Output wire of transformer (ZMB0925) (T105)	15	80
Transformer winding (ZMB0812) (class 130)	22	85
Input wire of transformer (ZMB0812) (T105)	14	80
Output wire of transformer (ZMB0812) (T105)	11	80
Main controller enclosure	14	For cl.30.1
Solenoid valve controller enclosure	4	For cl.30.1
Solenoid valve surface	54	For cl.30.1
Interconnection cord of heater	10	50
Interconnection cord sheath of heater	6	35
Thermostat of heater (T140)	17	115
Thermal cut-out of heater (T140)	16	115
Interlock switch of heater (T105)	10	80
Plastic enclosure of heater	9	For cl.30.1
Internal wire of heater (T150)	14	125
Ozonizer plastic enclosure	18	For cl.30.1
Interconnection cord of pump	9	50
Interconnection cord sheath of water pump	4	35
Running capacitor of pump LP200 (T85)	12	60
Terminal block of pump LP200	15	For cl.30.1

Motor winding of pump LP200 (class155)	52	115
Internal wire of pump LP200 (T105)	13	80
Plastic of pump LP200	16	For cl.30.1
Running capacitor of pump LP250 (T85)	16	60
Terminal block of pump LP250	16	For cl.30.1
Motor winding of pump LP250 (class155)	56	115
Internal wire of pump LP250 (105)	16	80
Plastic of pump LP250	21	For cl.30.1
Running capacitor of pump WTC50M (T85)	7	60
Terminal block of pump WTC50M	5	For cl.30.1
Motor winding of pump WTC50M (class155)	46	115
Internal wire of pump WTC50M (T105)	10	80
Interlock switch of WTC50M (T105)	13	80
Plastic of pump WTC50M	7	For cl.30.1
Air pump AP700 winding (class155)	66	115
Air pump AP700 brush	45	For cl.30.1
Plastic of air pump AP700	14	For cl.30.1
Control panel	4	60
Plastic enclosure	4	60
Test corner	1	60
Water	42 °C	Ref./50 °C

11.8 (a)	TABLE: Heating test, resistance method (SG-7309DS)				P
	Test voltage (V) ..... :	1,06x240V=254,4V			—
	Ambient, t_1 (°C) ..... :	23,1			—
	Ambient, t_2 (°C) ..... :	23,3			—
Temperature rise of winding	R_1 (Ω)	R_2 (Ω)	dT (K)	Max. dT (K)	Insulation class
Winding of pump WTC50M	46,7	56,7	55,0	115	155
Winding of pump LP250	3,57	4,47	64,7	115	155
Winding of pump LP200	7,90	9,76	60,5	115	155
Transformer primary winding (ZMB0812)	9,74	10,78	27,3	95	130
Transformer secondary winding (ZMB0812)	1,40	1,54	25,6	95	130
Transformer primary winding (ZMB0925)	24,8	28,3	36,2	95	130

Transformer secondary winding (ZMB0925)	1,51	1,72	35,6	95	130
Winding of solenoid valve	79,9	99,9	64,3	140	180

11.8 (b)	TABLE: Heating test, thermocouples (SG-7307AS)		P
	Test voltage (V) ..... :	1,06x240V=254,4V	—
	Ambient (°C) ..... :	T1: 23,1; T2: 23,3	—

Thermocouple locations	dT (K)	Max. dT (K)
Terminal block	34	For cl.30.1
X-capacitor (T105)	31	80
Fuse supportor at internal wire connected to transformer	6	For cl.30.1
Relay 1 (JQX-105F-1) (T85)	26	60
Relay 2 (JQC-3F-12VDC-1ZS) (T85)	19	60
Relay 3 (HF32F) (T85)	24	60
Fuse supportor on PCB	11	For cl.30.1
Main PCB in main controller	34	120
PCB of control panel	3	120
PCB in solenoid valve controller	21	120
Transformer winding (ZMB0925) (class 130)	31	85
Input wire of transformer (ZMB0925) (T105)	17	80
Output wire of transformer (ZMB0925) (T105)	15	80
Transformer winding (ZMB0812) (class 130)	23	85
Input wire of transformer (ZMB0812) (T105)	14	80
Output wire of transformer (ZMB0812) (T105)	11	80
Main controller enclosure	14	For cl.30.1
Solenoid valve controller enclosure	4	For cl.30.1
Solenoid valve surface	54	For cl.30.1
Interconnection cord of heater	10	50
Interconnection cord sheath of heater	6	35
Thermostat of heater (T140)	17	115
Thermal cut-out of heater (T140)	16	115
Interlock switch of heater (T105)	10	80

Plastic enclosure of heater	9	For cl.30.1
Internal wire of heater (T150)	14	125
Ozonizer plastic enclosure	18	For cl.30.1
Interconnection cord of pump	9	50
Interconnection cord sheath of water pump	4	35
Running capacitor of pump LP250 (T85)	14	60
Terminal block of pump LP250	16	For cl.30.1
Motor winding of pump LP250 (class155)	56	115
Internal wire of pump LP250 (T105)	16	80
Plastic of pump LP250	20	For cl.30.1
Running capacitor of pump LP300 (T85)	22	60
Terminal block of pump LP300	10	For cl.30.1
Motor winding of pump LP300 (class155)	64	115
Internal wire of pump LP300 (105)	16	80
Plastic of pump LP300	20	For cl.30.1
Running capacitor of pump WTC50M (T85)	6	60
Terminal block of pump WTC50M	5	For cl.30.1
Motor winding of pump WTC50M (class155)	46	115
Internal wire of pump WTC50M (T105)	10	80
Interlock switch of WTC50M (T105)	15	80
Plastic of pump WTC50M	7	For cl.30.1
Air pump AP900 winding (class155)	73	115
Air pump AP900 brush	53	For cl.30.1
Plastic of air pump AP900	14	For cl.30.1
Control panel	4	60
Plastic enclosure	4	60
Test corner	2	60
Water	42 °C	Ref./50 °C

11.8 (b)	TABLE: Heating test, resistance method (SG-7307AS)					P
	Test voltage (V) ..... :		1,06x240V=254,4V			—
	Ambient, t_1 (°C) ..... :		23,1			—
	Ambient, t_2 (°C) ..... :		23,3			—
Temperature rise of winding		R_1 (Ω)	R_2 (Ω)	dT (K)	Max. dT (K)	Insulation class

Winding of pump WTC50M	46,7	56,7	55,0	115	155
Winding of pump LP300	3,02	3,86	71,5	115	155
Winding of pump LP250	3,57	4,46	64,0	115	155
Transformer primary winding (ZMB0812)	9,74	10,87	29,7	95	130
Transformer secondary winding (ZMB0812)	1,40	1,55	27,4	95	130
Transformer primary winding (ZMB0925)	24,8	28,4	37,2	95	130
Transformer secondary winding (ZMB0925)	1,51	1,72	35,6	95	130
Winding of solenoid valve	79,9	98,7	60,4	140	180

11.8 (c)	TABLE: Heating test, thermocouples (SG-7303AS)		P
	Test voltage (V) ..... :	1,06x240V=254,4V	—
	Ambient (°C)..... :	T1: 23,1; T2: 23,3	—

Thermocouple locations	dT (K)	Max. dT (K)
Terminal block	30	For cl.30.1
X-capacitor (T105)	29	80
Fuse supportor at internal wire connected to transformer	6	For cl.30.1
Relay 1 (JQX-105F-1) (T85)	24	60
Relay 2 (JQC-3F-12VDC-1ZS) (T85)	17	60
Relay 3 (HF32F) (T85)	21	60
Fuse supportor on PCB	11	For cl.30.1
Main PCB in main controller	30	120
PCB of control panel	3	120
PCB in solenoid valve controller	20	120
Transformer winding (ZMB0925) (class 130)	30	85
Input wire of transformer (ZMB0925) (T105)	17	80
Output wire of transformer (ZMB0925) (T105)	15	80
Transformer winding (ZMB0812) (class 130)	23	85
Input wire of transformer (ZMB0812) (T105)	14	80
Output wire of transformer (ZMB0812)	11	80

(T105)		
Main controller enclosure	14	For cl.30.1
Solenoid valve controller enclosure	4	For cl.30.1
Solenoid valve surface	54	For cl.30.1
Interconnection cord of heater	10	50
Interconnection cord sheath of heater	6	35
Thermostat of heater (T140)	17	115
Thermal cut-out of heater (T140)	16	115
Interlock switch of heater (T105)	10	80
Plastic enclosure of heater	9	For cl.30.1
Internal wire of heater (T150)	14	125
Ozonizer plastic enclosure	18	For cl.30.1
Interconnection cord of pump	9	50
Interconnection cord sheath of water pump	5	35
Running capacitor of pump LP200 (T85)	12	60
Terminal block of pump LP200	15	For cl.30.1
Motor winding of pump LP200 (class155)	51	115
Internal wire of pump LP200 (T105)	13	80
Plastic of pump LP200	16	For cl.30.1
Running capacitor of pump LP300 (T85)	22	60
Terminal block of pump LP300	10	For cl.30.1
Motor winding of pump LP300 (class155)	63	115
Internal wire of pump LP300 (105)	13	80
Plastic of pump LP300	20	For cl.30.1
Running capacitor of pump WTC50M (T85)	7	60
Terminal block of pump WTC50M	5	For cl.30.1
Motor winding of pump WTC50M (class155)	45	115
Internal wire of pump WTC50M (T105)	10	80
Interlock switch of WTC50M (T105)	14	80
Plastic of pump WTC50M	7	For cl.30.1
Air pump AP400 winding (class155)	59	115
Air pump AP400 brush	37	For cl.30.1
Plastic of air pump AP400	14	For cl.30.1
Control panel	4	60
Plastic enclosure	4	60

Test corner	2	60
Water	42 °C	Ref./50 °C

11.8 (c)	TABLE: Heating test, resistance method (SG-7303AS)		P
	Test voltage (V) ..... :	1,06x240V=254,4V	—
	Ambient, t_1 (°C)..... :	23,1	—
	Ambient, t_2 (°C)..... :	23,3	—

Temperature rise of winding	R_1 (Ω)	R_2 (Ω)	dT (K)	Max. dT (K)	Insulation class
Winding of pump WTC50M	46,7	56,6	54,4	115	155
Winding of pump LP300	3,02	3,86	71,5	115	155
Winding of pump LP200	7,90	9,76	60,5	115	155
Transformer primary winding (ZMB0812)	9,74	10,79	27,6	95	130
Transformer secondary winding (ZMB0812)	1,40	1,55	27,4	95	130
Transformer primary winding (ZMB0925)	24,8	28,3	36,2	95	130
Transformer secondary winding (ZMB0925)	1,51	1,72	35,6	95	130
Winding of solenoid valve	79,9	99,9	64,3	140	180

11.8 (d)	TABLE: Heating test, thermocouples (SG-7304AS)	P
	Test voltage (V) ..... :	1,06x240V=254,4V	—
	Ambient (°C)..... :	T1: 23,1; T2: 23,3	—

Thermocouple locations	dT (K)	Max. dT (K)
Terminal block	31	For cl.30.1
X-capacitor (T105)	31	80
Fuse supportor at internal wire connected to transformer	6	For cl.30.1
Relay 1 (JQX-105F-1) (T85)	24	60
Relay 2 (JQC-3F-12VDC-1ZS) (T85)	17	60
Relay 3 (HF32F) (T85)	21	60
Fuse supportor on PCB	11	For cl.30.1
Main PCB in main controller	33	120
PCB of control panel	2	120
PCB in solenoid valve controller	19	120
Transformer winding (ZMB0925) (class 130)	30	85

Input wire of transformer (ZMB0925) (T105)	16	80
Output wire of transformer (ZMB0925) (T105)	15	80
Transformer winding (ZMB0812) (class 130)	22	85
Input wire of transformer (ZMB0812) (T105)	14	80
Output wire of transformer (ZMB0812) (T105)	11	80
Main controller enclosure	14	For cl.30.1
Solenoid valve controller enclosure	4	For cl.30.1
Solenoid valve surface	54	For cl.30.1
Interconnection cord of heater	10	50
Interconnection cord sheath of heater	6	35
Thermostat of heater (T140)	17	115
Thermal cut-out of heater (T140)	16	115
Interlock switch of heater (T105)	10	80
Plastic enclosure of heater	9	For cl.30.1
Internal wire of heater (T150)	14	125
Ozonizer plastic enclosure	18	For cl.30.1
Interconnection cord of pump	9	50
Interconnection cord sheath of water pump	4	35
Running capacitor of pump LP200 (T85)	12	60
Terminal block of pump LP200	15	For cl.30.1
Motor winding of pump LP200 (class155)	52	115
Internal wire of pump LP200 (T105)	13	80
Plastic of pump LP200	16	For cl.30.1
Running capacitor of pump LP250 (T85)	16	60
Terminal block of pump LP250	16	For cl.30.1
Motor winding of pump LP250 (class155)	56	115
Internal wire of pump LP250 (105)	16	80
Plastic of pump LP250	21	For cl.30.1
Running capacitor of pump WTC50M (T85)	7	60
Terminal block of pump WTC50M	5	For cl.30.1
Motor winding of pump WTC50M (class155)	46	115

Internal wire of pump WTC50M (T105)	10	80
Interlock switch of WTC50M (T105)	13	80
Plastic of pump WTC50M	7	For cl.30.1
Air pump AP700 winding (class155)	66	115
Air pump AP700 brush	45	For cl.30.1
Plastic of air pump AP700	14	For cl.30.1
Control panel	4	60
Plastic enclosure	4	60
Test corner	1	60
Water	42 °C	Ref./50 °C

11.8 (d)	TABLE: Heating test, resistance method (SG-7304AS)		P
	Test voltage (V) ..... :	1,06x240V=254,4V	—
	Ambient, t_1 (°C) ..... :	23,1	—
	Ambient, t_2 (°C) ..... :	23,3	—

Temperature rise of winding	R_1 (Ω)	R_2 (Ω)	dT (K)	Max. dT (K)	Insulation class
Winding of pump WTC50M	46,7	56,7	55,0	115	155
Winding of pump LP250	3,57	4,47	64,7	115	155
Winding of pump LP200	7,90	9,76	60,5	115	155
Transformer primary winding (ZMB0812)	9,74	10,78	27,3	95	130
Transformer secondary winding (ZMB0812)	1,40	1,54	25,6	95	130
Transformer primary winding (ZMB0925)	24,8	28,3	36,2	95	130
Transformer secondary winding (ZMB0925)	1,51	1,72	35,6	95	130
Winding of solenoid valve	79,9	99,9	64,3	140	180

11.8 (e)	TABLE: Heating test, thermocouples (SG-7309DB)		P
	Test voltage (V) ..... :	(1) 1,06x240V=254,4V for motor function (2) $(240/230)^2$x1,15x3250W =4070W, 256V for heater function	—
	Ambient (°C) ..... :	T1: 23,1; T2: 23,3	—

Thermocouple locations	dT (K)		Max. dT (K)
	(1)	(2)	

Terminal block	19	19	For cl.30.1
X2 capacitor (T100)	17	18	75
Varistor (T85)	17	16	60
Y-capacitor (T85)	9	8	60
Relay (T85)	7	7	60
Main PCB	2	2	120
Control PCB	2	2	120
Transformer pri. winding (class 105)	58	58	65
Transformer sec. winding (class 105)	55	56	65
Internal wire (T105)	12	12	80
Main controller enclosure	5	6	For cl.30.1
Ozonizer plastic enclosure	17	18	For cl.30.1
Interconnection cord of water pump	11	–	50
Interconnection cord sheath of water pump	4	–	35
Running capacitor of pump LP200 (T85)	12	–	60
Terminal block of pump LP200	15	–	For cl.30.1
Motor winding of pump LP200 (class155)	52	–	115
Internal wire of pump LP200 (T105)	13	–	80
Plastic of pump LP200	16	–	For cl.30.1
Running capacitor of pump LP250 (T85)	16	–	60
Terminal block of pump LP250	16	–	For cl.30.1
Motor winding of pump LP250 (class155)	57	–	115
Internal wire of pump LP250 (T105)	17	–	80
Plastic of pump LP250	21	–	For cl.30.1
Interconnection cord of pump WTC50M	6	7	50
Interconnection cord sheath of pump WTC50M	2	2	35
Running capacitor of pump WTC50M (T85)	6	6	60
Terminal block of pump WTC50M	5	4	For cl.30.1
Motor winding of pump WTC50M (class155)	46	46	115
Internal wire of pump WTC50M (T105)	11	11	80
Interlock switch of WTC50M (T105)	17	16	80

Plastic of pump WTC50M	9	9	For cl.30.1
Interconnection cord of air pump	8	–	50
Interconnection cord sheath of air pump	5	–	35
Air pump AP700 winding (class155)	65	–	115
Air pump AP700 brush	44	–	For cl.30.1
Air pump AP700 plastic enclosure	10	–	For cl.30.1
Control panel	3	4	60
Plastic enclosure	6	5	60
Test corner	2	2	65
Water	40 °C	40 °C	Ref./50 °C

11.8 (e)	TABLE: Heating test, resistance method (SG-7309DB)		P
	Test voltage (V) ..... :	(1) 1,06x240V=254,4V for motor function (2) $(240/230)^2$x1,15x3250W =4070W, 256V for heater function	—
	Ambient, t_1 (°C) ..... :	23,1	—
	Ambient, t_2 (°C) ..... :	23,3	—

Temperature rise of winding	R_1 (Ω)	R_2 (Ω)	dT (K)	Max. dT (K)	Insulation class
1,06x240V=254,4V for motor function					
Winding of pump LP250	3,57	4,49	66,2	115	155
Winding of pump LP200	7,90	9,83	62,7	115	155
Transformer pri. winding	161,7	201,7	63,5	75	105
Transformer sec. winding	0,81	1,00	60,2	75	105
Winding of pump WTC50M	46,7	57,7	60,5	115	155
$(240/230)^2$x1,15x3180W=3982W, 256V for heater function					
Winding of pump WTC50M	46,7	57,7	60,5	115	155
Transformer pri. winding	161,7	201,6	63,4	75	105
Transformer sec. winding	0,81	1,00	60,2	75	105

11.8 (f)	TABLE: Heating test, thermocouples (SG-7307AB)		P
	Test voltage (V) ..... :	(1) 1,06x240V=254,4V for motor function (2) $(240/230)^2$x1,15x3250W =4070W, 256V for heater function	—
	Ambient (°C)..... :	T1: 23,1; T2: 23,3	—

Thermocouple locations	dT (K)		Max. dT (K)
	(1)	(2)	
Terminal block	18	19	For cl.30.1
X2 capacitor (T100)	15	15	75
Varistor (T85)	13	13	60
Y-capacitor (T85)	7	7	60
Relay (T85)	6	7	60
Main PCB	2	2	120
Control PCB	1	2	120
Transformer pri. winding (class 105)	58	59	65
Transformer sec. winding (class 105)	55	57	65
Internal wire (T105)	12	11	80
Main controller enclosure	6	6	For cl.30.1
Ozonizer plastic enclosure	15	17	For cl.30.1
Interconnection cord of water pump	12	–	50
Interconnection cord sheath of water pump	4	–	35
Running capacitor of pump LP250 (T85)	14	–	60
Terminal block of pump LP250	17	–	For cl.30.1
Motor winding of pump LP250 (class155)	54	–	115
Internal wire of pump LP250 (T105)	17	–	80
Plastic of pump LP250	20	–	For cl.30.1
Running capacitor of pump LP300 (T85)	21	–	60
Terminal block of pump LP300	10	–	For cl.30.1
Motor winding of pump LP300 (class155)	66	–	115
Internal wire of pump LP300 (105)	15	–	80
Plastic of pump LP300	20	–	For cl.30.1
Interconnection cord of pump WTC50M	6	7	50
Interconnection cord sheath of pump WTC50M	2	2	35

Running capacitor of pump WTC50M (T85)	7	6	60
Terminal block of pump WTC50M	4	4	For cl.30.1
Motor winding of pump WTC50M (class155)	45	45	115
Internal wire of pump WTC50M (T105)	10	10	80
Interlock switch of WTC50M (T105)	15	15	80
Plastic of pump WTC50M	8	8	For cl.30.1
Interconnection cord of air pump	8	–	50
Interconnection cord sheath of air pump	5	–	35
Air pump AP900 winding (class155)	72	–	115
Air pump AP900 brush	53	–	For cl.30.1
Air pump AP900 plastic enclosure	14	–	For cl.30.1
Control panel	3	4	60
Plastic enclosure	7	5	60
Test corner	2	2	65
Water	40 °C	40 °C	Ref./50 °C

11.8 (f)	TABLE: Heating test, resistance method (SG-7307AB)					P
	Test voltage (V) ..... :	(1) 1,06x240V=254,4V for motor function (2) $(240/230)^2$x1,15x3250W =4070W, 256V for heater function				—
	Ambient, t_1 (°C)..... :	23,1				—
	Ambient, t_2 (°C)..... :	23,3				—
Temperature rise of winding		R_1 (Ω)	R_2 (Ω)	dT (K)	Max. dT (K)	Insulation class
1,06x240V=254,4V for motor function						
Winding of pump LP300		3,02	3,88	73,2	115	155
Winding of pump LP250		3,57	4,47	64,7	115	155
Transformer pri. winding		161,7	201,7	63,5	75	105
Transformer sec. winding		0,81	1,00	60,2	75	105
Winding of pump WTC50M		46,7	56,8	55,5	115	155
$(240/230)^2$x1,15x3180W=3982W, 256V for heater function						
Winding of pump WTC50M		46,7	56,8	55,5	115	155
Transformer pri. winding		161,7	201,4	63,0	75	105
Transformer sec. winding		0,81	1,00	60,2	75	105

11.8 (g)	TABLE: Heating test, thermocouples (SG-7303AB)		P
	Test voltage (V) ..... :	(1) 1,06x240V=254,4V for motor function (2) $(240/230)^2$x1,15x3250W =4070W, 256V for heater function	—
	Ambient (°C)..... :	T1: 23,1; T2: 23,3	—

Thermocouple locations	dT (K)		Max. dT (K)
	(1)	(2)	
Terminal block	18	18	For cl.30.1
X2 capacitor (T100)	16	16	75
Varistor (T85)	13	14	60
Y-capacitor (T85)	7	6	60
Relay (T85)	6	6	60
Main PCB	2	2	120
Control PCB	2	2	120
Transformer pri. winding (class 105)	57	58	65
Transformer sec. winding (class 105)	55	57	65
Internal wire (T105)	12	12	80
Main controller enclosure	5	6	For cl.30.1
Ozonizer plastic enclosure	16	17	For cl.30.1
Interconnection cord of water pump	11	–	50
Interconnection cord sheath of water pump	4	–	35
Running capacitor of pump LP200 (T85)	12	–	60
Terminal block of pump LP200	15	–	For cl.30.1
Motor winding of pump LP200 (class155)	50	–	115
Internal wire of pump LP200 (T105)	13	–	80
Plastic of pump LP200	16	–	For cl.30.1
Running capacitor of pump LP300 (T85)	22	–	60
Terminal block of pump LP300	10	–	For cl.30.1
Motor winding of pump LP300 (class155)	64	–	115
Internal wire of pump LP300 (T105)	15	–	80
Plastic of pump LP300	20	–	For cl.30.1
Interconnection cord of pump WTC50M	7	7	50

Interconnection cord sheath of pump WTC50M	2	2	35
Running capacitor of pump WTC50M (T85)	7	6	60
Terminal block of pump WTC50M	4	4	For cl.30.1
Motor winding of pump WTC50M (class155)	46	46	115
Internal wire of pump WTC50M (T105)	12	11	80
Interlock switch of WTC50M (T105)	16	16	80
Plastic of pump WTC50M	9	9	For cl.30.1
Interconnection cord of air pump	7	–	50
Interconnection cord sheath of air pump	5	–	35
Air pump AP400 winding (class155)	58	–	115
Air pump AP400 brush	37	–	For cl.30.1
Air pump AP400 plastic enclosure	10	–	For cl.30.1
Control panel	3	4	60
Plastic enclosure	6	5	60
Test corner	2	2	65
Water	40 °C	40 °C	Ref./50 °C

11.8 (g)	TABLE: Heating test, resistance method (SG-7303AB)					P
	Test voltage (V) ..... :		(1) 1,06x240V=254,4V for motor function (2) $(240/230)^2$x1,15x3250W =4070W, 256V for heater function			—
	Ambient, t_1 (°C)..... :		23,1			—
	Ambient, t_2 (°C)..... :		23,3			—
Temperature rise of winding		R_1 (Ω)	R_2 (Ω)	dT (K)	Max. dT (K)	Insulation class
1,06x240V=254,4V for motor function						
Winding of pump LP300		3,02	3,88	73,2	115	155
Winding of pump LP200		7,90	9,80	61,8	115	155
Transformer pri. winding		161,7	201,5	63,2	75	105
Transformer sec. winding		0,81	1,00	60,2	75	105
Winding of pump WTC50M		46,7	57,0	56,6	115	155
$(240/230)^2$x1,15x3180W=3982W, 256V for heater function						
Winding of pump WTC50M		46,7	57,0	56,6	115	155

Transformer pri. winding	161,7	201,4	63,0	75	105
Transformer sec. winding	0,81	1,00	60,2	75	105

11.8 (h)	TABLE: Heating test, thermocouples (SG-7304AB)		P
	Test voltage (V) ..... :	(1) 1,06x240V=254,4V for motor function (2) $(240/230)^2$x1,15x3250W =4070W, 256V for heater function	—
	Ambient (°C)..... :	T1: 23,1; T2: 23,3	—

Thermocouple locations	dT (K)		Max. dT (K)
	(1)	(2)	
Terminal block	18	17	For cl.30.1
X2 capacitor (T100)	16	17	75
Varistor (T85)	15	15	60
Y-capacitor (T85)	7	6	60
Relay (T85)	6	6	60
Main PCB	2	2	120
Control PCB	2	2	120
Transformer pri. winding (class 105)	58	58	65
Transformer sec. winding (class 105)	55	56	65
Internal wire (T105)	12	12	80
Main controller enclosure	5	6	For cl.30.1
Ozonizer plastic enclosure	16	18	For cl.30.1
Interconnection cord of water pump	11	–	50
Interconnection cord sheath of water pump	4	–	35
Running capacitor of pump LP200 (T85)	12	–	60
Terminal block of pump LP200	15	–	For cl.30.1
Motor winding of pump LP200 (class155)	52	–	115
Internal wire of pump LP200 (T105)	13	–	80
Plastic of pump LP200	16	–	For cl.30.1
Running capacitor of pump LP250 (T85)	16	–	60
Terminal block of pump LP250	16	–	For cl.30.1
Motor winding of pump LP250 (class155)	57	–	115
Internal wire of pump LP250 (T105)	17	–	80
Plastic of pump LP250	21	–	For cl.30.1

Interconnection cord of pump WTC50M	8	7	50
Interconnection cord sheath of pump WTC50M	2	2	35
Running capacitor of pump WTC50M (T85)	6	6	60
Terminal block of pump WTC50M	5	4	For cl.30.1
Motor winding of pump WTC50M (class155)	46	46	115
Internal wire of pump WTC50M (T105)	11	11	80
Interlock switch of WTC50M (T105)	16	16	80
Plastic of pump WTC50M	9	9	For cl.30.1
Interconnection cord of air pump	8	–	50
Interconnection cord sheath of air pump	5	–	35
Air pump AP700 winding (class155)	65	–	115
Air pump AP700 brush	44	–	For cl.30.1
Air pump AP700 plastic enclosure	10	–	For cl.30.1
Control panel	3	4	60
Plastic enclosure	6	5	60
Test corner	2	2	65
Water	40 °C	40 °C	Ref./50 °C

11.8 (h)	TABLE: Heating test, resistance method (SG-7304AB)				P
	Test voltage (V) ..... :	(1) 1,06x240V=254,4V for motor function (2) $(240/230)^2$x1,15x3250W =4070W, 256V for heater function			—
	Ambient, t_1 (°C)..... :	23,1			—
	Ambient, t_2 (°C)..... :	23,3			—
Temperature rise of winding		R_1 (Ω)	R_2 (Ω)	dT (K)	Max. dT (K)	Insulation class
1,06x240V=254,4V for motor function						
Winding of pump LP250		3,57	4,49	66,2	115	155
Winding of pump LP200		7,90	9,83	62,7	115	155
Transformer pri. winding		161,7	201,7	63,5	75	105
Transformer sec. winding		0,81	1,00	60,2	75	105

Winding of pump WTC50M	46,7	57,7	60,5	115	155
$(240/230)^2$x1,15x3180W=3982W, 256V for heater function					
Winding of pump WTC50M	46,7	57,7	60,5	115	155
Transformer pri. winding	161,7	201,6	63,4	75	105
Transformer sec. winding	0,81	1,00	60,2	75	105

13.2 (a)	TABLE: Leakage current (SG-7309DS)			P
	Heating appliances: 1,15 x rated input.....:			—
	Motor-operated and combined appliances: 1,06 x rated voltage .....:	1,06x240V=254,4V		—
Leakage current between		I (mA)	Max. allowed I (mA)	
B/W live part and earthed metal		0,172	5	
B/W live part and enclosure/control panel		0,009	0,25	

13.2 (b)	TABLE: Leakage current (SG-7307AS)			P
	Heating appliances: 1,15 x rated input.....:			—
	Motor-operated and combined appliances: 1,06 x rated voltage .....:	1,06x240V=254,4V		—
Leakage current between		I (mA)	Max. allowed I (mA)	
B/W live part and earthed metal		0,171	5	
B/W live part and enclosure/control panel		0,010	0,25	

13.2 (c)	TABLE: Leakage current (SG-7303AS)			P
	Heating appliances: 1,15 x rated input.....:			—
	Motor-operated and combined appliances: 1,06 x rated voltage .....:	1,06x240V=254,4V		—
Leakage current between		I (mA)	Max. allowed I (mA)	
B/W live part and earthed metal		0,168	5	
B/W live part and enclosure/control panel		0,010	0,25	

13.2 (d)	TABLE: Leakage current (SG-7304AS)			P
	Heating appliances: 1,15 x rated input.....:			—
	Motor-operated and combined appliances: 1,06 x rated voltage .....:	1,06x240V=254,4V		—
Leakage current between		I (mA)	Max. allowed I (mA)	
B/W live part and earthed metal		0,170	5	
B/W live part and enclosure/control panel		0,009	0,25	

13.2 (e)	TABLE: Leakage current (SG-7309DB)				P
	Heating appliances: 1,15 x rated input.....:	(1) $(240/230)^2$x1,15x3250W =4070W, 256V for heater function			—
	Motor-operated and combined appliances: 1,06 x rated voltage .....:	(2) 1,06x240V=254,4V for motor function			—
Leakage current between		I (mA)		Max. allowed I (mA)	
		(1)	(2)	(1)	(2)
B/W live part and earthed metal		0,158	0,153	2,4	3,5
B/W live part and enclosure/control panel		0,009	0,0010	0,25	0,25

13.2 (f)	TABLE: Leakage current (SG-7307AB)				P
	Heating appliances: 1,15 x rated input.....:	(1) $(240/230)^2$x1,15x3180W =3982W, 256V for heater function			—
	Motor-operated and combined appliances: 1,06 x rated voltage .....:	(2) 1,06x240V=254,4V for motor function			—
Leakage current between		I (mA)		Max. allowed I (mA)	
		(1)	(2)	(1)	(2)
B/W live part and earthed metal		0,153	0,151	2,4	3,5
B/W live part and enclosure/control panel		0,007	0,008	0,25	0,25

13.2 (g)	TABLE: Leakage current (SG-7303AB)				P
	Heating appliances: 1,15 x rated input.....:	(1) $(240/230)^2$x1,15x3180W =3982W, 256V for heater function			—
	Motor-operated and combined appliances: 1,06 x rated voltage .....:	(2) 1,06x240V=254,4V for motor function			—
Leakage current between		I (mA)		Max. allowed I (mA)	
		(1)	(2)	(1)	(2)
B/W live part and earthed metal		0,151	0,150	2,4	3,5
B/W live part and enclosure/control panel		0,008	0,008	0,25	0,25

13.2 (h)	TABLE: Leakage current (SG-7304AB)				P
	Heating appliances: 1,15 x rated input.....:	(1) $(240/230)^2$x1,15x3180W =3982W, 256V for heater function			—
	Motor-operated and combined appliances: 1,06 x rated voltage .....:	(2) 1,06x240V=254,4V for motor function			—
Leakage current between		I (mA)		Max. allowed I (mA)	
		(1)	(2)	(1)	(2)
B/W live part and earthed metal		0,157	0,154	2,4	3,5
B/W live part and enclosure/control panel		0,009	0,009	0,25	0,25

13.3	TABLE: Electric strength		P
Test voltage applied between:		Voltage (V)	Breakdown (Yes/No)
B/W live part and earthed metal		1000	No
B/W live part and enclosure/control panel		3000	No

14	TABLE: Transient overvoltages				N
Clearance between:	Cl (mm)	Required Cl (mm)	Rated impulse voltage (V)	Impulse test voltage (V)	Flashover (Yes/No)

16.2 (a)	TABLE: Leakage current (SG-7309DS)		P
	Single phase appliances: 1,06 x rated voltage .....:	1,06x240V=254,4V	—
	Three phase appliances 1,06 x rated voltage divided by √3: .....:		—
Leakage current between		I (mA)	Max. allowed I (mA)
B/W live part and earthed metal		0,164	5
B/W live part and enclosure/control panel		0,009	0,25

16.2 (b)	TABLE: Leakage current (SG-7307AS)		P
	Single phase appliances: 1,06 x rated voltage .....:	1,06x240V=254,4V	—
	Three phase appliances 1,06 x rated voltage divided by √3: .....:		—
Leakage current between		I (mA)	Max. allowed I (mA)
B/W live part and earthed metal		0,172	5
B/W live part and enclosure/control panel		0,010	0,25

16.2 (c)	TABLE: Leakage current (SG-7303AS)			P
	Single phase appliances: 1,06 x rated voltage .....:	1,06x240V=254,4V		—
	Three phase appliances 1,06 x rated voltage divided by √3: .....:			—
Leakage current between		I (mA)	Max. allowed I (mA)	
B/W live part and earthed metal		0,168	5	
B/W live part and enclosure/control panel		0,008	0,25	

16.2 (d)	TABLE: Leakage current (SG-7304AS)			P
	Single phase appliances: 1,06 x rated voltage .....:	1,06x240V=254,4V		—
	Three phase appliances 1,06 x rated voltage divided by √3: .....:			—
Leakage current between		I (mA)	Max. allowed I (mA)	
B/W live part and earthed metal		0,167	5	
B/W live part and enclosure/control panel		0,008	0,25	

16.2 (e)	TABLE: Leakage current (SG-7309DB)				P
	Single phase appliances: 1,06 x rated voltage .....:	1,06x240V=254,4V (1) for motor function (2) for heater function			—
	Three phase appliances 1,06 x rated voltage divided by √3: .....:				—
Leakage current between		I (mA)		Max. allowed I (mA)	
		(1)	(2)	(1)	(2)
B/W live part and earthed metal		0,153	0,151	2,4	3,5
B/W live part and enclosure/control panel		0,010	0,008	0,25	0,25

16.2 (f)	TABLE: Leakage current (SG-7307AB)				P
	Single phase appliances: 1,06 x rated voltage .....:	1,06x240V=254,4V (1) for motor function (2) for heater function			—
	Three phase appliances 1,06 x rated voltage divided by √3: .....:				—
Leakage current between		I (mA)		Max. allowed I (mA)	
		(1)	(2)	(1)	(2)
B/W live part and earthed metal		0,155	0,154	2,4	3,5
B/W live part and enclosure/control panel		0,010	0,009	0,25	0,25

16.2 (g)	TABLE: Leakage current (SG-7303AB)				P
	Single phase appliances: 1,06 x rated voltage .....:	1,06x240V=254,4V (1) for motor function (2) for heater function			—
	Three phase appliances 1,06 x rated voltage divided by √3: .....:				—
Leakage current between		I (mA)		Max. allowed I (mA)	
		(1)	(2)	(1)	(2)
B/W live part and earthed metal		0,154	0,153	2,4	3,5
B/W live part and enclosure/control panel		0,010	0,008	0,25	0,25

16.2 (h)	TABLE: Leakage current (SG-7304AB)				P
	Single phase appliances: 1,06 x rated voltage .....:	1,06x240V=254,4V (1) for motor function (2) for heater function			—
	Three phase appliances 1,06 x rated voltage divided by √3: .....:				—
Leakage current between		I (mA)		Max. allowed I (mA)	
		(1)	(2)	(1)	(2)
B/W live part and earthed metal		0,156	0,155	2,4	3,5
B/W live part and enclosure/control panel		0,010	0,009	0,25	0,25

16.3	TABLE: Electric strength		P
Test voltage applied between:		Voltage (V)	Breakdown (Yes/No)
B/W live part and earthed metal		1250	No
B/W live part and enclosure/control panel		3000	No

17	TABLE: Overload protection, temperature rise		P
Temperature rise of part/at:		dT (K)	Max. dT (K)
Transformer (ZMB0925)			
Transformer primary winding		53	200
Transformer secondary winding		57	200
Transformer output wire		30	95
Transformer (ZMB0812)			
Transformer primary winding		46	200
Transformer secondary winding		48	200
Transformer output wire		26	95

19.7	TABLE: Abnormal operation, locked rotor/moving parts					P
	Test voltage (V) ..... :	240V				—
	Ambient, t_1 (°C)..... :	24,0				—
	Ambient, t_2 (°C)..... :	24,1				—
	T (°C)				Max. T (°C)	
	Lock rotor	lock rotor and open-circuited capacitor	lock rotor and short-circuited capacitor	Annex D		
Winding of pump LP300	158	166	96	157	190	
Winding of pump LP250	181	134	96	181	190	
Winding of pump LP200	165	146	176	166	190	
Winding of pump WTC50M	156	152	167	154	190	
Winding of air pump AP900	58	--	--	--	240	
Winding of air pump AP700	47	--	--	--	240	
Winding of air pump AP400	43	--	--	--	240	
Remark: Locked air pump rotor, overcurrent protection in air pump operated after 2s. And tested again.						

19.9	TABLE: Abnormal operation, running overload					N
	Test voltage (V) ..... :					—
	Ambient, t_1 (°C)..... :					—
	Ambient, t_2 (°C)..... :					—
Temperature of winding		R_1 (Ω)	R_2 (Ω)	dT (K)	T (°C)	Max. T (°C)

19.13	TABLE: Abnormal operation, temperature rises				P
Thermocouple locations	dT (K)				Max. dT (K)
	19.2	19.3	19.5	19.14	
Main controller enclosure (main controller SG-0007)	12	15	13	13	For cl.30.1
Main controller enclosure (main controller GS5-GS523DZ-RCA-3.0K)	6	7	6	6	For cl.30.1
Controller panel of main controller SG-0007	2	3	2	2	For cl.30.1
Controller panel of main controller GS5-GS523DZ-RCA-3.0K	2	3	2	2	For cl.30.1
Solenoid valve controller enclosure	4	5	5	5	For cl.30.1
Plastic enclosure of heater	7	10	8	8	For cl.30.1
Plastic of pump LP250	14	18	16	17	For cl.30.1
Plastic of pump LP300	19	22	20	20	For cl.30.1
Plastic of pump LP200	15	18	16	17	For cl.30.1
Plastic of pump WTC50M	7	9	8	8	For cl.30.1
Plastic of air pump AP900	13	15	13	14	For cl.30.1
Plastic of air pump AP700	10	11	10	10	For cl.30.1
Plastic of air pump AP400	10	11	10	10	For cl.30.1
Ozonizer enclosure	16	17	17	17	For cl.30.1
Test corner	2	2	1	2	Ref

24.1	TABLE: Components				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity
Main controller GS5-GS523DZ-RCA-3.0K	Balboa Water Group	GS5-GS523DZ-RCA-3.0K	230V, 50/60Hz, 32A	IEC/EN 60335-1 IEC/EN 60335-2-60 AS/NZS.3350.2.60	Nemko P11214076 NSW 21011
Fuse in pri. circuit of main controller SG-0007	Zhongshan Lanbao Electrical Appliances Co., Ltd.	RFI-20	250V, F2A	EN 60127	VDE 40012079
Fuse in sec. circuit of main controller SG-0007	Suzhou Littelfuse OVS Ltd.	617	250V, F3A	EN 60335-1 EN 60335-2-60	Tested with appliance

Fuse supportor on PCB	SHIN CHIN INDUSTRIAL CO LTD	R3-74A	230V, 74A	EN 60335-1 EN 60335-2-60	UL E72169 Tested with appliance
PCB	CHIH HSIEN ENTERPRISE CO LTD	402	V-0	EN 60335-1 EN 60335-2-60	UL E105119 Tested with appliance
Transformer (ZMB0925) in main controller SG-0007	Foshan Zhongming Electronic Industrial Co., Ltd.	ZMB0925	I/P: 230V, 50Hz, O/P: 10,0V-0-10,0V, 1,2A 0V-8,0V, 1,0A, 0V-10,0V, 1,2A, 0V-10,0V, 1,2A, 0V-10V, 4,0A Class130	EN 60335-1 EN 60335-2-60	Tested with appliance
Fuse supportor at internal wire connected to transformer	GUANGZHOU KINGFA SCIENCE & TECHNOLOGY CO LTD	FW620	V-0, ABS	EN 60335-1 EN 60335-2-60	UL E171666 Tested with appliance
Fuse in transformer (ZMB0925) input wire	Sun Electric Co. O/B Heroday Ltd.	5B-serie	250V, T1A	EN 60335-1 EN 60335-2-60	Tested with appliance
Fuse in transformer (ZMB0925) output wire white-white & yel-blk-yel	Sun Electric Co. O/B Heroday Ltd.	5B-serie	250V, T1,25A	EN 60335-1 EN 60335-2-60	Tested with appliance
Fuse in transformer (ZMB0925) output wire blue-blue & brown-brown	Sun Electric Co. O/B Heroday Ltd.	5B-serie	250V, T1,6A	EN 60335-1 EN 60335-2-60	Tested with appliance
Fuse in transformer (ZMB0925) output wire orange-orange	Sun Electric Co. O/B Heroday Ltd.	5B-serie	250V, T5A	EN 60335-1 EN 60335-2-60	Tested with appliance
Internal wire for transformer	FOSHAN ZHUO SHENG GREEN WIRE CO LTD	1015	600V, 20AWG, 105℃, VW-1	EN 60335-1 EN 60335-2-60	UL E251755 Tested with appliance
Relay 1	Xiamen Hongfa Electroacoustics Co., Ltd.	JQX-105F-1	250V~, 15A, 12VDC, T85, 1E5	EN 61810	VDE 40025518

Relay 2	ZHEJIANG CHANSIN ELECTRONICS CO., LTD.	JQC-3F-12VDC-1ZS	240V~, 10A, 30VDC, T85, 1E5	EN 61810	TUV EK 50149292
Relay 3	Xiamen Hongfa Electroacoustics Co., Ltd.	HF32F	250V~, 5A, 30VDC, 5A, T85, 1E5	EN 61810	VDE 40012204
Terminal block of main controller SG-0007	DEGSON ELECTRONICS CO LTD	PC10-PE *g	300V, 65A	EN 60335-1 EN 60335-2-60	UL E228872 Tested with appliance
Plastic enclosure of main controller SG-0007 and solenoid valve controller	NINGBO LG YONGXING CHEMICAL CO LTD	HI-121H	ABS, HB, Min. Thk: 2,5mm	EN 60335-1 EN 60335-2-60	UL E203955 Tested with appliance
Interconnection cord of solenoid valve controller	Zhongshan Guzhen Hongli Cable & Appliance Factory	H05RN-F	3x1,0mm^2	DIN VDE 0282-4	VDE 40015521
Terminal block of solenoid valve controller	DEGSON ELECTRONICS CO LTD	DG1450*kk	300V, 50A	EN 60335-1 EN 60335-2-60	UL E228872 Tested with appliance
Transformer (ZMB0812) in solenoid valve controller	Foshan Zhongming Electronic Industrial Co., Ltd.	ZMB0812	I/P: 230V, 50Hz, O/P: 0V-8V, 1,0A 0V-20V, 4,5A 0V-20V, 4,5A Class 130	EN 60335-1 EN 60335-2-60	Tested with appliance
Fuse in transformer (ZMB0812) input wire & output wire white-white	Sun Electric Co. O/B Heroday Ltd.	5B-serie	250V, T1,25A	EN 60335-1 EN 60335-2-60	Tested with appliance
Fuse in transformer (ZMB0812) output wire black-black	Sun Electric Co. O/B Heroday Ltd.	5B-serie	250V, T5A	EN 60335-1 EN 60335-2-60	Tested with appliance
Fuse in transformer (ZMB0812) output wire blue-blue	Sun Electric Co. O/B Heroday Ltd.	5B-serie	250V, T6,3A	EN 60335-1 EN 60335-2-60	Tested with appliance

Internal wire 1 in solenoid valve controller	FOSHAN ZHUO SHENG GREEN WIRE CO LTD	1015	600V, 20AWG, 105℃, VW-1	EN 60335-1 EN 60335-2-60	UL E251755 Tested with appliance
Internal wire 2 in solenoid valve controller	FOSHAN ZHUO SHENG GREEN WIRE CO LTD	1015	600V, 22AWG, 105℃, VW-1	EN 60335-1 EN 60335-2-60	UL E251755 Tested with appliance
X2 capacitor	Guangdong Fengming Electronic Tech. Co., Ltd.	MKP-X2	275V~, 0,01μF, T105	EN 60384-14	VDE 40025702
Solenoid valve	Ningbo Jiayin Electro Mechanical Technology Co., Ltd.	JYZ-3	DC24V, 9VA, T160℃, Class H	IEC 60730	VDE 40010985
Heater	Guangdong Lingxiao Pump Industry Co., Ltd.	H30-R2	220-240V, 50/60Hz, 3000W, 13,6A	EN 60335-1 EN 60335-2-60	Tested with appliance
Thermostat of heater	Taizhou Mingjia Electric Co., Ltd.	KSD302	250V, 60A, T140, Tf 50, 1E4 Self-resetting	IEC 60730-1 IEC 60730-2-9	TUV R 50222533
Thermal cut-out of heater	Taizhou Mingjia Electric Co., Ltd.	KSD302R	250V, 60A, T185, Tf 68, Cycles 5000 Not-self-resetting	IEC 60730-1 IEC 60730-2-9	TUV R 50194759
Interlock switch	YUEQING DONGNAN ELECTRONICS CO. LTD.	KW3A	250V~, 16(4)A, 5E4, T105	EN 61058-1	VDE 40022705
Internal wire of heater	QING YUAN HE YI FLUOROPLASTICS & ELECTRICWIRE CO LTD	1331	600V, 12AWG, 150℃	EN 60335-1 EN 60335-2-60	UL E256417 Tested with appliance
Interconnection cord of heater	Guangdong Rifeng Electrical Cable Co., Ltd.	H07RN-F	3G4mm^2	DIN VDE 0282-4	VDE 40015999
Pump LP200	Guangdong Lingxiao Pump Industry Co., Ltd.	LP200	220-240V, 50Hz, 1,5kW, 7A, 2900r/min, Class 155	EN 60335-1 EN 60335-2-60	TUV R 50125688 Tested with appliance
Pump LP250	Guangdong Lingxiao Pump Industry Co., Ltd.	LP250	220-240V, 50Hz, 1,85kW, 8,0A, 2900r/min, Class 155	EN 60335-1 EN 60335-2-60	TUV R 50125688 Tested with appliance

Pump LP300	Guangdong Lingxiao Pump Industry Co., Ltd.	LP300	220-240V, 50Hz, 2,2kW, 10A, 2900r/min, Class 155	EN 60335-1 EN 60335-2-60	TUV R 50125688 Tested with appliance
Internal wire of LP200, LP250, LP300	FOSHAN SHUNDE YONGGAOLIAN WIRE & CABLE CO LTD	1015	600V, 16AWG, 105℃	EN 60335-1 EN 60335-2-60	UL E314925 Tested with appliance
Interconnection cord of LP200, LP250, LP300	Zhongshan Guzhen Hongli Cable & Appliance Factory	(H)05RN-F	3x1,5mm2	DIN VDE 0282-4	VDE 40015491
Motor thermal protector in LP200, LP250, LP300	Sensata Technologies Holland, B.V.	15AM	AC250V, Tf 160℃	EN 60730	KEMA 2014531.04
Running capacitor in LP200	Xunde Electrical & Electronic Co., Ltd.	CBB60	450V, 30μF±5%, T85	EN 60252-1	VDE 40030458
Running capacitor in LP250	Xunde Electrical & Electronic Co., Ltd.	CBB60	450V, 40μF±5%, T85	EN 60252-1	VDE 40008522
Running capacitor in LP300	Xunde Electrical & Electronic Co., Ltd.	CBB60	450V, 50μF±5%, T85	EN 60252-1	VDE 40030458
Air pump AP400	Guangdong Lingxiao Pump Industry Co., Ltd.	AP400	220-240V, 50Hz, 400W, 2,5A, Class 155	EN 60335-1 EN 60335-2-60	TUV R 50138584 Tested with appliance
Air pump AP700	Guangdong Lingxiao Pump Industry Co., Ltd.	AP700	220-240V, 50Hz, 700W, 3,3A, Class 155	EN 60335-1 EN 60335-2-60	TUV R 50138584 Tested with appliance
Air pump AP900	Guangdong Lingxiao Pump Industry Co., Ltd.	AP900	220-240V, 50Hz, 900W, 4,5A, Class 155	EN 60335-1 EN 60335-2-60	TUV R 50138584 Tested with appliance
Interconnection cord of AP400, AP700, AP900, WTC50M	Zhongshan Guzhen Hongli Cable & Appliance Factory	H05RN-F	3x0,75mm^2	DIN VDE 0282-4	VDE 40015521

Internal wire in AP400, AP700, AP900	FOSHAN SHUNDE YONGGAOLIAN WIRE & CABLE CO LTD	1015	600V, 16AWG, 105℃	EN 60335-1 EN 60335-2-60	UL E314925 Tested with appliance
Overcurrent protection for air pump AP400	Zhongshan Lanbao Electronics Co., Ltd.	ML	250V, 4A	EN 60335-1 EN 60335-2-60	Tested with appliance
Overcurrent protection for air pump AP700	Zhongshan Lanbao Electronics Co., Ltd.	ML	250V, 5A	EN 60335-1 EN 60335-2-60	Tested with appliance
Overcurrent protection for air pump AP900	Zhongshan Lanbao Electronics Co., Ltd.	ML	250V, 7A	EN 60335-1 EN 60335-2-60	Tested with appliance
Pump WTC50M	Guangdong Lingxiao Pump Industry Co., Ltd.	WTC50M	220-240V, 50/60Hz, 0,25kW, 1A, Class 155	EN 60335-1 EN 60335-2-60	TUV R 50224809 Tested with appliance
Running capacitor in WTC50M	Xunde Electrical & Electronic Co., Ltd.	CBB60	450V, 7μF±5%, T85	EN 60252-1	VDE 40030458
Motor thermal protector in WTC50M	Sensata Technologies Holland, B.V.	15AM	AC250V, Tf 140℃	EN 60730	KEMA 2014531.04
Internal wire in WTC50M	FOSHAN SHUNDE YONGGAOLIAN WIRE & CABLE CO LTD	1015	600V, 18AWG, 105℃, VW-1	EN 60335-1 EN 60335-2-60	UL E314925 Tested with appliance
Heat-shrinkable tube	SUZHOU HUANENG SHRINKABLE MATERIAL CO LTD	ZRG	600V, T125	EN 60335-1 EN 60335-2-60	UL E210401 Tested with appliance
Ozonizer	TianChang Trump Electronic Factory	TFB	AC220-240V	EN 60335-1 EN 60335-2-60 EN 60335-2-65	VDE 40022110 Tested with appliance
[1)] An asterisk indicates a mark which assures the agreed level of surveillance					

28.1	TABLE: Threaded part torque test		P
Threaded part identification	Diameter of thread (mm)	Column number (I, II, or III)	Applied torque (Nm)
Screw fixed the enclosure of main controller SG-0007	2,9	II	0,5

Earthed screw of main controller SG-0007	2,9	II	0,5
Screw fixed the enclosure of solenoid valve controller	2,9	II	0,5
Screw fixed the enclosure of main controller GS5-GS523DZ-RCA-3.0K	4,0	II	1,2
Earthed screw of main controller GS5-GS523DZ-RCA-3.0K	5,9	II	2,5

29.1	TABLE: Clearances		P
	Overvoltage category....:	II	—

		Type of insulation:				
Rated impulse voltage (V):	Min. cl (mm)	Basic	Functional	Supplementary	Reinforced	Verdict / Remark
	0,5 (*)					N
	0,5 (*)					N
	0,5 (*)					N
	0,5 (*)					N
	1,5	B1: 2,6				P
	1,5	B2: 5,3				P
	1,5		F1: 2,7			P
	1,5		F2: 3,7			P
	3,0				R1: 3,6	P
	3,0				R2: 11,8	P
	5,5					N
	8,0					N
	11,0					N

(*) This value is increased to 0,8 mm for pollution degree 3

Remark: B1: B/W live part and earthed terminal in main controller,

B2: B/W live part and earthed metal,

F1: B/W L and N in main controller,

F2: B/W L and N,

R1: B/W primary circuit and secondary circuit in main controller,

R2: B/W primary circuit and secondary circuit.

29.2	TABLE: Creepage distances, basic, supplementary and reinforced insulation										P
Working voltage (V)	Creepage distance (mm) 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	0,2	0,6	0,9	1,2	1,5	1,7	1,9		—	—	N
≤50	0,2	0,6	0,9	1,2	1,5	1,7	1,9	—		—	N
≤50	0,4	1,2	1,8	2,4	3,0	3,4	3,8	—	—		N
>50 and ≤ 125	0,3	0,8	1,1	1,5	1,9	2,1	2,4		—	—	N
>50 and ≤ 125	0,3	0,8	1,1	1,5	1,9	2,1	2,4	—		—	N
>50 and ≤ 125	0,6	1,6	2,2	3,0	3,8	4,2	4,8	—	—		N
>125 and ≤ 250	0,6	1,3	1,8	**2,5**	3,2	3,6	4,0	B1: 2,6	—	—	P
>125 and ≤ 250	0,6	1,3	1,8	2,5	3,2	3,6	4,0	—			N
>125 and ≤ 250	1,2	2,6	3,6	**5,0**	6,4	7,2	8,0	—	—	R1: 7,4	P
>125 and ≤ 250	0,6	1,3	1,8	2,5	3,2	3,6	**4,0**	B2: 5,3	—	—	P
>125 and ≤ 250	0,6	1,3	1,8	2,5	3,2	3,6	4,0	—			N
>125 and ≤ 250	1,2	2,6	3,6	5,0	6,4	7,2	**8,0**	—	—	R2: 11,8	P
>250 and ≤ 400	1,0	2,0	2,8	4,0	5,0	5,6	6,3		—	—	N
>250 and ≤ 400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	—		—	N
>250 and ≤ 400	2,0	4,0	5,6	8,0	10,0	11,2	12,6	—	—		N
>400 and ≤ 500	1,3	2,5	3,6	5,0	6,3	7,1	8,0		—	—	N
>400 and ≤ 500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	—		—	N
>400 and ≤ 500	2,6	5,0	7,2	10,0	12,6	14,2	16,0	—	—		N
>500 and ≤ 800	1,8	3,2	4,5	6,3	8,0	9,0	10,0		—	—	N
>500 and ≤ 800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	—		—	N
>500 and ≤ 800	3,6	6,4	9,0	12,6	16,0	18,0	20,0	—	—		N
>800 and ≤ 1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5		—	—	N
>800 and ≤ 1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	—		—	N
>800 and ≤ 1000	4,8	8,0	11,2	16,0	20,0	22,0	25,0	—	—		N
>1000 and ≤ 1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0		—	—	N
>1000 and ≤ 1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	—		—	N
>1000 and ≤ 1250	6,4	10,0	14,2	20,0	25,0	28,0	32,0	—	—		N

>1250 and ≤ 1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0		—	—	N
>1250 and ≤ 1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	—		—	N
>1250 and ≤ 1600	8,4	12,6	18,0	25,0	32,0	36,0	40,0	—	—		N
>1600 and ≤ 2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0		—	—	N
>1600 and ≤ 2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	—		—	N
>1600 and ≤ 2000	11,2	16,0	22,0	32,0	40,0	44,0	50,0	—	—		N
>2000 and ≤ 2500	7,5	10,0	14,0	20,0	25, 0	28,0	32,0		—	—	N
>2000 and ≤ 2500	7,5	10,0	14,0	20,0	25, 0	28,0	32,0	—		—	N
>2000 and ≤ 2500	15,0	20,0	28,0	40,0	50,0	56,0	64,0	—	—		N
>2500 and ≤ 3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0		—	—	N
>2500 and ≤ 3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	—		—	N
>2500 and ≤ 3200	20,0	25,0	36,0	50,0	64,0	72,0	80,0	—	—		N
>3200 and ≤ 4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0		—	—	N
>3200 and ≤ 4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	—		—	N
>3200 and ≤ 4000	25,0	32,0	44,0	64,0	80,0	90,0	100,0	—	—		N
>4000 and ≤ 5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0		—	—	N
>4000 and ≤ 5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	—		—	N
>4000 and ≤ 5000	32,0	40,0	56,0	80,0	100,0	112,0	126,0	—	—		N
>5000 and ≤ 6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0		—	—	N
>5000 and ≤ 6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	—		—	N
>5000 and ≤ 6300	40,0	50,0	72,0	100,0	126,0	142,0	160,0	—	—		N
>6300 and ≤ 8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0		—	—	N
>6300 and ≤ 8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	—		—	N
>6300 and ≤ 8000	50,0	64,0	90,0	126,0	160,0	180,0	200,0	—	—		N
>8000 and ≤ 10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0		—	—	N
>8000 and ≤ 10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	—			N
>8000 and ≤ 10000	64,0	80,0	112,0	160,0	200,0	220,0	250,0	—	—		N
>10000 and ≤ 12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0		—	—	N
>10000 and ≤ 12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	—		—	N
>10000 and ≤ 12500	80,0	100,0	142,0	200,0	250,0	280,0	320,0	—	—		N
*), B=Basic, S=Supplementary and R=Reinforced											

29.2	TABLE: Creepage distances, functional insulation							P
Working voltage (V)	Creepage distance (mm) Pollution degree							
	1	2			3			
		Material group			Material group			
		I	II	IIIa/IIIb	I	II	IIIa/IIIb	Verdict / Remark
≤50	0,2	0,6	0,8	1,1	1,4	1,6	1,8	N
>50 and ≤ 125	0,3	0,7	1,0	1,4	1,8	2,0	2,2	N
>125 and ≤ 250	0,4	1,0	1,4	**2,0**	2,5	2,8	3,2	P F1: 2,7mm
>125 and ≤ 250	0,4	1,0	1,4	2,0	2,5	2,8	**3,2**	P F2: 3,7mm
>250 and ≤ 400	0,8	1,6	2,2	3,2	4,0	4,5	5,0	N
>400 and ≤ 500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	N
>500 and ≤ 800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	N
>800 and ≤ 1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	N
>1000 and ≤ 1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	N
>1250 and ≤ 1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	N
>1600 and ≤ 2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	N
>2000 and ≤ 2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	N
>2500 and ≤ 3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	N
>3200 and ≤ 4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	N
>4000 and ≤ 5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	N
>5000 and ≤ 6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	N
>6300 and ≤ 8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	N
>8000 and ≤ 10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	N
>10000 and ≤ 12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	N

TABLE 30 RENSISTANCE TO HEAT, FIRE AND TRACKING (appended table) P

Component	Manufacturer	Type	Ball pressure test				Tracking test [CTI/ PTI]	Glow wire test					Needle-flame test	Verdict
			75°C	cl. 11 +40°C	125°C	cl. 19 +25°C		GWT 550°C	GWT 650°C	GWT 750°C	GWFI 850°C	GWIT		
Fuse supportor on PCB	SHIN CHIN INDUSTRIAL CO LTD	R3-74A			√		175V			√	√			P
Fuse suppor tor at internal wire	GUANGZHOU KINGFA SCIENCE& TECHNOLOGY CO LTD	FW620			√		175V			√	√			P
Relay 1	Xiamen Hongfa Electroacoustics Co., Ltd.	JQX-105F-1			√		175V			√	√			P
Relay 2	ZHEJIANG CHAN SIN ELECTRONICS CO., LTD.	JQC-3F-12VDC-1ZS			√		175V			√	√			P
Relay 3	Xiamen Hongfa Electroacoustics Co., Ltd.	HF32F			√		175V			√	√			P
Terminal block of main controller SG-0007	DEGSON ELECTRONICS CO LTD	PC10-PE *g			√		175V			√	√			P
Plastic enclosure of heater	--	--	√				175V	√						P

Component	Manufacturer	Type	Ball pressure test						Tracking test [CTI/ PTI]		Glow wire test		Needle-flame test	Verdict
			75°C	cl. 11 +40°C	125°C	cl. 19 +25° C		GWT 550°C	GWT 650°C	GWT 750°C	GWFI 850°C	GWIT		
Plastic enclosure of main controller SG-0007 and solenoid valve controller	NINGBO LG YONGXING CHEMICAL CO LTD	HI-121H	√				175V	√						P
Terminal block of solenoid valve controller	DEGSON ELECTRONICS CO LTD	DG1450*kk			√		175V			√	√			P
X2 capacitor	Guangdong Fengming Electronic Tech. Co., Ltd.	MKP-X2					175V			√	√			P
Solenoid valve enclosure	Ningbo Jiayin Electro Mechanical Technology Co., Ltd.	JYZ-3			√		175V			√	√			P
Running capacitor pump	Xunde Electrical & Electronic Co., Ltd.	CBB60			√		175V			√	√			P
Ozonizer enclosure	TianChang Trump Electronic Factory	TFB	√				175V	√						P

Component	Manufacturer	Type	Ball pressure test				Tracking test [CTI/ PTI]	Glow wire test					Needle-flame test	Verdict
			75°C	cl. 11 +40°C	125°C	cl. 19 +25°C		GWT 550°C	GWT 650°C	GWT 750°C	GWFI 850°C	GWIT		
PCB	CHIH HSIEN ENTERPRISE CO LTD	402					175V						√	P
Terminal block of pump	--	--			√		175V			√	√			P
Plastic of pump	--	--	√				175V	√						P
Controller panel of main controller SG-0007	--	--	√				175V	√						P
Controller panel of main controller GS5-GS523DZ-RCA-3.0K	--	--	√				175V	√						P
Connector for transformer of SG-0007 and solenoid valve controller	--	--			√		175V			√	√			P
Connector for PCB for transformer of SG-0007 and solenoid valve controller	--	--			√		175V			√	√			P

Component	Manufacturer	Type	Ball pressure test				Tracking test [CTI/ PTI]	Glow wire test					Needle-flame test	Verdict
			75°C	cl. 11 +40°C	125°C	cl. 19 +25°C		GWT 550°C	GWT 650°C	GWT 750°C	GWFI 850°C	GWIT		
Transformer bobbin of GS5-GS523DZ-RCA-3.0K	--	--			√		175V			√	√			P
Connector of GS5-GS523DZ-RCA-3.0K	--	--			√		175V			√	√			P
Thermostat of heating element H30-R2	Taizhou Mingjia Electric Co., Ltd.	KSD302			√		175V			√	√			P
Thermal cut-out of heating element H30-R2	Taizhou Mingjia Electric Co., Ltd.	KSD302R			√		175V			√	√			P

IEC60335-2-60			
Clause	Requirement+Test	Result-Remark	Verdict

Appendix 1: EN 60335-1:2012+A11:2014+ A13:2017+A1:2019+A2:2019+ A14:2019
EN 62233: 2008

CENELEC COMMON MODIFICATIONS (EN): **National Differences according to** : EN 60335-1:2012+A11:2014+A13:2017+A1:2019+A2:2019+ A14:2019			
	CENELEC COMMON MODIFICATIONS (EN)		—
6.1	Delete “class 0” and “class 01”		N
7.1	Single-phase appliances to be connected to the supply mains: 230 V covered		P
	Multi-phase appliances to be connected to the supply mains: 400 V covered		N
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
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		N
	appliances normally used on the floor and having a mass exceeding 40 kg are not tilted		N
	The force on the probe in the straight position is increased to 10 N when probe 18 is used		N
	When using test probe 18 the appliance is fully assembled as in normal use without any parts removed, and		N
	parts intended to be removed for user maintenance are also not removed		N
8.1.3	Instead of test probe B, test probe 18 and test probe 13, for appliances other than those of class II, test probe 41 of IEC 61032 is applied with a force not exceeding 1 N to live parts of visibly glowing heating elements, all poles of which can be disconnected by a single switching action		N

8.2	Compliance is checked by inspection and by applying the test probes of EN 61032 in accordance with the conditions specified in 8.1.1		N
	Test probe B and probe 18 of EN 61032 are applied to built-in appliances and fixed appliances only after installation		N
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
20.2	For appliances having dangerous moving parts, due to their working function, e.g. the needle of a sewing machine, tools of kitchen machines or the blade of an electrical knife, full protection is not possible for performing their intended use		N
	When using a test probe similar to test probe B of EN 61032, having a circular stop face and applied with a force of 5N, the accessories and detachable covers are removed		P
	When using test probe 18 it is applied with a force of 2,5N on the appliance fully assembled		N
22.12	Other parts intended to be detached during use, maintenance or cleaning (e.g. batteries, battery covers, lids, attachments, steam nozzles) are not considered as parts providing a similar function as handles, knobs, grips, levers		P
22.17	The requirement is not applicable to built-in appliances		N
24.1	Components comply with the safety requirements specified in the relevant EN standards as far as they reasonably apply		P
	Motors are not required to comply with EN 60034-1, but tested as part of the appliance according to this standard		N
	Relays are tested as part of the appliance according to this standard		N
	Relays may be alternatively tested to EN 60730-1 and the additional requirements in EN 60335-1		N
	The requirements of Clause 29 of this standard apply between live parts of components and accessible parts of the appliance		P
	Components may comply with the requirements for clearances and creepage distances for functional insulation as specified in the relevant component standard		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		N

	Components that have not been tested and shown to comply with the EN standard for the relevant component are tested according to the requirements of 30.2 of this standard		N
	Components that have been tested and shown to comply with the resistance to fire requirements in the EN standard for the relevant component need not be retested provided that:		—
	- the severity specified in the component standard is not less than the severity specified in 30.2, and		P
	- the test report for the component states the values of t_e and t_i acc. to EN 60695-2-11		N
	If the above two conditions are not satisfied, the component is tested as part of the appliance		P
	Power electronic converter circuits are not required to comply with EN 62477-1, but tested as part of the appliance according to this standard		N
	Unless components have been tested and found to comply with the relevant EN standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		P
	For components mentioned in 24.1.1 to 24.1.9, no additional tests specified in the relevant EN standard for the component are necessary other than those specified in 24.1.1 to 24.1.9		P
	Components that have not been tested and found to comply with the relevant EN standard, and		N
	components that are not marked or not used in accordance with their marking,		N
	are tested in accordance with the conditions occurring in the appliance, the number of samples being that required by the relevant standard		N
	Lamp-holders and starter-holders that have not been tested and found to comply with the relevant EN standard are tested as a part of the appliance and additionally comply with the gauging and interchangeability requirements of the relevant EN standard under the conditions occurring in the appliance		N
	Where the relevant EN standard specifies these gauging and interchangeability requirements at elevated temperatures, the temperatures measured during the tests of Clause 11 are used		N
	There are no additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of EN 60320-1 and EN 60309, unless they are specifically mentioned in the text of this standard		N

	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		N
	with connectors and appliance inlets complying with the standard sheets of EN 60320-1, if		N
	direct supply to these parts from the supply mains gives rise to a hazard		N
	For plugs used in CENELEC countries Annex ZH applies		N
24.1.7	When 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
	Compliance with Clause 8 of this standard is not impaired by connecting the appliance to a device covered by EN 41003		N
24.Z1	Type S2 and S3 capacitors according to EN 60252-1 are not required to undergo the testing as required by 30.2.2 and 30.2.3.1		N
25.1	Plugs and pins for insertion into socket outlets follow the relevant standards sheets in Annex ZH		N
25.7	Rubber sheathed cords (60245 IEC 53) are not suitable for appliances intended to be used outdoors, or		N
	when they are liable to be exposed to significant amount of ultraviolet radiation		N
25.25	Instead of IEC/TR 60083, dimensions of the pins and engagement face of plugs of appliances that are inserted into socket-outlets are in accordance with the dimensions of the relevant plug standard		N
	Common plugs and socket-outlets types in CENELEC countries as shown in Annex ZH		N
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,		N
	unless they are held in place near the terminals independently of the solder		N
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
32	Compliance regarding electromagnetic fields is checked according to EN 62233		N
Annex I, 19.I.101	The appliance is supplied at rated voltage and operated under normal operation with each of the fault conditions specified		N

	The duration of any of the tests is as specified in 19.7		N
ZA	**ANNEX ZA (**NORMATIVE) **SPECIAL NATIONAL CONDITIONS (EN)**		—
	Denmark, Sweden, Norway and Finland		N
7.12.8	The maximum inlet water pressure is at least 1,0 MPa ....:		N
	Norway		N
19.5	The test is also applicable to appliances intended to be permanently connected to fixed wiring		N
	Norway		N
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
	Denmark		N
22.47	The maximum inlet water pressure is at least 1,0 MPa ....:		N
	Ireland and United Kingdom		N
25.8	In the table, the line >10 A and ≤16 A is replaced with:		N
	> 10 and ≤ 13 1,25 (1,0)[b]		N
	> 13 and ≤ 16 1,5 (1,0)[b]		N
ZB	**ANNEX ZB** (INFORMATIVE) **A-DEVIATIONS**		—
	Ireland		N
25.1 and 25.25	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
	United Kingdom		N

25.1 and 25.25	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.		N
	It also allows plugs to BS 4573 and EN 50075 to be fitted to shavers and toothbrushes		N
ZC	**ANNEX ZC (NORMATIVE)** **NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS**		—
	A list of documents referred to in the text of this standard in such a way that some or all of their content constitutes requirements of this document		N
ZD	**ANNEX ZD** (INFORMATIVE) **IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS**		N
	List of IEC and CENELEC code designations for flexible cords		N
ZE	**ANNEX ZE** (INFORMATIVE) **SPECIFIC ADDITIONAL REQUIREMENTS FOR APPLIANCES AND MACHINES INTENDED FOR COMMERCIAL USE**		—
7.1	Business name and full address of the manufacturer and, where applicable, his authorized representative..... :		N
	Model or type reference.....:		N
	Serial number, if any		N
	Production year		N
	Designation of the appliance..... :		N
7.12	Instructions provided with the appliance so that the appliance can be used safely		N
	The instructions contain at least the following information:		—
	- the business name and full address of the manufacturer and, where applicable, his authorized representative		N
	- model or type reference of the appliance as marked on the appliance itself, except for the serial number		N
	- the designation of the appliance together with its explanation in case it is given by a combination of letters and/or numbers		N
	- the general description of the appliance, when needed due to the complexity of the appliance		N

	- specific precautions required during installation, operation, adjusting, user maintenance, cleaning, repairing or moving		N
	- when needed drawings, diagrams, descriptions and explanations necessary for the safe use and user maintenance of the appliance		N
	- the possible reasonably foreseeable misuse and, whenever relevant, a warning against the effects it may have on the safe use of the appliance		N
	The words “Original instructions” appear on the language version(s) verified by the manufacturer or by the authorized representative		N
	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
	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
	The instructions indicate the type and frequency of inspections and maintenance required for safe operation including the preventive maintenance measures		N
7.12.ZE1	If needed for specific appliances, the following information to be given:		—
	- 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		N
	- on how to maintain adequate mechanical stability when in use, during transportation, assembly, dismantling, scrapping and any other action involving the appliance		N
	- on the protective measures to be taken by the user, including, where appropriate, the personal protective equipment to be provided		N
	- 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		N
	- on the specifications on the spare parts to be used, when these affect the health and safety of the operator		N

	- on airborne noise emissions, determined and declared in accordance with the relevant Part 2, which includes:		—
	- the A-weighted emission sound pressure level at workstations, where this exceeds 70 dB(A).....;		N
	- where this level does not exceed 70 dB(A), this fact is indicated		N
	- the peak C-weighted instantaneous sound pressure value at workstations, where this exceeds 63 Pa (130 dB in relation to 20 μPa).....:		N
	- 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
7.12.ZE2	The instructions include a warning to disconnect the appliance from its power source during service and when replacing parts		N
	If the removal of the plug is foreseen, it is clearly indicated that the removal of the plug is such that an operator can check from any of the points to which he has access that the plug remains removed		N
	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
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 manual operation is required to restart it		N
20.1	Appliances and their components and fittings have adequate mechanical stability during transportation, assembly, dismantling and any other action involving the appliance		N
20.2	Dangerous moving transmission parts safeguarded either by design or guards		N
	When guards are used, they are fixed guards, interlocking movable guards or protective devices		N
	Moving parts directly involved in the function of the appliance which cannot be made completely inaccessible fitted with:		—
	- fixed guards or interlocking movable guards preventing access to those sections of the parts that are not used in the work, and		N
	- adjustable guards restricting access to those sections of the moving parts where access is necessary		N

	Interlocking movable guards used where frequent access is required		N
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
22.ZE.1	For appliances provided with a seat, the seat gives adequate stability		N
	The distance between the seat and the control devices capable of being adapted to the operator		N
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
	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
22.ZE.3	Appliances designed in such a way that incorrect mounting is avoided, if this can lead to an unsafe situation		N
	If this is not possible, information on the correct mounting is given directly on the part and/or the enclosure		N
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
	so designed that they can be fitted with such attachments, or		N
	be shaped in such a way that standard lifting gear can easily be used		N
	Appliances to be moved manually are constructed or equipped so that they can be moved easily and safely		N
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
	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
	Where possible, guards are incapable of remaining in place without their fixings		N
	This does not apply if, after removal of the screws, or if the component is incorrectly repositioned, the appliance becomes inoperative		N

	Movable guards are interlocked		N
	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
	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:		—
	- prevents the start of hazardous appliance functions until the guard is closed and locked, and		N
	- keeps the guard closed and locked until the risk of injury from the hazardous appliance functions has ceased		N
	Interlocking movable guards remain attached to the appliance when open, and		N
	they are designed and constructed in such a way that they can be adjusted only by means of an intentional action		N
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
	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
	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
	After these tests the interlock system is fit for further use		N
22.ZE.7	Adjustable guards restricting access to areas of the moving parts strictly necessary for the work are:		—
	- adjustable manually or automatically, depending on the type of work involved, and		N
	- readily adjustable without the use of tools		N
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
	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
22.ZE.9	Appliances fitted with means to isolate them from all energy sources		N

	Such isolators are clearly identified, and		N
	they are capable of being locked if reconnection endanger persons		N
	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
ZF	**ANNEX ZF** (INFORMATIVE) **CRITERIA APPLIED FOR THE ALLOCATION OF PRODUCTS COVERED BY STANDARDS IN THE EN 60335 SERIES UNDER LVD OR MD**		—
	List of standards under CENELEC/TC61 with the allocation under the LVD (Low Voltage Directive) or the MD (Machinery Directive).....:		P
ZG	**ANNEX ZG** (NORMATIVE) **UV APPLIANCES**		—
	The following modifications to this standard apply to appliances having UV emitters		N
	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
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
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
ZH	**ANNEX ZH** (INFORMATIVE) **Common plug and socket-outlet types in CENELEC countries**		—
	In general, supply cords of single-phase appliances having a rated current not exceeding 16 A are fitted with a plug complying with the following standard sheets:		P
	- for class I appliances or class II appliances with functional earth, standard sheet EU2, EU3 or EU4 .....:		N
	- for class II appliances, standard sheet EU5, EU6 or EU7..... :		P
	There are exemptions or differences in certain CENELEC countries		P

ZI	**ANNEX ZI** (INFORMATIVE) **Information on the application of A11:2014 to EN 60335-1:2012** **CENELEC CLC/TC 61(SEC)2096A**		—
	Clarification of the application of parts 2 in conjunction with the 2002 or 2012 version of EN 60335-1		N
ZZA	**ANNEX ZZA** (INFORMATIVE) **RELATIONSHIP BETWEEN THIS EUROPEAN STANDARD AND THE SAFETY OBJECTIVES OF DIRECTIVE 2014/35/EU [2014 OJ L96} AIMED TO BE COVERED**		—
	This standard provides one means of conforming to safety objectives of Directive 2014/35/EU		P
	When cited in the Official Journal under that Directive, compliance with the normative clauses of this standard given in Table ZZA.1 confers a presumption of conformity with the safety objectives of that Directive and associated EFTA regulations		P
	Compliance with this Part 1 when used together with the relevant Part 2 provides one means of conformity with the safety objectives		P
ZZB	**ANNEX ZZB** (INFORMATIVE) **RELATIONSHIP BETWEEN THIS EUROPEAN STANDARD AND THE ESSENTIAL REQUIREMENTS OF DIRECTIVE 2006/42/EC AIMED TO BE COVERED**		—
	This standard provides one means of conforming to essential requirements of EU Directive 2006/42/EC		P
	When cited in the Official Journal under that Directive, compliance with the normative clauses of this standard given in Table ZZB.1 confers a presumption of conformity with the essential requirements of that Directive and associated EFTA regulations		P
	Compliance with this Part 1 when used together with the relevant Part 2 provides one means of conformity with the essential health and safety requirements		P

ANNEX EMF			P
	The Tested product also complies to the requirements of EN 62233:2008		P
	Limit ……100%	Measured max. : 13,9%	P

Details of: SG-7307AB general view

View:

[x] general
[ ] front
[rear
[ ] right
[ ] left
[ ] top
[ ] bottom



Details of: SG-7307AB general view

View:

[x] general
[ ] front
[rear
[ ] right
[ ] left
[ ] top
[ ] bottom



Details of: SG-7303DS general view

View:

[x] general
[ ] front
[rear
[ ] right
[ ] left
[ ] top
[ ] bottom



Details of: SG-7309AS general view

View:

[x] general
[ ] front
[rear
[ ] right
[ ] left
[ ] top
[ ] bottom



Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7301AS, SG-7301AB	 SG-7302AS, SG-7302AB
	 SG-7303AS, SG-7303AB	 SG-7303A1S, SG-7303A1B

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7303A2S, SG-7303A2B	 SG-7304AS,SG-7304AB
	 SG-7305AS,SG-7305AB	 SG-7305A1S,SG-7305A1B

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7306AS,SG-7306AB	 SG-7306A1S,SG-7306A1B
	 SG-7307AS,SG-7307AB	 SG-7308AS,SG-7308AB

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7308A1S,SG-7308A1B	 SG-7309AS,SG-7309AB
	 SG-7302BS,SG-7302BB	 SG-7305B1S,SG-7305B1B

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7305B2S,SG-7305B2B	 SG-7306B1S,SG-7306B1B
	 SG-7309BS,SG-7309BB	 SG-7310B1S,SG-7310B1B

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7310B2S,SG-7310B2B	 SG-7302CS,SG-7302CB
	 SG-7305CS,SG-7305CB	 SG-7305C1S,SG-7305C1B

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7305C2S,SG-7305C2B	 SG-7309CS,SG-7309CB
	 SG-7306CS,SG-7306CB	 SG-7306C1S,SG-7306C1B

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7310CS,SG-7310CB	 SG-7310C1S,SG-7310C1B
	 SG-7310C2S,SG-7310C2B	 SG-7311CS,SG-7311CB

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7305ES,SG-7305EB	 SG-7305DS,SG-7305DB
	 SG-7309DS,SG-7309DB	 SG-7310DS,SG-7310DB

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7303VS,SG-7303VB	 SG-7301BS,SG-7301BB
	 SG-7305VS,SG-7305VB	 SG-7306VS,SG-7306VB

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7303DS,SG-7303DB	 SG-7304DS,SG-7304DB
	 SG-7301CS,SG-7301CB	 SG-7304HS,SG-7304HB

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7305BWS,SG-7305BWB	 SG-7305BW-RS,SG-7305BW-RB
	 SG-7305E-RS,SG-7305E-RB	 SG-7312BWS,SG-7312BWB

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-9280S,SG-9280B	 SG-9281S,SG-9281B
	 LIV-SPA-S22S, LIV-SPA-S22B	 LIV-SPA-Y22S, LIV-SPA-Y22B

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7303ES, SG-7303EB	 SG-7303E1S, SG-7303E1B
	 SG-7303E2S, SG-7303E2B	 SG-7303FS, SG-7303FB

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7304FS, SG-7304FB	 SG-7305C-RS, SG-7305C-RB
	 SG-7305D1S, SG-7305D1B	 SG-7305D-RS, SG-7305D-RB

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7305GS, SG-7305GB	 SG-7305G1S, SG-7305G1B
	 SG-7305G2S, SG-7305G2B	 SG-7305G3S, SG-7305G3B

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7305G4S, SG-7305G4B	 SG-7305HS, SG-7305HB
	 SG-7305JS, SG-7305JB	 SG-7305J1S, SG-7305J1B

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7305TS, SG-7305TB	 SG-7306V-RS, SG-7306V-RB
	 SG-7307BS, SG-7307BB	 SG-7309C-RS, SG-7309C-RB

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7309FS, SG-7309FB	 SG-7310D-RS, SG-7310D-RB
	 SG-7310HS, SG-7310HB	 SG-7312BW-RS, SG-7312BW-RB

Details of: General view

View:		
[x] general [ ]front [ ]rear [ ]right [ ]left [ ]top [ ]bottom	 SG-SW395SS, SG-SW395SB	 V1S, V1B
	 V2S, V2B	 V3S, V3B

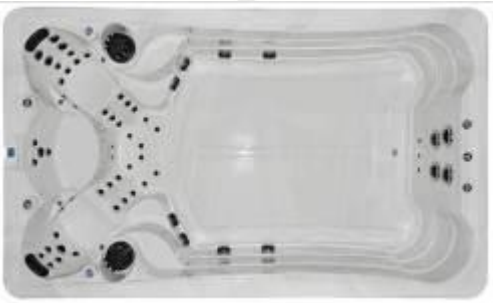
View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 V4S, V4B	 V5S, V5B
	 SG-2103S, SG-2103B	 SG-7301DS, SG-7301DB

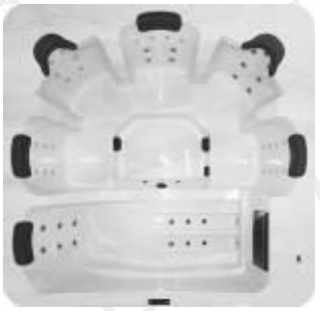
View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7301ES, SG-7301EB	 SG-7302DS, SG-7302DB
	 SG-7303E3S, SG-7303E3B	 SG-7303F1S, SG-7303F1B

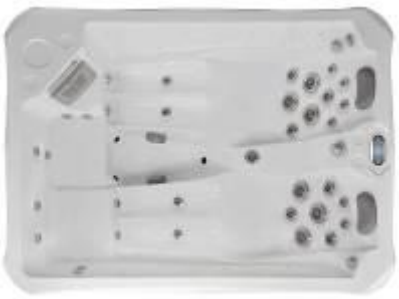
View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7304F1S, SG-7304F1B	 SG-7305H2S, SG-7305H2B
	 SG-7305KS, SG-7305KB	 SG-7309F1S, SG-7309F1B

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7309GS, SG-7309GB	 SG-7309G1S, SG-7309G1B
	 SG-7309VS, SG-7309VB	 SG-7313BWS, SG-7313BWB

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7314BWS, SG-7314BWB	 SG-7315BWS, SG-7315BWB
	 SG-7316BWS, SG-7316BWB	 SG-9505S, SG-9505B

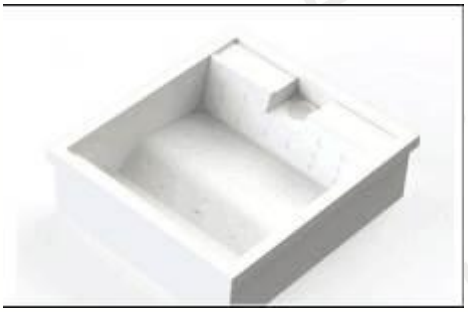
View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-B398DS, SG-B398DB	 SG-B398SS, SG-B398SS
	 SG-JD7320S, SG-JD7320B	 SG-SW395DS, SG-SW395DB

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7302ES, SG-7302EB	 SG-7307FS, SG-7307FB
	 SG-2105S, SG-2105B	 SG-7301GS

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7301G1S	 SG-7302GS
	 SG-7302G1S	 SG-7303GS, SG-7303GB

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7306HS, SG-7306HB	 SG-7306DS, SG-7306DB
	 SG-7306KS, SG-7306KB	 SG-MP029S, SG-MP029B

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-MP085S, SG-MP085B	 SG-MP092S, SG-MP092B
	 SG-MP099S, SG-MP099B	 AU-01S, AU-01B

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-ITALY01S	 SG-SY580S, SG-SY580B
	 SG-7330ES, SG-7330EB	 SG-7317BWB

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7318BWB	 SG-7319BWB
	 SG-7321BWB	 SG-7322BWB

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7323BWB	 SG-7324BWB
	 SG-7325BWB	 SG-7326BWB

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7327BWB	 SG-7328BWB
	 SG-7329BWB	 SG-7330BWB

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7331BWB	 SG-7332BWB
	 SG-7333BWB	 SG-7334BWB

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7335BWB	 SG-7336BWB
	 SG-7337BWB	 SG-7338BWB

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7339BWB	 SG-7340BWB
	 SG-7341BWB	 SG-7344BWB

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7345BWB	SG-7346BWB
	 SG-7347BWB	 SG-7350BWB

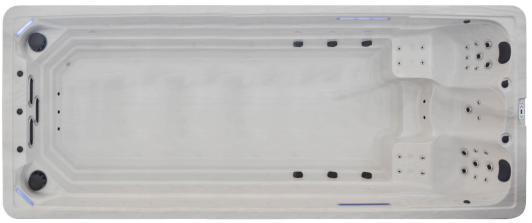
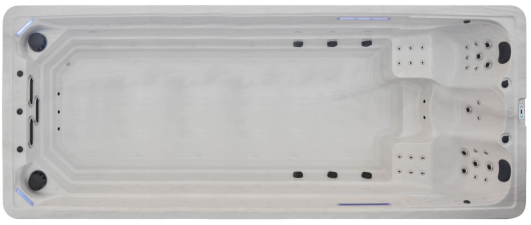
View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7351BWB	 SG-7352BWB
	 SG-7353BWB	 SG-7354BWB

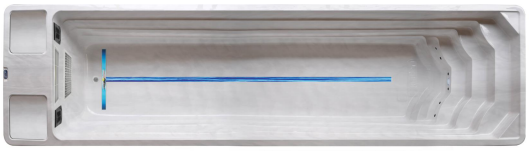
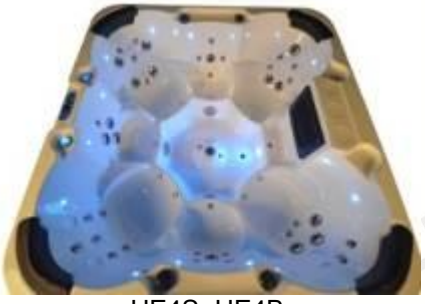
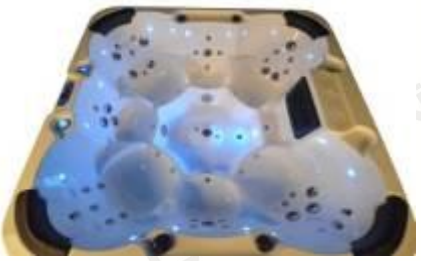
View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7355BWB	 SG-7356BWB
	 SG-7357BWB	 SG-7358BWB

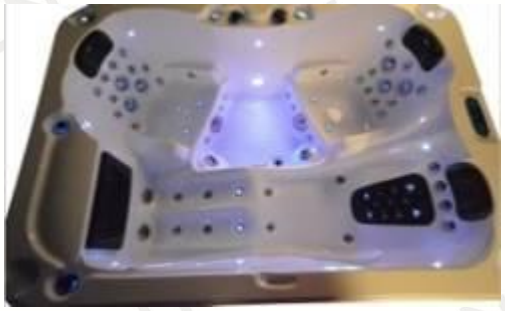
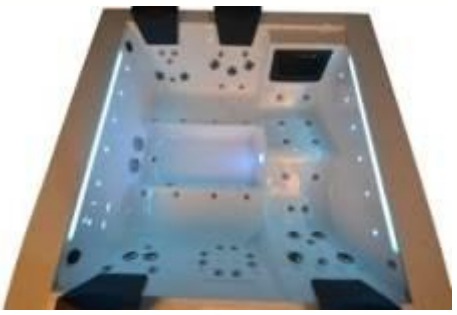
View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7360BWB	 SG-7361BWB
	 SG-7362BWB	 SG-7363BWB

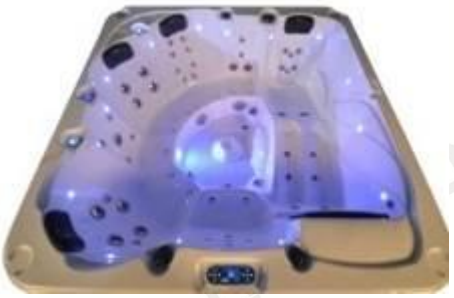
View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7364BWB	 SG-9280TS, SG-9280TB
	 SG-SW395D-BS, SG-SW395D-BB	 SG-B398BS, SG-B398BB

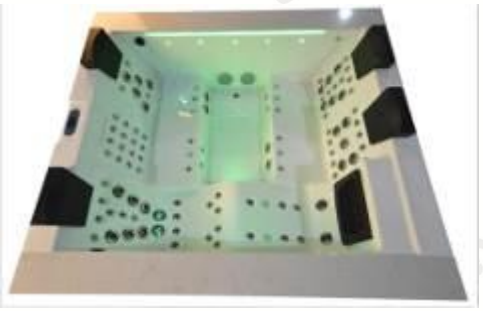
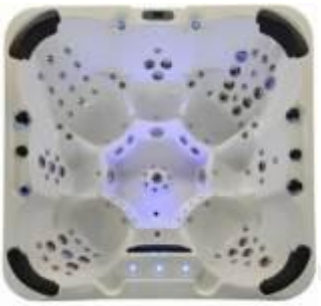
View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-466AS, SG-466AB	 SG-BW399AS, SG-BW399AB
	 SG-BW399BS, SG-BW399BB	 SG-BW399CS, SG-BW399CB

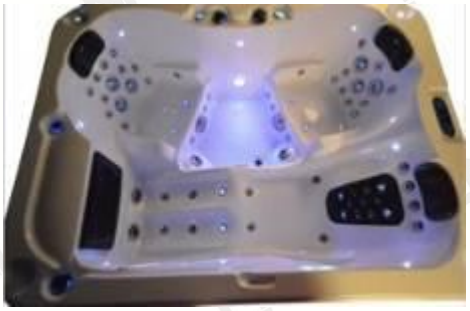
View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-BW600AS, SG-BW600AB	 SG-BW600BS, SG-BW600BB
	 SG-BW600CS, SG-BW600CB	 SG-9506S, SG-9506B

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-9507S, SG-9507B	 SG-200S, SG-200B
	 HE4S, HE4B	 HE7S, HE7B

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 HE102S, HE102B	 HE121S, HE121B
	 HE201S, HE201B	 HE241S, HE241B

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 HE542S, HE542B	 HE561S, HE561B
	 AR542S, AR542B	 AR561S, AR561B

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 FD121S, FD121B	 FD241S, FD241B
	 GP4S, GP4B	 GP7S , GP7B

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 GD-04S, GD-04B	 SP201S, SP201B
	 SW395BLS, SW395BLB	 SW395BL-TS, SW395BL-TB

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7342BWB	 SG-7343BWB
	 IN.K1001	 SPATOUCH1

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 TP600	 TP800
	 VL260	 VL401

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 VL701S	 VL801D
	 DH1.0	 JA50

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 JA100	 LP150
	 STORM FORCE 1	 STORM FORCE 7

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 STORM FORCE 9	 TDA50
	 TDA150	 TDA200

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 WP200-II	 WP250-II
	 WP300-II	 WTC100-AB

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 WTC120-AB	 WTC200-AB
	 BP21-BP21MS3B-RCA3.0K	 BP21-BP21P4BC-RCA3.0K

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 BP21-BP2100G0-RCA3.0K	 BP21-BP2100G1-RCA3.0K
	 BP21-BP6013G1-RCA3.0K	 BP21-BP6013G3-RCA3.0K

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 BP21-BW6013X1-RCA2.0K	 BP21-BW6013X1-RCA3.0K
	 BP21-BW6013X2-RCA3.0K	 BP21-PL6013X1-RCA3.0K

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 BP21-BP601-RCA-3.0K	 GS5-GS501Z-RCA-3.0K
	 GS5-GS510SZ-RCA-3.0K	 GS5-GS523DZ-RCA-3.0K

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 IN.YE-3-H3.0	 IN.YE-5-H3.0
	 IN.YT-7-H4.0	 MP7-GS100-DCA

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7306GS	 SG-7307GS
	 SG-7308DS, SG-7308DB	 SG-7308GS

View: [x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-7307F1S, SG-7307F1B	 SG-9505AS, SG-9505AB
	 SG-9281TS, SG-9281TB	 SG-6000T

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SG-5000	 J-01（Bremen）
	 SG-9281TS, SG-9281TB	 J-02A（Atlanta）

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 J-02B（Las Vegas）	 J-03A（Houston） SG-7307GS
	 J-03B（Washington）	 J-07（London）

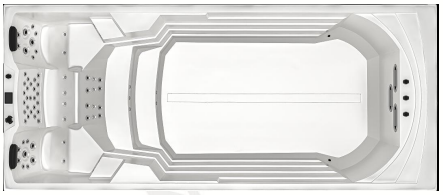
View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 J-08（Cambridge）	 SG340F
	 SG-6000T	 SG-5000

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 J-01（Bremen）	 J-02A（Atlanta）
	 J-02B（Las Vegas）	 J-03A（Houston）

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 J-03B（Washington）	 J-07（London）
	 J-08（Cambridge）	 SG340F

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 SP5260	 SP5260-T
	 J-05	 J-06

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 J-09	 J-10
	 7319D	 SP102

View:		
[x] general [ ]front [rear [ ]right [ ]left [ ]top [ ]bottom	 J-17（Lincoln）	 SG5850
	 SG6300(T)	 SG390(LAGOON SPA)

Details of: main controller GS5-GS523DZ-RCA-3.0Kgeneral view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Main controller GS5-GS523DZ-RCA-3.0K internal view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Heater element of main controllerGS5-GS523DZ-RCA-3.0K

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Main PCB of main controller GS5-GS523DZ-RCA-3.0K

View:

[x] general

[ ]front

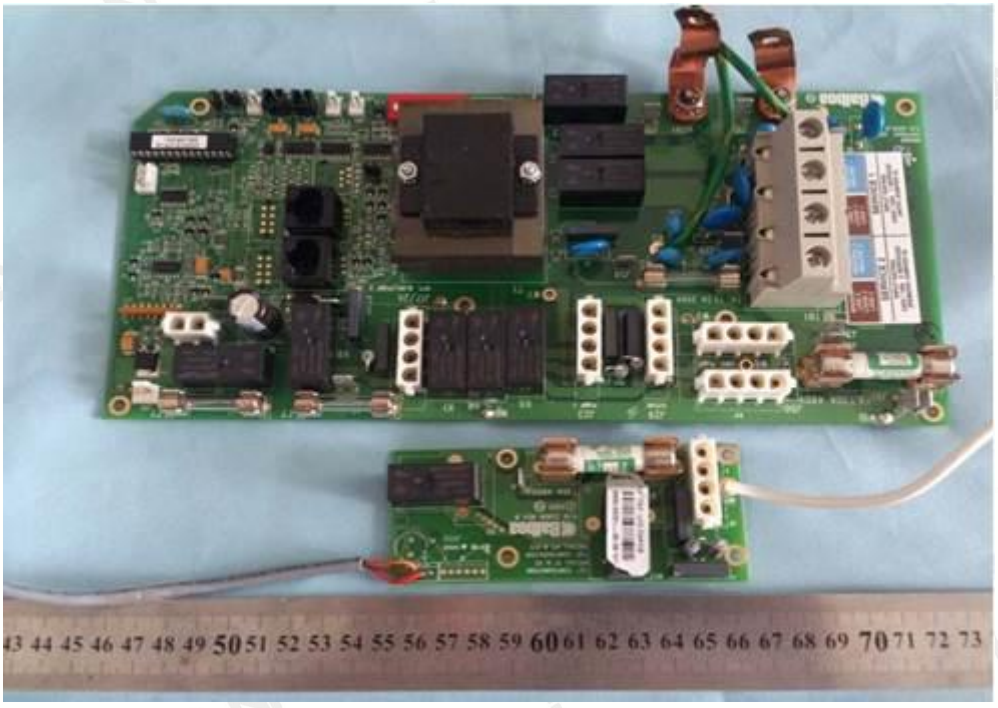
[ ]rear

[ ]right

[ ]left

[ ]top

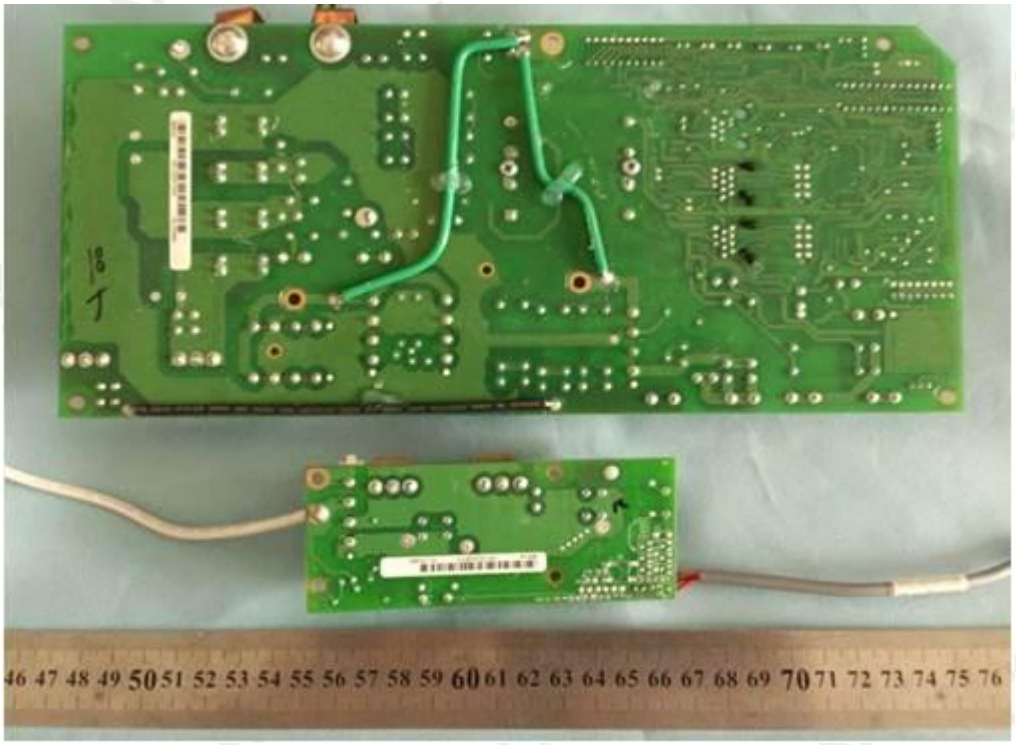
[ ]bottom



Details of: Main PCB of main controller GS5-GS523DZ-RCA-3.0K

View:

[x] general
[ ]front
[ ]rear
[ ]right
[ ]left
[ ]top
[ ]bottom



Details of: Control panel of main controller GS5-GS523DZ-RCA-3.0K

View:

[x] general
[ ]front
[ ]rear
[ ]right
[ ]left
[ ]top
[ ]bottom



Details of: Control PCB of main controller GS5-GS523DZ-RCA-3.0K

View:

[x] general

[ ]front

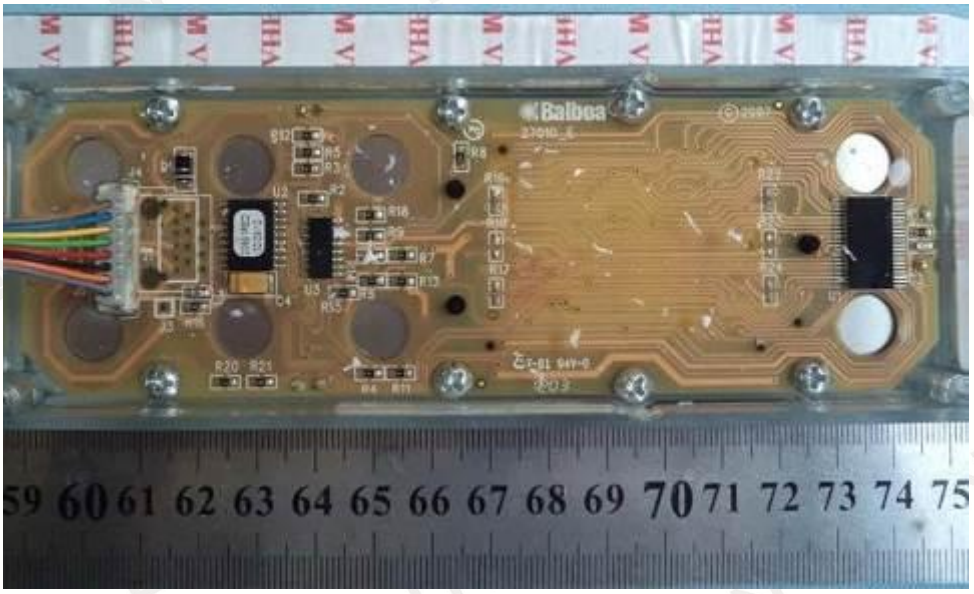
[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Control PCB of main controller GS5-GS523DZ-RCA-3.0K

View:

[x] general

[ ]front

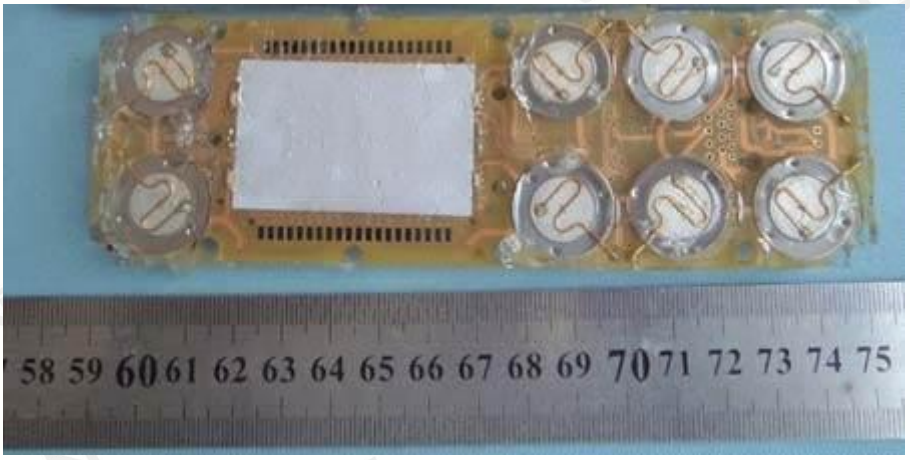
[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Remote control of main controller GS5-GS523DZ-RCA-3.0K

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Main controller of SG-0007 general view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Main controller of SG-0007 internal view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Remark:The input wire of transformer has two insulation layers.

Details of: Main PCB of main controller SG-0007

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Main PCB of main controller SG-0007

View:

[x] general

[ ]front

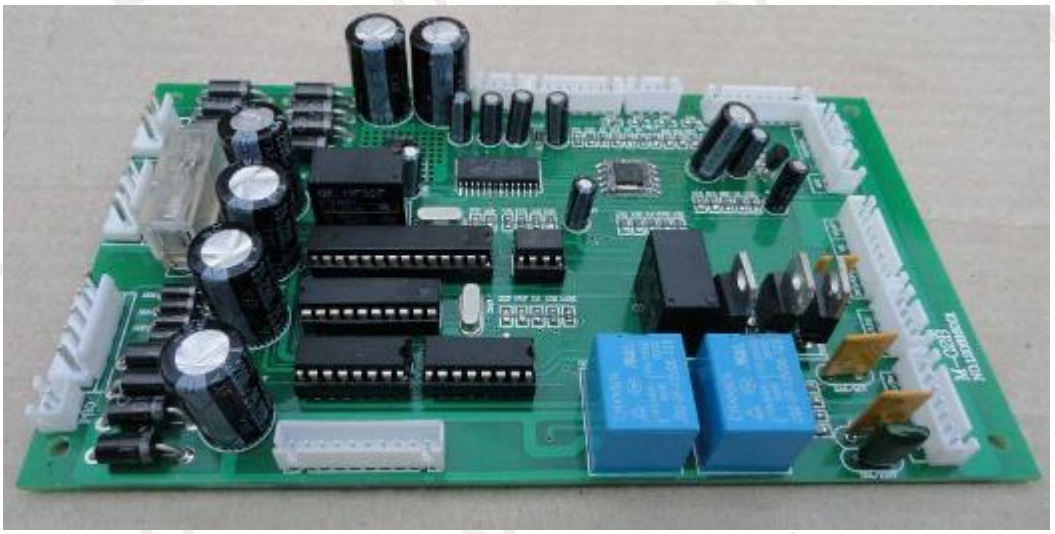
[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Main controller SG-0007 general view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Main PCB of main controller SG-0007

View:

[x] general

[ ]front

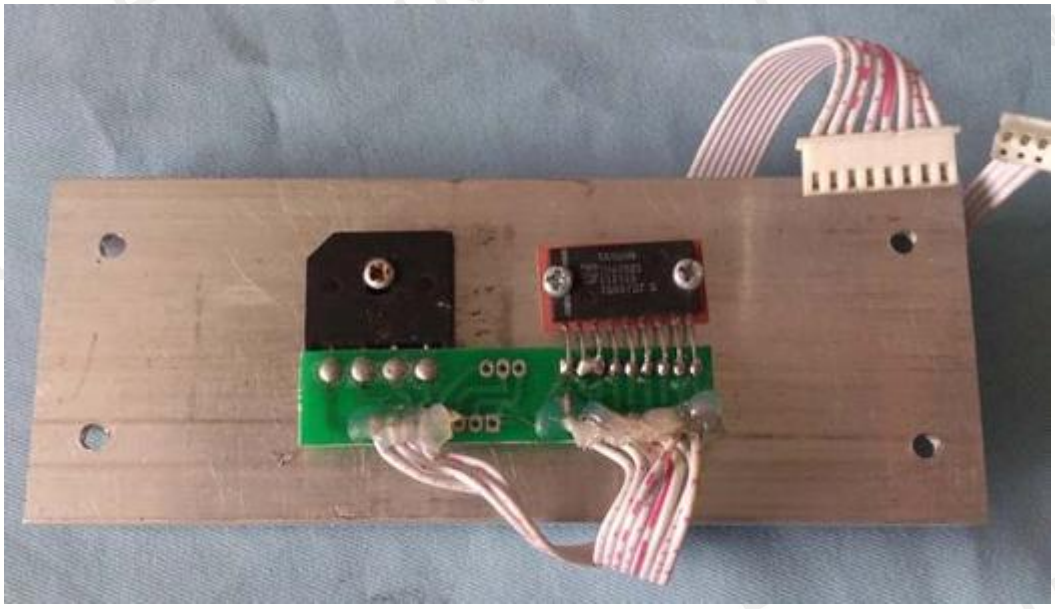
[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Main PCB of main controller SG-0007

View:

[x] general

[ ]front

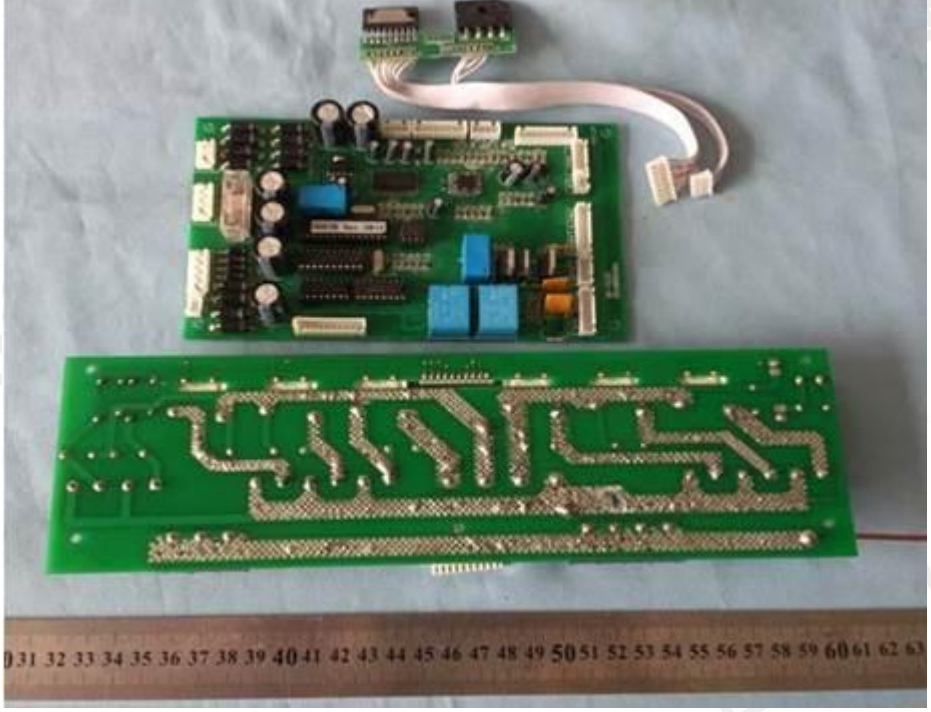
[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Control panel of main controller SG-0007

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Control PCB of main controller SG-0007

View:

[x] general

[ ]front

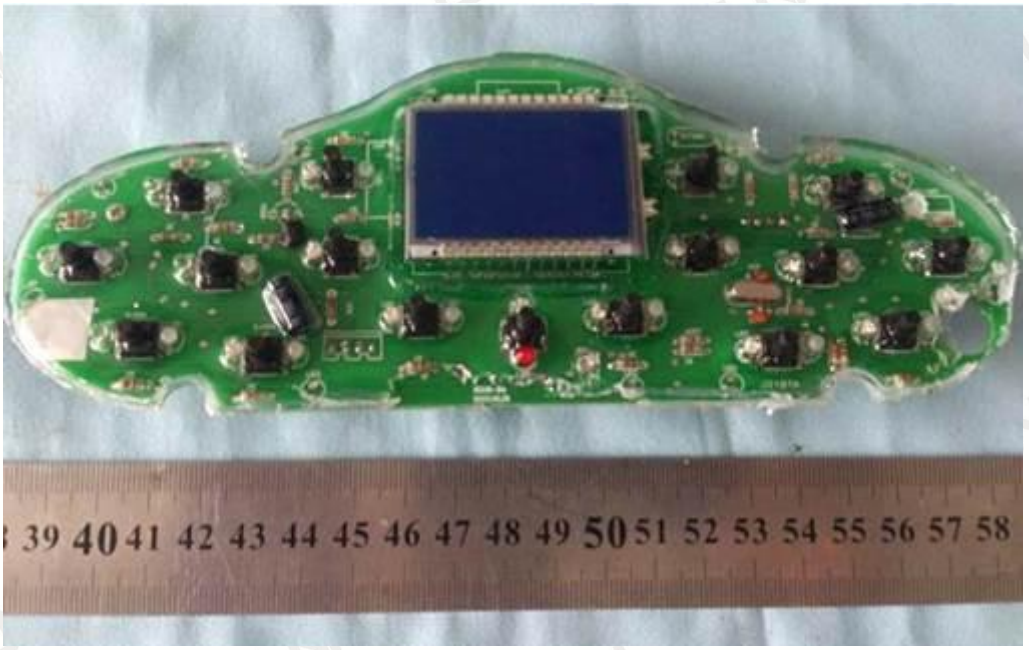
[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Control PCB of main controller SG-0007

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Solenoid valve controller general view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Solenoid valve controller internal view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Remark:The input wire of transformer has two insulation layers.

Details of: PCB of solenoid valve controller

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: PCB of solenoid valve controller

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: PCB of solenoid valve controller

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Water pump LP300 general view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Water pump LP250 general view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Water pump LP200 general view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]botto



Details of: Water pump LP300，LP250，LP200 internal view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Water pump WTC50M general view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Water pump WTC50M internal view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Air pump AP900 general view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Air pump AP700 general view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Air pump AP400 general view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Air pump AP900, AP700, AP400 internal view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Ozonizer general view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Ozonizer internal view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Heater element H30-R2 general view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



Details of: Heater element H30-R2 internal view

View:

[x] general

[ ]front

[ ]rear

[ ]right

[ ]left

[ ]top

[ ]bottom



End of report