



Test Report issued under the responsibility of:



AUSTEST  
Laboratories



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Global Technology Assessment  
Center, 4-25-2 Kita-Yamata  
Tsuzuki-ku, Yokohama, 224-0021

**TEST REPORT**  
**IEC 60335-2-98 and / or EN 60335-2-98**  
**Safety of household and similar electrical appliances**  
**Part 2 :Particular requirements for humidifiers**

Report Reference No. ....: 12027605 001  
Date of issue .....: 10 January 2013  
Total number of pages .....: 157

CB/CCA Testing Laboratory.....: Austest Laboratories  
Address .....: Unit 2, 9 Packard Avenue, Castle Hill, NSW 2154, Australia

Applicant's name.....: Seeley International Pty. Ltd.  
Address .....: 112 O'Sullivan Beach Rd, Lonsdale, South Australia, SA 5160, Australia

**Test specification:**

Standard .....: ☒ IEC 60335-2-98:2002 (2.Edition) + A1:2004  
☒ IEC 60335-1:2001 (4. Edition) (incl. Corrigendum 1:2002) +  
A1:2004 + A2:2006 (incl. Corrigendum 1:2006) and/or  
☒ EN 60335-2-98:2003 + A1:2004  
☒ EN 60335-1:2002 + A1:2004 + A11:2004 + A12:2006 +  
A2:2006  
☒ EN 50366:2003 + A1:2006  
Test procedure .....: CB  
Non-standard test method.....: N/A

Test Report Form No. ....: IECEN60335\_2\_98A  
Test Report Form(s) Originator .....: VDE  
Master TRF .....: Dated 2007-03

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**This report is not valid as a CCA Test Report unless signed by an approved CCA Testing Laboratory and appended to a CCA Test Certificate issued by an NCB in accordance with CCA**

Test item description .....: Axial Evaporative Cooler  
Trade Mark .....: Breezair, Braemar , Coolair

|                            |   |
|----------------------------|---|
| Manufacturer .....         | Seeley International Pty. Ltd.  |
| Model/Type reference ..... | Breezair : 1) TBA250-X, 2) TBA350-X, 3) TBA450-X, 4) TBA550-X.<br>Braemar :5) LCB250-X, 6) LCB350-X, 7) LCB450-X, 8) LCB550-X,<br>9)BM500-X, 10)BM750-X, 11)BM900-X, 12)BM1150-X.<br><br>Coolair : 13) CPL450-X, 14)CPL700-X, 15)CPL850-X,<br>16)CPL1100-X, 17)CPL1100X-X.<br><br>("-X" denotes colour:" -B" =Beige, "-G"=Grey,"-H"=Green,"-R"=Red) |
| Ratings .....              | 220-240V, 50Hz, 1) 3.2A, 2) 4A, 3) 4.8A, 4) 6A, 5) 3.2A, 6) 4A, 7)<br>4.8A, 8) 6A, 9) 3.2A, 10) 3.2 A, 11) 4.7A, 12) 5.7A, 13) 3.2A, 14)<br>3.2A, 15) 4.7A, 16) 5.7A, 17) 6A.   |

**Testing procedure and testing location:**☒ **CB/CCA Testing Laboratory:**

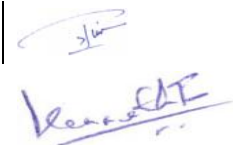
Testing location/ address .....: Austest Laboratories  
2/ 9 Packard Avenue, Castle Hill, NSW 2154, Australia

☐ **Associated CB Laboratory:**

Testing location/ address .....

Tested by (name + signature) .....: Rianto Yuwono

Approved by (+ signature).....: Kenneth Fu


☐ Testing procedure: TMP

Tested by (name + signature) .....

Approved by (+ signature).....:

Testing location/ address .....

☐ Testing procedure: WMT

Tested by (name + signature) .....

Witnessed by (+ signature) .....

Approved by (+ signature).....:

Testing location/ address .....

☐ Testing procedure: SMT

Tested by (name + signature) .....

Approved by (+ signature).....:

Supervised by (+ signature) .....

Testing location/ address .....

☐ Testing procedure: RMT

Tested by (name + signature) .....

Approved by (+ signature).....:

Supervised by (+ signature) .....

Testing location/ address .....

**Summary of testing:**

The samples tested Complies with the requirements of IEC 60335-2-98:2002 (2.Edition) + A1:2004, IEC 60335-1:2001 (4. Edition) (incl. Corrigendum 1:2002) + A1:2004 + A2:2006 (incl. Corrigendum 1:2006) and EN 60335-2-98:2003 + A1 :2004, EN 60335-1:2002 + A1:2004 + A11:2004 + A12:2006 + A2:2006

This report is to be read in conjunction with :

- For IPX4 compliance please refer to test report no 8428 issued by Austest Laboratories of Ground floor, 35 Alleyne Street, Chatswood, NSW 2067 Australia, on 25 October 2007
- For hose-sets compliance please refer to test report no. GZ1208D449-1 issued by Intertek Testing Services Shenzhen Ltd. Guangzhou Branch of Block E no. 7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD, Guangzhou, China, on 11 September 2012

- Attachment 1 : European Group differences and National differences ( 7 pages)
- Attachment 2: Australia and New Zealand differences ( 3 pages)
- Attachment 3 : Declaration letter ( 1 pages)
- Attachment 4 : Photos documentation ( 50 pages)

**Tests performed (name of test and test clause):**

Cl. 7.14 – Rubbing test  
 Cl. 8 – Protection against access to live parts  
 Cl. 10 – Power input and current  
 Cl. 11 – Heating  
 Cl. 13 – Leakage current and electric strength at operating temperature  
 Cl. 15.2 Spillage test  
 Cl. 15.3 – Humidity  
 Cl. 16 – Leakage and electric strength  
 Cl. 19 – Abnormal operation \*  
 Cl. 20 – Stability and mechanical hazards  
 Cl. 21 – Mechanical strength  
 Cl. 22 – Construction  
 Cl. 23 – Internal wire  
 Cl. 24 – Components  
 Cl. 25 – Supply connection and external flexible cord  
 Cl. 27 – Provision for earthing  
 Cl. 28 – Screws and nuts  
 Cl. 29 – Clearance and creepage distances and solid insulation  
 Cl. 30 – Resistance to heat and fire

\*) On the instructions of the client the following tests were not performed (see attachment 3):

- Immunity tests of clause 19.11.4 on the standby mode and protective electronic circuits,

**Testing location:**

**Austest Laboratories**  
**2/9 Packard Avenue,**  
**Castle Hill, NSW 2154, Australia**

**Summary of compliance with National Differences:**



- **The items tested were found to be in compliance with European Group differences and National differences, Australia and New Zealand differences.**

Copy of marking plate:

**TBA series :**

**SEELEY**  
INTERNATIONAL **Breezair**



MODEL TBA250-B  
PROD. NO. 220000  
220-240V 50HZ 3.2A

16-FEB-12  
SERIAL NO. CA121040060 LCA EU Beige  
MADE IN AUSTRALIA

**SEELEY**  
INTERNATIONAL **Breezair**



MODEL TBA350-B  
PROD. NO. 222042  
220-240V 50HZ 4A

16-FEB-12  
SERIAL NO. CA121040061 LCA EU Beige  
MADE IN AUSTRALIA

**SEELEY**  
INTERNATIONAL **Breezair**



MODEL TBA450-B  
PROD. NO. 224046  
220-240V 50HZ 4.8A

16-FEB-12  
SERIAL NO. CA121040062 LCA EU Beige  
MADE IN AUSTRALIA

**SEELEY**  
INTERNATIONAL **Breezair**

MODEL TBA550-B  
PROD. NO. 226040  
220-240V 50HZ 6A

16-FEB-12  
SERIAL NO. CA121040063 LCA EU Beige  
MADE IN AUSTRALIA

## LCB Series :

**SEELEY**  
INTERNATIONAL**Braemar**MODEL LCB250-B  
PROD. NO. 202006  
220-240V 50HZ 3.2A

IPX4



16-FEB-12

SERIAL NO. CA112040073

LCA AU Beige  
MADE IN AUSTRALIA**SEELEY**  
INTERNATIONAL**Braemar**MODEL LCB350-B  
PROD. NO. 204000  
220-240V 50HZ 4A

IPX4



16-FEB-12

SERIAL NO. CA112040074

LCA AU Beige  
MADE IN AUSTRALIA**SEELEY**  
INTERNATIONAL**Braemar**MODEL LCB450-B  
PROD. NO. 206004  
220-240V 50HZ 4.8A

IPX4



16-FEB-12

SERIAL NO. CA112040075

LCA AU Beige  
MADE IN AUSTRALIA**SEELEY**  
INTERNATIONAL**Braemar**MODEL LCB550-B  
PROD. NO. 208008  
220-240V 50HZ 6A

IPX4



16-FEB-12

SERIAL NO. CA112040076

LCB AU Beige  
MADE IN AUSTRALIA

## CPL Series:

**SEELEY**  
INTERNATIONAL**coolair®**

MODEL CPL1100X-G

PROD. NO. 224084

220-240V 50HZ 6A



IPX4

16-FEB-12

SERIAL NO. CA112040064

CPL EU Grey  
MADE IN AUSTRALIA**SEELEY**  
INTERNATIONAL**coolair®**

MODEL CPL450-B

PROD. NO. 212043

220-240V 50HZ 3.2A



IPX4

16-FEB-12

SERIAL NO. CA112040065

CPL AU Beige  
MADE IN AUSTRALIAATS 5200.001  
LIC. WMKT22063**SEELEY**  
INTERNATIONAL**coolair®**

MODEL CPL700-B

PROD. NO. 214085

220-240V 50HZ 3.2A



IPX4

16-FEB-12

SERIAL NO. CA112040066

CPL AU Beige  
MADE IN AUSTRALIAATS 5200.001  
LIC. WMKT22063**SEELEY**  
INTERNATIONAL**coolair®**

MODEL CPL850-B

PROD. NO. 216041

220-240V 50HZ 4.7A



IPX4

16-FEB-12

SERIAL NO. CA112040067

CPL AU Beige  
MADE IN AUSTRALIAATS 5200.001  
LIC. WMKT22063

**SEELEY**  
INTERNATIONAL**coolair®**MODEL CPL1100-B  
PROD. NO. 218137  
220-240V 50HZ 5.7A

N837

IPX4

ATS 5200.001  
LIC. WMKT22063

16-FEB-12

SERIAL NO. CA112040068

CPLAU Beige  
MADE IN AUSTRALIA**BM Series:****SEELEY**  
INTERNATIONAL**Braemar**MODEL BM500-B  
PROD. NO. 209005  
220-240V 50HZ 3.2A

N837

IPX4

ATS 5200.001  
LIC. WMKT22063

16-FEB-12

SERIAL NO. CA112040069

CPLAU Beige  
MADE IN AUSTRALIA**SEELEY**  
INTERNATIONAL**Braemar**MODEL BM750-B  
PROD. NO. 209036  
220-240V 50HZ 3.2A

N837

IPX4

ATS 5200.001  
LIC. WMKT22063

16-FEB-12

SERIAL NO. CA112040070

CPLAU Beige  
MADE IN AUSTRALIA

**SEELEY**  
INTERNATIONAL**Braemar**

MODEL BM900-B

PROD. NO. 209067

220-240V 50HZ 4.7A



IPX4

ATS 5200.001  
LIC. WMKT22063

16-FEB-12

SERIAL NO. CA112040071

CPLAU Beige  
MADE IN AUSTRALIA**SEELEY**  
INTERNATIONAL**Braemar**

MODEL BM1150-B

PROD. NO. 209098

220-240V 50HZ 5.7A



IPX4

ATS 5200.001  
LIC. WMKT22063

16-FEB-12

SERIAL NO. CA112040072

CPLAU Beige  
MADE IN AUSTRALIA



|  |  |
|--|--|
| Test item particulars .....  |  |
| Classification of installation and use .....   | Class I stationary appliance for external use.<br>Installation to be carried out by qualified personnel according to local and national electrical and plumbing rules, regulations and standards |
| Supply Connection .....  | To fixed wiring for all TBA model and model CPL1100X-X, alternatively a supply cord fitted with a plug for Australia and New Zealand.  |
| Degree of protection .....   | IPX4   |
| Possible test case verdicts:   |  |
| - test case does not apply to the test object .....  | N/A  |
| - test object does meet the requirement .....  | P (Pass)   |
| - test object does not meet the requirement .....  | F (Fail)   |
| Testing .....  |  |
| Date of receipt of test item .....   | 30 April 2012  |
| Date (s) of performance of tests .....   | 29 May 2012 – 7 December 2012  |
| General remarks:   |  |
| <p>The test results presented in this report relate only to the object tested.</p> <p>This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p> <p>"(See Enclosure #)" refers to additional information appended to the report.</p> <p>"(See appended table)" refers to a table appended to the report.</p> <p>Note: This TRF includes EN Group Differences together with National Differences and Special National Conditions, if any. All Differences are located in the Appendix to the main body of this TRF.</p> <p>Throughout this report a point is used as the decimal separator.</p>   |  |
| General product information:   |  |
| <p>The products were manufactured by Seeley International Pty. Ltd.</p> <p>Factory address: 112 O'Sullivan Beach Road, Lonsdale, SA5160, Australia.</p> <p>The appliance was an evaporative cooler, using evaporated water at ambient temperature to cool the air. An axial fan draw an outside air, passing through wet frame pad to the building.</p> <p>The water was circulated from the reservoir at the base of the enclosure to the frame pads using a pump, and the water level in reservoir is maintained by a float valve connected to mains water supply. Reservoir salinity is controlled by either a constant bleed-off, or via a drain water valve together with salinity probes will open the drain valve when salinity level reaches a preset level, releasing some water and fresh water is added through water inlet.</p> <p>Installation of the appliance water supply using fixed piping must conform to local plumbing rules, regulations and standards : AS/NZS 3500.1</p> <p>A detachable hose set for connection to the water mains and a solenoid valve is supplied and used in combination with the drain valve kit (optional in some models).</p> |  |

The appliance was a fixed appliance to be installed on the roof top by qualified installer, and an authorised dealer is recommended for maintenance.

The differences between models LCB550-X, LCB450-X, LCB350-X, LCB250-X\*, branded as Braemar :

- Model LCB550-X uses a 950W output Seeley manufactured motor, high capacity fan and large size cabinet
- Model LCB450-X uses 560W output Seeley manufactured motor or 600W output Able manufactured motor, high capacity fan and large size cabinet.
- Model LCB350-X uses 500W output Seeley manufactured motor or 430W output Able manufactured motor, high capacity fan and medium size cabinet.
- Model LCB250-X uses 300W output Seeley manufactured motor or 340W output Able manufactured motor, low capacity fan and medium size cabinet.

The differences between models TBA550-X, TBA450-X, TBA350-X, TBA250-X\*, branded as Breezair when compared to models LCB550-X, LCB450-X, LCB350-X, LCB250-X\* :

- Model TBA550-X equivalent to LCB550-X, except it uses different style outer cabinet pad frame and hard wired connection in lieu of plug.
- Model TBA450-X equivalent to LCB450-X, except it uses different style outer cabinet pad frame and hard wired connection in lieu of plug.
- Model TBA350-X equivalent to LCB350-X, except it uses different style outer cabinet pad frame and hard wired connection in lieu of plug.
- Model TBA250-X equivalent to LCB250-X, except it uses different style outer cabinet pad frame and hard wired connection in lieu of plug.

The differences between model CPL1100X-X, CPL1100-X, CPL850-X, CPL700-X, CPL450-X\*, branded as Coolair, when compared to LCB550-X, LCB450-X, LCB350-X, LCB250-X\* :

- Model CPL1100X-X equivalent to model LCB550-X, except it uses multi-piece high capacity fan, different decorative style outer cabinet and hard wired.
- Model CPL1100-X equivalent to model LCB550-X, except it uses multi-piece high capacity fan with 750W output Able manufactured motor and different style outer cabinet pad frame.
- Model CPL850-X equivalent to model LCB450-X, except it uses multi-piece high capacity fan with 600W output Able manufactured motor and different style outer cabinet pad frame.
- Model CPL7000-X equivalent to model LCB350-X, except it uses multi-piece low capacity fan with 430W output Able manufactured motor and different style outer cabinet pad frame.
- Model CPL450-X equivalent to model LCB250-X, except it uses multi-piece low capacity fan with 340W output Able manufactured motor and different style outer cabinet pad frame.

The differences between model BM1150X, BM900-X, BM750-X, BM500-X\*, branded as Braemar, when compared to LCB550-X, LCB450-X, LCB350-X, LCB250-X\* :

- Model BM1150-X equivalent to model LCB550-X, except it uses multi-piece high capacity fan with 750W output Able manufactured motor and different style outer cabinet pad frame.
- Model BM900-X equivalent to model LCB450-X, except it uses multi-piece high capacity fan with

600W output Able manufactured motor and different style outer cabinet pad frame.

- Model BM750-X equivalent to model LCB350-X, except it uses multi-piece low capacity fan with 430W output Able manufactured motor and different style outer cabinet pad frame.
- Model BM500-X equivalent to model LCB250-X, except it uses multi-piece low capacity fan with 340W output Able manufactured motor and different style outer cabinet pad frame.

Note : "X" denotes colour: -"B" =Beige, -"G"=Grey, -"H"=Green, -"R"=Red

Due to similarity between model LCB550-X, LCB450-X, LCB350-X, LCB250-X, TBA550-X, TBA450-X, TBA350-X, TBA250-X, CPL1100X-X, CPL1100-X, CPL850-X, CPL700-X, CPL450-X, BM 1150-X, BM900-X, BM750-X and BM500-X, only model LCB550-X was subjected to full testing and partial testing were performed on model LCB250-X, LCB350-X, LCB450-X, CPL1100-X, including all alternatives fan motor.

| IEC/EN 60335-2-98 |  |                 |         |
|-------------------|--|-----------------|---------|
| Clause            | Requirement + Test   | Result - Remark | Verdict |
| 5                 | GENERAL CONDITIONS FOR THE TESTS   |                 | -       |
|                   | Tests performed according to cl. 5, e.g. nature of supply, sequence of testing, etc. |                 | P       |
| 5.6               | Humidistats are short-circuited or rendered inoperative.<br>(IEC 60335-2-98)         |                 | P       |

|     |   |         |   |
|-----|---|---------|---|
| 6   | CLASSIFICATION  |         | - |
| 6.1 | Protection against electric shock:<br>Class 0, 0I, I, II, III ..... | Class I | P |
| 6.2 | Protection against harmful ingress of water                         | IPX4    | P |

|     |  |  |     |
|-----|--|--|-----|
| 7   | MARKING AND INSTRUCTIONS   |  | -   |
| 7.1 | Rated voltage or voltage range (V).....  | 220 – 240 V                              | P   |
|     | Nature of supply .....   | AC                                       | P   |
|     | Rated frequency (Hz) .....   | 50                                       | P   |
|     | Rated power input (W) .....  |  | N/A |
|     | Electrode-type appliances shall be marked with their rated power input.:<br>(IEC 60335-2-98)   |  | N/A |
|     | Rated current (A) .....  | Various, refer to copy of marking labels | P   |
|     | Manufacturer's or responsible vendor's name, trademark or identification mark .....  | Seeley International Pty.Ltd             | P   |
|     | Model or type reference .....  | Various                                  | P   |
|     | Symbol 5172 of IEC 60417, for Class II appliances  |  | N/A |
|     | IP number, other than IPX0 .....   | IPX4                                     | P   |
|     | Symbol IEC 60417-5036, for the enclosure of electrically-operated water valves in external hose-sets for connection of an appliance to the water mains   | 24VAC solenoid                           | N/A |
|     | Appliances that are manually filled shall have a level mark or other means to indicate when they are filled to their rated capacity, unless they cannot be filled beyond this capacity. This indication shall be visible when the appliance is being filled.<br>(IEC 60335-2-98) | Automatic                                | N/A |

| IEC/EN 60335-2-98 |   |                 |         |
|-------------------|---|-----------------|---------|
| Clause            | Requirement + Test  | Result - Remark | Verdict |
|                   | If the temperature of the water vapour exceeds 60 °C, the appliance shall be marked with the substance of the following:<br><br>CAUTION: Hot water vapour<br>(IEC 60335-2-98) |                 | N/A     |
| 7.2               | Warning for stationary appliances for multiple supply   | Single Supply   | N/A     |
|                   | Warning placed in vicinity of terminal cover  |                 | N/A     |
| 7.3               | Range of rated values marked with the lower and upper limits separated by a hyphen  | 220 – 240V      | P       |
|                   | Different rated values marked with the values separated by an oblique stroke  |                 | N/A     |
| 7.4               | Appliances adjustable for different rated voltages, the voltage setting is clearly discernible  |                 | N/A     |
| 7.5               | Appliances with more than one rated voltage or one or more rated voltage ranges, marked with rated input or rated current for each rated voltage or range, unless             |                 | N/A     |
|                   | the power input is related to the arithmetic mean value of the rated voltage range  |                 | P       |
|                   | Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear  |                 | P       |
| 7.6               | Correct symbols used  |                 | P       |
| 7.7               | Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply  |                 | N/A     |
| 7.8               | Except for type Z attachment, terminals for connection to the supply mains indicated as follows:  |                 | -       |
|                   | - marking of terminals exclusively for the neutral conductor (N)  |                 | N/A     |
|                   | - marking of protective earthing terminals (symbol 5019 of IEC 60417)   |                 | N/A     |
|                   | - marking not placed on removable parts   |                 | N/A     |
| 7.9               | Marking or placing of switches which may cause a hazard   |                 | N/A     |
| 7.10              | Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means .....  |                 | P       |
|                   | The figure 0 indicates only OFF position, unless no confusion with the OFF position   |                 | P       |

| IEC/EN 60335-2-98 |   |  |         |
|-------------------|---|--|---------|
| Clause            | Requirement + Test  | Result - Remark  | Verdict |
| 7.11              | Indication for direction of adjustment of controls  |  | N/A     |
| 7.12              | Instructions for safe use provided  |  | P       |
|                   | The instructions state that:  |  | -       |
|                   | - 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 been given supervision or instruction   |  | P       |
|                   | - children being supervised not to play with the appliance  |  | P       |
|                   | The instructions shall include details regarding filling, cleaning and descaling. (IEC 60335-2-98)  |  | P       |
|                   | The instructions shall state the substance of the following: (IEC 60335-2-98)   |  | -       |
|                   | – care should be taken when using the appliance due to the emission of hot water vapour; (IEC 60335-2-98)   |  | N/A     |
|                   | – unplug the appliance during filling and cleaning. (IEC 60335-2-98)  |  | P       |
|                   | The instructions for electrode-type appliances shall include the substance of the following: (IEC 60335-2-98)   |  | -       |
|                   | – the composition and quantity of solution to be used and advice not to use an excessive amount of salt; (IEC 60335-2-98)   |  | N/A     |
|                   | – the appliance is not to be operated from a d.c. supply. (IEC 60335-2-98)  |  | N/A     |
| 7.12.1            | Sufficient details for installation supplied  |  | P       |
|                   | The installation instructions for appliances intended to be connected to the water mains shall state the maximum permissible water pressure in pascals. (IEC 60335-2-98)  | 800 kPa  | 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 overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules | Installation manual stated:<br>Fitted with accessible plug or incorporating a switch in fixed wiring | P       |
| 7.12.3            | Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions stating that the fixed wiring must be protected  |  | N/A     |
| 7.12.4            | Instructions for built-in appliances:   |  | -       |

| IEC/EN 60335-2-98 |   |                 |         |
|-------------------|---|-----------------|---------|
| Clause            | Requirement + Test  | Result - Remark | Verdict |
|                   | - dimensions of space   |                 | N/A     |
|                   | - dimensions and position of supporting means   |                 | N/A     |
|                   | - distances between parts and surrounding structure   |                 | N/A     |
|                   | - dimensions of ventilation openings and arrangement  |                 | N/A     |
|                   | - connection to supply mains and interconnection of separate components   |                 | N/A     |
|                   | - allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless                             |                 | N/A     |
|                   | a switch complying with 24.3  |                 | N/A     |
| 7.12.5            | Replacement cord instructions, type X attachment with a specially prepared cord   |                 | N/A     |
|                   | Replacement cord instructions, type Y attachment  |                 | P       |
|                   | Replacement cord instructions, type Z attachment  |                 | N/A     |
| 7.12.6            | Caution in the instructions for heating appliances with a non-self-resetting thermal cut-out  |                 | N/A     |
| 7.12.7            | Instructions for fixed appliances stating how the appliance is to be fixed  |                 | P       |
| 7.12.8            | Instructions for appliances connected to the water mains:   |                 | -       |
|                   | - max. inlet water pressure (Pa).....:  | 800 kPa         | P       |
|                   | - min. inlet water pressure, if necessary (Pa).....:  |                 | N/A     |
|                   | Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets                                 |                 | P       |
| 7.13              | Instructions and other texts in an official language  |                 | 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 be removed or opened without a tool  |                 | N/A     |
|                   | For stationary appliances, name, trademark or identification mark and model or type reference visible after installation                          |                 | N/A     |
|                   | For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions |                 | P       |

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|-------------------|---|-----------------|---------|
| Clause            | Requirement + Test  | Result - Remark | Verdict |
|                   | 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       |
| 7.16              | Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link   |                 | N/A     |

|       |   |                    |     |
|-------|---|--------------------|-----|
| 8     | PROTECTION AGAINST ACCESS TO LIVE PARTS   |                    | -   |
| 8.1   | Adequate protection against accidental contact with live parts  |                    | P   |
| 8.1.1 | Requirement applies for all positions, detachable parts removed   |                    | P   |
|       | Insertion or removal of lamps, protection against contact with live parts of the lamp cap   |                    | N/A |
|       | Use of test probe B of IEC 61032: no contact with live parts  |                    | P   |
| 8.1.2 | Use of test probe 13 of IEC 61032 through openings in class 0 appliances and class II appliances/ constructions: no contact with live parts |                    | P   |
|       | Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts         |                    | N/A |
| 8.1.3 | For appliances other than class II, use of test probe 41 of IEC 61032: no contact with live parts of visible glowing heating elements       | No heating element | N/A |
| 8.1.4 | Accessible part not considered live if:   |                    | -   |
|       | - safety extra-low a.c. voltage: peak value not exceeding 42.4 V  |                    | P   |
|       | - safety extra-low d.c. voltage: not exceeding 42.4 V   |                    | P   |
|       | - or separated from live parts by protective impedance  |                    | N/A |
|       | If protective impedance: d.c. current not exceeding 2 mA, and   |                    | N/A |
|       | a.c. peak value not exceeding 0.7 mA  |                    | N/A |
|       | - for peak values over 42.4 V up to and including 450 V, capacitance not exceeding 0,1 $\mu$ F  |                    | N/A |
|       | - for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 $\mu$ C  |                    | N/A |



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|-------------------|--|--|---------|
| Clause            | Requirement + Test   | Result - Remark                          | Verdict |
|                   | - for peak values over 15kV, the energy in the discharge not exceeding 350 mJ  |  | N/A     |
| 8.1.5             | Live parts protected at least by basic insulation before installation or assembly:   |  | -       |
|                   | - built-in appliances  |  | N/A     |
|                   | - fixed appliances   |  | P       |
|                   | - appliances delivered in separate units   |  | N/A     |
| 8.2               | Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only | Class I appliance, Class II construction | P       |
|                   | Only possible to touch parts separated from live parts by double or reinforced insulation  |  | P       |

|      |  |                      |     |
|------|--|----------------------|-----|
| 10   | POWER INPUT AND CURRENT  |                      | -   |
| 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 |                      | N/A |
|      | For electrode-type appliances, the negative deviation is not limited. (IEC 60335-2-98/A1)  |                      | N/A |
|      | Test for an appliance with one or more rated voltage ranges  |                      | N/A |
| 10.2 | Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2         | (see appended table) | P   |
|      | Test for an appliance with one or more rated voltage ranges  |                      | P   |

|      |  |   |     |
|------|--|---|-----|
| 11   | HEATING  |   | -   |
| 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                | Fan motor, water pump                         | P   |
|      | the windings makes it difficult to make the necessary connections                    | PCB mounted transformer and water drain motor | P   |
| 11.4 | Electrode-type appliances are supplied at 1,06 times rated voltage. (IEC 60335-2-98) |   | N/A |

| IEC/EN 60335-2-98 |   |                       |         |
|-------------------|---|-----------------------|---------|
| Clause            | Requirement + Test  | Result - Remark       | Verdict |
|                   | If the temperature rise limits are exceeded in appliances incorporating motors, transformers or electronic circuits, and the power input is lower than the rated power input, the test is repeated with the appliance supplied at 1,06 times rated voltage.<br><br>(IEC 60335-2-98) |                       | N/A     |
| 11.5              | Motor-operated appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage .....  | 1.06 x 240V=254.4V    | P       |
| 11.6              | Combined appliances are operated as heating appliances.<br>(IEC 60335-2-98)   |                       | N/A     |
| 11.7              | Appliances are operated until steady conditions are established.<br>(IEC 60335-2-98)  |                       | P       |
| 11.8              | Temperature rises not exceeding values in table 3   | (see appended tables) | P       |
|                   | The temperature rise limits of motors, transformers and components of electronic circuits, including parts directly influenced by them, may be exceeded when the appliance is operated at 1,15 times rated power input.<br>(IEC 60335-2-98)   |                       | N/A     |
|                   | Sealing compound does not flow out  |                       | P       |
|                   | Protective devices do not operate, except   |                       | P       |
|                   | components in protective electronic circuits tested for the number of cycles specified in 24.1.4  |                       | P       |

|      |   |  |     |
|------|---|--|-----|
| 13   | LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE  |  | -   |
| 13.1 | Leakage current not excessive and electric strength adequate  |  | P   |
|      | Electrode-type appliances are supplied at 1,06 times rated voltage<br>(IEC 60335-2-98)  |  | N/A |
|      | 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  |  | N/A |
| 13.2 | Leakage current measured by means of the circuit described in figure 4 of IEC 60990   |  | P   |
|      | For electrode-type appliances, the leakage current is measured between a metallic mesh placed in the water vapour, 10 mm from the outlet, and accessible metal parts including the metal foil.<br>(IEC 60335-2-98/A1) |  | N/A |

| IEC/EN 60335-2-98 |  |                      |         |
|-------------------|--|----------------------|---------|
| Clause            | Requirement + Test   | Result - Remark      | Verdict |
|                   | The leakage current shall not exceed 0,25 mA.<br>(IEC 60335-2-98/A1) |                      | N/A     |
|                   | Leakage current measurements   | (see appended table) | P       |
| 13.3              | The appliance is disconnected from the supply                        |                      | P       |
|                   | Electric strength tests according to table 4                         | (see appended table) | P       |
|                   | No breakdown during the tests  |                      | P       |

|    |   |                      |     |
|----|---|----------------------|-----|
| 14 | TRANSIENT OVERVOLTAGES  |                      | -   |
|    | Appliances withstand the transient overvoltages to which they may be subjected  |                      | N/A |
|    | Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6 | (see appended table) | N/A |
|    | No flashover during the test, unless of functional insulation   |                      | N/A |
|    | In case of flashover of functional insulation, the appliance complies with clause 19 with the clearance short circuited               |                      | N/A |

|        |  |   |     |
|--------|--|---|-----|
| 15     | MOISTURE RESISTANCE  |   | -   |
| 15.1   | Enclosure provides the degree of moisture protection according to classification of the appliance  |   | P   |
|        | 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 creepage distances below values specified in clause 29 |   | P   |
| 15.1.1 | Appliances, other than IPX0, subjected to tests as specified in IEC 60529 .....  | See Austest report no.8428 dated on 25 October 2007 | P   |
|        | Water valves in external hoses for connection of an appliance to the water mains tested as specified for IPX7 appliances                 |   | N/A |
| 15.1.2 | Hand-held appliance turned continuously through the most unfavourable positions during the test  |   | N/A |
|        | Built-in appliances installed according to the instructions  |   | N/A |
|        | Appliances placed or used on the floor or table placed on a horizontal unperforated support  |   | N/A |

| IEC/EN 60335-2-98 |  |  |         |
|-------------------|--|--|---------|
| Clause            | Requirement + Test   | Result - Remark  | Verdict |
|                   | Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board   |  | N/A     |
|                   | For IPX3 appliances, the base of wall mounted appliances is placed at the same level as the pivot axis of the oscillating tube   |  | N/A     |
|                   | For IPX4 appliances, the horizontal centre line of the appliance is aligned with the pivot axis of the oscillating tube  |  | P       |
|                   | However, for appliances normally used on the floor or table, the movement is limited to two times 90° for a period of 5 min, the support being placed at the level of the pivot axis of the oscillating tube |  | N/A     |
|                   | Appliances normally fixed to a ceiling are mounted underneath a horizontal unperforated support, the pivot axis of the oscillating tube located at the level of the underside of the support                 |  | N/A     |
|                   | For IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min  |  | P       |
|                   | Wall-mounted appliances, take into account the distance to the floor stated in the instructions  |  | N/A     |
|                   | Appliances with type X attachment fitted with a flexible cord as described   | Type Y   | N/A     |
|                   | Detachable parts tested as specified   |  | N/A     |
| 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/A     |
|                   | Appliances incorporating an appliance inlet tested with or without an connector, whichever is most unfavourable  | With connector   | P       |
|                   | Detachable parts removed   |  | N/A     |
|                   | Overfilling test with additional amount of water, over a period of 1 min (I) .....:  | Water level float disabled, water added until overflow | P       |
|                   | In case of doubt, the spillage test is carried out with the appliance deviating from the normal position of use by an angle not exceeding 5°. (IEC 60335-2-98)   |  | N/A     |

| IEC/EN 60335-2-98 |   |                 |         |
|-------------------|---|-----------------|---------|
| Clause            | Requirement + Test  | Result - Remark | Verdict |
|                   | Appliances intended to be connected to the water mains are operated until the maximum water level is reached. The inlet valve is held open and the filling continued for 15 min after the first evidence of overflow or until the inflow stops automatically.<br>(IEC 60335-2-98) |                 | 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 creepage distances below values specified in clause 29   |                 | P       |
| 15.3              | Appliances proof against humid conditions   |                 | P       |
|                   | Humidity test for 48 h in a humidity cabinet  |                 | P       |
|                   | The appliance withstands the tests of clause 16   |                 | P       |

|      |   |                      |     |
|------|---|----------------------|-----|
| 16   | LEAKAGE CURRENT AND ELECTRIC STRENGTH   |                      | -   |
| 16.1 | Leakage current not excessive and electric strength adequate                              |                      | P   |
|      | Protective impedance disconnected from live parts before carrying out the tests           |                      | N/A |
| 16.2 | Single-phase appliances: test voltage 1.06 times rated voltage .....                      |                      | P   |
|      | Three-phase appliances: test voltage 1.06 times rated voltage divided by $\sqrt{3}$ ..... |                      | N/A |
|      | 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   |   | - |
|    | No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use                                      | (see appended table)                                  | P |
|    | Appliance supplied with 1.06 or 0.94 times rated voltage and the most unfavourable short-circuit or overload likely to occur in normal use applied.....       | 1.06 x 240V=254.4V<br>Short circuit secondary winding | P |
|    | Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K |   | P |

| IEC/EN 60335-2-98 |   |                 |         |
|-------------------|---|-----------------|---------|
| Clause            | Requirement + Test  | Result - Remark | Verdict |
|                   | Temperature of the winding not exceeding the value specified in table 8,                            |                 | P       |
|                   | however limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1 |                 | P       |

|      |   |                    |     |
|------|---|--------------------|-----|
| 19   | ABNORMAL OPERATION  |                    | -   |
| 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 incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11   |                    | 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.....:   | No heating element | N/A |
|      | The container of electrode-type appliances is filled with a saturated solution of NaCl at 20 ° C ± 5 ° C, the appliance being supplied at rated voltage.<br>(IEC60335-2-98)             |                    | N/A |
| 19.3 | Test of 19.2 repeated; test voltage (V): power input of 1.24 times rated power input.....:  |                    | N/A |
|      | The test is not applicable to electrode-type appliances.<br>(IEC60335-2-98)   |                    | N/A |
| 19.4 | Appliances are only filled with sufficient water to cover the heating elements. (IEC60335-2-98)   | No heating element | N/A |
|      | Fans are switched off. (IEC60335-2-98)  |                    | N/A |
| 19.5 | Test of 19.4 repeated on Class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the elements sheath | No heating element | N/A |
|      | The test repeated with reversed polarity and the other end of the heating element connected to the sheath   |                    | N/A |
|      | The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during the test of 19.4         |                    | N/A |
| 19.6 | Appliances with PTC heating elements tested at rated voltage, establishing steady conditions  |                    | N/A |

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|-------------------|--|---|---------|
| Clause            | Requirement + Test   | Result - Remark   | Verdict |
|                   | 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/A     |
| 19.7              | Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque or locking moving parts of other appliances   | 1) Fan motor, self resetting thermal cut-off disabled<br>2) Water pump motor  | P       |
|                   | Locked rotor, motor capacitors open-circuited or short-circuited, if required  | P2 capacitor  | N/A     |
|                   | Locked rotor, capacitors open-circuited one at a time  |   | N/A     |
|                   | Test repeated with capacitors short-circuited one at a time, if required   |   | N/A     |
|                   | Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed  |   | N/A     |
|                   | Other appliances supplied with rated voltage for a period as specified   |   | P       |
|                   | Winding temperatures not exceeding values specified in table 8   | (see appended table)  | P       |
| 19.8              | Three-phase motors operated at rated voltage with one phase disconnected   |   | N/A     |
| 19.9              | Running overload test on appliances incorporating motors intended to be remotely or automatically controlled or liable to be operated continuously   | 1) Fan motor, thermal fuse protected, self resetting thermal cut-off disabled<br>2) Water pump motor, thermally protected | P       |
|                   | Winding temperatures not exceeding values as specified   | (see appended table)  | P       |
| 19.10             | Series motor operated at 1.3 times rated voltage for 1 min .....   |   | N/A     |
|                   | During the test, parts not being ejected from the appliance  |   | N/A     |
| 19.11             | Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless they comply with the conditions specified in 19.11.1  |   | P       |
|                   | Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.3 and 19.11.4   |   | N/A     |

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|-------------------|--|--|---------|
| Clause            | Requirement + Test   | Result - Remark  | Verdict |
|                   | Appliances having a switch with an off position obtained by electronic disconnection, or a switch placing the appliance in a stand-by mode, subjected to the tests of 19.11.4                                      |  | N/A     |
|                   | Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8   |  | P       |
| 19.11.1           | Before applying the fault conditions a) to f) in 19.11.2, it is checked if circuits or parts of circuit meet both of the following conditions:   |  | -       |
|                   | - the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified  |  | N/A     |
|                   | - the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction in other parts of the appliance does not rely on the correct functioning of the electronic circuit                |  | N/A     |
| 19.11.2           | Fault conditions applied one at a time, the appliance operated under conditions specified in cl. 11, but supplied at rated voltage, the duration of the tests as specified:  |  | -       |
|                   | a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in 29   | Short circuit secondary DC outpur. No hazard                                   | P       |
|                   | b) open circuit at the terminals of any component  | Open circuit R 3, fan non operational. No hazard                               | P       |
|                   | c) short circuit of capacitors, unless they comply with IEC 60384-14   | Approved capacitor   | N/A     |
|                   | 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                                   | Short circuit C28, seems to run normally. No hazard                            | P       |
|                   | e) failure of triacs in the diode mode   | U1, fan always run at highest speed. No hazard                                 | P       |
|                   | f) failure of an integrated circuit  | Failure of U11, red light indicator on, water pump non operational. No hazard. | P       |
|                   | g) failure of an electronic power switching device   | No power switching device  | N/A     |
| 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/A     |
|                   | During and after each test the following is checked:   |  | -       |
|                   | - the temperature rise of the windings do not exceed the values specified in table 8   |  | P       |



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|-------------------|--|-----------------------------------|---------|
| Clause            | Requirement + Test   | Result - Remark                   | Verdict |
|                   | - the appliance complies with the conditions specified in 19.13  |                                   | P       |
|                   | - any current flowing through protective impedance not exceeding the limits specified in 8.1.4   |                                   | N/A     |
|                   | If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided all three of the following conditions are met: |                                   | -       |
|                   | - the material of the printed circuit board withstands the burning test of annex E   |                                   | N/A     |
|                   | - 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/A     |
|                   | - the appliance withstands the tests of 19.11.2 with open-circuited conductor bridged  |                                   | N/A     |
| 19.11.4           | Appliances having a device with an off position obtained by electronic disconnection, or   | See summary page and attachment 3 | N/A     |
|                   | a device that can be placed in the stand-by mode,  |                                   | N/A     |
|                   | subjected to the tests of 19.11.4.1 to 19.11.4.7   |                                   | N/A     |
|                   | Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7, except that   |                                   | N/A     |
|                   | appliances operated for 30 s or 5 min during the test of 19.7 are not subjected to the tests for electromagnetic phenomena.  |                                   | N/A     |
| 19.11.4.1         | The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4  | See summary page and attachment 3 | N/A     |
| 19.11.4.2         | The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, test level 3   | See summary page and attachment 3 | N/A     |
| 19.11.4.3         | The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as specified   | See summary page and attachment 3 | N/A     |
| 19.11.4.4         | The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5, test level 3 or 4 as specified   | See summary page and attachment 3 | N/A     |
|                   | Earthed heating elements in class I appliances disconnected  |                                   | N/A     |
| 19.11.4.5         | The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3   | See summary page and attachment 3 | N/A     |

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|-------------------|---|---|---------|
| Clause            | Requirement + Test  | Result - Remark   | Verdict |
| 19.11.4.6         | The appliance is subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-11  | See summary page and attachment 3                         | N/A     |
| 19.11.4.7         | The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2   | See summary page and attachment 3                         | N/A     |
| 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.  | The appliance stopped operating (fan off) at V=150VAC.    | P       |
|                   | The appliance continues to operate normally or requires a manual operation to restart   | The appliance resume to previous operation at V = 192 VAC | P       |
| 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).....: |   | N/A     |
| 19.13             | During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts  |   | P       |
|                   | Temperature rises not exceeding the values shown in table 9   | (see appended table)                                      | P       |
|                   | Compliance with cl. 8 not 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:   |   | -       |
|                   | - basic insulation.....:  | 1250V~  | P       |
|                   | - supplementary insulation .....  |   | N/A     |
|                   | - 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  |   | P       |
|                   | The appliance does not undergo a dangerous malfunction, and   |   | P       |
|                   | no failure of protective electronic circuits, if the appliance is still operable  |   | P       |
|                   | Appliances tested with an electronic switch in the off position, or in the stand-by mode:   |   | -       |

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|-------------------|--|---|---------|
| Clause            | Requirement + Test   | Result - Remark   | Verdict |
|                   | - do not become operational, or  | See summary page and attachment 3   | N/A     |
|                   | - if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4                                      | See summary page and attachment 3   | N/A     |
| 19.14             | Appliances operated under the conditions of Clause 11. Contactors or relays contacts operating under the conditions of clause 11 short-circuited | <p>K1 = Fan relay, appliance seems run normally, no hazard.</p> <p>K2 = Water pump relay, water pump circulating water continuously. No hazard.</p> <p>K3 = Drain water relay, water drain valve opened continuously. No hazard.</p> <p>K4 = Water inlet relay, solenoid opened continuously, water tank overflow, no hazard.</p> | P       |

|      |  |                 |     |
|------|--|-----------------|-----|
| 20   | STABILITY AND MECHANICAL HAZARDS   |                 | -   |
| 20.1 | Adequate stability   | Fixed appliance | N/A |
|      | Tilting test through an angle of 10° (appliance placed on an inclined plane/horizontal plane); appliance does not overturn |                 | N/A |
|      | Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°                           |                 | N/A |
|      | Possible heating test in overturned position; temperature rise does not exceed values shown in table 9                     |                 | N/A |
| 20.2 | Moving parts adequately arranged or enclosed as to provide protection against personal injury                              |                 | P   |
|      | Protective enclosures, guards and similar parts are non-detachable   |                 | 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   |                          | -       |
| 21.1              | Appliance has adequate mechanical strength and is constructed as to withstand rough handling                                      |                          | P       |
|                   | Checked by applying blows to the appliance in accordance with test Ehb of IEC 60068-2-75, spring hammer test, impact energy 0,5 J |                          | P       |
|                   | If necessary, supplementary or reinforced insulation subjected to the electric strength test of 16.3                              |                          | P       |
|                   | If necessary, repetition of groups of three blows on a new sample   |                          | P       |
| 21.2              | Accessible parts of solid insulation having strength to prevent penetration by sharp implements                                   | No accessible insulation | N/A     |
|                   | The insulation is tested as specified, unless   |                          | N/A     |
|                   | the thickness of supplementary insulation is at least 1 mm and reinforced insulation is at least 2 mm                             |                          | N/A     |

|      |   |  |     |
|------|---|--|-----|
| 22   | CONSTRUCTION  |  | -   |
| 22.1 | Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled  | IPX4   | P   |
| 22.2 | Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:  |  | -   |
|      | - a supply cord fitted with a plug  | For Australia and New Zealand model LCB, CPL and BM series | P   |
|      | - a switch complying with 24.3  |  | N/A |
|      | - a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided  |  | P   |
|      | - an appliance inlet  | Model TBA series and CPL1100X-X                            | P   |
|      | 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 |  | N/A |
| 22.3 | Appliance provided with pins: no undue strain on socket-outlets   |  | N/A |
|      | Applied torque not exceeding 0.25 Nm  |  | N/A |

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|-------------------|---|---|---------|
| Clause            | Requirement + Test  | Result - Remark   | Verdict |
|                   | Pull force of 50N to each pin after the appliance has been placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm   |   | N/A     |
|                   | Each pin subjected to a torque of 0.4Nm; the pins are not rotating unless rotating does not impair compliance with the standard   |   | N/A     |
| 22.4              | Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets  |   | N/A     |
| 22.5              | No risk of electric shock when touching 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 | < 1V after 1sec   | P       |
| 22.6              | Electrical insulation not affected by condensing water or leaking liquid  | Electrical connection protected by a splash cover               | P       |
|                   | Electrical insulation of Class II appliances not affected in case of a hose rupture or seal leak  |   | P       |
|                   | Drain holes shall be at least 5 mm in diameter or 20 mm <sup>2</sup> in area with a minimum dimension of at least 3 mm.<br>(IEC60335-2-98)  | Drain hole overflow, 16mm in diameter                           | P       |
| 22.7              | Adequate safeguards against the risk of excessive pressure in appliances provided with steam-producing devices  | No hot vapour   | N/A     |
| 22.8              | Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use                                  |   | P       |
| 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  | No exposure to oil or grease                                    | N/A     |
| 22.10             | Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance  | Non-self resetting circuit breaker non accessible without tools | P       |
|                   | Non-self resetting thermal motor protectors have a trip-free action, unless   |   | P       |
|                   | they are voltage maintained   |   | N/A     |

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|-------------------|---|---|---------|
| Clause            | Requirement + Test  | Result - Remark   | Verdict |
|                   | Location or protection of reset buttons of non-self-resetting controls is so that accidental resetting is unlikely  | Non-self resetting circuit breaker non accessible without tools | P       |
| 22.11             | Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts   | Snap in cover (Pad) , non detachable                            | 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, Pull: 50N  | P       |
| 22.12             | Handles, knobs etc. fixed in a reliable manner  | No such device  | N/A     |
|                   | Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible  |   | N/A     |
|                   | Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied  |   | N/A     |
|                   | Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied  |   | N/A     |
| 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/A     |
| 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   |   | P       |
| 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/A     |
|                   | Cord reel tested with 6000 operations, as specified   |   | N/A     |
|                   | Electric strength test of 16.3, voltage of 1000 V applied   |   | N/A     |
| 22.17             | Spacers not removable from the outside by hand or by means of a screwdriver or a spanner  | No spacers  | N/A     |

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|-------------------|--|-------------------------|---------|
| Clause            | Requirement + Test   | Result - Remark         | Verdict |
| 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  | No driving belt         | N/A     |
| 22.20             | Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible           |                         | P       |
|                   | Compliance is checked by inspection and, if necessary, by appropriate test   |                         | P       |
| 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                                 |                         | P       |
| 22.22             | Appliances not containing asbestos   |                         | P       |
| 22.23             | Oils containing polychlorinated biphenyl (PCB) not used  |                         | P       |
| 22.24             | Bare heating elements adequately supported   | No heating element      | N/A     |
|                   | In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts   |                         | N/A     |
| 22.25             | Sagging heating conductors cannot come into contact with accessible metal parts  |                         | N/A     |
| 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   | No protective impedance | N/A     |
| 22.28             | Metal parts of Class II appliances conductively connected to gas pipes or in contact with water: separated from live parts by double or reinforced insulation        |                         | N/A     |
| 22.29             | Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation           |                         | P       |
| 22.30             | Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or                                     |                         | P       |
|                   | so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete |                         | P       |

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|-------------------|--|----------------------------|---------|
| Clause            | Requirement + Test   | Result - Remark            | Verdict |
| 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 | Not used                   | N/A     |
|                   | Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation  |                            | N/A     |
|                   | Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature  |                            | N/A     |
|                   | Insulating material in which heating conductors are embedded is considered to be basic insulation and not reinforced insulation  |                            | N/A     |
| 22.33             | Conductive liquids that are or may become accessible in normal use are not in direct contact with live parts   |                            | P       |
|                   | Liquids may be heated using electrodes and may be in direct contact with their live parts.<br>(IEC60335-2-98)  |                            | N/A     |
|                   | For class II constructions, conductive liquids that are or may become accessible in normal use, not in direct contact with basic or reinforced insulation                          |                            | P       |
|                   | For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation  | No contact with live parts | N/A     |
| 22.34             | Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed  | No such device             | N/A     |
| 22.35             | Handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation   | Wired remote control       | P       |



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|-------------------|---|---|---------|
| Clause            | Requirement + Test  | Result - Remark   | Verdict |
|                   | 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 | No metal parts  | N/A     |
|                   | 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/A     |
| 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/A     |
| 22.37             | Capacitors in Class II appliances not connected to accessible metal parts, unless complying with 22.42  |   | N/A     |
|                   | Metal casings of capacitors in Class II appliances separated from accessible metal parts by supplementary insulation, unless complying with 22.42   |   | N/A     |
| 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/A     |
| 22.40             | Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible                                       | Fixed appliance and no accessible moving parts  | N/A     |
|                   | 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.   | The appliance can operate continuously, automatically and remotely without giving rise to a hazard. | N/A     |
| 22.41             | No components, other than lamps, containing mercury   |   | P       |
| 22.42             | Protective impedance consisting of at least two separate components   | Not used  | N/A     |
|                   | Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited   |   | N/A     |

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|-------------------|---|---|---------|
| Clause            | Requirement + Test  | Result - Remark                         | Verdict |
| 22.43             | Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur   | Not adjustable                          | N/A     |
| 22.44             | Appliances shall not have an enclosure that is shaped or decorated like a toy   |   | 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         |   | N/A     |
| 22.46             | Software used in protective electronic circuits is software class B or C .....  |   | N/A     |
| 22.47             | Appliances connected to the water mains withstand the water pressure expected in normal use   | Tested at 1.6 Mpa for 5 minutes         | P       |
|                   | No leakage from any part, including any inlet water hose  |   | P       |
| 22.48             | Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water   |   | P       |
| 22.49             | For remote operation, the duration of operation shall be set before the appliance can be started, unless  |   | N/A     |
|                   | the appliance switches off automatically or can operate continuously without hazard   | Can operate continuously without hazard | P       |
| 22.50             | Controls incorporated in the appliance take priority over controls actuated by remote operation   | Main on/off switch                      | P       |
| 22.51             | A control on the appliance being manually adjusted to the setting for remote operation before the appliance can be operated in this mode  |   | N/A     |
|                   | There is a visual indication showing that the appliance is adjusted for remote operation  |   | N/A     |
|                   | Manual setting and visual indication not necessary on appliances that can operate as follows, without giving rise to a hazard:  |   | -       |
|                   | - operate continuously,   |   | P       |
|                   | - operate automatically, or   |   | P       |
|                   | - be operated remotely  |   | P       |
| 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  | No socket outlet                        | N/A     |
| 22.101            | The vapour outlet of appliances incorporating means for heating water shall be free from obstructions that could give rise to a significant pressure within the container. (IEC 60335-2-98) | No heating element                      | N/A     |

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|-------------------|--|---------------------------------|---------|
| Clause            | Requirement + Test   | Result - Remark                 | Verdict |
|                   | The container shall be vented to the atmosphere, the aperture being at least 5 mm in diameter or 20 mm <sup>2</sup> in area with a minimum dimension of at least 3 mm. . (IEC 60335-2-98)  |                                 | N/A     |
| 22.102            | Appliances for wall mounting shall have reliable provision for fixing to a wall, independent of the connection to the water mains. (IEC 60335-2-98)  |                                 | N/A     |
| 22.103            | Electrode-type appliances shall be constructed to ensure that when the filling aperture of the container is open, both electrodes are disconnected to provide all-pole disconnection under overvoltage category III conditions. (IEC 60335-2-98) |                                 | N/A     |
|                   | This requirement does not apply to an appliance that requires the withdrawal of an appliance connector in order to gain access to the filling aperture. (IEC 60335-2-98/A1)  |                                 | N/A     |
| 22.104            | Appliances intended to be connected to the water mains shall withstand the water pressure expected in normal use. (IEC 60335-2-98)   | Tested at 1.6 Mpa for 5 minutes | P       |

|      |   |                 |     |
|------|---|-----------------|-----|
| 23   | INTERNAL WIRING   |                 | -   |
| 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        | Not used        | N/A |
|      | Beads inside flexible metal conduits contained within an insulating sleeve                                  |                 | N/A |
| 23.3 | Electrical connections and internal conductors movable relatively to each other not exposed to undue stress | No moving parts | N/A |
|      | Flexible metallic tubes not causing damage to insulation of conductors                                      |                 | N/A |
|      | Open-coil springs not used  |                 | N/A |
|      | Adequate insulating lining provided inside a coiled spring, the turns of which touch one another            |                 | N/A |

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| Clause            | Requirement + Test  | Result - Remark | Verdict |
|                   | No damage after 10 000 flexings for conductors flexed during normal use or 100 flexings for conductors flexed during user maintenance   |                 | N/A     |
|                   | Electric strength test, 1000 V between live parts and accessible metal parts  |                 | N/A     |
| 23.4              | Bare internal wiring sufficiently rigid and fixed   |                 | P       |
| 23.5              | The insulation of internal wiring withstanding the electrical stress likely to occur in normal use  |                 | N/A     |
|                   | No breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation  |                 | P       |
| 23.6              | Sleeving used as supplementary insulation on internal wiring retained in position by positive means   | Not used        | N/A     |
| 23.7              | The colour combination green/yellow used only for earthing conductors   |                 | P       |
| 23.8              | Aluminium wires not used for internal wiring  |                 | P       |
| 23.9              | No lead-tin soldering of stranded conductors where they are subject to contact pressure, unless   |                 | N/A     |
|                   | clamping means so constructed that there is no risk of bad contact due to cold flow of the solder   |                 | N/A     |
| 23.10             | The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, at least equivalent to that of light polyvinyl chloride sheathed flexible cord (60227 IEC 52) |                 | N/A     |

|      |  |                      |   |
|------|--|----------------------|---|
| 24   | COMPONENTS   |                      | - |
| 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 24.1.9   |                      | 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 |                      | P |

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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 |   | N/A     |
| 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   | Approved capacitor  | P       |
|                   | tested according to annex F  |   | N/A     |
| 24.1.2            | Safety isolating transformers complying with IEC 61558-2-6, or   |   | N/A     |
|                   | 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   | Approved switch   | P       |
|                   | tested according to annex H  |   | N/A     |
|                   | If the switch operates a relay or contactor, the complete switching system is subjected to the test  |   | N/A     |
| 24.1.4            | Automatic controls complying with IEC 60730-1 with relevant part 2. The number of cycles of operation being:   |   | -       |
|                   | - thermostats: 10 000  |   | N/A     |
|                   | - temperature limiters: 1 000  |   | N/A     |
|                   | - self-resetting thermal cut-outs: 300   | Approved motor protector  | P       |
|                   | - voltage maintained non-self-resetting thermal cut-outs: 1000   |   | N/A     |
|                   | - other non-self-resetting thermal cut-outs: 30  |   | N/A     |
|                   | - timers: 3 000  |   | N/A     |
|                   | - energy regulators: 10 000  |   | N/A     |
|                   | Thermal motor protectors are tested in combination with their motor under the conditions specified in Annex D  |   | N/A     |
|                   | For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, the degree of protection declared for subclause 6.5.2 of IEC 60730-2-8 is IPX7                             |   | N/A     |
| 24.1.5            | Appliance couplers complying with IEC 60320-1  |   | P       |
|                   | However, appliances classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3   | Coupler protected from spray or spillage of liquid by splash cover. | N/A     |

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| Clause            | Requirement + Test   | Result - Remark                                 | Verdict |
|                   | Interconnection couplers complying with IEC 60320-2-2  |   | N/A     |
| 24.1.6            | Small lamp holders similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable  |   | N/A     |
| 24.1.7            | If the remote operation of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151   |   | N/A     |
| 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   | No thermal link                                 | N/A     |
| 24.1.9            | Relays, other than motor starting relays, tested as part of the appliance  | Approved relay                                  | N/A     |
|                   | 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 .....   |   | N/A     |
| 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/A     |
| 24.4              | Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1 |   | P       |
| 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   | V=264V, Vcap=327V<br>Rated capacitor = 425-500V | P       |

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| Clause            | Requirement + Test   | Result - Remark  | Verdict |
| 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/A     |
|                   | In addition, the motors are complying with the requirements of Annex I   |                  | N/A     |
| 24.7              | Hose-sets for connection of appliances to the water mains, complying with IEC 61770 and supplied with the appliance  | See summary page | P       |
| 24.101            | Thermal cut-outs incorporated in appliances for compliance with Clause 19 shall not be self-resetting.<br>(IEC 60335-2-98)                                       |                  | N/A     |

|      |   |  |     |
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| 25   | SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS   |  | -   |
| 25.1 | Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:  |  | -   |
|      | - supply cord fitted with a plug  | For Australia and New Zealand model LCB, CPL and BM series   | P   |
|      | - an appliance inlet having at least the same degree of protection against moisture as required for the appliance   |  | N/A |
|      | - pins for insertion into socket-outlets  |  | N/A |
| 25.2 | Appliance not provided with more than one means of connection to the supply mains   |  | P   |
|      | Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown |  | N/A |
| 25.3 | Connection of supply conductors for appliance intended to be permanently connected to fixed wiring possible after the appliance has been fixed to its support   | For Europe, model TBA series and CPL1100X-X<br><br>Flexible supply lead for fixed wiring can be connected without difficulty after the appliance is fixed. | P   |
|      | Appliance provided with a set of terminals for the connection of cables or fixed wiring, cross-sectional areas specified in 26.6  |  | N/A |
|      | Appliance provided with a set of terminals allowing the connection of a flexible cord   |  | N/A |

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| Clause            | Requirement + Test   | Result - Remark | Verdict |
|                   | Appliance provided with a set of supply leads accommodated in a suitable compartment   |                 | N/A     |
|                   | 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/A     |
| 25.4              | Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10  |                 | N/A     |
|                   | Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in 29   |                 | N/A     |
| 25.5              | Method for assemble supply cord with the appliance:  |                 | -       |
|                   | - type X attachment  |                 | N/A     |
|                   | - type Y attachment  |                 | P       |
|                   | - type Z attachment, if allowed in part 2  |                 | N/A     |
|                   | Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords  |                 | N/A     |
| 25.6              | Plugs fitted with only one flexible cord   |                 | P       |
| 25.7              | Supply cords being one of the following types:   |                 | -       |
|                   | - rubber sheathed (at least 60245 IEC 53)  |                 | N/A     |
|                   | - polychloroprene sheathed (at least 60245 IEC 57)   |                 | N/A     |
|                   | - cross-linked polyvinyl chloride sheathed (at least 60245 IEC 87)   |                 | N/A     |
|                   | Polyvinyl chloride sheathed:<br>Not used if they are likely to touch metal parts having a temperature rise exceeding 75K during the test of Clause 11.           |                 | -       |
|                   | - light polyvinyl chloride sheathed cord (at least 60227 IEC 52), appliances not exceeding 3 kg  |                 | N/A     |
|                   | - ordinary polyvinyl chloride sheathed cord (at least 60227 IEC 53), other appliances  | H05VVF-3G       | P       |
|                   | Heat resistant polyvinyl chloride sheathed:<br>Not used for type X attachment other than specially prepared cords.   |                 | -       |
|                   | - Heat-resistant light polyvinyl chloride sheathed cord (at least 60227 IEC 56), appliances not exceeding 3 kg   |                 | N/A     |
|                   | - heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), other appliances   |                 | N/A     |



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|-------------------|---|------------------------------|---------|
| Clause            | Requirement + Test  | Result - Remark              | Verdict |
| 25.8              | Nominal cross-sectional area of supply cords according to table 11; rated current (A); cross-sectional area (mm <sup>2</sup> ) .....                              | < 6.0 A : 1.0mm <sup>2</sup> | P       |
| 25.9              | Supply cord not in contact with sharp points or edges   |                              | P       |
| 25.10             | Green/yellow core for earthing purposes in Class I appliance  |                              | P       |
| 25.11             | Conductors of supply cords not consolidated by lead-tin soldering where they are subject to contact pressure, unless  |                              | N/A     |
|                   | clamping means so constructed that there is no risk of bad contacts due to cold flow of the solder  |                              | N/A     |
| 25.12             | Moulding the cord to part of the enclosure does not damage the insulation of the supply cord  |                              | N/A     |
| 25.13             | Inlet opening so shaped as to prevent damage to the supply cord   |                              | P       |
|                   | Unless the enclosure at the inlet opening is of insulation material, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided |                              | P       |
|                   | If unsheathed supply cord, a similar additional bushing or lining is required, unless   |                              | N/A     |
|                   | the appliance is class 0  |                              | N/A     |
| 25.14             | Supply cords adequately protected against excessive flexing   | Fixed appliance              | N/A     |
|                   | Flexing test:   |                              | N/A     |
|                   | - applied force (N).....:   |                              | N/A     |
|                   | - number of flexing .....   |                              | N/A     |
|                   | The test does not result in:  |                              | N/A     |
|                   | - short circuit between the conductors  |                              | N/A     |
|                   | - breakage of more than 10% of the strands of any conductor   |                              | N/A     |
|                   | - separation of the conductor from its terminal   |                              | N/A     |
|                   | - loosening of any cord guard   |                              | N/A     |
|                   | - damage, within the meaning of the standard, to the cord or the cord guard   |                              | N/A     |
|                   | - broken strands piercing the insulation and becoming accessible  |                              | N/A     |
| 25.15             | Conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage  |                              | P       |

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|-------------------|---|--------------------------------------|---------|
| Clause            | Requirement + Test  | Result - Remark                      | Verdict |
|                   | The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged  |                                      | P       |
|                   | Pull and torque test of supply cord, values shown in table 10: pull (N); torque (not on automatic cord reel) (Nm) .....   | Pull force = 100N<br>Torque = 0.35Nm | P       |
|                   | Max. 2 mm displacement of the cord, and conductors not moved more than 1 mm in the terminals  |                                      | P       |
|                   | Creepage distances and clearances not reduced below values specified in 29.1  |                                      | P       |
| 25.16             | Cord anchorages for type X attachments constructed and located so that:   |                                      | -       |
|                   | - replacement of the cord is easily possible  |                                      | N/A     |
|                   | - it is clear how the relief from strain and the prevention of twisting are obtained  |                                      | N/A     |
|                   | - they are suitable for different types of cord   |                                      | N/A     |
|                   | - cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from accessible metal parts by supplementary insulation                                      |                                      | N/A     |
|                   | - the cord is not clamped by a metal screw which bears directly on the cord   |                                      | N/A     |
|                   | - at least one part of the cord anchorage securely fixed to the appliance, unless part of a specially prepared cord   |                                      | N/A     |
|                   | - screws which have to be operated when replacing the cord do not fix any other component, if applicable  |                                      | N/A     |
|                   | - if labyrinths can be bypassed the test of 25.15 is nevertheless withstood   |                                      | N/A     |
|                   | - for Class 0, 0I and I appliances: they are of insulating material or are provided with an insulating lining, unless a failure of the insulation of the cord does not make accessible metal parts live |                                      | N/A     |
|                   | - for Class II appliances: they are of insulating material, or if of metal, they are insulated from accessible metal parts by supplementary insulation  |                                      | N/A     |
| 25.17             | Adequate cord anchorages for type Y and Z attachment  |                                      | P       |
| 25.18             | Cord anchorages only accessible with the aid of a tool, or  |                                      | N/A     |

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|-------------------|---|---|---------|
| Clause            | Requirement + Test  | Result - Remark                                     | Verdict |
|                   | so constructed that the cord can only be fitted with the aid of a tool  |   | N/A     |
| 25.19             | Type X attachment, glands not used as cord anchorage in portable appliances   |   | N/A     |
|                   | Tying the cord into a knot or tying the cord with string not used   |   | N/A     |
| 25.20             | Conductors of the supply cord for type Y and Z attachment adequately additionally insulated   |   | N/A     |
| 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/A     |
|                   | 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/A     |
| 25.22             | Appliance inlet:  |   | -       |
|                   | - live parts not accessible during insertion or removal   |   | P       |
|                   | - connector can be inserted without difficulty  | For fixed wiring , installed by qualified installer | N/A     |
|                   | - the appliance is not supported by the connector   |   | P       |
|                   | - 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   | No metal part                                       | N/A     |
| 25.23             | Interconnection cords comply with the requirements for the supply cord, except as specified   | Wired remote control                                | P       |
|                   | If necessary, electric strength test of 16.3  | Test 16.3   | P       |
| 25.24             | Interconnection cords not detachable without the aid of a tool if compliance with the standard is impaired when they are disconnected   | Wired remote control SELV                           | 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/A     |
| 26                | TERMINALS FOR EXTERNAL CONDUCTORS   |   | -       |

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|-------------------|--|-------------------|---------|
| Clause            | Requirement + Test   | Result - Remark   | Verdict |
| 26.1              | Appliances provided with terminals or equally effective devices for connection of external conductors  | Appliance coupler | N/A     |
|                   | Terminals only accessible after removal of a non-detachable cover  |                   | N/A     |
|                   | However, earthing terminals may be accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection   |                   | N/A     |
| 26.2              | Appliances with type X attachment and appliances for 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 |                   | N/A     |
|                   | Screws and nuts serve only to clamp supply conductors, except  |                   | N/A     |
|                   | internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors  |                   | N/A     |
|                   | If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone  |                   | N/A     |
|                   | Soldering alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free at the soldered joint  |                   | N/A     |
| 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             |                   | N/A     |
|                   | Terminals for type X attachment and those for connection to fixed wiring so fixed that when tightening or loosening the clamping means:  |                   | -       |
|                   | - the terminal does not loosen   |                   | N/A     |
|                   | - internal wiring is not subjected to stress   |                   | N/A     |
|                   | - clearances and creepage distances are not reduced below the values in 29   |                   | N/A     |
|                   | 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. Nominal diameter of thread (mm); screw category; torque (Nm):  |                   | N/A     |

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|-------------------|---|-----------------|---------|
| Clause            | Requirement + Test  | Result - Remark | Verdict |
| 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 |                 | N/A     |
| 26.5              | Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard  |                 | N/A     |
|                   | Stranded conductor test, 8 mm insulation removed  |                 | N/A     |
|                   | No contact between live parts and accessible metal parts and, for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only   |                 | N/A     |
| 26.6              | Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm <sup>2</sup> ).....:     |                 | N/A     |
|                   | Terminals only suitable for a specially prepared cord   |                 | N/A     |
| 26.7              | Terminals for type X attachment accessible after removal of a cover or part of the enclosure  |                 | N/A     |
| 26.8              | Terminals for the connection to fixed wiring, including the earthing terminal, located close to each other  |                 | N/A     |
| 26.9              | Terminals of the pillar type constructed and located as specified   |                 | N/A     |
| 26.10             | Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless conductors ends fitted with a device suitable for screw terminals   |                 | N/A     |
|                   | Pull test of 5 N to the connection  |                 | N/A     |
| 26.11             | For type Y and Z attachment: soldered, welded, crimped and similar connections may be used  |                 | N/A     |
|                   | For Class II appliances: the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone   |                 | N/A     |
|                   | For Class II appliances: soldering, welding or crimping alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free   |                 | N/A     |

|    |                        |   |
|----|------------------------|---|
| 27 | PROVISION FOR EARTHING | - |
|----|------------------------|---|

| IEC/EN 60335-2-98 |  |                           |         |
|-------------------|--|---------------------------|---------|
| Clause            | Requirement + Test   | Result - Remark           | Verdict |
| 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  | No accessible metal       | N/A     |
|                   | Earthing terminals not connected to neutral terminal   |                           | P       |
|                   | Class 0, II and III appliance have no provision for earthing   |                           | N/A     |
|                   | 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   |                           | N/A     |
|                   | Terminals used for the connection of external equipotential bonding conductors allow connection of conductors of 2.5 to 6 mm <sup>2</sup> , and  |                           | N/A     |
|                   | do not provide earthing continuity between different parts of the appliance  |                           | N/A     |
|                   | Conductors cannot be loosened without the aid of a tool  |                           | N/A     |
| 27.3              | For detachable parts that are plugged into another part of the appliance, and having an earth connection, the earth connection made before and separated after current-carrying connections when removing the part | Wired remote, not earthed | P       |
|                   | For appliances with supply cord, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage  |                           | N/A     |
| 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/A     |
|                   | Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure  |                           | N/A     |
|                   | In case of aluminium alloys precautions taken to avoid risk of corrosion   |                           | N/A     |
| 27.5              | Low resistance of connection between earthing terminal and earthed metal parts   |                           | P       |

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|-------------------|--|--|---------|
| Clause            | Requirement + Test   | Result - Remark  | Verdict |
|                   | 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 |  | N/A     |
|                   | Resistance not exceeding 0,1 $\Omega$ at the specified low-resistance test   | Between earth contact of appliance inlet and pump connector on PCB.<br>Fan motor = 0.066 $\Omega$<br>Pump motor = 0.065 $\Omega$ | P       |
| 27.6              | The printed conductors of printed circuit boards shall not be used to provide earthing continuity in hand-held appliances.   |  | N/A     |
|                   | They may be used to provide earthing continuity in other appliances if at least two tracks are used with independent soldering points and the appliance complies with 27.5 for each circuit                            |  | P       |

|      |  |  |     |
|------|--|--|-----|
| 28   | SCREWS AND CONNECTIONS   |  | -   |
| 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/A |
|      | Screws of insulating material not used for any electrical connection or connections providing earthing continuity  |  | N/A |
|      | Screws used for electrical connections or connections providing earthing continuity screw into metal   |  | N/A |
|      | Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation  |  | N/A |
|      | 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/A |
|      | For screws and nuts; test as specified   | No such screws<br>(see appended table) | N/A |

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|-------------------|---|-------------------|---------|
| Clause            | Requirement + Test  | Result - Remark   | Verdict |
| 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 |                   | N/A     |
|                   | This requirement does not apply to electrical connections in circuits carrying a current not exceeding 0.5A   | Water pump, 0.2 A | P       |
| 28.3              | Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together   | Not used          | N/A     |
|                   | Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread  |                   | N/A     |
|                   | Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer  |                   | N/A     |
|                   | Thread-cutting, thread rolling and space threaded screws may be used in connections providing earthing continuity provided it is not necessary to disturb the connection:   |                   | -       |
|                   | - in normal use,  |                   | N/A     |
|                   | - during user maintenance,  |                   | N/A     |
|                   | - when replacing a supply cord having a type X attachment, or   |                   | N/A     |
|                   | - during installation   |                   | N/A     |
|                   | At least two screws being used for each connection providing earthing continuity, unless  |                   | N/A     |
|                   | the screw forms a thread having a length of at least half the diameter of the screw   |                   | N/A     |
|                   | 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/A     |
| 28.4              | Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity   | No such screws    | N/A     |
|                   | Rivets for electrical connections or connections providing earthing continuity secured against loosening if subjected to torsion  | Not used          | N/A     |
| 29                | CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION   |                   | -       |



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|-------------------|---|-----------------|---------|
| Clause            | Requirement + Test  | Result - Remark | Verdict |
|                   | Clearances, creepage distances and solid insulation withstand electrical stress   |                 | P       |
|                   | For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), annex J applies .....  |                 | N/A     |
|                   | The microenvironment is pollution degree 1 under Type 1 coating   |                 | N/A     |
|                   | No clearance or creepage distance requirements under Type 2 coating   |                 | N/A     |
| 29.1              | Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless   |                 | P       |
|                   | for basic insulation and functional insulation they comply with the impulse voltage test of clause 14   |                 | N/A     |
|                   | 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 |                 | N/A     |
|                   | Impulse voltage test not applicable:  |                 | -       |
|                   | - when the microenvironment is pollution degree 3   |                 | N/A     |
|                   | - for basic insulation of class 0 and class 01 appliances   |                 | N/A     |
|                   | Appliances are in overvoltage category II   |                 | P       |
|                   | Clearances less than specified in table 16 not allowed for basic insulation of class 0 and class 01 appliances,   |                 | N/A     |
|                   | or if pollution degree 3 is applicable  |                 | N/A     |
|                   | 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  |                 | P       |
|                   | Clearance at the terminals of tubular sheathed heating elements may be reduced to 1mm if the microenvironment is pollution degree 1   |                 | N/A     |
|                   | Lacquered conductors of windings considered to be bare conductors   |                 | P       |
| 29.1.2            | Clearances of supplementary insulation not less than those specified for basic insulation in table 16   |                 | P       |

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|-------------------|--|--|---------|
| Clause            | Requirement + Test   | Result - Remark  | Verdict |
| 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   |  | P       |
| 29.1.4            | For functional insulation, the values of table 16 are applicable, unless   |  | P       |
|                   | the appliance complies with clause 19 with the functional insulation short-circuited   |  | P       |
|                   | Lacquered conductors of windings considered to be bare conductors  |  | P       |
|                   | However, clearances at crossover points are not measured   |  | P       |
|                   | Clearance between surfaces of PTC heating elements may be reduced to 1mm   |  | N/A     |
| 29.1.5            | Appliances having higher working 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                              |  | P       |
|                   | If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage |  | N/A     |
|                   | Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation based on the working voltage used as the rated voltage in table 15  |  | P       |
| 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 2 applies, unless   |  | P       |
|                   | precautions taken to protect the insulation; pollution degree 1  | Pump winding filled with impregnation  | P       |
|                   | insulation subjected to conductive pollution; pollution degree 3   | Insulation of fan motor and control box housing is enclosed and unlikely to be exposed | N/A     |
|                   | For electrode-type appliances, the microenvironment of the insulation supporting the electrodes is pollution degree 3. (IEC 60335-2-98)  |  | N/A     |

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|-------------------|---|------------------------------------|---------|
| Clause            | Requirement + Test  | Result - Remark                    | Verdict |
|                   | 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  |                                    | P       |
|                   | 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/A     |
| 29.2.2            | Creepage distances of supplementary insulation at least as specified for basic insulation in table 17   |                                    | P       |
| 29.2.3            | Creepage distances of reinforced insulation at least double as specified for basic insulation in table 17   |                                    | P       |
| 29.2.4            | Creepage distances of functional insulation not less than specified in table 18   |                                    | N/A     |
|                   | Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited   | Between PCB tracks of SELV circuit | P       |
| 29.3              | Supplementary and reinforced insulation having adequate thickness, or a sufficient number of layers, to withstand the electrical stresses   |                                    | P       |
|                   | Compliance checked by:  |                                    | -       |
|                   | - measurement, in accordance with 29.3.1, or  |                                    | P       |
|                   | - an electric strength test in accordance with 29.3.2, or   |                                    | N/A     |
|                   | - an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3   |                                    | N/A     |
| 29.3.1            | Supplementary insulation having a thickness of at least 1 mm  |                                    | P       |
|                   | 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  |                                    | N/A     |
|                   | Supplementary insulation consisting of at least 2 layers  |                                    | N/A     |
|                   | Reinforced insulation consisting of at least 3 layers   |                                    | N/A     |
| 29.3.3            | The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by   |                                    | N/A     |
|                   | the electric strength test of 16.3  |                                    | N/A     |

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|-------------------|--|-----------------|---------|
| Clause            | Requirement + Test   | Result - Remark | Verdict |
|                   | If the temperature rise during the tests of Clause 19 does not exceed the value specified in Table 3, the test of IEC 60068-2-2 is not carried out |                 | N/A     |

|        |   |                      |     |
|--------|---|----------------------|-----|
| 30     | RESISTANCE TO HEAT AND FIRE   |                      | -   |
| 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).....:                        |                      | 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) .....            |                      | 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).....: |                      | P   |
| 30.2   | Parts of non-metallic material adequately resistant to ignition and spread of fire  |                      | P   |
|        | 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                            |                      | P   |
|        | Compliance checked by the test of 30.2.1. In addition:  |                      | P   |
|        | - attended appliances, 30.2.2 applies   |                      | N/A |
|        | - unattended appliances, 30.2.3 applies   |                      | P   |
|        | Appliances for remote operation, 30.2.3 applies   |                      | P   |
|        | 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/A |

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|-------------------|---|-----------------|---------|
| Clause            | Requirement + Test  | Result - Remark | Verdict |
|                   | Parts for which the glow-wire test cannot be carried out meet the requirements in ISO9772 for category HBF material   |                 | N/A     |
| 30.2.3            | Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2  |                 | P       |
|                   | Tests not applicable to conditions as specified   |                 | P       |
| 30.2.3.1          | Parts of insulating material supporting connections carrying a current exceeding 0.2A during normal operation, and  |                 | P       |
|                   | parts of non-metallic material within a distance of 3mm,  |                 | P       |
|                   | subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850°C   |                 | 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                               |                 | N/A     |
|                   | 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 |                 | N/A     |
|                   | Test as specified for an interposed shielding material  |                 | P       |
| 30.2.3.2          | Parts of non-metallic material supporting current-carrying connections, and   |                 | 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:   |                 | N/A     |
|                   | -775°C, for connections carrying a current exceeding 0,2A during normal operation   |                 | N/A     |
|                   | -675°C, for other connections   |                 | N/A     |
|                   | When the glow-wire test of IEC 60695-2-11 is carried out, the temperatures are:   |                 | -       |
|                   | -750°C, for connections carrying a current exceeding 0,2A during normal operation   |                 | P       |
|                   | -650°C, for other connections   |                 | P       |
|                   | Parts that during the test produce a flame persisting longer than 2 s, tested as specified  |                 | P       |

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|-------------------|--|-----------------|---------|
| Clause            | Requirement + Test   | Result - Remark | Verdict |
|                   | 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 |                 | P       |
|                   | the material is classified as V-0 or V-1 according to IEC 60695-11-10  |                 | N/A     |
| 30.2.4            | Base material of printed circuit boards subjected to needle-flame test of annex E  |                 | P       |
|                   | Test not applicable to conditions as specified   |                 | P       |

|    |   |  |   |
|----|---|--|---|
| 31 | RESISTANCE TO RUSTING                                       |  | - |
|    | Relevant ferrous parts adequately protected against rusting |  | P |

|    |  |  |     |
|----|--|--|-----|
| 32 | RADIATION, TOXICITY AND SIMILAR HAZARDS  |  | -   |
|    | Appliance shall not emit harmful radiation, present a toxic or similar hazard due to their operation in normal use |  | P   |
|    | Relevant tests specified in part 2, if necessary   |  | N/A |

|   |  |  |     |
|---|--|--|-----|
| A | ANNEX A (INFORMATIVE)<br>ROUTINE TESTS                             |  | -   |
|   | Description of routine tests to be carried out by the manufacturer |  | N/A |

|       |   |  |     |
|-------|---|--|-----|
| B     | ANNEX B (NORMATIVE)<br>APPLIANCES POWERED BY RECHARGEABLE BATTERIES   |  | -   |
|       | The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance |  | N/A |
|       | This annex does not apply to battery chargers   |  | N/A |
| 3.1.9 | Appliance operated under the following conditions:  |  | -   |
|       | -the appliance, supplied by its fully charged battery, operated as specified in relevant part 2                                     |  | N/A |
|       | -the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate                 |  | N/A |

| IEC/EN 60335-2-98 |  |                 |         |
|-------------------|--|-----------------|---------|
| Clause            | Requirement + Test   | Result - Remark | Verdict |
|                   | -if possible, the appliance is supplied from the supply mains through its battery charger, the battery being initially discharged to such an extent that the appliance cannot operate. The appliance is operated as specified in relevant part 2 |                 | N/A     |
|                   | If the appliance incorporates inductive coupling between two parts that are detachable from each other, the appliance is supplied from the supply mains with the detachable part removed   |                 | N/A     |
| 3.6.2             | Part to be removed in order to discard the battery is not considered to be detachable  |                 | N/A     |
| 5.101             | Appliances supplied from the supply mains tested as specified for motor-operated appliances  |                 | N/A     |
| 7.1               | Battery compartment for batteries intended to be replaced by the user, marked with battery voltage and polarity of the terminals   |                 | N/A     |
| 7.12              | The instructions for appliances incorporating batteries intended to be replaced by the user includes required information  |                 | N/A     |
|                   | Details about how to remove batteries containing materials hazardous to the environment given  |                 | N/A     |
| 7.15              | Markings placed on the part of the appliance connected to the supply mains   |                 | N/A     |
| 8.2               | Appliances having batteries that according to the instruction may be replaced by the user need only have basic insulation between live parts and the inner surface of the battery compartment  |                 | N/A     |
|                   | If the appliance can be operated without batteries, double or reinforced insulation required   |                 | N/A     |
| 11.7              | The battery is charged for the period described  |                 | N/A     |
| 19.1              | Appliances subjected to tests of 19.101, 19.102 and 19.103   |                 | N/A     |
| 19.101            | Appliances supplied at rated voltage for 168 h, the battery being continually charged  |                 | N/A     |
| 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/A     |
| 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/A     |

| IEC/EN 60335-2-98 |   |                 |         |
|-------------------|---|-----------------|---------|
| Clause            | Requirement + Test  | Result - Remark | Verdict |
| 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/A     |
|                   | 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:    |                 | -       |
|                   | - 100, the mass of part does not exceed 250 g   |                 | N/A     |
|                   | - 50, the mass of part exceeds 250 g  |                 | N/A     |
|                   | After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met   |                 | N/A     |
| 22.3              | Appliances having pins for insertion into socket-outlets tested as fully assembled as possible  |                 | N/A     |
| 25.13             | An additional lining or bushing not required for interconnection cords operating at safety extra-low voltage                                |                 | N/A     |
| 30.2              | For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies   |                 | N/A     |
|                   | For other parts, 30.2.2 applies   |                 | N/A     |

|   |  |  |     |
|---|--|--|-----|
| C | ANNEX C (NORMATIVE)<br>AGEING TEST ON MOTORS   |  | -   |
|   | Tests, as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding |  | N/A |

|   |  |  |     |
|---|--|--|-----|
| D | ANNEX D (NORMATIVE)<br>THERMAL MOTOR PROTECTORS                                  |  | -   |
|   | Applicable to appliances having motors that incorporate thermal motor protectors |  | N/A |

|   |  |  |   |
|---|--|--|---|
| E | ANNEX E (NORMATIVE)<br>NEEDLE-FLAME TEST   |  | - |
|   | Needle-flame test carried out in accordance with IEC 60695-11-5, with the following modifications: |  | P |
| 7 | Severities   |  | - |
|   | The duration of application of the test flame is 30 s $\pm$ 1 s                                    |  | P |
| 9 | Test procedure   |  | - |



| IEC/EN 60335-2-98 |   |                 |         |
|-------------------|---|-----------------|---------|
| Clause            | Requirement + Test  | Result - Remark | Verdict |
| 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 additional specimens, both withstanding the test |                 | P       |
| 11                | Evaluation of test results  |                 | -       |
|                   | The duration of burning not exceeding 30 s  |                 | P       |
|                   | However, for printed circuit boards, the duration of burning not exceeding 15 s   |                 | P       |

|         |  |  |     |
|---------|--|--|-----|
| F       | ANNEX F (NORMATIVE)<br>CAPACITORS  |  | -   |
|         | 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/A |
| 1.5     | Terminology  |  | -   |
| 1.5.3   | Class X capacitors tested according to subclass X2   |  | N/A |
| 1.5.4   | This subclause is applicable   |  | N/A |
| 1.6     | Marking  |  | -   |
|         | Items a) and b) are applicable   |  | N/A |
| 3.4     | Approval testing   |  | -   |
| 3.4.3.2 | Table II is applicable as described  |  | N/A |
| 4.1     | Visual examination and check of dimensions   |  | -   |
|         | This subclause is applicable   |  | N/A |
| 4.2     | Electrical tests   |  | -   |
| 4.2.1   | This subclause is applicable   |  | N/A |
| 4.2.5   | This subclause is applicable   |  | N/A |
| 4.2.5.2 | Only table IX is applicable  |  | N/A |
|         | Values for test A apply  |  | N/A |

| IEC/EN 60335-2-98 |  |                 |         |
|-------------------|--|-----------------|---------|
| Clause            | Requirement + Test   | Result - Remark | Verdict |
|                   | However, for capacitors in heating appliances the values for test B or C apply |                 | N/A     |
| 4.12              | Damp heat, steady state  |                 | -       |
|                   | This subclause is applicable   |                 | N/A     |
|                   | Only insulation resistance and voltage proof are checked                       |                 | N/A     |
| 4.13              | Impulse voltage  |                 | -       |
|                   | This subclause is applicable   |                 | N/A     |
| 4.14              | Endurance  |                 | -       |
|                   | Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 applicable                        |                 | N/A     |
| 4.14.7            | Only insulation resistance and voltage proof are checked                       |                 | N/A     |
|                   | Visual examination, no visible damage  |                 | N/A     |
| 4.17              | Passive flammability test  |                 | -       |
|                   | This subclause is applicable   |                 | N/A     |
| 4.18              | Active flammability test   |                 | -       |
|                   | This subclause is applicable   |                 | N/A     |

|     |  |           |   |
|-----|--|-----------|---|
| G   | ANNEX G (NORMATIVE)<br>SAFETY ISOLATING TRANSFORMERS   |           | - |
|     | The following modifications to this standard are applicable for safety isolating transformers: |           | P |
| 7   | Marking and instructions   |           | - |
| 7.1 | Transformers for specific use marked with:   |           | - |
|     | -name, trademark or identification mark of the manufacturer or responsible vendor              | Ten Pao   | P |
|     | -model or type reference   | TM41246F0 | P |
| 17  | Overload protection of transformers and associated circuits                                    |           | - |
|     | Fail-safe transformers comply with subclause 15.5 of IEC 61558-1                               |           | P |
| 22  | Construction   |           | - |
|     | Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable                                     |           | P |
| 29  | Clearances, creepage distances and solid insulation  |           | - |

| IEC/EN 60335-2-98   |  |  |         |
|---------------------|--|--|---------|
| Clause              | Requirement + Test   | Result - Remark  | Verdict |
| 29.1, 29.2 and 29.3 | The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply | Between primary to iron core :<br>cr = 5.8mm , cl = 5.8mm<br><br>Between secondary to iron core : cr = 3.8mm, cl = 3.8mm<br><br>Between primary to secondary : cr = 9.5mm , cl = 9.5mm<br><br>Bobbin DTI = 2.4mm<br><br>Between adjacent output circuit : 13.8mm | P       |

|      |   |  |     |
|------|---|--|-----|
| H    | ANNEX H (NORMATIVE)<br>SWITCHES   |  | -   |
|      | Switches comply with the following clauses of IEC 61058-1, as modified:   |  | -   |
|      | -The tests of IEC 61058-1 carried out under the conditions occurring in the appliance   |  | N/A |
|      | -Before being tested, switches are operated 20 times without load   |  | N/A |
| 8    | Marking and documentation   |  | -   |
|      | Switches are not required to be marked  |  | N/A |
|      | However, switches that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference |  | N/A |
| 13   | Mechanism   |  | -   |
|      | The tests may be carried out on a separate sample   |  | N/A |
| 15   | Insulation resistance and dielectric strength   |  | -   |
| 15.1 | Not applicable  |  | N/A |
| 15.2 | Not applicable  |  | N/A |
| 15.3 | Applicable for full disconnection and micro-disconnection   |  | N/A |
| 17   | Endurance   |  | -   |
|      | Compliance is checked on three separate appliances or switches  |  | N/A |
|      | For 17.2.4.4, the number of cycles is 10 000, unless otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335                      |  | N/A |

| IEC/EN 60335-2-98 |   |                 |         |
|-------------------|---|-----------------|---------|
| Clause            | Requirement + Test  | Result - Remark | Verdict |
|                   | 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/A     |
|                   | Subclauses 17.2.2 and 17.2.5.2 not applicable   |                 | N/A     |
|                   | The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in IEC 60335-1  |                 | N/A     |
|                   | Temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1  |                 | N/A     |
| 20                | Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies   |                 | -       |
|                   | This clause is applicable to clearances and creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in table 24  |                 | N/A     |

|        |  |  |     |
|--------|--|--|-----|
| I      | ANNEX I (NORMATIVE)<br>MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE  |  | -   |
|        | The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance:  |  | N/A |
| 8      | Protection against access to live parts  |  | -   |
| 8.1    | Metal parts of the motor are considered to be bare live parts  |  | N/A |
| 11     | Heating  |  | -   |
| 11.3   | Temperature rise of the body of the motor is determined instead of the temperature rise of the windings  |  | N/A |
| 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/A |
| 16     | Leakage current and electric strength  |  | -   |
| 16.3   | Insulation between live parts of the motor and its other metal parts not subjected to the test   |  | N/A |
| 19     | Abnormal operation   |  | -   |
| 19.1   | The tests of 19.7 to 19.9 not carried out  |  | N/A |
| 19.101 | Appliance operated at rated voltage with each of the following fault conditions:   |  | -   |

| IEC/EN 60335-2-98 |  |                 |         |
|-------------------|--|-----------------|---------|
| Clause            | Requirement + Test   | Result - Remark | Verdict |
|                   | - short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit   |                 | N/A     |
|                   | - short circuit of each diode of the rectifier   |                 | N/A     |
|                   | - open circuit of the supply to the motor  |                 | N/A     |
|                   | - open circuit of any parallel resistor, the motor being in operation  |                 | N/A     |
|                   | Only one fault simulated at a time, the tests carried out consecutively  |                 | N/A     |
| 22                | Construction   |                 | -       |
| 22.101            | For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation |                 | N/A     |
|                   | Compliance checked by the tests specified for double and reinforced insulation   |                 | N/A     |

|       |   |  |     |
|-------|---|--|-----|
| J     | ANNEX J (NORMATIVE)<br>COATED PRINTED CIRCUIT BOARDS  |  | -   |
|       | Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications: |  | N/A |
| 5.7   | Conditioning of the test specimens  |  | -   |
|       | When production samples are used, three samples of the printed circuit board are tested   |  | N/A |
| 5.7.1 | Cold  |  | -   |
|       | The test is carried out at -25°C  |  | N/A |
| 5.7.3 | Rapid change of temperature   |  | -   |
|       | Severity 1 is specified   |  | N/A |
| 5.9   | Additional tests  |  | -   |
|       | This subclause is not applicable  |  | N/A |

|   |  |  |   |
|---|--|--|---|
| K | ANNEX K (NORMATIVE)<br>OVERVOLTAGE CATEGORIES                                |  | - |
|   | The information on overvoltage categories is extracted from IEC 60664-1      |  | P |
|   | Overvoltage category is a numeral defining a transient overvoltage condition |  | P |

| IEC/EN 60335-2-98 |  |                 |         |
|-------------------|--|-----------------|---------|
| Clause            | Requirement + Test   | Result - Remark | Verdict |
|                   | Equipment of overvoltage category IV is for use at the origin of the installation  |                 | N/A     |
|                   | Equipment of overvoltage category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements |                 | N/A     |
|                   | Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation  |                 | P       |
|                   | If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies   |                 | N/A     |
|                   | Equipment of overvoltage category I is equipment for connection to circuits in which measures are taken to limit transient overvoltages to an appropriate low level                    |                 | N/A     |

|   |  |  |   |
|---|--|--|---|
| L | ANNEX L (INFORMATIVE)<br>GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES |  | - |
|   | Sequences for the determination of clearances and creepage distances                       |  | P |

|   |   |  |     |
|---|---|--|-----|
| M | ANNEX M (NORMATIVE)<br>POLLUTION DEGREE   |  | -   |
|   | The information on pollution degrees is extracted from IEC 60664-1  |  | P   |
|   | Pollution   |  | -   |
|   | The microenvironment determines the effect of pollution on the insulation, taking into account the microenvironment |  | P   |
|   | Means may be provided to reduce pollution at the insulation by effective enclosures or similar                      |  | P   |
|   | Minimum clearances specified where pollution may be present in the microenvironment                                 |  | P   |
|   | Degrees of pollution in the microenvironment  |  | -   |
|   | For evaluating creepage distances, the following degrees of pollution in the microenvironment are established:      |  | -   |
|   | - pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence     |  | N/A |

| IEC/EN 60335-2-98 |   |                 |         |
|-------------------|---|-----------------|---------|
| Clause            | Requirement + Test  | Result - Remark | Verdict |
|                   | - pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected      |                 | P       |
|                   | - pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected |                 | N/A     |
|                   | - pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow  |                 | N/A     |

|      |   |  |     |
|------|---|--|-----|
| N    | ANNEX N (NORMATIVE)<br>PROOF TRACKING TEST  |  | -   |
|      | The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:     |  | N/A |
| 7    | Test apparatus  |  | -   |
| 7.3  | Test solutions  |  | -   |
|      | Test solution A is used   |  | N/A |
| 10   | Determination of proof tracking index (PTI)   |  | -   |
| 10.1 | Procedure   |  | -   |
|      | The proof voltage is 100V, 175V, 400V or 600V.....:   |  | N/A |
|      | The last paragraph of Clause 3 applies  |  | N/A |
|      | The test is carried out on five specimens   |  | N/A |
|      | In case of doubt, additional test with proof voltage reduced by 25V, the number of drops increased to 100 |  | N/A |
| 10.2 | Report  |  | -   |
|      | The report stating if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V |  | N/A |

|   |   |  |   |
|---|---|--|---|
| O | ANNEX O (INFORMATIVE)<br>SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30 |  | - |
|   | Description of tests for determination of resistance to heat and fire     |  | P |

|   |   |  |   |
|---|---|--|---|
| P | ANNEX P (INFORMATIVE)<br>GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMATES |  | - |
|---|---|--|---|

| IEC/EN 60335-2-98 |  |                 |         |
|-------------------|--|-----------------|---------|
| Clause            | Requirement + Test   | Result - Remark | Verdict |
|                   | 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   |                 | -       |
|                   | 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 |                 | -       |
| 5                 | General conditions for the tests   |                 | -       |
| 5.7               | The ambient temperature for the tests of Clauses 11 and 13 is $40^{+3}/_0$   |                 | N/A     |
| 7                 | Marking and instructions   |                 | -       |
| 7.1               | The appliance marked with the letters WdaE   |                 | N/A     |
| 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/A     |
|                   | 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/A     |
| 11                | Heating  |                 | -       |
| 11.8              | The values of Table 3 are reduced by 15 K  |                 | N/A     |
| 13                | Leakage current and electric strength at operating temperature   |                 | N/A     |
| 13.2              | The leakage current for class I appliances not exceeding 0,5 mA  |                 | N/A     |
| 15                | Moisture resistance  |                 | -       |
| 15.3              | The value of t is 37 °C  |                 | N/A     |
| 16                | Leakage current and electric strength  |                 | -       |
| 16.2              | The leakage current for class I appliances not exceeding 0,5 mA  |                 | N/A     |
| 19                | Abnormal operation   |                 | N/A     |
| 19.13             | The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3  |                 | N/A     |
| Q                 | ANNEX Q (INFORMATIVE)<br>SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS   |                 | -       |
|                   | Description of tests for appliances incorporating electronic circuits  |                 | P       |



| IEC/EN 60335-2-98 |   |                 |         |
|-------------------|---|-----------------|---------|
| Clause            | Requirement + Test  | Result - Remark | Verdict |
| R                 | ANNEX R (NORMATIVE)<br>SOFTWARE EVALUATION  |                 | -       |
|                   | Software evaluated in accordance with the following clauses of Annex H of IEC 60730-1, as modified  |                 | -       |
| H.2               | Definitions   |                 | -       |
|                   | Only definitions H.2.16 to H.2.20 applicable  |                 | N/A     |
| H.7               | Information   |                 | -       |
|                   | Only footnotes 12) to 18) of Table 7.2, as modified, applicable   |                 | N/A     |
| H.11.12           | Controls using software   |                 | -       |
|                   | All the subclauses of H.11.12, as modified, except H.11.12.6 and H.11.12.6.1, applicable  |                 | N/A     |
| H.11.12.7         | Delete text   |                 | N/A     |
| 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/A     |
| H.11.12.8         | Software fault/error detection occurs before compliance with 19.13 of IEC 60335-1 is impaired   |                 | N/A     |
| H.11.12.8.1       | Replace text  |                 | N/A     |
| 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/A     |

| ANNEX EMF |   |   |   |
|-----------|---|---|---|
|           | The Tested product also complies to the requirements of EN 62233:2008 |   | — |
|           | Limit .....100 %  | Measured max. 3.907 %<br>LCB550-B (950W Seeley motor)       | P |
|           | Limit .....100 %  | Measured max. 2.718 %<br>CPL1100-B (750W Seeley Able motor) | P |

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

|  |                           |                |        |             |        |   |
|--|---------------------------|----------------|--------|-------------|--------|---|
| 10.2   | TABLE : Current deviation |                |        |             |        | P |
| Current deviation of/at:                                   | I rated (A)               | I measured (A) | dl     | Required dl | Remark |   |
| 230VAC::   |                           |                |        |             |        |   |
| LCB550-B with fan motor<br>Seeley 6095V4A001, 950W         | 6.0                       | 5.47           | -8.8%  | +15%        | P      |   |
| LCB450-B with fan motor<br>Seeley 6056V4A001, 560W         | 4.8                       | 3.64           | -24.0% | +15%        | P      |   |
| LCB450-B with fan motor<br>Seeley (Able) AVAC600,<br>600W  | 4.8                       | 4.58           | -4.5%  | +15%        | P      |   |
| LCB350-G with Fan motor<br>Seeley 6050V4A001,<br>500W      | 4.0                       | 3.59           | -10.3% | +15%        | P      |   |
| LCB350-G with Fan motor<br>Seeley (Able) AVAC430,<br>430W  | 4.0                       | 3.58           | -10.5% | +15%        | P      |   |
| LCB250-B with Fan motor<br>Seeley 6030V4A001, 300W         | 3.2                       | 2.00           | -37.5% | +15%        | P      |   |
| LCB250-B with Fan motor<br>Seeley (Able) AVAC340,<br>340W  | 3.2                       | 2.69           | -16.0% | +15%        | P      |   |
| CPL1100-B with Fan motor<br>Seeley (Able) AVAC750,<br>750W | 5.7                       | 4.91           | -13.9% | +15%        | P      |   |
| Note : Ambient temperature 40 <sup>0</sup> C               |                           |                |        |             |        |   |

|                        |                                    |        |          |             |
|------------------------|------------------------------------|--------|----------|-------------|
| 11.8                   | TABLE: Heating test, thermocouples |        |          | P           |
|                        | Test voltage (V) .....             | :      | 254.4 V~ | —           |
|                        | Ambient (°C).....                  | :      | 40.6     | —           |
| Thermocouple locations |                                    | dT (K) |          | Max. dT (K) |

|   |      |     |
|---|------|-----|
| Pin of appliance inlet  | 6.6  | 30  |
| Appliance inlet   | 4.6  | ref |
| Ambient relay K1,K2 (T85)                                     | 8.0  | 45  |
| Relay K1 (T85)  | 13.6 | ref |
| Relay K2 (T85)  | 5.9  | ref |
| Main switch ambient (T85)                                     | 7.0  | 45  |
| Main switch   | 5.8  | ref |
| Capacitor X2 ,C2 (T105)                                       | 4.5  | 65  |
| Capacitor X2 ,C3 (T105)                                       | 10.5 | 65  |
| Connector fan motor   | 3.0  | ref |
| Connector water pump  | 4.2  | ref |
| Capacitor motor (T70)   | 9.6  | 30  |
| Transformer T1, primary (class B)                             | 29.4 | 70  |
| Circuit breaker ambient (T60)                                 | 1.9  | 20  |
| Circuit breaker   | 6.3  | ref |
| PCB   | 16.5 | 105 |
| Control box enclosure   | 2.9  | ref |
| Solenoid water inlet  | 1.46 | 50  |
| Appliance enclosure   | 1.2  | 45  |
| supplementary information: limit reduced by 15 <sup>0</sup> K |      |     |

| 11.8  | TABLE: Heating test, resistance method |                    |                    |          |             | P                |
|---|--|--------------------|--------------------|----------|-------------|------------------|
|   | Test voltage (V) .....                 | :                  |                    | 254.4 V~ |             | —                |
|   | Ambient, t <sub>1</sub> (°C) .....     | :                  |                    | 39.6     |             | —                |
|   | Ambient, t <sub>2</sub> (°C) .....     | :                  |                    | 40.6     |             | —                |
| Temperature rise of winding                         |  | R <sub>1</sub> (Ω) | R <sub>2</sub> (Ω) | dT (K)   | Max. dT (K) | Insulation class |
| Water pump motor                                    |  | 131.73             | 168.2              | 74       | 100         | F                |
| LCB550-B with Fan motor Seeley 6095V4A001, 950W     |  | 4.232              | 5.943              | 109      | 125         | H                |
| LCB450-B with Fan motor Seeley 6056V4A001, 560W     |  | 8.462              | 10.82              | 74       | 100         | F                |
| LCB450-B with Fan motor Seeley (Able) AVAC600, 600W |  | 8.886              | 11.90              | 95       | 100         | F                |
| LCB350-G with Fan motor Seeley 6050V4A001, 500W     |  | 10.954             | 14.41              | 86       | 100         | F                |
| LCB350-B with Fan motor Seeley (Able) AVAC430, 430W |  | 14.976             | 20.22              | 94       | 100         | F                |

|   |        |       |    |     |   |
|---|--------|-------|----|-----|---|
| LCB250-B with Fan motor Seeley 6030V4A001, 300W               | 17.394 | 20.24 | 44 | 100 | F |
| LCB250-B with Fan motor Seeley (Able) AVAC340, 340W           | 19.06  | 23.98 | 71 | 100 | F |
| CPL1100-B with Fan motor Seeley (Able) AVAC750, 750W          | 5.192  | 6.082 | 46 | 100 | F |
|   |        |       |    |     |   |
| supplementary information: limit reduced by 15 <sup>0</sup> K |        |       |    |     |   |

|  |   |         |                     |   |
|--|---|---------|---------------------|---|
| 13.2   | TABLE: Leakage current  |         |                     | P |
|  | Heating appliances: 1,15 x rated power input.....:                    | -       |                     | — |
|  | Motor-operated and combined appliances:<br>1,06 x rated voltage ..... | 254.4V~ |                     | — |
| Leakage current between  |   | I (mA)  | Max. allowed I (mA) |   |
| Live and Earth wire  |   | 0.28    | 3.5                 |   |
| Neutral and Earth wire   |   | 0.17    | 3.5                 |   |
| Live and appliance plastic enclosure + wired remote enclosure    |   | 0.04    | 0.25                |   |
| Neutral and appliance plastic enclosure + wired remote enclosure |   | 0.04    | 0.25                |   |
| supplementary information:                                       |   |         |                     |   |

|   |                          |             |                    |   |
|---|--------------------------|-------------|--------------------|---|
| 13.3  | TABLE: Electric strength |             |                    | P |
| Test voltage applied between:                                       |                          | Voltage (V) | Breakdown (Yes/No) |   |
| Live parts and Earth wire   |                          | 1000 V~     | No                 |   |
| Live parts and appliance plastic enclosure + wired remote enclosure |                          | 3000 V~     | No                 |   |
|   |                          |             |                    |   |
|   |                          |             |                    |   |
| supplementary information:  |                          |             |                    |   |

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

|                               |  |        |                     |
|-------------------------------|--|--------|---------------------|
| 16.2                          | TABLE: Leakage current   |        | P                   |
|                               | Single phase appliances: 1,06 x rated voltage .....:                       | 254.4  | —                   |
|                               | Three phase appliances 1,06 x rated voltage divided by $\sqrt{3}$ : .....: | -      | —                   |
| Leakage current between       |  | I (mA) | Max. allowed I (mA) |
| Live parts and earth          |  | 0.225  | 3.5                 |
| Live parts and enclosure      |  | 0.002  | 0.25                |
| Live parts and remote housing |  | 0.002  | 0.25                |
|                               |  |        |                     |
| supplementary information:    |  |        |                     |

|                               |                          |             |                    |   |
|-------------------------------|--------------------------|-------------|--------------------|---|
| 16.3                          | TABLE: Electric strength |             |                    | P |
| Test voltage applied between: |                          | Voltage (V) | Breakdown (Yes/No) |   |
| Live parts and earth          |                          | 1250 V~     | No                 |   |
| Live parts and enclosure      |                          | 3000 V~     | No                 |   |
| Live parts and remote housing |                          | 3000 V~     | No                 |   |
|                               |                          |             |                    |   |
| supplementary information:    |                          |             |                    |   |

|   |  |        |             |
|---|--|--------|-------------|
| 17  | TABLE: Overload protection, temperature rise |        | P           |
| Temperature rise of part/at:  |  | dT (K) | Max. dT (K) |
|   |  |        |             |
| Primary winding T1 (class B)  |  | 155    | 225         |
|   |  |        |             |
| supplementary information: Short circuit secondary, thermal cut-off operate |  |        |             |

|   |  |                    |                    |        |        |             |
|---|--|--------------------|--------------------|--------|--------|-------------|
| 19.7  | TABLE: Abnormal operation, locked rotor/moving parts |                    |                    |        |        | P           |
|   | Test voltage (V) .....                               |                    | 240~               |        |        | —           |
|   | Ambient, $t_1$ (°C) .....                            |                    | 22.7               |        |        | —           |
|   | Ambient, $t_2$ (°C) .....                            |                    | 23.5               |        |        | —           |
| Temperature of winding                      |  | $R_1$ ( $\Omega$ ) | $R_2$ ( $\Omega$ ) | dT (K) | T (°C) | Max. T (°C) |
| Water pump motor (class F)                  |  | -                  | -                  | 120.2  | 141.8  | 215         |
| Fan motor Seeley 6095V4A001, 950W (class H) |  | -                  | -                  | 169.3  | 192.8  | 260         |
| Fan motor Seeley 6056V4A001, 560W (class F) |  | -                  | -                  | 157.9  | 181.4  | 240         |

|   |   |   |       |       |     |
|---|---|---|-------|-------|-----|
| Fan motor Seeley 6050V4A001, 500W class F       | - | - | 165.1 | 188.6 | 240 |
| Fan motor Seeley 6030V4A001, 300W (class F)     | - | - | 154.7 | 178.2 | 240 |
| Fan motor Seeley (Able) AVAC600, 600W (class F) | - | - | 158.2 | 181.7 | 240 |
| Fan motor Seeley (Able) AVAC430, 430W (class F) | - | - | 158.8 | 182.3 | 240 |
| Fan motor Seeley (Able) AVAC340, 340W (class F) | - | - | 147.3 | 170.8 | 240 |
| Fan motor Seeley (Able) AVAC750, 750W (class F) | - | - | 156.4 | 179.9 | 240 |

| 19.9   | TABLE: Abnormal operation, running overload |                    |        |        | P           |
|--|---|--------------------|--------|--------|-------------|
|  | Test voltage (V) .....                      | :                  | 240~   |        | —           |
|  | Ambient, $t_1$ (°C) .....                   | :                  | 21.6   |        | —           |
|  | Ambient, $t_2$ (°C) .....                   | :                  | 22.8   |        | —           |
| Temperature of winding                           | $R_1$ ( $\Omega$ )                          | $R_2$ ( $\Omega$ ) | dT (K) | T (°C) | Max. T (°C) |
| Water pump motor (class F)                       | -   | -                  | 115.2  | 136.8  | 180         |
| Fan motor Seeley 6030V4A001, 950W (class H)      | -   | -                  | 158.5  | 181.3  | 200         |
| Fan motor Seeley 6050V4A001, 560W (class F)      | -   | -                  | 150.2  | 173.0  | 180         |
| Fan motor Seeley 6056V4A001, 500W (class F)      | -   | -                  | 156.6  | 179.4  | 180         |
| Fan motor Seeley 6095V4A001, 300W (class F)      | -   | -                  | 147.0  | 169.8  | 180         |
| Fan motor Seeley (Able) AVAC750, 750W (class F)  | -   | -                  | 147.7  | 170.5  | 180         |
| Fan motor Seeley (Able) AVAC 600, 600W (class F) | -   | -                  | 152.2  | 175.0  | 180         |
| Fan motor Seeley (Able) AVAC 430, 430W (class F) | -   | -                  | 153.1  | 175.9  | 180         |
| Fan motor Seeley (Able) AVAC340, 340W (class F)  | -   | -                  | 141.2  | 164.0  | 180         |
|  |   |                    |        |        |             |

|                        |  |        |             |
|------------------------|--|--------|-------------|
| 19.13                  | TABLE: Abnormal operation, temperature rises |        | P           |
| Thermocouple locations |  | dT (K) | Max. dT (K) |
| Supply cord            |  | 4.3    | 150         |
| Enclosure              |  | <1     | 150         |

|   |                            |                   |                                       |                         |                           |   |
|---|----------------------------|-------------------|---------------------------------------|-------------------------|---------------------------|---|
| 24.1  | TABLE: Components          |                   |                                       |                         |                           | P |
| Object / part No.                             | Manufacturer/<br>trademark | Type / model      | Technical data                        | Standard                | Mark(s) of<br>conformity  |   |
| 3 pin plug, for<br>Australia & New<br>Zealand | Key                        | K002              | 220-250V~, 10Amp                      | AS/NZS3112              | S/357                     |   |
| Appliance<br>connector                        | Key                        | K025S             | 220-250V~/10A                         | AS/NZS<br>EN60320       | S/357                     |   |
| Detachable<br>flexible supply<br>cord         | Key                        | H05VVF-3G         | 250/440V, 3G x 1.5<br>mm <sup>2</sup> | AS/NZS3191<br>IEC 60227 | S/357                     |   |
| Appliance inlet                               | Rich Bay                   | R30190            | 10A/250V~                             | EN60320                 | VDE, ENEC10               |   |
| Appliance inlet<br>(alternative)              | Bulgin                     | PX0580/PC         | 10A/250V~                             | EN60320                 | VDE, ENEC10,<br>UL,CSA    |   |
| Appliance inlet<br>(alternative)              | Singatron                  | 2AC-<br>091P9140  | 10A/250V~                             | EN60320                 | VDE, UL,CSA               |   |
| Circuit breaker                               | Tyco Electronics           | W28-XQ1A-12       | 30VDC/12A<br>250V/50-60Hz             | EN60934                 | VDE, CCC, UL,<br>CSA      |   |
| Main Switch                                   | Chily Precision            | 3024 series       | 16(4)A, 250V~, T85                    | IEC 61058-1             | ENEC16                    |   |
| Optocoupler<br>(U206)                         | Fairchild                  | MOC3052,<br>V109Q | Isolation 7.5KV                       | IEC 60747-5-2           | VDE, FI,<br>S,D,N,UL, CSA |   |
| X2 capacitor<br>(C3,C4,C6)                    | Vishay                     | 3362MKP           | 100nF/ 310V~                          | IEC 60384-14            | ENEC16,CQC,<br>UL,CSA     |   |
| X2 capacitor<br>(C3,C4,C6)<br>(alternative)   | Vishay                     | 339 MKP           | 100nF/ 310V~                          | IEC 60384-14            | ENEC16,CQC,<br>UL, CSA    |   |
| X2 capacitor<br>(C3,C4,C6)<br>(alternative)   | Xiamen<br>Faratronics      | C42(MKP62)        | 100nF/ 305V~                          | IEC 60384-14            | ENEC10,CQC,<br>UL, CSA    |   |
| X2 capacitor<br>(C2)                          | Vishay                     | 3362MKP           | 470nF/ 275V~                          | IEC 60384-14            | ENEC16.CQC                |   |
| X2 capacitor<br>(C2)<br>(alternative)         | Vishay                     | 339 MKP           | 470nF/ 310V~                          | IEC 60384-14            | ENEC16,CQC,<br>UL, CSA    |   |

|  |                                     |                       |   |              |                           |
|--|-------------------------------------|-----------------------|---|--------------|---------------------------|
| X2 capacitor<br>(C3,C4,C6)<br>(alternative)                                  | Xiamen<br>Faratronics               | C42(MKP62)            | 470nF/ 305V~                                      | IEC 60384-14 | ENEC10,CQC,<br>UL, CSA    |
| Y2 capacitor<br>(C5)   | Murata<br>Manufacturing             | KH series             | 4.7n /250V~                                       | IEC 60384-14 | VDE,NEMKO,<br>DEMKO       |
| Relay (K1)   | Xiamen Hongfa<br>Electroacoustic    | JQX-14FW              | Coil 12VDC<br>Contact<br>16A/250VAC               | -            | VDE, CQC                  |
| Relay<br>(K2,K3,K4)  | Matsushita Electric<br>Works (NAIS) | JW1FSN-<br>DC12V      | Coil 12VDC<br>Contact10A/250V~                    | -            | VDE, FI, S, +S,<br>UL,CSA |
| Self resetting<br>thermal overload<br>,incorporated in<br>all fan motor      | Klixon(Sensata)                     | 17AMC130A6            | 250V/9A, 130±5°C                                  | -            | ENEC05,<br>CQC,UL         |
| Thermal fuse,<br>incorporated in<br>Seeley Able<br>750W motor                | Microtemp                           | G4A00                 | 250VAC/10A<br>152°C                               | IEC/EN60691  | VDE,BEAB, UL,<br>CSA      |
| Thermal fuse,<br>incorporated in<br>Seeley Able<br>600W, 430W,<br>340W motor | Microtemp                           | G4A00                 | 250VAC/10A<br>167°C                               | IEC/EN60691  | VDE,BEAB, UL,<br>CSA      |
| Thermal fuse,<br>incorporated in<br>Seeley 950W,<br>560W, 500W<br>motor      | Fuji                                | FTF-S, S169           | 250VAC/15A<br>172°C                               | EN60691      | VDE                       |
| Thermal fuse,<br>incorporated in<br>Seeley 300W,<br>motor                    | Fuji                                | FTF-S, S154           | 250VAC/15A<br>158°C                               | EN60691      | VDE                       |
| Transformer  | Ten Pao                             | TM41246F0             | Prim : 240V/50Hz<br>Sec : 2 x 12V/0.3A<br>Class B | EN60355.1    | Tested in<br>appliance    |
| PCB<br>CPMD<br>PN:670652C<br>13.02.12  | Eton                                | ET166                 | 94V-0   | EN60355-1    | UL                        |
| Water pump   | Seeley<br>International P/L         | Tornado<br>P/N 110783 | 230V~, 50Hz, 0.2A,<br>Class F                     | EN60355-1    | Tested in<br>appliance    |



|   |                          |                |                                     |            |                     |
|---|--------------------------|----------------|-------------------------------------|------------|---------------------|
| Connection wire (water pump)                                | -                        | SVT 18AWG VW-1 | 18AWG                               | EN60355-1  | Tested in appliance |
| Capacitor for Seeley motor                                  | Ducati Energia           | 416.33.5060    | 30uF, 425-500V~<br>P2               | EN-60252-1 | VDE, IMQ, UL        |
| Capacitor for Seeley motor, (Alternative)                   | EICAR                    | MLR25L40       | 30uF, 400-500V~<br>P2               | EN-60252-1 | VDE, UL             |
| Capacitor for fan motor (alternative)                       | Epcos (Anhui)            | CBB65A-1       | 30uF, 450V~<br>P2                   | EN60252-1  | VDE                 |
| Capacitor for Seeley (Able) motor                           | Ducati Energia           | 16.33.4660     | 25uF, 425-500V~<br>P2               | EN-60252-1 | VDE, IMQ, UL        |
| Capacitor for fan motor (alternative)                       | Epcos (Anhui)            | CBB65A-1       | 25uF, 450V~<br>P2                   | EN60252-1  | VDE                 |
| Fan Motor (TBA550-X, LCB550-X, CPL1100X-X)                  | Seeley International P/L | 6095V4A001     | 230V/50Hz, 950W, 5.5A, class H      | EN60355-1  | Tested in appliance |
| Fan Motor (TBA450-X, LCB450-X)                              | Seeley International P/L | 6056V4A001     | 230V/50Hz, 560W, 3.6A class F       | EN60355-1  | Tested in appliance |
| Fan Motor (TBA350-X, LCB350-X)                              | Seeley International P/L | 6050V4A001     | 230V/50Hz, 500W, 3.5A, class F      | EN60355-1  | Tested in appliance |
| Fan Motor (TBA250-X, LCB250-X)                              | Seeley International P/L | 6030V4A001     | 230V/50Hz, 300W, 2.5A, class F      | EN60355-1  | Tested in appliance |
| Fan Motor (CPL1100-X, BM1150-X)                             | Seeley (Able)            | AVAC 750       | 220/240V, 50Hz, 750W, 4.9A, class F | EN60355-1  | Tested in appliance |
| Fan Motor (CPL850-X, BM900-X, TBA450-X alt., LCB450-X alt.) | Seeley (Able)            | AVAC 600       | 220/240V, 50Hz, 600W, 4.6A, class F | EN60355-1  | Tested in appliance |
| Fan Motor (CPL700-X, BM750-X, TBA350-X alt., LCB350-X alt.) | Seeley (Able)            | AVAC 430       | 220/240V, 50Hz, 430W, 3.4A, class F | EN60355-1  | Tested in appliance |

|   |               |          |                                       |           |                        |
|---|---------------|----------|---------------------------------------|-----------|------------------------|
| Fan Motor<br>(CPL450-X,<br>BM500-X,<br>TBA250-X alt.,<br>LCB250-X alt.)                   | Seeley (Able) | AVAC 340 | 220/240V, 50Hz,<br>340W, 2.9A,class F | EN60355-1 | Tested in<br>appliance |
|   |               |          |                                       |           |                        |
| <sup>1)</sup> An asterisk indicates a mark which assures the agreed level of surveillance |               |          |                                       |           |                        |

| 28.1                         | TABLE: Threaded part torque test |                               |                       | N/A |
|------------------------------|----------------------------------|-------------------------------|-----------------------|-----|
| Threaded part identification | Diameter of thread (mm)          | Column number (I, II, or III) | Applied torque ( Nm ) |     |
|                              |                                  |                               |                       |     |
|                              |                                  |                               |                       |     |

| 29.1  | TABLE: Clearances          |                     |            |               |            | P                  |
|---|----------------------------|---------------------|------------|---------------|------------|--------------------|
|   | Overvoltage category.....: |                     |            |               |            | —                  |
|   |                            | Type of insulation: |            |               |            |                    |
| Rated impulse voltage (V):  | Min. cl (mm)               | Basic               | Functional | Supplementary | Reinforced | Verdict / Remark   |
| 330   | 0,5*                       |                     |            |               |            |                    |
| 500   | 0,5*                       |                     |            |               |            |                    |
| 800   | 0,5*                       |                     |            |               |            |                    |
| 1 500   | 0,5*/**                    |                     |            |               |            |                    |
| 2 500   | 1,5**                      | 2.5                 | 2.1        | -             | 7.2        | P / on control PCB |
| 4 000   | 3,0**                      |                     |            |               |            |                    |
| 6 000   | 5,5**                      |                     |            |               |            |                    |
| 8 000   | 8,0**                      |                     |            |               |            |                    |
| 10 000  | 11,0**                     |                     |            |               |            |                    |
| *) The value is increased to 0,8mm for pollution degree 3<br>*) If the construction is affected by wear, distortion, movement of the parts or during assembly, the value is increased by 0,5 mm |                            |                     |            |               |            |                    |

| 29.2                   | TABLE: Creepage distances, basic, supplementary and reinforced insulation |                |      |           |                |      |           |                    |     |     | P       |
|------------------------|---|----------------|------|-----------|----------------|------|-----------|--------------------|-----|-----|---------|
| Working voltage<br>(V) | Creepage distance<br>(mm)<br>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       |                    | —   | —   |         |
| ≤50                    | 0,2   | 0,6            | 0,9  | 1,2       | 1,5            | 1,7  | 1,9       | —                  |     | —   |         |
| ≤50                    | 0,4   | 1,2            | 1,8  | 2,4       | 3,0            | 3,4  | 3,8       | —                  | —   |     |         |
| >50 and ≤125           | 0,3   | 0,8            | 1,1  | 1,5       | 1,9            | 2,1  | 2,4       |                    | —   | —   |         |
| >50 and ≤125           | 0,3   | 0,8            | 1,1  | 1,5       | 1,9            | 2,1  | 2,4       | —                  |     | —   |         |
| >50 and ≤125           | 0,6   | 1,6            | 2,2  | 3,0       | 3,8            | 4,2  | 4,8       | —                  | —   |     |         |
| >125 and ≤250          | 0,6   | 1,3            | 1,8  | 2,5       | 3,2            | 3,6  | 4,0       | 2.5                | —   | —   | P       |
| >125 and ≤250          | 0,6   | 1,3            | 1,8  | 2,5       | 3,2            | 3,6  | 4,0       | —                  | -   | —   |         |
| >125 and ≤250          | 1,2   | 2,6            | 3,6  | 5,0       | 6,4            | 7,2  | 8,0       | —                  | —   | 7.2 | P       |
| >250 and ≤400          | 1,0   | 2,0            | 2,8  | 4,0       | 5,0            | 5,6  | 6,3       |                    | —   | —   |         |
| >250 and ≤400          | 1,0   | 2,0            | 2,8  | 4,0       | 5,0            | 5,6  | 6,3       | —                  |     | —   |         |
| >250 and ≤400          | 2,0   | 4,0            | 5,6  | 8,0       | 10,0           | 11,2 | 12,6      | —                  | —   |     |         |
| >400 and ≤500          | 1,3   | 2,5            | 3,6  | 5,0       | 6,3            | 7,1  | 8,0       |                    | —   | —   |         |
| >400 and ≤500          | 1,3   | 2,5            | 3,6  | 5,0       | 6,3            | 7,1  | 8,0       | —                  |     | —   |         |
| >400 and ≤500          | 2,6   | 5,0            | 7,2  | 10,0      | 12,6           | 14,2 | 16,0      | —                  | —   |     |         |
| >500 and ≤800          | 1,8   | 3,2            | 4,5  | 6,3       | 8,0            | 9,0  | 10,0      |                    | —   | —   |         |
| >500 and ≤800          | 1,8   | 3,2            | 4,5  | 6,3       | 8,0            | 9,0  | 10,0      | —                  |     | —   |         |
| >500 and ≤800          | 3,6   | 6,4            | 9,0  | 12,6      | 16,0           | 18,0 | 20,0      | —                  | —   |     |         |
| >800 and ≤1000         | 2,4   | 4,0            | 5,6  | 8,0       | 10,0           | 11,0 | 12,5      |                    | —   | —   |         |
| >800 and ≤1000         | 2,4   | 4,0            | 5,6  | 8,0       | 10,0           | 11,0 | 12,5      | —                  |     | —   |         |
| >800 and ≤1000         | 4,8   | 8,0            | 11,2 | 16,0      | 20,0           | 22,0 | 25,0      | —                  | —   |     |         |
| >1000 and ≤1250        | 3,2   | 5,0            | 7,1  | 10,0      | 12,5           | 14,0 | 16,0      |                    | —   | —   |         |
| >1000 and ≤1250        | 3,2   | 5,0            | 7,1  | 10,0      | 12,5           | 14,0 | 16,0      | —                  |     | —   |         |
| >1000 and ≤1250        | 6,4   | 10,0           | 14,2 | 20,0      | 25,0           | 28,0 | 32,0      | —                  | —   |     |         |
| >1250 and ≤1600        | 4,2   | 6,3            | 9,0  | 12,5      | 16,0           | 18,0 | 20,0      |                    | —   | —   |         |
| >1250 and ≤1600        | 4,2   | 6,3            | 9,0  | 12,5      | 16,0           | 18,0 | 20,0      | —                  |     | —   |         |

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

| 29.2                   | TABLE: Creepage distances, functional insulation |                |      |           |                |       |           | P                              |
|------------------------|--|----------------|------|-----------|----------------|-------|-----------|--------------------------------|
| Working voltage<br>(V) | Creepage distance<br>(mm)<br>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       |                                |
| >50 and ≤125           | 0,3  | 0,7            | 1,0  | 1,4       | 1,8            | 2,0   | 2,2       |                                |
| >125 and ≤250          | 0,4  | 1,0            | 1,4  | 2,0       | 2,5            | 2,8   | 3,2       | 2.1 ,P/control PCB before fuse |
| >250 and ≤400          | 0,8  | 1,6            | 2,2  | 3,2       | 4,0            | 4,5   | 5,0       |                                |
| >400 and ≤500          | 1,0  | 2,0            | 2,8  | 4,0       | 5,0            | 5,6   | 6,3       |                                |
| >500 and ≤800          | 1,8  | 3,2            | 4,5  | 6,3       | 8,0            | 9,0   | 10,0      |                                |
| >800 and ≤1000         | 2,4  | 4,0            | 5,6  | 8,0       | 10,0           | 11,0  | 12,5      |                                |
| >1000 and ≤1250        | 3,2  | 5,0            | 7,1  | 10,0      | 12,5           | 14,0  | 16,0      |                                |
| >1250 and ≤1600        | 4,2  | 6,3            | 9,0  | 12,5      | 16,0           | 18,0  | 20,0      |                                |
| >1600 and ≤2000        | 5,6  | 8,0            | 11,0 | 16,0      | 20,0           | 22,0  | 25,0      |                                |
| >2000 and ≤2500        | 7,5  | 10,0           | 14,0 | 20,0      | 25,0           | 28,0  | 32,0      |                                |
| >2500 and ≤3200        | 10,0   | 12,5           | 18,0 | 25,0      | 32,0           | 36,0  | 40,0      |                                |
| >3200 and ≤4000        | 12,5   | 16,0           | 22,0 | 32,0      | 40,0           | 45,0  | 50,0      |                                |
| >4000 and ≤5000        | 16,0   | 20,0           | 28,0 | 40,0      | 50,0           | 56,0  | 63,0      |                                |
| >5000 and ≤6300        | 20,0   | 25,0           | 36,0 | 50,0      | 63,0           | 71,0  | 80,0      |                                |
| >6300 and ≤8000        | 25,0   | 32,0           | 45,0 | 63,0      | 80,0           | 90,0  | 100,0     |                                |
| >8000 and ≤10000       | 32,0   | 40,0           | 56,0 | 80,0      | 100,0          | 110,0 | 125,0     |                                |
| >10000 and ≤12500      | 40,0   | 50,0           | 71,0 | 100,0     | 125,0          | 140,0 | 160,0     |                                |

|                               |                      |                       |                          |                                  |
|-------------------------------|----------------------|-----------------------|--------------------------|----------------------------------|
| 30.1                          | TABLE: Ball pressure |                       |                          | P                                |
| Part                          |                      | Test temperature (°C) | Impression diameter (mm) | Allowed impression diameter (mm) |
| Appliance inlet               |                      | 125                   | 0.8                      | <2.0                             |
| Appliance inlet (alternative) |                      | 125                   | 0.8                      | <2.0                             |
| Appliance inlet (alternative) |                      | 125                   | 1.1                      | <2.0                             |
| Fan motor Molex connector     |                      | 125                   | 1.3                      | <2.0                             |
| Pump motor Molex connector    |                      | 125                   | 1.4                      | <2.0                             |
| Main switch                   |                      | 125                   | 1.5                      | <2.0                             |
| Transformer bobbin T1         |                      | 125                   | 0.6                      | <2.0                             |
| Thermal circuit breaker       |                      | 125                   | 1.2                      | <2.0                             |
| Relay K1                      |                      | 125                   | 1.9                      | <2.0                             |
| Relay K2,K3,K4                |                      | 125                   | 1.4                      | <2.0                             |
| Control box enclosure         |                      | 125                   | 0.8                      | <2.0                             |
| Pump bobbin                   |                      | 75                    | 1.2                      | <2.0                             |
| Appliance enclosure           |                      | 75                    | 0.9                      | <2.0                             |

***The following parts were subjected to the appropriate glow-wire/needle flame tests specified in IEC60335-1:2002 inc. Amdts 1 & 2 .***

| <u>SPECIMEN NO.</u> | <u>PART</u>                       | <u>MATERIAL</u> | <u>COLOUR</u> |
|---------------------|-----------------------------------|-----------------|---------------|
| Control box         |                                   |                 |               |
| M1                  | Appliance inlet                   | Thermo-plastic  | Black         |
| M2                  | Appliance inlet (alternative)     | Thermo-plastic  | Black         |
| M3                  | Appliance inlet (alternative)     | Thermo-plastic  | Black         |
| M4                  | Circuit breaker                   | Thermo-plastic  | Black         |
| M5                  | Connector circuit breaker         | Thermo-plastic  | White         |
| M6                  | Main switch                       | Thermo-plastic  | Black         |
| M7                  | Relay, K1                         | Thermo-plastic  | Black         |
| M8                  | Relay, K2,K3,K4                   | Thermo-plastic  | Black         |
| M9                  | Connector pump 3 pins             | Thermo-plastic  | White         |
| M10                 | Connector fan motor 4 pins        | Thermo-plastic  | White         |
| M11                 | Connector to motor capacitor 1pin | Thermo-plastic  | White         |
| M12                 | Capacitor motor                   | Thermo-plastic  | White         |
| M13                 | Capacitor motor (alternative)     | Thermo-plastic  | White         |
| M14                 | Connector water solenoid 2 pins   | Thermo-plastic  | Clear         |
| M15                 | Connector water solenoid 1 pin    | Thermo-plastic  | Clear         |
| M16                 | Solenoid water inlet              | Thermo-plastic  | Black         |
| M17                 | Capacitor X2,C2                   | Thermo-plastic  | Grey          |
| M18                 | Capacitor X2,C2 (alternative)     | Thermo-plastic  | Grey          |
| M19                 | Capacitor X2,C2 (alternative)     | Thermo-plastic  | Grey          |
| M20                 | Capacitor X2,C3,C4                | Thermo-plastic  | Grey          |
| M21                 | Capacitor X2,C3,C4 (alternative)  | Thermo-plastic  | Grey          |
| M22                 | Capacitor X2,C3,C4 (alternative)  | Thermo-plastic  | Grey          |
| M23                 | Transformer bobbin, T1            | Thermo-plastic  | Black         |
| M24                 | Pump motor impregnation           | Thermo-plastic  | Cream         |
| M25                 | Connector drain valve 3 pins      | Thermo-plastic  | Clear         |
| M26                 | Connector wired remote (RJ11)     | Thermo-plastic  | Black         |
| M27                 | Connector probe 4 pins            | Thermo-plastic  | Clear         |
| M28                 | PCB                               | Fibrous         | Green         |
| Enclosure           |                                   |                 |               |
| E1                  | Control box enclosure             | Thermo-plastic  | White         |
| E2                  | Fan motor frame                   | Thermo-plastic  | White         |
| E3                  | Pump motor enclosure              | Thermo-plastic  | White         |
| E4                  | Water inlet enclosure             | Thermo-plastic  | Black         |
| E5                  | Water drain enclosure             | Thermo-plastic  | Grey          |
| E6                  | Appliance enclosure               | Thermo-plastic  | Brown         |
| E7                  | Actuator main switch              | Thermo-plastic  | Grey          |

**For results see the following tables**



### Glow-wire tests

The specimens were tested with the test surfaces arranged vertically and the glow-wire tip applied at right-angles for 30s at the temperature stated:

| IEC 60695-2-11<br>CLAUSE | SPECIMEN NUMBER $\Rightarrow$   | M1    | M1    | M2  | M2    | M3  | M3    |
|--------------------------|---|-------|-------|-----|-------|-----|-------|
| 4                        | How tested  | SA    | SA    | C   | C     | C   | C     |
| 6                        | Glow-wire tip temp ( $^{\circ}\text{C}$ )   | 750   | 850   | 750 | 850   | 750 | 850   |
| 11(a)                    | Time till ignition of specimen (s)  | 10    | 4     | NI  | 2     | NI  | 3     |
|                          | Time till ignition of the underlying layer (tissue paper, pinewood board etc.) (s)                                | NI    | NI    | NI  | NI    | NI  | NI    |
| 11(b)                    | Time from tip application till flaming or glowing ceased (s)  | 30    | 30    | NI  | 30    | NI  | 38    |
| 11(c)                    | Maximum flame height (mm)   | 30    | 15    | NI  | 15    | NI  | 15    |
| 11(d)                    | Specimen distortion   | Yes   | Yes   | Yes | Yes   | Yes | Yes   |
|                          | Depth of penetration (mm)   | NM    | NM    | NM  | NM    | NM  | NM    |
| 11(e)                    | Pinewood board scorching  | No    | No    | No  | No    | No  | No    |
| 12(a)                    | Flame or glowing  | Flame | Flame | NI  | Flame | NI  | Flame |
| 12(b)                    | Time of flames or glowing of specimen, surroundings or layer below after removal of tip (maximum allowable: 30 s) | <1    | <1    | NI  | 1     | NI  | 8     |
|                          | Ignition of surrounding parts or layer below (not permitted)  | No    | No    | NI  | No    | NI  | No    |
| 12                       | Ignition of wrapping tissue (not allowed)   | No    | No    | NI  | No    | NI  | No    |
| 12                       | RESULT  | NF    | P     | P   | P     | P   | P     |

**Legend:** CE-Complete Equipment; SA-Sub-Assembly; C-Component; ME-manually Extinguished; NI-No Ignition; NA-Not Applicable; P-Pass; F-Fail; Sat-Satisfactory; Uns-Unsatisfactory;  $\emptyset$ -Ignited Specimen Number; NF-Needle Flame Test Required; NM-Not measured

\* Either 12(a) or 12(b) has to comply. "Yes" does not constitute a point of non-compliance with 12(a) if the requirements of 12(b) are met.

### **Glow-wire tests**

The specimens were tested with the test surfaces arranged vertically and the glow-wire tip applied at right-angles for 30s at the temperature stated:


|                          |   |       |       |     |     |       |       |
|--------------------------|---|-------|-------|-----|-----|-------|-------|
| IEC 60695-2-11<br>CLAUSE | SPECIMEN NUMBER $\Rightarrow$   | M4    | M4    | M5  | M5  | M6    | M6    |
| 4                        | How tested  | C     | C     | SA  | SA  | C     | C     |
| 6                        | Glow-wire tip temp ( $^{\circ}\text{C}$ )   | 750   | 850   | 750 | 850 | 750   | 850   |
| 11(a)                    | Time till ignition of specimen (s)  | 7     | 7     | NI  | NI  | 1     | 1     |
|                          | Time till ignition of the underlying layer (tissue paper, pinewood board etc.) (s)                                | NI    | NI    | NI  | NI  | NI    | NI    |
| 11(b)                    | Time from tip application till flaming or glowing ceased (s)  | 8     | 30    | NI  | NI  | 8     | 30    |
| 11(c)                    | Maximum flame height (mm)   | 25    | 8     | NI  | NI  | 30    | 45    |
| 11(d)                    | Specimen distortion   | Yes   | Yes   | Yes | Yes | Yes   | Yes   |
|                          | Depth of penetration (mm)   | NM    | NM    | NM  | NM  | NM    | NM    |
| 11(e)                    | Pinewood board scorching  | No    | No    | No  | No  | No    | No    |
| 12(a)                    | Flame or glowing  | Flame | Flame | NI  | NI  | Flame | Flame |
| 12(b)                    | Time of flames or glowing of specimen, surroundings or layer below after removal of tip (maximum allowable: 30 s) | 0     | <1    | NI  | NI  | 0     | <1    |
|                          | Ignition of surrounding parts or layer below (not permitted)  | No    | No    | NI  | NI  | No    | No    |
| 12                       | Ignition of wrapping tissue (not allowed)   | No    | No    | NI  | NI  | No    | No    |
| 12                       | RESULT  | P     | P     | P   | P   | NF    | P     |

**Legend:** CE-Complete Equipment; SA-Sub-Assembly; C-Component; ME-manually Extinguished; NI-No Ignition; NA-Not Applicable; P-Pass; F-Fail; Sat-Satisfactory; Uns-Unsatisfactory;  $\emptyset$ -Ignited Specimen Number; NF-Needle Flame Test Required; NM-Not measured

\* Either 12(a) or 12(b) has to comply. "Yes" does not constitute a point of non-compliance with 12(a) if the requirements of 12(b) are met.

### **Glow-wire tests**

The specimens were tested with the test surfaces arranged vertically and the glow-wire tip applied at right-angles for 30s at the temperature stated:


| IEC 60695-2-11<br>CLAUSE | SPECIMEN NUMBER                  | M7    | M7    | M8    | M8    | M9    | M9    |
|--------------------------|---|-------|-------|-------|-------|-------|-------|
| 4                        | How tested  | C     | C     | C     | C     | SA    | SA    |
| 6                        | Glow-wire tip temp (°C)   | 750   | 850   | 750   | 850   | 750   | 850   |
| 11(a)                    | Time till ignition of specimen (s)  | 3     | 3     | 3     | 1     | 5     | 1     |
|                          | Time till ignition of the underlying layer (tissue paper, pinewood board etc.) (s)                                | NI    | NI    | NI    | NI    | NI    | NI    |
| 11(b)                    | Time from tip application till flaming or glowing ceased (s)  | 7     | 24    | 20    | 17    | 18    | 28    |
| 11(c)                    | Maximum flame height (mm)   | 25    | 10    | 20    | 20    | 40    | 50    |
| 11(d)                    | Specimen distortion   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
|                          | Depth of penetration (mm)   | NM    | NM    | NM    | NM    | NM    | NM    |
| 11(e)                    | Pinewood board scorching  | No    | No    | No    | No    | No    | No    |
| 12(a)                    | Flame or glowing  | Flame | Flame | Flame | Flame | Flame | Flame |
| 12(b)                    | Time of flames or glowing of specimen, surroundings or layer below after removal of tip (maximum allowable: 30 s) | 0     | 0     | 0     | 0     | 0     | 0     |
|                          | Ignition of surrounding parts or layer below (not permitted)  | No    | No    | No    | No    | No    | No    |
| 12                       | Ignition of wrapping tissue (not allowed)   | No    | No    | No    | No    | No    | No    |
| 12                       | RESULT  | NF    | P     | NF    | P     | NF    | P     |

**Legend:** CE-Complete Equipment; SA-Sub-Assembly; C-Component; ME-manually Extinguished; NI-No Ignition; NA-Not Applicable; P-Pass; F-Fail; Sat-Satisfactory; Uns-Unsatisfactory; Ø-Ignited Specimen Number; NF-Needle Flame Test Required; NM-Not measured

\* Either 12(a) or 12(b) has to comply. "Yes" does not constitute a point of non-compliance with 12(a) if the requirements of 12(b) are met.

### Glow-wire tests

The specimens were tested with the test surfaces arranged vertically and the glow-wire tip applied at right-angles for 30s at the temperature stated:

| IEC 60695-2-11<br>CLAUSE | SPECIMEN NUMBER                  | M10   | M10   | M11 | M11   | M12   | M12   |
|--------------------------|---|-------|-------|-----|-------|-------|-------|
| 4                        | How tested  | SA    | SA    | SA  | SA    | C     | C     |
| 6                        | Glow-wire tip temp (°C)   | 750   | 850   | 750 | 850   | 750   | 850   |
| 11(a)                    | Time till ignition of specimen (s)  | 2     | 1     | NI  | 1     | 3     | 5     |
|                          | Time till ignition of the underlying layer (tissue paper, pinewood board etc.) (s)                                | NI    | NI    | NI  | NI    | NI    | NI    |
| 11(b)                    | Time from tip application till flaming or glowing ceased (s)  | 31    | 22    | NI  | 30    | 30    | 31    |
| 11(c)                    | Maximum flame height (mm)   | 20    | 20    | NI  | 10    | 25    | 30    |
| 11(d)                    | Specimen distortion   | Yes   | Yes   | Yes | Yes   | Yes   | Yes   |
|                          | Depth of penetration (mm)   | NM    | NM    | NM  | NM    | NM    | NM    |
| 11(e)                    | Pinewood board scorching  | No    | No    | No  | No    | No    | No    |
| 12(a)                    | Flame or glowing  | Flame | Flame | NI  | Flame | Flame | Flame |
| 12(b)                    | Time of flames or glowing of specimen, surroundings or layer below after removal of tip (maximum allowable: 30 s) | 1     | 0     | NI  | <1    | <1    | 1     |
|                          | Ignition of surrounding parts or layer below (not permitted)  | No    | No    | NI  | No    | No    | No    |
| 12                       | Ignition of wrapping tissue (not allowed)   | No    | No    | NI  | No    | No    | No    |
| 12                       | RESULT  | NF    | P     | P   | P     | NF    | P     |

**Legend:** CE-Complete Equipment; SA-Sub-Assembly; C-Component; ME-manually Extinguished; NI-No Ignition; NA-Not Applicable; P-Pass; F-Fail; Sat-Satisfactory; Uns-Unsatisfactory; ø-Ignited Specimen Number; NF-Needle Flame Test Required; NM-Not measured

\* Either 12(a) or 12(b) has to comply. "Yes" does not constitute a point of non-compliance with 12(a) if the requirements of 12(b) are met.

### **Glow-wire tests**

The specimens were tested with the test surfaces arranged vertically and the glow-wire tip applied at right-angles for 30s at the temperature stated:

| IEC 60695-2-11<br>CLAUSE | SPECIMEN NUMBER →   | M13 | M13   | M14 | M14   | M15   | M15   |
|--------------------------|---|-----|-------|-----|-------|-------|-------|
| 4                        | How tested  | C   | C     | SA  | SA    | SA    | SA    |
| 6                        | Glow-wire tip temp (°C)   | 750 | 850   | 750 | 850   | 750   | 850   |
| 11(a)                    | Time till ignition of specimen (s)  | NI  | 5     | NI  | 0     | 0     | 0     |
|                          | Time till ignition of the underlying layer (tissue paper, pinewood board etc.) (s)                                | NI  | NI    | NI  | NI    | NI    | NI    |
| 11(b)                    | Time from tip application till flaming or glowing ceased (s)  | NI  | 42    | NI  | 33    | 4     | 30    |
| 11(c)                    | Maximum flame height (mm)   | NI  | 55    | NI  | 25    | 20    | 45    |
| 11(d)                    | Specimen distortion   | Yes | Yes   | Yes | Yes   | Yes   | Yes   |
|                          | Depth of penetration (mm)   | NM  | NM    | NM  | NM    | NM    | NM    |
| 11(e)                    | Pinewood board scorching  | No  | No    | No  | No    | No    | No    |
| 12(a)                    | Flame or glowing  | NI  | Flame | NI  | Flame | Flame | Flame |
| 12(b)                    | Time of flames or glowing of specimen, surroundings or layer below after removal of tip (maximum allowable: 30 s) | NI  | 12    | NI  | 3     | 0     | <1    |
|                          | Ignition of surrounding parts or layer below (not permitted)  | NI  | No    | NI  | No    | No    | No    |
| 12                       | Ignition of wrapping tissue (not allowed)   | NI  | No    | NI  | No    | No    | No    |
| 12                       | RESULT  | P   | P     | P   | P     | NF    | P     |

**Legend:** CE-Complete Equipment; SA-Sub-Assembly; C-Component; ME-manually Extinguished; NI-No Ignition; NA-Not Applicable; P-Pass; F-Fail; Sat-Satisfactory; Uns-Unsatisfactory; Ø-Ignited Specimen Number; NF-Needle Flame Test Required; NM-Not measured

\* Either 12(a) or 12(b) has to comply. "Yes" does not constitute a point of non-compliance with 12(a) if the requirements of 12(b) are met.

### **Glow-wire tests**

The specimens were tested with the test surfaces arranged vertically and the glow-wire tip applied at right-angles for 30s at the temperature stated:


| IEC 60695-2-11<br>CLAUSE | SPECIMEN NUMBER →   | M16 | M16   | M17 | M17   | M18 | M18   |
|--------------------------|---|-----|-------|-----|-------|-----|-------|
| 4                        | How tested  | C   | C     | C   | C     | C   | C     |
| 6                        | Glow-wire tip temp (°C)   | 750 | 850   | 750 | 850   | 750 | 850   |
| 11(a)                    | Time till ignition of specimen (s)  | NI  | 0     | NI  | 15    | NI  | 3     |
|                          | Time till ignition of the underlying layer (tissue paper, pinewood board etc.) (s)                                | NI  | NI    | NI  | NI    | NI  | NI    |
| 11(b)                    | Time from tip application till flaming or glowing ceased (s)  | NI  | 30    | NI  | 30    | NI  | 31    |
| 11(c)                    | Maximum flame height (mm)   | NI  | 30    | NI  | 20    | NI  | 25    |
| 11(d)                    | Specimen distortion   | Yes | Yes   | Yes | Yes   | Yes | Yes   |
|                          | Depth of penetration (mm)   | NM  | NM    | NM  | NM    | NM  | NM    |
| 11(e)                    | Pinewood board scorching  | No  | No    | No  | No    | No  | No    |
| 12(a)                    | Flame or glowing  | NI  | Flame | NI  | Flame | NI  | Flame |
| 12(b)                    | Time of flames or glowing of specimen, surroundings or layer below after removal of tip (maximum allowable: 30 s) | NI  | <1    | NI  | <1    | NI  | 1     |
|                          | Ignition of surrounding parts or layer below (not permitted)  | NI  | No    | NI  | No    | NI  | No    |
| 12                       | Ignition of wrapping tissue (not allowed)   | NI  | No    | NI  | No    | NI  | No    |
| 12                       | RESULT  | P   | P     | P   | P     | P   | P     |

**Legend:** CE-Complete Equipment; SA-Sub-Assembly; C-Component; ME-manually Extinguished; NI-No Ignition; NA-Not Applicable; P-Pass; F-Fail; Sat-Satisfactory; Uns-Unsatisfactory; Ø-Ignited Specimen Number; NF-Needle Flame Test Required; NM-Not measured

\* Either 12(a) or 12(b) has to comply. "Yes" does not constitute a point of non-compliance with 12(a) if the requirements of 12(b) are met.

### **Glow-wire tests**

The specimens were tested with the test surfaces arranged vertically and the glow-wire tip applied at right-angles for 30s at the temperature stated:


| IEC 60695-2-11<br>CLAUSE | SPECIMEN NUMBER                  | M19 | M19 | M20   | M20   | M21 | M21   |
|--------------------------|---|-----|-----|-------|-------|-----|-------|
| 4                        | How tested  | C   | C   | C     | C     | C   | C     |
| 6                        | Glow-wire tip temp (°C)   | 750 | 850 | 750   | 850   | 750 | 850   |
| 11(a)                    | Time till ignition of specimen (s)  | NI  | NI  | 1     | 17    | NI  | 5     |
|                          | Time till ignition of the underlying layer (tissue paper, pinewood board etc.) (s)                                | NI  | NI  | NI    | NI    | NI  | NI    |
| 11(b)                    | Time from tip application till flaming or glowing ceased (s)  | NI  | NI  | 2     | 30    | NI  | 30    |
| 11(c)                    | Maximum flame height (mm)   | NI  | NI  | 10    | 15    | NI  | 20    |
| 11(d)                    | Specimen distortion   | Yes | Yes | Yes   | Yes   | Yes | Yes   |
|                          | Depth of penetration (mm)   | NM  | NM  | NM    | NM    | NM  | NM    |
| 11(e)                    | Pinewood board scorching  | No  | No  | No    | No    | No  | No    |
| 12(a)                    | Flame or glowing  | NI  | NI  | Flame | Flame | NI  | Flame |
| 12(b)                    | Time of flames or glowing of specimen, surroundings or layer below after removal of tip (maximum allowable: 30 s) | NI  | NI  | 0     | 0     | NI  | <1    |
|                          | Ignition of surrounding parts or layer below (not permitted)  | NI  | NI  | No    | No    | NI  | No    |
| 12                       | Ignition of wrapping tissue (not allowed)   | NI  | NI  | No    | No    | NI  | No    |
| 12                       | RESULT  | P   | P   | P     | P     | P   | P     |

**Legend:** CE-Complete Equipment; SA-Sub-Assembly; C-Component; ME-manually Extinguished; NI-No Ignition; NA-Not Applicable; P-Pass; F-Fail; Sat-Satisfactory; Uns-Unsatisfactory; Ø-Ignited Specimen Number; NF-Needle Flame Test Required; NM-Not measured

\* Either 12(a) or 12(b) has to comply. "Yes" does not constitute a point of non-compliance with 12(a) if the requirements of 12(b) are met.

### **Glow-wire tests**

The specimens were tested with the test surfaces arranged vertically and the glow-wire tip applied at right-angles for 30s at the temperature stated:

| IEC 60695-2-11<br>CLAUSE | SPECIMEN NUMBER                  | M22 | M22 | M23 | M23 | M24 | M24 |
|--------------------------|---|-----|-----|-----|-----|-----|-----|
| 4                        | How tested  | C   | C   | SA  | SA  | SA  | SA  |
| 6                        | Glow-wire tip temp (°C)   | 750 | 850 | 750 | 850 | 750 | 850 |
| 11(a)                    | Time till ignition of specimen (s)  | NI  | NI  | NI  | NI  | NI  | NI  |
|                          | Time till ignition of the underlying layer (tissue paper, pinewood board etc.) (s)                                | NI  | NI  | NI  | NI  | NI  | NI  |
| 11(b)                    | Time from tip application till flaming or glowing ceased (s)  | NI  | NI  | NI  | NI  | NI  | NI  |
| 11(c)                    | Maximum flame height (mm)   | NI  | NI  | NI  | NI  | NI  | NI  |
| 11(d)                    | Specimen distortion   | Yes | Yes | Yes | Yes | Yes | Yes |
|                          | Depth of penetration (mm)   | NM  | NM  | NM  | NM  | NM  | NM  |
| 11(e)                    | Pinewood board scorching  | No  | No  | No  | No  | No  | No  |
| 12(a)                    | Flame or glowing  | NI  | NI  | NI  | NI  | NI  | NI  |
| 12(b)                    | Time of flames or glowing of specimen, surroundings or layer below after removal of tip (maximum allowable: 30 s) | NI  | NI  | NI  | NI  | NI  | NI  |
|                          | Ignition of surrounding parts or layer below (not permitted)  | NI  | NI  | NI  | NI  | NI  | NI  |
| 12                       | Ignition of wrapping tissue (not allowed)   | NI  | NI  | NI  | NI  | NI  | NI  |
| 12                       | RESULT  | P   | P   | P   | P   | P   | P   |


**Legend:** CE-Complete Equipment; SA-Sub-Assembly; C-Component; ME-manually Extinguished; NI-No Ignition; NA-Not Applicable; P-Pass; F-Fail; Sat-Satisfactory; Uns-Unsatisfactory; Ø-Ignited Specimen Number; NF-Needle Flame Test Required; NM-Not measured

\* Either 12(a) or 12(b) has to comply. "Yes" does not constitute a point of non-compliance with 12(a) if the requirements of 12(b) are met.



### **Glow-wire tests**

The specimens were tested with the test surfaces arranged vertically and the glow-wire tip applied at right-angles for 30s at the temperature stated:

| IEC 60695-2-11<br>CLAUSE | SPECIMEN NUMBER                  | M25 | M26 | M27 | E1  | E2  | E3  |
|--------------------------|---|-----|-----|-----|-----|-----|-----|
| 4                        | How tested  | SA  | SA  | SA  | C   | C   | C   |
| 6                        | Glow-wire tip temp (°C)   | 650 | 650 | 650 | 550 | 550 | 550 |
| 11(a)                    | Time till ignition of specimen (s)  | NI  | NI  | NI  | NI  | NI  | NI  |
|                          | Time till ignition of the underlying layer (tissue paper, pinewood board etc.) (s)                                | NI  | NI  | NI  | NI  | NI  | NI  |
| 11(b)                    | Time from tip application till flaming or glowing ceased (s)  | NI  | NI  | NI  | NI  | NI  | NI  |
| 11(c)                    | Maximum flame height (mm)   | NI  | NI  | NI  | NI  | NI  | NI  |
| 11(d)                    | Specimen distortion   | Yes | Yes | Yes | Yes | Yes | Yes |
|                          | Depth of penetration (mm)   | NM  | NM  | NM  | NM  | NM  | NM  |
| 11(e)                    | Pinewood board scorching  | No  | No  | No  | No  | No  | No  |
| 12(a)                    | Flame or glowing  | NI  | NI  | NI  | NI  | NI  | NI  |
| 12(b)                    | Time of flames or glowing of specimen, surroundings or layer below after removal of tip (maximum allowable: 30 s) | NI  | NI  | NI  | NI  | NI  | NI  |
|                          | Ignition of surrounding parts or layer below (not permitted)  | NI  | NI  | NI  | NI  | NI  | NI  |
| 12                       | Ignition of wrapping tissue (not allowed)   | NI  | NI  | NI  | NI  | NI  | NI  |
| 12                       | RESULT  | P   | P   | P   | P   | P   | P   |

**Legend:** CE-Complete Equipment; SA-Sub-Assembly; C-Component; ME-manually Extinguished; NI-No Ignition; NA-Not Applicable; P-Pass; F-Fail; Sat-Satisfactory; Uns-Unsatisfactory; Ø-Ignited Specimen Number; NF-Needle Flame Test Required; NM-Not measured

\* Either 12(a) or 12(b) has to comply. "Yes" does not constitute a point of non-compliance with 12(a) if the requirements of 12(b) are met.

### **Glow-wire tests**

The specimens were tested with the test surfaces arranged vertically and the glow-wire tip applied at right-angles for 30s at the temperature stated:


| IEC 60695-2-11<br>CLAUSE | SPECIMEN NUMBER →   | E4  | E5  | E6  | E7  |  |  |
|--------------------------|---|-----|-----|-----|-----|--|--|
| 4                        | How tested  | C   | C   | C   | C   |  |  |
| 6                        | Glow-wire tip temp (°C)   | 550 | 550 | 550 | 550 |  |  |
| 11(a)                    | Time till ignition of specimen (s)  | NI  | NI  | NI  | NI  |  |  |
|                          | Time till ignition of the underlying layer (tissue paper, pinewood board etc.) (s)                                | NI  | NI  | NI  | NI  |  |  |
| 11(b)                    | Time from tip application till flaming or glowing ceased (s)  | NI  | NI  | NI  | NI  |  |  |
| 11(c)                    | Maximum flame height (mm)   | NI  | NI  | NI  | NI  |  |  |
| 11(d)                    | Specimen distortion   | Yes | Yes | Yes | Yes |  |  |
|                          | Depth of penetration (mm)   | NM  | NM  | NM  | NM  |  |  |
| 11(e)                    | Pinewood board scorching  | No  | No  | No  | No  |  |  |
| 12(a)                    | Flame or glowing  | NI  | NI  | NI  | NI  |  |  |
| 12(b)                    | Time of flames or glowing of specimen, surroundings or layer below after removal of tip (maximum allowable: 30 s) | NI  | NI  | NI  | NI  |  |  |
|                          | Ignition of surrounding parts or layer below (not permitted)  | NI  | NI  | NI  | NI  |  |  |
| 12                       | Ignition of wrapping tissue (not allowed)   | NI  | NI  | NI  | NI  |  |  |
| 12                       | RESULT  | P   | P   | P   | P   |  |  |

**Legend:** CE-Complete Equipment; SA-Sub-Assembly; C-Component; ME-manually Extinguished; NI-No Ignition; NA-Not Applicable; P-Pass; F-Fail; Sat-Satisfactory; Uns-Unsatisfactory; Ø-Ignited Specimen Number; NF-Needle Flame Test Required; NM-Not measured

\* Either 12(a) or 12(b) has to comply. "Yes" does not constitute a point of non-compliance with 12(a) if the requirements of 12(b) are met.

**Needle-flame test on printed circuit boards**

The specimens were tested by application of the test flame for 30 s, not less than 10 mm from a corner.

|                             |  |                   |  |  |  |
|-----------------------------|--|-------------------|--|--|--|
| IEC<br>60695.11.5<br>Clause | SPECIMEN NUMBER                                     | M28               |  |  |  |
| 6                           | How tested   | VC                |  |  |  |
| 7                           | Duration of flame application ( $t_a$ ) (s)  | 30                |  |  |  |
| 5.4                         | Specified layer used   | WT                |  |  |  |
| 11a)                        | Flame or glowing of test specimen or ignition of specified layer or wrapping tissue  | Flame of specimen |  |  |  |
| 11b)                        | Flame or glowing of test specimen and surrounding parts extinguish within 15 s after the removal of the needle-flame ( $t_b < 15$ s) | <1                |  |  |  |
| 11*                         | RESULT   | P                 |  |  |  |

**Legend:**

P-Pass;

F-Fail;

NA-Not Applicable;

For clause 6:

V- Vertical without components

VC-Vertical with components

H- Horizontal without components

HC- Horizontal with components

For clause 5.4:

WT-Wooden board covered with wrapping tissue;

SP-Surrounding part/material situated underneath the test specimen in normal use

For Clause 11:

ME-Manually Extinguished;


NI-No Ignition;

\*Specimen satisfies requirements if either 11a) or 11b) complies. "Yes" does not constitute a point of non-compliance with 11a) if the requirements of 11b) are met.

- Notes:**
1. PCB specimens with an FV-0 classification in accordance with IEC 707, need not be tested.
  2. Boards are tested oriented in their normal position of use.

**Needle-flame test on surrounding parts**

**As a consequence of the glow-wire test, the following specimens were subjected to the needle-flame test of IEC 60695.11.5 for 30 s. Also, at the Client's request, parts indicated with an asterisk(\*) were subjected to a 30 s needle-flame test:**

| IEC 60695-11-5 Clause | SPECIMEN NUMBER   | M1                | M2                | M3                | M7                |
|-----------------------|--|-------------------|-------------------|-------------------|-------------------|
|                       | Flame impinged from specimen no.   | M1,M10            | M10               | M10               | M1,M7             |
| 6                     | How tested   | SA                | C                 | C                 | C                 |
| 7                     | Duration of flame application (t <sub>a</sub> ) (s)  | 30                | 30                | 30                | 30                |
| 5.4                   | Specified layer used   | WT                | WT                | WT                | WT                |
| 11a)                  | Flame or glowing of test specimen or ignition of specified layer or wrapping tissue  | Flame of specimen | Flame of specimen | Flame of specimen | Flame of specimen |
| 11b)                  | Flame or glowing of test specimen and surrounding parts extinguish within 30 s after the removal of the needle-flame (t <sub>b</sub> <30s) (s) | <1                | <1                | 2                 | 1                 |
| 11*                   | RESULT   | P                 | P                 | P                 | P                 |

**Legend:**

P-Pass;

F-Fail;

NA-Not Applicable;

For clause 6:

CE-Complete Equipment;

SA-Sub-Assembly;

C-Component;

For clause 5.4:

WT-Wooden board covered with wrapping tissue;

SP-Surrounding part/material situated underneath the test specimen in normal use

For Clause 11:


ME-Manually Extinguished;

NI-No Ignition;

\*Specimen satisfies requirements if either 11a) or 11b) complies. "Yes" does not constitute a point of non-compliance with 11a) if the requirements of 11b) are met.

**Needle-flame test on surrounding parts**

As a consequence of the glow-wire test, the following specimens were subjected to the needle-flame test of IEC 60695.11.5 for 30 s. Also, at the Client's request, parts indicated with an asterisk(\*) were subjected to a 30 s needle-flame test:

| IEC 60695-11-5 Clause | SPECIMEN NUMBER   | M8                | M20               | M21               | M22               |
|-----------------------|--|-------------------|-------------------|-------------------|-------------------|
|                       | Flame impinged from specimen no.   | M1,M7,<br>M8      | M1,M6<br>,M10     | M1,M6<br>,M10     | M1,M6<br>,M10     |
| 6                     | How tested   | C                 | C                 | C                 | C                 |
| 7                     | Duration of flame application ( $t_a$ ) (s)  | 30                | 30                | 30                | 30                |
| 5.4                   | Specified layer used   | WT                | WT                | WT                | WT                |
| 11a)                  | Flame or glowing of test specimen or ignition of specified layer or wrapping tissue  | Flame of specimen | Flame of specimen | Flame of specimen | Flame of specimen |
| 11b)                  | Flame or glowing of test specimen and surrounding parts extinguish within 30 s after the removal of the needle-flame ( $t_b < 30s$ ) (s) | 1                 | <1                | <1                | <1                |
| 11*                   | RESULT   | P                 | P                 | P                 | P                 |

**Legend:**

P-Pass;

F-Fail;

NA-Not Applicable;

For clause 5.4:

WT-Wooden board covered with wrapping tissue;

SP-Surrounding part/material situated underneath the test specimen in normal use

For clause 6:

CE-Complete Equipment;

SA-Sub-Assembly;

C-Component;

For Clause 11:


ME-Manually Extinguished;

NI-No Ignition;

\*Specimen satisfies requirements if either 11a) or 11b) complies. "Yes" does not constitute a point of non-compliance with 11a) if the requirements of 11b) are met.

**Needle-flame test on surrounding parts**

**As a consequence of the glow-wire test, the following specimens were subjected to the needle-flame test of IEC 60695.11.5 for 30 s. Also, at the Client's request, parts indicated with an asterisk(\*) were subjected to a 30 s needle-flame test:**

| IEC 60695-11-5 Clause | SPECIMEN NUMBER   | M6                | M10               | M17               | M18               |
|-----------------------|--|-------------------|-------------------|-------------------|-------------------|
|                       | Flame impinged from specimen no.   | M6                | M10               | M10               | M10               |
| 6                     | How tested   | C                 | SA                | C                 | C                 |
| 7                     | Duration of flame application (t <sub>a</sub> ) (s)  | 30                | 30                | 30                | 30                |
| 5.4                   | Specified layer used   | WT                | WT                | WT                | WT                |
| 11a)                  | Flame or glowing of test specimen or ignition of specified layer or wrapping tissue  | Flame of specimen | Flame of specimen | Flame of specimen | Flame of specimen |
| 11b)                  | Flame or glowing of test specimen and surrounding parts extinguish within 30 s after the removal of the needle-flame (t <sub>b</sub> <30s) (s) | <1                | 1                 | 1                 | 1                 |
| 11*                   | RESULT   | P                 | P                 | P                 | P                 |

**Legend:**

P-Pass;

F-Fail;

NA-Not Applicable;

For clause 6:

CE-Complete Equipment;

SA-Sub-Assembly;

C-Component;

For clause 5.4:

WT-Wooden board covered with wrapping tissue;

SP-Surrounding part/material situated underneath the test specimen in normal use

For Clause 11:


ME-Manually Extinguished;

NI-No Ignition;

\*Specimen satisfies requirements if either 11a) or 11b) complies. "Yes" does not constitute a point of non-compliance with 11a) if the requirements of 11b) are met.

**Needle-flame test on surrounding parts**

**As a consequence of the glow-wire test, the following specimens were subjected to the needle-flame test of IEC 60695.11.5 for 30 s. Also, at the Client's request, parts indicated with an asterisk(\*) were subjected to a 30 s needle-flame test:**

|                       |  |                   |                   |                   |                   |
|-----------------------|--|-------------------|-------------------|-------------------|-------------------|
| IEC 60695-11-5 Clause | SPECIMEN NUMBER   | M19               | M12               | M11               | M15               |
|                       | Flame impinged from specimen no.   | M10               | M12               | M12               | M15               |
| 6                     | How tested   | C                 | C                 | SA                | SA                |
| 7                     | Duration of flame application (t <sub>a</sub> ) (s)  | 30                | 30                | 30                | 30                |
| 5.4                   | Specified layer used   | WT                | WT                | WT                | WT                |
| 11a)                  | Flame or glowing of test specimen or ignition of specified layer or wrapping tissue  | Flame of specimen | Flame of specimen | Flame of specimen | Flame of specimen |
| 11b)                  | Flame or glowing of test specimen and surrounding parts extinguish within 30 s after the removal of the needle-flame (t <sub>b</sub> <30s) (s) | 1                 | <1                | <1                | 0                 |
| 11*                   | RESULT   | P                 | P                 | P                 | P                 |

**Legend:**

P-Pass;

F-Fail;

NA-Not Applicable;

For clause 6:

CE-Complete Equipment;

SA-Sub-Assembly;

C-Component;

For clause 5.4:

WT-Wooden board covered with wrapping tissue;

SP-Surrounding part/material situated underneath the test specimen in normal use

For Clause 11:


ME-Manually Extinguished;

NI-No Ignition;

\*Specimen satisfies requirements if either 11a) or 11b) complies. "Yes" does not constitute a point of non-compliance with 11a) if the requirements of 11b) are met.

**Needle-flame test on surrounding parts**

**As a consequence of the glow-wire test, the following specimens were subjected to the needle-flame test of IEC 60695.11.5 for 30 s. Also, at the Client's request, parts indicated with an asterisk(\*) were subjected to a 30 s needle-flame test:**

| IEC 60695-11-5 Clause | SPECIMEN NUMBER   | M16               | E1                       | E4                | E7                |
|-----------------------|--|-------------------|--------------------------|-------------------|-------------------|
|                       | Flame impinged from specimen no.   | M15               | M1,M6,<br>M10,M9,<br>M12 | M15               | M6,M10            |
| 6                     | How tested   | SA                | SA                       | C                 | C                 |
| 7                     | Duration of flame application ( $t_a$ ) (s)  | 30                | 30                       | 30                | 30                |
| 5.4                   | Specified layer used   | WT                | WT                       | WT                | WT                |
| 11a)                  | Flame or glowing of test specimen or ignition of specified layer or wrapping tissue  | Flame of specimen | Flame of specimen        | Flame of specimen | Flame of specimen |
| 11b)                  | Flame or glowing of test specimen and surrounding parts extinguish within 30 s after the removal of the needle-flame ( $t_b < 30s$ ) (s) | <1                | 1                        | <1                | 1                 |
| 11*                   | RESULT   | P                 | P                        | P                 | P                 |

**Legend:**

P-Pass;

F-Fail;

NA-Not Applicable;

For clause 6:

CE-Complete Equipment;

SA-Sub-Assembly;

C-Component;

For clause 5.4:

WT-Wooden board covered with wrapping tissue;

SP-Surrounding part/material situated underneath the test specimen in normal use

For Clause 11:

ME-Manually Extinguished;

NI-No Ignition;

\*Specimen satisfies requirements if either 11a) or 11b) complies. "Yes" does not constitute a point of non-compliance with 11a) if the requirements of 11b) are met.



| <b>ATTACHMENT 1 TO TEST REPORT IEC 60335-2-98</b><br><b>EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b><br><b>PART 2-98: PARTICULAR REQUIREMENTS FOR HUMIDIFIERS</b> |   |
|--|---|
| <b>Differences according to.....:</b>  | EN 60335-2-98:2003 + A1:2005 + A2:2008<br>EN 60335-1:2002 + A1:2004 + A11:2004 + A12:2006 + A2:2006 + A13:2008<br>EN 50366:2003 + A1:2006 |
| <b>Attachment Form No.....:</b>  | EU_GD_IEC60335_2_98D  |
| <b>Attachment Originator .....</b>   | VDE Testing and Certification Institute   |
| <b>Master Attachment .....</b>   | Date (2009-07)  |
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| EN 60335-1, EN 60335-2-98 |                    |                 |         |
|---------------------------|--------------------|-----------------|---------|
| Clause                    | Requirement - Test | Result - Remark | Verdict |

| Group Differences / CENELEC COMMON MODIFICATIONS to IEC 60335-1, IEC 60335-2-98 |  |              |     |
|---|--|--------------|-----|
| 6.1   | Protection against electric shock:<br>Class 0, 0I not allowed  |              | P   |
| 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/A |
| 24.1.7  | Remote operation via telecommunication network, relevant standards for telecommunication interface circuitry in appliance EN 41003 and EN 60950-1:2006, Subclause 6.3 (EN 60335-1/A13) |              | N/A |
| 25.6  | Supply cords of single-phase portable appliances having a rated current not exceeding 16 A, fitted with a plug complying with the following standard sheets of IEC 60083:1975:         |              | -   |
|   | - class I appliances: standard sheet C2b, C3b or C4 :  | Fixed wiring | N/A |
|   | - class II appliances: standard sheet C5 or C6.....:   |              | N/A |
| 25.7  | Supply cords being one of following types:   |              | -   |
|   | - ordinary polychloroprene sheathed flexible cord (at least 60245 IEC 57)  |              | N/A |
|   | Supply cords having high flexibility, not lighter than:  |              | -   |
|   | - rubber insulated and sheathed cord (60245 IEC 86)  |              | N/A |
|   | - rubber insulated, crosslinked PVC sheathed cord (60245 IEC 87)   |              | N/A |
|   | - crosslinked PVC insulated and sheathed cord (60245 IEC 88)   |              | N/A |

| EN 60335-1, EN 60335-2-98 |  |                 |         |
|---------------------------|--|-----------------|---------|
| Clause                    | Requirement - Test   | Result - Remark | Verdict |
| 29.3                      | Replace third dashed item by:<br>- an assessment of thermal quality of material combined with an electric strength test, in accordance with clause 29.3.3, and for accessible reinforced insulation consisting of a single layer, measurement in accordance with clause 29.3.Z1 (EN 60335-1/A12) |                 | N/A     |
| 29.3.Z1                   | Accessible reinforced insulation consisting of a single layer, thickness of layer complies with table Z1; rated voltage (V); overvoltage category; thickness (mm) (EN 60335-1/A12) .....   |                 | P       |

|           |   |  |   |
|-----------|---|--|---|
| <b>ZC</b> | <b>ANNEX ZC (NORMATIVE) (EN 60335-1, EN 60335-2-98)</b><br><b>NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS</b> |  | - |
|           | Normative references to international publications with their corresponding European publications (EN 60335-1/A1, EN 60335-1/A2)                                    |  | P |

|           |   |  |   |
|-----------|---|--|---|
| <b>ZD</b> | <b>ANNEX ZD (INFORMATIVE) (EN 60335-1, EN 60335-2-98)</b><br><b>IEC AND CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORD</b> |  | - |
|           | List of code designations for different types of flexible cords   |  | P |

| National Differences for Austria |  |              |     |
|----------------------------------|--|--------------|-----|
| <b>ZA</b>                        | <b>ANNEX ZA (NORMATIVE), SPECIAL NATIONAL CONDITIONS (EN 60335-1, EN 60335-2-98)</b> |              |     |
| 25.6                             | Plugs according to standard sheet C3b not allowed                                    | Fixed wiring | N/A |

| National Differences / Deviations for Belgium |  |              |     |
|---|--|--------------|-----|
| <b>ZA</b>                                     | <b>ANNEX ZA (NORMATIVE), SPECIAL NATIONAL CONDITIONS (EN 60335-1, EN 60335-2-98)</b> |              | -   |
| 25.6  | Plugs according to standard sheet C2b not allowed                                    | Fixed wiring | N/A |

| National Differences / Deviations for Denmark |   |                          |     |
|---|---|--------------------------|-----|
| <b>ZA</b>                                     | <b>ANNEX ZA (NORMATIVE), SPECIAL NATIONAL CONDITIONS (EN 60335-1, EN 60335-2-98)</b>  |                          | -   |
| 7.12  | Requirements regarding marking tag of power supply cord and connection of earthing wire for class I appliances delivered without plug   | Fixed wiring             | N/A |
| 25.6  | Supply cords of single-phase portable appliances having a rated current not exceeding 13 A provided with a plug according to following: |                          | -   |
|   | - Class I appliances: Section 107-2-D1, ed.3 1998, standard sheet DK 2-1a   | Not a portable appliance | N/A |

| EN 60335-1, EN 60335-2-98 |  |                 |         |
|---------------------------|--|-----------------|---------|
| Clause                    | Requirement - Test   | Result - Remark | Verdict |
|                           | Appliances covered by a Part 2 of EN 60335, also plugs in accordance with Section 107-2-D1, ed.3, 1998, standard sheet C2b, C3b or C4 are allowed                                    |                 | N/A     |
|                           | Class II appliances: Section 107-2-D1, ed.3 1998, standard sheet C1b, C5, C6, DKA 2-1a and DKA 2-1b  |                 | N/A     |
|                           | Stationary single-phase appliances, having a rated current not exceeding 13 A, and provided with a supply cord and a plug, the plug is in accordance with the requirements above     | Fixed wiring    | N/A     |
|                           | Multi-phase appliances and single-phase appliances having a rated current exceeding 13 A, and provided with a supply cord and a plug, plug is in accordance with requirements below: |                 | N/A     |
|                           | - Class I appliances: Section 107-2-D1, standard sheet DK 6-1a / EN 60309-2, standard sheet 2-II, 2-IV   |                 | N/A     |
|                           | - Class II appliances: Section 107-2-D1, standard sheet DK 6-1a / EN 60309-2, standard sheet 2-II, 2-IV, the earthing contact not being connected                                    |                 | N/A     |
|                           | Current for plug not exceeding values specified; standard sheet (no.); current (A).....:   |                 | N/A     |

| National Differences / Deviations for Finland |  |              |     |
|---|--|--------------|-----|
| <b>ZA</b>                                     | <b>ANNEX ZA (NORMATIVE), SPECIAL NATIONAL CONDITIONS (EN 60335-1, EN 60335-2-98)</b> |              | -   |
| 25.6  | Plugs according to standard sheet C3b not allowed                                    | Fixed wiring | N/A |

| National Differences / Deviations for France |  |              |     |
|--|--|--------------|-----|
| <b>ZA</b>                                    | <b>ANNEX ZA (NORMATIVE), SPECIAL NATIONAL CONDITIONS (EN 60335-1, EN 60335-2-98)</b>   |              | -   |
| 22.2   | Second paragraph of this subclause, dealing with single-phase, permanently connected class I appliances having heating elements, not applicable due to supply system |              | N/A |
| 25.6   | Plugs according to standard sheet C2b not allowed  | Fixed wiring | N/A |

| National Differences / Deviations for Germany |  |              |     |
|---|--|--------------|-----|
| <b>ZA</b>                                     | <b>ANNEX ZA (NORMATIVE), SPECIAL NATIONAL CONDITIONS (EN 60335-1, EN 60335-2-98)</b> |              | -   |
| 25.6  | Plugs according to standard sheet C3b not allowed                                    | Fixed wiring | N/A |
| <b>ZB</b>                                     | <b>ANNEX ZB (INFORMATIVE), A-DEVIATIONS (EN 60335-1, EN 60335-2-98)</b>              |              | -   |

| EN 60335-1, EN 60335-2-98 |   |                 |         |
|---------------------------|---|-----------------|---------|
| Clause                    | Requirement - Test  | Result - Remark | Verdict |
| 29.3                      | GERMANY: Third dashed item not applicable for appliances where the insulation is accessible. Additional measures, such as multi-layered insulation or adequate thickness, taken (EN 60335-1/A1) |                 | N/A     |

| National Differences / Deviations for Iceland |  |              |     |
|---|--|--------------|-----|
| <b>ZA</b>                                     | <b>ANNEX ZA (NORMATIVE), SPECIAL NATIONAL CONDITIONS (EN 60335-1, EN 60335-2-98)</b> |              | -   |
| 25.6  | Plugs according to standard sheet C3b not allowed                                    | Fixed wiring | N/A |

| National Differences / Deviations for Ireland |   |                      |     |
|---|---|----------------------|-----|
| <b>ZA</b>                                     | <b>ANNEX ZA (NORMATIVE), SPECIAL NATIONAL CONDITIONS (EN 60335-1, EN 60335-2-98)</b>  |                      | -   |
| 25.6  | Plugs according to standard sheet C3b not allowed   | Fixed wiring         | N/A |
|   | Only plugs according to standard sheets B2 and C5 allowed (see also annex ZB)   | Fixed wiring         | N/A |
| 25.8  | Replacement of line for 10 A and 16 A by:   |                      | -   |
|   | > 10 A and ≤ 13 A   | 1,25 mm <sup>2</sup> | N/A |
|   | > 13 A and ≤ 16 A   | 1,5 mm <sup>2</sup>  | N/A |
| <b>ZB</b>                                     | <b>ANNEX ZB (INFORMATIVE), A-DEVIATIONS (EN 60335-1, EN 60335-2-98)</b>   |                      | -   |
| 25.6  | These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and allow only plugs complying with I.S. 401:1997, or equivalent, to be fitted to domestic appliances | Fixed wiring         | N/A |

| National Differences / Deviations for Italy |  |              |     |
|---|--|--------------|-----|
| <b>ZA</b>                                   | <b>ANNEX ZA (NORMATIVE), SPECIAL NATIONAL CONDITIONS (EN 60335-1, EN 60335-2-98)</b> |              | -   |
| 25.6  | Plugs according to standard sheet C3b not allowed                                    | Fixed wiring | N/A |
|   | Only plugs listed in CENELEC Report R0BT-005:2001 allowed                            | Fixed wiring | N/A |
| <b>ZB</b>                                   | <b>ANNEX ZB (INFORMATIVE), A-DEVIATIONS (EN 60335-1, EN 60335-2-98)</b>              |              | -   |
| 7.1   | Voltage is 220 V/380 V   |              | P   |

| National Differences / Deviations for Luxembourg |  |              |     |
|--|--|--------------|-----|
| <b>ZA</b>  | <b>ANNEX ZA (NORMATIVE), SPECIAL NATIONAL CONDITIONS (EN 60335-1, EN 60335-2-98)</b> |              | -   |
| 25.6   | Plugs according to standard sheet C3b not allowed                                    | Fixed wiring | N/A |

| EN 60335-1, EN 60335-2-98 |                    |                 |         |
|---------------------------|--------------------|-----------------|---------|
| Clause                    | Requirement - Test | Result - Remark | Verdict |

| National Differences / Deviations for Netherlands |  |              |     |
|---|--|--------------|-----|
| <b>ZA</b>   | <b>ANNEX ZA (NORMATIVE), SPECIAL NATIONAL CONDITIONS (EN 60335-1, EN 60335-2-98)</b>   |              | -   |
| 25.3  | Class I electrode-type appliances and class I appliances with bare heating elements only be intended to be permanently connected to fixed wiring (EN 60335-2-98) |              | N/A |
| 25.6  | Plugs according to standard sheet C3b not allowed  | Fixed wiring | N/A |

| National Differences / Deviations for Norway |  |                    |     |
|--|--|--------------------|-----|
| <b>ZA</b>                                    | <b>ANNEX ZA (NORMATIVE), SPECIAL NATIONAL CONDITIONS (EN 60335-1, EN 60335-2-98)</b>   |                    | -   |
| 19.5   | Test is also applicable to appliances intended to be permanently connected to fixed wiring   | No heating element | N/A |
| 22.2   | Second paragraph of this subclause, dealing with single-phase, permanently connected class I appliances having heating elements, not applicable due to supply system |                    | N/A |
| 25.6   | Plugs according to standard sheet C3b not allowed  | Fixed wiring       | N/A |

| National Differences / Deviations for Portugal |  |              |     |
|--|--|--------------|-----|
| <b>ZA</b>                                      | <b>ANNEX ZA (NORMATIVE), SPECIAL NATIONAL CONDITIONS (EN 60335-1, EN 60335-2-98)</b> |              | -   |
| 25.6   | Plugs according to standard sheet C3b not allowed                                    | Fixed wiring | N/A |

| National Differences / Deviations for Spain |  |              |     |
|---|--|--------------|-----|
| <b>ZA</b>                                   | <b>ANNEX ZA (NORMATIVE), SPECIAL NATIONAL CONDITIONS (EN 60335-1, EN 60335-2-98)</b> |              |     |
| 25.6  | Plugs according to standard sheet C2b not allowed                                    | Fixed wiring | N/A |
|   | Plugs according to standard sheet C3b not allowed                                    |              | P   |
|   | Appliances for household use, only following plugs are allowed:                      |              | -   |
|   | - according to UNE 20315: ESC 10-1b, C2b, C4, C6 or ESB 25-5b                        |              | P   |
|   | - according to UNE-EN 50075  |              | P   |

| National Differences / Deviations for Sweden |  |              |     |
|--|--|--------------|-----|
| <b>ZA</b>                                    | <b>ANNEX ZA (NORMATIVE), SPECIAL NATIONAL CONDITIONS (EN 60335-1, EN 60335-2-98)</b> |              | -   |
| 25.6   | Plugs according to standard sheet C2b not allowed                                    | Fixed wiring | N/A |

| EN 60335-1, EN 60335-2-98 |                    |                 |         |
|---------------------------|--------------------|-----------------|---------|
| Clause                    | Requirement - Test | Result - Remark | Verdict |

| National Differences / Deviations for Switzerland |  |              |     |
|---|--|--------------|-----|
| <b>ZA</b>   | <b>ANNEX ZA (NORMATIVE), SPECIAL NATIONAL CONDITIONS (EN 60335-1, EN 60335-2-98)</b>   |              | -   |
| 25.6  | Plugs according to standard sheet C3b not allowed  | Fixed wiring | N/A |
|   | Supply cords of portable household and similar electrical appliances having a rated current not exceeding 10 A, provided with a plug complying with SEV 1011 or IEC 60884-1 and one of following dimension sheets: |              | -   |
|   | - SEV 6532-2.1991, plug type 15, 3P+N+PE, 250/400 V, 10 A  |              | N/A |
|   | - SEV 6533-2.1991, plug type 11, L+N, 250 V, 10 A  |              | N/A |
|   | - SEV 6534-2.1991 plug type 12, L+N+PE, 250 V, 10 A  |              | N/A |
| <b>ZB</b>   | <b>ANNEX ZB (INFORMATIVE), A-DEVIATIONS (EN 60335-1, EN 60335-2-98)</b>  |              | -   |
| 4   | Information about batteries with carbon-zinc and alkali-manganese  |              | P   |

| National Differences / Deviations for United Kingdom |  |              |     |
|--|--|--------------|-----|
| <b>ZA</b>  | <b>ANNEX ZA (NORMATIVE), SPECIAL NATIONAL CONDITIONS (EN 60335-1, EN 60335-2-98)</b>   |              | -   |
| 25.6   | Plugs according to standard sheet C2b not allowed  | Fixed wiring | N/A |
|  | Plugs according to standard sheet C3b not allowed  |              | P   |
|  | Only plugs according to standard sheets B2 and C5 allowed (see also annex ZB)  |              | P   |
| 25.8   | Replacement of line for 10 A and 16 A by:  |              | -   |
|  | > 10 A and ≤ 13 A      1,25 mm <sup>2</sup>  |              | N/A |
|  | > 13 A and ≤ 16 A      1,5 mm <sup>2</sup>   |              | N/A |
| <b>ZB</b>  | <b>ANNEX ZB (INFORMATIVE), A-DEVIATIONS (EN 60335-1, EN 60335-2-98)</b>  |              |     |
| 25.6   | These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and allow only plugs to BS 1363 to be fitted to domestic appliances. It also allows plugs to BS 4573 and standard sheet C5 to be fitted to shavers and toothbrushes. |              | P   |

| <b>ANNEX EMF (EN 62233:2008)</b> |  |   |   |
|----------------------------------|--|---|---|
|                                  | Tested product also complies to requirements |   |   |
|                                  | Limit .....100 %                             | Measured max. 3.907 %<br>LCB550-B (950W Seeley motor)       | P |
|                                  | Limit .....100 %                             | Measured max. 2.718 %<br>CPL1100-B (750W Seeley Able motor) | P |

| <b>Attachment 2</b>  |  |          |   |
|--|--|----------|---|
| <b>Variations to IEC 60335-1 Ed 4.2 for application in Australia and New Zealand</b> |  |          |   |
| 5  | GENERAL CONDITIONS FOR THE TESTS   |          | - |
| 5.8.1  | Appliance for a.c only are tested with a.c at 50Hz, and those for a.c and d.c are tested at a.c. 50Hz or d.c, whichever is the more unfavourable supply.   | 50Hz     | P |
| 5.201  | <p>For Australia the following applies:</p> <p>For appliances, other than class III appliances, that are intended for connection to the supply mains and that are not marked with</p> <ul style="list-style-type: none"> <li>-a rated voltage of at least 240V for single-phase appliances and at least 415V for three-phase appliances, or</li> <li>-a rated voltage range that includes 240V for single-phase appliances and 415V for three-phase appliances,</li> </ul> <p>the rated voltage is equal to 240V for single-phase appliances and 415V for three-phase appliances, and the upper limit of the rated voltage range is equal to 240V for single-phase appliances and 415V for three-phase appliances. In addition, the rated current or rated power input is equal to the calculated value corresponding to 240V for single-phase appliances and 415V for three-phase appliances as appropriate.</p> <p>NOTE 1 Example of calculation</p> <p>If the appliance is marked with a rated voltage of 230V and a rated current “ A ” or a rated power input “ P ”, it will be tested as if it is marked with a rated voltage of 240V and a rated current of <math>A \times (240/230)</math> or a rated power input of <math>P \times (240/230)^2</math></p> <p>NOTE 2 This general test condition does not apply in New Zealand</p> | 220-240V | P |

|     |   |         |   |
|-----|---|---------|---|
| 6   | CLASSIFICATION                                      |         | - |
| 6.1 | Protection against electric shock: Class I, II, III | Class I | P |

|     |   |  |   |
|-----|---|--|---|
| 7   | MARKING AND INSTRUCTIONS  |  | - |
| 7.1 | Appliances intended for connection to the supply mains, other than class III appliances, shall be marked with |  | P |



|      |  |          |     |
|------|--|----------|-----|
|      | - a rated voltage of at least: <ul style="list-style-type: none"> <li>• 230V for single phase appliances;</li> <li>• 400V for polyphase appliances.</li> </ul> or      |          | N/A |
|      | - a rated voltage range that includes: <ul style="list-style-type: none"> <li>• 230V for single phase appliances;</li> <li>• 400V for polyphase appliances.</li> </ul> | 220-240V | P   |
| 7.13 | Instructions and other texts in English language   |          | P   |

|        |  |  |     |
|--------|--|--|-----|
| 22     | CONSTRUCTION   |  | -   |
| 22.3   | Compliance is checked by inserting the pins of the appliance into a socket-outlet capable of accepting a plug complying with Figure 2.1(a) of AS/NZS 3112. The socket-outlet has a horizontal pivot at a distance of 8 mm behind the engagement face of the socket-outlet and in the plane of the lower intersection of the centre lines of the contact apertures. |  | N/A |
|        | Applied torque not exceeding 0.25 Nm   |  | N/A |
|        | A new sample of the appliance shall be subjected to and shall comply with the tests in 2.13.9.2 of AS/NZS 3112.  |  | N/A |
|        | Each pin subjected to a torque of 0.4Nm; the pins are not rotating unless rotating does not impair compliance with the standard  |  | N/A |
| 22.201 | Void   |  | P   |
| 22.202 | Appliances having integral pins for insertion into socket outlets shall comply with the appropriate requirements of AS/NZS3112.  |  | N/A |

|        |  |  |     |
|--------|--|--|-----|
| 24     | COMPONENTS   |  |     |
| 24.1   | NOTE 201 The relevant IEC standard may be replaced with the relevant Australia/New Zealand standard where applicable.  |  | P   |
| 24.1.7 | In Australia, telecommunication interface circuitry must comply with the Telecom Labelling Notice issued under the Telecommunications Act instead of IEC62151. |  | N/A |

|    |   |  |   |
|----|---|--|---|
| 25 | SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS |  | - |
|----|---|--|---|


|      |   |  |     |
|------|---|--|-----|
| 25.1 | After the requirement insert the following variation.<br>Supply cords for single-phase portable appliances intended for direct connection to the supply mains, shall be fitted with an appropriate plug complying with AS/NZS 3112. |  | N/A |
|------|---|--|-----|

**VARIATIONS TO IEC 60335-2-98 ED 2.2 FOR APPLICATION IN AUSTRALIA AND NEW ZEALAND**

|     |  |  |   |
|-----|--|--|---|
| 5   | GENERAL CONDITIONS FOR THE TESTS   |  |   |
| 5.7 | Addition:<br>In Australia for evaporative coolers, the tests of Clauses 10, 11 and 13 are carried out at an ambient temperature of 40 °C ± 2 °C. |  | P |

|      |   |  |   |
|------|---|--|---|
| 11   | HEATING   |  |   |
| 11.8 | After the existing first paragraph, insert the following variation:<br><br>In Australia, the temperature rise limits for evaporative coolers intended to be used in Australia, are reduced by 15 K. |  | P |

**IEC 60335-2-98:2002 Ed 2.2 AMENDMENT 2 (2008)**

|      |  |   |     |
|------|--|---|-----|
| 7    | Marking and instructions   |   |     |
| 7.1  | Replace the second paragraph of the addition by the following:<br><br>If the temperature of the water vapour exceeds 60 °C, the appliance shall be marked with symbol IEC 60417-5597 (2002-10) or with the substance of the following:<br><br>CAUTION: Hot water vapour<br><br>NOTE 101 This symbol is a warning sign and the rules of ISO 3864-1 apply. | No hot water vapour   | N/A |
| 7.6  | Addition:<br>[symbol IEC 60417-5597 (2002-10)] steam   |  | N/A |
| 7.12 | Add the following:<br><br>If symbol IEC 60417-5597 (2002-10) is used, its meaning shall be explained.  |   | N/A |
| 7.15 | Addition:<br><br>Symbol IEC 60417-5597 (2002-10) or the marking relating to hot water vapour shall be near the vapour outlet.  |   | N/A |

## Attachment 3 : Declaration letter



November 13<sup>th</sup> 2012

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Web seeleyinternational.com

Dear Rianto,

Seeley International have asked Austest Laboratories to test the LCB series of coolers (LCB250, LCB350, LCB450, LCB550 and its variants) to the following standards:-

- IEC 60335.1 (Ed. 4.0):2001+A1+A2; EN 60335.1:2002+A1+A2; AS/NZS 60335.1:2002+A1+A2+A3
- IEC 60335.2.98 (Ed. 2.0):2002+A1; EN 60335.2.98:2003+A1; AS/NZS 60335.2.98:2005+A1:2009

Clause 22.46: Software used in electronic protective circuits to be assessed to Table R1 or R2

There are no electronic protective circuits that are software controlled within the LCB circuit board assembly. The circuit board consists of a Triac control for the motor current, and the secondary circuit is protected via a thermal overload within the safety isolating transformer. During service, isolation is provided via an isolation switch outside of the cooler, and additionally with an isolation switch on the cooler's control box.

Clause 19.11.4.1-7: Protective Electronic Circuit and Immunity Tests

These clauses detail a series of immunity tests designed to ensure that a system with an 'off position' obtained by an electronic disconnection does not present a hazard when subjected to various electromagnetic phenomena.

Seeley do not feel that it is necessary to test the LCB series to Clauses 19.11.4.1 – 19.11.4.7 as:-

- The cooler is rooftop mounted and therefore in normal operating conditions the motor and fan are not in the immediate vicinity of any people. If someone was on the roof near the system and for some reason did start up unexpectedly, the fan and motor are fully enclosed and present no mechanical hazard.
- If, due to electromagnetic corruption of the Microprocessor or Software, the system starts up in a non-standard way, resulting in an over-temperature condition, the system will shut down safely as displayed through the tests of Clauses 19.3-19.7. This compliance does not rely upon an electronic circuit.

Yours Sincerely,

Craig Simkin  
Mechanical Engineer  
Seeley International Pty Ltd



**Attachment 4 : Photos Documentation**

**1. Model LCB250-B**



**Fig 1. a Front view**



**Fig.1.b Angle view**

# 1. Model LCB250-B



**Fig 1.c External label**



**Fig. 1.d Internal view**



# **1. Model LCB250-B**



**Fig 1.e Internal view**



**Fig.1.f Internal view**

**1. Model LCB250-B**



**Fig 1.g Internal view**

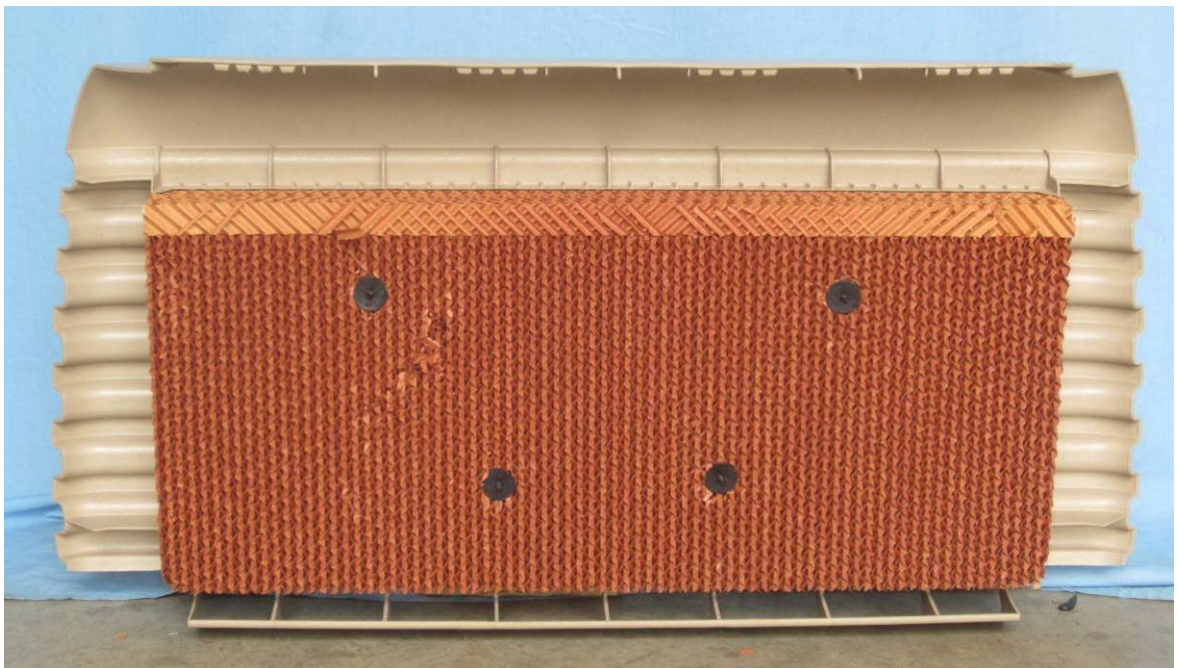


**Fig.1.h Internal view**

**1. Model LCB250-B**



**Fig 1.i Bottom view**



**Fig.1.j Frame pad**



## 1. Model LCB250-B

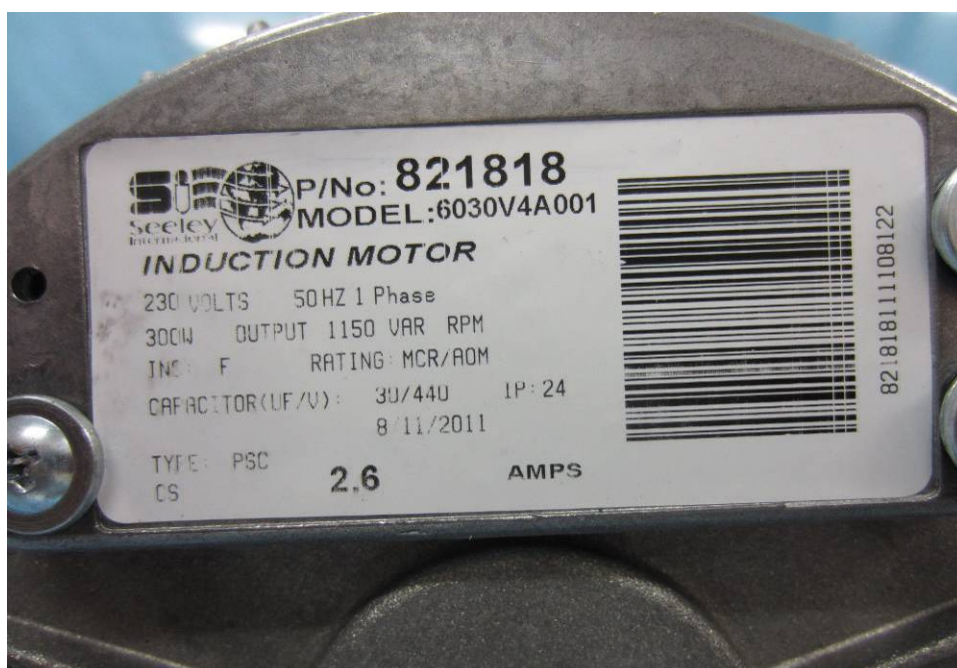


Fig 1.k Fan motor rating label



Fig.1.l Fan motor (alternative) rating label

## 2. Model LCB350-G



Fig 2.a Front view



Fig.2.b Angle view

**2. Model LCB350-G****Fig 2.c External label****Fig.2.d Internal view**



## 2. Model LCB350-G



**Fig 2.e Internal View**



**Fig.2.f Internal view**

## 2. Model LCB350-G



Fig 2.g Internal view



Fig 2.h . Internal view

## 2. Model LCB350-G

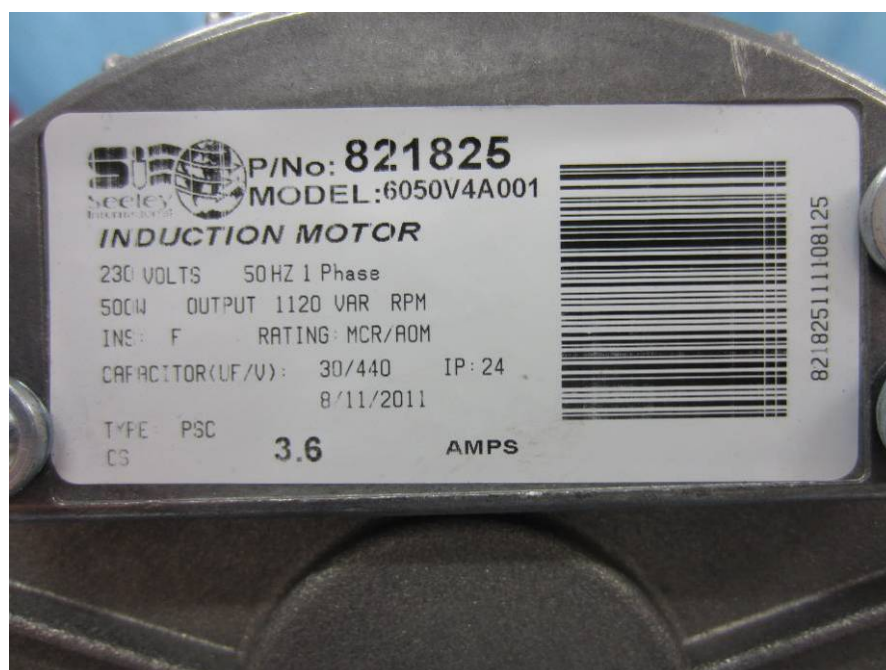
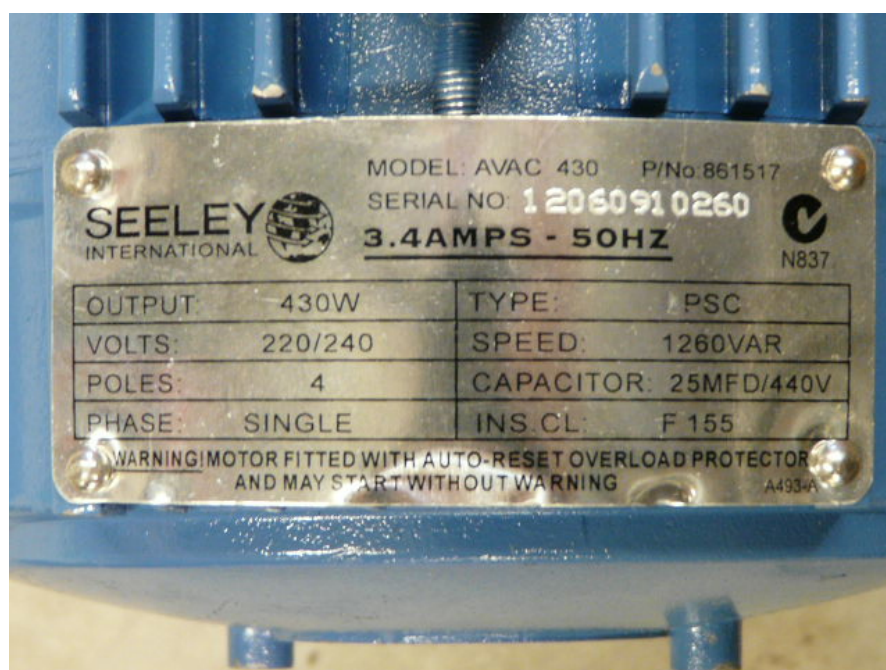


**Fig 2.i. Bottom view**



**Fig 2.j . Frame pad**



**2. Model LCB350-G****Fig 2.k . Fan motor rating label****Fig.2.l.Fan motor (alternative) rating label**

### 3. Model LCB450-B



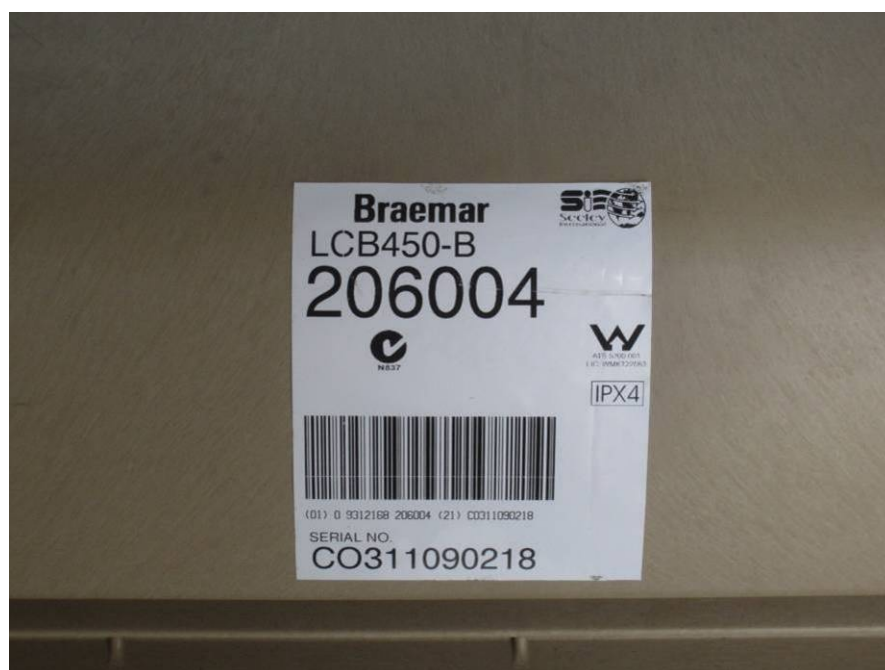
Fig. 3.a. Front view



Fig.3.b. Angle view



### 3. Model LCB450-B



**Fig.3.c. External label**



**Fig.3.d. Internal view**

### 3. Model LCB450-B



**Fig.3.e. Internal view**



**Fig.3.f. Internal view**

### 3. Model LCB450-B



Fig.3.g. Internal view



Fig.3.h. Internal view



### 3. Model LCB450-B



**Fig.3.i. Bottom view**



**Fig.3.j. Frame pad**

### 3. Model LCB450-B

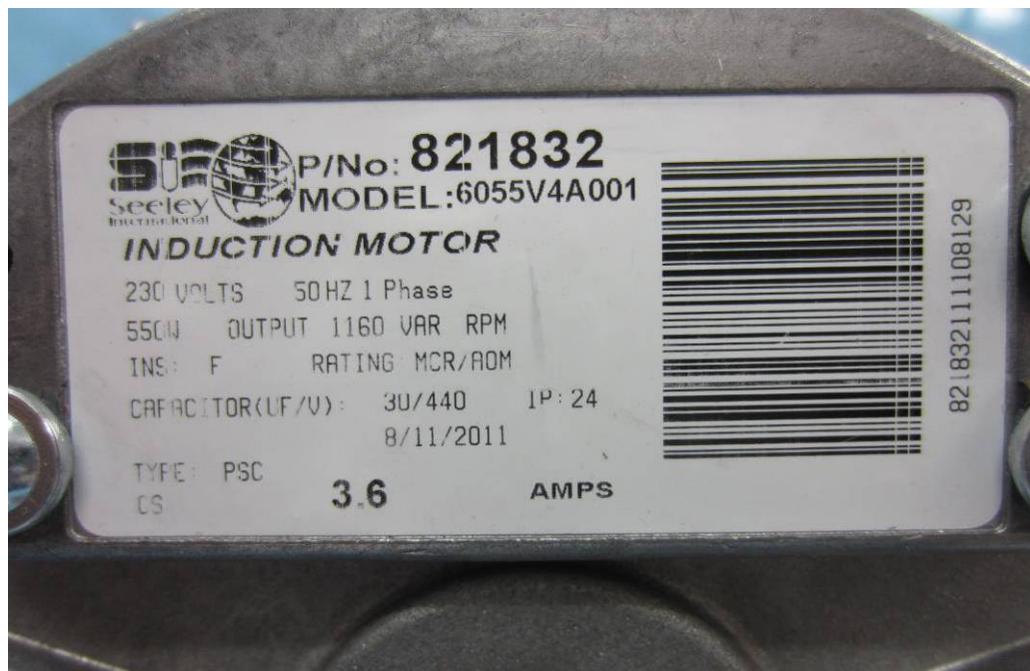


Fig.3.k. Fan motor rating label

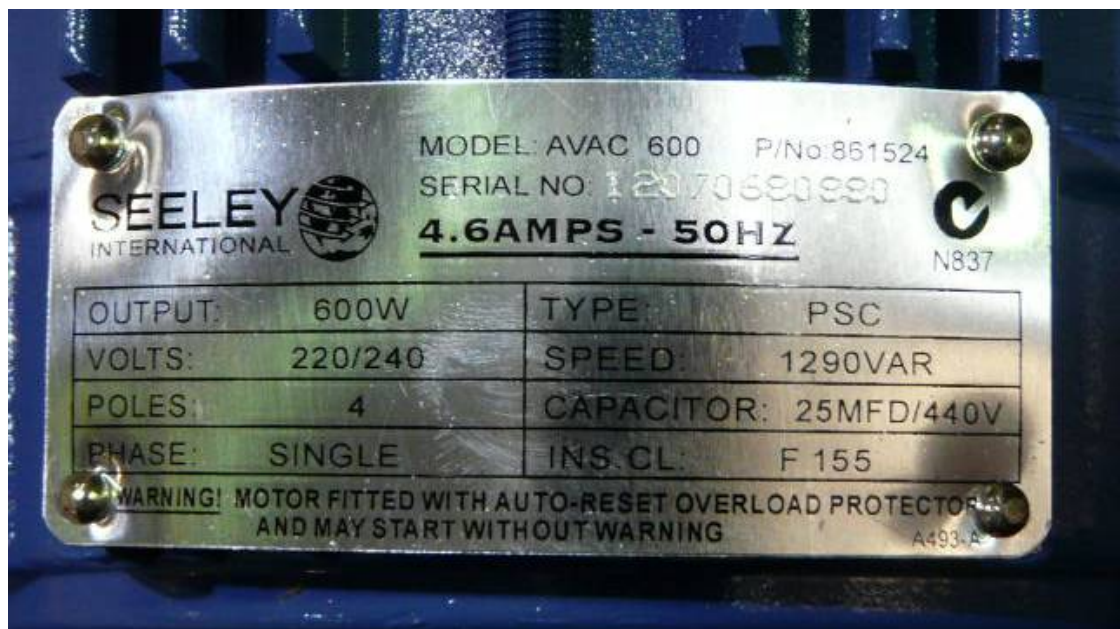


Fig.3.l. Fan motor (alternative) rating label

#### 4. Model LCB550-B



Fig 4.a Front view



Fig.4.b Angle view



#### 4. Model LCB550-B

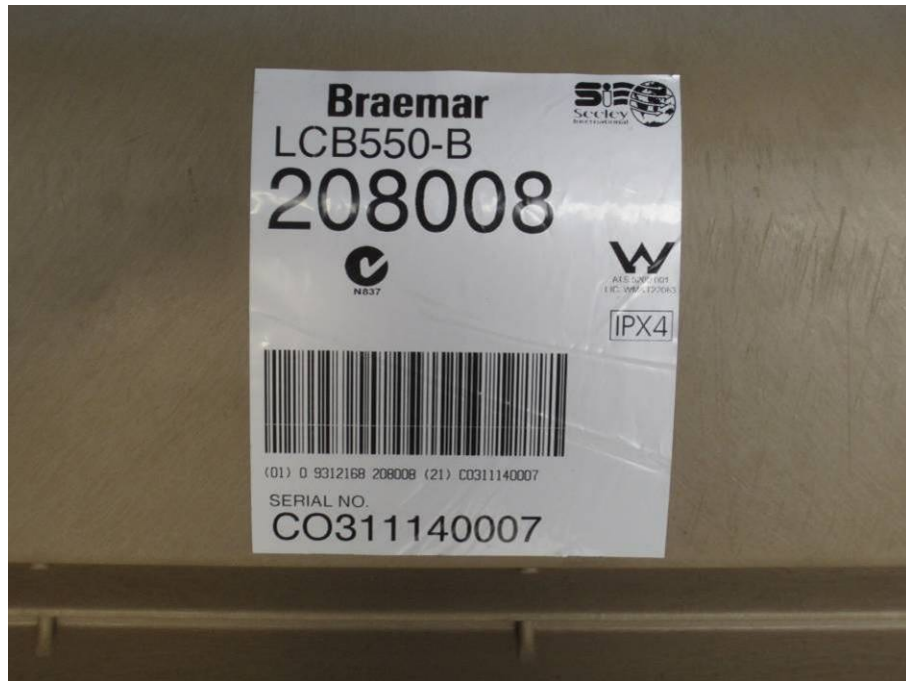


Fig 4.c External label



Fig.4.d. Internal view

#### 4. Model LCB550-B



Fig 4.e. internal view



Fig.4.f. Internal view



#### 4. Model LCB550-B



**Fig 4.g. Internal View**



**Fig.4.h. Internal view**

#### 4. Model LCB550-B



**Fig 4.i. Bottom view**



**Fig.4.j. Frame pad**

#### 4. Model LCB550-B



Fig 4.k. Fan motor

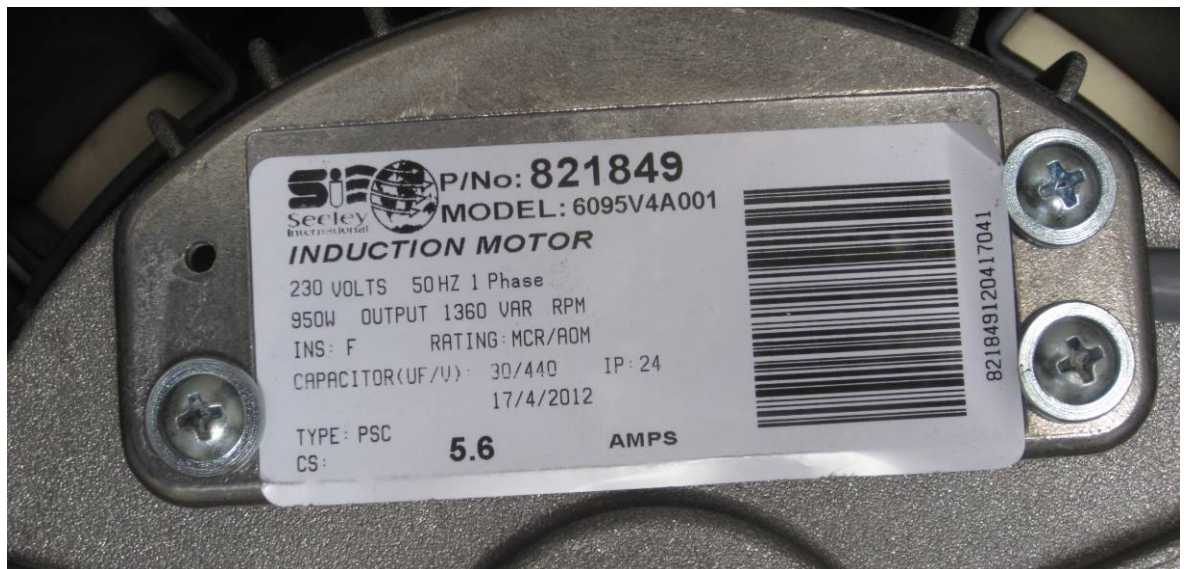


Fig 4.l. Fan motor rating label



## 5. Model CPL1100-B



Fig 5.a. Front view

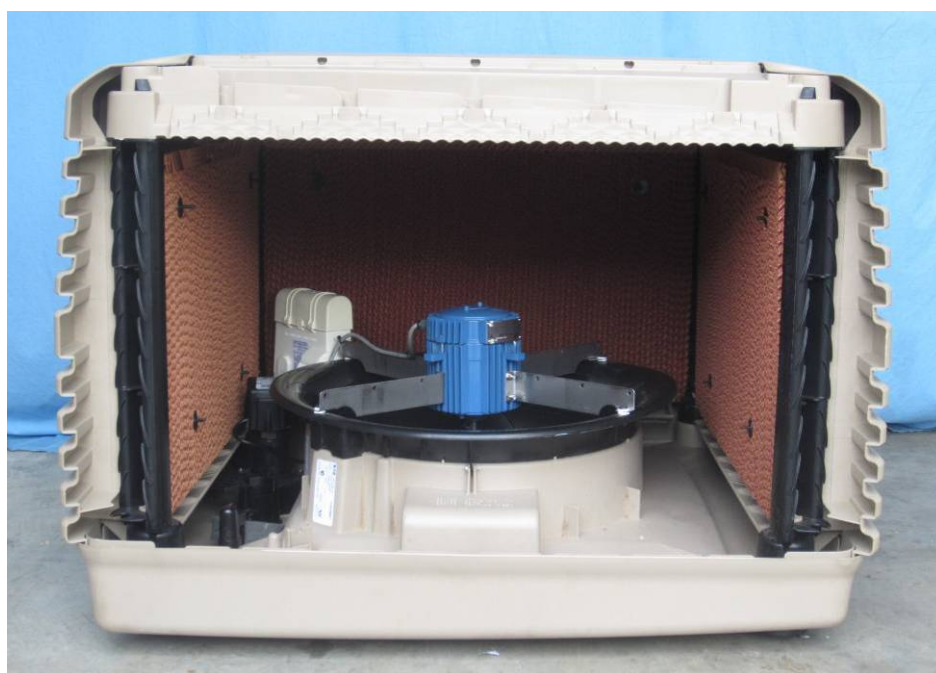


Fig.5.b. Angle view

## 5. Model CPL1100-B

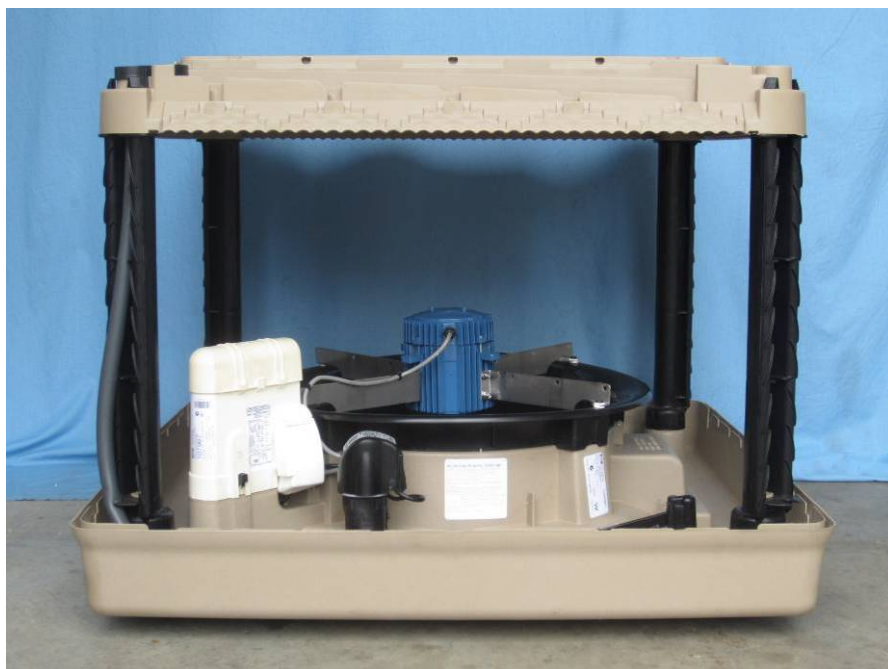


**Fig 5.c. External label**

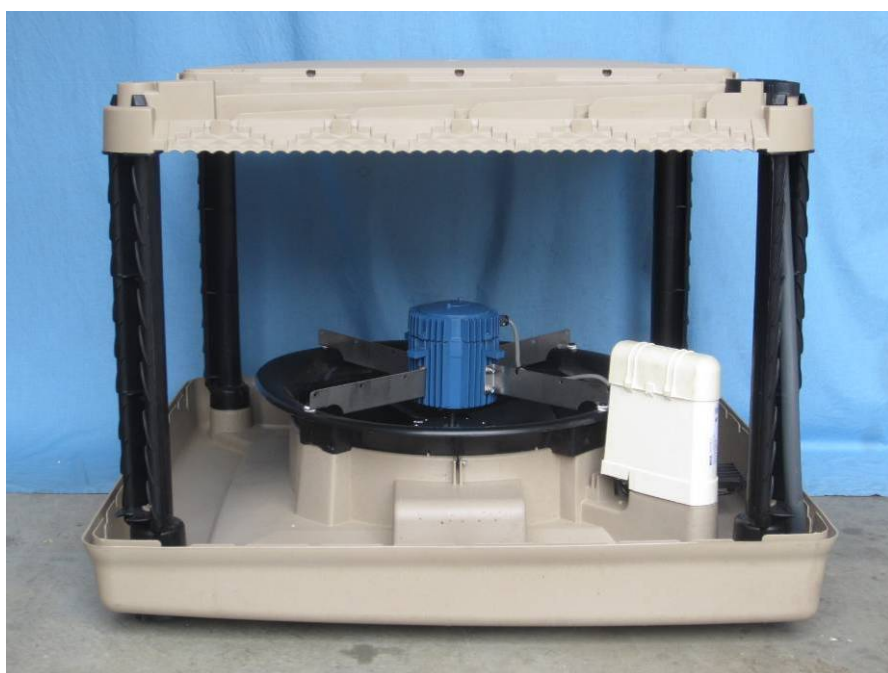


**Fig.5.d Internal view**

## 5. Model CPL1100-B

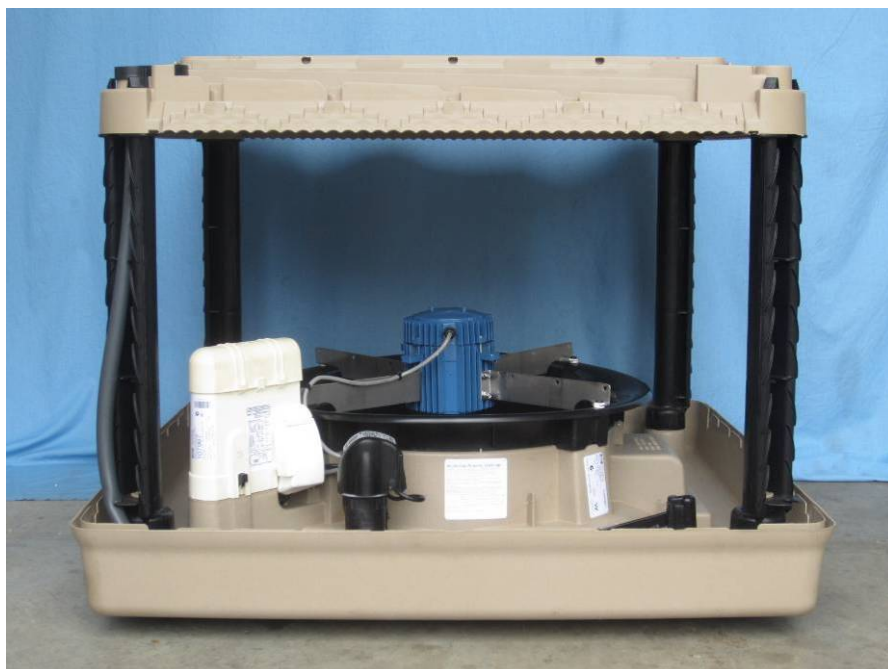


**Fig 5.e. Internal view**



**Fig.5.f. Internal view**

## 5. Model CPL1100-B



**Fig 5.g. Internal view**



**Fig.5.h. Internal view**



**5. Model CPL1100-B**



**Fig 5.i. Bottom view**



**Fig.5.j. Frame pad**



5. Model CPL1100-B

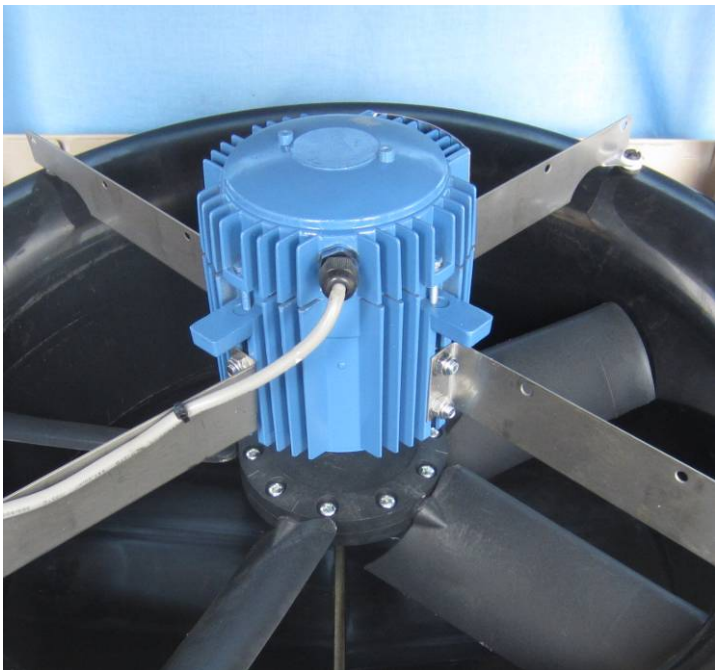


Fig 5.k. Fan motor

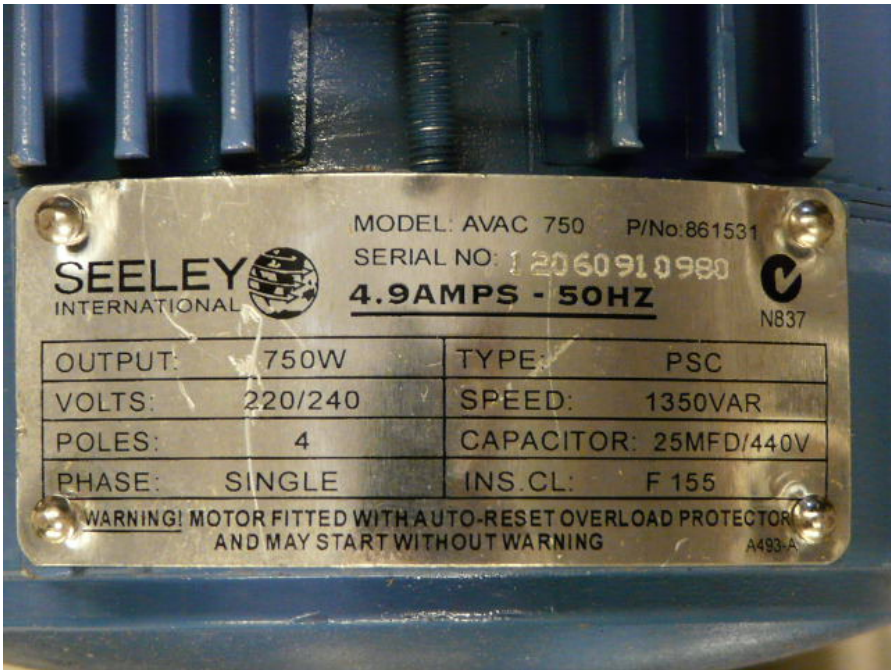


Fig 5.l. Fan motor rating label

## 6. Fan Motors (Seeley)

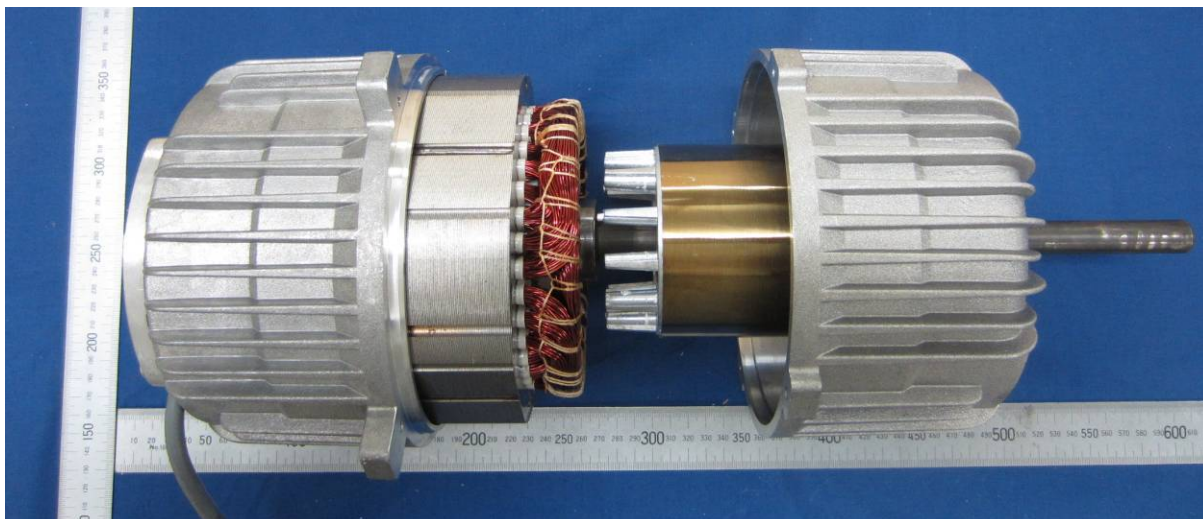


**Fig 6.a Front view**

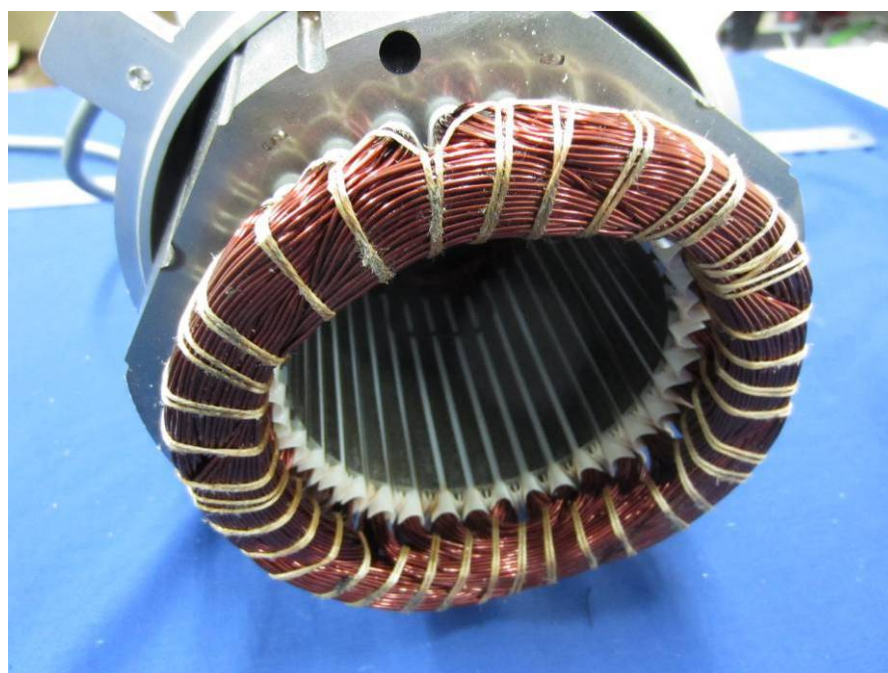


**Fig 6.b Back view**

## 6. Fan Motors (Seeley)



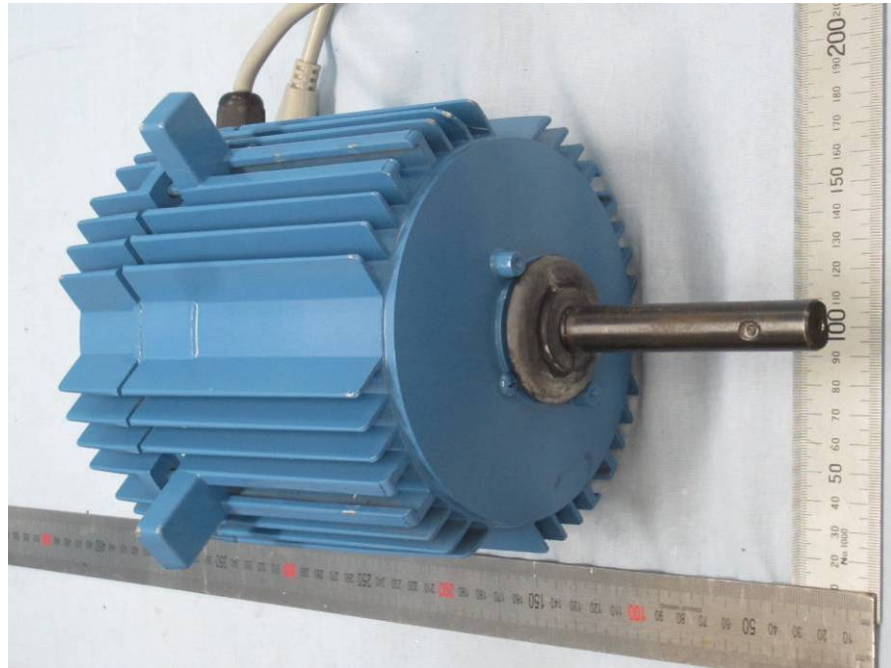
**Fig 6.c Internal view**



**Fig 6.d Internal view**



## 6. Fan Motors (Seeley Able)



**Fig 6.e. front view**



**Fig 6.f. Fan Back label**

6. Fan Motors (Seeley Able)

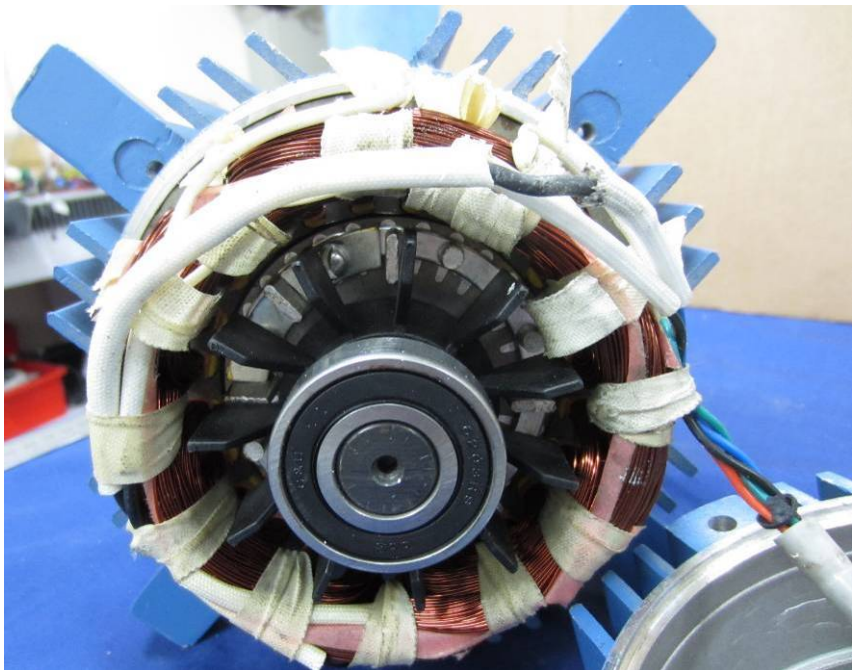


Fig 6.f. Internal view

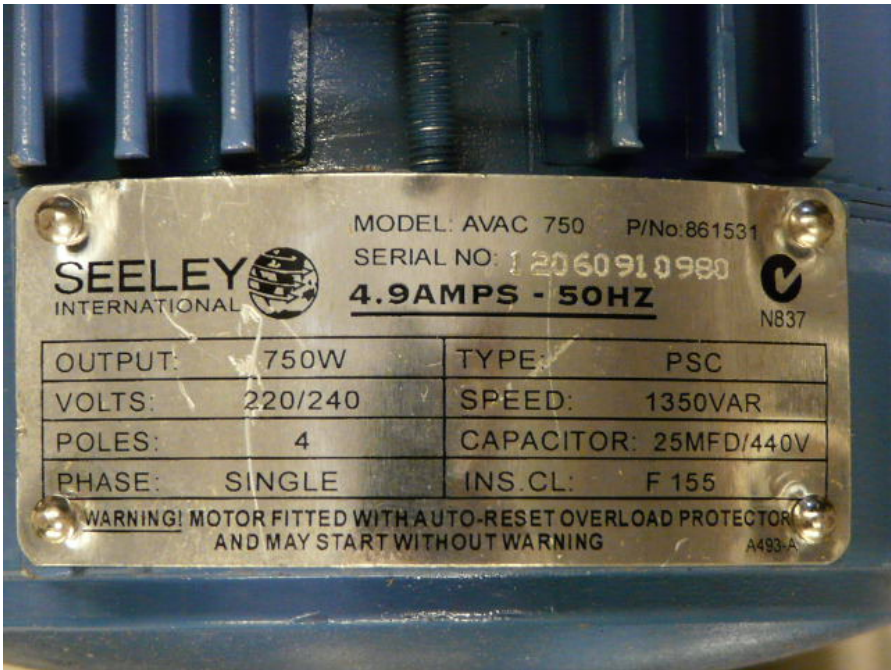


Fig 6.g. Fan rating label

## 7. Control Box (Electronics Module)



**Fig 7.a. Enclosure front view**



**Fig.7.b. Enclosure back view**



## 7. Control Box (Electronics Module)



Fig 7.c. Side view



Fig.7.d. Bottom view

## 7. Control Box (Electronics Module)



Fig 7.e. Connections



Fig.7.f. Internal view



## 7. Control Box (Electronics Module )



Fig 7.g. Motor capacitor compartment

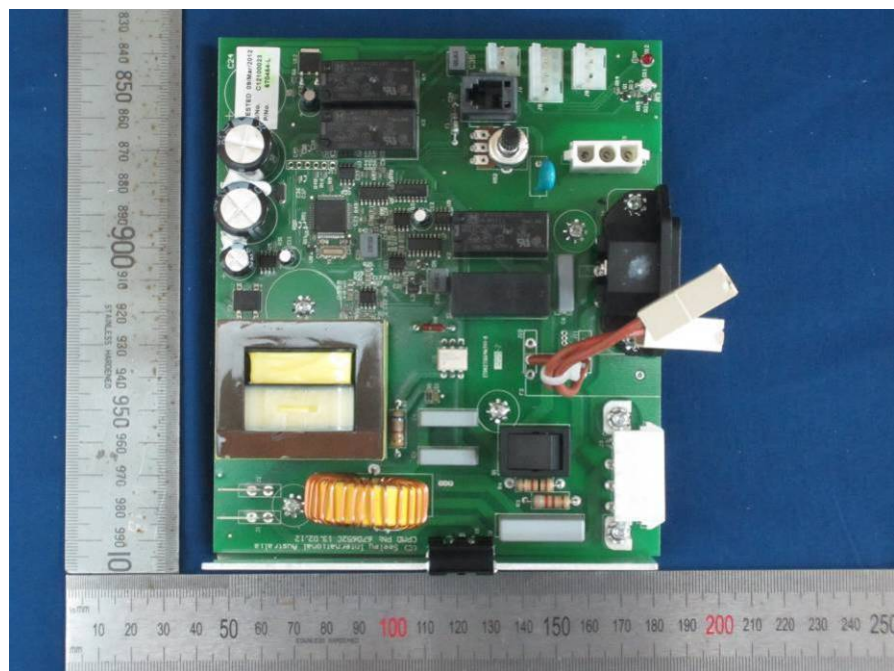
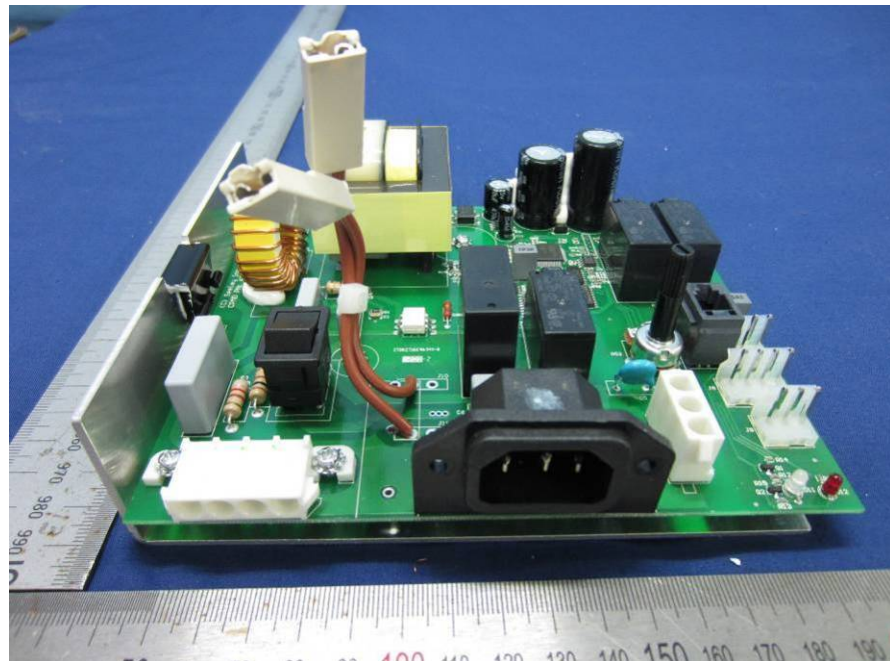
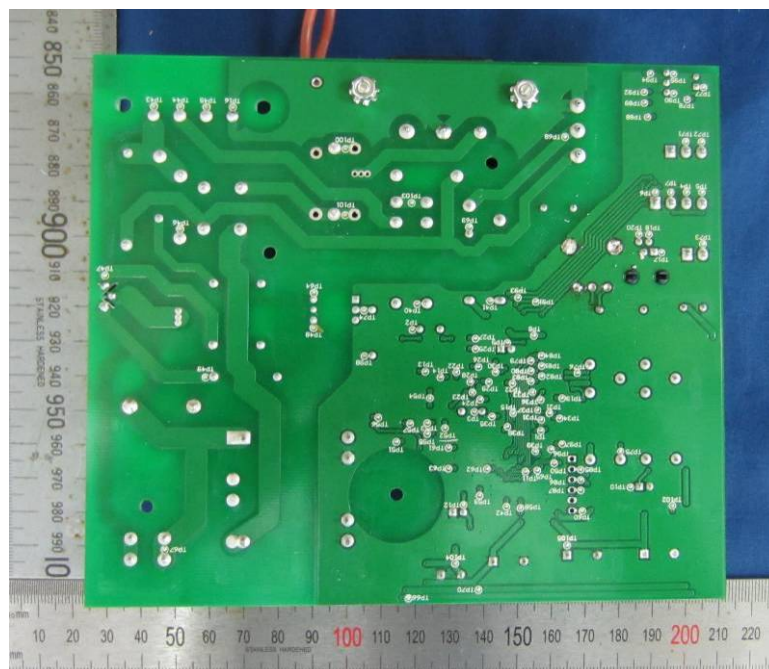


Fig.7.h. Control PCB top view

## 7. Control Box (Electronics Module)



**Fig 7.i. Control PCB side view**



**Fig 7.j. Control PCB bottom view**

## 8. Remote controller



Fig 8.a. Front and back view



Fig. 8.b. Cable connection

## 8. Remote controller



**Fig 8.c. Complete accessories**



## 9. Water pump



Fig 9.a. Rating label

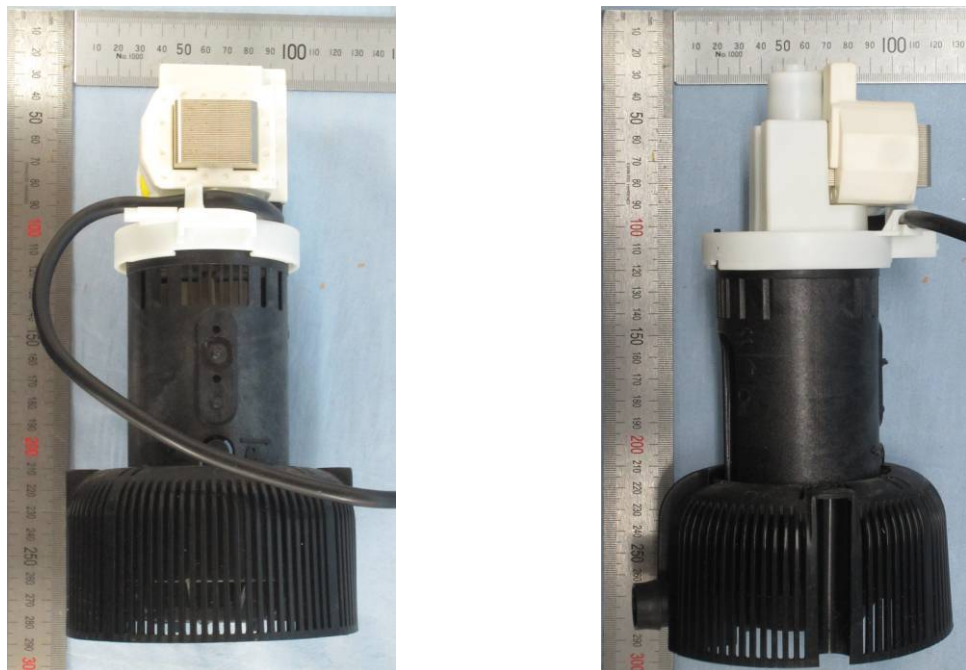


Fig.9.b. External view

## 9. Water pump



**Fig 9.c. Bottom view**

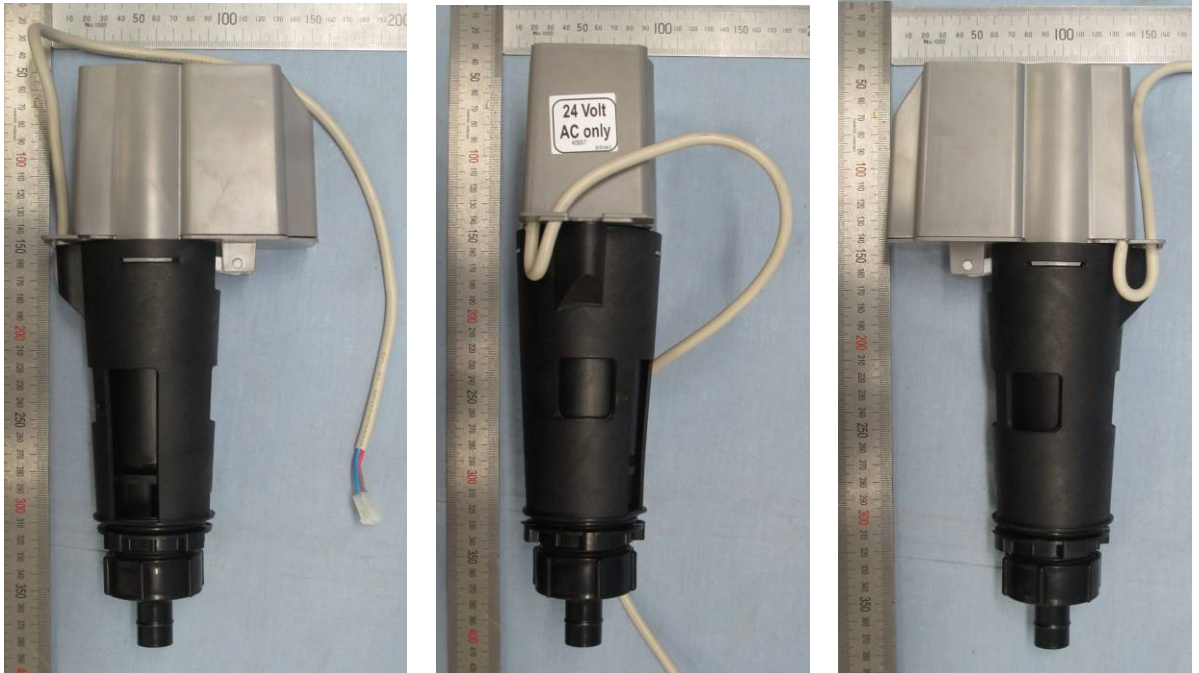


**Fig.9.d. Internal view**

## 9. Water pump

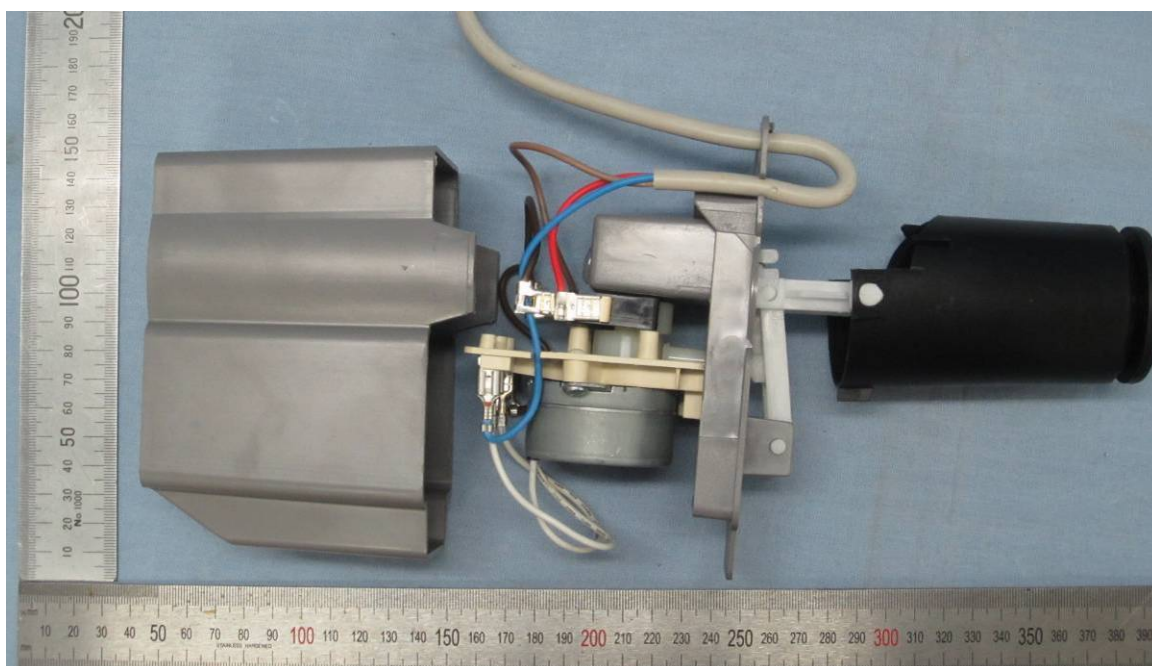


Fig 9.e. Bottom view

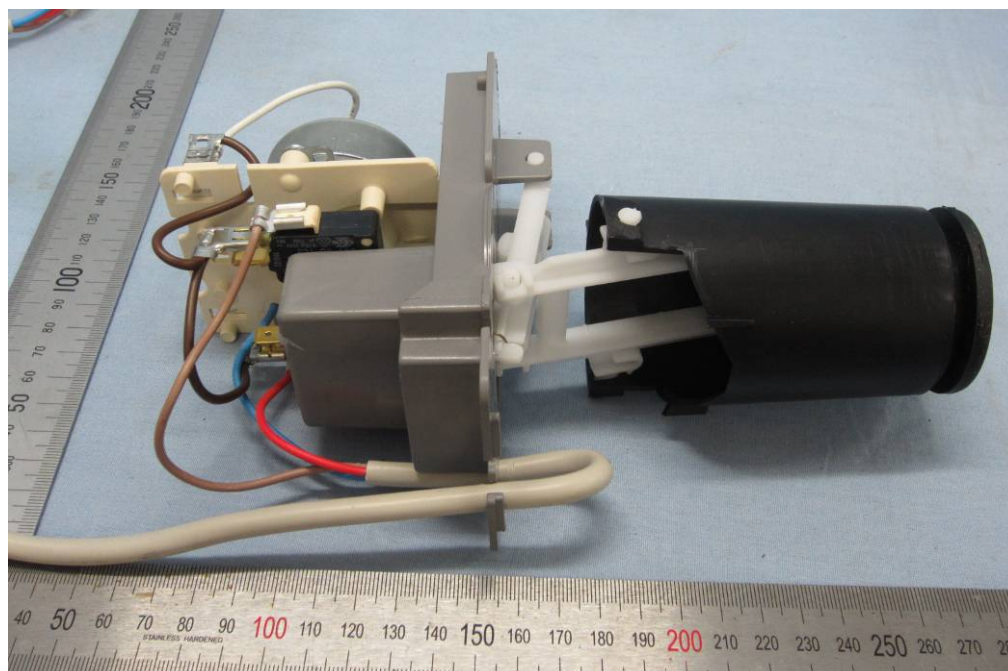
**10. Water drain****Fig 10.a External view****Fig.10.b Internal view**



## 10. Water drain

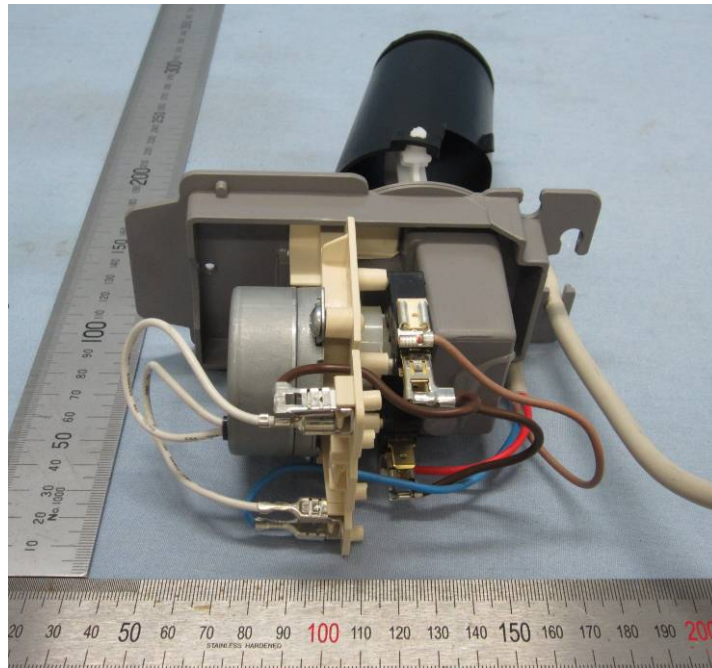


**Fig10.c. Internal view**



**Fig.10.d. Internal view**

## 10. Water drain

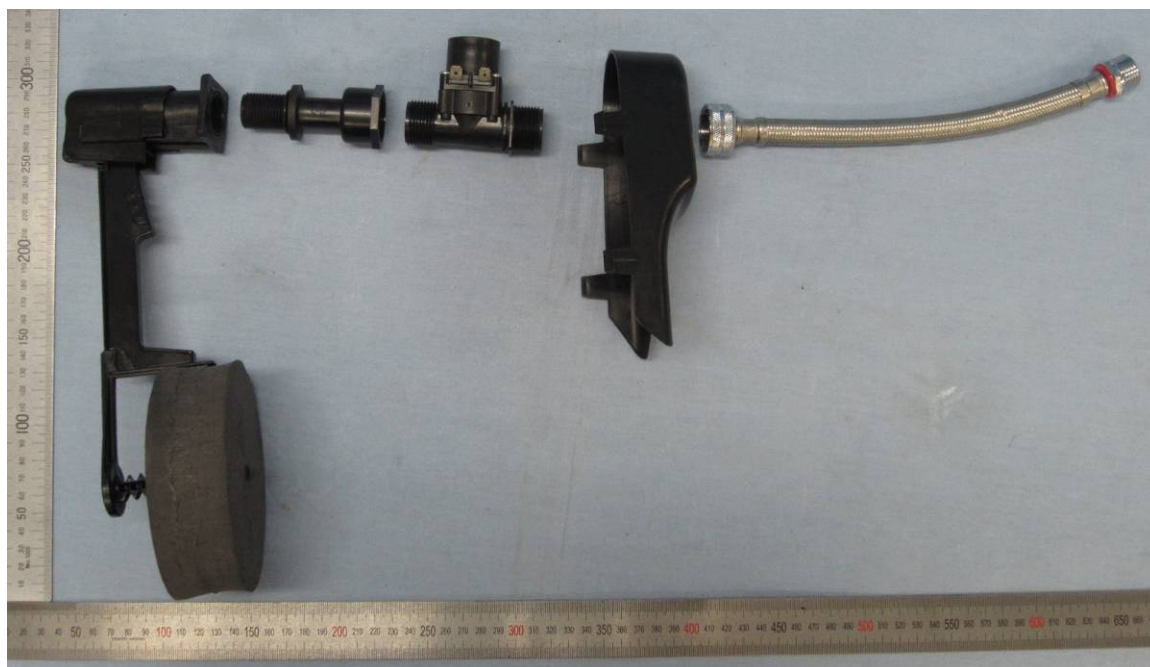


**Fig10.e. Internal view**

## 11. Water inlet



**Fig 11.a External view**



**Fig.11.b Internal view**



## 12. Supply cord & wired remote control



**Fig. 12.a. For European (TBA series)**



**Fig. 12.b. For Australia and New Zealand (LCB, CPL & BM series)**

## 12. Supply cord



**Fig. 12.c. Appliance inlet**



**Fig. 12.d. Appliance connector**