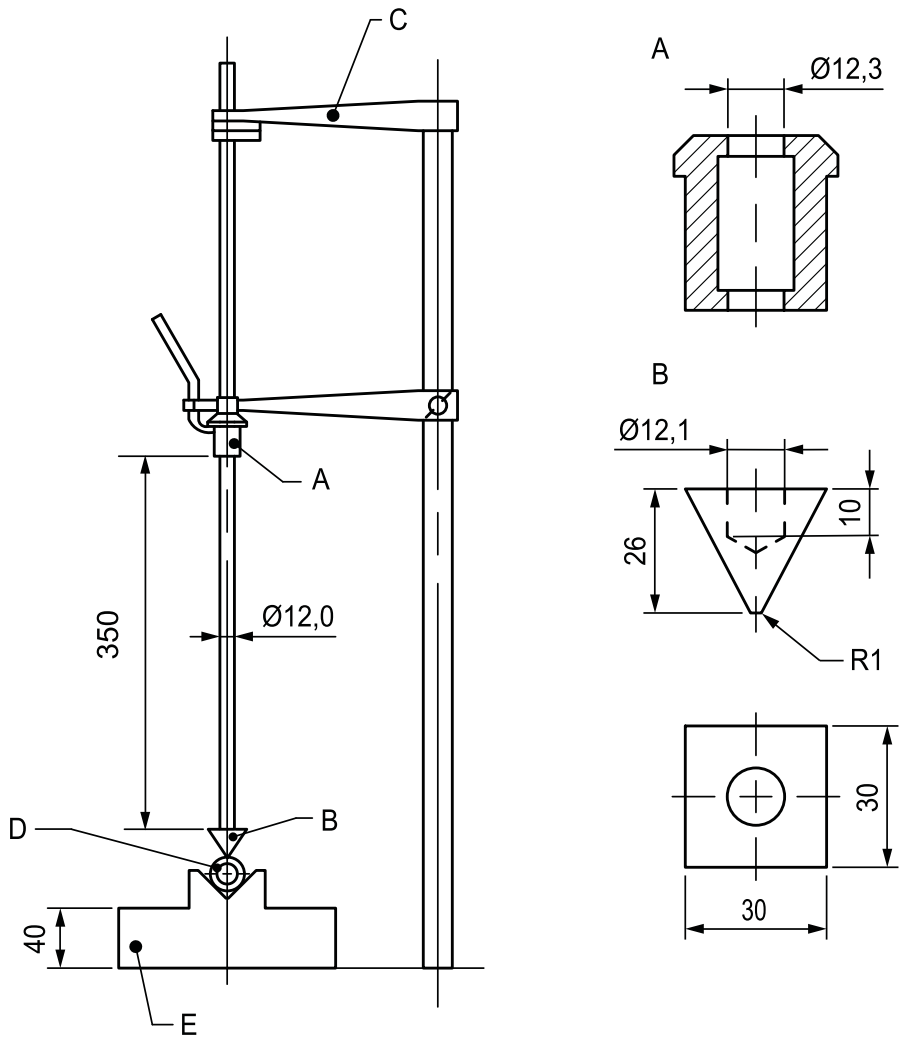


Key

A weight

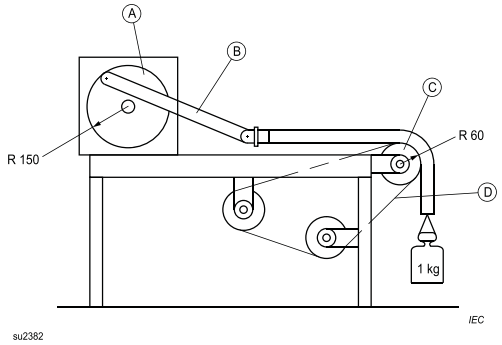
B chisel

C fixing arm

D sample

E base having mass of 10 kg

Figure 101 – Impact test apparatus



Key

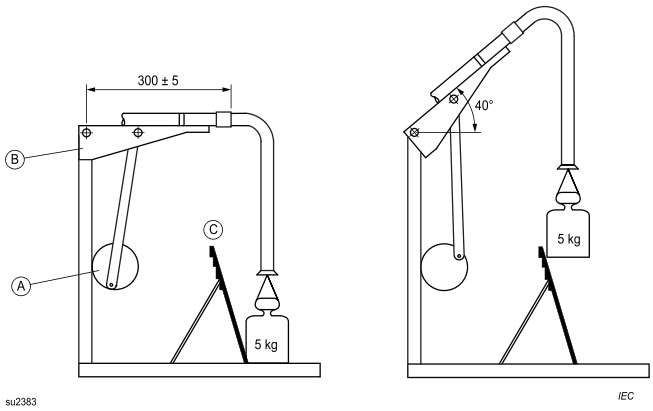
A crank mechanism

B connecting rod

C roller, diameter 120 mm

D abrasive cloth belt

Figure 102 – Apparatus for testing the abrasion resistance of current-carrying hoses



Key

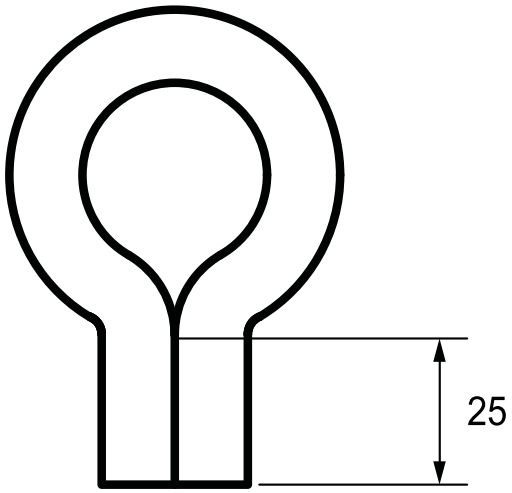
A crank mechanism

B arm

C inclined plane

Figure 103 – Apparatus for testing the resistance to flexing of current-carrying hoses

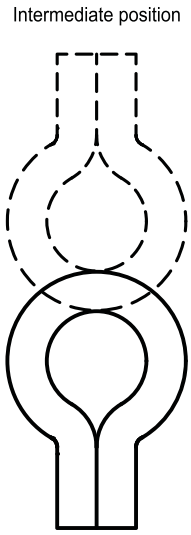
Dimesions in millimetres



IEC

su1186a

Figure 104 – Configuration of the hose for the freezing treatment



Position of the hose at start
and finish of each flexing

IEC

su2384

Figure 105 – Flexing positions for the hose after removal from the freezing cabinet

IEC 1257/07

su0950

Figure 106 – Warning symbol: Do not inhale exhaust fumes

Figure 107.DV DR *Add the following figure:*

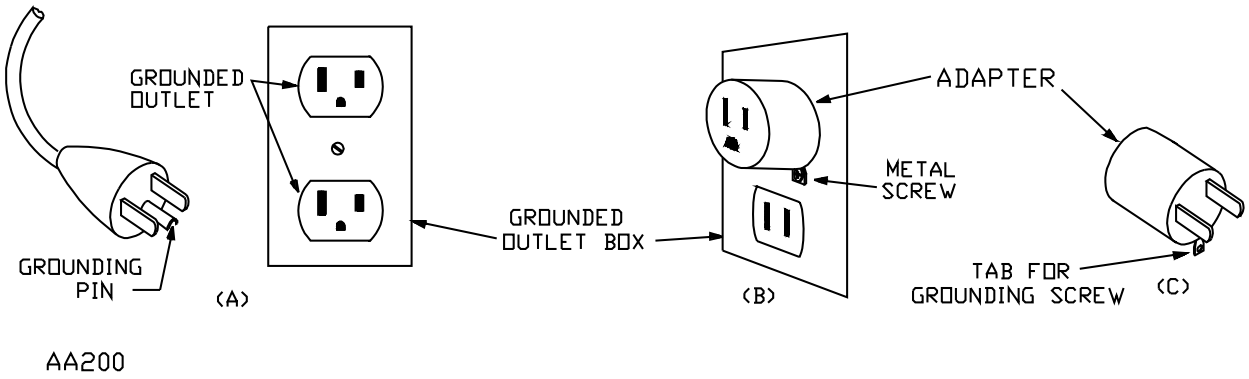


Figure 107.DV – Earthing methods

Annexes

The annexes of Part 1 are applicable, except as follows:

Annex A
(informative)
Routine Tests

ADV.1 D2 ***Modification of the title:***

Replace "informative" with "normative."

ADV.2 D2 ***Modify the Introduction in the Part 1 by adding the following:***

The tests of Clauses A.1 and A.2 do not apply to battery-powered products.

A.101DV D2 ***Add Clauses A.101DV.1 and A.101DV.2 to Annex A of the Part 1:***

A.101DV.1 Each internal combustion engine powered machine using liquefied petroleum gas shall be tested for leaks of an LP-Gas system. All fuel-system connections, including the container with associated valves and fittings, shall be tested for leaks with a soap-and-water or equivalent solution while the system is under LP-Gas pressure of not less than 621 kPa. All leaks detected shall be repaired.

A.101DV.2 The fuel container and associated valves and fittings may be tested separately using air pressure.

Annex B
(normative)
Appliances powered by rechargeable batteries

Replace Annex B of Part 1 by the following:

The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the machine by BUILT-IN CHARGERS.

NOTE 101 This annex does not apply to stand-alone battery chargers (IEC 60335-2-29).

These chargers take one of the following two forms of construction:

Scenario 1: The charger can be supplied directly from the supply mains, the battery charging circuitry and other supply unit circuitry being incorporated within the machine.

Scenario 2: The charger can be supplied directly from the supply mains, the battery charger not being incorporated within the machine, but mounted on the machine and incorporated within the enclosure of the machine. The charging circuitry is electronically independent from the machine's electrical system.

NOTE 102 Forms of construction covered by this annex are shown in Figure B.101.

NOTE 103 If the machine incorporates a battery that must be removed from the machine for charging, then Annex B is not applicable. In this case, the machine is simply a battery-operated machine and the safety requirements for the battery charger for charging the battery are contained in IEC 60335-2-29.

NOTE 104 Since the requirements of IEC 60335-2-29 were met by built-in chargers as components, then integrated into machines covered by IEC 60335-2-72, the tests of this annex are not repeated, except for Clauses 6, 7, 11, 15, 19 and 22.

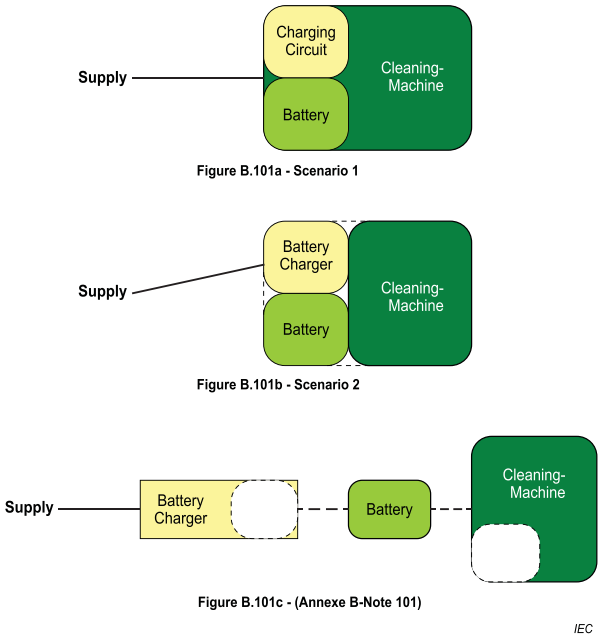


Figure B.101 – Forms of constructions for cleaning machines covered by Annex B

3 Terms and definitions

3.1.9 *Replacement:*

NORMAL OPERATION: operation of the machine under the following conditions:

Battery chargers are connected to the circuit of Figure B.102. The variable resistor is adjusted so that the current in the circuit is the RATED D.C. OUTPUT CURRENT when the battery charger is supplied at RATED VOLTAGE.

When the charging current is controlled by the state of charge of the battery, the variable resistor and the capacitor are replaced by a discharged battery of the type and having the largest capacity specified in the instructions.

Addition:

3.6.2 NOTE If a part has to be removed in order to discard the battery before scrapping the appliance, this part is not considered to be detachable even if the instructions state that it is to be removed.

3.B.101 RATED D.C. OUTPUT VOLTAGE: output voltage assigned to the battery charger by the manufacturer

3.B.102 RATED D.C. OUTPUT CURRENT: output current assigned to the battery charger by the manufacturer

5 General conditions for the tests

5.B.101 *When appliances are supplied from the supply mains, they are tested as specified for MOTOR-OPERATED APPLIANCES.*

5.B.102 *Compliance is checked only when the BUILT-IN CHARGER is mounted on or into the machine.*

6 Classification

6.1 *Addition:*

NOTE 101 Attention is drawn to 5.3, Note 6, of IEC 62638, where information is given about earthing contact used exclusively for EMC purposes.

7 Marking and instructions

7.1 *Addition:*

The battery compartment of appliances incorporating batteries that are intended to be replaced by the user shall be marked with the battery voltage and the polarity of the terminals.

The positive terminal shall be indicated by symbol IEC 60417-5005 (2002-10) and the negative terminal by symbol IEC 60417-5006 (2002-10).

7.6 *Addition:*

\+ [Symbol IEC 60417-5005 (2002-10)] plus; positive polarity

– [Symbol IEC 60417-5006 (2002-10)] minus; negative polarity

7.12 *Addition:*

The instructions shall

– explain the automatic function, stating any limitation (for automatic battery chargers).

7.15 *Addition:*

Markings, other than those associated with the battery, shall be placed on the part of the appliance that is connected to the supply mains.

The marking specified in 7.1 related to the battery voltage charger input and output ratings shall be on the type plate of the machine itself if they do not comply with this clause of Part 1.

8 Protection against access to live parts

8.2 *Addition:*

Machines having batteries that according to the instructions may be replaced by the user need only have BASIC INSULATION between LIVE PARTS and the inner surface of the battery compartment. If the appliance can be operated without the batteries, then DOUBLE INSULATION, interlocking switches on the enclosure of the battery compartment, or REINFORCED INSULATION is required.

9 Starting of motor-operated appliances

This clause is not applicable.

11 Heating

11.5 *Addition:*

BUILT-IN CHARGERS are operated under NORMAL OPERATION and supplied with the most unfavourable voltage between 0,9 times and 1,1 times the RATED VOLTAGE.

In addition, for BUILT-IN CHARGERS WITH POWER SUPPLY FUNCTION, the test is repeated with a discharged battery.

11.7 *Addition:*

The battery is charged for the period stated in the instructions or for 24 h, whichever is longer. The battery with the largest Ah capacity, recommended by the manufacturer, shall be used. The battery shall be fully discharged, in accordance with the instructions, at the start of the test.

13.101.DV D2 *Delete Clause 13.1DV.1 of the Part 1:*

The requirements of 13.1DV.1 do not apply.

13.102.DV D2 *Add the following Clause to the Part 1:*

Printed wiring assemblies and other electronic circuit components that would be damaged by application of the test potential, or across which the test potential is applied, shall be removed, disconnected, or otherwise rendered inoperative before the dielectric voltage-withstand tests are made. Testing a representative subassembly instead of an entire unit is permitted. Individually shunting the semiconductor devices in the unit before the test is made to avoid destroying them in the case of a malfunction elsewhere in the secondary circuits is permitted.

15 Moisture resistance

This clause is applicable with the charger integrated into the machine.

16.101.DV D2 *Delete Clause 16.1DV of the Part 1:*

The requirements of 16.1DV do not apply.