

Technical Construction File EN 62208:2011 Empty enclosures for low-voltage switchgear and controlgear assemblies - General requirements	
Report reference No.....	TLZJ23120653232
Compiled by (+ signature).....	Stephen Zhang / Test Engineer
Approved by (+ signature).....	Kosco Vent / Project Manager
Date of issue.....	December 08, 2023
Reviewing laboratory.....	Shanghai Global Testing Services Co., Ltd.
Reviewing location.....	Floor 3rd, Building D-1, No. 128, Shenfu Road, Minhang District, Shanghai, China.
Applicant.....	Zhejiang Changcheng Trading Co., Ltd.
Address.....	DianHou Village, Liushi Town, Yueqing City, Zhejiang, China
Manufacturer.....	CNC Electric Group Zhejiang Technology Co., Ltd.
Address.....	DianHou Village, Liushi Town, Yueqing City, Zhejiang, China
Factory.....	The same as manufacturer
Address.....	The same as manufacturer
Standard.....	<input checked="" type="checkbox"/> EN 62208:2011
Review Report Form No.....	62208
TRF originator.....	GTS
Master TRF.....	Reference No. EN 62208:2011
Review procedure	GTS
Type of Review object.....	Consumer box
Trademark.....	
Model/type reference.....	YCX6-9,YCX6-12,YCX6-16,YCX6-20,YCX6-24,YCX6-32, YCX6-40,YCX6-48,YCX6-60,YCX8-1504,YCX8-1506, YCX8-1509,YCX8-1512,YCX8-1518,YCX8-1524,YCX8-1536, YCX1-2,YCX1-4,YCX1-6,YCX1-8,YCX1-10,YCX1-12,YCX1-15, YCX1-18,YCX1-24,YCX1-36,YCX2-2,YCX2-4,YCX2-6,YCX2-8, YCX2-10,YCX2-12,YCX2-15,YCX2-18,YCX2-24,YCX2-36,YCX3-1,YCX3-2,YCX3-4,YCX3-6,YCX3-8,YCX3-12,YCX3-18, SH-Q3-801,SH-Q3-802,SH-Q3-803,SH-Q3-804,SH-Q3-805, SH-Q3-806,SH-Q3-807,SH-Q3-808,SH-Q3-809,SH-Q3-8010, SH-Q3-8011,SH-Q3-8012,SH-Q3-8013,SH-Q3-8014,SH-Q3-8015, HT-5P,HT-8P,HT-12P,HT-15P,HT-18P,HT-24P,HT-2P,HA-4, HA-6,HA-8,HA-12,HA-18,HA-24,HA-36
Main Model.....	YCX1-6
Rating.....	/



Possible review case verdicts:

- review case does not apply to the test object..... : N(.A.)
- review object does meet the requirement..... : P(ass)
- review object does not meet the requirement..... : F(ail)

General remarks:

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

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

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

The review results presented in this report relate only to the object reviewed.

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Testing:

Date of receipt of review item:

December 06, 2023

Date(s) of performance of review:

December 06, 2023 to December 08, 2023

General product information:

Consumer box

Summary of reviewing:

This review report includes:

Annex I: 3 page(s) of photo documentation.

Copy of marking plate

Consumer box,
Model YCX1-6



CNC Electric Group Zhejiang Technology Co.,
Ltd.

EN 62208:2011			
Clause	Requirements	Result	Verdict
4	Classification		--
	Enclosures are classified according to: a) the type of material: • insulating; • metallic; • combination of insulating and metallic; b) method of fixing: • floor standing; • wall mounting; • flush mounting; • pole mounting; c) the intended location: • outdoor; • indoor; d) the degree of protection: • IP code, according to IEC 60529; • IK code, according to IEC 62262; e) the rated insulation voltage (for enclosures made of insulating materials).		P
5	EMC requirements		--
	EMC requirements are not applicable for enclosures to this standard.		N/A
6	Information to be given regarding the enclosure		--
6.1	General		--
	The following information shall be given by the manufacturer.		P
6.2	Marking		--
	The enclosure shall be identifiable, making it possible for the assembly manufacturer to obtain relevant information from the enclosure manufacturer. Such identification shall comprise: • either the name, trade mark or identification mark of the enclosure manufacturer; • type designation or identification number of the enclosure. The marking shall be durable and easily legible and may be inside the enclosure. Compliance is checked according to the test of 9.3 and by inspection. Marking for the recycling of plastic parts shall be as stated in ISO 1 1 469.		P
6.3	Documentation		--
6.3.1	General		--

	<p>The manufacturer's documentation shall include all relevant constructional, mechanical characteristics, the enclosure classification (see Clause 4) and any instruction necessary for the correct handling, assembling, mounting and service conditions of the enclosure as well as reference to this standard:</p> <ul style="list-style-type: none"> • dimensions (see 6.3.2); • mounting arrangements (see 6.3.3); • permissible loads (see 6.3.4); • lifting devices, if necessary (see 6.3.5); • provisions for protection against electric shock (see 6.3.6); • applicable service conditions (see Clause 7); • location and size of protected space; • data of thermal power dissipation capability; • rated insulation voltage of enclosures constructed of an insulating material; • degree of protection (IK and IP codes, see 8.7 and 8.8). <p>The data for the thermal power dissipation capability are a function of the admissible temperature inside the enclosure. They shall be provided for the different installation methods (e.g. flush mounting, surface mounting) of the enclosure and of the design of the enclosure, i.e. with or without ventilation openings and number of horizontal partitions. They shall include at least temperature rise inside the enclosure, at the top, and external surfaces temperature rise, for a given power loss inside the enclosure. This will provide the user with the correct data for the selection of the enclosure according to electrical equipment to be installed. For the purpose of the calculation, it is assumed that the heat generated by the selected equipment is distributed uniformly inside the protected space.</p>		P
6.3.2	Dimensions		--
	<p>The dimensions shall be given in millimetres. The external dimensions: height, width and depth are nominal values and shall be indicated in the catalogue of the enclosure manufacturer. The projection of cable gland plates, removable covers and handles shall not be included in the external nominal dimensions, the dimensions of such shall be included in the manufacturer's documentation.</p>		P
6.3.3	Mounting arrangements		--
	<p>The means and location of the enclosure mounting shall be defined in the enclosure manufacturer's documentation. The location of the equipment mounting surfaces and their means of fixing shall be defined in the enclosure manufacturer's documentation.</p>		P
6.3.4	Permissible loads		--

	The permissible loads that the enclosure and its doors are able to carry shall be defined in the enclosure manufacturer's documentation (see also 8.2).		P
6.3.5	Lifting and transport support		--
	Where required, the correct location and installation of lifting and transport support and the thread size of lifting devices, if applicable, shall be given in the enclosure manufacturer's documentation or in the instructions on how the enclosure has to be handled (see also 8.3).		P
6.3.6	Protective circuit		--
	The enclosure manufacturer shall indicate in the technical documentation, if the enclosure ensures electrical continuity throughout by the conductive structural parts of the enclosure or if and how separate protective conductors to the protective circuits of the installation shall be carried out (see also 8.5).		P
7	Service conditions		--
7.1	General		--
	Enclosures conforming to this standard are intended for use under the following service conditions. The enclosure manufacturer shall specify the locations for which the enclosure is intended.		P
7.2	Normal service conditions		--
7.2.1	Ambient air temperature		--
7.2.1.1	Ambient air temperature for indoor locations		--
	The ambient air temperature does not exceed +40 °C and its average over a period of 24 h does not exceed +35 °C. The lower limit of the ambient air temperature is – 5 °C.		P
7.2.1.2	Ambient air temperature for outdoor locations		--
	The ambient air temperature does not exceed +40 °C and its average over a period of 24 h does not exceed +35 °C. The lower limit of the ambient air temperature is – 25 °C.		P
7.2.2	Humidity conditions		--
7.2.2.1	Humidity conditions for indoor locations		--
	The relative humidity of the air does not exceed 50 % at a maximum temperature of +40 °C. Higher relative humidity may be permitted at lower temperatures, for example 90 % at +20 °C. Moderate condensation should be borne in mind which may occasionally occur due to variations in temperature.		P
7.2.2.2	Humidity conditions for outdoor locations		--

	The relative humidity may be temporarily as high as 1 00 % at a maximum temperature of +25 °C.		P
7.3	Special service conditions		--
	<p>Where any of the following special service conditions exist, the applicable particular requirements shall be subject to agreement between user and manufacturer.</p> <p>Examples of such conditions may include the following:</p> <ul style="list-style-type: none"> • abnormal ambient air temperature and humidity; • presence of corrosive substances; • presence of particular dusts (coal, cement, etc.); • abnormal mechanical stresses (seismic, etc.); • presence of fauna, flora, mould; • ionizing influences; • electromagnetic interferences; • vibrations; • UV radiation other than solar. <p>Agreements reached shall not contradict any safety regulations in force.</p>		P
7.4	Conditions during transport and storage		--
	A special agreement shall be made between the enclosure manufacturer and the user if the conditions during transport, storage and installation, for example temperature and humidity conditions, differ from those defined in 7.2.		P
8	Design and construction		--
8.1	General		--
	<p>The enclosure shall be constructed only of materials capable of withstanding the mechanical, electrical and thermal stresses, as specified in Clause 9, as well as the effects of humidity which are likely to be encountered in normal use. Protection against corrosion shall be ensured by the use of suitable materials or by the application of protective coating to the exposed surface, taking into account the intended conditions of use.</p> <p>Compliance to this requirement is checked by the test of 9.1 3.</p> <p>In addition for enclosures or parts of enclosures made of insulating materials, thermal stability, resistance to heat, fire and weathering shall be verified according to the tests of 9.9 and 9.1 2.</p>		P
8.2	Static loads		--
	Compliance of the permissible load that the enclosure and its doors are able to carry is checked according to the test of 9.4.		P
8.3	Lifting and transport support		--

	Where required, enclosures shall be provided with the appropriate lifting devices or transport means. Compliance is checked according to the test of 9.5.		P
8.4	Access to the interior of the enclosure		--
	Adequate access to the protected space shall be provided by means of a door(s) or removable cover(s). Access may be restricted by the use of a key or tool. Cable gland plates and covers which are removable from the outside shall require the use of a tool.		P
8.5	Protective circuit		--
	Metallic enclosures shall ensure electrical continuity throughout either by the conductive structural parts of the enclosure or provisions for a separate protective conductor to earth or both. When a removable part of an enclosure is removed, the protective circuit for the remainder of the enclosure shall not be interrupted. For lids, doors, removable covers and the like, the usual metal screwed connections and metal hinges may ensure continuity of the protective circuit provided no electrical equipment is attached to them. Where these are intended for mounting electrical equipment additional means shall be provided to ensure the continuity of the protective circuit. Compliance is checked according to the test of 9.1 1 . The enclosure manufacturer shall provide means to facilitate the connection of the external protective conductor by the assembly manufacturer.		P
8.6	Dielectric strength		--
	The enclosures constructed of an insulating material shall fulfil the dielectric test of 9.1 0.		P
8.7	Degree of protection (IK code)		--
	The degree of protection against mechanical impact, as declared by the manufacturer, shall be in accordance with IEC 62262. Compliance is checked according to the test of 9.7.		P
8.8	Degree of protection (IP code)		--
	The degree of protection against access to hazardous parts, against ingress of solid foreign objects and/or against ingress of water, as declared by the manufacturer, shall be in accordance with IEC 60529. Compliance is checked according to the test of 9.8.		P
9	Type tests		--
9.1	General		--
	Tests according to this standard are type tests.		P

9.2	General conditions of tests		--
	<p>The enclosures under test shall be mounted and installed as in normal use according to the enclosure manufacturer's instructions.</p> <p>Unless otherwise specified, the tests shall be carried out at an ambient temperature of between +10 °C and +40 °C.</p> <p>Table 1 shows the number of samples to be tested and the order of test per sample.</p> <p>All tests shall be carried out on complete enclosures. If this is not possible, they can be carried out on representative samples taken from the enclosure.</p>		P
9.3	Marking		--
	<p>Marking made by moulding, pressing, engraving or similar. Labels with a laminated plastic covering shall not be submitted to the following test.</p> <p>The test is made by rubbing the marking by hand for 15 s with a piece of cloth soaked in water and then for 15 s with a piece of cloth soaked with petroleum spirit.</p> <p>After the test the marking shall be easily legible.</p>		P
9.4	Static loads		--
	<p>The enclosure fitted with all its required components to support the permissible load is loaded with a weight of 1,25 times the permissible load as declared by the manufacturer.</p> <p>The loads are arranged on the mounting plate or switchgear and controlgear supports and on the door evenly distributed as specified by the enclosure manufacturer.</p> <p>The loads are retained for 1 h in the closed position.</p> <p>For enclosures constructed of insulating material and metallic enclosures with parts (hinges, locks, etc.) of insulating material, this shall be carried out at 70 °C.</p> <p>The closed door is opened five times through 90 °, resting at least 1 min in the open position.</p> <p>For enclosures constructed of insulating material and metallic enclosures with parts (hinges, locks, etc.) of insulating material, this part of the test may be carried out at ambient temperature external to the heating cabinet.</p> <p>After the test, with the test loads in place, the enclosure shall show no cracks or permanent distortions and during the test no deflections which could impair any of its characteristics.</p>		P
9.5	Lifting		--

	<p>This test only applies to enclosures with provisions for lifting. The enclosure is loaded as in 9.4 and with its door closed, is lifted with the specified lifting means and in the manner defined by the enclosure manufacturer. From the standstill position, the enclosure is raised up three times in a vertical plane returning to the standstill position. The enclosure is raised up and suspended for 30 min at a height of ≥ 1 m for 30 min without any movement. Following this test, the enclosure is raised to a height of ≥ 1 m and moved (1.0 ± 0.5) m horizontally, then set down. This cycle, which should be carried out for $1 \text{ min} \pm 5 \text{ s}$ is repeated three times at uniform speed. After the test, with the test loads in place, the enclosure shall show no cracks or permanent distortions and during the test no deflections which could impair any of its characteristics</p>		P														
9.6	Axial loads of metal inserts		--														
	<p>This test applies to all kind of enclosures when threaded metal inserts are provided to retain the mounting plate or switchgear and controlgear supports in place. The test shall be carried out by applying an axial load for 10 s to representative samples, as indicated in Table 2.</p>		P														
	<p>Table 2 – Axial loads of metal inserts</p> <table border="1" data-bbox="316 1272 775 1653"> <thead> <tr> <th>Size of inserts M^a</th> <th>Axial load N</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>350</td> </tr> <tr> <td>5</td> <td>350</td> </tr> <tr> <td>6</td> <td>500</td> </tr> <tr> <td>8</td> <td>500</td> </tr> <tr> <td>10</td> <td>800</td> </tr> <tr> <td>12</td> <td>800</td> </tr> </tbody> </table> <p>^a M: metric thread-size.</p>	Size of inserts M ^a	Axial load N	4	350	5	350	6	500	8	500	10	800	12	800		--
Size of inserts M ^a	Axial load N																
4	350																
5	350																
6	500																
8	500																
10	800																
12	800																
	<p>During the test, the enclosure shall fully rest on a supporting platform to allow the application of the above-mentioned load. At the end of the test, the insert shall still be in its original position; any sign of movement is not acceptable. Cracks and splits in the material containing the insert are also not acceptable.</p>		P														
9.7	Degree of protection against external mechanical impacts (IK code)		--														

	<p>Verification of the degree of protection against mechanical impacts shall be carried out in accordance with IEC 62262 by means of a test hammer suitable for the dimensions of the enclosure.</p> <p>The enclosure shall be fixed on a rigid support as for normal use.</p> <p>The impact energy shall be applied:</p> <ul style="list-style-type: none"> • three times to each exposed surface in normal use whose largest dimension is not above 1 m; • five times to each exposed surface in normal use whose largest dimension is greater than 1 m. <p>The test shall not be applied to the enclosure components (e.g. locks, hinges, etc.).</p> <p>The impacts shall be applied with even distribution over the faces of the enclosure.</p> <p>After the test, the enclosure shall continue to provide the IP code and dielectric strength.</p> <p>Removable covers can be removed and reinstalled, doors opened and closed.</p>		P
9.8	Degree of protection (IP code)		--
9.8.1	Degree of protection against access to hazardous parts and against the ingress of solid foreign objects indicated by first characteristic numeral		P
9.8.1.1	Protection against access to hazardous parts		--
	<p>Subclauses 1 2.1 and 1 2.2 of IEC 60529:1 989 apply.</p> <p>The access probes shall not enter the protected space.</p>		P
9.8.1.2	Degree of protection against the ingress of solid foreign objects		P

	<p>For IP 2X, IP 3X, IP 4X enclosures, 1 3.2 and 1 3.3 of IEC 60529:1 989 apply. For IP 5X enclosures, 1 3.4, category 2 (without vacuum pump) and 1 3.5 (without vacuum pump) of IEC 60529:1 989 apply. Ingress of talcum powder into protected space is verified as follows:</p> <ul style="list-style-type: none"> • Ingress of talcum powder is verified by using a watch glass installed at the centre of the base of the protected space of the enclosure in order to pick up the talcum powder entering the protected space during the test. After the test, talcum powder shall not form deposits of more than 1 g/m² . • In practice the weight of the watch glass is measured before and at the end of the test and the difference between both measures is representative of the amount of the talcum powder which has entered the protected space. <p>For IP 6X enclosures, 1 3.6 of IEC 60529:1 989 apply. No talcum powder shall be observable inside the enclosure at the end of the test. Where the enclosure tested according to 9.7 is too large for the verification of IP 5X or 6X, an additional smaller enclosure having the same design details may be used for this test</p>		<p>P</p>
<p>9.8.2</p>	<p>Degree of protection against ingress of water as indicated by second characteristic numeral</p>		<p>--</p>
	<p>Subclauses 1 4.1 and 1 4.2 of IEC 60529:1 989 apply. After the test, water shall not have ingressed into the protected space. Ingress of water is verified by the use of dry absorbent paper positioned to occupy the base area of each protected space. For doors or covers intended to accommodate equipment, a strip of paper, bent to form a 90 ° angle profile, is attached to the base of the declared protected space for that surface. The paper should project from the surface equal to the depth of the protected space or a maximum of 30 mm. Where the enclosure has any uncovered aperture, a section of absorbent paper, equal to or greater than the size of the aperture, is positioned on the surface of the protected space in its immediate vicinity. Immediately after the test, all indicator papers shall still be dry. In practice, a coloured blotting or filter paper will show very clearly any moisture by its discolouration.</p>		<p>P</p>
<p>9.8.3</p>	<p>Degree of protection against hazardous parts as indicated by additional letter</p>		<p>--</p>

	<p>Clause 1 5 of IEC 60529:1 989 applies. The access probe shall not touch the surface of the protected space.</p>		P
9.9	Properties of insulating materials		--
9.9.1	Thermal stability		--
	<p>Parts, intended for decorative purposes that have no technical significance shall not be considered for the purpose of this test. The thermal stability of enclosures manufactured from insulating material shall be verified by the dry heat test. The test shall be carried out according to IEC 60068-2-2 Test Bb, at a temperature of 70 °C, with natural air circulation, for a duration of 1 68 h. The enclosure, mounted as for normal use, is subjected to a test in a heating cabinet with an atmosphere having the composition and pressure of the ambient air with no forced ventilation. If the dimensions of the enclosure are inconsistent with those of the heating cabinet, the test may be carried out on a representative sample of the enclosure. The use of an electrically heated cabinet is recommended. After the treatment, the enclosure or sample is removed from the cabinet and kept at ambient temperature and a relative humidity of between 45 % and 55 % for at least four days (96 h). The enclosure or sample shall show no crack visible to normal or corrected vision without additional magnification nor shall the material have become sticky or greasy, this being judged as follows: With the forefinger wrapped in a dry piece of rough cloth, the sample is pressed with a force of 5 N. No traces of the cloth shall remain on the sample and the material of the enclosure or sample shall not stick to the cloth</p>		P
9.9.2	Resistance to normal heat		--
	<p>The suitability of the insulating materials to resist effects of heat shall be verified either by reference to the insulation temperature index (determined e.g. by the methods of IEC 6021 6 series), or by compliance to IEC 60085.</p>		P
9.9.3	Resistance to abnormal heat and to fire		--

	<p>Compliance is checked by tests in accordance with the principles of IEC 60695-2-1 0 and the details of IEC 60695-2-1 1 . For a description of the test see Clause 4 of IEC 60695-2-1 1 :2000.</p> <p>The apparatus to be used shall be as described in Clause 5 of IEC 60695-2-1 1 :2000.</p> <p>If the dimensions of the enclosure are inconsistent with those of the test apparatus, the test shall be carried out on a sample. This sample shall be taken from an area of minimum thickness taken from the enclosure. In the case of doubt, the test shall be repeated on two further samples.</p> <p>NOTE 1 The sample of the enclosure should include portions in which the molding process would require the insulating material to flow in a non-linear path and consequently be highly stressed. Place of material sampling should be determined by agreement between the manufacturer and the testing laboratory.</p> <p>The sample is stored for 24 h in an atmosphere having a temperature between 15 ° C and 35 ° C and a relative humidity of between 35 % and 45 % before starting the test.</p> <p>The apparatus shall be placed in a substantially draught-free dark room, so that the flames occurring during the test are visible.</p> <p>Before starting the test, the thermocouple is calibrated in accordance with Clause 6 of IEC 60695-2-1 0:2000.</p> <p>During the test, the procedure given in Clause 8 of IEC 60695-2-1 0:2000 and Clause 1 0 of IEC 60695-2-1 1 :2000 shall be followed.</p> <p>After each test, it is necessary to clean the tip of the glow wire of any residue of insulating material, for example by means of a brush.</p> <p>The temperature of the tip of the glow wire shall be as follows:</p> <ul style="list-style-type: none"> • for parts intended to retain current-carrying parts in position: $(960 \pm 15) ^\circ \text{C}$; • for parts intended to be installed in hollow walls: $(850 \pm 15) ^\circ \text{C}$; • for all other parts, including parts not intended to retain current-carrying parts in position including the earth terminal and parts intended to be embedded in walls which are combustion-resistant: $(650 \pm 15) ^\circ \text{C}$. <p>The duration of application shall be $(30 \pm 1) \text{ s}$.</p> <p>During application of the glow wire and during a further period of 30 s, the specimen, the parts surrounding the specimen and the layer of tissue paper placed below it shall be observed.</p> <p>The time at which the specimen ignites and the time when flames extinguish during or after the period of application are noted.</p> <p>The specimen is considered to have withstood the glow-wire test if</p>		<p>P</p>
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	<p>there is no visible flame and no sustained glowing, or if</p> <ul style="list-style-type: none"> flames and glowing of the specimen extinguish within 30 s after removal of the glow wire. <p>There shall be no burning of the tissue paper or scorching of the pinewood board.</p>		--
9.10	Dielectric strength		--
9.10.1	General		--
	<p>This test applies to enclosures where insulating material is used, even in combination with non-insulating materials. Compliance is checked as follows:</p>		P
9.10.2	Preconditioning		--
	<p>The enclosures are placed in a humidity cabinet containing air with relative humidity maintained at between 91 % and 95 %. The air temperature, where the enclosures are placed, is maintained at $(40 \pm 2) ^\circ\text{C}$. The enclosures are kept in the cabinet for two days (48 h). In most cases, the enclosures may be brought to the specified temperature by keeping them at this temperature for at least 4 h before the humidity treatment. A relative humidity of between 91 % and 95 % can be obtained by placing in the cabinet a saturated solution of sodium sulphate (Na_2SO_4) or potassium nitrate (KNO_3) in water having a sufficiently large contact surface with the air. In order to achieve the specified conditions within the cabinet, it is necessary to ensure a constant circulation of air and, in general, to use a cabinet which is thermally insulated.</p>		P
9.10.3	Enclosures without metal elements inside the protected space		--
	<p>An r.m.s. voltage of substantially sine-wave form at a value according to 10.9.4 of IEC 61439-1:2011 is applied for 1 min between two metal foils, one in contact with the external surface and the other inside the enclosure at the limit of the protected space. Initially not more than half the prescribed voltage is applied. It is then raised rapidly to the full value.</p>		P
9.10.4	Enclosures having metal elements inside the protected space		--

	<p>All internal metallic parts are connected to a bar, and an r.m.s. voltage of substantially sine wave form at a value according to 1 0.9.4 of IEC 61439-1 :201 1 is applied for 1 min between a metal foil in contact with the external surface and the bar.</p> <p>Initially, not more than half the prescribed voltage is applied. It is then raised rapidly to the full value.</p>		P
9.10.5	Results to be obtained		--
	<p>The samples shall show no damage impairing their further use; no flashover or breakdown shall occur during the test.</p>		P
9.11	Continuity of the protective circuit		--
	<p>It shall be verified that the different exposed conductive parts of the enclosure are effectively connected to the earthing terminal or contact of the protective circuit and that the resistance of the circuit does not exceed 0,1 Ω.</p> <p>Verification shall be made using a resistance measuring instrument or arrangement which is capable of driving a current of at least 10 A (a.c. or d.c.). The current is passed between each exposed conductive part and the earthing termination point. The voltage drop between these points is measured. The resistance calculated from the current and this voltage drop shall not exceed 0,1 Ω.</p>		P
9.12	Resistance to ultra-violet (UV) radiation		--

	<p>This test applies only to enclosures and external parts of enclosures intended to be installed outdoors and which are constructed of insulating materials or metals that are entirely coated by synthetic material. Representative samples of such parts shall be subjected to the following test</p> <p>UV test according to ISO 4892-2 method A, cycle 1 with a total test period of 500 h.</p> <p>For enclosures constructed of insulating materials compliance is checked by verification that the flexural strength (according to ISO 1 78) and Charpy impact (according to ISO 1 79) of insulating materials have 70 % minimum retention.</p> <p>For the test carried out in accordance with ISO 1 78 the surface of the sample exposed to UV shall be turned face down and the pressure applied to the non exposed surface. For the test carried out in accordance with ISO 1 79 no grooves shall be cut into the sample and the impact shall be applied to the exposed surface.</p> <p>After the test, samples shall be subjected to the glow-wire test of 9.9.3.</p> <p>For compliance, enclosures constructed of metals entirely coated by synthetic material, the adherence of the insulating material shall have a minimum retention of category 3 according to ISO 2409 (a cross-cut area greater than 1 5 %, but not greater than 35 % is affected).</p> <p>Samples shall not show cracks or deterioration visible to normal or corrected vision without additional magnification.</p> <p>This test need not be carried out if the manufacturer can provide data from the material supplier to demonstrate that materials of the same thickness or thinner comply with this requirement.</p>		P
9.13	Resistance to corrosion		--
9.13.1	General		--
	<p>Ferrous metallic enclosures and external ferrous metallic parts of insulating and combined enclosures shall be tested to verify that they ensure protection against corrosion.</p> <p>If it is not possible to carry out the test on the enclosure, the test shall be carried out on enclosure elements showing the same constructional detail as the enclosure itself: material, thickness, layer of coating, etc. In all cases hinges, locks and fastenings shall be tested.</p> <p>The enclosure subjected to the test shall be mounted as for normal use according to the manufacturer's instructions.</p> <p>The enclosure or samples shall be new and in a clean condition.</p>		P
9.13.2	Test procedure		--
	Enclosures shall be subjected to the following test:		P

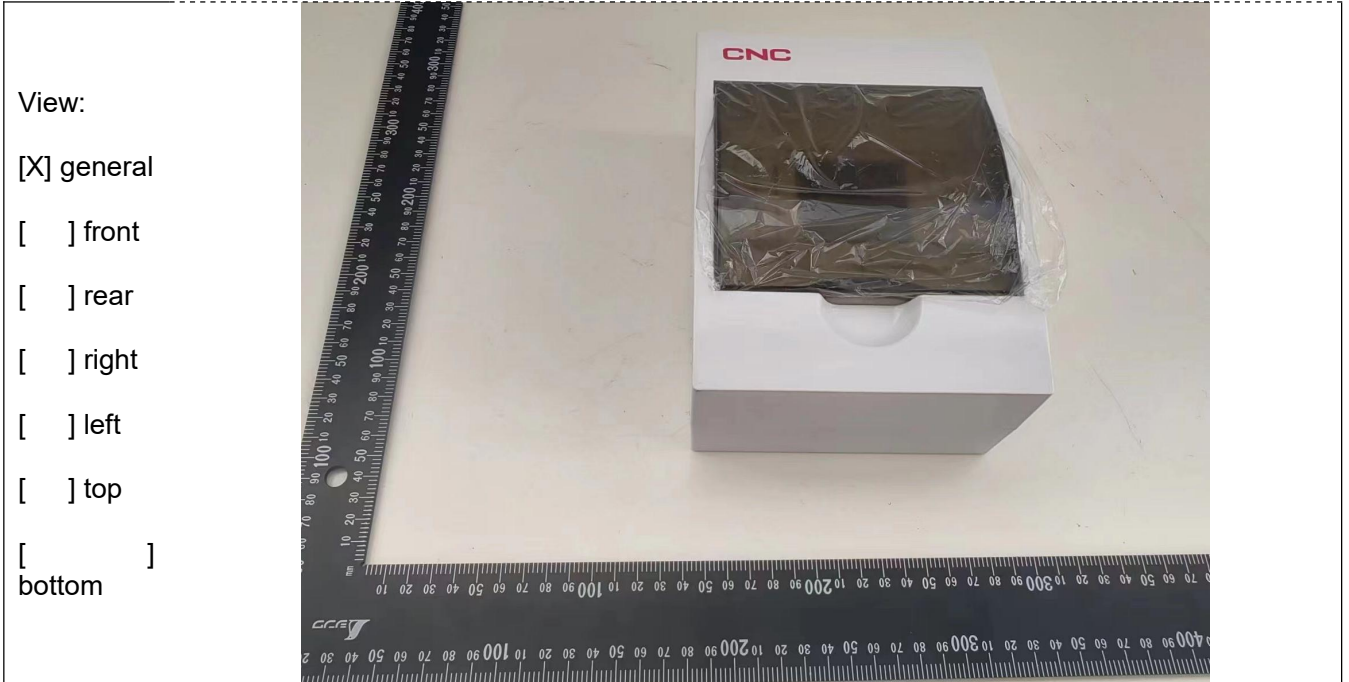
9.13.2.1	Severity test A		--
	<p>This test is applicable to:</p> <ul style="list-style-type: none"> • metallic indoor enclosures; • external metallic parts of indoor enclosures; • internal metallic parts of indoor and outdoor enclosures upon which intended mechanical operation may depend. <p>The test consists of: 6 cycles of 24 h each to damp heat cycling test according to IEC 60068-2-30 (Test Db) at $(40 \pm 3) ^\circ\text{C}$ and relative humidity of 95 % and 2 cycles of 24 h each to salt mist test according to IEC 60068-2-1 1 ; (Test Ka: Salt mist), at a temperature of $(35 \pm 2) ^\circ\text{C}$.</p>		P
9.13.2.2	Severity test B		--
	<p>This test is applicable to:</p> <ul style="list-style-type: none"> • metallic outdoor enclosures; • external metallic parts of outdoor enclosures. <p>The test comprises two identical 1 2 day periods. Each 1 2 day period comprises: 5 cycles of 24 h each to damp heat cycling test according to IEC 60068-2-30 (Test Db) at $(40 \pm 3) ^\circ\text{C}$ and relative humidity of 95 % and 7 cycles of 24 h each to salt mist test according to IEC 60068-2-1 1 ; (Test Ka: Salt mist), at a temperature of $(35 \pm 2) ^\circ\text{C}$.</p>		P
9.13.3	Results to be obtained		--
	<p>After the test, the enclosure or samples shall be washed in running tap water for 5 min, rinsed in distilled or demineralized water then shaken or subjected to air blast to remove water droplets. The specimen under test shall then be stored under normal service conditions for 2 h.</p> <p>Compliance is checked by visual inspection to determine that:</p> <ul style="list-style-type: none"> • there is no evidence of iron oxide, cracking or other deterioration more than that allowed by ISO 4628-3 for a degree of rusting Ri1 . <p>However, surface deterioration of the protective coating is allowed. In case of doubt associated with paints and varnishes, reference shall be made to ISO 4628-3 to verify that the samples conform to the specimen Ri1 ;</p> <ul style="list-style-type: none"> • the mechanical integrity is not impaired; • seals are not damaged; • doors, hinges, locks, and fastenings work without abnormal effort. 		P
9.14	Thermal power dissipation capability		--

	The thermal power dissipation data provided by the manufacturer (see 6.3.1) shall be determined by test in accordance with 1 0.1 0.4.2.2 of IEC 61 439-1 :201 1 , or by a calculation method, e.g. according to IEC/TR 60890.		P
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- End of Review Report -

Type of equipment: Consumer box
See 1st page

Details of:



Details of:



Details of:

View:

general

front

rear

right

left

top

bottom



Details of:

View:

general

front

rear

right

left

top

bottom



Details of:

View:

general

front

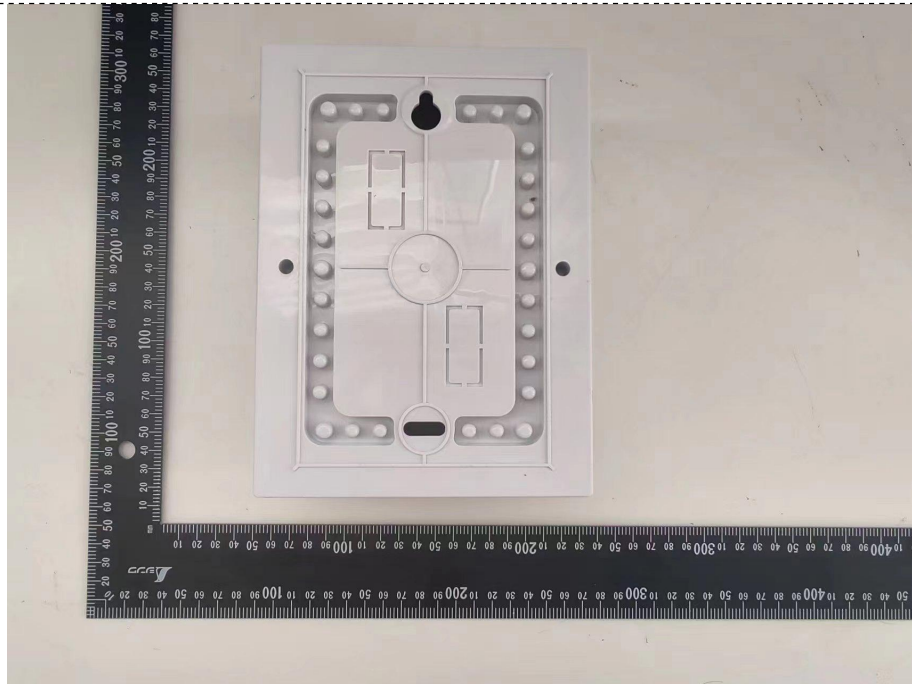
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- End of Photo Documentation -