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TESTING
CNAS L0095

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No.: RZCE2023-0384

TEST REPORT

NAME OF SAMPLE: Surface Metal Mounting Distribution Box Enclosure (Full-Metal
Distribution Box)

CLIENT: Zhejiang Tengen Electric Co.,Ltd.


CLASSIFICATION OF TEST: Commission test

CVC Testing Technology Co., Ltd.

TEST REPORT

No.: RZCE2023-0384

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Name of product: Surface Metal Mounting Distribution Box Enclosure (Full-Metal Distribution Box)	Trade mark: 
Type/Model: PZ30-12, PZ30-04, PZ30-06, PZ30-08, PZ30-10, PZ30-15, PZ30-18, PZ30-20, PZ30-24, PZ30-30, PZ30-36, PZ30-45 IP30	Sample status: —
Manufacturer: Zhejiang Tengen Electric Co., Ltd.	Commissioned by: Zhejiang Tengen Electric Co., Ltd.
Manufacturer address: Sulv Industrial Area, Liushi Town, Yueqing City, Zhejiang Province, P. R. China	Commissioner address: Sulv Industrial Area, Liushi Town, Yueqing City, Zhejiang Province, P. R. China
Quantity of sample: Group A:15 pcs; Group B:6 pcs; Group C:6 pcs; Group X:27 pcs	Sampled by: —
Sample identification: A1#~A15#; B1#~B6#; C1#~C6#; X1#~X27#	Sampling at (place): —
Means of receiving: Submitted by the client	Means of sampling: —
Classification of test: Commission test	Sampling date: —
Receiving date: 2023.04.28	Completing date: 2023.06.14
Tested according to: EN 60670-1:2005/A1:2013 EN 60670-24: 2013	Test item: Full safety items
Test conclusion: The samples submitted by the client is tested according to the following standards: EN 60670-1:2005/A1:2013 Boxes and enclosures for electrical accessories for household and similar fixed electrical installations -- Part 1: General requirements EN 60670-24: 2013 Boxes and enclosures for electrical accessories for household and similar fixed electrical installations -- Part 24:Particular requirements for enclosures for housing protective devices and similar power consuming devices Test result: Pass. <div style="text-align: right;"> Seal of CVC Date of issue: 2023.06.14 </div>	

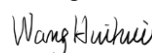
Approved by:

Liu Bo



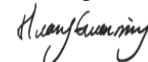
Reviewed by:

Wang Huihui



Tested by:

Huang Guanming



Test item particulars..... :

7.1	Nature of material	<input checked="" type="checkbox"/> 7.1.1	Insulating
		<input checked="" type="checkbox"/> 7.1.2	Metallic
		<input type="checkbox"/> 7.1.3	Composite
7.2	Method of installation	<input type="checkbox"/> 7.2.1	Flush, semi-flush or embedded in:
		<input type="checkbox"/> 7.2.1.1	Non combustible walls, ceilings or floors
		<input type="checkbox"/> 7.2.1.2	Combustible walls, ceilings or floors
		<input type="checkbox"/> 7.2.1.3	Hollow walls, hollow ceilings, hollow floors or furniture
		<input checked="" type="checkbox"/> 7.2.2	Surface mounting on:
		<input checked="" type="checkbox"/> 7.2.2.1	Non combustible walls, ceilings, floors or furniture
		<input type="checkbox"/> 7.2.2.2	Combustible walls, ceilings, floors or furniture
		<input type="checkbox"/> 7.2.3	Placement:
		<input type="checkbox"/> 7.2.3.1	Suitable for installation into concrete during the casting process (see 7.6)
		<input type="checkbox"/> 7.2.3.2	Suitable for all types of installation except into concrete
7.3	Type(s) of inlets (outlets)	<input type="checkbox"/> 7.3.1	With inlets for sheathed cables for fixed installations
		<input type="checkbox"/> 7.3.2	With inlets for flexible cables
		<input type="checkbox"/> 7.3.3	With inlets for plain or corrugated conduits
		<input type="checkbox"/> 7.3.4	With inlets for threaded conduits
		<input type="checkbox"/> 7.3.5	With inlets for other types of conductors/cables or conduits
		<input type="checkbox"/> 7.3.6	With spouts (hub)
		<input checked="" type="checkbox"/> 7.3.7	Without inlets. Inlet openings are made during installation
7.4	Clamping means	<input type="checkbox"/> 7.4.1	With cable retention
		<input type="checkbox"/> 7.4.2	With cable anchorage
		<input type="checkbox"/> 7.4.3	With clamping means for flexible conduit
		<input checked="" type="checkbox"/> 7.4.4	Without clamping means
7.5	Minimum and maximum temperatures during installation	<input checked="" type="checkbox"/> 7.5.1	-5 °C to +60 °C
		<input type="checkbox"/> 7.5.2	-15 °C to +60 °C
		<input type="checkbox"/> 7.5.3	-25 °C to +60 °C
7.6	Maximum temperature during the casting process	<input checked="" type="checkbox"/> 7.6.1	+60 °C
		<input type="checkbox"/> 7.6.2	+90 °C
7.7	Boxes and enclosures for hollow walls and the like according to 7.2.1.3	<input type="checkbox"/> 7.7.1	Class Ha
		<input type="checkbox"/> 7.7.3	degree of protection of the part mounted in the hollow wall:
		<input type="checkbox"/> 7.7.3.2	>IP2X
7.101	For empty enclosures	<input type="checkbox"/> 7.101.1	GP enclosure
		<input type="checkbox"/> 7.101.2	PD enclosure
7.102	For basic enclosures	<input checked="" type="checkbox"/> 7.101.1	GP enclosure
		<input type="checkbox"/> 7.101.2	PD enclosure

Copy of marking plate:



The other types see photographs.

Summary of test results:

1. This report is applicable to Surface Metal Mounting Distribution Box Enclosure (Full-Metal Distribution Box) PZ30-12, PZ30-04, PZ30-06, PZ30-08, PZ30-10, PZ30-15, PZ30-18, PZ30-20, PZ30-24, PZ30-30, PZ30-36, PZ30-45 IP30.
2. The test report is issued based on the full tests of EN 60670-1:2005/A1:2013 and EN 60670-24: 2013 carried out on PZ30-12 IP30, tests of Clauses 8, 12, 15, 101 are carried out on PZ30-45 IP30, PZ30-04 IP30, test of Clause 8 is carried out on other models.
3. Sample identification:
Group A (A1#~A15#): PZ30-12 IP30;
Group B (B1#~B6#): PZ30-45 IP30;
Group C (C1#~C6#): PZ30-04 IP30;
Group X (X1# ~ X27# (3 pcs per model)): other models.
4. All the submitted samples are differences in appearance size.
5. Component list:

Object/ part no.	Manufacturer/trademark	Material	Type/ Model	Technical data
Cover	Zhejiang Daming Electrical Appliances Co., Ltd.	Steel	Q235A	—
	Yueqing Juntian Electric Power Technology Co., Ltd.			
	Wenzhou Laiyier Electric Co., Ltd.			
	Zhejiang Dongpeng Technology Co., Ltd.			
Terminal	Zhejiang Daming Electrical Appliances Co., Ltd.	Brass	H59	—
	Jiangxi Baotai Nonferrous Metals Group Co., Ltd.			
	Zhejiang Yongzhou Copper Industry Co., Ltd.			
	Wenzhou Tianzhou Copper Industry Co., Ltd.			
	Zhejiang Dongpeng Technology Co., Ltd.			
Insulated base of the terminals	Shanghai Shangfeng Group Co., Ltd.	Reinforced nylon	—	—
	Yueqing Rifeng Plastic Supporting Factory			
	Yueqing Linxin Plastic Factory			
	Zhejiang Yongxing Plastic Co., Ltd.			
	Zhejiang Daming Electrical Appliances Co., Ltd.			
Viewing window cover	Zhejiang Dongpeng Technology Co., Ltd.	PC	—	—
	Shanghai Shangfeng Group Co., Ltd.			
	Yueqing Rifeng Plastic Supporting Factory			
	Yueqing Linxin Plastic Factory			
	Zhejiang Yongxing Plastic Co., Ltd.			
	Zhejiang Daming Electrical Appliances Co., Ltd.			
Border	Zhejiang Dongpeng Technology Co., Ltd.	ABS	—	—
	Shanghai Shangfeng Group Co., Ltd.			
	Yueqing Rifeng Plastic Supporting Factory			
	Yueqing Linxin Plastic Factory			
	Zhejiang Yongxing Plastic Co., Ltd.			
	Zhejiang Daming Electrical Appliances Co., Ltd.			
Border	Zhejiang Dongpeng Technology Co., Ltd.	ABS	—	—
	Shanghai Shangfeng Group Co., Ltd.			
	Yueqing Rifeng Plastic Supporting Factory			
	Yueqing Linxin Plastic Factory			
	Zhejiang Yongxing Plastic Co., Ltd.			
	Zhejiang Daming Electrical Appliances Co., Ltd.			

Summary of test results:

Component list (continued):

Object/ part no.	Manufacturer/trademark	Material	Type/ Model	Technical data
Track	Zhejiang Daming Electrical Appliances Co., Ltd.	Steel	Q235A	—
	Yueqing Juntian Electric Power Technology Co., Ltd.			
	Zhejiang Dezi Electric Co., Ltd.			
	Wenzhou Laiyier Electric Co., Ltd.			
	Zhejiang Dongpeng Technology Co., Ltd.			

Remark:

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



Information about the factory:

Factory: Zhejiang Tengen Electric Co., Ltd.

Factory address: No.332 Liule Road, Liushi Town, Yueqing City, Zhejiang Province, P. R. China

ANNEX 1: Photographs

ANNEX 2: Instructions

EN 60670-24			
Clause	Requirement + Test	Result - Remark	Verdict
8	MARKING		P
8.1	Enclosures shall be marked with:		P
	a) name, trade mark or identification mark of the manufacturer or the responsible vendor		P
	b) IP > 3X and/or IP > X0	IP30	P
	The IP code, if applicable, shall be marked on the outside of the enclosure so as to be easily discernible when the enclosure is mounted and wired as for normal use.		P
	The visibility of the marking is also allowed after opening the door or the lid if a minimum degree of IP20 is maintained after opening.		N/A
	c) symbol for total insulation, if applicable		N/A
	d) type designation, reference number or catalogue number	PZ30-12, PZ30-04, PZ30-06, PZ30-08, PZ30-10, PZ30-15, PZ30-18, PZ30-20, PZ30-24, PZ30-30, PZ30-36, PZ30-45	P
	e) letter N for terminals intended exclusively for the neutral conductor		N/A
	f) symbol for earthing terminals for the connection of the protective conductor.....		P
	Markings of neutral terminals and earthing terminals not placed on screws, or any other easily removable parts		P
	g) rated voltage	230V/400V	P
	h) rated current (enclosures 7.101.2 and 7.102.2).....	≤100A	P
	i) standard reference number	EN 60670-24: 2013 EN 60670-1: 2005+A1: 2013	P
	j) maximum temperature during the building process if 90 °C		N/A
	k) information concerning the openings that can be made during installation for enclosures without inlets (7.3.7)		N/A
	l) maximum capability to dissipate power (P_{de}) for GP enclosures (7.101.1 and 7.102.1)	40W	P
	m) usability for hollow wall installation (7.7)		N/A
	n) corresponding dimension sheet		N/A
	p) for enclosures classified according to:		P
	- "GP" (7.101.1 and 7.102.1)	GP	P
	- "PD" (7.101.2 and 7.102.2)		N/A

EN 60670-24			
Clause	Requirement + Test	Result - Remark	Verdict
8.2	Marking is durable and easily legible		P
	Rubbing test 15 s with water and 15 s with petroleum spirit		P
	After the test: marking still legible		P
8.101	Required data for instruction sheet and/or documentation		P
	provide appropriate instructions regarding the means to be used to obtain the intended degree of protection		P
	give information concerning the verification of the electrical continuity of the protective circuit		P
	give to the installer the necessary instructions:		—
	- manufacturer includes in the documentation accompanying the enclosure the necessary instructions for installation and how to integrate accessories (7.101.1 and 7.102.1)		P
	-manufacturer includes in the documentation accompanying the enclosure the necessary instructions for installation according to the appropriate mounting environment (7.101.2 and 7.102.2)		N/A
9	DIMENSIONS		N/A
	Boxes and enclosures comply with the appropriate standard sheets, if any..... :		N/A
10	PROTECTION AGAINST ELECTRIC SHOCK		P
	Boxes and enclosures assembled, equipped and installed as for normal use in accordance with the manufacturer's instructions: live parts are not accessible.		P
	Enclosures, tested with test probe 11 according to IEC 61032 applied for 1 min with a force of 20 N		P
	In addition, enclosures according to 7.1.1 and 7.1.3, tested with test probe 11 according to IEC 61032 applied for 1 min with a force of 75 N to all places except membranes or like, at $(35 \pm 2) ^\circ\text{C}$.		N/A
10.101	Enclosures are tested completed with the necessary means and the window opening(s), if any, completely filled up with blank inserts delivered by the manufacturer and/or samples of products as declared by the manufacturer		P
	Enclosures have $\geq \text{IPXXC}$, when mounted and installed as for normal use		P

EN 60670-24			
Clause	Requirement + Test	Result - Remark	Verdict
	Enclosures with total insulation when mounted and installed as for normal used:		N/A
	a) completely enclose the installed equipment in insulating material, and		N/A
	b) at no point are pierced by conducting parts		N/A
	c) do not have conductive parts (plates, cover-plates or frames) connected to the protective circuit		N/A
	Enclosures, tested with test probe C according to IEC 61032 applied for 1 min with a force of 3 N		N/A
	Additional test at $(35 \pm 2) ^\circ\text{C}$ with test probe C according to IEC 61032 on enclosures according to 7.1.1 and 7.1.3 with parts of thermoplastic or elastomeric material applied to:		N/A
	- all places except membranes or the like, where yielding of insulating material could impair the safety, with a force of 3 N		N/A
	- knock-outs with a force of 3 N		N/A

11	PROVISION FOR EARTHING		P
11.1	Boxes and enclosures with exposed conductive parts:		P
	-provided with an earthing means of low resistance		P
	- have provision for the fitting of such an earthing means		P
	Earthing means or provision for fitting, located so that:		P
	- means is readily accessible, and		P
	- removal of an accessory, not disturb the continuity of earthing circuit, and		P
	- the means is not part of removable cover , back, or side of the box or enclosure.		P
	Exposed conductive parts of covers or cover-plates are connected through a low resistance connection to the earthing means		P
	Resistance $\leq 0,05 \Omega (\Omega)$: 0,02		P
11.3	Boxes and enclosures with removable sides according to 7.1.2		N/A
	Constructed so that the electrical bond between separable parts includes at least one threaded screw connection		N/A
11.4	Earthing terminal threads		N/A
	Threads of earthing terminal are not stripped		N/A
	During the test: no damage such as impairing the further		N/A

EN 60670-24			
Clause	Requirement + Test	Result - Remark	Verdict
11.101	Except for enclosures intended to be used for total insulation, all exposed conductive parts of the enclosure are connected separately or in groups to the protective circuit terminals.		N/A
	Resistance $\leq 0,05 \Omega (\Omega)$:		N/A
12	CONSTRUCTION		P
	Boxes and enclosures, constructed without sharp edges		P
	The inner and outer surfaces of a box or cover have the following characteristics:		P
	- not subject to peeling, scaling or flaking, and		P
	- smooth and free from blisters, crack and other defects		P
12.1	Lids, covers or cover-plates or part of them		P
	Lids, covers or cover-plates or parts of them, which are intended to ensure protection against electric shock:		P
	- are held in place effectively		P
	- are removable only by the use of a tool and/or a key		N/A
12.2	Drain holes		N/A
	Surface and semi-flush mounting enclosures having IPX1 to IPX6 allow the opening of a drain hole ≥ 5 mm in diameter (mm \varnothing) or 20 mm ² in area (mm ²) with a width or length ≥ 3 mm (mm) :		N/A
	Drain holes: effective		N/A
12.3	Mounting of enclosures		P
	Enclosures have provisions for their suitable attachment according to the method of installation (7.2)		P
	Conductive parts of fixing means inside the box or enclosure are surrounded by insulation which projects above the top of the fixing means by an amount of ≥ 10 % of the maximum width of the cavity for the fixing means (mm) :		N/A
12.4	Boxes and enclosures with inlets for flexible cables		N/A
	In inlets (outlets) provided in boxes and enclosures classified according to 7.3.2 the flexible cables can be easily introduced, and		N/A
	- no damage the flexible cable where it enter, or		N/A
	- enclosure impairing its further use		N/A
12.5	Boxes and enclosures with inlets for applications other than flexible cables		N/A

EN 60670-24			
Clause	Requirement + Test	Result - Remark	Verdict
	Inlet openings classified according to 7.3 other than 7.3.2, if any, allow the introduction of:		N/A
	- a conduit or a suitable fitting, and/or		N/A
	- the protective covering of the cable		N/A
	Inlet opening for conduit entries:		N/A
	- capable of accepting either conduits of sizes, or a combination of sizes, according to IEC 60423		N/A
	- same requirement in at least two inlet openings if there are more than one		N/A
12.6	Boxes and enclosures with a cable anchorage(s)		N/A
	In boxes and enclosures classified according to 7.4.2 the connection of the conductors of the flexible cable are relieved from strain		N/A
	Clear how relief from strain and prevention of twisting is intended to be effected		N/A
	Cable anchorages are:		N/A
	- suitable for the different types of flexible cable		N/A
	- at least one part of it is integral with, or permanently fixed to, one of the component parts of the box		N/A
	- of insulating material or provided with an insulating lining fixed to the metal parts		N/A
	Test of effectiveness of the cable anchorage:		N/A
	- external dimensions of flexible cable (mm)		—
	- clamping screws tightened with a torque equal to 2/3 of that specified in Table 4 (Nm)		—
	- glands tightened with a torque equal to that specified in Table 5		—
	It is not possible to push the flexible cable into the specimen by more than 1 mm with a force specified in Table 3 (N)		N/A
	Pull force as specified in Table 3 applied 50 times for 1 s (N)		—
	Torque as specified in Table 3 applied for (15 ± 1) s (Nm)		—
	After the test: displacement ≤ 2 mm (mm)		N/A
	Cable anchorage: no damage		N/A
12.7	Boxes and enclosures with cable retention means		N/A
	Cable retention means of boxes and enclosures classified according to 7.4.1 retain the cable in place		N/A

EN 60670-24			
Clause	Requirement + Test	Result - Remark	Verdict
	Boxes and enclosures according to 7.5.2 or 7.5.3, tested at (-15 ± 2) °C and (-15 ± 2) °C respectively		N/A
	Test with cables as declared by the manufacturer, fitted according to the manufacturer's instructions and loaded with an axial force of (20 ± 1) N applied for 1 min:		N/A
	Type of cable/maximum nominal cross-sectional area (mm ²)		—
	After the test: displacement ≤ 3 mm (mm).....		N/A
	Type of cable/minimum nominal cross-sectional area (mm ²)		—
	After the test: displacement ≤ 3 mm (mm).....		N/A
12.8	Knock-outs		P
12.8.1	General		P
	It is possible to remove knock-out without damaging the box		P
	Chips or burrs are not accepted in knock-out for cables		N/A
	Chips and burrs are disregarded in knock-out for conduits and/or for use with a grommet or a membrane		P
	In order to close an open knock-out in a box or an enclosure according 7.1.2 a blanking-plug used without a locknut:		N/A
	- not become dislodged, and		N/A
	- its effectiveness not be impaired, and		N/A
	- it fulfil all requirements for knock-outs		N/A
12.8.2	Knock-out retention		P
	Boxes and enclosures having knock-outs, accessible after installation by means of a 6 mm diameter mandrel with a flat end that:		P
	- not provide access to live parts, a force of (30 ± 1) N		P
	- provide direct access to live parts, a force of (40 ± 1) N applied for (60 ± 1) s		P
	Box with multi-stage knock-outs, the force applied to the smallest		P
	During the test: knock-out remains in place		P
	Degree of protection unchanged 1 h after the test		P
12.8.3	Knock-out removal		P
	Removal test of knock-outs with a tool as stated by the manufacturer, without conditioning:		P

EN 60670-24			
Clause	Requirement + Test	Result - Remark	Verdict
	During the test: no displacement of a larger stage of multi-stage knock-outs when a smaller stage is removed		N/A
	After the test: no sharp edges, box and enclosure is not damaged		P
	Removal test of knock-outs with a tool as stated by the manufacturer, immediately following a conditioning at the minimum temperature specified according to 7.5 for 5 h \pm 10 min (boxes and enclosures according to 7.1.1 or 7.1.3)		N/A
	Test temperature (°C).....:		—
	During the test: no displacement of a larger stage of multi-stage knock-outs when a smaller stage is removed		N/A
	After the test: no sharp edges, box and enclosure is not damaged		N/A
12.8.4	Flat surfaces surrounding knock-outs		N/A
	Knock-outs intended for the use of grommets, glands or fittings shall be located in flat surfaces to permit grommets, glands or fittings to be placed fully against these surfaces when installed as intended.		N/A
	Projections or indentations in the flat surface area shall be prohibited, however holes shall be allowed. The flat surface areas of adjacent knock-outs that partially or wholly overlap meet the intent of this requirement.		N/A
	Compliance is checked by inspection and by measurement according to the appropriate national standard sheet, if any.		N/A
12.9	Screw fixings		P
	Fixing means effected by screws withstand mechanical stresses		P
	Screw or other fixing means made from insulating material without standardized thread are tested according to the manufacturer's instruction		N/A
	Thread-forming or thread-cutting screws used only if supplied together with one of the pieces in which they are intended to be inserted		N/A
	Verification of the mechanical strength of screws	See appended table 12.9	P
12.10	Fixing of boxes and accessories		P
	Fixing means provided for flush type boxes and enclosures other than for hollow walls.....:	By screws	P
	Screws not supplied with box or enclosures can be provided according to the manufacturer's instruction		P

EN 60670-24			
Clause	Requirement + Test	Result - Remark	Verdict
	Screws, additional mechanical supports or design features, are considered adequate fixing means		P
	Boxes and enclosures not fulfilling at least one of the above requirement and having an internal volume less than 400 cm ³ tested as follow:		N/A
	- the block is filled by the following material.....:		N/A
	- assembly is kept at ambient temperature for 10 (+1/0) days		—
	- auxiliary device described in Figure 23 is mounted on the specimen and the screw are tightened with a torque equal to 2/3 of that specified in table 4		—
	After the test, according to Figure Z3, displacement of the specimen from the mounting block $\leq 0,5$ mm:		N/A
12.11	Enclosures classified according to 7.2.1.3		N/A
	Enclosures for hollow walls classified according to 7.2.1.3 are providing suitable means for fixing the enclosure to hollow walls.		N/A
12.13	Cable gland entry		N/A
	Torque test: glands provided with a metal rod tightened and loosened 10 times with a torque specified in Table 5 for 1 min \pm 5 s		N/A
	- diameter of test rod (mm)		—
	- type of material (metal / insulating)		—
	- torque (Nm)		—
	After the test: no damage		N/A
12.14	Boxes and enclosures with inlets (outlets) for conduits or spouts (hubs)		N/A
	Boxes and enclosures classified according to 7.3.4 and conical spouts as in 7.3.6 withstand the tests of 12.14.1, 12.14.2 and 12.14.3		N/A
	Boxes and enclosures classified according to 7.4.3 withstand the tests of 12.14.1 and 12.14.2		N/A
12.14.1	Enclosures with inlet spout for conduits: a minimum size piece of conduit pressed for 1 min \pm 5 s with a force of (100 \pm 2) N		N/A
	During the test: inlet spout prevents further entry of the conduit into the box		N/A
12.14.2	Pull-out test after the test according to 12.14.1: conduit with the minimum size corresponding to the insert opening loaded for 1 min with a tensile force of (20 \pm 2) N		N/A
	During the test: conduit not come loose from the inlet spout of the enclosure		N/A

EN 60670-24			
Clause	Requirement + Test	Result - Remark	Verdict
12.14.3	Resistance to bending strain of an inlet spout: piece of conduit inserted into the inlet spout with a compressible force of (100 ± 2) N and loaded with a bending moment of 3 Nm for 1 min in six different directions with an interval of $(60 \pm 2)^\circ$		N/A
	During the test: inlet spout not come loose or damaged and conduit stays within the inlet spout		N/A
12.15	Internal volume of boxes and enclosures		N/A
	Declared internal volume of the box or enclosure and each partitioned section of a box or enclosure, raised cover and box extension is measured		N/A
	The volume of a side pocket provided to increase the volume of a box or enclosure is calculated using a depth-of-pocket not more than the smallest dimension of the opening into that side pocket		N/A
	Difference in the volume of water in the measuring cylinder measured before and after the filling of the box, enclosure or raised cover indicates the volume of the box		N/A
12.101	Enclosures for hollow walls have provisions for retention means for cables or means to use a separate retention device or devices		N/A
12.102	Enclosures have enough space to allow mounting and connection of the accessories (fully equipped) as declared by the manufacturer, in safe way		P
13	RESISTANCE TO AGEING, PROTECTION AGAINST INGRESS OF SOLID OBJECTS AND AGAINST HARMFUL INGRESS OF WATER		P
13.1	Resistance to ageing		P
13.1.1	Specimens of insulating and composite boxes and enclosures, glands, grommets and replaceable membranes placed in a heating cabinet at $(70 \pm 2)^\circ\text{C}$ for (168 ± 4) h and then kept at room temperature for (96 ± 4) h		P
	Glands tightened with a torque equal to 2/3 of the torque applied during the test of 12.13 (Nm)		—
	Greater torque value stated by the manufacturer, if any (Nm)		—
	After the test: no harmful deformation or similar damage		P
13.1.2	Grommets, blanking-plug and entry membranes in inlet openings and protecting membranes are reliably fixed and are not displaced by the mechanical and thermal stresses occurring in normal use		N/A
	Specimens that have been subjected to the treatment specified in 13.1.1 placed in a heating cabinet at $(40 \pm 2)^\circ\text{C}$ for $2\text{ h} \pm 15\text{ min}$		N/A

EN 60670-24			
Clause	Requirement + Test	Result - Remark	Verdict
	Immediately after this period the tip of test probe 11 of IEC 61032 is applied for (5 ± 1) s with a force of $(30 - 2)$ N. During the tests: grommets, blanking-plug and/or membranes not deformed to such an extent that live parts of any included accessory become accessible		N/A
	Grommets, blanking-plug and/or membranes likely to be subjected to an axial pull: axial pull of $(30 - 2)$ N applied for (5 ± 1) s. During the tests: grommets, blanking-plug and/or membranes not deformed to such an extent that live parts of any included accessory become accessible		N/A
	Test repeated on same enclosures fitted with grommets, blanking-plug and/or membranes not subjected to any treatment		N/A
	After the test: no harmful deformation, cracks or similar damage		N/A
13.1.3	Grommets and entry membranes in inlet openings of boxes and enclosures classified according to 7.5.2 and 7.5.3: introduction of the cables and conduit permitted when the ambient temperature is low		N/A
	Test on enclosures fitted with grommets, blanking-plug and/or membranes not subjected to any ageing treatment kept for 2 h in a refrigerator		N/A
	Test temperature (°C).....:		—
	Immediately after conditioning: it is possible to pierce any blind grommets, blanking-plug and entry membranes and to introduce cables and conduit of the maximum diameter intended		N/A
	After the test: no harmful deformation, cracks or similar damage		N/A
13.2	Protection against the ingress of solid foreign objects		P
	Enclosures provide a degree of protection of at least IP3X against the ingress of solid foreign objects in accordance with their declared IP code with the lid closed, if any.		P
	In the case of an enclosure with a door or a lid which can be opened without the use of a tool during normal use, a minimum degree of IP20 is maintained after opening the door or the lid.		P
	Enclosures mounted as in normal use with screwed glands or grommets fitted with cables as declared by the manufacturer:		N/A
	- type of cable, smallest cross-sectional area (mm ²).....:		—
	- type of cable, largest cross-sectional area (mm ²).....:		—

EN 60670-24			
Clause	Requirement + Test	Result - Remark	Verdict
	Enclosures mounted as in normal use with screwed glands or grommets fitted with conduits as declared by the manufacturer:		N/A
	- smallest diameter or dimensions (mm)		—
	- largest diameter or dimensions (mm)		—
	Fixing screws of the cover or cover-plate tightened with a torque equal to 2/3 of the value of Table 4 used for the test of 12.9 (Nm)		—
	Greater torque value stated by the manufacturer, if the relevant information is provided (Nm)		—
	- IP5X: test performed as specified in IEC 60529 category 2 with the drain holes, if any, not opened		N/A
	- IP≤4X: test probe does not pass through any opening other than drain holes		P
	- IP≤4X: test probe applied on drain holes does not touch live parts within the enclosure		P
	- IP5X: dust does not cover the whole inner surface		N/A
	- IP6X: there is no dust inside the box or enclosure		N/A
13.3	Protection against harmful ingress of water		N/A
13.3.1	Enclosures with IP>X0 provide a degree of protection against harmful ingress of water in accordance with the declared IP code	IP	N/A
	Enclosure dimensions: reference surface S (m²) / perimeter (m)		—
	Appropriate test performed on surface, flush or semi-flush enclosures as specified in IEC 60529 under the following conditions:		N/A
	- dimension $S \leq 0,04 \text{ m}^2$ or perimeter $\leq 0,8 \text{ m}$ according to 13.3.2 and 13.3.3		N/A
	- dimension $S > 0,04 \text{ m}^2$ and perimeter $> 0,8 \text{ m}$ according to 13.3.2 and 13.3.4		N/A
	Enclosures with screwed glands or grommets fitted with cables as declared by the manufacturer:		N/A
	- type of cable, smallest cross-sectional area (mm²)		—
	- type of cable, largest cross-sectional area (mm²) :		—
	Enclosures with screwed glands or grommets fitted with conduits as declared by the manufacturer:		N/A
	- smallest diameter or dimensions (mm)		—
	- largest diameter or dimensions (mm)		—

EN 60670-24			
Clause	Requirement + Test	Result - Remark	Verdict
	Fixing screws of the cover or cover-plate tightened with a torque equal to 2/3 of the value of Table 4 used for the test of 12.9 (Nm)..... :		—
13.3.2	Surface-mounting enclosures mounted as for normal use		N/A
	Flush type and semi-flush type enclosures fixed in a test wall:		N/A
	- according to the manufacturer's instructions		N/A
	- according to Figure 5		N/A
	Enclosures fitted with cables having conductors of the largest and smallest cross-sectional area as declared by the manufacturer..... :		—
	IPX3 and IPX4 enclosures: use of oscillating tube (Figure 4) or spray nozzle according to IEC 60529 (Figure 5)..... :		—
13.3.3	Immediately after the test no more than 0,2 ml x S (cm ²) water in the enclosure (ml) :		N/A
	Specimens withstand an electric strength test specified in 14.3 started within 5 min of the completion of IP test		N/A
13.3.4	Immediately after the test: indicator paper still dry		N/A

14	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
14.1	Insulation resistance and electric strength of enclosures classified according to 7.1.1 and 7.1.3 is adequate		P
	Specimens placed in a humidity cabinet containing air with relative humidity between 91 % and 95 % and air temperature between 20 °C and 30 °C for:		P
	- 2 days (48 h) for enclosures classified IPX0		N/A
	- 7 days (168 h) for enclosures classified IP>X0		P
	After this treatment: no damage		P
14.2	Insulation resistance measured 1 min after application of 500 V d.c.	See appended table 14.2	P
14.3	Electric strength: a.c. test voltage applied for 1 min	See appended table 14.3	P

15	MECHANICAL STRENGTH		P
	Boxes and enclosures have adequate mechanical strength		P
15.1	Impact test at low temperature		N/A
	impact test with a vertical hammer test apparatus (Figure 8) placed together with the specimens for 2 h ± 15 min in a refrigerator at:		N/A

EN 60670-24			
Clause	Requirement + Test	Result - Remark	Verdict
	- (-5 ± 2) °C for boxes and enclosures classified according to 7.5.1		N/A
	- (-15 ± 2) °C for boxes and enclosures classified according to 7.5.2		N/A
	- (-25 ± 2) °C for boxes and enclosures classified according to 7.5.3		N/A
	Specimens subjected to 5 blows with a mass of 1 kg falling from a height of 100 mm: no damage		N/A
15.2	Compression test		N/A
	Boxes and enclosures then placed between two flat hardwood plates and loaded with a force of (500 ± 5) N for 1 min ± 5 s		N/A
	After the test: no deformation or damage		N/A
15.3	Impact test for boxes and enclosures		P
	Specimens subjected to blows by means of an impact test apparatus as described in IEC 60068-2-75 (test EHA) with equivalent mass of 250 g	See appended table 15.3	P
	Boxes classified according to 7.5.2 and 7.5.3 performed at the following temperature:		N/A
	- (-15 ± 2) °C for boxes classified according to 7.5.2		N/A
	- (-25 ± 2) °C for boxes classified according to 7.5.3		N/A
	After the test: no damage		N/A
15.101	PD enclosure provide a degree of protection against external mechanical impact in accordance with their declared IK code		N/A

16	RESISTANCE TO HEAT		P
16.1	Part of insulating material necessary to retain current-carrying parts		P
	Parts of insulating material necessary to retain current-carrying parts and/or parts of the earthing circuit in position: ball-pressure test according to IEC 60695-10-2 at (125 ± 2) °C for (60 +5) min	See appended table 16.1	P
16.2	Part of insulating material not necessary to retain current-carrying parts		P
	Parts of insulating material not necessary to retain current-carrying parts and/or parts of the earthing circuit in position, even though in contact with them, and parts necessary to retain earthing terminals in position: ball-pressure test according to 16.1 but at (70 ± 2) °C		P
	Parts of insulating material of flush-mounted enclosures classified according to 7.6.2: ball-pressure test according to 16.1 but at (90 ± 2) °C		N/A

EN 60670-24			
Clause	Requirement + Test	Result - Remark	Verdict
17	CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH SEALING COMPOUND		P
	Creepage distances, clearances and distances through sealing compound no less than the values shown in table 101	See appended table 17	P
18	RESISTANCE OF INSULATING MATERIAL TO ABNORMAL HEAT AND TO FIRE		P
	Glow-wire test according to Clauses 4 to 10 if IEC 60695-2-11	See appended table 18	P
19	RESISTANCE TO TRACKING		N/A
	Parts of insulating material retaining live parts in position of boxes and enclosures having IP>X0: PTI 175, 50 drops, solution A of IEC 60112	See appended table 19	N/A
20	RESISTANCE TO CORROSION		P
	Test made after having removed all grease by immersion in a degreasing agent for (10 ± 1) min, (10 ± 1) min in a 10 % solution of ammonium chloride, (10 ± 1) min in a box containing air saturated with moisture and (10 ± 1) min at (100 ± 5) °C		P
	No signs of rust		P
21	ELECTROMAGNETIC COMPATIBILITY (EMC)		N/A
	No tests necessary		—
101	VERIFICATION OF THE MAXIMUM CAPABILITY TO DISSIPATE POWER (P_{de})		P
	Enclosures according to 7.101.1 and 7.102.1 have the capability to dissipate the declared power (P_{de}) according to 8.1 I).	See appended table 101	P
102	VERIFICATION OF TEMPERATURE RISE		N/A
	Enclosures according to 7.101.2 and 7.102.2 have an acceptable temperature rise when equipped with the most onerous configuration of electrical equipment declared by the manufacturer	See appended table 102	N/A

12.9	TABLE: Threaded part torque test					P
Threaded part identification		Diameter of thread (mm)	Table 4 Column number (I, II, III or IV)	Applied torque Table 4 (Nm)	Times (5/10)	No damage
Other Screws		4,86	II	2,00	5	Y
Other Screws		3,70	II	1,20	5	Y
Supplementary information:						

14.2	TABLE: Insulation resistance			P
Test voltage applied between:		Measured (MΩ)	Required (MΩ)	
Between external surfaces and insulated base of the neutral terminals		500	≥5	
Supplementary information:				

14.3	TABLE: Electric strength			P
Test voltage applied between:		Test voltage (V)	Flashover / breakdown (Yes/No)	
Between external surfaces and insulated base of the neutral terminals		2000	No	
Supplementary information:				

15.3	TABLE: Impact test				P
Part of enclosure per Table 7 (A, B, C, D, E, F, G)		Total number of blows per part – Figure 10	Height of fall per Table 8 (mm)	Comments	
A		5	80	—	
E		4	300	—	
Supplementary information:					

16.1 - 16.2	TABLE: Ball pressure test of insulating materials			P
Allowed impression diameter (mm):		≤ 2 mm		—
Part under test		Test temperature (°C)	Diameter of impression (mm)	
Insulated base of terminals		125	1,4	

Viewing window cover	70	1,0
Supplementary information:		

17	TABLE: Creepage distances, clearances and distances through sealing compound						N/A
	Rated voltage (V) :			250V			—
Creepage distance dcr, clearance cl and distance through sealing compound dtsc at/of:		Required Cl. (mm)	Mesured Cl. d. (mm)	Required Cr. (mm)	Mesured Cr. d. (mm)	Required D. t. s. c. (mm)	Mesured D. t. s. c. (mm)
between live parts and metal covers and enclosures without insulating lining;		≥ 3	>3,9	≥ 3	>3,9	≥ —	—
between live parts and the surface on which the enclosure is mounted		≥ 3	>3,9	≥ 3	>3,9	≥ —	—
Supplementary information:							

18	TABLE: Glow-Wire test					P
Part under test		Material designation	Test temperature (°C)	Visible flame and sustained glowing (Y/N)	Flames and glowing extinction time (s)	Ignition of the tissue paper (Yes/No)
Insulated base of the terminals		—	960	Y	5 s	No
Viewing window cover		—	650	N	0s	No
Supplementary information:						

19	TABLE: Resistance to tracking			N/A
Part under test		material designation	test voltage (V)	Flashover / breakdown (Yes/No)
Supplementary information:				
101	TABLE: verification of the maximum capability to dissipate power (Pde)			P
	The maximum capability to dissipate power is performed with an enclosure arranged as follow:			P

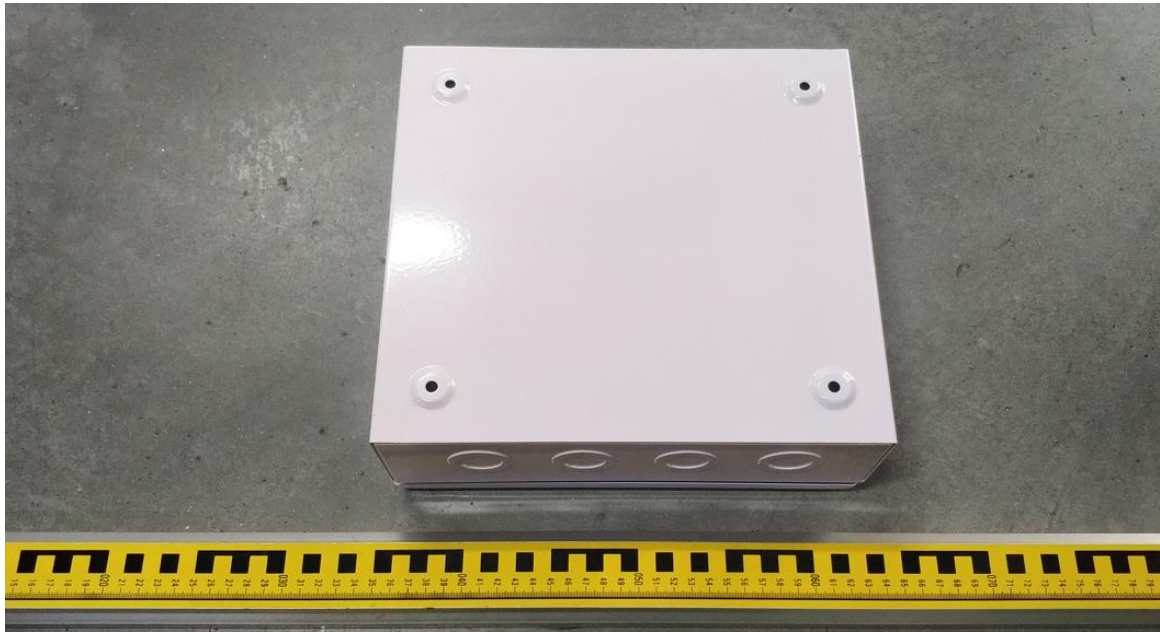
	- enclosures according to 7.2.1 with the specimen mounted as declared by the manufacturer				P	
	- enclosures according to 7.2.2 mounted on a minimum 19 mm thick plywood painted black				N/A	
	- enclosures according to 7.2.3.1 with the specimen cast in a concrete wall				N/A	
	- for mounting condition other than in concrete (appropriate Pde value and mounting condition declared in the documentation) :				N/A	
	Position of the resistor(s) (Figure 103 / 104 / 105) .. : Figure 103				—	
Article	Number of modules	Number of heating resistors used	Power dissipated measured (W) ⁽¹⁾	Declared power (P _{de}) (W)	Power dissipated measured ⁽²⁾ ≥ P _{de} (Y/N)	No damage or deformation
Distribution Box	—	1	42,5 (PZ30-12)	40	Y	No damage or deformation
	—	1	41,6 (PZ30-04)	40	Y	No damage or deformation
	—	1	43,0 (PZ30-45)	40	Y	No damage or deformation
Supplementary information:						
⁽¹⁾ corresponding to a temperature rise in a steady state condition on the hottest accessible part ≤ 30 K						
⁽²⁾ value rounded to the next lower integer number						

ANNEX1 PHOTOGRAPHS

PZ30-12 IP30

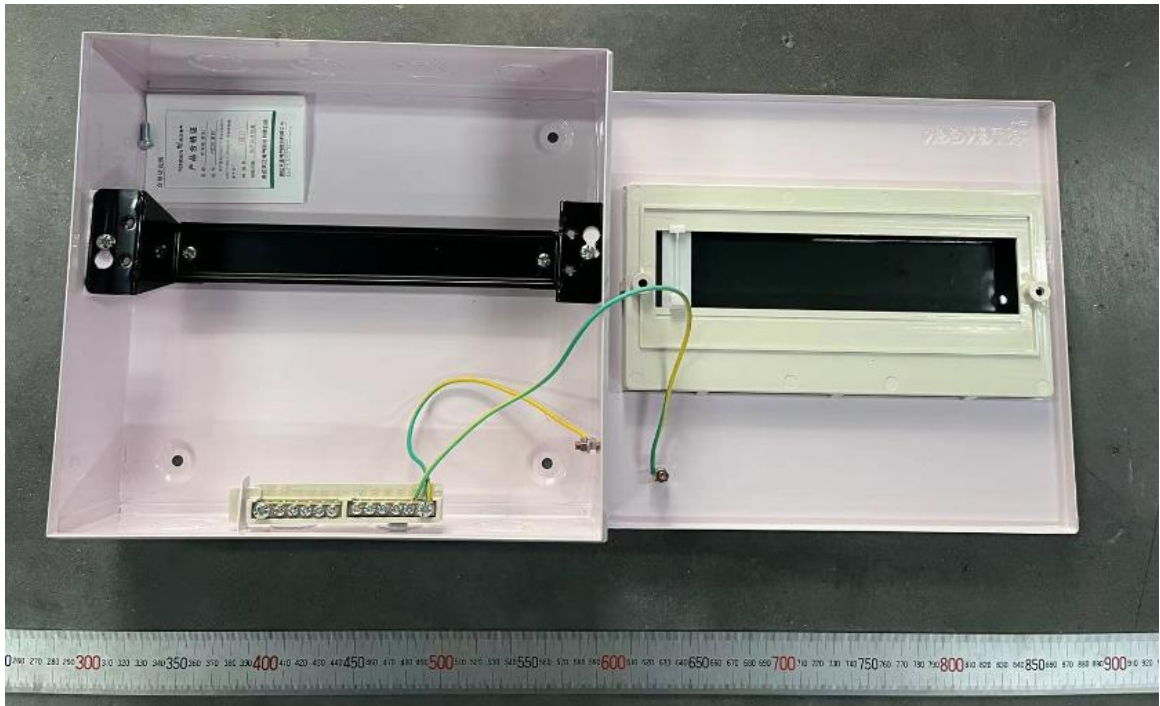


PZ30-12 IP30

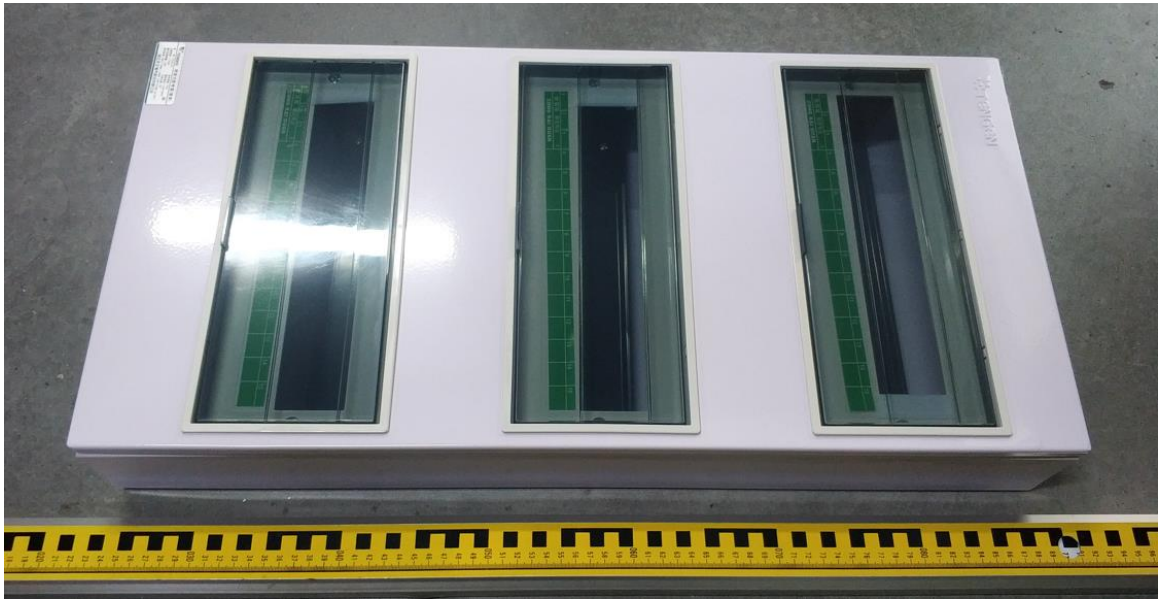


ANNEX1 PHOTOGRAPHS

PZ30-12 IP30

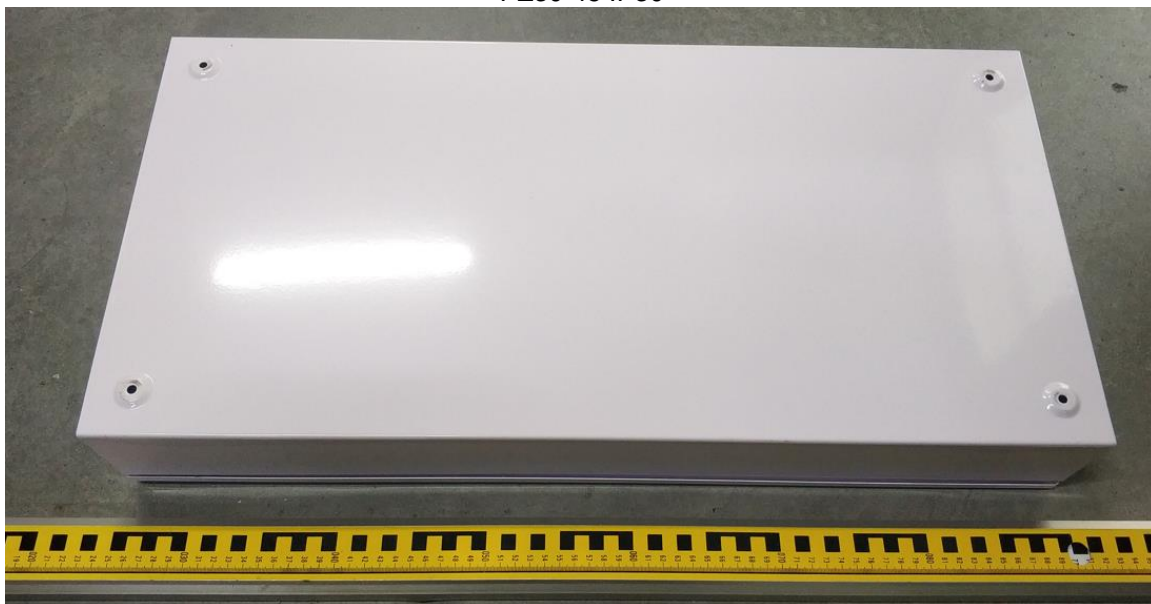


PZ30-45 IP30

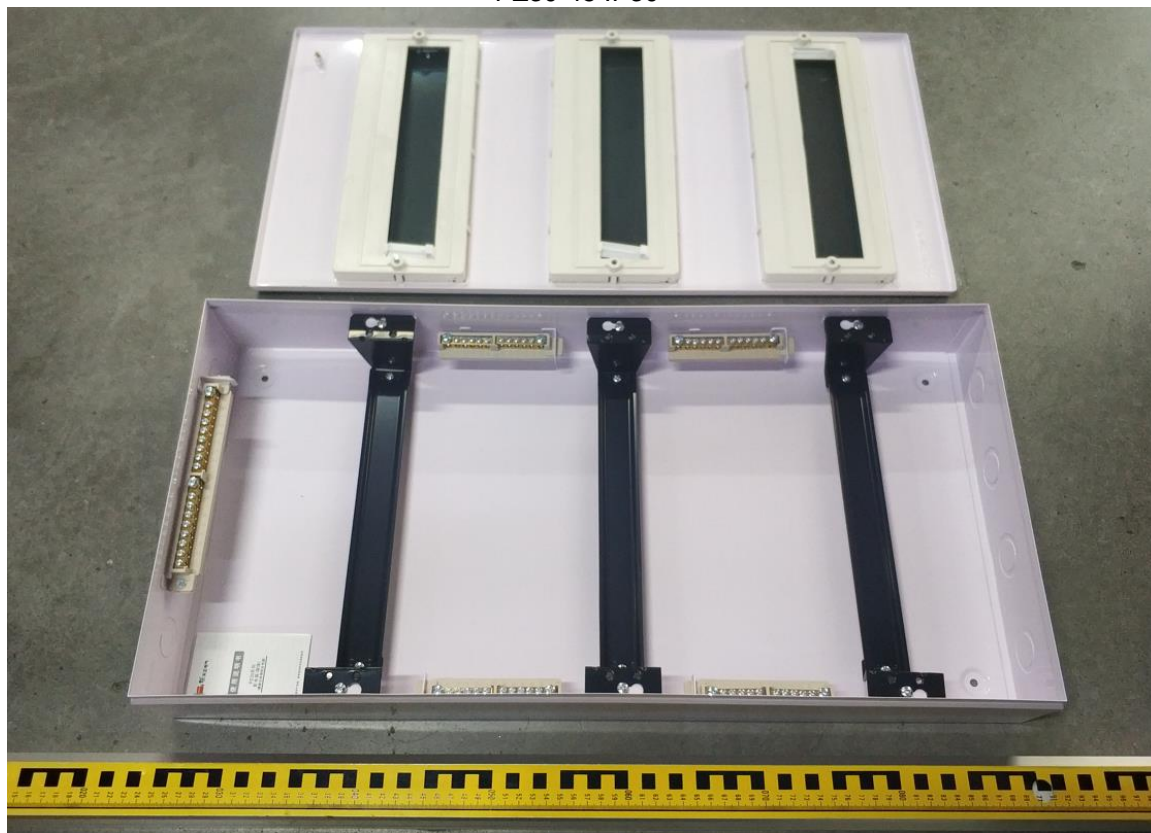


ANNEX1 PHOTOGRAPHS

PZ30-45 IP30



PZ30-45 IP30

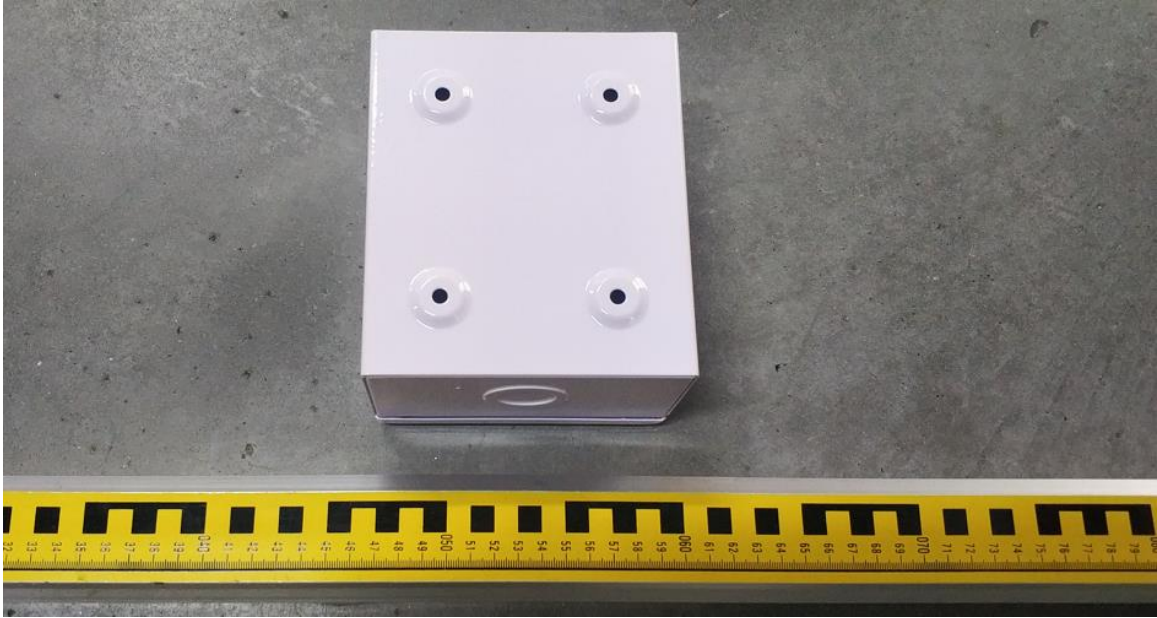


ANNEX1 PHOTOGRAPHS

PZ30-04 IP30



PZ30-04 IP30



ANNEX1 PHOTOGRAPHS

PZ30-04 IP30

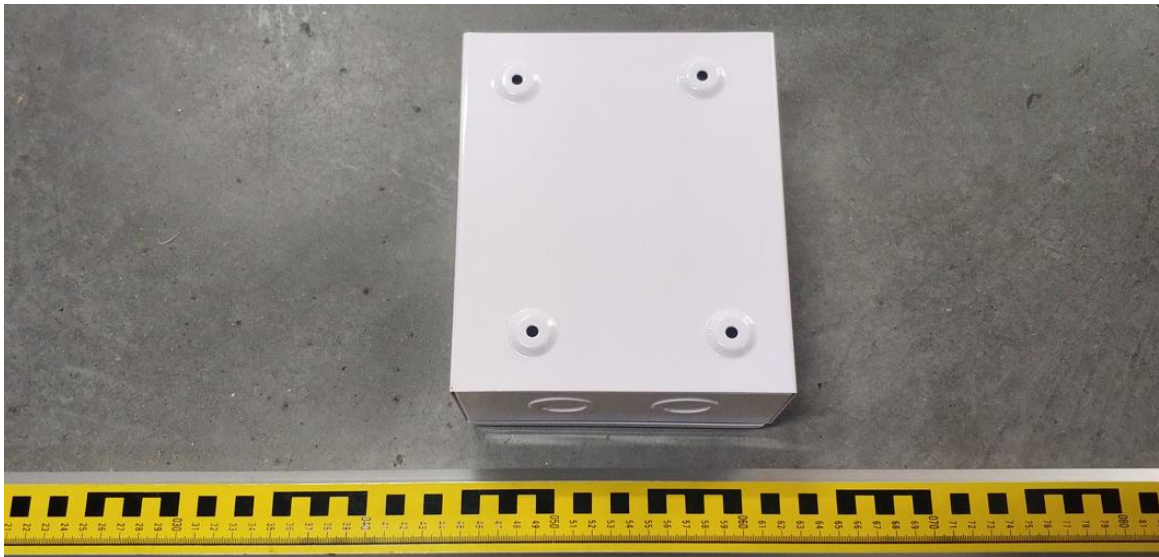


PZ30-06 IP30



ANNEX1 PHOTOGRAPHS

PZ30-06 IP30



PZ30-06 IP30

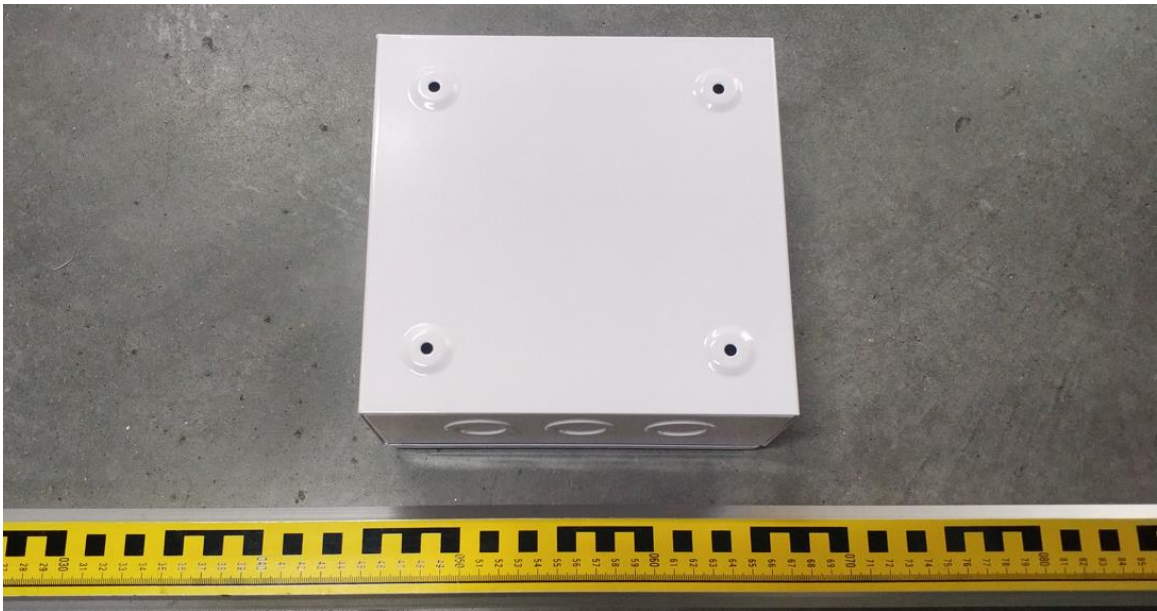


ANNEX1 PHOTOGRAPHS

PZ30-08 IP30



PZ30-08 IP30



ANNEX1 PHOTOGRAPHS

PZ30-08 IP30



PZ30-10 IP30



ANNEX1 PHOTOGRAPHS

PZ30-10 IP30



PZ30-10 IP30

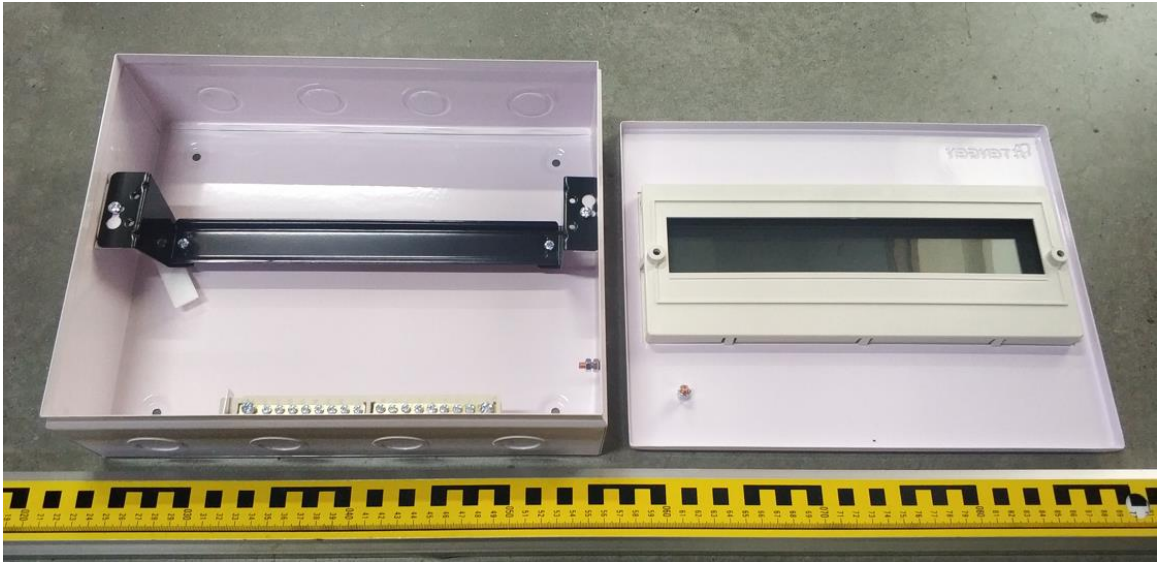


ANNEX1 PHOTOGRAPHS

PZ30-15 IP30



PZ30-15 IP30



ANNEX1 PHOTOGRAPHS

PZ30-15 IP30

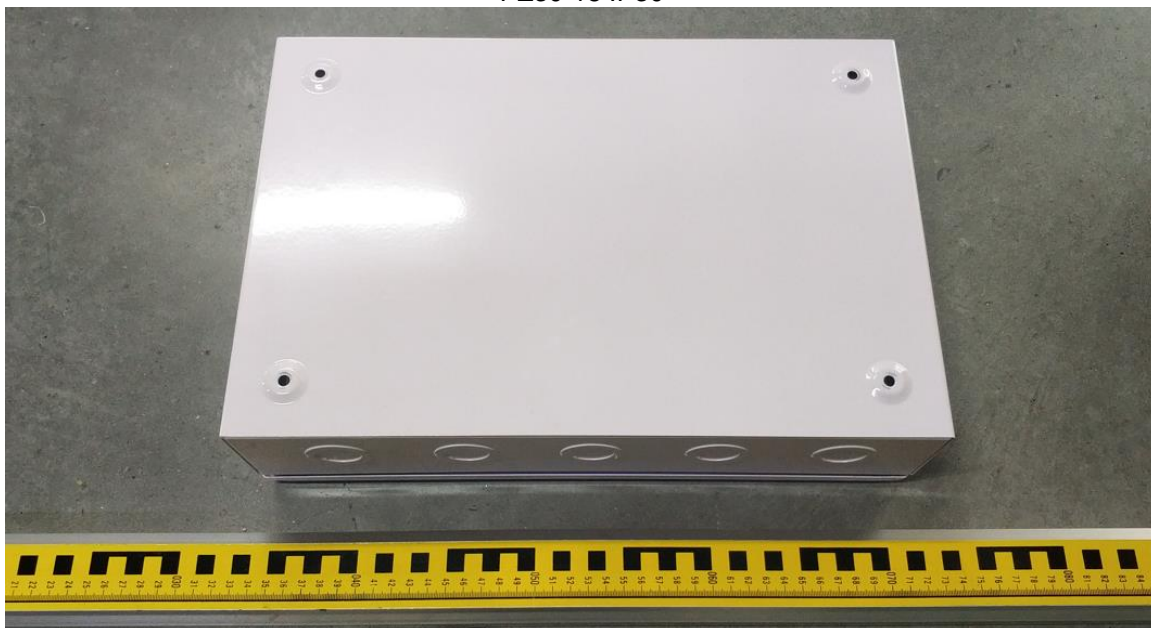


PZ30-18 IP30



ANNEX1 PHOTOGRAPHS

PZ30-18 IP30



PZ30-18 IP30



ANNEX1 PHOTOGRAPHS

PZ30-20 IP30



PZ30-20 IP30

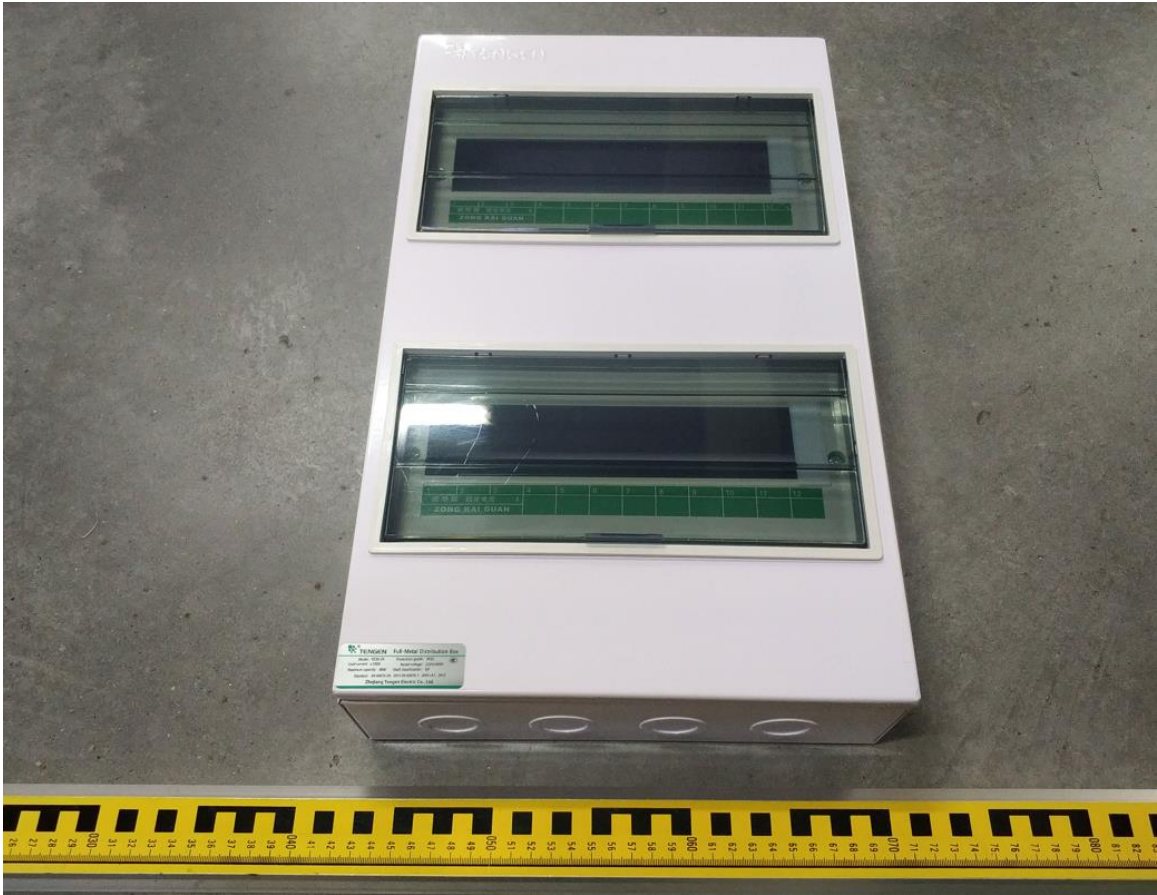


ANNEX1 PHOTOGRAPHS

PZ30-20 IP30

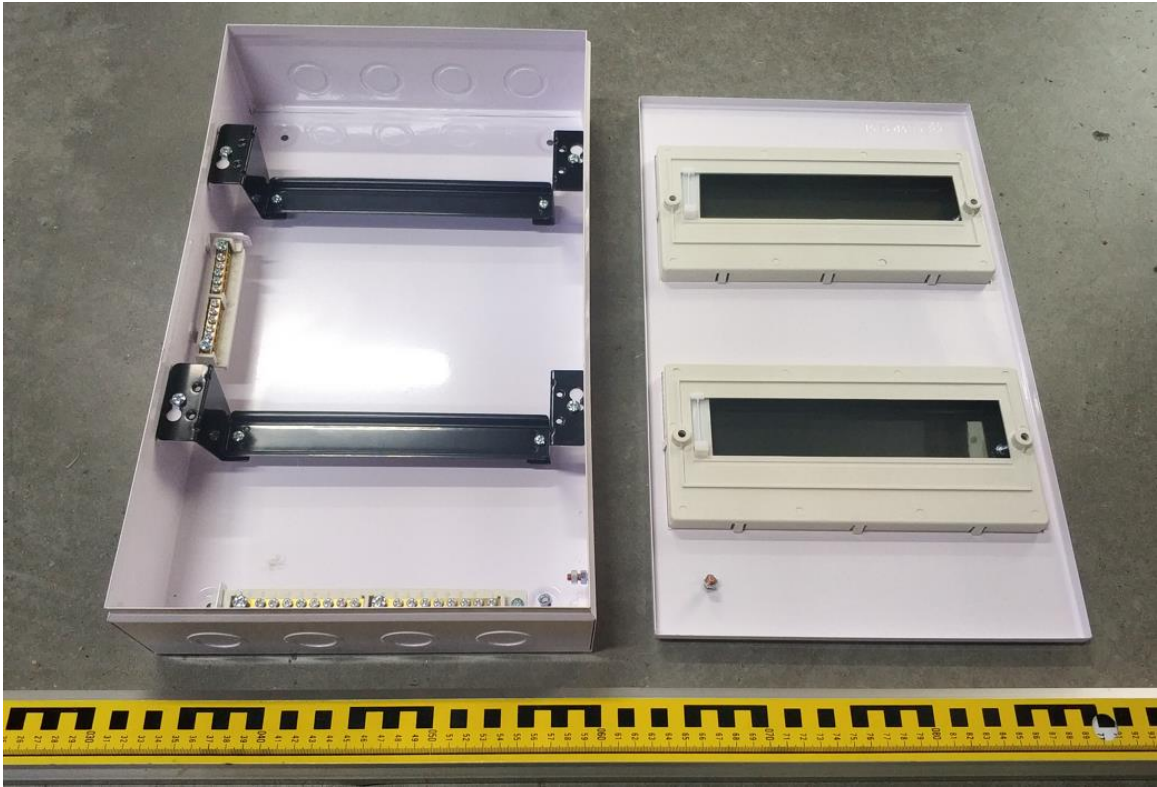


PZ30-24 IP30

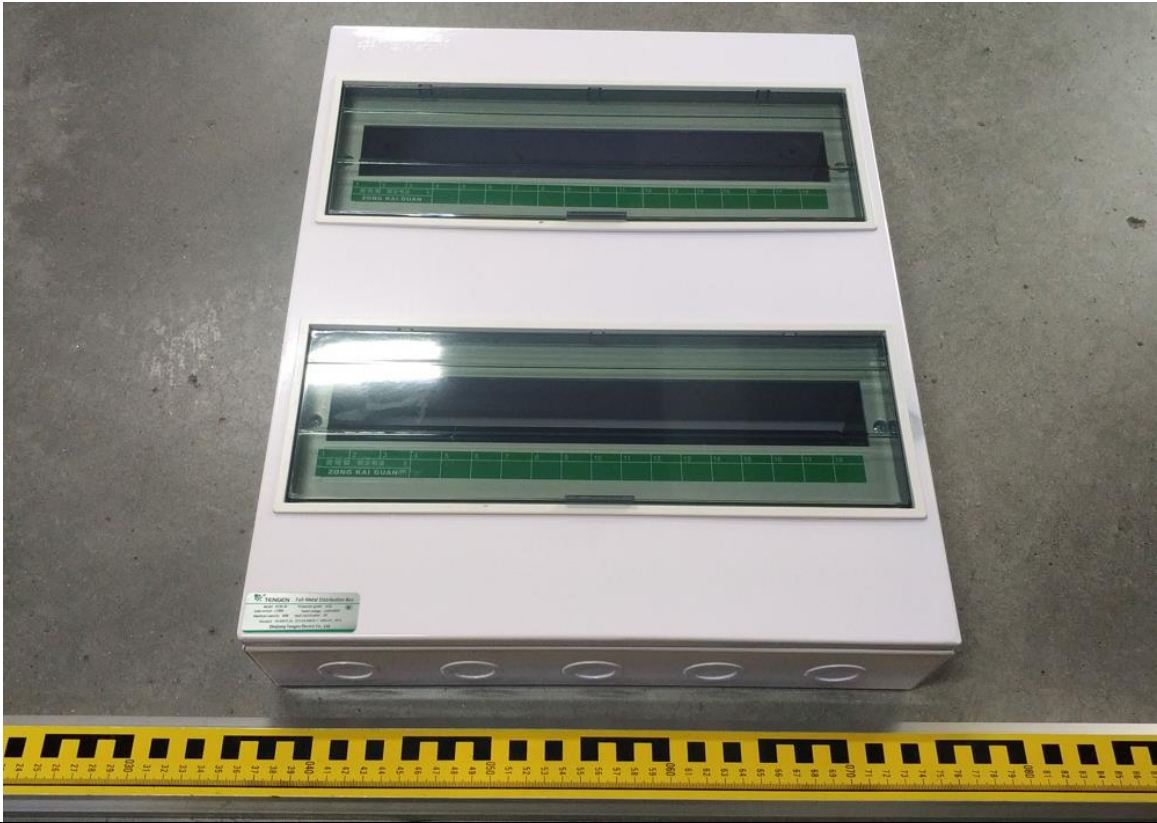


ANNEX1 PHOTOGRAPHS

PZ30-24 IP30

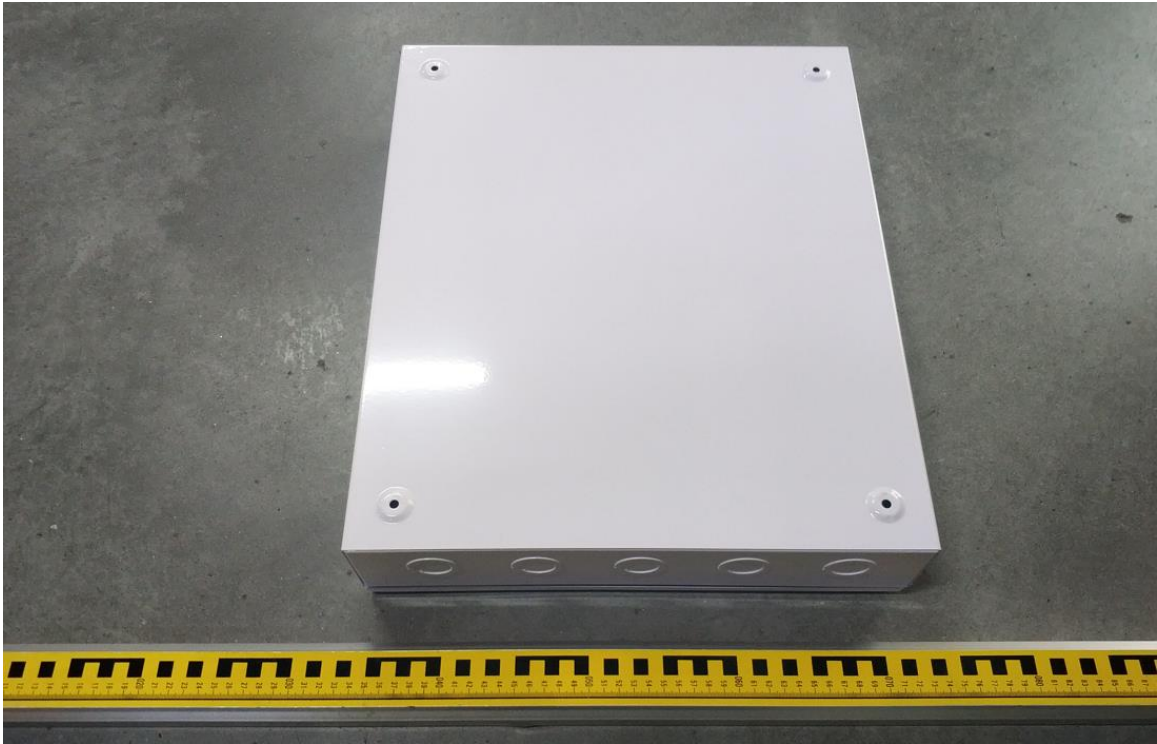


PZ30-30 IP30



ANNEX1 PHOTOGRAPHS

PZ30-30 IP30



PZ30-30 IP30

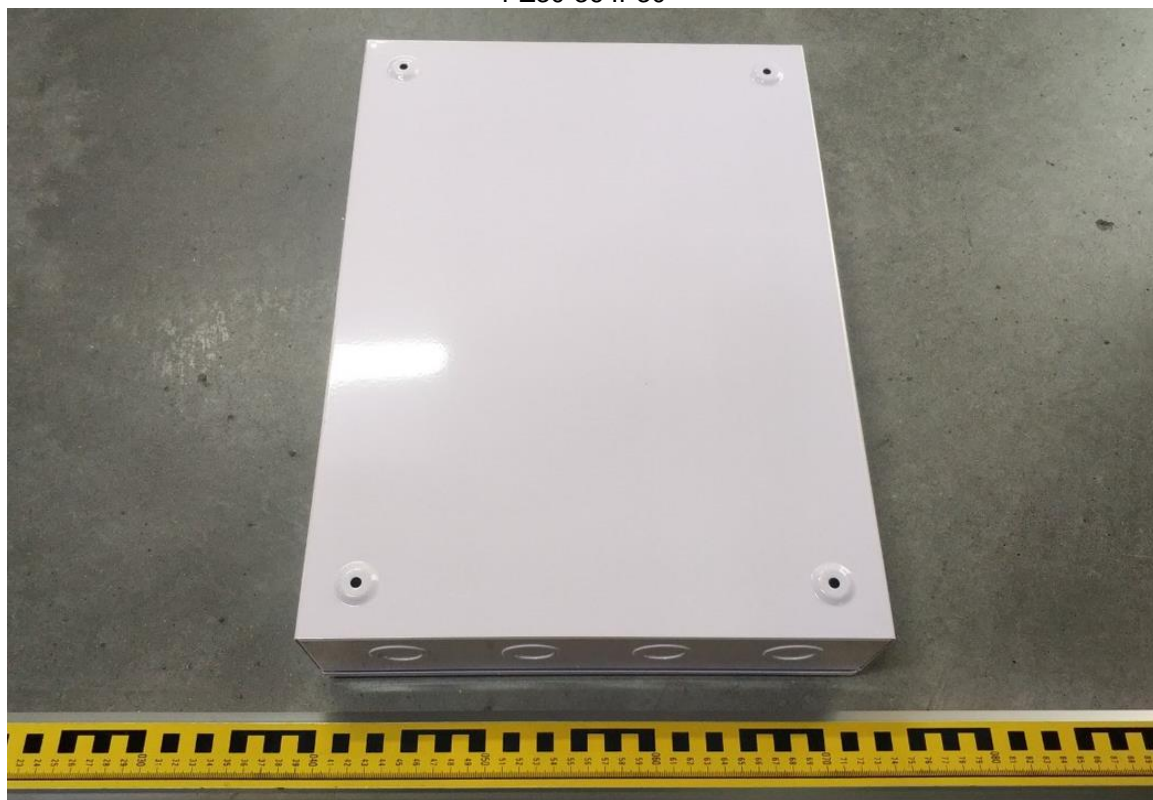


ANNEX1 PHOTOGRAPHS

PZ30-36 IP30

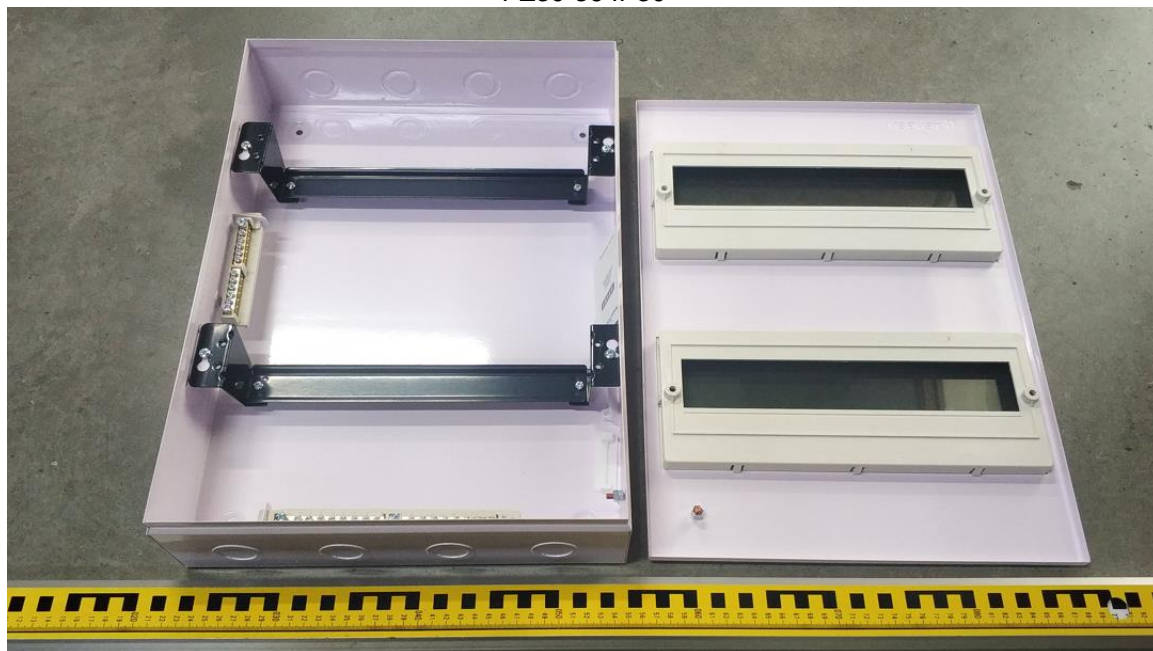


PZ30-36 IP30



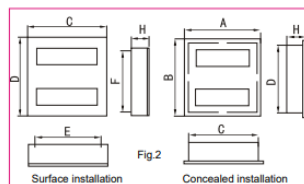
ANNEX1 PHOTOGRAPHS

PZ30-36 IP30



ANNEX 2

Instructions



VII. Ordering instructions

When purchasing products, users should pay attention to the followings:

- (1) There are single-bar circuits: 4, 6, 8, 10, 12, 15, 18, 20; double-bar circuit: 24, 30, 36 circuits; three-bar: 45 circuits.
 - (2) The installation methods include surface installation "M" and concealed installation "R".
 - (3) When there are special requirements, users must propose and reach a certain agreement when placing an order.
- Example: PZ30-12M represents a metal distribution box body with 12 circuits, surface installation.



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User's Manual

PZ30 Series Metal Distribution Box (box body)
(Modular Terminal Combination Apparatus)

Before installing and using the product, please read the manual and keep it for future use.

PZ30 Series Metal Distribution Box (Box Body)
User's Manual

I. Purpose

The PZ30 series metal distribution box body (modular terminal combination apparatus) is widely used in high-rise buildings, hotels, hospitals, restaurants, stations, ports, airports, computer rooms, laboratories, schools, industrial and mining enterprises, and civil construction departments. It's used for overload, short circuit and leakage protection and electric energy metering in lighting and low capacity power lines of three-phase systems with AC frequency of 50-60Hz and voltage of 400V, as well as single-phase systems with voltage of 230V and total current of 100A or less, it can also be used under normal conditions for infrequent interruptions of lighting circuits, daily household appliances and low capacity motors.

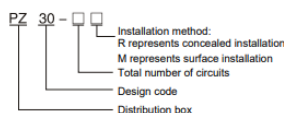
This product complies with: GB17466.1-2008, GB17466.24-2009

II. Structural characteristics

The box and box cover are made of high-quality cold-rolled thin steel plates, with small doors on the box cover. All electrical switch components are made of 18mm module electrical appliances, installed on top hat shaped rails, and can be combined as needed, making disassembly and assembly quick and convenient. There is a public neutral bar (neutral wire) and a protective grounding bar (grounding wire) inside the box, suitable for single-phase three-wire and three-

phase five-wire circuits. There are tapping holes on the top and bottom of the box to meet the wiring needs in different directions. This box is mainly equipped with C45, other types of circuit breakers larger than 100A required by customers need to be specially customized.

III. Product model and meaning



IV. Product usage conditions

1. Environmental temperature: $-5^{\circ}\text{C} \rightarrow +40^{\circ}\text{C}$, with average value within 24 hours not exceeding $+35^{\circ}\text{C}$.
2. Altitude: The altitude of the installation site shall not exceed 2000m.
3. Atmospheric conditions: The relative humidity of the air at the installation site shall not exceed 50% when the surrounding maximum temperature is $+40^{\circ}\text{C}$, and the maximum relative temperature of the month shall be 90% when the average minimum temperature of the wet month is $+25^{\circ}\text{C}$.

4. The maximum temperature during the building process: +60°C

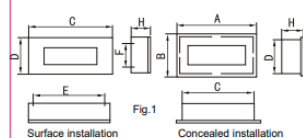
V. Main technical parameters

1. Power frequency withstand voltage: 2500V/1min
2. Shell protection level: IP30
3. Grounding resistance: $\leq 0.05\Omega$
4. Insulation resistance: $\geq 5M\Omega$
5. Maximum power consumption capacity: see Table 1 below
6. Grounding wiring method: from the panel to PE busbar and from the main grounding to PE busbar, yellow and green dual color wires are adopted for reliably connection, with recommended wire diameter of $4mm^2$

Table 1

Number of circuits	4	6	8	10	12	15	18	20	24	30	36	4
Minimum power dissipation (mW)	8	12	16	20	24	30	36	40	48	60	72	9

VI. Outline and installation dimension



Size No. of circuits	A	B	C	D	E	F	H	Fig No.
4	153	172	131	150	71	80	86	
6	191	222	169	200	109	130		
8	227	222	205	200	145	130		
10	262	282	240	260	180	190		Fig.
12	300	282	278	260	218	190		
15	355	282	333	260	273	190		
18	407	282	385	260	325	190		
20	442	282	420	260	360	190		
24	300	482	278	460	218	390		
30	355	482	333	460	273	390		Fig.
36	407	482	385	460	325	390		
45	355	687	333	665	273	595		Fig.

Note: The enclosed dimensions in parentheses in circuit 4 refer to the surface installation dimensions.

Important

1. The test report is invalid without the official stamp of CVC;
2. Any photocopies or part photocopies of the test report are forbidden without the written permission from CVC;
3. The test report is invalid without the signatures of Approval and Reviewer;
4. The test report is invalid if altered;
5. Objections to the test report must be submitted to CVC within 15 days;
6. Generally, commission test is responsible for the tested samples only;
7. "P" means "pass", "F" means "fail", "N/A" means "not applicable" and " / " means "not test".

**The test data and test results given in this test report should only be used for purposes of scientific research, teaching and internal quality control when the CMA symbol is not presented. **

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