Test Report issued under the responsibility of

TÜVRheinland®

TEST REPORT
IEC 60529
Degrees of protection provided by enclosures (Ip code)

Report Reference No.	27111927 001	
Tested by (name + signature).....	Şükran Akbay	
Witnessed by (name + signature).....		
Supervised by (name + signature).....		
Approved by (name + signature)	Tayfun Özcan	
Date of issue.....	04.12.2012	
Testing Laboratory	TUV RHEINLAND Uluslararası Standartlar Sertifikasyon ve Denetim A.Ş	
Address.....	Saniye Ermutlu Sokak No:12 Çolakoğlu Plaza B Blok Kozyatağı/İstanbul	
Testing location.....	TUV RHEINLAND Uluslararası Standartlar Sertifikasyon ve Denetim A.Ş	
Testing address	Saniye Ermutlu Sokak No:12 Çolakoğlu Plaza B Blok Kozyatağı/İstanbul	
Applicant's name	CEMSAN Elektrikli Cihazlar Sanayi ve Ticaret Ltd. Şti.	
Address.....	Kemaliye Mah. Gülbahar Hatun Cad. No:141 Vakfıkebir / Trabzon, Turkiye	
Test specification:		
Standard	IEC 60529-1:2001-02	
Test procedure.....	CE	
Non-standard test method.....	N/A	
Test Report Form No.	IEC60529A	
TRF Originator	IMQ	
Master TRF.....	Dated 2006-06	

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..... **Test item description** ...	Room heater
Trade Mark .....:	cemsan
Manufacturer .....:	CEMSAN Elektrikli Cihazlar Sanayi ve Ticaret Ltd. Şti.
Model and/or Type reference .....:	BLADE

Summary of testing:

Within this test report BLADE model of wall mounted heater was tested according to:

IEC 60529-1:2001-02

IP X5 and IP 5X requirements could be achieved and the above mentioned test item passes.

Test specifications:

Test 1 IP5X:
Degrees of protection against solid foreign objects indicated by the first characteristic numeral (Dust Protected).

The test is made using a dust chamber incorporating the basic principles whereby the powder circulation pump may be replaced by other means suitable to maintain the talcum powder in suspension in a closed test chamber.

The talcum powder used is able to pass through a square-meshed sieve the nominal wire diameter of which is 50μm and the nominal width of a gap between wires 75μm. The amount of talcum powder to be used is 2kg per cubic meter of the test chamber volume.

The enclosure under test is supported in its normal operating position inside the test chamber, but it is not connected to a vacuum pump. Any drain-hole normally open is left open for the duration of the test. The test is continued for a period of 8h.

If it is impracticable to test the complete enclosure in test chamber, one of the following procedures shall be applied.

TEST2 IPX5:
Degrees of protection against water indicated by the second characteristic numeral (Protected against water jets).

The samples are mounted as in normal use in the center of a wooden board having dimensions which are 17 cm in excess of those of the orthogonal projection of the appliance on the board.

Water projected in jets against the enclosure from any direction has no harmful effects.

The test is made by spraying the enclosure from all practicable directions with a stream of water from a standard test nozzle.

The conditions to be observed are as follows

- Internal diameter of the nozzle is 6,3mm

- Delivery rate. 12,5l/min+-5 %

- Water pressure is adjusted to achieve the specified delivery rate

- Core of the substantial stream: circle of approximately 40mm diameter at 2,5m distance from nozzle.

- The enclosure is tested for 1 min in each of four fixed positions of tilt. The total duration of the test is 4 min.

- Distance from nozzle to enclosure surface: between 2,5m and 3 m.

Test item particulars	**:**	Heater
- Classification of installation and use	:	Wall mounted, IP 55
- Supply Connection	:	Power cord with plug
Possible test case verdicts:		
- test case does not apply to the test object.....	:	N/A
- test object does meet the requirement	:	P(Pass)
- test object does not meet the requirement	:	F(Fail)
Testing	:	
Date of receipt of test item	:	26.11.2012
Test item receipt number	:	2012-130-B-01
Test item serial number.....	:	N/A (engineering sample)
Date(s) of performance of tests	:	26.11.2012-28.11.2012

General remarks:

The test results presented in this report relate only to the object tested.
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"(see Enclosure #)" refers to additional information 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.

General product information

The product tested is a class I electrical wall mounted room heater used in IP 55 conditions.

Photos:

Photo 1: Front view

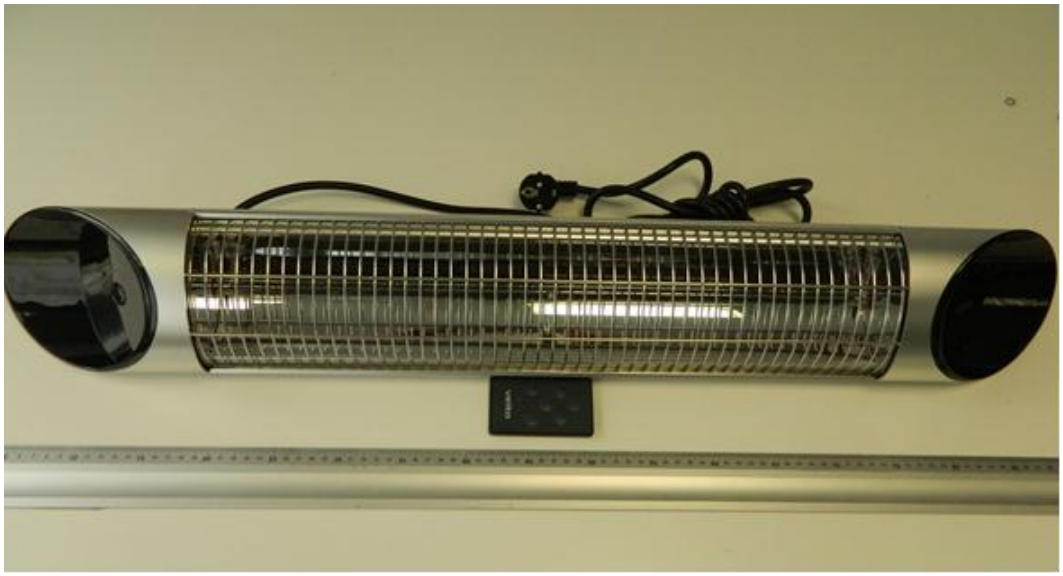


Photo 2: Rear view

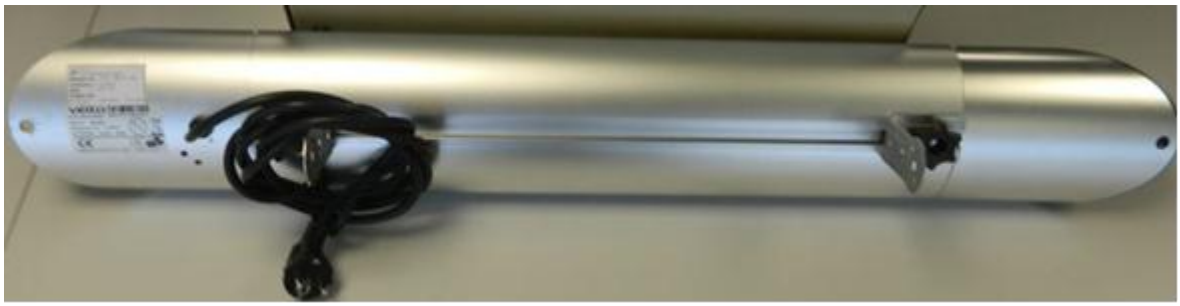


Photo 3: Left side view

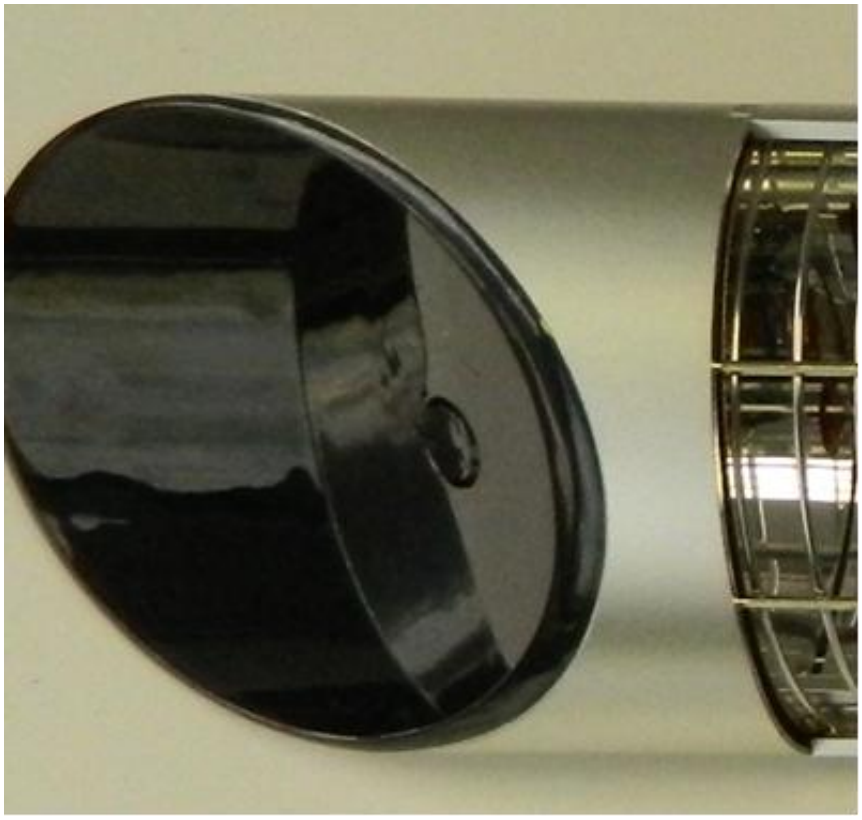


Photo 4: Right side view

Photo 5: Right side inside view

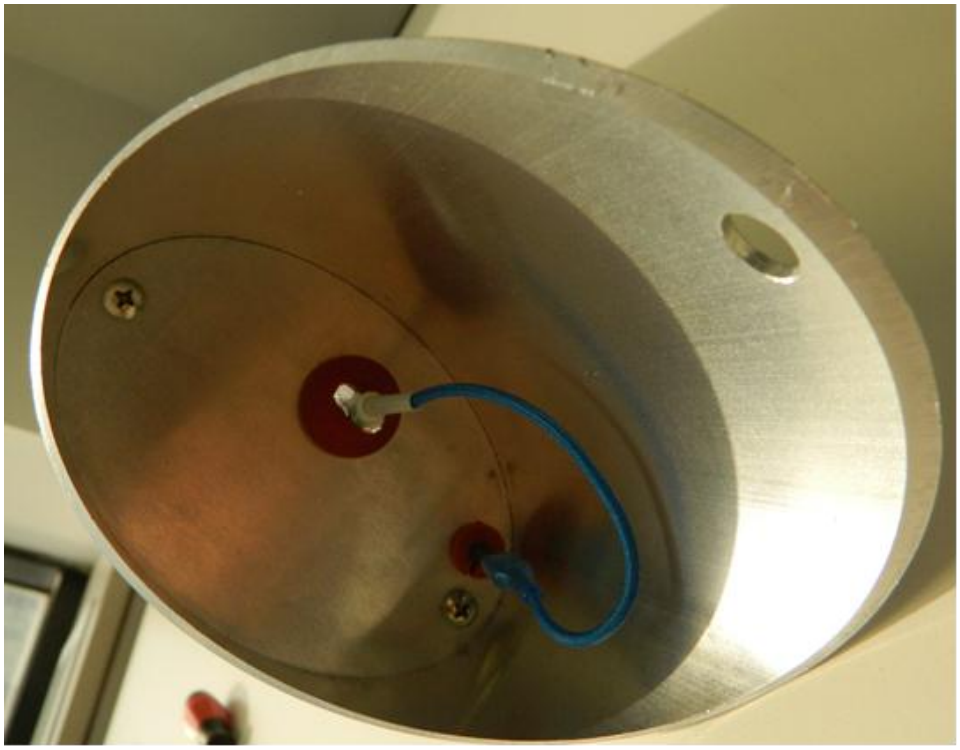


Photo 6: PCB connections

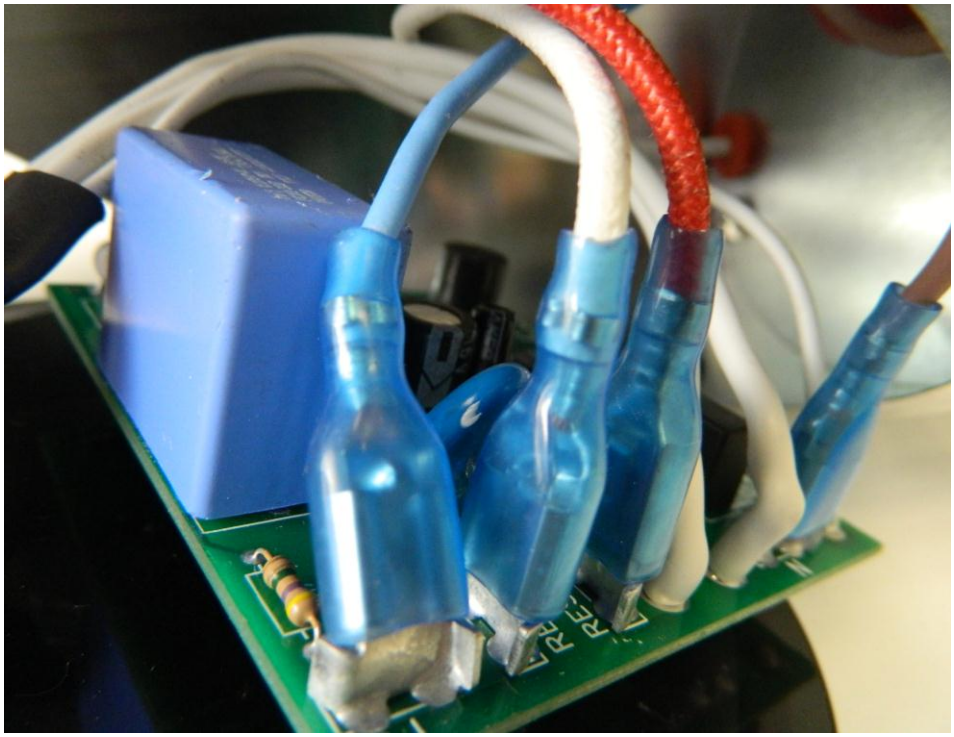
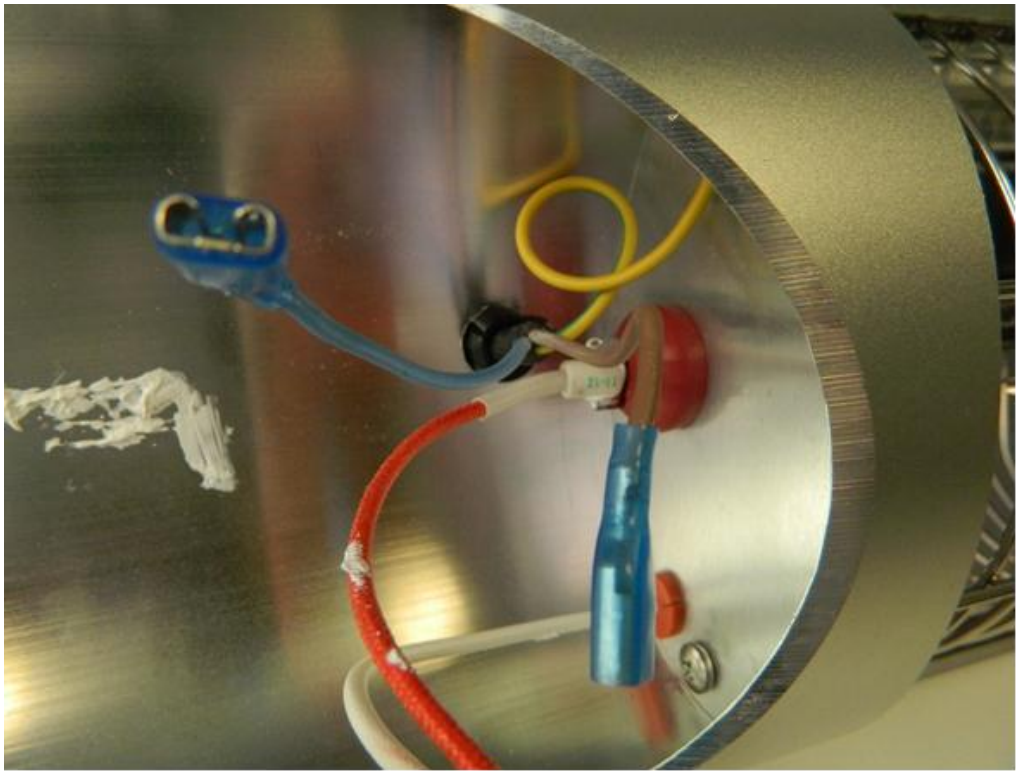


Photo 7: Left side inside view without electronic card



IEC 60529			
Clause	Requirement – Test	Result	Verdict

5	**DEGREES OF PROTECTION AGAINST ACCESS TO HAZARDOUS PARTS AND AGAINST SOLID FOREIGN OBJECTS INDICATED BY THE FIRST CHARACTERISTIC NUMERAL**		____
5	The designation with a first characteristic numeral implies that conditions stated in both 5.1and 5.2 are met.		P
	The first characteristic numeral indicates that:		____
	the enclosure provides protection of persons against access to hazardous parts by preventing or limiting the ingress of a part of the human body or an object held by a person;		P
	and simultaneously the enclosure provides protection of equipment against the ingress of solid foreign objects.		P
	An enclosure shall only be designated with a stated degree of protection indicated by the first characteristic numeral if it also complies with all lower degrees of protection.		P
	However, the tests establishing compliance with any one of the lower degrees of protection need not necessarily be carried out provided that these tests would obviously be met if applied		P
5.1	**Protection against access to hazardous parts**		____
	Tab. I gives brief descriptions and definitions for the degrees of protection against access to hazardous parts.		P
	Degrees of protection listed in table I shall be specified only by the first characteristic numeral and not by reference to the brief description or definition.		P
	To comply with the conditions of the first characteristic numeral, adequate clearance shall be kept between the access probe and hazardous parts		P
	The tests are specified in Clause 12.		P
	Tab. I-1 **Degrees of protection against access to hazardous parts indicated by the first characteristic numeral**		____
	First characteristic numeral / ***Test conditions (Clause)***		____
	0 / --		N/A
	1 / 12.2		N/A
	2 / 12.2		N/A

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Clause	Requirement – Test		Result	Verdict
	3	12.2		N/A
	4	12.2		N/A
	5	12.2	No access to hazardous parts by access probes	P
	6	12.2		N/A
	In the case of the first characteristic numerals 3, 4, 5 and 6, protection against access to hazardous parts is satisfied if adequate clearance is kept. The adequate clearance should be specified by the relevant product committee in accordance with 12.3.		(**EN 60529/A1**)	P
	Due to the simultaneous requirement specified in Table II, the definition "shall not penetrate" is given in Table I.		(**EN 60529/A1**)	P
5.2	**Protection against solid foreign objects**			——
	Tab. II gives brief descriptions and the definitions for the degrees of protection against the penetration of solid foreign objects including dust.			P
	Degrees of protection listed in Tab II shall only be specified by the first characteristic numeral and not by reference to the brief description or definition.			P
	The protection against the ingress of solid foreign objects implies that the object probes up to numeral 2 in Tab. II shall not fully penetrate the enclosure. This means that the full diameter of the sphere shall not pass through an opening in the enclosure.			P
	Object probes for numerals 3 and 4 shall not penetrate the enclosure at all.			N/A
	Dust-protected enclosures to numeral 5 allow a limited quantity of dust to penetrate under certain conditions.			P
	Dust-tight enclosures to numeral 6 do not allow any dust to penetrate.			N/A
	Note *Enclosures assigned a first characteristic numeral of 1 to 4 generally exclude both regularly and irregularly shaped solid foreign objects provided that three mutually perpendicular dimensions of the object exceed the appropriate figure in column 3 of Tab. II.*			N/A
	The tests are specified in Clause 13.			P
	Tab. II-2 **Degrees of protection against solid foreign objects indicated by the first characteristic numeral**			——

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Clause	Requirement – Test	Result	Verdict

	First characteristic numeral	***Test conditions (Clause)***		____
	0	--		N/A
	1	13.2		N/A
	2	13.2		N/A
	3	13.2		N/A
	4	13.2		N/A
	5	13.4 13.5		P
	6	13.4 13.6	(**EN 60529/A1**)	N/A

6	**DEGREES OF PROTECTION AGAINST INGRESS OF WATER INDICATED BY THE SECOND CHARACTERISTIC NUMERAL**		____
	The second characteristic numeral indicates the degree of protection provided by enclosures with respect to harmful effects on the equipment due to the ingress of water.		P
	The tests for the second characteristic numeral are carried out with fresh water. The actual protection may not be satisfactory if cleaning operations with high pressure and/or solvents are used.		P
	Tab. III gives brief descriptions and definitions of the protection for the degrees represented by the second characteristic numeral.		P
	Degrees of protection listed in Tab. III shall be specified only by the second characteristic numeral and not by reference to the brief description or definition.		P
	The tests are specified in Clause 14.		P
	Up to and including second characteristic numeral 6, the designation implies compliance also with the requirements for all lower characteristic numerals.		P
	However, the tests establishing compliance with any one of the lower degrees of protection need not necessarily be carried out provided that these tests obviously would be met if applied.		P
	An enclosure designated with second characteristic numeral 7 or 8 only is considered unsuitable for exposure to water jets (designated by second characteristic numeral 5 or 6) and need not comply with requirements for numeral 5 or 6 unless it is dual coded .		N/A

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Clause	Requirement – Test	Result	Verdict

	Enclosures for “versatile” application shall meet requirements for exposure to both water jets and temporary or continuous immersion.			N/A
	Enclosures for “restricted” application are considered suitable only for temporary or continuous immersion and unsuitable for exposure to water jets			N/A
	Tab. III-3 **Degrees of protection against water indicated by the second characteristic numeral**			——
	Second characteristic numeral	***Test conditions (Clause)***		——
	0	--		N/A
	1	14.2.1		N/A
	2	14.2.2		N/A
	3	14.2.3		N/A
	4	14.2.4		N/A
	5	14.2.5		P
	6	14.2.6		N/A
	7	14.2.7		N/A
	8	14.2.8		N/A

7	**DEGREES OF PROTECTION AGAINST ACCESS TO HAZARDOUS PARTS INDICATED BY THE ADDITIONAL LETTER**		——
	The additional letter indicates the degree of protection of persons against access to hazardous parts.	No additional letter	N/A
	Additional letters are only used:		——
	if the actual protection against access to hazardous parts is higher than that indicated by the first characteristic numeral;		N/A
	or if only the protection against access to hazardous parts is indicated, the first characteristic numeral being then replaced by an X		N/A
	For example, such higher protection may be provided by barriers, suitable shape of openings or distances inside the enclosure.		N/A

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Clause	Requirement – Test	Result	Verdict
	Tab. IV gives access probes considered by convention as representative of parts of the human body or objects held by a person and the definitions for the degrees of protection against access to hazardous parts, indicated by additional letters.		N/A
	An enclosure shall only be designated with a stated degree of protection indicated by the additional letter if the enclosure also complies with all lower degrees of protection.		N/A
	However, the tests establishing compliance with any one of the lower degrees of protection need not necessarily be carried out provided that these tests obviously would be met if applied.		N/A
	The tests are specified in Clause 15.		N/A
	See Annex A for examples of the IP Coding.		N/A
	Tab. IV-4 **Degrees of protection against access to hazardous parts indicated by the additional letter**		——
	Additional letter / ***Test conditions (Clause)***		——
	A / 15.2		N/A
	B / 15.2		N/A
	C / 15.2		N/A
	D / 15.2		N/A
8	**SUPPLEMENTARY LETTERS**		——
	In the relevant product standard, supplementary information may be indicated by a supplementary letter following the second characteristic numeral or the additional letter.	No supplementary letter	N/A
	Such exceptional cases shall conform with the requirements of this basic safety standard and the product standard shall state clearly the additional procedure to be carried out during tests for such a classification.		N/A
	The letters listed below have already been designated and have the significance as stated:		N/A
	Letter / ***Significance***		——
	H / *High-voltage apparatus*		N/A

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Clause	Requirement – Test	Result	Verdict

	M	*Tested for harmful effects due to the ingress of water when the movable parts of the equipment (e.g. the rotor of a rotating machine) are in motion*		N/A
	S	*Tested for harmful effects due to the ingress of water when the movable parts of the equipment (e.g. the rotor of a rotating machine) are stationary*		N/A
	W	*Suitable for use under specified weather conditions and provided with additional protective features or processes*		N/A
	Other letters may be used in product standards			N/A
	The absence of the letters S and M implies that the degree of protection does not depend on whether parts of the equipment are in motion or not.			N/A
	This may necessitate tests being done under both conditions.			N/A
	However, the test establishing compliance with one of these conditions is generally sufficient, provided that the test in the other condition obviously would be met if applied			N/A

9	**EXAMPLES OF DESIGNATIONS WITH THE IP CODE**		——

10	**MARKING**		——
	The requirements for marking shall be specified in the relevant product standard.		P
	Where appropriate, such a standard should also specify the method of marking which is to be used when:	Not required	N/A
	one part of an enclosure has a different degree of protection to that of another part of the same enclosure		N/A
	the mounting position has an influence on the degree of protection		N/A
	the maximum immersion depth and time are indicated		N/A

ZA	**ANNEX ZA (NORMATIVE)** **Other International Publications quoted in this standard with the references of the relevant European Publications**		——
	When the International Publication as been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.	(**EN 60529**)	P

IEC 60529			
Clause	Requirement – Test	Result	Verdict

Tables of test results:
Test1: IP5X

First characteristic numeral	Information	Result
5	**Dust-protected.**	**Pass** **(No dust contamination inside the panel)**

Test2: IPX5

Second characteristic numeral	Information	Result
5	**Protected against water jets.**	**Pass** **(No water contamination inside the panel)**

Measuring test equipments:

Equipment name	Manufacturer	Type code	Last calibration	Next calibration
Dust Chamber IST-E-0309	iTS GmbH	SK1000	-	-
Differental Pressure Transmitter for Dust Chamber IST-E-0310	Honeywell	DPTM 1000	28.06.2012	28.06.2013
Water Jet Hose Nozzles IST-E-0051	Testing Ljubljana	T1-45	-	-
Splash Nozzle IST-E-0054	Testing Ljubljana	T1-43	-	-
RIGID STEEL WIRE IST-E-0092	Testing Ljubljana	T5-51	13.04.2012	13.04.2013
RIGID STEEL WIRE IST-E-0093	Testing Ljubljana	T5-51	13.04.2012	13.04.2013