TEST REPORT
ENVIRONMENTAL
EN 60529:1991

Report Reference No.....:	150496TRFENV
Tested by.....:	Cristian Simone
Verified by……:	Sandro Perini
Date of issue .....:	2010-06-03
Testing Laboratory.....:	**Nemko Spa**
Address .....:	Via del Carroccio, 4 20046 BIASSONO - Italy
Testing location/ procedure.....:	☒ Full application of Harmonised standards ☐ Partial application of Harmonised standards ☐ Other standard testing methods ☐ Non-standard testing methods
Testing location/ address .....:	Nemko Spa – Via del Carroccio, 4 20046 BIASSONO - Italy
Applicant's name .....:	**Techno Srl**
Address .....:	Via Bancora e Rimoldi, 27 22070 Guanzate (CO)
Test specification	
Standard.....:	EN 60529:1991+ A1:2000
Non-standard test method……..:	N/A
Test Report Form No.....:	TRF ENV eng
TRF Originator.....:	Nemko Spa
Master TRF .....:	2009-09

Test item description .....:	TH370 connector
Trade Mark .....:	Techno
Manufacturer .....:	Techno Srl
Model/Type reference .....:	TH370
Ratings .....:	Max 16 A, 400V, T 85, 1,5 mm^2 , IP65

ENV -- TEST REPORT

Type / Model	:	TH370
Equipment	:	TH370 connector
Applicant	:	**Techno Srl**
Address	:	Via Bancora e Rimoldi, 27 22070 Guanzate (CO)
Manufacturer	:	**Techno Srl**
Address	:	Via Bancora e Rimoldi, 27 22070 Guanzate (CO)
Date of receipt of test sample	:	2010-05-26
Testing commenced on	:	2010-05-26
Testing concluded on	:	2010-05-27

Test Result (according to the standards on page 4)	**POSITIVE**

The test report merely corresponds to the tested sample.

Contents

1 TESTS PERFORMED

The IP65 degree tests were performed.

2 TEST STANDARDS AND PROCEDURES

EN 60529:1991+A1:2000
Degrees of protection provided by enclosures (IP code)

Nemko WML0177:
General routines for using instruments at Nemko.

Nemko WML1002:
Measurement Uncertainty - Policy and Statement.

3 SUMMARY

3.1 General remarks:

The enclosures were classified Category 2 and IP6X test was performed without vacuum.

The IP6X test was performed in accordance with clauses 12, 13.4, 13.6.1 and 13.6.2 of EN 60529.

Test equipment and water quantity was in compliance with 14.2.5 of EN 60529 for IPX5 test. Acceptance criteria used were as required by 14.3 of EN 60529.

3.2 Definitions of symbols used in this Test Report

■ - The black square indicates that the listed condition, standard or equipment is applicable.
o - The empty circle indicates that the listed condition, standard or equipment is **not** applicable.

3.3 Final assessment:

The protection requirements pertaining to the technical standards and tested operation modes are

■ - **fulfilled**.
o - not fulfilled.

The equipment under test

■ - **fulfils** the protection requirements cited in 1.
o - does not fulfil the protection requirements cited in 1.

4 EQUIPMENT UNDER TEST

4.1 Power supply system used

Power supply voltage : o 230V/50 Hz / 1ϕ o 115V/60Hz / 1ϕ
o 400V/50 Hz 3PE o 400V/50 Hz 3NPE
o 12 V DC o 24 V DC

Equipment not supplied during the tests.

4.2 Short description of the Equipment under Test (EuT)

The EuT is a TH370 connection.

Number of tested samples... : 1

Serial number: Not labelled

4.3 EuT operation mode

The E.u.T. was not powered during the test

4.4 EuT configuration:

o - unscreened power cables
■ - customer specific cables

4.5 Performance level

The test results shall be classified in terms of loss of protection or degradation of protection of the EuT, referred to a performance level defined by the standard and the relevant degree of protection.

Required performance level:

■ based on EN 60529
o based on the declaration of the manufacturer, requestor or purchaser

The EUT shall comply with the following requirements:
§ 12.3.1 – … the access probe shall not touch hazardous live parts;
§ 13.6.2 – … the protection is satisfactory if no deposit of dust is observable inside the enclosure at the end of the test;
§ 14.3 – … if any water has entered, it shall not:
- be sufficient to interfere with the correct operation of the equipment or impair safety;
- deposit on insulation parts where it could lead to tracking along the creepage distances,
- reach live parts or windings not designed to operate when wet,
accumulate near the cable end or enter the cable if any

5 TEST ENVIRONMENT

5.1 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	18-33 °C
Humidity:	30-70 %
Atmospheric pressure:	86-106 kPa

5.2 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to Nemko SpA Technical Procedure VML1002 and is documented in the quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.
Hereafter the best measurement capability of Nemko Spa laboratory for the tests performed is reported:

6.1 IP Grade Protection

6.1.1 Water Flow

The measurement uncertainty is the same defined by calibration certificates, giving the table.

Range	Measurement Uncertainty
Water flow defined in EN 60529	2 %

6.1.2 Probe Dimension

The measurement uncertainty is the same defined by calibration certificates, giving the table.

Range	Measurement Uncertainty
Probe dimensions defined in EN 60529	Same measurement uncertainties defined at clause 6.3.2

This table has been extracted from the relevant Technical Procedure Nemko Spa WML1002

6 TEST CONDITIONS AND RESULTS

6.1 IP 6X

Test probe diameter.....: 1 mm

Enclosure category.....: 2

Test Duration .....: 8 h

6.1.1 Photo documentation of the test set-up

6.1.2 Test results

The requirements are **Fulfilled**

Remarks: **The test probe (1 mm) does not penetrate inside the enclosure.**

The dust is not present inside the enclosure and on live part after the test.

6.2 IP X5

Test duration ..... : 3 min.

Flow rate ..... : 12.5 l/min.

Internal diameter of the nozzle: ..... : 6,3 mm

Distance from nozzle to enclosure surface ..... : 3 m.

6.2.1 Photo documentation of the test set-up.

6.2.2 Test results

The requirements are **Fulfilled**

Remarks: **The water is not present inside the enclosure and on live parts.**

7 USED TEST EQUIPMENT

Equipment	*Model*	*Manufacturer*	*Serial N°*
Equipment for IPX5	A.T.S.	03-39-8	001568-93
Dust chamber	A.T.S.	---	058
Test probe 1mm	A.T.S.	---	---
Termoigrometer	175H2	TESTO	20012247/305

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8 PHOTOS

Foto No.1: E.u.T, general view

Foto No.2: E.u.T, general view

Foto No.3: E.u.T, general view

Photo after the IP65

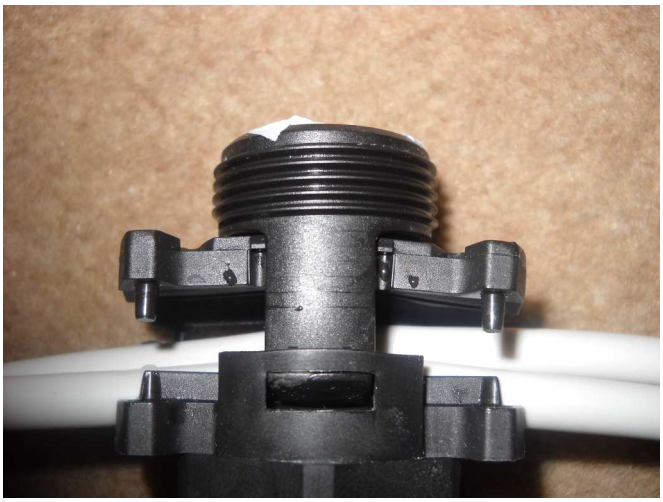

Foto No.4: Internal detail

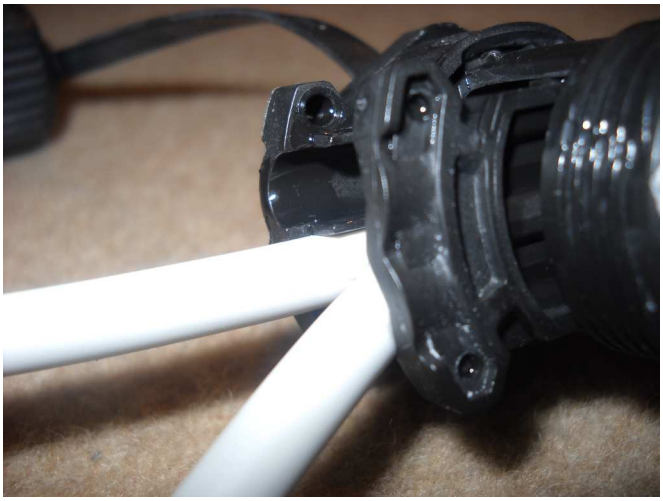

Foto No.5: Internal detail

Foto No.6: Internal detail

- End of test report -