

Test Certificate

of Special Tests

Document No.	C4002029	Copy No.	1	Number of pages	5
Apparatus	Non-enclosed three-phase dry-type power transformer, with MV encapsulated winding, for continuous duty, with cooling by air natural convection (AN)				
Designation	- Rated power 630 kVA; Rated voltages 22/0,4 kV; Rated frequency 50 Hz				
Serial Number	53635-01				
Manufacturer	TMC - TRANSFORMERS MANUFACTURING COMPANY ESPAÑA S.A.U. Polígono Bidosola, Parcela B1 - 48142 Artea (Bizkaia) Spain				
Client	Nisko Group Ltd. (Ardan Transformers) 10 HaSadna st. Tziporit Industrial Zone - 1789024 Nof Hagalil (POB 540) – Israel				
Tested for					
Date(s) of tests	September 27 to December 13, 2023				
Tested by	CESI S.p.A. Via Rubattino 54 20134 Milano - Italy				
Test performed	Climatic special test C3 class Environmental special test E4 class Fire behaviour special test F1 class				

The apparatus, constructed in accordance with the description, drawings and photographs incorporated in this document has been subjected to the series of proving tests in accordance with:

IEC 60076-11 (2018-08)
Clauses 14.4.4, 14.4.5 and 14.4.6.2

The results are shown in the record of proving tests and the oscillograms attached hereto. The values obtained and the general performance are considered to comply with the above Standard(s). The ratings assigned by the Manufacturer are listed on the ratings page.
The document applies only to the apparatus tested. The responsibility for conformity of any apparatus having the same designations with that tested rests with the Manufacturer.

January 31, 2024

Date	Magistris Paolo C4002029 3845 AUT Test Engineer in charge	The Manager - Verhoeven Bas C4002029 3482248 JPP Approved by
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Notes

STL-Member

CESI Group members are founder members of the SHORT-CIRCUIT TESTING LIAISON (STL) which has been established in 1969. STL is a forum for voluntary international cooperation of testing organizations.

CESI Group Test Documents description

STL Type Test Certificate of

Issued for type tests of high voltage products ($> 1 \text{ kV}_{ac}$; $> 1,5 \text{ kV}_{dc}$), which have successfully been carried out in full compliance with the relevant specifications or standards and STL Guides valid at the time of the test. The STL Type Test Certificate consists of documents unequivocally identifying the test object and describes all conditions under which the tests were conducted. It gives evidence of the unobjectionable behavior of the test object during the tests in line with the normative documents applied as well as of the results of successful testing.

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Test Certificate of (complete / selected) Type Tests

Issued if type tests of low voltage products ($< 1 \text{ kV}_{ac}$; $< 1,5 \text{ kV}_{dc}$) requested by the relevant product standard were passed. For these tests the equipment under test must be clearly identified by technical description, drawings, and additional specifications.

Certificate of Design Verification

Issued for passed design verification tests according to IEC 61439. For these tests the equipment under test must be clearly identified by technical description, drawings, and additional specifications.

Type Test Report

Issued for high and low voltage products if parts of selected type tests have been passed; those shall be carried out in full compliance with the relevant standards but (for high voltage products) do not fulfill all STL requirements for issuing a Type Test Certificate. For these tests the equipment under test must be clearly identified by technical description, drawings, and additional specifications.

Test Report

Issued for all other tests on high and low voltage products which have been carried out according to specifications, standards and/or client instructions

On-Site Test Record

Issued as a record of results acquired during the on-site tests / measurements

Test Award

Can be additionally issued for all named types of test documents above if the tests to be referenced were passed

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1. RATINGS ASSIGNED BY THE MANUFACTURER AS PROVED BY THE TESTS

Dry-Type power transformer	
Manufacturer	TMC - TRANSFORMERS MANUFACTURING COMPANY ESPAÑA S.A.U.
Type	-
Serial number	53635-01
Rated power	630 kVA
Number of phases	3
Rated voltage of the high-voltage winding (primary winding)	22 ± 2 x 2,5 % kV
Rated voltage of the low-voltage winding (secondary winding)	400 V
Rated voltage ratio	22/0,4 kV
Rated current of the high-voltage winding (primary winding)	16,53 A
Rated current of the low-voltage winding (secondary winding)	909,3 A
Rated frequency	50 Hz
Connection symbol	Dyn11
Climatic class	C3
Environmental class	E4
Fire behaviour class	F1
Insulation system temperature	F/F

2. ADDITIONAL TYPE TESTS

This Certificate also verifies:

- Temperature-rise test, according to IEC 60076-11 (2018-08) clause 14.3.2;
- Checking of gases emission, according to IEC 60076-11 (2018-08) clause 14.4.6.1.

3. REFERENCE DOCUMENTS

The following reference documents are integral part of this Certificate:

No.	Description	CESI registration
1	Test Report	C3012799
2	Test Report	C3013456
3	Inspection Report	202107001-24 R0
4	Manufacturer's drawings	C3016422

4. ADDITIONAL REFERENCES

Not applicable.

5. RECORD OF PROVING TESTS

The table below lists all the tests performed and the references to the relevant Test Reports containing the test values.

No. Standard and clause	Description of tests	Reference documents
IEC 60076-11 clause 14.3.2	Temperature-rise test	C3012799
IEC 60076-11 clause 14.4.4	Thermal shock test	C3012799
		C3013456
IEC 60076-11 clause 14.4.5	Condensation test Humidity penetration test	C3012799
IEC 60076-11 clause 14.4.6.2	Fire behaviour test	202107001-24 R0
IEC 60076-11 clause 14.4.6.1	Checking of gases emission	202107001-24 R0

6. IDENTIFICATION OF THE APPARATUS

The Manufacturer guarantees that the tested apparatus is manufactured according to the submitted drawings.

CESI checked that these drawings adequately represent in shape and dimensions the essential details and the main parts of the tested apparatus.

These drawings, identified by CESI and numbered C3016422, have been returned to the Client.