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Document name	Certificate of Inspection
Date of issue	October 27 th , 2020
CESI reference number	C0016855
Client	CAHORS – Medium Voltage Division - TRANSFIX 836, Route Départementale 97 – 83130 LA GARDE (France)
Signed by	



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Certificate of Inspection

in accordance with Technical Specification

FLUVIUS - ORES - RESA - SIBELGA

TST01-1 Ed. 01-2020

Product	Three-phase natural ester immersed power transformer with integrated self-protection.
Designation	01322GBR03
Manufacturer	CAHORS – Medium Voltage Division – TRANSFIX LA GARDE 83130 - France
Applicant	CAHORS – Medium Voltage Division – TRANSFIX LA GARDE 83130 - France
Main ratings	Rated power: 160/136 kVA Rated voltage: 15750 $\pm$ 2 x 2,5% / 420-244 V Rated frequency: 50 Hz
Main performance	Routine, type and special tests

The product has been tested according to the following Technical Specification:

FLUVIUS - ORES - RESA - SIBELGA TST01-1 Ed. 01-2020

This document attests that the product was tested in accordance with the normative reference documents and was found in compliance with the clauses specified in the Inspection Report indicated in the following.
The activity was carried out according to ISO/IEC 17020: 2012.

This certificate is composed of 4 pages.

27 October 2020

Issue date

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A handwritten signature in blue ink, likely of the authorized signatory, is placed over the ACCREDIA logo.

I. Detailed ratings assigned by the Manufacturer

Item description	Item value
Manufacturer	CAHORS – Medium Voltage Division – TRANSFIX
Factory	LA GARDE F83130 France
Type	Natural ester immersed, totally filled, hermetically sealed
Reference number	01322GBR03
Serial number	12020N0252
Year of manufacturing	2020
Number of phases	3
Number of windings	2
Rated frequency	50 Hz
Rated power	160-136 kVA
High voltage winding:	
- Rated voltage	15750 ± 2 x 2,5% V
- Insulation level	LI 95 kVp - AC 38 kV
- Rated current	5,87-4,98 A
Low voltage winding	
- Rated voltage	420-244 V
- Insulation level	LI 30 kVp - AC 10 kV
- Rated current	220-322 A
Phase displacement	Dyn11a11
Cooling system	KNAN
No-load loss (1)	189 W
Load loss 75°C (1)	1750 W
Total loss (1)	1939 W
Impedance del short circuit 160 kVA	Ratio 15750/420 V 4,2% (±10%)
Impedance del short circuit 136 kVA	Ratio 15750/244 V 3,4% (±10%)
Temperature rise:	
- average winding	65 K
- top oil	60 K
Max. sound power level (1)	43 dB(A)
Winding characteristics:	
- material of conductors (HV/LV)	Aluminium/Aluminium
- shape	Not circular winding
Masses:	
- natural ester	278 kg
- total	1090 kg
Service condition:	
- Type of installation	Outdoor storage
- Max altitude	≤ 1000 m
- Ambient temperature	-25 to 40°C
Notes:	
(1) Max guaranteed value.	

II. Inspected tests

The transformer was tested according to the relevant Technical Specifications.

The test results are reported in:

- CAHORS Medium Voltage Division TRANSFIX, Test Report "List des essais réalisés sur le 160/136 kVA, ratio 15750±2x2.5%/420-244 V, serial N° 12020N0252, 50 Hz, Dyn11a11, référence 01322GBR03, dated 16/10/2020 (CESI registration number C0015769).

More details on the inspection performed are included in CESI Inspection Report C0015767.

All documents issued by CESI are available in CESI archive for 10 years.

Normative document	Clause	Test	Test report	Test results
TST01-1 EN 60076-1	6.1.2.A.2 6.1.2.A.3 11.3	Measurement of voltage ratio and check of phase displacement	C0015769	Passed
TST01-1 EN 60076-1	6.1.2.A.1 11.2	Measurement of winding resistance	C0015769	Passed
TST01-1 EN 60076-1	6.1.2.A.5 11.5	Measurement of no-load loss and current	C0015769	Passed
TST01-1 EN 60076-1	6.1.1.A.11 11.5	Measurement of magnetization characteristic	C0015769	Passed
TST01-1 EN 60076-1	6.1.2.A.4 11.4	Measurement of short-circuit impedance and load loss	C0015769	Passed
TST01-1 EN 60076-3	6.1.2.A.6 7.3.1.1.a)	Applied voltage test (AV)	C0015769	Passed
TST01-1 EN 60076-3	6.1.2.A.6 7.3.1.1.b)	Induced voltage withstand test (IVW)	C0015769	Passed
TST01-1 EN 60076-3	6.1.1.A.7 7.3.1.2	Full wave lightning impulse voltage withstand test (LI) on HV and LV winding	C0015769	Passed
TST01-1 EN 60076-13	6.1.1.A.10 12.1	Measurement of partial discharges	C0015769	Passed
TST01-1 EN 60076-10	6.1.1.A.9 -	Measurement of sound power level	C0015769	Passed
TST01-1 EN 60076-2	6.1.1.A.6 -	Temperature rise test 160 kVA ratio 15750/420 V Temperature rise test 136 kVA ratio 15750/244 V	C0015769	Passed
TST01-1 EN 60076-13	6.1.2.A.7 12.2	Tank leakage test	C0015769	Passed
TST01-1 EN 60076-13	6.1.1.B 12.2	Tank hermeticity test	C0015769	Passed
TST01-1 EN 60076-13 NF EN 50588-1	6.1.1.B 12.2 9.4.2-9.4.4	Tank fatigue test	C0015769	Passed
TST01-1 EN 60076-1	6.1.1.B 11.1.4.m	Check of external coating	C0015769	Passed
TST01-1	6.1.1.A.12	Visual inspection of the active parts, dimensional checks and pictures	C0015769	Passed

III. Conclusions

On the basis of the results obtained it is possible to conclude that the

three-phase natural ester immersed transformer, 160/136 kVA, $15750 \pm 2 \times 2,5\%$ / 420-244 V, 50 Hz, Dyn11a11, serial number 12020N0252, reference 01322GBR03, with integrated self-protection

passed all the tests listed in the above table.