

**HV/LV CAST RESIN TRANSFORMERS
MARK TE 151093
ENEL QUALIFICATION ON TRANSFORMER 1600 kVA
NOMINAL POWER
CLASS: E2 – C2 - F1**

DETERMINING TESTS, IN ACCORDANCE WITH CEI 14-8/92 , APPENDIX B ENCLOSURES ZA AND VARIATION V1-'93, FOR AMBIENTAL CLIMATIC AND FIRE BEHAVIOUR CLASSES.

E2 : SUBSTANCIAL CONDENSATION AND HIGHLY POLLUTED ENVIRONMENT

C2 : TRANSFORMER SUITABLE FCOR BEING STOCKED AND USED WITH AMBIENT TEMPERATURE - 25°C

F1 : TRANSFORMERS WITH HIGH RISK OF FIRE.
REDUCED INFLAMMABILITY GUARANTEED

AMBIENTAL AND CLIMATIC CLASS: TAB. 1

FIRE BEHAVIOUR: TAB. 2 - TAB. 3

**CLIMATIC AND AMBIENTAL TEST FOR
CLASS E2 – C2 ON TRANSFORMER 1600 kVA**

N°	AMBIENTAL TEST CLASS E2	REFERENCE RULES	LABORATORY TEST	CERTIFICATE N° DATE	NOTES
1	CONDENSATION TEST	CEI 14-8/92 ENCLOSURES ZA CENELEC HD 464 DRY -TYPE TRANSFORMERS	CESI	AT- 96/003863 27/02/96	- TIME OF CONDITIONING IN AMBIENT SALINE POLLUTED : > 72 h - RELATIVE DAMPNESS % : 98 % - WATER CONDUCTIVITY : 1 S/m - TESTS: - N° 3 VOLTAGE APPLICATIONS (INSERTIONS UNDER VACUUM AT 1,1 Vn : 5' EACH) -PARTIAL DISCHARGE MEASUREMENT (PERMANENT LEVEL OF THE APPARENT CHARGE < 10 pC)
2	TEST OF DAMPNESS PENETRATION'	CEI 14-8/92 ENCLOSURES ZA CENELEC HD 464 DRY -TYPE TRANSFORMERS	CESI	AT- 96/003863 27/02/96	- TIME OF CONDITION IN HOT AND DAMP AMBIENT : 144 h - RELATIVE DAMPNESS : 90 % - AMBIENT TEMPERATURE : 50 °C - TEST: - APPLIED VOLTAGE - INDUCED VOLTAGE
N°	CLIMATIC TEST CLASS C2	REFERENCE RULES	LABORATORY TEST	CERTIFICATE N° DATE	NOTES
1	HEAT RUN TEST - 25°C	CEI 14-8/92 ENCLOSURES ZA CENELEC HD 464 DRY -TYPE TRANSFORMERS	CESI	LAB- 95/038210 26/01/96	- MANTEINANCE , AFTER REACHING TERMICAL BALANCE, AT - 25 °C FOR 12 h - CURRENT CIRCULATION ON THE WINDINGS EQUAL TO 2 In UP TO T max = 120°C (Tamb.max 40 °C + ΔT 80°C) TESTS : - APPLIED VOLTAGE - INDUCED VOLTAGE - PARTIAL DISCHARGE MEASUREMENT (PERMANENT LEVEL OF THE APPARENT CHARGE < 10 pC)

TAB.1

TEST ON RESIN SAMPLE MARK TESAR TE151093
(CHARACTERISATION OF INSULATOR EPOSSIDIC SYSTEM)

N°	TEST	REFERENCE RULES	EXAMINED SIZE	MISURED VALUE	ACCEPTABLE LIMIT	LABORATORY TEST	CERTIFICATE N° DATE	NOTES
1	MEASUREMENT OF SMOKE OPACITY	CEI 20-37 PART 3 MET.B WEIGHT SAMPLE 100g	DENOPTICAL DENSITY MAX OPTICAL DENSITY MAX. AFTER 40'	0,11 0,08	1,5 MAX	CESI	BC-93/029527 03/11/93	
2	DETERMINATION OF TOXICITY INDEX	CEI 20-37 PART 2	TOXICITY INDEX	1,44	2 MAX	IMQ	01S0454 09/11/93	
3	DETERMINATION OF QUANTITY OF ALOGENHYDRIC ACID	CEI 20-37 PART 1	QUANTITY OF ALOGENHYDRIC ACID	< 1	3 mgHCL/g MAX	IMQ	01S0454 09/11/93	
4	MEASUREMENT OF OXIGEN INDEX	CEI 20-22 APP. A SEZ. 2	OXIGEN INDEX	32,5 %	21% MIN.	IMQ	01S0454 09/11/93	CARATTERISTICHE DELLA COMBUSTIONE
5	MEASUREMENT OF TEMPERATURE INDEX	CEI 20-22 APP.A SEZ. 3	TEMPERATURE INDEX	270 °C	250°C MIN.	IMQ	01S0454 09/11/93	V= 0,05mm/S FIAMMA LENTA
6	DETERMINATION OF SUPERIOR CALORIFIC POWER	ASTM-D 3286	SUPERIOR CALORIFIC POWER	2320 kcal/kg	/	ISTITUTO RICERCHE BREDA	93249/AC/706 12/11/93	

TAB.2

TEST OF SELF-EXTINGUISHING CLASS OF THE TRANSFORMER 1600 kVA
(ON COLOMN COMPLETE WITH WINDINGS)

N°	TEST	REFERENCE RULES	EXAMINATED SIZE	MISURED VALUE	ACCEPTABLE LIMIT	LABORATORY TEST	CERTIFICATE N° DATE	NOTE S
1	GAS IN EXIT OVERTEMPERATURE MEASUREMENT AFTER 5' FROM EXTINGUISH HEATING PANEL (AFTER 45 ' FROM START OF TEST)		GAS IN EXIT OVERTEMPERATURE	100 °C	140 °C MAX			
2	GAS IN EXIT OVERTEMPERATURE MEASUREMENT AFTER 5' FROM EXTINGUISH HEATING PANEL (AFTER 60' FROM START OF TEST)	CENELEC HD464 S1 10/91 DRY -TYPE TRANSFORMERS ANNEX ZC	GAS IN EXIT OVERTEMPERATURE	69 °C	80 °C MAX	CESI	BC-95/038007 21/11/95	
3	MEDIUM LIGHTING MEASUREMENT AFTER FIRST 20' FROM START OF TEST TO END OF TEST	SPEC ENEL 9X07311SECU UE191 01/91 APPENDIX A	MEDIUM LIGHTING	39 %	20 % MIN.			

TAB.3