


NEUTRAL GROUNDING RESISTOR EQUIPMENT

FACTORY TEST REPORT

CUSTOMER : COMPAGNIA TECNICA MOTORI S.p.A.
CUSTOMER P.O. N° : 361 del 01/02/08
CUSTOMER JOB N° : 6608 and 6609
END USER : SALALAH METHANOL COMPANY (SMC)
CLIENT : G.S. ENGINEERING
CLIENT P.O. N° : 7S72-PO-EL-001
TAG N° : EDG 20-NGR-102

VENDOR'S SERIAL N° : R080134-1A

VENDOR : TELEMA S.P.A.
VENDOR JOB N° : CO 080134
MANUFACTURING PLACE : TELEMA S.P.A.
Frazione Quarto – Via Salvoni, 60 _____
29100 Piacenza – Italy
Tel +39 0523 557.226 - Fax +39 0523.557.386

TELEMA S.P.A. Senes Roberto Qualità Control Department		DATA: 20.11.08 Pag. 1 di 3
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NEUTRAL GROUNDING RESISTOR EQUIPMENT FACTORY TEST REPORT
MATERIAL TESTED

ohm value at 20 °C	:	15,88	Ω ± 10 %	
rated initial fault current (constant voltage)	:	400	A	
rated time	:	10	seconds	
number of fault	:	1	per hour	
rated voltage	:	11	√3 KV	
insulation voltage class	:	12	kV	(according to IEC Spec. 60694)
test voltage of resistor (50 Hz for 60")	:	28	kV	(according to IEC Spec. 60694)
BIL	:	75	kV peak	
rated voltage of auxiliary circuits	:	220/240	V a.c.	
		24	V d.c.	
test voltage of aux. circuits (50 Hz for 60")	:	2,5	kV	(according to IEC Spec. 60694)
rated frequency	:	50 / 60	Hz ± 5%	
type of resistor elements	:	grids		
type of resistor elements stainless steel	:	AISI 430		
maximum over temperature of resistor elements	:	760	°C	(according to IEEE32-1972 tab. 6 – column 7)
under fault conditions				
ambient temperature	:	< 50	°C	
protection degree of resistor section	:	IP 54		
protection degree of in / out section (s)	:	IP 55		
and/or devices section(s)				
protection degree of auxiliary section	:	IP 55		

INSTRUMENTATION

TEST	INSTRUMENT	BRAND	TYPE	TAG NUMBER	CALIBRATION TEST	EXPIRY DATE
MEASUREMENT OF OHMIC VALUE	Digital double bridge	BURSTER	Resistomat Typ 2320	Y28-0128	BT209	26.11.08
WITHSTAND VOLTAGE TEST	Up to 30 kV	PESATORI	PAI K-30	396022228	BT55	11.02.09
WITHSTAND VOLTAGE TEST	Up to 5 kV	DOSSENA	BHP-5000	016589	BT50	08.11.08
INSULATION RESISTANCE MEASUREMENT	MEGGER	KYORITSU	3131A	990474	BT153	17.04.09
PAINTING THICKNES MEASUREMENT	Painting thickness gouge 0-1500 μ	ELCOMETER	TM1221	703	BT36	14.12.08

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NEUTRAL GROUNDING RESISTOR EQUIPMENT FACTORY TEST REPORT
ROUTINE TESTS

On each complete Neutral Grounding Resistor the following tests and checks had been performed

N°	DESCRIPTION OF TESTS AND CHECKS	PROCEDURE METHOD	ACCORDING TO	RESULTS
1	Verification of gauging and calibration of instruments used for checks and tests	Visual	Internal procedure BT	POSITIVE
2	Compliance with purchase order description	Visual	PURCHASE ORDER 361 DATED 01.02.08	POSITIVE
3	Compliance with purchase order attached documents	Visual	DATA SHEET 361 DATED 01.02.08 PUNCH LIST DATED 17.10.08	POSITIVE POSITIVE
4	Visual check of the equipment	Visual		POSITIVE
5	Check of binding dimensions	Steel tape line	DS 080134 -1 Rev. 4	POSITIVE
6	Check of satisfactory fit of all covers (bent, twisted, close, latch)	Visual	DS 080134 -1 Rev. 4	POSITIVE
7	Check of mechanical protection degree	Visual	DS 080134 -1 Rev. 4	POSITIVE
8	Check of colour and measurement of dry film thickness of the painted surfaces	RAL colours reference table Thickness gauge	DS 080134 -1 Rev. 4 TD 080134 -1 Rev. 3 SV 080134 -1 Rev. 2	RAL 7032 70 μ
9	Arrangement of components, devices and accessories	Visual	DS 080134 -1 Rev. 4	POSITIVE
10	Check of integrity of all components, devices and accessories	Visual	DS 080134 -1 Rev. 4	POSITIVE
11	Functional check of components, devices and accessories (where possible)	Operating check (where possible)	DS 080134 -1 Rev. 4	POSITIVE
12	Check of integrity of wiring terminal connections	Visual		POSITIVE
13	Check of cables and terminal-boards marking	Visual (according to IEC Std. 60446)	DS 080134 -1 Rev. 4	POSITIVE
14	Check of nameplate and rating plate data	Visual	DS 080134 -3 Rev. 0 DS 080134 -5 Rev. 1	POSITIVE
15	Measurement of ohmic value at cold condition of the completely assembled resistor	Thomson Double Bridge or Digital Ohmmeter	IEC Std. 60694	16,5 Ω AT 26 °C
16	Insulation resistance	Megger at 1.000 V d.c.	IEC Std. 60694	POSITIVE
17	Separate source voltage test for Medium Voltage circuits	Between active parts and ground	IEC Std. 60694 24 kV for 60" at 50Hz	POSITIVE
18	Separate source voltage test For Low Voltage circuits	Between active parts and ground	IEC Std. 60694 2,5 kV for 60" at 50Hz	POSITIVE
19	Check of sub vendors certificates	Visual		POSITIVE

CONTACTORS CUBICLE FACTORY TEST REPORT

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END USER : SALALAH METHANOL COMPANY (SMC)
CLIENT : G.S. ENGINEERING
CLIENT P.O. N° : 7S72-PO-EL-001
TAG N° : STG 20-LBS-101

VENDOR'S SERIAL N° : R080134-2A

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Tel +39 0523 557.226 - Fax +39 0523.557.386

CONTACTORS CUBICLE FACTORY TEST REPORT

MATERIAL TESTED

rated voltage	:	11	$\sqrt{3}$ KV	
insulation voltage class	:	12	KV	(according to IEC Spec. 60694)
test voltage of resistor (50 Hz for 60")	:	28	kV	(according to IEC Spec. 60694)
BIL	:	75	kV peak	
rated voltage of auxiliary circuits	:	220/240	V a.c.	
		24	V d.c.	
test voltage of aux. circuits (50 Hz for 60")	:	2,5	KV	(according to IEC Spec. 60694)
rated frequency	:	50 / 60	Hz \pm 5%	
ambient temperature	:	< 50	$^{\circ}$ C	
protection degree of in / out section (s)	:	IP	55	
and/or devices section(s)				
protection degree of auxiliary section	:	IP	55	

INSTRUMENTATION

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WITHSTAND VOLTAGE TEST	Up to 5 kV	DOSSENA	BHP-5000	016589	BT50	07.11.09
INSULATION RESISTANCE MEASUREMENT	MEGGER	KYORITSU	3131A	990474	BT153	17.04.09
PAINTING THICKNES MEASUREMENT	Painting thickness gouge 0-1500 μ	ELCOMETER	TM1221	703	BT36	14.12.08

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ROUTINE TESTS

On each complete Neutral Grounding Resistor the following tests and checks had been performed

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3	Compliance with purchase order attached documents	Visual	DATA SHEET 361 DATED 01.02.08 PUNCH LIST DATED 17.10.08	POSITIVE
4	Visual check of the equipment	Visual		POSITIVE
5	Check of binding dimensions	Steel tape line	DS 080134 -2 Rev. 6	POSITIVE
6	Check of satisfactory fit of all covers (bent, twisted, close, latch)	Visual	DS 080134 -2 Rev. 6	POSITIVE
7	Check of mechanical protection degree	Visual	DS 080134 -2 Rev. 6	POSITIVE
8	Check of colour and measurement of dry film thickness of the painted surfaces	RAL colours reference table Thickness gauge	DS 080134 -2 Rev. 6 TD 080134 -2 Rev. 4 SV 080134 -1 Rev. 2	RAL 7032 70 μ
9	Arrangement of components, devices and accessories	Visual	DS 080134 -2 Rev. 6	POSITIVE
10	Check of integrity of all components, devices and accessories	Visual	DS 080134 -2 Rev. 6	POSITIVE
11	Functional check of components, devices and accessories (where possible)	Operating check (where possible)	DS 080134 -2 Rev. 6	POSITIVE
12	Check of integrity of wiring terminal connections	Visual		POSITIVE
13	Check of cables and terminal-boards marking	Visual (according to IEC Std. 60446)	DS 080134 -2 Rev. 6	POSITIVE
14	Check of nameplate and rating plate data	Visual	DS 080134 -4 Rev. 1 DS 080134 -6 Rev. 2	POSITIVE
15	//			
16	Insulation resistance	Megger at 1.000 V d.c.	IEC Std. 60694	POSITIVE
17	Separate source voltage test for Medium Voltage circuits	Between active parts and ground	IEC Std. 60694 24 kV for 60" at 50Hz	POSITIVE
18	Separate source voltage test For Low Voltage circuits	Between active parts and ground	IEC Std. 60694 2,5 kV for 60" at 50Hz	POSITIVE
19	Check of sub vendors certificates	Visual		POSITIVE