



L'ENERGIA CHE TI ASCOLTA.

DIVISIONE GENERAZIONE ED ENERGY MANAGEMENT
 AREA TECNICA SVILUPPO E REALIZZAZIONE IMPIANTI

Purchase Technical Specification

Documento / Document no.

PBLIV20138Pagina
Sheet**1**di
of**6**PROGETTO
Project**LIVADIA****Combined Cycle Power Plant**Indice Sicurezza
Security Index**Usò Aziendale / P**TITOLO
Title

Neutral Grounding Resistor for Unit and Start-up Transformer
- Job E03

CLIENTE
Client**ENELCO**

JOB no.

E03

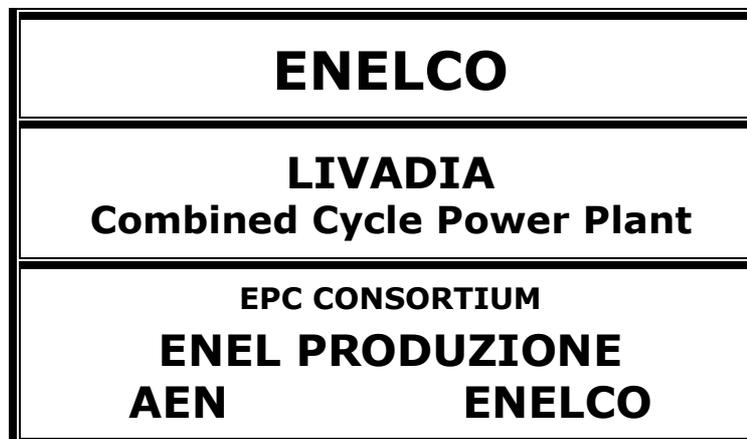
Document no.

PBLIV20138INOLTRO AL CLIENTE
Client SubmittalPER APPROVAZIONE
For ApprovalPER INFORMAZIONE
For Information OnlyNON RICHIESTO
Not RequestedSISTEMA
System**72D**TIPO DOCUMENTO
Document Type**ST**DISCIPLINA
Discipline**ELE**FILE
File**PBLIV2013800**

REV

DESCRIZIONE DELLE REVISIONI / Description of Revisions

00 For tender requisition



00	25.06.07	TR									
			C.Maccaroni						CD	RD	PE
REV	Data Date	Scopo Scope	Preparato Prepared by	Collaborazioni Co-operations				Controllato Checked by	Approvato Approved by	Emesso Issued by	

Questo documento è proprietà di Enel Produzione Spa. E' severamente proibito riprodurre anche in parte il documento o divulgare ad altri le informazioni contenute senza la preventiva autorizzazione scritta.

This document is property of Enel Produzione Spa. It is strictly forbidden to reproduce this document, in whole or in part, and to provide to others any related information without the previous written consent.

	<p align="center">LIVADIA Combined Cycle Power Plant</p>	<p>Documento Document no. PBLIV20138</p>
	<p align="center">Purchase Technical Specification</p>	<p>REV. 00 25.06.07</p> <p>Pagina 2 di Sheet of 6</p>

INDEX

0.	ANNEXES	3
1.	SUBJECT	3
1.1.	Earthing transformer	3
1.2.	Earthing resistor	3
1.3.	Low voltage auxiliary compartment	4
2.	DATA SHEET	5
1.1.	Earthing cubicle	5
1.2.	Earthing Transformer.....	5
1.3.	Earthing Resistor.....	6

	LIVADIA Combined Cycle Power Plant	Documento Document no. PBLIV20138
	Purchase Technical Specification	REV. 00 25.06.07 Pagina 3 di 6 Sheet of

0. ANNEXES

- PBLIV20107 rev.00 - General Single Line Diagram
- PBLIV20128 rev.00 - Unit Trasformer purchase technical specification
- PBLIV20129 rev.00 - Start-up Trasformer purchase technical specification

1. SUBJECT

This Technical Specification is relevant to the supply of N.2 Neutral Grounding Resistor Cubicle for the Unit Auxiliary and Start up Transformers.

The star point earthing cubicle shall be out door type, cable entry from bottom, frame made by stainless steel.

The cubicle shall be internally divided by three separate compartments each one containing the following:

- earthing transformer
- earthing resistor
- low voltage auxiliary equipment

The cubicle shall be designed and manufactured in accordance with applicable IEC standard.

1.1.EARTHING TRANSFORMER

The earthing transformer shall be cast resin, insulation class F; transformer ratio shall be $6000:\sqrt{3}/500$ V.

The earthing transformer compartment shall have a degree of protection IP43 with closed doors and IP01 with open doors; the doors shall be bolted to the frame of the cubicle and opening shall be possible only with special tools.

1.2.EARTHING RESISTOR

The resistor shall be of heavy-duty, cast grid or stainless steel strip type, mounted on cap and pin or post type porcelain insulators.

Earthing resistor shall be designed in order to limit the single phase to ground fault current, on 6 kV side, to 10 A. Ground fault may be allowed for a maximum period of 8 hours.

A current transformer, having ratio 10/5 A, 10 VA 5P15, shall be connected in sequence to the primary winding of earthing transformer.

A auxiliary voltage transformer, having ratio 500/100 V, 10 VA cl. 0.5, shall be connected on earthing resistor.

The earthing resistor compartment shall have a degree of protection IP24, suitable to allow heat exchange during normal service condition and during a ground fault, so that it will not be dangerous for equipment and people.

Other resistor characteristics shall be as follows:

	<p align="center">LIVADIA Combined Cycle Power Plant</p>	<p>Documento Document no. PBLIV20138</p>
	<p align="center">Purchase Technical Specification</p>	<p>REV. 00 25.06.07</p> <p>Pagina 4 di Sheet of 6</p>

- High degree of insulation, guaranteed by the use of the best available materials, such as mica and steatite ceramics; or better;
- High power dissipation because of the wide cooling surface;
- Capacity to withstand permanent overloads without damage or alteration, even if temperatures reach 800°C;
- High heat capacity available;
- Low resistance variation with temperature. high quality alloys.

1.3.LOW VOLTAGE AUXILIARY COMPARTMENT

The compartment shall have a degree of protection IP55, space heaters with relevant thermostat shall be included.

The cubicle shall be complete with all terminal blocks, sockets and light with door limit switch.

Relevant routine test will be carried out at the supplier factory, type certificates shall be provided.

	LIVADIA Combined Cycle Power Plant	Documento Document no. PBLIV20138
	Purchase Technical Specification	REV. 00 25.06.07 Pagina 6 di Sheet of 6

1.3.EARTHING RESISTOR

4.1 Resistor elements type(1)
4.2 Ground Fault current to limit on 6000 V side	10 A for 8 hours
4.3 Total resistor value at 20°C	7.14 Ω
4.4 Rated current (500 V side)	70 A
4.5 Total resistor value at°C Ω (1)
4.6 Total inductance value μH (1)
4.7 Temp. rise in rel. at continuous rating K (1)
4.8 Type of cooling	Natural Air
4.9 Rated continuous current A (1)
5.0 Insulation type(1)

(1) after the order