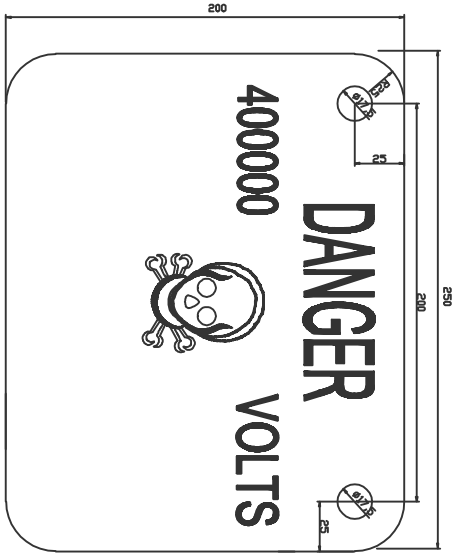
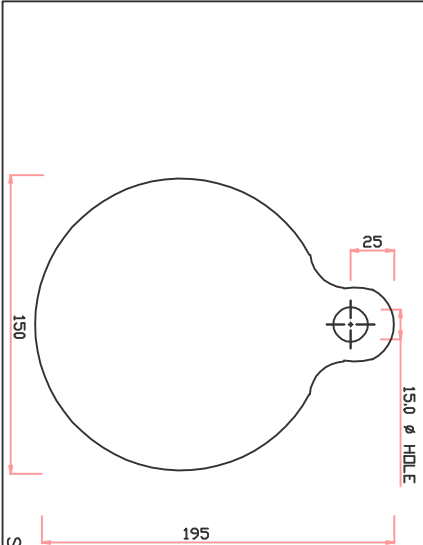


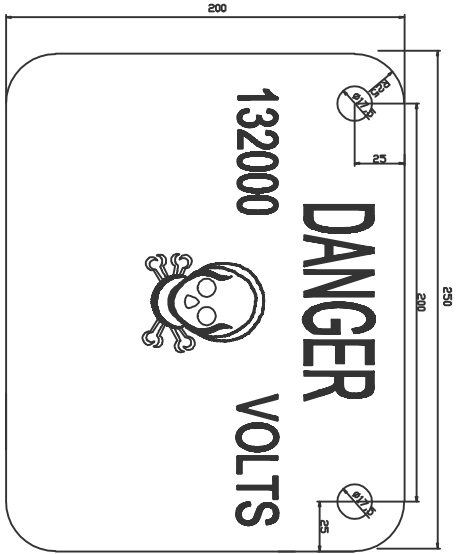
SKETCH-1: DANGER LABEL FOR 400 KV YARD



SKETCH-2: PHASE COLOR DISC FOR 400 & 132KV YARDS



SKETCH-1: DANGER LABEL FOR 132KV YARD





BHARAT HEAVY ELECTRICALS LIMITED

TRANSMISSION BUSINESS GROUP
ENGINEERING MANAGEMENT, BHOPAL

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BHEL Document No.	TB-353-316-040		Rev.	00	Name	SK	Checked by	DKM	Approved by	RS
Type of Document	Technical Specification				Sign					
Title	Phase Color Disc & Danger Label				Date	25.12.12	25.12.12	25.12.12		
					Group	TBEM				
					W.O. No	87005				
Customer / Consultant	THE SINGARENI COLLIERIES COMPANY LTD. / NATIONAL THERMAL POWER CORPORATION LTD.									
Projects	400 KV AND 132 KV SWITCHYARD FOR SINGARENI THERMAL POWER PROJECT 2X600MW AT ADILABAD, AP									
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3	Project details and general specifications							2		
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Rev No.	Date	Altered	Checked	Approved	REVISION DETAILS					
Distribution				To		O/C	TBQM	TBSS	TBMM	
				Copies		1	1	1	3	

SECTION- 3

PROJECT DETAILS & GENERAL TECHNICAL REQUIREMENTS

3.0 GENERAL

This section stipulates the General Technical Requirements under the Contract and will form an integral part of the Technical Specification.

The provisions under this section are intended to supplement general requirements for the materials, equipment and services covered under other sections of tender documents and are not exclusive. However in case of conflict between the requirements specified in this section and requirements specified under other sections, the requirements specified under respective sections shall prevail.

3.1 PROJECT INFORMATION:

	Particular	Details
a)	Customer	M/S Singareni Collieries Company Limited, Kothagudem(SCCL)
b)	Project Title	2 X 600 MW Singareni Thermal Power Project at Peagdapalli (V), Jaipur (M), Adilabad Dist, Andhra Pradesh
c)	Location	Pegadapalli village, Jaipur Mandal, Adilabad District, A.P.
d)	Distance from Nearest Town - Mancherial	14.6 KM
e)	Distance from State Highway	4.6 KM
f)	Distance from NH-16 (Nirmal-Chennur section)	500 Mtrs
g)	Nearest Airport & Distance	Shamshabad Airport, Hyderabad 250 KM
h)	Nearest Railway Station	Mancherial Railway station on Nagpur-Kazipet main railway line of South Central Railway 14.6KM

3.2 PACKAGING & PROTECTION

3.2.1 PACKING, MARKING AND SHIPPING

The packing and shipping shall be carried out in accordance with the standard practice of Contractor and with the following additional requirements:

- The equipment shall be prepared in such a manner as to protect the equipment from damage or deterioration during shipping or storage. The shipments can be exposed to heavy rains, hot sun, high humidity and sudden extreme changes of temperature. The equipment shall be packed and shipped so as to protect it from all such conditions and any other abnormal conditions, generally expected during shipping & storage.
- The equipment shall be shipped in such a manner as to facilitate unloading, handling and storage enroute and at the site. The Contractor shall provide lifting lugs and special lifting devices for proper handling and erection.
- The Contractor shall be liable for any damage or loss resulting due to careless, improper, poor or

Technical Specification

Phase colour discs & Danger Labels

- insufficient packing and handling.
- d. The Contractor shall at all times protect and preserve from damage, loss, corrosion and all other forms of damage, all parts of the works.
- e. **PACKING IN CRATES**
For the equipment packed in crates, the packing wood shall be as per relevant Indian/ International standards. The base of the crate shall be made of wooden batons and planks giving necessary reinforcement, so that the bottom of the equipment is at a height of 100mm minimum from the ground level. The size of the plank shall be decided by the sub-contractor to suit the weight of equipment. Minimum thickness of the plank shall be 25mm and minimum width shall be 150mm. Crate shall be made while keeping the gap from 25mm to 200mm depending upon the size of equipment and weight. However, the responsibility of proper packing and safe delivery of the equipment to site lies with the supplier

3.2.2 TRANSPORTATION

The Contractor shall make a careful examination of access rail/roadways to the site in order to confirm the practical maximum transport weight and dimensions as well as a careful examination of the ports of disembarkation particularly with respect to the capacity of the cranes installed and access roads.

3.2.3 INSURANCE

- a. The Contractor shall insure all shipments and works at his own expense for not less than the full replacement cost plus any additional cost for accelerated manufacturing of the replacement parts.
- b. Loss or the damage to equipment during shipping or transportation to the site(s) or otherwise shall not constitute groups for claims for extension in time or for extra payment.

3.2.4 STORAGE OF EQUIPMENT

- a. The Contractor shall provide and construct adequate storage sheds for proper storage of equipment. Sensitive equipments shall be stored indoors. All equipment during storage shall be protected against damage due to act of nature or accidents. The storage instructions of the equipment manufacturers shall be strictly adhered to.
- b. The necessary transport packing shall be removed as soon as possible after receipt of equipment at the work site(s).

3.3 DEVIATIONS FROM SPECIFICATIONS

Deviation, if any, from any these specifications shall be listed out separately. Bidder shall attach a separate sheet titled as “DEVIATIONS FROM SPECIFICATIONS” and list all deviations details of each deviation Section wise and Clause wise. In absence of any deviation listed out separately, adherence the specifications shall be assumed.

SECTION –1

SCOPE, SPECIFIC TECHNICAL REQUIREMENTS AND QUANTITIES

1.0 SCOPE

This technical specification covers manufacture, packing and dispatch of Phase colour discs & Danger Labels.

The equipment is required for the following Project:

CUSTOMER: THE SINGARENI COLLIERIES COMPANY LTD.

CONSULTANT: NATIONAL THERMAL POWER CORPORATION LTD.

PROJECT: 400 KV AND 132 KV SWITCHYARD FOR SINGARENI THERMAL POWER PROJECT 2X600MW AT ADILABAD, AP

Refer Section - 3 for Project Details and General Specifications.

1.1 SPECIFIC TECHNICAL REQUIREMENTS

Material of Danger label : M.S. Sheet

Material of Phase
Colour discs : M. S. Plate

Thickness of Danger label : 2 mm

Thickness of Phase
Colour discs : 2 mm

Inscription colour
for Danger labels/ Phase
colour discs : As per enclosed Sketch 1 & 2

Fixing Hardware : As per enclosed Sketch -1 & 2

1.2 Quantities are as follows complete with Hardware:

S.No.	Description	Quantity
		KODERMA
1	Danger Label as per enclosed Sketch-1(2Sheets) (400kV and 132kV)	15 Nos.
2	RED, YELLOW, BLUE Phase coloured discs as per enclosed sketch-2 (Sheet-1) (400kV and 132kV)	51* Sets

*Each set comprise Red, Yellow and Blue Phase Colored Discs (1 No. Each) complete with hardware as per specification

SECTION 2

EQUIPMENT SPECIFICATION

2.1 GENERAL

This section covers the general technical requirements of the Danger labels and Phase colour discs. In case of any discrepancies between the requirements mentioned in this section and those specified in other sections of this specification the latter shall prevail and shall be treated as binding requirements.

2.2 APPLICABLE STANDARDS

The Danger labels and Phase colour discs shall strictly conform to the following Indian standards, as appropriate:

Danger Notice Plates	IS 2551; 1982
Colour for ready mixed Paints & enamels	IS 5; 1978

2.3 CONSTRUCTIONAL FEATURES

2.3.1 The Phase colour discs and Danger plates covered under this specification shall be of size and specification as per drawings enclosed & requirements as outlined in clause 1.2

2.3.2 All lettering shall be centrally spaced & in capitals only.

2.3.3 The material supplied shall be in a sound condition and of recent manufacture. It shall conform to requirements as specified in drawing. The finished material shall be free from defects, loose mill scale, slag fillings, rust, etc.

2.3.4 Enameling shall provide continuous adherent film of adequate thickness on the surface being coated and protect it from attack due to continuous exposure in industrial atmosphere prevailing at the site and exposure in continuous corrosive environment. Enameling shall be done on both sides of labels, discs and plates unless otherwise specified.

2.3.5 The design and manufacture of Danger labels shall conform to IS: 2551, 1982. The colour shades for all labels shall be in conformance to IS-5; 1978

2.3.6 Phase colour discs shall also be coloured as per IS: 5; 1978. Following colour shade scheme shall be strictly adhered to: -

Red colour No. 538 (Post office Red)

Blue colour No. 166 (French Blue)

Yellow colour No. 355 (Lemon Yellow)

- 2.3.7 Size, type and style of lettering shall be as per drawing attached and letters shall be of uniform height and thickness.
- 2.3.8 All lettering in labels shall be centrally spaced. The label inscription shall be engraved.
- 2.3.9 These labels and phase colour discs shall be suitable for fixing on switchyard structure/ gantries etc.
- 2.3.10 All fastener items shall be of metric sizes as per standards and shall be as per enclosed drawing.

2.4 INFORMATION TO BE FURNISHED AT CONTRACT STAGE.

The following information shall be furnished immediately in the event of award of contract.

- 2.4.1 Drawings on scale 1:1 for all labels and phase colour discs.
- 2.4.2 Non-returnable samples of the following:-
- Phase colour disc (typical) : One No.
 - Danger Label (typical) : One No.

Note: Only on written approval (by BHEL) of drawing and samples of labels & phase colour discs, should the production work commenced.

2.5 TESTING and INSPECTION

The test certificates for the full material received from the manufacturer should be furnished and shall be got approved. The finished material shall be offered for inspection as per data sheet/ test reports/ drawing, before commencement of supply.