TENDER DOCUMENT

NIT No.- DLI / C&E / WI-675 / 856

FOR


VOLUME- 2

TECHNICAL PART
## Contents- (Volume-2)

NIT No. DLI/C&E/WI-675/856

<table>
<thead>
<tr>
<th>S.No</th>
<th>Description</th>
<th>Total sheets</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Volume-2A (General Specifications)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Introduction</td>
<td>02 sheets</td>
</tr>
<tr>
<td></td>
<td>- General Requirements &amp; Description (Project Synopsis, GTR, PG, Inspection &amp; Testing, Painting etc.)</td>
<td>36 sheets</td>
</tr>
<tr>
<td></td>
<td>- List of Approved Vendors</td>
<td>32 sheets</td>
</tr>
<tr>
<td></td>
<td>- List of Preferred makes</td>
<td>39 sheets</td>
</tr>
<tr>
<td>2</td>
<td>Volume-2B (Scope of Work &amp; Technical Specification.)</td>
<td>04 sheets</td>
</tr>
<tr>
<td></td>
<td>- Scope of work</td>
<td>02 sheets</td>
</tr>
<tr>
<td></td>
<td>- Technical specification</td>
<td>03 sheets</td>
</tr>
<tr>
<td>3</td>
<td>Volume-2C (Tender Drawings List)</td>
<td>01 sheet</td>
</tr>
</tbody>
</table>
TENDER DOCUMENT

NIT No. - DLI / C&E / WI-675 / 856

FOR


VOLUME- 2B

(Scope of Work & Technical Specification)

ENGINEERING PROJECTS (INDIA) LIMITED

(A GOVT. OF INDIA ENTERPRISE)
Core-3, Scope Complex, 7, Institutional Area,
Lodhi Road, New Delhi-110003
TEL NO: 011-24361666  FAX NO. 011- 24363426
**Scope of Work:**

**BELT RUPTURE SWITCH AND ASSOCIATED WORKS**

Scope of work for Belt Rupture Switch shall include (but not limited to) design, engineering, manufacture, fabrication and assembly, final painting, testing and inspection at works, packing, supply, dispatch, transportation, delivery at site, providing drawings documents for approval of BSP/MECON, completion of facilities, performance guarantee testing etc. Supervision of installation, testing & commissioning and handing over to Bhilai Steel Plant of Belt Rupture Switch (Infra Red Type) and Associated Works. Scope of supply shall also include Belt Rupture Switch complete unit with supporting arrangement, installation accessories, Interconnecting special cable in the field, Control panel, field Junction Box and commissioning spares, special tools & tackles etc. All terminals in Belt Rupture Switch control panel shall be suitable for termination of 2.5 sqmm wire/cable. Bidder to provide recommended cable specifications from controller panel to purchaser's Automation system.

Infra Red Type Belt Rupture Switch shall be provided to detect belt rupture / torn condition of conveyor belts and after detection it will initiate the command to stop running conveyor belt. The sensors and controller panel of Belt Rupture switch shall be suitable for outdoor installation. The surge suppressor shall also be provided to protect the unit from surge.

The minimum set of belt Rupture Switches will be provided for conveyors as given below:

- 1 set for conveyors of length up to 50 m.
- 2 sets for conveyors of length above 50 m and below 100 m.
- 3 sets for conveyors of length above 100 m.

1 (one) Phase, 240 V +10% & -15%, 50 Hz +4% & -6% power supply shall be provided by purchaser near the control panel unit of Belt Rupture Switch. In field

The scope shall also include:

01 Supply of Infra Red Type Belt Rupture Switch Detector as per specification given, complete unit with controller unit, JB/Panel and interconnecting cables from sensors to controller, panel etc. for conveyor belts.

02 All mounting accessories and interconnecting cable in the field from sensors to controller unit and panel, special cable, control panel/ JBs as required. Cable length shall be suitable for connecting the sensors to controller unit / control panel. The
minimum cable length in field shall be 10 meters /As per system requirement subject to approval of MECO/BSP for connecting sensors to control panel.

03 All fixing bolts, nuts, brackets, mounting block, mounting stand for fixing etc. for installation of Belt Rupture Switch complete system.

04 Submission of Drawings /documents for Belt Rupture Switch in requisite copies for approval of BSP/MECON and submission of final basic & detailed engineering drawings, as built drawings, installation drawings/documents, operation and maintenance manuals etc.

05 Deputation of representatives to site for supervision of installation, testing, and commissioning.

06 Supply of all commissioning spares, tools and tackles, initial fill etc.. A list of such items shall be indicated separately. Bidder shall furnish separately price for recommended spares for two years Operation & Maintenance

07 Obtaining required statutory approval shall be in bidder’s scope.

08 Training to operation and maintenance personnels.

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TECHNICAL SPECIFICATION FOR BELT RUPTURE (TEAR) SWITCH

General:

Belt tear detector/switches shall be provided for new belt conveyors. The switches shall be so located or protected that they do not come in contact with the flow of material and suitable for outdoor installation.

Specifications:

1. Application : To detect torn/rupture condition of belt
2. Material : CHP Area: Coal
   CSP Area: Coke
   FF Area : Coke, Lime & Dolomite
3. Pressure : Atmospheric
4. Ambient Temp. : Absolute maximum – 50 degree C.
5. Type : Infra Red type
6. Operation principle : When the belt is ruptured the piece of belt will be hanging down from the normal belt position. The hanging piece of belt when moving through the sensors will cut the laser beam and the safety relay will actuate immediately.
7. Mounting : Shall be mounted in pairs on both side of the conveyor as per manufacturer standard.
8. Enclosure Protection : IP-65
9. Power Supply : 240V AC ± 10%, 50 Hz
10. Cable Entry : Cable entry suitable for 3C x 2.5 sq. mm (2 nos.) armoured cables (for power and control signal to suit single/double compression type cable glands.
11. Control unit output : 2 sets of NO + NC potential free output contacts, Contact Rating 5 A at 240 VAC, 50 Hz
12. Control Unit terminal : Integral part of control unit
13. Conveyor Capacity : i) CHP : 600T
ii) CSP: 100T /200T /300 T

iii) C-Line: 400T

iv) Fuel: 200T, Flux: 400 T / 800T

14. Belt Width :  
   i) CHP : 1200/1400 mm
   ii) CSP: 1200/1400/1600 mm
   iii) C-Line: 800/1000/1400 mm
   iv) Fuel: 1000mm, Flux: 1000/1200 mm

15. Belt Speed :  
   i) CHP : 2 m/sec
   ii) CSP: 1.6/1.8 m/sec
   iii) C-Line: 1.6 m/sec
   iv) Fuel: 1.6/1.8 m/sec, Flux: 1.6/2 m/sec

16. Material of Belt : Nylon

17. Mounting Locations : All new conveyors of CHP, CSP, C-Line, Fuel & Flux of Pkg-064

18. Mounting Accessories: All mounting brackets, nuts, bolts, frame etc as required

**Drawings/ Documents**

(I). **List of drawings/data to be submitted along with tender**
   a. No deviation declaration to NIT - Vol-1, Vol-2(2A,2B&2C) & Vol-3
   b. Duly signed, dtd and stamped copy of unpriced copy of price bid.
   d. List of commissioning spares.
   e. List of recommended spares for two years maintenance of plant and equipment.
   f. List of tools and tackles to be supplied with the plant and equipment.
   g. Block diagram showing cable connectivity with main equipment.

(II). **List of drawing/documents to be furnished by the Successful vendor for approval/reference of BSP/MECON**
   The following drawing/document are to be submitted by the successful tenderer within one month of placement of order:
   a. General arrangement drawing of equipment showing full details
   b. Specifications/data sheet with model no.
   c. Bill of Material.
   d. Installation Drawings
   e. Cable termination drawings
f. Installation instructions

g. List of commissioning spares and special tools & tackles
h. Quality assurance plan for inspection
i. Operating, maintenance & commissioning manuals
j. Internal test reports
k. System description and operation Approvals
l. Drawings and Documents as per recommendation of BSP/MECON
m. Drawings/Documents as per manufacturer's recommendation.