TENDER DOCUMENT

NIT No.- DLI / C&E / WI-665 / 753

FOR

Tender for ‘Design, Engineering, Supply, Supervision of Installation, Testing & Commissioning of ‘CHUTE JAM DETECTION SYSTEM’ for the project of “Augmentation of Raw Material Receipt and Handling Facilities with new OHP Part– B (Package- 061) of Bhilai Steel Plant (SAIL)”.

VOLUME- 2B

(Scope of Work & Technical Specification)

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(A GOVT. OF INDIA ENTERPRISE)
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Scope of Work – Chute Jam Detection System

Scope of work of bidder for Chute Jam Detection system shall include (but not limited to) design, engineering, manufacture, shop fabrication, assembly, testing and inspection at works, packing, supply, dispatch, transportation, delivery FOR site, required fabrication & assembly at site, completion of facilities, supply of commissioning and start-up spares, special tools and tackles, Getting approval of drawings & documents from BSP/MECON before manufacturing and supply, supervision services at site during installation, testing & commissioning of Chute Jam Detection system as specified in technical specification, providing drawings & documents, datasheets in requisite sets, quality assurance plan, internal test reports, As built drawings, demonstration of performance guarantee testing, final painting and handing over to Bhilai Steel Plant including all electrics/electronics and standard accessories of Chute Jam Detection System.

The scope of supply of the bidder shall be deemed to include all such items which although are not specifically mentioned in the specification, but are needed to make the equipment/system complete in all respect for its safe, reliable, efficient and trouble free operation.

Any modifications/deletions/additions/alteration in design/drawings/documents as required by BSP/MECON/EPI for proper execution of the system at site till completion and handing over of the project to BSP shall be in the scope of bidder.

1 Phase, 230 V +10% & -15%, 50 Hz +4% & -6% power supply shall be provided by purchaser near the control unit of Chute Jam Detection unit. Further distribution of power as required shall be in the scope of bidder.

The scope of supply and services of the bidder shall include the following:

a) Mechanical
   - Each equipment shall be complete in all respect including its drive units, cables, safety switches, structural, mechanical and other standard accessories.
   - Necessary fixtures, supporting angles and brackets required for mounting and supporting the equipment.
   - All mounting accessories for the Chute Jam Detection System.
   - The bidder shall include supervision services at site during installation, testing and commissioning of the equipment supplied by them.

   * All Fixing bolts and nuts including foundation bolts shall be included in the scope of supply of bidder.
• Commissioning spares as required during testing and commissioning of the equipment.

• Required quantity of initial fill of oil, grease, lubricants, hydraulic fluid etc. and other consumables which are necessary for cleaning/flushing including erection, testing and commissioning of the equipment shall be in the scope of supply of bidder.

• Necessary tools and tackles for equipment required for maintenance, testing or inspection of the equipment.

• Statutory approval wherever required shall be taken by the bidder for the equipment being supplied by them from relevant state/central authorities.
TECHNICAL SPECIFICATION FOR CHUTE JAM DETECTION SYSTEM

General:
Chute jamming detectors shall be provided on chute of delivery conveyor to detect chute jamming of the conveyor. The detectors shall be so located or protected that they do not come in contact with regular flow of material. The detector shall also be protected against deposit of fine particles causing false alarm or stoppage of the conveyors. All the chute jamming detectors shall be suitable for outdoor installation.

Quantity : 90 Sets

Codes & Standards:
The design, manufacture, inspection and testing of Chute Jamming Detection System shall comply with all the currently applicable statutes, regulations, and safety codes in the locality where the equipment is to be installed. The Chute Jamming Detectors shall confirm to the latest edition of standards/codes as applicable, which ensure equal or higher performance than those specified, shall also be accepted. Nothing in this specification shall be constructed to relieve the bidder of the required statutory responsibility.

Specifications:
1. Application : To detect chute jamming incase of material struck up in chute when falling from discharging conveyor to receiving conveyor through chute

2. Material : Iron ore/Flux (Details as given below)

3. Size of Material
   (i) Lump Iron ore : -40mm
   (ii) Iron ore fines : -8mm
   (iii) Lime Stone : -60mm (BF/SP grade)
   (iv) Dolomite : -60mm (BF/SP grade)
   (v) Quartzite : -50MM
   (vi) Lime Stone : -60mm (SMS grade)
   (vii) Dolomite : -60mm (SMS grade)
   (viii) Pellets : -18mm
   (ix) Manganese Ore : -25mm
   (x) Coke Breeze : -25mm

4. Material Temp. : Detector unit should be suitable for 50 degree C.

5. Moisture content : 5-20 %
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<td>Abrasive</td>
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<td>Pressure</td>
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<td>8</td>
<td>Ambient Temp.</td>
<td>Absolute maximum – 50 degree C.</td>
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<td>9</td>
<td>Relative Humidity</td>
<td>100 % (Max.), 7 % (min.)</td>
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<td>Shield material</td>
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<td>15</td>
<td>Mounting</td>
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<td>16</td>
<td>Probe Housing</td>
<td>Cast Aluminum Weather Proof, Protection IP-65</td>
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<td>17</td>
<td>Process connection</td>
<td>Flanged (ANSI Flange), Size shall be to suit probe unit Installation as per manufacturer’s recommendation and rating shall be as per process requirement.</td>
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<td>Sensitivity control</td>
<td>Adjustable</td>
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<td>19</td>
<td>Accessories</td>
<td>Counter flange, gasket, nut, bolts etc. for fixing as required</td>
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<td>20</td>
<td>Control unit housing</td>
<td>Cast aluminum weather proof, Protection IP-65</td>
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<tr>
<td>21</td>
<td>Power Supply</td>
<td>240V AC + 10% &amp; -15% 50 Hz +4% &amp; -6%</td>
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<td>22</td>
<td>Cable Entry</td>
<td>1 no. for special cable from probe to control unit &amp; 2 nos Cable entry suitable for 3C x 2.5 sq. mm armoured cable to suit single/double compression type cable glands.</td>
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<td>23</td>
<td>Special cable length</td>
<td>As required to install control unit near the sensing probe at appropriate approachable location (min. 15 mtrs. cable to be supplied with each unit)</td>
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<td>24</td>
<td>Control unit output</td>
<td>2 sets of NO + NC potential free output contacts, Contact Rating 10 A at 230 VAC, 50 Hz</td>
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<td>25</td>
<td>Control unit terminal</td>
<td>Integral part of control unit suitable for 2.5 sq mm size wire</td>
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<tr>
<td>26</td>
<td>Mounting Location</td>
<td>Side mounting on chute of conveyors</td>
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<tr>
<td>27</td>
<td>Output</td>
<td>Potential free output contacts 2NO + 2 NC, Rating 10 A at 230V AC, 50 Hz (Output terminals should be suitable for 2.5 sq mm wire/cable)</td>
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Documentation to be submitted:

1. List of drawings/ documents to be submitted along with tender
   a) General arrangement drawing with bill of material of equipment showing overall dimension and details.
   b) Supplier’s name for components & catalogues for these items. Technical literature on offered equipment.
   c) Brief description on offered system.
   d) Reference list of customers for the similar supply.
   e) Unpriced copy of price schedules.
   f) List of commissioning and set up spares to be supplied with equipment.
   g) List of recommended spares for two years of trouble free operation & maintenance of equipment.
   h) List of special tools and tackles to be supplied with equipment.
   i) The tenderer has to furnish one copy of the specification and drawing duly signed by him as a token of acceptance along with the list of deviation from tender documents.

2. List of drawings/ documents to be submitted by the successful tender for approval/reference.
   a) General arrangement drawing with bill of material of equipment showing overall dimension and details.
   b) Supplier’s name for components & catalogues. Technical literature on offered equipment model.
   c) Mounting arrangement /Installation Drawings.
   d) Description on system operation
   e) List of commissioning spares to be supplied with equipment.
   f) List of recommended spares for two years maintenance of plant and equipment along with itemized price.
   g) List of tools and tackles to be supplied with equipment.
   h) Chute Jam Detection system Specification.
   i) Wiring Diagram, interconnection and termination details.
   j) Operation and maintenance manuals, detailed technical literature.
   k) Internal test reports/certificates.
   l) Quality Assurance Plan.
   m) Drawings/Documents as per requirement of BSP/ MECON and recommendation of manufacturer of the system.

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