TENDER DOCUMENT

NIT No.: BHI/PI(S)/675/1019

FOR

Tender for Detail Engineering, Manufacturing, Testing and Supply of ‘CONVEYOR PULLEYS’ for the project of of “Augmentation of Fuel and Flux Crushing Facilities (Package No. 064) of Bhilai Steel Plant (SAIL).”

VOLUME - 2

TECHNICAL SPECIFICATION & DRAWINGS

ENGINEERING PROJECTS (INDIA) LIMITED
(A GOVT. OF INDIA ENTERPRISE)
B- 252, Street No. - 5, Smriti Nagar, Bhilai- 490020 (C.G)
Mob. No. +919425296110, E-mail Id: epibhilai064@rediffmail.com
TECHNICAL SPECIFICATION & DRAWINGS

GENERAL

The following Technical Specification shall be read in conjunction with General Technical Specification (GTS) of Bhilai Steel Plant, SAIL. If there are any provisions in this Technical Specification, which are at variance with the provisions of General Technical Specification (GTS) of Bhilai Steel Plant, SAIL and General Specification, the provisions in this Technical Specification / Approved drawings shall take precedence.

SCOPE OF SUPPLY

The scope of the supply includes Detail Engineering, manufacture, shop fabrication, assembly, testing and inspection at manufacturer’s works, packing, dispatch, transportation, delivery to site of CONVEYOR PULLEYS as per specifications and scope defined in tender documents complete with all accessories.

CONVEYOR PULLEY

The Conveyor Pulleys will be manufactured as per the following approved GA drawings.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Drawing Number</th>
<th>Rev</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>BSP-EPI-02-064-02-009-55-DE-00601 (Sh 1)</td>
<td>3</td>
<td>General Arrangement of Drive &amp; Non-Drive Pulley (C-Line)</td>
</tr>
<tr>
<td>2.</td>
<td>BSP-EPI-02-064-02-009-55-DE-00601-1 (Sh 01 to 02)</td>
<td>2</td>
<td>Detail of Drive &amp; Non-Drive Pulley (C-Line)</td>
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<tr>
<td>3.</td>
<td>BSP-EPI-02-064-02-009-55-DE-00602 (Sh 01)</td>
<td>2</td>
<td>General Arrangement of Deflector Pulley (C-Line)</td>
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<tr>
<td>4.</td>
<td>BSP-EPI-02-064-02-009-55-DE-00602-1 (Sh 01)</td>
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<td>Detail of Deflector Pulley (C-Line)</td>
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<td>5.</td>
<td>BSP-EPI-02-064-02-009-55-DE-00601 (Sh 02)</td>
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<td>General Arrangement of Drive &amp; Non-Drive Pulley (CHP)</td>
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<td>6.</td>
<td>BSP-EPI-02-064-02-009-55-DE-00601 (Sh 03 to 04)</td>
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<td>Detail of Drive &amp; Non-Drive Pulley (CHP)</td>
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<td>7.</td>
<td>BSP-EPI-02-064-02-009-55-DE-00601 (Sh 05)</td>
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<td>8.</td>
<td>BSP-EPI-02-064-02-009-55-DE-00601 (Sh 06 to 07)</td>
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<td>Detail of Drive &amp; Non-Drive Pulley (CSP)</td>
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<td>9.</td>
<td>BSP-EPI-02-064-02-009-55-DE-00602 (Sh 02)</td>
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<td>BSP-EPI-02-064-02-009-55-DE-00602 (Sh 03)</td>
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In addition to above drawings, IPSS and General Technical Specification of MECON may be referred for additional details.

Bought out items shall be as per approved makes of Mecon / BSP for package 064.
### DETAIL OF PART NO: 02

#### NOTATION
1. ALL DIMENSIONS ARE IN mm.
2. THE WEIGHT OF THE PULLEY IS 14000 KG.
3. THE END COVER IS MADE OF MACHINED MATERIAL.
4. PULLEY SHAFT IS TAPERED.
5._threading is MADE TO TAP.
6. ALL SHAFTS ARE TO BE 1300 MM LENGTH W/SHAFT DISC.
7. SHELL THICKNESS IS 30 MM.
8. SHELL THICKNESS INDICATED IS THICKNESS AFTER MACHING.
9. ALL BOLTS ARE TO BE PRE-ASSEMBLED BEFORE MACHINING.
10. BOLTS ARE MACHINED TO TAP.
11. PLAIN BOLTS ARE TO BE OF CLASS 8.8.
12. ALL PARTS ARE TO BE STRENGTH USED.

#### X IN MM

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<th>X</th>
<th>RADIUS &quot;r&quot;</th>
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<tr>
<td>UP TO 2</td>
<td>0.5</td>
</tr>
<tr>
<td>3-5</td>
<td>1.0</td>
</tr>
<tr>
<td>6-10</td>
<td>2.5</td>
</tr>
<tr>
<td>11-15</td>
<td>4.0</td>
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#### MATERIALS
- STEEL 1020
- STEEL 1020
- STEEL 1020
- STEEL 1020

#### BILL OF MATERIALS

<table>
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<tr>
<th>MATERIAL</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>STEEL 1020</td>
<td>BOLTS</td>
</tr>
<tr>
<td>STEEL 1020</td>
<td>BS 4540</td>
</tr>
<tr>
<td>STEEL 1020</td>
<td>SHELL</td>
</tr>
<tr>
<td>STEEL 1020</td>
<td>END COVER</td>
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#### PACKAGE DESCRIPTION
- AUGMENTATION OF FUEL & FLAKING CRUSHING FACILITIES (PPIP) DESIGN & ENGINEERING PROJECTS FOR COAL MINING COMPANY.
- MECON LIMITED
- DESIGN 
- EXECUTION 
- SUPPLEMENTARY DESIGN & ENGINEERING WORKS

#### DESIGNER
- G.R.
- KIRAN

#### APPROVED
- G.R.
- PROJECT MANAGER

#### DATE
- 09.08.2012

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### DETAIL OF DEFLECTOR PULLEY FOR C-LINE CONVEYORS

#### TYPIC SHELL WELDING DETAILS

#### DETOF END PLATE

#### DET OF END PLATE

#### KEY & KEY WAY DETAIL AT END PLATE

#### TYP WELD DETAIL AT END DISC

#### DETAIL - S

#### DETAIL - S (TYP)
# DETAIL OF END PLATE

## KEY & KEY WAY DETAIL AT END PLATE

<table>
<thead>
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<th>S.NO.</th>
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<th>BELT WIDTH BW</th>
<th>FW</th>
<th>PULLEY DIA.</th>
<th>BC</th>
<th>SHELL THICK.</th>
<th>HC</th>
<th>E</th>
<th>d1 (m6) for shaft</th>
<th>dh(h9)</th>
<th>shaft dia at brg.</th>
<th>b(h9)</th>
<th>d(h1)</th>
<th>b(h1)</th>
<th>b(p8)</th>
<th>d(h1)</th>
<th>b(p8)</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L5</th>
<th>L6</th>
<th>W1</th>
<th>D1</th>
<th>d2(H7)</th>
<th>QTY</th>
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<td>900</td>
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<td>6</td>
<td>680</td>
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<td>80</td>
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<td>-0.043</td>
<td>-0.020</td>
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<td>+0.000</td>
<td>32</td>
<td>34</td>
<td>1666</td>
</tr>
</tbody>
</table>

## DETAIL OF PART NO: 02

### NOTES:
1. ALL DIMENSIONS ARE IN MM.
2. THE WEIGHT OF THE PULLEY IS IN KGS.
3. PULLEY SHAFT CONFORMS TO SL.BS852.
4. PULLEY SHAFT CAN BE EXACTLY BALANCED AND TOTAL BALANCING MASS SHALL NOT EXCEED 2% OF PULLEY WEIGHT AND BALANCING SHAFTS SHALL BE DONE BEFORE LAGGING.
5. PULLEY SHAFT SHALL BE FREE OF SHARP EDGES.
6. THE ECCENTRICITY OF PULLEY SHAFTS SHALL NOT BE MORE THAN 0.5% OF THE DIAMETER BEFORE LAGGING.
7. TOLERANCE, SHAFT CONFORMS TO BS6148.
8. SHELL THICKNESS INDICATED IS THICKNESS AS MANUFACTURED.
9. ALL KEYS SHALL BE PRE-MADE FITTED INTO KEYSAND AND ALL KEYSMAY BE SOLID WELDED AS PER POSH6148.
10. BEARING SELF-ALIGNING ROLLER BEARING WITH ADAPTED SLIDICHAIR.
11. PLAIN BEARING MATERIAL SHALL BE OF CAST STEEL IS 1303, GRADE 280-320 NA.
12. ALL THE PULLEY SHAFTS MANDATORY TO BE OF CLASS A/2, 1875-8932, MORE THAN 100 MM DIAMETER SHALL BE HEAT TREATED (CLASS A/3 NORMALIZED) FORGED STEEL.
13. ALL SHAPES UPTO 100 MM DIAMETER SHALL BE OF CLASS A/2.

## BILL OF MATERIALS

- **MATERIAL**: STEEL 1303, GRADE 280-320 NA.
- **DESCRIPTION**: DETAIL OF DEFLECTOR PULLEY FOR COAL & COKE SORTING PLANT CONVEYORS.
- **CONSTRUCTION**: 7.0 MTPA EXPANSION.
- **CONTRACTOR**: MECON LIMITED
- **ENGINEERING PROJECTS (ENDKA LTD.) AT MANGALMALLOW, GUJARAT.
- **ENGINEER**: RAMCHANDRA KERANIA
- **DESIGN**: G.R.
- **DRAWN**: G.R.
- **DRAWING NO**: EPI-BSP-004-01-DO-0002
- **DATE**: 28.03.2013
- **PROJECT DRAWING NO**: BSP-EPI-02-004-02-009-55-DO-0002

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**DETAIL OF END PLATE**

**TYP WELD DETAIL AT END DISC**

**TYPICAL SHELL WELDING DETAILS**

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**BILL OF MATERIALS**

- **C45L, 1575**: 1
- **MS IS 2062**: 2
- **SH: SEE NOTE 13**: 1
- **SHELL**: 1024 (FOR Reled Section) FRE1014 A/B)
- **STAINLESS STEEL**: 1000 (FOR Pipe Section) FRE1014 A/B)

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**DESIGN & CONSTRUCTION**: AUGMENTATION OF FUEL & FLUX CRUSHING FACILITIES (PKG-094).