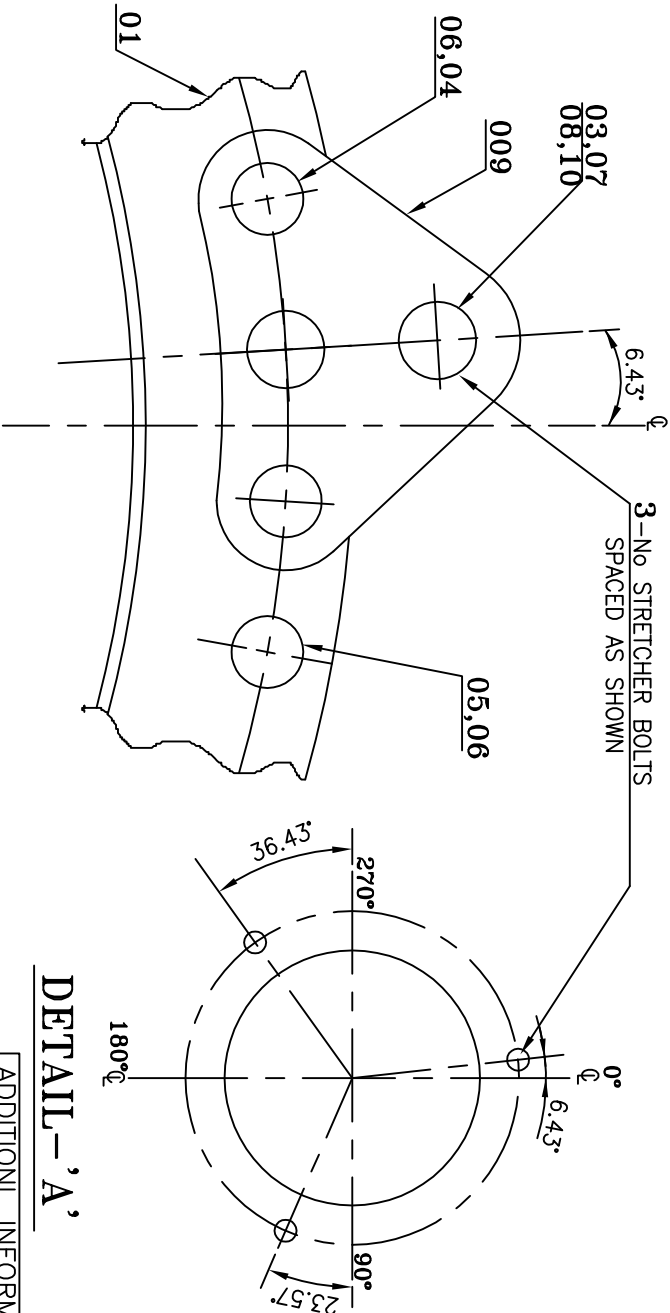
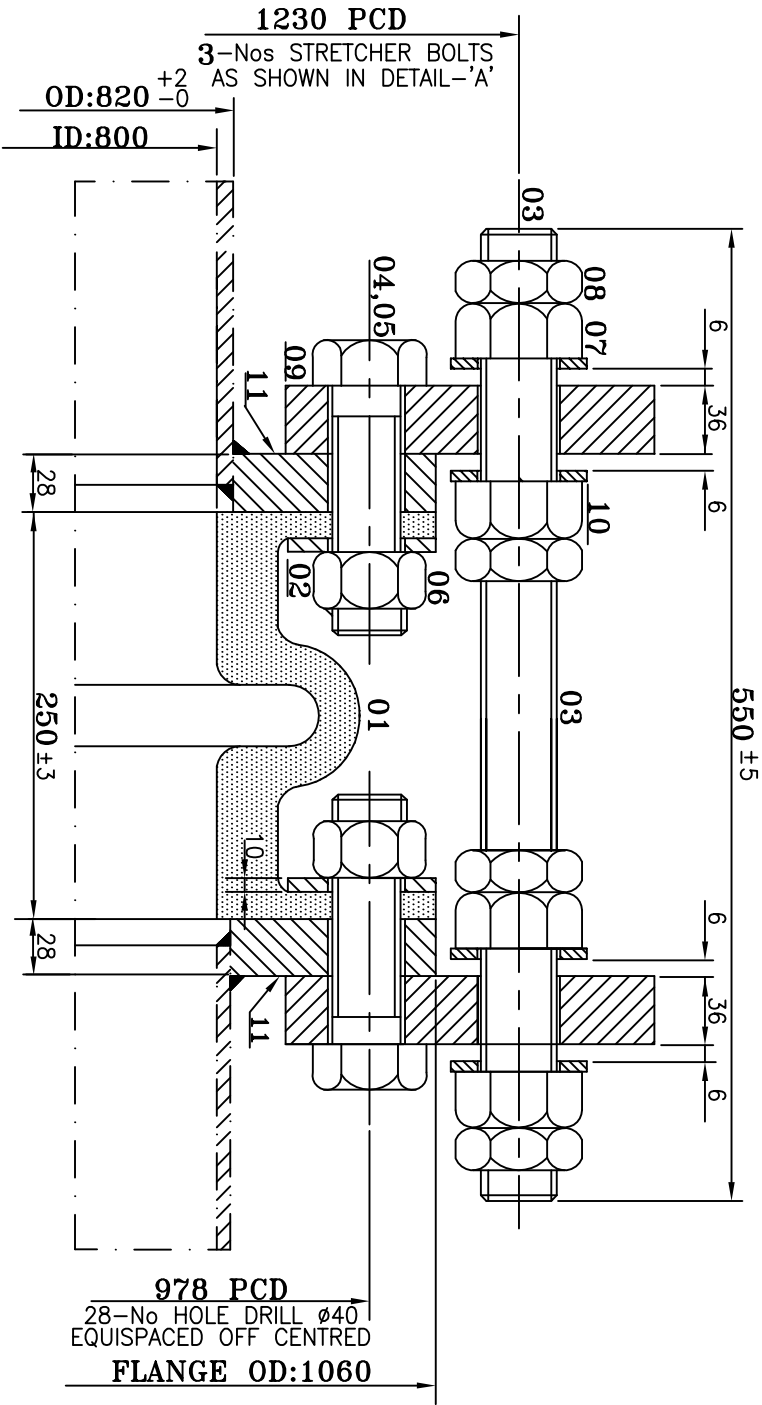


48314-35021-3 ON DRG.



DETAIL-'A'

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IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN THE WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

3-17053-41096

08.05.10

INVENTORY NO.

LIST OF MATERIAL

| ITEM No. | DESCRIPTION                   | MATERIAL             | MATERIAL CODE  | QTY/ASSY Nos. | QTY TOTAL Nos./Unit |
|----------|-------------------------------|----------------------|----------------|---------------|---------------------|
| 01       | EXPANSION BELLOWS             | REINFORCED NEOPRENE  | -              | 001           | 008                 |
| 02       | RETAINING RING(IN 4-SEGMENTS) | CARBON STEEL (GALV.) | IS:2062 Gr.A/B | 002           | 016                 |
| 03       | STRETCHER BOLT M39x3x550      | CARBON STEEL (GALV.) | CLASS 8.8      | 003           | 024                 |
| 04       | BOLT HEX M36x3x150            | CARBON STEEL (GALV.) | CLASS 4.6      | 018           | 144                 |
| 05       | BOLT HEX M36x3x115            | CARBON STEEL (GALV.) | CLASS 4.6      | 038           | 304                 |
| 06       | NUT HEX M36x3                 | CARBON STEEL (GALV.) | CLASS 4        | 056           | 448                 |
| 07       | NUT HEX M39x3                 | CARBON STEEL (GALV.) | CLASS 8        | 012           | 096                 |
| 08       | LOCK NUT HEX M39x3            | CARBON STEEL (GALV.) | CLASS 8        | 012           | 096                 |
| 09       | STRETCHER PLATE:36TK          | CARBON STEEL (GALV.) | IS:2062 Gr.B   | 006           | 048                 |
| 10       | WASHER MCD                    | CARBON STEEL (GALV.) | IS:2062 Gr.A   | 012           | 096                 |
| 11       | FLANGE, 28TK                  | CARBON STEEL         | IS:2062 Gr.B   | 002           | 016                 |

NOTE: ALTERNATE MATERIAL TO THOSE SPECIFIED IN LIST OF MATERIALS FOR DIFFERENT ITEMS  
IF USED, SHALL BE EITHER EQUIVALENT OR BETTER.

1. DESIGN DETAILS:

- 1.1 DESIGN VACUUM..... FULL VACUUM
- 1.2 DESIGN PRESSURE..... 5 Kg/sq.cm.g
- 1.3 DESIGN TEMPERATURE..... 50°C

NOTE: R.E.JOINT ASSEMBLY IS NOT DESIGNED FOR PIPING LOADS

2. R.E.JOINT ASSEMBLY IS DESIGNED FOR FULL PRESSURE LOAD AND DEFLECTION OF ±12mm.
3. AXIAL (COMPRESSION & ELONGATION) AND TRANSVERSE MOVEMENT CAN OCCUR SIMULTANEOUSLY.

4. WELD JOINTS IN THE FLANGE WILL BE CHECKED BY ULTRASONIC EXAMINATION & WILL BE STRESS RELIEVED.
5. ASSEMBLY TO BE DONE AT SITE.

6. TESTING OF BARE BELLOWS:

- 6.1 HYDROSTATIC TEST PRESSURE..... 7.5 Kg/sq.cm.g
- 6.2 VACUUM TEST PRESSURE..... 30 mm Hg.abs
- 6.3 DEFLECTION TEST AT 5 Kg/sq.cm.g AND AT 30 mm Hg abs.
  - a) AXIAL MOVEMENT(COMPRESSION & ELONGATION)... ±12mm
  - b) TRANSVERSE MOVEMENT..... ±12mm.
- 6.4 DURATION OF PRESSURE TEST : 30 MINUTES (MINIMUM) .
7. WEIGHT OF EACH ASSEMBLY.....450 Kg.
8. CODE OF CONSTRUCTION ASME Sec. VIII DIVN.1;2007.

PRODUCT GROUP No.1

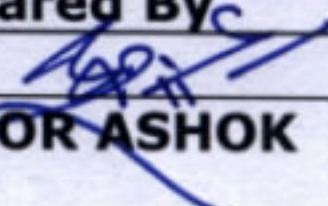
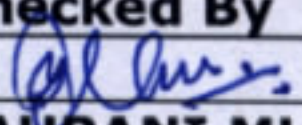
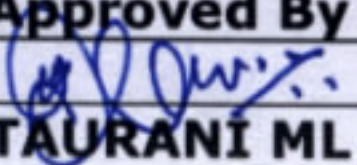
CONVENTIONAL R.E.JOINT  
2x110 MW MUZAFFARPUR T.P.S.Unit-1&2.  
M/s KBUNI,KANTI

|   |  |                               |  |
|---|--|-------------------------------|--|
| TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT |  | HkKj'r gsoh bysDvZdY1 fyfeVsM |  |
| BHARAT HEAVY ELECTRICALS LTD.               |  | Hkksiky                       |  |
| Bhopal                                      |  | TAURANI ML                    |  |

|      |         |              |    |
|------|---------|--------------|----|
| REV. | DATE    | ALTERED      | DS |
| 01   | 25.8.10 | CHECKED AKM  |    |
|      |         | APPROVED MLT |    |

|                          |                       |    |
|--------------------------|-----------------------|----|
| GEN.ARRGCT. OF R.E.JOINT | 3-17053-41387         | 02 |
| NTPC Drg No.:            | 9476-001-BP-PVM-B-004 |    |



|   |   |  |                                |   |  |
|---|---|--|--------------------------------|---|--|
| <b>BHEL<br/>Bhopal</b>  |   | <b>CONDENSER &amp; HEAT EXCH. ENGG. GROUP</b>  |                                | <b>DOCUMENT No.<br/>CDE-10-2805 Rev.Nil</b> |  |
| <b><u>DATA – SHEET</u></b>  |   |  |                                |   |  |
| <b>1.0 GENERAL DATA</b>   |   |  |                                |   |  |
| JOINT TYPE : Conventional Type  |   |  |                                |   |  |
| <b>NB</b>   |   | <b>800</b>   |                                |   |  |
| SIZE  |   | 820 OD x 10 TK   |                                |   |  |
| QUANTITY  |   | 16 Nos   |                                |   |  |
| LOCATION  |   | CW Pump Outlet   |                                |   |  |
| FLUID HANDLED   |   | Cooling Water  |                                |   |  |
| <b>2.0 DESIGN CONDITIONS</b>  |   |  |                                |   |  |
| 2.1 For 800 NB :DESIGN PRESSURE, Kg/cm <sup>2</sup> .g : 5.0 & FIV DESIGN TEMP., °C : 50  |   |  |                                |   |  |
| <b>3.0 RUBBER BELLOWS</b>   |   |  |                                |   |  |
| <b>3.1 DETAIL</b>   |   |  |                                |   |  |
| TYPE :Single arch END DETAIL :Flanged MATERIAL: Neoprene Reinforced<br>COVER (INNER/OUTER) :Neoprene 3 mm tk ; Shore Hardness 60±5deg.DUROMETER<br>CARCASS : High Quality Polyster Chord ;<br>RETAINING RING : TYPE-Split; MATERIAL : M.S.TO IS:2062 Gr. B (GALVANISED) |   |  |                                |   |  |
| <b>3.2 BELLOWS MOVEMENTS AT DESIGN PRESSURE , MINIMUM</b>   |   |  |                                |   |  |
| a) COMPRESSION: 12mm; ELONGATION: 12mm; TRANSVERSE: 12mm  |   |  |                                |   |  |
| <b>3.3 HYDROSTATIC TEST (ALL BARE BELLOWS)</b>  |   |  |                                |   |  |
| a) TEST PRESSURE, Kg/cm <sup>2</sup> .g : 7.5 DURATION (MIN) : 30 Minutes   |   |  |                                |   |  |
| b) PERMISSIBLE PERMANENT DEFORMATION AFTER 24 HRS. OF TEST,mm: 0.5% max   |   |  |                                |   |  |
| <b>3.4 VACUUM TEST (ALL BARE BELLOWS)</b>   |   |  |                                |   |  |
| a) TEST PRESSURE, mm of Hg.abs. : 30 ; DURATION (MIN): 30 Min   |   |  |                                |   |  |
| b) PERMISSIBLE PERMANENT DEFORMATION AFTER 24 HRS. OF TEST, mm:0.5% max   |   |  |                                |   |  |
| <b>3.5 DEFLECTION TEST AT D.P. &amp; AT THE TEST VACUUM (ALL BARE BELLOWS)</b>  |   |  |                                |   |  |
| AXIAL COMPRESSION, mm : 12 AXIAL ELONGATION, mm : 12  |   |  |                                |   |  |
| TRANSVERSE DEFLECTION, mm : 12  |   |  |                                |   |  |
| <b>4.0 MATERIAL OF CONSTRUCTION : IS :2062 Gr.A OR EQUIVALENT</b>   |   |  |                                |   |  |
| <b>5.0 PAINTING AFTER SHOT BLASTING</b>   |   |  |                                |   |  |
| INSIDE SURFACE OF PIPE/FLANGE   |   |  | OUTSIDE SURFACE                |   |  |
| One Coat of Epoxy resin based   |   |  | Two Coats of red oxide primer  |   |  |
| Primer followed by two coats of   |   |  | paint followed by two coats of |   |  |
| coal tar pitch epoxide paint  |   |  | Light Grey Finishing Paint     |   |  |
| <b>Prepared By</b>  | <b>Checked By</b>   | <b>Approved By</b>   | <b>Date of Issue</b>           | <b>Rev. No.</b>                             |  |
|    |  |  | <b>24.09.2010</b>              | <b>Nil</b>                                  |  |
| <b>MAHOR ASHOK</b>  | <b>TAURANI ML</b>   | <b>TAURANI ML</b>  |                                |   |  |