

**BHARAT HEAVY ELECTRICALS LIMITED**

CORPORATE RESEARCH &amp; DEVELOPMENT DIVISION

VIKASNAGAR, HYDERABAD - 500 093, INDIA

PHONES: 23774494 (EXCHANGE)

DIRECT: 23882104/23882204/

23778474/23776772

FAX : 91 40 23770698

RD:DP:MPX:F-04

**ENQUIRY**

To - Enquiry No: 350803351 Enq Date: 26-AUG-08 Due Date: 14-OCT-08 Delivery By:

-

-

Pin

Email :

Attn. .

PLEASE SUBMIT YOUR QUOTATION IN SEALED COVER SUPERSCRIBED WITH ENQUIRY NO, ENQUIRY DATE AND DUE DATE SUBJECT TO OUR TERMS AND CONDITIONS ENCLOSED, FOR THE FOLLOWING MATERIALS SO AS TO REACH US ON OR BEFORE THE DUE DATE BY 12 NOON. THE TENDERS WILL BE OPENED AT 2 PM ON THE SAME DAY

PLEASE GIVE REFERENCE OF ENQ NUMBER , ENQ .DATE AND DUE DATE IN ALL YOUR CORRESPONDENCE FOR PROMPT ACTION. IN CASE IF YOU ARE NOT MAKING THE OFFER PLEASE POST A REGRET LETTER AND RETURN THE DOCUMENTS.

| SL NO | DESCRIPTION / SPECIFICATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | UNIT | QTY |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|
| 1     | EPOXY INSULATORS AS PER ENCLOSED SPECIFICATIONS AND DRAWINGS<br>1. EPOXY INSULATOR -I<br>HT INSERT-I, HT INSERT-II AND LT INSERTS WILL BE PROVIDED BY BHEL.                                                                                                                                                                                                                                                                                                                                                                                                                          | NO   | 150 |
| 2     | EPOXY INSULATORS AS PER ENCLOSED SPECIFICATIONS AND DRAWINGS<br>1. EPOXY INSULATOR-II<br>NOTE:HT INSERT-I, HT INSERT-II AND LT INSERTS WILL BE PROVIDED BY BHEL, IN THREE PHASES. SUPPLIER WILL HAVE TO SUBMIT SECURITY DEPOSITS FOR AN AMOUNT OF RS:15.54 LACS TOWARDS THE COST OF MATERIALS ISSUES BY BHEL AT A TIME EITHER IN THE FORM OF BANK GAURANTEE OR D.D. AFTER RECEIPT OF PURCHASE ORDER WHICH WILL BE RETURNED ONLY AFTER COMPLETE EXECUTION OF THE ORDE WITH OUT ANY INTEREST. SUPPLIER WILL HAVE TO GIVE CONFIRMATION ABOUT THIS REQUIREMENT IN THEIR TECHNICAL OFFER. | NO   | 150 |

NOTE: PLEASE SUBMIT YOUR OFFER IN TWO PARTS AS PER GENERAL TERMS AND CONDITIONS OF ENQUIRY & CONTRACT FOR THE PURCHASE OF GOODS/SERVICES SEPARATE SEALED COVERS AS DETAILED BELOW:

1) FIRST COVER SHALL CONTAIN THE FOLLOWING:

a) TECHNICAL COMMERCIAL BID ALONG WITH COMPLIANCE STATEMENTS, MENTIONING APPLICABLE DUTIES, TAXES etc., AND DELIVERY TIME CLEARLY,(TERMS,CONDITIONS, AND COMPLIANCE FORM ENCLOSED)

b) A COPY OF THE PRICE BID WITHOUT THE PRICES (UNPRICED PRICE BID)

2) SECOND COVER CONTAINING PRICE BID

3) IF THE PRICE BID IS FOUND TO BE DIFFERENT FROM THE UNPRICED PRICE BID IN ANY



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WAY, YOUR OFFER WILL BE REJECTED

4) UNSIGNED OFFERS ARE LIABLE FOR REJECTION

5) GUARANTEE CERTIFICATE : REQUIRED

6) MANUFACTURER'S TEST CERTIFICATE : REQUIRED

Important:

Taxes & Duties quoted by you will be taken for cost evaluation and order

placement and no change will be entertained later except in the case of changes

made by the Government. Changes in Taxes and Duties because of the changes

in Turnover etc. will also be to the supplier's account. In case no tax/duty is included, a self declaration for the exemption may be attached along with the offer.

AS WE ARE ENGAGED IN R&D ACTIVITY "C" FORM  
WILL NOT BE ISSUED

Yours faithfully  
for

BHARAT HEAVY ELECTRICALS LTD

PLEASE FILL UP THE ENCLOSED VENDOR  
REGISTRATION FORM AND SEND IT ALONG WITH  
YOUR QUOTATION. OTHERWISE YOUR QUOTATION  
WILL NOT BE CONSIDERED. (IGNORE THIS IF YOU  
HAVE ALREADY SUBMITTED THIS FORM)

RAO ARC  
Manager

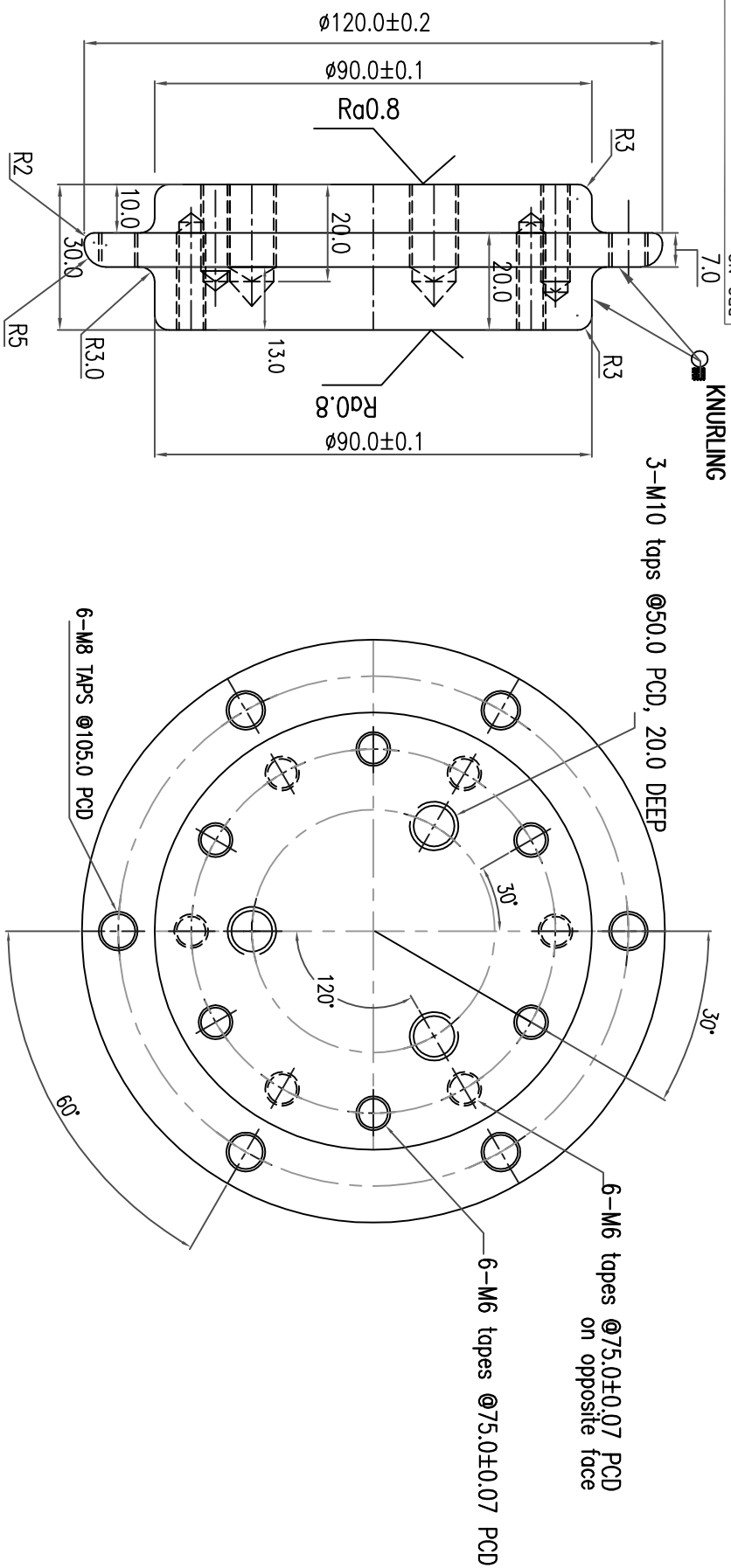
Email: [arcr@bhelrnd.co.in](mailto:arcr@bhelrnd.co.in)

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |                  |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------|
| PSGSG134A | <b>Product Specifications<br/>For<br/>EPOXY INSULATORS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Drg. No. |                  |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Date     | 23.04.07         |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Product  | <b>GSM 145</b>   |
| 1.0       | <b>Application</b> : 145 kV GIS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |                  |
| 2.0       | <b>Type</b> : CONE INSULATOR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |                  |
| 3.0       | <b>System Voltage</b> : 145 kV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |                  |
| 4.0       | <b>Product Type</b> : GSM 145                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |                  |
| 5.0       | <b>GENERAL:</b><br><br>This specification governs the quality of Alumina filled epoxy mouldings. This material is especially suitable for use in SF <sub>6</sub> / Arced SF <sub>6</sub> gas media. Calcined alumina filler in epoxy resin has been provided to enhance resistance to decomposed SF <sub>6</sub> gas.                                                                                                                                                                                                                                                                                                                                  |          |                  |
| 6.0       | <b>RAW MATERIALS :</b><br><br>The moulding consists of following raw materials. <ul style="list-style-type: none"> <li>a) Epoxy System</li> <li>b) Filler</li> <li>c) Metal Inserts</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |                  |
| 6.1       | <b>EPOXY SYSTEM :</b><br><br>Epoxy system consists of resin (Biphenol-A based), hardener (anhydride based) and filler if necessary, a small amount of catalyst can be used. It should be a class-F, hot curing system. Standard and proven epoxy system shall be used. . The system should be vacuumized under 5 torr. Automatic pressure gelation shall be used for moulding the component and initial curing should be done at 130-140 <sup>0</sup> C for 4 hrs under pressure. Post curing at 130 deg C for 8 hours The epoxy system shall have a dielectric constant above 5.0. Other properties should be as per section-7 of this specification. |          |                  |
| 6.2       | <b>FILLER :</b><br><br>High purity (≥ 99%), fine grade calcined alumina with specific gravity around 3.8 shall be used as filler. Before processing filler materials is to be thoroughly dried at 80 <sup>0</sup> C for 8 hrs.                                                                                                                                                                                                                                                                                                                                                                                                                         |          |                  |
| 1/4       | <b>PSGSG134A.doc</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |          | <b>Signature</b> |

|           |                                                                                                                                                                                                                                                                                                                                                                                                                               |          |                  |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------|
| PSGSG134A | <b>Product Specifications<br/>For<br/>EPOXY INSULATORS</b>                                                                                                                                                                                                                                                                                                                                                                    | Drg. No. |                  |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                               | Date     | 23.04.07         |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                               | Product  | <b>GSM 145</b>   |
| 6.3       | <b>METAL INSERT :</b><br><br>Machined metal insert (as per dwg.) shall be used while moulding and shall be retained firmly in the mould prior to injection of the mix. The surfaces of the insert in contact with the epoxy shall be sand blasted / alumina grit blasted prior to its placement in the mould. The inserts shall be thoroughly degreased, using solvent, prior to use to promote adhesion.                     |          |                  |
| 6.4       | <b>MIX :</b><br><br>The resin, hardener and the filler shall be mixed in weight percentage as per requirement to get good mechanical, electrical and thermal properties. The mixture should be homogeneous and shall be evacuated to 5 mbar (torr) before transfer to the mould. The mix shall be heated uniformly to obtain good flow consistency.                                                                           |          |                  |
| 6.5       | <b>FINISH:</b><br><br>The moulded material shall be homogeneous, smooth, compact and free from cracks, blisters, gas pockets, and foreign inclusion. It should have uniformly distributed bond. Insulators shall be supplied in their natural colour.                                                                                                                                                                         |          |                  |
| 7.0       | <b>PROPERTIES :</b><br><br>Before processing the final product, it should be ensured that the epoxy system ( mix of resin, hardener and filler being used , should meet the following properties.<br><br><b>Properties of the final product</b><br><br>a ) Power frequency with stand voltage : 275 kV for 1 minute at 50 Hz<br>b ) Impulse with stand voltage : 650 kV<br>c ) Partial discharge level : < 1 pC at 92 kV(rms) |          |                  |
| 8.0       | <b>MACHINABILITY :</b><br><br>The component shall be freely machinable and saw able without showing any signs of splitting, cracking or chipping.                                                                                                                                                                                                                                                                             |          |                  |
| 2/4       | PSGSG134A.doc                                                                                                                                                                                                                                                                                                                                                                                                                 |          | <b>Signature</b> |

| PSGSG134A                    | <b>Product Specifications<br/>For<br/>EPOXY INSULATORS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               | Drg. No.                   |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
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|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               | Date                       | 23.04.07       |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               | Product                    | <b>GSM 145</b> |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| 9.0                          | <b>SPECIFICATIONS:</b> <table border="1"> <thead> <tr> <th>S.No</th> <th>Physical Properties<br/>at 23 °C</th> <th>Test Standard</th> <th>Values</th> </tr> </thead> <tbody> <tr> <td>1)</td> <td>Tensile strength</td> <td>ISO/527</td> <td>60-70 N/mm<sup>2</sup></td> </tr> <tr> <td>2)</td> <td>Compressive strength</td> <td>ISO/604</td> <td>200-220 N/ mm<sup>2</sup></td> </tr> <tr> <td>3)</td> <td>Flexural strength</td> <td>DIN 53452</td> <td>100-110 N/mm<sup>2</sup></td> </tr> <tr> <td>4)</td> <td>Thermal/Heat<br/>distortion temperature</td> <td></td> <td>~ 100°C</td> </tr> <tr> <td>5)</td> <td>Water Absorption</td> <td>--</td> <td>Less than 0.1%</td> </tr> <tr> <td>6)</td> <td>Crack Resistance</td> <td>--</td> <td>Very high *</td> </tr> <tr> <td>7)</td> <td>Specific gravity</td> <td>--</td> <td>~2.0</td> </tr> <tr> <td>8)</td> <td>Hardness</td> <td>--</td> <td>80-90</td> </tr> <tr> <td>9)</td> <td>Thermal Conductivity</td> <td>--</td> <td>0.8 – 0.9 w/m 0k</td> </tr> <tr> <td colspan="4" style="text-align: center;"><b>Electrical Properties</b></td> </tr> <tr> <td>1)</td> <td>Dielectric Constant</td> <td>DIN 53483</td> <td>~ 6.0</td> </tr> <tr> <td>2)</td> <td>Electric Strength</td> <td>IEC 243</td> <td>20kV/mm</td> </tr> <tr> <td>3)</td> <td>Tan Delta</td> <td>--</td> <td>Less than 2 to 3 %</td> </tr> <tr> <td>4)</td> <td>Electric Resistance<br/>(volume Resistance)</td> <td>DIN 53482</td> <td>&gt;10 x 10<sup>14</sup></td> </tr> <tr> <td>5)</td> <td>Comparative Tracking<br/>index (CTI)</td> <td></td> <td>~ 600</td> </tr> </tbody> </table> <p>Note:<br/>Values achieved shall be reported in test certificate furnished by supplier.</p> |               |                            |                | S.No | Physical Properties<br>at 23 °C | Test Standard | Values | 1) | Tensile strength | ISO/527 | 60-70 N/mm <sup>2</sup> | 2) | Compressive strength | ISO/604 | 200-220 N/ mm <sup>2</sup> | 3) | Flexural strength | DIN 53452 | 100-110 N/mm <sup>2</sup> | 4) | Thermal/Heat<br>distortion temperature |  | ~ 100°C | 5) | Water Absorption | -- | Less than 0.1% | 6) | Crack Resistance | -- | Very high * | 7) | Specific gravity | -- | ~2.0 | 8) | Hardness | -- | 80-90 | 9) | Thermal Conductivity | -- | 0.8 – 0.9 w/m 0k | <b>Electrical Properties</b> |  |  |  | 1) | Dielectric Constant | DIN 53483 | ~ 6.0 | 2) | Electric Strength | IEC 243 | 20kV/mm | 3) | Tan Delta | -- | Less than 2 to 3 % | 4) | Electric Resistance<br>(volume Resistance) | DIN 53482 | >10 x 10 <sup>14</sup> | 5) | Comparative Tracking<br>index (CTI) |  | ~ 600 |
| S.No                         | Physical Properties<br>at 23 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Test Standard | Values                     |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| 1)                           | Tensile strength                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ISO/527       | 60-70 N/mm <sup>2</sup>    |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| 2)                           | Compressive strength                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ISO/604       | 200-220 N/ mm <sup>2</sup> |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| 3)                           | Flexural strength                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | DIN 53452     | 100-110 N/mm <sup>2</sup>  |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| 4)                           | Thermal/Heat<br>distortion temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               | ~ 100°C                    |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| 5)                           | Water Absorption                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | --            | Less than 0.1%             |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| 6)                           | Crack Resistance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | --            | Very high *                |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| 7)                           | Specific gravity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | --            | ~2.0                       |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| 8)                           | Hardness                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | --            | 80-90                      |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| 9)                           | Thermal Conductivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | --            | 0.8 – 0.9 w/m 0k           |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| <b>Electrical Properties</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               |                            |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| 1)                           | Dielectric Constant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | DIN 53483     | ~ 6.0                      |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| 2)                           | Electric Strength                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | IEC 243       | 20kV/mm                    |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| 3)                           | Tan Delta                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | --            | Less than 2 to 3 %         |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| 4)                           | Electric Resistance<br>(volume Resistance)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | DIN 53482     | >10 x 10 <sup>14</sup>     |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| 5)                           | Comparative Tracking<br>index (CTI)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |               | ~ 600                      |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| 10.0                         | <b>TEST CERTIFICATES :</b><br><br>Three copies of test certificates shall be supplied with each lot of components giving component name, drg No, BHEL P.O. No, Batch/ LOT No. and Test values observed against specified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |                            |                |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |
| 3/4                          | PSGSG134A.doc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |               |                            | Signature      |      |                                 |               |        |    |                  |         |                         |    |                      |         |                            |    |                   |           |                           |    |                                        |  |         |    |                  |    |                |    |                  |    |             |    |                  |    |      |    |          |    |       |    |                      |    |                  |                              |  |  |  |    |                     |           |       |    |                   |         |         |    |           |    |                    |    |                                            |           |                        |    |                                     |  |       |

|           |                                                                                                                                                                                                                                                                                                                                                                                                   |  |           |                |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------|----------------|
| PSGSG134A | <b>Product Specifications<br/>For<br/>EPOXY INSULATORS</b>                                                                                                                                                                                                                                                                                                                                        |  | Drg. No.  |                |
|           |                                                                                                                                                                                                                                                                                                                                                                                                   |  | Date      | 23.04.07       |
|           |                                                                                                                                                                                                                                                                                                                                                                                                   |  | Product   | <b>GSM 145</b> |
| 11.0      | <b>Qualifying Requirements:</b><br><br>The supplier shall be of national / International repute with proven record and should have supplied insulators for gas insulated applications at least for last three years. The supplier must submit along with the quotation a few references to whom the supplier has supplied a similar material.                                                     |  |           |                |
| 12.0      | <b>GUARANTEE CERTIFICATE:</b><br><br>Guarantee certificate shall be furnished along with the supply.                                                                                                                                                                                                                                                                                              |  |           |                |
| 13.0      | <b>SUPPLY:</b><br><br><b>Supply shall be made in two phases. In first phase, supplier shall arrange five sample pieces for quality inspection. Based on acceptance from BHEL, remaining material shall be supplied. Supplier shall deliver insulators within four weeks from the date of dispatch of HT inserts and LT inserts from BHEL R&amp;D. Part supply of up to 50 no.s is acceptable.</b> |  |           |                |
| 14.0      | <b>PACKING:</b><br><br>The insulators shall be packed in high density cardboard boxes, with a primary wrapped in polyethylene and packed individually in dust free boxes. The component shall be guaranteed against all manufacturing defects.<br><br>In case of doubts in specifications, the supplier shall contact BHEL for clarifications.                                                    |  |           |                |
| 4/4       | PSGSG134A.doc                                                                                                                                                                                                                                                                                                                                                                                     |  | Signature |                |



|        | BLOCK   |            | ETP COPPER    |                            |        |                   |
|--------|---------|------------|---------------|----------------------------|--------|-------------------|
|        |         |            |               |                            |        |                   |
|        |         |            |               |                            |        |                   |
| VAR.00 | REMARKS | VAR<br>ND. | ITEM<br>ND.   | DESCRIPTION                | STD    | DRAWING ND.       |
|        |         |            | IT.ND.<br>VAR | MATL. CODE<br>MATL. SPECN. | A<br>C | UNIT W.T.<br>QTY. |
|        |         |            |               |                            | INIT   | GS                |

TYPE OF PRODUCT  
NAME OF CUSTOMER

GSM 145

KNURLED FACE TO BE GROUND AND POLISHED TO FINAL OD MARKED COMPONENT TO BE POLISHED AND SILVER PLATED  
ALL SHARP EDGES SHALL BE FINISHED TO 0.4x45°  
TONGUE (R2, R5) SHALL BE MACHINED TO BETTER THAN Ra0.8

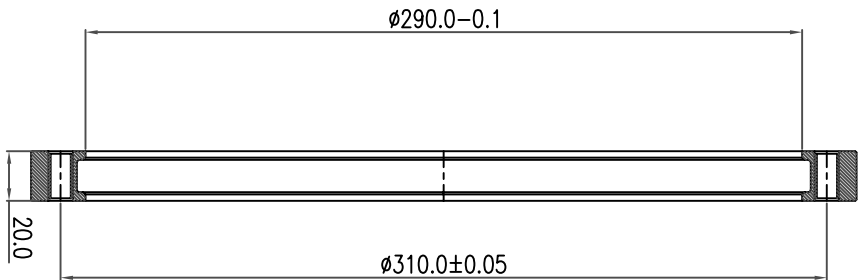
|      |      |         |      |      |         |             |                    |                                                                                     |       |            |             |               |              |
|------|------|---------|------|------|---------|-------------|--------------------|-------------------------------------------------------------------------------------|-------|------------|-------------|---------------|--------------|
| REV. | DATE | ALTERED | REV. | DATE | ALTERED | DEPT.       | GRADE OF TOL. DIM. |  | SCALE | WEIGHT(KG) | REF. TO     | ITEM NO.      | NO. OF ITEMS |
|      |      | CHECKED |      |      | CHECKED | CODE        | C/M/F              |                                                                                     |       |            | 1697000     | —             | —            |
| ZONE |      |         | ZONE |      |         | TITLE       |                    |                                                                                     |       | CARD CODE  | DRAWING NO. | REV.          |              |
|      |      |         |      |      |         | HT INSERT-1 |                    |                                                                                     |       |            | 1697103     | 000           |              |
|      |      |         |      |      |         |             |                    |                                                                                     |       |            | SHEET NO.   | NO. OF SHEETS |              |

201/691

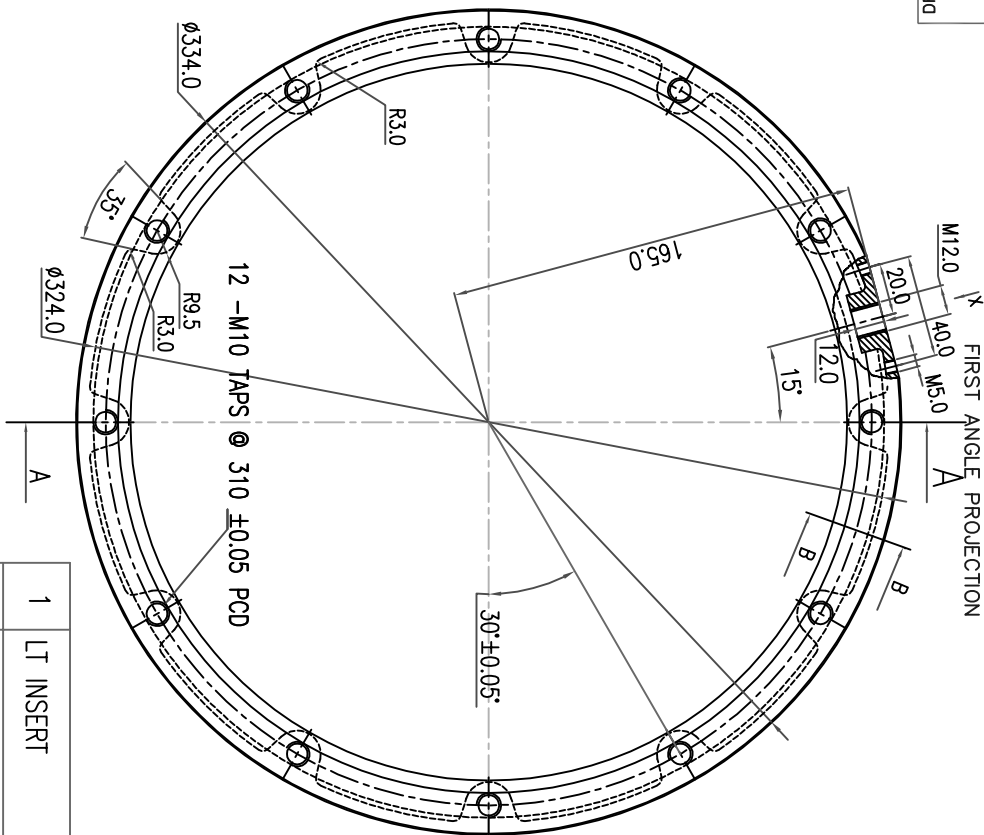
ON. DRG. NO.

FIRST ANGLE PROJECTION

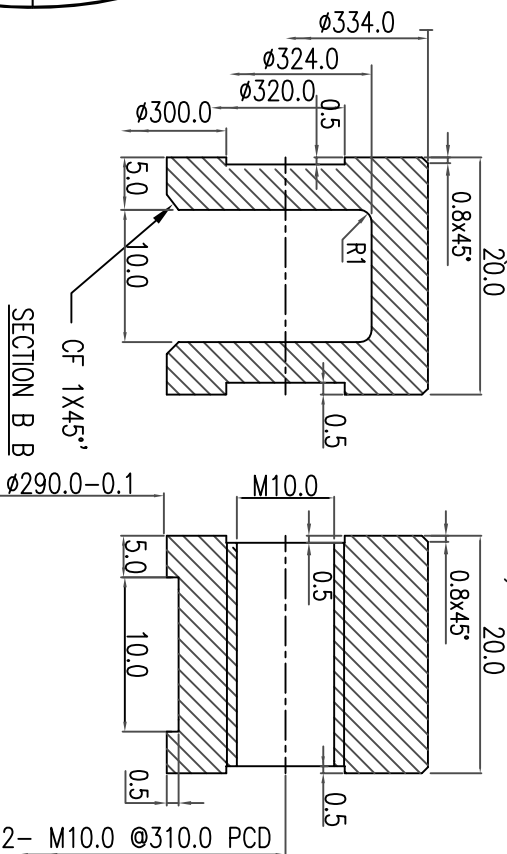
(ALL DIMENSIONS ARE IN mm)



SECTION AA

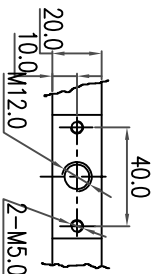
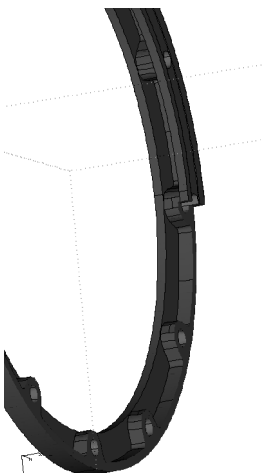


A



SECTION A A

SECTION B B



VIEW X

ALL SHARP EDGES SHALL BE MACHINED TO 0.4X45°

| REV. | DATE | ALTERED | CHECKED | REV. | DATE | ALTERED | CHECKED |
|------|------|---------|---------|------|------|---------|---------|
| ZONE |      |         |         | ZONE |      |         |         |

| ITEM NO. | DESCRIPTION | STD | DRAWING NO. | VAR | IT. NO. | MATL. CODE | A | UNIT | QTY. | GS | ZONE |
|----------|-------------|-----|-------------|-----|---------|------------|---|------|------|----|------|
| 1        | LT INSERT   |     |             |     |         | SS-304     |   |      |      |    |      |

|                 |  |                  |  |                               |  |           |  |            |  |             |  |               |  |         |  |        |  |
|-----------------|--|------------------|--|-------------------------------|--|-----------|--|------------|--|-------------|--|---------------|--|---------|--|--------|--|
| TYPE OF PRODUCT |  | NAME OF CUSTOMER |  | BHARAT HEAVY ELECTRICALS LTD. |  | HYDERABAD |  | DRN        |  | NAME        |  | SIGN.         |  | DATE    |  | NO. OF |  |
| GSM             |  |                  |  |                               |  |           |  | K.S.RAO    |  |             |  |               |  | 12-6-08 |  | VAR.   |  |
|                 |  |                  |  |                               |  |           |  | MM RAO     |  |             |  |               |  | 12-6-08 |  |        |  |
|                 |  |                  |  |                               |  |           |  | HSAJAN     |  |             |  |               |  | 12-6-08 |  |        |  |
| DEPT.           |  | GRADE OF         |  | TOL. DIM.                     |  | SCALE     |  | WEIGHT(KG) |  | REF. TO     |  | DRAWING NO.   |  | REV.    |  | NO. OF |  |
| CODE            |  | C/M/F            |  |                               |  | NTS       |  |            |  | 1697000/101 |  | 1697102       |  | —       |  | —      |  |
| TITLE           |  | LT INSERT        |  |                               |  |           |  |            |  | SHEET NO.   |  | NO. OF SHEETS |  |         |  |        |  |

INVENTORY NO.



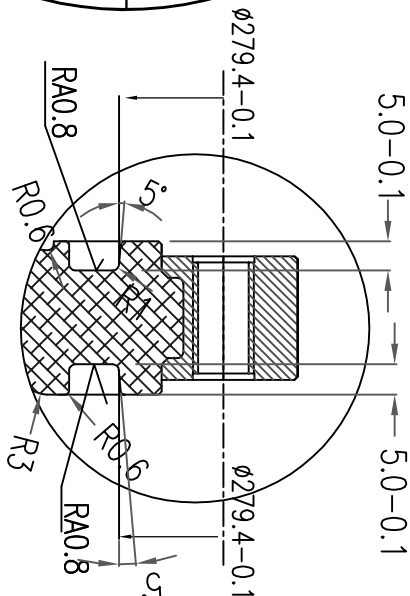
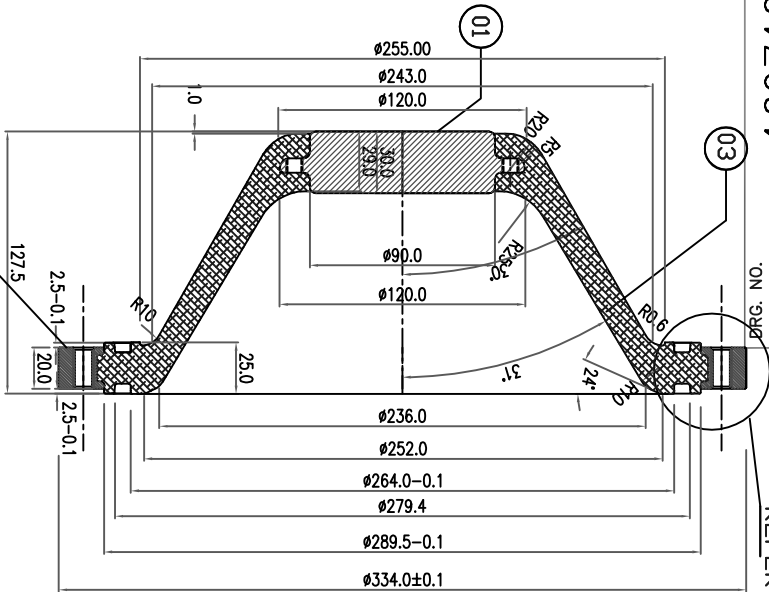
00

ZONE

V001L691

FIRST ANGLE PROJECTION  
REFER DETAIL-A

(ALL DIMENSIONS ARE IN mm)



DETAIL-A

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED.  
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

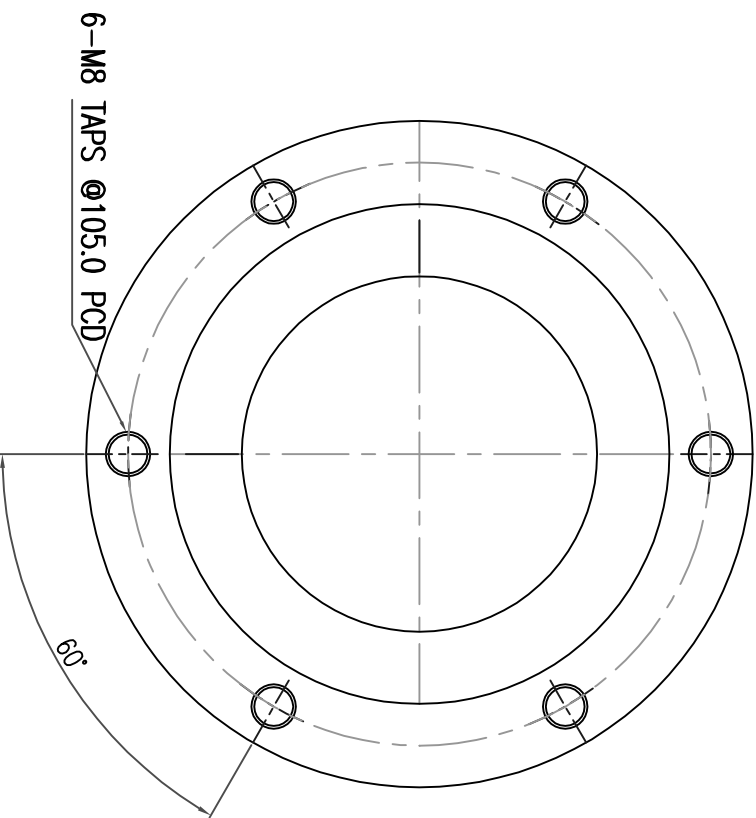
INVENTORY NO. SIGN. AND DATE REF. DRG. NO.

NOTE:  
INSULATOR SHALL BE TESTED FOR A PRESSURE DIFFERENCE OF 12 BAR FOR 15 MIN.  
MOULD INNER SURFACE SHALL BE GROUNDED TO RA0.8.  
MOULD INNER SURFACE SHALL BE PLATED SUITABLY FOR SMOOTH SURFACE OF INSULATORS.  
FINISHED INSULATOR SHALL BE IN ITS NATURAL COLOUR  
O-RING GROOVE DIMENSIONS SHALL BE MAINTAINED AS PER DRAWING.  
INSULATOR SURFACES SHALL BE SMOOTH AND CLEAN.  
THE INSULATOR SHALL BE PROCESSED SUCH THAT GAS SHALL NOT LEAK THROUGH LT INSERT

| REV. | DATE | ALTERED | CHECKED | REV. | DATE | ALTERED | CHECKED |
|------|------|---------|---------|------|------|---------|---------|
| ZONE |      |         |         | ZONE |      |         |         |

| VAR.00 | REMARKS | VAR. ITEM NO. | DESCRIPTION | FLS | DRAWING NO. | IT. NO. | MATL. CODE | MATL. SPECN. | C | UNIT | QTY. | ZONE |
|--------|---------|---------------|-------------|-----|-------------|---------|------------|--------------|---|------|------|------|
|        |         | 03            | EPDXY BODY  |     |             |         |            |              |   |      | 1    |      |
|        |         | 02            | LT INSERT   |     | 1697102     |         | SS-304     |              |   |      | 1    |      |
|        |         | 01            | HT INSERT-I |     | 1697103     |         | ETP COPPER |              |   |      | 1    |      |

|                 |  |                    |  |                               |  |            |  |           |  |                   |  |               |  |          |  |              |  |
|-----------------|--|--------------------|--|-------------------------------|--|------------|--|-----------|--|-------------------|--|---------------|--|----------|--|--------------|--|
| TYPE OF PRODUCT |  | NAME OF CUSTOMER   |  | BHARAT HEAVY ELECTRICALS LTD. |  | HYDERABAD  |  | DRN       |  | NAME              |  | SIGN.         |  | DATE     |  | NO. OF VARS. |  |
| GSM145          |  |                    |  |                               |  |            |  | CKD       |  | MMRAO             |  |               |  | 01.08.08 |  | —            |  |
|                 |  |                    |  |                               |  |            |  | APD       |  | HSJAIN            |  |               |  | 01.08.08 |  | —            |  |
| DEPT.           |  | GRADE OF TOL. DIM. |  | SCALE                         |  | WEIGHT(KG) |  | CARD CODE |  | DRAWING NO.       |  | REV.          |  |          |  |              |  |
| CODE            |  | C/M/F              |  | NTS                           |  |            |  |           |  | 1697000           |  | —             |  |          |  |              |  |
| TITLE           |  |                    |  |                               |  |            |  |           |  | EPOXY INSULATOR-I |  |               |  |          |  |              |  |
|                 |  |                    |  |                               |  |            |  |           |  | 1697100A          |  |               |  |          |  |              |  |
|                 |  |                    |  |                               |  |            |  |           |  | SHEET NO.         |  | NO. OF SHEETS |  |          |  |              |  |

$$(21.6)$$


6-M8 TAPS @105.0 PCD

KNURLED FACE TO BE GROUND AND POLISHED TO FINAL OD MARKED \*  
COMPONENT TO BE POLISHED AND SILVER PLATED TO 10-12 MICRONS  
ALL SHARP EDGES SHALL BE FINISHED TO 0.4x45°  
TONGUE (R2, R5) SHALL BE MACHINED TO BETTER THAN R0.8

|                |   |             |               |    |
|----------------|---|-------------|---------------|----|
| CODE           | 1 | 1037000     | REV.          | 00 |
| TITLE          |   | DRAWING NO. |               |    |
| HT INSERT - II |   | 1697104     |               |    |
| CARD CODE      |   | SHEET NO.   | NO. OF SHEETS |    |



## BHARAT HEAVY ELECTRICALS LIMITED

CORPORATE R&D DIVISION, VIKAS NAGAR, HYDERABAD – 500 093, AP, India

Ph: 0091-40 – 23778474, FAX: 0091-40 – 23770698

### General Terms and Conditions of Enquiry & Contract for the Purchase of Goods/ Services

1. The quotation and any order resulting from this enquiry shall be governed by these General Terms and Conditions of enquiry and contract for the supply of goods and the supplier quoting against this enquiry shall, unless specifically stipulates any different terms or conditions, be deemed to have read and agreed to the same.
2. Sealed quotations in double cover with tenderer's distinctive seal, superscribing enquiry number, date and due date are to be submitted so as to reach on or before due date & time, addressed to **Additional General Manager(MM), Bharat Heavy Electricals Limited, Corporate Research & Development Division, Vikasnagar, Hyderabad, Andhra Pradesh, India – PIN-500 093, India.**

In the case of **Two-part bid**, each inner cover shall clearly be labeled as a) **Technical & Commercial Bid** containing technical data/ drawings/ catalogues/ quality plans along with commercial terms and conditions & copy of the price bid with the price columns left blank (unpriced price bid), b) **Price bid** containing prices quotes. Installation and/or Commissioning charges shall be spelt out in absolutely lucid terms, taking into account total charges, rather than quoting vaguely, such as charges per man-day or charges per engineer per day etc. **If the price bid was found later to be different from the unpriced price bid in any way, the offer will be rejected summarily.**

3. **Tender/ Technical bid Opening:** Unless specified otherwise, tenders/ technical bids will be opened on appointed date and time as mentioned in the enquiry or as communicated changed date/time, if any, in the presence of such of those tenderers who may be present.
4. **Delayed/ Late Tender:** Tenders, which have been posted by registered post through the postal department in time before opening date but received after tender opening, shall be treated as regular tenders. Other tenders received after tender opening time shall be treated as late tenders and normally they may be rejected.
5. The Quotation should be free from overwriting and erasures. Corrections and additions, if any, must be attested. Supplier should indicate in the quotation dimensions (Size), weight, rate etc., in the metric system unless the enquiry calls for different unit.
6. **Validity of Quotation:** All quotations shall be kept open for acceptance for a period of ninety days from the date of opening of Tenders/ Technical bid and this shall be deemed to be an express condition of all quotations. The rate shall be quoted in both figures and in words.
7. In the case of Two-part bid, the vendor should furnish technical clarifications, if any, within stipulated time mentioned, failing which, it will be construed that the vendor is not interested in the tender and BHEL shall not consider the offer for further evaluation.
8. **Revision of Pricebid:** In the event of any bidder, after finalizing the technical specifications and scope of supply, opting to revise and submit their latest price bid, then BHEL reserves the right to open their original / previous price bid also while evaluating revised bid.
9. **Pricebid Opening:** Unless specified otherwise in the enquiry, the Price bids of technically qualified vendors shall be opened with prior intimation in the presence of such of those tenderers who may be present.
10. **Conformity to Specifications:** The material should be of the best quality and shall be conforming to our specification given in our enquiry. Unless otherwise agreed upon by BHEL, no payment shall be due by BHEL in respect of any sample. Offers without details of specifications/ applicable catalogues will not be considered and are liable to be rejected.
11. **Terms of Delivery:** All suppliers shall quote the lowest prices on ex-works and FOB/FCA basis. Foreign suppliers will also indicate their Indian agent's name and address with percentage of agency commission out of the quoted price, if any. Name and Address of the supplier's Bankers address should also be given. Indian suppliers for the indigenously manufactured/ imported stock shall quote on Ex-works /Free-on-Rail/Road /FOR-destination basis, indicating packing & forwarding charges, if any, separately.
12. **Taxes and Duties:** Unless specified otherwise in the enquiry, BHEL do not provide "C" or "D" Form as it is engaged in R&D. All Indian suppliers shall clearly mention Sales Tax/ VAT, Excise Duty, and Service Tax etc, if any, payable in addition to the quoted price and indicate applicable rates/ percentage, item-wise. It will be paid

only if Registration Number under State(TIN)/ Central Sales Tax or Service Tax is specifically mentioned in the Bill/Invoice. Vendors without a Sales Tax/VAT registration and applicable Service Tax registration will not be considered.

13. **Insurance:** Insurance will be arranged by BHEL in case of Ex-Works as well as FOB basis supplies.
14. **Terms of Payment:** Full payment will be made within 30 days after receipt, inspection and acceptance of the material (and where involved, Erection and commissioning of the material/ equipment at BHEL/Destination) by Crossed cheque and no Bank commission charges are admissible. The Cheque will be sent by registered post and BHEL is in no way responsible if loss occurs due to delay by postal authorities and cheques falling into improper hands or through forgery or fraud. Suppliers having RBI-SEFT-enabled accounts can seek payment through Electronic Fund transfer. For foreign suppliers, the preferred payment term will be on Sight Draft basis and bank charges inside India will be to BHEL account and outside India will be to supplier's account.
15. Suppliers shall quote competitive price and best delivery for all the items mentioned in the enquiry. BHEL reserves the right to reject partial quotations and to place order on overall landed cost basis. Correct date of effecting supplies in the event of an order should be indicated in the offer. If the supplier's quoted terms are different from BHEL standard payment terms, interest @10.5% per annum (or as indicated in the enquiry) will be loaded to the quoted prices for difference of payment period.
16. **Packing:** The supplier shall be responsible for the goods being properly and adequately packed so as to prevent any loss, damage or deterioration during transit and indicate packing charges, if any, separately.
17. **Part/ Split Ordering:** BHEL reserves right to Order part of the item/ quantity of the enquiry and split the order among qualified vendors.
18. In case the goods enquired are on Rate Contract basis with any other unit of BHEL, such fact should be clearly indicated in the quotation giving full particulars of Rate Contract number, validity and price and also your willingness to comply with order if placed against such Rate Contract. A true copy of Rate contract signed by the supplier should be sent with the quotation.
19. **Inspection:** On receipt, the goods shall be subjected to inspection and also test, if necessary, and our decision regarding the acceptability of the goods shall be final and binding on the suppliers.
20. **Consequences of Failure To Deliver:** The time stipulated for delivery of goods shall be deemed to be the essence of the contract and delivery must be completed within the stipulated date/s. In the event of supplier's failure to supply the goods by the stipulated date/s, BHEL shall be entitled to levy a penalty of ½% per week for the delayed no of weeks or part thereof for the undelivered portion of PO subject to a maximum of 10% total order value.
21. **Withdrawal from the Contract:** In case the supplier withdraws the quotation after its acceptance by BHEL or fails to supply the goods as per the terms and conditions of contract, or at any time repudiated the contract wholly or in part, BHEL shall be at liberty to cancel the Purchase Order and to recover from the supplier the extra cost and other loss incidental to the breach of contract on the part of the supplier.
22. **Guarantee/ Warranty certificate and Manufacturer's Test report:** Invariably in all cases where it is so stipulated, the supplier should furnish Guarantee/ Warranty certificate valid for a period of 18 months from date of supply or 1 year from the date of receipt, acceptance and commissioning(or more, if provide by oem) whichever earlier and manufacturer's Test report along with the goods, failing which, BHEL shall have the right to reject the goods.
23. All ferrous/ non-ferrous items shall be colour coded as per bureau of Indian standards/ or IS standards/ BHEL Standards.
24. **Recovery of Dues:** BHEL shall recover any amount due from the supplier or any amount outstanding to the credit of the supplier with BHEL R&D unit or any other BHEL unit(s) and/or by legal action.
25. **Arbitration & Forum for Legal Proceedings:** All disputes arising in connection with indigenous/ foreign supplies shall be settled through arbitration held at Hyderabad, AP, India and arbitration shall be appointed by Arbitration Tribunal of the Federation of Andhra Pradesh Chambers of Commerce and Industry, Hyderabad, AP, India. The Courts at Secunderabad/ Hyderabad, AP, India shall have jurisdiction in respect of any suit or other legal proceeding arising from or relating to this contract

The rights and remedies of BHEL stated in these General terms and conditions shall be in addition and supplemental to its rights and remedies under law and custom or usage of trade or business and shall in no way be deemed to limit, curtail, supercede or derogate from its said rights and remedies.



**ANNEXURE “AA**  
**BHARAT HEAVY ELECTRICALS LIMITED**  
**CORPORATE RESEARCH & DEVELOPMENT DIVISION**  
**VIKASNAGAR, HYDERABAD – 500 093. INDIA**

**MATERIALS MANAGEMENT DEPARTMENT**  
**(Information for Technical & Commercial bids with general terms)**

**ENCLOSURE TO ENQ No:**

**DATE:**

- a) Please indicate( \_/ ) for applicable or ( X ) for not applicable against each clause of the enquiry
- b) Vendor shall confirm their compliance for applicable clauses ( \_/ ) in their offer without deviation.

**1) Technical offer:-**

- a) Vendors to confirm compliance to all points of specifications, attached if any. Deviations if any should be specified in the offer.
- b) Vendors shall furnish relevant technical Documents / Catalogues. Drawings and Quality plan duly taking care of Purchase Specification and Quality requirements along with their offer in duplicate for Purchaser’s review / Verification.

**2) Two Part Bid:-**

Vendor shall submit their offer in 2 parts.

**2.1 Technical Bid:-** Containing relevant technical data, drawings, catalogues, Quality Plan etc, along with Commercial Terms and Conditions and a copy of the price bid with the price columns left blank (unpriced price bid). If the price bid was found later to be different from the unpriced price bid in any way, the offer will be rejected.

**2.2 Price Bid:-** Containing the Price(s) quoted. Installation and or commissioning charges shall be spelt out in absolutely lucid terms taking into account the total charges rather than quoting vaguely such as charges as per man day or charges per Engineer per day etc.,

Technical bids will be opened on the due date of the enquiry or any other date fixed by BHEL. Further, vendor should furnish clarifications, if any, required within seven days after the same is sought by Purchaser. If no clarifications/reply received within 7 days, it will be construed that vendor is not interested in the tender and Purchaser will finalise tender accordingly. Price bids received on due date along with technical offers will be recorded and opened subsequently with due intimation to vendors after finalising of technical scope of supply.

These bids shall be submitted in separate sealed covers superscribing the nature of the offer (technical bid or price bid). BHEL Enq No. Due date etc.

**Note:** In case of non-compliance with the TWO\_-PART-BID ie.. clause number 2 and subclauses 2.1 and 2.2. Purchaser reserves the right to summarily reject all such offers.

**3) Delivery:-**

Vendor shall confirm supply of materials as per the delivery schedule indicated in the enquiry.

**4) Negotiations:-**

Vendor shall quote competitive price and best delivery to avoid negotiations.

**5) Commercial Terms & Conditions:-**

**Terms of Delivery:**

- a) Vendors shall clearly indicate terms of delivery Viz: Ex-Works/FOR Despatching station/FOR Despatching station FOR Destination/FOB port of loading/FAS Port of loading in their offer. If the terms of delivery is Ex-Works, then vendors shall clearly indicate the following:
  - 1. Packing and forwarding charges.
  - 2. Documentation / Handling charges if any
  - 3. FOB FAS charges (Inland Freight & Insurance charges from vendor works to port of Loading).
- b) All Indian Vendors shall clearly specify the Excise Duty in percentage applicable for their supplies. Offers containing expressions such as “Extra as applicable” or “As applicable at the time of Delivery” will be summarily rejected.
- c) CST/Local Sales Tax in percentage shall be clearly indicated.

**6) Validity of Quotation:-**

Validity of offer should be 90 days after the opening of price bid.

**7) Part or split ordering:-**

Purchaser reserves the right to order part of item / quantity of the enquiry.

**8) For clauses not mentioned in this document see the enclosed “GENERAL TERMS AND CONDITIONS OF ENQUIRY AND CONTRACT FOR THE PURCHASE OF GOODS”**

- 9) In case your terms of payment are different from our standard payment terms, interest at the rate of 10.5% per annum (or BHEL’s standard rate of interest) will be loaded to your prices for the difference of period of payment.**



**BHARAT HEAVY ELECTRICALS LIMITED**  
**CORPORATE R&D Division**  
**Vikasnagar, Hyderabad – 500093, India.**

**Suppliers' compliance statement to basic conditions of enquiry**

**(In case Order to be placed on Indian supplier in Indian currency)**

| <b>Condition</b>             | <b>BHEL R&amp; D's terms</b>                                                                                                                                                                                                                                                                                                                                                     | <b>Supplier's compliance</b><br>(indicate Yes/No. if 'No', state terms desired) |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| 1) Validity of offer         | 90 days from the tender opening date                                                                                                                                                                                                                                                                                                                                             |                                                                                 |
| 2) Delivery requirements     | Free delivery at our stores or FOR destination (as indicated in the enquiry)                                                                                                                                                                                                                                                                                                     |                                                                                 |
| 3)Warranty                   | Unless specifically mentioned in the enquiry, all supplied items to be provided with warrantee for one year (or more, if provided by the OEM) from the date of acceptance/commissioning. In case of equipment involving erection and commissioning, warrantee shall be for 18 months from the date of dispatch or 12 months from the date of commissioning, whichever is earlier |                                                                                 |
| 4) Terms of payment          | Full payment will be made within thirty days after receipt, inspection and acceptance of the material at BHEL R&D (and where involved, erection and commissioning of the material/equipment at BHEL/destination), by Crossed Cheque and no Bank commission charges are admissible.                                                                                               |                                                                                 |
| 5) Taxes & Duties            | Unless specifically mentioned in the enquiry, we do not provide 'C' or 'D' form. Supplier to specify rates of taxes and duties element wise and related percentages.                                                                                                                                                                                                             |                                                                                 |
| 6) Penalty for late delivery | 0.5% per week beyond the delivery date as mentioned in the Purchase order on undelivered portion subject to a maximum of 10% of the total order value                                                                                                                                                                                                                            |                                                                                 |

\* BHEL R&D reserves the right to reject any offer due to non-compliance with the above conditions and/or non-receipt of this form in duly filled condition

\* Any other elements of cost in addition to the above may please be specified in detail

**(Signature and Stamp/Seal of Vendor)**



**BHARAT HEAVY ELECTRICALS LIMITED**  
**CORPORATE R&D Division**  
**Vikasnagar, Hyderabad – 500093.**

**IMPORTED**

**Suppliers' compliance statement to basic conditions of enquiry**

**(In case Order to be placed on the Principal and foreign currency)**

| <b>Condition</b>              | <b>BHEL R&amp; D's terms</b>                                                                                                                                                                                                                                                                                                                                                      | <b>Supplier's compliance</b><br><b>(indicate Yes/No. if 'No', state terms desired)</b> |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 01) Validity of offer         | 90 days from the tender opening date ( or as per enquiry)                                                                                                                                                                                                                                                                                                                         |                                                                                        |
| 02) Delivery requirements     | FCA – Nearest International Airport (or as indicated in the enquiry)                                                                                                                                                                                                                                                                                                              |                                                                                        |
| 03) Warranty                  | Unless specifically mentioned in the enquiry, all supplied items to be provided with warrantee for one year (or more, if provided by the OEM) from the date of acceptance/ commissioning. In case of equipment involving erection and commissioning, warrantee shall be for 18 months from the date of dispatch or 12 months from the date of commissioning, whichever is earlier |                                                                                        |
| 04) Terms of payment          | Sight draft.<br>All bank charges inside India will be to BHEL R&D account and out side India will be to suppliers account. Documents through State Bank of India, HAL Complex, Balanagar, Hyderabad, AP, India-500 042.                                                                                                                                                           |                                                                                        |
| 05) Agency commission         | Pl specify percentage charges, if any. Indian agency/agent commission will be in Indian Currency only.                                                                                                                                                                                                                                                                            |                                                                                        |
| 06) Erection/ Commission      | As per enquiry                                                                                                                                                                                                                                                                                                                                                                    |                                                                                        |
| 07) Documentation             | As per enquiry                                                                                                                                                                                                                                                                                                                                                                    |                                                                                        |
| 08) Insurance                 | BHEL will arrange Insurance based on intimation to our Insurance agency, United India Insurance Co., DO-2, Secunderabad, AP, India.                                                                                                                                                                                                                                               |                                                                                        |
| 09) Penalty for late delivery | 0.5% per week beyond the delivery date as mentioned in the Purchase order on undelivered portion subject to a maximum of 10% of the total order value                                                                                                                                                                                                                             |                                                                                        |

\* BHEL R&D reserves the right to reject any offer due to non-compliance with the above conditions and/or non-receipt of this form in duly filled condition

\* Any other elements of cost in addition to the above may please be specified in detail

**(Signature and Stamp/ Seal of Vendor)**



BHARAT HEAVY ELECTRICALS LTD.  
Corp. R&D DIVISION  
VIKAS NAGAR,  
HYDERABAD-500 093 (INDIA)

## VENDOR REGISTRATION FORM

[FORM TO BE SUBMITTED\* BY THE BIDDER ALONG WITH TECHNICAL-BID]

Before filling please refer to instructions on page-4

### 1.0 VENDOR PROFILE:

1.1 & 1.2 Name and address of the vender:

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Phone Nos.:

Fax No.:

Email:

1.4 Local representative of the vender in India/ Hyderabad:

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Phone Nos.:

Fax No.:

Email:

Contact person:

Mobile No.:

2.0 & 2.1 Type of Organisation:

|                |             |                      |                               |
|----------------|-------------|----------------------|-------------------------------|
| PROPRIETORSHIP | COMPANY     | SISTER CONCERN       | ANY OTHER<br>(Please specify) |
|                |             |                      |                               |
| PARTNERSHIP    | CORPORATION | Small Scale Industry |                               |
|                |             |                      |                               |

3.0 Annual Turn Over:

Name and address of the Banker:

| Sr.No. | Bank | Address |
|--------|------|---------|
|        |      |         |
|        |      |         |
|        |      |         |

4.0 REGISTRATION PARTICULARS

4.1 IT Permanent Account No.(PAN):

4.2 & 4.3 State and central sales tax Registration No.:

4.4 ED/ Service Tax Registration No.:

PF Account No.:

Labour Licence No.:

ESI Account No.:

5.2 Contact person:

Mobile No. :

5.3 Total Number of employees:

| Graduates<br>(Engr./Scientists/Mgmt/Fin.) | Consultants | Workers      |             |           |
|-------------------------------------------|-------------|--------------|-------------|-----------|
|                                           |             | Sup./Skilled | Semiskilled | Unskilled |
|                                           |             |              |             |           |
|                                           |             |              |             |           |

6.0 Wish to register for supplies/ services other than one bidding for :

| <u>Sr.No.</u> | <u>Service/Supplies</u> | <u>Capacity</u> |
|---------------|-------------------------|-----------------|
| <u>1</u>      |                         |                 |
| <u>2</u>      |                         |                 |
| <u>3</u>      |                         |                 |
| <u>4</u>      |                         |                 |
| <u>5</u>      |                         |                 |
| <u>6</u>      |                         |                 |
| <u>7</u>      |                         |                 |

6.1 Reference list :

(Only recognized public and private sector companies, attach if printed copy available)

| <u>Sr.No.</u> | <u>Customer</u> | <u>Volume / Year</u> |
|---------------|-----------------|----------------------|
| <u>1</u>      |                 |                      |
| <u>2</u>      |                 |                      |
| <u>3</u>      |                 |                      |
| <u>4</u>      |                 |                      |
| <u>5</u>      |                 |                      |
| <u>6</u>      |                 |                      |
| <u>7</u>      |                 |                      |

7.0 & 8.0 Infrastructure / facilities :

| <u>Sr.No.</u> | <u>Facility (with specifications)</u> | <u>Age/ Year procured</u> |
|---------------|---------------------------------------|---------------------------|
| <u>1</u>      |                                       |                           |
| <u>2</u>      |                                       |                           |
| <u>3</u>      |                                       |                           |
| <u>4</u>      |                                       |                           |
| <u>5</u>      |                                       |                           |
| <u>6</u>      |                                       |                           |
| <u>7</u>      |                                       |                           |
| <u>8</u>      |                                       |                           |
| <u>9</u>      |                                       |                           |
| <u>10</u>     |                                       |                           |

9.0 Registration with other BHEL Unit/Units:

| <u>Sr.No.</u> | <u>9.1.1 Unit</u> | <u>9.1.2 Registration No.</u> |
|---------------|-------------------|-------------------------------|
| <u>1</u>      |                   |                               |
| <u>2</u>      |                   |                               |
| <u>3</u>      |                   |                               |
| <u>4</u>      |                   |                               |

Any Other information :

Declaration:

The information furnished above is true and authentic.

**(CEO / Proprietor)**

**SEAL:**

**Date:**

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The competent authority reserves the right to accept or reject the registration. Registered vendors will be informed by mail / email, as convenient. Contact Sr.DGM (MM) for clarification/ additional information on registration.  
A separate communication will be sent to you in case of non-registration, citing reasons thereof.

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### **Instructions**

1. Answer all items, use NA for items not applicable.
2. BHEL units do not require this registration.
3. Submit the form in duplicate.
4. Use additional sheets for want of space if required.
5. Attach copies of latest documents in respect of items 4.0 (Registration no.s)
6. Photographs of registered office and the chief executive/proprietor shall be furnished.
7. Use A4 sheets for this document and the enclosures.

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\* REGISTERED BIDDERS, HAVING BHEL (R&D) REGISTRATION NO./ HAVE SUBMITTED THIS FORMAT EARLIER, NEED NOT FURNISH THIS INFORMATION SECOND TIME (UNLESS DESIRE TO UPDATE IT).



**BHEL CORPORATE R & D**  
**VIKAS NAGAR- HYDERABAD - 500 093**  
**ANDHRA PRADESH – INDIA**  
**SUPPLIER REGISTRATION FORM**

(FOREIGN SUPPLIER)

ALL COLUMNS SHOULD BE PROPERLY FILLED IN THE SPACE PROVIDED FOR. WHEREVER IT IS NOT APPLICABLE PLEASE WRITE “NOT APPLICABLE”. INCOMPLETE OR INCORRECT FORMS MAY NOT BE CONSIDERED.

**1.0 GENERAL INFORMATION:**

1.1....NAME OF COMPANY

1.2....DETAILS OF HEAD OFFICE:

ADDRESS :  
TELEPHONE :  
FAX :  
.EMAIL :  
.WEB SITE :

1.3....DETAILS OF FACTORY/WORKS:

ADDRESS :  
TELEPHONE :  
FAX :  
.EMAIL :  
.WEB SITE :

1.4....DETAILS OF MARKETING AGENT

ADDRESS :  
TELEPHONE :  
.FAX :  
.EMAIL :  
.WEB SITE :

1.5 CHIEF EXECUTIVE

NOTE: PLEASE ATTACH SEPARATE SHEETS, IF SPACE FOUND IS INADEQUATE

AUTHORISED SIGNATORY



**BHEL CORPORATE R & D**  
**VIKAS NAGAR – HYDERABAD – 500 093**  
**ANDHRA PRADESH – INDIA**

**SUPPLIER REGISTRATION FORM**

(FOREIGN SUPPLIER)

- 1.6 CONTACT PERSON(S)  
FOR PRODUCT OFFERED  
NAME(S)  
OFFICIAL CAPACITY  
ADDRESS:  
TELEPHONE  
FAX  
E-MAIL
- 1.7 YEAR OF ESTABLISHMENT
- 1.8 PRODUCTION CAPACITY PER ANNUM
- 1.9 PARTICULARS OF PRODUCT INCLUDING  
SPECIFICATION AND RANGE OFFERED  
FOR REGISTRATION  
( ATTACH BROUCHERS AND CATALOGUE)
- 1.10 NAME(S) OF BANKERS
- 1.11 BANKER’S CERTIFICATE
- 1.12 PORT OF LOADING
- 1.13 NEAREST AIRPORT
- 1.14 NAME OF THE INDIAN AGENT, IF ANY  
WITH AUTHORISATION LETTER
- 1.15 ANY OTHER INFORMATION:

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AUTHORISED SIGNATORY

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**BHEL CORPORATE R & D**  
**VIKAS NAGAR – HYDERABAD – 500 093**  
**ANDHRA PRADESH – INDIA**

**SUPPLIER REGISTRATION FORM**

(FOREIGN SUPPLIER)

**2.0 FINANCIAL INFORMATION**

2.1...TOTAL CAPACITY

2.2...ANNUAL TURN OVER FOR LAST 3 YEARS

2.3...WHEHER CREDIT LICENSE ACCEPTABLE      YES/NO

**3.0    QUALITY MANAGEMENT SYSTEMS**  
**ENCLOSED FORMAT PART-B**

3.1    EXPERIENCE LIST FOR SAME/SIMILAR ITEMS  
TO BE ENCLOSED

**4.0.....FUTURE EXPANSION PLANS:**  
(GIVE DETAILS)

**5.0    LIST OF ENCLOSURES:**  
INCLUDING BROUCHERS, CATALOGUES, TECHNICAL  
LITERATURE etc...

**6.0    ANY OTHER INFORMATION**

SIGNATURE OF SUPPLIER  
NAME  
DESIGNATION  
DATE  
.....OFFICIAL SEAL

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AUTHORISED SIGNATORY

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