

|                                                                                                                                                                                                                                                                                                                                                                               |                                                                                   |                                                                                 |                     |             |                |                    |                     |                    |                     |             |      |      |      |    |        |          |      |          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------|-------------|----------------|--------------------|---------------------|--------------------|---------------------|-------------|------|------|------|----|--------|----------|------|----------|
| TTTD-106-1<br>Rev No. 5<br>Form No.                                                                                                                                                                                                                                                                                                                                           |  | <b>PROJECT ENGINEERING &amp; SYSTEM DIVISION</b><br><b>BHEL, HYDERABAD –32.</b> |                     |             | <b>PY51391</b> |                    |                     |                    |                     |             |      |      |      |    |        |          |      |          |
|                                                                                                                                                                                                                                                                                                                                                                               |                                                                                   |                                                                                 |                     |             | Rev No. 01     |                    |                     |                    |                     |             |      |      |      |    |        |          |      |          |
|                                                                                                                                                                                                                                                                                                                                                                               |                                                                                   |                                                                                 |                     |             | Page 1 of 5    |                    |                     |                    |                     |             |      |      |      |    |        |          |      |          |
| <div style="text-align: center;"> <p><b><u>TECHNICAL SPECIFICATION</u></b></p> <p><b><u>FOR SS HYDRANT VALVE</u></b></p> </div>                                                                                                                                                                                                                                               |                                                                                   |                                                                                 |                     |             |                |                    |                     |                    |                     |             |      |      |      |    |        |          |      |          |
|                                                                                                                                                                                                                                                                                                                                                                               |                                                                                   |                                                                                 |                     |             |                |                    |                     |                    |                     |             |      |      |      |    |        |          |      |          |
|                                                                                                                                                                                                                                                                                                                                                                               |                                                                                   |                                                                                 |                     |             |                |                    |                     |                    |                     |             |      |      |      |    |        |          |      |          |
|                                                                                                                                                                                                                                                                                                                                                                               |                                                                                   |                                                                                 |                     |             |                |                    |                     |                    |                     |             |      |      |      |    |        |          |      |          |
| <table border="1"> <tr> <td rowspan="2"> <b>Revisions :</b> </td> <td> <b>Prepared by:</b> </td> <td> <b>Checked by:</b> </td> <td> <b>Approved By:</b> </td> <td rowspan="2"> <b>Date</b> </td> </tr> <tr> <td> -SD- </td> <td> -SD- </td> <td> -SD- </td> </tr> <tr> <td> 00 </td> <td> Sumant </td> <td> Amit/PCS </td> <td> MNSR </td> <td> 25.07.18 </td> </tr> </table> |                                                                                   |                                                                                 |                     |             |                | <b>Revisions :</b> | <b>Prepared by:</b> | <b>Checked by:</b> | <b>Approved By:</b> | <b>Date</b> | -SD- | -SD- | -SD- | 00 | Sumant | Amit/PCS | MNSR | 25.07.18 |
| <b>Revisions :</b>                                                                                                                                                                                                                                                                                                                                                            | <b>Prepared by:</b>                                                               | <b>Checked by:</b>                                                              | <b>Approved By:</b> | <b>Date</b> |                |                    |                     |                    |                     |             |      |      |      |    |        |          |      |          |
|                                                                                                                                                                                                                                                                                                                                                                               | -SD-                                                                              | -SD-                                                                            | -SD-                |             |                |                    |                     |                    |                     |             |      |      |      |    |        |          |      |          |
| 00                                                                                                                                                                                                                                                                                                                                                                            | Sumant                                                                            | Amit/PCS                                                                        | MNSR                | 25.07.18    |                |                    |                     |                    |                     |             |      |      |      |    |        |          |      |          |

**COPYRIGHT AND CONFIDENTIAL**

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.

| TD-106-2<br>Rev.No. 5<br>Form No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>PROJECT ENGINEERING &amp; SYSTEM DIVISION</b><br><b>BHEL, HYDERABAD –32.</b> | <b>PY51391</b> |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------|----------|--------------|---------------|-----|---------------------------------|------------------------------------------------------------|-----|--------------------------------|----------------------------------------------------------|-----|--------------------------|--|-------|------|--------|-------|------------|--------|-------|---------|--------|-------|------|--------|-------|--------|--------|-------|------------------------|--------|-------|------------|-------------------|-------|--------|-----------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                 | Rev No. 01     |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                 | Page 2 of 5    |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
| <b>COPYRIGHT AND CONFIDENTIAL</b><br>The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED.<br>It must not be used directly or indirectly in any way detrimental to the interest of the company.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>1. SCOPE/INTENT:</b> <p>1.1. This specification covers the technical requirements of constructional features, accessories, inspection, tests, test certificates, documentation, preservation, packing and forwarding of SS Hydrant Valve.</p> <p>1.2. Scope of supply shall include design, manufacture, inspection, shop testing, shop painting, packing and delivery.</p> <p>1.3. The supplier shall strictly comply with this standard in all respects. No deviation shall be allowed. However, bidder can raise technical queries on the specification during pre-bid stage and clarifications may be sought from BHEL before the bid submission.</p> <p>APPLICATION:<br/>These valves suitable for fire protection systems (both Water/Foam based).</p> |                                                                                 |                |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>2. VARIANT TABLE:</b> <table border="1"> <thead> <tr> <th>Var. No.</th> <th>Description</th> <th>Material Code</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>SS Hydrant Valve (ISI Approved)</td> <td>PY9751391016</td> </tr> <tr> <td>02</td> <td>SS Hydrant Valve (FM Approved)</td> <td>PY9751391024</td> </tr> </tbody> </table> <p>Note: Bidder to quote as per Material Code as mentioned in the Enquiry.</p>                                                                                                                                                                                                                                                                                                                                       |                                                                                 |                | Var. No. | Description  | Material Code | 01  | SS Hydrant Valve (ISI Approved) | PY9751391016                                               | 02  | SS Hydrant Valve (FM Approved) | PY9751391024                                             |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
| Var. No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Material Code                                                                   |                |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
| 01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | SS Hydrant Valve (ISI Approved)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | PY9751391016                                                                    |                |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
| 02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | SS Hydrant Valve (FM Approved)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | PY9751391024                                                                    |                |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
| <b>3. TECHNICAL REQUIREMENTS:</b> <p><b>3.a. SS Hydrant Valve (ISI Approved)</b></p> <table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Requirements</th> <th>Compliance</th> </tr> </thead> <tbody> <tr> <td>3.1</td> <td>Type</td> <td>Female oblique type with the outlets angled towards ground</td> </tr> <tr> <td>3.2</td> <td>Size</td> <td>Inlet of 75 mm and outlet of 63 mm female instantaneous.</td> </tr> <tr> <td>3.3</td> <td>Material of construction</td> <td></td> </tr> <tr> <td>3.3.1</td> <td>Body</td> <td>SS 304</td> </tr> <tr> <td>3.3.2</td> <td>Stop valve</td> <td>SS 304</td> </tr> <tr> <td>3.3.3</td> <td>Spindle</td> <td>SS 304</td> </tr> <tr> <td>3.3.4</td> <td>Seat</td> <td>SS 304</td> </tr> <tr> <td>3.3.5</td> <td>Bonnet</td> <td>SS 304</td> </tr> <tr> <td>3.3.6</td> <td>Instantaneous Coupling</td> <td>SS 304</td> </tr> <tr> <td>3.3.7</td> <td>Hand wheel</td> <td>CI IS 210 Gr. 260</td> </tr> <tr> <td>3.3.8</td> <td>Spring</td> <td>Phosphor bronze to IS : 7608 / SS</td> </tr> </tbody> </table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                 |                | Sl. No.  | Requirements | Compliance    | 3.1 | Type                            | Female oblique type with the outlets angled towards ground | 3.2 | Size                           | Inlet of 75 mm and outlet of 63 mm female instantaneous. | 3.3 | Material of construction |  | 3.3.1 | Body | SS 304 | 3.3.2 | Stop valve | SS 304 | 3.3.3 | Spindle | SS 304 | 3.3.4 | Seat | SS 304 | 3.3.5 | Bonnet | SS 304 | 3.3.6 | Instantaneous Coupling | SS 304 | 3.3.7 | Hand wheel | CI IS 210 Gr. 260 | 3.3.8 | Spring | Phosphor bronze to IS : 7608 / SS |
| Sl. No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Compliance                                                                      |                |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
| 3.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Female oblique type with the outlets angled towards ground                      |                |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
| 3.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Size                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Inlet of 75 mm and outlet of 63 mm female instantaneous.                        |                |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
| 3.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Material of construction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                 |                |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
| 3.3.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Body                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SS 304                                                                          |                |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
| 3.3.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Stop valve                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | SS 304                                                                          |                |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
| 3.3.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Spindle                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SS 304                                                                          |                |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
| 3.3.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Seat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SS 304                                                                          |                |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
| 3.3.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Bonnet                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | SS 304                                                                          |                |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
| 3.3.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Instantaneous Coupling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | SS 304                                                                          |                |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
| 3.3.7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Hand wheel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CI IS 210 Gr. 260                                                               |                |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
| 3.3.8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Spring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Phosphor bronze to IS : 7608 / SS                                               |                |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |
| Ref.<br>Doc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                 |                |          |              |               |     |                                 |                                                            |     |                                |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                                   |

| TD-106-2<br>Rev.No. 5<br>Form No.                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>PROJECT ENGINEERING &amp; SYSTEM DIVISION</b><br><b>BHEL, HYDERABAD –32.</b> |        | <b>PY51391</b> |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------|----------------|-------|-----------|--------|-----|---------------|----------------|-----|----------------|--|--|------|--------------|--|------|--------------|-----|-----------|-------------------------|-----|----------------|-------------------------|--|------------------|--------------------------------------------------------------|--|-------------------|-----------------------------------------------------------|--|----------|--------------|---------|--------------|------------|-----|------|------------------------------------------------------------|-----|------|----------------------------------------------------------|-----|--------------------------|--|-------|------|--------|-------|------------|--------|-------|---------|--------|-------|------|--------|-------|--------|--------|-------|------------------------|--------|-------|------------|-------------------|-------|--------|------------------------------|-----|---------------|-------------------------|-----|----------------|--|--|------|--------------|--|------|--------------|-----|-----------|-------------------------|-----|----------------|-------------------------|--|------------------|--------------------------------------------------------------|--|-------------------|-----------------------------------------------------------|
|                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                 |        | Rev No. 01     |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
|                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                 |        | Page 3 of 5    |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| <b>COPYRIGHT AND CONFIDENTIAL</b><br>The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED.<br>It must not be used directly or indirectly in any way detrimental to the interest of the company. | <table border="1"> <tr> <td>3.3.9</td> <td>Check Nut</td> <td>SS 304</td> </tr> <tr> <td>3.4</td> <td>Code/Standard</td> <td>IS 5290 Type-A</td> </tr> <tr> <td>3.5</td> <td>Hydraulic test</td> <td></td> </tr> <tr> <td></td> <td>Body</td> <td>21 kg/cm2(g)</td> </tr> <tr> <td></td> <td>Seat</td> <td>14 kg/cm2(g)</td> </tr> <tr> <td>3.6</td> <td>Flow Test</td> <td>900 LPM min AT 7 Kg/cm2</td> </tr> <tr> <td>3.7</td> <td>End Connection</td> <td>As per ANSI B 16.5 150#</td> </tr> <tr> <td></td> <td>Inlet connection</td> <td>Flat Faced, Flanged, only Drilling and OD as per ANSI B 16.5</td> </tr> <tr> <td></td> <td>Outlet connection</td> <td>Female Instantaneous Coupling with Blank Cap &amp; (SS) Chain</td> </tr> <tr> <td></td> <td>Approval</td> <td>ISI Approved</td> </tr> </table> <p><b>3.b. SS Hydrant Valve (FM Approved)</b></p> <table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Requirements</th> <th>Compliance</th> </tr> </thead> <tbody> <tr> <td>3.1</td> <td>Type</td> <td>Female oblique type with the outlets angled towards ground</td> </tr> <tr> <td>3.2</td> <td>Size</td> <td>Inlet of 75 mm and outlet of 63 mm female instantaneous.</td> </tr> <tr> <td>3.3</td> <td>Material of construction</td> <td></td> </tr> <tr> <td>3.3.1</td> <td>Body</td> <td>SS 304</td> </tr> <tr> <td>3.3.2</td> <td>Stop valve</td> <td>SS 304</td> </tr> <tr> <td>3.3.3</td> <td>Spindle</td> <td>SS 304</td> </tr> <tr> <td>3.3.4</td> <td>Seat</td> <td>SS 304</td> </tr> <tr> <td>3.3.5</td> <td>Bonnet</td> <td>SS 304</td> </tr> <tr> <td>3.3.6</td> <td>Instantaneous Coupling</td> <td>SS 304</td> </tr> <tr> <td>3.3.7</td> <td>Hand wheel</td> <td>CI IS 210 Gr. 260</td> </tr> <tr> <td>3.3.8</td> <td>Spring</td> <td>Phosphor bronze to IS : 7608</td> </tr> <tr> <td>3.4</td> <td>Code/Standard</td> <td>FM 1521 for FM approved</td> </tr> <tr> <td>3.5</td> <td>Hydraulic test</td> <td></td> </tr> <tr> <td></td> <td>Body</td> <td>21 kg/cm2(g)</td> </tr> <tr> <td></td> <td>Seat</td> <td>14 kg/cm2(g)</td> </tr> <tr> <td>3.6</td> <td>Flow Test</td> <td>900 LPM min AT 7 Kg/cm2</td> </tr> <tr> <td>3.7</td> <td>End Connection</td> <td>As per ANSI B 16.5 150#</td> </tr> <tr> <td></td> <td>Inlet connection</td> <td>Flat Faced, Flanged, only Drilling and OD as per ANSI B 16.5</td> </tr> <tr> <td></td> <td>Outlet connection</td> <td>Female Instantaneous Coupling with Blank Cap &amp; (SS) Chain</td> </tr> </tbody> </table> |                                                                                 |        |                | 3.3.9 | Check Nut | SS 304 | 3.4 | Code/Standard | IS 5290 Type-A | 3.5 | Hydraulic test |  |  | Body | 21 kg/cm2(g) |  | Seat | 14 kg/cm2(g) | 3.6 | Flow Test | 900 LPM min AT 7 Kg/cm2 | 3.7 | End Connection | As per ANSI B 16.5 150# |  | Inlet connection | Flat Faced, Flanged, only Drilling and OD as per ANSI B 16.5 |  | Outlet connection | Female Instantaneous Coupling with Blank Cap & (SS) Chain |  | Approval | ISI Approved | Sl. No. | Requirements | Compliance | 3.1 | Type | Female oblique type with the outlets angled towards ground | 3.2 | Size | Inlet of 75 mm and outlet of 63 mm female instantaneous. | 3.3 | Material of construction |  | 3.3.1 | Body | SS 304 | 3.3.2 | Stop valve | SS 304 | 3.3.3 | Spindle | SS 304 | 3.3.4 | Seat | SS 304 | 3.3.5 | Bonnet | SS 304 | 3.3.6 | Instantaneous Coupling | SS 304 | 3.3.7 | Hand wheel | CI IS 210 Gr. 260 | 3.3.8 | Spring | Phosphor bronze to IS : 7608 | 3.4 | Code/Standard | FM 1521 for FM approved | 3.5 | Hydraulic test |  |  | Body | 21 kg/cm2(g) |  | Seat | 14 kg/cm2(g) | 3.6 | Flow Test | 900 LPM min AT 7 Kg/cm2 | 3.7 | End Connection | As per ANSI B 16.5 150# |  | Inlet connection | Flat Faced, Flanged, only Drilling and OD as per ANSI B 16.5 |  | Outlet connection | Female Instantaneous Coupling with Blank Cap & (SS) Chain |
|                                                                                                                                                                                                                                 | 3.3.9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Check Nut                                                                       | SS 304 |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.4                                                                                                                                                                                                                             | Code/Standard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | IS 5290 Type-A                                                                  |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.5                                                                                                                                                                                                                             | Hydraulic test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                 |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
|                                                                                                                                                                                                                                 | Body                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 21 kg/cm2(g)                                                                    |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
|                                                                                                                                                                                                                                 | Seat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 14 kg/cm2(g)                                                                    |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.6                                                                                                                                                                                                                             | Flow Test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 900 LPM min AT 7 Kg/cm2                                                         |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.7                                                                                                                                                                                                                             | End Connection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | As per ANSI B 16.5 150#                                                         |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
|                                                                                                                                                                                                                                 | Inlet connection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Flat Faced, Flanged, only Drilling and OD as per ANSI B 16.5                    |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
|                                                                                                                                                                                                                                 | Outlet connection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Female Instantaneous Coupling with Blank Cap & (SS) Chain                       |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
|                                                                                                                                                                                                                                 | Approval                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ISI Approved                                                                    |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| Sl. No.                                                                                                                                                                                                                         | Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Compliance                                                                      |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.1                                                                                                                                                                                                                             | Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Female oblique type with the outlets angled towards ground                      |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.2                                                                                                                                                                                                                             | Size                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Inlet of 75 mm and outlet of 63 mm female instantaneous.                        |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.3                                                                                                                                                                                                                             | Material of construction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                 |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.3.1                                                                                                                                                                                                                           | Body                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | SS 304                                                                          |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.3.2                                                                                                                                                                                                                           | Stop valve                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | SS 304                                                                          |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.3.3                                                                                                                                                                                                                           | Spindle                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SS 304                                                                          |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.3.4                                                                                                                                                                                                                           | Seat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | SS 304                                                                          |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.3.5                                                                                                                                                                                                                           | Bonnet                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SS 304                                                                          |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.3.6                                                                                                                                                                                                                           | Instantaneous Coupling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SS 304                                                                          |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.3.7                                                                                                                                                                                                                           | Hand wheel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | CI IS 210 Gr. 260                                                               |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.3.8                                                                                                                                                                                                                           | Spring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Phosphor bronze to IS : 7608                                                    |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.4                                                                                                                                                                                                                             | Code/Standard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | FM 1521 for FM approved                                                         |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.5                                                                                                                                                                                                                             | Hydraulic test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                 |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
|                                                                                                                                                                                                                                 | Body                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 21 kg/cm2(g)                                                                    |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
|                                                                                                                                                                                                                                 | Seat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 14 kg/cm2(g)                                                                    |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.6                                                                                                                                                                                                                             | Flow Test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 900 LPM min AT 7 Kg/cm2                                                         |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| 3.7                                                                                                                                                                                                                             | End Connection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | As per ANSI B 16.5 150#                                                         |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
|                                                                                                                                                                                                                                 | Inlet connection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Flat Faced, Flanged, only Drilling and OD as per ANSI B 16.5                    |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
|                                                                                                                                                                                                                                 | Outlet connection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Female Instantaneous Coupling with Blank Cap & (SS) Chain                       |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |
| Ref.<br>Doc                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                 |        |                |       |           |        |     |               |                |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |  |          |              |         |              |            |     |      |                                                            |     |      |                                                          |     |                          |  |       |      |        |       |            |        |       |         |        |       |      |        |       |        |        |       |                        |        |       |            |                   |       |        |                              |     |               |                         |     |                |  |  |      |              |  |      |              |     |           |                         |     |                |                         |  |                  |                                                              |  |                   |                                                           |

|                                   |                                                                                   |                                                                                 |                |
|-----------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------|
| TD-106-2<br>Rev.No. 5<br>Form No. |  | <b>PROJECT ENGINEERING &amp; SYSTEM DIVISION</b><br><b>BHEL, HYDERABAD –32.</b> | <b>PY51391</b> |
|                                   |                                                                                   |                                                                                 | Rev No. 01     |
|                                   |                                                                                   |                                                                                 | Page 4 of 5    |

  

| <b>COPYRIGHT AND CONFIDENTIAL</b><br>The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED.<br>It must not be used directly or indirectly in any way detrimental to the interest of the company.                                                                            | <div style="display: flex; justify-content: space-between;"> <div>Approval</div> <div>FM approved</div> </div>                                                                                                                                                       |                     |              |           |                           |                     |                         |                               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-----------|---------------------------|---------------------|-------------------------|-------------------------------|
|                                                                                                                                                                                                                                                                                                            | <b>4. PAINTING</b><br>Tentative Painting details are as per the below table. However, Final painting details and final color shade shall be provided to Bidder after placement of PO.                                                                                |                     |              |           |                           |                     |                         |                               |
|                                                                                                                                                                                                                                                                                                            | <table border="1"> <tr> <th>Paint Scheme</th> <th>Total DFT</th> </tr> <tr> <td>Primer: Zinc filled Epoxy</td> <td rowspan="3">Minimum 200 Microns</td> </tr> <tr> <td>Intermediate: Epoxy MIO</td> </tr> <tr> <td>Final: Aliphatic Polyurethane</td> </tr> </table> |                     | Paint Scheme | Total DFT | Primer: Zinc filled Epoxy | Minimum 200 Microns | Intermediate: Epoxy MIO | Final: Aliphatic Polyurethane |
|                                                                                                                                                                                                                                                                                                            | Paint Scheme                                                                                                                                                                                                                                                         | Total DFT           |              |           |                           |                     |                         |                               |
|                                                                                                                                                                                                                                                                                                            | Primer: Zinc filled Epoxy                                                                                                                                                                                                                                            | Minimum 200 Microns |              |           |                           |                     |                         |                               |
|                                                                                                                                                                                                                                                                                                            | Intermediate: Epoxy MIO                                                                                                                                                                                                                                              |                     |              |           |                           |                     |                         |                               |
|                                                                                                                                                                                                                                                                                                            | Final: Aliphatic Polyurethane                                                                                                                                                                                                                                        |                     |              |           |                           |                     |                         |                               |
|                                                                                                                                                                                                                                                                                                            | Final shade of the paints shall be informed after post order.                                                                                                                                                                                                        |                     |              |           |                           |                     |                         |                               |
|                                                                                                                                                                                                                                                                                                            | <b>5. INSPECTION AND TESTING</b><br>As per BHEL QAP (Refer attached Annexure)                                                                                                                                                                                        |                     |              |           |                           |                     |                         |                               |
|                                                                                                                                                                                                                                                                                                            | <b>6. DOCUMENTATION:</b>                                                                                                                                                                                                                                             |                     |              |           |                           |                     |                         |                               |
| <b>6.1. Along with the offer:</b><br>Signed and stamped copy of this specification as token of acceptance of the specification for execution in the event of Order.                                                                                                                                        |                                                                                                                                                                                                                                                                      |                     |              |           |                           |                     |                         |                               |
| <b>6.2. After PO Placement:</b><br>Two copies each of the following documents shall be submitted for approval.                                                                                                                                                                                             |                                                                                                                                                                                                                                                                      |                     |              |           |                           |                     |                         |                               |
| <ul style="list-style-type: none"> <li>G.A. Drawings with weights and dimensions</li> <li>Technical Data sheets, Catalogue</li> <li>material specification details</li> <li>tests to be conducted</li> <li>O&amp;M manuals</li> <li>Storage/Preservation instructions for at least three years.</li> </ul> |                                                                                                                                                                                                                                                                      |                     |              |           |                           |                     |                         |                               |
| Final documentation consisting of above documents shall be submitted in requisite sets(to be decided post order) of hard and soft copies.                                                                                                                                                                  |                                                                                                                                                                                                                                                                      |                     |              |           |                           |                     |                         |                               |

  

Schedule for document submissions:

| S.no | Description                                              | Schedule                              |
|------|----------------------------------------------------------|---------------------------------------|
| 1    | Submission of GA drawing & Technical Datasheet by vendor | 7 days from the date of P.O.          |
| 2    | Approval GA drawing & Technical Datasheet by BHEL        | 14 days from receipt of the document* |

|                                                                                                                                                                                                                                 |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                 |                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------|
| TD-106-2<br>Rev.No. 5                                                                                                                                                                                                           | Form No. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>PROJECT ENGINEERING &amp; SYSTEM DIVISION</b><br><b>BHEL, HYDERABAD –32.</b> | <b>PY51391</b><br>Rev No. 01<br>Page 5 of 5 |
| <b>COPYRIGHT AND CONFIDENTIAL</b><br>The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED.<br>It must not be used directly or indirectly in any way detrimental to the interest of the company. |          | <p>* The GA drawing &amp; Technical Datasheet submitted by vendor shall be strictly in compliance to all applicable standards and specification.</p> <p><b>7. PRESERVATION, PACKING &amp; MARKING OR PACKING CASE:</b></p> <p>7.1. A suitable temporary rust preventive with minimum life of two years shall be applied inside the item/equipment body in order to prevent corrosion.</p> <p>7.2. All the item / equipment shall be packed suitably in closed wooden cases in order to avoid damage during transit and storage at BHEL. Suitable supports shall be provided inside the cases in order to avoid internal movement. In case of exported consignments, the packing shall be seaworthy (Refer enclosed Annexure for Export Packing guidelines, AA 0490009, Rev-01).</p> <p>Each item / equipment after end protection should be wrapped in polythene sheet before packing in the cases.</p> <p>Each packing case must contain two copies of the shipping list giving details of all the contents of the case.</p> <p>7.3. The following marking shall be done on each packing case minimum on two sides and at the top.</p> <ul style="list-style-type: none"> <li>(a) Complete address of the consignee and destination as per BHEL Purchase Order.</li> <li>(b) BHEL Purchase order Number</li> <li>(c) BHEL item Material Code</li> <li>(d) Number of pieces in each packing case</li> <li>(e) Net Weight</li> <li>(f) Gross Weight</li> <li>(g) Packing case number and total number of packings</li> <li>(h) Arrow indicating top of the packing case.</li> </ul> |                                                                                 |                                             |
| Ref.                                                                                                                                                                                                                            | Doc      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                 |                                             |

|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------------------------------------------------------------------------------------|-------------------------|-------------------|---------------------|--------------------|--|
| TD-106-3<br>Rev.No. 5<br>Form No.                                                                                                                                                                                               |                            | <b>PRODUCT STANDARD</b><br><b>BHEL, HYDERABAD –32.</b><br><b>PROJECT ENGINEERING &amp; SYSTEM DIVISION</b> |                         |                   |                     | PY51391            |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     | Rev No. 01         |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     | Page 5 of 5        |  |
| <b>COPYRIGHT AND CONFIDENTIAL</b><br>The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED,<br>It must not be used directly or indirectly in any way detrimental to the interest of the company. | <b>RECORD OF REVISIONS</b> |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 | <b>Rev. No.</b>            | <b>Date</b>                                                                                                | <b>Revision Details</b> | <b>Revised By</b> | <b>Checked By</b>   | <b>Approved By</b> |  |
|                                                                                                                                                                                                                                 | 00                         | 25.07.2018                                                                                                 | First Issue             | -SD-              | -SD-                | -SD-               |  |
|                                                                                                                                                                                                                                 | 01                         | 24.02.2020                                                                                                 | MOC updated             | Sumant/<br>Harish | Amit/<br>kamaluddin | PCS                |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 | Ref. Doc.                  |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |
|                                                                                                                                                                                                                                 |                            |                                                                                                            |                         |                   |                     |                    |  |