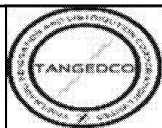


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| REV. | DATE | ALTERED  |  | REV. | DATE | ALTERED  |  | REV. | DATE | ALTERED  |  |
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|      |      | CHECKED  |  |      |      | CHECKED  |  |      |      | CHECKED  |  |
|      |      | APPROVED |  |      |      | APPROVED |  |      |      | APPROVED |  |

## PAINTING SCHEDULE FOR UDANGUDI CV PUMP

CUSTOMER



TANGEDCO

PROJECT

2 x 660 MW UDANGUDI TPP  
STAGE-I

CONSULTANT



TATA CONSULTING ENGINEERS LTD, BENGALURU

TYPE OF PRODUCT

CONCRETE VOLUTE TYPE CW PUMP



**BHARAT HEAVY ELECTRICALS LTD.  
HYDERABAD**

|       | NAME    | SIGN    | DATE       | NO.<br>OF<br>VAR. |
|-------|---------|---------|------------|-------------------|
| DRN.  | SUDHEER | SUDHEER | 06/11/2019 |                   |
| CHD.  | SATISH  | SATISH  | 06/11/2019 |                   |
| APPD. | K.H.R.K | K.H.R.K | 06/11/2019 | NA                |

| DEPARTMENT | PUMPS ENGG. | SCALE | WEIGHT (KG) | REF. TO ASSY DRG. | ITEM NO. | NO. OF ITEMS |
|------------|-------------|-------|-------------|-------------------|----------|--------------|
| CODE       | 410         | NA    | NA          | NA                | NA       | NA           |

| TITLE                                  | DRAWING NO.  | REV.             |
|----------------------------------------|--------------|------------------|
| PAINTING SCHEDULE FOR UDANGUDI CV PUMP | FP13615      | 00               |
|                                        | SHEET NO. 01 | NO. OF SHEETS 10 |

| TD-106-1<br>Rev No.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Form no. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>PRODUCT STANDARD</b><br><b>PUMPS</b><br><b>HYDERABAD</b> |                                  |                  | <b>FP13615</b> |  |  |            |                                  |                  |                                                                                                                                                                                                                                                                                                                                                   |   |             |    |                                                                                      |   |      |    |                                                                                                                                                            |   |       |    |                                   |   |             |    |                |   |       |    |                                                     |   |       |    |                                         |   |       |    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------|------------------|----------------|--|--|------------|----------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-------------|----|--------------------------------------------------------------------------------------|---|------|----|------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-------|----|-----------------------------------|---|-------------|----|----------------|---|-------|----|-----------------------------------------------------|---|-------|----|-----------------------------------------|---|-------|----|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                             |                                  | Rev No.          | 00             |  |  |            |                                  |                  |                                                                                                                                                                                                                                                                                                                                                   |   |             |    |                                                                                      |   |      |    |                                                                                                                                                            |   |       |    |                                   |   |             |    |                |   |       |    |                                                     |   |       |    |                                         |   |       |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                             |                                  | Page 2 of 10     |                |  |  |            |                                  |                  |                                                                                                                                                                                                                                                                                                                                                   |   |             |    |                                                                                      |   |      |    |                                                                                                                                                            |   |       |    |                                   |   |             |    |                |   |       |    |                                                     |   |       |    |                                         |   |       |    |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          | <table border="1"> <thead> <tr> <th></th> <th>Insulation</th> <th>Finishing Color<br/>(Mansell No.)</th> <th>Paint System No.</th> </tr> </thead> <tbody> <tr> <td>           * Non-Submerged surface of casing cover, sole plate (upper surface) and manhole<br/>           *Coupling cover<br/>           *Thrust bearing pedestal<br/>           *Thrust bearing<br/>           *Outer surface of discharge pipe<br/>           *Outer surface of counter flange<br/>           *Piping supports<br/>           *Thrust bearing nut<br/>           *Thrust bearing collar<br/>           (Outer surface above top cover)<br/>           *Shaft cover         </td> <td>-</td> <td>French Blue</td> <td>01</td> </tr> <tr> <td>           *Inner surface of discharge pipe and counter flange<br/>           *Submerged surface of manhole         </td> <td>-</td> <td>Gray</td> <td>02</td> </tr> <tr> <td>           *Submerged surface of casing cover, sole plate (excluding lower surface), submersible bearing, bearing supporting plate and stuffing box<br/>           *Suction liner         </td> <td>-</td> <td>Black</td> <td>03</td> </tr> <tr> <td>           *Coupling hub<br/>           *Coupling spacer         </td> <td>-</td> <td>French Blue</td> <td>04</td> </tr> <tr> <td>           *Special tools         </td> <td>-</td> <td>Brown</td> <td>04</td> </tr> <tr> <td>           *Volute of concrete<br/>           *Lower surface of sole plate         </td> <td>-</td> <td>Black</td> <td>05</td> </tr> <tr> <td>           *Joint between metal parts and concrete         </td> <td>-</td> <td>Black</td> <td>06</td> </tr> </tbody> </table> |                                                             |                                  |                  |                |  |  | Insulation | Finishing Color<br>(Mansell No.) | Paint System No. | * Non-Submerged surface of casing cover, sole plate (upper surface) and manhole<br>*Coupling cover<br>*Thrust bearing pedestal<br>*Thrust bearing<br>*Outer surface of discharge pipe<br>*Outer surface of counter flange<br>*Piping supports<br>*Thrust bearing nut<br>*Thrust bearing collar<br>(Outer surface above top cover)<br>*Shaft cover | - | French Blue | 01 | *Inner surface of discharge pipe and counter flange<br>*Submerged surface of manhole | - | Gray | 02 | *Submerged surface of casing cover, sole plate (excluding lower surface), submersible bearing, bearing supporting plate and stuffing box<br>*Suction liner | - | Black | 03 | *Coupling hub<br>*Coupling spacer | - | French Blue | 04 | *Special tools | - | Brown | 04 | *Volute of concrete<br>*Lower surface of sole plate | - | Black | 05 | *Joint between metal parts and concrete | - | Black | 06 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Insulation                                                  | Finishing Color<br>(Mansell No.) | Paint System No. |                |  |  |            |                                  |                  |                                                                                                                                                                                                                                                                                                                                                   |   |             |    |                                                                                      |   |      |    |                                                                                                                                                            |   |       |    |                                   |   |             |    |                |   |       |    |                                                     |   |       |    |                                         |   |       |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          | * Non-Submerged surface of casing cover, sole plate (upper surface) and manhole<br>*Coupling cover<br>*Thrust bearing pedestal<br>*Thrust bearing<br>*Outer surface of discharge pipe<br>*Outer surface of counter flange<br>*Piping supports<br>*Thrust bearing nut<br>*Thrust bearing collar<br>(Outer surface above top cover)<br>*Shaft cover                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | -                                                           | French Blue                      | 01               |                |  |  |            |                                  |                  |                                                                                                                                                                                                                                                                                                                                                   |   |             |    |                                                                                      |   |      |    |                                                                                                                                                            |   |       |    |                                   |   |             |    |                |   |       |    |                                                     |   |       |    |                                         |   |       |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          | *Inner surface of discharge pipe and counter flange<br>*Submerged surface of manhole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | -                                                           | Gray                             | 02               |                |  |  |            |                                  |                  |                                                                                                                                                                                                                                                                                                                                                   |   |             |    |                                                                                      |   |      |    |                                                                                                                                                            |   |       |    |                                   |   |             |    |                |   |       |    |                                                     |   |       |    |                                         |   |       |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          | *Submerged surface of casing cover, sole plate (excluding lower surface), submersible bearing, bearing supporting plate and stuffing box<br>*Suction liner                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | -                                                           | Black                            | 03               |                |  |  |            |                                  |                  |                                                                                                                                                                                                                                                                                                                                                   |   |             |    |                                                                                      |   |      |    |                                                                                                                                                            |   |       |    |                                   |   |             |    |                |   |       |    |                                                     |   |       |    |                                         |   |       |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          | *Coupling hub<br>*Coupling spacer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | -                                                           | French Blue                      | 04               |                |  |  |            |                                  |                  |                                                                                                                                                                                                                                                                                                                                                   |   |             |    |                                                                                      |   |      |    |                                                                                                                                                            |   |       |    |                                   |   |             |    |                |   |       |    |                                                     |   |       |    |                                         |   |       |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          | *Special tools                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | -                                                           | Brown                            | 04               |                |  |  |            |                                  |                  |                                                                                                                                                                                                                                                                                                                                                   |   |             |    |                                                                                      |   |      |    |                                                                                                                                                            |   |       |    |                                   |   |             |    |                |   |       |    |                                                     |   |       |    |                                         |   |       |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          | *Volute of concrete<br>*Lower surface of sole plate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | -                                                           | Black                            | 05               |                |  |  |            |                                  |                  |                                                                                                                                                                                                                                                                                                                                                   |   |             |    |                                                                                      |   |      |    |                                                                                                                                                            |   |       |    |                                   |   |             |    |                |   |       |    |                                                     |   |       |    |                                         |   |       |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          | *Joint between metal parts and concrete                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -                                                           | Black                            | 06               |                |  |  |            |                                  |                  |                                                                                                                                                                                                                                                                                                                                                   |   |             |    |                                                                                      |   |      |    |                                                                                                                                                            |   |       |    |                                   |   |             |    |                |   |       |    |                                                     |   |       |    |                                         |   |       |    |
| <b>2. NOTES FOR PAINTING WORKS</b><br><b>(A) General requirement</b><br>The following area should not be carried out painting<br>(1) Screw hole<br>(2)Casing flange surface<br>(3)Fitting area<br>(4)Wearing area<br>(5)Pin-hole (ex.Taper pin hole, etc)<br>(6) Rotating parts (excluding thrust bearing nut, bearing collar (outer surface above top cover; ex. Impeller, Impeller plate, shaft, etc.,)                                                                                                                                                                                                                                                                                                                                    |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                             |                                  |                  |                |  |  |            |                                  |                  |                                                                                                                                                                                                                                                                                                                                                   |   |             |    |                                                                                      |   |      |    |                                                                                                                                                            |   |       |    |                                   |   |             |    |                |   |       |    |                                                     |   |       |    |                                         |   |       |    |
| <b>(B) Notes for Painting works at SITE</b><br>(1) After the installation, if damaged painting or rusted area caused by transportation or assembling is found, that area should be brushed and chipped, and touched up with removing oil, dust, water, and harmful foreign material.<br><br>(2) The outer surface should be touched up after the final assembling.<br><br>(3) the inner surface of concrete volute should be painting based on system No.5 at site<br><br>(4) The joint area between the concrete and metal casing (ex. Discharge pipe etc.,) the boundary between inner surface (paint system No.3) and lower surface (paint system No.5) of sole plate for pump should be carried out the overcoating based on system No.6 |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                             |                                  |                  |                |  |  |            |                                  |                  |                                                                                                                                                                                                                                                                                                                                                   |   |             |    |                                                                                      |   |      |    |                                                                                                                                                            |   |       |    |                                   |   |             |    |                |   |       |    |                                                     |   |       |    |                                         |   |       |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                             |                                  |                  |                |  |  |            |                                  |                  |                                                                                                                                                                                                                                                                                                                                                   |   |             |    |                                                                                      |   |      |    |                                                                                                                                                            |   |       |    |                                   |   |             |    |                |   |       |    |                                                     |   |       |    |                                         |   |       |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                             |                                  |                  |                |  |  |            |                                  |                  |                                                                                                                                                                                                                                                                                                                                                   |   |             |    |                                                                                      |   |      |    |                                                                                                                                                            |   |       |    |                                   |   |             |    |                |   |       |    |                                                     |   |       |    |                                         |   |       |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                             |                                  |                  |                |  |  |            |                                  |                  |                                                                                                                                                                                                                                                                                                                                                   |   |             |    |                                                                                      |   |      |    |                                                                                                                                                            |   |       |    |                                   |   |             |    |                |   |       |    |                                                     |   |       |    |                                         |   |       |    |
| Ref. Doc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                             |                                  |                  |                |  |  |            |                                  |                  |                                                                                                                                                                                                                                                                                                                                                   |   |             |    |                                                                                      |   |      |    |                                                                                                                                                            |   |       |    |                                   |   |             |    |                |   |       |    |                                                     |   |       |    |                                         |   |       |    |



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|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------|--------------------------------------------------------------------------|-------------|--------------------------|----------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------|
| TD-106-1<br>Rev No.2                                                                                                                           | Form no.                                                                                                                                                                                                                                                                                                                                                    |  | <b>PRODUCT STANDARD</b><br><b>PUMPS</b><br><b>HYDERABAD</b>      |                                                                          |             |                          |                |                      |                                                                                                                                                   | <b>FP13615</b>      |           |
|                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                             |                                                                                   |                                                                  |                                                                          |             |                          |                |                      |                                                                                                                                                   | <b>Rev No.</b>      | <b>00</b> |
|                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                             |                                                                                   |                                                                  |                                                                          |             |                          |                |                      |                                                                                                                                                   | <b>Page 3 of 10</b> |           |
| <b>3. Detailed Painting Schedule</b>                                                                                                           |                                                                                                                                                                                                                                                                                                                                                             |                                                                                   |                                                                  |                                                                          |             |                          |                |                      |                                                                                                                                                   |                     |           |
| System No.                                                                                                                                     | Application                                                                                                                                                                                                                                                                                                                                                 | Place of Operation                                                                | Surface Preparation                                              | General Name/ Ref. product name                                          | No. of coat | Dry Film Thickness (μ m) | Method         | Color                | Remarks                                                                                                                                           |                     |           |
| 01                                                                                                                                             | * Non-Submerged surface of casing cover, sole plate (upper surface) and manhole.<br>* Coupling cover<br>* Thrust bearing pedestal<br>* Thrust bearing<br>* Outer surface of discharge pipe<br>* Outer surface of counter flange<br>* Piping supports<br>* Thrust bearing nut<br>* Thrust bearing collar<br>(Outer surface above top cover)<br>* Shaft cover | Shop                                                                              | Blast cleaning<br>SSPC SP 10<br>Power tool cleaning<br>SSPC SP 3 | 2 Pack Epoxy Zinc Rich Paint<br>Ref: DAI NIPPON TORYO :<br>ZETTAR EP-2HB | 1*          | 75* *                    | A.L<br>or<br>B | Gray                 | French Blue:<br>code no.<br>166 of IS-5                                                                                                           |                     |           |
|                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                             |                                                                                   |                                                                  | 2 Pack Epoxy Coating<br>Ref: Dai NIPPON TORYO:<br>V TOP-HB               | 1*          | 50* *                    | A.L<br>or<br>B | Silver<br>or<br>Gray |                                                                                                                                                   |                     |           |
|                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                             |                                                                                   |                                                                  | Acryl polyurethane Enamel<br>Ref: DIA NIPPON TORYO:<br>V TOP-HB          | 1           | 75                       | A.L<br>or<br>B | French<br>Blue       |                                                                                                                                                   |                     |           |
|                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                             | Site                                                                              | Power tool<br>cleaning<br>SSPC SP 3                              | 2 Pack Epoxy Zinc Rich Paint<br>Ref: DAI NIPPON TORYO :<br>ZETTAR EP-2HB | (1*)        | (75**)                   | A.L<br>or<br>B | Gray                 | Spot claning and<br>touch up for damaged areas<br>only.<br>Non-submerged surface of<br>sole plate.<br><br>French Blue:<br>code no.<br>166 of IS-5 |                     |           |
|                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                             |                                                                                   |                                                                  | 2 Pack Epoxy Coating<br>Ref: Dai NIPPON TORYO:<br>EPONICS MIO            | (1*)        | (50**)                   | A.L<br>or<br>B | Silver<br>or<br>Grey |                                                                                                                                                   |                     |           |
|                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                             |                                                                                   |                                                                  | Acryl polyurethane Enamel<br>Ref: DIA NIPPON TORYO:<br>V TOP-HB          | (1)         | (75)                     | A.L<br>or<br>B | French<br>Blue       |                                                                                                                                                   |                     |           |
| Total thickness over 200 μ m                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                             |                                                                                   |                                                                  |                                                                          |             |                          |                |                      |                                                                                                                                                   |                     |           |
| Mark* : If the paint method is brush, the number of coat is 2.<br>Mark* * : It shows total D.F.T.<br>The paint does not include Pd, Cr and Cd. |                                                                                                                                                                                                                                                                                                                                                             |                                                                                   |                                                                  |                                                                          |             |                          |                |                      |                                                                                                                                                   |                     |           |
| Ref. Doc.                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                             |                                                                                   |                                                                  |                                                                          |             |                          |                |                      |                                                                                                                                                   |                     |           |

|                                                                                                                                                                                                                                                                                                                                      |                                                                                      |                                                             |                           |                                                                                             |             |                          |          |           |                     |           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------|---------------------------|---------------------------------------------------------------------------------------------|-------------|--------------------------|----------|-----------|---------------------|-----------|
| TD-106-1<br>Rev No.2<br>Form no.                                                                                                                                                                                                                                                                                                     |     | <b>PRODUCT STANDARD</b><br><b>PUMPS</b><br><b>HYDERABAD</b> |                           |                                                                                             |             |                          |          |           | <b>FP13615</b>      |           |
|                                                                                                                                                                                                                                                                                                                                      |                                                                                      |                                                             |                           |                                                                                             |             |                          |          |           | <b>Rev No.</b>      | <b>00</b> |
|                                                                                                                                                                                                                                                                                                                                      |                                                                                      |                                                             |                           |                                                                                             |             |                          |          |           | <b>Page 4 of 10</b> |           |
|                                                                                                                                                                                                                                                                                                                                      |                                                                                      |                                                             |                           |                                                                                             |             |                          |          |           |                     |           |
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| System No.                                                                                                                                                                                                                                                                                                                           | Application                                                                          | Place of Operation                                          | Surface Preparation       | General Name/ Ref. product name                                                             | No. of coat | Dry Film Thickness (μ m) | Method   | Color     | Remarks             |           |
| 02                                                                                                                                                                                                                                                                                                                                   | *Inner surface of discharge pipe and counter flange<br>*Submerged surface of manhole | Shop                                                        | Blast cleaning SSPC SP 10 | Vinyl Ester Resin Primer<br>Ref: DAI NIPPON TORYO : ML-3000M under coat                     | 1*          | Min.70 ~ 150**           | A.L or B | Brown     |                     |           |
|                                                                                                                                                                                                                                                                                                                                      |                                                                                      |                                                             |                           | Vinyl Ester Resin Glass Flake Coating<br>Ref: DAI NIPPON TORYO : ML-3000M Intermediate coat | 1 ~ 2*      | Min.320 ~ 450**          | A.L or B | Dark Gray |                     |           |
|                                                                                                                                                                                                                                                                                                                                      |                                                                                      |                                                             |                           | Vinyl Ester Resin Glass Flake Coating<br>Ref:DAI NIPPON TORYO : ML-3000M top coat           | 1*          | Min.110 ~ 150**          | A.L or B | gray      |                     |           |
| +1200 μ m<br>Total thickness over 500 μ m 0 μ m                                                                                                                                                                                                                                                                                      |                                                                                      |                                                             |                           |                                                                                             |             |                          |          |           |                     |           |
| Mark * : It shows at airless spray.<br>If th epaint method is brush, the number of coat is 8 (50 ~100μ m /n)<br>Mark * * It shows total D.F.T.<br>The paint does not include Pd, Cr and Cd.                                                                                                                                          |                                                                                      |                                                             |                           |                                                                                             |             |                          |          |           |                     |           |
| Method      A.L : Airless Spray<br>B : Brush                                                                                                                                                                                                                                                                                         |                                                                                      |                                                             |                           |                                                                                             |             |                          |          |           |                     |           |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |                                                                                   |                                                             |       |  |  |  |  |  |                |           |            |                                                                                                                                                              |                    |                               |                                                                                                 |             |                          |          |       |         |
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| TD-106-1<br>Rev No.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Form no. |  | <b>PRODUCT STANDARD</b><br><b>PUMPS</b><br><b>HYDERABAD</b> |       |  |  |  |  |  | <b>FP13615</b> |           |            |                                                                                                                                                              |                    |                               |                                                                                                 |             |                          |          |       |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |                                                                                   |                                                             |       |  |  |  |  |  | <b>Rev No.</b> | <b>00</b> |            |                                                                                                                                                              |                    |                               |                                                                                                 |             |                          |          |       |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |                                                                                   | <b>Page 5 of 10</b>                                         |       |  |  |  |  |  |                |           |            |                                                                                                                                                              |                    |                               |                                                                                                 |             |                          |          |       |         |
| <div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> <b>COPY RIGHT 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> <div>           Ref. Doc.         </div> </div>                                                                |          |                                                                                   |                                                             |       |  |  |  |  |  |                |           |            |                                                                                                                                                              |                    |                               |                                                                                                 |             |                          |          |       |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |                                                                                   |                                                             |       |  |  |  |  |  |                |           | System No. | Application                                                                                                                                                  | Place of Operation | Surface Preparation           | General Name/ Ref. product name                                                                 | No. of coat | Dry Film Thickness (μ m) | Method   | Color | Remarks |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |                                                                                   |                                                             |       |  |  |  |  |  |                |           | 03         | * Submerged surface of casing cover, sole plate (excluding lower surface), submersible bearing, bearing supporting plate and stuffing box<br>* Suction liner | Shop               | Blast cleaning SSPC SP 10     | Modified Aliphatic Polyamine cured Epoxy Zinc Rich Primer<br>Ref:DAI NIPPON TORYO : ZETTAR EP-2 | 1           | 15~20                    | A.L or B | Gray  |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |                                                                                   |                                                             |       |  |  |  |  |  |                |           |            |                                                                                                                                                              |                    |                               | Modified polyamine cured tar epoxy coating<br>Ref: DAI NIPPON TORYO SDC COAT #402T ECO***       | 1*          | 300**                    | A.L or B | Black |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |                                                                                   |                                                             |       |  |  |  |  |  |                |           |            |                                                                                                                                                              | Site               | Power tool cleaning SSPC SP 3 | Modified Aliphatic Polyamine cured Epoxy Zinc Rich Primer<br>Ref:DAI NIPPON TORYO : ZETTAR EP-2 | (1)         | 15~20                    | A.L or B | Gray  |         |
| Modified polyamine cured tar epoxy coating<br>Ref: DAI NIPPON TORYO SDC COAT #402T ECO                                                                                                                                                                                                                                                                                                                                                                                                                                | (1*)     | 300**                                                                             | A.L or B                                                    | Black |  |  |  |  |  |                |           |            |                                                                                                                                                              |                    |                               |                                                                                                 |             |                          |          |       |         |
| Total thickness over 315 μ m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |                                                                                   |                                                             |       |  |  |  |  |  |                |           |            |                                                                                                                                                              |                    |                               |                                                                                                 |             |                          |          |       |         |
| <div style="display: flex; justify-content: space-between;"> <div>           Mark* : If the paint method is brush, the number of coat is 2.<br/>           Mark** : It shows total D.F.T.<br/>           Mark***: SDC COAT #602T ECO shall be used instead of SDC COAT #402T ECO in winter season(ambient temperature 1(°C or less)<br/>           The paint does not include Pd, Cr and Cd.         </div> <div>           Method<br/>           A.L : Aireless Spray<br/>           B : Brush         </div> </div> |          |                                                                                   |                                                             |       |  |  |  |  |  |                |           |            |                                                                                                                                                              |                    |                               |                                                                                                 |             |                          |          |       |         |



| TD-106-1<br>Rev No.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Form no. |  | <b>PRODUCT STANDARD</b><br><b>PUMPS</b><br><b>HYDERABAD</b> |  |  |  |  |  |  | <b>FP13615</b> |    |                                                                                                                                               |                                                  |                    |                                   |                                                                                                                          |             |                          |        |       |                                                                                                                                                                   |                                                                                      |                                                  |      |                                   |                                                                                                                          |   |      |   |       |                                              |      |                                  |                                                                                                                          |     |        |   |       |                                                                                                                                                                   |                                                                                      |    |      |   |             |                                                                             |    |      |   |             |
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| <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p><b>COPY RIGHT AND CONFIDENTIAL</b></p> <p>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> </div> <div style="width: 65%;"> <table border="1"> <thead> <tr> <th>System No.</th> <th>Application</th> <th>Place of Operation</th> <th>Surface Preparation</th> <th>General Name/ Ref. product name</th> <th>No. of coat</th> <th>Dry Film Thickness (μ m)</th> <th>Method</th> <th>Color</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td rowspan="4">04</td> <td rowspan="4">Coupling hub<br/>Coupling spacer<br/>Special Tools</td> <td>Shop</td> <td>Power tool cleaning<br/>SSPC SP 10</td> <td>Synthetic resin base,<br/>phosphate pigment<br/>Anticorrosive Paint<br/>Ref: DAI NIPPON TORYO GREEN<br/>SUBOID QD UNDER COAT</td> <td>2</td> <td>35**</td> <td>B</td> <td>Brown</td> <td>Special tools are painted this coating only.</td> </tr> <tr> <td rowspan="3">Site</td> <td rowspan="3">Power tool cleaning<br/>SSPC SP 3</td> <td rowspan="3">Synthetic resin base,<br/>phosphate pigment<br/>Anticorrosive Paint<br/>Ref: DAI NIPPON TORYO GREEN<br/>SUBOID QD UNDER COAT</td> <td rowspan="3">(2)</td> <td rowspan="3">(35**)</td> <td rowspan="3">B</td> <td rowspan="3">Brown</td> <td rowspan="3">This coating should be painted after centering at site and flange area only should be coated with TECTYL 506 paints.<br/><br/>French Blue :<br/>code no. 166 of IS-5</td> </tr> <tr> <td>Long Oil Alkyd Coating<br/>Ref: DAI NIPPON TORYO TAIKO MARINE<br/>INTERMEDIATE COAT GH</td> <td>1*</td> <td>30**</td> <td>B</td> <td>French Blue</td> </tr> <tr> <td>Long Oil Alkyd Coating<br/>Ref: DAI NIPPON TORYO TAIKO MARINE<br/>TOP COAT GH</td> <td>1*</td> <td>25**</td> <td>B</td> <td>French Blue</td> </tr> </tbody> </table> </div> </div> |          |                                                                                   |                                                             |  |  |  |  |  |  |                |    | System No.                                                                                                                                    | Application                                      | Place of Operation | Surface Preparation               | General Name/ Ref. product name                                                                                          | No. of coat | Dry Film Thickness (μ m) | Method | Color | Remarks                                                                                                                                                           | 04                                                                                   | Coupling hub<br>Coupling spacer<br>Special Tools | Shop | Power tool cleaning<br>SSPC SP 10 | Synthetic resin base,<br>phosphate pigment<br>Anticorrosive Paint<br>Ref: DAI NIPPON TORYO GREEN<br>SUBOID QD UNDER COAT | 2 | 35** | B | Brown | Special tools are painted this coating only. | Site | Power tool cleaning<br>SSPC SP 3 | Synthetic resin base,<br>phosphate pigment<br>Anticorrosive Paint<br>Ref: DAI NIPPON TORYO GREEN<br>SUBOID QD UNDER COAT | (2) | (35**) | B | Brown | This coating should be painted after centering at site and flange area only should be coated with TECTYL 506 paints.<br><br>French Blue :<br>code no. 166 of IS-5 | Long Oil Alkyd Coating<br>Ref: DAI NIPPON TORYO TAIKO MARINE<br>INTERMEDIATE COAT GH | 1* | 30** | B | French Blue | Long Oil Alkyd Coating<br>Ref: DAI NIPPON TORYO TAIKO MARINE<br>TOP COAT GH | 1* | 25** | B | French Blue |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |                                                                                   |                                                             |  |  |  |  |  |  |                |    | System No.                                                                                                                                    | Application                                      | Place of Operation | Surface Preparation               | General Name/ Ref. product name                                                                                          | No. of coat | Dry Film Thickness (μ m) | Method | Color | Remarks                                                                                                                                                           |                                                                                      |                                                  |      |                                   |                                                                                                                          |   |      |   |       |                                              |      |                                  |                                                                                                                          |     |        |   |       |                                                                                                                                                                   |                                                                                      |    |      |   |             |                                                                             |    |      |   |             |
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| Ref. Doc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |                                                                                   |                                                             |  |  |  |  |  |  |                |    |                                                                                                                                               |                                                  |                    |                                   |                                                                                                                          |             |                          |        |       |                                                                                                                                                                   |                                                                                      |                                                  |      |                                   |                                                                                                                          |   |      |   |       |                                              |      |                                  |                                                                                                                          |     |        |   |       |                                                                                                                                                                   |                                                                                      |    |      |   |             |                                                                             |    |      |   |             |



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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------------------------------------------------------------|-------------------------------------------------------------|--|--|--|--|--|--|----------------|----|------------|------------------------------------------------|--------------------|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------|----------|-----------|-------------------------------------------------------------------------------------|
| TD-106-1<br>Rev No.2                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Form no. |  | <b>PRODUCT STANDARD</b><br><b>PUMPS</b><br><b>HYDERABAD</b> |  |  |  |  |  |  | <b>FP13615</b> |    |            |                                                |                    |                                                     |                                                                                                                                                               |             |                          |          |           |                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |                                                                                   |                                                             |  |  |  |  |  |  | Rev No.        | 00 |            |                                                |                    |                                                     |                                                                                                                                                               |             |                          |          |           |                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |                                                                                   |                                                             |  |  |  |  |  |  | Page 7 of 10   |    |            |                                                |                    |                                                     |                                                                                                                                                               |             |                          |          |           |                                                                                     |
| <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p><b>COPY RIGHT AND CONFIDENTIAL</b></p> <p>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> </div> <div style="width: 65%; text-align: right;"> <p>Method    A.L : Airless Spray<br/>                  B: Brush</p> </div> </div> |          |                                                                                   |                                                             |  |  |  |  |  |  |                |    |            |                                                |                    |                                                     |                                                                                                                                                               |             |                          |          |           |                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |                                                                                   |                                                             |  |  |  |  |  |  |                |    | System No. | Application                                    | Place of Operation | Surface Preparation                                 | General Name/ Ref. product name                                                                                                                               | No. of coat | Dry Film Thickness (μ m) | Method   | Color     | Remarks                                                                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |                                                                                   |                                                             |  |  |  |  |  |  |                |    | 05         | Volute of Concrete Lower surface of sole plate | Site               | Blast<br>(To remove the oil content, soil and etc.) | A high solids, low viscosity, two or three-pack epoxy primer with excellent adhesion to damp surfaces.<br>Ref: CORROCOAT PLASMET ECP                          | 1*          | (100 ~ 175**)            | A.L or B | Amber     | This coating should be carried out after three months passed from concrete placing. |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |                                                                                   |                                                             |  |  |  |  |  |  |                |    |            |                                                |                    |                                                     | A solventless chemically resistant two-pack epoxy repair and re-building compound which is highly resistant to abrasion and wear.<br>Ref: CORROCOAT PLASMET R | 3*          | (900~1200**)             | B        | Dark gray |                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |                                                                                   |                                                             |  |  |  |  |  |  |                |    |            |                                                |                    |                                                     | A polyamine cured, high solids, two-pack glass filled epoxy with good gloss and chemical resistance (Epoxy Glass Flake)<br>Ref: CORROCOAT PLASMET ZE          | 1*          | (150~500**)              | A.L or B | Black     |                                                                                     |
| Total Thickness over 1150 μ m                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |                                                                                   |                                                             |  |  |  |  |  |  |                |    |            |                                                |                    |                                                     |                                                                                                                                                               |             |                          |          |           |                                                                                     |
| Mark* : If the paint method is brush, the number of coat is 2.<br>Mark** : It shows total D.F.T.<br>The paint does not include Pd, Cr and Cd.                                                                                                                                                                                                                                                                                                                           |          |                                                                                   |                                                             |  |  |  |  |  |  |                |    |            |                                                |                    |                                                     |                                                                                                                                                               |             |                          |          |           |                                                                                     |
| Ref. Doc.                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |                                                                                   |                                                             |  |  |  |  |  |  |                |    |            |                                                |                    |                                                     |                                                                                                                                                               |             |                          |          |           |                                                                                     |



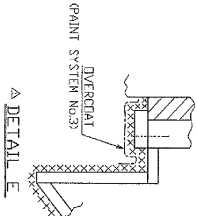
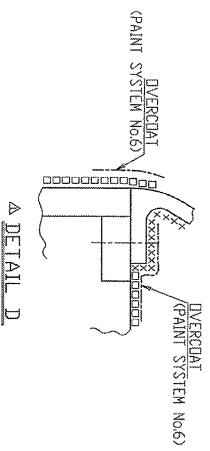
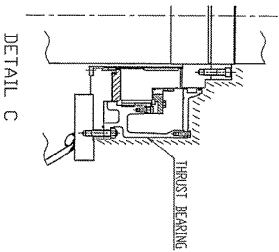
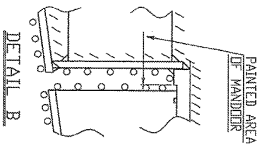
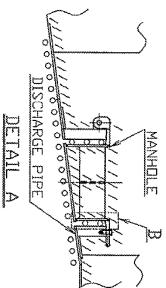
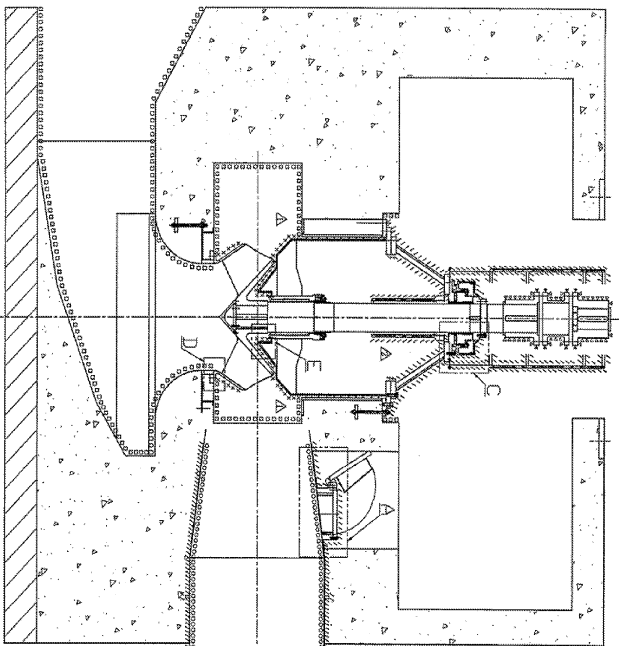
|                                                                                                                                                                                                                                |                                                                                                                                               |                                                                                                                                                                                                                |                                                             |                                                  |                                                                                                                                                      |             |                         |          |                |                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------|----------|----------------|-------------------------------------------------------------------------------------|
| TD-106-1<br>Rev No.2                                                                                                                                                                                                           | Form no.                                                                                                                                      |                                                                                                                               | <b>PRODUCT STANDARD</b><br><b>PUMPS</b><br><b>HYDERABAD</b> |                                                  |                                                                                                                                                      |             |                         |          | <b>FP13615</b> |                                                                                     |
|                                                                                                                                                                                                                                |                                                                                                                                               |                                                                                                                                                                                                                | Rev No.                                                     |                                                  | 00                                                                                                                                                   |             |                         |          |                |                                                                                     |
|                                                                                                                                                                                                                                |                                                                                                                                               |                                                                                                                                                                                                                | Page 8 of 10                                                |                                                  |                                                                                                                                                      |             |                         |          |                |                                                                                     |
| <b>COPY RIGHT 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 | System No.                                                                                                                                    | Application                                                                                                                                                                                                    | Place of Operation                                          | Surface Preparation                              | General Name/ Ref. product name                                                                                                                      | No. of coat | Dry Film Thickness (μm) | Method   | Color          | Remarks                                                                             |
|                                                                                                                                                                                                                                | 06                                                                                                                                            | *Joint between metal parts and concrete<br>*Inside of the embedded parts and discharge lip<br>*Boundary between inner surface (paint system No.3) and lower surface (paint system No.5) of sole plate for pump | Site                                                        | Blast (To remove the oil content soil and etc.,) | A high solids, low viscosity, two or three-pack epoxy primer with excellent adhesion to damp surfaces.<br>Ref: CORROCOAT PLASMET ECP                 | 1*          | 100~175**               | A.L or B | Amber          | This coating should be carried out after three months passed from concrete placing. |
|                                                                                                                                                                                                                                |                                                                                                                                               |                                                                                                                                                                                                                |                                                             |                                                  | A polyamine cured, high solids, two-pack glass filled epoxy with good gloss and chemical resistance (Epoxy Glass Flake)<br>Ref: CORROCOAT PLASMET ZE | 1*          | (150~500**)             | A.L or B | Black          |                                                                                     |
|                                                                                                                                                                                                                                | Total Thickness over 250 μm                                                                                                                   |                                                                                                                                                                                                                |                                                             |                                                  |                                                                                                                                                      |             |                         |          |                |                                                                                     |
| Ref. Doc.                                                                                                                                                                                                                      | Mark* : If the paint method is brush, the number of coat is 2.<br>Mark** : It shows total D.F.T.<br>The paint does not include Pd, Cr and Cd. |                                                                                                                                                                                                                |                                                             |                                                  |                                                                                                                                                      |             |                         |          |                |                                                                                     |



PRODUCT STANDARD  
PUMPS  
HYDERABAD

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4 PAINTING AREA OF PUMP



| SYMBOL    | SYSTEM No. |
|-----------|------------|
| ///       | 01         |
| ○○○       | 02         |
| ×××       | 03         |
| ▽▽▽       | 04         |
| ▲▲▲       | 04         |
| □□□       | 05         |
| NO SYMBOL | 06         |

(The joint areas between metal parts and concrete, Inside of the embedded parts, discharge lip, boundary between inner surface (paint system No.3) and lower surface (paint system No.5) of sole plate for pump, Detail D)

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Ref. Doc.

