



## QUALITY ASSURANCE DEPARTMENT

QA PLAN FOR: FORGINGS

QA PLAN NO: QSP/HG/104

DATE: 13/10/1993

PI NO: \_\_\_\_\_

REVISION: 01

SHEET 1 of 2

DATE: 14/01/2016

| SL. NO. | COMPONENT/ASSY/ OPERATION      | CHARACTERISTICS                                                 | CLASS    | TYPE                | QUANTUM OF CHECK | REF. DOC.                | RECORD FORMAT      | INSPECTION AGENCY       | REMARKS        |
|---------|--------------------------------|-----------------------------------------------------------------|----------|---------------------|------------------|--------------------------|--------------------|-------------------------|----------------|
| 1.0     | Forging stock (ingot or bloom) | a) Material certification                                       | Major    | Review              | 100%             | Spec/ Drawing            | TC                 | Supplier/BHEL/ Customer |                |
|         |                                | b) Material identification                                      | Major    | Review              | 100%             | Spec/ Drawing            | TC                 | Supplier/BHEL/ Customer |                |
| 1.2     | Forging                        | a) Visual and process checks                                    | Major    | Review              | 100%             | Approved forging process | Supplier QC record | Supplier/BHEL/ Customer |                |
|         |                                | b) Heat treatment                                               | Critical | Heat treatment      | 100%             | Spec                     | TC                 | Supplier/BHEL/ Customer |                |
|         |                                | c) Marking of test samples as per drawing                       | Major    | Review              | 100%             | Drawing                  | Supplier QC record | Supplier/BHEL/ Customer | <b>WITNESS</b> |
|         |                                | d) Chemical analysis                                            | Major    | Chem                | Sample           | Spec                     | TC                 | Supplier/BHEL/ Customer | <b>WITNESS</b> |
|         |                                | e) Mechanical analysis                                          | Major    | Mech                | Sample           | Spec                     | TC                 | Supplier/BHEL/ Customer | <b>WITNESS</b> |
|         |                                | f) Ensure proof marking for availability of machining allowance | Major    | Dimensional         | 100%             | Drawing                  | Supplier QC record | Supplier/BHEL/ Customer |                |
|         |                                | g) Marking of PF nos., etc. before rough machining              | Major    | Review              | 100%             | Drawing                  | Supplier QC record | Supplier/BHEL/ Customer |                |
|         |                                | h) Visual & dimensional checks of rough machined forgings       | Major    | Visual/ Dimensional | 100%             | Drawing                  | Supplier QC record | Supplier/BHEL/ Customer | <b>WITNESS</b> |

PREPARED BY: -SD-

CHECKED BY: -SD-

APPROVED BY: -SD-

DATE: 13/10/1993

REVISION 01: 1) "Important note" has been added. 2) The "Type" field was blank for 1.2 c) & 1.2 g). 3) The "Record format" field was blank for Sl. No. 1.2 c). 4) The format has been updated.

PREPARED BY: *[Signature]* 14/01/2016 CHECKED BY: *[Signature]* 14/01/16

APPROVED BY: *[Signature]* 15/01/2016 DATE: 14/01/2016

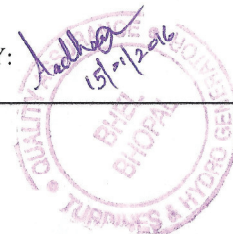
कृष्णा चै. बंडारु

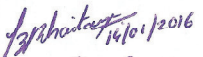
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रितेश गजभिये / RITESH GAJBHIYE

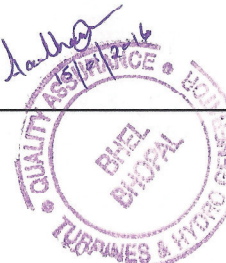
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|  <b>QUALITY ASSURANCE DEPARTMENT</b>                                                                                                                                                                                                                        |                           |                                                              |                  |        |                  |                     |               |                         |                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------------------------|------------------|--------|------------------|---------------------|---------------|-------------------------|------------------|
| QA PLAN FOR: FORGINGS                                                                                                                                                                                                                                                                                                                        |                           |                                                              | PI NO: _____     |        |                  | SHEET <b>1</b> of 2 |               |                         |                  |
| QA PLAN NO: QSP/HG/104                                                                                                                                                                                                                                                                                                                       |                           |                                                              | DATE: 13/10/1993 |        |                  | REVISION: 01        |               |                         | DATE: 14/01/2016 |
| SL. NO.                                                                                                                                                                                                                                                                                                                                      | COMPONENT/ASSY/ OPERATION | CHARACTERISTICS                                              | CLASS            | TYPE   | QUANTUM OF CHECK | REF. DOC.           | RECORD FORMAT | INSPECTION AGENCY       | REMARKS          |
|                                                                                                                                                                                                                                                                                                                                              |                           | i) UT on forging and boroscopic examination                  | Major            | NDT    | 100%             | Drawing             | TC            | Supplier/BHEL/ Customer | <b>WITNESS</b>   |
|                                                                                                                                                                                                                                                                                                                                              |                           | j) Final marking of PF nos., heat nos., identification, etc. | Major            | Review | 100%             | Drawing             | TC            | Supplier/BHEL/ Customer |                  |
|                                                                                                                                                                                                                                                                                                                                              |                           | k) Painting, preservation, and packing                       | Major            | Review | 100%             | Drawing             | TC            | Supplier/BHEL/ Customer |                  |
| ABBREVIATIONS: NDT - Non Destructive Testing, Mech - Mechanical, Chem - Chemical, Elec - Electrical, Spec - Specification, TC - Test Certificate, QC - Quality Control<br>IMPORTANT NOTE: Some of the above-mentioned tests may be witnessed by the customer. This shall be intimated at a later date.                                       |                           |                                                              |                  |        |                  |                     |               |                         |                  |
| PREPARED BY: -SD-      CHECKED BY: -SD-      APPROVED BY: -SD-      DATE: 13/10/1993<br>REVISION 01: 1) "Important note" has been added. 2) The "Type" field was blank for 1.2 c) & 1.2 g). 3) The "Record format" field was blank for Sl. No. 1.2 c). 4) The format has been updated.                                                       |                           |                                                              |                  |        |                  |                     |               |                         |                  |
| PREPARED BY:  14/01/2016      CHECKED BY:  14/01/16      APPROVED BY:  DATE: 14/01/2016 |                           |                                                              |                  |        |                  |                     |               |                         |                  |

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**- ALL INSPECTION INCLUDING WITNESS TESTS SHALL BE INSPECTED BY TPIA (THIRD PARTY INSPECTION AGENCY)**