

 MUMBAI	TECHNICAL DELIVERY CONDITION FOR PROCUREMENT OF FINISH COMPONENT / ASSEMBLY	F- 0116015700000 R- 01-0
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270MW HP Front Bearing Pedestal Fabrication, Machining & Assembly

HP Front Bearing Pedestal of 270MW Steam Turbine in completely fabricated and finish machined condition, is proposed to be procured as per fabrication, machining and assembly details & technical requirements furnished in drawing nos. 0116015700000 R-01-0. The scope of the work is given as under:

The supplier to confirm adherence to the following points while submitting the offer:

1. Fabrication and machining should be carried out taking care of all the requirements of all items (drawing and standards) of the CBOM. All dimensions in drawing are in MM (millimeter).
2. One set of major drawings and standard shall be furnished to the supplier for submitting the offer. List of Drg./Standard is enclosed at Annexure-I.

Drawing and document furnished to vendor should be treated as BHEL property. Strict confidentiality is to be maintained and under no circumstances these documents of copy of these should be transferred to third party without express permission of BHEL. On completion of supply, all documents must be returned to BHEL.

3. Vendor must ensure all technical requirements listed in the Drawings including:
 - a) Surface finish (Ra value indicated in microns)
 - b) Sizes and tolerance
 - c) Geometrical accuracies e.g. run-outs, concentricity, parallelity, perpendicularity etc.
 - d) Dimensions shown within ☐ on drawings are Critical to Quality (CTQ).
4. Vendors to confirm following necessary requirements during fabrication before finalization for placement of PO.
 - i. All the plates should be shot / sand blasted before gas cutting / shearing in the shape of component as per Drg.
 - ii. Beveled edges should be checked with bevel gauge and checked for any surface defects.
 - iii. All the notches in gas cut items to be weld built up / ground smooth & D.P. tested prior to use in assembly.
 - iv. Flatness to be checked before use.
 - v. Electrode should be baked as per supplier instructions.
 - vi. Technological supports to be sued in each half diametrically, radially and across the walls.

 MUMBAI	TECHNICAL DELIVERY CONDITION FOR PROCUREMENT OF FINISH COMPONENT / ASSEMBLY	F- 0116015700000 R- 01-0
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- vii. Put the technological packing 8-10 mm thick between base plates to compensate for distortion during welding.
 - viii. Ensure sequential welding is done with root run duly D.P. tested.
 - ix. Ensure N.D.T. of weld joints is carried out before hand, where no approach is available after complete assembly.
 - x. Ensure control making is done before stress relieving to ensure proper machining allowances.
5. Supplier should carry out stress relieving of various assemblies after welding according to HW0641099.
 6. All technical requirements listed in the drawings shall be fully met.
 7. No flaws like cracks etc. should open up during machining. However, if any flaw opens up during machining supplier shall immediately intimate to BHEL the detail and the location of flaw and corrective action proposed. Further machining will be carried out only after approval by BHEL.
 8. Supplier should get manufacturing plan, quality plan, WPS, PQR and welding consumables approved from BHEL before start of manufacturing.
- It is essential that copies of WPS & PQR (duly approval by independent third party preferably by M/s.Lloyds) are to submitted within four weeks of placement of P.O. Also Welder Qualification Certificats as per ASME Section – IX and used Consumables Test Certificates as per ASME Section – II C to be submitted.**
9. All the stage inspection should be followed as per quality plan / assembly requirement and its record alongwith filled-in log sheets and observation should be kept by supplier.
 10. After finish machining inspection report is to be submitted to BHEL for final clearance.
 11. Inspection of the job at supplier's works shall be carried by BHEL / NTPC / agency authorized by BHEL for which adequate prior notice (minimum 4 weeks) shall be given by the supplier.
 12. All surface, particularly outer machined surface must be protected against rust / corrosion by Temporary rust preventive RTP HE 1706 & TRP HE 1710, suitable for at least six months. Inner machined surface by TRP HE 1712 paint. Outer un-machined surface finish paint color is Phiroz blue. Proper surface preparation to be done before application of rust preventive paint.
 13. Finish machined equipments shall be packed in Sea-worthy packing. Packing should be suitable to protect damage to all surface, mainly machined surface ahdling and transportation.



**TECHNICAL DELIVERY CONDITION
FOR PROCUREMENT OF FINISH
COMPONENT / ASSEMBLY**

**F- 0116015700000 R-
01-0**

14. Drawings/documents specified in the Annexure-I may undergo minor revision, however, quantum of machining will remain almost same. If drawing undergoes revision, it shall be communicated at the time of order.
15. Drawings given in Annexure – I are of major items. For entire list of items and quantity thereof, refer CBOM.
16. Complete set of detail drawings and standards will be furnished to supplier alongwith the P.O. Supplier may seek any other cross referred document, if required.
17. Necessary manufacturing drawings & Log sheets shall be furnished to successful bidder only.

 MUMBAI	TECHNICAL DELIVERY CONDITION FOR PROCUREMENT OF FINISH COMPONENT / ASSEMBLY	F- 0116015700000 R- 01-0
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ANNEXURE – I

List of drawings / standards to be referred

Combined Bill of Material : Attached
HP Front Bearing Pedestal : 0117015700000 R-01-0
Material Specification : AA 10401, AA10119, AA 10455
Standards : HW0620099, HW0850199, HW0641099,
HW0981001

ENGG			
DEPTT	NAME	SIGNATURE	DATE

 MUMBAI	TECHNICAL DELIVERY CONDITION FOR PROCUREMENT OF FINISH COMPONENT / ASSEMBLY	F- 0116015700000 R- 01-0
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RECORDS OF CHANGES					
SL.NO.	PARA NO./ ANNEXURE NO.	DOC. NO. / REV. NO.	REISSUE / REV. NO.	REVISION DATE	NATURE OF CHANGE

**270MW HP-IP Bearing Pedestal
Fabrication, Machining & Assembly**

HP-IP Bearing Pedestal of 270MW Steam Turbine in completely fabricated and finish machined condition, is proposed to be procured as per fabrication and machining details & technical requirements furnished in drawing nos. 0117015700000 R-01-0. The scope of the work is given as under:

The supplier to confirm adherence to the following points while submitting the offer:

1. Fabrication and machining should be carried out taking care of all the requirements of all items (drawing and standards) of the CBOM. All dimensions in drawing are in MM (millimeter).
2. One set of major drawings and standard shall be furnished to the supplier for submitting the offer. List of Drg./Standard is enclosed at Annexure-I.

Drawing and document furnished to vendor should be treated as BHEL property. Strict confidentiality is to be maintained and under no circumstances these documents of copy of these should be transferred to third party without express permission of BHEL. On completion of supply, all documents must be returned to BHEL.

3. Vendor must ensure all technical requirements listed in the Drawings including:
 - a) Surface finish (Ra value indicated in microns)
 - b) Sizes and tolerance
 - c) Geometrical accuracies e.g. run-outs, concentricity, parallelity, perpendicularity etc.
 - d) Dimensions shown within ☐ on drawings are Critical to Quality (CTQ).
4. Vendors to confirm following necessary requirements during fabrication before finalization for placement of PO.
 - i. All the plates should be shot / sand blasted before gas cutting / shearing in the shape of component as per Drg.
 - ii. Beveled edges should be checked with bevel gauge and checked for any surface defects.
 - iii. All the notches in gas cut items to be weld built up / ground smooth & D.P. tested prior to use in assembly.
 - iv. Flatness to be checked before use.
 - v. Electrode should be baked as per supplier instructions.
 - vi. Technological supports to be used in each half diametrically, radially and across the walls.



**TECHNICAL DELIVERY CONDITION
FOR PROCUREMENT OF FINISH
COMPONENT / ASSEMBLY**

**F- 0117015700000 R-
01-0**

- vii. Put the technological packing 8-10 mm thick between base plates to compensate for distortion during welding.
 - viii. Ensure sequential welding is done with root run duly D.P. tested.
 - ix. Ensure N.D.T. of weld joins is carried out before hand, where no approach is available after complete assembly.
 - x. Ensure control making is done before stress relieving to ensure proper machining allowances.
5. Supplier should carry out stress relieving of various assemblies after welding according to HW0641099.
6. All technical requirements listed in the drawings shall be fully met.
7. No flaws like cracks etc. should open up during machining. However, if any flaw opens up during machining supplier shall immediately intimate to BHEL the detail and the location of flaw and corrective action proposed. Further machining will be carried out only after approval by BHEL.
8. Supplier should get manufacturing plan, quality plan, WPS, PQR and welding consumables approved from BHEL before start of manufacturing.
- It is essential that copies of WPS & PQR (duly approval by independent third party preferably by M/s.Lloyds) are to submitted within four weeks of placement of P.O. Also Welder Qualification Certificats as per ASME Section – IX and used Consumables Test Certificates as per ASME Section – II C to be submitted.**
9. All the stage inspection should be followed as per quality plan / assembly requirement and its record alongwith filled-in log sheets and observation should be kept by supplier.
10. After finish machining inspection report is to be submitted to BHEL for final clearance.
11. Inspection of the job at supplier's works shall be carried by BHEL / NTPC / agency authorized by BHEL for which adequate prior notice (minimum 4 weeks) shall be given by the supplier.
12. All surface, particularly outer machined surface must be protected against rust / corrosion by Temporary rust preventive RTP HE 1706 & TRP HE 1710, suitable for at least six months. Inner machined surface by TRP HE 1712 paint. Outer un-machined surface finish paint color is Phiroz blue. Proper surface preparation to be done before application of rust preventive paint.
13. Finish machined equipments shall be packed in Sea-worthy packing. Packing should be suitable to protect damage to all surface, mainly machined surface ahdling and transportation.

 MUMBAI	TECHNICAL DELIVERY CONDITION FOR PROCUREMENT OF FINISH COMPONENT / ASSEMBLY	F- 0117015700000 R- 01-0
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14. Drawings/documents specified in the Annexure-I may undergo minor revision, however, quantum of machining will remain almost same. If drawing undergoes revision, it shall be communicated at the time of order.
15. Drawings given in Annexure – I are of major items. For entire list of items and quantity thereof, refer CBOM.
16. Complete set of detail drawings and standards will be furnished to supplier alongwith the P.O. Supplier may seek any other cross referred document, if required.
17. Necessary manufacturing drawings & Log sheets shall be furnished to successful bidder only.


 MUMBAI	TECHNICAL DELIVERY CONDITION FOR PROCUREMENT OF FINISH COMPONENT / ASSEMBLY	F- 0117015700000 R- 01-0
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ANNEXURE – I

List of drawings / standards to be referred

Combined Bill of Material	: Attached
HP-IP Bearing Pedestal	: 0117015700000 R-01-0
Material Specification	: AA 10401, AA10119, AA 10455
Standards	: HW0620099, HW0850199, HW0641099, HW0981001

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DEPTT	NAME	SIGNATURE	DATE

 MUMBAI	TECHNICAL DELIVERY CONDITION FOR PROCUREMENT OF FINISH COMPONENT / ASSEMBLY	F- 0117015700000 R- 01-0
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RECORDS OF CHANGES					
SL.NO.	PARA NO./ ANNEXURE NO.	DOC. NO. / REV. NO.	REISSUE / REV. NO.	REVISION DATE	NATURE OF CHANGE

**270MW IP-LP Bearing Pedestal
Fabrication, Machining & Assembly**

IP-LP Bearing Pedestal of 270MW Steam Turbine in completely fabricated and finish machined condition, is proposed to be procured as per fabrication, machining and assembly details & technical requirements furnished in drawing nos. 0118011800000 R-08-0. The scope of the work is given as under:

The supplier to confirm adherence to the following points while submitting the offer:

1. Fabrication and machining should be carried out taking care of all the requirements of all items (drawing and standards) of the CBOM. All dimensions in drawing are in MM (millimeter).
2. One set of major drawings and standard shall be furnished to the supplier for submitting the offer. List of Drg./Standard is enclosed at Annexure-I.

Drawing and document furnished to vendor should be treated as BHEL property. Strict confidentiality is to be maintained and under no circumstances these documents of copy of these should be transferred to third party without express permission of BHEL. On completion of supply, all documents must be returned to BHEL.

3. Vendor must ensure all technical requirements listed in the Drawings including:
 - a) Surface finish (Ra value indicated in microns)
 - b) Sizes and tolerance
 - c) Geometrical accuracies e.g. run-outs, concentricity, parallelity, perpendicularity etc.
 - d) Dimensions shown within ☐ on drawings are Critical to Quality (CTQ).
4. Vendors to confirm following necessary requirements during fabrication before finalization for placement of PO.
 - i. All the plates should be shot / sand blasted before gas cutting / shearing in the shape of component as per Drg.
 - ii. Beveled edges should be checked with bevel gauge and checked for any surface defects.
 - iii. All the notches in gas cut items to be weld built up / ground smooth & D.P. tested prior to use in assembly.
 - iv. Flatness to be checked before use.
 - v. Electrode should be baked as per supplier instructions.
 - vi. Technological supports to be used in each half diametrically, radially and across the walls.

 MUMBAI	TECHNICAL DELIVERY CONDITION FOR PROCUREMENT OF FINISH COMPONENT / ASSEMBLY	F-0118011800000 R- 08-0
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- vii. Put the technological packing 8-10 mm thick between base plates to compensate for distortion during welding.
 - viii. Ensure sequential welding is done with root run duly D.P. tested.
 - ix. Ensure N.D.T. of weld joints is carried out before hand, where no approach is available after complete assembly.
 - x. Ensure control making is done before stress relieving to ensure proper machining allowances.
5. Supplier should carry out stress relieving of various assemblies after welding according to HW0641099.
 6. All technical requirements listed in the drawings shall be fully met.
 7. No flaws like cracks etc. should open up during machining. However, if any flaw opens up during machining supplier shall immediately intimate to BHEL the detail and the location of flaw and corrective action proposed. Further machining will be carried out only after approval by BHEL.
 8. Supplier should get manufacturing plan, quality plan, WPS, PQR and welding consumables approved from BHEL before start of manufacturing.

It is essential that copies of WPS & PQR (duly approval by independent third party preferably by M/s.Lloyds) are to be submitted within four weeks of placement of P.O. Also Welder Qualification Certificates as per ASME Section – IX and used Consumables Test Certificates as per ASME Section – II C to be submitted.

9. All the stage inspection should be followed as per quality plan / assembly requirement and its record alongwith filled-in log sheets and observation should be kept by supplier.
10. After finish machining inspection report is to be submitted to BHEL for final clearance.
11. Inspection of the job at supplier's works shall be carried by BHEL / NTPC / agency authorized by BHEL for which adequate prior notice (minimum 4 weeks) shall be given by the supplier.
12. All surface, particularly outer machined surface must be protected against rust / corrosion by Temporary rust preventive RTP HE 1706 & TRP HE 1710, suitable for at least six months. Inner machined surface by TRP HE 1712 paint. Outer un-machined surface finish paint color is Phiroz blue. Proper surface preparation to be done before application of rust preventive paint.
13. Finish machined equipments shall be packed in Sea-worthy packing. Packing should be suitable to protect damage to all surface, mainly machined surface handling and transportation.

 MUMBAI	TECHNICAL DELIVERY CONDITION FOR PROCUREMENT OF FINISH COMPONENT / ASSEMBLY	F-0118011800000 R- 08-0
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14. Drawings/documents specified in the Annexure-I may undergo minor revision, however, quantum of machining will remain almost same. If drawing undergoes revision, it shall be communicated at the time of order.
15. Drawings given in Annexure – I are of major items. For entire list of items and quantity thereof, refer CBOM.
16. Complete set of detail drawings and standards will be furnished to supplier alongwith the P.O. Supplier may seek any other cross referred document, if required.
17. Necessary manufacturing drawings & Log sheets shall be furnished to successful bidder only.


 MUMBAI	TECHNICAL DELIVERY CONDITION FOR PROCUREMENT OF FINISH COMPONENT / ASSEMBLY	F-0118011800000 R- 08-0
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ANNEXURE – I

List of drawings / standards to be referred

Combined Bill of Material	: Attached
IP-LP Bearing Pedestal	: 0118011800000 R-08-0
Material Specification	: AA 10401, AA10119, AA 10455
Standards	: HW0620099, HW0850199, HW0641099, HW0981001

ENGG			
DEPTT	NAME	SIGNATURE	DATE

 MUMBAI	TECHNICAL DELIVERY CONDITION FOR PROCUREMENT OF FINISH COMPONENT / ASSEMBLY	F-0118011800000 R- 08-0
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RECORDS OF CHANGES					
SL.NO.	PARA NO./ ANNEXURE NO.	DOC. NO. / REV. NO.	REISSUE / REV. NO.	REVISION DATE	NATURE OF CHANGE

 MUMBAI	TECHNICAL DELIVERY CONDITION FOR PROCUREMENT OF FINISH COMPONENT / ASSEMBLY	F-0118031800000 R
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**270MW LP-Gen. Bearing Pedestal
Fabrication, Machining & Assembly**

LP-Gen. Bearing Pedestal of 250MW Steam Turbine in completely fabricated and finish machined condition, is proposed to be procured as per fabrication, machining and assembly details & technical requirements furnished in drawing nos. 0118031800000 R. The scope of the work is given as under:

The supplier to confirm adherence to the following points while submitting the offer:

1. Fabrication and machining should be carried out taking care of all the requirements of all items (drawing and standards) of the CBOM. All dimensions in drawing are in MM (millimeter).
2. One set of major drawings and standard shall be furnished to the supplier for submitting the offer. List of Drg./Standard is enclosed at Annexure-I.

Drawing and document furnished to vendor should be treated as BHEL property. Strict confidentiality is to be maintained and under no circumstances these documents of copy of these should be transferred to third party without express permission of BHEL. On completion of supply, all documents must be returned to BHEL.

3. Vendor must ensure all technical requirements listed in the Drawings including:
 - a) Surface finish (Ra value indicated in microns)
 - b) Sizes and tolerance
 - c) Geometrical accuracies e.g. run-outs, concentricity, parallelity, perpendicularity etc.
 - d) Dimensions shown within ☐ on drawings are Critical to Quality (CTQ).
4. Vendors to confirm following necessary requirements during fabrication before finalization for placement of PO.
 - i. All the plates should be shot / sand blasted before gas cutting / shearing in the shape of component as per Drg.
 - ii. Beveled edges should be checked with bevel gauge and checked for any surface defects.
 - iii. All the notches in gas cut items to be weld built up / ground smooth & D.P. tested prior to use in assembly.
 - iv. Flatness to be checked before use.
 - v. Electrode should be baked as per supplier instructions.
 - vi. Technological supports to be used in each half diametrically, radially and across the walls.

- vii. Put the technological packing 8-10 mm thick between base plates to compensate for distortion during welding.
 - viii. Ensure sequential welding is done with root run duly D.P. tested.
 - ix. Ensure N.D.T. of weld joints is carried out before hand, where no approach is available after complete assembly.
 - x. Ensure control making is done before stress relieving to ensure proper machining allowances.
5. Supplier should carry out stress relieving of various assemblies after welding according to HW0641099.
 6. All technical requirements listed in the drawings shall be fully met.
 7. No flaws like cracks etc. should open up during machining. However, if any flaw opens up during machining supplier shall immediately intimate to BHEL the detail and the location of flaw and corrective action proposed. Further machining will be carried out only after approval by BHEL.
 8. Supplier should get manufacturing plan, quality plan, WPS, PQR and welding consumables approved from BHEL before start of manufacturing.
- It is essential that copies of WPS & PQR (duly approval by independent third party preferably by M/s.Lloyds) are to be submitted within four weeks of placement of P.O. Also Welder Qualification Certificates as per ASME Section – IX and used Consumables Test Certificates as per ASME Section – II C to be submitted.**
9. All the stage inspection should be followed as per quality plan / assembly requirement and its record alongwith filled-in log sheets and observation should be kept by supplier.
 10. After finish machining inspection report is to be submitted to BHEL for final clearance.
 11. Inspection of the job at supplier's works shall be carried by BHEL / NTPC / agency authorized by BHEL for which adequate prior notice (minimum 4 weeks) shall be given by the supplier.
 12. All surface, particularly outer machined surface must be protected against rust / corrosion by Temporary rust preventive RTP HE 1706 & TRP HE 1710, suitable for at least six months. Inner machined surface by TRP HE 1712 paint. Outer un-machined surface finish paint color is Phiroz blue. Proper surface preparation to be done before application of rust preventive paint.
 13. Finish machined equipments shall be packed in Sea-worthy packing. Packing should be suitable to protect damage to all surface, mainly machined surface handling and transportation.

 MUMBAI	TECHNICAL DELIVERY CONDITION FOR PROCUREMENT OF FINISH COMPONENT / ASSEMBLY	F-0118031800000 R
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14. Drawings/documents specified in the Annexure-I may undergo minor revision, however, quantum of machining will remain almost same. If drawing undergoes revision, it shall be communicated at the time of order.
15. Drawings given in Annexure – I are of major items. For entire list of items and quantity thereof, refer CBOM.
16. Complete set of detail drawings and standards will be furnished to supplier alongwith the P.O. Supplier may seek any other cross referred document, if required.
17. Necessary manufacturing drawings & Log sheets shall be furnished to successful bidder only.

 MUMBAI	TECHNICAL DELIVERY CONDITION FOR PROCUREMENT OF FINISH COMPONENT / ASSEMBLY	F-0118031800000 R
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ANNEXURE – I

List of drawings / standards to be referred

Combined Bill of Material : Attached
LP-Gen Bearing Pedestal : 0118031800000 R
Material Specification : AA 10401, AA10119, AA 10455
Standards : HW0620099, HW0850199, HW0641099,
HW0981001

ENGG			
DEPTT	NAME	SIGNATURE	DATE



**TECHNICAL DELIVERY CONDITION
FOR PROCUREMENT OF FINISH
COMPONENT / ASSEMBLY**

F-0118031800000 R

RECORDS OF CHANGES

SL.NO.	PARA NO./ ANNEXURE NO.	DOC. NO. / REV. NO.	REISSUE / REV. NO.	REVISION DATE	NATURE OF CHANGE