

A-FORM  FORM NO BP-0021	BHARAT HEAVY ELECTRICALS LIMITED - BHOPAL <u>MM DEPARTMENT</u> <u>ESTIMATE SHEET FOR ISSUE OF MATERIAL/COMPONENTS FROM BHEL</u> <u>CHECKLIST</u>						A-FORM NO : A203A30 REV NO : 0 A-FORM DATE 08-MAR-25 DATE : 08-MAR-25 PAGE : 1 / 1					
	DEPARTMENT : 203 PROJECT : KLIS L4 P2, PO NO : A203A30 END PRODUCT : MACHINED SPIDER ASSY INDENT NO : 220348036 WORK ORDER NO : 30313A23152 PO DATE : DELY REQD : 30062025 INDENT DATE : 28022025 MATERIAL ISSUE DIV : 203 SUPP CODE : SUPP NAME :											
<u>DETAILS OF FINISHED GOODS</u>												
A-SLNO		PO IT NO		PI IT NO		QUANTITY REQUIRED		UNIT	SHOP NO	DEST CD	COST CD	H.CELL
DESCRIPTION OF SUB-ASSEMBLY/ITEM & WEIGHT/VOLUME/AREA												
<u>FREE ISSUE MATERIAL PER UNIT OF FINISHED GOODS</u>												
MATL CODE	QTY PSL UNIT	PSL UNIT	RATE PSL UNIT	TOTAL MATL TO BE ISSUED		ISSUE PSL/ UNIT	WIP	SMIV/ PPMIV NO	MATERIAL VALUE	TARRIF HEAD	MATL ISSUE QTY	
DESCRIPTION OF FREE ISSUE MATERIAL AND WEIGHT /VOLUME/AREA												
1		0		1				4.000	NO	203	203	203
M/C OF SPIDER ASSY AS PER 02520211701 & ANNEXURE-2												
HG4303226130		1.0000		NO		2832900.000		4.00	NO	WIP	11331600.000	
FABRICATED SPIDER ASSY AS PER DRG 12520211702,RAW MATERIAL WT 18753 KG.												
2		0		2				2.000	NO	203	203	203
M/C OF SPIDER ASSY AS PER 02520210701 & ANNEXURE-3												
HG4392236005		1.0000		NO		2682773.000		2.00	NO	WIP	5365546.000	
FABRICATED SPIDER AS PER DRG 02520210701,RAW MATERIAL WT 14388 KG												
3		0		3				2.000	NO	203	203	203
M/C OF SPIDER ASSY AS PER 02520289601 & ANNEXURE-4												
HG4362022007		1.0000		NO		2449920.000		2.00	NO	WIP	4899840.000	
FABRICATED SPIDER AS PER DRG 12520289602,RAW MATERIAL WT 25520 KG.												
4		0		4				1.000	NO	203	203	203
M/C OF SPIDER ASSY AS PER 02520226702 & ANNEXURE-5												
HG4322066020		1.0000		NO		3826004.000		1.00	NO	WIP	3826004.000	
FABRICATED SPIDER AS PER DRG 12520226703,RAW MATERIAL WT 20617 KG												
REMARKS MACHINING OF SPIDER ASSY (KALESHWARAM LINK-4 PKG-2) CONFORMING TO DRAWING 02520211701,ANNEXURE-2,PQR-2 TOTAL NO OF CANCEL ITEM 0										AFORM TOTAL 25422990.000		

1 MATERIAL TO BE ISSUED ON :-	FREE ISSUE BASIS	SIGNATURE OF INDENTOR	SIGNATURE OF ASC EXECUTIVE
2.TRANSPORT TO BE PROVIDED BY :-	BHEL	NAME	NAME
3.EXCISE DUTY ON ISSUE MATL TO BE BORNE BY :-	SUPPLIER	DESIGNATION	DESIGNATION
4.SCRAP TO BE RETURNED :-	NO	TELEPHONE	TELEPHONE
5 INVARIABLY ISSUE WT. TO BE RECORDED ON SMIV/PMIV			
RPT-101			

Annexure-2

Item- Machining of Spider Assy as per Drawing-02520211701.
Project - Kaleshwaram Link-4 Pkg-2

SCOPE OF WORK	
1	Spider Assy in fabricated form as per drawing-12520211702, will be issued by BHEL after submitting Bank Guarantee by the vendor.
2	Performing the required major operations such as Vertical Turning Lathe/Vertical Boring, Horizontal Turning Lathe/Horizontal Boring and Drilling operations to ensure complete Machining of Spider assy as per the drawing 02520211701.
3	Delivery required is 08 weeks (from the date of issue of fabricated bottom bracket assy from BHEL) for each Spider Assy.

MATERIAL TO BE ISSUED TO VENDOR FREE OF COST BY BHEL

1	Fabricated Spider As Per Drg 12520211702
2	Drill Jig SI No.182 As Per Tool List Of Drg 02520211701 i.e. 1599042 & 1599043

OTHER NOTABLE POINTS

1	QA plan is applicable : Vendor has to follow QA Plan QA/HG/833-Rev 00 (Clause 2.9.3) as enclosed herewith.
2	Before start of machining, vendor has to ensure the latest revision of drawing from BHEL-Bhopal(HGE) .
3	All the Tools and tackles required for but not limited to the Machining and Measurements will be arranged by vendor.
4	Inspection will be done at vendor's work by BHEL authorized Third Party agencies/BHEL/Customer as per the discretion of BHEL in compliance to the QAP.
5	MDCC/Dispatch clearance is applicable : Vendor to obtain the dispatch clearance from BHEL before dispatch of machined assy.
6	Transportation to & fro (i.e. Fabricated material from BHEL to Vendor's Shop and finished machined product from Vendor's Shop to BHEL) is under the scope of BHEL. Vendor to provide the required loading and unloading support of material/product at their premise.
7	Scrap generated during machining will be chargeable and the cost of Scrap will be deducted from the billable amount as per BHEL standard practices.

Shalendra Sharma
 10.02.25
Shalendra Sharma
 Manager/HGM

Vishal Sharma
Vishal Sharma
 Sr.DGM/HGM

Rajesh Singh Yadav
Rajesh Singh Yadav
 Sr.DGM/HGM

Rahul Khatri
Rahul Khatri
 Dy. Manager/TEX

Vivek Goswami
Vivek Goswami
 Sr.Manager/HGE

Annexure-3**Item- Machining of Spider Assy as per Drawing-02520210701.
Project - Chilla**

SCOPE OF WORK	
1	Spider Assy in fabricated form as per drawing-02520210701, will be issued by BHEL after submitting Bank Guarantee by the vendor.
2	Performing the required major operations such as Vertical Turning Lathe/Vertical Boring, Horizontal Turning Lathe/Horizontal Boring and Drilling operations to ensure complete Machining of Spider assy as per the drawing 02520210701.
3	Delivery required is 08 weeks (from the date of issue of fabricated bottom bracket assy from BHEL) for each Spider Assy.

MATERIAL TO BE ISSUED TO VENDOR FREE OF COST BY BHEL

1	Fabricated Spider As Per Dwg 02520210701
2	Drill Jig SI No.1&2 As Per Tool Drill Jig SI No.1&2 As Per Tool List Of Drg 02520210701 i.e. 1599446 & 1599447

OTHER NOTABLE POINTS

1	QA plan is applicable : Vendor has to follow QA Plan QA/HG/608-Rev 03 (Clause B.III) as enclosed herewith.
2	Before start of machining, vendor has to ensure the latest revision of drawing from BHEL-Bhopal(HGE) .
3	All the Tools and tackles required for but not limited to the Machining and Measurements will be arranged by vendor.
4	Inspection will be done at vendor's work by BHEL authorized Third Party agencies/BHEL/Customer as per the discretion of BHEL in compliance to the QAP.
5	MDCC/Dispatch clearance is applicable : Vendor to obtain the dispatch clearance from BHEL before dispatch of machined assy.
6	Transportation to & fro (i.e. Fabricated material from BHEL to Vendor's Shop and finished machined product from Vendor's Shop to BHEL) is under the scope of BHEL. Vendor to provide the required loading and unloading support of material/product at their premise.
7	Scrap generated during machining will be chargeable and the cost of Scrap will be deducted from the billable amount as per BHEL standard practices.

 10.02.25
Shailendra Sharma
 Manager/HGM


Vishal Sharma
 Sr.DGM/HGM


Rajesh Singh Yadav
 Sr.DGM/HGM


Rahul Khatri
 Dy.Manager/TEX


Vivek Goswami
 Sr.Manager/HGE

Annexure-4

Item- Machining of Spider Assy as per Drawing -02520289601.
Project - Palamuru

SCOPE OF WORK	
1	Spider Assy in fabricated form as per drawing-12520289602, will be issued by BHEL after submitting Bank Guarantee by the vendor.
2	Performing the required major operations such as Vertical Turning Lathe/Vertical Boring , Horizontal Turning Lathe/Horizontal Boring and Drilling operations to ensure complete Machining of Spider assy as per the drawing 02520289601.
3	Delivery required is 08 weeks (from the date of issue of fabricated bottom bracket assy from BHEL) for each Spider Assy.

MATERIAL TO BE ISSUED TO VENDOR FREE OF COST BY BHEL

1	Fabricated Spider As Per Drg 12520289602
2	Drill Jig SI No 2&3 As Per Tool List Of Drg 02520289601 i.e 1598957 & 1598477.

OTHER NOTABLE POINTS

1	QA plan is applicable : Vendor has to follow QA Plan QA/HG/631-Rev 00 (Clause 2.9.3) as enclosed herewith.
2	Before start of machining, vendor has to ensure the latest revision of drawing from BHEL-Bhopal(HGE) .
3	All the Tools and tackles required for but not limited to the Machining and Measurements will be arranged by vendor.
4	Inspection will be done at vendor's work by BHEL authorized Third Party agencies/BHEL/Customer as per the discretion of BHEL in compliance to the QAP.
5	MDCC/Dispatch clearance is applicable : Vendor to obtain the dispatch clearance from BHEL before dispatch of machined assy.
6	Transportation to & fro (i.e Fabricated material from BHEL to Vendor's Shop and finished machined product from Vendor's Shop to BHEL) is under the scope of BHEL. Vendor to provide the required loading and unloading support of material/product at their premise.
7	Scrap generated during machining will be chargeable and the cost of Scrap will be deducted from the billable amount ,as per BHEL standard practices.

Shallendra Sharma
Shallendra Sharma
 Manager/HGM

Vishal Sharma
Vishal Sharma
 Sr.DGM/HGM

Rajesh Singh Yadav
Rajesh Singh Yadav
 Sr.DGM/HGM

Rahul Khatri
Rahul Khatri
 Dy.Manager/TEX

Vivek Goswami
Vivek Goswami
 Sr.Manager/HGE

Annexure-5

Item- Machining of Spider Assy as per Drawing-02520226702.
Project - Lower Sileru

SCOPE OF WORK	
1	Spider Assy in fabricated form as per drawing-12520226703, will be issued by BHEL after submitting Bank Guarantee by the vendor.
2	Performing the required major operations such as Vertical Turning Lathe/Vertical Boring, Horizontal Turning Lathe/Horizontal Boring and Drilling operations to ensure complete Machining of Spider Assy as per the drawing 02520226702.
3	Delivery required is 08 weeks (from the date of issue of fabricated bottom bracket Assy from BHEL) for each Spider Assy.

MATERIAL TO BE ISSUED TO VENDOR FREE OF COST BY BHEL

1	Fabricated Spider As Per Drg 12520226703
2	Drill Jig SI.No. 1599497 & 15999479.

OTHER NOTABLE POINTS

1	QA plan is applicable : Vendor has to follow QA Plan QA/HG/684-Rev 00 (Clause 2.17) as enclosed herewith.
2	Before start of machining, vendor has to ensure the latest revision of drawing from BHEL-Bhopal(HGE).
3	All the Tools and tackles required for but not limited to the Machining and Measurements will be arranged by vendor.
4	Inspection will be done at vendor's work by BHEL authorized Third Party agencies/BHEL/Customer as per the discretion of BHEL in compliance to the QAP.
5	MDCC/Dispatch clearance is applicable : Vendor to obtain the dispatch clearance from BHEL before dispatch of machined Assy.
6	Transportation to & fro (i.e. Fabricated material from BHEL to Vendor's Shop and finished machined product from Vendor's Shop to BHEL) is under the scope of BHEL. Vendor to provide the required loading and unloading support of material/product at their premise.
7	Scrap generated during machining will be chargeable and the cost of Scrap will be deducted from the billable amount, as per BHEL standard practices.

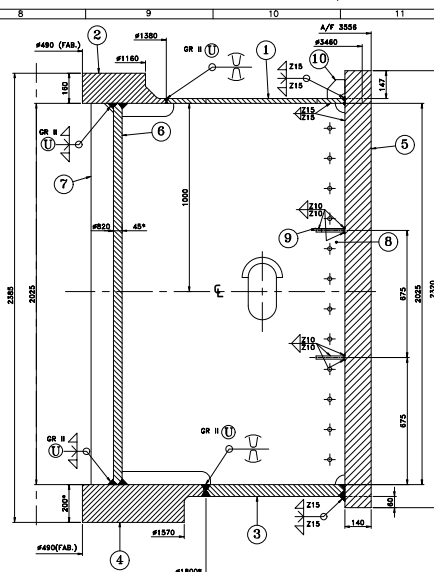
02.5
Shalendra Sharma
Manager/HGM

Vishal Sharma
Sr.DGM/HGM

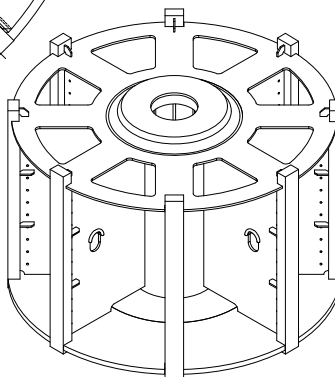
Rajesh Singh Yadav
Sr.DGM/HGM

Rahul Khatri
Dy Manager/TEX

Vivek Goswami
Sr.Manager/HGE



SECTION-AA



ASSEMBLY VIEW

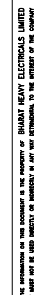
TECHNICAL REQUIREMENTS:-

1. ALL FILLET WELDS ARE CONTINUOUS OF 15MM TO GR-B1 TO A4022101 UNLESS OTHERWISE STATED.
2. DIMENSION MARKED THUS * ARE FOR D.O. REFERENCE ONLY.
3. WELD MARK THUS (U) TO BE ULTRASONICALLY TESTED TO BP0850178.
HOWEVER COMPLETE LENGTH OF WELD SEAMS TO BE DP TESTED TO BP 0850199.
4. FABRICATED WEIGHT OF ASSY. WITH WELDMENT IS 19000 KG APPROX.
5. STRESS RELIEF OF SPIDER ASSY. TO BE BP4062999 BEFORE MACHINING.
6. PAINTING SHALL BE CARRIED OUT AS PER M12007.

[illegible][illegible][illegible]



VALUO	REMARKS	PART ITEM NO.	DESCRIPTION	DRAWING NO.	MATL. QTY.	UNIT	USE WT.
20	CARD TYPE	20	CARD TYPE	674 TYP-1			
ADDITIONAL INFORMATION NO. 29232 32 284 331 - 52				RGT 674 TYP-1-32D			
DISTRIBUTION OF DRAWING				UJVN / RMU OF CHILLA HP			
HGM-3 PFM-7							
HDG-4 TEX-1							
							
Bharat Heavy Electricals Ltd. INDIAN HEAVY ELECTRICALS LTD. 28 MP PO BOX 11 CALCUTTA 700 013				KSC KS 22.02.24 22.02.24			
4013 3 250000140				NTS INTRVCT			
							
SPIDER ASSY. (FAB. & M/C)				0 252 02 10701 01			
				P&T Drawing No. 01 252 02 10701 01			



(ALL DIMENSIONS ARE IN mm)

ENLARGED DETAIL-B

ENLARGED DETAIL-C

TECHNICAL REQUIREMENTS:-

1. ALL WELDS ARE CONTINUOUS 15 MM UNLESS OTHERWISE STATED.
2. ALL FULL PENETRATION BUTT WELDS SHALL BE GRADE II AND ALL FILLET WELDS SHALL BE GR. III OF AA0622101.
3. ALL GRADE II WELDS TO BE ULTRASONICALLY TESTED TO BP0850176. COMPLETE LENGTH OF ALL WELD SEAMS TO BE DP TESTED TO BP0850199.
4. BEFORE MACHINING, STRESS RELIEVE THE ASSEMBLY AS PER BP0640299.
5. DIMENSIONS MARKED THRU * ARE FOR D.O. REFERENCE ONLY.
6. PAINTING SHALL BE CARRIED OUT AS PER HG 12007.

[illegible]

FABRICATED WEIGHT FOR ORDERING PURPOSE IS 25520KG.
WHICH INCLUDES WELDMENT WEIGHT.

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

ADDITIONAL INFORMATION NO. 25521 TO A 25172 STAGE-3 TYPE OF DRAWING: PROJECT OR STATUS OF DRAWING: U		PALAMURU RANGAREDDY LHS STAGE-2&3 (MEIL/TSNGCO)		HMS-713/170-24K																					
DISTRIBUTION OF PRINTS HGE-1 HGM-2 TEX-1 FWM-2		 HAK's gsoh byedV&M't fytevel BHARAT HEAVY ELECTRICALS LTD BHOPAL		<table border="1"> <thead> <tr> <th>date</th> <th>name</th> <th>signature</th> <th>timestamp</th> <th>initials</th> </tr> </thead> <tbody> <tr> <td>19.09.20</td> <td>RKP</td> <td></td> <td></td> <td></td> </tr> <tr> <td>19.09.20</td> <td>NS/BK</td> <td></td> <td></td> <td></td> </tr> <tr> <td>19.09.20</td> <td>RG</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		date	name	signature	timestamp	initials	19.09.20	RKP				19.09.20	NS/BK				19.09.20	RG			
date	name	signature	timestamp	initials																					
19.09.20	RKP																								
19.09.20	NS/BK																								
19.09.20	RG																								
REV.	DATE	ALTERED CHECKED APPROVED	HGM-1 HGM-2 TEX-1 FWM-2 UNCL. DIMS. OR DIMS. 32250001404	HAK's gsoh HGM-1 HGM-2 TEX-1 FWM-2 UNCL. DIMS. OR DIMS. 32250001404	HAK's gsoh HGM-1 HGM-2 TEX-1 FWM-2 UNCL. DIMS. OR DIMS. 32250001404																				
ZONE			 SCALE 1:10	HAK's gsoh HGM-1 HGM-2 TEX-1 FWM-2 UNCL. DIMS. OR DIMS. 32250001404	HAK's gsoh HGM-1 HGM-2 TEX-1 FWM-2 UNCL. DIMS. OR DIMS. 32250001404																				
SPIDER ASSEMBLY (FABRICATED)			Machine DRAWING NO. 1 252 02 89602																						



TECHNICAL REQUIREMENTS:-

1. DIMENSIONS MARKED THIS * ARE FOR B.D. REF.
2. SURFACE FINISH OF ALL MACHINED SURFACES IS
3. APPLY TRIP ON ALL MACHINED AND TAPPED HOLES
4. SURFACE ARE TO BE PREPARED PRIOR TO FINISH
APPLY 2-COAT OF ANTI-CORROSION PRIMER
QUALITY PAINT GLOSSY OUF OOR FINISHING PAINT
SHADE NO. 102911 OF RLS.
5. PISO (MIDRANGE) TO BE MACHINED TO GIVE A
NORMAL MEASURED DIA. OF TOP SHAFT DIA. 12
023401.02701 RESPECTIVELY.
6. DIMENSION MARKED THIS @ ARE CRITICAL.

TECHNICAL REQUIREMENTS:-

1. DIMENSIONS MARKED THIS * ARE FOR B.D. REF.
2. SURFACE FINISH OF ALL MACHINED SURFACES IS
3. APPLY TRIP ON ALL MACHINED AND TAPPED HOLES
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SHADE NO. 102911 OF RLS.
5. PISO (MIDRANGE) TO BE MACHINED TO GIVE A
NORMAL MEASURED DIA. OF TOP SHAFT DIA. 12
023401.02701 RESPECTIVELY.
6. DIMENSION MARKED THIS @ ARE CRITICAL.

		DET	SPICE ASSY. (H&A)	1 252 02 26703			220010
VARIES	ROMANCE	DET	DESCRIPTION	DRAWING NO.	QTY	UNIT	STL
TYPE 1 TECHNICAL INFORMATION: M&S 252 02 251-02				1057 1166-00 (BEST-PRASAPAPEN) 01 LOWER SILKREUT 12APR			
NUMBER OF PAGES TDC - 3 HED - 4 TDC - 3 HED - 4				1057 1166-00 (BEST-PRASAPAPEN) 01 LOWER SILKREUT 12APR			
				1057 1166-00 (BEST-PRASAPAPEN) 01 LOWER SILKREUT 12APR			
PER YOU				1057 1166-00 (BEST-PRASAPAPEN) 01 LOWER SILKREUT 12APR			
43129 252 02 26703 SPIDER ASSY. (MACHINING)				0 252 02 26702 01			



 BHOPAL	PQR-3	DOC. NO: HGM/8029/PQR-3
	HYDRO GENERATOR MANUFACTURING	DATE: 10-02-2025 REV.: 00 PAGE 1 OF 1

MACHINING OF SPIDER ASSY (CHILLA)

Required machining of Spider Assy as per Annexure-3.

Following are the Technical Pre -Qualification Requirements (T-PQR):

S. No.	Description of technical pre-qualification requirement	Vendor Response	
		Complied/ Not complied	Supporting Documents required to accept compliance
1	Availability of compatible machines to carry out the Vertical turning lathe, horizontal boring and drilling operations as per the drawing 02520210701 .		(1) Bidder to submit the following details of the available machine --(i) Maximum Weight carrying capacity of machine (ii) Maximum turning radius of the machine (iii) Maximum height of the job that can be machined (iv) Table bed turning capacity in terms of turning radius (v) Maximum radial swing of Arm of the drilling machine. (2) Bidder to submit Make with specifications & photographs of the machines.
2	Experience of machining Spider Assy or equivalent (i.e. involving vertical boring/vertical turning lathe machining, horizontal boring machining and drilling operations) and supply of the same during last 7 years with anyone of following criteria: a) Three supplies of minimum turning dia. 1632 mm & height 598 mm. or b) Two supplies of minimum turning dia. 2040 mm & height 748 mm. or c) One supply of minimum turning dia. 3264 mm & height 1196 mm.		(1) Purchase order and (2) Test certificate Or Invoice.
3	Availability of Crane facility for lifting the Spider Assy approx 14.39 Tonnes or more considering factor of safety.		Bidder to submit the Make with specification & photographs of the Crane.

Note:

1. Compliance to above Technical Pre-qualification requirements are mandatory. In absence of compliance of above requirements vendor TPQ application is liable to be rejected.
2. BHEL has right to verify information/ confirmation furnished, by asking additional documents proofs etc.
3. The reference date for 7 years experience shall be the date of enquiry.

No relaxation in experience criteria for MSME Startup considering critical nature of job.

<i>Handwritten signature</i> 10.02.25	<i>Handwritten signature</i>	<i>Handwritten signature</i>	<i>Handwritten signature</i>
Shailendra Sharma Manager/HGM	Vishal Sharma Sr.DGM/HGM	Rajesh Singh Yadav Sr.DGM/HGM	Rahul Khatri Dy.Manager/TEX
			Vivek Goswami Sr.Manager/HGE

 BHOPAL	PQR-2		DOC. NO: HGM/8029/PQR-2
	HYDRO GENERATOR MANUFACTURING		DATE: 10-02-2025 REV.: 00 PAGE 1 OF 1

MACHINING OF SPIDER ASSY (KALESHWARAM LINK-4 PKG-2)

Required machining of Spider Assy as per Annexure-2.

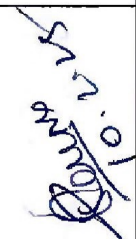
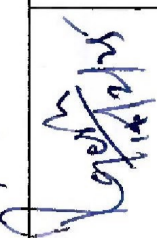
Following are the Technical Pre -Qualification Requirements (T-PQR):

S. No.	Description of technical pre-qualification requirement	Vendor Response	
		Complied/ Not complied	Supporting Documents required to accept compliance
1	Availability of compatible machines to carry out the Vertical turning lathe, horizontal boring and drilling operations as per the drawing 02520211701 .		(1) Bidder to submit the following details of the available machine --(i) Maximum Weight carrying capacity of machine (ii) Maximum turning radius of the machine (iii) Maximum height of the job that can be machined (iv) Table bed turning capacity in terms of turning radius (v) Maximum radial swing of Arm of the drilling machine. (2) Bidder to submit Make with specifications & photographs of the machines.
2	Experience of machining Spider Assy or equivalent (i.e. involving vertical boring/vertical turning lathe machining, horizontal boring machining and drilling operations) and supply of the same during last 7 years with anyone of following criteria: a) Three supplies of minimum turning dia. 1422 mm & height 954 mm. or b) Two supplies of minimum turning dia. 1778 mm & height 1193 mm. or c) One supply of minimum turning dia. 2845 mm & height 1908 mm.		(1) Purchase order and (2) Test certificate Or Invoice.
3	Availability of Crane facility for lifting the Spider Assy approx 18.753 Tonnes or more considering factor of safety.		Bidder to submit the Make with specification & photographs of the Crane.

Note:

1. Compliance to above Technical Pre-qualification requirements are mandatory. In absence of compliance of above requirements vendor TPQ application is liable to be rejected.
2. BHEL has right to verify information/ confirmation furnished, by asking additional documents proofs etc.
3. The reference date for 7 years experience shall be the date of enquiry.

No relaxation of experience criteria for msme/startup considering critical nature of job.

 Shailendra Sharma Manager/HGM	 Vishal Sharma Sr.DGM/HGM	 Rajesh Singh Yadav Sr.DGM/HGM	 Rahul Khatri Dy.Manager/TEX	 Vivek Goswami Sr.Manager/HGE
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	HYDRO GENERATOR MANUFACTURING		DATE: 10-02-2025 REV.: 00 PAGE 1 OF 1

MACHINING OF SPIDER ASSY (PALAMURU)

Required machining of Spider Assy as per Annexure-4.

Following are the Technical Pre -Qualification Requirements (T-PQR):

S. No.	Description of technical pre-qualification requirement	Vendor Response	
		Complied/ Not complied	Supporting Documents required to accept compliance
1	Availability of compatible machines to carry out the Vertical turning lathe, horizontal boring and drilling operations as per the drawing 02520289601.		(1) Bidder to submit the following details of the available machine --(i) Maximum Weight carrying capacity of machine (ii) Maximum turning radius of the machine (iii) Maximum height of the job that can be machined (iv) Table bed turning capacity in terms of turning radius (v) Maximum radial swing of Arm of the drilling machine. (2) Bidder to submit Make with specifications & photographs of the machines.
2	Experience of machining Spider Assy or equivalent (i.e. involving vertical boring/vertical turning lathe machining, horizontal boring machining and drilling operations) and supply of the same during last 7 years with anyone of following criteria: a) Three supplies of minimum turning dia. 2004 mm & height 786 mm. or b) Two supplies of minimum turning dia. 2505 mm & height 982 mm. or c) One supply of minimum turning dia. 4008 mm & height 1571 mm.		(1) Purchase order and (2) Test certificate Or Invoice.
3	Availability of Crane facility for lifting the Spider Assy approx 25.52 Tonnes or more considering factor of safety.		Bidder to submit the Make with specification & photographs of the Crane.

Note:

1. Compliance to above Technical Pre-qualification requirements are mandatory. In absence of compliance of above requirements vendor TPQ application is liable to be rejected.
2. BHEL has right to verify information/ confirmation furnished, by asking additional documents proofs etc.
3. The reference date for 7 years experience shall be the date of enquiry.

No relaxation for name/standup in experience criteria considering critical nature

<i>10.02.25</i>	<i>Sharma</i>	<i>Yadav</i>	<i>Sharma</i>	<i>Sharma</i>
Shailendra Sharma Manager/HGM	Vishal Sharma Sr.DGM/HGM	Rajesh Singh Yadav Sr.DGM/HGM	Rahul Khatri Dy.Manager/TEX	Vivek Goswami Sr.Manager/HGE

 BHOPAL	PQR-5	DOC. NO: HGM/8029/PQR-5 DATE: 10-02-2025 REV.: 00 PAGE 1 OF 1
	HYDRO GENERATOR MANUFACTURING	

MACHINING OF SPIDER ASSY (LOWER SILERU)

Required machining of Spider Assy as per Annexure-5.

Following are the Technical Pre-Qualification Requirements (T-PQR):

S. No.	Description of technical pre-qualification requirement	Vendor Response	
		Complied/ Not complied	Supporting Documents required to accept compliance
1	Availability of compatible machines to carry out the Vertical turning lathe, horizontal boring and drilling operations as per the drawing 02520226702 .		(1) Bidder to submit the following details of the available machine --(i) Maximum Weight carrying capacity of machine (ii) Maximum turning radius of the machine (iii) Maximum height of the job that can be machined (iv) Table bed turning capacity in terms of turning radius (v) Maximum radial swing of Arm of the drilling machine. (2) Bidder to submit Make with specifications & photographs of the machines.
2	Experience of machining Spider Assy or equivalent (i.e. involving vertical boring/vertical turning lathe machining, horizontal boring machining and drilling operations) and supply of the same during last 7 years with anyone of following criteria: a) Three supplies of minimum turning dia. 1688 mm & height 905 mm. or b) Two supplies of minimum turning dia. 2110 mm & height 1131 mm. or c) One supply of minimum turning dia. 3376 mm & height 1810 mm.		(1) Purchase order and (2) Test certificate Or Invoice.
3	Availability of Crane facility for lifting the Spider Assy approx 20.617 Tonnes or more considering factor of safety.		Bidder to submit the Make with specification & photographs of the Crane.

Note:

- Compliance to above Technical Pre-qualification requirements are mandatory. In absence of compliance of above requirements vendor TPQ application is liable to be rejected.
- BHEL has right to verify information/ confirmation furnished, by asking additional documents proofs etc.
- The reference date for 7 years experience shall be the date of enquiry.

No qualification in experience criteria for MSME/startup considering critical nature of job.

<i>Handwritten: 9.25</i> Shailendra Sharma Manager/HGM	<i>Handwritten: 9.25</i> Vishal Sharma Sr.DGM/HGM	<i>Handwritten: 9.25</i> Rajesh Singh Yadav Sr.DGM/HGM	<i>Handwritten: 9.25</i> Rahul Khatri Dy.Manager/TEX	<i>Handwritten: 9.25</i> Vivek Goswami Sr.Manager/HGE
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P. S. Reddy
13.07.2021

BHARAT HEAVY ELECTRICALS LIMITED – BHOPAL									
QUALITY ASSURANCE -HYDRO									
QUALITY ASSURANCE PLAN									
SHEET- 4 OF 7									
PROJECT: KALESHWARAM LINK-IV Pkg-II (6 X 125 MW) LIS, TELANGANA Q A PLAN NO.: QA/HG/633 REV 00 DTD 05.04.2021									
EQUIPMENT:MOTOR									
CUSTOMER: GOVT. OF TELANGANA, IRRIGATION & CAD DEPT.									
SLNO	COMPONENT/ASSY/OPERATION	CHARACTERISTICS	TYPE	QUANTUM	REF	FORMAT OF RECORD	AGENCY	REMARKS	
					DOCU		3 2 1 D		
2.6	Wound stator segment (without joint coils)	HV & IR TEST (before and after HV), PI	ET	100%	Drg	QCR	P W W	QCR	CHP(W) for any one unit and review for other units
2.6.1									
2.7	Rim punchings								
2.7.1		Dimensional checks of first off punching	M	Sample	Drg	QCR	P W V	QCR	
2.8	Rim end plates								
2.8.1		Dimension checks	M	100%	Drg	QCR	P W V	QCR	
2.9	Spider assembly								
2.9.1		Dimension check after fabrication	M	100%	Drg	QCR	P W V	QCR	
2.9.2		DPT / MPI after fabrication	DPT	As per Drg	Drg	QCR	P W V	QCR	
2.9.3		Dimensional checks after machining	M	100%	Drg	QCR	P W V	QCR	
2.10	Collector assy								
2.10.1		Dimension check	M	100%	Drg	QCR	P W V	QCR	
2.10.2		IR & HV Test	ET	100%	Drg	QCR	P W V	QCR	
2.11	Pole punching								
2.11.1		Dimension check of first off punchings	M	Sample	Drg	QCR	P W V	QCR	
BHEL <i>Author: BHARAT HEAVY ELECTRICALS LIMITED</i> <i>Checked: BHARAT HEAVY ELECTRICALS LIMITED</i> <i>Approved: BHARAT HEAVY ELECTRICALS LIMITED</i> CUSTOMER <i>Deputy Executive Engineer</i> <i>Irrigation Sub Division No. 2, Siddipet</i> <i>Irrigation Division No. 1, Siddipet</i>									

P. K. Reddy
 Advisor / 3.07.2021
 Lift Irrigation Schemes
 Govt. of Telangana

QUALITY ASSURANCE PLAN

PROJECT :RMU of Chilla HEP

NAME OF

VENDOR : M/s BHEL LTD

EQUIPMENT :Generatr Package - Rotor Spider

PO Reference: 102/UJVNL/DIRECTOR OPERATIONS/DGM(MU-GV)/T-21(CHILLA RMU)

QA PLAN NO. :QA/HG/608 REV.03 DATED 25.07.2024

Page 09 of 17

SR. NO.	ITEM /COMPONENTS AND CHARACTERISTICS	NATURE OF CHECKS	QUANTUM OF CHECKS	REFERENCE DOCUMENTS/ ACCEPTANCE NORMS	RECORD FORMAT	INSPECTION AGENCY		REMARKS
						Perform	Witness	
A	Raw Material (carbon steel)							
i)	Chemical analysis	Chem	Sample/Lot	Relevant material / testing standard as per drawing	TC	3/2	-	TC
ii)	Mechanical Properties	Mech	-do-		TC	3/2	-	TC
iii)	NDT of Steel Plates (≥ 40 mm Tk)	UT	-do-	-do-	TC	3/2	-	TC
B	In-process Inspection							
i)	NDT of weld as per grade of weld	DPT / UT / MPI as applicable	CHP for 20% Weld length	Relevant material / testing standard as per drawing	JIR	3/2	1	CHP for all units
ii)	Post weld Stress Relieving-Heat Treatment (if applicable)	Thermal	-do-	-do-	TC	3/2	-	TC
iii)	Machining Dimensional check	Measurement	-do-	Drawing	TC	3/2	-	TC
C	Final Inspection							
i)	NDT of machined surface	DPT	CHP for 20% machined area	-do-	JIR	3/2	1	CHP for all units
ii)	Machining Dimensional check	Measurement	-do-	-do-	JIR	3/2	1	
iii)	Surface Finish of machined surface	Visual/ Measurement	-do-	-do-	JIR	3/2	1	
iv)	Flatness Check of Flanges/ Gap Check	Measurement	-do-	-do-	TC	3/2	-	TC
v)	Painting	Visual	-do-	-do-	TC	3/2	-	TC

Note: a. In 'Inspection Agency/column figure 1,2 or 3 to be filled. 1- will indicate 'supplier' & 3- will indicate 'sub-supplier'.
b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, J.O. - Test Certificate Submission & CHP - Customer Hold Point.
c. Test certificates shall be submitted at the time of final inspection.



Signature & Seal
UJVNL

Signature & Seal
(VENDORS Q.C. DEPT. OR REPRESENTATIVE)



Signature & Seal

A. K. Sharma
BHEL
AADHAR SHARMA
Sr. Engineer (QWT)
Quality Control-WTM
BHEL, BHOPAL

SHEET- 4 OF 7

CUSTOMER: GOVT. OF TELANGANA, IRRIGATION & CAD DEPT.

2.11.1

20/10/13
Dennis

S/O
Naveed

Deputy Executive Engineer, Irrigation
No. 1, New Pump house, Hindmedaigai,
Dharmaram (M),
Puducherry District.

CUSTOMER

Executive Engineer, I&CAD Dept.,
Irrigation Division No.8,
SRSP Camp, Choppadandi (V&M), Karimnagar.

Superintending Engineer,
Irrigation Circle,
LMD Colony, Karimnagar.

Plasma

Advisor
06.03.2021

Advisor
/ Lift Irrigation Schemes
Govt. of Telangana

MANUFACTURER'S NAME AND ADDRESS		MANUFACTURING QUALITY PLAN				PROJ: LOWER SILERU HEP (2X 115 MW)							
BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL		ITEM(S): GENERATOR PACKAGE		QAP NO.: QA/HG/684 REV. NO.: C DATE: 16.04.2024 PAGE: PAGE 6 OF 9		PACKAGE: ELECTROMECHANICAL LOA NO.: SSEL/BHEL/LS/LOA 01/2022-23 DATED- 28.04.2022							
		QUANTUM OF CHECK(**)		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS			
SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	M	C / A	7	8	9	D*	10	11	
1	2	3	4	5	6		7	8	9	D*	10	11	
2.17	Spider assembly	Dimensional checks after machining	Major	M	100%	100% (1 unit)	-do-	JIR	✓	P	W	W	CHP-SSEL for 1 unit
2.18	Collector assy	Dimension check	Major	M	100%	100%	-do-	QCR	✓	P	W	V	
2.19		IR & HV Test	Major	ET	100%	100%	-do-	QCR	✓	P	W	V	
2.20	Pole punching	Dimension check of first-off punching	Major	M	Sample	Sample	-do-	JIR	✓	P	W	W	CHP-SSEL
2.21	Pole end plates	Dimensional checks of pole end plates after machining	Major	M	100%	100%	-do-	QCR	✓	P	W	V	
2.22	Field coils	Dimension checks	Major	M	100%	100%	Doc/Drg.: 12500026706	QCR	✓	P	W	V	
2.23		Milli volt drop test	Major	ET	100%	2 coils	-do-	JIR	✓	P	W	W	CHP-SSEL
2.24		Dimension check	Major	M	100%	100%	Doc/Drg.: 12500026707	JIR	✓	P	W	W	CHP- 1 Unit by APGENCO & 2 units by SSEL
2.25		DC resistance, IR & HV test	Critical	ET	100%	100%	-do-	JIR	✓	P	W	W	CHP(W) for any one unit by SSEL & APGENCO, TC review for other units
2.26	Wound pole	Impedance test	Critical	ET	100%	100%	-do-	JIR	✓	P	W	W	

Reference Approved drawing: HEP 001-LSPHE-GEN-DD-1000 – Sectional Arrangement of generator, HEP 001-LSPHE-GEN-GA-1014 – Wound Pole Assembly & HEP 001-LSPHE – GEN-GA-1013 Generator Rotor Winding

MANUFACTURER/ SUB-SUPPLIER	MAIN-SUPPLIER	LEGEND: * D: RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY SUBMITTED BY SUPPLIER IN QA DOCUMENTATION. M: MANUFACTURER/SUB-SUPPLIER, C: MAIN SUPPLIER (BHEL), A: OWNER/OWNER'S AUTHORISED REPRESENTATIVE (SSEL / APGENCO), F: PERFORM, W: WITNESS AND V: VERIFICATION AS APPROPRIATE, CHP: CUSTOMER HOLD POINT TC: TEST CERTIFICATE, QCR: QUALITY CONTROL REPORT, JIR: JOINT INSPECTION REPORT, ET: ELECTRICAL TEST, M- MEASUREMENT, CT-CHEMICAL TEST, MT-MECHANICAL TEST, VIS-VISUAL CHECK COC- CERTIFICATE OF COMPLIANCE IMP. NOTE: VIRTUAL INSPECTION WILL BE ARRANGED FOR APGENCO FOR THE TESTS UNDER THE SCOPE OF SSEL WITNESS, IF REQUIRED BY APGENCO		FOR APGENCO USE	REVIEWED BY	APPROVED BY	APPROVAL SEAL
		 M. SRINIVASA RAO, EE at 10:19 am, Jun 13, 2024 APPROVED By SE-QC at 12:24 pm, Jun 13, 2024					
		DOC. NO.:		REV. CAT.			