

NOTICE NO. WEX/NBS/SPDL/EOI-PUB/2012-13, DTD. 4.2.2013

SCOPE OF REPAIR OF 6 NOS. (3 EACH) OF HIGH SPEED MOTOR SPINDLE, 15000 rpm OF (Starragheckert , Switzerland Make) AND (M/S Fischer , Switzerland Make) THROUGH WORKS CONTRACT.

1) Scope of Work (Essential) :

- 1.1 Complete dismantling of Spindle.
- 1.2 Replacement of all the hybrid ceramic bearings.
- 1.3 Replacement of the OTT Jakob HSK-A63 tool clamping unit.
- 1.4 Replacement of helical cup springs/ disc springs of hydraulic tool clamping system.
- 1.5 Replacement of all the seals of hydraulic tool clamping piston-cylinder assembly.
- 1.6 Replacement of the labyrinth seals.
- 1.7 Replacement of internal coolant rotating union connections (Deublin/ OTT Jakob).
- 1.8 Cleaning of coolant ducts and sealing air ducts.
- 1.9 Assembly of the spindle.
- 1.10 Any other part will also be replaced, if found necessary for proper working of spindles after repair.
- 1.11 Balancing of the spindle.
- 1.12 Testing of the spindle. (As per the BHEL/ OEM's test certificate)
- 1.13 Replaced parts shall be returned to BHEL.

2) Scope of Work (Optional)

- 2.1 Replacement of the analog proximity switches for Tool clamp/ Unclamp
- 2.2 Replacement of all Temperature sensors.
- 2.2 Rewinding of the motor.
- 2.3 Replacement of encoder.
- 2.4 Replacement of electrical connectors.
- 2.5 The Optional items are to be quoted individually and decided at the time of joint inspection after dismantling of the spindle at vendor's works.

Technical data of the spindles are attached as Annexure- A and Annexure –B.

3) Acceptance Criteria :

- 2.1 Vendor shall submit the report of stage inspection done as per their protocol.
- 2.2 Test Certificate of motor spindle as per attached testing norms witnessed by BHEL personal/ representative after repair.

4) Warranty :

4.1 Vendor shall stand warranty of the repaired spindle for satisfactory working of Six months after commissioning of the repaired spindle.

4.2 Vendor shall attend the calls for repair during the warranty period.

5) General Conditions :

5.1 Vendor has to collect the defective spindle from BHEL, Haridwar and the repaired spindle shall be dispatched to BHEL, Haridwar by the Vendor.

5.2 Vendor has to deposit Earnest Money (EMD) Approximately 2 % of the value of the work.

EMD may be converted into Security Deposit (SD).

EMD may be deposited in cash or Demand draft only in favour of Manager (Finance/ Works),

BHEL, Haridwar. EMD shall not carry any interest.

5.3 The Security deposit to be deposited at the time of final award of the work is as per the following rate:

a) Upto Rs. 10 lakhs : 10%

b) Above Rs. 10 lakhs upto Rs. 50 lakhs : Rs. 1 lakh + 7.5% of the amount exceeding Rs. 10 lakhs

c) Above Rs. 50 lakhs : Rs. 4 lakhs + 5% of the amount exceeding Rs. 50 lakhs

The security deposit shall not carry any interest.

5.4 Vendor shall submit a Bank Guarantee for Rs. 2,25,000/= Per Spindle for the duration of the custody at their works. Vendor shall arrange insurance of spindle at their works themselves.

5.5 Insurance during to and fro transportation will be borne by vendor.

5.6 Vendor shall submit protocol for stage inspection and final inspection at the time of submitting the offer.

5.7 Vendor will inform the date wise time schedule of dismantling, parts replacement, assembly and trial run of the motor spindle. BHEL reserve the right to witness these activities at vendor's work.

5.8 Only those vendors will be considered who accepts to repair both types of motor spindles (Starrag make and Fischer make)

5.9 Off-loading of the repair work to other parties by the vendor will not be permitted.

6) Late Delivery Penalty Clause : LD @ ½% per week subject to a maximum of 10% of the contract value shall be applicable for delay in deliveries. The time period from invitation date for Pre dispatch inspection from vendor to the date of arrival of Pre Dispatch Team to vendor's works and any other reasons attributed to BHEL will not be accounted for in delivery period. This period will be excluded for the purpose of calculating LD. Vendor should intimate regarding PDI well in advance.

7) Performance Bank Guarantee : Vendor shall be required to submit a Performance Bank Guarantee (PBG) for 10% of the total work order/ contract value which shall be valid for a period of 12 months from the date of final acceptance of the repaired motor spindles.

8) Payment Terms:

(Note: No advance payment shall be made to the vendor.)

8.1 100% payment will be made within one month of the receipt of the repaired spindles at BHEL , Haridwar.

The payment shall be made subject to submission of Performance Bank Guarantee (PBG) as per "Para 7".

8.2 All the payments shall be made through e-payment after submission of following documents along with first bill

8.2a E-payment form duly filled (Form will be provided by BHEL) Vendor to comply

8.2b Income tax exemption letter(if applicable)

9) Risk Purchase Clause

In case of delays in supplies / defective supplies or non-fulfilment of any other terms & conditions given in the work order the purchaser may cancel the work order in full or part thereof and may also make the purchase of the material / service from elsewhere / alternative source at the risk and cost of supplier. Vendor does not agree to above clause, their offer is liable to be rejected. In case any vendor accepts risk purchase clause initially and subsequently declines to honour the term in the eventuality of RISK PURCHASE, they may be banned for business with BHEL.

10) The Vendor is advised to inspect the Spindles prior to quoting to ascertain all the relevant details required for successful completion of the work

11) A point wise compliance statement shall be submitted by the vendor with reference to the above against each clause/ sub-clause with relevant details & comments. Non-compliance to any of the clauses & quoting inadequate quantity can lead to dis-qualification of the offer.

12) Vendor must compulsorily quote the quantity exactly as per the Scope. No reduction in quantity/ work as per the above Scope is permissible.

13) The offers of the bidders who are on the banned list as also the offer of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site www.bhel.com.

14) The award of works will be made on basis of the total of Material cost (Essential & Optional), Labour charges and all taxes, duties as applicable (Cost to BHEL).

15) The prices should be inclusive of Packing & Forwarding, transit insurance & Transportation charges. Applicable % of ED & Sales Tax & Service Tax should be clearly mentioned in the price bid.

16) Freight & transit insurance charges from BHEL, Haridwar to vendor's works and back shall be borne by the vendor.

17) Vendor shall arrange for adequate protection and packing of the consignment so as to avoid loss and damage during transit and also take appropriate measures to prevent metal parts from rusting and corrosion during transit. Handling instructions shall be clearly printed /painted on the packages. Each package should carry a detailed packing slip.

Vendor shall be responsible for any loss/damage during transit due to defective/inadequate packing.

Annexure- A

TECHNICAL DATA OF HIGH SPEED MOTOR SPINDLE OF STARRAG HECKERT

Designation	Spindle version
Type	126.6B HX Motorspindle
Diameter [mm]	260
Length [mm]	744,5
Weight [kg]	Approx.. 200 kg
Direction of rotation	clockwise / anticlockwise
Installation position	vertical
No. of motor poles	4
Rated output [kW]	27
Rated speed [rpm]	2'900
Rated torque [Nm]	90
Max. voltage [V]	400
Max. speed [rpm]	15,000
Max. frequency [Hz]	500
Acceleration / braking time (with Siemens amplifier LT300) [sec]	approx. 2.5
Power loss [kW]	3
Drive system	Siemens Simodrive Indramat
Encoder system	L&B (126.6B), or Indramat (125.6A)
Cooling system water [l/min]	≥7

Interface		HSK-A63
Clamping force	[N]	20,000
Taper-cleaning / blow-off air pressure	[bar]	5– 6
Tool changing system: Tool clamping		- helical cup springs
Clamping piston	[bar]	- hydraulic 80-90 bar (max. 110 bar)
Release	[bar]	- hydraulic 80-90 bar (max. 110 bar)
Sealing air, dynamic	[bar]	0,5-0,7
Ball bearings, front		2x ø90(ceramic hybrid)
Lubrication		grease
Analogue sensor (clamping system)		- toolholder released - toolholder clamped - clamped without toolholder

Note :

1. The assembly drawings of the motor spindle are not available.
2. No part drawings or part list can be provided.
3. No dismantling and assembly procedure is available.

Annexure -B

TECHNICAL DATA OF HIGH SPEED MOTOR SPINDLE OF FISCHER

Designation	Spindle version
General	
Type	MFW-2401/15/1 VC HSK-A63 MFW-2401/15/3 VC HSK-A63
Power	20 KW
Frequency	500 Hz
Torque	166 Nm
Voltage	380 V
Current	116 A
Motor type	AC async star
Tool Interface	HSK –A63 DIN 69863-1

Lubrication	Grease
Motor , bearing cooling system	Liquid cooled
Clamping system	Hydraulically driven
Tool control	Controlled by analog sensors
Rotating direction	Right + Left
Positioning	Lenord+Bauer
Mounting position	Horizontal
Bearing type	Ceramic –hybrid
Number of bearings	4
Sleeve diameter	240 mm
Sleeve length (clamping zone)	Ø240, 25 mm
Overall length	875 mm
Weight (dry)	Approx. 200 kg
Tool Clamping system	
Manufacturer	Ott-Jakob
Type	HSK-A63
Min. clamping force (basic adjustment)	18000 N
Min. clamping force (in operation)	14400 N
Release unit	LE 102
Hydraulic pressure for clamping	Min. 5 bar, max. 160 bar
Hydraulic pressure for release	Min. 80 bar, max. 160 bar
Tool unclamped Clamped without tool Clamped with tool	2 analog proximity switches (signals are evaluated external)
Coolant through unit	
Manufacturer	Ott-Jakob
Max. pressure of the cooling lubricant	80 bar
Fine filter pore size	Max. 50 microns
Spindle control	
Rotating speed	1 encoder, Lenord + Bauer, minicoder GEL244

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