

**BHARAT HEAVY ELECTRICAL LIMITED**

**UNIT'S ADDRESS:**

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**Enquiry No. :**

**Due Date :**

**Supplier Qtn. No.:**

**Date :**

**SPECIFICATION CUM COMPLIANCE CERTIFICATE OF HIGH PRESSURE HYDRAULIC PINION/DUMMY MOUNTING AND EXTRACTION SYSTEM FOR AC TRACTION MOTORS.**

**NOTE:-**

1. Vendor must submit complete information against qualifying condition in clause no. 13. Only offers meeting the qualifying criteria as mentioned in clause 13 would only be considered for evaluation.

2. The "Offered" Column and where applicable, the "Deviations" & "Remarks" Column of this format shall be filled in by the Vendor and submitted along with the offer. Inadequate / incomplete, ambiguous, or unsustainable information against any of the clauses of the specifications/requirements shall be treated as non-compliance.

3. The offer and all documents enclosed with offer should be in English language only.

**NAME & ADDRESS OF THE SUPPLIER :**

**TELEPHONE NOS.:**

**FAX NOS.:**

**E-MAIL ADDRESS :**

**NAME & ADDRESS OF THE INDIAN AGENT :**

**TELEPHONE NOS.:**

**FAX NOS.:**

**E-MAIL ADDRESS :**

**SCOPE: SUPPLY, ERECTION & COMMISSIONING OF HIGH PRESSURE HYDRAULIC PINION/DUMMY MOUNTING AND EXTRACTION SYSTEM FOR AC TRACTION MOTORS. COMPLYING WITH SPECIFICATIONS AS BELOW**

SNO	DESCRIPTION FOR BHEL REQUIREMENT	Vendor to specify/Confirm	Offered	Deviation
1	PURPOSE The high pressure system is required for assembly. & dismantling of tapered plug-in- type solid pinions and dummy shafts on 3-Phases, traction motors shafts. The traction motor shaft has a hollow tapered hole with ground finish at one end, into which correspondingly machined taper plug pinion/dummy shaft is to be assembled. The traction motor power is transmitted through pinion to gear wheel of the locomotive.	Vendor to note and Confirm		
2	SPECIFICATION			
2.1	CONFIGURATION			

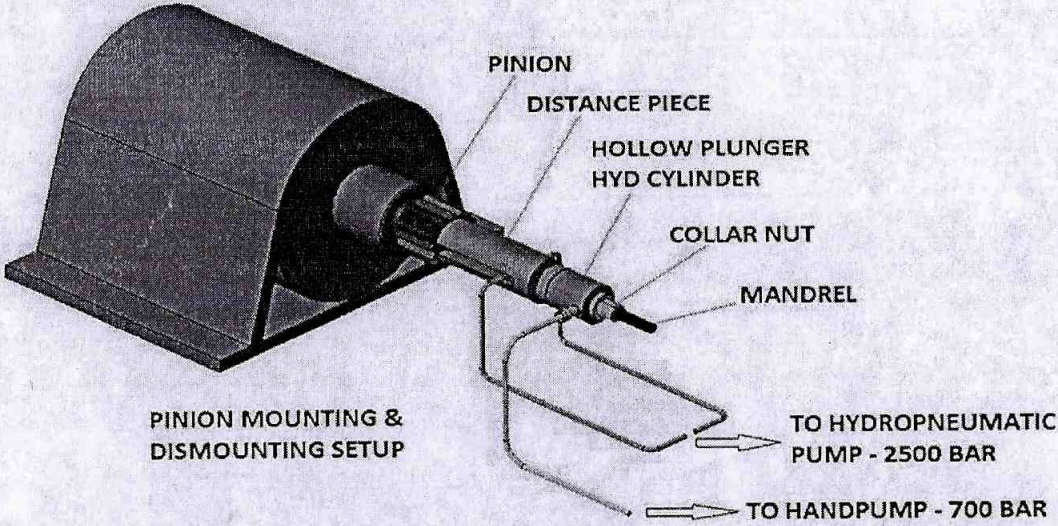


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SNO	DESCRIPTION FOR BHEL REQUIREMENT	Vendor to specify/Confirm	Offered	Deviation
2.1.1	<p>The high pressure system will be provided with two different air driven pumps for two different fluids ie. Glycerine and Hydraulic Oil to develop a pressure of 2500 bar (min) by using upto 8 bar of air pressure. The whole system shall be installed on a moveable frame fitted with suitable wheel and axle for easy mobility. Basic unit shall consist of :</p> <ol style="list-style-type: none"> <li>1) Frame with Handle and wheels for easy towing in shop floor.</li> <li>2) Two Air driven liquid Pumps with separate/individual boosters</li> <li>3) Twin Tanks with level gauges</li> <li>4) Two pressure gauge for Oil and Glycerine upto 4000 bar.</li> <li>5) Air pressure gauge of suitable capacity.</li> </ol>	Vendor to note and Confirm		
2.1.2	The high pressure hydraulic system should be capable of developing 2500 bar pressure (min) by using oil or glycerin. Two ports available in the pinion/dummy to be connected to the the oil/glycerin pump through two separate hoses without using manifold, etc.	Vendor to note and Confirm		
2.1.3	The process of fitment and withdrawal of pinion may take place about 20 times in a day, and the process may be followed daily.	Vendor to note and Confirm		
2.2	<b>PROCESS DETAILS:</b>			
2.2.1	<p><b>PINION MOUNTING</b></p> <ul style="list-style-type: none"> <li>--Connect glycerin pump (2500 pump) to the pinion with 3 meter hoses, bent tubes and QRCs.</li> <li>--Connect hand pump to the hollow cylinder.</li> <li>--Turn on shut off valve to start the glycerin pump</li> <li>--Close the corresponding release valve on glycerin pump.</li> <li>--Pressure starts blinding up in glycerin circuit.</li> <li>--Meantime, push the pinion by extending hollow plunger cylinder.</li> <li>--Continue this till pinion is moved to desired position.</li> <li>--First release the glycerin pressure and then release the load in hollow cylinder.</li> <li>--This completes mount operation. Dismantle the set up</li> </ul>	Vendor to note and Confirm		



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2.2.2	<p><b>PINION DISMOUNTING</b></p> <ul style="list-style-type: none"> <li>--Connect hydraulic oil pump (2500 bar) to the pinion with 3 meter hoses, bent tubes and QRCs.</li> <li>--Connect hand pump to the hollow cylinder. Extend the cylinder by 25 mm without any pressure in the cylinder circuit. This is only to dampen the force when pinion ejects out.</li> <li>--Turn on shut off valve to start the glycerin pump</li> <li>--Close the corresponding release valve on hydro pneumatic pump.</li> <li>--Pressure starts blinding up in hydraulic oil circuit.</li> <li>--Gradually increase the pressure till pinion ejects out.</li> <li>--This completes dis mount operation. Dismantle the set up.</li> </ul>	Vendor to note and Confirm		
2.2.3	 <p><b>PINION MOUNTING &amp; DISMOUNTING SETUP</b></p> <p>NOTE - THE SETUP SHOWN IS FOR MOUNTING, FOR DISMOUNTING HOLLOW PLUNGER HYDRAULIC CYLINDER IS NOT REQUIRED</p>	Vendor to note and Confirm		
2.3	The high pressure system is to comprise the following features			

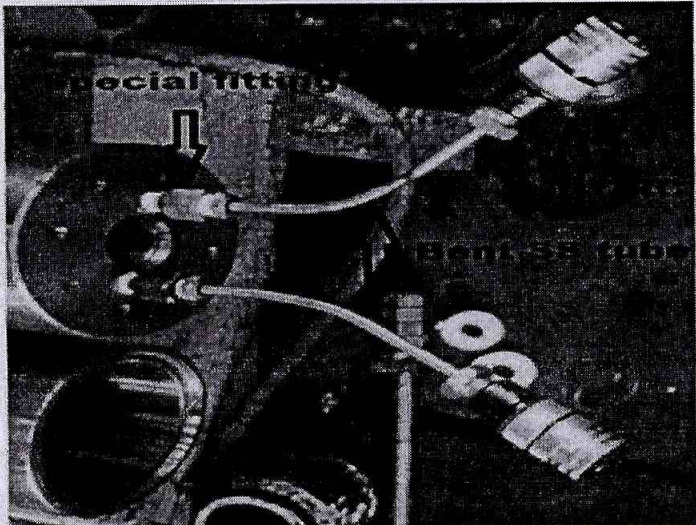


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SNO	DESCRIPTION FOR BHEL REQUIREMENT	Vendor to specify/Confirm	Offered	Deviation
2.3.1	All hydraulic circuits and elements are to be designed to suit the 2500 Bar (min) pressure developed by the system.	Vendor to Confirm		
2.3.2	Air pressure connection for 3 bar -12 bar with suitable adopter and couplings for input compressed air from the central compressed air supply on the shop floor at 4 to 6 bar.	Vendor to Specify/Confirm		
2.3.3	Air filter and regulator assembly	Vendor to Confirm		
2.3.4	High pressure hose for glycerin/oil (2 nos.), 3 meters long approx. With male coupling at free end to suit 1/4" BSP thread available in the pinion/dummy.	Vendor to Confirm		
2.3.5	Separate filler and breather plugs for glycerin and oil	Vendor to Confirm		
2.3.6	All High pressure valves 0-3000 bar shall be non rotating stem valve with needle sealing part.	Vendor to Confirm		
2.4	<b>CONTROLS</b>			
2.4.1	All controls to be housed on a panel mounted on the unit	Vendor to Confirm		
2.4.2	Separate valve for using oil or glycerine using lever	Vendor to Specify/Confirm		
2.4.3	Air regulating knob - Inlet air pressure can be set by rotating CW-to increase & CCW- to decrease	Vendor to Confirm		
2.4.4	Air on/off knob - Air supply to air motor can be set On/Off by this knob	Vendor to Confirm		
2.4.5	Pressure release valve - System oil pressure can be released to zero by opening this valve	Vendor to Confirm		
2.4.6	Two different Pressure Gauge - 4000 bar pressure gauge to read system oil and Glycerin Pressure	Vendor to Confirm		
2.4.7	Separate sight glasses for glycerin and oil level.	Vendor to Confirm		
2.5	<b>PERFORMANCE:</b> The equipments should be designed to meet the special requirements of the high pressure system, with adequate margins of safety, and smooth operation. The supplier shall stand guarantee to that effect.	Vendor to Confirm		
3	<b>SCOPE OF SUPPLY</b>			
3.1	High pressure pinion mounting and extraction system integral and self contained compact portable unit with wheels	1 Unit	Vendor to Confirm	



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SNO	DESCRIPTION FOR BHEL REQUIREMENT		Vendor to specify/Confirm	Offered	Deviation
3.2	High pressure hose for glycerin and oil (2 nos.), 3 meters long approx. With male coupling at free end to suit 1/4" BSP thread available in the pinion/dummy.	2 Units	Vendor to Confirm		
3.3	Special fitting - End 1 - G1/4" M, End 2: M16x1.5 F including SS bent tube and QRC 	2 Units	Vendor to Confirm		
3.4	Set of oil seals (All types)	1 Set	Vendor to Confirm		
3.5	All standard accessories & tool kit as required to make the equipment complete	1 Set	Vendor to <b>specify and submit</b> with the offer		
4	<b>SPARES:</b> The supplier should recomend and offer Itemwise price breakup of mechanical, consumable and electrical spares to be maintained in sufficient quantify for 2 years of trouble free operation on three shifts continuous running basis. This is required to be used as a reference for future procurement only and shall not be used for arriving at the L1 offer.		Vendor to <b>submit</b> with the offer		
5	<b>SAFETY</b>				
	Suitable mechanical interlocks should be provided to prevent equipment from damage by making it fool-prroof and safe for the operator. Necessary protection device (like guards, output/load protection, etc) should be provided.		Vendor to Confirm		
6	<b>ERECTION &amp; COMMISSIONING</b>				
6.1	Erection & commissioning will be done by the supplier.		Vendor to Confirm		



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SNO	DESCRIPTION FOR BHEL REQUIREMENT	Vendor to specify/Confirm	Offered	Deviation
6.2	The commissioning engineer should give full demonstration of the equipment on at least two actual jobs and prove the equipment efficacy.	Vendor to Confirm		
6.3	All the accessories, tools etc required for commissioning are to be arranged by the supplier. Only compressed air will be supplied by BHEL at the convenient place as recommended by the supplier.	Vendor to Confirm		
7	<b>GUARANTEE</b>			
7.1	The manufacturer's guarantee in 4 copies should be furnished with respect to design , material construction, performance and against any manufacturing defects for a period of 12-months from the date of commissioning.	Vendor to Confirm		
7.2	The manufacturer should also provide free after sales service and free replacement to defective parts during the guarantee period.	Vendor to Confirm		
8	<b>ENVIRONMENTAL PERFORMANCE OF THE MACHINE :</b>			
8.1	The equipment shall conform to following factors related to environment :	Vendor to Confirm		
8.2	(a) If any safety / environmental protection enclosure is required it should be built in the equipment by the vendor.	Vendor to Confirm		
8.3	(b) Paint of the equipment should be oil resistant , rust proof and should not peel off and mix up with oil	Vendor to Confirm		
9	<b>DOCUMENTATION :</b>			
9.1	Manufacturer should supply the 4 sets of Operating, servicing and installation manuals containing air and glycerin/oil circuit diagrams and complete Master List of parts and spares used in the equipment.	Vendor to Confirm		
9.2	The manufacturer's guarantee certificate and internal test certificates in 4 copies	Vendor to Confirm		
10	<b>EQUIPMENT ACCEPTANCE ; (Test / Activities to be performed by Vendor)</b>			
10.1	The equipment will be inspected and tested by BHEL completely at the manufacturer's works prior to dispatch and Four copies of inspection test report should be furnished along with the equipment. Waival of PDI may be given at the discretion of BHEL.	Vendor to Confirm		
10.2	Demonstration of all features of the equipment & all accessories to the satisfaction of BHEL for their efficient and effective use.	Vendor to Confirm		
10.3	Demonstration by actual use of all supplied attachments and accessories to their full capacity.	Vendor to Confirm		



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SNO	DESCRIPTION FOR BHEL REQUIREMENT	Vendor to specify/Confirm	Offered	Deviation
10.4	Training of BHEL maintenance personnels on equipment for trouble shooting and effective maintenance of complete equipment. & accessories by the manufacturer's experts/ engineers during their stay at BHEL works.	Vendor to Confirm		
11	<b>PACKING:</b> Sea worthy & rigid packing for all items of complete equipment.	Vendor to Confirm		
12	<b>GENERAL :</b> The vendor should submit the following information:			
12.1	Equipment. Make & Model	Vendor to Specify		
12.2	Total weight of the equipment.	Vendor to Specify		
13	<b>QUALIFYING CONDITIONS :</b>			
13.1	Only OEM or authorized agents of OEM shall quote who have (1) Experience of supplying at least 1 no hydraulic pumping system of capacity of 2500 bar or higher capacity in the past ten years and such equipment is presently working satisfactorily for at least one years after commissioning (2) Their average annual turnover for the last three years is at least Rs. 8.5 lacs . (Govt regulations for MSME shall prevail in case of dispute) The following information is to be submitted by the vendor about their qualification	Vendor to submit with the offer		
13.2	Name, address and contact details of the customer / company where similar equipment is installed/ supplied. (At least 1 PO copy matching commissioning certificate to be enclosed) in line with clause 13.1	Vendor to submit with the offer		
13.3	CA certified copies of Profit and loss or Trading account for year ending 2015, 2016 & 2017 for establishing the average annual turn over in line with clause 13.1	Vendor to submit with the offer		
13.4	Performance certificate from the customers regarding satisfactory performance of the systems supplied to them in line with clause 13.1. The date of issue of the performance certificate should not be earlier than one year from the date of opening of tender.	Vendor to submit with the offer		
14	On verification, if the information furnished above is found false / incorrect, the offer shall be rejected.	Vendor to note and Confirm		