

Annexure to Tender No. 65128048

Specification for Automated Bearing Extractor with power pack):

Objective:-

The motorized hydraulic bearing extractor to be used for dismantling the bearing, mounted on the axle of ICF wheel sets automatically. The motorized hydraulic power pack with oil injection system should make the bearing withdrawal safe and effortless, without use of manual force & without any damage to bearing / journal.

Principle:-

The dismantled procedure is based on oil injection system. In oil injection system the pressurized oil is injected between the bearing and the journal surface and forms a thin oil film eliminating metal to metal contact. The bearing virtually floats out on this oil film without scoring the journal.

Design Features:-

1. The Bearing Extractor should be suitable for dismantling spherical roller bearing, size 22326/C3, shrunk fitted (i.e. direct mounted) on cylindrical journal diameter 130mm of wheel set of ICF BG coaches of Indian Railway.
2. The Extractor consists of a Mobile Workstation mounted with compact Hydraulic Power-Pack having built-in controls, safety devices & has provision for keeping accessories on it.
3. The fast acting hydraulic withdrawal fixture ensures that the axial displacement of the bearing is fast, without use of manual force & without any damage to bearing / journal.
4. In case of power failure or in case of field operations when the Automated Hydraulic Extractor's Power-pack cannot be used, the unit should provide with two sets of manually operated oil injectors with foot stand & other accessories and one Cranking Jack Assembly, to be used for Manual Withdrawal Procedure. These Oil Injectors should also provide with matching male connector of the quick release coupling so that the same hydraulic hoses can be used which will be supplied along with the Power-Pack.
5. The Hydraulic Nut, Bearing Holding Drum and Extension Adapter may be the common accessories for both the withdrawal procedures i.e. Automated & Manual.

Detailed Technical Specification Features:

I. Bearing Holding Housing:

The bearing holding housing (drum) shall be made out of suitable alloy steel which can withstand the working pressure i.e. 500 to 750 kg/cm².

II. Extension Journal for Axle (Adopter):

The extension journal (Adopter) of suitable design shall be provided to fit with the axle end. The extension journal shall be made out of suitable alloy steel of latest specification duly heat treated and HAD Chrome plated which can withstand the working pressure i.e. 500 to 750 kg/cm². The outer dia shall be suited to the bearing no. 22326 CC/3, having bore dia of 130mm with an approx. length of 145mm & adopter to suit the taped holes of the axle for clamping purpose.

III. Hydro Lock Nut with Annular Piston:

The hydro lock nut (hydraulic nut) shall be made of alloy steel of duly heat treated, with high grade of sealing rings which can withstand to a maximum working pressure of 750kg/cm². The surface of the hydraulic nut must be treated for rust prevention.

IV. High Pressure Tubing with suitable QRC:

The hydraulic hose pipe shall be capable to withstand the required max. pressure of 750kg/cm². This shall be made out of suitable high graded rubberized hose pipe shall be fitted with appropriate QRC at one end & suitable end fitted for pump connection at other end.

V. Cranking Jack:

It shall have centre guide & U clamp for the withdrawal of bearing and with stand the working load.

VI.Mounting Bolts:

Suitable mounting bolts of (M16 x 140 mm) for extension journal shall be provided along with the equipment. These bolts shall be made of suitable alloy steel duly heat treated to with stand a maximum working pressure of 750kg/cm². The surface of the mounting bolts must be treated for rust prevention.

VII.Sealing Rings:

A high quality assorted nitrile rubber “O” rings to suit various location shall be provided along with the equipments as per their consumption patterns.

VIII.Hydraulic Power Pack:

Hydraulic power pack shall be in complete with all the required equipments mounted on a trolley, for proper and safe operation of motorized bearing extracting system. It shall consist of suitable gear pump compatible electric motor of 3HP operated on 3 phase power supply, solenoid valve, control valves, safety valves, pressure relief valves, pressure gages (For 0-150 bar), oil level indicator gauge, drain plug, oil filter breather etc. all the equipments shall have their test certificate. The approximate weight of the power pack shall not exceed than 150kgs.

The power pack along with its all accessories shall be properly fitted / mounted on suitable designed heavy duty type trolley having two fix and two swivel wheels. The trolley shall have the provision to place all equipments supplied along with power pack.

IX. Minimum 2 year on site warranty from the date of commissioning.

Standard Accessories for Automated Bearing Extractor with power pack):

1	Hydraulic Power-Pack Complete with Control Valves, Regulating Valves, Safety Valves ,High Pressure Hoses / Tubing with QRC and Pressure Gauges.	1 set
2	Cranking screw along with mounting block, crank lever and thrust bearing arrangement.	1 no.
3	Hydraulic nut with self-retracting annular piston.	2 nos.
4	Manually operated Oil Injection Pumps with Foot-stand, Pressure Gauges, Two Flexible High Pressure hoses and One Cranking Jack Assembly. This set of equipment is provided to dismount the bearing in case of power failure. Please note that this is an essential part of the Equipment packed separately.	2 nos.
5	Extension journal for axle (adaptor)	3 nos.
6	Mounting bolt for Extension journal for axle (adaptor).	06 set
7	Bearing Holding Drum in two halves.	1 no.
8	'O' rings for various locations to suit all locations.	20 nos. of each size.
9	Service Tools consisting of Spanners, Allen keys And one Nylon Hammer to suit all location of machine.	1 set.

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