2.2 CNC Under fl ge' ne

Electrical lifting jack

รายละเอียด Specification ดังเอกสารแนบ Appendix 1 เปรียบเทียบอุปกรณ์ ในเอกสารสัญญาก่อสร้างก่อนทำ VE Specification 1 และ รายละเอียดอุปกรณ์ที่ทำ VE แล้ว Specification 2 มีดังนี้

Here is a comparison of the technical specifications for the two electric lifting jack proposals, presented in a table format.

New specification

Feature	ตามข้อกำหนดสัญญา	ที่นำเสนอ	Remark
	Specification 1	Specification 2	
Technical Data			
Lifting capacity per each jack	30,000 Kgs	30,000 Kgs	ตามข้อกำหนดสัญญา
Lifting capacity per set (4 jacks)	120,000 Kgs	120,000 Kgs	ตามข้อกำหนดสัญญา
Lifting/Lowering Speed	Approx. 200-250 mm/min	Not less than 220 mm/min	ดีกว่าข้อกำหนดสัญญา
Highest position of cantilever claw (from rail level)	At least 2,300 mm	Not less than 2,000 mm	ดีกว่าข้อกำหนดสัญญา
Lowest position of cantilever claw (from rail level)	Not more than 500 mm	Not less than 350 mm	ดีกว่าข้อกำหนดสัญญา
Output of lifting motor for each jack	Not less than 4 Kw	Not less than 5.5 Kw	ดีกว่าข้อกำหนดสัญญา
Power Supply	380V, 3-phase, 50Hz	380V, 3-phase, 50Hz	ตามข้อกำหนดสัญญา
Control circuit voltage	24 VDC	24 VDC	ตามข้อกำหนดสัญญา
Class of protection (electric devices)	IP 55	IP 55 or better	ดีกว่าข้อกำหนดสัญญา
Max. sound level	< 80 db (A)	< 80 db (A)	ตามข้อกำหนดสัญญา
Weight of each lifting jack (approx)	< 3,000 Kgs	< 3,000 Kgs	ตามข้อกำหนดสัญญา

Feature	ตามข้อกำหนดสัญญา	ที่นำเสนอ	Remark
	Specification 1	Specification 2	
Automatic Synchronization Level	±5 mm	±5 mm	ตามข้อกำหนดสัญญา
Synchronization Tolerance (Shut-off)	±10 mm	±10 mm	ตามข้อกำหนดสัญญา
Load arm (cantilever claw) manual adjustment	Not less than 400 mm	600 mm	ดีกว่าข้อกำหนดสัญญา
Climate Conditions in Thailand			
Maximum ambient temperature	43 °C	45 °C	ดีกว่าข้อกำหนดสัญญา
Average ambient temperature	30 °C	35 °C	ดีกว่าข้อกำหนดสัญญา
Maximum relative humidity	100%	100%	ตามข้อกำหนดสัญญา
Average relative humidity	74%	75%	ดีกว่าข้อกำหนดสัญญา
General Features			
Suitable for	Diesellocomotive maintenance	Rolling stock maintenance	ดีกว่าข้อกำหนดสัญญา
Movable control board features	Standard control devices, indicator lamps, cables	Touch screen display for height, status, lifting claw contact, and load, plus standard features	ดีกว่าข้อกำหนดสัญญา
PLC system	Siemens or ABB	Siemens or ABB	ตามข้อกำหนดสัญญา

สรุปจากการเปรียบเทียบข้อกำหนดนี้จึงขออนุมัติเปลี่ยนแปลงข้อกำหนดในจัดซื้อจัดจ้างตาม APPENDIX1 SPECIFICATION 2

CNC Under floor wheel lathe

รายละเอียด Specification ดังเอกสารแนบ Appendix 2เปรียบเทียบอุปกรณ์ ในเอกสารสัญญาก่อสร้างก่อนทำ VE Specification 1 และ รายละเอียดอุกรณ์ที่ทำ VE แล้ว Specification 2 มีดังนี้

Here is a comparison of the technical specifications for the two CNC Underfloor Wheel Lathes, presented in a table format.

Feature	ตามข้อกำหนดสัญญา	ที่นำเสนอ	Remark
	Specification 1	Specification 2	
Wheel Set Dimension			
Track gauge	1,000 mm	1,000 mm	ตามข้อกำหนดสัญญา
Max. wheel tread diameter	1,110 mm	1,110 mm	ตามข้อกำหนดสัญญา
Min. wheel tread diameter	700 mm	700 mm	ตามข้อกำหนดสัญญา

STATE RAIL WAY OF THAILAND TENDER

SPECIFICATION FOR

ELECTRIC LIFING JACK

AT KAENG KHOI NEW DEPOT

SCOPE

This specification covers the supply and delivery of three sets of Electric Lifting Jack (there are 4 Electric Lifting Jack per 1 set) including installation of the Electric Lifting Jack for State Railway of Thailand (hereafter referred to as SRT).

The Electric Lifting Jack shall be worked with heavy-duty lifting load and modern design for railway application. It shall be supplied complete in every detail with all equipments, accessories. The delivery of the Electric Lifting Jack shall be fully assembled including its complete installation for operation at Kaeng Khoi new depot.

Proposals

Technical description features and specification of the proposed Electric Lifting Jack shall meet all the terms and requirements in this specification and shall be submitted with the proposal for consideration accompanied with diagram, illustrations and general arrangement drawing(s) of the machine. Only the Electric Lifting Jack with good performance and successfully operation record will be considered. Tenderer shall supply along with his proposal the certified documents for quality and efficiency of the proposed Electric Lifting Jack.

SRT reserve the rights to investigate all the document that bidder submitted

GENERAL FEATURES

A lifting jack consists of a jack frame, load arm, lifting carriage, self locking ACME screw and a gear motor with brake. The lifting carriage, which is guided in the frame will be vertically moved by a carrying nut.

A movable control board is connected to 4 lifting jacks via 4 electric cables and controls the operation of 4 lifting jacks in individual mode or group mode (Synchronization)

Each lifting jack is equipped with a control box for single operation, an emergency stop and a hydraulic swiveling driving gear.

The drawings and main dimensions must be submitted.

The lifting jack shall be used for diesel railcars and passenger coaches and locomotive maintenance in SRT Kaeng Khoi workshops

TECHNICAL DATA

The specification of the proposed Electric Lifting Jack shall be based upon the following technical data:

- The lifting jacks shall be sound throughout, heavy duty design.	
- Good and sound workmanship.	
- Lifting capacity per each jack	30,000 Kgs.
- Lifting capacity per set (4 jacks)	120,000 Kgs.
- Lifting Speed/Lowering Speed (not less than)	220 mm./min.
- Highest position of cantilever claw surface from rail level (not less than)	2,000 mm.
- Lowest position of Cantilever claw from rail level (not less than)	350 mm.
- Output of lifting motor for each jack not less than	5.5 Kw.
- Power Supply	380Volt,3phase,50Hz.
- Control circuit voltage	24 VDC.
- Class of protection (electric devices)	IP 55 or better
- Max. sound level	< 80 db (A)
- Weight of each lifting jack (approx)	< 3,000 Kgs.
- Automatic Synchronization Level	±5mm.
- Synchronization Tolerance, if	± 10 mm. (Shut-off)
Movable on concrete floor by 3-4 wheels with hydraulic lifting hand pump	
- Load arm(Cantilever claw)manual adjustable by hand wheel	600 mm.

Climate conditions in Thailand :	
Maximum ambient temperature	45 °C
Average ambient temperature	35 °C
Maximum relative humidity	100%
Average relative humidity	75%

2. GENERAL FEATURES:

A lifting jack consists of a jack frame, load arm,lifting carriage,self locking ACME screw,a gear motor with brake and emergency hand drive. The lifting carriage,which is guided in the frame will be vertically moved by a carrying nut.

A movable control board is connected to 4liftingjacks via 4 electric cables and controls the operation of 4 lifting jacks in individual mode or group mode (2-4) synchronization. Each lifting jack is equipped with a control box for single operation, an emergency stop and a hydraulic swiveling driving gear.

The drawings of the control console showing the front panel and side panel shall also be submitted.

The lifting jack shall suitable for rolling stock maintenance in SRT workshops.

2.1) LIFTING JACK COLUMN:

- Each jack is made of folded steel or hollow sections and assembled by mean of form welding to form a solid construction,rigid against deformation. The design is based upon a heavy-duty application with high safety factors for minimum deflection and low stress values.It consists of at least the following detail.

- Rigid base plate with driving gear for mobile.
- Transport eye hocks for Crane set-up.
- Limit switches for up and down.
- Electric devices Protection class IP 55 or better.

2.2) LIFTING DEVICE :

- Self locking thread screws (ACME),loaded in tension,(Safety factor >4)
- Screw with axial spherical roller bearing (safety factor>4)
- Smooth running gear box (nearly maintenance free) with flange mounted,3-phase squirrel cage motor with motor protection and Emergency Hand Drive and Brake.
- Fully closed reduction gear with the long time lasting automatic lubrication.
- High precision stopping.
- Safety device when driving against an obstacle.
- Carrying nut lifted off monitoring or equivalent device.
- Safety device for wear monitoring of carrying nut.
- Lifting carriage is a welded construction with rollers.
- Each Column, must inflammable a signal warns ,when work unusual.
- Protection IP 55 or better.

2.3) CONTROL BOX :

Control box,attached to each jack column for single operation only. Each control box is connected to the Movable Control Board for group operation via a cable and at least equipped with:-

- Protection IP 55 or better.
- Emergency stop (push-button switch)
- Two(2) push -button switch for up and down.
- One (1) Red lamp for emergency stop.

2.4) MOVABLE CONTROL BOARD:

Movable control board is a master control of the system and the lifting jacks can be controlled either at control board (on each jack) or at movable control board. The movable control board shall be movable by wheel. Each jack is connected to a movable control board via a cable and Plug- Socket Individually.

The movable control board shall be equipped the touch screen and display for the height of each jack, status of each jack and also it shows if the contact of the lifting claw to the lifting point is correct and it also shows how much load is on the lifting claw.

The Control board has at least the following devices and function:

- Protection Class IP 55 or better
- Main switch, Lockable.
- Automatic synchronization level of± 5 mm.
- Simens or ABB PLC in control system.
- Power supply,380 Volt,3-phase,5O Hz.
- Emergency stop.
- Selection switch for single jack operation or group (2-4) operation.
- Lamp Test.
- Control voltage on / off.
- Current and voltage fault protection.
- Fault reset button.
- Alarm horn.
- Signal lamp for the indication of faults.
- Push buttons for up & down.
- Indication Lamp or Indicator for all functions.
- 25M.Cable with plugs for power supply.
- 4 sockets for 4 jacks,1socket for power supply.
- 20M.Cable (control power) with plugs for each jack.

2.5) Fault messages:-

- Motor protection.
- Upper and lower safety limit switch.
- Monitoring carrying nut lifted-off.
- Carrying nut wear limit monitor.
- Rotation fault (stop)
- Synchronization Tolerance,if ± 10 mm.(shut-off)
- Phase fault.
- Current and voltage fault.

2.6) SIEMENS or ABB PLC SYSTEM:

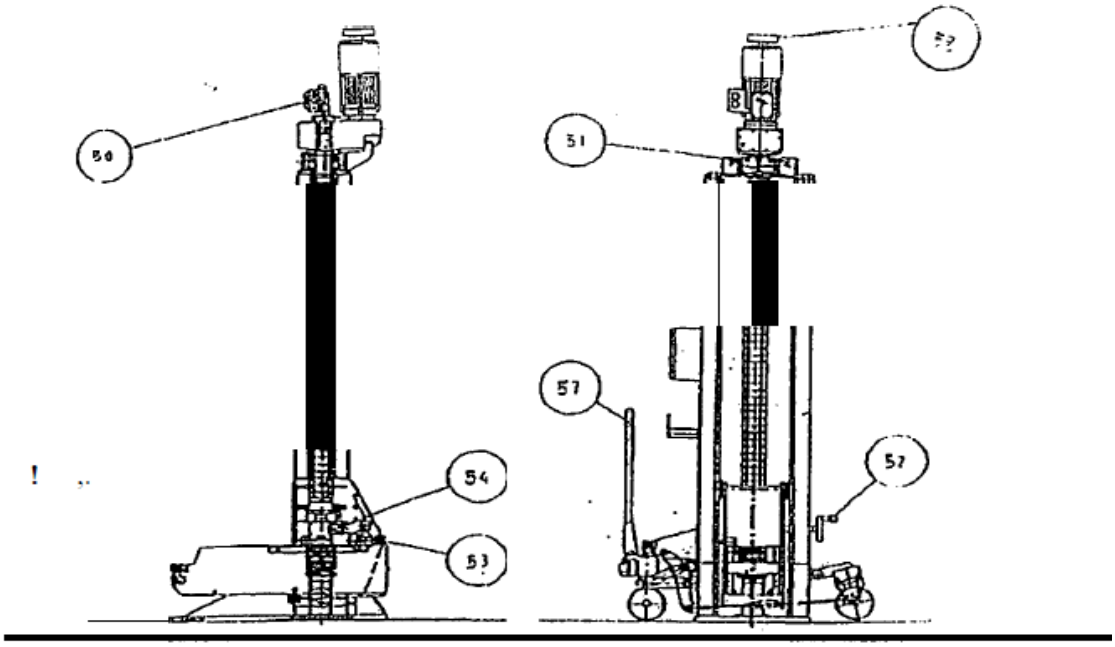
PLC System is integrated into the control board for the control and monitoring of lifting jacks.

PLC System has retentive behaviors to store the program and a back up battery is not necessary.

2.7) PAINTING

The lifting jacks and the control board are painted with a two – layer – components painting as a protection against corrosion.One layer is a basic – painting ;the second layer is painted as follows:

3. GENERAL CONFIGURATION (FOR GUIDANCE ONLY) :



Nr	Name	Kind I Function Mechanical
50	Safety stop above	limit-switch
50	Position stop above	Mechanical limit-switch
50	Position stop above	Mechanical limit-switch
50	Safety stop below	Mechanical limit-switch
51	Rotation monitor	Inductive transmitter Hand wheel
52	Adjustment of load-arm	Mechanical limit-switch
53	Carrying nut lifted off	Mechanical limit-switch
54	Safety nut	Pump for lifting the lifting Jack
57	Pump-lever for Hydraulic Driving Gear	Pulling the lever,Opening of the lowering- valve. Lever in the lower position,Closing of the lowering-valve.
58	Motor with motor protection	Emergency hand drive & brake

4. STANDARD APPLIED:

The equipment shall conform to the following standards.

- ISO 9001 Related to Marketing, sales, product development design, manufacturing and after sales service of lifts (Mobile column lift / Mobile column jack)
- ISO 14001 Related to Related to Marketing, sales, product development design, manufacturing and after sales service of lifts (Mobile column lift / Mobile column jack)
- EN 1493 Vehicle lifting platforms.
- EN 60204 T1/ T32 electrical equipment for machines.
- DIN 15018 Steel parts.

- UVV, VBG14 Lifting platform.
- Machinery Directive 2006/42/EC, Directive 2006/95/CE, Directive 2004/108/CE
- VDE 0100 T1/T726 Jacking and hoisting Equipment.
- If there is any contradiction with the standard applied or specification the final Decision shall be made by the SRT

5. SUPPLY RECORD:

The supply records of proposed lifting jack in field of rolling stock maintenance shall be stated within ten (10) years (counted from the date on which the bidding submission date). Selling, hiring, rental, and leasing can be counted as the supply records. Bidder is requested to submit the evidence(s) of those supply records i.e. purchase order, hiring contract, leasing contract, etc.

6. INFORMATION FOR BIDDING EVALUATION:

The complete detail information,technicaldata or specification, pamphlets or catalogue,illustrations,drawing and supplied record of the propose lifting jacks shall be supplied with the

7. WARRANTY:

The contractor is to be entirely responsible for the efficient performance of the electric lifting jack notwithstanding and approval of the State Railway of Thailand or of the test carry out either by the State Railway of Thailand authority or by contractor including the replacement free of charge.

The contractor shall guarantee for workmanship and quality of materials. Should any defect be found within Two (2) years after final acceptance by SRT workshop due to faulty materials or bad workmanship, the contractor shall replace free of charge and pay all expenses incurred to S.R.T. the cost of repairs or of the amount for such defective material including all other charges. The mentioned expenses and charges shall be paid to SRT within one (1) month from the date of notification. The defective materials (if required), shall be delivered to the contractor at his own expenses.

8. PACKING:

The Electric liftingJacks shall be carefully packed and protected for sea voyage. The Contractor shall be responsible for the parts to be delivered to S.R.T. depot in good and proper conditions and ready to be installed. If damages are found, the contractor shall replace the detective parts free of all costs to S.R.T.with the least possible and reasonable delay.

9. TRAINING:

The contractor shall perform the commissioning and training at S.R.T. workshop.

10. INSTRUCTION BOOKS:

The Contractor have to supply Instruction Manuals,Maintenance book and Parts catalogs as well as other usefultechnical manuals that should benefit for the user,shall be in English and Thai Three(3) copies.

11. TEST CERTIFICATE WITH REPORT:

The Manufacturer have to completeness check all function test of the system and dimension check will be done .

The following test shall be done.

Function	Testing Detail
Lifting and lowering without load	- Lifting in complete working range
Check of the lifting and lowering Speed with nominal load	- Lifting in complete working range
Dynamic lifting with 15% overload For 10 minutes	- Function fulfilled without any visible permanent deformation.
Static loading with 50% overload For 10 minutes	- Function fulfilled without any visible permanent deformation.
Safety devices	- Function Test.
Lifting operation (1-2-4 jacks)	- Can be performed.
Test of Automatic synchronization Range of ± 5 mm.	- Can be performed.
Test of Synchronization Tolerance If ± 10 mm. (shut-off)	- Can be performed.
Traveling gear (hydraulic swiveling) Maneuverability	- Max. pulling force = 450 N.

12. COMMISSIONING

The Contractor shall complete commissioning with in One (1) month after delivery in SRT workshop

12. TEST CERTIFICATE WITH REPORT :

The Manufacturer have to completeness check all function test of the system will be done.

All Dimension check will be done.

For lifting jack the following test shall be done.

Function	Testing Detail
Lifting and lowering without load	- Lifting in complete working range
Check of the lifting and lowering Speed with nominal load	- Lifting in complete working range

Dynamic lifting with 25% overload For 10 minutes	- Function fulfilled without any visible permanent deformation.
Static loading with 50% overload For 10 minutes	- Function fulfilled without any visible permanent deformation.
Safety devices	- Function Test.
Lifting operation (1-2-4 jacks)	- Can be performed.
Test of Automatic synchronization Range of± 5 mm.	- Can be performed.
Test of Synchronization Tolerance If ± 10 mm. (shut-off)	- Can be performed.
Traveling gear (hydraulic swiveling) Maneuverability	- Max. pulling force = 450 N.

12. COMMISSIONING

The Contractor shall complete commissioning with in One (1) month after delivery in Kaeng Khoi new SRT depot.

The contractor or manufacturer shall guarantee for workmanship and quality or materials. Should any defect be found within two years after final acceptance by the SRT in Bangkok due to faulty materials, or bad workmanship, the contractor or manufacturer shall bear to replace free of charges and pay all expenses incurred or to remit to the SRT the cost of repair or to refund the amount paid for such defective material including all other charges if such expenses shall have been paid by the SRT, within one month from date of notification. The defective materials, if required, shall be delivered to the contractor or manufacturer at his own expenses.

12. PACKING AND SHIPPING

The wheel set press shall be carefully packed, preserved and protected for sea voyage and shipped. On arrival in Bangkok and transfer to Kaeng Khoi new depot at Saraburi province, if damages are found to have been caused by improper packing or protection, the contractor shall replace the defective parts free of all costs to the SRT with the least possible delay.

All packing cases are to be clearly marked in black with the initial letter "SRT", the order number and date, the Contractor's (or manufacturer's) name, the gross and net weights and port of destination. Each package shall be given a serial number corresponding to the number in shipping specification. Cost of packing is to be included in the contracted price.