



**PROJECT DIRECTORATE
PROJECT IMPLEMENTATION UNIT -
SIAPEP**

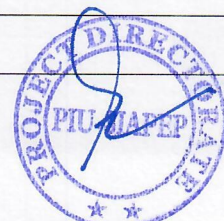
Sindh Seed Corporation Building, Ground Floor, Main Hussainabad Road,
Hussainabad, Hyderabad



SPECIFICATIONS FOR LASER LAND LEVELLING EQUIPMENT

The fully automatic Laser Land Leveling Equipment along with Scraper with following specifications are required to be supplied for distribution among interested eligible Farmers / Service Providers to enhance farm productivity all over the province of Sindh. The Brochure for the quoted model (s) should be attached. The column offered Model & specifications should be filled properly and matched with Broachers.

Required Specifications		Offered Model & Specifications to be filled by the Firm
A. LASER GUIDED LAND LEVELING EQUIPMENT		
1. TRANSMITTER		
Working range	Not less than 400 m (Radius)	
Rotation	500-600 rpm speed capable of uniform 360 degree.	
Laser type:	Red diode laser 600 nm and above	
Self-leveling range	Automatic self-leveling appr. +/- 5 degree (+/-9%)	
Operating temperature	- 20 Degree C to + 50 Degree C	
Leveling accuracy seconds	Compensation range \pm 1.5mm-2mm/30m, @100 ft, 10 arc seconds.	
Low voltage indicator	LED Battery indicator be available	
Power Source	(1.2 V x 4 Batteries) 5000-10000mAh NiMh Battery 30/45 hours alkaline	
Charger	A charger input 220V & output 5.6V 700mA will be provided for recharging Transmitter batteries. And external DC adopter cable for operating with external 12V battery (local/imported).	
2. CONTROL BOX		
Display	Red = Hi/Low, On-grade = green	
Operating voltage	12-24 VDC, reverse polarity protected	
Electrical connection	Standard military type	
Valve compatibility	Proportional time (On/Off) only	
Remote switch option	Raise/Lower, Auto/Manual switches	
3. RECEIVER		



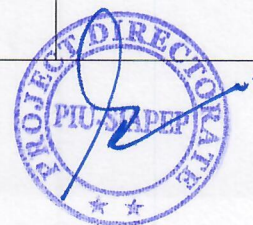
Beam reception	360 Degree	
Vertical reception	Not less than 180 mm	
Accuracy	Set at control box	
Power	12-24 VDC	
Display	Red = Hi/Low, On-grade = green	
Out of beam indication	High and Low	
Operating temperature	-20 degree +60 degree centigrade	
4. LEVEL EYE DETECTOR & GRADE ROD	Working Radius: 1m-200m(3ft-650ft) or above (Laser Dependent) Reception Angle: +/- 45 Degree minimum Detectable Spectrum: 600nm....900nm Beeper Volumes: Loud=100 or above dBA	
	Laser Detection Height: Minimum 100-102 mm (4")	
	Numeric Readout Height: 60-80 mm (3")	
	Accuracy (Dead band): Fine 1.0mm Medium 5.0mm Calibration 0.1mm	
	Reception Angle: +/- 45 Degree minimum	
	Detectable Spectrum: 600nm....900nm	
	Beeper Volumes: Loud=100 or above dBA Low= Not less than 60 dBA	
	Power Supply: 2*1.5 Volt "AA" Batteries Battery Life: 70+ hours	
	Automatic Shut Off: 20- 30 min	
	Environmental: Waterproof, Dustproof Grade Rod 5 meters consists of 3 pieces. Hand held receiver used with the help of grade rod for making field surveying before and after the work done	
5. POWER MAST	Electric Mast is used to control receiver elevation from Tractor with the help of control box mounted on Tractor. The detailed Specifications are indicated at page No.4/5	
6. CABLE KIT	Power Cable (Tractor Battery to Control Box) <ul style="list-style-type: none"> Receiver Cable (Receiver to Control Box) Valve Cable (Valve Assembly to Control Box). Internal standard quality cable kits. 	
7. TRIPOD	Metallic heavy duty, folding with elevating base capable of mounting the transmitter with fine height adjustment from 600-850mm, minimum height 3 meters with transmitter, weight Not Less than 10 kg.	



Overall length	4100 to 4500 mm.
Overall height	1600-1800 mm approximately depending upon the height of electric mast.
Overall width	2450 to 2500 mm.
Approx. weight.	900 to 1000 kg.

Material Specifications

<i>Bucket Body</i>	Made from 2440 X 700 X 7-8 mm M.S sheet. Bucket height 700-720 mm, reinforced at top with Z-type sheet made from 2440X380 X 7-8 mm MS sheet.
<i>Side Walls (Internal)</i>	02 Nos. 700X215X10 mm M.S. sheet welded to bucket body.
<i>Side Walls (External)</i>	02 Nos. 700X565X10 mm M.S. sheet bolted to internal side walls, Reinforced at front with 750X60 mm by L-Key bend.
<i>Adjustable Side Walls</i>	02 Nos. 500X125X10 mm MS sheet bolted with external side walls(Internal) adjustable according to Scraper angle.
<i>Braces</i>	02 Nos. 570X50X7-8 mm MS flat.
<i>Cutting Edge</i>	Reversible double side edge 2430X150x16-18mm.
<i>Draw Bar</i>	
Pipe	2030 mm long, 138 mm outer dia MS pipe of 5-6mm wall thickness. Pipe ends closed with 140X140X15-20mm MS plates.
Tong	02 Nos. 230X100X15-16 mm MS plates reinforced with 02 Nos. 360X60X12-13 mm M.S. plate



Hook	Forged steel 350-400 mm long hook outer dia 100-110 mm, inner hole 40-50 mm, outer pipe dia 80 mm wall thickness 6 mm welded to inside above tong plates (2 Nos. M.S plates 230X100X15-16 mm)
<i>Diagonal Links</i>	
Eyeball Screws	02 Nos. left hand threads, 38 mm dia. 02, right hand threads, 38 mm dia.
Pipe	02 Nos. 4-5 mm wall thickness, 1370-1500 mm long, outer dia 58-60 mm including eye ball and screw.
Eye balls	04 Nos.
Pins	04 Nos. 125-140 mm, L-23mm dia, M.S round with safety pins.
<i>Links Brackets on pipe</i>	Upper plate welded to draw bar pipe 02 Nos. 152X100X15-16 mm M.S lower Plate 01 No. 345X100X15-16 mm M.S with pin holes.
<i>Links Brackets</i>	04 Nos. welded to the bucket plate & side wall, 100X85X15-16 mm M.S (on bucket) plates with pin holes.
<i>Tow bar Coupling</i>	02 Nos. M.S plates welded to pipe 420X150X10mm
<i>Attachment</i>	02 Nos. M.S. plates welded to bucket body 540X200X10 mm with adjustable tow bar height, 02 Nos. bolts 25-30 mm dia 02 Nos. reinforcement plates' 390X100X10 mm from lower side. 01 No. 200X200X6 mm MS plate welded at bucket base for reinforcement of above plate. 02 Nos. reinforcement plates' 670X100X10 mm at top.
<i>Electric Mast</i>	For Laser receiver with following specifications



MS pipe 1000 mm long, 100 mm dia, 3-4 mm wall thickness with extendable SS pipe (operated by DC electric motor) compatible to mount receiver at the top.

- i) Length Overall length approximately. 1450mm, extended length about 2250mm provided with control box to be mounted at tractor to raise or lower the receiver height.
- ii) Weight 25kg
- ii) Foundation Inverted U-type 300X200X10 mm MS plate/channel adjustable Base for fixing Electric Mast.

Hydraulic Jack Frame 02 Nos. 800X85X18 mm MS flat L-Shaped or angle that makes right position of jack welded to bucket on Z-reinforcement sheet at center.
01 No. bolt/pin 200 mm long, 28mm dia with spacer pipe.
02 Nos. 200X85X18mm MS flat welded in line with above two pieces below Z-reinforcement sheet along with bucket curve.

Hydraulic Jack 01 No. 410 mm long, 90 mm outer dia, piston dia 40 mm double acting with two jack pins 140 mm and 190mm long 28-32 mm dia MS round.


H-Frame Boxes 02 Nos. 200X200X6-7 mm MS sheet, 800 mm long ends closed with 04 Nos. 200X200X6-7 mm MS sheet
01 No. box 200X200X6-7 mm MS sheet 800 mm long

Coupling Assembly 02 Nos. hooks eye ball type, 40 mm hole, outside dia 120 mm. 40 mm X 140 mm long MS.
02 Nos. MS plates 200x40X40 mm welded at both ends of H-frame to fix the above hooks.
02 Nos. pins, 40 mm dia, 145 mm long.
02 Nos. of plates 200X120X25 mm MS plates be Welded below Z-reinforcement present on bucket at two places to hold above 2 Nos. hooks eye ball type, having 40 mm hole for fixing pins.



<i>Hydraulic Jack</i>	02 Nos. 200X80X15-16mm MS plates welded to H-frame reinforced at base with Bracket 170X170X6-7mm MS plate.	
<i>Axel Attachment</i>	02 Nos. MS sheet 430X270X10mm plus a L-Key bend measuring 65mm welded to H-frame.	
<i>Axle</i>	01 No. 2050X63X63 mm MS square/round bar with ends to mount 04 Nos. bearings bolted to H-frame using. 02 Nos. 200X50X16 mm flats welded with axel.	
<i>Color/ Paint</i>	Double coating after red oxide and surface finish	

Note: - The Firm/Supplier will quote the offered Price of Complete Set of Equipment/Unit inclusive of all Taxes by clearly highlighting in the proposal.


(Engr. Syed Nadeem Shah)
 PROJECT DIRECTOR

PROJECT DIRECTOR
 Sindh Irrigated Agriculture Productivity
 Enhancement Project (SIAPEP)
 Hyderabad