
Technical Specifications

Aerial Work Platform with 13 Meters Working Height with Pick up van

Scope

This specification outlines the design, construction, and supply of a hydraulically operated bucket van (hydraulic access platform) with a minimum working height of 13 meters and a bucket capacity of 200 kilograms. The platform must meet specific requirements for compactness, compatibility with chassis, and safety standards.

Platform Specifications

- The hydraulic platform must provide continuous, unlimited, and endless slew rotation in both directions.
- The maximum working height should be 13 meters, calculated as the vertical distance from ground level to the bottom of the cage plus 1.5 meters.
- The maximum outreach of the cage should be 6.8 meters Min with an articulated and telescopic boom type, calculated as the horizontal distance from the slew center to the edge of the bucket plus 0.5 meters.
- The vehicle should be automatically stabilized on 4 outriggers using an electronic single-push-button auto-levelling mechanism. Interlocks between outriggers and booms must ensure that the platform cannot be operated without deployed outriggers and levelled vehicle.

General Requirements

- The specifications should be supported by suitable general arrangement and range diagrams, drawings, and literature.
- The successful bidder must provide 7 days of trial and training for Aerial Work Platform (AHEP) operation after successful commissioning.

Vehicle Chassis

- Payload capacity: 1,500 kilograms (minimum).
- The platform should be compatible with small-sized chassis, suitable for accessing narrow lanes and confined spaces, such as Tata, Eicher, Ashok Leyland, Mahindra, Swaraj Mazda, Isuzu, Toyota, or equivalent.
- Engine: 75 HP to 100 HP.

- Torque: Minimum 200 Nm.
- Clutch: Single Plate dry friction type, approximately 260 mm in diameter.
- Gear: Synchromesh.
- Wheelbase: 3,150 mm to 3,260 mm.
- Type of Steering: Power steering.
- GVW-3300-3500 Kg and payload-1600-1700 Kg
- Overall length-5850mm max
- Overall width-1800mm max
- Overall height-2900mm max
- The rear overhang of the equipment should not exceed 60% of the chassis wheelbase.
- The cage should rest on the chassis deck for easy entry and exit.
- The cage should have automatic levelling in all positions, with an additional hydraulic control for manual cage-level adjustment by the operator.

Safety and Compliance

- The Aerial Work Platform must be designed and manufactured to meet the highest quality and safety standards, such as BS Standard and EN-280-2013. Compliance with other relevant safety standards is also acceptable.
 - Emergency hand pump is provided to enable stopping of equipment in case of pump/engine failure
 - Emergency cut off base control
 - Emergency cut off at basket control
 - Boom operated only after stabilizer are extended
 - Stabilizer lock when machine is open
 - Safety belt anchorage point on platform
 - Pilot check valve on boom cylinders
 - Device to signal outriggers not in resetting position
 - Flow restrictor valve on hydraulic circuit
 - Spirit level indicator
 - PLC based Electronic circuit for safety interlocking
 - Sport light in basket
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Structure and Hydraulic System

- The booms should be constructed from high-quality MS structural steel.
- Boom hydraulic cylinders (3 double-acting cylinders) with precision-honed tubes, induction-hardened, deep-grounded chrome-plated EN-8 piston rods, and corrosion resistance.
- Four H-type stabilizers (hydraulic in-out horizontal and hydraulic up-down vertical) that can be operated independently for levelling on uneven ground.
- An electronic single-push-button outrigger auto-levelling system for automatic vehicle levelling.
- Numbers of stabilizers Lags-4 Nos
- Lock valves-Fitted to all Stabilizers for safety
- Stabilizer Control-Independent Control

Boom

- Type: Articulated cum telescopic type
- Material: High Tensile Steel min σ_{yt} 700N/mm²
- Section: Box Section
- Pivot points: Self-lubricating
- Boom profiles: Plasma/Laser cut

Hydraulic Ram

- Type: Double acting
- Tube: Horned Tube
- Road-induction hardened chrome plated
- Seals: Reputed make

Slewing

- Type: Worm Reduction slew bearing
- Slewing Range: 360 degrees continuous
- Type: Mechanical and hydraulic levelling

Operator Cage

- Type: FRP cage
- Size: 1000*1060*770 mm
- Basket has non-slip flooring
- Drain holes for water drainage
- The cage is insulated to 600 V (tested to 3000 V)

- Tool box inside the basket
- Working light
- Emergency switch
- Safety hooks inside the basket.

Controls

- Stabilizer controls: Independent control at chassis deck
- Base control: Switch control panel at base
- Cage control: Switch control panel at cage
- PLC control: Safety system has been integrated with control by use of program in a programmable logical controller of European brand for high reliability and long service life.

Paint

- Primer: Two coats of epoxy primer
- Finish: Two coats of PU/synthetic enamel

Additional Features

- Full-length side-opening toolboxes on both sides of the chassis.
- Continuous and unlimited platform slewing with precise control.
- Hydraulic levelling system for the cage, with independent cage-level adjustment controls.
- Independent slew of ± 45 degrees for cage alignment.
- Reinforced fiberglass operator cage with non-slip floor and insulation to withstand 600VAC (tested up to 3,000V). The cage should be designed to carry a safe working load of 200 kilograms.
- Dual controls at the base and in the cage.
- Power for the hydraulic system is derived from the vehicle's engine through a Power Take-Off.
- Use of reputable brands for hydraulic components, such as pumps and motors.
- Proper arrangement of hydraulic hoses to avoid interference with platform movement.
- Safety devices and features to prevent unstable operation, interlocks, pressure relief valves, and other safety measures.
- Compliance with safety standards, including BS standard EN280-2013.
- The supplier should provide suitable references of past supplies to government organizations involving safety systems.

- The tree trimming setup involves an AC single-phase chain saw, which is housed in a protective cage. This chainsaw is equipped with a 24-inch guide bar, a cutting capacity of 21 inches, and a power rating of 2000W. The power for the chainsaw is sourced from either a DG set or an AC alternator.

Specifications for Specific Functions

- Automatic stops to prevent platform operation in unstable areas.
- Interlocks to ensure proper deployment of outriggers before boom operation.
- Lock valves on load-bearing cylinders to prevent mishaps in case of hose failure.
- Automatic overload protection of hydraulic circuit through pressure relief valve.
- Digital cage load indicator with alarm for cage overload protection.
- Electronic vehicle auto-levelling to ensure a levelled vehicle before operating the booms.
- Slew restriction to prevent slewing on the side where outriggers are not fully extended.
- Intercom between the cage and base control.
- Emergency stop control.

Dimensions

- Length: Maximum 5,850 mm.Max
- Width: 1,800 mm. Max
- Height: 2,900 mm.Max

Performance

- Minimum working height: 13.0 meters.
- Minimum working outreach: 6.8 meters.
- Continuous 360-degree slewing.
- Safe working load: 200 kilograms.
- System pressure: 170 bar.
- Cage size: Approximately 1.00 x 1.06 x 0.770 meters.

Warranty and Quality Assurance

- Compliance with safety standards.
- Inspection of the facility of the L1 bidder before issuing the formal work order.
- Supplier's responsibility for operational issues within one year of supply.