

SPECIFICATION OF TRAILER MOUNTED SUCTION UNIT **SLURPIT® – 1500 Lts.**

GENERAL :

The Vehicle Mounted Suction Unit shall be robust in construction and shall be used to create a vacuum for syphoning out mud and slurry, grit and other material from sanitary, storm and sewerage systems. The unit shall be capable of syphoning out material from a depth of 6 mtr. The unit shall be such that 1 driver assisted by two helpers shall be adequate for all operations of the unit. The unit shall consist of:

- a) Prime mover – Diesel engine
- b) Sludge Tank
- c) Vacuum Pump.
- d) Derrick Arm (Hydraulic Syphon Boom).
- e) Suction Hose
- f) Hydraulic Plant.
- g) Piping
- h) Control Panel
- i) Accessories
- j) Trailer Chassis

a) PRIME MOVER :

The vacuum pump shall be driven by minimum 12 hp Electric Start air cooled diesel engine of equivalent make. The engine shall be mounted on suitable vibration dampers.

b) SLUDGE TANK :

The tank shall be cylindrical in shape and shall be fabricated from mild steel sheets as per IS:2062 and shall be electrically welded with suitable reinforcement to prevent from collapse and elongation in vacuum and pressure conditions.

Vacuum and pressure limitation valves shall be suitable provided the system to take care of the excessive vacuum and pressure developed by the system.

The effective volume of the tank shall not be less than 1.5 cubic meters for sludge Tank shall be fabricated out of mild steel sheets, which in no case shall be less than 5 mm thick.

The tank shall be provided with emptying rear cover at the rear, which shall be opened and closed on hinges, manually. The locking of the rear cover shall be effected by robust hand wheels. The rear cover shall be free from any mounting except,;

1. Drain off valve Ø 3" for discharge of all the sucked material into the tank. This shall be located at the bottom of the door, and
2. Drain off valve Ø 3" for only water separated in the sludge section, which shall be located above the upper half of the door.

Tank shall also be provided with tipping arrangement. The tipping angle shall be minimum 20° to the horizontal and shall be effected using hydraulic system (hydraulic plant).

A suitable 100 mm wide full-length acrylic sight glass integrated with the tank (not a separate tube) shall be provided to observe the sewage level in the sludge section of the tank. The tank shall be tested for leakage at a pressure of 1 bar.

The tank shall be mounted on auxiliary frame and on two bearings at the rear and a solid seat at the front.

The tank shall be provided with suitable abrasive resistant, tamper-proof, anti-corrosive treatment internally, which shall be suitable for normal sewage.

c) VACUUM PUMP :

A rotary positive displacement type air cooled vacuum pump shall be of imported Battioni, Italy make having displacement capacity of minimum 260 cubic metre/hr at about 1400-1500 r.p.m. and capable of producing 630 mm of Hg. Vacuum and 1bar discharge pressure shall be provided. Basically, the vacuum pump shall be designed to create vacuum, as well as work as air compressor for blow back during discharge. The vacuum pump shall be capable to run 10 minutes without interruption (Max) and produce 90% vacuum in the tank.

A hand operated manifold Valve for switching from suction to pressure shall be provided at the discharge of the vacuum pump and the valve shall be suitably located for ease of operation. Corrosion resistant ball float valve shall be provided to prevent over-sucking. A safety pot with lateral cleaning flap and outlet valve with additional suction filter shall be provided.

The Vacuum Pump shall be equipped with overpressure relief valve for protection, cooling and life extension of vacuum pump. The pressure relief valve shall be presetted to 0.5 bar.

d) DERRICK ARM (HYDRAULIC SYPHON BOOM) :-

Hydraulically operated derrick arm (boom) shall be capable of rotating in 300° with a lift of 1 mtr. There shall be a provision for 'lifting' and 'lowering' of the boom. All these operations except swivelling of boom shall be done by means of hydraulic plant with suitable controls.

A manually operated shut-off valve shall be provided on suction hose line to the boom.

e) SUCTION HOSE :-

3 Nos. of non-collapsible, flexible suction hoses of 75 mm. Internal dia. and 3 mts in length shall be provided with the unit. Quick-fix "Muller" design coupling (male-female) shall be provide for these hoses. One end suction hose of 75 mm internal dia and 2 mts. long with 1 mtr. long steel pipe at one end and quick fix coupling (female part) at the other end shall be provided with each unit.

f) HYDRAULIC PLANT :

An oil hydraulic plant consisting of suitable capacity of hydraulic hand pump, oil reservoir, pipelines with connected hoses filter control valve shall be incorporated in the unit as the operation of derrick arm and tipping of sludge tank. are to be done using hydraulic system.

g) PIPING :-

All piping subjected to high pressure shall be fabricated from extra strong pipes and all fittings shall be forged steel. All pipings shall be laid out such that they can drain by gravity or through suitable plugged openings to drain water, when purged with air.

h) CONTROL PANEL :-

A control panel shall be provided and located conveniently. All gauges, switches, levers, etc. necessary for the operation of the unit shall be grouped in this control panel so that the operator can have complete control of the operation, from one location.

The following operation points shall be included in the control panel :

- (i) Tipping lever
- (ii) Boom lifting / lowering lever
- (iii) Boom valve open / close lever
- (iv) Acceleration lever
- (v) Control panel lamp
- (vi) Gauges

i) ACCESSORIES :-

The following accessories shall be supplied alongwith each unit.

- (i) Oil puddle sucker for removal of oil puddles from road, open gutters, etc.- 1No.
- (ii) Mud flaps - 2 nos.
- (iii) Aluminium chequered plate lockable tool box – 1 No.
- (iv) Aluminium chequered plate hose box – 1 No.
- (v) Mud guard – 2 Nos.
- (vi) Rotating beacon with cabling – 1No
- (vii) Flash Lamp with cabling – 1 No.

j) TRAILOR CHASSIS :

The single axle trailer chassis shall be provided into which equipment shall be mounted. To ensure road stability the trailer shall have a wide wheel base and low center of gravity.

The chassis shall be fabricated by welding M.S. channels. The tow bar shall be provided to the trailer.

The trailer shall be provided with the internally expanding type hand operated brakes, the detachable wheels having semi elliptical springs, shock absorbers and taillights and reflectors.

All the weight of the unit shall be equally distributed on the chassis to ensure free movement. The trailer shall be of R.T.O. approved design.

PAINTING

The entire unit shall be painted with two coats of superior quality anti-corrosive primer with two coats of approved quality paint. The bidder shall get the paints and shades approved from the Engineer.

TRAINING:-

The successful bidder shall arrange at his own cost to train client's operators for operating and maintaining the unit. The training period shall be 1 week.

TESTING AND INSPECTION:-

- (i) Tests on equipment at manufacturer's premises as required will be carried out in accordance with the Conditions of Contract. All inspection, examination and testing shall be carried out in presence of the Engineer's representative in accordance with the specification.
- (ii) If the Engineer's Representative witnesses a test he shall be given a copy of the test results and certificates, upon request.