

**SPECIFICATION OF TRUCK MOUNTED DEEP SUCTION UNIT WITH BATTIONI VACCUM BLOWER
VACLOAD 6 KL (SLUDGE).**

GENERAL:-

The Vehicle Mounted Vacuum Loader shall be robust in construction and shall be used to create a vacuum for syphoning out oil, water, grit etc. from tanks and leaking pipelines besides various others. The unit shall be capable of syphoning out material from a depth of 15 mtrs. / length of approx. 120 m. 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 shall be used for driving the Vacuum Blower.
- b) Sludge Tank with Water Compartment
- c) Trilobe Vacuum Blower.
- d) Suction Hose
- e) Hydraulic Plant.
- f) Piping
- g) Control Panel.
- h) Other Accessories

The above equipment shall be mounted on Client supplied 11 Ton GVW BS III chassis like TATA / ASHOK Leyland / Eicher or equivalent. The standard tools accessories and spares supplied with the chassis shall be handed over to the client at the time of delivery of the unit.

Recommended Models:

1. TATA LPT 1109 / 4200 mm WB, BS III Cab Chassis with PTO.
2. Eicher PRO 11.10 XP / 4300 mm WB, BS III Cab Chassis with PTO.
3. Ashok Leyland 1212 / 4200 mm WB, BS III Cab Chassis with PTO.

The Bidder shall make arrangements for mounting equipment on the chassis according to the rules laid down by the Regional transport Office, and loads recommended by the chassis manufacturer on the front and rear axles. The Client shall make arrangements for registration of the complete unit with the Regional Transport Office. The Government fees required for registration of the units shall be paid by the client.

(a) PRIME MOVER FOR SUCTION SYSTEM:

The Drive for the Suction Trilobe Exhauster Blower, Hydraulic Pump and High Pressure washing Pump shall be tapped from Split shaft power take off unit. The power Take Off Unit shall be fitted with multiple independent output drive shafts for all the drives. The complete unit shall be mounted on the auxiliary frame and between the vehicle gear box and the differential.

The PTO shall be as imported and of PZB – Italy make.

(b) 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 vaulted bottom and suitable reinforcement to prevent from collapse and elongation in vacuum and pressure conditions.

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

The effective volume of the tank shall not be less than 6 cubic meters for sludge section. Tank shall be fabricated out of mild steel sheets as per IS 2062, which in no case shall be less than 6 mm thick.



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

1. Suction Drain off valve Ø 4" along with Ø 12" sludge trap mounted on bottom of the rear door for discharge of all the sucked material into the tank and

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 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. It shall be securely anchored for stability & fastened to chassis for eliminating any movement of tank during movement of vehicle.

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

(c) TRILOBE VACUUM BLOWER:-

Aspiration of dense waste/sludge from septic tanks, sewer lines, storm water drains, gullies etc. is carried out on the principle of creating high vacuum in the compartment using an exhauster/compressor, **which can be operated in both vacuum and pressure mode. Blowing of pressurized air/water into the chamber dislodges the sedimented solids, which combine with the liquefied effluent to form sludge.** This is then collected into the tank by operating the system in the vacuum mode.

The Roots type trilobe Blower with Silencer shall be of imported Battioni Pagani, Italy make of international repute having following parameters:

	Maximum Parameters
Flow Capacity:	1560 m ³ /hr (FAD)
Vacuum:	90%
RPM:	1050

It should be capable to empty chambers from **lengths of approximately 120 meters**. The blower shall be driven by 400 kg/mtr split shaft PTO.

The blower shall be of simple design principle and limited number of moving parts. They are to be dependable in operation and to have modest maintenance requirement. Even when operated continuously, this blower to often attend overhaul intervals of several years. The system shall be provided with integrated Air Suction filter to protect the system from ingress of dust particles in to the blower. It shall be incorporated with non return valve & Four Way Valve Optimized Air Injection cooling to limit the temperature & enhance continuous operation, Vacuum Relief Valve & Over Pressure Safety Valve.

Safety Devices for Suction System:

- Air Breather** - This device is designed to arrest ingress of Solid / liquids before the air enters the blower.
- Ancillaries for Suction System** - The complete blower system to be supplied with Air filter, Air Injection silencer, Manifold, Filter Exhaust silencer connected to Tri lobe Blower.

(d) SUCTION HOSE:-

12 Nos. of non-collapsible, flexible suction hoses of 100 mm. internal dia. and 10 mtrs in length shall be provided with the unit. Quick-fix "Muller" design coupling (male-female) / threaded coupling shall be provide



for these hoses. One of these shall be an end suction hose of 100 mm internal dia and 2 mts. long with Snorkel (Deep Suck Tool) for pneumatic conveying of the material.

(e) HYDRAULIC PLANT:-

A suitable Hydraulic Pump of Dowty / equivalent make shall be capable of developing a pressure of about 120 -150 bar approx, powered by P.T.O. The entire hydraulic plant will consist of oil reservoir, pipeline with connected hoses, filter, control valve for operation of hydraulic function, etc. It shall be suitably laid along the entire length of the tank and cabin thereby avoiding additional space for the plant.

(f) 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.

(g) CONTROL PANEL :-

A control panel shall be provided and located conveniently. All gauges, switches, pneumatic acceleration lever, control panel lamp, (including appropriate wiring) 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 as follows:

- (i) Tipping lever
- (ii) Door open / close
- (iii) Control panel lamp
- (iv) Pneumatic Acceleration Switch
- (v) Compound Gauge for Vacuum Tank.

(h) OTHER ACCESSORIES:-

The following accessories shall be supplied alongwith each unit.

- i. Oil puddle sucker for removal of oil puddles from road, open gutters, etc.-1 No.
- ii. Reverse audio visual horn – 1 No.
- iii. Mud flaps - 4 Nos.
- iv. Al. chequered plate special maintenance platform with railing between cabin and tank – 1No
- v. Al. chequered plate catwalk with ladder – 1No.
- vi. Al. chequered plate lockable tool box – 1No.
- vii. Storage for minimum 3 hoses of 10 m each – 1No.
- viii. Mud guard – 2 Nos.
- ix. Sludge Tray – 1No.

PAINTING:-

Both Internal and external of the tank shall be cleaned prior to spray painting. The interior of the Tank shall be coated with two coat of Zinc Rich Epoxy Primer and two coats of Epoxy Paint. The Tank Exterior shall be spray painted with two coats of anti-Corrosive Primer and two coats of Polyurethane paint of a reputed Omatic. The colour shade shall be of the customer choice.

TESTING AND INSPECTION:-

- (i) Tests on equipment at manufacturer's premises as required will be carried out in accordance with the manufacturer's standard. 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.

