# LAME

# Vacuumtankers

Laakson Metalli has  been manufacturing slurrytankers more than 40 years - and vacuumtankers soon for 30 years.

Even if the models of the tankers has been changed during the years, it is still possible to get easily spareparts also for the older tankers.

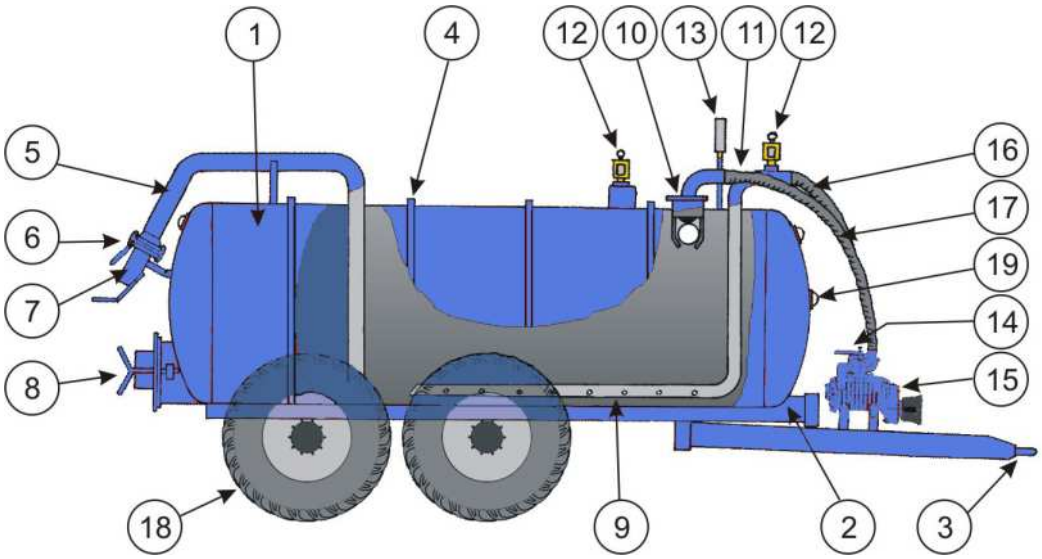
Lame vacuumtankers fullfill the requirements of “Machine Directive” and “Pressure Equipment Directive” of European Union. Every single tanker is officially inscpected by inspection company “Inspecta”.
The certificate of the inspection is delivered together with the tanker.

The maximum discharge pressure of the tanker is 1 bar. The tanker is designed for full vacuum (-1 bar).

The vessel has been welded on both sides and the walls of the pipes are throught welded.

We use only certifield materials in our tankers.

# Parts of the tanker




1. Vessel
2. strong body with two U-beams
3. rotating towing eye
4. buckling stiffener
5. suction/discharge pipe
6. quick-coupling
7. spreading nozzle
8. manhole
9. pipe for pneumatic mixing
10. overflow valve with two balls
11. check valve
12. safety valve
13. gauge (manometer) -1...3 bar
14. valve of the vacuumpump
15. vacuumpump
16. pressurehose
17. vacuumhose
18. axle
19. inspection glass R 2”

# Standard equipment

* strong chassis with two beams
* the buckling stiffeners around the vessel - the tanker stands full vacuum
* inside coating is epoxy pitch and outside there are two layers of paint
* there are two hoses going from the vacuumpump to the tanker : separate hoses for vacuum and pressure
* reliable overflow valve with two balls prevents luquid going into the vacuumpump
* when unloading, the pressurized air goes automactily to the bottom pipe inside the tanker (for mixing)

* diameter of the manhole is Ø 500 mm
* the vessel has been welded on both sides
* there are 2 or 3 inspection glasses at the front end and on at the rear end
* stand for P.T.O. shaft when not used
* plastic suction hose of Ø 102 mm diameter, lenght 6 meters
* holders for suction hoses on both sides of the tanker
* extra traficlights, when the tanker is wider than 260 cm

* vacuumpump Battioni & Pagani MEC 5000

* safety valves has certificate according Pressure Equipment Directive
* the manometer is sitting on the top of the pipe - the driver can see it better and the slurry does not get easily into the monometer

* the spreading nozzle gives even spreading result to whole width. The spreading width is 8 ... 10 m.

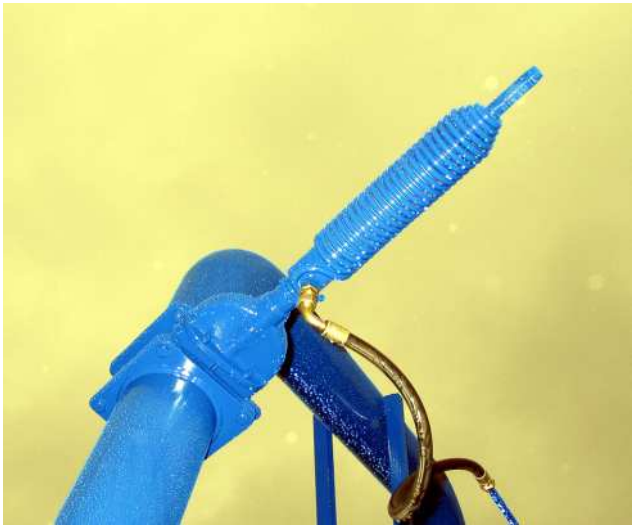
## Extra equipment

* vacuumpump Battioni & Pagani MEC 8000

* vacuumpump Battioni & Pagani SE 12000

Bottom suction with fork coupling
* easy to connecy the hose
* suction time is shorter, while the suction height is smaller at the beginning of suction
* hoses Ø 102 mm, Ø 127 mm and Ø 152 mm can be used
* the hose be emtyed by a small air valve on the coupling
* bottom suction needs also a valve at the rear pipe

Hydraulic agitator at the bottom of the tanker
* used with difficult liquids like:
  - sand & water
  - slurry of pigs, when transport distance is long
  - wood chips in the slurry
* the photo has been taken without safety quards



Hydraulic gate valve at the rear pipe
* opened by hydraulics and closes by the spring
* the spreading is more even, when the spreading can be stopped and started punchually at the ends of the fields.
* gate valve is needed, if there is also another suction connection in the tanker

Silencer takes off the noice of the vacuumpump
* the device collects also the oil from the exhausted air
* the smell of exhausted air goes up - not to nose of user
* when unloading on the field, the vacuumpump takes its inlet air from the top of the tanker - the air is cleaner than just behind the rear wheel of the tractor


You can get the tanker of your own colour. In photo 10000 l tanker in Deutz-Fahr colour. Tyres are 600/55 R 26.5 ELS -made by Nokia in Finland.

## The measures of the vessels

| volyme | thickness in walls | thickness at the ends | lenght of the vessel | diameter | number of partitions |
|---|---|---|---|---|---|
| 4700 l | 5 mm | 5 mm | 350 cm | 134 cm | 0 |
| 5800 l | 5 mm | 5 mm | 425 cm | 134 cm | 0 |
| 6800 l | 5 mm | 5 mm | 500 cm | 134 cm | 1 |
| 7900 l | 5 mm | 6 mm | 515 cm | 145 cm | 1 |
| 10000 l | 5 mm | 6 mm | 530 cm | 160 cm | 1 |
| 12000 l | 5 mm | 6 mm | 630 cm | 160 cm | 2 |

## The measures of the tyres

| size of the tyre SECONDHAND tyres : | width | diameter |
|---|---|---|
| 12 R 22.5 | 28 cm | 105 cm |
| 385/65x22.5 | 33 cm | 105 cm |
| 14.00x20 | 36 cm | 120 cm |
| NEW tyres : | | |
| 22/70x20 | 56 cm | 130 cm |
| 550/60R22.5 | 55 cm | 125 cm |
| 600/55R26.5 | 60 cm | 135 cm |
| 700/50R26.5 | 70 cm | 135 cm |

## The pressure against the surfice of the field in kp/cm² caused by LAME vacuumtanker

| axle | volyme litres | | | | | |
|---|---|---|---|---|---|---|
| | 4700 | 5800 | 6800 | 7900 | 10000 | 12000 |
| single axle 12 R 22.5 | 1,7 | | | | | |
| single axle 385/65x22.5 | 1,6 | 1,9 | | | | |
| single axle 14.00x20 | 1,2 | 1,5 | | | | |
| single axle 22 / 70x20 | 0,8 | 0,9 | 1,0 | | | |
| boggie 12 R 22.5 | 0,9 | 1,1 | 1,3 | | | |
| boggie 385/65x22.5 | 0,9 | 1,0 | 1,2 | 1,3 | 1,7 | 2,0 |
| boggie 14.00x20 | 0,7 | 0,8 | 0,9 | 1,1 | 1,3 | 1,6 |
| boggie 22 / 70x20 | | | 0,6 | 0,7 | 0,8 | 1,0 |
| boggie 550/60R22.5 | | | 0,6 | 0,7 | 0,8 | 1,0 |
| boggie 600/55R26.5 | | | | 0,6 | 0,7 | 0,9 |
| boggie 700/50R26.5 | | | | | 0,6 | 0,8 |

## Measurement of LAME vacuumtankers

| volyme | axle | weight kg | width cm | height cm | lenght cm |
|---|---|---|---|---|---|
| 4700 l | single axle 12 R 22.5 | 1640 | 210 | 250 | 600 |
| | single axle 385/65x22.5 | 1680 | 210 | 250 | 600 |
| | single axle 14.00x20 | 1780 | 210 | 255 | 600 |
| | single axle 22 / 70x20 | 1780 | 250 | 260 | 600 |
| | boggie 12 R 22.5 | 2060 | 210 | 250 | 600 |
| | boggie 385/65x22.5 | 2200 | 210 | 250 | 600 |
| 5800 l | single axle 385/65x22.5 | 1880 | 210 | 250 | 675 |
| | single axle 14.00x20 | 1980 | 210 | 255 | 675 |
| | single axle 22 / 70x20 | 1980 | 250 | 260 | 675 |
| | boggie 12 R 22.5 | 2260 | 210 | 250 | 675 |
| | boggie 385/65x22.5 | 2400 | 210 | 250 | 675 |
| | boggie 14.00x20 | 2600 | 210 | 255 | 675 |
| 6800 l | single axle 22 / 70x20 | 2330 | 250 | 260 | 750 |
| | boggie 12 R 22.5 | 2670 | 210 | 250 | 750 |
| | boggie 385/65x22.5 | 2750 | 210 | 250 | 750 |
| | boggie 14.00x20 | 2950 | 210 | 255 | 750 |
| | boggie 22 / 70x20 | 3010 | 250 | 260 | 750 |
| | boggie 550/60R22.5 | 2890 | 250 | 260 | 750 |
| 7900 l | boggie 385/65x22.5 | 3110 | 210 | 260 | 765 |
| | boggie 14.00x20 | 3310 | 210 | 265 | 765 |
| | boggie 22 / 70x20 | 3310 | 250 | 270 | 765 |
| | boggie 550/60R22.5 | 3190 | 250 | 270 | 765 |
| | boggie 600/55R26.5 | 3250 | 260 | 275 | 765 |
| 10000 l | boggie 385/65x22.5 | 3580 | 240 | 270 | 780 |
| | boggie 14.00x20 | 3780 | 240 | 275 | 780 |
| | boggie 22 / 70x20 | 3780 | 280 | 280 | 780 |
| | boggie 550/60R22.5 | 3660 | 280 | 280 | 780 |
| | boggie 600/55R26.5 | 3820 | 290 | 285 | 780 |
| | boggie 700/50R26.5 | 3900 | 310 | 285 | 780 |
| 12000 l | boggie 385/65x22.5 | 4080 | 240 | 270 | 880 |
| | boggie 14.00x20 | 4280 | 240 | 275 | 880 |
| | boggie 22 / 70x20 | 4280 | 280 | 280 | 880 |
| | boggie 550/60R22.5 | 4160 | 280 | 280 | 880 |
| | boggie 600/55R26.5 | 4320 | 290 | 285 | 880 |
| | boggie 700/50R26.5 | 4400 | 310 | 285 | 880 |

# Extra equipment for contracting

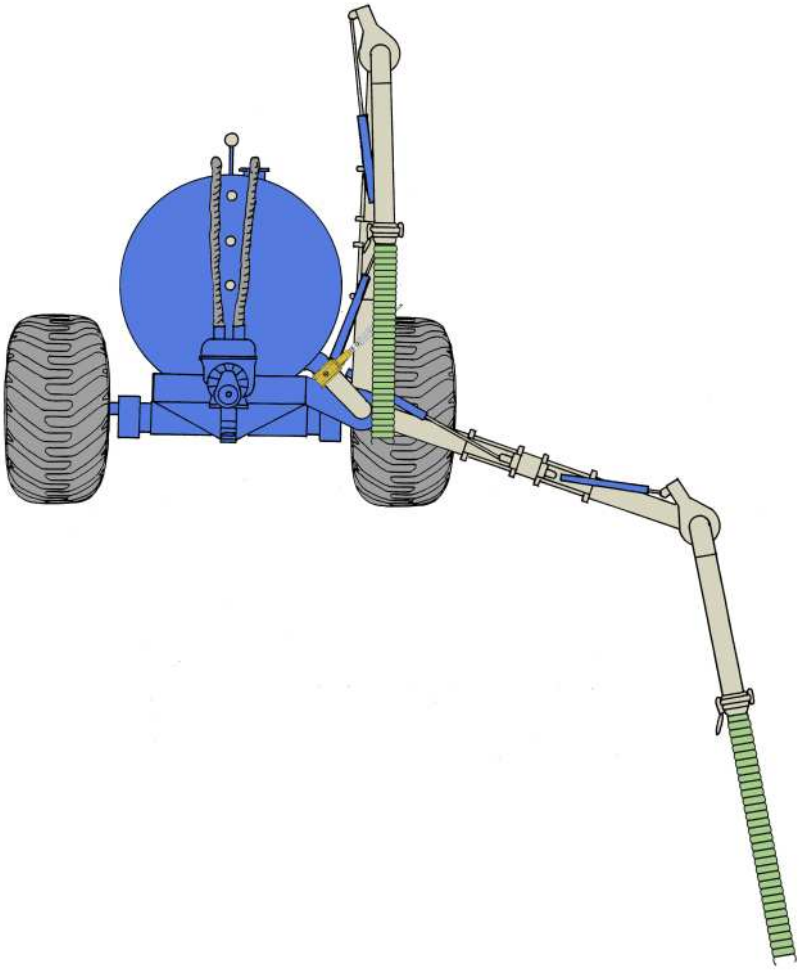
Stand for suction hoses. Width 30 cm.

Tool box 40 x 40 x 150 cm.

Hose reel for suction hose.
The reel is made for Ø 76 mm hose, maximum lenght 30 m.

The reel has own hydraulic valve for operation.

# Suctio grane



Suction grane makes the suction time shorter, because the diameter of the suction line is large - 150 mm.
The desing of the grane makes the suction height small at the beninning - which helps the suction time, too.
Suction grane is operated from the tractor cabin.
The grane has two hydraulic cylinders to sink and lift it.
In addition there are needed also following hydraulic fuctions for the operation:

- hydraulic gate valve at the rear pipe
- hydraulic gate at the suction grane ( in photo gate valve is manual)
- hydrauli device to turn the vacuum-pump from pressure to suction and vice versa

So there are needed five hydraulic valves in the tractor ( two of them for single acting cylinders).
I lack of valves in the tractor, two function in the grane can be hydraulicly connected - so absolute minimun is four valves.
Electrohydraulic control unit can be also used.

The grane has been designed for 3 m deep slurry tanks.

# Suction vessels for the trucks

Suction vessel are made for hook lift trucks and also
for older models with wire lifting system.
The vessel in photo is 12000 liters, diameter is Ø 1600mm.
The truckevessels are equiped with vacuumpumps rotated
by a hydraulic motor.

Suction/discharge connection
at the manhole.

10000 litre vessel
with feet.

8000l/min vacuumpump
with hydraulic motor.

12000 l/min vacuumpump with
hydraulic motor.