

# KINGVAC 11000 - Volvo FM Chassis. Technical Specification



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# KINGVAC

Mining, Industrial & Municipal Vacuum Loaders

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## Cab Chassis

### Volvo FM 8x4 Day cab

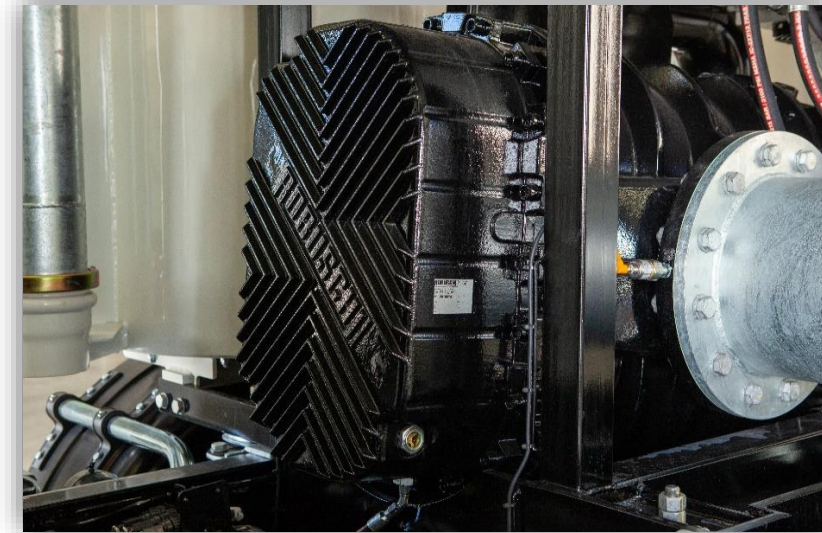
- 11 Litre 410hp Engine
- Euro 5 compliant
- I-Shift 12 speed automatic gearbox
- 45L or 60L Ad-Blue
- 400L fuel tank
- Customer specific options include:
  - Reverse camera
  - Side cameras
  - Digital video recorder (DVR)
  - GPS and tracking options
  - UHF/Mining radios
  - Engine stop switches
  - Fire suppression system



Image 1 - Volvo FM 8x4 Day cab

## Vacuum Pump

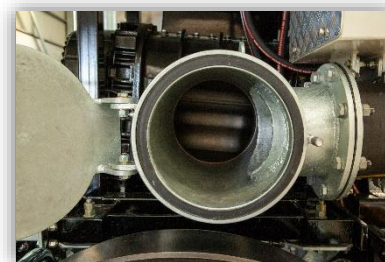
- Robuschi RB-DV\_145/H
  - Nominal capacity 6,500m<sup>3</sup> per hour
  - 92% - 27" Hg continuous vacuum under full restriction
  - Horizontal mounting
  - Shaft driven
  - 450 – 1500 rpm operating speed
- Mounted on a separate subframe with vibration mounts.
- Remote oil drain valves for easy servicing.
- Clearance fit coupling for drive shaft increases service life.
- Internal air cooling allows continuous operation under a dead head
- Overheating protection allows extra airflow if the pump gets too hot.



*Image 2 - Separate cooling vents allow continuous operation under full restriction*



*Image 3 – Pressure monitoring allows the operator to monitor the vacuum percentage*



*Image 4 - Inspection door allows easy access to inspect the inside of the pump*

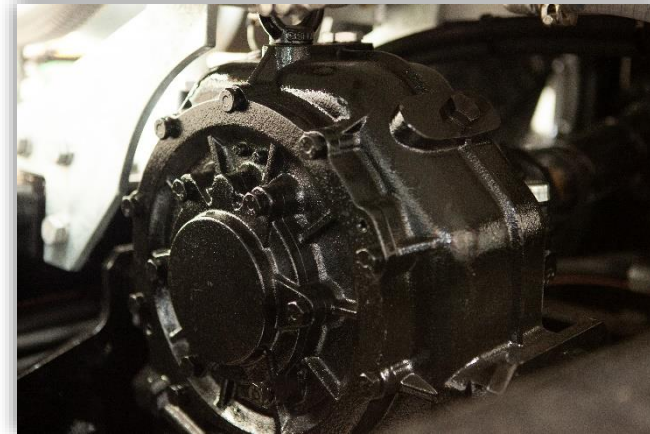


*Image 5 - Proprietary manifold to allow maximum airflow whilst minimising intake noise and vibration*

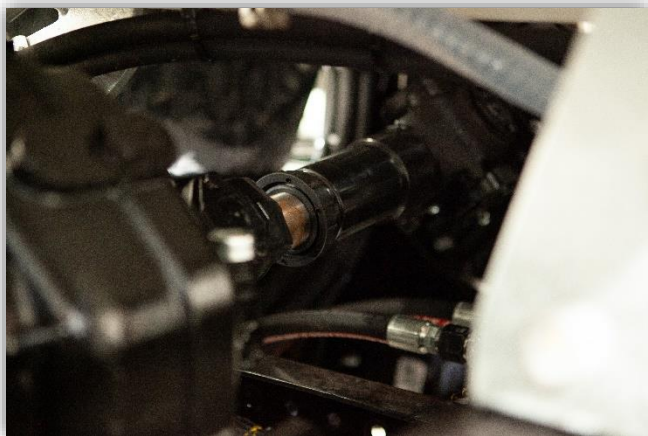


## Driveline

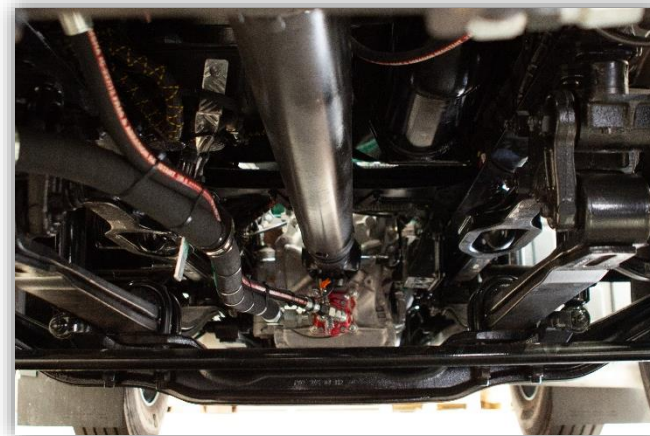
- OMSI PFT-PCV/3000 Split shaft PTO
  - Splits the driveline so that the engine can drive the vacuum pump
  - Replaces the factory centre bearings
- Aluminum guards to protect from rotating shafts
- Fine threaded bolts and clinch nuts used on mating driveshaft flanges
- Chassis mounted sight glass allows easy monitoring of oil level



*Image 6 - Mounted to match the angle of the original driveline*



*Image 7 - 1710 Spicer universal joint*



*Image 8 - Engineered and balanced drive shafts using original couplings*

## Silencer/muffler

- Designed specifically for the KINGVAC 11000
- Reduces noise to 85 DBA within a 7-meter radius of the machine
- Incorporates silencing for the exhaust and the cooling ports
- Uses both sound deadening material and acoustic cancellation design techniques



*Image 9 - Designed specifically for the KINGVAC 11000*



## Twin Cyclones

- Cyclonic dust separation
- Low restriction allows for higher airflow
- Bisalloy material



Image 10 - Twin cyclone design in series configuration

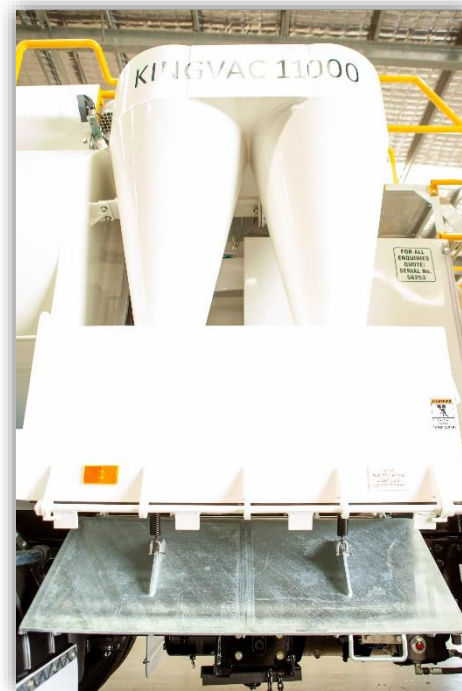


Image 11 - Large dust storage capacity



Image 12 - Dropbox for removal of dust



## Baghouse

- 24 spun bonded polyester filters 95.5% efficiency
- Replaceable reverse pulsation nozzles
- Adjustable reverse pulsation timing
- Optional highway mode allows filter cleaning while driving
- Low air warning system
- Regulated air supply
- Air isolation valve

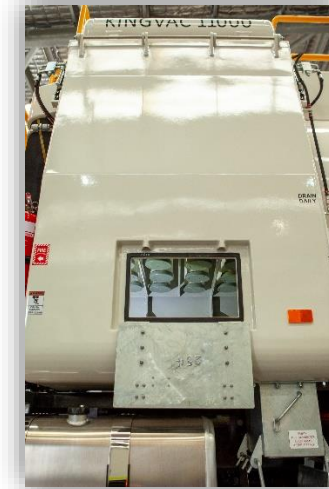


Image 13 - 24 Filter capacity



Image 14 - Inspection door

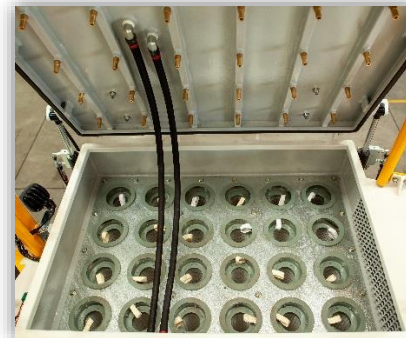


Image 15 - Hydraulic opening lid allows easy inspection and maintenance of filters



Image 16 - Reverse pulsation system allows constant filter cleaning



## Debris Tank

- 9,960L total capacity
- The options installed and the type of chassis will determine the weight carrying capacity.
- Engineered to withstand full vacuum - 101kPa
- AS1210-2010 pressure vessel, hazard level E
- 8mm rolled steel construction from a single sheet (except stainless steel variant)
- 8mm mild steel for tank end, debris door, bracing and hoist mounts
- 3mm steel for tool boxes
- No internal baffles to allow exit of sticky or dry materials
- Loading via rear entry or top entry



Image 17 - Tipping to 47 degrees

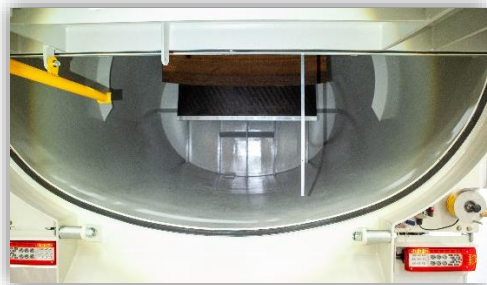


Image 18- Rubber curtains act as baffles and wear plates and reduce velocity of material for increased separation from the airflow



Image 19- Half opening debris door with single function unlock/open and close/lock



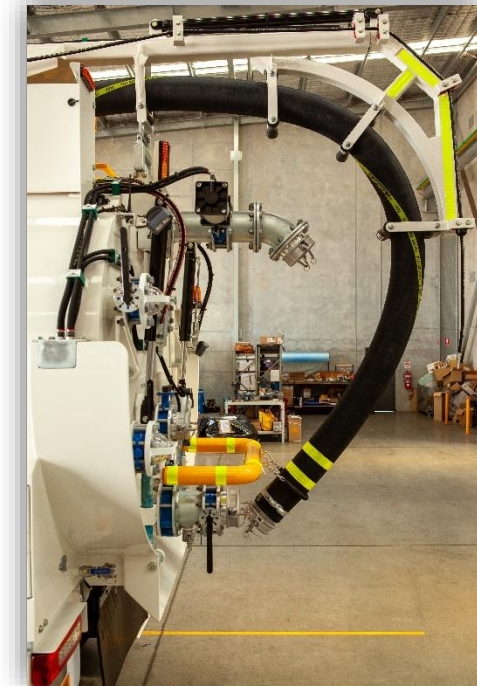
Image 20 - Tool boxes on LHS, Tool tray on RHS

## Boom

- Slew function allows 270-degree rotation
- Extend/retract function
- Raise/lower function
- Rock box
- Wear plate
- High pressure water hose and retractable reel where high pressure water is fitted
- Hydraulic swivel
- Separate hydraulic spool to main hydraulic system
- Remote control
- Wired control



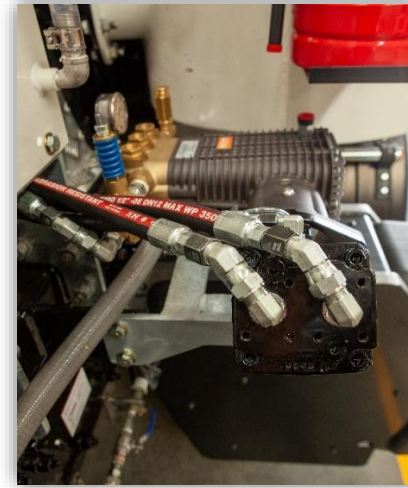
*Image 21- Boom allows for easy handling of 6" hose and fittings*



*Image 22 - Extend/retract function*

## Non Destructive Digging

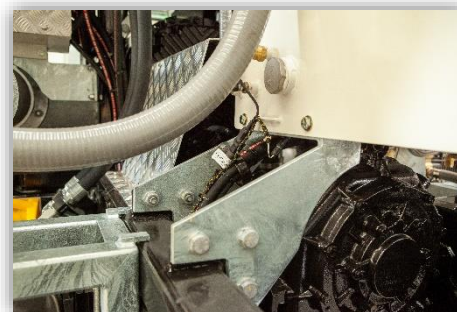
- Class A pump (max 5600 Bar liters/min)
- Retractable hose reel – on boom where fitted
- Driven through the truck hydraulics
- Inlet water filtration
- Standpipe style filling – non pressurised
- Water level indicator



*Image 23 - Class A Pump – other pumps available upon request*



*Image 24 - Chassis mounted 700L water tank*



*Image 25 - Low water level cut-out switch*



*Image 26 - Unloader and safety valves*



## ROPS/FOPS



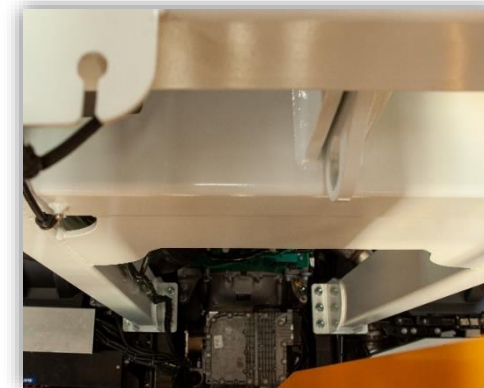
*Image 27 - ROPS or FOPS canopy fitted as an option*



*Image 28 - Low profile for aerodynamics and low headroom*



*Image 29 - Electric lifting of the canopy allows for tilting the cab*



*Image 30 - Locking mechanism to hold canopy in place whilst raised or lowered*

## Valves

- One 6" Decant
- Two 4" Decants
- One sample valve
- Wafer valve/Ball valve/Knife gate options
- Camlock/Travis fittings options



*Image 31 - A variety of valves and fittings are offered with the KINGVAC 11000*



*Image 32 - Sight glasses for fill level. Manual or Automatic isolation valves*



*Image 33 - One 6" Rear inlet*

## Safety

### Asset protection

- Interlocks to parts of the machine that would interfere with each other if operated together.
- Engine and pump monitoring/shutdown if errors occur such as overheating.
- Early warning system that allows operator to safely shut down the machine if a shutdown of the system is imminent.
- Overfill protection shuts down the vacuum when fill or weight levels are reached.
- Airbags are disabled during tipping of the debris tank.
- An electronic rust inhibitor is fitted to minimize deep rust where coatings are compromised.



Image 34 - Control system guards against operational errors that would cause damage to the machine

### Personal injury

- All rotating parts covered
- Pinch points are well signed
- Debris tank has a manual safety prop (automatic optional)
- Debris door has a manual safety prop
- All hydraulic moving parts are protected by an over-centre valve to stop unwanted movement in case of a pipe leak or burst
- Hydraulic movements are slowed down so that sudden movement cannot occur



## Safety

### Pressure/vacuum

- Vacuum relief valve equalises the tank pressure when one of the vacuum stops are pressed
- Operator needs to initialise the vacuum before any suction occurs at the hose end

### Operator information

- The control system will keep the operator informed of the machine status at all times. Most operator errors are solved by checking the information screen.

### Access

- Ladder designed with minimal pinch points



*Image 35 - Walkway and Handrails on top of the debris tank*



*Image 36 - Platform on top of the blower*



*Image 37 - Foldable ladder to platform and stairs to debris tank*



*Image 38 - All handrails painted safety yellow*

## Electrical

- Electrical wire is tin plated copper which protects the copper wire in corrosive environments
- The main harness trunks do not have splices or joiners. All wires are joined using bussing connectors that are accessible outside of the harness
- Control cabinets are sealed
- Integration into the truck electronics is performed together with the manufacturer for a complete integrated solution



*Image 39 - All electrical wiring is wrapped securely in a braid which protects the cables whilst not allowing moisture to collect*



*Image 40 - Plugs and Sockets are all environmentally sealed to stop moisture ingress*

## Hydraulics

- PTO gearbox driven
- Hydraulic pump (gear)
- JIC fittings
- Ryco hose
- Main pressure relief valve
- Return oil cooler
- Return oil filter
- Diverter and flow divider for pressure water and boom
- Over-centre valves on all cylinders

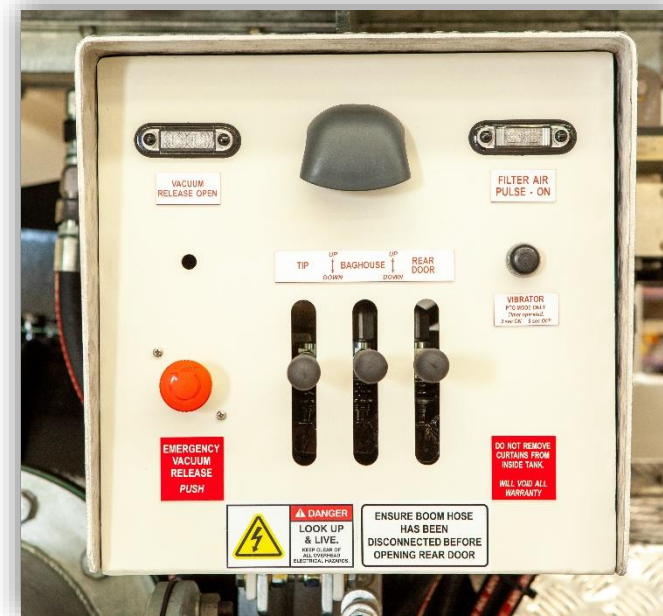


Image 41 - Main spool for Debris tank tipping, debris door opening, baghouse lid opening

## Pneumatics

- Safety valve to protect truck air supply and braking ability
- Regulator valve to limit supply to solenoid ratings
- Isolation valves to safely isolate parts of the pneumatic system for servicing
- Valves are mounted in a sealed control box to limit environmental exposure