

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 Add-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 10,500m³
 - 92% or 27inHg 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.

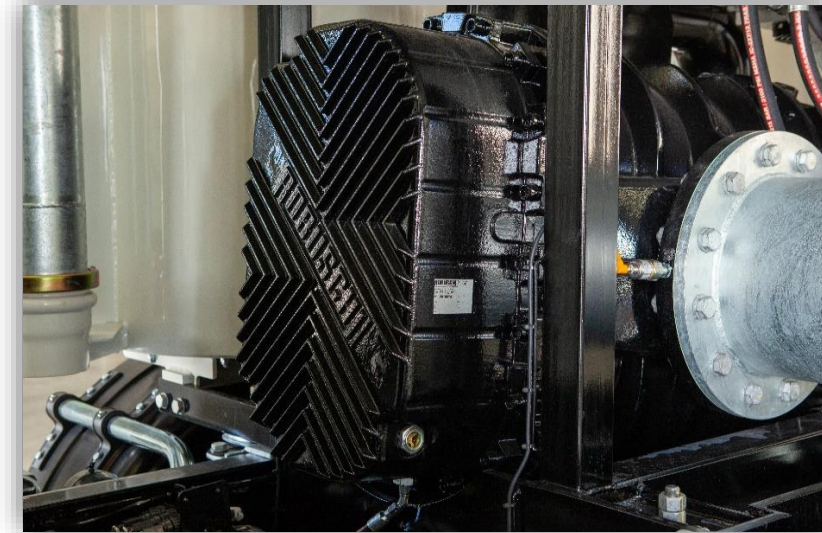


Image 2 - Separate cooling vents allow continuous operation under full restriction



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

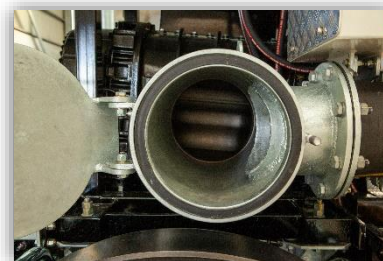


Image 4 - Inspection door allows easy access to inspect the inside of the pump



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

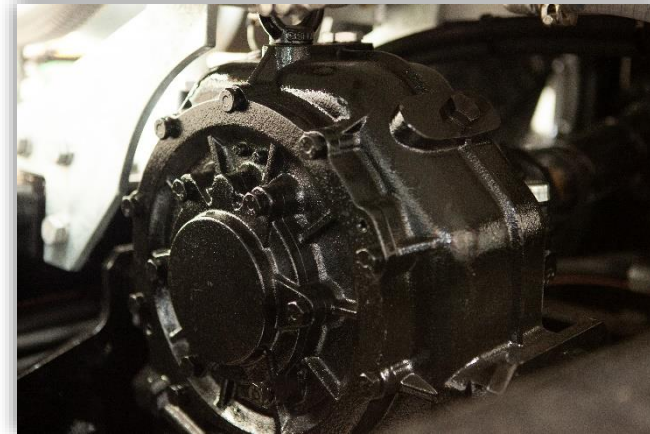


Image 6 - Mounted to match the angle of the original driveline

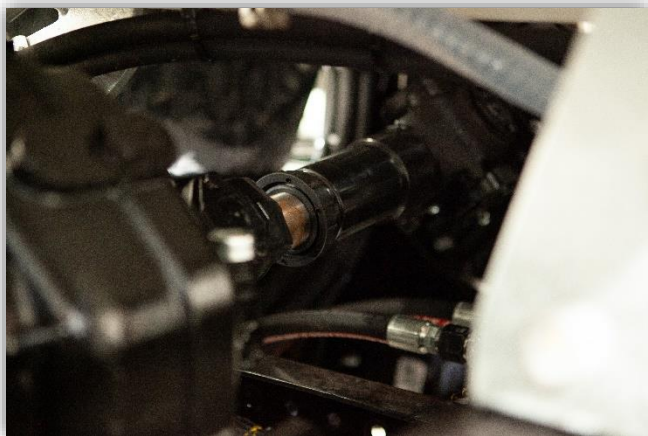


Image 7 - 1710 Spicer universal joint

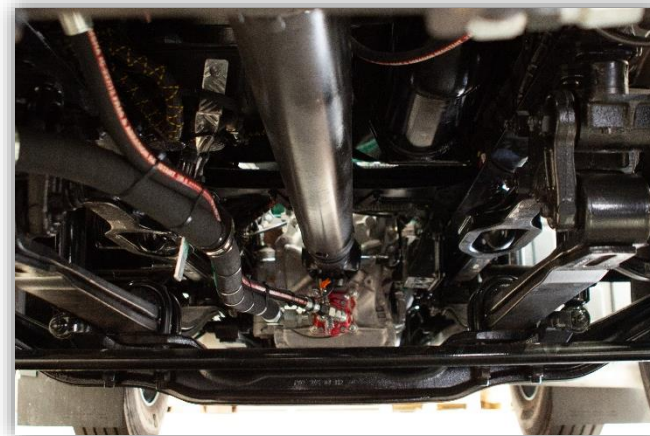


Image 8 - Engineered and balanced drive shafts using original couplings

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

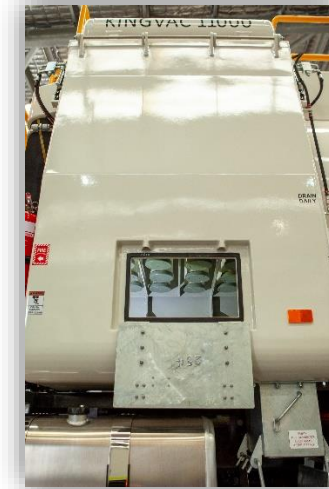


Image 13 - 24 Filter capacity



Image 14 - Inspection door

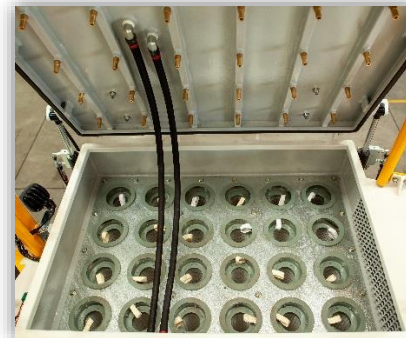


Image 15 - Hydraulic opening lid allows easy inspection and maintenance of filters



Image 16 - Reverse pulsation system allows constant filter cleaning

Debris Tank

- 10,000L total capacity
- Recommended fill capacity 8,000L
- 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

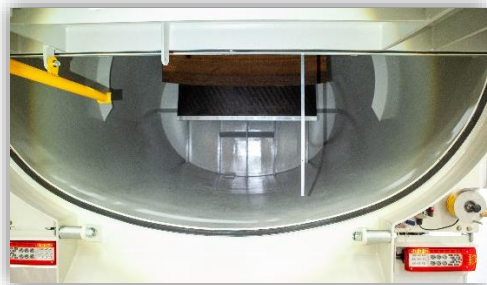


Image 18- Rubber curtains act as baffles and wear plates and reduce velocity of material for increased separation from the airflow



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

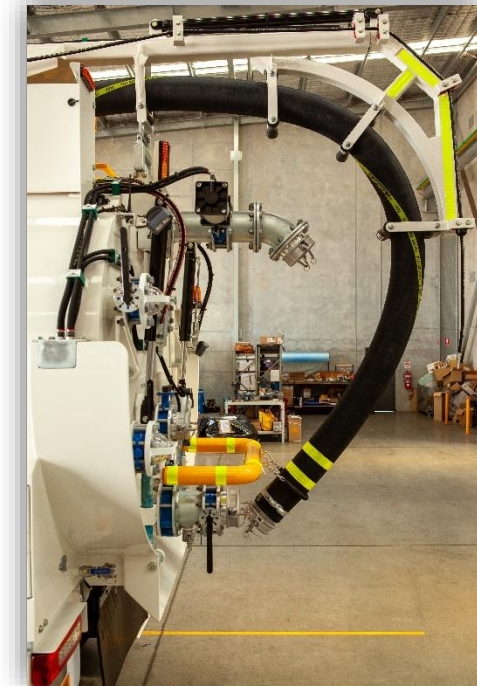


Image 22 - Extend/retract function

Non Destructive Digging

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

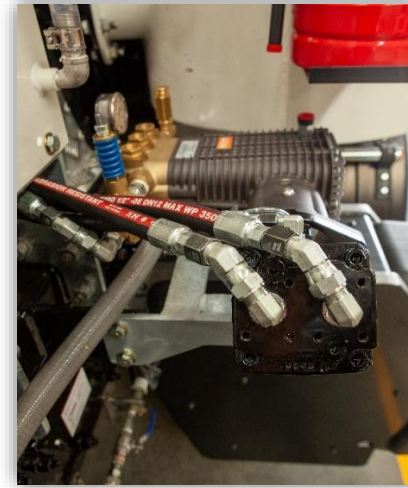


Image 23 - Class A Pump – other pumps available upon request



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

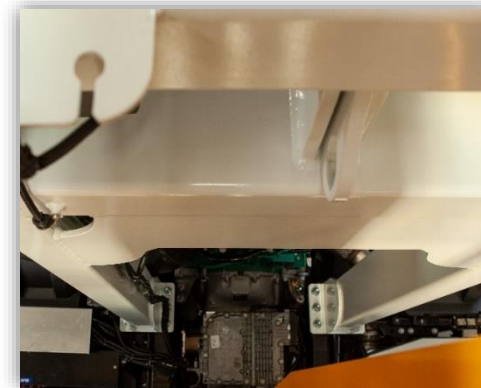


Image 30 - Locking mechanism to hold canopy in place whilst raised or lowered

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 causes 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 and to Australian specification

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

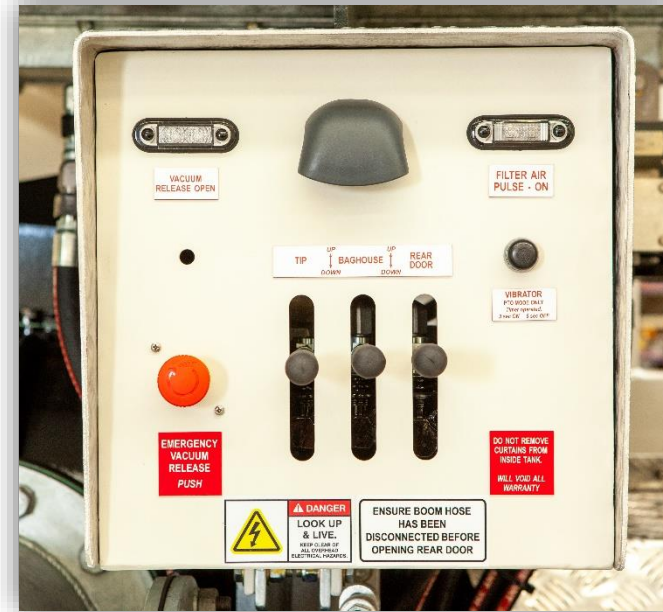


Image 41 - Main spool for Debris tank tipping, debris door opening, baghouse lid opening

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