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011 524 0144
info@octopuse.co.za

KAISER MORO

Kaiser Moro ELEGANCE SX11 HLR

Structural Design

Tank construction

- Vacuum-resistant cylindrical tank made in **Aisi 304**;
- Pressure resistant rounded front and back tank portions;
- U-shaped external reinforcement rings and internal breakwaters (if provided), in compliance with the regulations in force
- Calculation pressure +0,5/-1 bar, max working pressure +0.5 bar, max vacuum pressure -1 bar
- Overflow valve with stainless steel ball that cut off the connection with the vacuum pump when the tank is fully loaded, guaranteeing in any case a suitable safety vacuum space; overpressure safety valve.
- Pneumatic valve to prevent waste leakage when the vehicle is in motion.
- Rear door opening via 2 double-acting hydraulic cylinders with safety devices to prevent accidental closure.
- Rear door closure via adjustable hydraulic wedges.
- Tipping system with frontal multi-stage hydraulic cylinder.

Tank capacity

Front fresh water tank for KWP	2,900 litres about (geometrical volume)
Sludge tank	10.500 litres about
Total capacity	13.400 litres about

The stated geometric capacities represent a maximum theoretical figure, which in full compliance with the regulations in force, does not consider the operating conditions of the vehicle on the road. The user, when is driving the vehicle, must respect the traffic laws, especially about the maximum legal loads. Furthermore, the effective load values may differ depending on the type of transported waste and the load conditions.

water and vacuum pump chamber

- Service water reservoir for the KWP water ring vacuum pump built into the fresh water chamber (see vacuum pump installation.)
- Material AISI 304
- Fresh water reservoir for the KDU high pressure water pump.
- Access door with single-lever lock for fast access to the pump chamber.

Filler port	With free flowing section
Sight glass	For display of water level
Discharge	DN 100 with manually operated shutoff valve
Material	Stainless steel AISI 304
Safety valve	Pressure relief valve, set to 0.5 bar

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Separator

- Prevents entry of vacuumed up dirt particles into the vacuum pump.
- With automatic separator drainage when switching over to pressure operation.
- Including stainless steel filter screen as an additional protection for the vacuum pump.

Inspection opening	Diameter 300 mm
External discharge	DN 100 with shutoff valve
Material	Stainless steel AISI 304
Capacity / volume	600 litres

PREDISPOSAL MAN HOLE FOR SUCTION BOOM

- MAN hole dome for the further suction boom application.
- No electric or hydraulic system installed.

Rear Door

- Rear door, 8 mm thick, in carbon steel
- Rear door opening via 2 double-acting hydraulic cylinders fitted with a safety valve which prevents the accidentally rear door closure in case of a fault in the hydraulic system
- Rear door closure via adjustable hydraulic wedges

OP – L1301005 – Stainless steel tank floating level indicator

- Mechanical floating liquid level indicator (floating arm) with graduated tank filling
- level scale
- For tanks in stainless steel

OP– Manual 6” inlet valve for carbon steel tank

- Manual 6" inlet lever gate valve (Ø 150 mm) made in brass, with internal
- gooseneck, flanged and with breakwater
- For tanks in stainless steel
- Complete with spherical quick coupling and stopper
- Manual valve for waste sampling

OP– Manual 6” outlet valve for carbon steel tank

- Manual 6" outlet lever gate valve (Ø 150 mm) made in brass,
- For tanks in stainless steel
- Complete with spherical quick coupling and stopper
- Manual valve for waste sampling

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Tank tipping system and tank lock

- Tank tipping system with multi-stage hydraulic cylinder, with electro-hydraulic control valve, safety valve and tip warning light in the driver cab.
- Tank tipping system facilitates the tank discharge and permits an easier maintenance.
- Rear chute in stainless steel, bolted to the tank, to facilitate the unloading and keep the area at the back of the vehicle cleaned.
- Front locking device for the tank consisting of a saddle anchored to the sub-frame.
- The high contact area allows an optimal distribution of the loads especially during the transfer phases, minimizing the lateral stresses of the tank, especially when travelling along curved and rough road

Subframe

- The subframe acts as a support for the upper structure, without having to make any changes to the chassis.
- The subframe is composed of two high-quality steel profiles, held by crossbars and devices to guarantee maximum stability, in compliance with the guidelines from the chassis manufacturer.
- It is fixed to the vehicle chassis using appropriate devices (screws, shelves, easy-to-dismantle supports), so as to guarantee maximum stability of the entire vehicle in all equipment loading conditions.
- The equipment subframe is anchored to the vehicle chassis using threaded joints with suitable resistant nuts.
- The pipes are laid tidily inside the frame profiles, to make maintenance easier.

OPEN Side Hose Racks

- Box structure in stainless steel
- For hoses containing

Sideguards

- Sideguards, originally from the chassis

Mudguards

- Rear mudguards, originally from the chassis

Beacon LED Light

- Beacon led light controlled from the cab control panel

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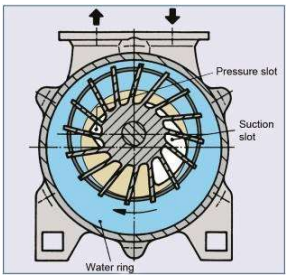
Power Kit

OP- Power kit KVP3100i Vacuum pump - Kaiser liquid ring pump

Kaiser's in-house developed liquid ring pump is a light metal vacuum pump.
The integrated intercooler system keeps the vacuum pump at a low temperature level and thus guarantees maximum suction capacity with low service water requirement.



- Increased payload of the vehicle due to light-metal construction
- Low noise level thanks to the use of only few mechanical parts
- Low maintenance due to minimal wear
- Environmentally friendly due to oil-free waste air
- No suction power loss due to overheated service water
- Less service water required
- Long periods of operation in end vacuum setting possible, e.g. in industrial applications

Vacuum Pump KWP 3100i

- Feed rate with unobstructed air-flow rate 3’100 m3/h
- Max. negative pressure / positive pressure 0,85 bar / 0,5 bar

Vacuum Pump installation

The vacuum pump is installed in the freshwater chamber. The vacuum pump supplies itself with the service water required for its operation.

Switching Button

- Pneumatically operated switching button for switching suction / pressure operation, including opening for filling the freshwater chamber. Enables fast switchover from suction to pressure operation and vice versa.
- Short and adequately dimensioned suction line between vacuum pump and sludge tank for maximum suction capacity.
- Additional soundproofing and cooling by means of water insulation.
- Suction / pressure operation even possible in tilted position.
- Automatic separator drainage when switching over to pressure operation.

Equipment Operation

Original cab gearbox driven power take-off

- The vehicle must be equipped with an original gearbox driven power take-off that permits the use of the power necessary for movement of the pumps.
- The gearbox driven power take-off is activated from the vehicle cab

Combined operation, hydraulic transmission

- The equipment is designed and built for the combined operation of the vacuum pump and the high-pressure pump
- The operation of the equipment by means of the hydraulic transmission makes it possible to optimise the consumption of power necessary to perform the various
- operations, with this type of transmission, the engine speed, and therefore the fuel consumption, is the minimum in all possible applications. This requirement can only be satisfied with a hydraulic drive system

- The equipment includes a system that minimises the engine speed and restores it to its original speed after the activation of each pump, automatically. This makes it possible to protect the mechanical components against premature wear, guaranteeing reliability over time

Hydraulic System

Hydraulic Control System

Hydraulic pumps are driven by the carrier vehicle's secondary drives. (PTO's)
Several independent oil circulation systems allow a convenient control of the high-pressure pump and the water ring pump. High-pressure pump and vacuum pump may be controlled independently. It is possible without any problems to combine minimum jetting performance and maximum suction performance or vice versa.

Monitoring of the oil level and oil temperature!

Vacuum system
Vacuum pump drive performance is controlled hydraulically, with pressure as well as volume flow being adjusted to the respectively required conditions! Additional oil cooler for the vacuum system with temperature-dependent control.

Advantages in daily operation:
Fuel savings by automatic vacuum pump speed adjustment to the desired performance
Lower noise emissions because of lower speeds
Additional connection of KWP is possible at any time and any speed range

Auxiliary consumers
All auxiliary consumers–such as reel drive, suction boom, etc. – are driven by fixed displacement pumps.

High pressure water system:
Hydraulically controlled performance of the high-pressure pump, with water pressure as well as volume flow being adjusted to the respectively required conditions!

Advantages in daily operation:
- Fuel savings due to consumer-controlled supply of volumes of water with constant feed pressure
- Less wear due to the omission of the bypass pressure control valve.
- Easier maintenance and service due to the absence of the mechanical drive and the resulting regular maintenance work (belt tension, ...)
- Easy operation; the high-pressure pump can be activated within any diesel speed range.

Commands and Controls

Control Panels

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Main controls panel:

- Right rear controls box in stainless steel with sealed door
- Inside light
- Electric engine rpm control
- Select operating cycle (vacuum – combi – jet)
- Start cycle
- Invert decompressor
- Cyclone/tank vent
- Water pressure adjuster
- Exclude end water sensor
- Jet/by-pass
- Digital LED water level gauge
- Pneumatic control for rear discharge gate valve
- Tank tipping
- Open rear door
- Open/close hydraulic hooks
- Emergency button
- Vacuum pressure gauge
- Water pressure gauge
- Controls for optional applications

Pressure gauge panel:

- Vacuum pressure gauge
- Water pressure gauge
- Emergency button
- Controls for optional applications

Cab control panel:

- Control panel in the cab, including the switches for the beacon light, the power take-off engagement with warning light, and the tipping system warning light.
- Power take-off, vacuum pump and water pump hour counters

Accessories

OP – L5000045 – Opening the rear door and tipping tank using a push-button panel

Wired remote control for the remote operation of the following controls:

- Tank tipping
- Open rear door
- Open/close hydraulic hooks

The push-button panel is stowed away in a stainless-steel box fit with a handle and key lock

N.B. This option is an alternative to the command for tank tipping, bottom opening and release of the
hydraulic hooks using the selectors located on the main control panel

OP – L6000020 – Led work light	2 PCS

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- Led work light
- Thanks to its power, it provides optimal illumination of the suction hose working area
- Switch on the main control box

OP – L9301030 – Stainless Steel Toolbox

- Circle-polished stainless-steel toolbox
- Door handle with lock and key
- Installed on a dedicated steel support
- Dimensions in mm: Length 410, height 320, depth 500 mm

OP – L9750010 – Standard stainless-steel equipment

Provision of standard equipment with a stainless-steel tank:

- Nr. 1 reduction in stainless steel
- Nr. 1 spray gun for high pressure washing to be connected to the side hose reel
- Nr. 2 nozzles for the high-pressure hose reels
- Nr. 1 portable toolbox
- Nr. 2 piece rubber floor mat

OP – L4360100 – extra for special couplings joints

- The joints installed on the equipment are Perrot

OP – L7800065 – Implementation of equipment on SCANIA chassis

- The Realisation of equipment on SCANIA chassis

Service Plants

Hydraulic system

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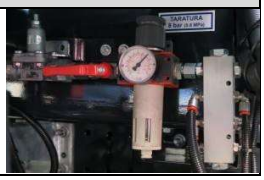
- The hydraulic system, dedicated for services, consists in a tank with suitable volume complete with filter, level indicator, breather plug and lower emptying coupling. To complete the system are present an hydraulic gear pump driven by the PTO, safety valves and heat exchanger, (if necessary.)

Pneumatic system

- The equipment pneumatic system is connected to the chassis original pneumatic system, on the indicated outlet point by the chassis manufacturer.
- The equipment includes an adjustment valve, filter-regulator with condensation discharge valve.



Painting

Equipment painting

Tank:

Tank painted in a single RAL colour according to the following procedure:

- Sandblasting with metal grit, SA 2.5
- Washing and degreasing with a suitable soluble cleaner
- Undercoat: 2 undercoats of epoxy, thickness 30-40 microns c.a.

Finishing coat: 2 coats of two-component acrylic varnish, total thickness 30-40 microns c.a.

Subframe, pumps and devices:

- Painted in grey RAL 7021

Inspection / Certification

Manuals

The following documentation is supplied with the equipment:

- Operator user manual
- Technical service manual (water system, vacuum system, hydraulic system, pneumatic system and electrical system)
- Manual of all installed components
- Hard copy and digital copy (USB flash drive) of the spare parts catalogue
- Declaration of conformity of the version to the directives:
  - 2006/42/EC Machine Directive
  - 2000/14/EC - 2005/88/EC Acoustic Emission Directive
  - 2014/30/EC Electromagnetic compatibility directive and affixing of the CE mark.

We reserve the right to make technical changes.

The optionals and accessories chosen may entail a corresponding change to the technical data. Some illustrations and images are solely symbolic.

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Features of the chassis suitable for the above described equipment	
Brand	SCANIA
Model	P 360 B6x4NA

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Cab type	CP14
Cab colour	White
Wheelbase	3950mm
GVW	26 ton
Axel load	9.000kg – 19.000kg
Type of gearbox	Opticruise
Type of gearbox power take-off	EG650P
Bodybuilder interface	BCI

OTHER NOTES

- Side under run bar original
- Original mudguards
- Original rear under run bar

NB: The positioning of the spare wheel on equipped chassis is not foreseen

Note: The data provided here represent the state of the art at the time this offer was drafted. Moro Kaiser cannot predict future developments in vehicle electronics which may bring about technical solutions different from those specified here. The customer who owns the chassis is responsible for fully preparing the vehicle electronics for the type of fittings to be installed. Our technical office is glad to provide support where necessary.