

COMB. HIGH-PRESSURE-CLEANING and SUCTION-VEHICLE

MAN CHASSIS:

MAKE	MAN
TYPE	26.440 6x2-2 BL
WHEEL BASE	3.900 + 1.350 mm
G.V.W.	26.000 kg
PERMISSIBLE AXLE LOAD-FRONT	9.000 kg
PERMISSIBLE AXLE LOAD-REAR	19.000 kg
ENGINE	D2066 LF 40, Euro 5
OUTPUT	324 kW / 1.900 rpm
TRANSMISSION	ZF 16 S 252 OD
AUXILIARY DRIVE	NMV 221 with i = 1,55
Electrical	24 V
Tyres FRONT	385 / 65 R 22,5
Tyres REAR	315 / 80 R 22,5

EDC-motor ruler

European Standard tachograph 1 day / 2 drivers

Reinforced front and rear springs

Stabilizers on front and rear axles

Hydraulic steering gear

Outline lamps

Reversing lamp, fog lamp

Side marker lamps

Warning beacon mounted on the driver's cab

ADR equipment

TANK WITH REAR DOOR

Cylindrical, single cell, tank wall thickness 6 mm. End walls in dish form, made of steel plate S355J2+N (St 52.3), electrically welded according to control report 3.1, EN 10204.

Profiled gasket for rear door sealing of NBR.

Technical Data:

Tank capacity	14.000 ltr. air volume
capacity water tank	3.300 ltr. air volume
capacity sludge tank	10.600 ltr. air volume
Max. allowable tank overpressure	-1 / 1,0 bar
Max. allowable operating pressure	-1 / 0,5 bar
Vacuum	designed for 100 %
Test pressure	4,0 bar
Calculated temperature	-20° / 50° C

"LONG-LIFE" FLANGES

Tank cover and tank flanges in heavy-duty construction with bed for location of the 42 mm diameter profile gasket.

REAR DOOR

Top-hinged, with two hydraulic cylinders arranged on the side for opening over the full tank cross-section. Securing facility for the raised rear door: hydraulic by single-acting pilot-controlled "pipe-burst" check valve and mechanically by way of a simple prop.

REAR DOOR LOCKING SYSTEM

With clamping shoes, T-head bolts and rods, as well as central operation via one pneumatic cylinder per over-centre clamp.

TANK LEVEL INDICATOR

with internally located float and exterior scale, construction with PE-ball.

DISCHARGE APRON

Located below the rear emptying door and fitted to rear of the tank, made from aluminium.

EMPTYING SYSTEM

By means of the pneumatically moveable partition wall, equipped with two EPDM hollow section seals. A manhole with DN 450 provides for access in front of the piston.

The operating overpressure of the drag piston is fixed at 0,5 bar with an additional safety valve for security.

TANK DIVISION

The pneumatically moveable partition wall divides the tank into water- and sludge compartments. The drag piston can be locked from outside via single locking devices in positions inside the tank. This enables the volume of either the water compartment or the sludge compartment to be varied according to operational requirements.

PISTON STOPPERS

Feather key-piston-stoppers are integrated in the KROLL-massive-flanges, according to the latest technical standard made from special steel with TÜV-control-certificate.

LOCKING DEVICE OF DRAG PISTON

3 pair manually operated from outside.

TANK MOUNTING

The tank is mounted on an auxiliary frame; at the rear with two sturdy ball-and-socket joints and torsion free front mounting. The auxiliary frame is made from S355J2+N (St. 52.3) grade steel and is bolted to the vehicle chassis frame in conformity with chassis manufacturer's recommendations.

RIDE-UNDER PROTECTION AND SIDE BUMPER

TÜV-tested ride-under protection (West-Germany Technical Inspectorate) according to the EC-regulations, and side bumper according to the local traffic conditions and the technical requirements.

VACUUM PUMP

Quantity	1 pump
System	Liquid water ring pump
Make	CVS
Type	WR 3100
Delivery capacity	3.100 m ³ /h
Maximum vacuum	80 % (200 mbar)
Speed	1.600 rpm
Drive rating	94 kW at 0,5 bar operating overpressure

Mounting:

On one side of the auxiliary frame, convenient for servicing.

Drive:

flexible, via a generously dimensioned universal joint shaft from the auxiliary drive to the intermediate drive and via V-belt to the pneumatically operated friction clutch on the pump shaft.

Cooling:

Approx. 1.000 l water tank operation internally coated, build depressurized before the container, radiator with fan 24 V, recirculation pump and pilotherm. Operation tank equipped with filling and drain line, level indicator and inspection opening

PIPES AND FITTINGS FOR SUCTION/PRESSURE OPERATION

Dimensioned in DN 125 and fixed free from strain with rubber sleeve hose connections.

The following are provided for vacuum pump protection :

Float valve with two PE-balls as overfill preventer, located at the highest point of the sludge compartment. Safety chamber with a large ball- valve and equipped with a brush type separator. Cover is located with screw clamps for ease of access and the chamber incorporates a DN 2" drain cock.

Also provided :

- Four-way cock for "suction/pressure/neutral"
- Four-way cock for "operation" and "pressure"
- Protective filter in front of the vacuum pump
- Non-return valve
- Silencer/oil separator
- Certified safety valve 0,5 bar
- Manovacuummeter –1,0 / + 5,0 bar

BOTTOM SUCTION AND EMPTYING CONNECTION

Inner shut-off device DN 100 and second shut-off device (ball-cock with PTFE-sealing), located at the lowest point of the rear door, with TW-connection and cap hose coupling.

UPPER SUCTION CONNECTION

Inner shut-off device DN 100, manually operated via steel linkage. Hose connector pipe for the upper pump attachment is positioned downwards with TW-connection and cap hose coupling.

ATTENTION

Over this suction connection it is not allowed to suck inflammable liquid materials.

REVERSIBLE-FLUSH LINE DN 80:

For returning excess sewage water to the sewer via upper suction connection.

EQUIPMENT AND CONSTRUCTION ACCORDING TO ADR (TANKCODE L4BH)

- Shut-off valves as shut-off device in the suction-pressure-pipe
- Bumpers at the rear of the tank
- Ground lug
- Fire extinguishers 6 kg classification A,B, C with cover
- Burst plate according ADR

Signs on the vehicle:

- Danger signs at the side and the rear of the tank
- Two orange coloured danger signs with codes of the material and danger
- Two warning signs "A" - waste disposal

Signs in driver's cab:

- "Passengers prohibited"

HIGH-PRESSURE PUMP

Quantity	1 pump
System	Three-plunger pressure pump
Make	URACA
Type	KD 716
Plunger diameter	60 mm
Delivery capacity	315 ltr./min
Pressure	170 bar
Drive rating	100 kW
Speed	1.800 rpm
Transmission	3,32
Crankshaft speed	542 rpm

Mounting:

On one side of the auxiliary frame, pump heads are located facing outwards.

Drive:

flexible, via a generously dimensioned universal joint shaft from the auxiliary drive to the intermediate drive and via V-belt to the pneumatically operated friction clutch on the pump shaft.

PIPES AND FITTINGS

For high-pressure equipment:

Filling device consisting of Storz-C connection and cap hose coupling, ball cock and mud trap with self-cleaning filter.

Overflow with free-flow distance and overspill safeguard. A free-flow distance of 100 mm.

The intake nozzle in the water tank is designed such as to ensure turbulence-free water uptake.

The suction line leading to the HP-pump is suitably dimensioned and fitted with a shut-off element as well as a large water filter to ensure an operation free of cavitations.

Infinitely variable adjustment of the water pressure via pneumatically overflow – and control valve.

Also provided :

- Glycerine-damped high-pressure manometer
- Bypass-switch at the rear of the vehicle
- Various ball valves and drain cocks

LARGE HOSE REEL

Mounted on the right hand side of the rear door. Slew able (180 degrees) with hydraulically transmission. Infinitely variable hydraulic drive in both directions, designed for 180 m HP hose DN 25.

HOSE TYPE:

180 metre of DN 25 high-pressure hose with operating pressure of 200 bar.

HOSE DEFLECTION ROLLER:

on the cross-threaded spindle \varnothing 250 mm, for easy deflection, made from plastic, infinitely swivelling movement 360°.

HOSE GUIDE:

For steady reel-in of the HP hose, automatic, with cross-threaded spindle.

SMALL HOSE REEL:

Located at the rear on the left hand side of the vehicle. Hydraulically operated and suitable for 60 m of DN 13 HP-hose.

HOSE TYPE:

DN 13 - 60 m, operating pressure of 200 bar.

HIGH PRESSURE SPRAYING GUN

1 piece, complete with nozzle

WATERLEVEL WARNING SYSTEM

With pre-warning and main-warning signal at the control panel.

RESIDUAL WATER EMPTYING SYSTEM

Pneumatic for all water carrying parts.

ELECTRICAL SYSTEM

Rear lighting 24 V on the tank truck.

WARNING BEACON

Orange halogen warning light with a diameter of 105 mm Controls located in vehicle cab, securely mounted. For the warning beacon steel guards are provides as a protection against damage.

HALOGEN WORKING LIGHT

Diameter 200 mm, removable and portable, with 20 m cable, 2-pin plug and socket, as well as 3 standardized holding devices, for easy manual operation.

COMPRESSED-AIR SYSTEM

Consisting of:

- Overflow valve without backflow
- Shut-off valve with vent
- Air vessel with drain valve
- Pressure reducing valve

HYDRAULIC SYSTEM

Consisting of:

Oil tank, hydraulic pump, return filter, control valves with integrated pressure relief valve for all hydraulically operations and the operation of the rear door.

KROLL CAN - STANDARD

All indicators and control elements required for remote control and monitoring purposes are installed in a splash-proof special steel switch box with jalousie, located at the rear of the vehicle on the right hand side and also on the large hose reel. Automatically working functions via CAN-Bus electronic. Main control box with a light screen display and cursor program flowchart. Constant indicator for operating pressure, overpressure and low pressure of the vacuum pump located on the display.

Working functions vacuum area

Sludge tank	vacuum / neutral
Sludge tank	pressure / neutral
Pneum. piston	drive in
Pneum. piston	drive out
Pneum. piston	discharge
Safety rear door locking system	on / off
Rear door locking system	on / off

Working functions high pressure area

Large hose reel	flush
HP-suction hose	up / down
Small hose reel	flush
Pressure adjustment	min / max
pressure balance manually	min / max

Other functions

Speed	plus / minus
Radio	on / off
Emergency shutdown	

HOSE BOXES

One open-type hose steel-box each mounted on the left- and right-hand side of the vehicle body, with stanchions for accommodating suction hoses or suction pipes.

MOUNTING PLATES

for shovel, broom, warning guidance cone.

VICE

125 mm jaw width, fitted in a suitable location.