

Installation and Operating manual

Coolant cleaning unit model VL

GB



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1 Product and function description

Normal use

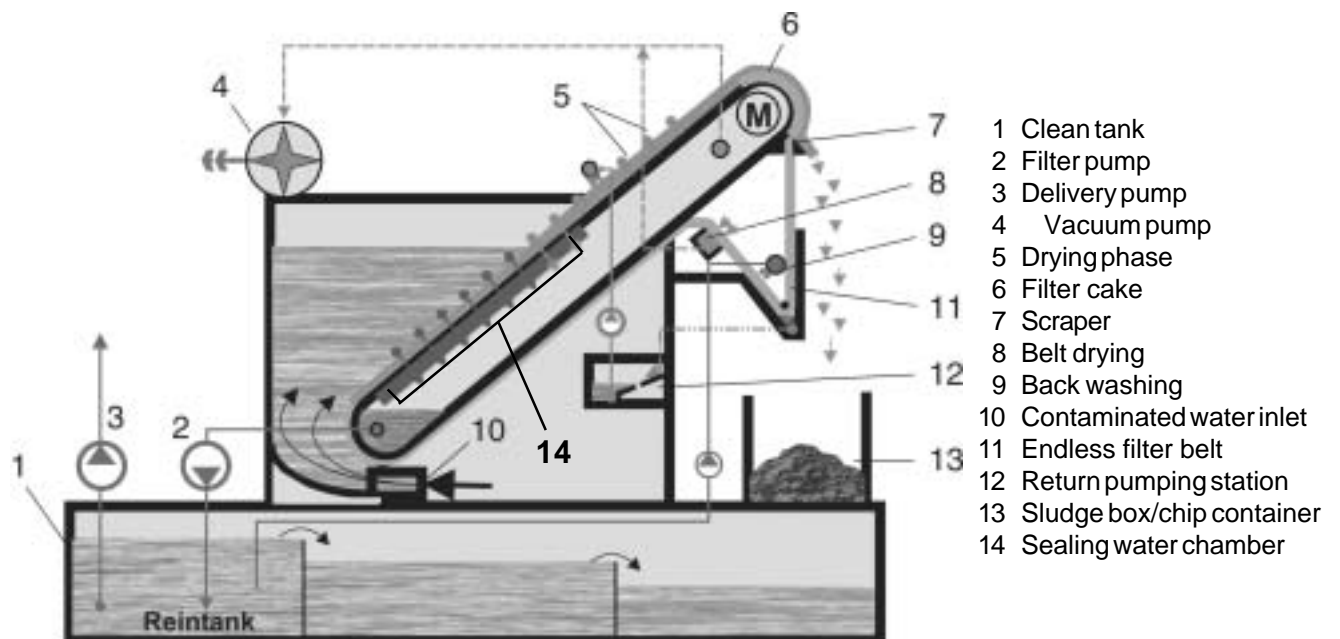
- Cleaning of cooling lubricants for material removal processes (grinding, honing, turning, milling, etc.) Can be used almost universally for almost all grinding and top-precision machining processes.

Range of application

- Usage as a stand-alone unit in or in connection with complete cleaning systems

Operating mode

The contaminated fluid streams in tangentially to the bottom of the sludge tank and rises. The vacuum pump (side channel compressor) extracts the air out of the filter chamber producing a vacuum there. The vacuum together with the hydrostatic pressure of the contaminated fluid results in a high pressure difference at the filter surface. The fluid passes through the filter belt, which holds back the dirt particles in the filter chamber. A filter pump extracts the cleaned fluid into the clean tank. In the bypass a defined amount of cleaned coolant is pumped into a sealing water chamber, which hydrostatically seals the chamber.



- Only use the unit for the purpose for which it was intended.
- Observe accident-prevention regulations when operating the unit

Noise level: < 70 dB(A)

Filter belt regeneration:

The increasingly thick filter cake slows down the volume flow through the filter surface, as a result the level of contaminated fluid rises. At a defined level, the belt drive switches on and conveys the carrier belt together with the filter belt a small distance forward. This allows the clean filter belt to reach the filter surface, the volume flow increases and the level of contaminated fluid drops. After moving out of the contaminated fluid the endless belt runs through the following stations:

1. **Drying phase:** The suction of the air into the filter chamber causes in addition to the created pressure a drying of the filter cake in the area above water level.
2. **Scraper:** A scraping device separates the main part of the dried filter cake from the filter belt - the dirt falls into the sludge box
3. **Back washing:** Clean fluid, which is pumped out from the inside via perforated pipe onto the filter belt cleans the filter belt from residual contamination. The filtrate is pumped back into the contaminated fluid via a lifting pump and is directed at the transfer of contaminated fluid / drying phase. The fine particles are directly taken up by the filter cake.
4. **Belt dryer:** The filter belt runs over a strainer, the vacuum pump causes a drying effect.



Filter belt inserts are subject to wear from mutual cleaning and back wash intervals, and should be stockpiled as a result.

2 Danger and safety instructions

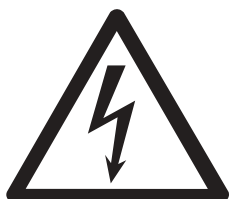
2.1 General instructions



- Always observe the information and instructions included in the operating manual!
- Unqualified personnel are prohibited from working on the unit.
- Customers that fit components must make sure that they are secured appropriately.
- Never bridge safety devices (e.g. medium-level limit switch).
- Always ensure that safety equipment functions properly.
- Only use the unit for the purpose for which it was intended.
- Always secure the filter against unintentional start-up when working in the filter danger area.
- Risk of injury: The scraper device can possibly be very sharp-edged. Work on the scraper device is only to be carried out with the greatest of caution!



- Dry, fine metal chips and wool from the metal chips are under certain circumstances highly inflammable. Sparking and open flames are prohibited in the discharge position area!
- In case of fire use only the appropriate fire extinguishers for example D powder metal fire extinguishers (D class) or CO2 fire extinguishers (class C) to quench the fire!

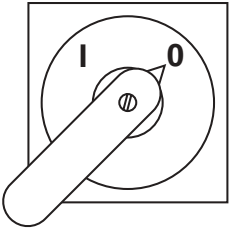


- Only specialised electricians may work on the electrical system
- Observe relevant VDE and connection regulations from the corresponding electrical supply company.

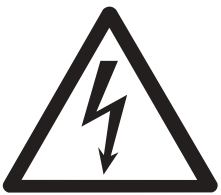


- Do not remove covers when the unit is in operation

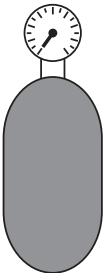
2.2 Instructions for repair and maintenance work, and for malfunctions



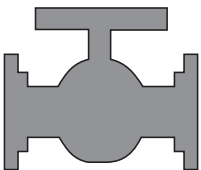
- **Switch off main switch.**
- **Secure unit against accidental startup.**



- **Ensure unit is voltage-free.**



- **Depressurise unit.**



- **Close slide valve on pipe.**
- **Remove all materials that may pose a health risk.**
- **Do not allow coolant to escape into the environment**



- **If work involves handling metal chips:
Wear protective clothing, safety boots and
protective gloves.**

3 Unpacking and transportation

3.1 Unpacking

- Remove the protective foil
- Remove fasteners of parts secured to the unit for transport (e.g. sludge box) and install these parts in the correct positions
- Remove any accessories packed inside the unit for transportation
- Remove the transport pallet if required

3.2 Transportation



- **Do not stand beneath suspended loads**
- **Never lift combined units from the top.**
- **The illustrations on this page are provided as examples. The fitted lifting elements (e.g. lugs, eye bolts, pipes, etc.) must always be used**

- Use a crane:

Always use whenever there are no more original packaged lifting elements (e.g. lugs, eye bolts)

- With fork lift truck:

Only in its original packaging and with great caution



Exemplary representation

4 Set-up and installation



- Place the system on a flat surface
- Ensure that the unit is standing firmly and securely.
- Secure unit against accidental start-up.

- Connect the inlet pipe tension-free to the inlet support (1)
- Connect the pure water pipe to the outlet support (2)
- Connect the flushing water pipe tension-free to the flushing water connection (3)



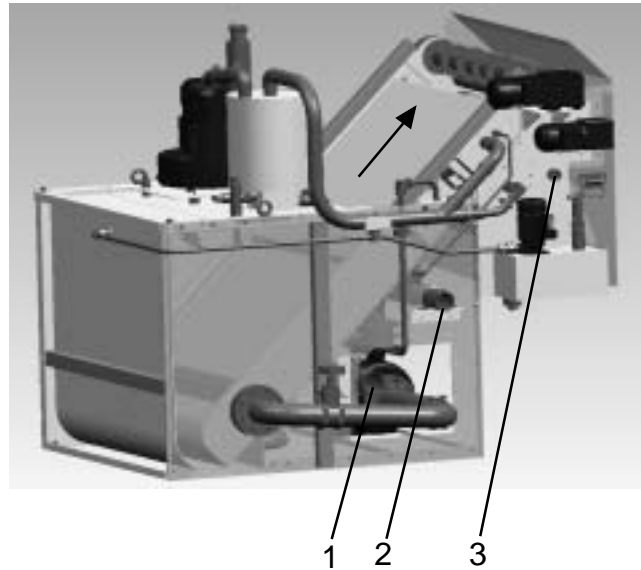
Check any fluid lines connected for leaks

- Fit the sludge reservoir at the sludge discharge
- Connect the power supply to the motor(s) and pump(s). Check the required voltage and frequency



Make sure the direction of rotation is correct.

The filter belt must move (when viewed in the filter) from the bottom-up



Danger of being pulled in:

Always keep hands clear of the moving parts of the filter

5 Startup and operation

5.1 Prior to initial start-up

- The entire system must be free of coarse parts (tools, etc.).
- The sludge reservoir must be fitted in position
- The unit must always be monitored during the start-up phase

5.2 Startup



The coolant cleaning unit (VL) is under the complete control of the processing machine and is started up at the processing machine switch cabinet

6 Scraper device

6.1 Setting the scraper plate

- Release the securing screws
- Engage the scraper plate parallel and with **light** hand pressure to the filter fabric



*The filter fabric should be scraped over the entire width.
Excess application pressure of the scraper plate could damage the filter fabric!*



Illustration without segment scraper



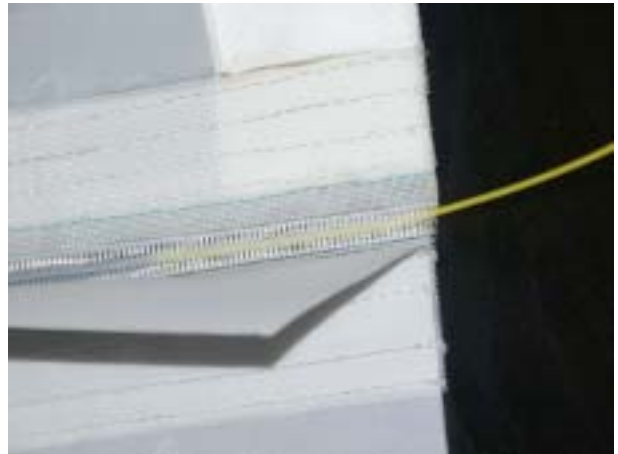
Illustration with segment scraper

7 Replace the filter belt

- Lift tensioning shaft and attach to its guiding mechanism
- Remove the segment scraper
- Let the filter belt jog through until it is at its separating point between the deflection point and the scraper plate.
- Remove the scraper plate



- Withdraw the connecting rod



- Disconnect the filter belt



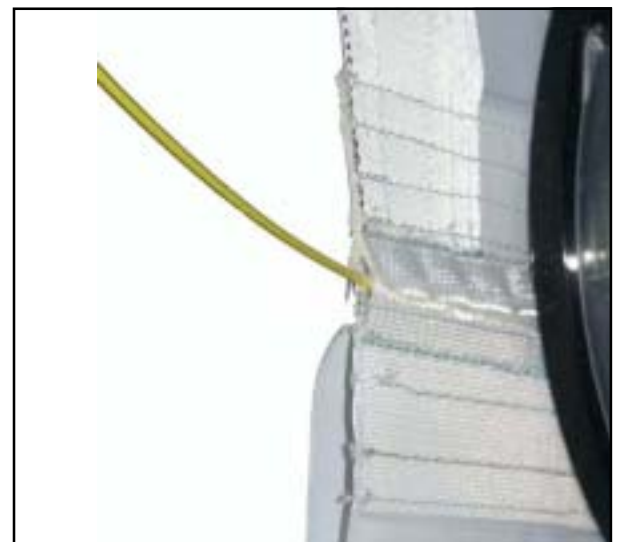
- Connect the new fabric with the lower (existing) fabric section, in order to draw it automatically through the existing fabric



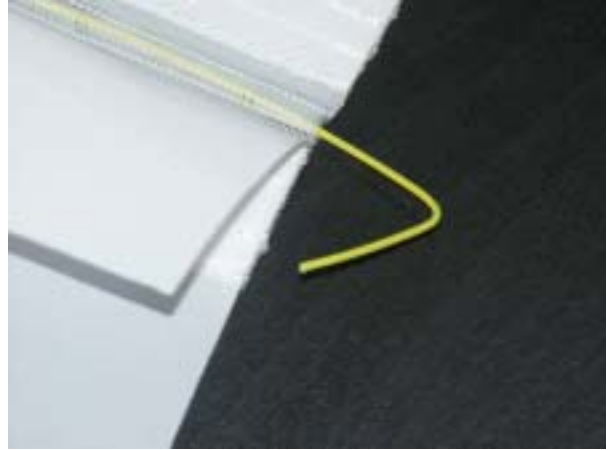
- Draw the new fabric fully into the filter until the ends can be connected again
- Remove the used filter fabric
- Connect the filter ends as shown



- Insert the connecting rod through the lug to the junction point



- Bend the ends of the connecting rod and also insert them into the lug of the junction point



8 Repairs and maintenance table

Assembly/ Component	Interval	Action	Safety instructions/ Comments
Electrical system - Fluid-level switch	3 months	Clean	Switch off unit and secure against accidental startup, otherwise the transport conveyor moves when the float switch is raised manually. Replace defective lines.
- Motor(s)	—	Refer to the manufacturer's operating manual.	
- Lines	6 months	Check for cracks and other damage.	
- Protective devices	6 months	Check function, clean	
Tank	6 months	Check for leaks, damage and corrosion	Environmentally hazardous materials must not escape under any circumstances
Metal link conveyor (transport conveyor)	When changing the fabric belt	Visual check for damage	Replace if damaged
Return pump flushing water	3 months	Check for contamination, clean	
Float switch	3 months	Clean	
Filter belt	Weekly	Check whether it is cleaned by the backwashing or damaged	Carry out a visual check after a backwash process
Metal link conveyor (transport conveyor)	3 months	Check tension: Check tension by thumb pressure against the discharge side of the belt	The belt is correctly tensioned if with moderate thumb pressure the discharge side of the belt can be pressed in approx. 1 cm

Assembly/ Component	Interval	Action	Safety instructions/ Comments
Oil separator	3 months	Check filter insert, if necessary change	
Exhaust filter air turbine	3 months	Check filter insert, if necessary change	



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