MicroPur® superfine filter

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MicroPur®

Issue 03-2023

Features	Benefits
High filter fineness (1–3 µm)	Consistent high-quality of the cooling lubricant
Faster and more effective regeneration cycle	Low backflush volume for treatment
Recovery of valuable raw materials at low expense	High efficiency
Fast replacement of filter cartridges	Cost-effective maintenance
Backwashable filter cartridges with long service life	Low costs for consumables
Demand-based pump regulation and backflushing without air	Energy-efficient system operation
Flexible modular system with low space requirements	Can be applied to a wide range of applications and requirements

Application

The MicroPur® is a backflushing filter for separating the finest impurities from cooling lubricants (oils and aqueous solutions).

- Ideal for tool grinding in carbide and HSS
- Local use for a machine as a standardised individual system
- Central use for multiple machines as an individual central system
- For cooling lubricant maintenance in the bypass flow

Description

Filtering process

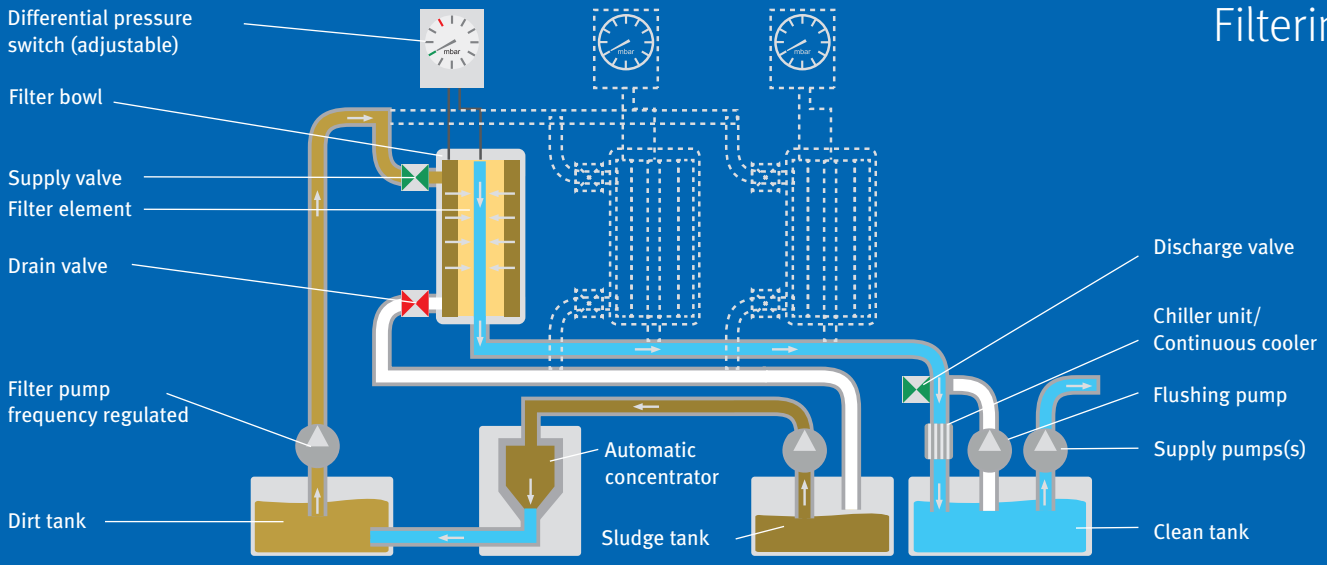
1. The filter pump conveys the dirty cooling lubricant tangentially into the filter bowl
2. Centrifugal force causes larger solids to accumulate on the housing wall
3. The cooling lubricant flows through the filter elements from the outside to the inside
4. A filter cake (concentrate) forms on the surface of the filter element and acts as an additional deep-bed filter aiding microfiltration
5. The filtered cooling lubricant (filtrate) enters the clean tank

Regeneration process

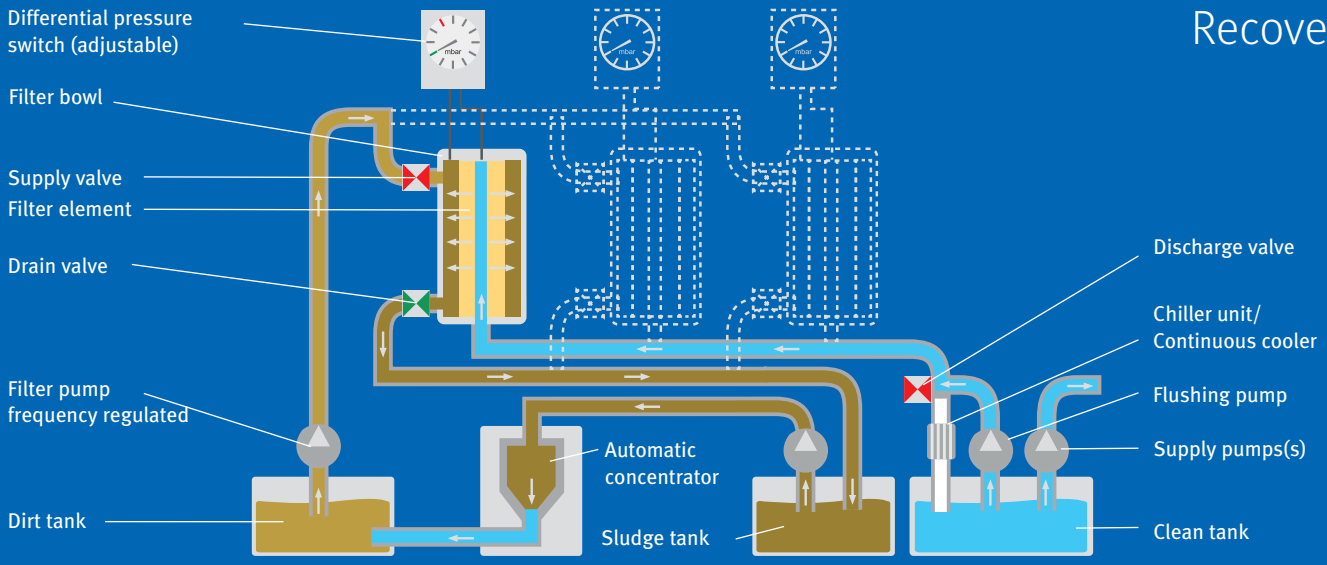
1. The growing filter cake causes a reduction in the volumetric flow or an increase in the pressure differential at the filter cartridge
2. The regeneration phase starts in response to pressure or time control: The intake valve closes and the drain valve opens
3. The flushing pump conveys the cooling lubricant that has just been cleaned to the filter element, from the inside to the outside
4. The filter cake is released and enters the sludge tank
5. Downstream equipment for sludge treatment (automatic concentrator) further reduces the concentrate and conveys it to an external container

Scheme

Filtering



Recovery



Equipment

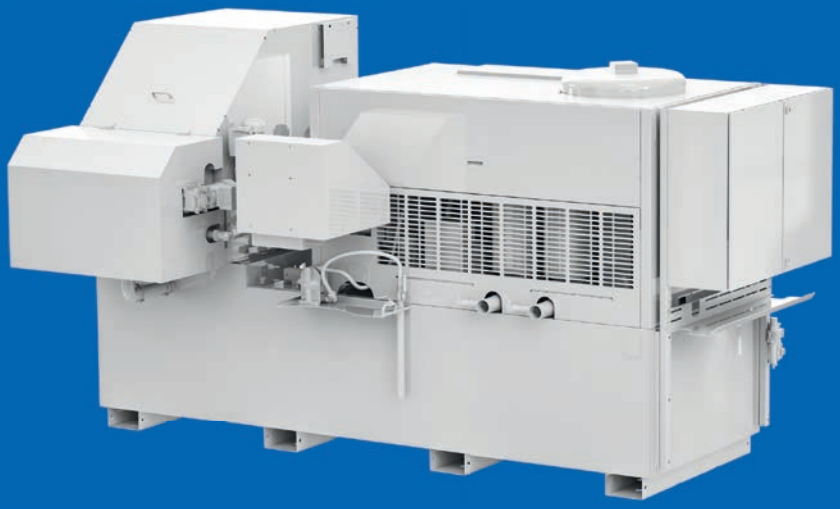
Tank system	●
Filter pump(s)	●
Flushing pump(s)	●
Valve technology	●
Sensor system	●
Filter elements	●
Control system	●
Ability to control the temperature	●
Magnetic cylinder for pre-separation	○
Compact filter KF-E for pre-separation	○
Automatic concentrator for sludge treatment	●
Supply pump(s)	●
Sludge container/sludge carrier	○

●Basic equipment
○ Option

MicroPur® 120 and MicroPur® 240 standard systems with integrated automatic concentrator for fully automated recovery of metal

The system components include process pumps that can be used universally and an integrated cycle cooler which enables the temperature of the cooling lubricant to be controlled precisely according to the process

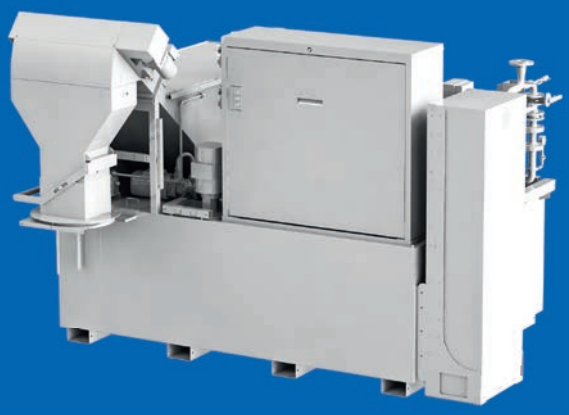
MicroPur® standard systems for grinding applications with long-fibre particles

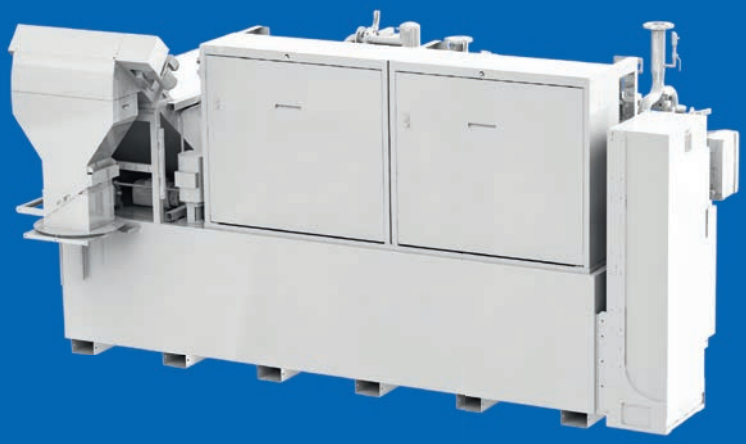


Filter module MicroPur® 480 M for scaling the volume flow of central filter systems

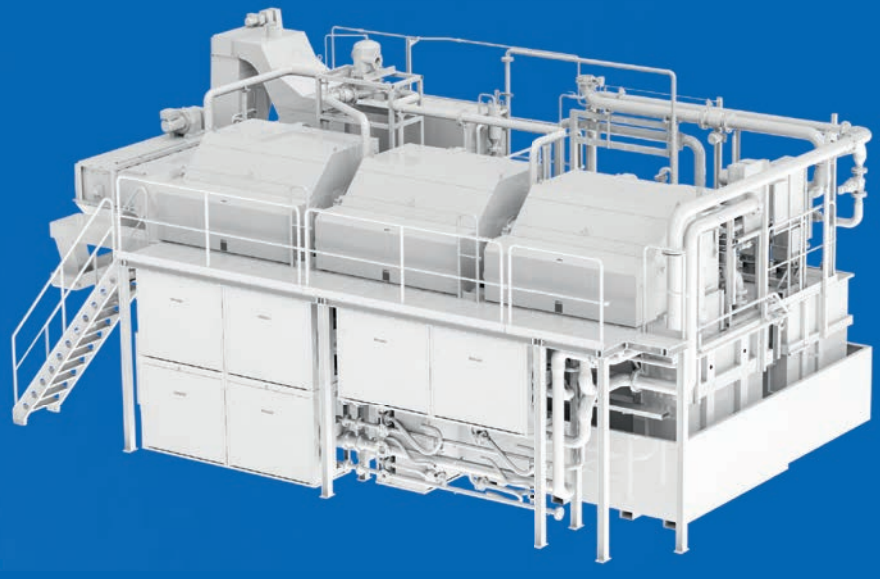
MicroPur® central filter system for multiple tool grinding machines with integrated automatic concentrator for fully automated recovery of metal

Application-specific process pumps specifically meet requirements





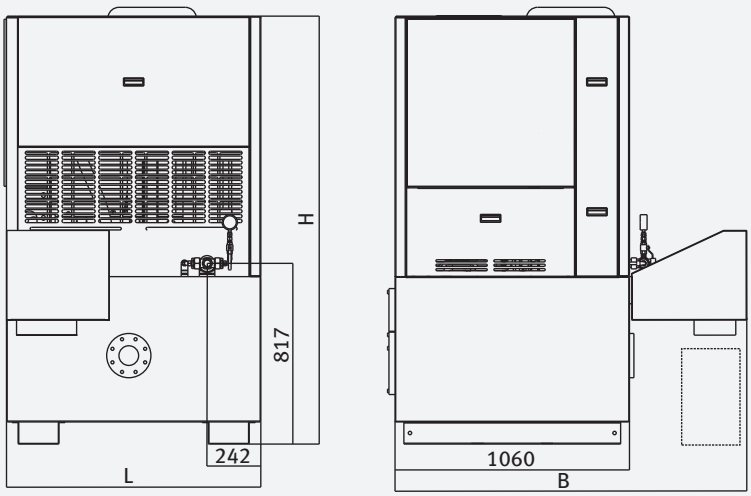
MicroPur® central filter system for tool grinding in carbide



MicroPur® central filter system for profile and thread grinding of various steel materials

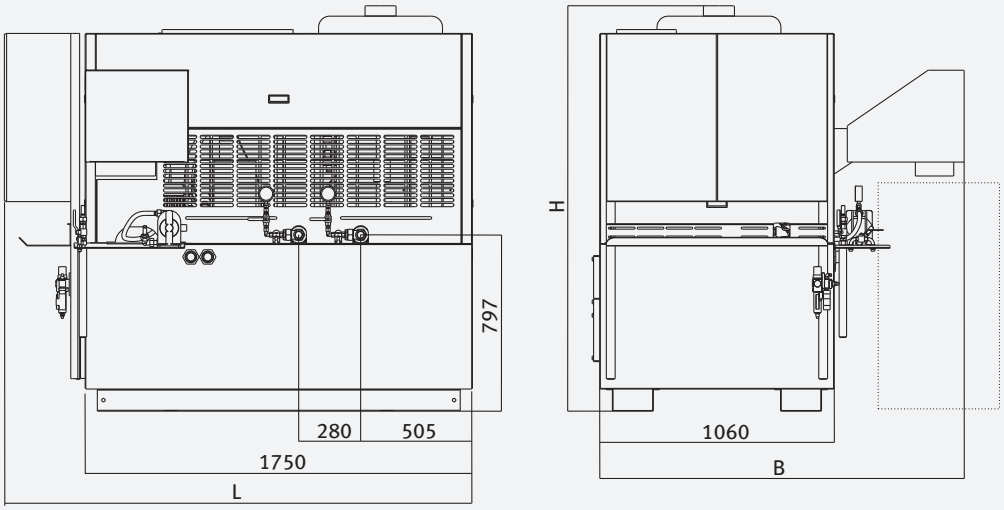
Model A

MicroPur® 120/550 | AK5 standard system



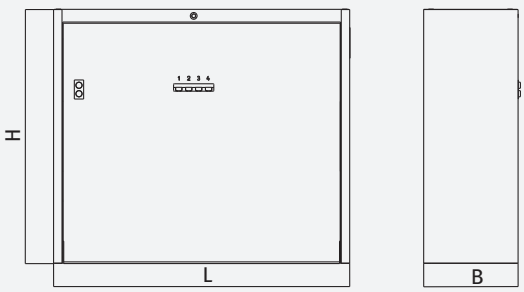
Model B

MicroPur® 240/900 | AK5 standard system



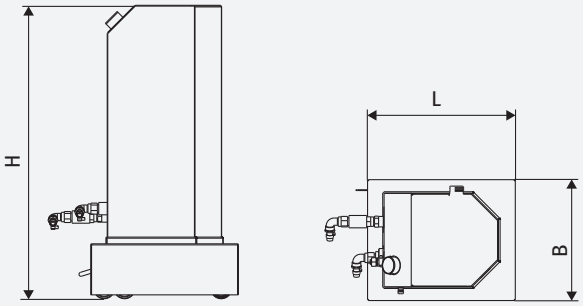
Model E

MicroPur® 480 M module



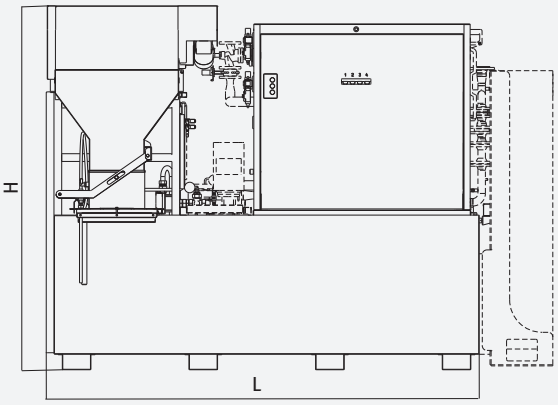
Model F

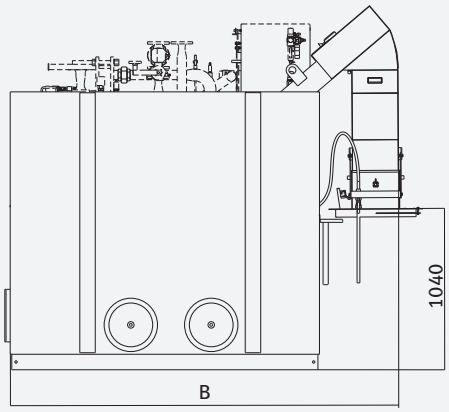
MicroPur® 40

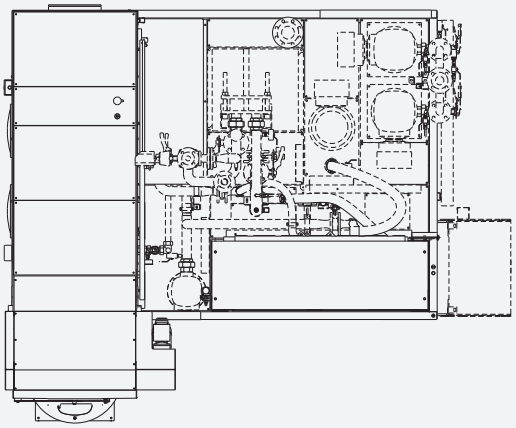


Model C

MicroPur® 480 M/4000 | AK25

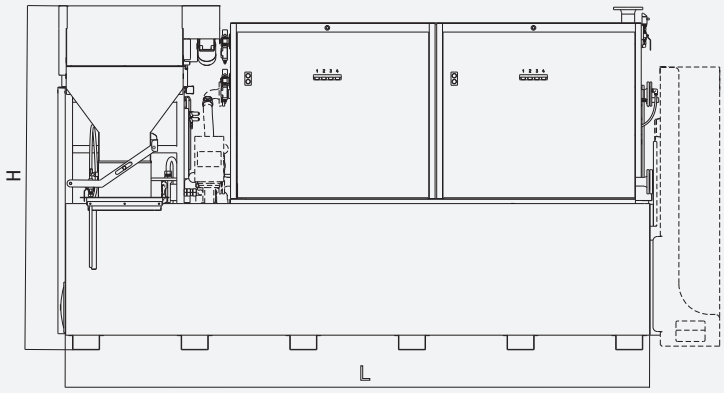


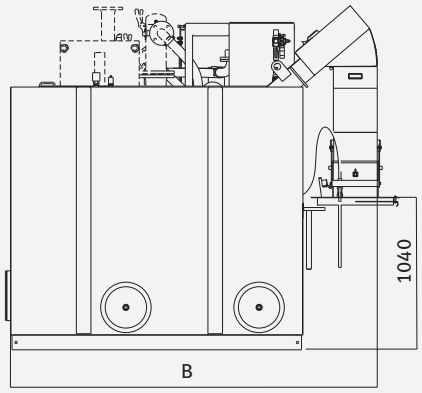


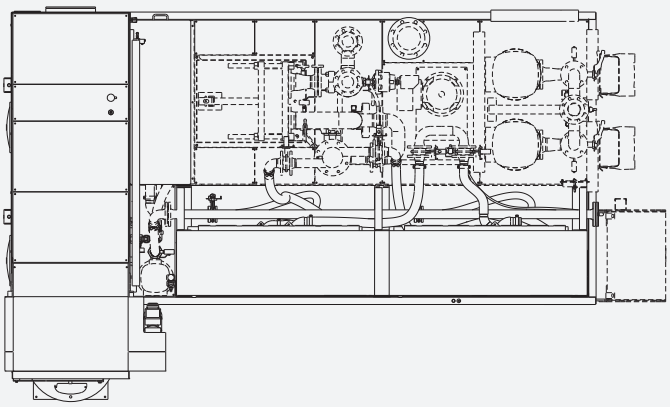


Model D

MicroPur® 480 M-2/6400 | AK25







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Dimensions and technical data

Type	Model	Oil filter output* [l/min]	Tank capacity [l]	H [mm]	B [mm]	L [mm]	Module [pcs]	Filter bowls [pcs]
MicroPur® 120/550 | AK5	A	120	550	1975	1590	1150	-	1
MicroPur® 240/900 | AK5	B	240	900	1707	1690	2115	-	2
MicroPur® 480 M/4000 | AK25	C	480	4000	2352	2510	2800	1	4
MicroPur® 480 M-2/6400 | AK25	D	960	6400	2352	2510	4120	2	8
MicroPur® 480 M	E	480	-	1200	445	1400	1	4
MicroPur® 40	F	40	-	1200	450	550	-	1

* Approximate values for oil with υ = 8 mm/s² (at processing temperature) and with a carbide total contaminant content of max. 100 mg/l.
Central systems are put together according to customer requirements. The relevant filter capacity is scalable as desired in modular stages of 480 l/min.