

High-pressure stations for short and long automatic lathes



At DST Dreh- und Spantage Südwest, the trade fair for the industry of turning technology and turned parts, which takes place from 20 to 22 October 2021 in Villingen-Schwenningen, KNOLL Maschinenbau showcases itself as a full-service provider for high-pressure devices with filter unit, which can be added to short and long automatic lathes. In addition to the LubiCool® range, comprising the S, M and L models, a combined system is also on show, which consists of a chip conveyor and high-pressure filter system.

Three years ago KNOLL Maschinenbau, Bad Saulgau, launched the first model of a LubiCool® high-pressure station, designed for use on short and long automatic lathes. These LubiCool® accessory units are connected to the machine. They are suitable both for the original equipment and retrofitting on existing machine tools and make available the cooling lubricant at pressures up to 150 bar. A filter is part of every LubiCool® station, which is responsible for the necessary high-quality cleaning of the medium (emulsion or oil).

The high-pressure supply with cooling lubricant ensures small chips, reduced machining time and longer life of

the tools. Machines with this equipment manage the most demanding machining processes, e.g., the cutting of high-alloy steels or titanium. Even deep-hole boring in one step is possible with a KNOLL LubiCool® high-pressure station.

Space-saving: LubiCool®-S fits under a rod loader

At the DST trade fair the smallest and most inexpensive representative of the LubiCool® range, the KNOLL LubiCool®-S, celebrates its première. With a height of only 663 mm, a depth of 635 mm and measuring 985 mm in length, it is so compact that it fits under common rod loaders – perfect for the numerous contract manufacturers expected at DST, who often have limited space.

However, the LubiCool®-S shows its greatness in its functions: The proven KNOLL screw spindle pump KTS generates a high pressure of up to 90 bar, which allows efficient machining processes with difficult materials and high cutting speeds. It provides a flow rate of up to 23 l/min. The result: Shorter machining times and lower unit costs. Savings can also be made in the tool costs.



Première at DST 2021: The small high-pressure system KNOLL LubiCool®-S, which even fits under a rod loader.

Because LubiCool®-S users generally achieve a significantly longer tool life. Another advantage of the KTS screw spindle pump is its high wear resistance, which ensures a long pump life and high process reliability.

A filter element with a filter fineness up to 15 µm ensures the required purity level of the cooling lubricant for high-pressure applications. The smallest chips, fine particles and foreign substances are reliably separated. In contrast to other filter cartridges on the market, the filter element of the LubiCool®-S impresses with its long life. It is also inexpensive and particularly user-friendly when it comes to the exchange and cleaning.

The KNOLL LubiCool®-S is a standard product with a top price/performance ratio and short delivery times. Thanks to its modular design, the high-pressure device can also be equipped with additional optional accessories, including up to eight switchable outputs, a frequency converter for the high-pressure pump, a temperature sensor, a plate heat exchanger for cooling the cooling lubricant, a hose package and a pressure-reducing station for the spindle flushing.

LubiCool®-M – Greater output, more options

The mobile KNOLL high-pressure station LubiCool®-M is slightly bigger in size and also more powerful. The high-performance high-pressure system generates a cooling lubricant pressure of up to 150 bar and has a flow rate up to 27 l/min. Thanks to the KNOLL compact KF filter with filter fleece, an automatic filter process with a filter purity level up to 20 µm is guaranteed. It cleans the cooling lubricant coming from the machine tool at full flow, removes the dirt directly from the loop, thus preventing an accumulation of the finest particles in the

The choice is yours

LubiCool®-S: Small, cost-effective high-pressure system with simple, effective filtration principle, perfect for short and long automatic lathes where space is limited

LubiCool®-M: High-performance high-pressure system with high-quality, automated filtration principle, designed for short and long automatic lathes

LubiCool®-L: Powerful high-pressure system offers high flow rates and flushing processes, suitable for short turning lathes, as well as small and medium-sized machining centres

medium very effectively. Up to eight switchable outputs ensure that the machine tool is supplied with the cleaned cooling lubricant as needed. The basic equipment of the LubiCool®-M also includes a clean tank and a sludge box, which holds the dirty fleece. Compared to the S version,



The mobile high-pressure station KNOLL LubiCool®-M generates a cooling lubricant pressure of up to 150 bar and a flow rate up to 27 l/min.

even more options are available, e.g., a circulating cooler and a WHG sensor.

Also suitable for flushing processes: The KNOLL LubiCool®-L

The KNOLL LubiCool®-L is the most powerful and versatile of the compact KNOLL high-pressure devices – designed for small and medium-sized machining centres as well as lathes. Like the smaller S and M versions, the accessory unit is used for cleaning the cooling lubricant and supplying the machine with high pressure – and with low pressure. Because the high-pressure pump (a KTS 25-50 with 7.5 kW connected load) can be enhanced with a KNOLL TG 30 centrifugal pump for flushing. It is used for different flushing processes, for which up to four switchable outputs are available.

There is also the option to install a KNOLL BS 40 lifting pump in order to guarantee a standalone high-pressure and supply system. All pumps are available with a frequency converter if desired, which ensures a high degree of energy efficiency, demand-based control and optimised consumption.

Like with the LubiCool®-M, the filtration of the cooling lubricant is carried out by the KNOLL KF compact filter with filter fleece, which prevents the accumulation of the finest particles in the medium efficiently and removes the dirt from the medium.



The KNOLL LubiCool®-L is the most powerful and versatile of the compact KNOLL high-pressure devices. It is designed for small and medium-sized machining centres as well as lathes, which it can supply with high pressure and low pressure.

How the LubiCool® high-pressure station works:

The transfer pump conveys the dirty cooling lubricant out of the machine tool and into the respective filter element. There small chips, fine particles and foreign substances are separated from the cooling lubricant. The cleaned cooling lubricant flows into the filter chamber or in the case of the LubiCool®-M and -L into the clean tank. The high-pressure pump supplies the machine tool with cleaned cooling lubricant as needed via switchable outputs. The SmartConnect control is responsible for the control, monitoring and visualisation of the system parameters.

So easy to use – just like a smartphone

A highlight of the entire LubiCool® range is the incredibly simple and intuitive operation. For this, KNOLL developed the new "SmartConnect" control concept, which includes a small touch display, via which the user can set and adjust the desired pressure level and other parameters. The user can also call up information from the sensors and actuators. An LED light strip on the outside of the housing visualises the key system operating data in eight different colours.

All LubiCool® versions are installed in next to no time thanks to their plug-and-play system. With their standard interface they can be connected to all metal-cutting machine tools. Retrofits are also possible and easy to do.



The new "SmartConnect" control concept visualises the key system operating data in eight different colours via an LED light strip on the outside of the housing.



The fixed combined system is also included in the high-pressure stations offered by KNOLL. It is designed for short and long automatic lathes, which have to be built up due to limited space.

The permanent alternative: The KNOLL combined system

As a full-service provider of high-pressure stations, KNOLL has another product in the portfolio, which is not designed as an accessory, but is permanently installed: the combined system. It is designed for short and long automatic lathes, which have to be built up due to limited space.

The combined system comprises a chip conveyor (generally a slat-band chain conveyor) and an additional tank, which increases the cooling lubricant volume. This allows the realisation of unattended shifts. A lifting pump is installed on this tank, which conveys the unpurified cooling lubricant to the KNOLL TURBO filter. This is a backwash filter, which does not require any filter consumables and ensures a degree of purity between 25 and 50 µm. This means that the downstream KTS high-pressure pump is protected, which makes available the cooling lubricant at up to 150 bar via up to eight switchable outputs.

Depending on customer requirements and machine type, KNOLL combines the core components with other options, e.g., a plate heat exchanger or a magnetic cylinder. The result – the combined system – is a consistent complete package, which impresses with optimum performance, low space requirements and a reduced number of interfaces – mechanical and electrical.



KNOLL Maschinenbau GmbH

KNOLL Maschinenbau is one of the leading suppliers of conveyor and filter systems for chips and cooling lubricants in metal processing. Highly flexible transport systems supplement KNOLL's product range. With its comprehensive range of products, KNOLL develops complete systems and system solutions with centralised or decentralised functions. Since 1970, KNOLL has stood for innovation, progress and growth.

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