

AT LÉON JACCARD IN L'AUBERSON, SWITZERLAND

High pressure for high-precision micro-components



Contract manufacturer Léon Jaccard relies on a KNOLL high-pressure system for micro-machining – one that fits under a bar loader

Small components requiring tight tolerances and high surface quality are the speciality of the Swiss contract manufacturer Léon Jaccard. For machining the micro-parts, he uses a Tsugami P034WE Swiss-type lathe, which is equipped with a LubiCool® -XS high-pressure system from KNOLL that is optimised for maximum performance and process reliability.

The Swiss Jura Arc is home to many contract manufacturers who specialise in high-precision parts and supply, in particular, the watchmaking and jewellery industries, medical technology and micromechanics. This also applies to Léon Jaccard SA, which is based in L'Auberson. Over the course of its hundred-year history, the company has built up extensive expertise in micro-machining. Managing Director Sébastien Vouillot explains: "Our ten employees have a wealth of experience, particularly in turning and punching small components."

But expertise alone is not enough. Another key factor in our success is our machine park. "We are seeing ever-increasing demands in manufacturing – particularly when it comes to micro-components," says Sébastien Vouillot. "Components

are becoming increasingly complex and should come out of the machine as completely finished as possible. "The highest levels of precision and surface quality are basic requirements."

In order to provide the best possible service to his customers, Léon Jaccard expanded his machine park two years ago to include a 3-axis and a 5-axis machining centre, meaning that the precision machinists can now also undertake demanding milling operations. In its core area of expertise – metal turning – the company has, of course, continued to invest over the years – in state-of-the-art, Swiss-type lathes from Star Micronics, Tsugami and Tornos.

A small Swiss-type lathe for micro-machining

The latest addition, a small Tsugami P034WE, was delivered in 2025. This Swiss-type lathe, with a bar capacity of 0.8 to 3 mm, is designed for the mass production of extremely small, precision parts. For this machine, Sébastien Vouillot and his



The new KNOLL LubiCool®-XS high-pressure system fits easily under standard bar feeders.

production team placed particular emphasis on a high-performance, high-pressure, lubricating coolant supply system. "On the Tsugami P034WE, we mainly manufacture components for watches and medical devices. "High pressure helps us to improve chip removal, extend tool service life, enhance surface quality and make the process more reliable."

According to Vouillot, lathes of this size are often equipped with high-pressure pumps that are not powerful enough. He therefore contacted his machine supplier, Tsugami NP Swiss in Delémont, to enquire whether there might be a more powerful solution available for the P034WE. The reply came promptly: We could supply this machine fitted with the new LubiCool®-XS high-pressure system from KNOLL Maschinenbau in Bad Saulgau. Brice Ackermann, Managing Director at Tsugami NP Swiss, explains: "This KNOLL cooling lubricant system delivers a pressure of up to 70 bar. Measuring 1013 x 532 x 320 mm in length, width and height, it is extremely compact, quiet and reliable. "It is an ideal solution for our small machines, and at an extremely competitive price."

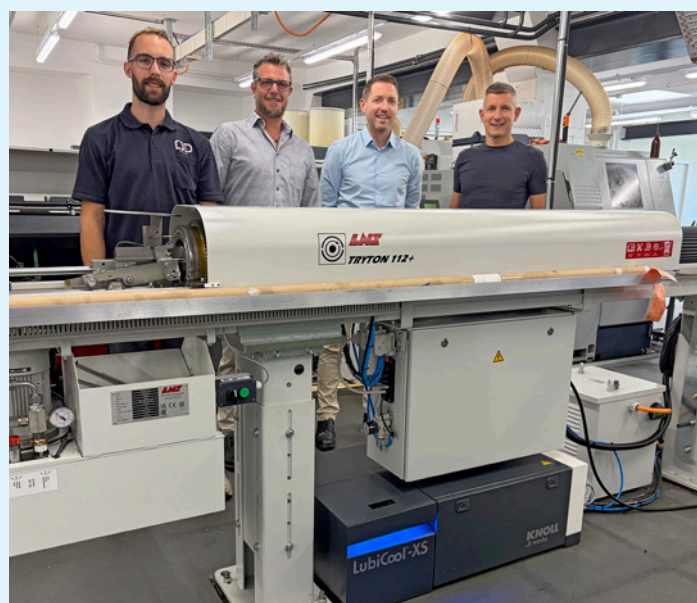
A long-standing partnership

Tsugami NP Swiss has been in partnership with KNOLL Maschinenbau since 2014. In order to optimise the reliability and performance of the small, Swiss-type lathes used for micro-production, Tsugami's management initiated the development of a suitable small high-pressure station a few years ago. "We are well aware of KNOLL's expertise in the fields of high-pressure technology and filtration. The LubiCool® product range, comprising the -S, -M and -L variants, is a perfect example of this. It has already covered a wide range of applications, which is why we had already integrated these systems into our larger machines. "With the LubiCool®-XS, KNOLL has completely met our requirements for a compact version, en-

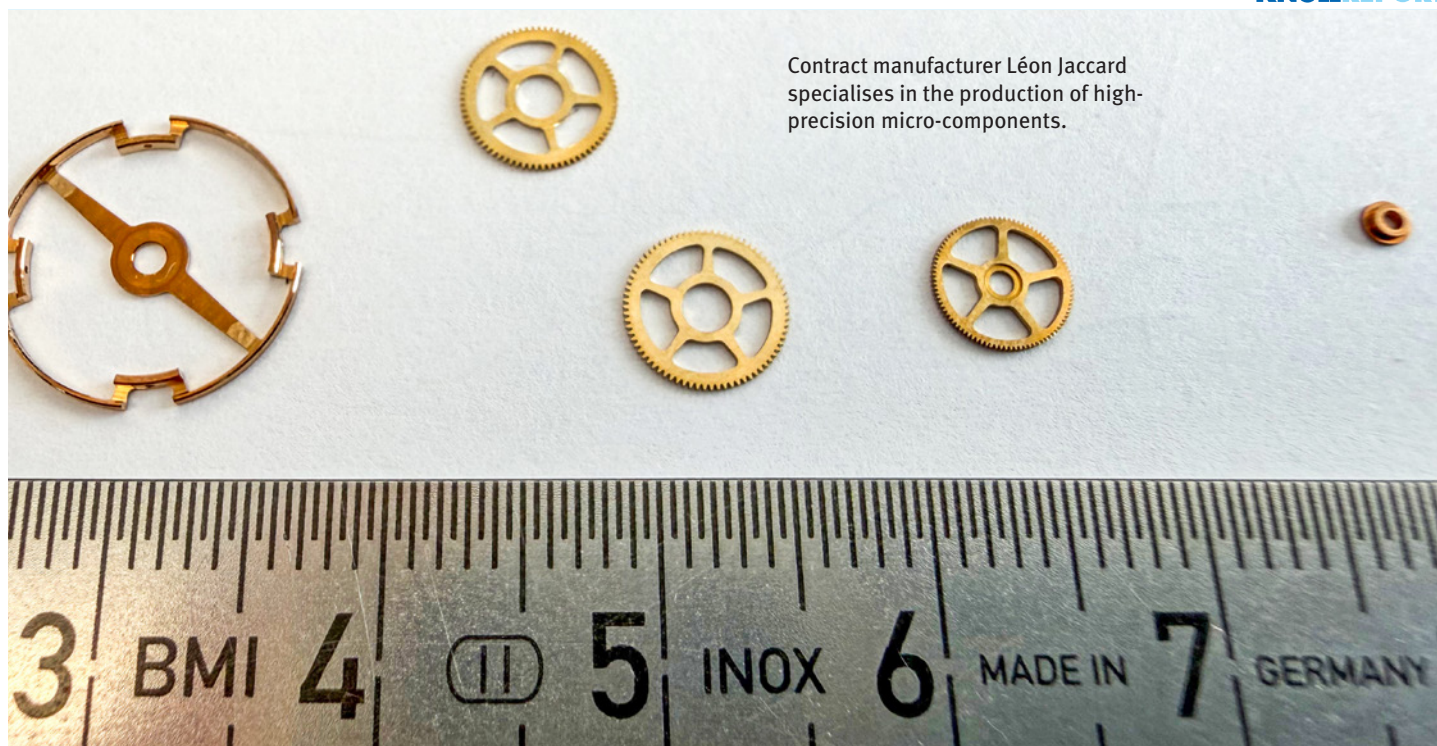


A compact high-pressure system

With the LubiCool®-XS, KNOLL Maschinenbau is expanding the high-pressure systems that it offers to include a particularly compact solution that is especially well-suited to the Swiss-type lathes used in micro-machining. This mobile system, which fits under standard bar feeders, combines cooling lubricant cleaning with a high-pressure supply and delivers pressures of up to 70 bar. It therefore meets the most stringent requirements in terms of precision, surface quality and process reliability. With its new pump and filter concept, the LubiCool®-XS is aimed primarily at users in the watchmaking, jewellery and medical industries.



They are convinced of the performance of the KNOLL LubiCool®-XS: (from left to right) Florent Minary, precision mechanic at Léon Jaccard; Raphaël Decaunes, regional sales manager at KNOLL; Brice Ackermann, managing director at Tsugami NP Swiss; and Sébastien Vouillot, managing director at Léon Jaccard.



Contract manufacturer Léon Jaccard specialises in the production of high-precision micro-components.

abling us to round out the products that we offer in this area."

A high-pressure pump and filter unit in a very compact space

KNOLL is no stranger as a supplier to Léon Jaccard either. Sébastien Vouillot mentions that his Tornos GT32 Swiss-type lathe is equipped with a KNOLL high-pressure pump, combined with the KF 200/1700 compact filter and a 480 S1 hinged belt conveyor. "This solution works very well, but it's a bit too big for the space we have available," explains Vouillot. "On the other hand, the KNOLL LubiCool®-XS that is available seemed to us to be the ideal solution for supplying the Tsugami P034WE."

This small, high-pressure system essentially consists of a tried-and-tested KNOLL KTS screw pump, which delivers pressures of up to 70 bar and a flow rate of 5 l/min. The standard equipment also includes a 30-litre tank system, a transfer pump, four switchable high-pressure outlets and an additional pressure-reduced outlet for flushing processes.

To clean the cooling lubricant in the LubiCool®-XS, KNOLL has developed a new concept based on a replaceable filter bag with a filter fineness of 25 µm. The housing is lockable, which facilitates the secure recovery of chips from valuable materials such as gold.

At Léon Jaccard, the LubiCool®-XS is particularly appreciated for its compact design. This is because the machines are packed closely together on the production floor, so there is very little extra space available. "We were able to fit the LubiCool®-XS under the bar loader without it sticking out anywhere," says



The Tsugami P034WE Swiss-type lathe is designed for the mass production of extremely small, precision parts. The new KNOLL LubiCool®-XS handles the high-pressure cooling lubricant supply.

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Space is at a premium in Léon Jaccard's production facility. It's great that the LubiCool®-XS requires so little space.

Sébastien Vouillot happily. He also praises the 30-litre tank, as it increases the available volume of cutting oil.

Completely satisfied

Léon Jaccard received the LubiCool®-XS high-pressure system from KNOLL as a field trial customer. "A minor teething problem was quickly resolved by Tsugami and KNOLL, and the system has been running to our complete satisfaction ever since," says Sébastien Vouillot. "It is indispensable for mass production, particularly when operated without a human operator." Vouillot adds that high-pressure machining also helps him with small-batch production: "The system allows for greater flexibility in tool selection and enables a rapid response to changing production tasks." In his company, the benefits are particularly noticeable when working with challenging materials, especially tough materials and other materials that are difficult to machine, such as the commonly used 316L stainless steel.

Easy to use and maintain

The machining team at Léon Jaccard is delighted with the LubiCool®-XS. Not just because of its performance, reliability and low noise levels. "The system is extremely user-friendly in day-to-day operation," says Managing Director Vouillot. An LED indicator light uses different colours and flashing frequencies to inform the operator of the operating status. It also alerts you when the filter needs changing and the cooling lubricant needs topping up.



Léon Jaccard SA

Founded in 1926, Léon Jaccard SA is a contract manufacturer specialising in small and micro-components for a wide range of industries. Based in the Vaud Jura (Switzerland), this family-run business, with its ten employees, stands out for its innovative production techniques and extensive craftsmanship. Its domestic and international customers include, in particular, companies in the fields of micromechanics, the watchmaking industry and the medical sector. These components are also used in fastening technology, mechanical and tool engineering, electronics and electrical engineering, as well as in the aerospace and construction industries.

Léon Jaccard SA

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KNOLL Maschinenbau GmbH

KNOLL Maschinenbau is one of the leading suppliers of conveying systems, filtration systems and pumps for the metalworking industry. The systems transport and separate chips and cooling lubricants. The comprehensive product range includes systems for both decentralised and centralised applications. The Automation division develops solutions for demanding assembly and logistics tasks. Since 1970, KNOLL has stood for innovation, progress, and sustainable growth.

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