

Press Release

TRAUB TNL18 and TNL18P Sliding Headstock Automatic Lathes

Double tailored in terms of equipment and price

TRAUB Drehmaschinen GmbH & Co. KG is introducing two new versions of a sliding headstock automatic lathe. During the development process the focus was on innovative technology and comprehensive machining options as well as a variant with a very attractive price/performance ratio. The TNL18P variant delivers maximum productivity. It is optimally tailored to the production requirements of the customer, both in terms of the mechanical system and control technology. The enhanced TNL18 variant is equipped with a few more features than the P variant.



Innovative technology at an attractive price: This was the premise behind the newly developed TRAUB TNL18P sliding headstock automatic lathe (P = production machine). The production lathe is based on the enhanced TNL18 variant and features a clearly-structured and ample working area. A newly developed turret/spindle concept opens up extensive machining options, including for bar stock up to 20 mm in diameter (18 mm for the TNL18). The highlights of the two new models are the newly designed tool carriers, in which the rotating motion is implemented as a NC rotary axis without mechanical interlock, thus allowing the angular positioning of the turret to be freely configured.

Impressive is the handling of the tool flight circles, which at 1225 mm correspond to the Y-travel of a linear tool carrier. All turret stations can be equipped with fixed or driven tool holders. The tool stock in the machine can be increased to as many as 54 tool places through dual- and multi-holders. Clear advantage: the operator does not have to do much re-equipping, thus extending productive times. The high-precision, fast turret indexing enables a very fast chip-to-chip time of 0.3 s, which is absolutely comparable to that of a linear tool carrier.

Simple changeover of the guide bush

With a few manipulations, the lathe can be used with and without a guide bush for long or short parts. The extremely long Z-travel distance of the headstock ensures the proper positioning of the main spindle, either for turning with a guide bush or without. In the standard design, the powerful main spindle is equipped with a C-axis and provided with either a direct drive with high dynamic response or a belt drive (TNL18P). It delivers high torques in order to achieve large cutting volumes.

For complete and complex machining operations

Simultaneous machining with multiple tools ensures high productivity levels by both machines. In this process, up to three tools are used simultaneously on two spindles. The TNL18P production machine differs from the TNL18 variant in that the Y-axis motion of the upper turret is mapped by interpolation of the X/C/H axes. This allows milling contours to be created by entering values in the standard Cartesian X/Y/Z coordinate system. Reliable off-center, axially parallel drilling is thus also possible using this method. A powerful, swiveling sub-spindle is fitted onto an X/Y/Z cross-slide, which simultaneously also carries the bottom tool turret. This slide is characterized by large axis travel distances. The travel for three-axis reverse side machining, even for geometrically complex workpieces, can be freely configured.

Ingenious reverse side machining

Both the TNL18 and the TNL18P feature the extremely solid backworking attachment that is typical on TRAUB machines. It accommodates 7 tool holders of which three can be driven. In total 4 stations are provided with an internal coolant supply. Each station can be controlled individually so that cutting oil is supplied selectively. The large travel distances of the sub-spindles enable stations to be occupied by more than one tool (e.g., dual drill holder). A new innovation is the refined drive scheme for the utilized tool holder, which delivers either high speeds or a high torque. The integrated



workpiece removal allows the workpiece to be rinsed out or, optionally, picked up and deposited for positioning purposes.

New control version for the P variant

The new control, tailored to a TRAUB TNL18P (P = production machine), combines high performance and a high degree of reliability. The most striking feature of the TX8i-p (p = production) is the new operator panel. Data are displayed on a 10.4-inch LCD display and are entered directly via an integrated keyboard instead of a fold-out industrial keyboard. A 64-bit Risc processor and additional PLC high-performance processor provide very fast data processing and support extremely short production times per piece. The programming scope was selectively reduced in line with the requirements for a production machine. However, practically all programming options of the familiar proven TX8i-s version (of TNL18) are available optionally. Thus, for example, the proprietary WINFlexIPS^{Plus} programming system is made available directly to the machine by means of an Ethernet interface to an external PC/laptop. With respect to basic configuration and programming, given identical kinematics the production control is fully compatible with the TX8i series – there is no need to develop new expertise about the control. A philosophy that represents a tradition at TRAUB: since market introduction of the basic version TX8 almost 30 years ago, the principle of user-friendly upward compatibility, along with continuous performance improvements, has been maintained consistently.

Small footprint and easy access

The vertical machine bed design results in not only a favorable chip flow but also an extremely compact footprint. This is also made possible by integrating the control cabinet in the upper part of the machine. This enables space-saving integration of the automatic lathe into existing machine groups. The working area is easily accessed by the user through its noticeably high and wide sliding door. This provides a lot of room for equipping and re-equipping activities. A generously dimensioned inspection window allows the operator to keep a close eye on the machining process. Another plus: For servicing, only a few manipulations are needed to remove the back cover to allow full access to the mechanical assemblies. The hydraulic and pneumatic components are also arranged with full accessibility at the rear of the machine and can be easily surveyed at a glance.



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Improved tool receptacles

Both variants make use of the new TRAUB compact shaft system: an improved system for high-precision mounting of tool holders in the turret. The tool holders are seated deeper in the turret, which results in less leverage effect and, thus, higher stiffness. For driven tool holders, the large shaft diameter enables insertion of roller bearings with large diameters. A quick-change system enables high-precision, smooth exchange of tools without removing the tool holder. The compact shaft system increases the tool life demonstrably and also contributes to improved surface quality.

Double tailored in terms of equipment and price

With the sliding headstock automatic lathe TNL18 and its variant, the TNL18P production machine, TRAUB is expanding its broad portfolio to include two powerful and versatile machines. The P variant caters especially to customers looking for the optimum in price and technology without giving up the familiar comprehensive machining options for maximum productivity.

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Figure 1:
The two new TRAUB sliding headstock lathes are distinguished in terms of equipment and price

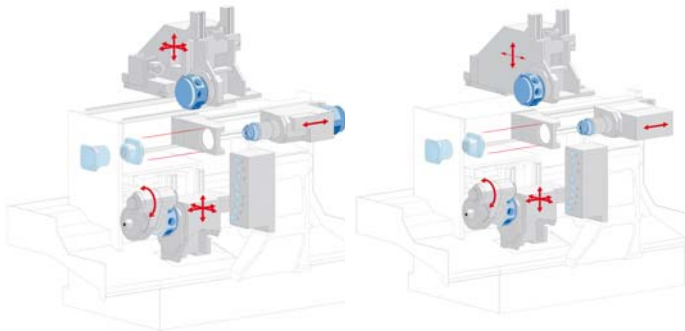


Figure 2a and 2b:
The machine design differs only slightly in the spindle drive and the axes in the top turret

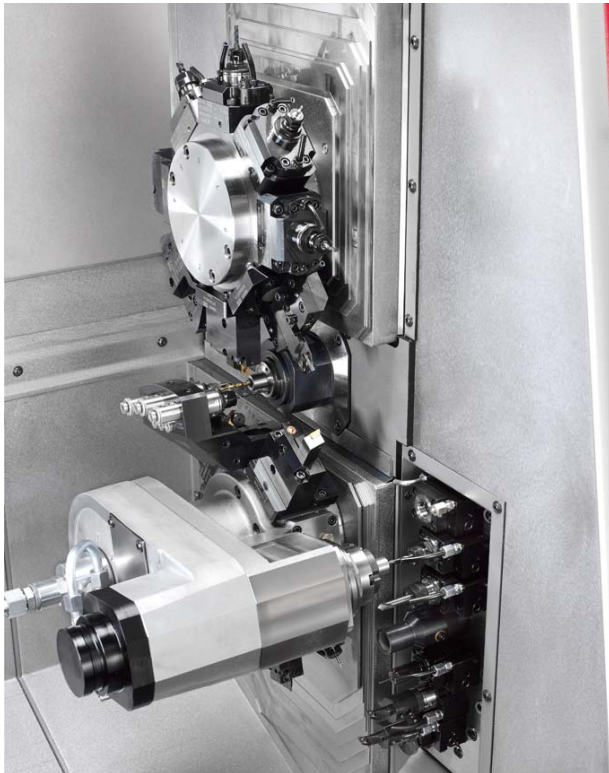


Figure 3:
Interaction of systems; main spindle, top turret, backworking attachment, and the new sub-spindle with integrated bottom turret – form the working area of the TNL18 series

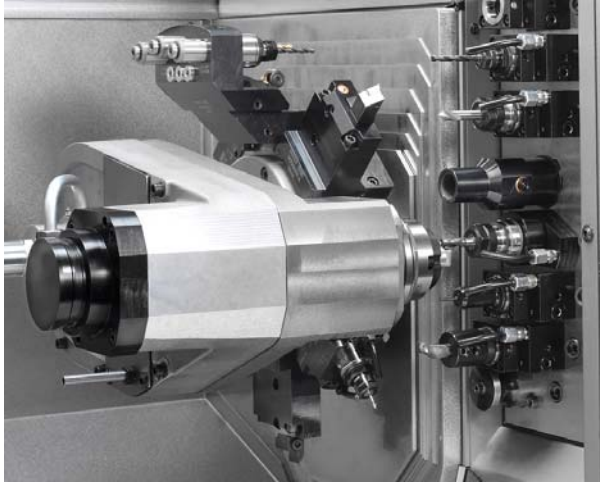


Figure 4:
The sub-spindle can approach the backworking attachment with up to 7 tool stations in 3 axes, thus enabling diverse machining operations

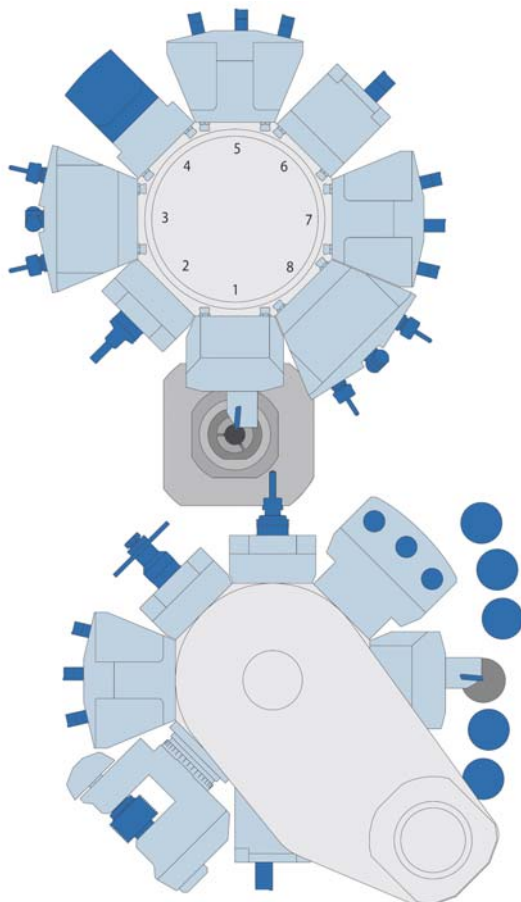


Figure 5:
Highlights of the two new models are the turrets as NC rotary axes, which enable fast, user-configured angular positioning

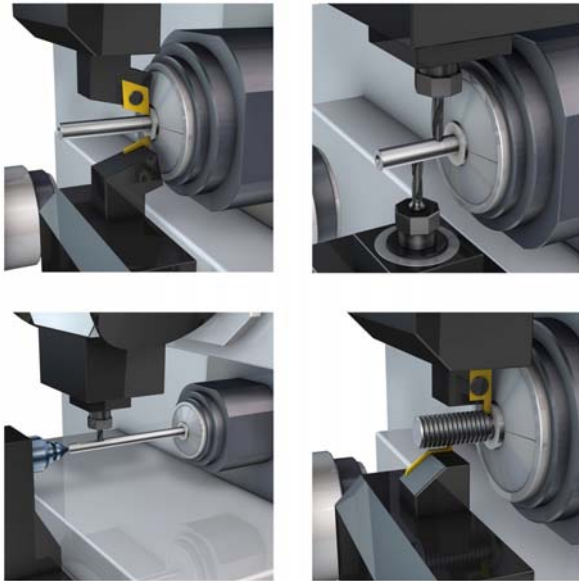


Figure 6:
Simultaneous machining
with 2 turrets on the main
spindle; e.g., turning, milling,
tailstock function, and thread
chasing

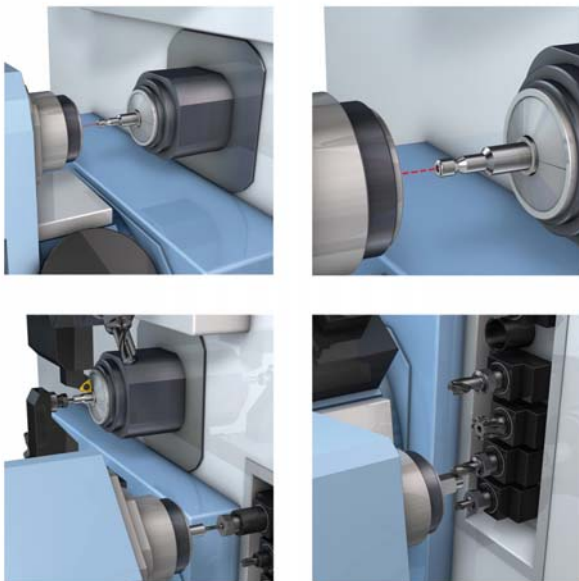


Figure 7:
High-precision and complex
reverse side machining via a
precisely programmable
pick-up position. Three-axis
reverse side machining for
even more possibilities

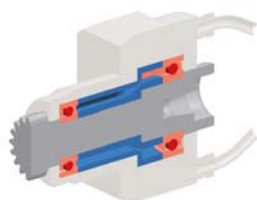


Figure 8:
Ensures even greater
stiffness of the tool holders –
the new compact shaft
system of TRAUB



Figure 9:
The new high-performance
production control Tx8i-p can
be extended via an external
PC/Laptop to include the 3D
Simulation WinFlexIPS^{Plus}