

# **TNL12**

*Compact sliding and fixed headstock automatic lathe  
for precise machining of small workpieces*

**TRAUB**



*better.parts.faster.*

## TRAUB TNL12

The TRAUB TNL12 sliding and fixed headstock automatic lathe offers maximum productivity and flexibility in an extremely compact design

The compact TRAUB TNL12 sliding/fixed headstock automatic lathe with 13 mm spindle clearance has represented premium performance in its class for many years. Its predecessor model raised expectations, and the second generation of the TRAUB TNL12 lives up to them.

The current TRAUB TNL12 features two identical work spindles (main and counter spindles) and two tool turrets, both with an interpolating Y-axis. In addition, it can be equipped with a front working attachment as well as a back working attachment for complex rear-end machining operations. In total, this provides the user with up to 38 available tools. The TRAUB TNL12 can also be switched back and forth between sliding and fixed headstock operation in almost no time.

Its compact footprint together with the work area, which is unique in its class, ensures a very high power density for efficient production. In addition, the spacious work area concept provides optimum process reliability combined with minimal setup effort.

With its impressive performance and flexibility, the TRAUB TNL12 is ideal for users in precision mechanics, the automotive industry, electrical technology, and especially medical technology.

Easy operation is ensured by the current TRAUB TX8i-s V8 controller, which is ready for direct integration of the TNL12 into the digital iXworld.

### The work area concept

Simultaneous and highly productive machining with two tool turrets and front and back working attachments.



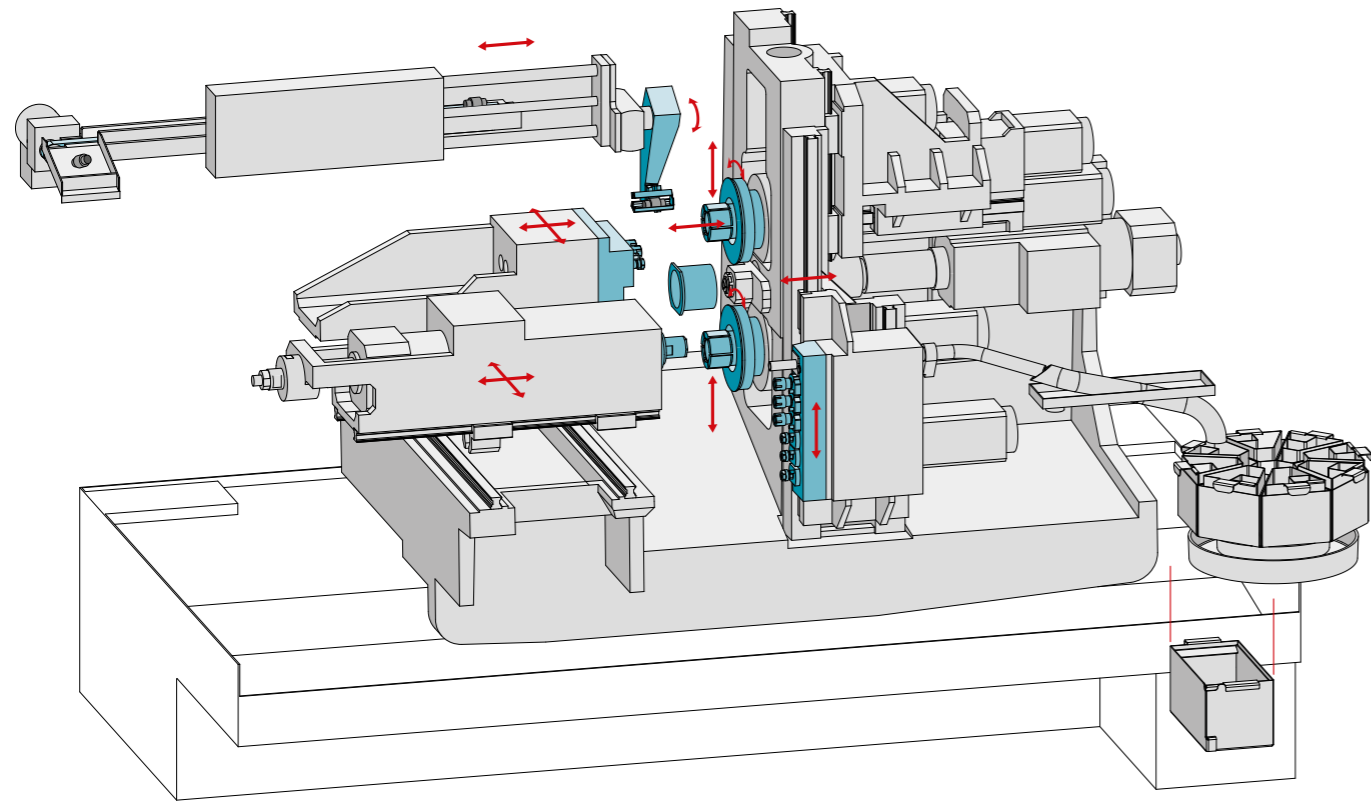
### The machine concept

- Bar clearance up to  $\varnothing$  13 mm
- Up to four tool carriers for simultaneous tool use
- Large tool pool for setup-friendly production
- Brief tool change times thanks to CNC indexing axis in the tool turrets, front working attachment and back working attachment
- Easy changeover from sliding to fixed headstock operation
- Extremely compact machine layout for high productivity per unit area
- Generously dimensioned and ergonomic work area
- Rigid, stable cast iron base and thermo-symmetrical design for maximum precision
- Hydraulic-free machine: no heat input caused by hydraulic components – which also means lower energy consumption
- High dynamic response with direct drives for tools




## Flexible by design

The TRAUB TNL12 sliding/fixed headstock automatic lathe is a further logical development of established production technologies. Whether as a Swiss-type sliding headstock lathe or for highly productive use as a fixed headstock lathe, the configuration options from the modular system are extremely diverse and sufficient to meet even complex requirements.

By accommodating the control cabinet in the machine base, there is plenty of space for your custom work area fittings, including ideal workpiece handling.






### Abutment

-  TiAl6V4
-  4 x 10 mm
-  460 seconds






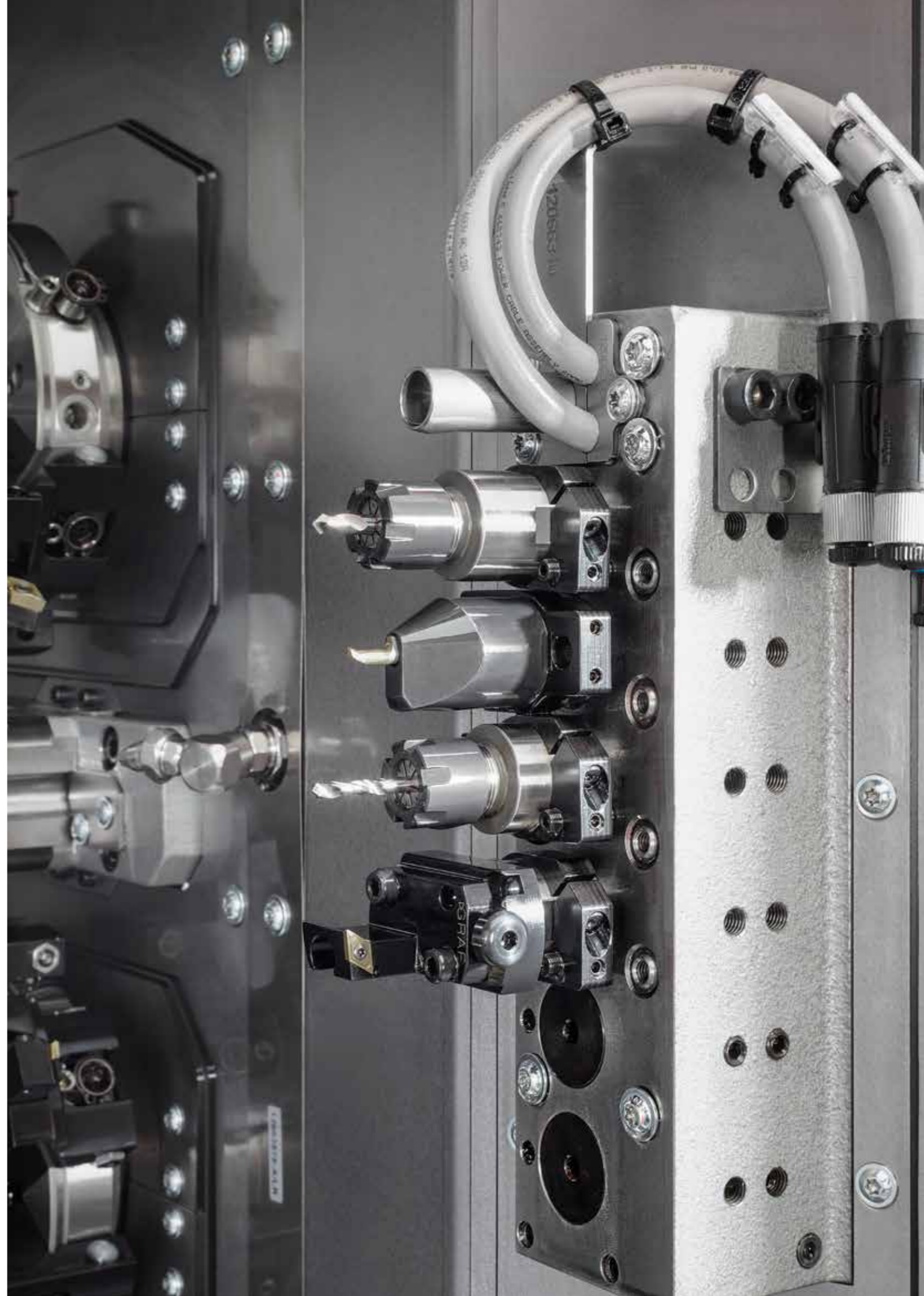
### Bone screw

-  TiAl6V4
-  4 x 46 mm
-  165 seconds



### Tulip-head screw

-  TiAl6V4
-  10 x 23 mm
-  370 seconds





## Up to 4 tool carriers for top flexibility

The TRAUB TNL12 machine concept has been systematically designed with our users' needs in mind. The machine's kinematics ensure efficient and simultaneous machining with up to four tools, permitting even complex machining operations. In addition, the weight reduction, e.g., from the separately movable front working attachment, results in a higher dynamic response and greater programming freedom.

- Four tool carriers with precise electronic indexing axis
- Turret tool locations with TRAUB round prism mounting
- Existing tool holders can be used
- Up to 38 tools with double or triple holders
- High dynamic response thanks to short indexing times
- Short chip-to-chip times



### 2 tool turrets

- Each with 6 live tool stations, up to 12,000 rpm/ 2.0 Nm/2.1 kW (optional)
- Can be equipped with multiple tools
- X-axes and interpolating Y-axes on both tool turrets
- Separate Z-axis on upper turret
- Chip-to-chip time of 0.3 seconds

### Front working attachment

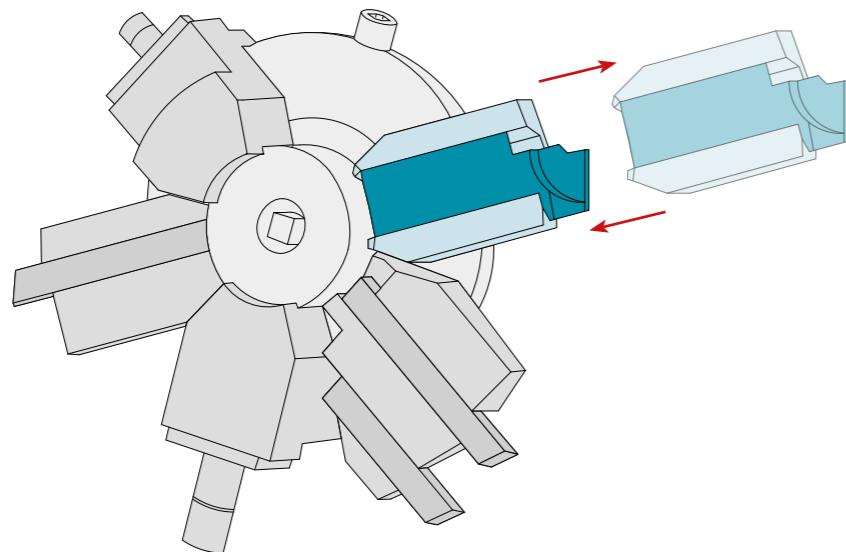
- Autonomous, highly dynamic front working attachment
- Separate X- and Z-axes
- 4 live tool stations, up to 12,000 rpm/ up to 3 Nm (optional)
- 2 locations with internal cooling up to 120 bar/250 bar
- Up to 2 high-frequency spindles possible

### Back working attachment

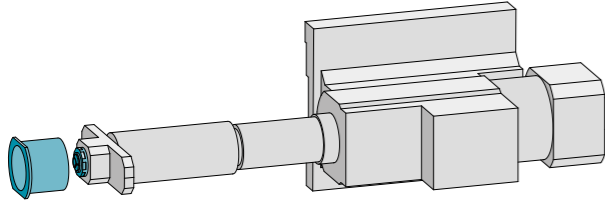
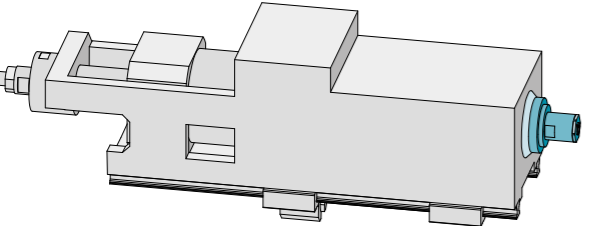
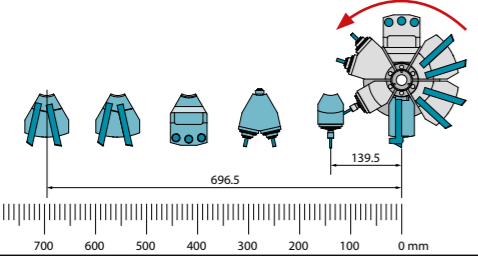
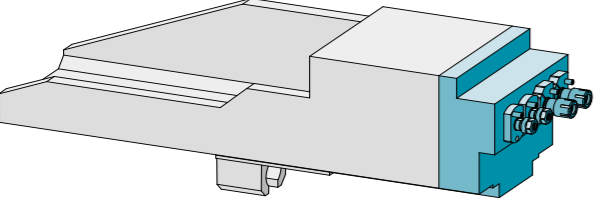
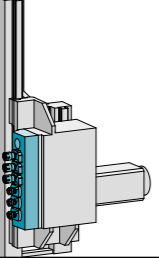
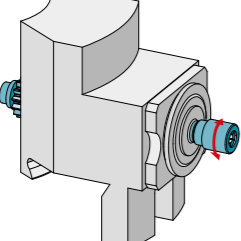
- 6 tool stations
- 4 live tools, up to 12,000 rpm/ up to 3 Nm (optional)
- 3 locations with internal cooling up to 120 bar/250 bar
- Optional flush-out unit
- Separate X-axis

### Tool holder change in just 30 seconds

The central clamping screw allows you to set up each station in no time. Repeat accuracy +/- 0.008 mm



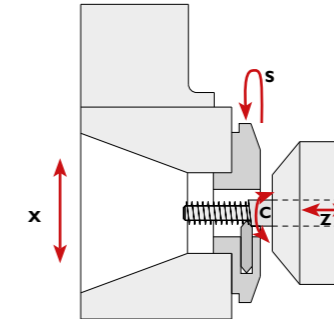
## The components

	<p><b>Main spindle</b></p> <ul style="list-style-type: none"> <li>• Fluid-cooled motorized spindle</li> <li>• Bar clearance Ø 13 mm (F16 collet)</li> <li>• Spindle speed 12,000 rpm</li> <li>• Drive power (100%/40%) 3.5/6.0 kW</li> <li>• Rapid workpiece clamping with spring tensioner</li> </ul>
	<p><b>Counter spindle</b></p> <ul style="list-style-type: none"> <li>• Fluid-cooled motorized spindle</li> <li>• Bar clearance Ø 13 mm (F16 collet)</li> <li>• Spindle speed 12,000 rpm</li> <li>• Drive power (100%/40%) 3.5/6.0 kW</li> <li>• Rapid workpiece clamping with spring tensioner</li> </ul>
	<p><b>Tool turrets (upper/lower)</b></p> <ul style="list-style-type: none"> <li>• CNC indexing axis designed as interpolated Y-axis</li> <li>• Space-saving tool layout</li> <li>• 6 stations each, up to 18 tools per turret can be used</li> <li>• Round prism tool mounting</li> <li>• Rapid traverse rate X 25/Y 25/Z 25 (upper only) m/min</li> </ul>
	<p><b>Front working attachment</b></p> <ul style="list-style-type: none"> <li>• Autonomous compound slide with X- and Z-axes</li> <li>• 4 live tool mountings (optional)</li> <li>• Up to two high-frequency spindles can be used</li> <li>• Internal cooling up to 120 bar on 2 stations</li> <li>• Internal cooling up to 250 bar on station 4</li> </ul>
	<p><b>Back working attachment</b></p> <ul style="list-style-type: none"> <li>• 6 tool mountings for ID and OD machining</li> <li>• 4 of these are live tool mountings (optional)</li> <li>• Internal cooling up to 120 bar on 3 stations</li> <li>• Integrated flush-out unit at position 7 (optional)</li> <li>• Internal cooling up to 250 bar on station 4</li> </ul>
	<p><b>Tool holder</b></p> <ul style="list-style-type: none"> <li>• Tool turret: round prism tool mounting with central clamping screw for brief changeover times.</li> <li>• Front and back working attachment: TRAUB shank system with Ø 28 mm</li> </ul>

## Diverse machining options

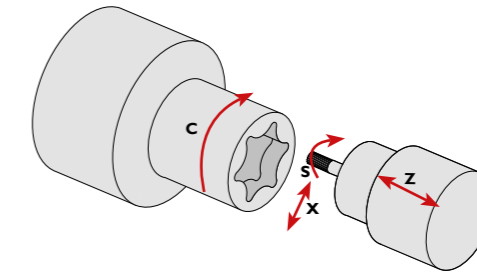
**Thread whirling with front working attachment:**

- Material Ø max. 13 mm
- Thread length max. 75 mm



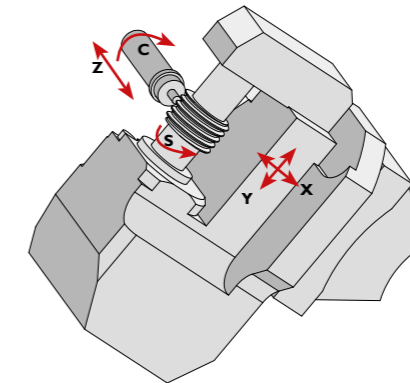
**High-frequency machining (inside) on front/back working attachment:**

- Max. speed 80,000 rpm



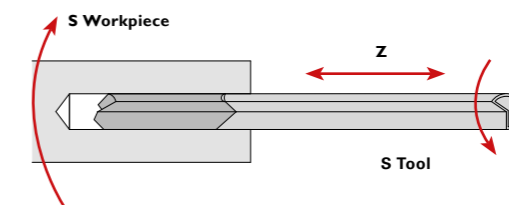
**Gear cutting on the tool turrets**

- Straight gearing
- Max. modulus 0.6



**Deep-hole drilling on front/back working attachment:**

- Drill bit Ø min. 0.4 mm
- Drill depth approx. 100 mm



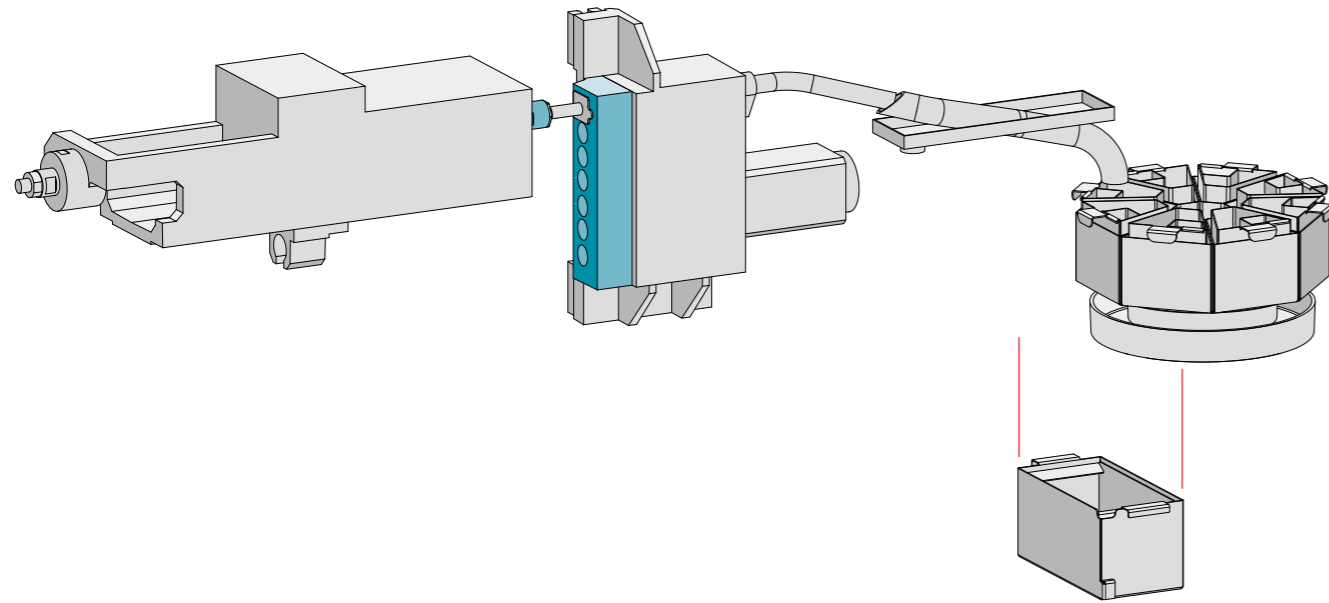


## Workpiece discharge options – fast, safe and gentle

### Flush-out unit for workpieces via back working attachment

The workpieces (max. Ø 13 mm/max. length 60 mm/max. workpiece weight 70 g) can be flushed out quickly, safely and gently from the counter spindle using a flush-out unit,

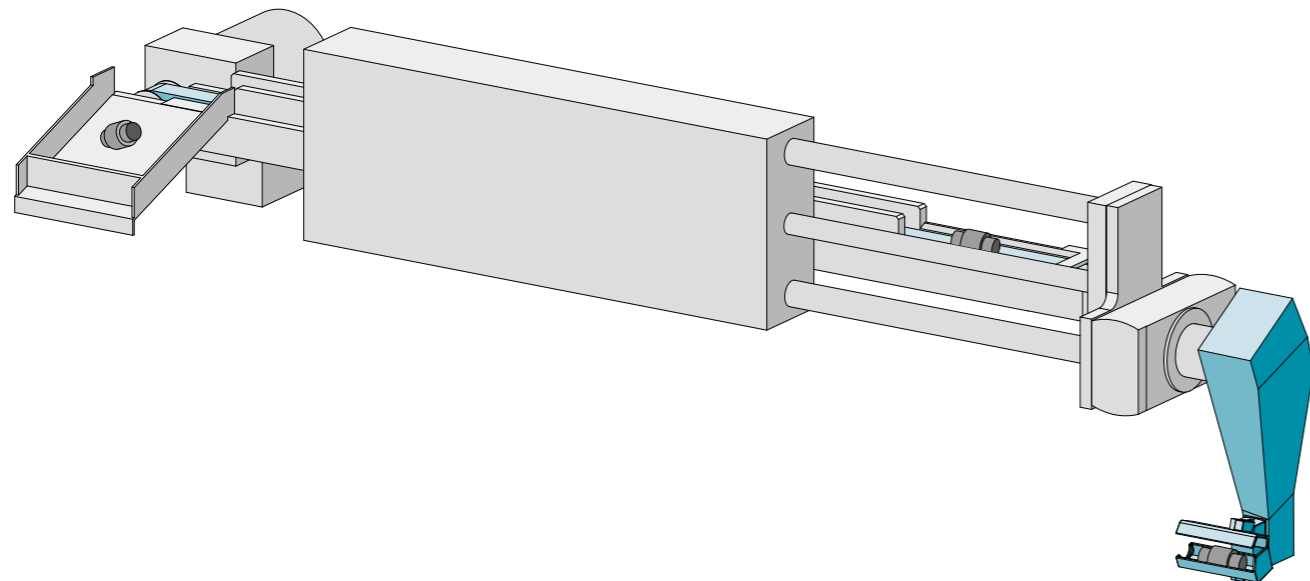
via position 7 on the back working attachment. A ring sensor monitors and acknowledges safe flushing into the parts selector or parts box.



### Workpiece removal unit

The workpiece removal unit (servo linear axis in Z-direction and servo swivel axis) removes the finished workpieces (max. Ø 13 mm / max. length 120 mm / max. workpiece

weight 150 g) with a workpiece gripper (two jaws) and gently places them on a part removal conveyor.







## The cockpit for easy integration of the machine into your business organization.

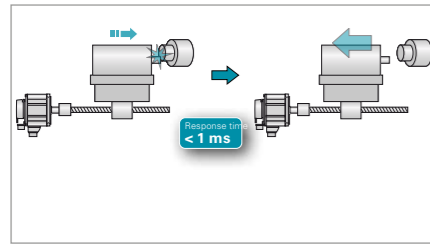


### Focus on production and control – Industry 4.0 included.

The iXpanel operating concept provides access to networked production. With iXpanel, your staff always have all relevant information for efficient production right at the machine. iXpanel is included as standard and can be extended as required. You can use iXpanel just as you require it for your business organization – that's Industry 4.0 tailored to suit your needs.

### Future-proof.

TRAUB TX8i-s V8 optimally integrates iXpanel functionalities. Use iXpanel intuitively via a 19" touchscreen monitor.



### Intelligent

Overload and collision monitoring with electronic quick retraction

- Active on all TRAUB machines
- Minimizes damage to the machine
- Active counter control in case of malfunction
- Response time in the millisecond range by intelligent servo amplifier



### Productive

Ergonomic interactive user interface for programming, editing, setup and operation

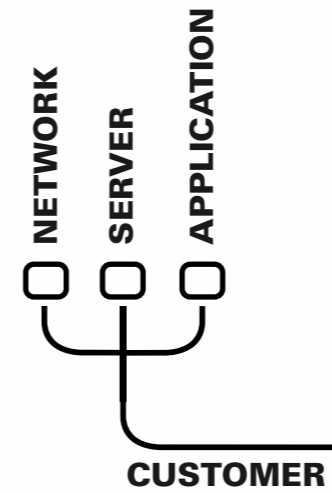
- Online retrieval of manufacturing and setup information; remote access via VNC
- Graphics-supported interactive guidance, also during setup
- Comfortable process synchronization and optimization of program sequences of parallel machining processes
- Visual verification to avoid collision situations through graphical process simulation
- Highly sensitive tool breakage monitoring



### Virtual & open

With the TRAUB WinFlexIPS plus option

- Step-by-step parallel programming and simulation
- Extremely easy synchronization of machining sequences including up to 4 subsystems
- Cycle-time optimization already during programming
- Planning and optimization of a setup in manual/automatic mode just as on the machine
- 3D simulation and 3D collision detection provide for additional safety
- Optionally on an external PC and/or integrated in the control
- Third-party software can be installed via an optional gateway computer



19" TOUCHSCREEN MONITOR

### STANDARD

Industry 4.0 features



Job documents



Customer data



Browser



Drawings



Setup sheet



Notes



Information center



Remote access



User management



Technology computer



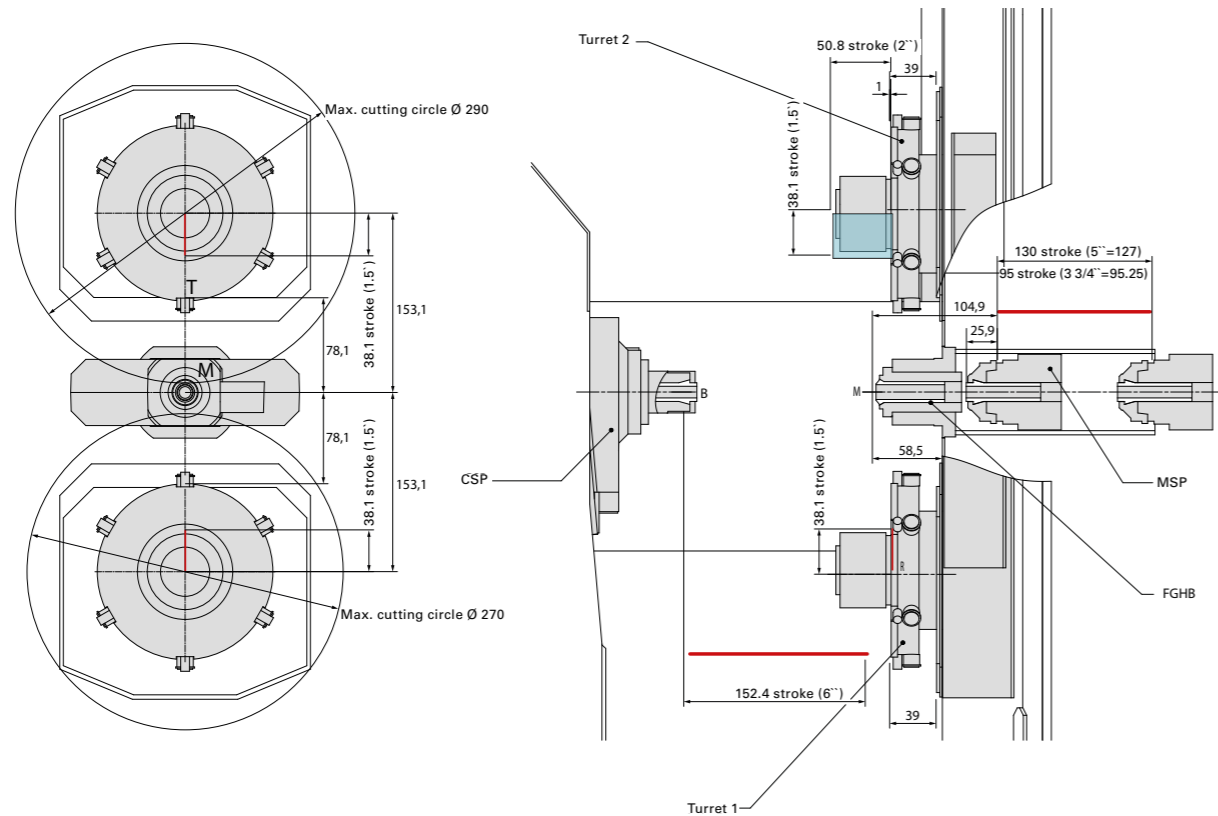
Programming help

### OPTION

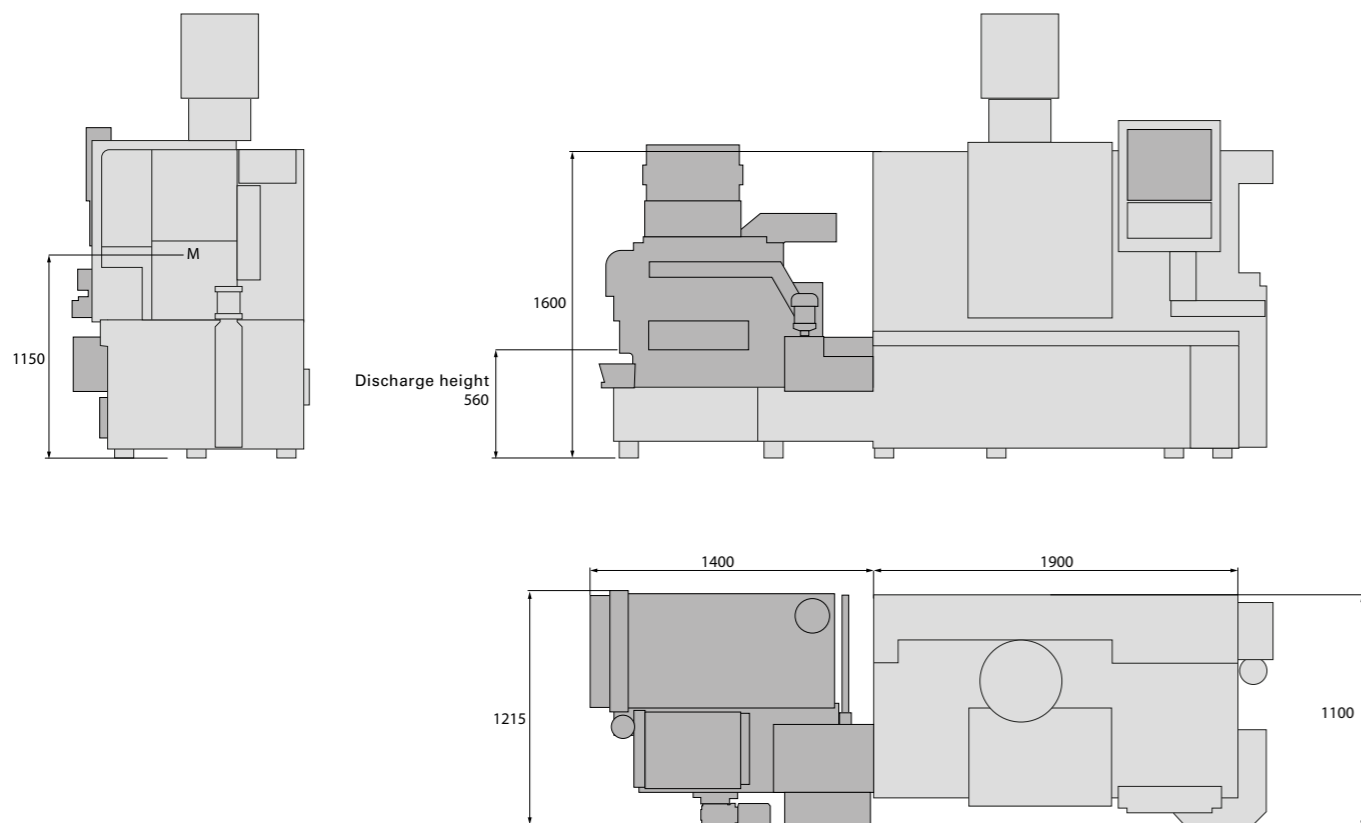
- WinFlexIPS
- WinFlexIPS Plus
- Custom applications

+ many more standard features

Work area



Floor plan



Technical data

TRAUB TNL12

Working range		
Slide travel Z:		
Fixed headstock turning/sliding headstock turning/ sliding headstock turning (prog. guide bushing)	mm	51/130/95
Main spindle		
Spindle clearance	mm	13
Max. speed	rpm	12,000
Drive power (100% / 40% DC)	kW	3.5/6.0
Torque (100%/40% DC)	Nm	6.7/8.6
Rapid traverse rate, feed force	m/min / N	25/3,600
C-axis resolution	deg.	0.001
Counter spindle		
Spindle clearance	mm	13
Max. speed	rpm	12,000
Drive power (100% / 40% DC)	kW	3.5/6.0
Torque (100%/40% DC)	Nm	6.7/8.6
Slide travel Y, rapid traverse rate, feed force	mm / m/min / N	152/40/2,600
Slide travel Z, rapid traverse rate, feed force	mm / m/min / N	330/25/3,600
C-axis resolution	deg.	0.001
Tool turrets upper/lower (optional)		
Tool mountings	Number	6 x TRAUB round prism tool mounting
Max. speed	rpm	12,000
Drive power (100% / 40% DC)	kW	1.0/2.1
Torque (100%/25% DC)	Nm	1.0/2.0
Slide travel X, rapid traverse, feed force	mm / m/min / N	38/25/3,600
Slide travel Y, rapid traverse rate, feed force	mm / m/min / N	> ± 12/25 (interpolated)/3,600
Slide travel Z, rapid traverse rate, feed force (lower only)	mm / m/min / N	51/25/3,600
Front working attachment (optional)		
Tool mountings	Number	4 x TRAUB shank mounting Ø 28 mm
Max. speed	rpm	12,000 (stations 1+4), 9,000 (stations 2+3)
Drive power (100% / 40% DC)	kW	1.0/2.0
Torque (100%/25% DC)	Nm	1.0/2.0 (stations 1+4) 1.3/3.0 (stations 2+3)
Slide travel X, rapid traverse rate, feed force	mm / m/min / N	330/40/2,600
Slide travel Z, rapid traverse rate, feed force	mm / m/min / N	152/25/3,600
Internal cooling stations 1+4 (optional)	bar	120
Internal cooling station 4 (optional)	bar	250
Back working attachment		
Tool mountings (of which 1x workpiece flushing)	Number	7 x TRAUB shank mounting Ø 28 mm
Max. speed of tool drive	rpm	12,000 (stations 1+4), 9,000 (stations 2+3)
Drive power at (100%/25% DC)	kW	1.0/2.0
Torque at (100%/25% DC)	Nm	1.0/2.0 (stations 1+4) 1.3/3.0 (stations 2+3)
Slide travel X, rapid traverse rate, feed force	mm / m/min / N	203/25/3,600
Internal cooling stations 1, 4 and 5 (optional)	bar	120
Internal cooling station 4 (optional)	bar	250
Flush-out unit via back working attachment (optional)		
Max. workpiece weight/length/diameter	g/mm/mm	70/60/13
Workpiece removal unit (optional)		
Max. workpiece weight/diameter	g/mm	150/13
Max. workpiece length, gripper finger (optional)	mm	120
Max. workpiece length, gripper shell (optional)	mm	60
General data		
Length x width x height	mm	1,900 x 1,100 x 1,600
Weight (incl. coolant system, max. equipment version)	kg	3,400
Connected power		24kW/28kVA, 50A, 50/60Hz
Controller		TRAUB TX8i-s V8



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