

TNX 160

*Turn-mill center for high-performance machining
of small workpieces*

TRAUB



better.parts.faster.

New dimensions in turning and milling

The TRAUB TNX160 is an innovative turn-mill center in a class of its own—especially when it comes to efficient production of small workpieces with high complexity and variability. Based on a rigid and vibration-damping machine bed made of gray cast iron and large-dimension linear guides in the X-, Y-, and Z-axes, this series stands for state-of-the-art machine engineering and delivers excellent machining results with exceptional productivity.

The TRAUB TNX160 is equipped with two identical work spindles.

Three tool carriers provide an extensive tool capacity, ensuring outstanding process reliability while minimizing setup times. With up to 16 productive axes, this advanced turn-mill center offers exceptional flexibility for the complete machining of complex workpieces.

The generously sized work area is unique in this class and impresses with its sophisticated features that allow simultaneous machining using all three tool carriers while minimizing the risk of collisions.

The smooth and steeply sloping stainless steel interior paneling ensures optimum chip evacuation.

The TRAUB TNX160 is designed for the production of a wide range of components across numerous industries, including medical technology, automotive manufacturing, electrical engineering, and precision mechanics.

Machine concept

- Identical main and counter spindles with spindle clearance of Ø 42 mm or Ø 65 mm
- Chuck sizes up to Ø 130 or Ø 175 mm
- Smart, generously dimensioned work area solution for turning lengths of up to 760 mm
- Three tool carriers with up to 120 tools in the tool magazine and turrets
- Highly efficient simultaneous machining with up to three tools operating at the same time
- Powerful motor milling spindle with Y/B kinematics and speeds of up to 32,000 rpm for complex 5-axis milling operations
- High dynamic response with rapid traverse rates of up to 60 m/min
- High thermal and mechanical stability
- Engineering excellence “Made in Germany”



Top performance for applications in the automotive, medical technology, and precision engineering sectors

INDEX provides optimal solutions for flexible and efficient production. Throughout the product development process, INDEX experts leverage years of experience from many industries. Products and processes are then tailored to specific customer needs through feasibility studies, efficiency analyses, and,

above all, close collaboration with the customer. INDEX products are modular in design and highly flexible, giving customers access to an extensive modular system for a solution that perfectly matches their application.

The TRAUB TNX160 turn-mill center delivers top performance for customers in the automotive, medical technology, aerospace, and precision engineering sectors—combining high availability and process reliability to provide a complete solution for high-performance machining of small workpieces.



Shift drum

Steel
Ø 50 mm x 105 mm



Shaft

Steel
Ø 25 mm x 200 mm



Gear

Steel
Ø 65 mm x 37 mm



Pump housing

Steel
Ø 50 mm x 57 mm



Flow manifold

Steel
Ø 30 mm x 40 mm



Dental drill head

Steel
Ø 25 mm x 65 mm



Watch case

Steel
Ø 60 mm x 12 mm



Valve body

Steel
Ø 62 mm x 38 mm



Tool holder

Steel
Ø 40 mm x 98 mm



Milling cutter

Stainless steel
Ø 50 mm x 80 mm



Distributor block

Stainless steel
Ø 55 mm x 120 mm

Flexible and versatile configuration options from the modular system

The modular system in this series offers a wide range of configuration options. Two different work spindles can be used, and up to three tool carriers can be integrated into the work area.

Depending on the customer-specific configuration, the two powerful, identical main spindle and counter spindle units provide a spindle clearance of Ø 42 mm or Ø 65 mm. Alternatively, chucks with diameters of up to Ø 130 mm or Ø 175 mm can be used.

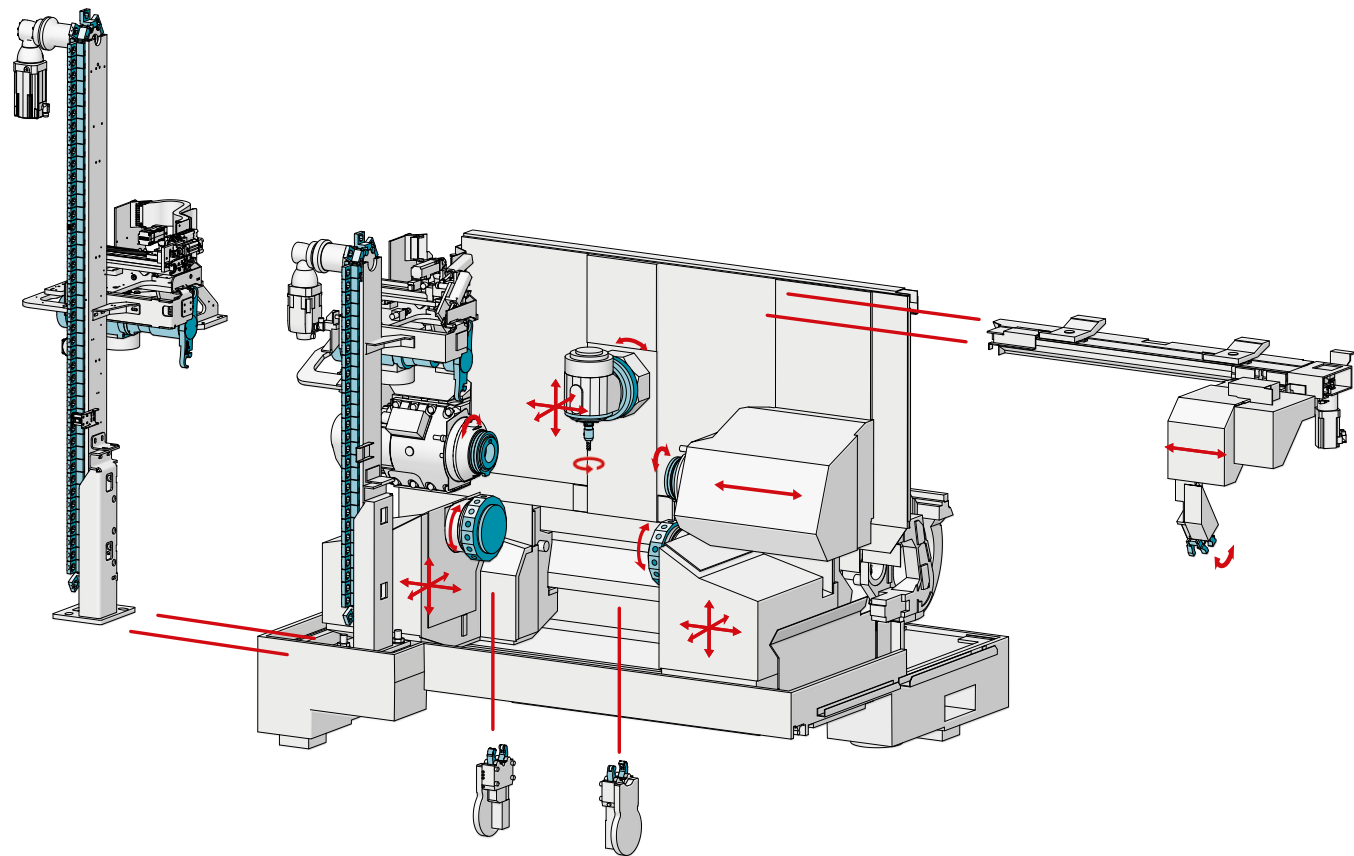
Each of the lower tool turrets accommodates 15 VDI 25 tool holders with the proven W gearing. All tool slots are designed for the use of live tools.

Two powerful motor milling spindle variants are available as options: either 18,000 rpm/29 Nm or 32,000 rpm/17 Nm. The work area offers ample space to machine any kind of workpiece. Workpieces with lengths of up to 760 mm can be accommodated.

Turret steady rests are available for machining long or shaft-type parts.

Considerable emphasis was placed on an ergonomic setup and operating concept during the machine's development. All the relevant components are easily accessible for operating and maintenance personnel. Optionally, an integrated workpiece handling unit matched to the machining processes can be used for loading and unloading shaft and flange parts.

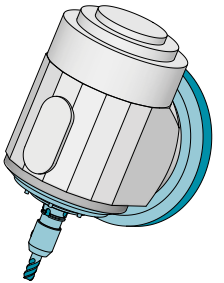
The modular robot cell iXcenter is available for all machines in this series, for flexible loading and unloading of blanks and finished parts.



The assemblies

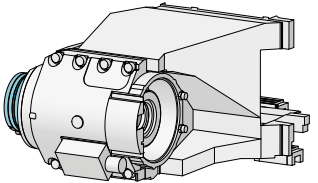
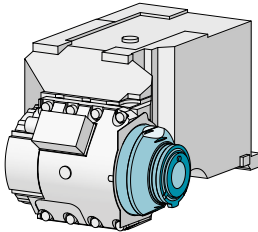
Motor milling spindle

- HSK-T40: 18,000 rpm, 29 Nm (25% DC)
- HSK-T40: 32,000 rpm, 17 Nm (25% DC)
- X-axis: 333 mm, rapid traverse rate: 30 m/min
- Y-axis: +/-65 mm, rapid traverse rate: 15 m/min
- Z-axis: 760 mm, rapid traverse rate: 50 m/min
- B-axis: -15°/+195°, angular speed 100 rpm



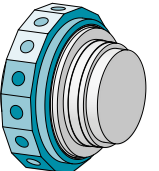
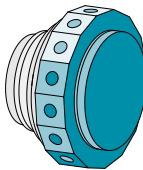
Main and counter spindles

- Spindle clearance: Ø 42 mm/Ø 65 mm
- Max. speed: 7,000 rpm/6,000 rpm
- 29 kW, 65 Nm (40% DC) / 32 kW, 170 Nm (40% DC)
- Z-axis counter spindle: 750 mm, rapid traverse rate 60 m/min
- Chuck diameter: Ø 130 mm/Ø 175 mm



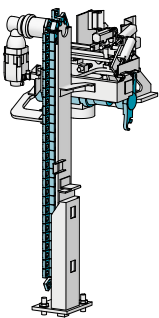
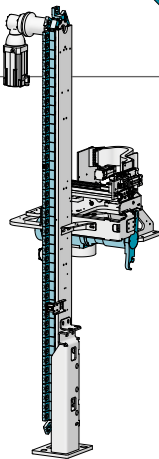
Lower turrets with 15 stations each

- 15 live stations each, VDI 25 with W gearing
- 6,000 rpm, 6.6 kW, 21.5 Nm (25% DC)
- X-axis: 133 mm, rapid traverse rate: 30 m/min
- Y-axis: +/-45 mm, rapid traverse rate: 15 m/min
- Z-axis: 650 mm, rapid traverse rate: 50 m/min



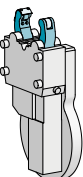
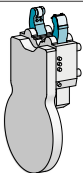
Tool magazine

- 60 tool slots, HSK-T40
- Optional: 90 tool slots, HSK-T40
- Max. tool weight: 5 kg
- Max. workpiece diameter: Ø 80 mm
- Max. tool length: 250 mm
- Front setup station



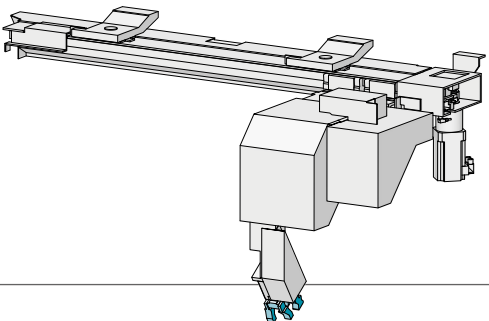
Turret steady rests (optional)

- Lower steady rests clamping range: 6-70 mm



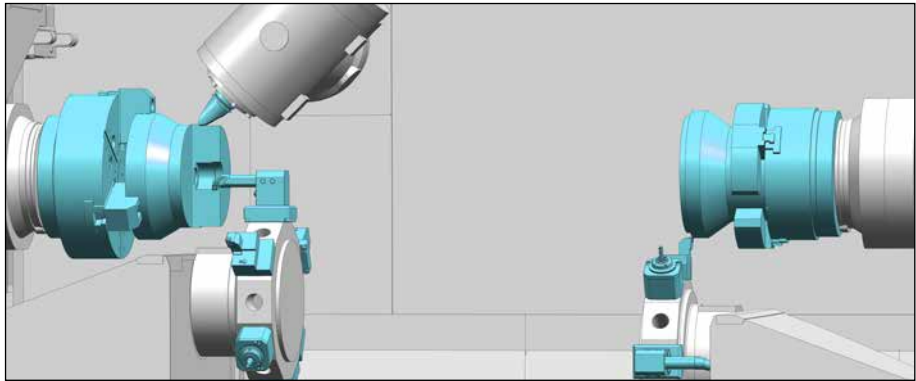
Linear unit

- Integrated 2-axis workpiece handling unit
- Max. workpiece diameter: 65 mm
- Max. part length 200 mm
- Max. workpiece weight: 5 kg

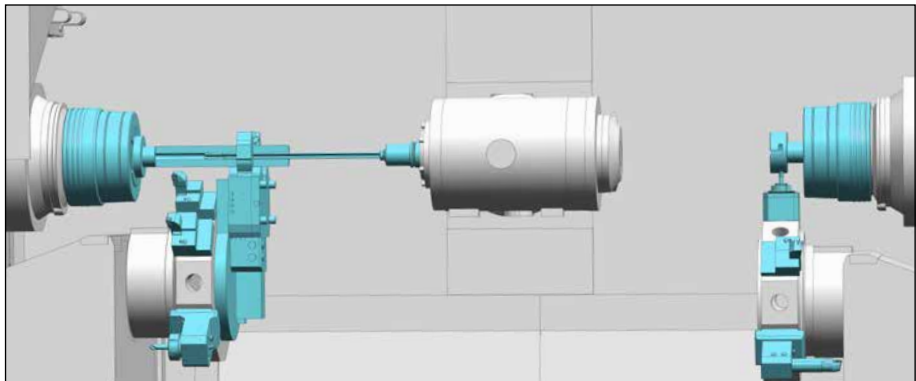


Large degrees of freedom in the work area for a wide range of machining options

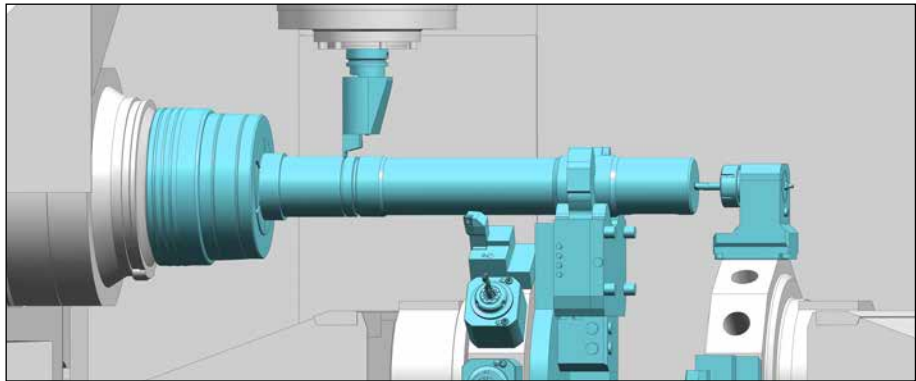
TRAUB TNX160
Simultaneous machining with 3
tools for maximum productivity



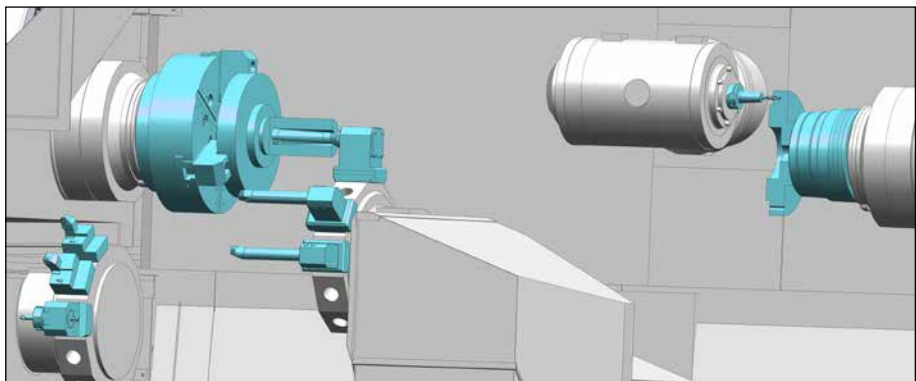
TRAUB TNX160
Use of tools up to 250 mm long
in the motor milling spindle,
e.g., for deep-hole drilling
applications with the highest
precision



TRAUB TNX160
Turret steady rests provide for
flexible shaft machining

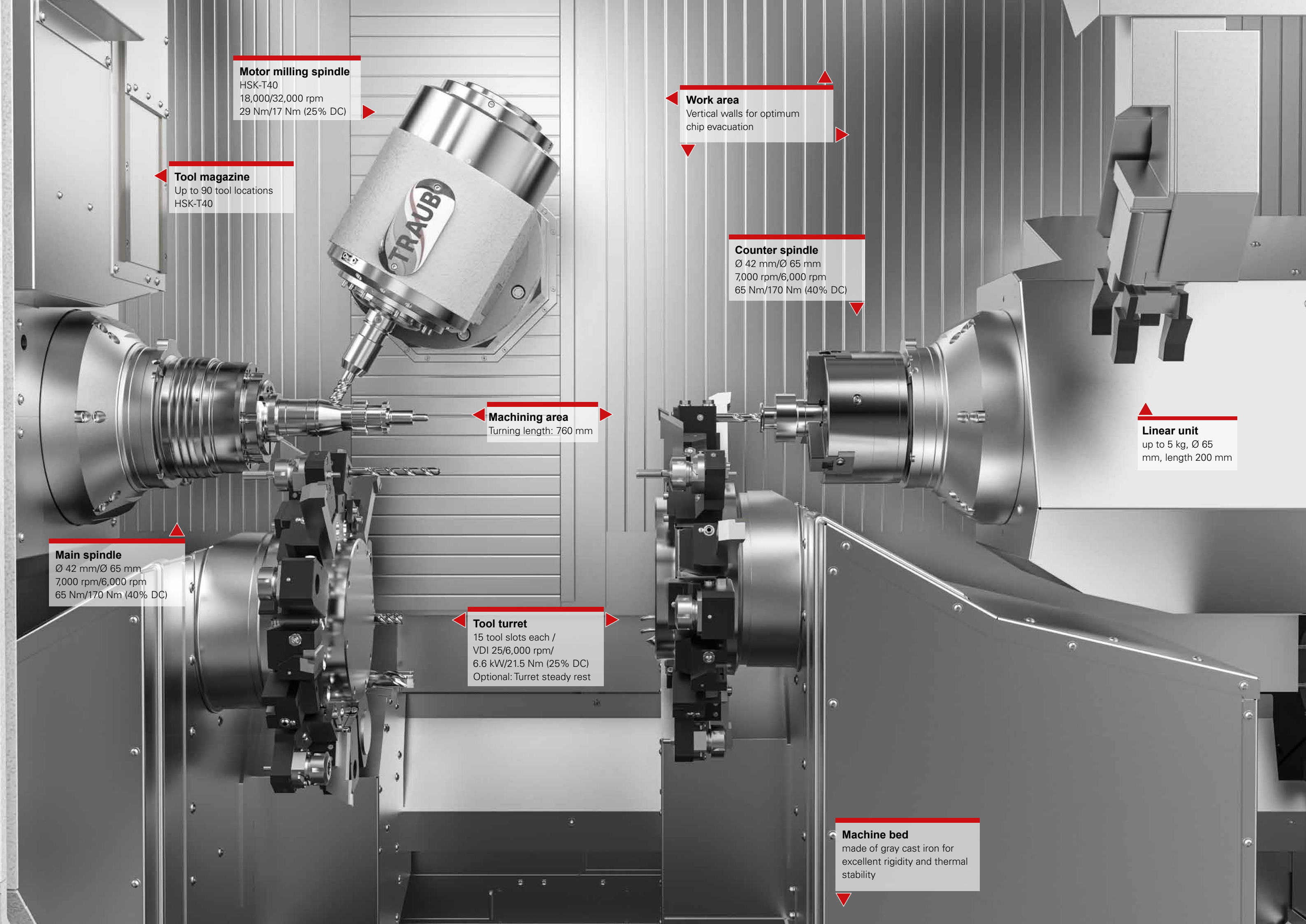


TRAUB TNX160
Lower tool carriers dip out of the
way to maximize freedom from
collisions



Concept image





Motor milling spindle
HSK-T40
18,000/32,000 rpm
29 Nm/17 Nm (25% DC)

Tool magazine
Up to 90 tool locations
HSK-T40

Work area
Vertical walls for optimum
chip evacuation

Counter spindle
Ø 42 mm/Ø 65 mm
7,000 rpm/6,000 rpm
65 Nm/170 Nm (40% DC)

Machining area
Turning length: 760 mm

Main spindle
Ø 42 mm/Ø 65 mm
7,000 rpm/6,000 rpm
65 Nm/170 Nm (40% DC)

Tool turret
15 tool slots each /
VDI 25/6,000 rpm/
6.6 kW/21.5 Nm (25% DC)
Optional: Turret steady rest

Linear unit
up to 5 kg, Ø 65
mm, length 200 mm

Machine bed
made of gray cast iron for
excellent rigidity and thermal
stability

Xcenter – INDEX automation with added flexibility and efficiency

With the optional iXcenter robot cell, blanks and/or finished parts can be loaded and unloaded quickly, safely, and flexibly. The robot cell is docked ergonomically to the machine. It can be moved easily to the right during the setup process, allowing unobstructed access to the work area.

In production mode, the iXcenter is fixed in position in front of the machine. The robot accesses the work area via the machine's work area door. As an option, part handling between the robot and the machine-integrated workpiece handling unit can be carried out via a separate access hatch using a handshake interface.

Downstream processes such as cleaning, measuring, labeling, and more can be integrated into the robot cell.



Ready to go

- 6-axis robot for up to 7 kg payload with integrated gripper control
- Double gripper as standard
- Pallet storage for blanks and finished parts
- Easy in-house relocation possible

Optional **handshake solution**:
intelligent part handling
without interrupting production

Pallet storage with up to 22
workpiece pallets
600 mm x 400 mm x 25.4 mm

Pallets are inserted/removed
by the robot



Integrated automation solutions for efficient production

The simplest form of automation is a bar loading magazine, for which the TRAUB TNX160 provides a UNIMAG 5 interface. For example, it can be connected to the INDEX MBL76 bar loading magazine, available for 3 m and 4 m bar stock and offering outstanding bar guidance characteristics.

For workpiece unloading, the classic solution is a linear unit that picks up the finished part and places it onto a conveyor belt. Significantly greater flexibility is provided by the integrated workpiece handling units WHU/WH2. They are equipped with four axes and can be used for loading and unloading as well as for remnant handling. Operation is handled via the machine control system. A flexible combination with a pallet station, conveyor belts, or a robot cell is possible.

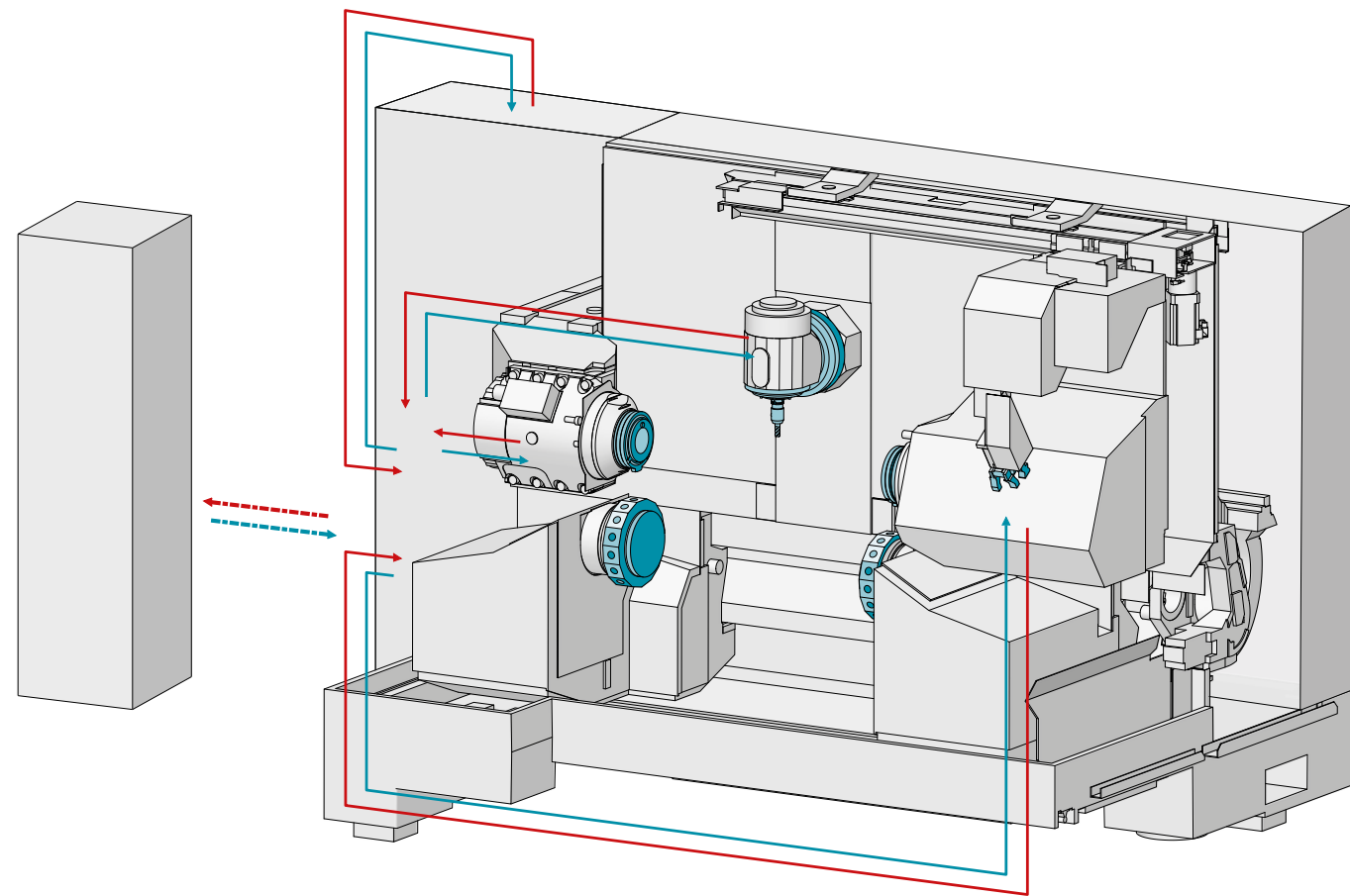


For automated machining, it is essential to inspect and measure tools inside the machine. For this purpose, INDEX offers various systems, ranging from tactile methods to laser solutions that detect geometric changes and cutting-edge wear contactlessly on the tools in the motor milling spindle and the turrets.

The linear unit can be used for workpiece unloading. It is designed for parts weighing up to 5 kg, with diameters up to 65 mm and lengths up to 200 mm.

Intelligent cooling concept: efficient use of energy

The TRAUB TNX160 turn-mill center impresses with its well-designed cooling concept. Waste heat generated in the spindles, the hydraulic unit, and the control cabinet is efficiently removed from the machine via a central fluid circuit. This improves temperature stability and supports a precise and reliable machining process.



Economical and climate-neutral use of waste heat

The TRAUB “coolant circuit” enables the centralized recovery of heat energy stored in the coolant, allowing it to be repurposed as needed—for example, for heating shop floors, industrial water heating, or providing process heat for other production steps.

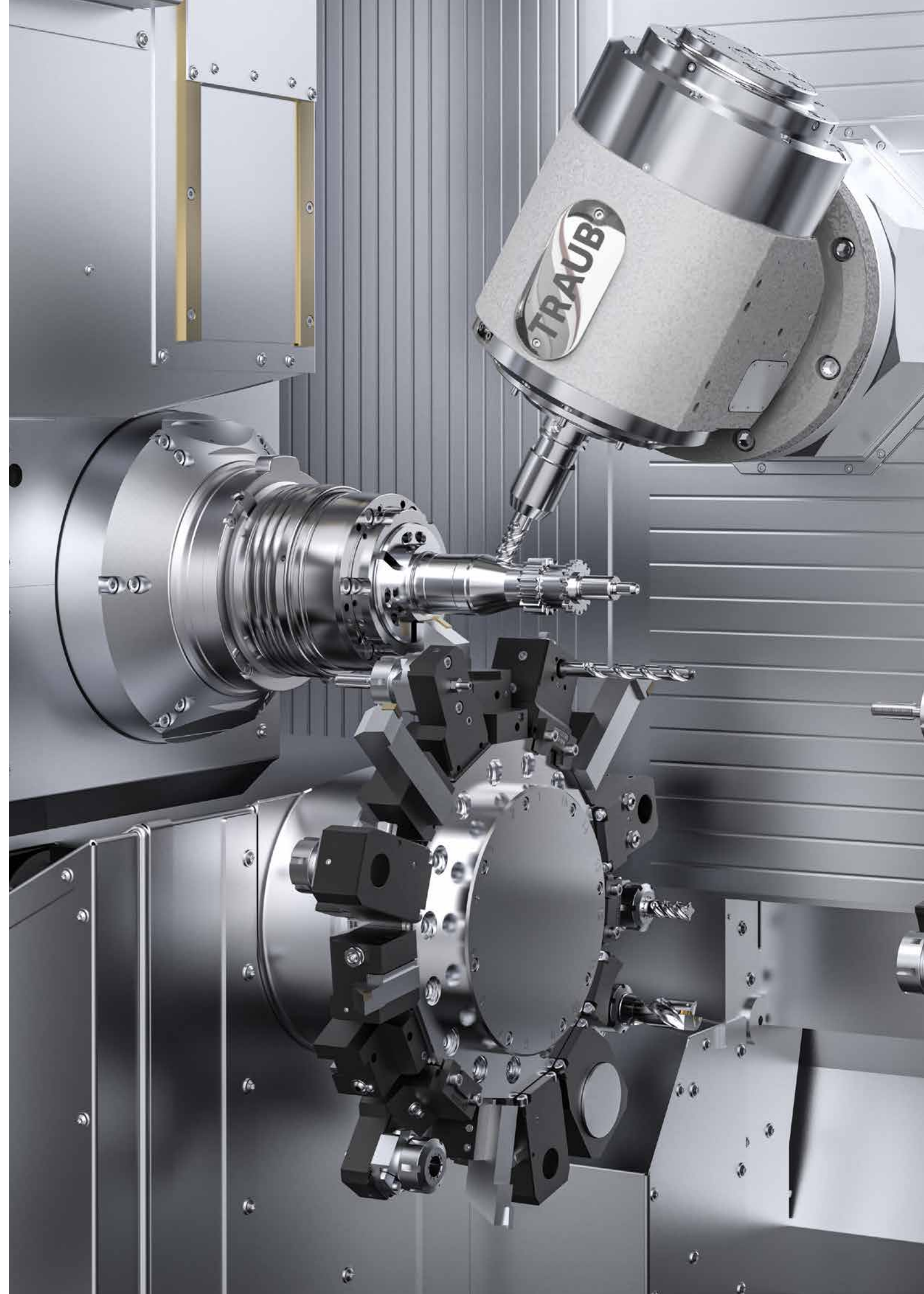
The recovery of machine waste heat allows for a sustainable reduction of energy costs in the company.

Better working environment

It is advantageous that cooling can take place away from production. The noise and heat emissions are thus reduced to a minimum and your staff are not unnecessarily burdened.

Greater reliability

The innovative design eliminates components typically required by conventional cooling concepts, such as fans and temperature sensors. This enhances availability and increases profitability. The space required is also reduced.





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

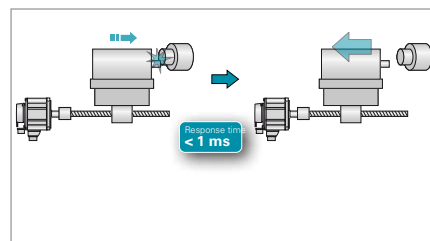


Focus on production and control—Industry 4.0 included

The iXpanel operating concept provides access to networked production. With iXpanel, operators have instant access to all the information they need for efficient production—right at the machine. iXpanel is included as standard and can be expanded to meet your individual requirements. 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.

The TRAUB TX8i-s V8 control system is optimally integrated into the TRAUB iXpanel. Operation is intuitive via a 19-inch touchscreen.



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

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

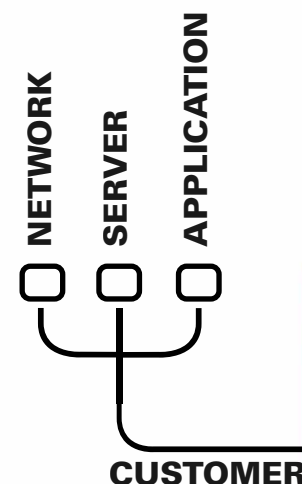
- Online retrieval of manufacturing and setup information; remote access via VNC
- Graphics-supported interactive guidance, also during setup
- Comfortable process synchronization and optimization of program sequences of parallel machining processes
- Visual verification to avoid collision situations through graphical process simulation
- Highly sensitive tool 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 6 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 system
- Third-party software can be installed via an optional gateway computer



19" TOUCHSCREEN MONITOR

STANDARD included as standard

Industry 4.0 features



Workpiece-specific documents



Customer data



Browser



Technology calculator



Notes



Information center



Remote access



User management



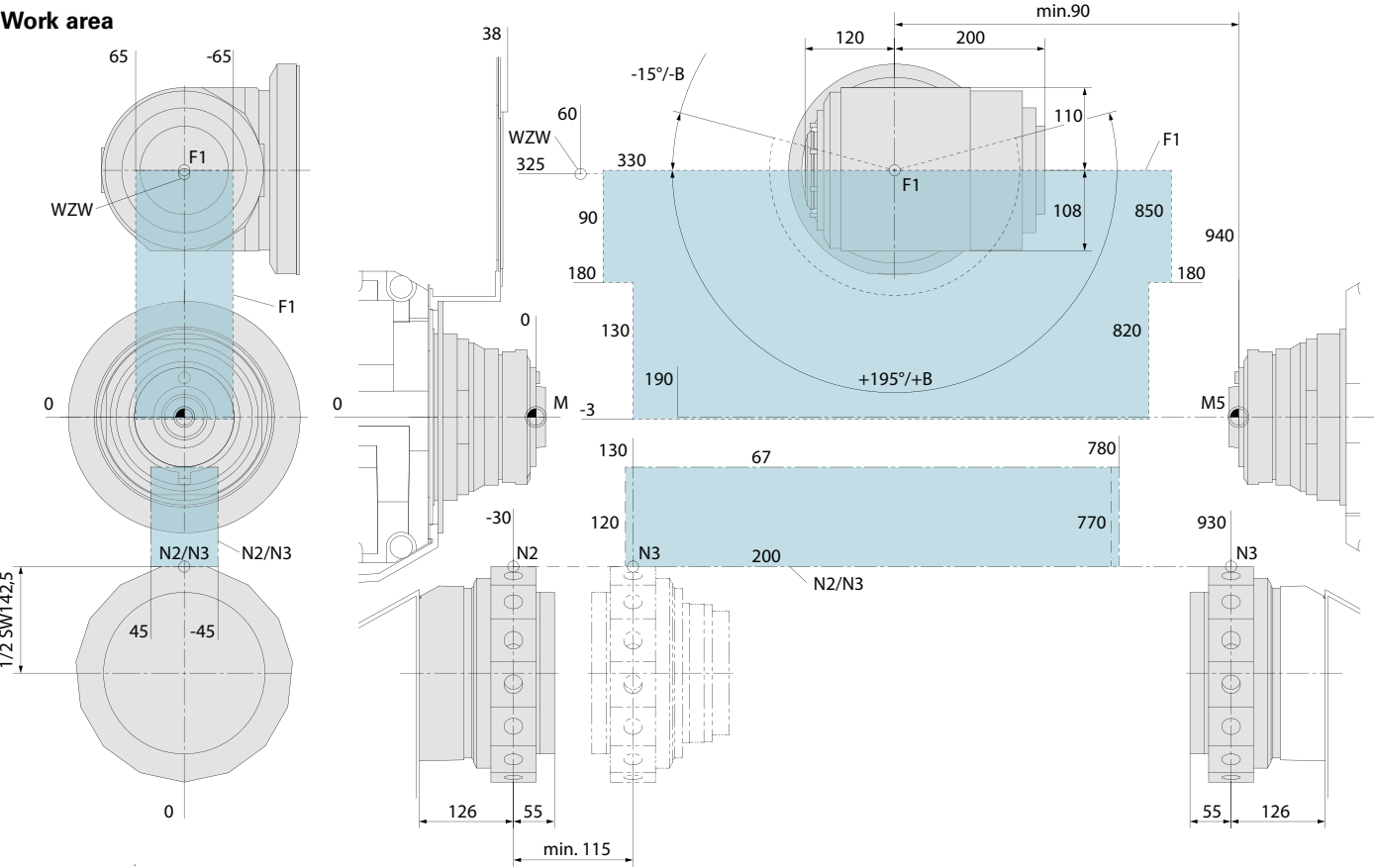
Programming assistance

OPTION

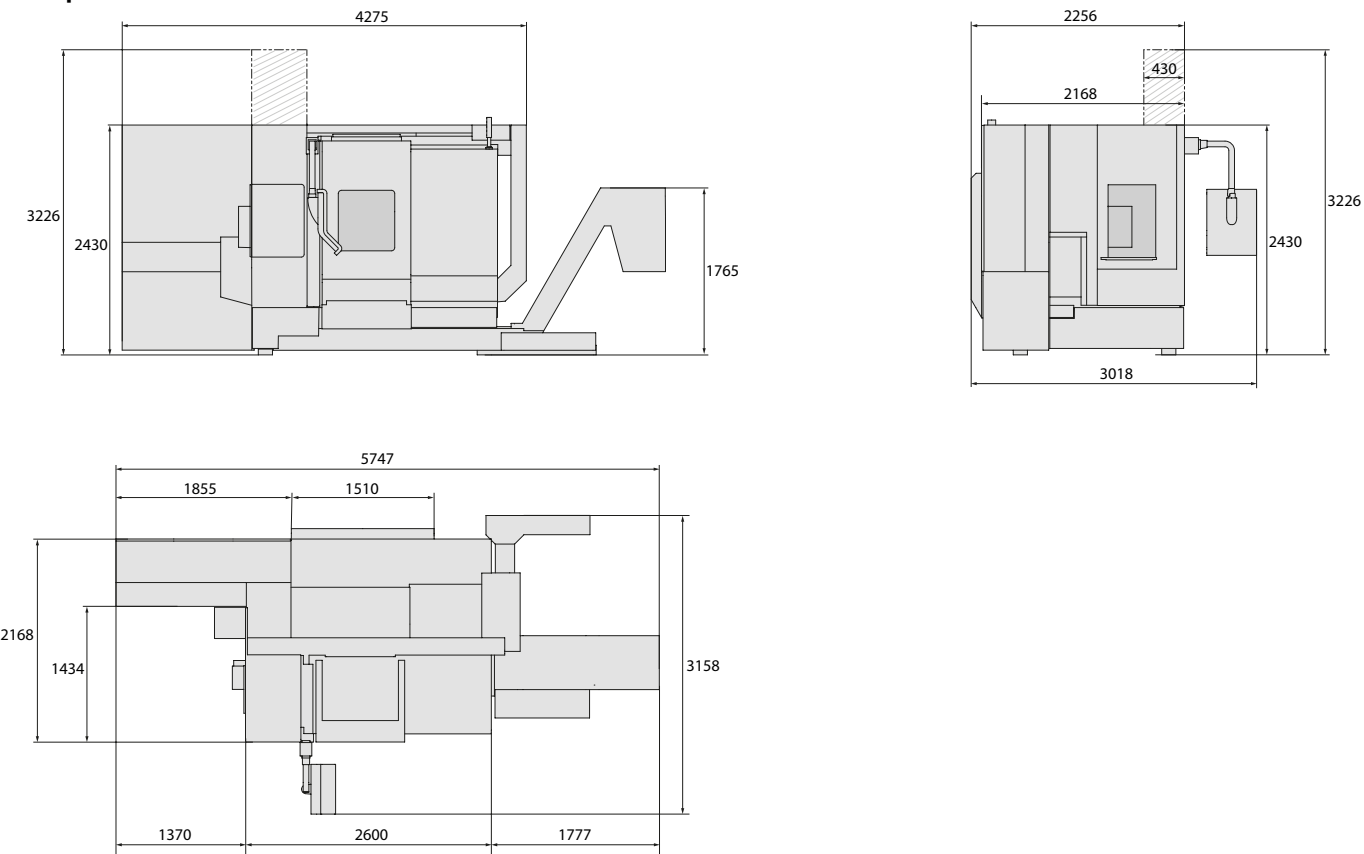
- WinFlexIPS
- WinFlexIPS ^{plus}
- Custom applications

+ many more standard features

Work area

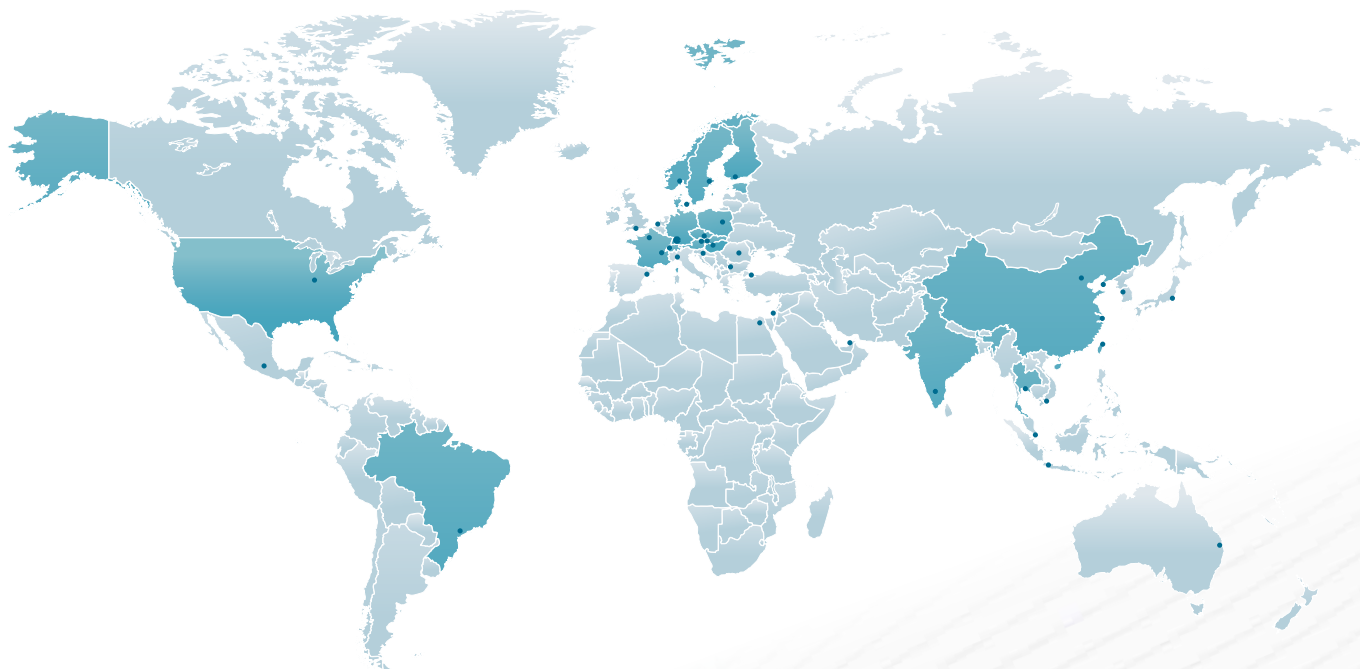


Floor plan



Technical specifications

TRAUB TNX160			
Machining area			
Turning length	mm	760	
Main spindle and counter spindle			
Spindle clearance	mm	Ø 42	Ø 65
Spindle nose ISO 702/1		A5	Z140
• Max. speed	rpm	7,000	6,000
• Drive power main spindle/counter spindle (100%/40% DC)	kW	25/29	31.5/32
• Torque main spindle/counter spindle (100%/40% DC)	Nm	49/65	125/170
Chuck diameter	mm	130	175
Z-axis counter spindle, rapid traverse	mm / m/min	750/60	750/60
C-axis resolution	Degrees	0.001	0.001
Upper tool carrier		Motor milling spindle	
Tool interface		HSK-T40	HSK-T40
Kinematics		XYZB	XYZB
• Max. speed	rpm	18,000	32,000
• Drive power (25% DC)	kW	27	27
• Torque (25% DC)	Nm	29	17
X slide travel, rapid traverse rate, feed force	mm / m/min / N	333/30/6000	333/30/6000
Y slide travel, rapid traverse rate, feed force	mm / m/min / N	130/15/9,000	130/15/9,000
Z slide travel, rapid traverse rate, feed force	mm / m/min / N	760/50/5,000	760/50/5,000
B axis swivel angle, angular speed	Degrees/rpm	210 (195/-15)/100	210 (195/-15)/100
Lower tool carrier, left/right		Radial turret XYZ	
Tool interface DIN 69880		VDI-25, W gearing	
Number of stations		15	
• Max. speed	rpm	6,000	
• Drive power (25% DC)	kW	6.6	
• Torque (25% DC)	Nm	21.5	
X slide travel, rapid traverse rate, feed force	mm / m/min / N	133/30/6000	
Y slide travel, rapid traverse rate, feed force	mm / m/min / N	90/15/9,000	
Z slide travel, rapid traverse rate, feed force	mm / m/min / N	650/50/6000	
Tool magazine			
Tool interface		HSK-T40	
Tool magazine slots		60/90	
Max. tool weight	kg	5	
Max. tool diameter	mm	80	
Max. tool length	mm	250	
Turret steady rests (optional)			
Turret steady rest clamping range	mm	6-70	
Linear unit			
Max. workpiece weight	kg	5	
Max. workpiece diameter	mm	65	
Max. part length	mm	200	
Workpiece handling unit WHU/WH2 (optional)			
Max. workpiece weight	kg	10	
Max. workpiece diameter	mm	130	
Max. part length	mm	150	
Machine dimensions			
Length x width x height	mm	4,275 x 2,256 x 2,510	
Weight	kg	11,100	
Connected power	kW	71 (83 KVA)	
Control		TRAUB TX8i-s V8	



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