

TNX200, TNX220

*Turn-mill centers for high productivity
and flexibility*

TRAUB



better.parts.faster.

New dimensions in turning and milling

The TRAUB TNX200/TNX220 is an innovative turn-mill center in a class of its own—especially when it comes to efficient production of small to medium-sized workpieces with high complexity and variance.

Based on a rigid and vibration-damping mineral-cast monoblock machine bed and large-dimension linear guides in X and Z axes, this series stands for modern mechanical engineering

and thus for excellent machining results with high productivity. Three tool carriers with a tool pool of up to 169 tools provide maximum flexibility for complete machining of complex workpieces.

A total of up to 16 productive axes ensure impressive machining results without exception.

The large work area is unique in this class and impresses with its sophisticated features that allow simultaneous machining using all three tool carriers with no collision risk.

The smooth and steeply sloping stainless steel interior paneling ensures optimum chip flow. The chip conveyor can be mounted on the right or left side, depending on customer requirements.

The TRAUB TNX200/TNX220 is ideal for the manufacture of a wide range of products in many industries such as machinery construction, automotive, and aerospace.

The machine concept

- Identical main and counter spindles with a spindle clearance of dia. 76 mm
- Chuck up to dia. 230 mm
- 3 tool carriers for up to 169 tools
- Powerful motor milling spindle with proven Y/B quill kinematics for complex 5-axis milling operations (TNX220)
- Sophisticated work area concept for turning lengths up to 900 mm and variable machining options
- High thermal and mechanical stability
- High acceleration and fast rapid traverse rates up to 50 m/min
- Easy setup
- Engineering excellence “Made in Germany”



Best performance for applications in the automotive, aerospace, and machinery industries

INDEX provides optimal solutions for flexible and efficient production.

Its engineers have integrated years of experience leveraged from many industries into the product development process.

Products and processes are then tailored to specific customer needs through feasibility studies, efficiency analyses, and, above all, close collaboration with the customer. TRAUB 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 TNX200 and TRAUB TNX220 turn-mill centers offer the best performance for customers from the machinery, automotive, and aerospace industries. Providing an ideal combination of productivity, flexibility and process reliability, the machine is a complete solution for high-performance machining of smaller workpieces.



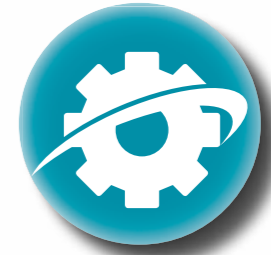
Motor housing

Steel
dia. 98 mm x 125 mm



Output shaft

Steel
dia. 68 mm x 180 mm



Nut housing

Steel
dia. 64 mm x 154 mm



Drive shaft

Aluminum
dia. 44 mm x 220 mm



Turbine blade

Stainless steel
dia. 75 mm x 100 mm



Milling head

Stainless steel
dia. 70 mm x 100 mm



Gear

Steel
dia. 70 mm x 37 mm



Distribution block

Stainless steel
dia. 55 mm x 120 mm



Nozzle body

Stainless steel
dia. 60 mm x 160 mm

Complete machining based on a modular system

The modular system in this series offers a wide range of options. Up to 3 tool carriers can be integrated into the work area, and all of them can be equipped with a Y axis.

The work area offers ample space to machine any kind of workpiece, accommodating parts up to a length of 900 mm. The powerful main and counter spindles are designed for bar diameters up to 76 mm and for chuck part diameters of up to 230 mm.

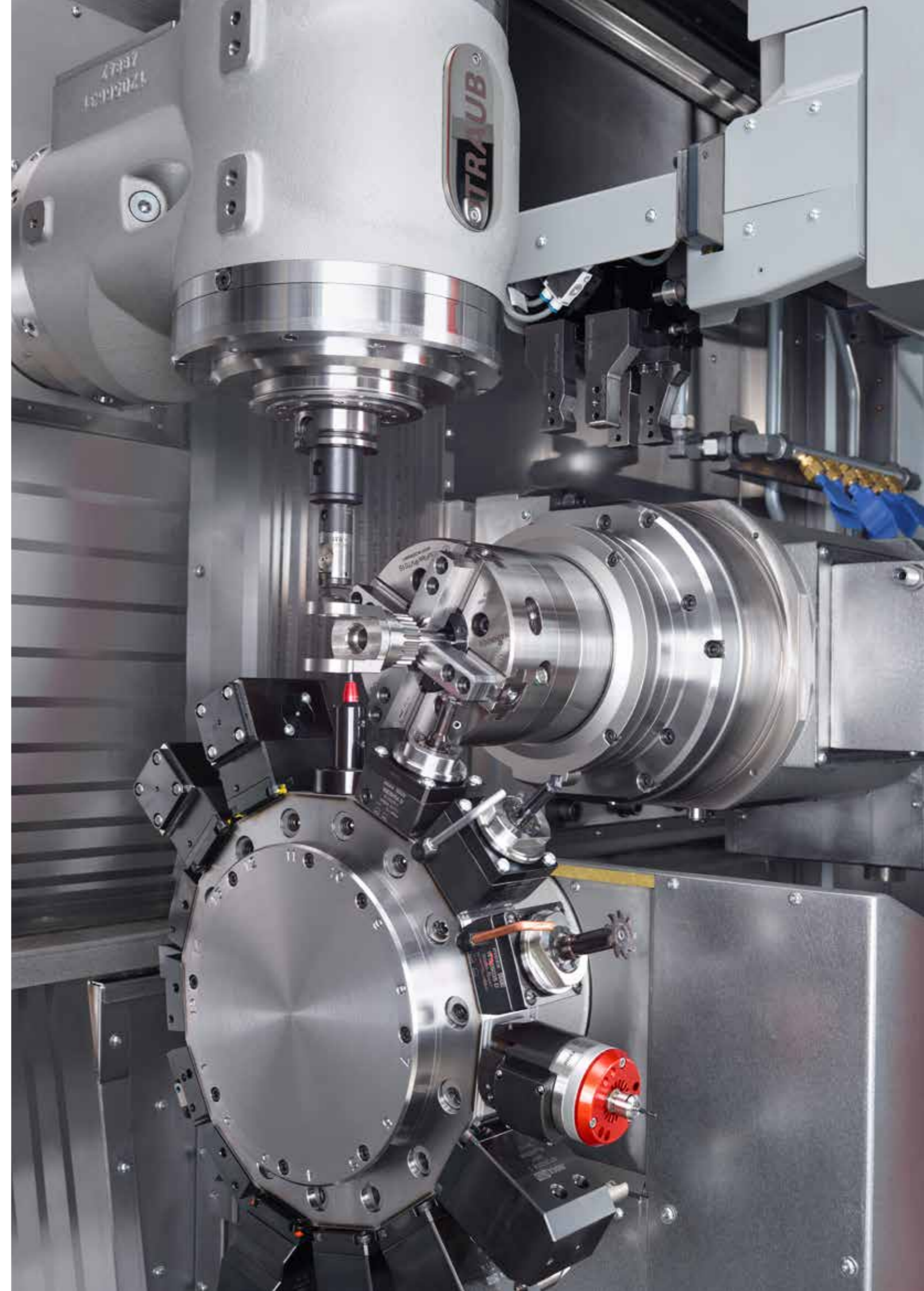
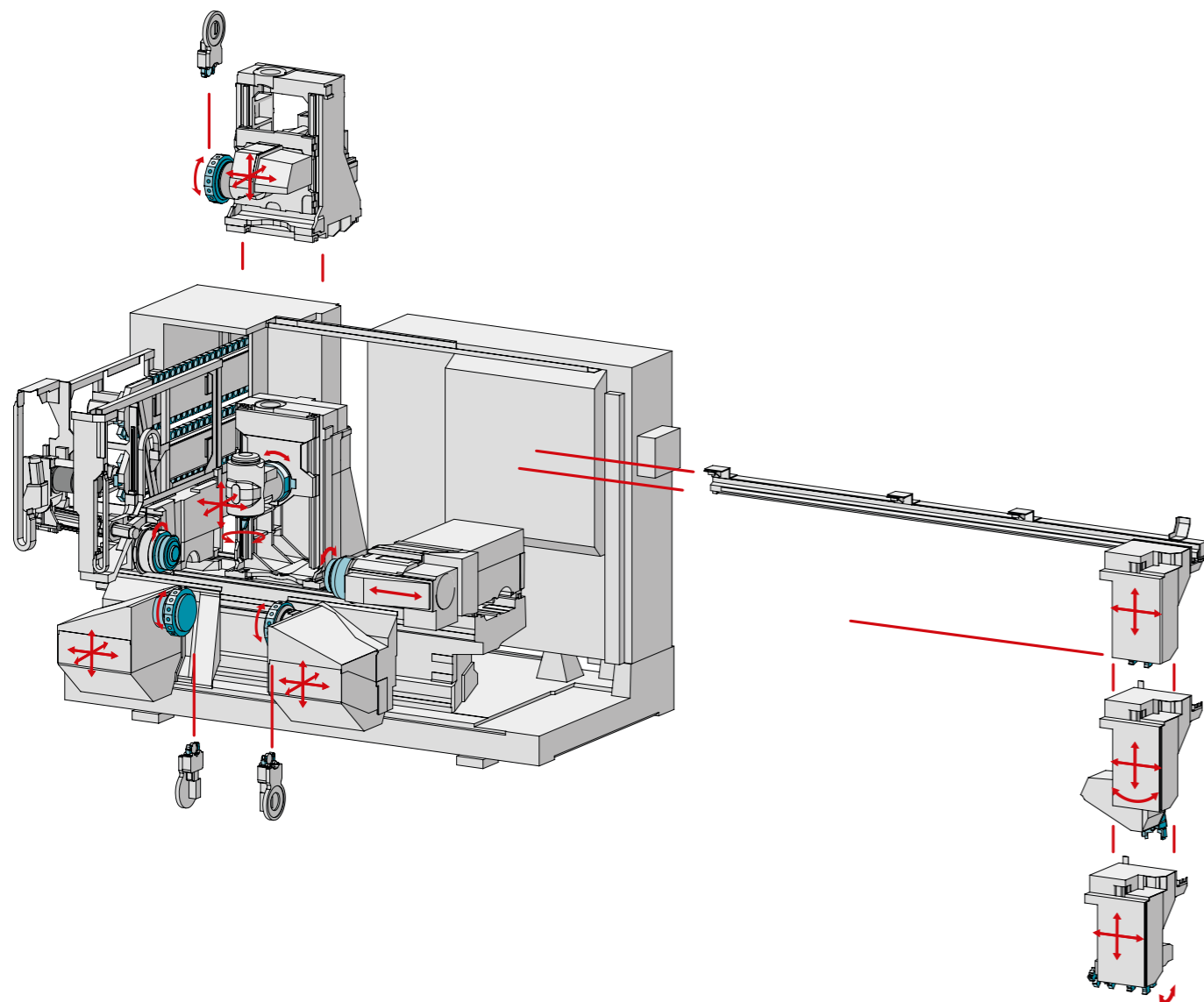
Turret steady rests are available for machining long or shaft-type parts.

The TRAUB TNX220 features a powerful motor milling spindle capable of simultaneous 5-axis machining.

The ergonomic setup and operating concept played a major role in the new design.

All the relevant components are easily accessible for operating and maintenance personnel. Optionally, an integrated workpiece handling system matched to the machining processes can be used for loading and unloading shaft and flange parts.

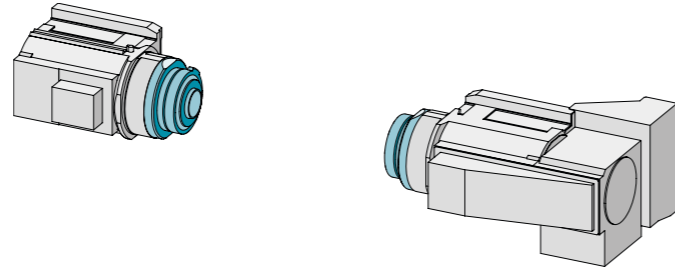
The modular robot cell iXcenter is available for all machines in this series, for flexible feeding and discharging of blanks and finished parts.



The components

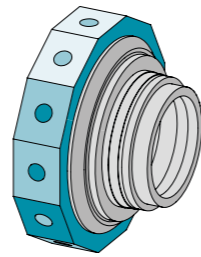
Main and counter spindles

- Spindle clearance: dia. 76 mm
- Max. speed: 6,000 rpm
- 40 kW, 207 Nm (40% DC)
- Max. chuck diameter: 230 mm



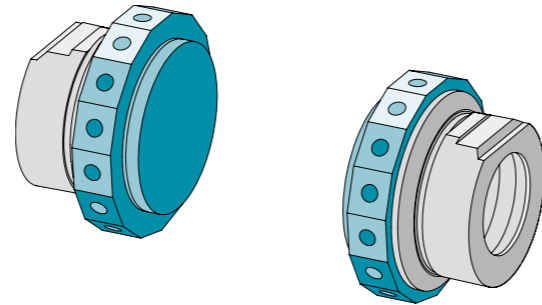
Upper turret with 12 stations (TRAUB TNX200)

- 12 live stations, each VDI 30 with W-serration
- 6,000 rpm, 9 kW, 20 Nm (25% DC)
- X axis: 260 mm, rapid traverse rate: 30 m/min
- Y axis: +80/-60 mm, rapid traverse rate: 20 m/min
- Z axis: 1,020 mm, rapid traverse rate: 50 m/min



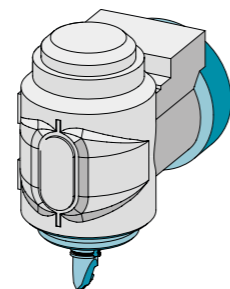
Lower turrets with 12 stations each

- 12 live stations each, VDI 30 with W-serration
- 6,000 rpm, 9 kW, 20 Nm (25% DC)
- X axis: 180 mm, rapid traverse rate: 23 m/min
- Y axis: +/-50 mm, rapid traverse rate: 20 m/min
- Z axis: 970 mm, rapid traverse rate: 50 m/min



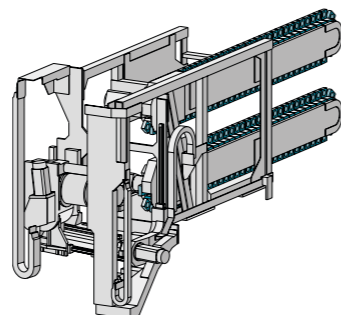
Motor milling spindle (TRAUB TNX220)

- HSK-T63: 12,000 rpm, 72 Nm (25% DC)
- HSK-T40: 18,000 rpm, 30 Nm (25% DC)
- X axis: 490 mm, rapid traverse rate: 30 m/min
- Y axis: +90 mm/-60 mm, rapid traverse rate: 20 m/min
- Z axis: 910 mm, rapid traverse rate: 50 m/min
- B axis: -25°/+205°, rapid traverse rate: 100 rpm



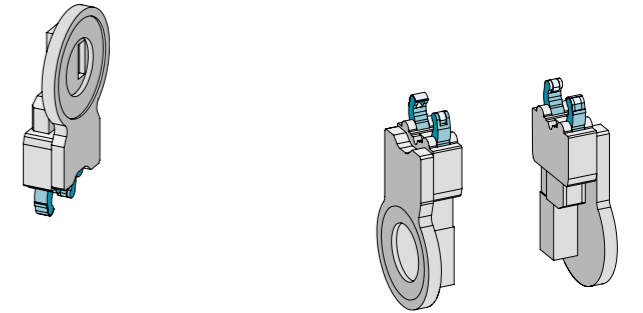
Tool magazine (TRAUB TNX220)

- Single-row: 52/70 tool locations HSK-T 63/HSK-T40
- Double-row: 103/139 tool locations HSK-T 63/HSK-T40
- Max. tool weight: 5/4 kg
- Max. tool diameter: 100 mm
- Max. tool length: 300 mm
- Front setup station
- Setup access from rear



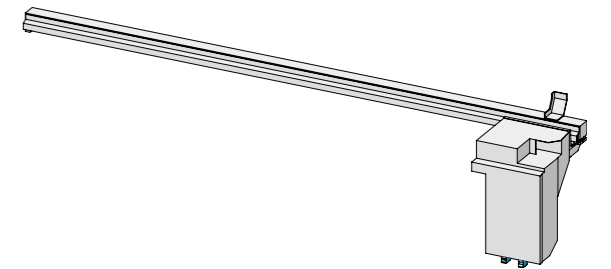
Upper and lower turret steady rests (optional)

- Upper steady rest clamping range: 6-70 mm
- Lower steady rests clamping range: 6-70 mm



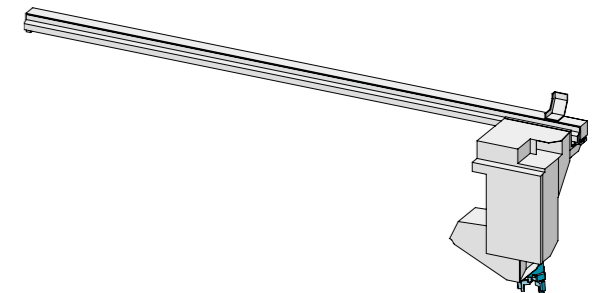
Workpiece handling unit for single gripper (optional)

- Integrated 2-axis workpiece handling unit
- Max. workpiece diameter: 76 mm
- Max. workpiece length: 250 mm
- Max. workpiece weight: 10 kg



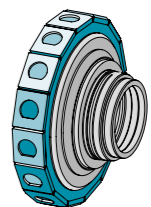
Workpiece handling unit for double gripper (optional)

- Integrated 3-axis workpiece handling unit
- Max. workpiece diameter: 90/230 mm
- Max. workpiece length: 500/250 mm
- Max. workpiece weight: 2x10 kg



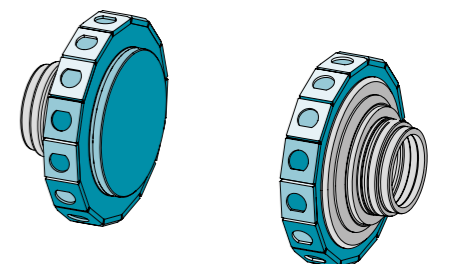
Upper turret with 15 stations (TRAUB TNX200 optional)

- 15 live stations, each VDI 25 with W-serration
- 6,000 rpm, 9 kW, 20 Nm (25% DC)
- X axis: 260 mm, rapid traverse rate: 30 m/min
- Y axis: +80/-60 mm, rapid traverse rate: 20 m/min
- Z axis: 1,020 mm, rapid traverse rate: 50 m/min



Lower turrets with 15 stations each (optional)

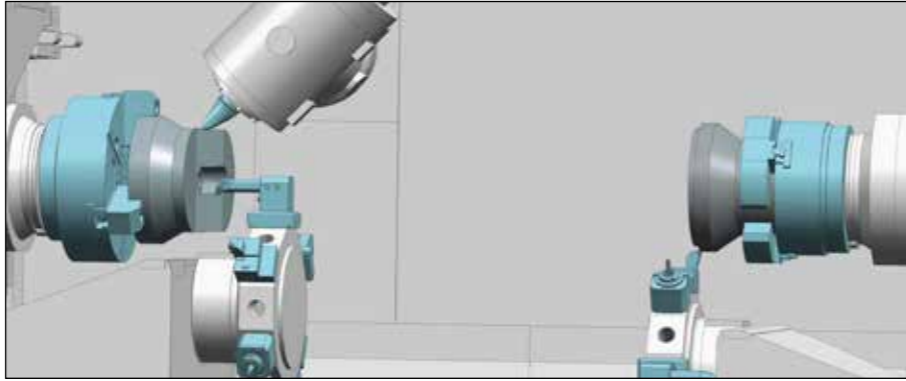
- 15 live stations each, VDI 25 with W-serration
- 6,000 rpm, 9 kW, 20 Nm (25% DC)
- X axis: 180 mm, rapid traverse rate: 23 m/min
- Y axis: +/-50 mm, rapid traverse rate: 20 m/min
- Z axis: 970 mm, rapid traverse rate: 50 m/min



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

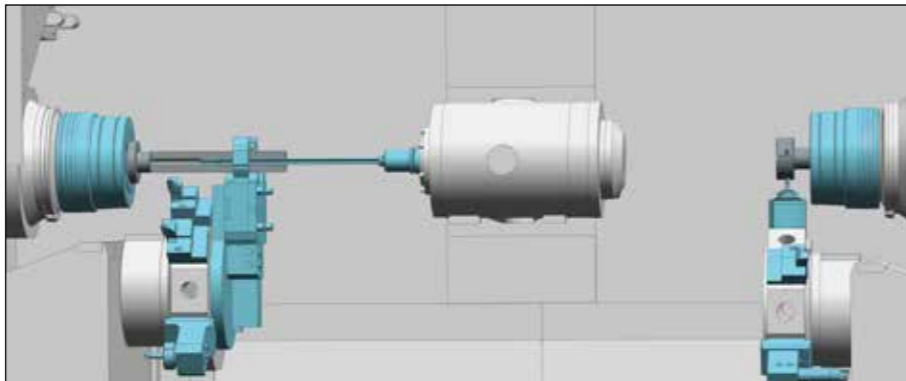
TRAUB TNX220

Simultaneous machining with 3 tools for maximum productivity



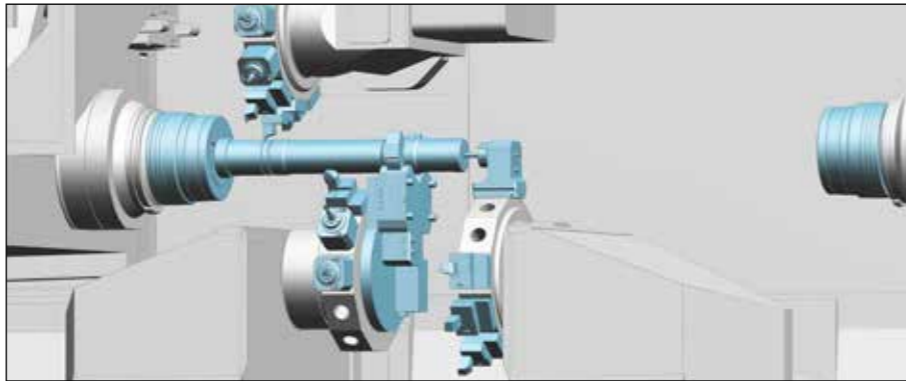
TRAUB TNX220

Use of tools up to 300 mm long in the motor milling spindle, e.g., for deep-hole drilling applications with the highest precision



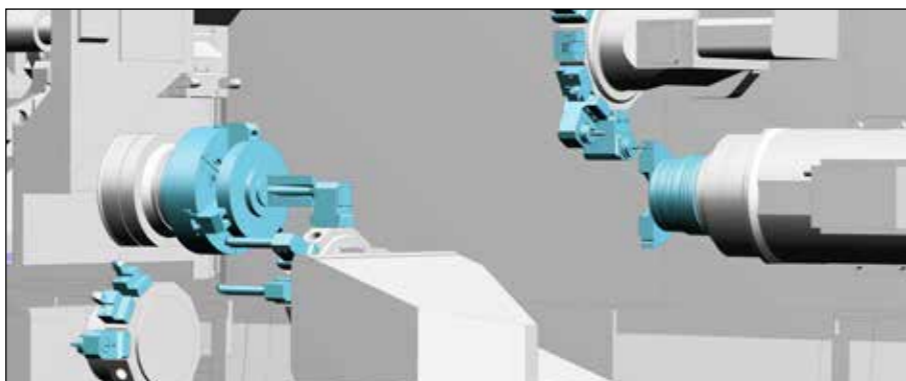
TRAUB TNX200

Turret steady rests provide for flexible shaft machining



TRAUB TNX200, TNX220

Dipping the lower tool carriers out of the way maximizes freedom from collisions



Tool magazine

with up to 103/139 tool locations HSK-T63 / HSK-T40

Main spindle

dia. 76 mm (dia. 230 mm) /
6,000 rpm /
142/207 Nm (100/40% DC)

Motor milling spindle

HSK-T63 or HSK-T40
Y-B quill
torque motor for high precision

Work area

Vertical walls for optimum chip flow

Workpiece handling unit

2-axis/3-axis with single or double gripper

Work area

with turning length
900 mm

Tool turret

12 tool locations each /
VDI 30 / 6,000 rpm /
9 kW / 20 Nm (25% DC)
Optional: turret steady rest/
15 tool locations / VDI 25

Mineral cast bed

in monoblock design
for excellent rigidity and
thermal stability

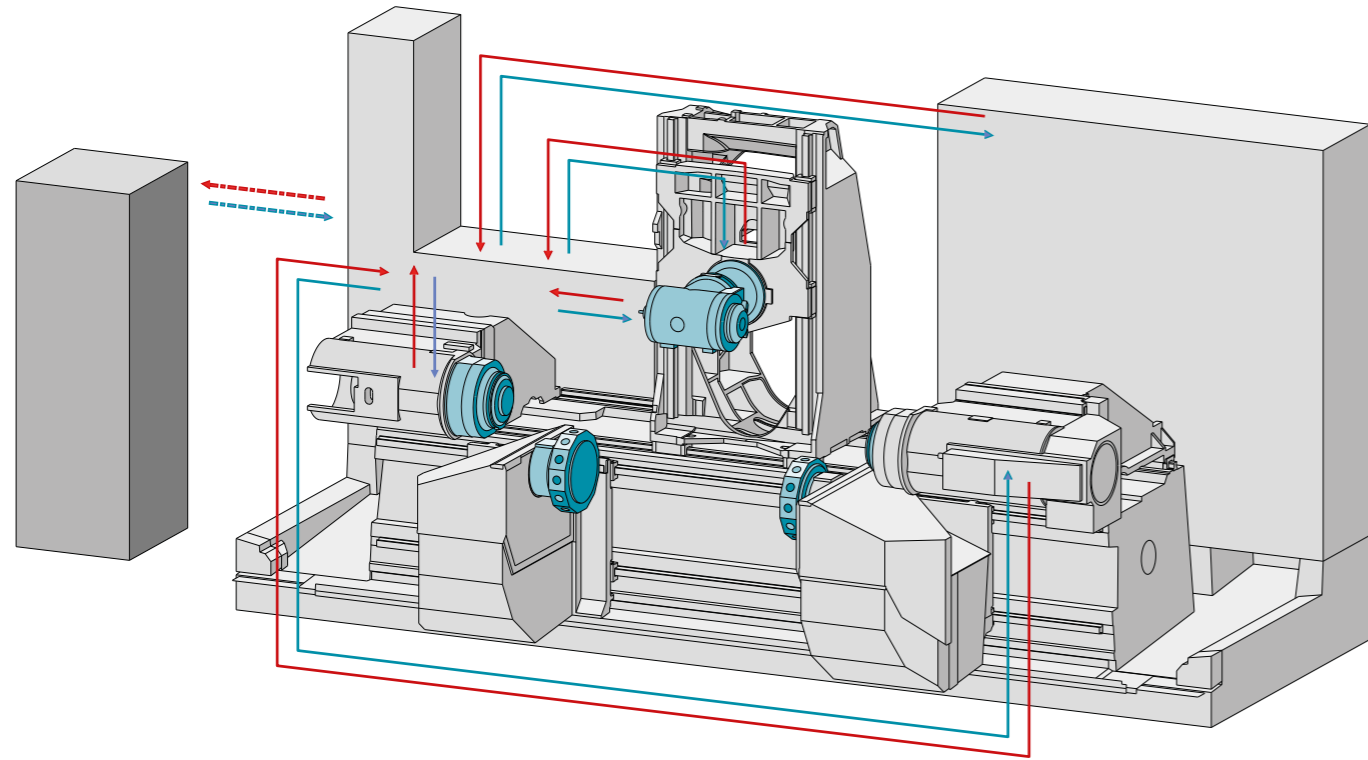
Counter spindle

dia. 76 mm (dia. 230 mm)/6,000 rpm /
142/207 Nm (100/40% DC)

Turret slides

with linear axes:
Y +/-50 mm / X 180 mm

The cooling concept: efficient use of energy



Intelligent use of proven cooling principles:

- **Targeted heat dissipation**

All sources of heat loss on the TRAUB TNX200/TNX220 are cooled directly with different cooling media via multiple fluid circuits. The main spindle, counter spindle, tool carrier, hydraulic system and control cabinet each have a separate cooling circuit. The coolant directly absorbs lost heat energy and removes it from the machine.

- **Economical use of waste heat**

The TRAUB cold water interface collects all of the heat loss energy in a central location, where it can be recycled for another use. The captured energy can be applied to heating the facility, service water heating, or process heating for other production steps. The recovery of machine waste heat enables a sustainable reduction of energy costs.

- **Climate-neutral dissipation of heat**

If there is not an immediate use for the heat energy, the INDEX cold water interface provides the ability to dissipate it in a climate-neutral manner. By actually removing the heat instead of just transferring it to the surrounding facility, a company can reduce the cost of its overall climate control. This offers a considerable energy savings potential

for production hall heating dissipation/climate control or increased efficiency as a result of centralized heat disposal.

Integrated automation solutions for efficient production



The integrated workpiece handling unit is available as an option.

It can be used equally for loading and unloading, as well as for the removal of remnants. The system is designed for parts weighing up to 10 kg (single gripper) / 2x10 kg (double gripper) with a diameter of up to 90 mm (shaft) or 230 mm (flange). The handling unit is equipped with 2 or 3 CNC axes and single or double grippers, which are operated from the machine control. Further individual automation solutions, such as conveyor belts or robot handling unit with auxiliary functions, can be integrated to customer specifications.

Removal of finished parts (or feeding) using a workpiece-specific gripper for shaft or flange parts

2-axis workpiece handling system travels to the removal point without collision



3-axis workpiece handling for flange parts



Robot cell *iXcenter*

Intelligent automation—even more flexibility and efficiency

With the iXcenter robot cell, blanks and finished parts can be fed and discharged quickly, safely and flexibly. The overall sequence between the machine and the robot cell is created using predefined macros in the NC program. The work area door, which opens and closes automatically, provides access to the robot.

The iXcenter is modular in structure and allows you to efficiently integrate various processes. Accessible spindles and tool carriers on the iXcenter make you best prepared to set up your machine.

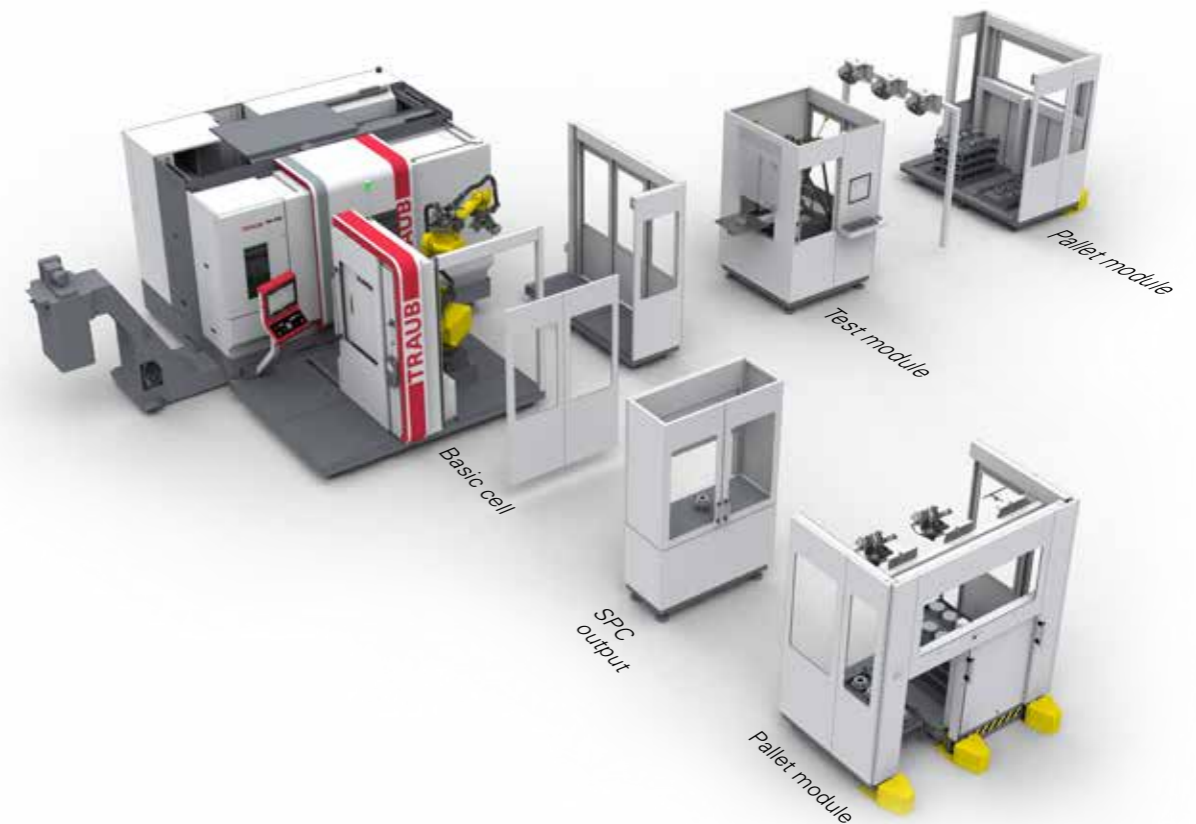
They also provide operators with ergonomic access to the machine during maintenance and setup work.

Your benefits

- Automatic and ergonomic workpiece feeding and discharge
- Modular basic cell that allows flexible expansion
- Low-manned continuous operation is possible
- Door designed for optimum access and view of the machine
- Compact design
- Modern TRAUB machine design
- Entire system from one source

Technical data

- 6-axis robot with 70 kg load capacity
- Reach 2,050 mm



Unlock more potential

Integration of upstream and downstream processes by attaching specialized modules

- Pallet/rack modules
- Storage systems
- Circulating conveyors
- Measuring units
- Test modules
- Discharge units
- Cleaning stations
- Deburring modules
- Laser marking modules
- Additional customer-specific solutions

Options available for the basic cell

- Double grippers in flange and shaft versions
- Automatic gripper change, including gripper storage

Add on any configuration options available for the machine

- Internal handling (flange and shaft)
- Bar loading magazines
- Chip conveyors arranged left/right



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

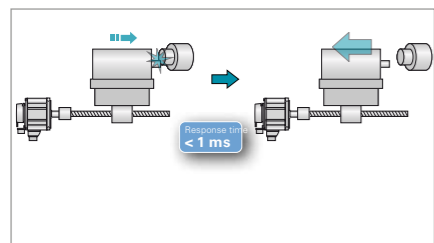


Focus on production and control—Industry 4.0 included

The iXpanel operating concept provides access to networked production. With iXpanel, your staff always has all relevant information for efficient production right at the machine. iXpanel is already included in the standard and can be individually extended. 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 Xpanel 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

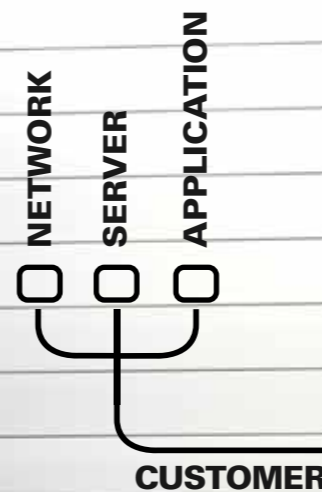
- Online retrieval of manufacturing and setup information; remote access via VNC
- Graphics-supported interactive guidance, also during setup
- Comfortable process synchronization and optimization of program sequences of parallel machining processes
- Visual verification to avoid collision situations 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 included as standard

OPTION

Industry 4.0 features

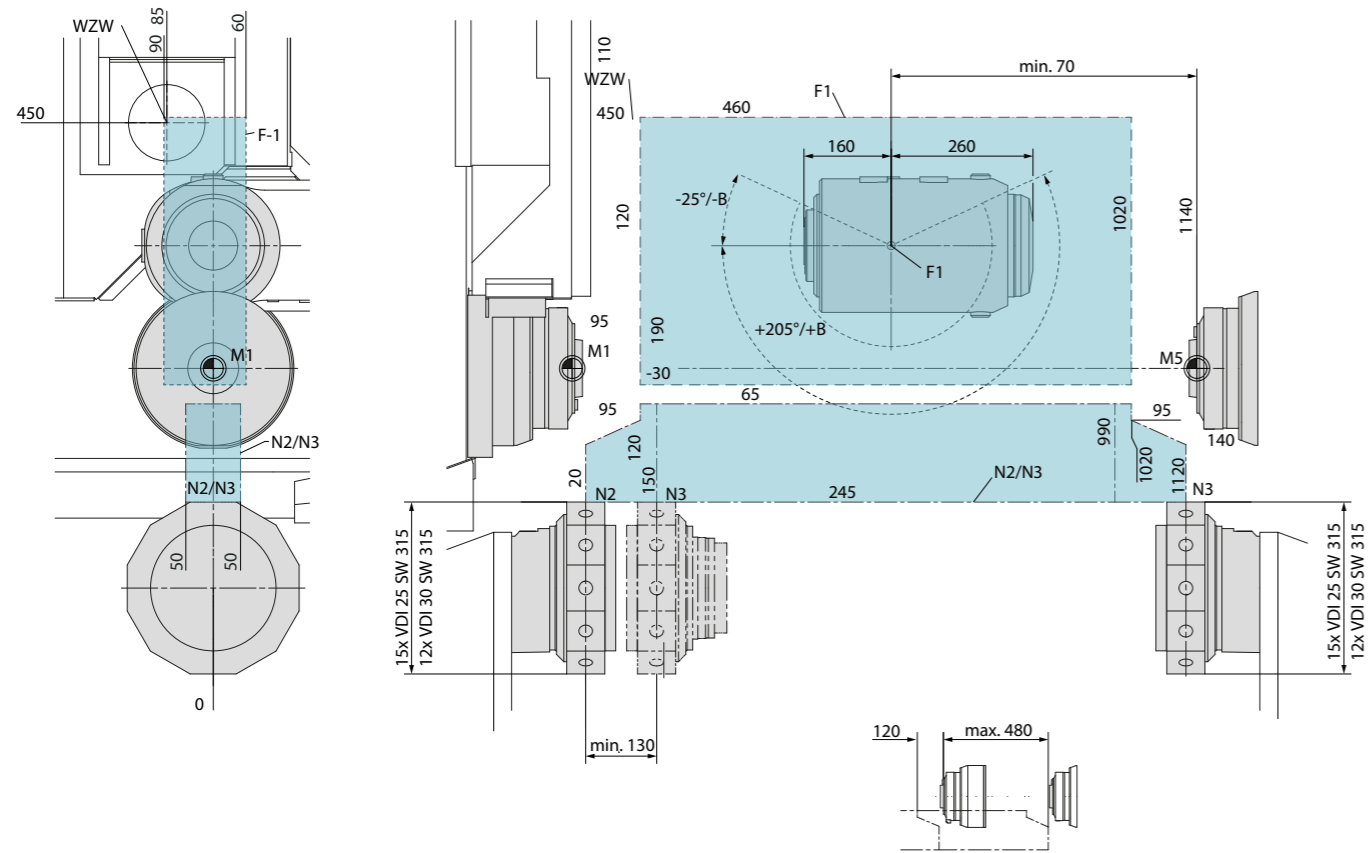
Job documents	Customer data	Browser	Drawings	Setup sheet
Notes	Information center	Remote access	User management	Technology computer
			Programming help	

- WinFlexIPS
- WinFlexIPS Plus
- Custom applications

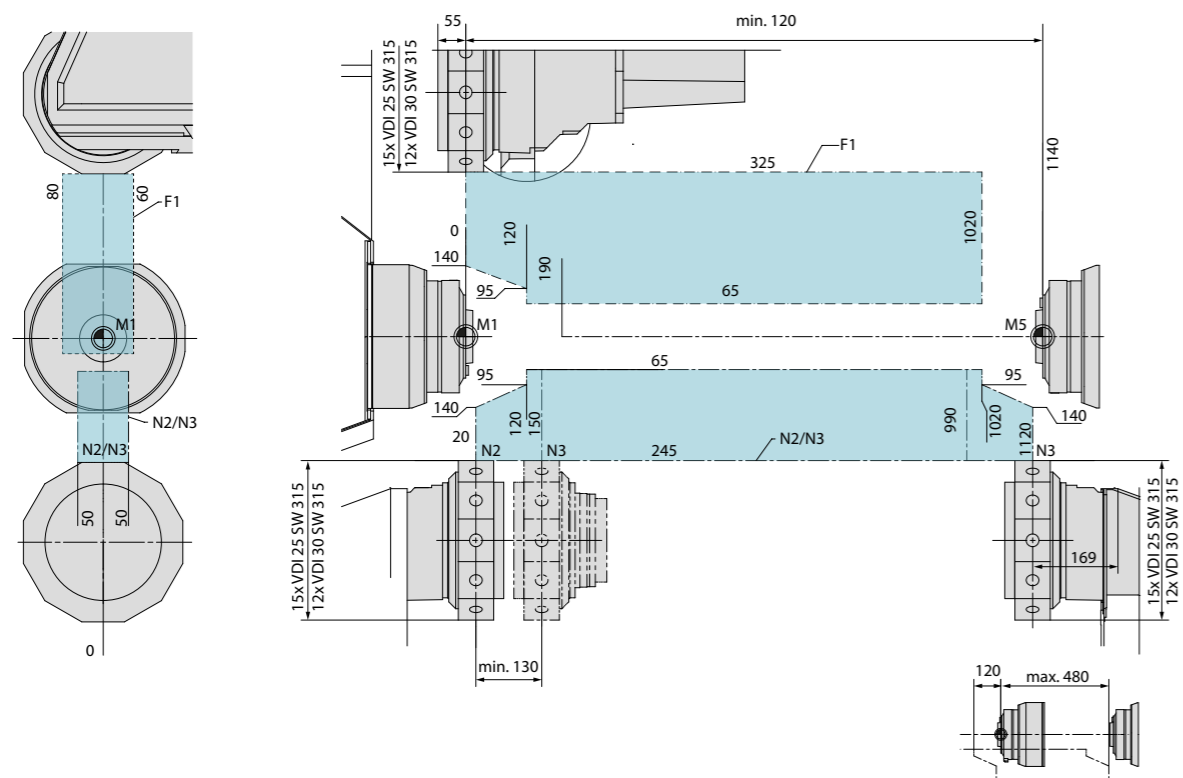
+ many more standard features

TRAUB TNX200, TNX220

TRAUB TNX220 work area (with motor milling spindle HSK T63 at top)
Dimensions in mm

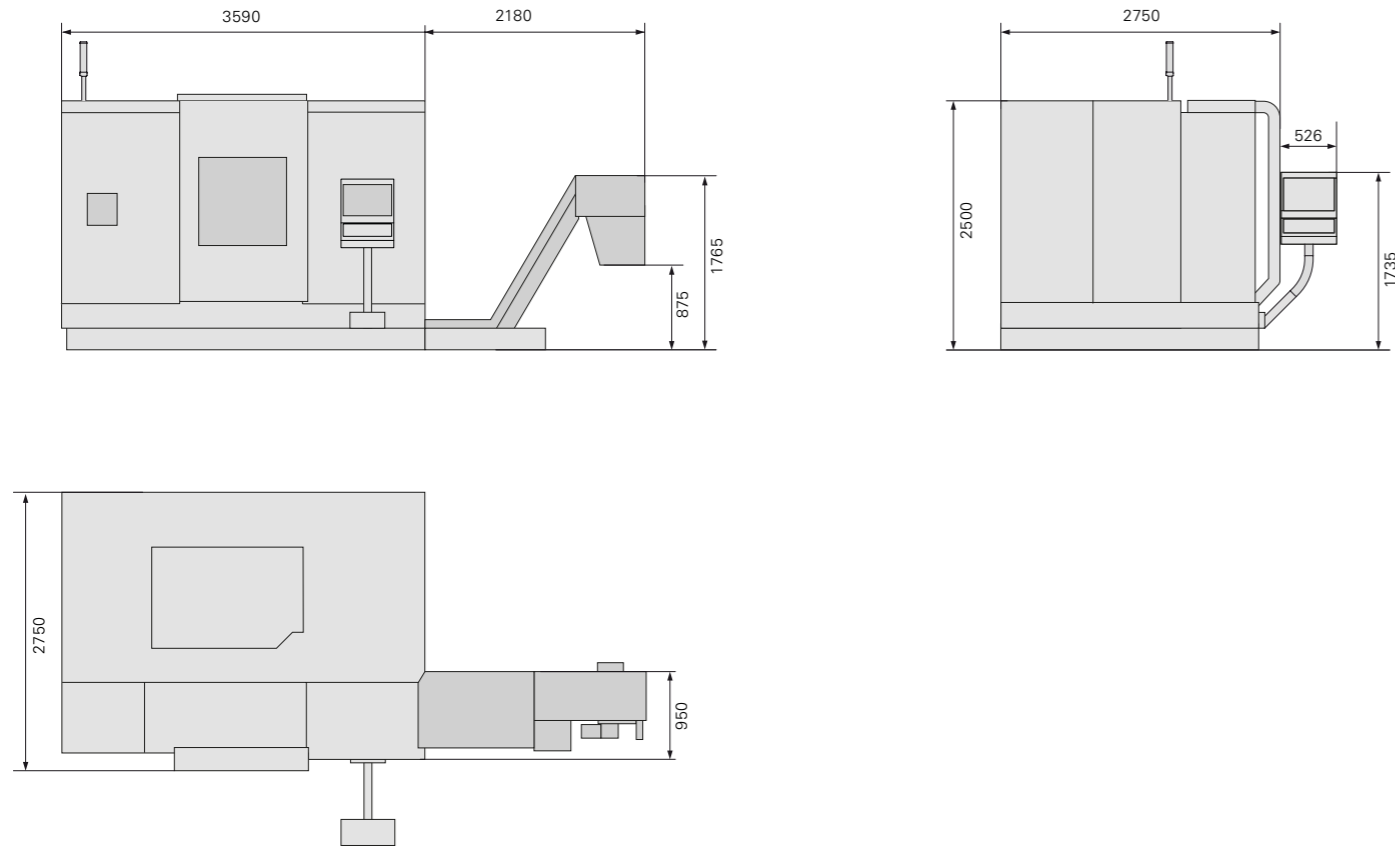


TRAUB TNX200 work area (with tool turret at top)
Dimensions in mm

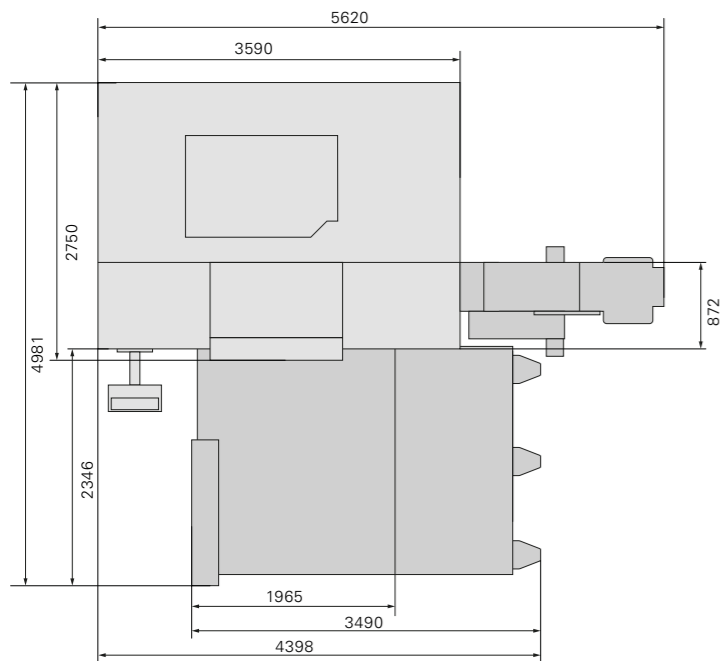


TRAUB TNX200, TNX220

Installation plan for TRAUB TNX200/TNX220 chip conveyor on the right



Installation plan for TRAUB TNX200/TNX220 chip conveyor on the right/ iXcenter L with basic cell and pallet module



Technical Data

		TRAUB TNX200	TRAUB TNX220
Work area			
Turning length	mm	900	900
Main spindle and counter spindle			
Spindle clearance	mm	76	76
Spindle nose ISO 702/1		A6	A6
• Max. speed	rpm	6,000	6,000
• Drive power (100% / 40% DC)	kW	29 / 40	29 / 40
• Torque (100% / 40% DC)	Nm	142 / 207	142 / 207
Chuck diameter	mm	160 (max. 230)	160 (max. 230)
C axis resolution	degrees	0.001	0.001
Upper tool carrier			
		Turret	Motor milling spindle
Kinematics		XYZ	XYZB
Tooling system		VDI 25 // VDI 30	HSK-T63 // HSK-T40
Number of stations		15 // 12	52 (103) // 70 (139)
• Max. speed	rpm	6,000	12,000 // 18,000
• Drive power (100% DC)	kW	9	45 // 19
• Torque (25% DC)	Nm	20	72 // 30
X slide travel, rapid traverse rate, feed force	mm / m/min / N	260 / 30 / 6,000	490 / 30 / 6,000
Y slide travel, rapid traverse rate, feed force	mm / m/min / N	+80/-60 / 20 / 9,000	+90/-60 / 20 / 9,000
Z slide travel, rapid traverse rate, feed force	mm / m/min / N	1,020 / 50 / 6,000	910 / 50 / 6,000
B axis swivel range, rapid traverse rate	degrees / rpm		-25 / +205 (+/- 115) / 50
Lower tool carrier, left/right			
		Turret XYZ	Turret XYZ
Tooling system DIN ISO 10889		VDI 25 // VDI 30	VDI 25 // VDI 30
Number of stations (live)		15 // 12	15 // 12
• Max. speed	rpm	6,000	6,000
• Drive power	kW	9	9
• Torque (25% DC)	Nm	20	20
X slide travel, rapid traverse rate, feed force	mm / m/min / N	180 / 23 / 6,000	180 / 23 / 6,000
Y slide travel, rapid traverse rate, feed force	mm / m/min / N	+/-50 / 20 / 9,000	+/-50 / 20 / 9,000
Z slide travel, rapid traverse rate, feed force	mm / m/min / N	970 / 50 / 6,000	970 / 50 / 6,000
Tool magazine			
Tooling system			HSK-T63 / HSK-T40
Tool magazine locations		(1 chain / 2 chains)	52 (103) / 70 (139)
Max. tool weight	kg		5 / 4
Max. tool diameter	mm		100
Max. tool length	mm		300
Max. tilting torque	Nm		8 / 3
Turret steady rest (optional)			
Turret steady rest top clamping range	mm	6-70	
Turret steady rest bottom clamping range	mm	6-70	6-70
Workpiece handling unit for single gripper			
Max. workpiece weight	kg	10	10
Max. workpiece diameter	mm	76	76
Max. workpiece length	mm	250	250
Workpiece handling unit for double gripper, shaft/flange (optional)			
Max. workpiece weight, flange/shaft	kg	2x10 / 2x10	2x10 / 2x10
Max. workpiece diameter, flange/shaft	mm	230 / 90	230 / 90
Max. workpiece length, flange/shaft	mm	max. 250 / max. 500	max. 250 / max. 500
General data			
Length x width x height	mm	3,590 x 2,750 x 2,500	3,590 x 2,750 x 2,500
Weight	t	14	14.5
Connected power	kW	71	71
Control		TRAUB TX8i-s V8	TRAUB TX8i-s V8

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