

G200.3, G220

Turn-mill centers for high productivity and flexibility

INDEX



better.parts.faster.

New dimensions in turning and milling

The INDEX G200/G220 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



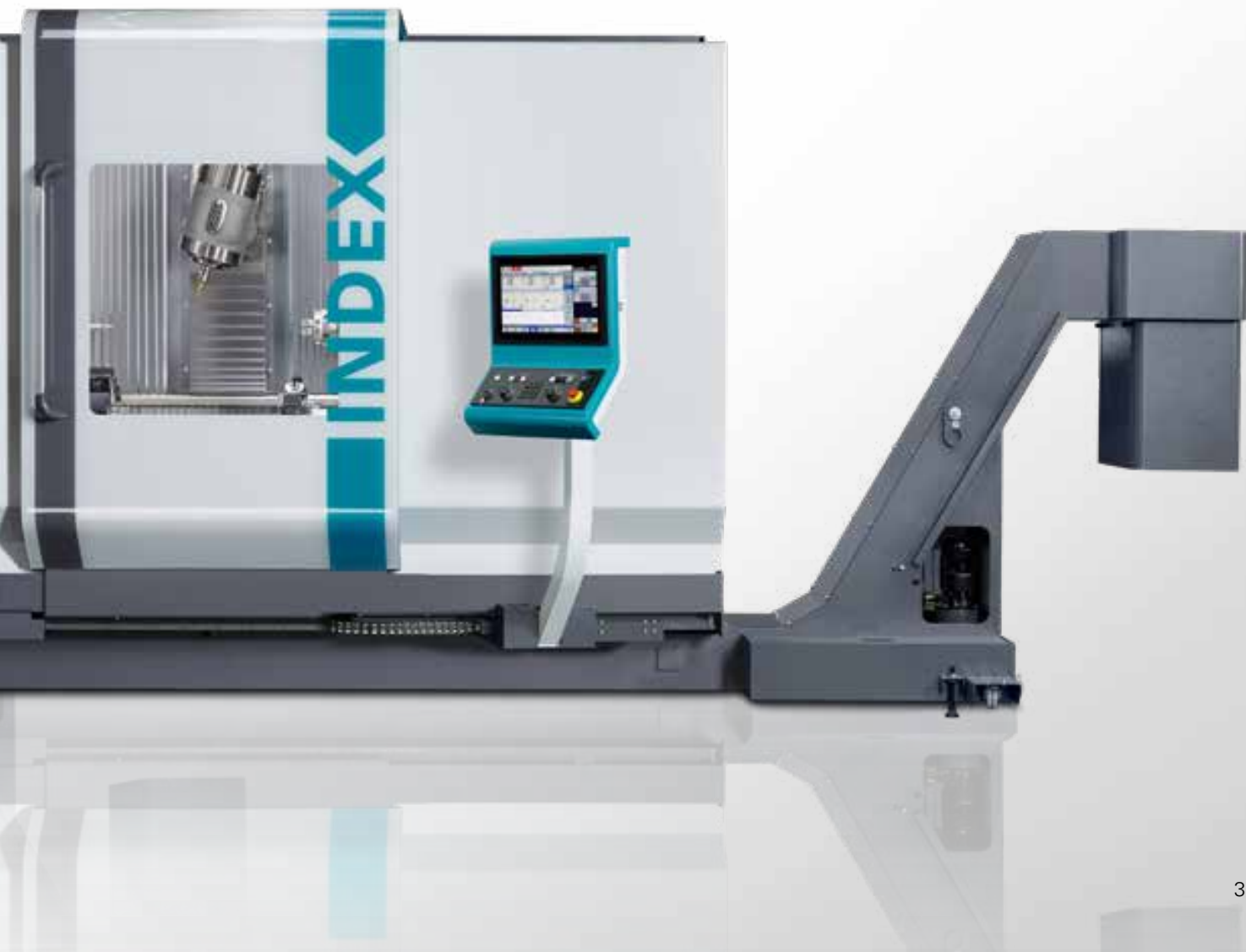
using all three tool carriers with no collision risk.

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 INDEX G200/G220 is relied on for the manufacture of a wide range of products in many industries such as machinery construction, automotive, and aerospace.

The machine concept

- Main and counter spindles are identical in design with a spindle clearance of 76 mm or 90 mm in diameter
- Chuck up to 230 mm or 260 mm in diameter
- 3 tool carriers for up to 169 tools
- Powerful motor milling spindle with proven Y/B quill kinematics for complex 5-axis milling operations (G220)
- Sophisticated work area concept for turning lengths of up to 900 mm or 1,200 mm
- 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. 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 INDEX G200 and INDEX G220 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

 Ø 98 mm x 125 mm



Drive shaft

 Aluminum

 Ø 44 mm x 220 mm



Gear

 Steel

 Ø 70 mm x 37 mm



Output shaft

Steel
Ø 68 mm x 180 mm



Nut housing

Steel
Ø 64 mm x 154 mm



Turbine blade

Stainless steel
Ø 75 mm x 100 mm



Milling head

Stainless steel
Ø 70 mm x 100 mm



Distribution block

Stainless steel
Ø 55 mm x 120 mm



Nozzle body

Stainless steel
Ø 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 – all equipped with a Y axis.

The work area offers ample space to machine any kind of workpiece. The cutting area allows for parts up to 900 mm / 1,200 mm in length.

The powerful main and counter spindles are designed for bar diameters of up to 76 mm / 90 mm and for chucked parts up to 230 mm / 260 mm in diameter.

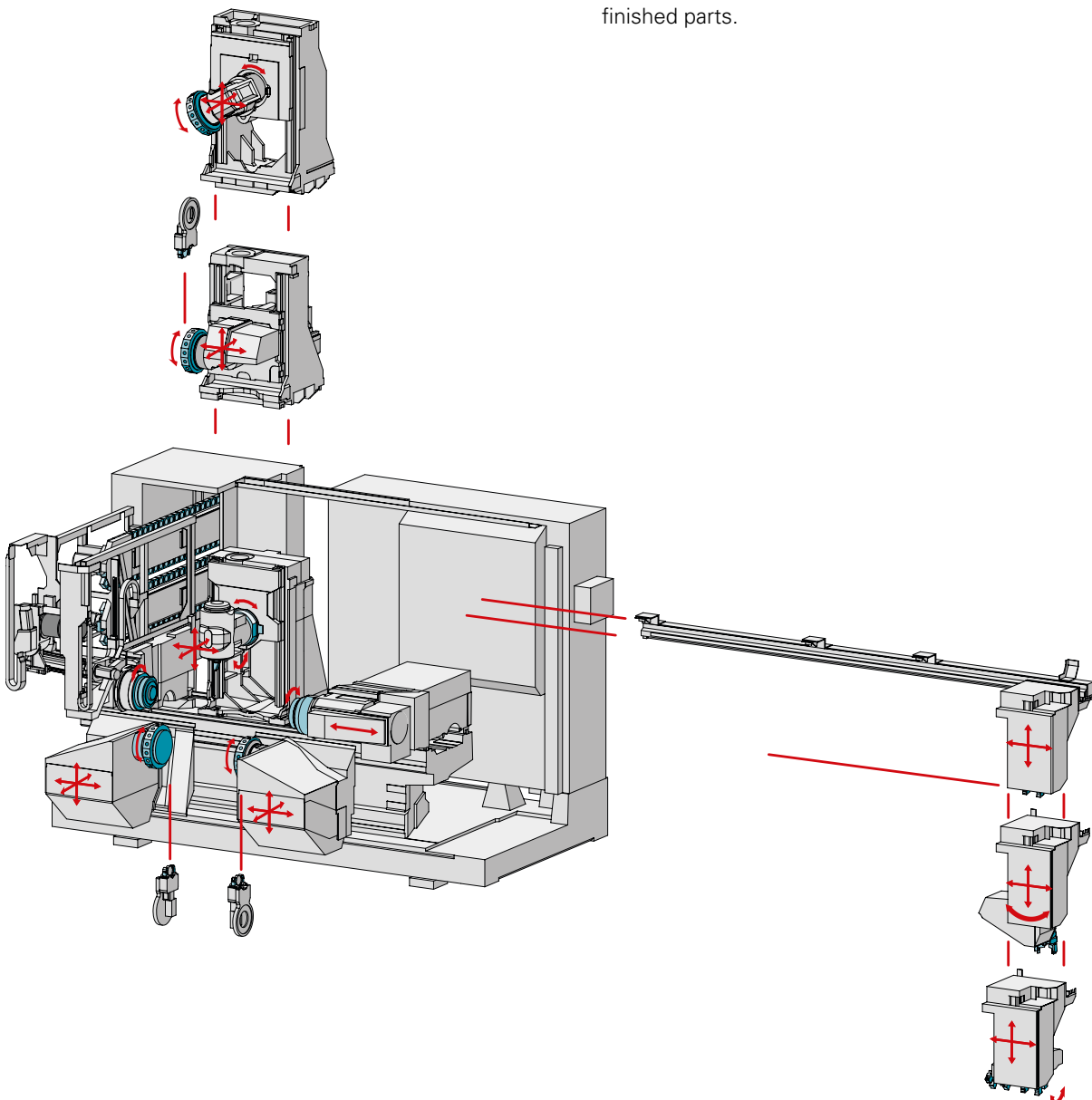
Turret steady rests are available for machining long or shaft-type parts.

The INDEX G220 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 work-piece 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.

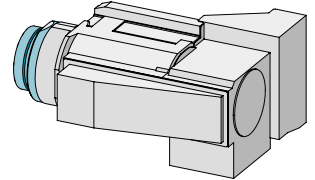
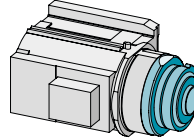




The components

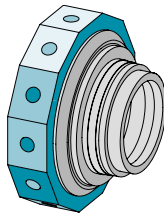
Main and counter spindles

- Spindle clearance dia. 76 mm / 90 mm
- Max. speed 6,000 rpm / 4,000 rpm
- 40 kW, 207 Nm (40% DC) / 50 kW, 310 Nm (40% DC)
- Chuck diameter 160 mm (230 mm max.) / 260 mm



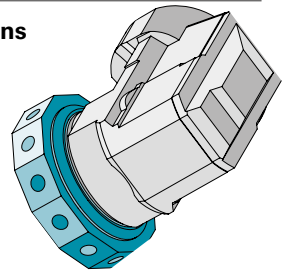
Upper turret with 12 stations (INDEX G200)

- 12 live stations, each VDI 30 with W-serration
- 7,500 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



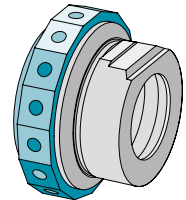
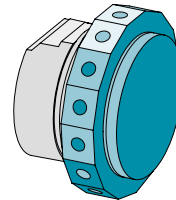
Upper turret YB functions with 12 stations (INDEX G200)

- 12 live stations, each VDI 30 with W-serration
- 7,500 rpm, 9 kW, 20 Nm (25% DC)
- X axis: 375 mm, rapid traverse rate: 30 m/min
- Y axis: +80/-60 mm, rapid traverse rate: 20 m/min
- Z axis: 920 mm, rapid traverse rate: 50 m/min
- B axis: 210° swivel angle, angular speed 96 rpm



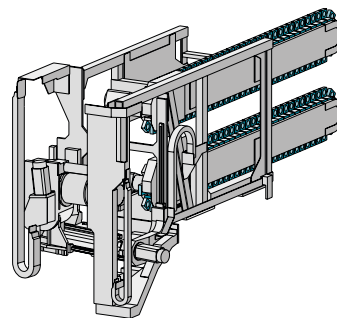
Lower turrets with 12 stations each

- 12 live stations each, VDI 30 with W-serration
- 7,500 rpm, 9 kW, 20 Nm (25% DC)
- X axis: 180 mm, rapid traverse rate: 30 m/min
- Y axis: +/-50 mm, rapid traverse rate: 20 m/min
- Z axis: 970 mm, rapid traverse rate: 50 m/min



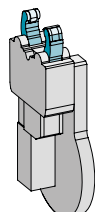
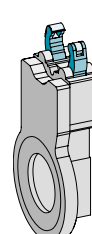
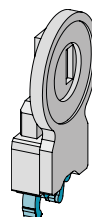
Tool magazine (INDEX G220)

- Single-row: 52/70 tool stations HSK-T63 / HSK-T40
- Double-row: 103/139 tool stations HSK-T63 / 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



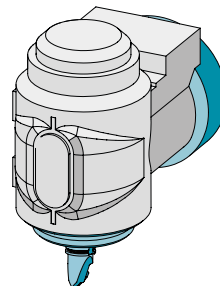
Upper and lower turret steady rests (optional)

- Clamping range, upper steady rest: 6-70 mm
- Clamping range, lower steady rests: 6-70 mm



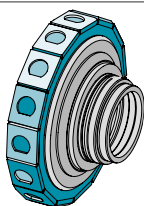
Motor milling spindle (INDEX G220)

- 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°, angular speed 96 rpm



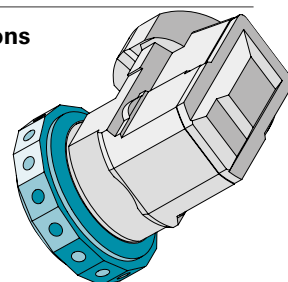
Upper turret with 15 stations (INDEX G200)

- 15 live stations, each VDI 25 with W-serration
- 7,500 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



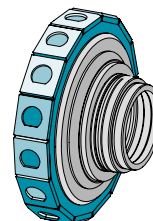
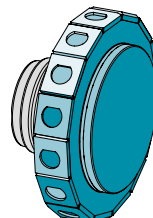
Upper turret YB functions with 15 stations (INDEX G200)

- 15 live stations, each VDI 25 with W-serration
- 7,500 rpm, 9 kW, 20 Nm (25% DC)
- X axis: 375 mm, rapid traverse rate: 30 m/min
- Y axis: +80/-60 mm, rapid traverse rate: 20 m/min
- Z axis: 920 mm, rapid traverse rate: 50 m/min
- B axis: 210° swivel angle, angular speed 96 rpm



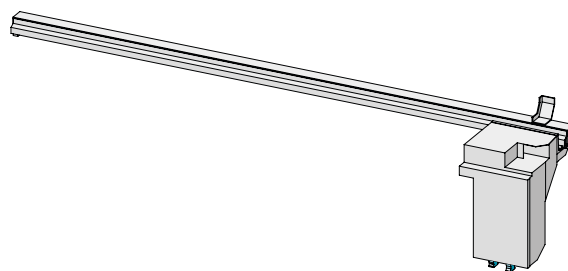
Lower turrets with 15 stations each

- 15 live stations each, VDI 25 with W-serration
- 7,500 rpm, 9 kW, 20 Nm (25% DC)
- X axis: 180 mm, rapid traverse rate: 30 m/min
- Y axis: +/-50 mm, rapid traverse rate: 20 m/min
- Z axis: 970 mm, rapid traverse rate: 50 m/min



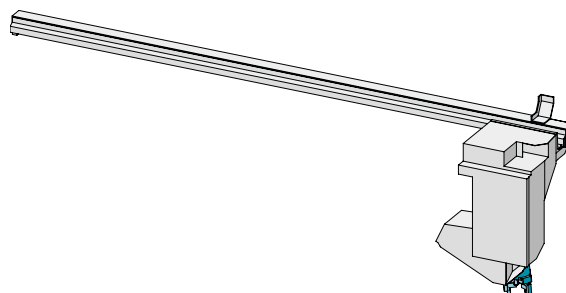
Workpiece handling unit for single gripper (optional)

- Integrated 2-axis workpiece handling unit
- Max. workpiece diameter: 90 mm
- Max. workpiece length: 250 mm
- Max. workpiece weight: 7.5 kg



Workpiece handling unit for double gripper (optional)

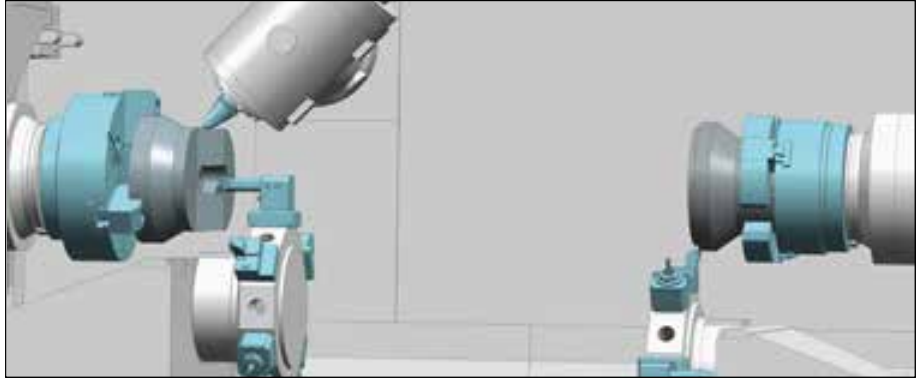
- Integrated 3-axis workpiece handling unit
- Max. workpiece diameter: 90/230 mm
- Max. workpiece length: 500/250 mm
- Max. workpiece weight: 2x10 kg



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

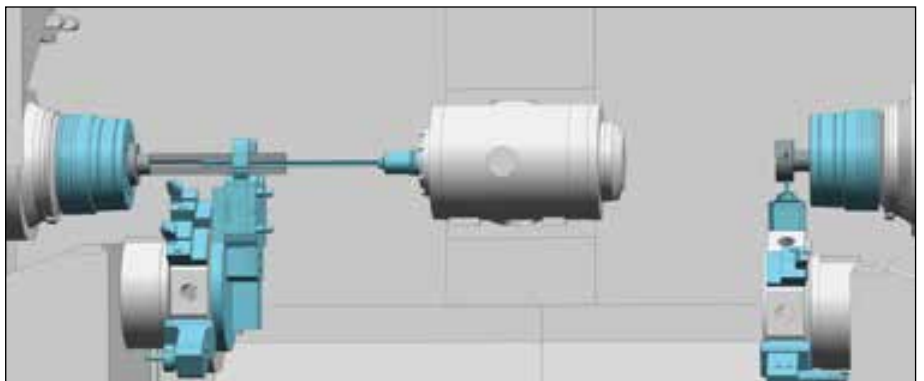
INDEX G220

Simultaneous machining with 3 tools for maximum productivity



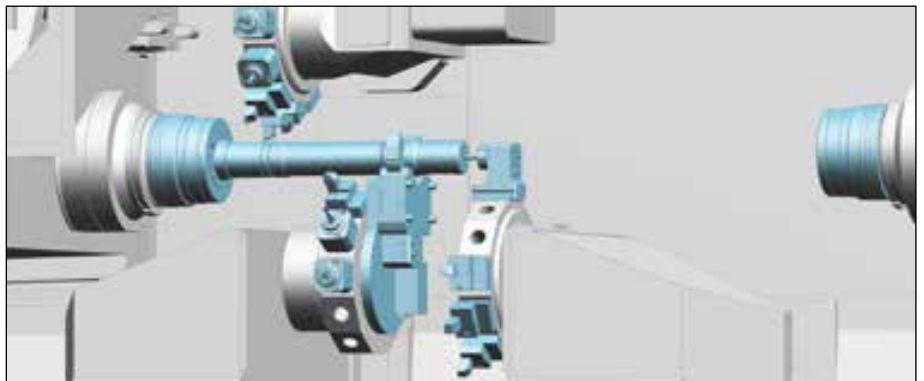
INDEX G220

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



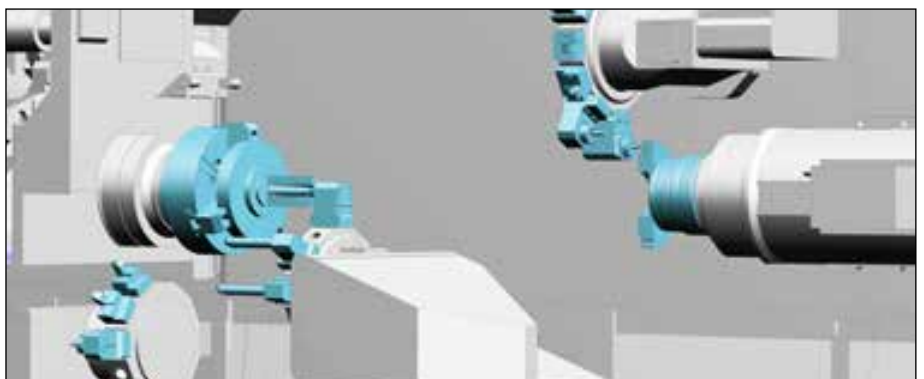
INDEX G200

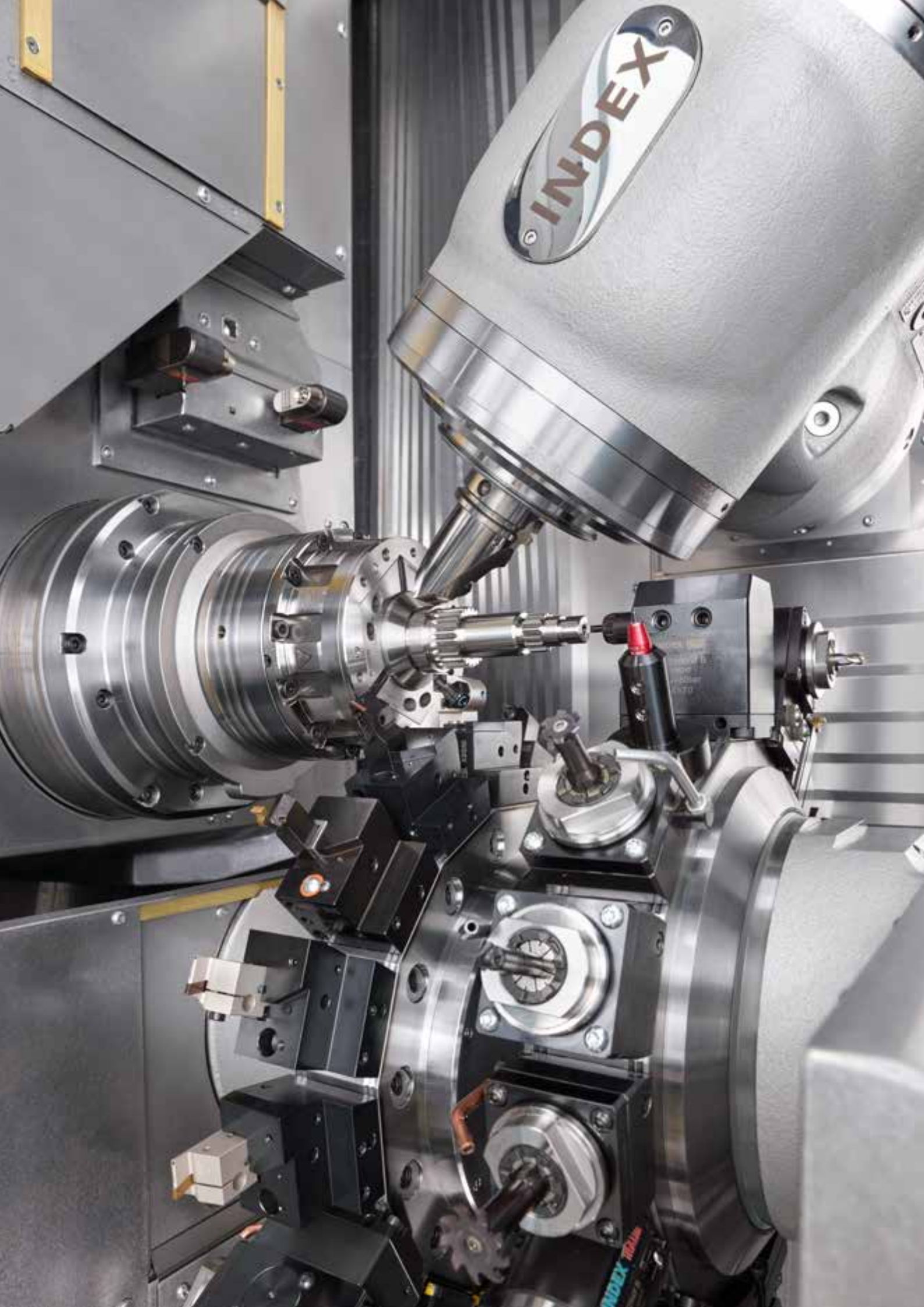
Turret steady rests provide for flexible shaft machining



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







Tool magazine

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

Main spindle

76 mm / 90 mm in diameter
6,000 rpm / 4,000 rpm
150/190 Nm (100/40 % DC)
230/310 Nm (100/40 % DC)

Motor milling spindle

HSK-T63

Y-B quill

Torque motor for high precision

Cutting area


Turning length
900/1,200 mm

Tool turret

12/15 tool locations each /
VDI 25/30 / 7,500 rpm /
9 kW/20 Nm (25 % DC)

Mineral cast bed

in monoblock design
for excellent rigidity and
thermal stability



Work area

Vertical walls for optimum chip flow

Workpiece handling unit

2/3-Axis with single gripper

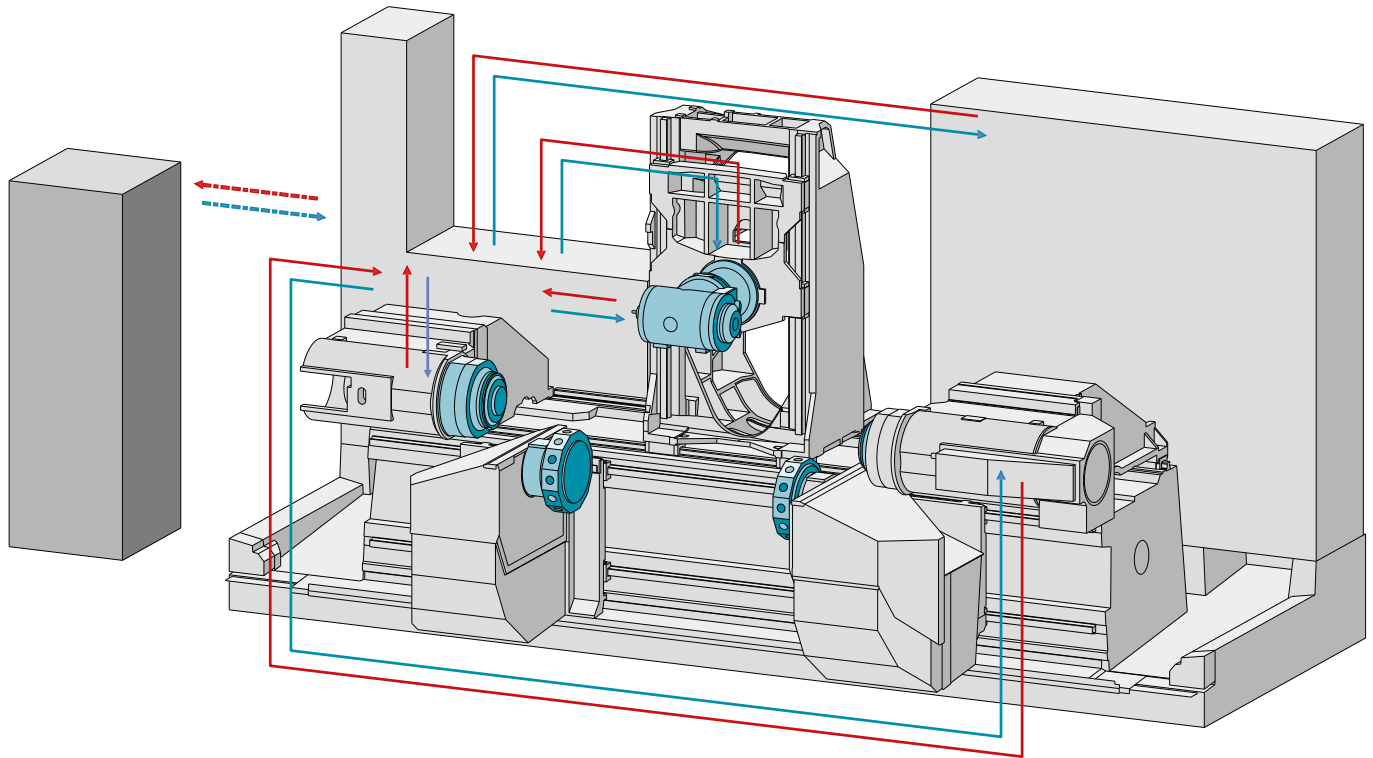
Counter spindle

76 mm / 90 mm
6,000 rpm / 4,000 rpm
150/190 Nm (100/40 % DC)
230/310 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 INDEX G200/G220 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.
- Economic use of waste heat**
The INDEX “coolant interface” 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.
- Climate-neutral dissipation of heat**
The coolant interface enables climate-neutral heat dissipation when the waste heat stored in the cooling medium cannot be repurposed. Thanks to the coolant interface, the required cooling unit can be installed outside the shop floor and can also serve multiple machines. This offers a considerable energy savings potential for shop floor 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 10/2x10 kg 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.

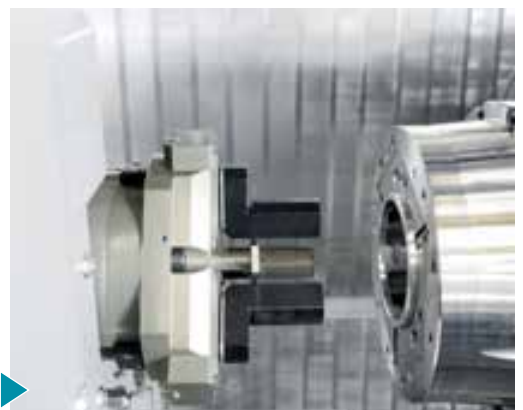
Further individual automation solutions, such as conveyor belts or robot handling unit with auxiliary functions, can be integrated to customer specifications.

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.

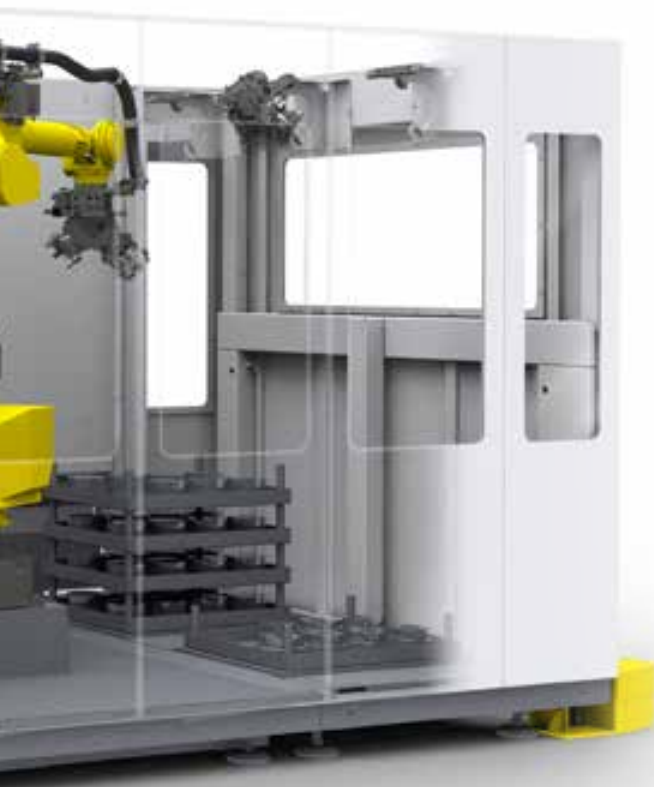
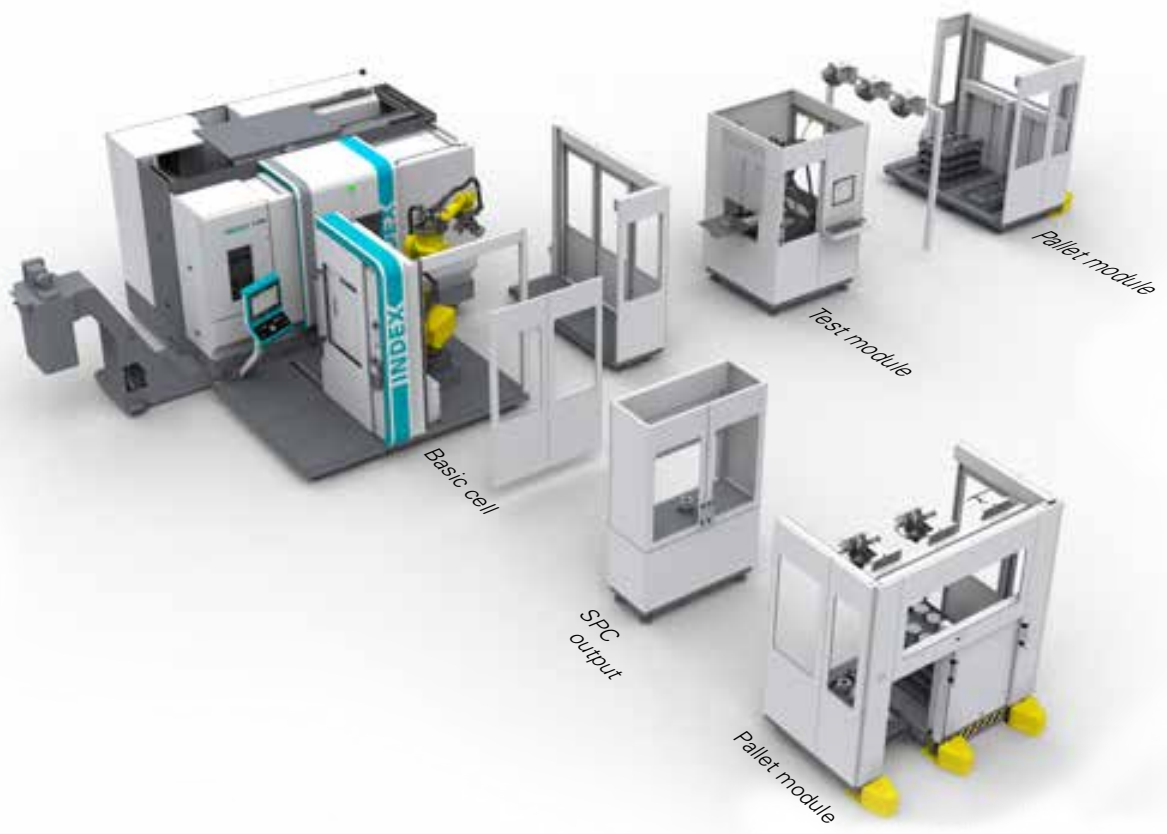
Your benefits

- 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 INDEX 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 units
- 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 operators always have all relevant information for efficient production right at the machine. iXpanel is included with the standard version and can be enhanced with custom options. 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

iXpanel integrates the latest control generation, the SIEMENS Sinumerik 840D solution line. Operate iXpanel intuitively using a 19" Full HD Monitor.



Productive

Achieve maximum performance with comprehensive technology cycles and programming screens, e.g., for optimum turning, milling, and drilling, especially when using several tools simultaneously.

Intelligent

The machine always starts with the control home screen. Other functions can be displayed on a second screen at any time, and operators can enjoy direct, activity-related assistance already with the standard version, such as workpiece drawings, setup lists, programming aids, documentation, etc., and all this right at the machine.

Virtual & open

With the optional VPC Box (industrial PC), iXpanel opens up the world of Virtual Machines with the following three operating modes directly in the control system:

- CrashStop
- RealTime mode
- Independent simulation (VM on board)

The VPC Box lets you integrate the machine into your IT structure without any limitations.



USERS

19" Full HD
MONITOR



STANDARD included as standard

Industry 4.0 features



Machine documentation



BDE buttons



Workpiece-specific user documents



User hotkeys



Programming information



Technology computer



Notes



Camera



Part counter



Variable view

+ many more standard features

OPTIONAL



ClampMaster



VPC Box



Virtual machine 3D simulation



CenterMaster



VirtualPro Programming studio

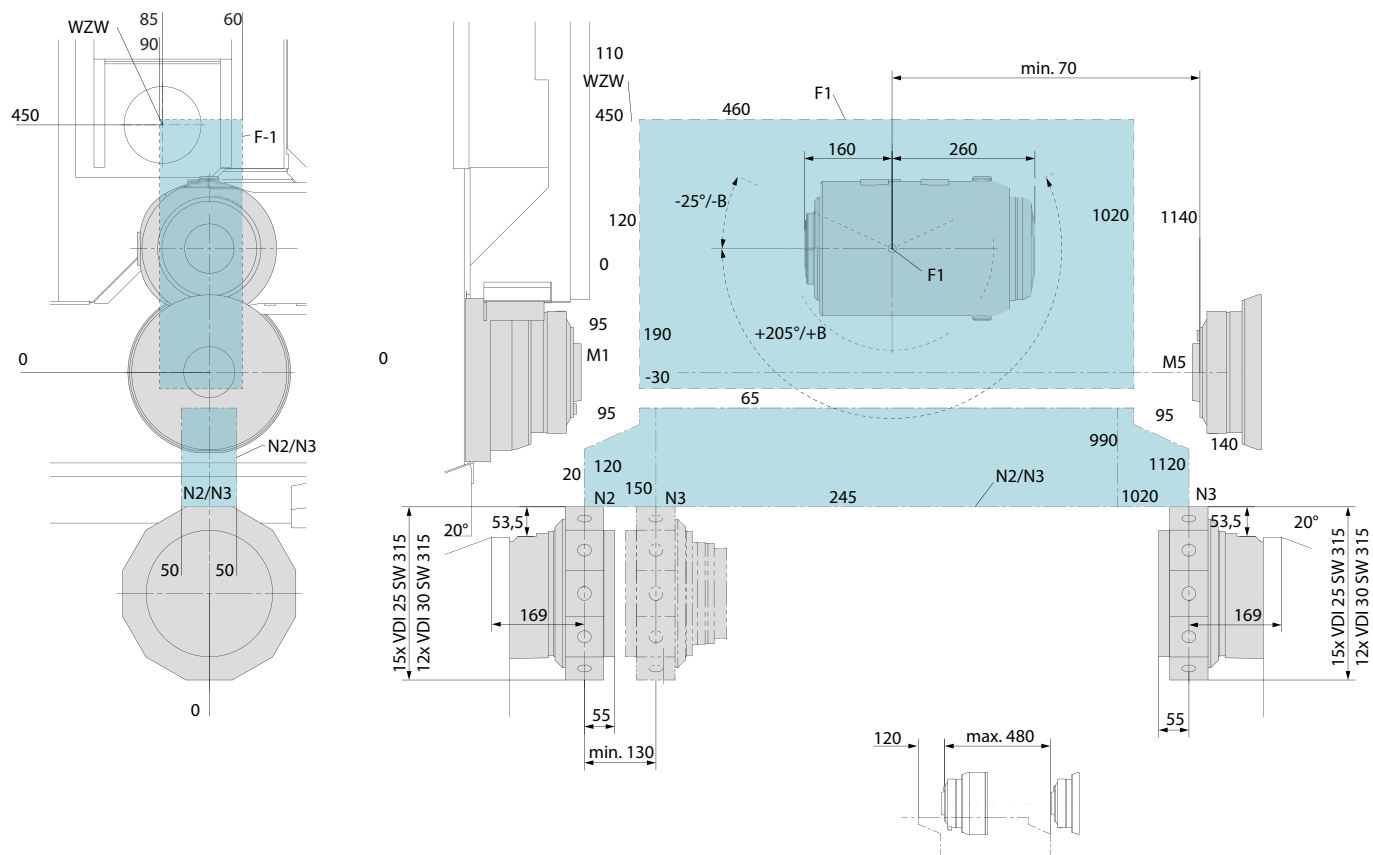


VNC on third-party application

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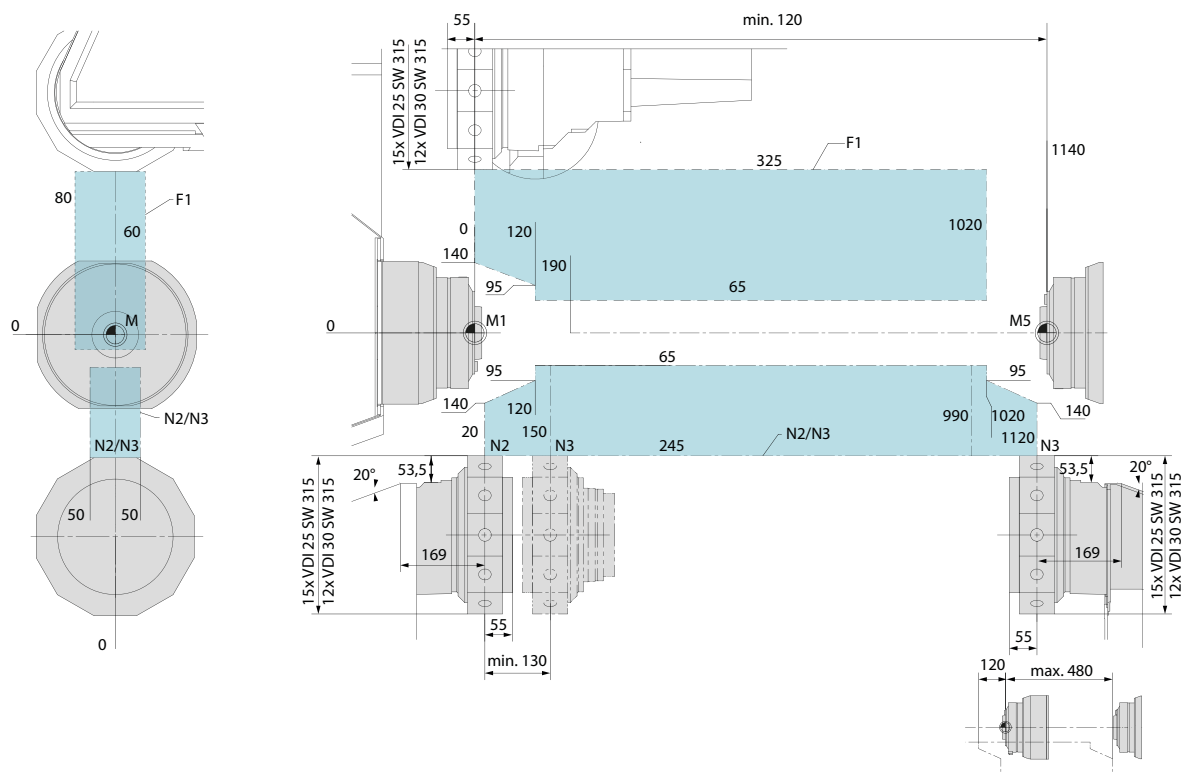
INDEX G220 work area (with motor milling spindle at top, turning length 900 mm)

Dimensions in mm

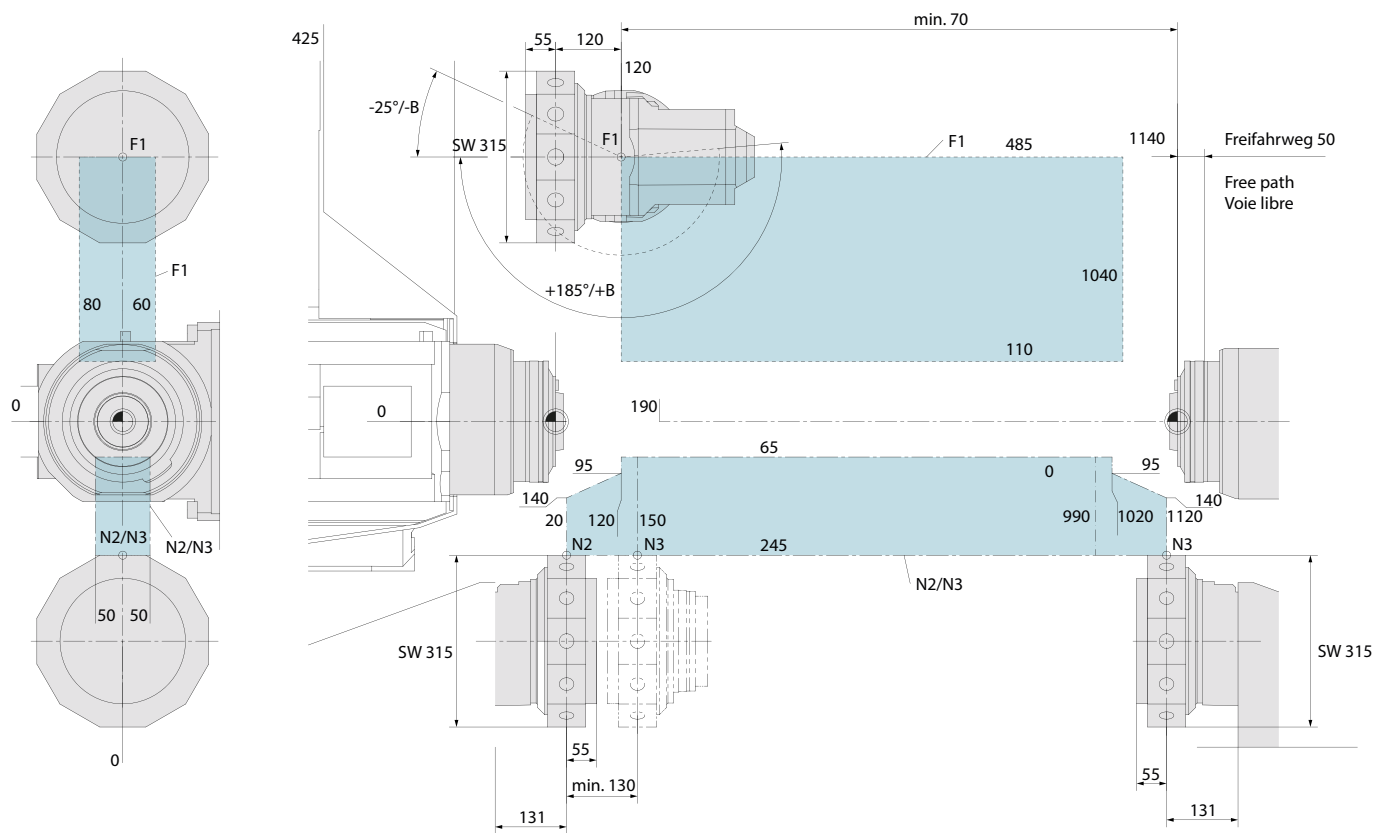


INDEX G200 work area (with upper tool turret XYZ, turning length 900 mm)

Dimensions in mm



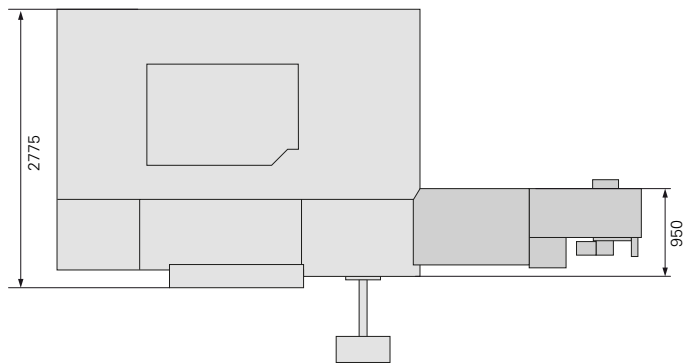
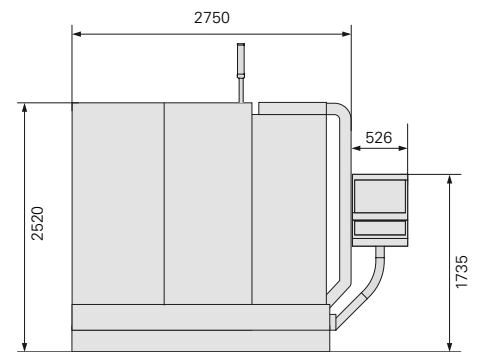
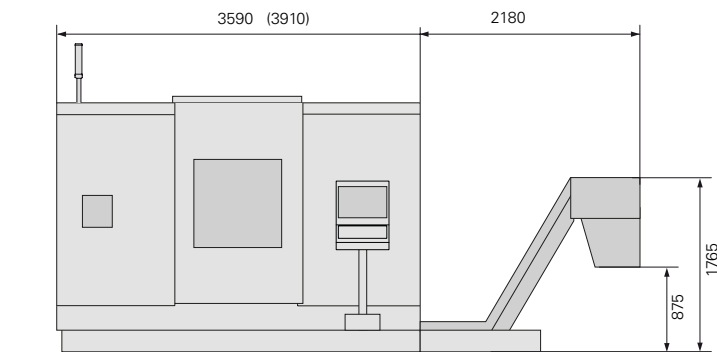
INDEX G200 work area (with tool turret XYZB, turning length 900 mm)
Dimensions in mm



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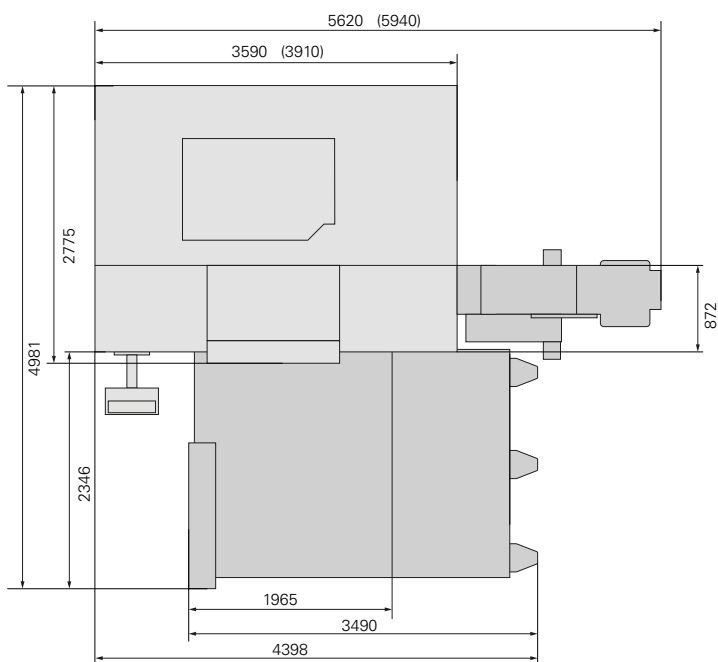
Installation plan for INDEX G200/G220

Chip conveyor at right and workpiece handling unit
(Long version)



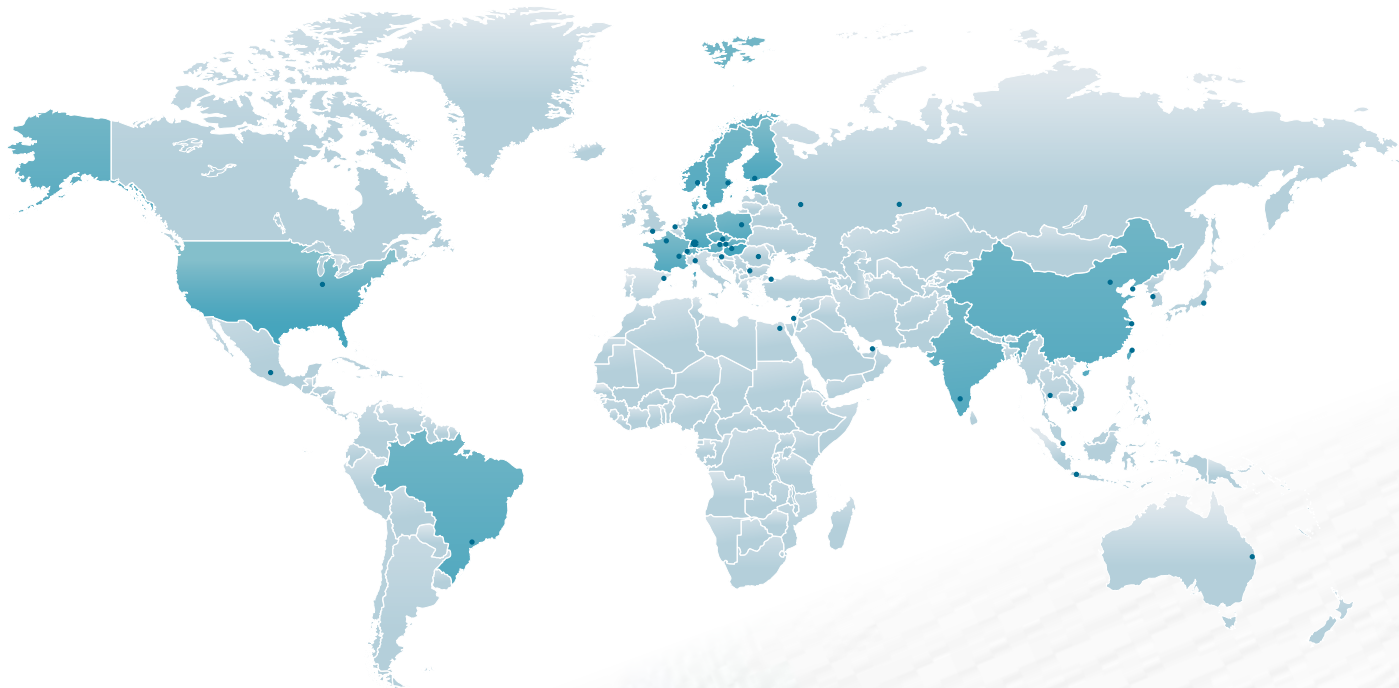
Installation plan for INDEX G200/G220

Chip conveyor at right /
iXcenter L with basic cell and pallet module



Technical data

		INDEX G200	INDEX G220
Cutting area			
Turning length	mm	900/1,200	900/1,200
Main spindle and counter spindle			
Spindle clearance	mm	76/90	76/90
Spindle head ISO 702/1		A6 / A8	A6 / A8
• Max. speed	rpm	6,000/4,000	6,000/4,000
• Drive power (100%/40% DC)	kW	(33/35)/(40/50)	(33/35)/(40/50)
• Torque (100%/40% DC)	Nm	(150/190)/(230/310)	(150/190)/(230/310)
Chuck diameter	mm	160 (230 max.)/260	160 (230 max.)/260
C axis resolution	degrees	0.001/0.001	0.001/0.001
Upper tool carrier		Turret	Motor milling spindle
Kinematics		XYZ	XYZB
Tooling system		VDI 25 // VDI 30	VDI 25 // VDI 30
Number of stations		15 // 12	52 (103) // 70 (139)
• Max. speed	rpm	7,500	12,000 // 18,000
• Drive power (25% 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 / 6000	490 / 30 / 6000
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 / 6000	910 / 50 / 6000
B axis			
Swivel range, angular speed	degrees/rpm	210 (+185/-25)	-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	7,500	7,500
• Drive power (25% DC)	kW	9	9
• Torque (25% DC)	Nm	20	20
X slide travel, rapid traverse rate, feed force	mm / m/min / N	180 / 30 / 6000	180 / 30 / 6000
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 / 6000	970 / 50 / 6000
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	7.5	7.5
Max. workpiece diameter	mm	90	90
Max. workpiece length	mm	250	250
Workpiece handling unit for double gripper, shaft/flange (optional)			
Max. workpiece weight, flange/shaft	kg	2 x 10 / 2 x 10	2 x 10 / 2 x 10
Max. workpiece diameter, flange/shaft	mm	230/90	230/90
Max. workpiece length, flange/shaft	mm	up to 125 in dia., 250 in length 125-230 in dia., 100/500 in length	Up to 125 in dia. 250 in length 125-230 in dia., 100/500 in length
General data			
Length x width x height	mm	3,590 x 2,775 x 2,520 / 3,910 x 2,775 x 2,520	3,590 x 2,775 x 2,500 / 3,910 x 2,775 x 2,520
Weight	t	14/16	14,5/16,5
Connected power	kW	71	71
Control		Siemens S840D sl	Siemens S840D sl



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