G200.3, G220

INDEX

Turn-mill centers for high productivity and flexibility

*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

- Identical main and counter spindles with a spindle clearance of Ø 76 mm
- Chuck up to Ø 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 (G220)
- Sophisticated working 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. 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

Output shaft

Steel
Ø 68 mm x 180 mm

Nut housing

Steel
Ø 64 mm x 154 mm

Drive shaft

Aluminium
Ø 44 mm x 220 mm

Turbine blade

Stainless steel
Ø 75 mm x 100 mm

Milling head

Stainless steel
Ø 70 mm x 100 mm

Gear

Steel
Ø 70 mm x 37 mm

Distribution block

Stainless steel
Ø 55 mm x 120 mm

Nozzle body

Stainless steel
Ø 60 mm x 160 mm

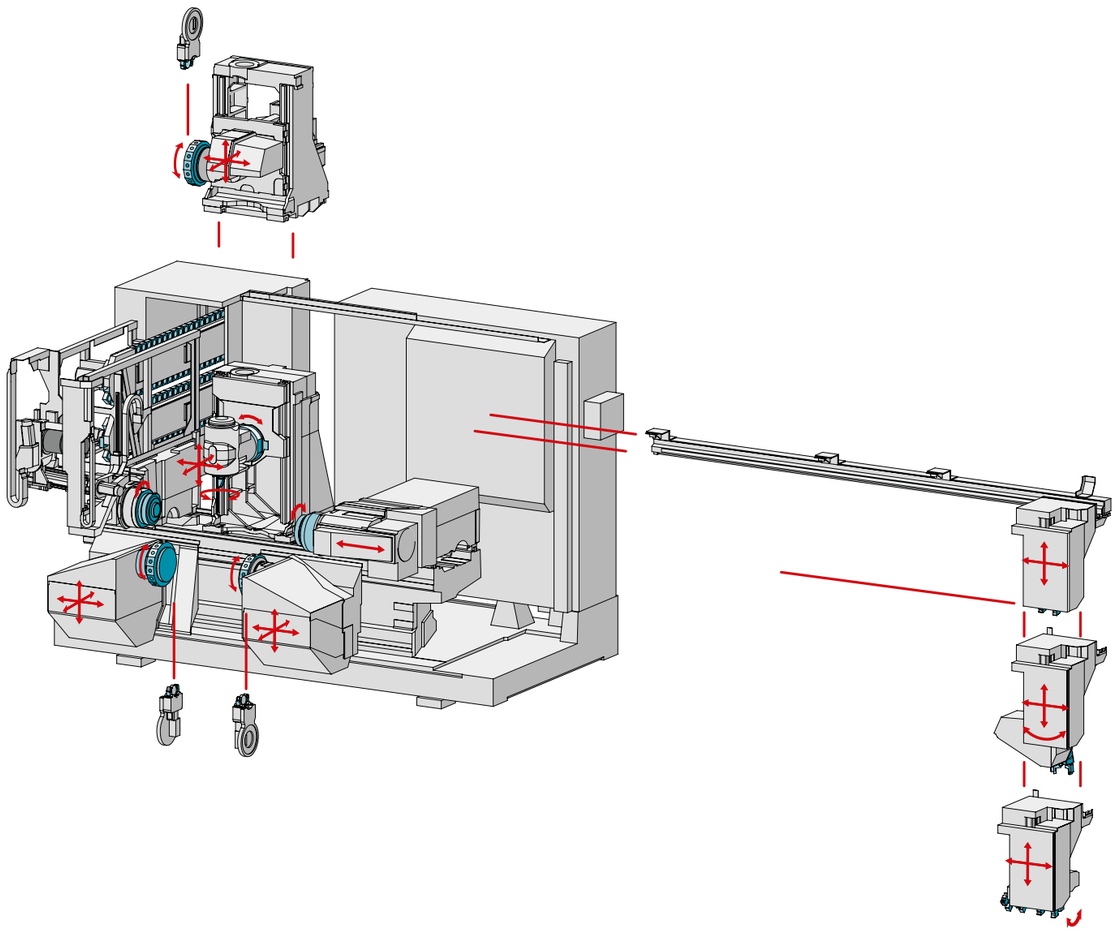
Complete machining based on a modular system

The modular system in this series offers a wide range of options. Up to 3 tool carriers can be integrated into the work area, 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 INDEX G220 features a powerful motor milling spindle capable of simultaneous 5-axis machining.

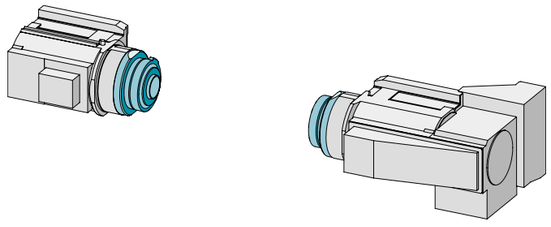
The ergonomic setup and operating concept played a major role in the new design.
All the relevant components are easily accessible for operating and maintenance personnel. Optionally, an integrated workpiece handling system matched to the machining processes can be used for loading and unloading shaft 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.

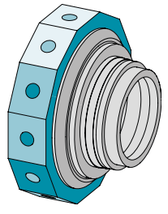


The components

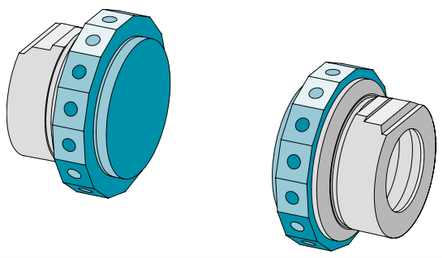
Main and counter spindles
- Spindle clearance: Ø 76 mm
- Max. speed: 6,000 rpm
- 40 kW, 207 Nm (40% DC)
- Chuck diameter: Ø 160 mm (Ø 230 mm)



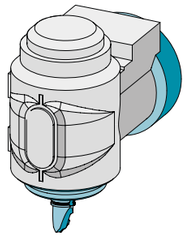
Upper turret with 12 stations (INDEX G200)
- 12 live stations, each VDI 30 with W-serration
- 7,500 rpm, 9 kW, 20 Nm (25% DC)
- X axis: 260 mm, rapid traverse rate: 30 m/min
- Y axis: +80/-60 mm, rapid traverse rate: 20 m/min
- Z axis: 1,020 mm, rapid traverse rate: 50 m/min



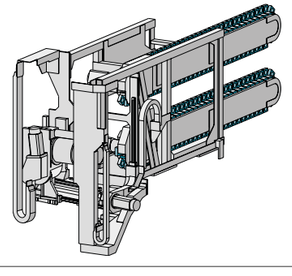
Lower turrets with 12 stations each
- 12 live stations each, VDI 30 with W-serration
- 7,500 rpm, 9 kW, 20 Nm (25% DC)
- X axis: 180 mm, rapid traverse rate: 30 m/min
- Y axis: +/-50 mm, rapid traverse rate: 20 m/min
- Z axis: 970 mm, rapid traverse rate: 50 m/min



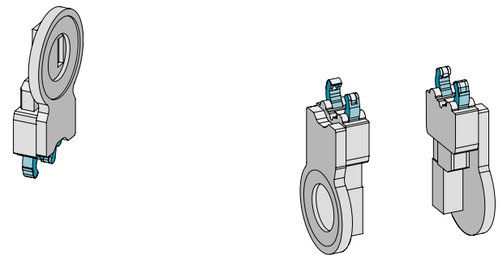
Motor milling spindle (INDEX G220)
- HSK-T63: 12,000 rpm, 72 Nm (25% DC)
- HSK-T40: 18,000 rpm, 30 Nm (25% DC)
- X axis: 490 mm, rapid traverse rate: 30 m/min
- Y axis: +90 mm/-60 mm, rapid traverse rate: 20 m/min
- Z axis: 910 mm, rapid traverse rate: 50 m/min
- B axis: -25°/+205°, rapid traverse rate: 100 rpm



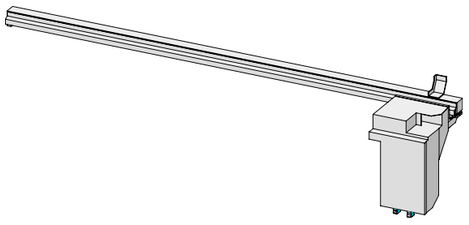
Tool magazine (INDEX G220)
- Single-row: 52/70 tool locations HSK-T 63/HSK-T40
- Double-row: 103/139 tool locations HSK-T 63/HSK-T40
- Max. tool weight: 5/4 kg
- Max. tool diameter: 100 mm
- Max. tool length: 300 mm
- Front setup station
- Setup access from rear



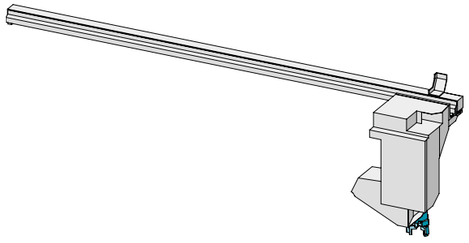
Upper and lower turret steady rests (optional)
- Upper steady rest clamping range: 6-70 mm
- Lower steady rests clamping range: 6-70 mm



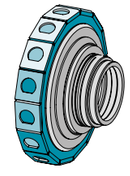
Workpiece handling unit for single gripper (optional)
- Integrated 2-axis workpiece handling unit
- Max. workpiece diameter: 76 mm
- Max. workpiece length: 250 mm
- Max. workpiece weight: 10 kg



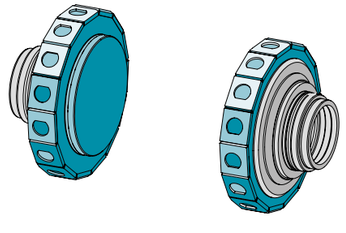
Workpiece handling unit for double gripper (optional)
- Integrated 3-axis workpiece handling unit
- Max. workpiece diameter: 90/230 mm
- Max. workpiece length: 500/250 mm
- Max. workpiece weight: 2x10 kg



Upper turret with 15 stations (INDEX G200 optional)
- 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

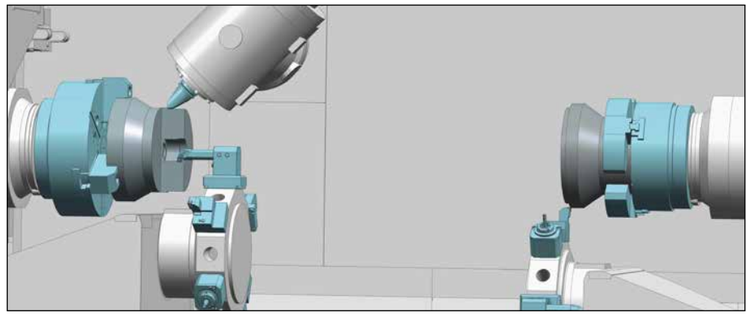


Lower turrets with 15 stations each (optional)
- 15 live stations each, VDI 25 with W-serration
- 7,500 rpm, 9 kW, 20 Nm (25% DC)
- X axis: 180 mm, rapid traverse rate: 30 m/min
- Y axis: +/-50 mm, rapid traverse rate: 20 m/min
- Z axis: 970 mm, rapid traverse rate: 50 m/min

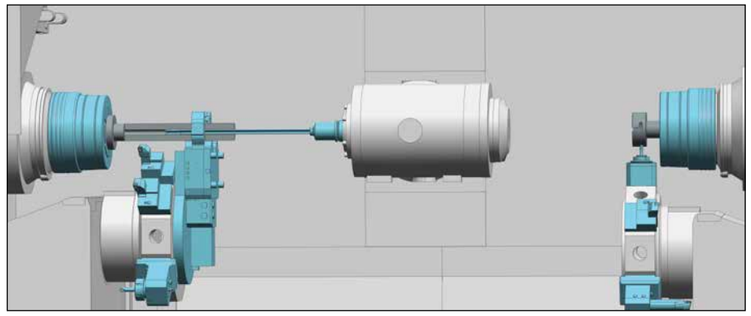


Large degrees of freedom in the working area for a wide range of machining options

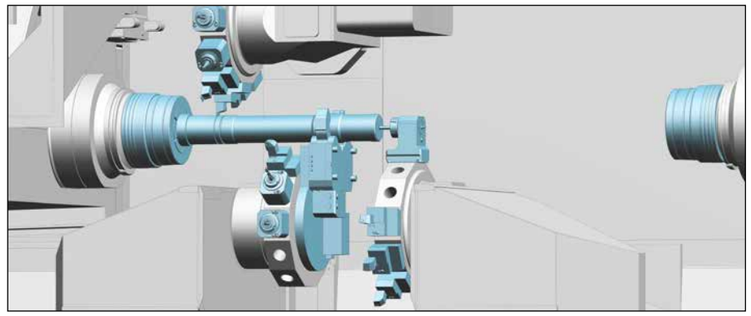
INDEX G220
Simultaneous machining with 3 tools for maximum productivity



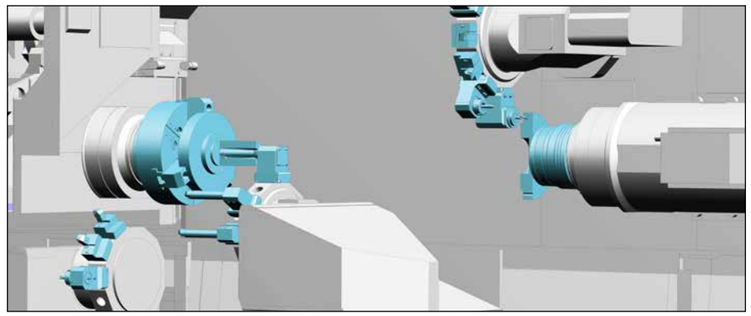
INDEX G220
Use of tools up to 300 mm long in the motor milling spindle, e.g., for deep-hole drilling applications with the highest precision

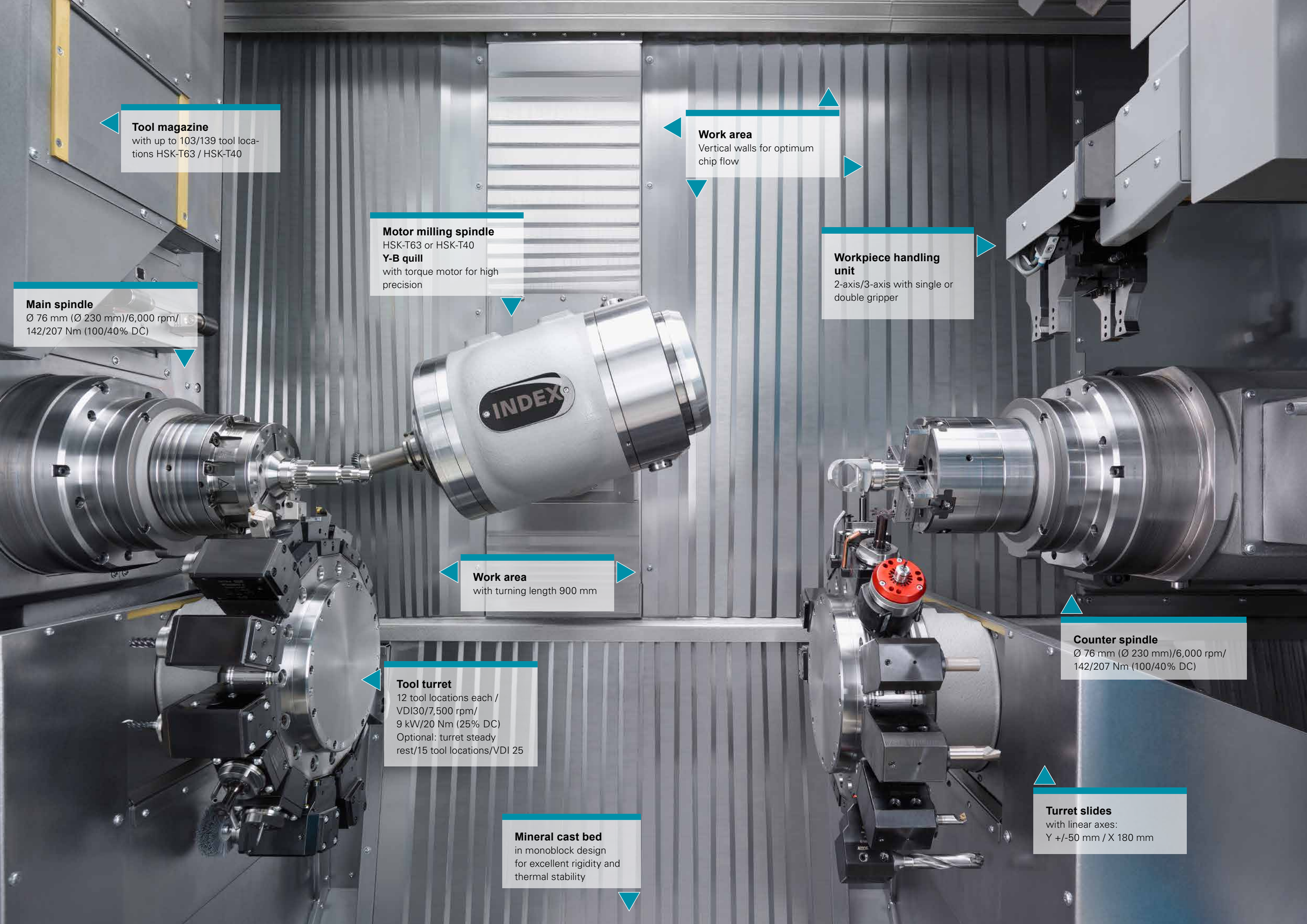


INDEX G200
Turret steady rests provide for flexible shaft machining



INDEX G200, G220
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

Work area
Vertical walls for optimum chip flow

Motor milling spindle
HSK-T63 or HSK-T40
Y-B quill
with torque motor for high precision

Workpiece handling unit
2-axis/3-axis with single or double gripper

Main spindle
Ø 76 mm (Ø 230 mm)/6,000 rpm/
142/207 Nm (100/40% DC)

Work area
with turning length 900 mm

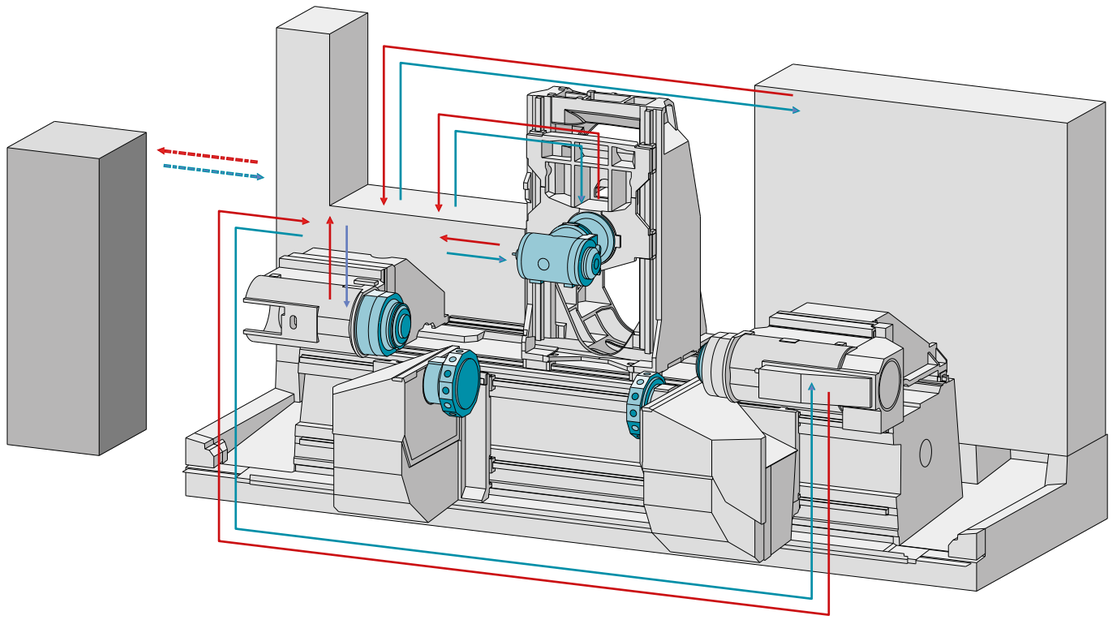
Counter spindle
Ø 76 mm (Ø 230 mm)/6,000 rpm/
142/207 Nm (100/40% DC)

Tool turret
12 tool locations each /
VDI30/7,500 rpm/
9 kW/20 Nm (25% DC)
Optional: turret steady rest/15 tool locations/VDI 25

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

Mineral cast bed
in monoblock design
for excellent rigidity and thermal stability

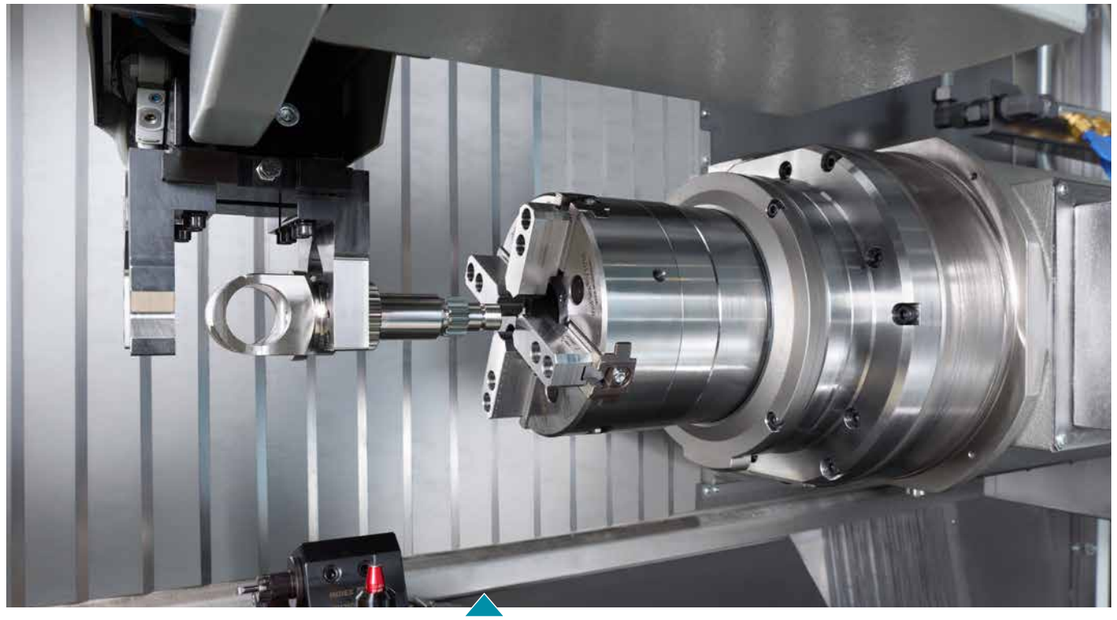
The cooling concept: efficient use of energy



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.
- **Economical use of waste heat**
  The INDEX 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



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

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.

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

3-axis workpiece handling for flange parts

Xcenter Robot cell

Intelligent automation—even more flexibility and efficiency

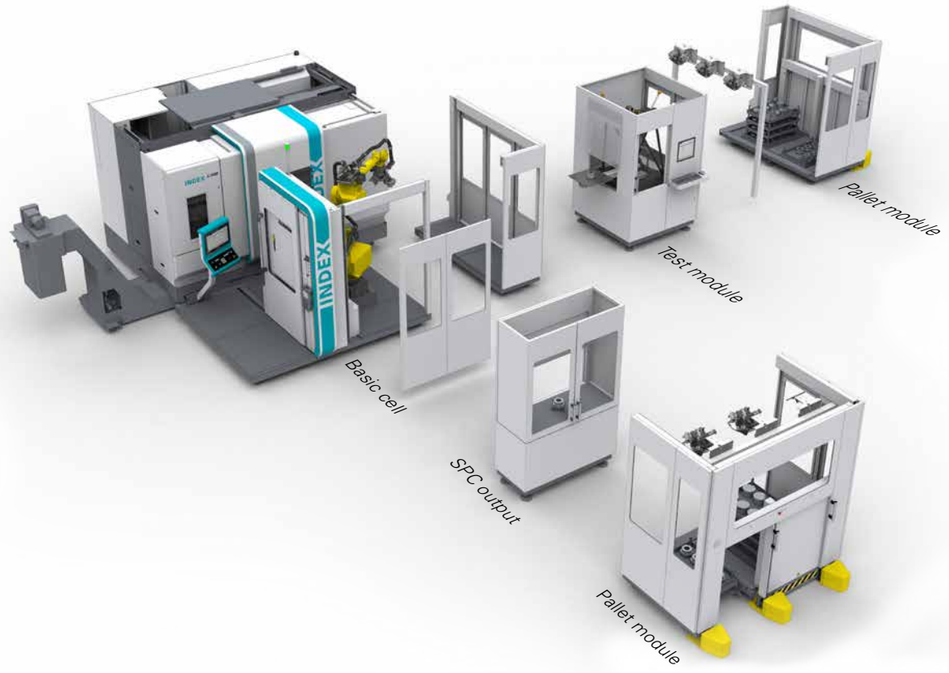
With the iXcenter robot cell, blanks and finished parts can be fed and discharged quickly, safely and flexibly.
The overall sequence between the machine and the robot cell is created using predefined macros in the NC program.
Work area access is provided to the robot via the working area door that opens and closes automatically.
The unit's modular design offers the flexibility to 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 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

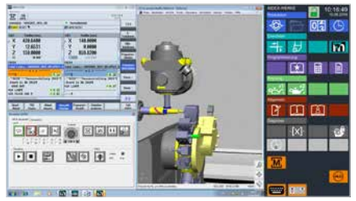
The cockpit for easy integration of the machine in your business organization

Focus on production and control—Industry 4.0 included
The iXpanel operating concept provides access to networked production. With iXpanel, your 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 SIEMENS Sinumerik 840D solution line. Use iXpanel intuitively via an 18.5" touchscreen 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.

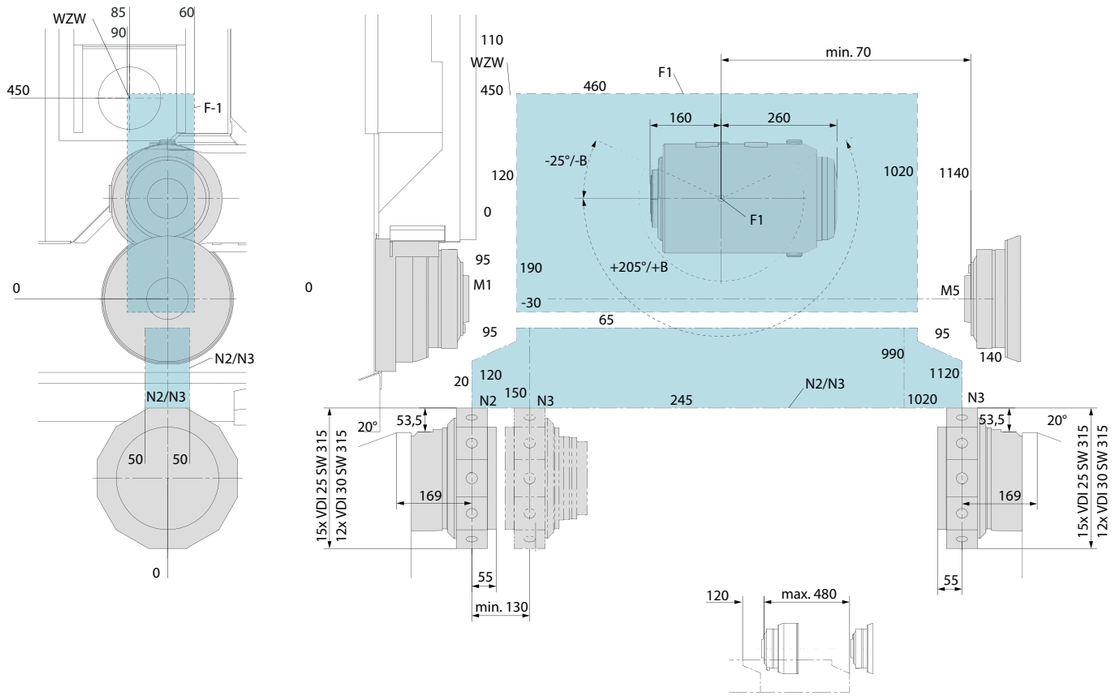


Virtual & open
With the optional VPC box (industrial PC), iXpanel opens up the world of the Virtual Machine with the 3 operating modes
- CrashStop
- RealTime mode
- Independent simulation (VM on board)

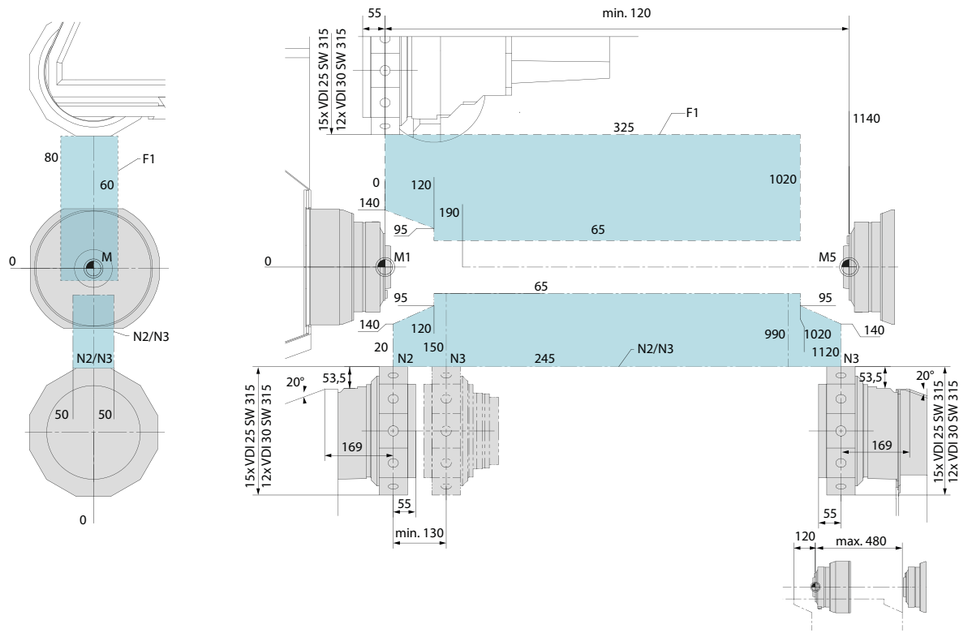
directly in the control system
The VPC box lets you integrate the machine into your IT structure without any limitations.

index-werke.de/ixpanel

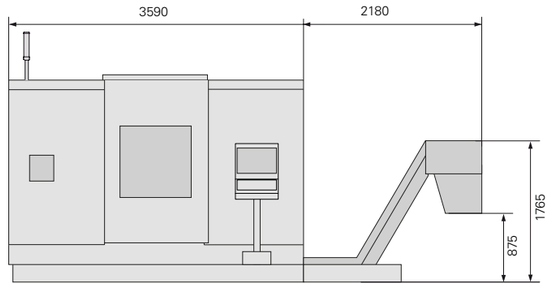
INDEX G220 work area (with motor milling spindle at top)
Dimensions in mm

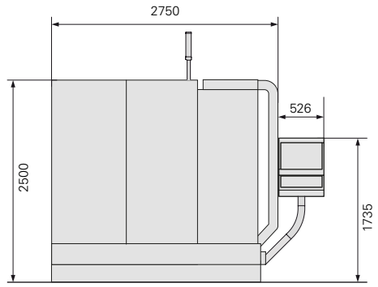


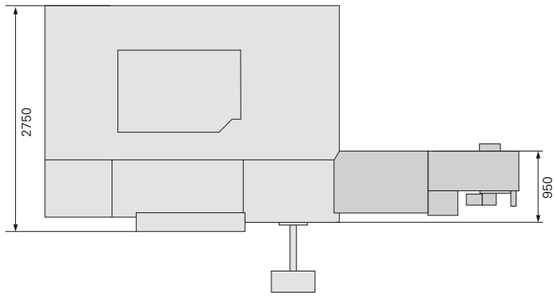
INDEX G200 work area (with tool turret at top)
Dimensions in mm



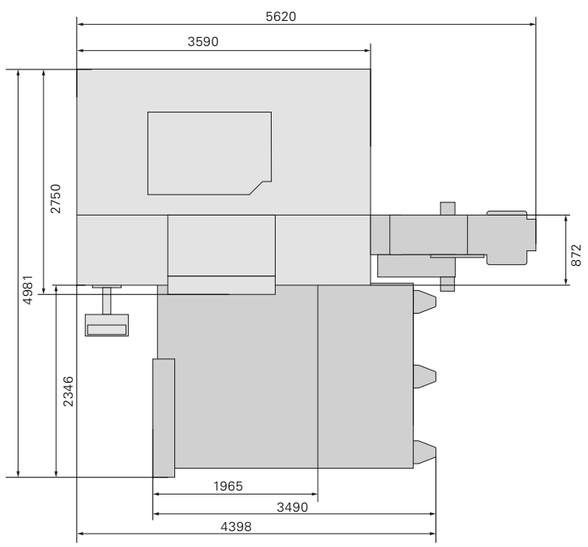
Installation plan for INDEX G200/G220
Chip conveyor at right and workpiece handling unit







Installation plan for INDEX G200/G220
Chip conveyor at right /
iXcenter L with basic cell and pallet module



Technical data

		INDEX G200	INDEX G220
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		VDI25 // VDI30	HSK-T63 // HSK-T40
Number of stations		15 // 12	52 (103) // 70 (139)
• Max. speed	rpm	7500	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 / 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		VDI25 // VDI30	VDI25 // VDI30
Number of stations (live)		15 // 12	15 // 12
• Max. speed	rpm	7500	7500
• 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 / 6,000	180 / 30 / 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	up to Ø 125, max. length: 250 Ø 125 - Ø 230, max. length: 100/500	up to Ø 125, max. length: 250 Ø 125 – Ø 230, max. length: 100/500
General data			
Length x width x height	mm	3590 x 2750 x 2500	3590 x 2750 x 2500
Weight	t	14	14.5
Connected power	kW	71	71
Control		Siemens S840D sl	Siemens S840D sl

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