PRIMINER

C500-5X

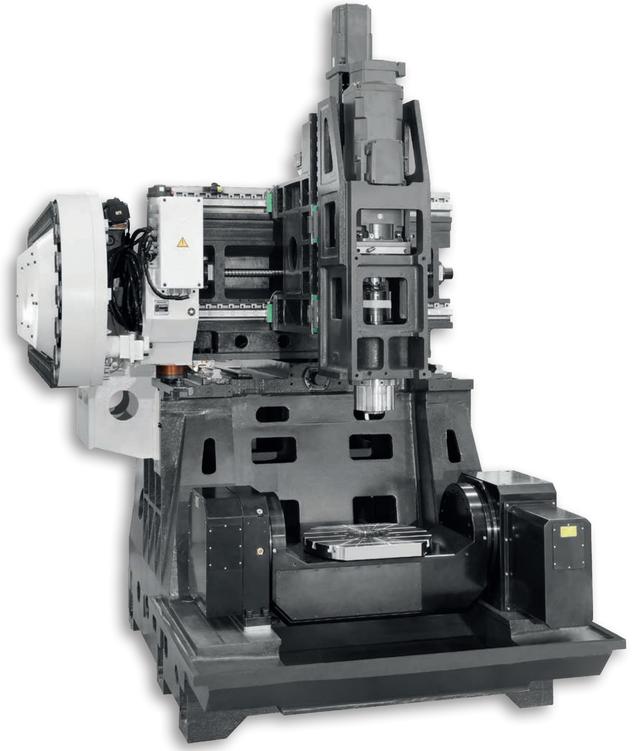
5 Axis Machining Center

C500-5X

Chinese-German cooperation perfectly implemented.

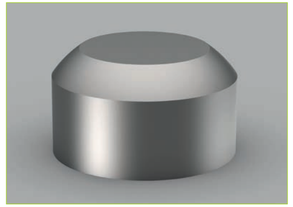
Unique movable gantry design – optimized for precision, rigidity and efficient machining.

- The movable bed design facilitates operator access to the machining area.
- Separating the movable components of the X/Y/Z axes from the machining area prevents interference from the workpiece load and ensures optimal machining performance.
- The double-support rotary table, in combination with the highly rigid structure of the machine, ensures high milling performance and efficient machining.
- The A/C axes are equipped with highly rigid precision roller cams that offer high precision, high speed, backlash-free operation, and high load capacity.
- The system features a three-axis direct linear measuring system with circular scales, which are standard on the A/C axes.



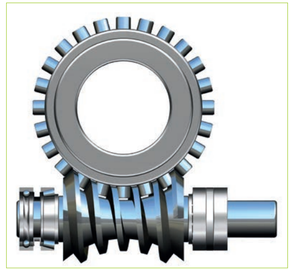
Processing area

- Max. workpiece diameter: 700 mm
- Max. workpiece height: 500 mm
- Max. workpiece weight: 300 kg



Highly rigid 5-axis rotary table

- A/C axes use highly rigid precision roller cams.
- Maximum speed of A/C axes: 50/60 rpm.
- Travel range of A axis: +30° to -120°.
- Travel range of C axis: 360°.



High-capacity tool magazine system

- Tools can be loaded and unloaded while machining.
- User-Friendly interface make the loading and unloading of the tools easier.
- High production efficiency.

Tool magazine parameters

HSK A63

- Tool magazine capacity: Standard 40, optional 60/90
- Maximum tool length: 300 mm
- Maximum tool diameter: 78/125 mm (full tool/adjacent empty tool)
- Maximum tool weight: 8 kg

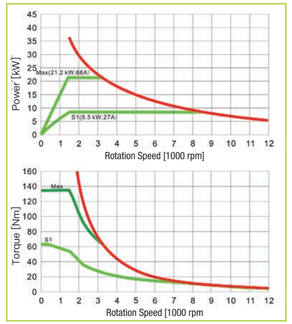
BBT40

- Tool magazine capacity: Optional 40
- Maximum tool length: 260 mm
- Maximum tool diameter: 78/125 mm (full tool/adjacent empty tool)
- Maximum tool weight: 8 kg

High-performance spindles for a wide range of machining requirements

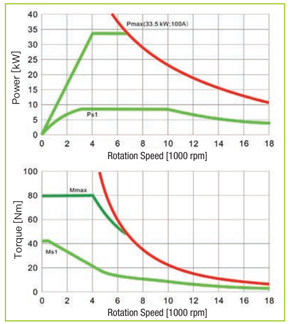
Power and torque diagram

HSK A63 · 15000 rpm



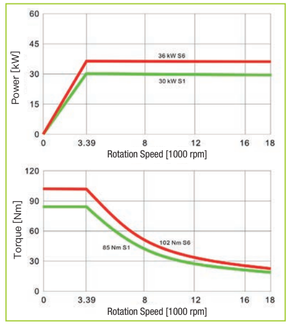
Y-shaped connection
12000 rpm
8.5/21.2 kW 63/135 Nm

HSK A63 · 15000 rpm



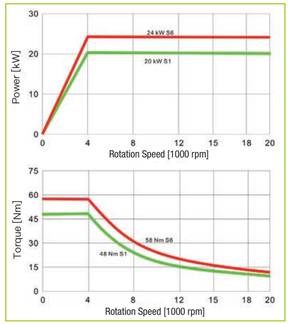
△ Triangular connection
18000 rpm
8.5/33.5 kW 42/80 Nm

HSK A63 · 18000 rpm



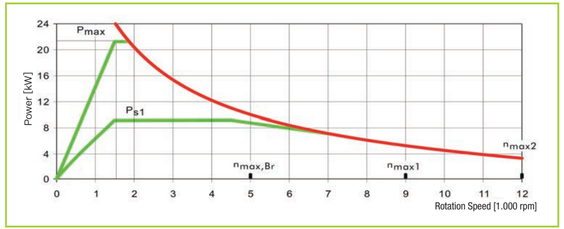
30/36 kW 85/102 Nm

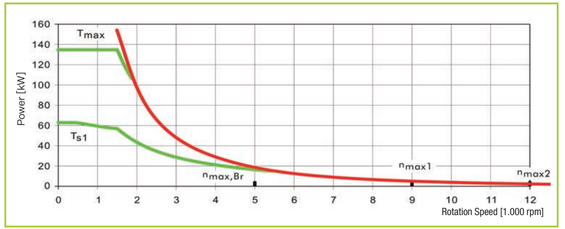
HSK A63 · 20000 rpm



20/24 kW 48/58 Nm

BBT40 · 12000 rpm





9/22 kW 63/135 Nm

HEIDENHAIN TNC 640

TNC controls for milling machines and combined milling/turning machines

FEATURES/PROPERTIES

Intelligent dynamic high-precision machining
- Dynamic collision monitoring (DCM)
- Dynamic efficiency
- Effective chatter monitoring (ACC)
- Adaptive feed control (AFC)
- High-speed machining of any profile grooves using cycloidal milling

High reliability and high-precision machining contours
- Automatic optimization of tool movement paths

Programming at the workplace: programming, modification, testing, and automated processing
- TNC640 – feature-rich with unlimited possibilities
- Comprehensive graphical support
- Intuitive function keys for complex contour programming
- Unconventional methods for contour programming to check and optimize machine accuracy
- Automatic calibration of rotary axes with KinematikOpt

Tool measurement, workpiece measurement
- Direct measurement of tool length, radius, and wear on the machine tool
- Setup, presetting, and measurement with touch probes
- Internal 3D contour measurement reduces setup time
- The TNC640 simplifies setup processes

Seamless data exchange
- TNC640 supports CAD files
- TNC640 programming station
- Fully digital task list management for intelligent manufacturing

SIEMENS SINUMERIK ONE

CNC platforms and digitization drive innovation forward

- Further personalization in mechanical engineering
- High quality and optimal user-friendliness
- Improved precision and increased productivity
- Safety for personnel, machines, and property in the digital age
- Powerful processors and communication technology
- Scalable intelligent control and drive technology
- First-class safety standards
- Innovative digital engineering

Integrated solutions along the entire value chain.
Tapping into new potential for machine tool manufacturers and users alike

- Digital-native CNC
- Research and development from the virtual to the real worl
- Scalable virtual and physical integration
- Intelligence and efficiency
- Digital transformation of machine tools
- Maximizing production efficiency
- Faster innovation
- Driving digitalization forward
- Opening up new perspectives

Primary CNC functions
- Significantly increased tool machining speed
- Automatic adjustment of dynamic and control parameters to the current load
- Automatic adjustment of dynamic and control parameters based on the current axis position or axis speed
- Conversion of rotary motion into circular motion for linear axes
- Configurable stop conditions during automatic operation
- SINUMERIK Operate configurable angle head adapter
- Automatic determination of the tools required for machining operations

SIEMENS SINUMERIK 828D

The perfect solution for all performance classes

Neue Panel-Verarbeitungseinheit
- Higher processor performance
- Digital input with higher voltage stability
- 1GB Ethernet interface X130
- Strain relief for DRIVE-CLiQ and PN cables
- More robust touch operation 15.6'' PPU290.4

Features for milling Detent torque compensation and 2nd channel for milling
- System-integrated function
  Drive-related function SINAMICS
- Automatic measurement of cogging torque
- Pre-control of periodically recurring torque ripple
- Function available for rotary, linear, and torque motors
- 2nd channel milling, for machining as well as handling and robotics

Wackelkompensation ECO/Advanced und Advanced Positionssteuerung ECO
- Intelligent control-based compensation
  Newly developed compensation algorithm
- System-integrated function
  As CNC and HMI function
- Scalable function in 3 stages
  ECO
  Extended
  Compilation cycle
- Commissioning support with HMI masks
  Additional input mask from SINUMERIK Operate

Higher speed, more accurate for entry
Tool Ident Connection
Jerk adjustment
Maximum speed plus
Intelligent Load Control (ILC)
Intelligent Dynamic Control (IDC)

Standard configuration

- Direct drive spindle HSK A63 15000 rpm_ 8.5/33.5 kW_63/135 Nm (SIEMENS/HEIDENHAIN)
- Direct drive spindle BBT40/SK40/CAT40 12000 rpm_ 11/18.5 kW_52.5/118 Nm (FANUC)
- Roller gear cam drive rotary table
- Rotary encoder on the AC axes
- Fully enclosed splash guard
- Tool changer with 60 compartments, chain type, HSK A63
- Tool changer with 40 pockets, chain type, BBT40/SK40/CAT40
- Chain conveyor for wood chips
- Spindle oil cooler
- Air conditioning electrical cabinet
- Rigid thread cutting
- Automatic lubrication system
- Cooling system
- Air blast during cutting
- LED work light
- Program end light
- Electric handwheel (MPG)
- Tool box
- Leveling bolts and blocks
- Coolant gun
- Air gun
- User manual (mechanical and electrical parts)
- Ethernet, CF card, and USB interface

Optional configuration

- Direct drive spindle BBT40/SK40/CAT40 12000 rpm_9/22 kW_63/135 Nm (SIEMENS)
- Direct drive spindle BBT40/SK40/CAT40 15000 rpm_8.5/33.5 kW_63/135 Nm (SIEMENS/HEIDENHAIN)
- Built-in spindle HSK A63 18000 rpm_30/36 kW_85/102 Nm (SIEMENS/HEIDENHAIN)
- Built-in spindle HSK A63 20000 rpm_ 20/24kW_48/58Nm (SIEMENS/HEIDENHAIN)
- Sealed linear scales on the X/Y/Z axes
- Tool changer with 40 pockets, chain type, BT40/SK40/CAT40/HSK A63
- Tool changer system with 60 pockets, BT40/SK40/CAT40
- Tool changer with 90 pockets, BT40/SK40/CAT40/HSK A63
- CTS coolant through the spindle + ATS
- Workpiece probe • Tool probe
- Oil mist separator • Oil separator
- Dynamic collision monitoring (DCM)
- Kinematics
- Additional 200 GB SSD program memory (only available on SIEMENS)

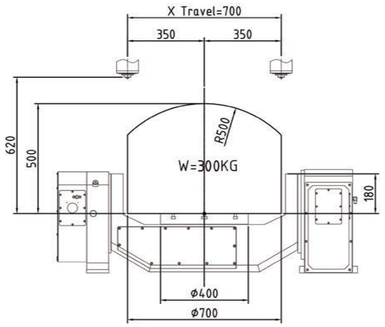
Technical specifications

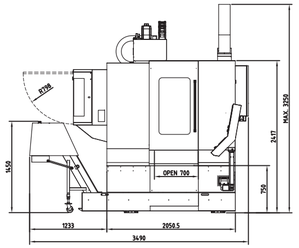
Table	
Max. workpiece diameter	Ø700 × 500 mm
Table size	Ø500 × 400 mm
T-Slot (Width × Spacing × Number)	14 mm × 80 mm × 5
Max. load	300 kg
Travel	
X/Y/Z-Travel	700/550/500 mm
A/C-Travel	+30°~-120°/360°
Spindle nose to table	120-620 mm
Spindle	
Spindle taper	HSK A63, 15000 rpm
Spindle power and torque	8.5/33.5 kW, 63/135 Nm

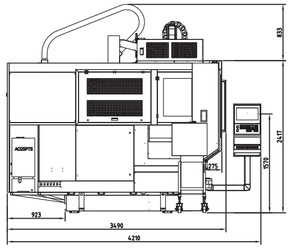
Feed	
X/Y/Z Rapid feed	48 m/min
A/C Rotation Speed	50/60 rpm
Cutting Speed	1-12000 mm/min
Toolchanger	
Number of tools	40/60/90 pieces
Max. tool length	300 mm (BBT40 für 260mm)
Max. tool diameter	Ø78/Ø125 mm
Max. tool weight	8 kg
Accuracy (VDI 3441-Full travel)	
Postion accuracy	0.006 mm (X/Y/Z axis) 10/8 ard-sec (A/C axis)
Repeatability	0.004 mm (X/Y/Z axis 8/6 ard-sec (A/C axis)
Dimensions & Weight	
Dimensions (Length × Width × Height)	3490 × 4210 × 3250 mm
Weight	9500 kg

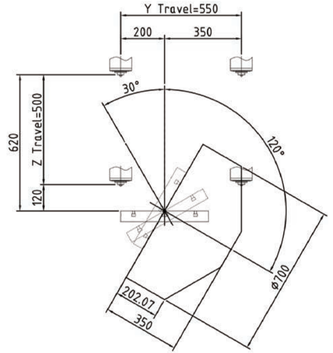
Dimensions

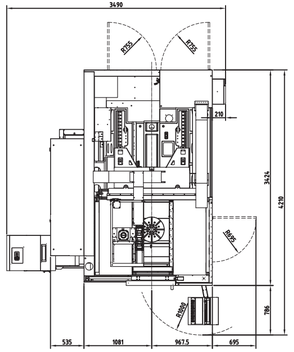
Unit: mm

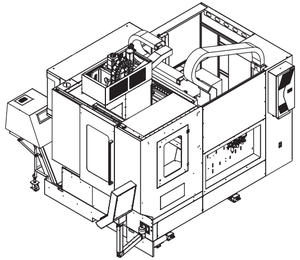












PRIMINER C500-5X – Precision meets automated efficiency

The PRIMINER C500-5X is a compact, high-precision 5-axis machining center that is ideal for flexible and efficient manufacturing processes. Combined with an automation solution, it creates a fully optimized production system – perfect for companies looking to increase their capacity utilization and reduce non-productive times.

Thanks to automated workpiece handling, pallet or clamping systems, and connection to higher-level manufacturing systems, the C500-5X can be optimally integrated into modern manufacturing cells. The result: precise, repeatable processes with maximum productivity.

Your advantages:

- Higher machine utilization through unmanned shifts and 24/7 operation
- Significantly reduced downtime through automated loading and unloading
- Stable process quality thanks to reproducible, automated processes
- Flexibility for different workpieces and production quantities
- Compact footprint, ideal for modular automation concepts

The combination of compact 5-axis technology, high precision, and smart automation makes the C500-5X the ideal solution for efficient small series production, prototypes, and highly dynamic manufacturing cells.

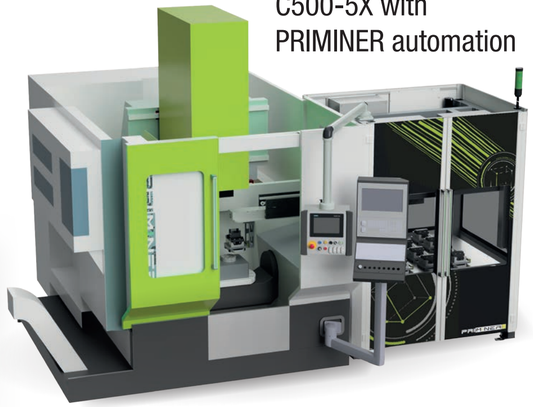
C500-5X with Zerobot

ZERO CLAMP® Automation

▶ Machine
▶ Automation
▶ Zero-point clamping system
▶ Vise

EVERYTHING FROM A SINGLE SOURCE

C500-5X with PRIMINER automation



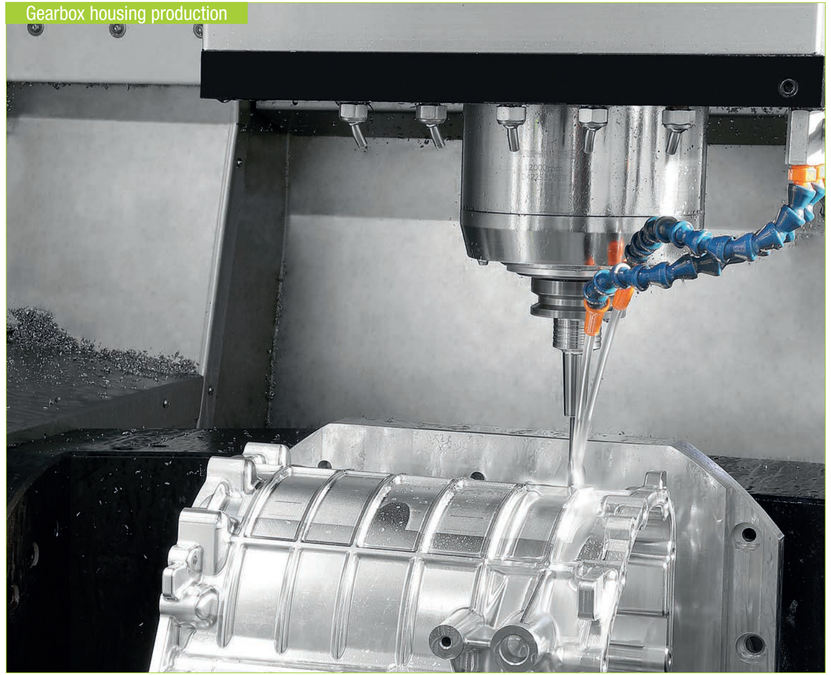
Diverse industrial applications

Automotiv

Automotiv

Automotiv

Gearbox housing production

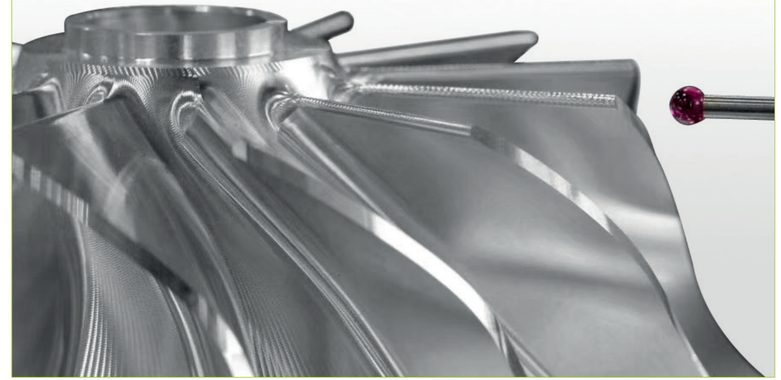


Die casting
Cutting tools

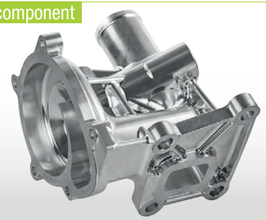
Precision engineering and molded parts
Automotive, medical, aerospace technology

Die casting tool

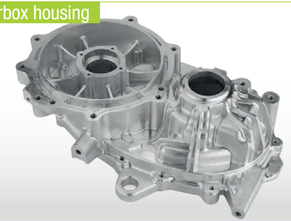
Impeller measurement

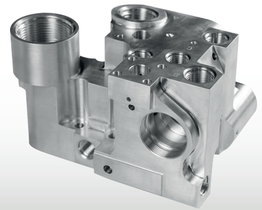


Pump component



Gearbox housing





PRIMINER GLOBAL

PRIMINER Werkzeugmaschinen GmbH I
Neumünster I Germany

PRIMINER USA I
Greenville, South
Carolina I USA

Network of dealers and
partners I Europe-wide

PRIMINER South East Europe I
Belgrade I Serbia

PRIMINER Machine Tools I Dongguan I China

PRIMINER Machine Tools I planned location
Enping I China

What began as a shared vision has grown into a globally operating group for high-level CNC technology. Jack and Benjamin founders, partners, doers – embody what PRIMINER stands for: technical excellence, entrepreneurial clarity, and genuine trust.

PRIMINER combines the best of both worlds: efficient series production and engineering expertise from Asia – paired with German quality assurance, service commitment, and market insight.
Our philosophy is clear: true CNC expertise emerges only when technology, teamwork, and customer focus come together in perfect harmony.

Jack Chen und Benjamin Kaehlcke
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