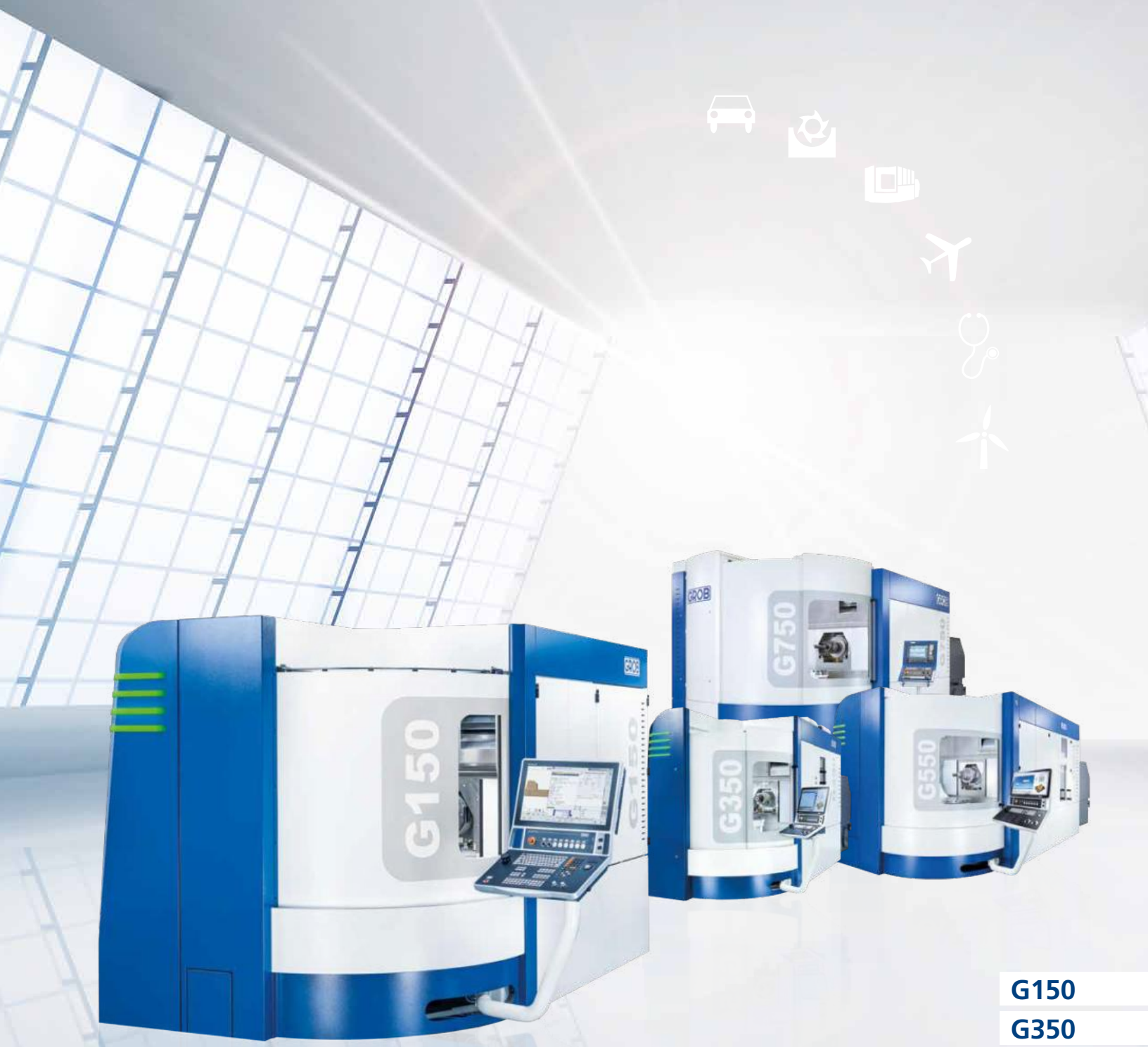
G-SERIES

5-AXIS UNIVERSAL MACHINING CENTERS



G150
G350
G550
G750

PURE TECHNOLOGY IN THE SMALLEST SPACE

Our 5-axis universal machining centers

The G150, G350, G550, and G750 5-axis universal machining centers provide practically limitless possibilities for milling parts made of the most diverse materials to all customers in the machining sector.

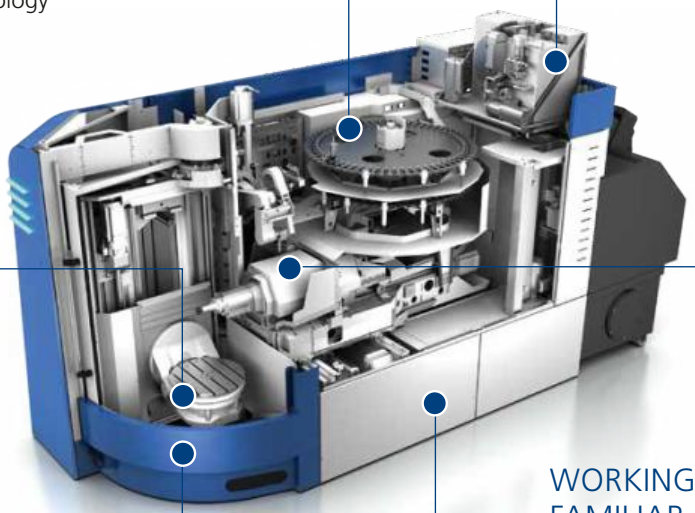
This universal machine series is set apart by **HIGH PRODUCTIVITY, OPTIMUM AVAILABILITY, AND EXCELLENT MAINTAINABILITY.** Thanks to extensive configuration options, our machining centers can be perfectly matched to your requirements.

DISK-TYPE TOOL MAGAZINE

- Fast chip-to-chip times thanks to the integrated disk-type tool magazine with tool transfer technology

EFFICIENT MACHINE COOLING

- Active cooling of heat-absorbing components/assemblies



UNIQUE OVERHEAD MACHINING

- with excellent chip fall and reduced thermal load in the part

RIGID SPINDLE AXIS

- thanks to the optimally positioned bearing close to the operating point

ERGONOMIC AND SAFE

- Perfect view of the machining operation through a laminated glass safety screen; wide-opening work area doors for optimized accessibility and crane loading

WORKING WITH THE USUAL FAMILIAR CONTROL SYSTEM

- Possibility to choose between SIEMENS, HEIDENHAIN or FANUC machine control systems

Illustration of G350 may contain options

G150 I G750 with vertical magazine configuration

One concept for a broad range of industries

No matter whether aerospace, mechanical engineering, die and mold industries, automotive, medical or energy technology – our 5-axis universal machining centers cover a convincingly broad range of possible applications and provide the optimum solution for almost any material. Moreover, the universal machining centers are designed for automation solutions and, depending on the customer's requirement, are also available as mill-turn machines in sizes G350T, G550T and G750T.

AUTOMOTIVE

Benefit from over 90 years' experience in the systems business


DIE AND MOLD INDUSTRIES

Machining options of complex milling contours with repeat accuracy


MECHANICAL ENGINEERING

Individual machine configuration for optimized flexibility and accuracy


AEROSPACE

Ideal for complex components where high cutting volumes have to be achieved


MEDICAL TECHNOLOGY

The best system for delicate and volumetric components


ENERGY TECHNOLOGY

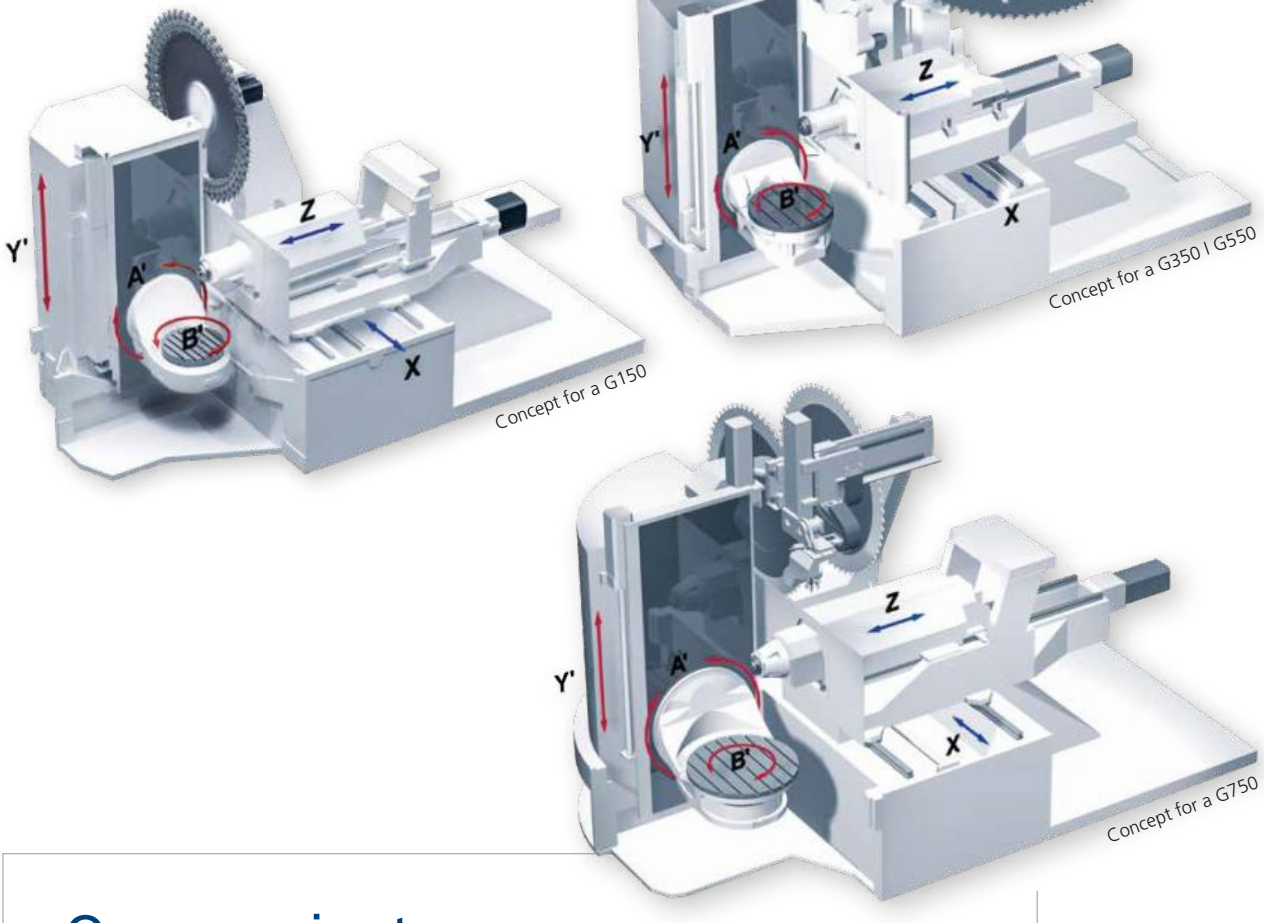
Precise machining results with outstanding machine stability


Maximum flexibility thanks to machining in every angular position

The machine's unique axis arrangement permits overhead machining, offering you almost limitless possibilities for part machining.

Axis arrangement and drive concept

Three linear and two rotary axes permit 5-sided machining as well as 5-axis simultaneous interpolation.
The basis of the drive concept are two symmetrically arranged ball screws and a weight compensation function in the Y'-axis. Torque motors in the A'- and B'-axes ensure dynamic and wear-free machining of parts.



Our promise to you:

- Optimally designed machining point (TCP) for extreme rigidity
- Longest Z-travel path in the machine class
- Extremely large swivel range of 230° in the A'-axis
- Largest possible part in the work area can be machined with maximum tool length

Machining overhead and in other angular positions with optimal chip fall

Due to the slim spindle design and the extremely large swivel range of the A'-axis of -185° to +45°, the table can be positioned in various angular positions, including overhead, for optimum accessibility of the tool to the part.

Thanks to the unique axis arrangement with horizontal spindle bearing and a 230° A'-axis swivel range, chips fall directly into the chip shaft and the part remains largely free of interfering chip accumulations and microscopic surface damage.

Our promise to you:

- No malfunctions caused by chip remnants
- Simple cleaning of components ahead of the part change
- No cutting fluid residues in the part
- No heat input into the machine from chips left on part and clamping equipment

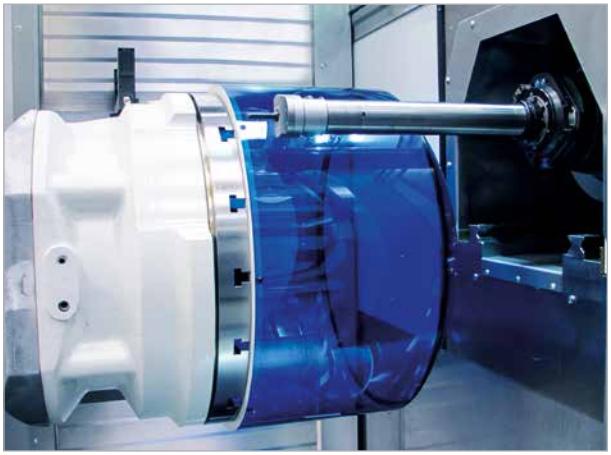
Part machining with maximum tool length

Thanks to the special axis concept, the full tool length can be employed in any axis position, even with maximum part size. The "tunnel" concept allows the entire work area to be used, since the motorized spindle and tool can fully retract into the spindle shaft.

In special cases where the part is larger than the maximum part contours shown here, a machining operation is often made possible through re-clamping and a special axis arrangement.

MAX. TOOL LENGTH ▸ [mm | in]				
	G150	**G350**	**G550**	**G750**
Single disk-type tool magazine HSK-E40	265 | 10.43	—	—	—
Single disk-type tool magazine HSK-A63	265 | 10.43	365 | 14.37	465 | 18.31	650* (525) | 25.59* (20.67)
Single disk-type tool magazine HSK-A100	—	—	500 | 19.68	—
Double disk-type tool magazine HSK-E40 (disk 1/disk 2/extra-long)	175/265/385 | 6.89/10.43/15.16 *	—	—	—
Double disk-type tool magazine HSK-A63 (disk 1/disk 2/extra-long)	180/265/385 | 7.09/10.43/15/16*	365/180/550 | 14.37/7.09/21.65*	465/280/700 | 18.31/11.02/27.56*	650* (525)/500 | 25.59 (20.67)/19.68*
Double disk-type tool magazine HSK-A100 (disk 1/disk 2/extra-long)	—	—	500/260/750 | 19.68/10.24/29.53*	650* (590)/500 | 25.59*(23.23)/19.68
Triple disk-type tool magazine HSK-E40 (disk 1/disk 2/disk 3/extra-long)	175/175/265/385 | 6.89/6.89/10.43/15.16*	—	—	—
Triple disk-type tool magazine HSK-A63 (disk 1/disk 2/disk 3/extra-long)	180/180/265/385 | 7.09/7.09/10.43/15.16*	—	—	—

* With restrictions in the work area



MACHINE COMPONENTS
TABLE

Diverse machining options with powerful tilting rotary tables

Various tilting rotary table versions are available, depending on your requirements. The powerful rotary tables are based on the latest torque motor technology and offer optimized dynamics.

Tilting rotary table, A'-/B'-axis arrangement

In addition to the standard versions with an A'- and B'-axis, the "A'-axis" (without B'-axis) and "B'-axis" (without A'-axis) options are offered for all four machine sizes G150, G350, G550, and G750.

GENERAL TECHNICAL DATA ON THE TILTING ROTARY TABLE, A'-/B'-AXIS				
	G150	**G350**	**G550**	**G750**
Swiveling angle A'-axis [°]	-185/+45	-185/+45	-185/+45	-180/+45
Max. speed A'-axis [rpm]	50	35	25	20
Type of drive for A'-/B'-axis	Torque motor	Torque motor	Torque motor	Torque motor
Angle of rotation B'-axis [°]	n x 360	n x 360	n x 360	n x 360
Max. speed B'-axis [rpm]	80	50	50	50

❶

❷

❶ TILTING ROTARY TABLE WITH T-SLOTS ARRANGED IN PARALLEL (STANDARD)				
	G150	**G350**	**G550**	**G750**
Aligning slot (number/width/quality) Clamping slot (number/width/quality)	1 x 14 H7 6 x 14 H12	1 x 14 H7 4 x 14 H12	1 x 14 H7 6 x 14 H12	1 x 18 H7 8 x 18 H12
Table diameter [mm | in]	380 | 14.96	570 | 22.44	770 | 30.31	950 | 37.40
Interference diameter [mm | in]*	580 | 22.83	720 | 28.35	900 | 35.43	1,280 | 50.39
Max. permissible loading weight incl. clamping fixture [kg | lb]	250 | 551	400 | 882	800 | 1,764	1,500 | 3,307

❷ TILTING ROTARY TABLE WITH PALLET CLAMPING SYSTEM (OPTION)				
	G150	**G350**	**G550**	**G750**
Pallet size [mm | in]	320 x 320 | 12.6x12.6	400 x 400 | 15.75x15.75	630 x 630 | 24.8x24.8	800 x 800 | 31.5x31.5
Max. pallet load [kg | lb]	220 | 485	338 | 745	700 | 1,543	1,000 | 2,205

*Maximum part size with restrictions on machines with pallet changer

More tilting rotary table options for machine sizes G150 and G350

An optimum swivel range is achieved thanks to the compact designs of the compact and highly dynamic rotary table and Vario rotary table versions which are matched to the motorized spindle contour. Consequently, it is possible to use significantly shorter tools with smaller Z-travel paths for greater stability, accuracy and more efficient part machining.

COMPACT ROTARY TABLE VERSIONS ▸ FOR MACHINE SIZE G150				
Special features/ General application cases	T-slots arranged in a star shape	HSK-100	Erowa Power Chuck P Ø150	
Table diameter [mm | in]	250 | 9.84	—	—	
Interference diameter [mm | in]	300 | 11.81			
Swiveling angle A'-axis [°]	-185/+45			
Angle of rotation B'-axis [°]	n x 360			
Max. speed B'-axis [rpm]	200			
Pallet size [mm | in]	—	—	Ø 148 | Ø 5.83	
Distance between centers* [mm | in]	—			
Maximum loading weight [kg | lb]	150 | 331			

HIGHLY DYNAMIC ROTARY TABLE ▸ FOR MACHINE SIZE G350	
Special features/ General application cases	Pallet clamping system for round or square pallets; ideal for automating part flow/ for machining large parts with short tools
Table diameter [mm | in]	—
Interference diameter [mm | in]	600 | 23.62
Swiveling angle A'-axis [°]	-225/+135
Angle of rotation B'-axis [°]	n x 360
Max. speed B'-axis [rpm]	200
Pallet size [mm | in]	Ø 320/350 x 350 | Ø 12.60/13.78x13.78
Distance between centers* [mm | in]	—
Maximum loading weight [kg | lb]	250 | 551 on pallet

*Measured from the top edge of the table to the tip of the steady rest

VARIO ROTARY TABLE VERSIONS FOR MACHINE SIZE G350 (OPTIONS)

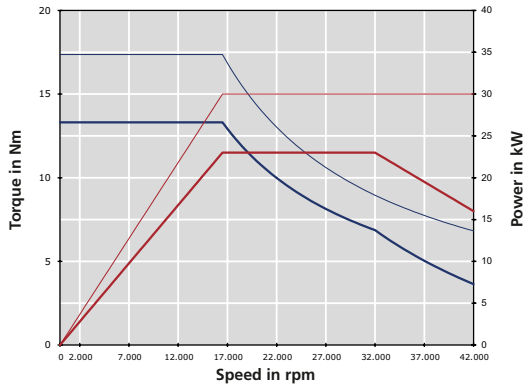
Table designations	Basic module	Steady rest with tailstock center	Steady rest with tandem drive
Illustrations			
Special features/ General application cases	Designed for the modular construction of various steady rests and drives	For stable parts with a length of up to 300 mm (11.81 in); max. steady rest stroke 195 mm (7.68 in)	Max. distance between the top edges of the rotary table 470 mm (18.50 in), max. steady rest stroke 195 mm (7.68 in)
	For machining long, thin components, e.g. turbine blades or tools		
Table diameter [mm | in]	200 | 7.87	200 | 7.87	200 | 7.87
Interference diameter [mm | in]	300 | 11.81	300 | 11.81	280 | 11.02
Swiveling angle A'-axis [°]	-185/+45	-185/+45	-45/+45
Angle of rotation B'-axis [°]	n x 360	n x 360	n x 360
Max. speed B'-axis [rpm]	200	200	200
Pallet size [mm | in]	—	—	—
Distance between centers* [mm | in]	—	485 | 19.09	—
Maximum loading weight [kg | lb]	230 | 507	230 | 507	230 | 507

*Measured from the top edge of the table to the tip of the steady rest

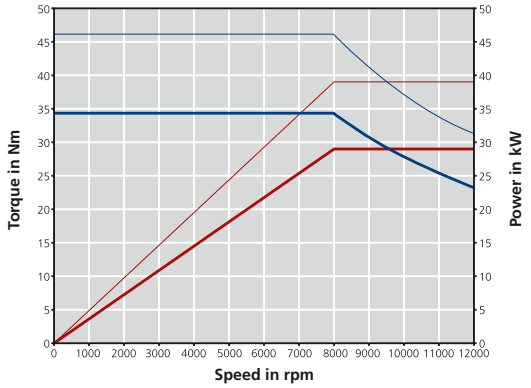
GROB motorized spindles

Besides the broad range of spindles, the motorized spindles designed and produced by GROB itself are the preferred choice for optimized process design.

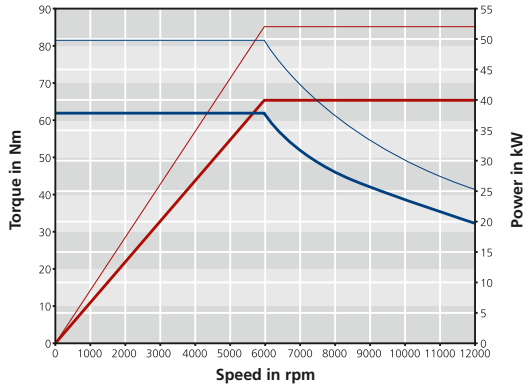
Motorized spindle 17.4 Nm | 12.8 ft-lbs, 42,000 rpm



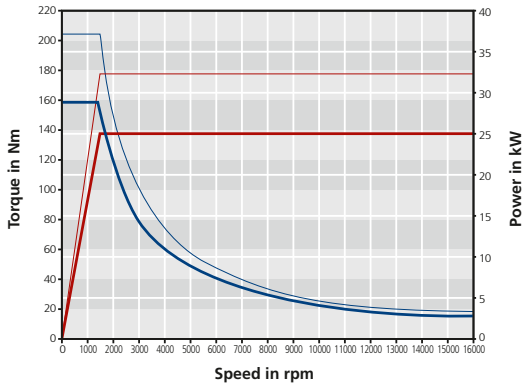
Motorized spindle 47 Nm | 34.7 ft-lbs, 12,000 rpm



Motorized spindle 83 Nm | 61.2 ft-lbs, 12,000 rpm



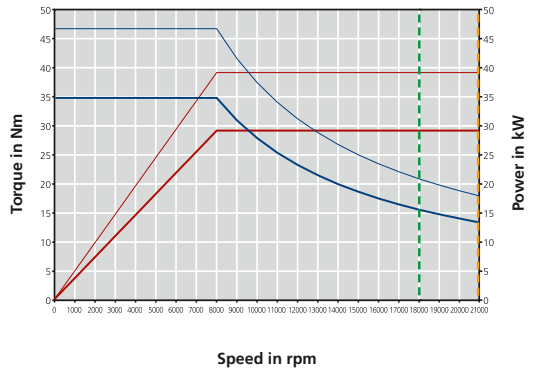
Motorized spindle 206 Nm | 151.9 ft-lbs, 16,000 rpm



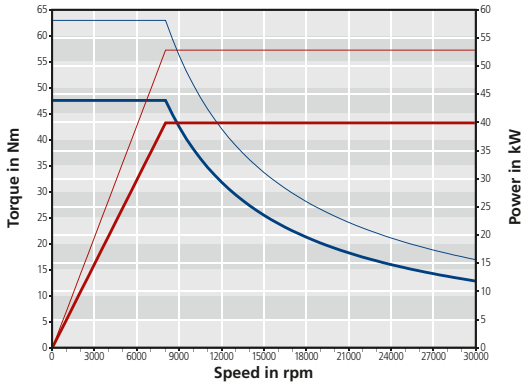
Our promise to you:

- Shortest ramp-up times
- Easy access and preventive maintenance
- Suitable for all standard cutting fluids
- Exceptionally long service life

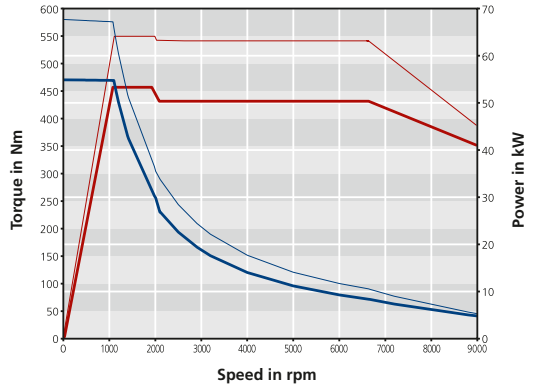
Motorized spindle 47 Nm | 34.7 ft-lbs, 18,000/21,000 rpm



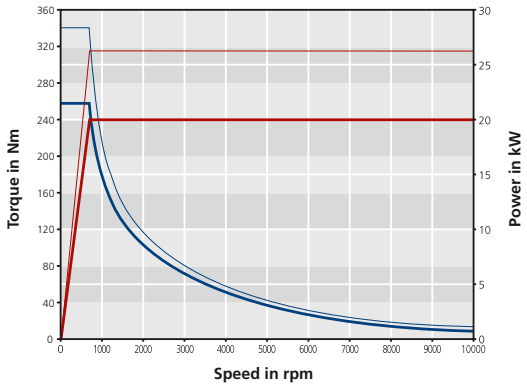
Motorized spindle 63 Nm | 46.5 ft-lbs, 30,000 rpm



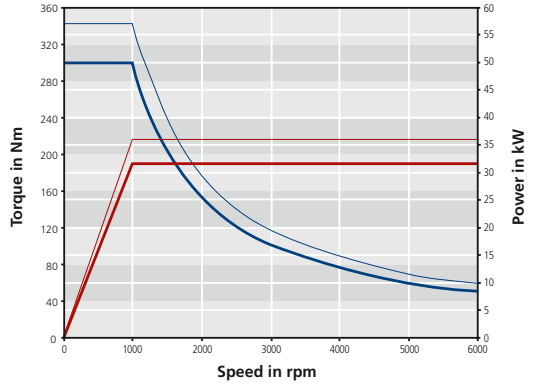
Motorized spindle 575 Nm | 424 ft-lbs, 9,000 rpm



Motorized spindle 340 Nm | 251 ft-lbs, 10,000 rpm



Motorized spindle 344 Nm | 254 ft-lbs, 6,000 rpm



Power S1: 100% duty cycle
Torque S1: 100% duty cycle
n_{max} = 18,000
Power S6: 40% duty cycle
Torque S6: 40% duty cycle
n_{max} = 21,000

SPINDLE TYPE ◂▸ MACHINE ▸ AVAILABILITY AT A GLANCE!										
Tool interface* For short hollow taper tools according to ISO 12164-1	**HSK-E40**	**HSK-A63**	**HSK-A63**	**HSK-A63**	**HSK-A63**	**HSK-A63**	**HSK-A63**	**HSK-A100**	**HSK-A100**	**HSK-A100****
Max. spindle torque at 100%/40% duty cycle [Nm | ft-lbs]	13.3/17.4 | 9.8/12.8	34.6/46.6 | 25.5/34.4	63.7/82.8 | 47.0/61.1	159/206 | 117/152	34.6/46.6 | 25.5/34.4	34.6/46.6 | 25.5/34.4	48/63 | 35.4/46.5	470/575 | 347/424	262/340 | 193/251	301/344 | 222/254
Spindle bearing Ø at front bearing [mm | in]	50 | 1.97	70 | 2.76	70 | 2.76	80 | 3.15	70 | 2.76	70 | 2.76	65 | 2.56	110 | 4.33	100 | 3.94	100 | 3.94
Speed n_{max} [rpm]	42,000	12,000	12,000	16,000	18,000	21,000	30,000	9,000	10,000	6,000
Max. drive power at 100%/40% duty cycle [kW | hp]	23/30 | 31/40	29/39 | 39/52	40/52 | 53/69	25/32 | 33/43	29/39 | 39/52	29/39 | 39/52	40/53 | 54/71	54/65 | 72/87	20/26 | 27/35	32/36 | 43/48
Spindle bearing lubrication ▸ Lifetime lubrication	—	•	•	•	•	—	—	•	•	•
▸ Oil/air lubrication	•	—	—	•	—	•	•	—	—	—
G150	•	•	•	•	—	•	•	—	—	—
G350	—	•	•	•	•	•	•	—	—	—
G550	—	•	•	•	•	•	•	•	•	•***
G750	—	•	•	•	•	•	•	•	•	•***

* Optional tool interfaces on request

** Motorized spindle with cross-feed

***In combination with a SIEMENS machine control system

Motorized spindle with cross-feed

GROB motorized spindles with cross-feed allow complex internal and external contours to be manufactured with feed-out tools.

Our promise to you:

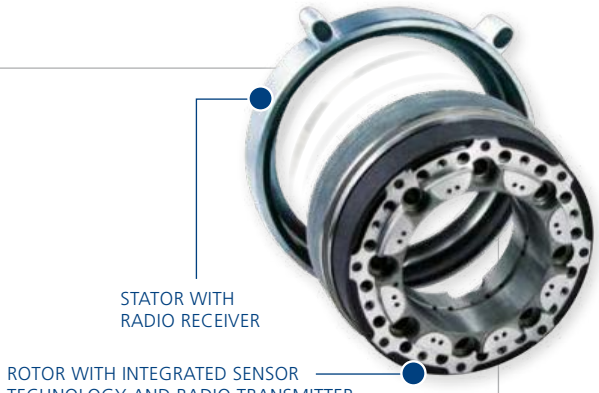
- High system rigidity
- No additional interference contour on the motorized spindle
- No referencing required
- High cutting speeds during contour machining
- Low tool costs

Spindle option 1 –
GROB Chip-in-Spindle Detection System (SiS)

This system is able to detect at an early stage tool clamping faults caused by chips caught between the HSK plain surface and the spindle nose from 10 µm (0.0004 in) (detailed information on request).

Our promise to you:

- Prevention of reject components and radial runout
- Damage caused by machining faults prevented
- Optimized machining process
- Protection of tool and motorized spindle
- Higher degree of process stability

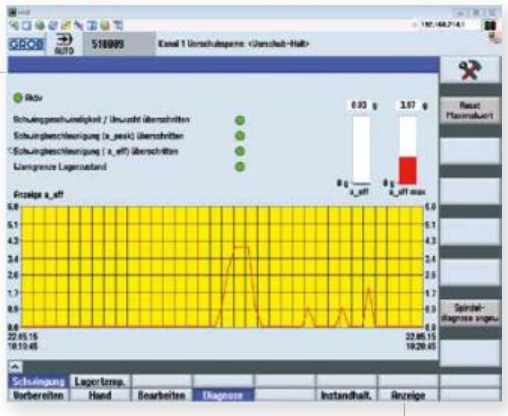


Spindle option 2 –
GROB Spindle Diagnostics (GSD)

GROB spindle diagnostics is a system that automatically monitors the condition of the motorized spindle (Condition Monitoring).

Our promise to you:

- Extended service life of motorized spindles thanks to identification of critical operating states
- Process optimization / reduction of tool wear
- Machine downtimes avoided through scheduled maintenance



Tool magazine – versatile combinations

GROB tool magazine technology is set apart by fast chip-to-chip times, a small space requirement and optimized accessibility.

You will also profit from fast tool change thanks to a highly dynamic tool changer arm with a swiveling double gripper, loading and unloading in parallel to machining operation, and permanent access to the tool magazine disk.

SINGLE DISK-TYPE TOOL MAGAZINE

- Horizontal magazine disk arrangement on G350 and G550
- Vertical magazine disk arrangement on G150 and G750

DOUBLE DISK-TYPE TOOL MAGAZINE

- Horizontally stacked magazine on G350 and G550 (disks coupled)
- Vertically adjacent magazine disks on G150 and G750 (disks can be rotated individually)

NUMBER OF TOOL POCKETS ▸ G150 ▸ BASIC MACHINE

Motorized spindle	Tool interface	Number of tool pockets*
Single disk-type tool magazine		
	HSK-E40	60**
	HSK-A63	50**
Double disk-type tool magazine		
For all spindle types	HSK-E40	93***
	HSK-A63	77***
Triple disk magazines		
For all spindle types	HSK-E40	141***
	HSK-A63	117***

*Number of tool pockets depends on machine configuration
**Depends on spindle type
***Ability to store extra-long tools over both magazine disks due to double assignment

Additional tool magazine TM (option)

- Increases the basic machine's tool capacity with block-wise setup to up to:
  - 6 HSK-A63 tools on the TM200, TM309, and TM374
  - 5 HSK-A100 tools on the TM180 and TM251
- The additional tool magazine can be equipped with tools during the machining operation
- If the tool intended for the next machining operation is already in the disk-type tool magazine of the basic machine, machining time is not affected
- Tool and magazine management via an industrial control system (Beckhoff-TwinCAT) with screen and keyboard

NUMBER OF TOOL POCKETS ▸ G350

Basic machine			Additional tool magazine TM		
Motorized spindle	Tool interface	Number of tool pockets*	Total number of tools of the basic machine and the TM		
Single disk-type tool magazine			**TM200**	**TM309**	**TM374**
For all spindle types	HSK-A63	60	251	360	425
Double disk-type tool magazine			**TM200**	**TM309**	**TM374**
For all spindle types	HSK-A63	117	311	420	485
	HSK-A63	105**	293	402	467

NUMBER OF TOOL POCKETS ▸ G550

Single disk-type tool magazine			**TM200**	**TM309**	**TM374**	**TM180**	**TM251**
For all spindle types	HSK-A63	70	261	370	435	—	—
	HSK-A100	40	—	—	—	211	282
Double disk-type tool magazine			**TM200**	**TM309**	**TM374**	**TM180**	**TM251**
For all spindle types	HSK-A63	137	331	440	505	—	—
	HSK-A63	126**	317	426	491	—	—
	HSK-A100	77	—	—	—	251	322
	HSK-A100	69**	—	—	—	243	314

NUMBER OF TOOL POCKETS ▸ G750

			With SIEMENS control system			With HEIDENHAIN or FANUC control system		
Single disk-type tool magazine			**TM167**	**TM218**	**TM145**	**TM167**	**TM218**	**TM145**
12,000/16,000/18,000/ 30,000 rpm	HSK-A63	60	221	272	—	218	269	—
Double disk-type tool magazine			**TM167**	**TM218**	**TM145**	**TM167**	**TM218**	**TM145**
12,000/16,000/18,000/ 30,000 rpm	HSK-A63	120	281	332	—	278	329	—
9,000/10,000 rpm	HSK-A100	60	—	—	200	—	—	196

*Number of tool pockets depends on machine configuration
**Ability to store oversize tools over both magazine disks due to double assignment

GROB[4]Pilot –
Your powerful machine control panel

The innovative GROB[4]Pilot machine control panel offers the machine operator a convenient working environment on the machine through a multi-functional user interface. The entire production process – from the CAD model through to the NC simulation – is now digitally mapped on the GROB[4]Pilot control system itself.

24" MULTI-TOUCH DISPLAY

- for intuitive operation

3D COMPONENT VIEWER

- parallel to machine operation

3D SPACEMOUSE®

- for controlling CAD applications

OPTIMIZED KEYBOARD

- for easy input

TRACKBALL

- for alternative screen use in addition to the multitouch function

Our promise to you:

- Enhanced user comfort thanks to simplified and intuitive machine operation
- CAD/CAM programming directly on the machine itself
- Access to the GROB-NET[4]Industry platform
- Expanded applications for increased efficiency
- Paperless production is possible

Example illustration

The GROB⁴Pilot Advanced Package (option): Multi-functional override rotary switch and joystick for axis movement

INTEGRATED START/STOP FUNCTION

NC start by pulling and NC stop by pushing the feed override rotary switch

- Allows the operator to concentrate fully on the process

VIBRATION FEEDBACK

Short vibration of the feed override rotary switch at 100%

- Information is communicated without the operator having to look away

RAPID TRAVEL SINGLE BLOCK

Single block stop occurs only if a rapid travel movement follows a feed motion. Critical movement is enabled only from the 0% position of the feed override rotary switch

- Time-saving running-in of non-critical program passages
- Maximum protection in critical situations via stop

RAPID TRAVEL REDUCTION

Activation of rapid travel speed reduction to a preset % value at the touch of a button without program reset

- Intuitive application and increased safety during run-in

JOYSTICK FOR AXIS MOVEMENT

Axis direction and axis speed can be intuitively controlled with just one input device

- Axis direction keys can no longer be confused

AVAILABLE CNC CONTROL PROVIDERS FOR GROB⁴PILOT			
	SIEMENS 840D sl	HEIDENHAIN TNC 640	FANUC 30i-B
G150	•	•	—
G350	•	•	—
G550	•	•	—
G750	—	—	—

Increase productivity and economic efficiency with complementary accessories.

Our extensive range of accessories makes the 5-axis universal machining centers more flexible, while helping you increase productivity and cost efficiency at the same time.

High-pressure cutting fluid system

HIGH-PRESSURE CUTTING FLUID PUMP

For generating the high pressure of the cutting fluid;
mounted on the cutting fluid tank.

- Standard version: 23 bar (334 psi)
- Alternatives: 5 - 40 bar (73-580 psi) or 10 - 80 bar (145-1160 psi)

COOLING UNIT FOR CUTTING FLUID

An external continuous cooler for cooling the cutting fluid

- Available for all three high-pressure cutting fluid systems
- We recommend the cooling unit for the 10 - 80 bar (145-1,160 psi) version

Oil skimmer

For removing hydraulic and/or lubricating oil from the cutting fluid's surface; attached to the cutting fluid tank.

Included components:
- Belt drive
- Wiper
- Collecting vessel with level switch

Decentralized work area extraction system

For keeping the work area clean, with adjustable suction power.

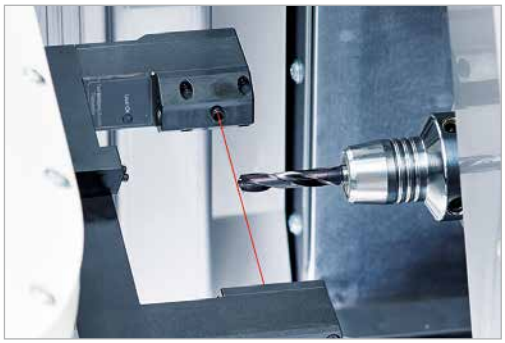
Components included with the emulsion mist separator:
- Integrated pre-separator stage (G350 and G550 only)
- Regenerative filtration stage
- Integrated post-filter stage

Adjustable suction power:
- G150 ▸ 600 m^3/h (21,189 ft^3/hr); mounted at the rear of the machine roof
- G350 ▸ 800 m^3/h (28,252 ft^3/hr); mounted in the machine maintenance area
- G550 ▸ 800 m^3/h (28,252 ft^3/hr); mounted at the rear of the machine roof
- G750 ▸ 2,000 m^3/h (70,629 ft^3/hr); mounted at the rear of the machine roof

Laser measurement system for milling tools

- Contactless, optical tool monitoring/measurement of rotating tools (e.g. milling cutters, drills)
- Measurement and monitoring of the following tool parameters: length, diameter, breakage, wear, cutting edge condition

Mounted to tilting rotary table



Tool coding

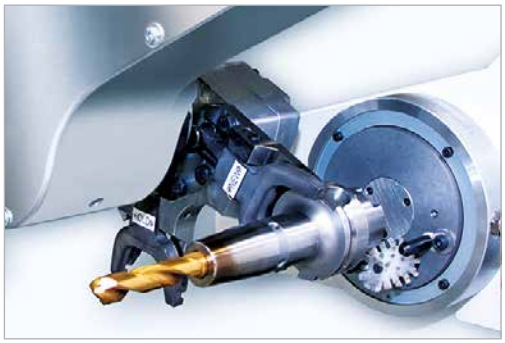
- Allows data transfer between the tool and machine control system
- Shorter tooling times
- Write-read unit for tools with tool coding
- Error prevention for entering tool data

Mounted to the tool insert location

Tool cleaning device

- Brushing and air cleaning of the conical/flat surfaces of the tool interface during the machining operation
- Combined, GROB-patented brushing/blasting device

Mounted to tool magazine



Electromechanical tool breakage detection device

- Tool breakage detection via a tactile tool breakage detection device
- Monitoring during machining
- Tool breakage detection is possible from a length of 100 mm (3.94 in)

Mounted in the tool magazine at the tool transfer point, between motorized spindle and tool magazine disk

Available hand-held controllers

GENERAL EQUIPMENT

Keys for selecting the axis directions, feed, rapid travel, emergency stop and for acknowledging axis movements

SIEMENS HAND-HELD CONTROLLER

Additional option for tool data input by connecting the controller to the tool loading station

HEIDENHAIN ELECTRONIC HANDWHEEL

Compact controller for high flexibility during setup and tooling work (incl. electronic handwheel)

FANUC HAND-HELD CONTROLLER HMO PANEL

Compact controller for high flexibility during setup and tooling work (incl. electronic handwheel)

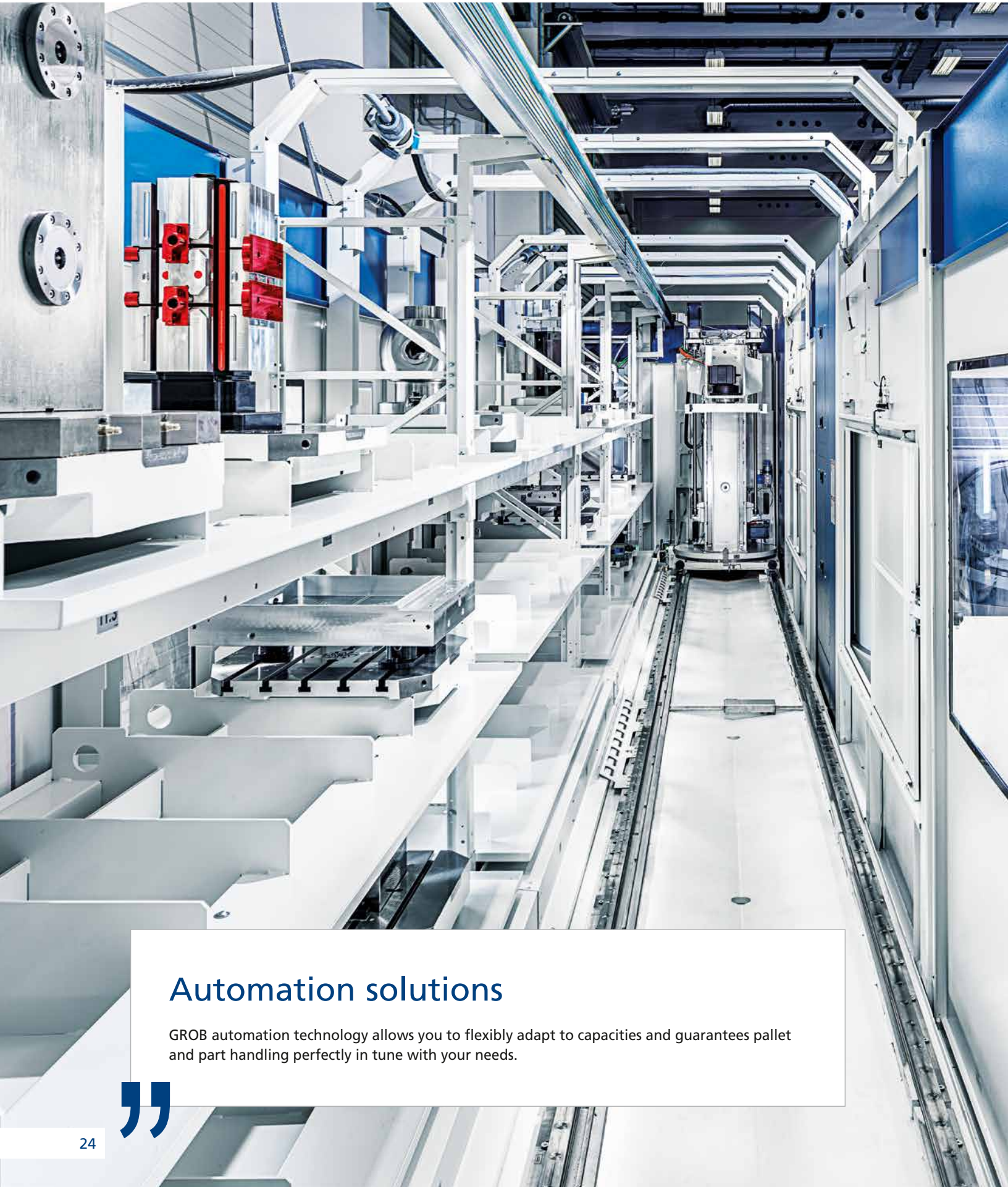
Machine status light

A three-color light is used to visually indicate the machine status. A distinction is drawn between automatic mode (green), warning (yellow) and malfunction (red).

Available either as a stacked light pole or integrated into the machine enclosure.

Touch probe

- Broad range of applications:
  Aligning and measuring parts or clamping fixtures;
  setting zero and reference points for downstream machining;
  machine kinematics measurement (option)
- Touch probe including data transmission with infrared or radio
- Non-machining time for tooling and measuring reduced
- Higher achievable part accuracy



Automation solutions

GROB automation technology allows you to flexibly adapt to capacities and guarantees pallet and part handling perfectly in tune with your needs.

The perfect automation solution for your machine

For its entire product range, GROB offers top-quality components of its own manufacture for partially to fully automated production.

PALLET CHANGER SYSTEM

- Allows retooling during part machining

ROTARY PALLET STORAGE SYSTEM (PSS-R)

- Optimum entry into automated and highly efficient production

LINEAR PALLET STORAGE SYSTEM (PSS-L)

- Highly automated, flexible manufacturing line for a wide variety of part machining processes

GROB ROBOT CELL (GRC)

- For maximum flexibility and customization of your manufacturing processes

WANT TO KNOW MORE?

You can find a complete overview of GROB's automation solutions offers and further information in our **GROB AUTOMATION SOLUTIONS BROCHURE** in our GROB Download Center.

Perfect accuracy.
Automatic. Any time.

GROB has set the standard for machine calibration accuracy with the GROB swivel axis calibration (GSC). The new GSC Advanced expands the product range with fully automatic warm-up and fully automatic calibration without operator interaction.

GSC Advanced (swivel axis calibration)

⊕ Complete package for calibrating machine geometry, managing accuracy, and automating warm-up processes.

- Calibrates both swivel axis errors and the perpendicularity of the main axes
- Fully automatic calibration with non-removable calibration sphere (without operator interaction, e.g. for pallet change) NEW
- Measurement of space accuracy using 5X check
- Fast determination of machine accuracy by means of indicator measurement
- Application via user dialogs
- Automatic warm-up prior to production or calibration NEW
- Detection of sensing errors prevents miscalibration (only with SIEMENS control system and high-precision touch probe, e.g. RMP600)

GROB kinematics set

⊕ All measuring equipment needed for calibrating the machine or touch probe are included in this case. The parts in this set are only needed during calibration of the touch probe or machine. Therefore, one set can be used for several machines.

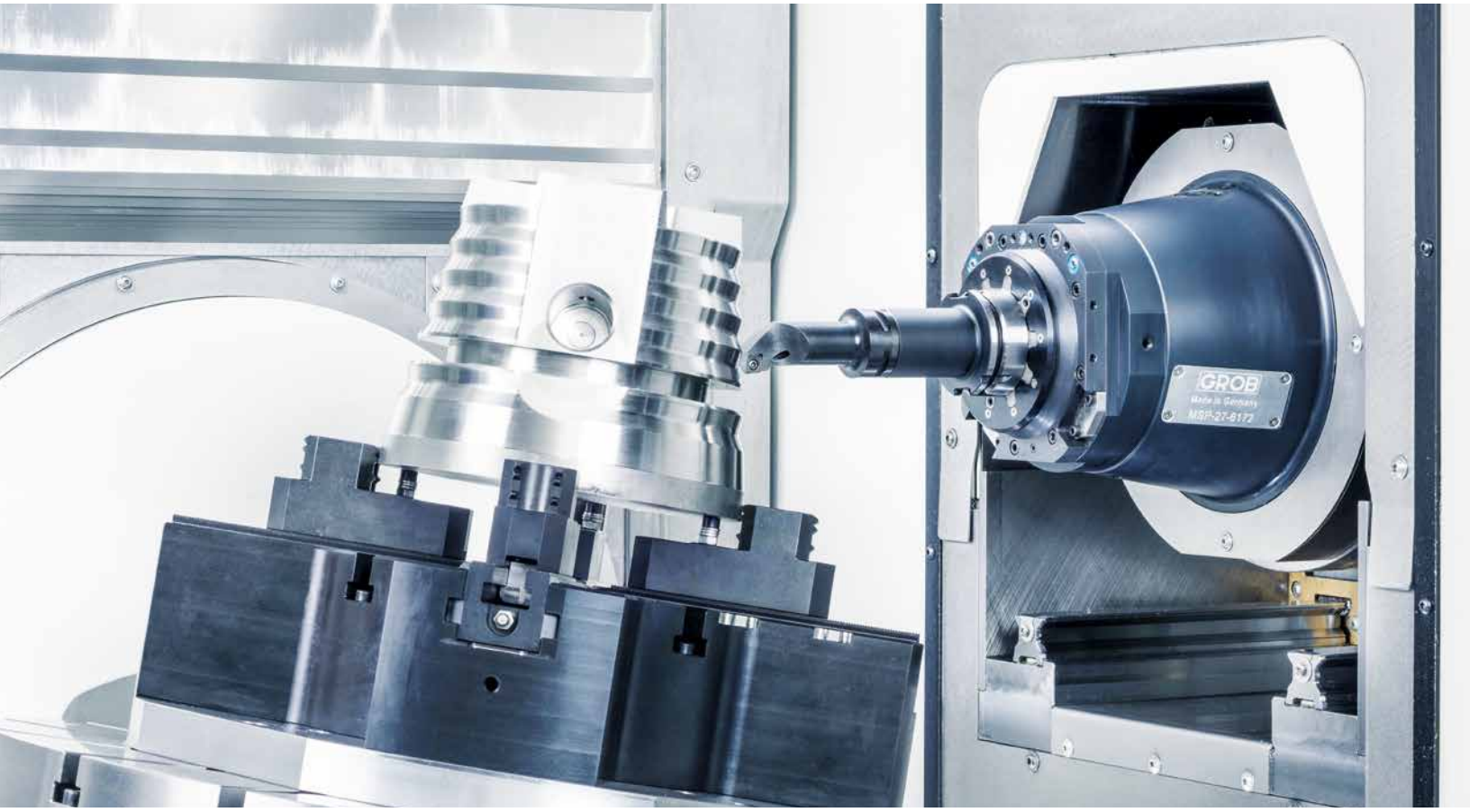
- Two Carbon magnetic bases
- Two High-precision calibration spheres with unique test IDs
- Mounting material for the bases
- Parallel gauge block
- Calibration ring
- Lever type dial indicator

Energy efficiency package

⊕ For efficient use of energy by reducing the power consumption of the 5-axis universal machining centers with SIEMENS control system.

- Shut-down strategies for machine cooling unit, chip conveyor, and various fans
- Optimized control strategy for motorized spindle and axis drives
- Timed machine shutdown

SOFTWARE OPTIONS



Interpolation turning PLUS

- As a pure software solution, it enables any turning operations on GROB universal machining centers – including turning operations that are not coaxial to the B'-axis. The software solution simulates a diameter axis (transverse slide) by means of simultaneous interpolation of the X-, Y'-axis, and motorized spindle.

  Programming and handling correspond to that of a CNC turning machine and can be combined with a spindle operation.

Our promise to you:

- Standard turning tools ensure minimum tool setup times and fast delivery of prototypes and small series
- Optimized machine availability and productivity, since missing special tools are compensated for
- Significant reduction of cycle time thanks to the use of several step drills by one turning tool

Gearing cycles in general

- Axes are coupled as on a gear wheel milling machine
- Programming and handling are similar to a gear hobbing machine
- Individual correction option (e.g. crowned, tapered, etc.)
- Block entry option at any cut (e.g. finish cut)

GEAR HOBBING

- For external gearing with gear hobbing tools
- Ideal for gearing on shafts
- Frontal part access is not required

POWER SKIVING

- For external and internal gearing with power skiving tools
- Frontal part access required

OPTION PACKAGE ◂▸ CNC CONTROL SYSTEM ▸ AVAILABILITY AT A GLANCE!

	GROB swivel axis calibration (GSC)	GROB inspection equipment set	Energy efficiency package	Interpolation turning PLUS	Gear hobbing	Power skiving
SIEMENS 840D sl	•	•	•	•	•	•
HEIDENHAIN TNC 640	•	•	•	—	—	—
FANUC 30i-B	•	•	•	—	—	—

GROB-NET 4 INDUSTRY

IIoT that works!

cloud4machine

Moving into a digital future

From planning to engineering to maintenance, GROB-NET⁴Industry combines relevant modules for increasing productivity and offers you the all-round package for modern production in the times of Industry 4.0.

Our modular GROB-NET⁴Industry web applications allow you to network and digitalize your production processes across all plants to make your manufacturing facility even more efficient.

GROB⁴INTERFACE

- Easy route to machine communication

GROB⁴LINE

- The machine in view via smartphone

GROB⁴CONNECT

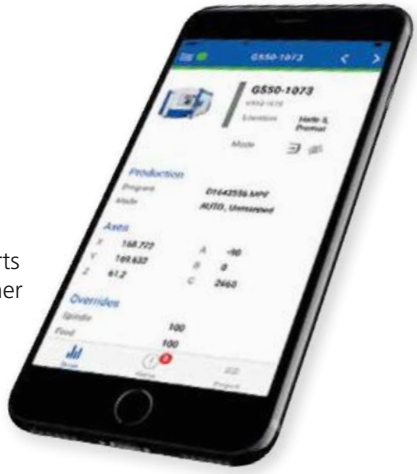
- Connection from the real world to the ERP system

GROB⁴ANALYZE

- Feedback from the machine for the CIP process

GROB⁴PORTAL

- The secure cloud for the industry



GROB⁴ANALYZE OFFICE CLIENT

- Flexible data analysis

GROB⁴SIMULATE

- Complex processes and parts simulated in a simple manner

GROB⁴PILOT

- Multi-functional and interactive machine operation

GROB⁴COACH

- Programming, simulation, training

GROB⁴AUTOMATION

- Intuitive production control software for unmanned operation

GROB⁴CARE

- Service and maintenance portal

GROB⁴OPTIMIZATION

- Motorized spindle process evaluation

GROB⁴TRACK

- Machine axes in view at all times

WANT TO KNOW MORE?

You can find a detailed description of the individual GROB-NET⁴Industry products in our **GROB-NET⁴INDUSTRY BROCHURE** in our GROB Download Center.

Use the advantages of our 5-axis universal machining centers

Fewer clamping operations offer shorter production times with higher accuracy.
See for yourself!

TYPICAL MACHINING OPERATIONS AT A GLANCE!

	Industry	Part	Material	Motorized spindle	Power/ torque	Cutting volume
	**Automotive**	Knuckle	Aluminum	16,000 rpm	25 kW/32 Nm | 33hp/24 ft-lbs	20 %
	Challenges: Low positioning tolerances • Short cycle time					
	**Die and mold industries**	Bottle mold	Aluminum	30,000 rpm	40 kW/53 Nm | 54hp/39.1 ft-lbs	65 %
	Challenges: High surface quality					
	**Mechanical engineering**	Output carrier	C45	12,000 rpm	40 kW/52 Nm | 54hp/38.4 ft-lbs	46 %
	Challenges: Low hole positioning tolerances of 0.012 mm (0.0005 in)					
	**Aerospace**	Turbine blade	Aluminum	16,000 rpm	25 kW/32 Nm | 33hp/23.4 ft-lbs	90 %
	Challenges: Wall thicknesses of 1.5 mm (0.06 in) • Complete machining in one setup					
	**Medical technology**	Bone insert	Stainless steel	21,000 rpm	29 kW/39 Nm | 39hp/28.8 ft-lbs	81 %
	Challenges: High cutting volume with optimized machine dynamics					
	**Energy technology**	Radial compressor	Stainless steel	16,000 rpm	25 kW/32 Nm | 33hp/23.4 ft-lbs	75 %
	Challenges: 5-axis simultaneous machining • Complex cavities					

Performance milling –
Performance drilling – Tapping

A selection of performance examples illustrates the diverse range of possible applications of GROB's 5-axis universal machining centers.

Motorized spindle 12,000 rpm (83 Nm | 61 ft-lbs) / HSK-A63 Machining on a G350	
Machining type / tool	**Steel – 16MnCrS5**
Drilling Ø 50 mm | Ø 1.97 in	v_c = 160 | 525 n = 1,019
	f_u = 0.13 | 0.005 v_f = 132 | 5.20
	a_p/a_e = 50/5 | 1.97/1.97 Q= 330 | 20.1
Tapping M24	v_c = 15 | 49 n = 199
	f_u = 3 | 0.12 v_f = 597 | 23.5
Milling with cutting head Ø 63 mm | Ø 2.48 in z = 5	v_c = 300 | 984 n = 1,516
	f_z = 0.24 | 0.009 v_f = 1,743 | 68.6
	a_p/a_e = 3/55 | 0.12/2.16 Q = 288 | 17.6

Motorized spindle 16,000 rpm (206 Nm | 152 ft-lbs) / HSK-A63 Machining on a G350	
Machining type / tool	**Steel – 16MnCrS5**
Drilling Ø 60 mm | 2.36 in	v_c = 160 | 525 n = 849
	f_u = 0.18 | 0.007 v_f = 153 | 6.02
	a_p/a_e = 50/60 | 1.97/2.36 Q = 459 | 28
Tapping M36	v_c = 13 | 43 n = 115
	f_u = 4 | 0.16 v_f = 460| 18.1
Milling with cutting head Ø 100 mm | 3.94 in z = 12	v_c = 330 | 1,083 n = 1,050
	f_z = 0.18 | 0.007 v_f = 2,268 | 89.3
	a_p/a_e = 3/95 | 0.12/3.74 Q = 646 | 39.4

Cutting speed: v_c [m/min | ft/min] Spindle speed: n [rpm] Feed rate per revolution: f_u [mm/rev | in/rev] Feed rate per tooth: f_z [mm/tooth | in/tooth]
Feed rate: v_f [mm/min | in/min] Cutting depth: a_p [mm | in] Cutting width: a_e [mm | in] Metal removal rate: Q [cm^3/min | in^3/min] Number of tool edges: z

Example illustrations

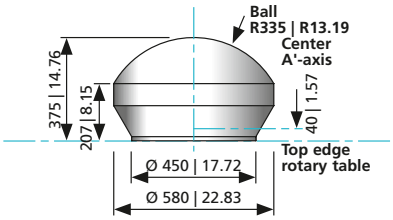
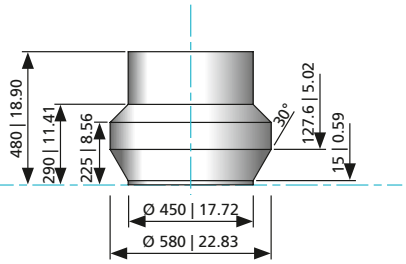
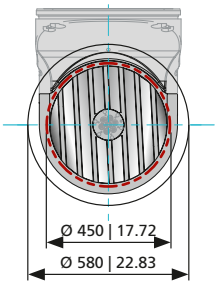
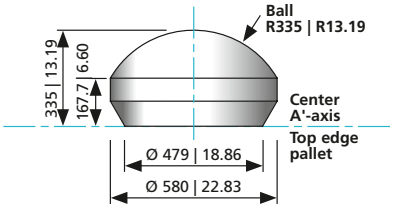
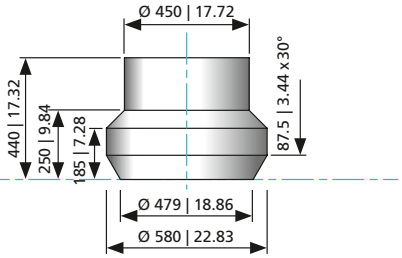
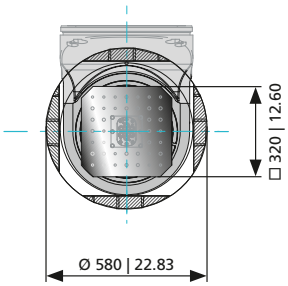
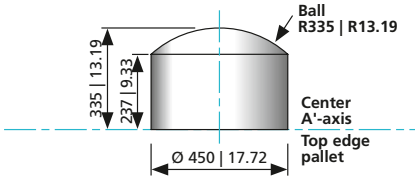
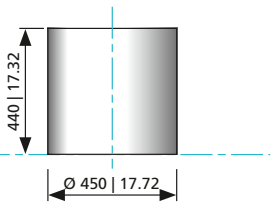
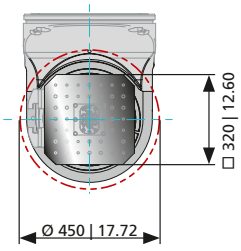
Example illustrations

Motorized spindle 18,000 rpm (47 Nm | 34 ft-lbs) / HSK-A63 Machining on a G550	
Machining type / tool	**Aluminum – F7050**
Milling with end mill Ø 20 mm | Ø 0.79 in z = 3	v_c = 1,131 | 3,711 n = 18,000
	f_z = 0.25 | 0.010 v_f = 13,500 | 531
	a_p = 13 | 0.51 a_e = 20 | 0.79
	Q = 3,510
Milling with cutting head Ø 32 mm | Ø 1.26 in z = 3	v_c = 1,809 | 5,935 n = 17,994
	f_z = 0.18 | 0.007 v_f = 9,717 | 383
	a_p = 10 | 0.39 a_e = 32 | 1.26
	Q = 3,109 |

Motorized spindle 30,000 rpm (63 Nm | 46 ft-lbs) / HSK-A63 Machining on a G550	
Machining type / tool	**Aluminum – F7050**
Milling with end mill Ø 25 mm | Ø 0.98 in z = 3	v_c = 2,120 | 6,955 n = 26,993
	f_z = 0.09 | 0.004 v_f = 7,288 | 287
	a_p = 19 | 0.75 a_e = 25 | 0.98
	Q = 3,462 | 211
Milling with cutting head Ø 50 mm | Ø 1.97 in z = 4	v_c = 2,042 | 6,699 n = 13,000
	f_z = 0.24 | 0.009 v_f = 12,480 | 491
	a_p = 6 | 0.24 a_e = 50 | 1.97
	Q = 3,744 | 228

Motorized spindle 9,000 rpm (575 Nm | 424 ft-lbs) / HSK-A100 Machining on a G550	
Machining type / tool	**Steel – 16MnCrS5**
Drilling Ø 70 mm | Ø 2.76 in	v_c = 150 | 492 n = 682
	f_u = 0.40 | 0.016 v_f = 273 | 10.7
	a_p = 50 | 1.97 Q = 955 | 58.3
Milling with milling cutter Ø 50 mm | Ø 1.79 in z = 4	v_c = 80 | 262 n = 509
	f_z = 0.12 | 0.005 v_f = 244 | 9.61
	a_p / a_e = 40/50 | 1.57/1.97 Q = 488 | 29.8
Milling with cutting head Ø 125 mm | Ø 4.92 z = 14	v_c = 250 | 820 n = 637
	f_z = 0.3 | 0.012 v_f = 2,675 | 105
	a_p / a_e = 5/90 | 0.20/3.54 Q = 1,204 | 73.5

G150
Maximum part size and dimensions

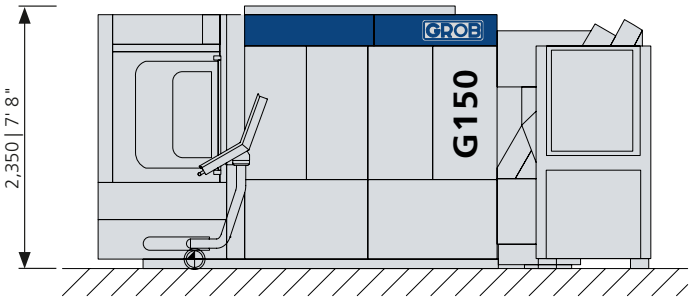
A'-/B'-axis (max.) [mm | in]	B'-axis (max.) [mm | in] (for A'-axis 0°)	Plan view (max.) [mm | in]
Basic machine		
		
Basic machine with pallet clamping system (without pallet changer; incl. dimensioning for PSS-R)		
		
Additional usable range without restrictions by pallet storage systems		
Pallet changer with pallet clamping system*		
		

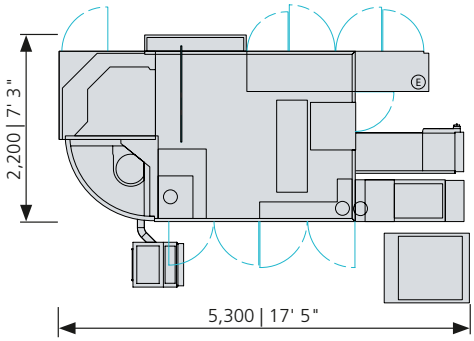
G350, G550, and G750 are also available as mill-turn machining centers

*Maximum part size with restrictions

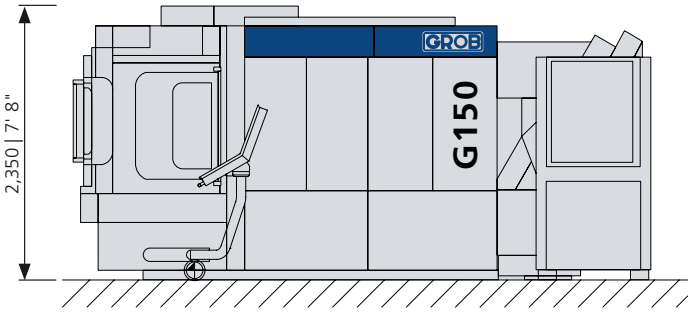
G150 ▸ DIMENSIONS

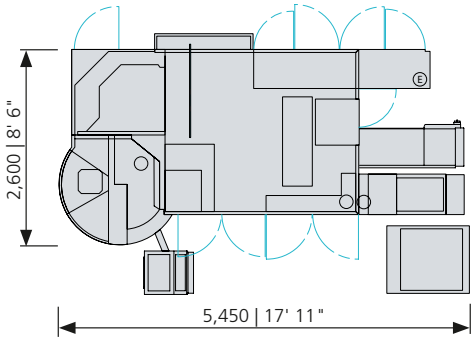
Basic machine





Basic machine with pallet changer





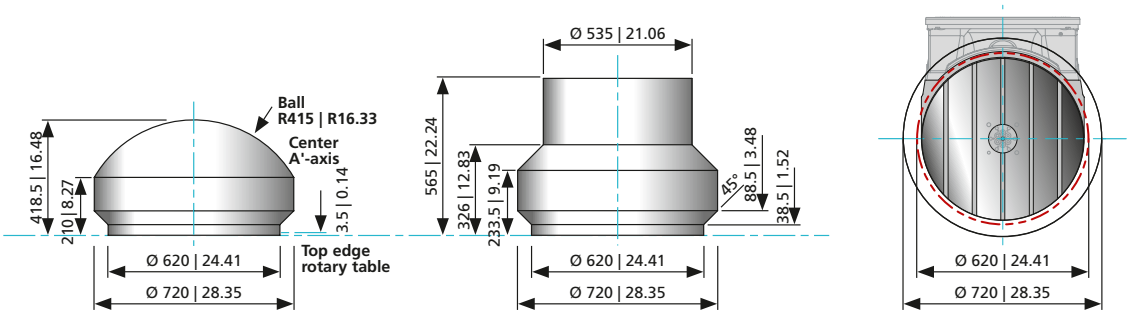
Dimension values [mm | in], not taking into account preventive maintenance and operating areas

Illustrations may contain options

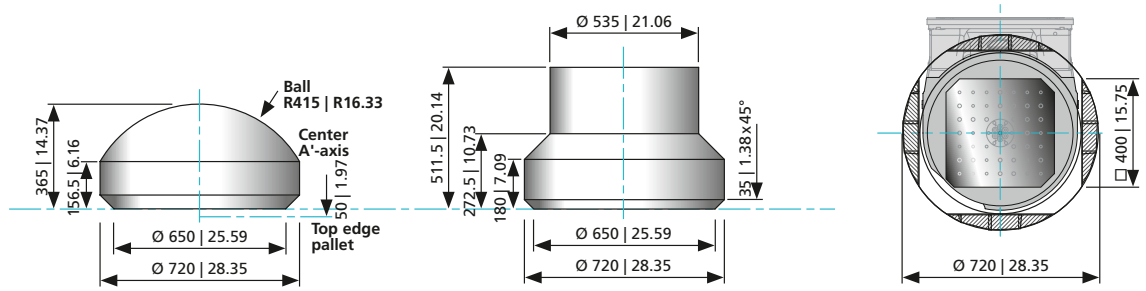
G350
Maximum part size and dimensions

A'-/B'-axis (max.) [mm | in]	B'-axis (max.) [mm | in] (for A'-axis 0°)	Plan view (max.) [mm | in]

Basic machine

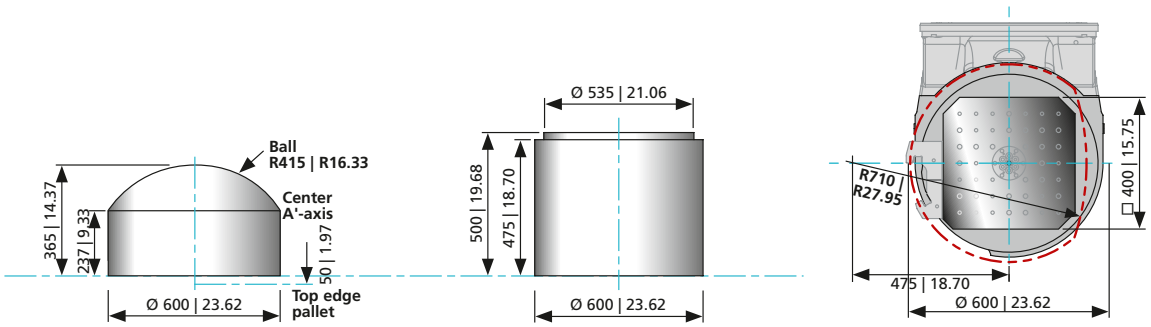


Basic machine with pallet clamping system (without pallet changer; incl. dimensioning for PSS-R)



Additional usable range without restrictions by pallet storage systems

Pallet changer with pallet clamping system*

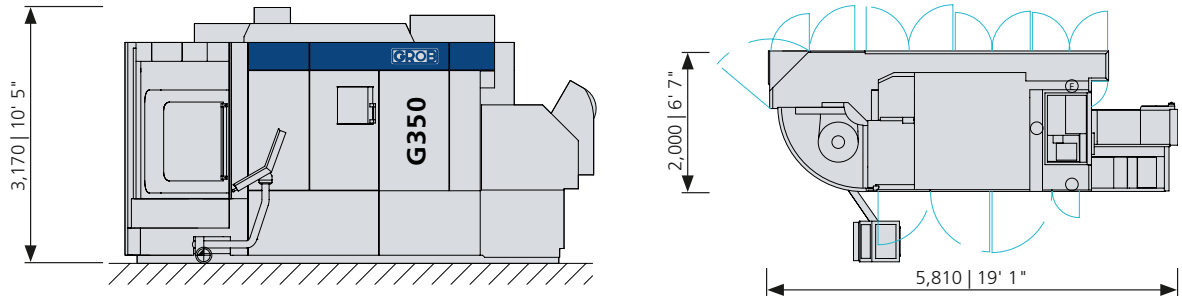


G350, G550, and G750 are also available as mill-turn machining centers

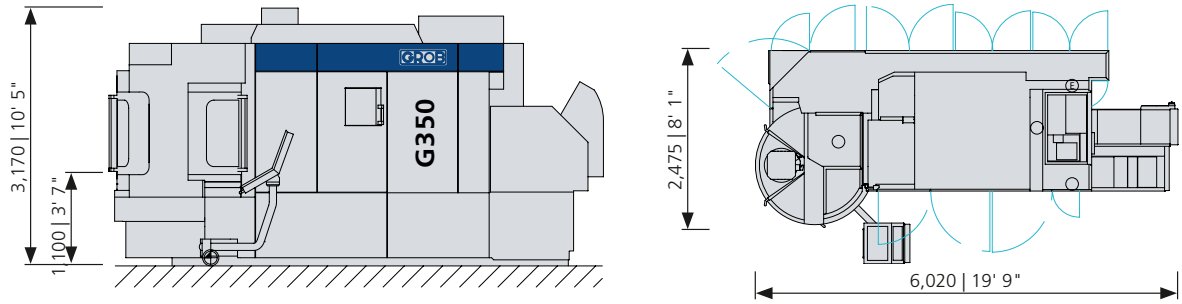
*Maximum part size with restrictions

G350 ▸ DIMENSIONS

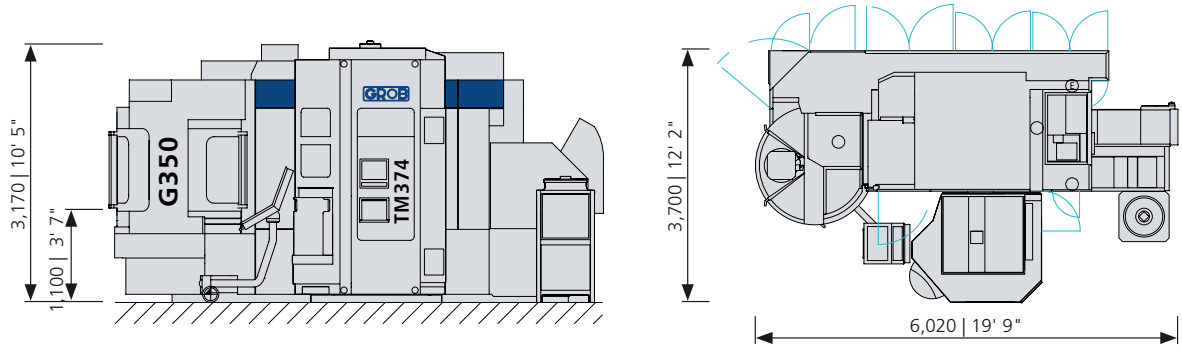
Basic machine



Basic machine with pallet changer



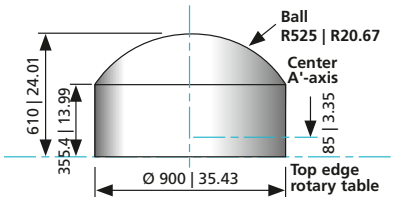
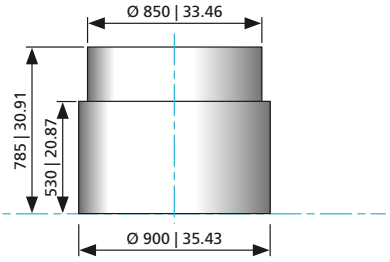
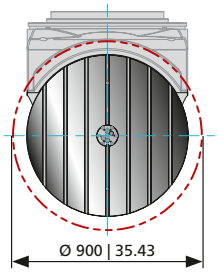
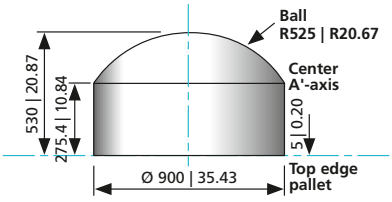
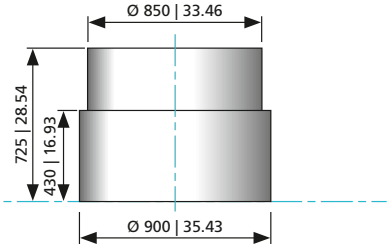
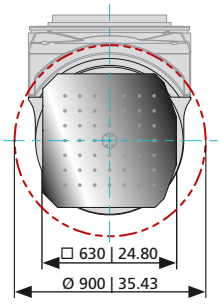
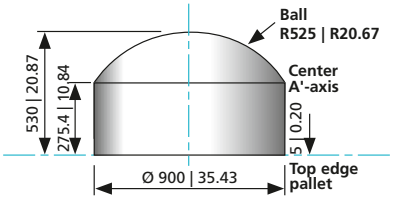
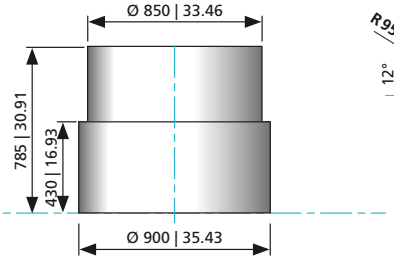
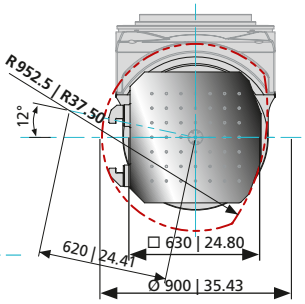
Basic machine with additional tool magazine and cooling unit



Dimension values [mm | in], not taking into account preventive maintenance and operating areas

Illustrations may contain options

G550
Maximum part size and dimensions

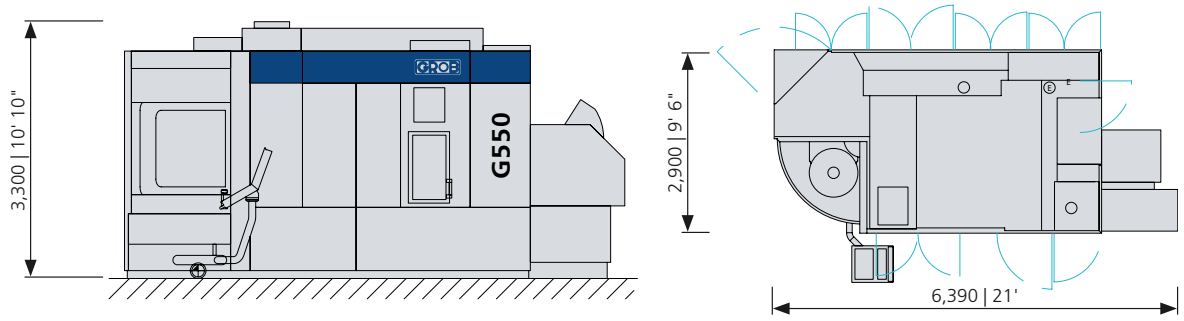
A'-/B'-axis (max.) [mm | in]	B'-axis (max.) [mm | in] (for A'-axis 0°)	Plan view (max.) [mm | in]
Basic machine		
		
Basic machine with pallet clamping system (without pallet changer; incl. dimensioning for PSS-R and PSS-L)		
		
Pallet changer with pallet clamping system*		
		

G350, G550, and G750 are also available as mill-turn machining centers

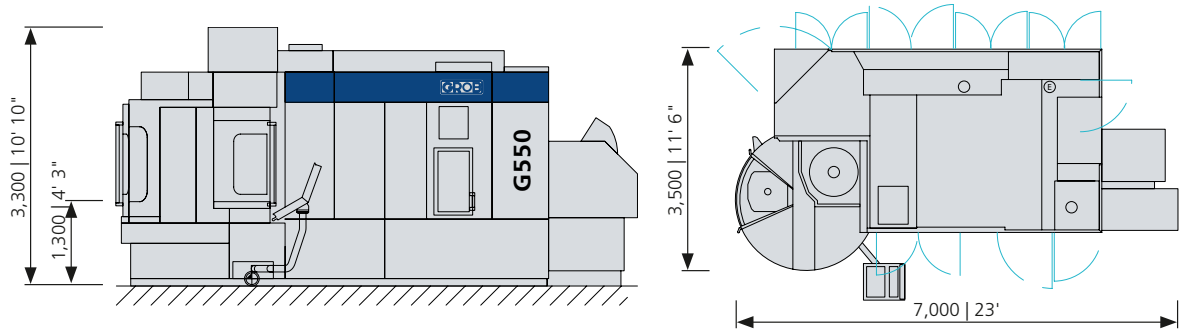
*Maximum part size with restrictions

G550 ▸ DIMENSIONS

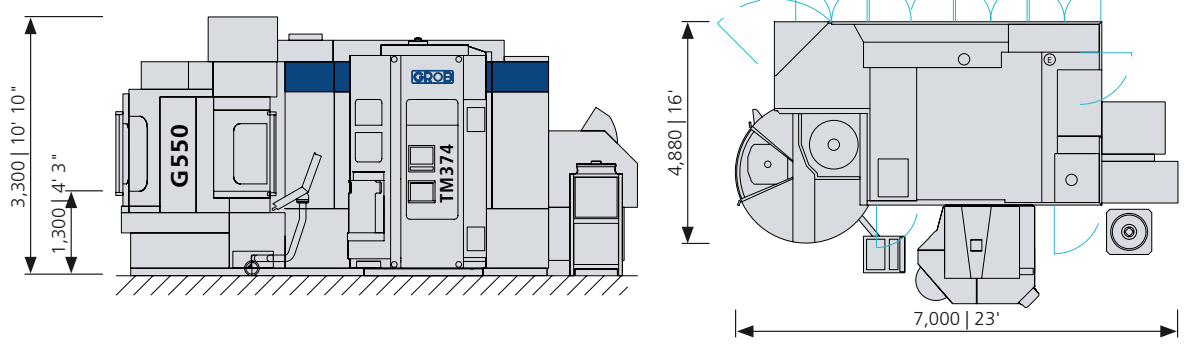
Basic machine



Basic machine with pallet changer



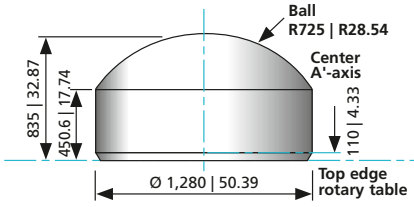
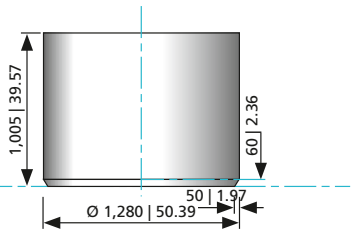
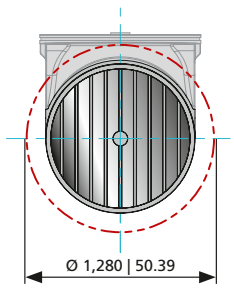
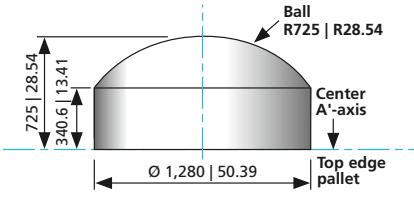
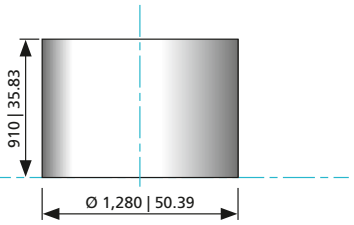
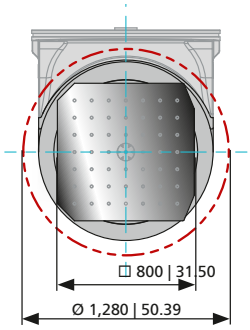
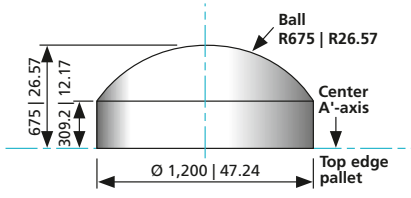
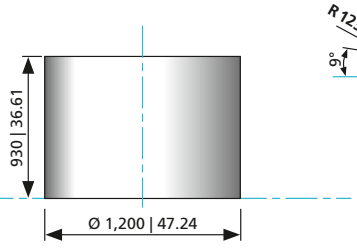
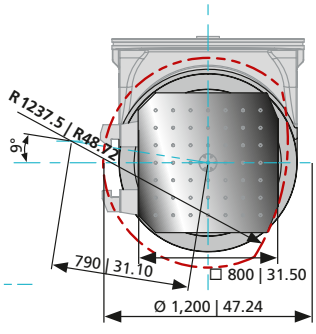
Basic machine with additional tool magazine and cooling unit



Dimension values [mm | in], not taking into account preventive maintenance and operating areas

Illustrations may contain options

G750
Maximum part size and dimensions

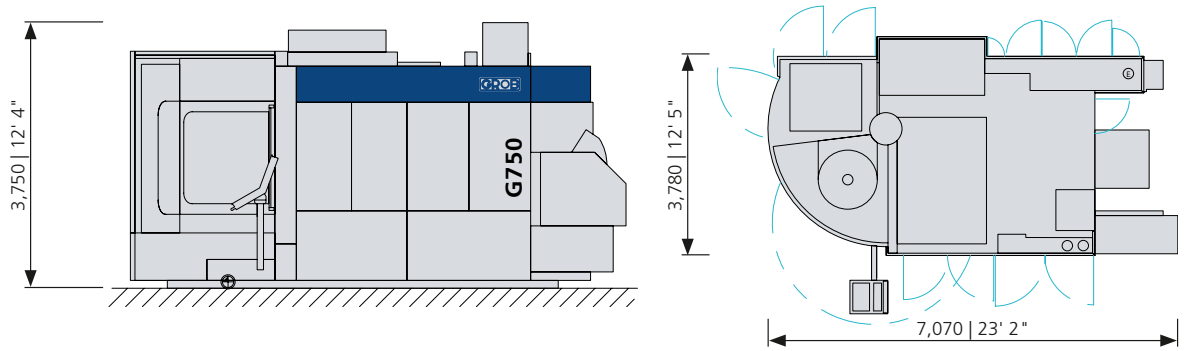
A'-/B'-axis (max.) [mm | in]	B'-axis (max.) [mm | in] (for A'-axis 0°)	Plan view (max.) [mm | in]
Basic machine		
		
Basic machine with pallet clamping system (without pallet changer; incl. dimensioning for PSS-R and PSS-L)		
		
Pallet changer with pallet clamping system*		
		

G350, G550, and G750 are also available as mill-turn machining centers

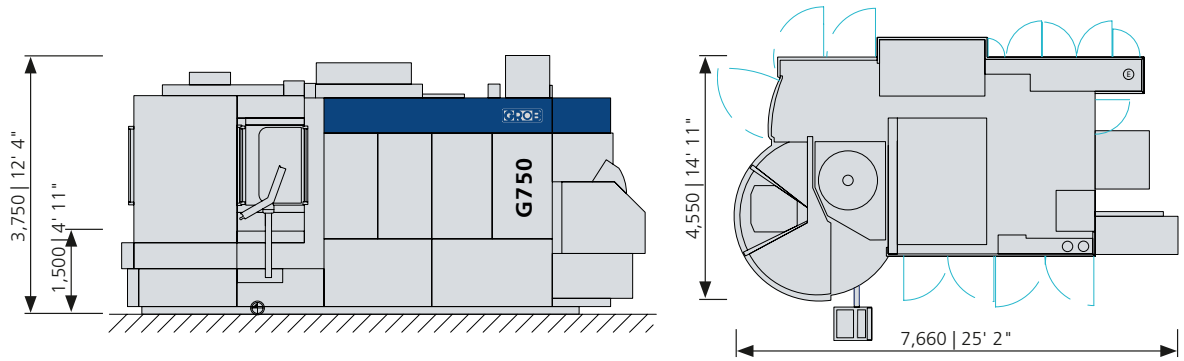
*Maximum part size with restrictions

G750 ▸ DIMENSIONS

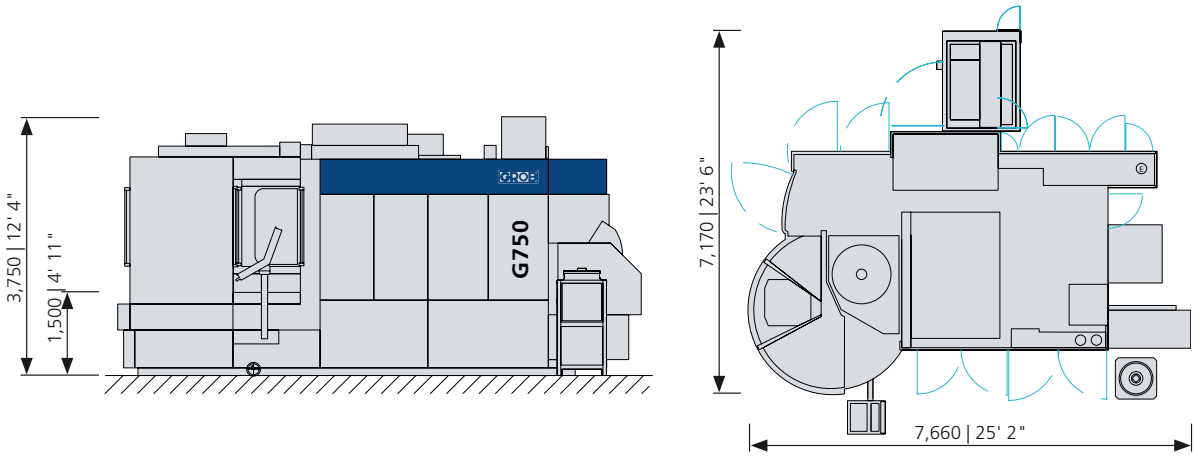
Basic machine



Basic machine with pallet changer



Basic machine with additional tool magazine and cooling unit



Dimension values [mm | in], not taking into account preventive maintenance and operating areas

Illustrations may contain options

TECHNICAL DATA

MACHINE TYPE	G150	G350
SLIDE		
Working travels in X-/Y'-/Z-axis [mm | in]	450/670/665 | 17.72/26.38/26.18	600/855/750 | 23.62/33.66/29.53
Max. speeds in X-/Y'-/Z-axis [m/min | ft/min]	50/40/60 (70/50/80)[2] | 164/131/196 (229/164/262)	70/45/90 | 229/147/295
Max. accelerations in X-/Y'-/Z-axis [m/s² | ft/s²][1]	5/5/8 (6/6/11)[2] | 16/16/26 (19/19/36)	5/4/7 | 16/13/23
Max. feed forces in X-/Y'-/Z-axis [kN | lbf][1]	5/5/6 | 1,124/1,124/1,348	8/8/8 | 1,798/1,798/1,798
Positioning accuracy* in X-/Y'-/Z-axis [mm | in]	0.006 | 0.0002	0.006 | 0.0002
Repeat precision of positioning* in X-/Y'-/Z-axis [mm | in]	<0.0025 | 0.0001	<0.0025 | 0.0001
MAIN SPINDLE		
Drive unit: standard		
Tool interface for short hollow taper tools according to ISO 12164-1[3]	HSK-A63	HSK-A63
Diameter at front bearing of spindle bearing [mm | in]	70 | 2.76	70 | 2.76
Speed n_{max} [rpm]	12,000	12,000
Max. drive power at 100%/40% duty cycle [kW | hp]	29/39 | 38.9/52.3	29/39 | 38.9/52.3
Max. spindle torque at 100%/40% duty cycle [Nm | ft-lbs]	34.6/46.6 | 25.5/34.4	34.6/46.6 | 25.5/34.4
Chip-to-chip time t_1 according to VDI 2852 [s] relative to speed [rpm] SIEMENS control system and tool changer arm (dynamic package/standard)	2.6/3.8 n = max	2.7/4.0 to n = max

Drive unit: options										
Tool interface for short hollow taper tools acc. to ISO 12164-1	HSK-E40	HSK-A63	HSK-A63	HSK-A63	HSK-A63	HSK-A63	HSK-A63	HSK-A63	HSK-A63	HSK-A63
Diameter at front bearing of spindle bearing [mm | in]	50 | 1.97	70 | 2.76	70 | 2.76	65 | 2.56	80 | 3.15	70 | 2.76	70 | 2.76	70 | 2.76	80 | 3.15	65 | 2.56
Speed n_{max} [rpm]	42,000	12,000	21,000	30,000	16,000	12,000	18,000	21,000	16,000	30,000
Max. drive power at 100%/40% duty cycle [kW | hp]	23/30 | 30.8/40.2	40/52 | 53.6/69.7	29/39 | 38.9/52.3	40/53 | 53.6/71.1	25/32 | 33.5/42.9	40/52 | 53.6/69.7	29/39 | 38.9/52.3	29/39 | 38.9/52.3	25/32 | 33.5/42.9	40/53 | 53.6/71.1
Max. spindle torque at 100%/40% duty cycle [Nm | ft-lbs]	13.3/17.4 | 9.8/12.8	63.7/82.8 | 47/61.1	34.6/46.6 | 25.5/34.4	48/63 | 35.4/46.5	159/206 | 117/152	63.7/82.8 | 47/61.1	34.6/46.6 | 25.5/34.4	34.6/46.6 | 25.5/34.4	159/206 | 117/152	48/63 | 35.4/46.5
Chip-to-chip time t_1 according to VDI 2852 [s] relative to speed [rpm] SIEMENS control system and tool changer arm (dynamic package/standard)	2.6 to n = max/ 2.8 to n = max	2.6 to n = max/ 3.8 to n = max	2.6 to n = 12,000/ 4.1 to n = max	2.6 to n = 12,000/ 3.9 to n = max	2.6 to n = 6,000/ 3.9 to n = 8,000	2.7 to n = max/ 4.0 to n = max	2.7 to n = max/ 4.0 to n = max	2.7 to n = 18,000/ 4.0 to n = max	2.7 to n = 7,000/ 4.0 to n = 10,000	2.7 to n = 8,000/ 4.0 to n = 15,500

DISK-TYPE TOOL MAGAZINE	Single disk~		Double-disk~		Triple-disk~		Single disk-type tool magazine	Double disk-type tool magazine	
TOOL INTERFACE	**HSK-E40**	**HSK-A63**	**HSK-E40**	**HSK-A63**	**HSK-E40**	**HSK-A63**	**HSK-A63**	**HSK-A63**	**HSK-A63**
Number of tool pockets[8]	60	50/42	93	77	141	117	60	117	105
Max. tool length [mm | in] ▸ Horizontal disk arrangement (disk 1/disk 2/disk 3/extra-long)	—	—	—	—	—	—	365 | 14.37	365/180 | 14.37/7.09	365/180/550 | 14.37/7.09/21.65[6]
▸ Vertical disk arrangement (front/rear) (disk 1/disk 2/disk 3/extra-long)	265 | 10.43	265 | 10.43	175/265/385 | 6.89/10.43/15.16	175/265/385 | 6.89/10.43/15.16	175/175/ 265/385 | 6.89/6.89/ 10.43/15.16	180/180/ 265/385 | 7.09/7.09/ 10.43/15.16	—	—	—
Max. tool diameter [mm | in] ▸ No diameter restrictions for adjacent pockets	60 | 2.36	72/86 | 2.83/3.39	60 | 2.36	72 | 2.83	60 | 2.36	72 | 2.83	70 | 2.76	70 | 2.76	70 | 2.76
▸ Diameter restrictions for adjacent pockets	135 | 5.31	135 | 5.31	135 | 5.31	135 | 5.31	135 | 5.31	135 | 5.31	170 | 6.69	170 | 6.69	170 | 6.69
Max. tool weight [kg | lb]	5 | 11	8 | 17.6	5 | 11	8 | 17.6	5 | 11	8 | 17.6	8 | 17.6	8 | 17.6	8 | 17.6
Max. tilt moment around gripper groove [Nm | ft-lbs]	8 | 5.9	12 | 8.8	8 | 5.9	12 | 8.8	8 | 5.9	12 | 8.8	12 | 8.8	12 | 8.8	12 | 8.8
PART									
Table diameter [mm | in]	380 | 14.96						570 | 22.44		
Table load max. [kg | lb] (with/without pallet)	250/220 | 551/485						400/338 | 882/745		
Interference diameter [mm | in]	580 | 22.83						720 | 28.35		
CONNECTION RATINGS									
Power requirements at 3 AC 400 V/50 Hz [kVA]	at least 42						at least 42		
Compressed air [bar | psi]	5 | 72.52						5 | 72.52		
WEIGHT (approx.)									
Total weight [kg | lb] (without/with pallet changer)	14,600/15,400 | 32,187/33,951						15,300/17,500 | 33,730/38,580		
PROCESS STAGE									
Automatic pallet changer	2-fold						2-fold		
Pallet size [mm | in]	320x320 | 12.60x12.60						400x400 | 15.75x15.75		
Pallet change time [s][9]	12.0						12.0		
Tool magazine expansion	—						TM200; TM309; TM374 (HSK-A63)		

[1] Depends on motorized spindle time
[2] Can be achieved in combination with the dynamic package
[3] Optional tool interfaces on request
[4] Available only in combination with a SIEMENS machine control system
[5] During a facing slide tool change, chip-to-chip time increases by 0.8 seconds
[6] With restrictions in the work area

	G550	G750
	800/1,020/970 | 31.50/40.16/38.19	1,000/1,100/1,170 | 39.36/43.31/46.06
	65/50/80 (90/50/90)[2] | 213/164/262 (295/164/295)	60/50/75 | 196/164/246
	6/4.5/8 (8.5/4.5/14)[2] | 19.7/14.8/26.2 (27.9/14.8/46)	4.5/3.0/7.5 | 14.8/9.8/24.6
	8/8/12 | 1,798/1,798/2,698	10/10/12 | 2,248/2,248/2,698
	0.006 | 0.0002	0.006 | 0.0002
	<0.0025 | 0.0001	<0.003 | 0.0001
	HSK-A63	HSK-A63
	70 | 2.76	70 | 2.76
	12,000	12,000
	29/39 | 38.9/52.3	29/39 | 38.9/52.3
	34.6/46.6 | 25.5/34.4	34.6/46.6 | 25.5/34.4
	2.9/4.0 to n = max	–/3.4 to n = max

HSK-A63	HSK-A63	HSK-A63	HSK-A63	HSK-A100	HSK-A100	HSK-A100[4]	HSK-A63	HSK-A63	HSK-A63	HSK-A63	HSK-A100	HSK-A100	HSK-A100[4]
70 | 2.76	70 | 2.76	80 | 3.15	65 | 2.56	100 | 3.94	110 | 4.33	100 | 3.94	70 | 2.76	70 | 2.76	80 | 3.15	65 | 2.56	100 | 3.94	110 | 4.33	100 | 3.94
12,000	18,000/ 21,000	16,000	30,000	10,000	9,000	6,000	12,000	18,000/ 21,000	16,000	27,000	10,000	9,000	6,000
40/52 | 53.6/69.7	29/39 | 38.9/52.3	25/32 | 33.5/42.9	40/53 | 53.6/71.1	20/26 | 26.8/34.9	54/65 | 72.4/87.2	31.5/36 | 42.2/48.3	40/52 | 53.6/69.7	29/39 | 38.9/52.3	25/32 | 33.5/42.9	40/53 | 53.6/71.1	20/26 | 26.8/34.9	54/65 | 72.4/87.2	31.5/36 | 42.2/48.3
63.7/82.8 | 47/61.1	34.6/46.6 | 25.5/34.4	159/206 | 117/152	48/63 | 35.4/46.5	262/340 | 193/250	470/575 | 346/424	301/344 | 222/253	63.7/82.8 | 47/61.1	34.6/46.6 | 25.5/34.4	159/206 | 117/152	48/63 | 35.4/46.5	262/340 | 193/250	470/575 | 346/424	301/344 | 222/253
2.9 to n = max/ 4.0 to n = max	2.9 to n = 16,000/ 4.0 to n = max	2.9 to n = 6,000/ 4.0 to n = 9,000	2.9 to n = 6,500/ 4.0 to n = 12,500	3.6 to n = 5,000/ 4.6 to n = 6,500	3.7 to n = 4,000/ 4.7 to n = 5,500	[5] 4.8 to n = 5,200/ 5.2 to n = 6,000	–/ 3.4 to n = max	–/ 3.4 to n = max	–/ 3.4 to n = 7,000	–/ 3.4 to n = 16,000	–/ 4.0 to n = 5,000	–/ 4.2 to n = 6,000	[5] –/ 4.0 to n = max

Single disk-type tool magazine		Double disk-type tool magazine				Single disk-type tool magazine	Double disk-type tool magazine	
HSK-A63	HSK-A100	HSK-A63		HSK-A100		HSK-A63	HSK-A63	HSK-A100
70	40	137	123	77	69	60	120	60
465 | 18.31	500 | 19.68	465/280 | 18.31/11.02	465/280/700[8] |18.31/11.02 /27.56	500/260 | 19.68/10.24	500/260/750[8] | 19.68/10.24 29.53	—	—	—
—	—	—	—	—	—	650[6] (500) | 25.59 (19.68)	650[6]/500 | 25.59 (19.68)	650[6]/500 | 25.59 (19.68)
70 | 2.76	118 | 4.65	70 | 2.76	70 | 2.76	118 | 4.65	118 | 4.65	68 | 2.68	68 | 2.68	130 | 5.12
170 | 6.69	260 | 10.24	170 | 6.69	170 | 6.69	260 | 10.24	260 | 10.24	160 | 6.30	160 | 6.30	250 | 9.84
8 | 17.6	22 | 48.5	8 | 17.6	8 | 17.6	22 | 48.5	22 | 48.5	12 | 26.4	12 | 26.4	22 | 48.5
12 | 8.8	40 | 29.5	12 | 8.8	12 | 8.8	40 | 29.5	40 | 29.5	12 | 8.8	12 | 8.8	40 | 29.5
770 | 30.31						950 | 37.4		
800/700 | 1,764/1,543						1,500[7]/1,000 | 3,307/2,204		
900 | 35.43						1,280 | 50.39		
at least 42						at least 42		
5 | 72.52						5 | 72.52		
25,700/27,900 | 56,659/61,509						37,000/43,000 | 81,571/94,800		
2-fold						2-fold		
630x630 | 24.80x24.80						800x800 | 31.50x31.50		
13.0						16.0		
TM200; TM309; TM374 (HSK-A63)		TM180; TM251 (HSK-A100)				TM167 / TM218 (HSK-A63)	TM145 (HSK-A100)	

[7] Higher values of up to 2,000 kg (4,409 lbs) without pallet and up to 1,500 kg (3,307 lbs) with pallet on request
[8] Number of tool pockets depends on machine configuration
[9] Time value without seating check system

G350, G550 and G750 also available as mill-turn machining centers
Subject to technical changes without prior notice

GROB SERVICE

For all who care about their production!

As a constant and reliable partner, our top priority is maximum productivity of your machine:
WORLDWIDE, A MACHINE LIFE LONG!

PRODUCTION SAFETY

- Worry-free production and avoiding losses of production
  - Service Level Agreement
  - Express service
  - Spare parts supply
  - Motorized spindle service
  - Preventive maintenance & inspection

QUALITY & OUTPUT

- Quantity in optimized quality and in the shortest time
  - Condition analysis
  - Cycle time optimization
  - Customer training
  - Mechanical & electrical repairs

ECONOMIC VIABILITY & SUSTAINABILITY

- Cost reduction due to long and efficient machine running time
  - Overhaul
  - PCU/NCU retrofit
  - Retrofitting options
  - Digitalization GROB-NET^{4}Industry

WANT TO KNOW MORE?

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GROB product range

UNIVERSAL MACHINING CENTERS

- 5-axis universal milling machining centers, 5-axis universal mill-turn machining centers, additional tool magazines, pallet changer

SYSTEM MACHINES

- 1- and 2-spindle G-modules, large machining centers, modular special-purpose machines, thermal spraying systems, machining centers for frame structure parts

E-MOBILITY

- Production systems for electric motors, Assembly systems for battery cells and fuel cells

SOFTWARE

- Modular web applications by GROB-NET[4]Industry

AUTOMATION

- PSS-R light, PSS-R, PSS-L, flexible manufacturing systems, GRC, turn-key manufacturing lines

ASSEMBLY LINES

- Individual assembly units, customer-specific assembly systems, motor assembly and gear assembly

Our promise to you:

- All core expertise (sales, project management, engineering, production, assembly, commissioning and customer service) is concentrated under one roof
- Permanent contact person throughout the entire project cycle
- Our production facility offers you optimized vertical integration, and enables us to dynamically control capacities and respond to bottle neck situations in a flexible manner

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