

*#High5*



# 5-AXIS UNIVERSAL MACHINING CENTERS





*This is who we are*  
**GROB-WERKE**



*Technology at its best*  
**STEP INTO A  
GREEN FUTURE  
WITH US**

At GROB, we strive for continuous progress and improvement. Not only do we strive to develop outstanding solutions and products for our customers, but we also seek to make a contribution to our environment and future generations. This is firmly anchored in our corporate philosophy and lived every day.

We therefore utilize photovoltaics and geothermal energy in our locations and support a wide variety of social projects. But we also place great emphasis on SUSTAINABILITY in our internal departments. Our products are based on the highest energy efficiency and regenerative drive systems. We integrate our supplier network in reducing the carbon footprint.

*Excellence in sustainable technology*



*OUR PRODUCT RANGE*

#MachiningTechnology #UniversalMachiningCenters  
#AssemblyPlants #Electromobility  
#Automation #AdditiveManufacturing #Digitalization  
#NewAndQualityCheckedUsedMachines #Service



*Concentrated competence worldwide*

# INTELLIGENT TECHNOLOGY IS HUMAN

For generations, we at GROB have lived and experienced this principle by making customer requirements the focus of our work. The result is sophisticated technology creating more efficient production processes worldwide and delivering highest quality.

## RESEARCH & DEVELOPMENT

With a high degree of creativity and technical intuition, as well as the best engineering expertise, our developers have worked hard to earn the reputation of being a technology leader.

## ASSEMBLY

From pre-assembly to machine assembly to process commissioning – our employees demonstrate their expertise with optimally coordinated workflows.

## ENGINEERING

With method development and structured problem solving, our employees in Engineering develop innovative concepts representing milestones for precision, dynamics, and reliability.

## COMMISSIONING

With simulation techniques and virtual commissioning, we achieve the highest adherence to delivery dates and product quality.

## PRODUCTION

The high degree of vertical integration along the entire value creation chain, numerous machining technologies and our employees' distinctive specialist knowledge create the best conditions for state-of-the-art production.

## TECHNICAL APPLICATION CENTERS

Our production plants in Germany, Brazil, the USA, China, Italy and India have technical application centers for the machining and electromobility sectors, where our customers can experience GROB technologies up close.





*5-axis universal machining centers by GROB*

# THE RIGHT CONCEPT FOR YOUR INDUSTRY

## 5-AXIS UNIVERSAL MACHINING CENTERS

Machine concept

Machine components

Typical machining operations

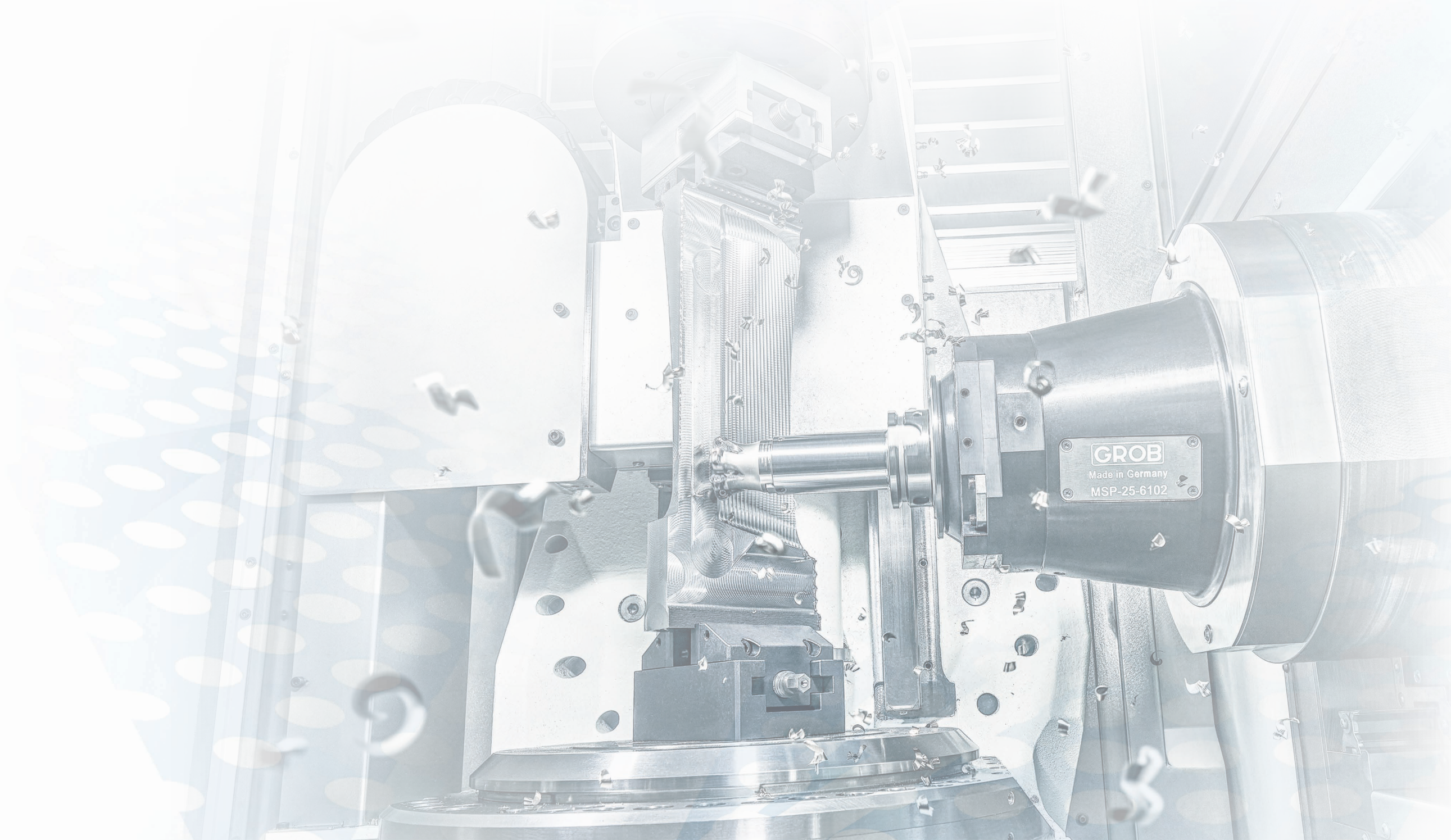
Technical data

TECHNOLOGY OPTIONS

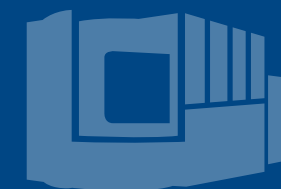
AUTOMATION SOLUTIONS

DIGITALIZATION

SERVICE







*Pure technology  
in the smallest space*

# UNIVERSAL MACHINING CENTERS FOR OUT- STANDING MILLING PERFORMANCE

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

Whether aerospace, mechanical engineering, die and mold industries, automotive, medical or energy technologies – our 5-axis universal machining centers cover an impressively broad range of possible applications.

- ✦ High productivity and process reliability
- ✦ Optimized availability and durability
- ✦ Excellent maintainability
- ✦ Extensive configuration possibilities
- ✦ Designed for automation solutions
- ✦ Also available as mill-turn machines in the sizes G350T, G550T, and G750T



OUR PORTFOLIO

#G150 #G350 #G550 #G750



*Maximum flexibility*

# MACHINING IN EVERY ANGULAR POSITION

The machine's unique axis arrangement permits overhead machining. The large A-axis area offers you almost limitless possibilities for part machining. Three linear and two rotary axes as the basis for horizontal AB kinematics enable 5-sided machining as well as simultaneous 5-axis machining.

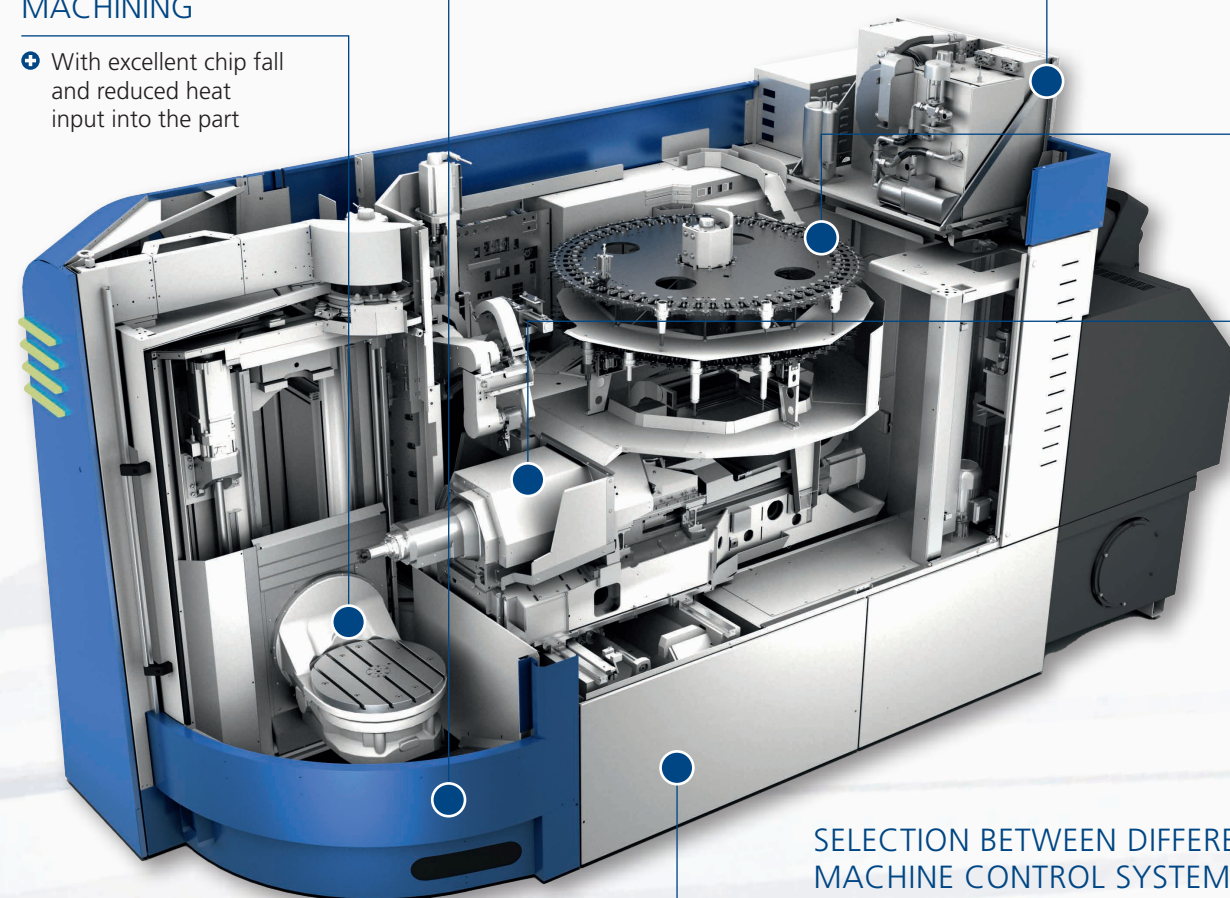
The drive concept is based on two symmetrically arranged ball screw drives and one weight compensation in the Y-axis. Torque motors in the A- axis and B-axis ensure dynamic and wear-free parts machining.

## 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

## UNIQUE OVERHEAD MACHINING

- ✚ With excellent chip fall and reduced heat input into the part



## SELECTION BETWEEN DIFFERENT MACHINE CONTROL SYSTEMS

- ✚ Choice between SIEMENS or HEIDENHAIN machine control systems

## OPTIONAL COOLING CONCEPT

- ✚ Ensures exact temperature control of the part, tool, and machine, allowing precise part machining

## EFFICIENT MACHINE COOLING

- ✚ Active temperature control of machine components

## DISK-TYPE TOOL MAGAZINE

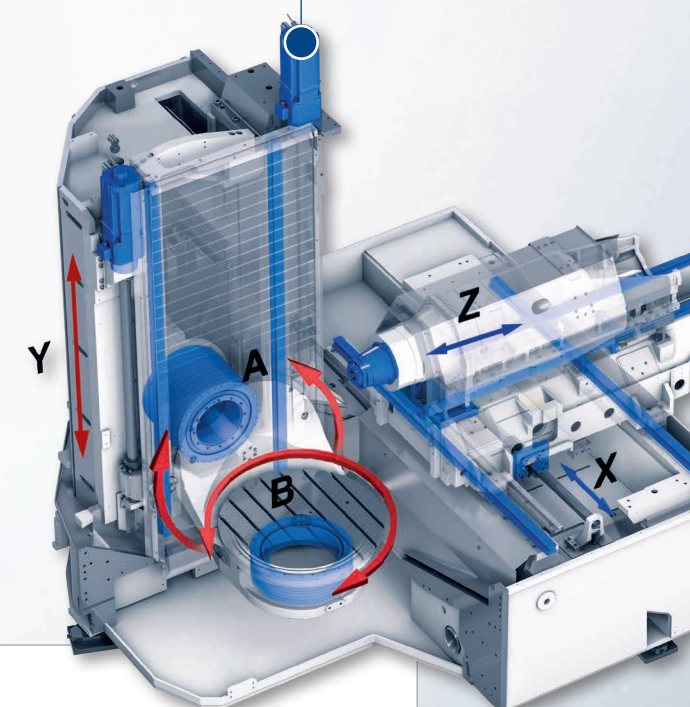
- ✚ Fast chip-to-chip times thanks to the integrated disk-type tool magazine with double gripper technology

## STABLE SPINDLE AXIS

- ✚ Special design for consistent stability in every machining position

## UNIQUE AXIS CONCEPT

- ✚ Optimally designed operating point (TCP) for extreme stability
- ✚ Longest Z-travel path of this 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



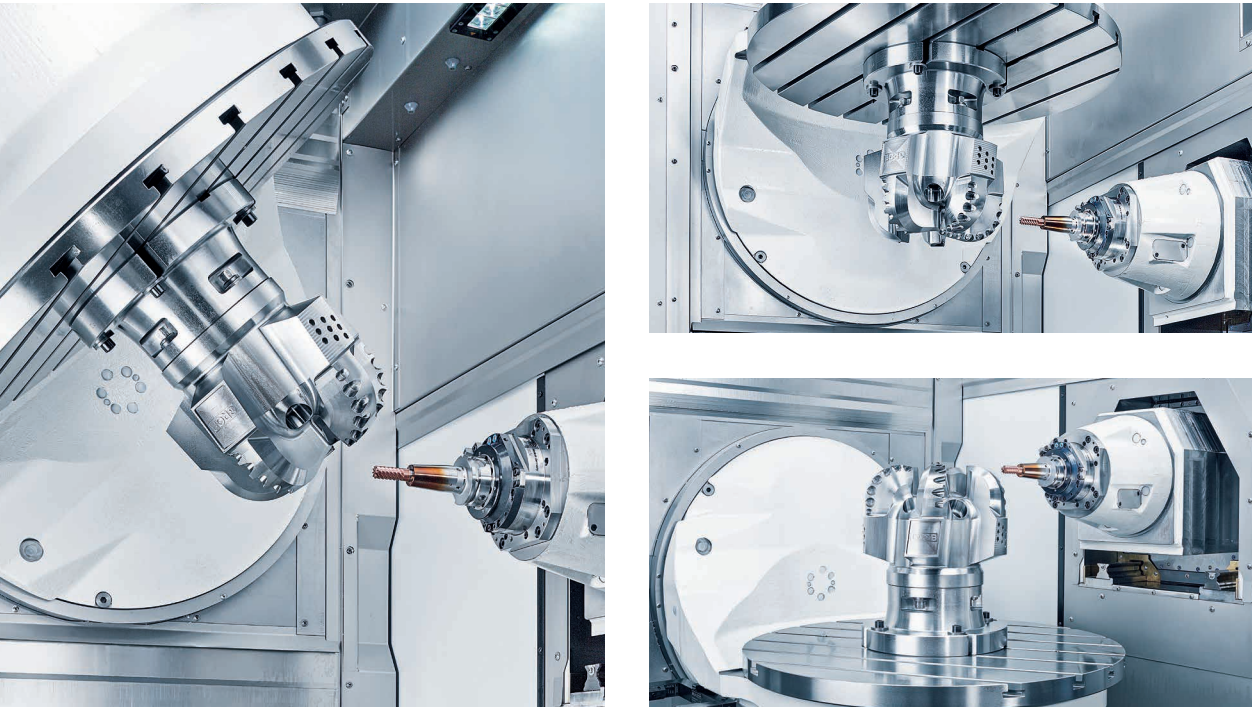


Optimal chip fall

# OVERHEAD MACHINING & ADDITIONAL ANGULAR POSITIONS

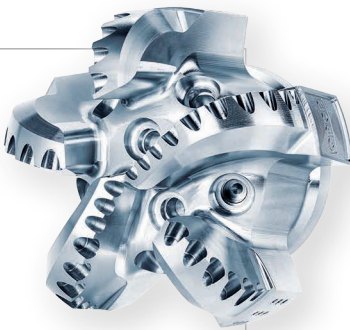
Due to the slim spindle design and the extremely large swivel range of the A-axis, the table can be positioned in various angular positions. This permits optimum accessibility to the part for the tool.

Thanks to the unique axis arrangement with horizontal spindle bearing, chips fall directly into the chip shaft and the part remains largely free of interfering chip accumulations.



## UNIQUE AXIS CONCEPT

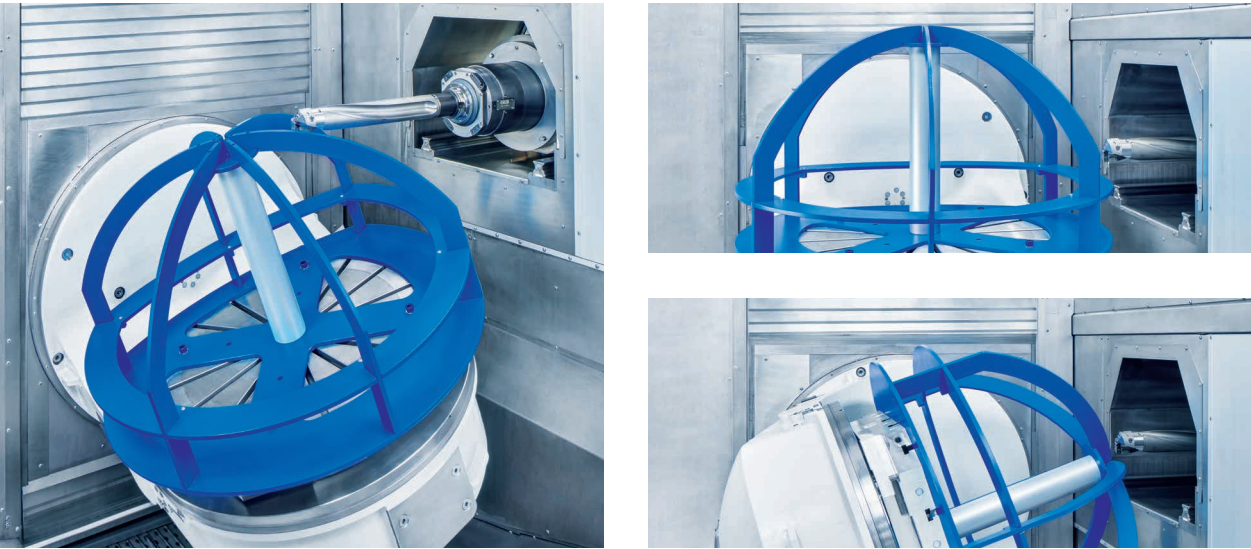
- Best tool life due to perfect chip fall
- Simple cleaning of components ahead of the part/pallet change
- No cutting fluid residue in the part
- No heat input into the machine from chips left on part, clamping equipment, and machining table



Tunnel concept

# 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 utilized, since the motorized spindle and tool can fully retract from the work area towards the rear.



| MAX. TOOL LENGTH ▶ [mm]   |                   |              |              |                    |
|---|-------------------|--------------|--------------|--------------------|
|   | G150              | G350         | G550         | G750               |
| Single disk-type tool magazine HSK-E40                                  | 265               | —            | —            | —                  |
| Single disk-type tool magazine HSK-A63                                  | 265               | 365          | 465          | —                  |
| Single disk-type tool magazine HSK-A100                                 | —                 | —            | 500          | —                  |
| Double disk-type tool magazine HSK-E40 (disk 1/disk 2/extra-long)       | 175/265/385*      | —            | —            | —                  |
| Double disk-type tool magazine HSK-A63 (disk 1/disk 2/extra-long)       | 180/265/385*      | 365/180/550* | 465/280/700* | 400/400 (650)/650* |
| Double disk-type tool magazine HSK-A100 (disk 1/disk 2/extra-long)      | —                 | —            | 500/260/750* | 450/650*           |
| Three disk-type tool magazine HSK-E40 (disk 1/disk 2/disk 3/extra-long) | 175/265/ 175/385* | —            | —            | —                  |
| Three disk-type tool magazine HSK-A63 (disk 1/disk 2/disk 3/extra-long) | 180/265/ 180/385* | —            | —            | 400/270/ 400/650*  |

\*With restrictions in the work area

Subject to technical changes without prior notice



## Machine components

# GROB MOTORIZED SPINDLES

### GROB SPINDLE DIAGNOSTICS (GSD) – OPTION



GROB Spindle Diagnostics is a system that automatically monitors both the condition of the motorized spindle (condition monitoring) and the vibrations that occur during machining.

- System for automatic condition monitoring of the motorized spindle
- The vibrations that occur are monitored during machining and switched off if they are exceeded.
- Service life of the motorized spindle extended through identification of critical operating states
- Perfect process optimization is possible
- Machine downtimes avoided through scheduled maintenance

### GROB CHIP-IN-SPINDLE DETECTION SYSTEM (SiS) – OPTION

Detection of deformations within a few milliseconds

- Inspection and detection of chip and foreign body errors between flat and tapered surfaces
- Automatic interruption if a clamping error is detected
- System independently takes fault clearance measures

### SPIKE® PROCESS FORCE MONITORING SYSTEM\* – OPTION

Monitoring of bending moments and pull-in forces. Based on these values, the system detects and monitors:

- Tool wear and incipient tool breakage
- Vibrations and rattling
- Tool change planning based on system data
- Reduction of tool damage and optimal utilization of the tool life
- Continuous monitoring during the machining process

### MOTORIZED SPINDLE WITH CROSS-FEED UNIT

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

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



\*The GROB chip-in-spindle detection system (SiS) is always included in this option

## Spindle types – Availability at a glance!

| SPINDLE TYPE ↔ MACHINE                                      |           |           |         |           |           |         |          |          |          |          |            |
|---|-----------|-----------|---------|-----------|-----------|---------|----------|----------|----------|----------|------------|
| Tool interface* for hollow taper shanks acc. to ISO 12164-1 | HSK-E40   | HSK-A63   | HSK-A63 | HSK-A63   | HSK-A63   | HSK-A63 | HSK-A100 | HSK-A100 | HSK-A100 | HSK-A100 | HSK-A100** |
| Spindle type  | 32        | 5         | 9/25    | 1         | 24        | 13      | 29       | 7        | 3        | 6        | 22         |
| Speed $n_{max}$ [rpm]                                       | 42,000    | 12,000    | 16,000  | 18,000    | 21,000    | 30,000  | 13,000   | 9,000    | 10,000   | 6,000    | 6,000      |
| Max. spindle torque at 100 %/40 % duty cycle [Nm]           | 13.3/17.4 | 63.7/82.8 | 159/206 | 34.6/46.6 | 34.6/46.6 | 48/63   | 226/265  | 470/575  | 262/340  | 262/340  | 301/344    |
| Spindle bearing Ø at front bearing [mm]                     | 50        | 70        | 80      | 70        | 70        | 65      | 100      | 110      | 100      | 100      | 100        |
| Max. drive power at 100 %/40 % duty cycle [kW]              | 23/30     | 40/52     | 25/32   | 29/39     | 29/39     | 40/53   | 64/75    | 54/65    | 20/26    | 20/26    | 32/36      |
| Spindle bearing lubrication<br>▶ Lifetime lubrication       | —         | •         | •       | •         | —         | —       | —        | •        | •        | •        | •          |
| ▶ Oil/air lubrication                                       | •         | —         | ◦       | —         | •         | •       | •        | —        | —        | —        | —          |
| <b>G150</b>   | ◦         | •         | ◦       | —         | ◦         | ◦       | —        | —        | —        | —        | —          |
| <b>G350</b>   | —         | •         | ◦       | ◦         | ◦         | ◦       | —        | —        | —        | —        | —          |
| <b>G550</b>   | —         | •         | ◦       | ◦         | ◦         | ◦       | ◦        | ◦        | ◦        | ◦        | ◦***       |
| <b>G750</b>   | —         | •         | ◦       | ◦         | ◦         | ◦       | ◦        | ◦        | ◦        | ◦        | ◦***       |

\*Optional tool interfaces on request

\*\*Motorized spindle with cross-feed

\*\*\*In combination with a SIEMENS machine control system

• Standard ◦ Option — Not available

Subject to technical changes without prior notice

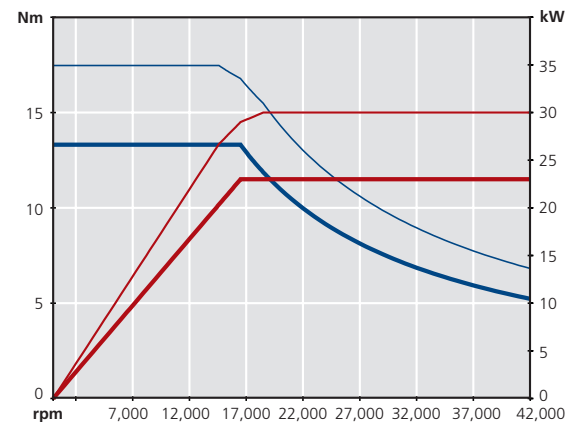


Torque – rotational speed – output

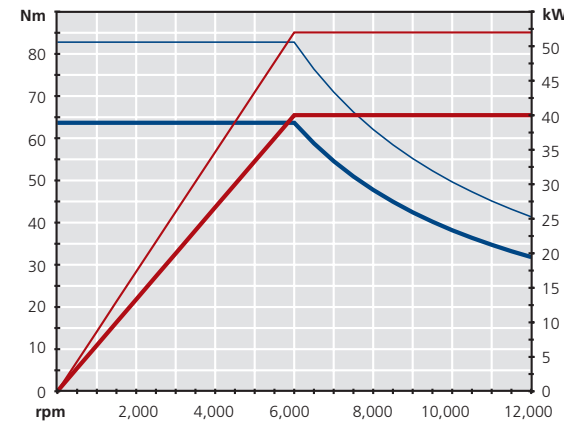
# MOTORIZED SPINDLE VERSIONS

**TYPE 32:**

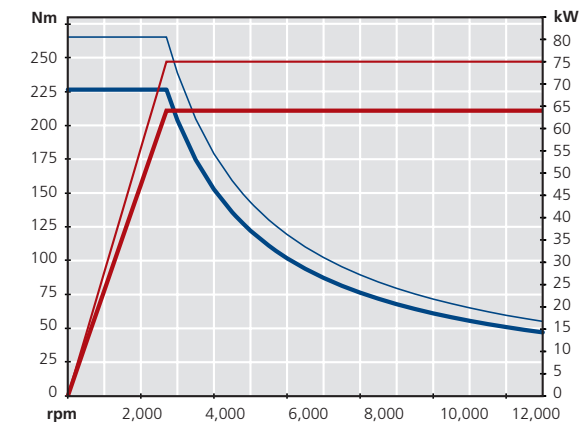
HSK-E40 ▶ Motorized spindle 17.4 Nm, 42,000 rpm

**TYPE 5:**

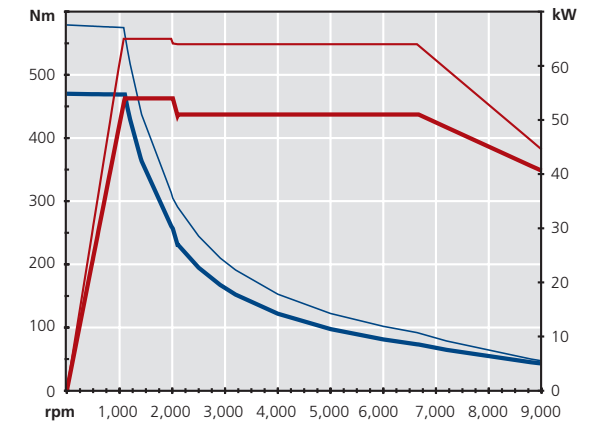
HSK-A63 ▶ Motorized spindle 83 Nm, 12,000 rpm

**TYPE 29:**

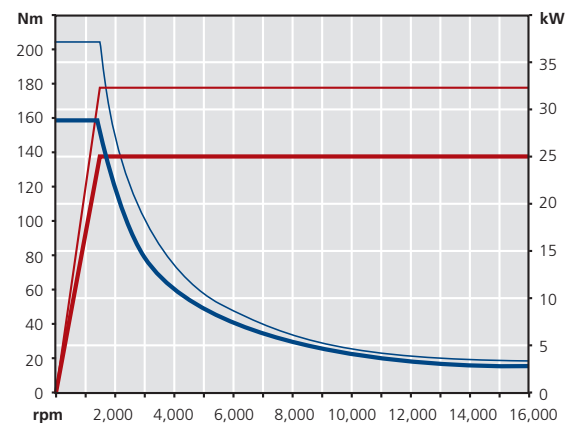
HSK-A100 ▶ Motorized spindle 265 Nm, 13,000 rpm

**TYPE 7:**

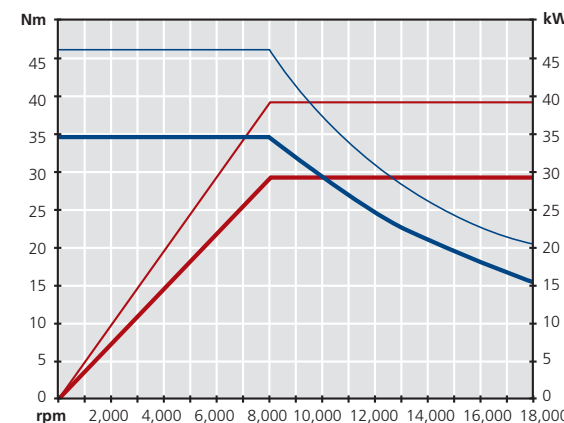
HSK-A100 ▶ Motorized spindle 575 Nm, 9,000 rpm

**TYPE 9/25:**

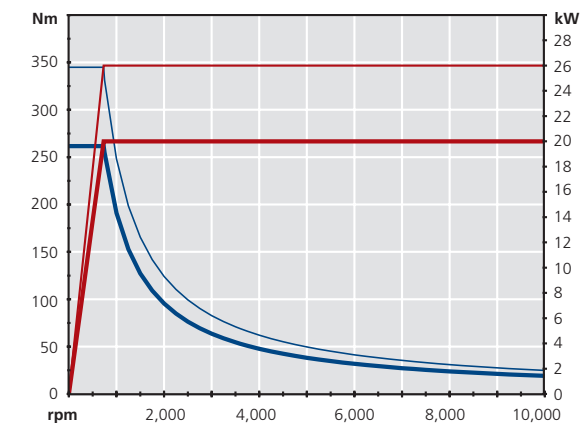
HSK-A63 ▶ Motorized spindle 206 Nm, 16,000 rpm

**TYPE 1:**

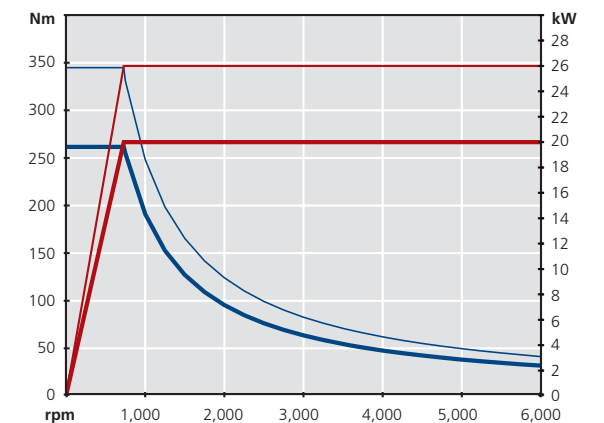
HSK-A63 ▶ Motorized spindle 47 Nm, 18,000 rpm

**TYPE 3:**

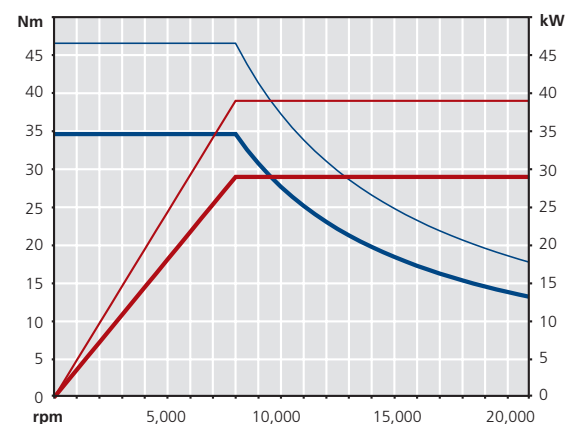
HSK-A100 ▶ Motorized spindle 340 Nm, 10,000 rpm

**TYPE 6:**

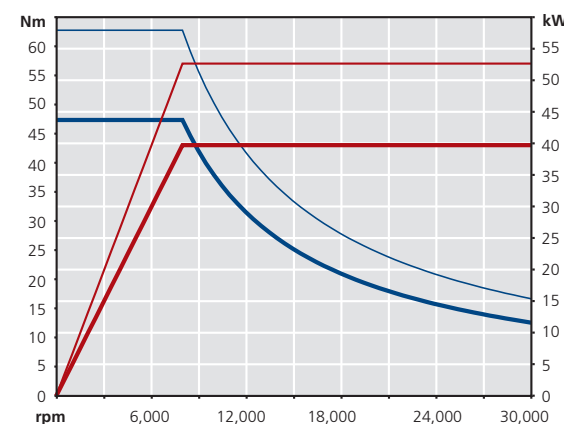
HSK-A100 ▶ Motorized spindle 340 Nm, 6,000 rpm

**TYPE 24:**

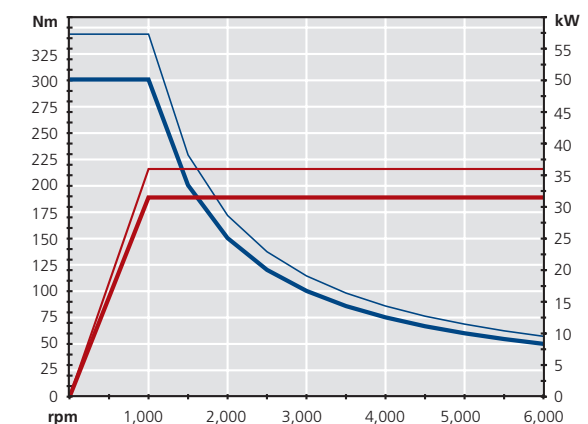
HSK-A63 ▶ Motorized spindle 47 Nm, 21,000 rpm

**TYPE 13:**

HSK-A63 ▶ Motorized spindle 63 Nm, 30,000 rpm

**TYPE 22:**

HSK-A100 ▶ Motorized spindle 344 Nm, 6,000 rpm




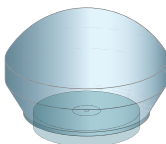
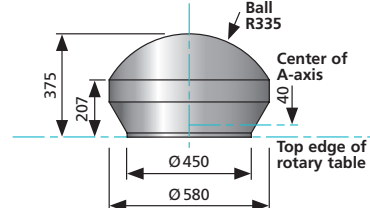
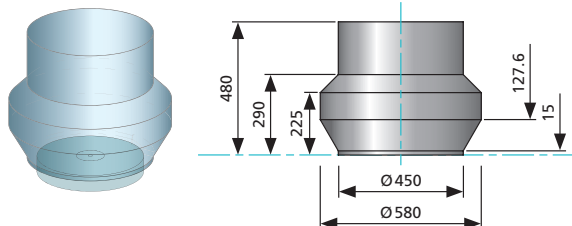
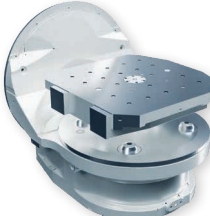
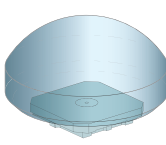
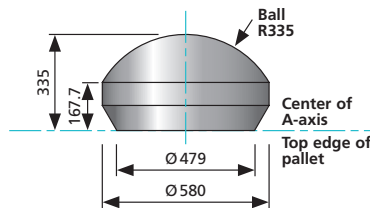
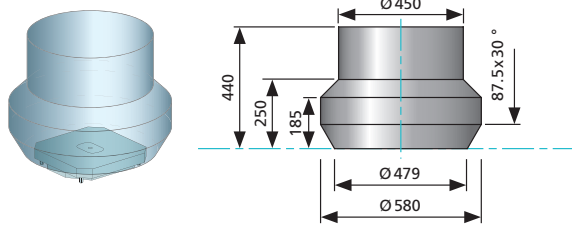

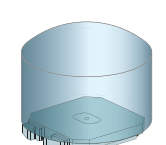
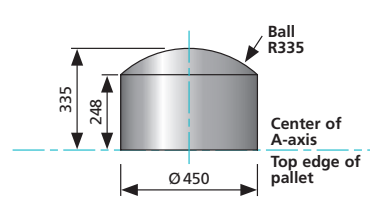
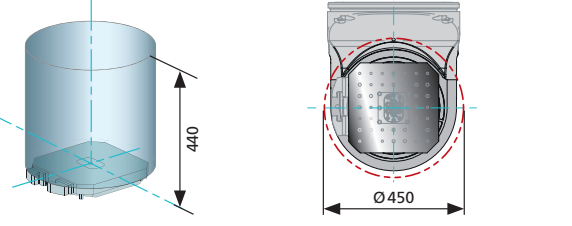
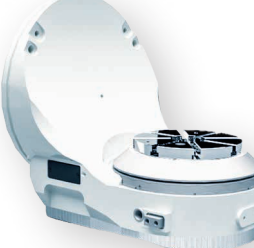
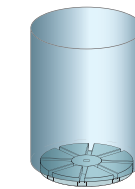
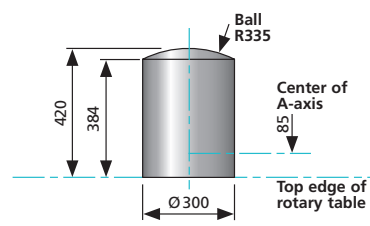
— Power S1: 100 % duty cycle — Power S6: 40 % duty cycle  
— Torque S1: 100 % duty cycle — Torque S6: 40 % duty cycle



Tilting rotary table and compact rotary table

TABLE VERSIONS G150

| TECHNICAL DATA – ROTARY AXES       |               |
|------------------------------------|---------------|
| A-axis swiveling angle [°]         | -224.5/+134.5 |
| Max. A-axis rotational speed [rpm] | 50            |
| A-/B-axis drive type               | Torque motor  |
| B-axis angle of rotation [°]       | n x 360       |
| Max. B-axis rotational speed [rpm] | 80            |

| TILTING ROTARY TABLE WITH T-SLOTS ARRANGED IN PARALLEL (STANDARD) |            | A- / B-axis max. [mm]   |   | B-axis max. [mm] (for A-axis 0°)  |   |
|---|------------|---|---|---|---|
| Basic machine   |            |   |   |   |   |
| Aligning slots (quantity/width/quality)                           | 1 x 14 H7  |    |    |    |    |
| Clamping slot (quantity/width/quality)                            | 6 x 14 H12 |   |   |   |   |
| Table diameter [mm]   | 380        |   |   |   |   |
| Interference diameter [mm]  | 580        |   |   |   |   |
| Max. permissible loading weight incl. clamping fixture [kg]       | 250        |   |   |   |   |
| TILTING ROTARY TABLE WITH PALLET (OPTION)                         |            |   |   |   |   |
| Basic machine with pallet   |            | A- / B-axis max. [mm]   |   | B-axis max. [mm] (for A-axis 0°)  |   |
| Pallet size [mm]  | 320x320    |  |  |  |  |
| Max. pallet load [kg]   | 220        |   |   |   |   |
| Basic machine with pallet changer                                 |            |   |   |   |   |
| Pallet size [mm]  | 320x320    |  |  |  |  |
| Max. pallet load [kg]   | 220        |   |   |   |   |
| COMPACT ROTARY TABLE  |            | A- / B-axis max. [mm]   |   |   |   |
| Basic machine   |            |   |   |   |   |
| A-axis swiveling angle [°]  | -185/+45   |  |  |  |   |
| Max. A-axis rotational speed [rpm]                                | 50         |   |   |   |   |
| B-axis angle of rotation [°]                                      | n x 360    |   |   |   |   |
| Max. B-axis rotational speed [rpm]                                | 200        |   |   |   |   |
| Max. loading weight [kg]  | 150        |   |   |   |   |
| Table diameter * [mm]   | 250        |   |   |   |   |
| Pallet size [mm]  | Ø 148**    |   |   |   |   |

Subject to technical changes without prior notice

\* T-slots arranged in a star shape    \*\* Erowa Power Chuck P Ø150

A-/B-axis arrangement

MAXIMUM  
PART SIZE





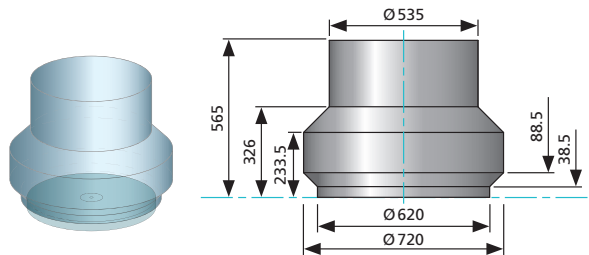
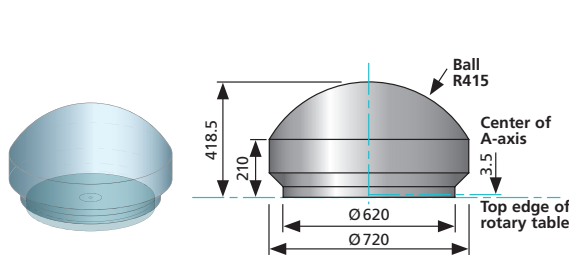
Tilting rotary table and compact rotary table

TABLE VERSIONS G350

| TECHNICAL DATA – ROTARY AXES       |              |
|------------------------------------|--------------|
| A-axis swiveling angle [°]         | -185/+45     |
| Max. A-axis rotational speed [rpm] | 35           |
| A-/B-axis drive type               | Torque motor |
| B-axis angle of rotation [°]       | n x 360      |
| Max. B-axis rotational speed [rpm] | 50           |

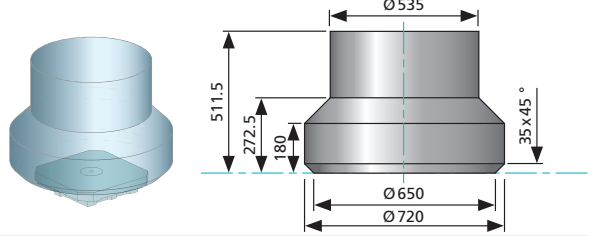
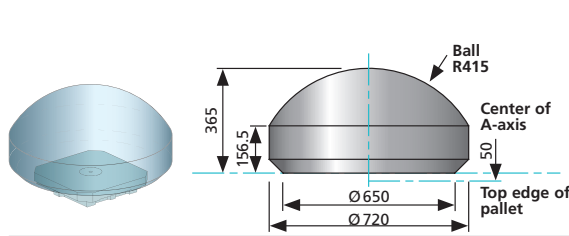
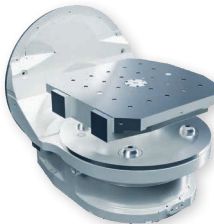
| TILTING ROTARY TABLE WITH T-SLOTS ARRANGED IN PARALLEL (STANDARD) | A-/B-axis max. [mm] | B-axis max. [mm] (for A-axis 0°) |
|---|---------------------|----------------------------------|
|---|---------------------|----------------------------------|

| Basic machine   |            |
|---|------------|
| Aligning slots (quantity/width/quality)                     | 1 x 14 H7  |
| Clamping slot (quantity/width/quality)                      | 4 x 14 H12 |
| Table diameter [mm]   | 570        |
| Interference diameter [mm]                                  | 720        |
| Max. permissible loading weight incl. clamping fixture [kg] | 400        |



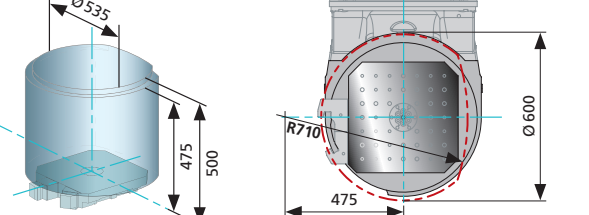
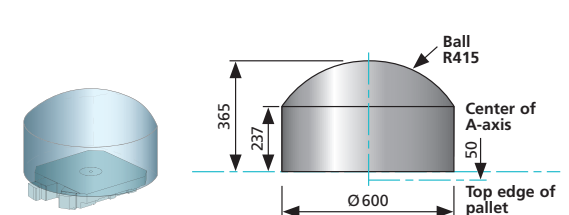
| TILTING ROTARY TABLE WITH PALLET (OPTION) | A-/B-axis max. [mm] | B-axis max. [mm] (for A-axis 0°) |
|---|---------------------|----------------------------------|
|---|---------------------|----------------------------------|

| Basic machine with pallet |         |
|---------------------------|---------|
| Pallet size [mm]          | 400x400 |
| Max. pallet load [kg]     | 340     |



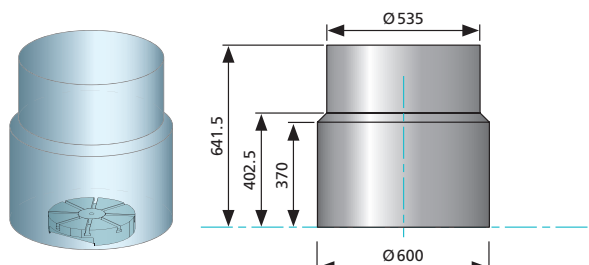
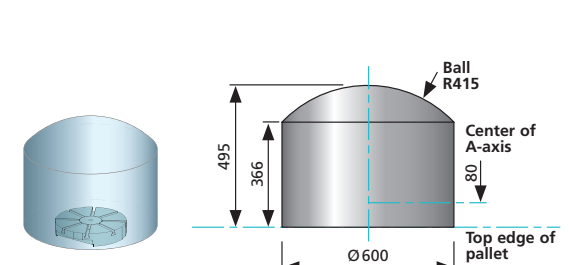
| Basic machine with pallet changer |  |
|-----------------------------------|--|
|-----------------------------------|--|

|                       |         |
|-----------------------|---------|
| Pallet size [mm]      | 400x400 |
| Max. pallet load [kg] | 340     |



| HIGHLY DYNAMIC ROTARY TABLE | A-/B-axis max. [mm] | B-axis max. [mm] (for A-axis 0°) |
|-----------------------------|---------------------|----------------------------------|
|-----------------------------|---------------------|----------------------------------|

| Basic machine                      |               |
|------------------------------------|---------------|
| A-axis swiveling angle [°]         | -225/+135     |
| B-axis angle of rotation [°]       | n x 360       |
| Max. B-axis rotational speed [rpm] | 200           |
| Max. loading weight [kg]           | 250 on pallet |
| Interference diameter [mm]         | 600           |
| Pallet size [mm]                   | Ø 320         |



A-/B-axis arrangement

MAXIMUM  
PART SIZE





Tilting rotary table and compact rotary table

TABLE VERSIONS G350

A- / B-axis arrangement

MAXIMUM  
PART SIZE



| VARIO ROTARY TABLE VERSION         |          | Max. A-axis [mm]  |   |
|------------------------------------|----------|---|---|
| Basic module                       |          |  |  |
| A-axis swiveling angle [°]         | -185/+45 |   |   |
| B-axis angle of rotation [°]       | n x 360  |   |   |
| Max. B-axis rotational speed [rpm] | 200      |   |   |
| Max. loading weight [kg]           | 230      |   |   |
| Interference diameter [mm]         | 300      |   |   |
| Table diameter [mm]                | 200      |   |   |

| VARIO ROTARY TABLE VERSION          |          | Max. A-axis [mm]  |   |
|-------------------------------------|----------|---|---|
| Basic module                        |          |  |  |
| A-axis swiveling angle [°]          | -185/+45 |   |   |
| B-axis angle of rotation [°]        | n x 360  |   |   |
| Max. B-axis rotational speed [rpm]  | 200      |   |   |
| Max. loading weight [kg]            | 230      |   |   |
| Distance between centers [mm]       | 485      |   |   |
| Max. stroke of the steady rest [mm] | 195      |   |   |
| Interference diameter [mm]          | 300      |   |   |
| Table diameter [mm]                 | 200      |   |   |

| VARIO ROTARY TABLE VERSION          |                               | Max. A-axis [mm]  |   |
|-------------------------------------|-------------------------------|---|---|
| Steady rest with tandem drive       |                               |  |  |
| A-axis swiveling angle [°]          | -35/+45                       |   |   |
| B-axis angle of rotation [°]        | n x 360                       |   |   |
| Max. B-axis rotational speed [rpm]  | 200                           |   |   |
| Max. loading weight [kg]            | 230                           |   |   |
| Distance between centers [mm]       | 555 (without clamping system) |   |   |
| Max. stroke of the steady rest [mm] | 195                           |   |   |
| Interference diameter [mm]          | 280                           |   |   |
| Table diameter [mm]                 | 200                           |   |   |



Tilting rotary table and compact rotary table


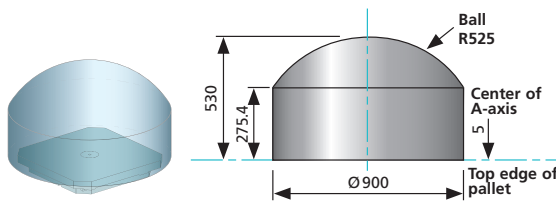
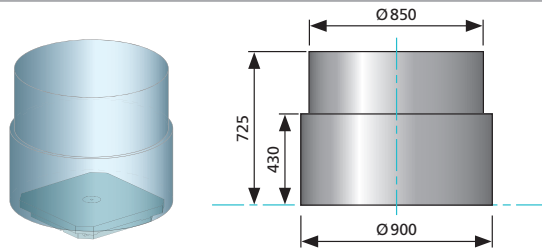
TABLE VERSIONS G550

| TECHNICAL DATA – ROTARY AXES       |              |
|------------------------------------|--------------|
| A-axis swiveling angle [°]         | -185/+45     |
| Max. A-axis rotational speed [rpm] | 25           |
| A-/B-axis drive type               | Torque motor |
| B-axis angle of rotation [°]       | n x 360      |
| Max. B-axis rotational speed [rpm] | 50           |

| TILTING ROTARY TABLE WITH T-SLOTS ARRANGED IN PARALLEL (STANDARD) | A-/B-axis max. [mm] | B-axis max. [mm] (for A-axis 0°) |
|---|---------------------|----------------------------------|
|---|---------------------|----------------------------------|

| Basic machine   |            |  |  |
|---|------------|--|--|
| Aligning slots (quantity/width/quality)                     | 1 x 14 H7  |   |  |
| Clamping slot (quantity/width/quality)                      | 6 x 14 H12 |  |  |
| Table diameter [mm]   | 770        |  |  |
| Interference diameter [mm]                                  | 900        |  |  |
| Max. permissible loading weight incl. clamping fixture [kg] | 800        |  |  |
|   |            |  |  |

| TILTING ROTARY TABLE WITH PALLET (OPTION) | A-/B-axis max. [mm] | B-axis max. [mm] (for A-axis 0°) |
|---|---------------------|----------------------------------|
|---|---------------------|----------------------------------|

| Basic machine with pallet |         |   |
|---------------------------|---------|---|
| Pallet size [mm]          | 630x630 |    |
| Max. pallet load [kg]     | 700     |   |

| Basic machine with pallet changer |  |  |  |
|-----------------------------------|--|--|--|
|-----------------------------------|--|--|--|

|                       |         |   |   |  |  |
|-----------------------|---------|---|---|--|--|
| Pallet size [mm]      | 630x630 |  |  |  |  |
| Max. pallet load [kg] | 700     |   |   |  |  |
|                       |         |   |   |  |  |
|                       |         |   |   |  |  |
|                       |         |   |   |  |  |
|                       |         |  |   |  |  |

| VARIO ROTARY TABLE VERSION | Max. A-axis [mm] |
|----------------------------|------------------|
|----------------------------|------------------|

| Steady rest with tandem drive                              |                      |   |
|--|----------------------|---|
| A-axis swiveling angle [°]                                 | max. -30/+30*        |  |
| B-axis angle of rotation [°]                               | n x 360              |   |
| Max. B-axis rotational speed [rpm]                         | 200                  |   |
| Max. loading weight [kg]                                   | 280                  |   |
| Distance between centers [mm] (without clamping equipment) | 770 up to max. 970** |   |
| Max. stroke of the steady rest [mm]                        | 375                  |   |
| Interference diameter [mm]                                 | 350                  |   |
| Table diameter [mm]  | 200                  |   |
|  |                      |  |

Subject to technical changes without prior notice

\* Depends on span and position of Y-axis

\*\* On request

A-/B-axis arrangement

MAXIMUM  
PART SIZE





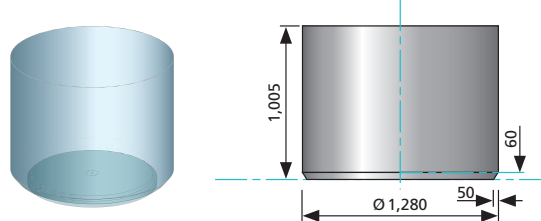
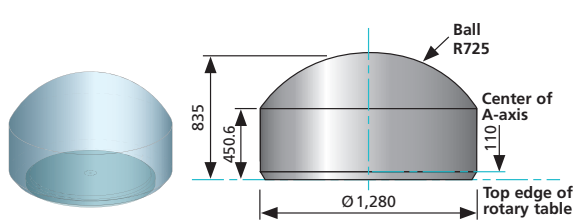
Tilting rotary table and compact rotary table

TABLE VERSIONS G750

| TECHNICAL DATA – ROTARY AXES       |              |
|------------------------------------|--------------|
| A-axis swiveling angle [°]         | -185/+45     |
| Max. A-axis rotational speed [rpm] | 20           |
| A-/B-axis drive type               | Torque motor |
| B-axis angle of rotation [°]       | n x 360      |
| Max. B-axis rotational speed [rpm] | 50           |

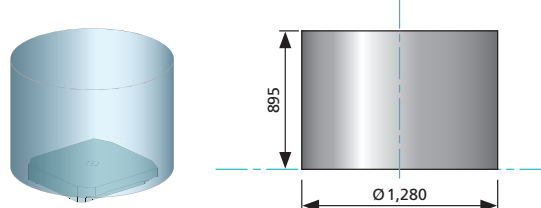
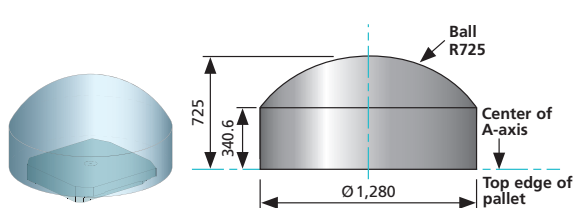
| TILTING ROTARY TABLE WITH T-SLOTS ARRANGED IN PARALLEL (STANDARD) | A-/B-axis max. [mm] | B-axis max. [mm] (for A-axis 0°) |
|---|---------------------|----------------------------------|
|---|---------------------|----------------------------------|

| Basic machine   |            |
|---|------------|
| Aligning slots (quantity/width/quality)                     | 1 x 18 H7  |
| Clamping slot (quantity/width/quality)                      | 8 x 18 H12 |
| Table diameter [mm]   | 950        |
| Interference diameter [mm]                                  | 1,280      |
| Max. permissible loading weight incl. clamping fixture [kg] | 1,500      |



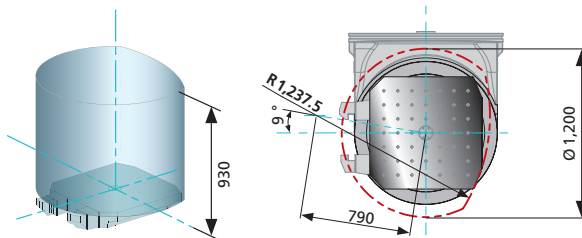
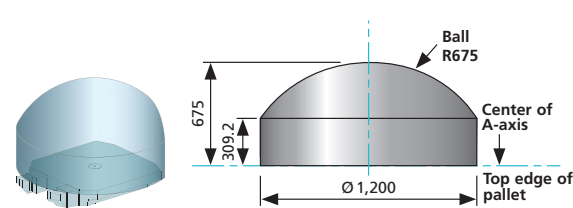
| TILTING ROTARY TABLE WITH PALLET (OPTION) | A-/B-axis max. [mm] | B-axis max. [mm] (for A-axis 0°) |
|---|---------------------|----------------------------------|
|---|---------------------|----------------------------------|

| Basic machine with pallet |           |
|---------------------------|-----------|
| Pallet size [mm]          | 800 x 800 |
| Max. pallet load [kg]     | 1,000     |



| Basic machine with pallet changer |  |
|-----------------------------------|--|
|-----------------------------------|--|

|                       |           |
|-----------------------|-----------|
| Pallet size [mm]      | 800 x 800 |
| Max. pallet load [kg] | 1,000     |



A-/B-axis arrangement

MAXIMUM  
PART SIZE





Versatile combinations

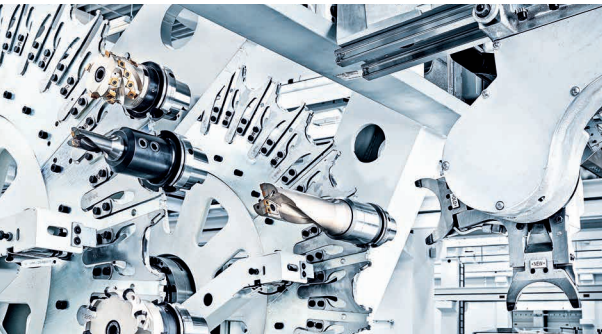
# TOOL MAGAZINES BY GROB

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

### ADDITIONAL TOOL MAGAZINE TM (OPTION)

- Increases the basic machine's tool capacity with block-wise setup of up to:
  - Six HSK-A63 tools for TM200, TM308, and TM373
  - Five HSK-A100 tools for TM180, TM250
- The additional tool magazine can be equipped with tools during the machining operation
- Tool provision in parallel with machining
- Tool and magazine management through the control system of the machine



Number of tool pockets

# G150/G350/G550/G750

| G150 ▶ BASIC MACHINE ◀▶ ADDITIONAL TOOL MAGAZINE TM |                |                                       |   |                        |                        |
|---|----------------|---------------------------------------|---|------------------------|------------------------|
| Motorized spindle                                   | Tool interface | Number of tool pockets <sup>(1)</sup> | Total number of tools of the basic machine and the TM |                        |                        |
| Single disk-type tool magazine                      |                |                                       | TM200   | TM308                  | TM373                  |
|   | HSK-E40        | 60                                    | —   | —                      | —                      |
|   | HSK-A63        | 50/42 <sup>(2)</sup>                  | 235/243 <sup>(3)</sup>                                | 343/351 <sup>(3)</sup> | 408/416 <sup>(3)</sup> |
| Double disk-type tool magazine                      |                |                                       | TM200   | TM308                  | TM373                  |
| For all spindle types                               | HSK-E40        | 93 <sup>(3)</sup>                     | —   | —                      | —                      |
|   | HSK-A63        | 77 <sup>(3)</sup>                     | 270   | 378                    | 443                    |
| Three disk-type tool magazine                       |                |                                       | TM200   | TM308                  | TM373                  |
| For all spindle types                               | HSK-E40        | 141 <sup>(3)</sup>                    | —   | —                      | —                      |
|   | HSK-A63        | 117 <sup>(3)</sup>                    | 310   | 418                    | 483                    |

| G350 ▶ BASIC MACHINE ◀▶ ADDITIONAL TOOL MAGAZINE TM |         |                    |       |       |       |
|---|---------|--------------------|-------|-------|-------|
| Single disk-type tool magazine                      |         |                    | TM200 | TM308 | TM373 |
| For all spindle types                               | HSK-A63 | 60                 | 251   | 359   | 424   |
| Double disk-type tool magazine                      |         |                    | TM200 | TM308 | TM373 |
| For all spindle types                               | HSK-A63 | 117                | 311   | 419   | 484   |
|   | HSK-A63 | 105 <sup>(3)</sup> | 293   | 401   | 466   |

| G550 ▶ BASIC MACHINE ◀▶ ADDITIONAL TOOL MAGAZINE TM |          |                    |       |       |       |       |       |
|---|----------|--------------------|-------|-------|-------|-------|-------|
| Single disk-type tool magazine                      |          |                    | TM200 | TM308 | TM373 | TM180 | TM250 |
| For all spindle types                               | HSK-A63  | 70                 | 261   | 369   | 434   | —     | —     |
|   | HSK-A100 | 40                 | —     | —     | —     | 211   | 281   |
| Double disk-type tool magazine                      |          |                    | TM200 | TM308 | TM373 | TM180 | TM250 |
| For all spindle types                               | HSK-A63  | 137                | 331   | 439   | 504   | —     | —     |
|   | HSK-A63  | 123 <sup>(3)</sup> | 317   | 425   | 490   | —     | —     |
|   | HSK-A100 | 77                 | —     | —     | —     | 251   | 321   |
|   | HSK-A100 | 69 <sup>(3)</sup>  | —     | —     | —     | 243   | 313   |

| G750 ▶ BASIC MACHINE ◀▶ ADDITIONAL TOOL MAGAZINE TM |          |     |       |       |       |       |       |
|---|----------|-----|-------|-------|-------|-------|-------|
| Double disk-type tool magazine                      |          |     | TM200 | TM308 | TM373 | TM180 | TM250 |
| For all spindle types                               | HSK-A63  | 117 | 311   | 419   | 484   | —     | —     |
|   | HSK-A100 | 65  | —     | —     | —     | 241   | 312   |
| Three disk-type tool magazine                       |          |     | TM200 | TM308 | TM373 | TM180 | TM250 |
| For all spindle types                               | HSK-A63  | 177 | 371   | 479   | 544   | —     | —     |
|   | HSK-A63  | 167 | 361   | 469   | 534   | —     | —     |

<sup>(1)</sup>Depends on machine configuration  
<sup>(2)</sup>Depends on the spindle type  
<sup>(3)</sup>Ability to store oversize tools across both magazine disks with double assignment

Subject to technical changes without prior notice



GROB<sup>4</sup>Pilot

# YOUR POWERFUL MACHINE CONTROL PANEL

The innovative GROB<sup>4</sup>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 to the NC simulation – is now digitally mapped on the GROB<sup>4</sup>Pilot control system itself.

- Enhanced user comfort thanks to simplified and intuitive machine operation
- Access to the GROB-NET<sup>4</sup>Industry platform
- Expanded applications for increased efficiency
- Paperless production is possible

## OPTIMIZED KEYBOARD

- For easy input



## FULLY-AUTOMATED HOMING AT THE PUSH OF A BUTTON

- From any position – our universal machining centers as well as automated systems automatically move to the home position in several steps

| AVAILABLE CNC CONTROL SYSTEM PROVIDERS FOR GROB <sup>4</sup> PILOT |                       |                 |
|--|-----------------------|-----------------|
|  | SIEMENS SINUMERIK ONE | HEIDENHAIN TNC7 |
| G150   | •                     | ◦               |
| G350   | •                     | ◦               |
| G550   | •                     | ◦               |
| G750   | •                     | ◦               |

The implementation of GROB<sup>4</sup>Pilot can differ between SIEMENS and HEIDENHAIN

• Standard ◦ Option

## FLEXIBLE DISPLAY LAYOUT

- Free division into up to three apps

## 24" MULTI-TOUCH DISPLAY

- For intuitive operation

## 2x POWERRIDE

- Convenient operation thanks to multifunctional assignment

## 3D-SPACEMOUSE® (OPTION)

- For controlling CAD applications

## TRACKBALL

- For alternative screen use in addition to the multi-touch function



Example illustration



## Typical machining operations

# PERFORMANCE MILLING – DRILLING – THREAD CUTTING

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



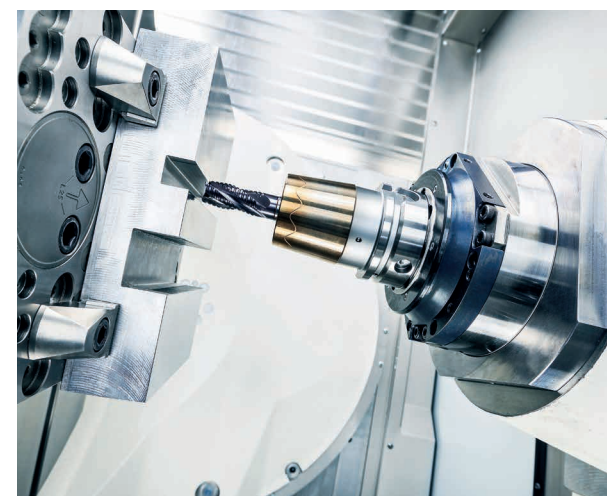
| Motorized spindle 12,000 rpm<br>(83 Nm) / HSK-A63<br>Machining on a G350 |                   |               |  |
|--|-------------------|---------------|--|
| Machining type / tool  | Steel – 16MnCrS5  |               |  |
| Drilling<br>Ø50 mm   | $v_c = 160$       | $n = 1,019$   |  |
|  | $f_u = 0.13$      | $v_f = 132$   |  |
|  | $a_p/a_e = 50/50$ | $Q = 330$     |  |
| Thread cutting<br>M24  | $v_c = 15$        | $n = 199$     |  |
|  | $f_u = 3$         | $v_f = 597$   |  |
| Milling with cutting<br>head<br>Ø63 mm<br>z = 5                          | $v_c = 300$       | $n = 1,516$   |  |
|  | $f_z = 0.24$      | $v_f = 1,743$ |  |
|  | $a_p/a_e = 3/55$  | $Q = 288$     |  |



| Motorized spindle 16,000 rpm<br>(206 Nm) / HSK-A63<br>Machining on a G350 |                   |               |  |
|---|-------------------|---------------|--|
| Machining type / tool   | Steel – 16MnCrS5  |               |  |
| Drilling<br>Ø60 mm  | $v_c = 160$       | $n = 849$     |  |
|   | $f_u = 0.18$      | $v_f = 153$   |  |
|   | $a_p/a_e = 50/60$ | $Q = 459$     |  |
| Thread cutting<br>M36   | $v_c = 13$        | $n = 115$     |  |
|   | $f_u = 4$         | $v_f = 460$   |  |
| Milling with cutting<br>head<br>Ø100 mm<br>z = 12                         | $v_c = 330$       | $n = 1,050$   |  |
|   | $f_z = 0.18$      | $v_f = 2,268$ |  |
|   | $a_p/a_e = 3/95$  | $Q = 646$     |  |



| Motorized spindle 18,000 rpm<br>(47 Nm) / HSK-A63<br>Machining on a G550 |                  |                |  |
|--|------------------|----------------|--|
| Machining type / tool  | Aluminum – F7050 |                |  |
| Milling with end mill<br>Ø20 mm<br>z = 3                                 | $v_c = 1,131$    | $n = 18,000$   |  |
|  | $f_z = 0.25$     | $v_f = 13,500$ |  |
|  | $a_p = 13$       | $a_e = 20$     |  |
|  | $Q = 3,510$      |                |  |
| Milling with cutting<br>head<br>Ø32 mm<br>z = 3                          | $v_c = 1,809$    | $n = 17,994$   |  |
|  | $f_z = 0.18$     | $v_f = 9,717$  |  |
|  | $a_p = 10$       | $a_e = 32$     |  |
|  | $Q = 3,109$      |                |  |



| Motorized spindle 30,000 rpm<br>(63 Nm) / HSK-A63<br>Machining on a G550 |                  |                |  |
|--|------------------|----------------|--|
| Machining type / tool  | Aluminum – F7050 |                |  |
| Milling with end mill<br>Ø25 mm<br>z = 3                                 | $v_c = 2,120$    | $n = 26,993$   |  |
|  | $f_z = 0.09$     | $v_f = 7,288$  |  |
|  | $a_p = 19$       | $a_e = 25$     |  |
|  | $Q = 3,462$      |                |  |
| Milling with cutting<br>head<br>Ø50 mm<br>z = 4                          | $v_c = 2,042$    | $n = 13,000$   |  |
|  | $f_z = 0.24$     | $v_f = 12,480$ |  |
|  | $a_p = 6$        | $a_e = 50$     |  |
|  | $Q = 3,744$      |                |  |



| Motorized spindle 9,000 rpm<br>(575 Nm) / HSK-A100<br>Machining on a G550 |                   |               |  |
|---|-------------------|---------------|--|
| Machining type / tool   | Steel – 16MnCrS5  |               |  |
| Drilling<br>Ø70 mm  | $v_c = 150$       | $n = 682$     |  |
|   | $f_u = 0.40$      | $v_f = 273$   |  |
|   | $a_p = 50$        | $Q = 955$     |  |
| Milling with milling cutter<br>Ø50 mm<br>z = 4                            | $v_c = 80$        | $n = 509$     |  |
|   | $f_z = 0.12$      | $v_f = 244$   |  |
|   | $a_p/a_e = 40/50$ | $Q = 488$     |  |
| Milling with cutting head<br>Ø125 mm<br>z = 14                            | $v_c = 250$       | $n = 637$     |  |
|   | $f_z = 0.3$       | $v_f = 2,675$ |  |
|   | $a_p/a_e = 5/90$  | $Q = 1,204$   |  |

|                              |                           |  |                                       |
|------------------------------|---------------------------|--|---------------------------------------|
| Cutting speed: $v_c$ [m/min] | Spindle speed: $n$ [rpm]  | Feed rate per revolution: $f_u$ [mm/rev] | Feed rate per tooth: $f_z$ [mm/tooth] |
| Feed rate: $v_f$ [mm/min]    | Cutting depth: $a_p$ [mm] | Cutting width: $a_e$ [mm]                | Cutting volume: $Q$ [cm³/min]         |
|                              |                           |  | Number of tool edges: $z$             |

Example illustrations

Example illustrations

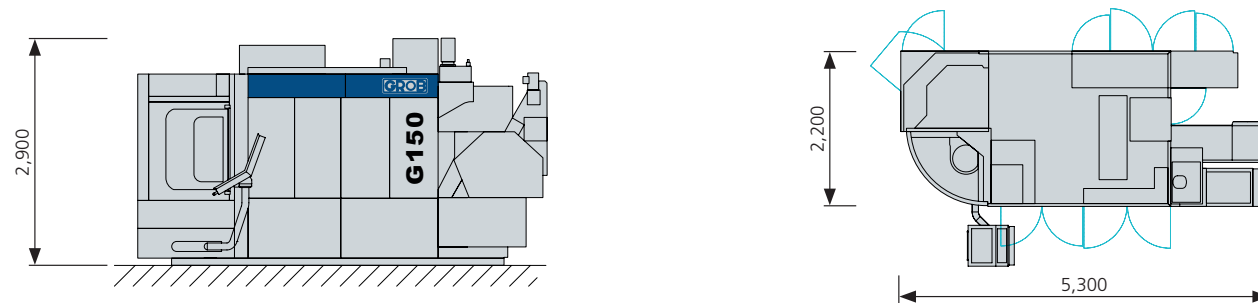
Subject to technical changes without prior notice



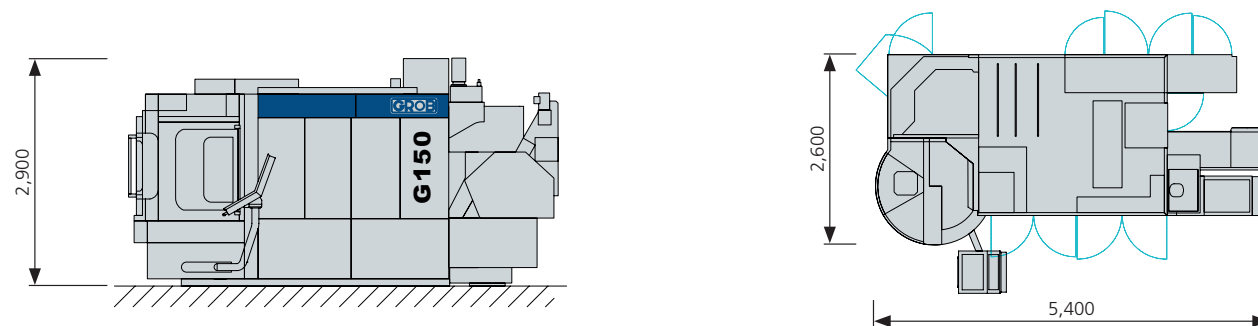
## Footprint G150

Side view / top view  
max. [mm]

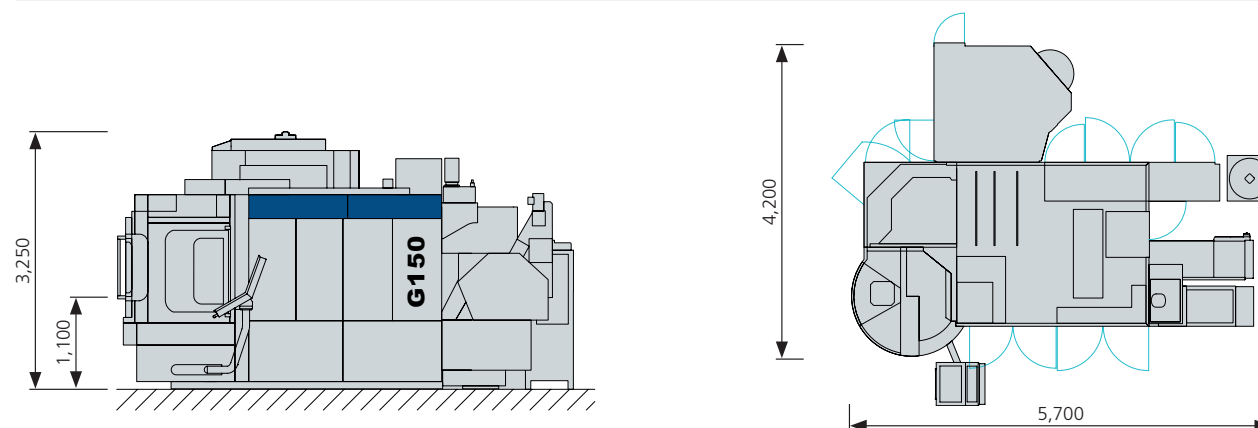
Basic machine



Basic machine with pallet changer



Basic machine with pallet changer, additional tool magazine and cooling unit



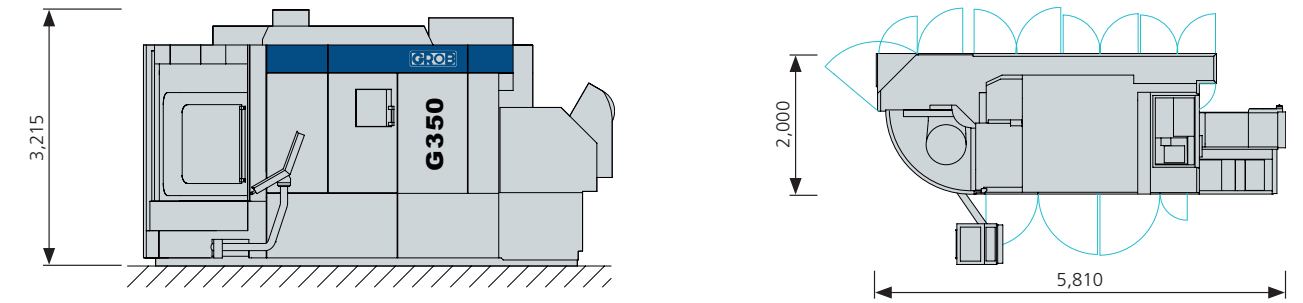
Dimension values [mm], not taking into account preventive maintenance and operating areas

Illustrations may contain options  
Subject to technical changes without prior notice

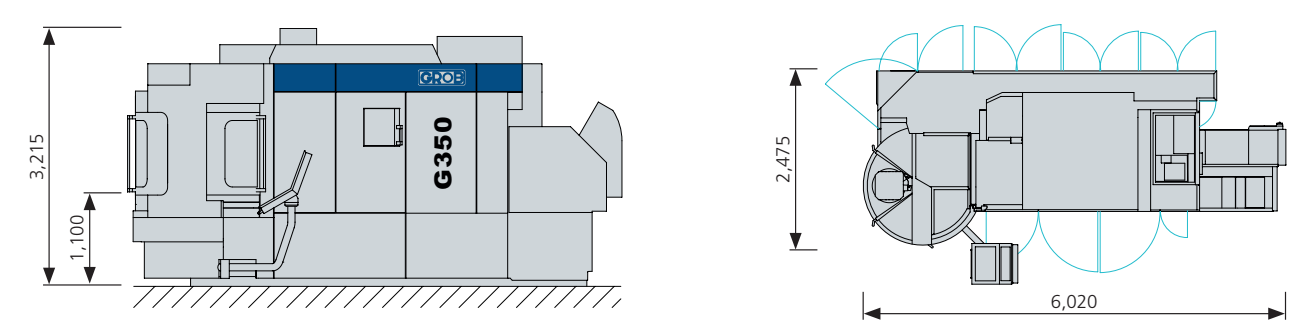
## Footprint G350

Side view / top view  
max. [mm]

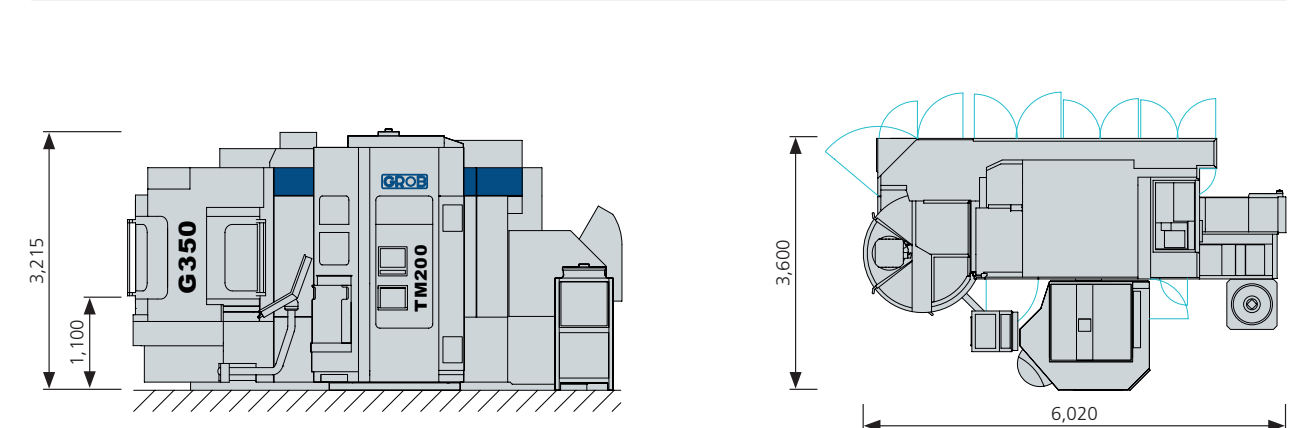
Basic machine



Basic machine with pallet changer



Basic machine with pallet changer, additional tool magazine and cooling unit



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

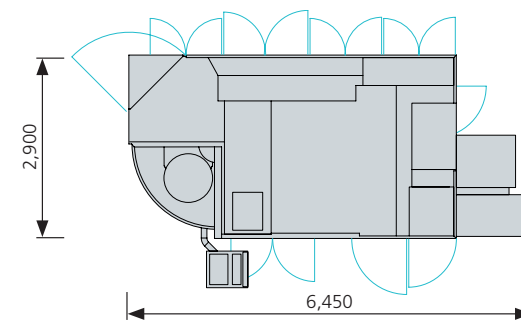
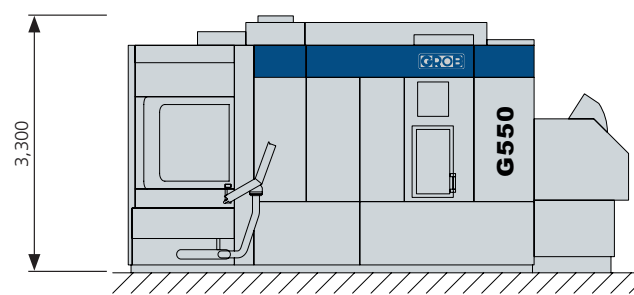
Illustrations may contain options  
Subject to technical changes without prior notice



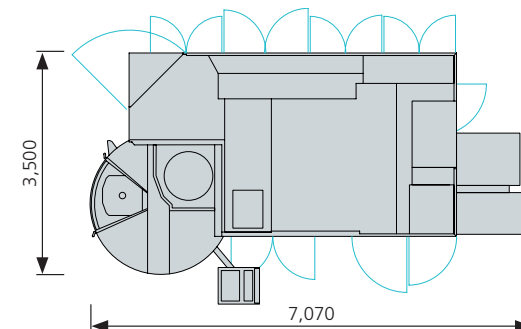
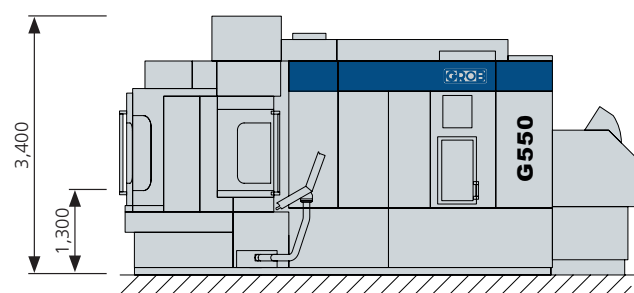
## Footprint G550

Side view / top view  
max. [mm]

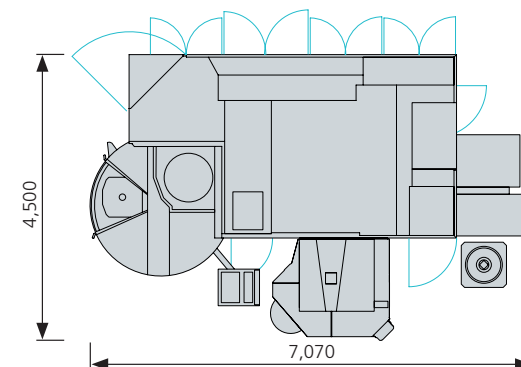
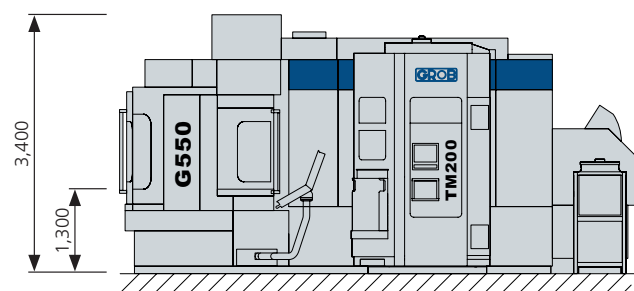
Basic machine



Basic machine with pallet changer



Basic machine with pallet changer, additional tool magazine and cooling unit



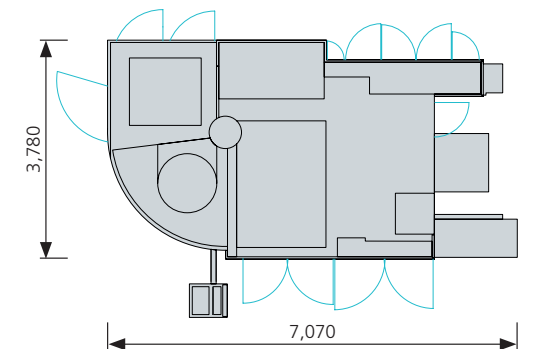
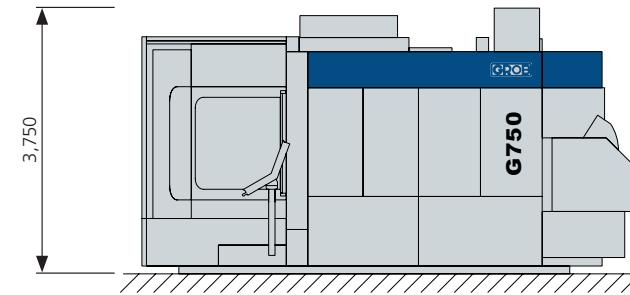
Dimension values [mm], not taking into account preventive maintenance and operating areas

Illustrations may contain options  
Subject to technical changes without prior notice

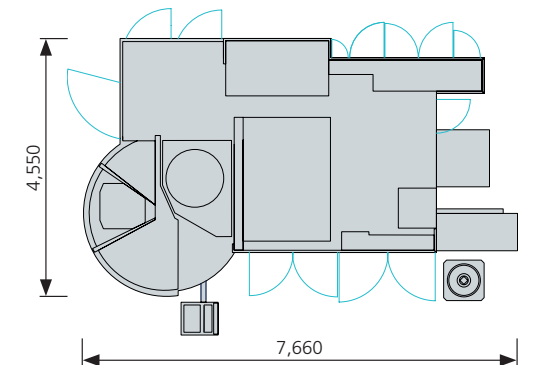
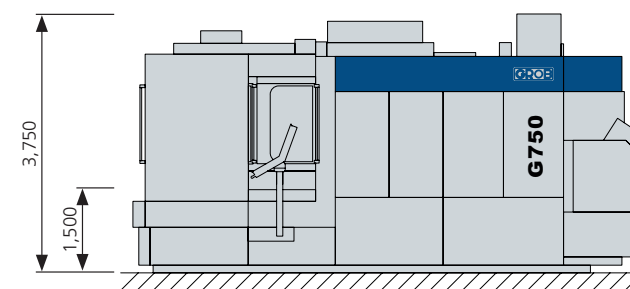
## Footprint G750

Side view / top view  
max. [mm]

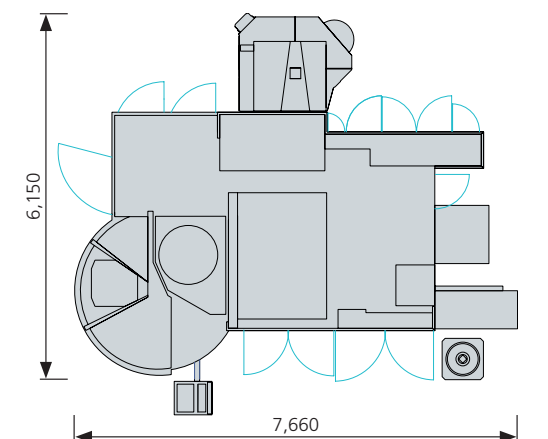
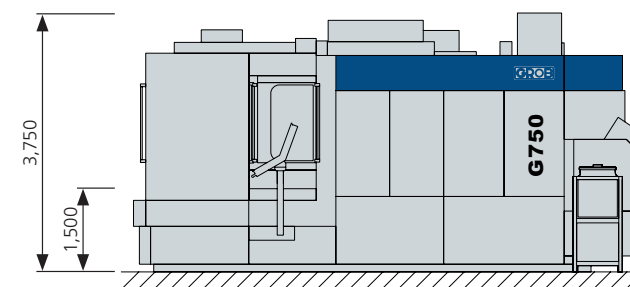
Basic machine



Basic machine with pallet changer



Basic machine with pallet changer, additional tool magazine and cooling unit



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

Illustrations may contain options  
Subject to technical changes without prior notice



Technical data – overview

# G150/G350/G550/G750

| MACHINE TYPE   |  | G150                               |           |             |             |                 |                 | G350                          |         |                            |         | G550                                |          |                         |                            |                         |                            | G750                          |                        |                        |              |                                |                         |  |  |
|--|--|------------------------------------|-----------|-------------|-------------|-----------------|-----------------|-------------------------------|---------|----------------------------|---------|-------------------------------------|----------|-------------------------|----------------------------|-------------------------|----------------------------|-------------------------------|------------------------|------------------------|--------------|--------------------------------|-------------------------|--|--|
| SLIDE  |  |                                    |           |             |             |                 |                 |                               |         |                            |         |                                     |          |                         |                            |                         |                            |                               |                        |                        |              |                                |                         |  |  |
| Working travels in X-/Y-/Z-axis [mm]                                       |  | 450/670/665                        |           |             |             |                 |                 | 600/855/750                   |         |                            |         | 800/1,020/970                       |          |                         |                            |                         |                            | 1,000/1,100/1,175             |                        |                        |              |                                |                         |  |  |
| Max. speeds in X-/Y-/Z-axis [m/min]  |  | 50/40/60 (70/50/80) <sup>(2)</sup> |           |             |             |                 |                 | 70/45/90                      |         |                            |         | 65/50/80 (90/50/90) <sup>(2)</sup>  |          |                         |                            |                         |                            | 60/50/75                      |                        |                        |              |                                |                         |  |  |
| Max. accelerations in X-/Y-/Z-axis [m/s <sup>2</sup> ] <sup>(1)</sup>      |  | 5/6/8 (6/6/11) <sup>(2)</sup>      |           |             |             |                 |                 | 5/4/7                         |         |                            |         | 6/4.5/8 (8.5/4.5/14) <sup>(2)</sup> |          |                         |                            |                         |                            | 4.5/3.0/7.5                   |                        |                        |              |                                |                         |  |  |
| Max. feed forces in X-/Y-/Z-axis [kN] <sup>(1)</sup>                       |  | 5/5/6                              |           |             |             |                 |                 | 8/8/8                         |         |                            |         | 8/8/12 <sup>(1)</sup>               |          |                         |                            |                         |                            | 8/8/10 <sup>(1)</sup>         |                        |                        |              |                                |                         |  |  |
| Positioning accuracy* in X-/Y-/Z-axis [mm]                                 |  | 0.006                              |           |             |             |                 |                 | 0.006                         |         |                            |         | 0.006                               |          |                         |                            |                         |                            | 0.006                         |                        |                        |              |                                |                         |  |  |
| Repeat precision of positioning* in X-/Y-/Z-axis [mm]                      |  | <0.0025                            |           |             |             |                 |                 | <0.0025                       |         |                            |         | <0.0025                             |          |                         |                            |                         |                            | <0.003                        |                        |                        |              |                                |                         |  |  |
| Positioning accuracy* in A-/B-axis [°]                                     |  | 0.0017/0.0011                      |           |             |             |                 |                 | 0.0017/0.0011                 |         |                            |         | 0.0017/0.0011                       |          |                         |                            |                         |                            | 0.0017                        |                        |                        |              |                                |                         |  |  |
| Repeat precision of positioning* inA-/B-axis [°]                           |  | 0.0008                             |           |             |             |                 |                 | 0.0008                        |         |                            |         | 0.0008                              |          |                         |                            |                         |                            | 0.0008                        |                        |                        |              |                                |                         |  |  |
| MAIN SPINDLE   |  |                                    |           |             |             |                 |                 |                               |         |                            |         |                                     |          |                         |                            |                         |                            |                               |                        |                        |              |                                |                         |  |  |
| Drive: Standard  | Tool interface for hollow taper shanks acc. to ISO 12164-1 <sup>(3)</sup>  | HSK-A63                            |           |             |             |                 |                 | HSK-A63                       |         |                            |         | HSK-A63                             |          |                         |                            |                         |                            | HSK-A63                       |                        |                        |              |                                |                         |  |  |
|  | Diameter of front spindle bearing [mm]   | 70                                 |           |             |             |                 |                 | 70                            |         |                            |         | 70                                  |          |                         |                            |                         |                            | 70                            |                        |                        |              |                                |                         |  |  |
|  | Speed n <sub>max</sub> [rpm]   | 12,000                             |           |             |             |                 |                 | 12,000                        |         |                            |         | 12,000                              |          |                         |                            |                         |                            | 12,000                        |                        |                        |              |                                |                         |  |  |
|  | Max. drive power at 100%/40% duty cycle [kW]   | 40/52                              |           |             |             |                 |                 | 40/52                         |         |                            |         | 40/52                               |          |                         |                            |                         |                            | 40/52                         |                        |                        |              |                                |                         |  |  |
|  | Max. spindle torque at 100%/40% duty cycle [Nm]  | 63.7/82.8                          |           |             |             |                 |                 | 63.7/82.8                     |         |                            |         | 63.7/82.8                           |          |                         |                            |                         |                            | 63.7/82.8                     |                        |                        |              |                                |                         |  |  |
|  | Chip-to-chip time t <sub>1</sub> according to VDI 2852 [s] relative to speed [rpm] SIEMENS control system and tool changer arm (dynamic package) | 2.6                                |           |             |             |                 |                 | 2.7                           |         |                            |         | 2.9                                 |          |                         |                            |                         |                            | 3.3                           |                        |                        |              |                                |                         |  |  |
| Drive: Options   | Tool interface for hollow taper shanks 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                             | HSK-A100 | HSK-A100                | HSK-A100                   | HSK-A100 <sup>(4)</sup> | HSK-A63                    | HSK-A63                       | HSK-A63                | HSK-A100               | HSK-A100     | HSK-A100                       | HSK-A100 <sup>(4)</sup> |  |  |
|  | Diameter of front spindle bearing [mm]   | 50                                 | 70        | 65          | 80          | 70              | 80              | 65                            |         | 70                         | 80      | 65                                  | 100      | 100                     | 110                        | 100                     | 70                         | 80                            | 65                     | 100                    | 100          | 110                            | 100                     |  |  |
|  | Speed n <sub>max</sub> [rpm]   | 42,000                             | 21,000    | 30,000      | 16,000      | 18,000/21,000   | 16,000          | 30,000                        |         | 18,000/21,000              | 16,000  | 30,000                              | 13,000   | 6,000/10,000            | 9,000                      | 6,000                   | 18,000/21,000              | 16,000                        | 30,000                 | 13,000                 | 6,000/10,000 | 9,000                          | 6,000                   |  |  |
|  | Max. drive power at 100%/40% duty cycle [kW]   | 23/30                              | 29/39     | 40/53       | 25/32       | 29/39           | 25/32           | 40/53                         |         | 29/39                      | 25/32   | 40/53                               | 64/75    | 20/26                   | 54/65                      | 31.5/36                 | 29/39                      | 25/32                         | 40/53                  | 64/75                  | 20/26        | 54/65                          | 31.5/36                 |  |  |
|  | Max. spindle torque at 100%/40% duty cycle [Nm]  | 13.3/17.4                          | 34.6/46.6 | 48/63       | 159/206     | 34.6/46.6       | 159/206         | 48/63                         |         | 34.6/46.6                  | 159/206 | 48/63                               | 226/265  | 262/340                 | 470/575                    | 301/344                 | 34.6/46.6                  | 159/206                       | 48/63                  | 226/265                | 262/340      | 470/575                        | 301/344                 |  |  |
|  | Chip-to-chip time t <sub>1</sub> according to VDI 2852 [s] relative to speed [rpm] SIEMENS control system and tool changer arm (dynamic package) | 2.6                                | 2.6       | 2.6         | 2.6         | 2.7             | 2.7             | 2.7                           |         | 2.9                        | 2.9     | 2.9                                 | 3.6      | 3.6                     | 3.7                        | 4.8 <sup>(5)</sup>      | 3.3                        | 3.3                           | 3.3                    | 3.8                    | 3.8          | 3.8                            | 3.8                     |  |  |
| DISK-TYPE TOOL MAGAZINE  |  | STM                                |           | DTM         |             | TTD             |                 | STM                           | DTM     |                            |         | STM                                 |          | DTM                     |                            | DTM                     |                            | DTM                           |                        | TTD                    |              |                                |                         |  |  |
| TOOL INTERFACE   |  | HSK-E40                            | HSK-A63   | HSK-E40     | HSK-A63     | HSK-E40         | HSK-A63         | HSK-A63                       | HSK-A63 | HSK-A63                    |         | HSK-A63                             | HSK-A100 | HSK-A63                 |                            | HSK-A100                |                            | HSK-A63                       | HSK-A63                | HSK-A100               | HSK-A63      | HSK-A63                        |                         |  |  |
| Number of tool pockets <sup>(8)</sup>                                      |  | 60                                 | 50/42     | 93          | 77          | 141/131         | 117/107         | 60                            | 117     | 105                        |         | 70                                  | 40       | 137                     | 123                        | 77                      | 69                         | 117                           | 117                    | 65                     | 177          | 167                            |                         |  |  |
| Max. tool length [mm]  |  |                                    |           |             |             |                 |                 |                               |         |                            |         |                                     |          |                         |                            |                         |                            |                               |                        |                        |              |                                |                         |  |  |
| ► Horizontal disk arrangement (disk 1/disk 2/disk 3/extra-long)            |  | —                                  | —         | —           | —           | —               | —               | 365                           | 365/180 | 365/180/550 <sup>(6)</sup> |         | 465                                 | 500      | 465/280                 | 465/280/700 <sup>(6)</sup> | 500/260                 | 500/260/750 <sup>(6)</sup> | —                             | —                      | —                      | —            | —                              |                         |  |  |
| ► Vertical disk arrangement (front/rear) (disk 1/disk 2/disk 3/extra-long) |  | 265                                | 265       | 175/265/385 | 180/265/385 | 175/175/265/385 | 180/180/265/385 | —                             | —       | —                          |         | —                                   | —        | —                       | —                          | —                       | —                          | 400/400                       | 400/650 <sup>(6)</sup> | 450/650 <sup>(6)</sup> | 400/270/400  | 400/270/400/650 <sup>(6)</sup> |                         |  |  |
| Max. tool diameter [mm]  |  |                                    |           |             |             |                 |                 |                               |         |                            |         |                                     |          |                         |                            |                         |                            |                               |                        |                        |              |                                |                         |  |  |
| ► No diameter restrictions for adjacent pockets                            |  | 60                                 | 72/86     | 60          | 72          | 60              | 72              | 70                            | 70      | 70                         |         | 70                                  | 118      | 70                      | 70                         | 118                     | 118                        | 68                            | 68                     | 115                    | 68           | 68                             |                         |  |  |
| ► Diameter restrictions for adjacent pockets                               |  | 135                                | 135       | 135         | 135         | 135             | 135             | 170                           | 170     | 170                        |         | 170                                 | 260      | 170                     | 170                        | 260                     | 260                        | 170                           | 170                    | 260                    | 170          | 170                            |                         |  |  |
| Max. tool weight [kg]  |  | 3                                  | 8         | 3           | 8           | 3               | 8               | 8                             | 8       | 8                          |         | 8                                   | 22       | 8                       | 8                          | 22                      | 22                         | 12                            | 12                     | 35                     | 12           | 12                             |                         |  |  |
| Max. tilt moment around gripper groove [Nm]                                |  | 3                                  | 12        | 3           | 12          | 3               | 12              | 12                            | 12      | 12                         |         | 12                                  | 40       | 12                      | 12                         | 40                      | 40                         | 12                            | 12                     | 40                     | 12           | 12                             |                         |  |  |
| PART   |  |                                    |           |             |             |                 |                 |                               |         |                            |         |                                     |          |                         |                            |                         |                            |                               |                        |                        |              |                                |                         |  |  |
| Table diameter [mm]  |  | 380                                |           |             |             |                 |                 | 570                           |         |                            |         | 770                                 |          |                         |                            |                         |                            | 950                           |                        |                        |              |                                |                         |  |  |
| Max. table load [kg] (without/with pallet)                                 |  | 250/220                            |           |             |             |                 |                 | 400/340                       |         |                            |         | 800/700                             |          |                         |                            |                         |                            | 1,500 <sup>(7)</sup> /1,000   |                        |                        |              |                                |                         |  |  |
| Interference diameter [mm]   |  | 580                                |           |             |             |                 |                 | 720                           |         |                            |         | 900                                 |          |                         |                            |                         |                            | 1,280                         |                        |                        |              |                                |                         |  |  |
| CUTTING FLUID / CHIP DISPOSAL  |  |                                    |           |             |             |                 |                 |                               |         |                            |         |                                     |          |                         |                            |                         |                            |                               |                        |                        |              |                                |                         |  |  |
| Volume of cutting fluid tank [l]   |  | 635                                |           |             |             |                 |                 | 950                           |         |                            |         | 1,250                               |          |                         |                            |                         |                            | 1,070                         |                        |                        |              |                                |                         |  |  |
| Cutting fluid filter flow rate [l]   |  | 220                                |           |             |             |                 |                 | 220                           |         |                            |         | 220                                 |          |                         |                            |                         |                            | 220                           |                        |                        |              |                                |                         |  |  |
| CONNECTION RATINGS   |  |                                    |           |             |             |                 |                 |                               |         |                            |         |                                     |          |                         |                            |                         |                            |                               |                        |                        |              |                                |                         |  |  |
| Power requirements at 3 AC 400 V/50 Hz [kVA]                               |  | at least 42                        |           |             |             |                 |                 | at least 42                   |         |                            |         | at least 42                         |          |                         |                            |                         |                            | at least 42                   |                        |                        |              |                                |                         |  |  |
| Compressed air [bar]   |  | 5                                  |           |             |             |                 |                 | 5                             |         |                            |         | 5                                   |          |                         |                            |                         |                            | 5                             |                        |                        |              |                                |                         |  |  |
| WEIGHT (approx.)   |  |                                    |           |             |             |                 |                 |                               |         |                            |         |                                     |          |                         |                            |                         |                            |                               |                        |                        |              |                                |                         |  |  |
| Total weight [kg] (without/with pallet changer)                            |  | 14,600/15,400                      |           |             |             |                 |                 | 15,300/17,500                 |         |                            |         | 26,000/28,400                       |          |                         |                            |                         |                            | 37,000/43,000                 |                        |                        |              |                                |                         |  |  |
| PROCESS STAGES   |  |                                    |           |             |             |                 |                 |                               |         |                            |         |                                     |          |                         |                            |                         |                            |                               |                        |                        |              |                                |                         |  |  |
| Automatic pallet changer   |  | 2-fold                             |           |             |             |                 |                 | 2-fold                        |         |                            |         | 2-fold                              |          |                         |                            |                         |                            | 2-fold                        |                        |                        |              |                                |                         |  |  |
| Pallet size [mm]   |  | 320x320                            |           |             |             |                 |                 | 400x400                       |         |                            |         | 630x630                             |          |                         |                            |                         |                            | 800x800                       |                        |                        |              |                                |                         |  |  |
| Pallet change time according to VDI 2852 [s] <sup>(9)</sup>                |  | 12.0                               |           |             |             |                 |                 | 12.0                          |         |                            |         | 13.0                                |          |                         |                            |                         |                            | 16.0                          |                        |                        |              |                                |                         |  |  |
| Tool magazine expansion  |  | TM200; TM308; TM373 (HSK-A63)      |           |             |             |                 |                 | TM200; TM308; TM373 (HSK-A63) |         |                            |         | TM200; TM308; TM373 (HSK-A63)       |          | TM180; TM250 (HSK-A100) |                            |                         |                            | TM200; TM308; TM373 (HSK-A63) |                        |                        |              | TM180; TM250 (HSK-A100)        |                         |  |  |





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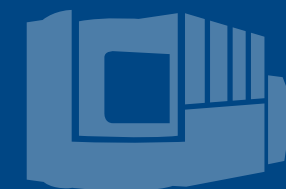
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- ✚ Productivity
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OUR PORTFOLIO  
#G150 #G350 #G550 #G750





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## Automation overview

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### 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



### PALLET CHANGER SYSTEM

- Allows retooling during part machining



### PALLET TOWER STORAGE SYSTEM (PSS-T)

- Expands the G-module to a flexible manufacturing cell

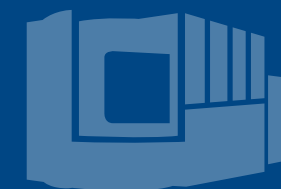


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- Maximum flexibility and customization in manufacturing







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- ✚ GROB<sup>4</sup>ANALYZE-OFFICECLIENT – flexible data analysis with hall layout function
- ✚ GROB<sup>4</sup>BROWNFIELD – digital interconnection of various machines
- ✚ GROB<sup>4</sup>TDX – transfer tool data automatically
- ✚ GROB<sup>4</sup>PARTFLOW – process transparency for parts
- ✚ GROB<sup>4</sup>TRACK – machine axes in view at all times
- ✚ GROB<sup>4</sup>OPTIMIZATION – motorized spindle process evaluation



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