

GMN

HIGH FREQUENCY SPINDLES

for automatic tool change



SPINDLE TECHNOLOGY



EXPERIENCE

that gets things running

We know that outstanding performance results when every detail in the whole system works perfectly.

A GMN spindle shows its quality not just in the spec sheet. Its performance is demonstrated in the quality of every surface, in the controlled removal of material, in its dynamics, and in the stability of every single process.

This requires the ability to understand complex interrelationships, identify interactions at an early stage, and develop solutions by working back from the desired outcome. This is where our deep understanding of spindle technology meets your requirements.



**Experience is priceless
when it comes to the
beating heart of your
machine.**

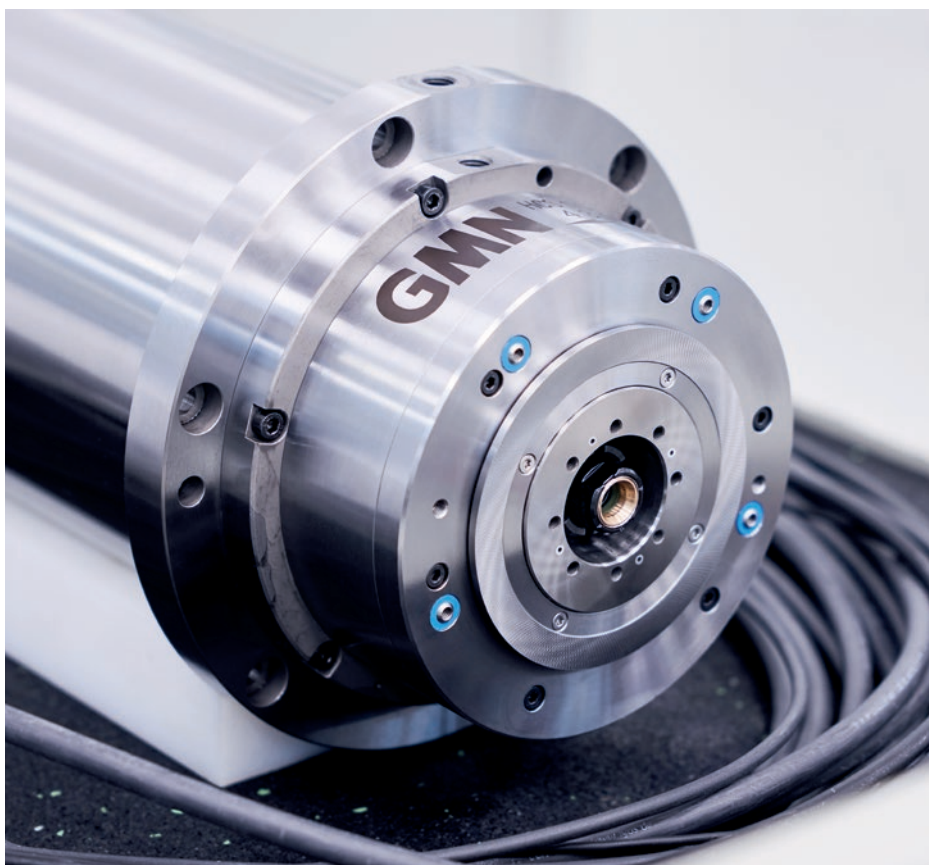
High-end spindle systems for automatic tool change – ingeniously designed down to the last detail and reliable from the very first run. This is GMN.

At GMN, we have been perfecting the components that define performance since 1908. We combine expertise gained over generations with a keen eye for your machine.

Working together, we find the solution that makes sense from both a technical and economic perspective: a proven standard when it performs the task with ease. Custom-designed to meet the demanding challenges of your process.

Sometimes a tried-and-true standard spindle is exactly the right solution. At other times, a tailored solution is needed.

What matters is not how unique a spindle is, but how reliably it performs its task throughout its entire life cycle.



Our expertise in spindles.
Your machine.
Perfectly harmonized.
Established around the
world.

PORTFOLIO

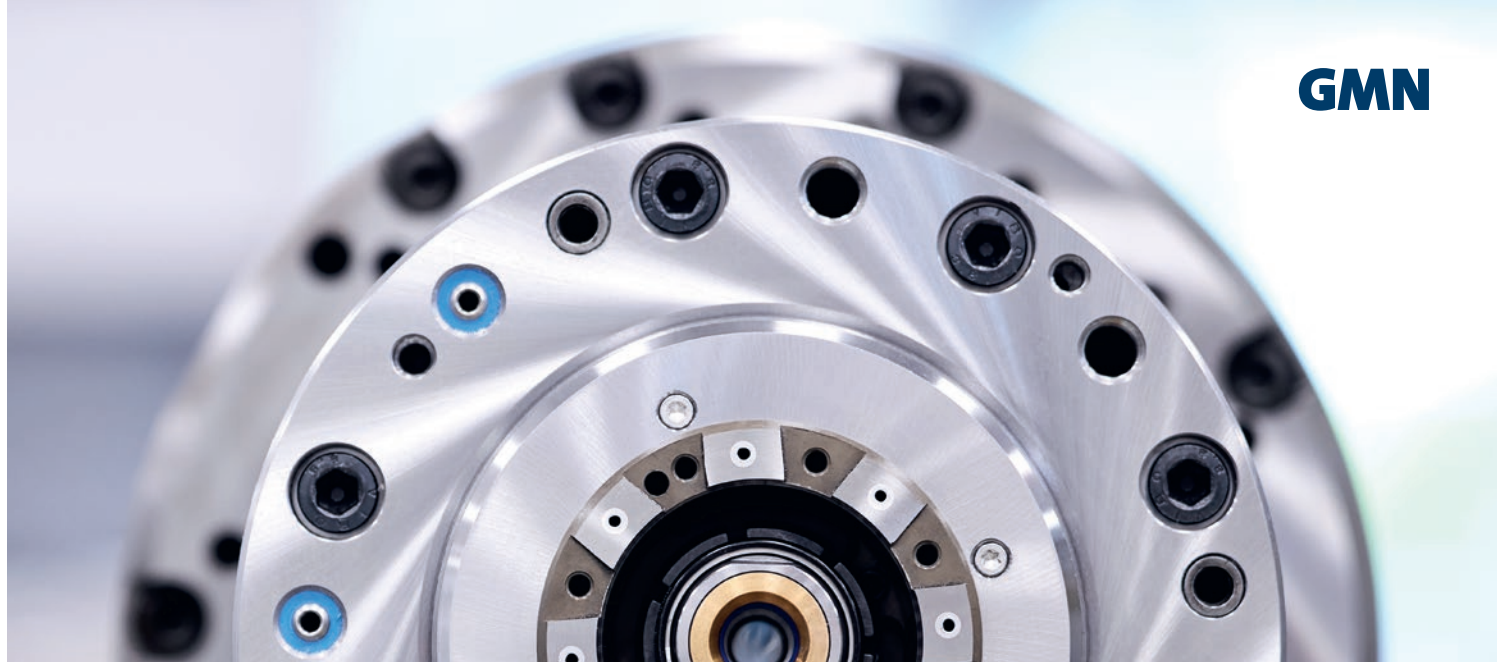
Performance

From ultra-high speed to powerful mill-turn solutions:
GMN high-precision spindles are available in a variety of speed ranges, power ratings, sizes, and tool fixtures – ensuring that the spindle is precisely matched to the application.

SERIES	CHARACTERISTICS	HOUSING Ø IN mm	MAX. SPEED IN RPM
HC	High-speed spindle with integrated motor, available with or without internal cooling lubricant supply	80 to 230	75,000
HCS	High-speed spindle with integrated motor and internal cooling lubricant supply	120 to 380	90,000
UHC	Ultra-high speed and ultra-high-precision spindle with integrated motor	100 to 170	105,000
HCT	High-speed spindle with integrated motor and shaft lock	160 to 280	40,000
HGC	High-performance spindles with integrated motor for automatic tool change and high stiffness	80 to 270	20,000
HGT	High-performance spindles with integrated motor for automatic tool change, high stiffness, and shaft lock	195 to 290	9,000

BENEFITS + at a glance

- **OPTIMIZED VIBRATION PROPERTIES**
For more stable processes and higher-quality surfaces.
- **IDEA-4S**
Digital process and status data direct from the spindle.
- **REDUCED NOISE LEVEL**
Smooth operation that you can both measure and hear.



S1 POWER IN kW	S1 TORQUE IN Nm	TOOL FIXTURES	TYPICAL APPLICATION
0.5 to 110	0.7 to 850	HSK-E 25 to HSK-A 100, BBT, SK, custom interfaces	High-speed milling
5 to 150	0.5 to 1,005	HSK-E 32 to HSK-B 160, SK, custom interfaces	High-volume machining, high-performance machining
3 to 32	0.27 to 36.4	HSK-E 16 to HSK-E 63	Micro-machining, precision machining, superior surface finish, internal grinding
20 to 55	114 to 283	HSK-T 40 to HSK-T 100, PSC 63, PSC 80, custom interfaces	Turn-mill centers, integrated function for turning and milling operations
11 to 52	27 to 262	HSK-E 40 to HSK-B 160, custom interfaces	High-performance machining, external grinding, vertical grinding
15 to 25	65 to 108	HSK-B 80 to HSK-A 125, HSK-T 125	Turn-mill centers, high-performance machining, external grinding, vertical grinding

- HIGH-PERFORMANCE TOOL FIXTURE**

For larger tools and more challenging processes.

- LARGER BEARING DIMENSIONS**

For greater rigidity, load capacity, and a longer service life.

- REDUCED OIL-AIR CONSUMPTION**

Targeted supply with reduced resource consumption.

- HIGH-PRECISION BEARINGS FROM OUR OWN PRODUCTION**

Bearing expertise and spindle technology – all from a single source.

HIGH-VOLUME MACHINING

for removing large amounts of material
in the shortest possible time

Lightweight, high-performance components depend on high-performance machining. To meet this need, GMN high-frequency spindles deliver the machining performance required for large cutting volumes – with high torque, sustained performance, and stable processes. Ideal for processing aluminum in the aerospace industry.

POWERHOUSES FOR ULTIMATE PERFORMANCE



KEY STRENGTHS

Maximum cutting performance
for high material removal and
stable processes

GMN HCS 230(i) – 30000/120

Application	High-volume machining of aluminum
Speed	Max. 30,000 RPM
Rated speed	13,800 RPM
Continuous power output	120 kW, S1
Maximum power output	138 kW, S6–60 %
Torque	83 Nm, S1 / 95.5 Nm, S6–60 %
Tool interface	HSK-A 63
Mount diameter	230 mm
Lubrication	Oil-air

Special features

IDEA-4S Advanced · Internal and external coolant supply

PRECISE APPLICATION

Industries

Aerospace · Automotive · Machine engineering

Typical applications

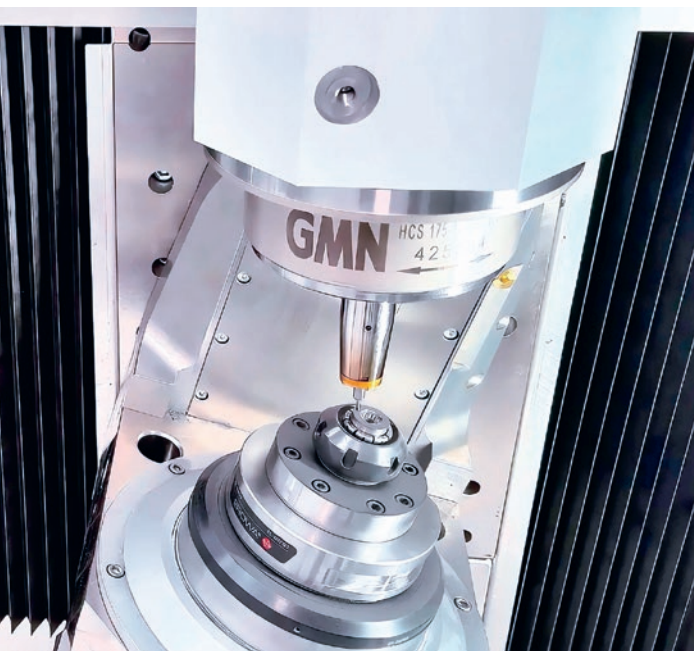
High-volume machining of aluminum · Machining of structural and monolithic components · Milling of deep recesses and complex cavities · Manufacture of lightweight, high-performance components for the aerospace industry

PORTFOLIO

Model name	HCS 230(i) – 30000/80	HCS 230(i) – 20000/120	HCS 230(i) – 30000/120	HCS 230(i) – 30000/150
Reference item no.	1211926	1203991	1213003	1212200
Motor type	Synchronous	Synchronous	Synchronous	Synchronous
Max. speed in RPM	30,000	20,000	30,000	30,000
Max. frequency in Hz	1,000	667	1,000	1,000
S1 power / S6–60 % in kW	80 / 88	120 / 131	120 / 138	150 / 166
Rated speed in RPM	16,500	13,800	13,800	17,300
S1 torque / S6–60 % in Nm	46 / 53	83 / 91	83 / 96	83 / 92
Tool interface	HSK-A 63/80	HSK-A 100	HSK-A 63/80	HSK-A 63/80
Motor choke required	Yes	Yes	Yes	Yes
Voltage protection module required	Yes	Yes	Yes	Yes



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spindles directly.



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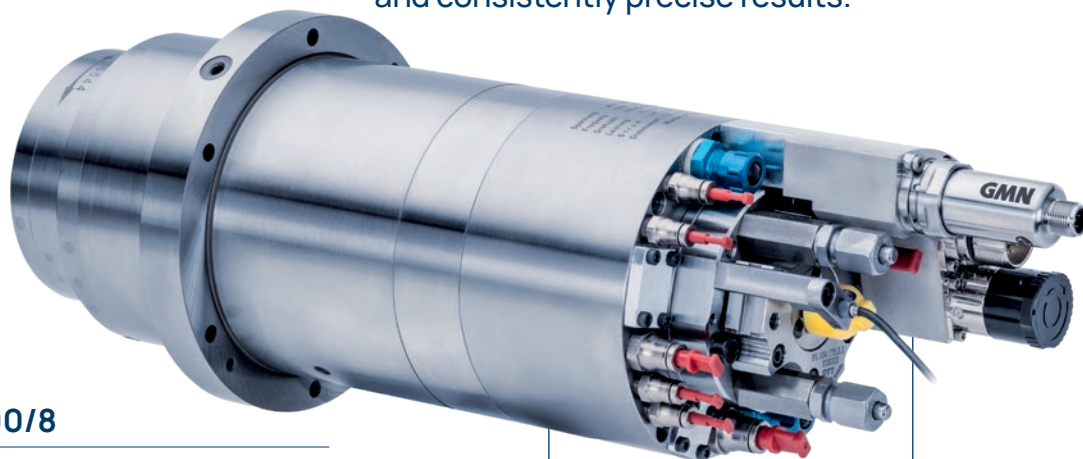
THE VERY BEST AMONG THE FASTEST

GMN UHC 120(i) – 60000/8

Application	High-speed milling and high-precision finishing
Speed	Max. 60,000 RPM
Continuous power output	8 kW, S1
Maximum power output	9.2 kW, S6–60 %
Torque	1.3 Nm, S1 / 1.5 Nm, S6–60 %
Tool interface	HSK-E 32
Mount diameter	120 mm
Lubrication	Oil-air

Special features

Suitable for all mount positions · IDEA-4S Advanced



KEY STRENGTHS

Ultra-high speed for the highest precision machining processes

HIGH-SPEED MILLING

for the sharpest contours and the highest surface quality

GMN high-frequency spindles really shine when surface quality becomes the critical factor. High rotational speeds, precise positioning, and thermal stability merge to form a perfectly balanced system. The outcome: the finest contours, excellent surface finishes, and consistently precise results.

PRECISE APPLICATION

Industries

Tool and mold construction · Automotive industry · Aerospace · Medical technology

Typical applications

Mold and die finishing · Machining of complex 3D contours · Micro-milling · Electrode manufacturing · Production of implants and finely detailed components

GMN UHC 120(i) – 45000/18

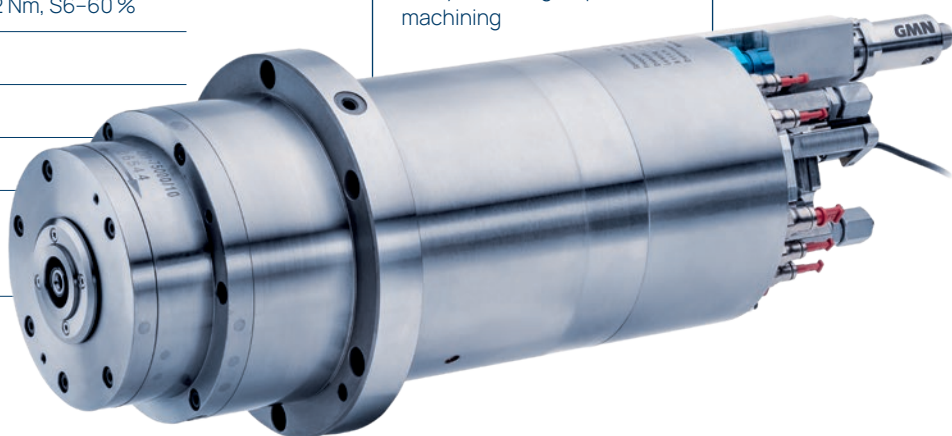
Application	High-speed milling and mold construction
Speed	Max. 45,000 RPM
Rated speed	13,800 RPM
Continuous power output	18 kW, S1
Maximum power output	20.7 kW, S6–60 %
Torque	7.2 Nm, S1 / 8.2 Nm, S6–60 %
Tool interface	HSK-E 40
Mount diameter	120 mm
Lubrication	Oil-air

Special features

Shaft displacement sensor · External vibration sensor integrated into bearing cover

KEY STRENGTHS

High performance and rigidity for dynamic, high-speed machining



PORTFOLIO

Model name	UHC 120(i) – 45000/18	UHC 120(i) – 60000/8	UHC 120(i) – 60000/11	UHC 120(i) – 75000/10
Reference item no.	1214164	1213277	1213159	1205070
Motor type	Synchronous	Synchronous	Synchronous	Synchronous
Max. speed in RPM	45,000	60,000	60,000	75,000
Max. frequency in Hz	1,500	1,000	2,000	1,250
S1 power / S6–60 % in kW	18 / 21	8 / 9.2	11 / 12.6	10 / 11.5
Rated speed in RPM	24,000	60,000	29,000	75,000
S1 torque / S6–60 % in Nm	7.2 / 8.2	1.3 / 1.5	3.6 / 4.2	1.3 / 1.5
Tool interface	HSK-E 40	HSK-E 32	HSK-E 32	HSK-E 25
Motor choke required	No	Yes	Yes	Yes
Voltage protection module required	Yes	No	No	No



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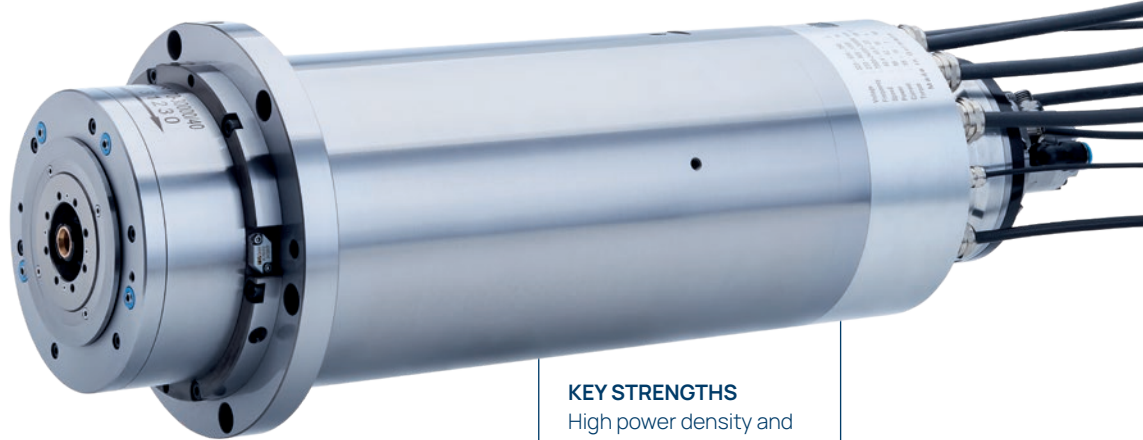
to search for GMN spindles directly.

COMPACT SPINDLE TECHNOLOGY

for maximum mobility
in a minimum of space

Large and heavy workpieces require spindle technology that delivers an excellent combination of power and agility. Compact GMN high-frequency spindles integrate into rotary and swivel heads and, with their high speeds, high power density, and thermal stability, enable demanding 5-axis machining – even in confined spaces.

MAXIMUM FLEXIBILITY IN THE TIGHTEST SPACE



KEY STRENGTHS

High power density and maximum flexibility while occupying minimal space.

GMN HCS 170(i) – 40000/32

Application	5-axis machining with rotary and swivel heads
Speed	Max. 40,000 RPM
Service	32 kW, S1
Torque	10.1 Nm
Tool interface	HSK-E 63
Mount diameter	170 mm
Lubrication	Oil-air

Special features

Large HSK-E 63 tool fixture and robust 70 mm bearing assembly in a compact design.

PRECISE APPLICATION

Industries

Machine engineering · Aerospace · Automotive · Tool and mold construction

Typical applications

Machining large and heavy workpieces · 5-axis milling of complex geometries · Integration into rotary and swivel heads · Machining hard-to-reach contours

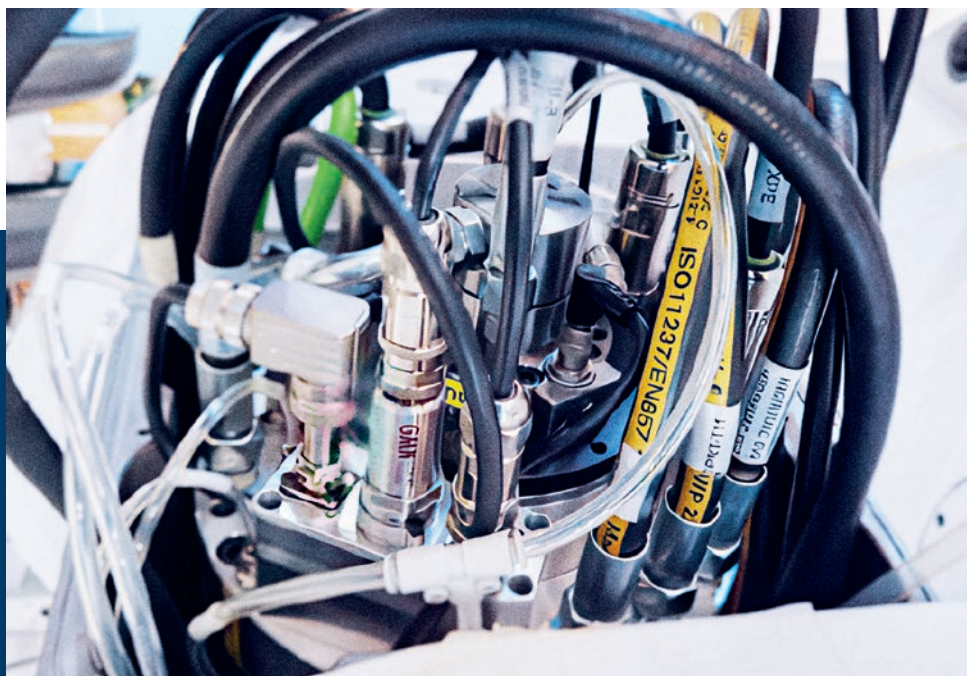
PORTFOLIO

Model name	HCS 150(i) – 36000/20	HCS 170(i) – 30000/40	HCS 170(i) – 40000/32	HCS 200(i) – 28000/40
Reference item no.	1212955	1204422	1211166	1203352 / 1201135
Motor type	Synchronous	Synchronous	Synchronous	Synchronous
Max. speed in RPM	36,000	30,000	40,000	28,000
Max. frequency in Hz	1,200	1,000	1,333	934
S1 power / S6–60 % in kW	20 / 23	40.4 / 48	32 / 36.8	40 / 46
Rated speed in RPM	20,000	7,000	30,000	7,500
S1 torque / S6–60 % in Nm	9.5 / 11	55.1 / 65.5	10.1 / 11.7	50.9 / 58.6
Tool interface	HSK-E 50	HSK-A 63	HSK-E/A 63	HSK-A 63
Motor choke required	No	Yes	Yes	Yes
Voltage protection module required	No	Yes	No	Yes



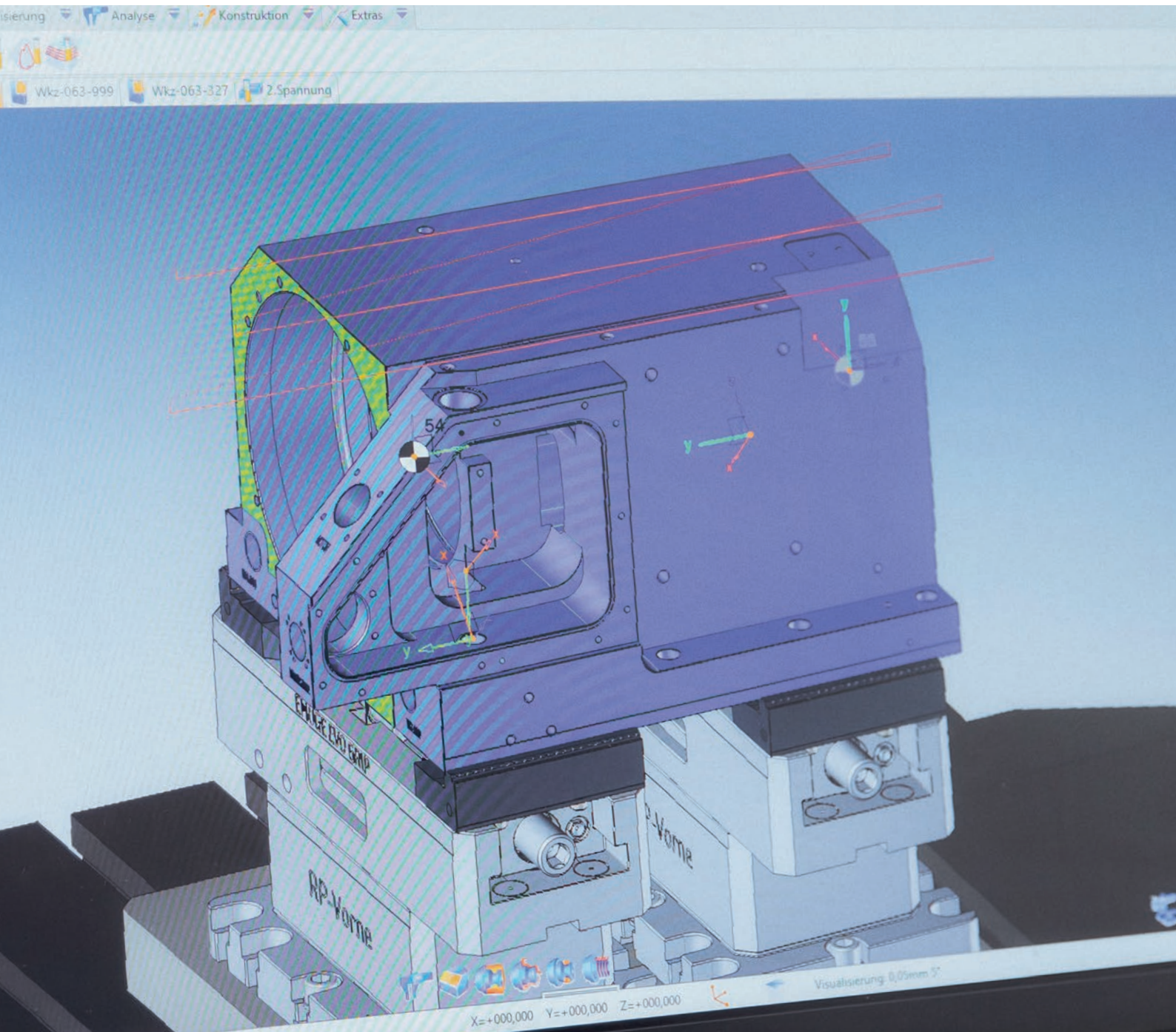
WHERE IDEA-4S REALLY SHOWS ITS STRENGTH:

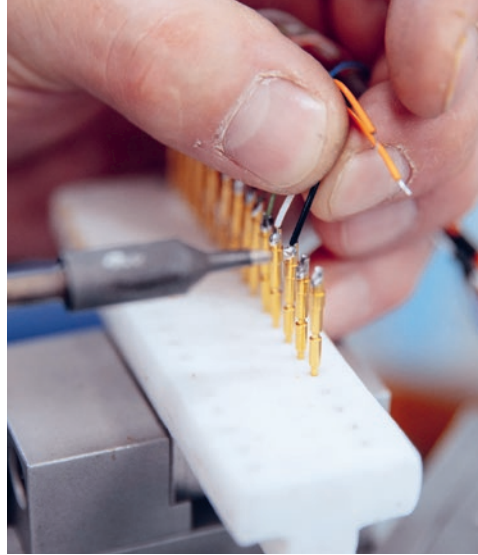
All of the sensors are housed compactly within the spindle, and all data is transmitted via IO-Link down a single cable – ideal for the limited space available in the 5-axis milling head.



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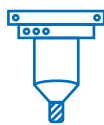
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PRECISE CONFIGURATION of the whole system

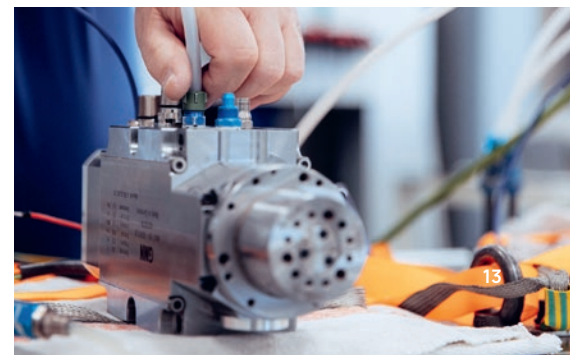
No two applications are the same. No machine is like another. This is why GMN spindle technology can be specifically tailored to match the process, machine, and operating conditions – from proven standard models to custom solutions. Sensors, temperature-dependent displacement compensation, and cooling lubricant supply all become integral parts of a precisely coordinated overall system.



STANDARD AND CUSTOM SOLUTIONS

Standard when appropriate. Bespoke when required.

GMN standard spindles combine proven technology with high quality, reliability, and a long service life. If standard does not cover the application, we'll design a spindle specifically to match the machine and process – ensuring that performance, integration, and operational reliability align right from the get-go.



EXTENSIVE BASE

At GMN, time-tested functions and interfaces provide the foundation for reliable integration into machines and processes. Depending on the spindle version, these include, for example, supplying cooling lubricant through the spindle housing, as well as hydraulic tool clamping with defined release and clamping pressures.



WHAT WE CAN CUSTOMIZE

The GMN standard already covers much of this. We base our work in the actual design process on the characteristics of your sourced parts.



Cooling lubricant supply

Design and feed adapted to the machining process



Compressed air supply

Can be integrated into the spindle system as needed



Leakage monitoring

Additional monitoring for enhanced process and operational safety



Minimum quantity lubrication (MQL)

Integration for appropriately designed machining processes



Hydraulic or pneumatic tool clamping

Release and clamping pressures matched to the application



Dry run of the rotary union

Customized to meet process requirements



Sensors

Targeted process monitoring to ensure reliable data, a prompt response, and improved operational safety.



HSK-T version

For improved fit and repeatability of the tool fixture in the taper – important for combined turning and milling applications



Shaft lock

Locking of the rotational degree of freedom of the spindle shaft within the housing – important for combined turning and milling applications

STANDARD VERSIONS

Sample specifications for tool interfaces and reference spindle	HSK-32	HSK-40	HSK-50	HSK-63	HSK-100
Reference item no.	1213277	1214164	1212955	1213003	1203991
Cooling lubricant through the shaft, max. in bar	30	80	80	80	50
Minimum-quantity lubrication (MQL) max. in bar	10	5	10	10	5
Purge air pressure in bar at RPM (dry-run capability)	10 at 0 5 at < 10,000	10 at 0 5 at < 10,000	10 at 0 5 at < 10,000	10 at 0 5 at < 10,000	10 at 0 5 at < 10,000
Leakage outlet on rotary union	Yes	Yes	Yes	Yes	Yes
Release pressure in bar	45 ... 100	50 ... 100	83 ... 100	70 ... 160	90 ... 160
Clamping pressure in bar	5 ... 100	5 ... 100	5 ... 100	5 ... 160	5 ... 160
Drawing-in force in kN	5	6.8	11	24	45
Taper cleaning in bar	10	5	10	10	5
Air sealing in bar	0.9 ... 1.1	0.9 ... 1.1	0.9 ... 1.1	0.9 ... 1.1	0.9 ... 1.1
Cooling lubricant through the spindle housing, max. in bar	-/-	-/-	-/-	20	10

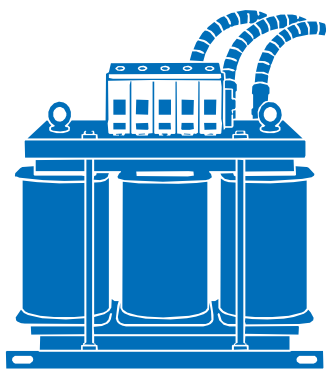


ACCESSORIES

smart additions

A spindle is only as good as the system in which it operates.

The right GMN accessories ensure that power supply, control, lubrication, and data flow work together seamlessly – for reliable integration and stable, uninterrupted operation.



SERIES REACTOR

Stability starts with the current.

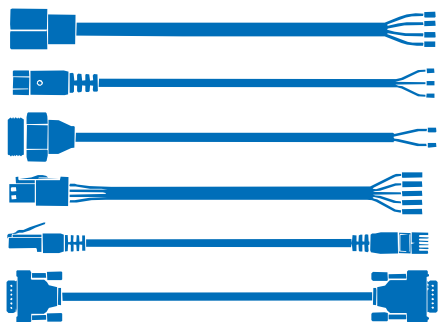
A series reactor adjusts the current to match the torque requirements of the machining task and sets the target speed by means of variable input frequency.



INVERTER

Precisely controlled variable speed.

The drive precisely adjusts the spindle's frequency and speed to match the specific machining task. This provides the flexibility to run different processes reliably and in a controlled manner at the appropriate power level.



CABLE ASSEMBLIES

Cable connections that are always a perfect fit from the get-go.

Plugs, connectors, and cable lengths all combine to form a reliable, fully functional system. It may seem unremarkable, but it is significant for successful integration.



PRELUB GP PLUS

Lubrication before any movement begins.

PRELUB GP PLUS supplies oil and air to the spindle bearings. Automatic prelubrication ensures that the lubrication points are reliably supplied with lubricant prior to startup. Optimized lubrication cycles reduce consumption, improve operational reliability, and extend the service life of the spindle.



IDEA-4S

Your spindle's digital intelligence.

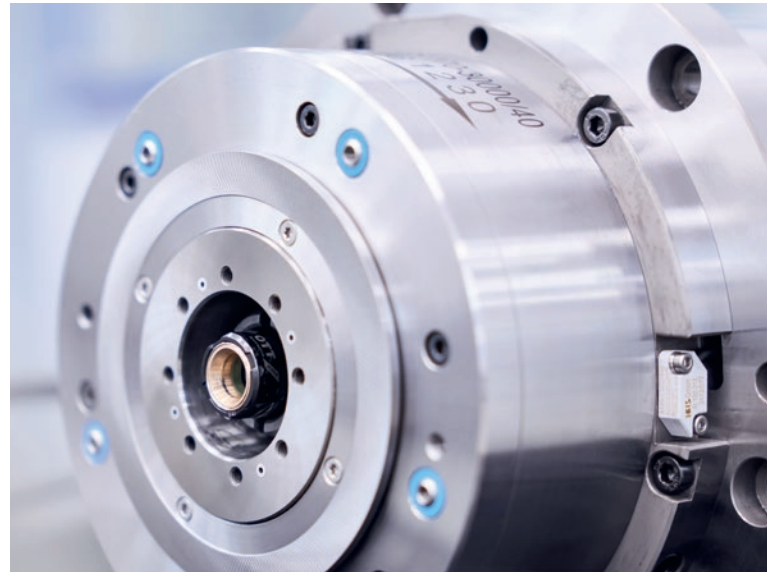
IDEA-4S collects and processes relevant process and status data directly from within the spindle. It evaluates data on temperature, speed, vibration, and tool clamping force, and makes it available via IO-Link. This leads to greater transparency, faster responses, and more targeted maintenance.





DETAILS available digitally

Rotation speeds, power and torque ratings, dimensions, tool fixtures, and available versions: You can find all the latest product-specific technical information at gmnde.de.



FINDING THE RIGHT SPINDLE with precision.

The new GMN spindle search feature allows you to filter our product portfolio according to your specific application requirements and will take you directly to the appropriate spindle types, technical data, and CAD models available.



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GETTING THINGS RUNNING and keeping them running.

From commissioning to reconditioning:
GMN Service supports spindles over their entire life cycle –
with personalized, reliable service available worldwide.

At GMN, we believe that service doesn't just begin when something fails. Our specialists ensure systems are brought online safely, provide support during ongoing operations, and act quickly when wear and tear or malfunctions occur. Drawing on nearly 120 years of experience in development and manufacturing, as well as clearly defined testing processes, we do more than just repair – we can consistently restore a spindle's performance. That's a promise.

01 An assured start.

Support during setup and commissioning until the spindle, machine, and process work together seamlessly.

02 Reliable support.

Direct assistance with technical questions, optimizations, and challenges that arise during day-to-day operations.

03 Consistent reconditioning.

GMN doesn't just repair until the products work again. We recreate what makes a GMN spindle unique: Performance, smooth operation, and operational reliability. To ensure this, every reconditioned spindle undergoes the same rigorous testing process used for new products.

GMN SPINDLE SERVICE at a glance

From commissioning to reconditioning, GMN Spindle Service provides dependable support for spindle systems throughout all phases of their operation.

STAGES OF THE PROCESS

Commissioning

Reliable coordination of spindle, peripherals, and machine.

Maintenance and optimization

Safeguarding availability while maintaining performance over the long term.

Analysis and diagnosis

Systematic investigation of malfunctions, wear, and their possible causes.

Repair and reconditioning

Professional restoration of performance, smooth operation, and operational reliability.

SUPPLEMENTARY SERVICES



Consulting and training

Sharing of hands-on knowledge to ensure safe and efficient operations.



Accessories and spare parts

Compatible components to ensure that the overall system functions reliably.

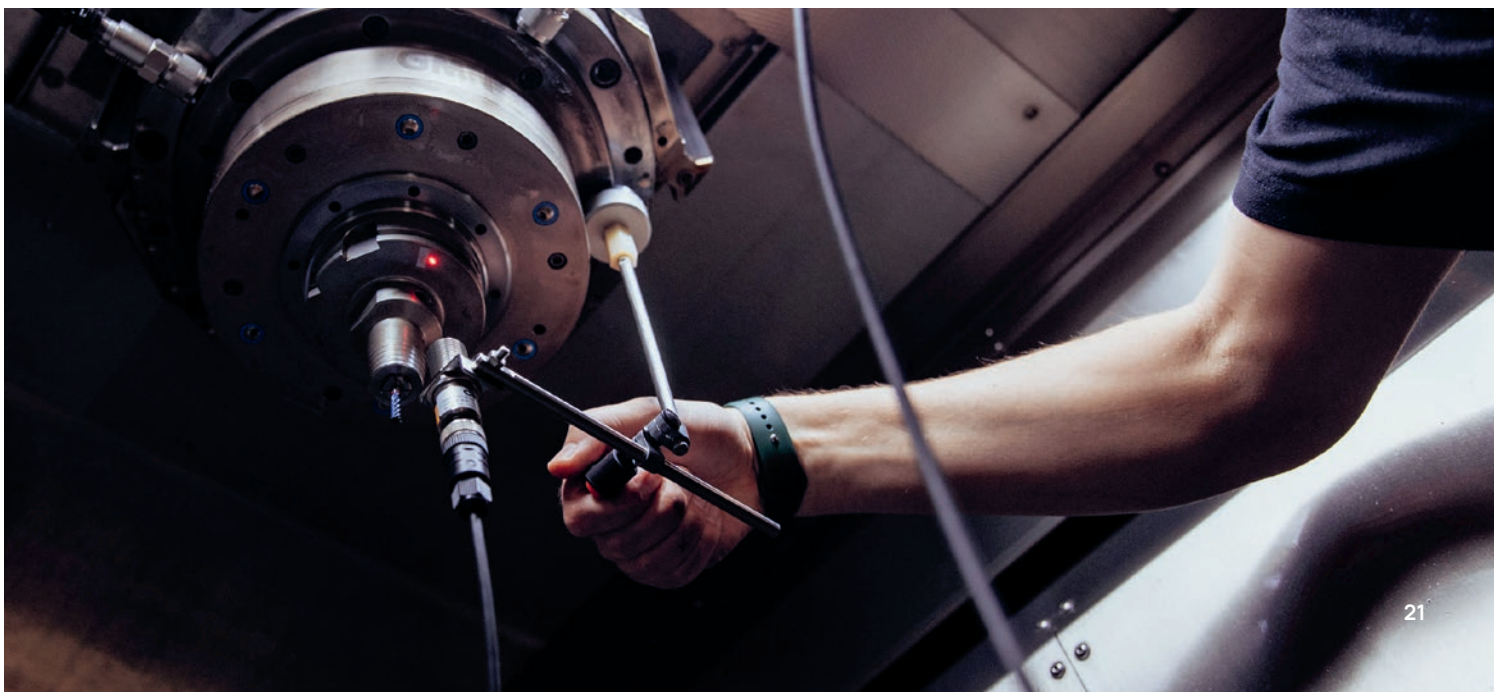


Certified quality

GMN applies the same inspection criteria and final testing to reconditioned spindles as it does to new spindles.

**WHEN THERE'S NO TIME
for downtime**

24-HOUR SERVICE HOTLINE
+49 (0) 911 5691-600



AT HOME IN NUREMBERG.

At your side around the world.



GMN has been developing connections that extend far beyond national borders since 1908. Our local partners know their markets, the machines, and the people – and they share the same commitment everywhere: to listen, to understand, and to take responsibility until everything is once again running smoothly. That's how a global presence translates into genuine proximity.





LET'S GET YOUR SYSTEM up and running.

Your requirements are our starting point.
Let's start by talking about your machine:

GMN Paul Müller Industrie GmbH & Co. KG

Äußere Bayreuther Str. 230
90411 Nuremberg
Germany

Phone +49 (0) 911 5691-0

Spindle technology

Phone +49 (0) 911 5691-686

Mail vertrieb.spi@gmn.de

www.gmn.de



GMN