

Milling spindles / H line

Up to speed fast:
Dynamic and robust for high loads





SUM-45-D12-10-40-R13

KESSLER spindle *lines*

Spindle technology with passion and expertise

The KESSLER milling spindles have a modular design.

Configure your own milling spindle model by specifying the installation position, motor, speed, bearing, lubrication and sensor system – the perfect customized solution for your individual branch and application needs. www.precise-rotation.ru

KESSLER offers more: As an internationally successful company with extensive and highly specialized expertise, we provide comprehensive advice about the design and manufacture of individual components and project management of complex system solutions. We use the very latest technology and analytical processes to test our components under realistic conditions, so that our products help your business to stay flexible and maintain its competitive edge.

Our in-house development division is supported by extensive calculation and analysis skills and covers everything from direct drive technology to the construction of all-in-one systems. Furthermore, optimized production and assembly lines provide the framework for stable processes and the superior quality of our products.

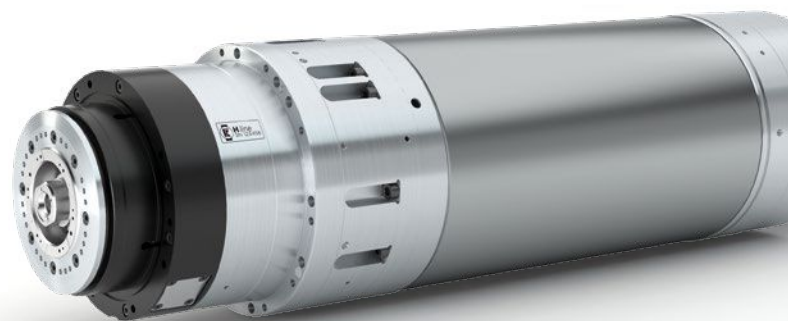


End-to-end precision from the components to the on-site service

Founded in 1923 by Franz Kessler, the company has developed to become the leading supplier of motor spindles as well as directly driven 2-axis heads and rotary tilt tables for the machine tool industry. KESSLER proudly counts many major companies from the mechanical engineering sector amongst its long-standing customers.

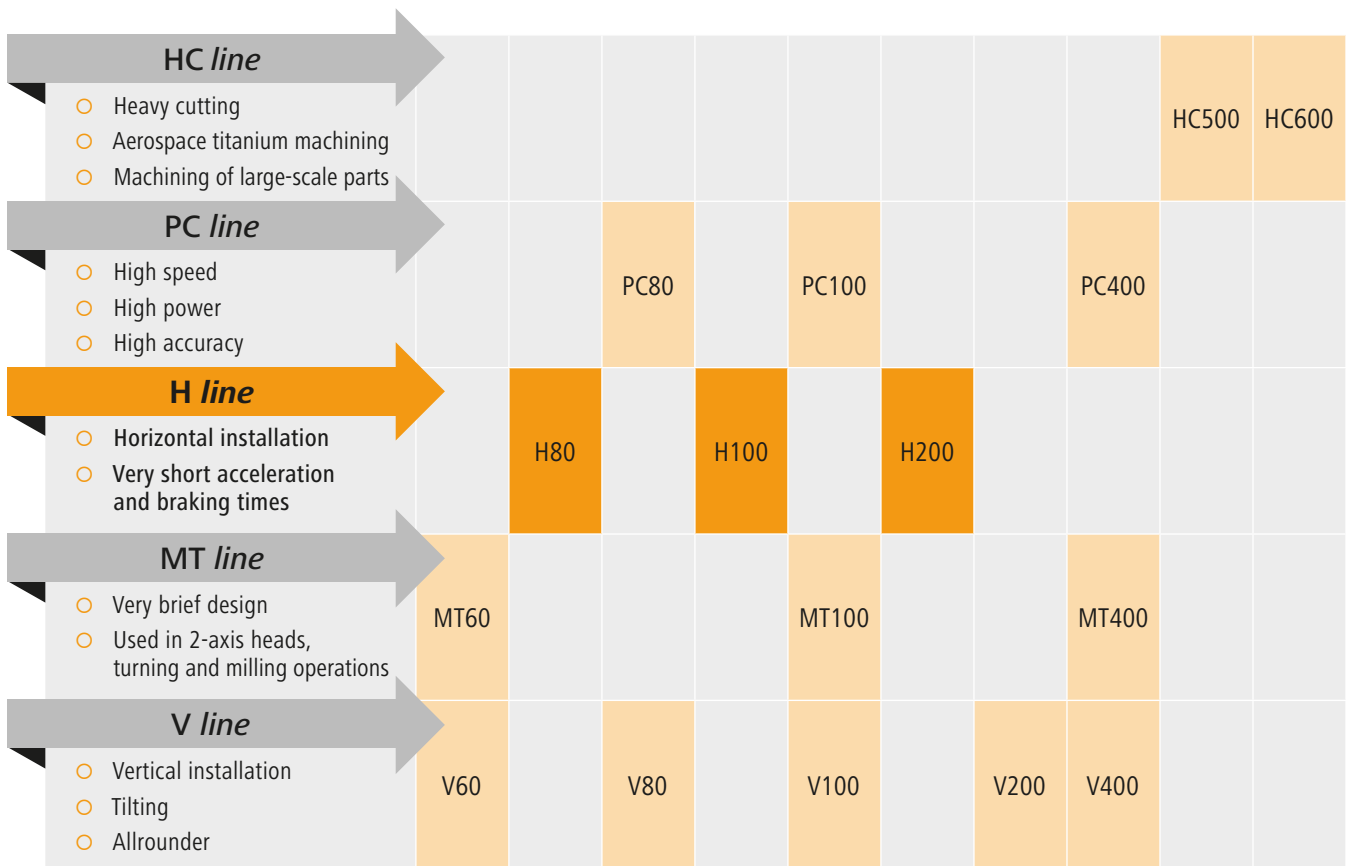
With the expertise of more than 90 years, KESSLER is continuously further developing and optimizing its products. The KESSLER product portfolio serves a wide range of sectors, procedures and applications. Close cooperation with our customers remains our key focus. The extensive product portfolio, ranging from hightech spindles, 2-axis heads, rotary and rotary tilt tables to motors and direct drive systems, enables KESSLER to realize customized solutions with speed and flexibility.

Service is a matter of trust. Rely on us as your trusted service partner: KESSLER has an established global network of technology and service centres.



Masterpieces

KESSLER provides tailor-made spindle technology to suit your needs:
Individual, flexible, modular and suitable for all areas of application



Spindle fitting Ø (mm)

○ Open cooling circuit	140		170		200		230	270	325	395
○ Closed with steel jacket	150		180		210		240			
○ Closed with rear housing		170		200	230	240		310		

Availability on request

The H line is all about:

- **Horizontal machining**
- **Typical applications:**
Automotive industry, process machines
- **Machining of similar work pieces**
with similar working cycles with a high work frequency
- **Milling, drilling, thread cutting, grinding, boring of aluminium, castiron and steel**
- **Internal monitoring of spindles**
(condition monitoring)
- **Tool clamping system designed for a maximum amount of tool changes**
- **High speed:** Up to 25,000 rpm
- **High torque:** More than 400 Nm



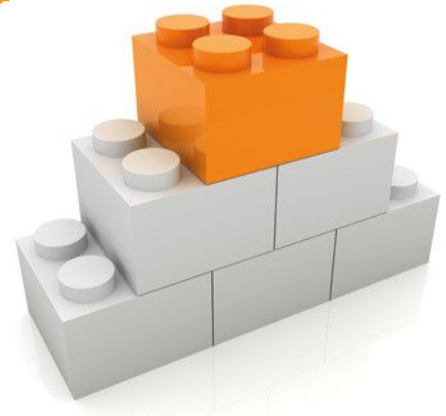
Our *H line* models

Model	H80	H100	H200
Speed (rpm)	25,000	20,000	15,000 / 16,000
Spindle fitting Ø (mm)	170	200	240
Tool interface	HSK 63	HSK 63	HSK 63 / HSK 100

Impress with:

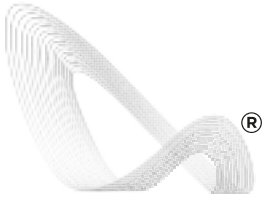
- very short acceleration times
- high power
- low rotor torque of inertia

All advantages of the modular system at a glance



- **2x or 4x bearings available** ①
- **Various spindle heads available** – Individual shapes can be defined as required
- **High operational safety with LEDs** due to optimal illumination of the tool intervention
- **Variable interface**
Full contact plane surface or segmented plane surface
- **Removable assembling flange**
- **End face contact monitoring**

Advantages



COOLMOTION®

- **The best matching COOLMOTION® motor** for your individual needs: with very high torque, very high speed or high-compact design
- **Various bearing lubrication systems** available
- **Hydraulic or electrical release unit** available
- **High flexibility:** KESSLER rotary union for the medias: lubrication, dry operation, compressed air, minimum cooling lubrication capability
- **Process reliability** due to extensive monitoring system
- **Spindle fitting diameter and position:** The spindle fitting diameter can be configured accordingly to meet your specific requirements ②
- **High productivity** due to short acceleration and braking times
- **High productivity with KESSLER tool clamping system:** clamping spring package is designed for 5 million tool changes

HIGH QUALITY

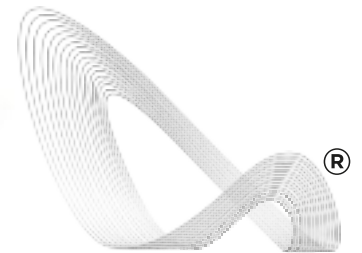
MADE IN GERMANY

Milling spindle / H80

- **Spindle fitting:** Ø 170 mm
- **KESSLER COOLMOTION® motor**
- **KESSLER tool clamping system:**
Clamping spring package is designed for 5 million tool changes
- **Rotary union:** Internal coolant supply with high volume flow
- **Cooling:** Closed cooling circuit
- **Bearing lubrication:**
Grease / re-greasing / oil-air



Spindle fitting diameter, spindle length and projecting length of spindle head can be configured according to your requirements.



COOLMOTION

A few of the many KESSLER motors

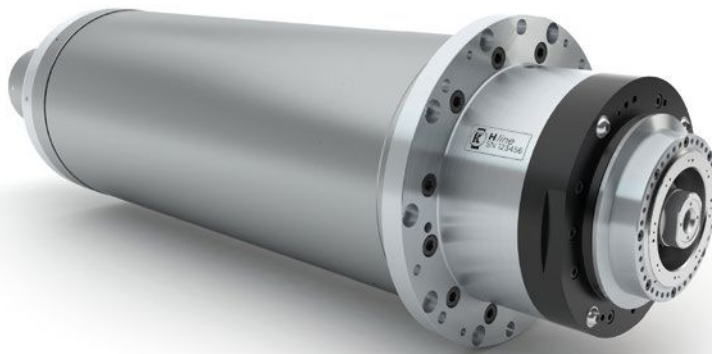
Select the best matching **COOLMOTION®**-motor for your needs from our extensive range

Model	Max. speed (rpm)	S1		S6 / 40%		S6 / 25%		S6 max.		
		Torque (Nm)	Power (kW)	Torque (Nm)	Power (kW)	Torque (Nm)	Power (kW)	Torque (Nm)	Power (kW)	
H80-S25	25,000	80	33	100	33	105	33	115	33	High speed
H80-S20	20,000	95	33	110	33	125	33	140	33	High torque
H80-A24	24,000	40	16	60	24	75	30	95	38	Entry-level model

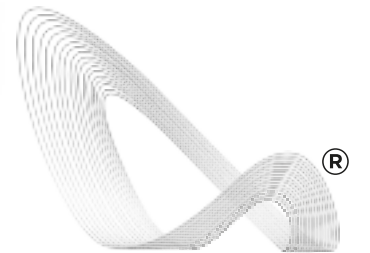
Other synchronous motors available on request

Milling spindle / H100

- **Spindle fitting:** Ø 200 mm
- **KESSLER COOLMOTION® motor**
- **KESSLER tool clamping system:**
Clamping spring package is designed for 5 million tool changes
- **Rotary union:** Internal coolant supply with high volume flow
- **Cooling:** Closed cooling circuit
- **Bearing lubrication:**
Grease / re-greasing / oil-air



Spindle fitting diameter, spindle length and projecting length of spindle head can be configured according to your requirements.



COOLMOTION

A few of the many KESSLER motors

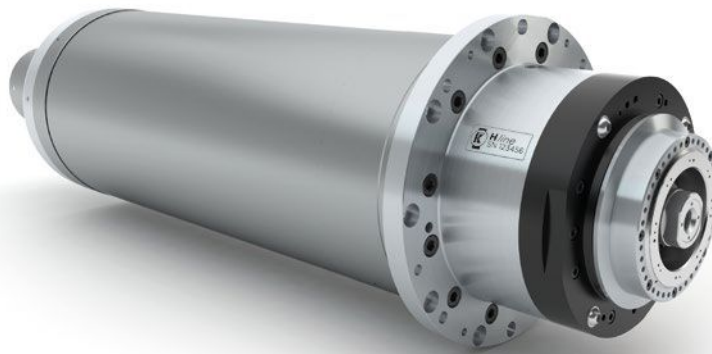
Select the best matching COOLMOTION®-motor for your needs from our extensive range

Model		S1		S6 / 40%		S6 / 25%		S6 max.		
	Max. speed (rpm)	Torque (Nm)	Power (kW)	Torque (Nm)	Power (kW)	Torque (Nm)	Power (kW)	Torque (Nm)	Power (kW)	
H100-S20	20,000	120	36	140	36	150	36	165	36	High speed
H100-S15	15,000	170	32	210	32	235	32	270	32	High torque
H100-A20	20,000	60	19	90	28	112	35	172	54	Entry-level model

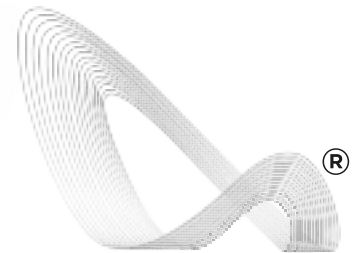
Other synchronous and asynchronous motors available on request

Milling spindle / H200

- **Spindle fitting:** Ø 240 mm
- **KESSLER COOLMOTION® motor**
- **KESSLER tool clamping system:**
Clamping spring package is designed for 5 million tool changes
- **Rotary union:** Internal coolant supply with high volume flow
- **Cooling:** Closed cooling circuit
- **Bearing lubrication:**
Grease / re-greasing / oil-air



Spindle fitting diameter, spindle length and projecting length of spindle head can be configured according to your requirements.



COOLMOTION

A few of the many KESSLER motors

Select the best matching **COOLMOTION®**-motor for your needs from our extensive range

Model	S1		S6 / 40%		S6 / 25%		S6 max.			
	Max. speed (rpm)	Torque (Nm)	Power (kW)	Torque (Nm)	Power (kW)	Torque (Nm)	Power (kW)	Torque (Nm)		Power (kW)
H200-S16	16,000	160	63	180	63	215	63	231	63	High speed
H200-S10	10,000	350	55	390	55	460	55	500	55	High torque
H200-A14	14,000	200	42	300	62	300	62	300	62	Entry-level model

Other synchronous and asynchronous motors available on request



Modular extensions available

- + **Spindle heads**
variable
- + **Bearing**
2x or 4x bearings available
- + **Choose the best matching KESSLER COOLMOTION® motor for your needs**
- + **KESSLER rotary union**
 - Cooling lubricant
 - Dry operation
 - Compressed air
 - Minimum cooling lubrication capability
- + **Spindle fitting Ø (position A and B side) variable**
- + **Sensor monitoring system**
 - Face end contact monitoring
 - Vibration sensor
 - Clamping status monitoring
 - Leakage monitoring
 - Temperature sensor PT100
- + **Segmented plane surface**
- + **Bearing preload**
variable
- + **Assembling flange**
removable
- + **Bearing lubrication**
Grease / re-greasing / oil-air
- + **Standard cable outlet, connector optional**
- + **Holding-function for collet chuck**
variable
- + **2-channel rotary union**
www.precise-rotation.ru

Accessories

- + **Oil-air lubrication unit**
- + **Re-greasing unit**
- + **Direct lubrication on demand**

Keeping up with the beat of the spindle

The KESSLER diaLOG intelligent system for data processing and condition monitoring is our solution for a connected industry



- Integrated electrical current, temperature and vibration sensors determine the current, frequency, temperature conditions and vibration acceleration.

- An intelligent digital network system (KESSLER diaLOG) analyses and evaluates process data.
- Detects and stores exceeding marginal values
- Interface with the network infrastructure or machine tool

KESSLER diaLOG All advantages at a glance

- Condition monitoring by detecting exceeding marginal values



- Reduces unexpected downtimes

- Improved operational reliability in customer processes (Process performance, operation time)



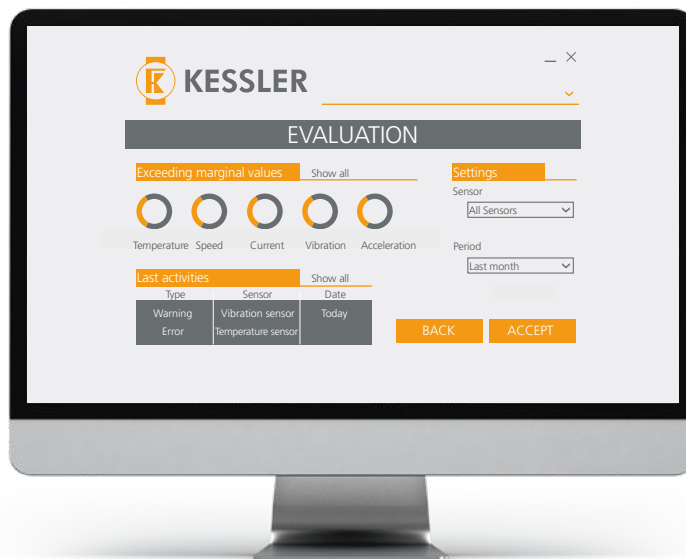
- Reduces machine downtime



- Reduces TCO (Total Costs of Ownership)



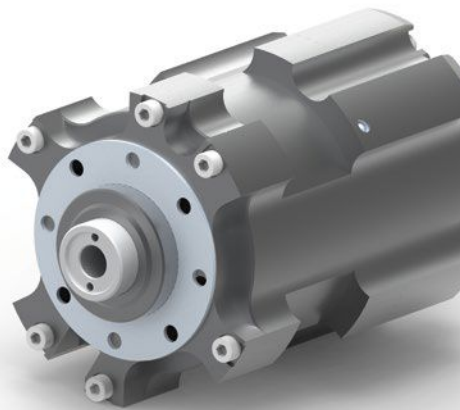
- Process data is forwarded to control systems in real time. The system for data transmission will be available in 2018 for TCP / IP or ProfiNET interface.
- Predefined marginal values will permanently be controlled and monitored by the system. The diaLOG App has been developed for the evaluation of the diaLOG data.
- Its functions are planned to include preventive maintenance and on-going data collection.
- In future, correction factors will be conveyed from the motor spindle to the user and warning reports will automatically follow to the process control systems.
- KESSLER diaLOG in the product, supports it being subjected to a complete process visualization.
- Applicable in the whole product portfolio and other application areas possible.



Availability on request

Very short tool change cycle times

Electronic release unit



All advantages at a glance

- Higher accuracy due to reduced heat input into the machine tool, since no hydraulic unit is required
- Simple and quick to install
- Designed for at least 2 million tool changes
- Extremely short tool change time with 0.2 sec.
- Low-maintenance
- Energy-efficient
- Very fast chip-to-chip times possible due to short tool change cycle times

www.precise-rotation.ru

S1		S6 / 40% <small>[DC: 2 min.]</small>		Tool interface	Axial force
Torque [Nm]	Power [kW]	Torque [Nm]	Power [kW]		
14	4.5	40	13	HSK 63 / HSK 100	25 kN



COOLMOTION

KESSLER COOLMOTION®

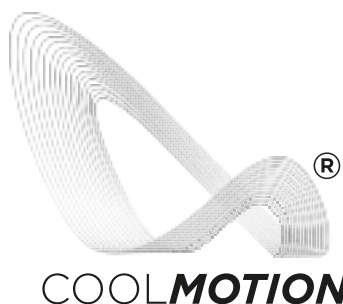
COOLMOTION® for the H line

- achieves a **very high torque density**
- achieves **very short acceleration times**
- **performance-enhanced motors enable a compact design**

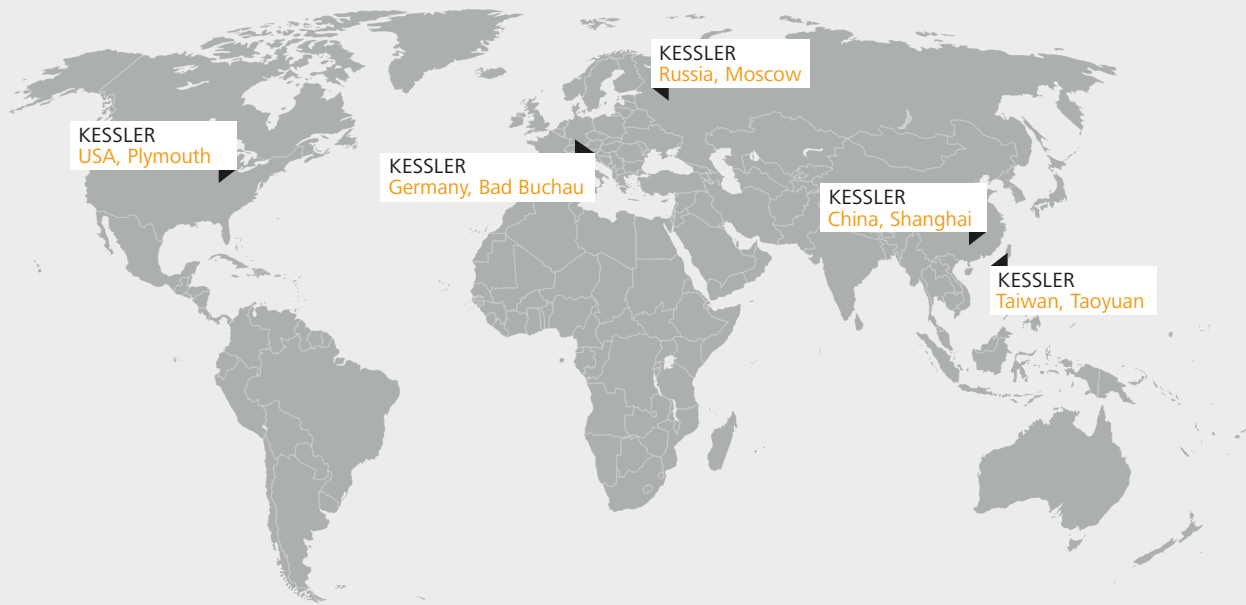
KESSLER is the innovation engine behind state-of-the-art direct drive technology and is renowned for powerful and energy-efficient motors with high torque density and top reliability even in high-demand applications. Practically-based simulations and individual customer calculations are a prerequisite for the development excellence of KESSLER motors.

The inverter-optimized COOLMOTION® motors are recognized for their low-loss design and enhanced heat dissipation. Innovative modifications of the motor components have enabled us to reduce the rotor and stator losses by 25%. Special construction measures have resulted in significantly enhanced heat dissipation.

The COOLMOTION® technology optimizes efficiency to a maximum.



Operating Worldwide for our Customers



KESSLER
USA, Plymouth

KESSLER
Germany, Bad Buchau

KESSLER
Russia, Moscow

KESSLER
China, Shanghai

KESSLER
Taiwan, Taoyuan

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