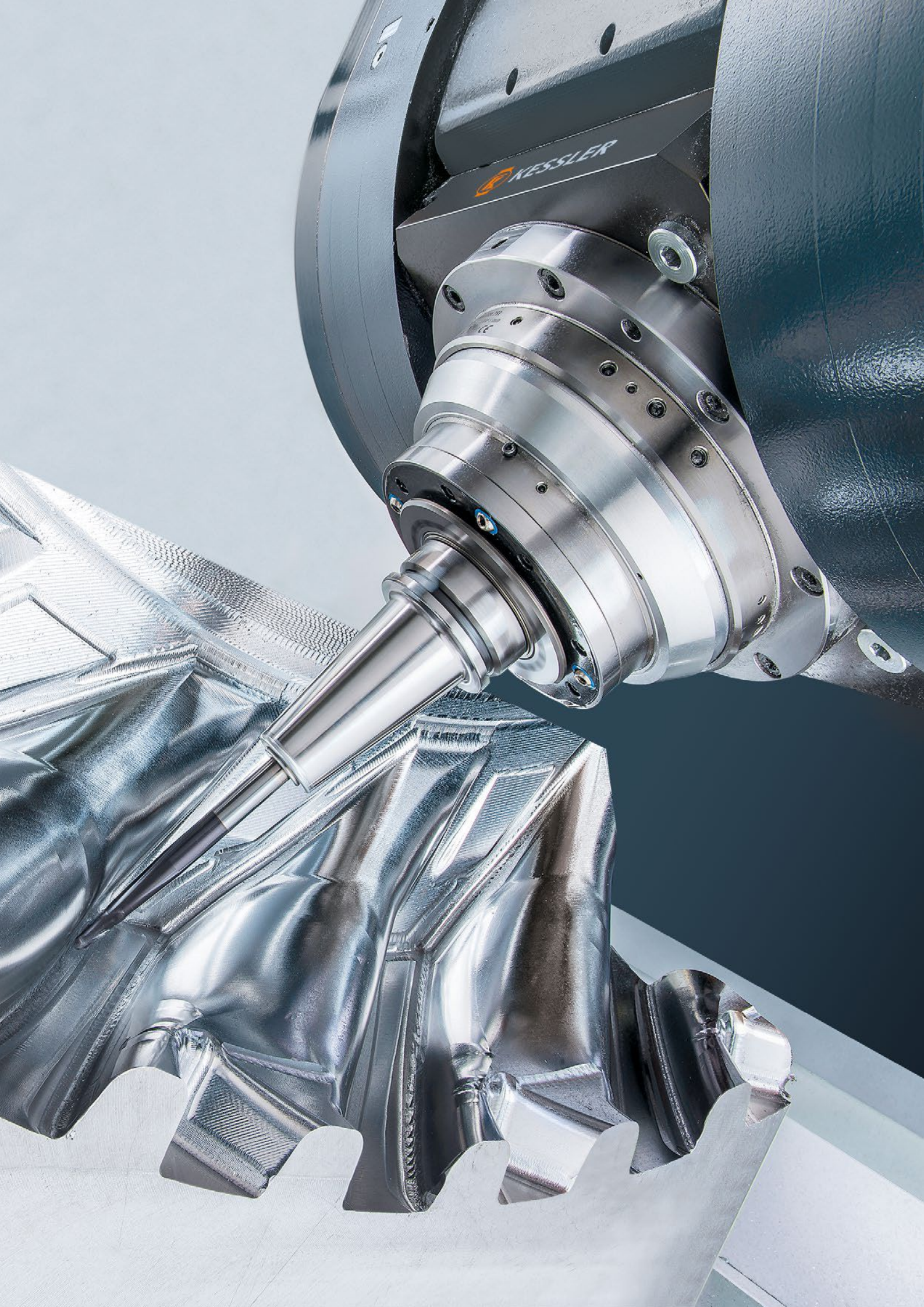


2-axis heads

Maximum precision and dynamic for 5-axis machining





2-axis heads with KESSLER spindles and motors

Intelligent systems: KESSLER heads think ahead

Applications with high requirements need a reliable partner. KESSLER 2-axis heads provide a compact and rigid design with high flexibility for numerous applications within your machine.

KESSLER's latest torque motor generation achieves a high dynamic which is required especially when milling very intricate and narrow workpiece contours.

High positioning accuracy, high clamping force and a large tilting angle ensure that precise results are achieved in 5-axis machining.

KESSLER also offers compatible spindles for use with our 2-axis heads, to fulfil your machining needs.

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.



Experts for simultaneous machining

The right head for every position: KESSLER 2-axis heads available from MINI to LARGE



MINI 2AK

Compact and highly dynamic. The entry-level model for processing high-strength aluminium alloys and composite materials. With a fitting diameter of 230 mm and upwards, the MINI 2AK supports a highly compact tool machine design.



SMALL 2AK

Bestseller for numerous application options. This ultrafast and highly efficient professional choice achieves a speed of 24,000 rpm for steel and composite machining, and a maximum of 30,000 rpm for aerospace applications. Spindles with a torque of up to 150 Nm can be used.



MEDIUM 2AK

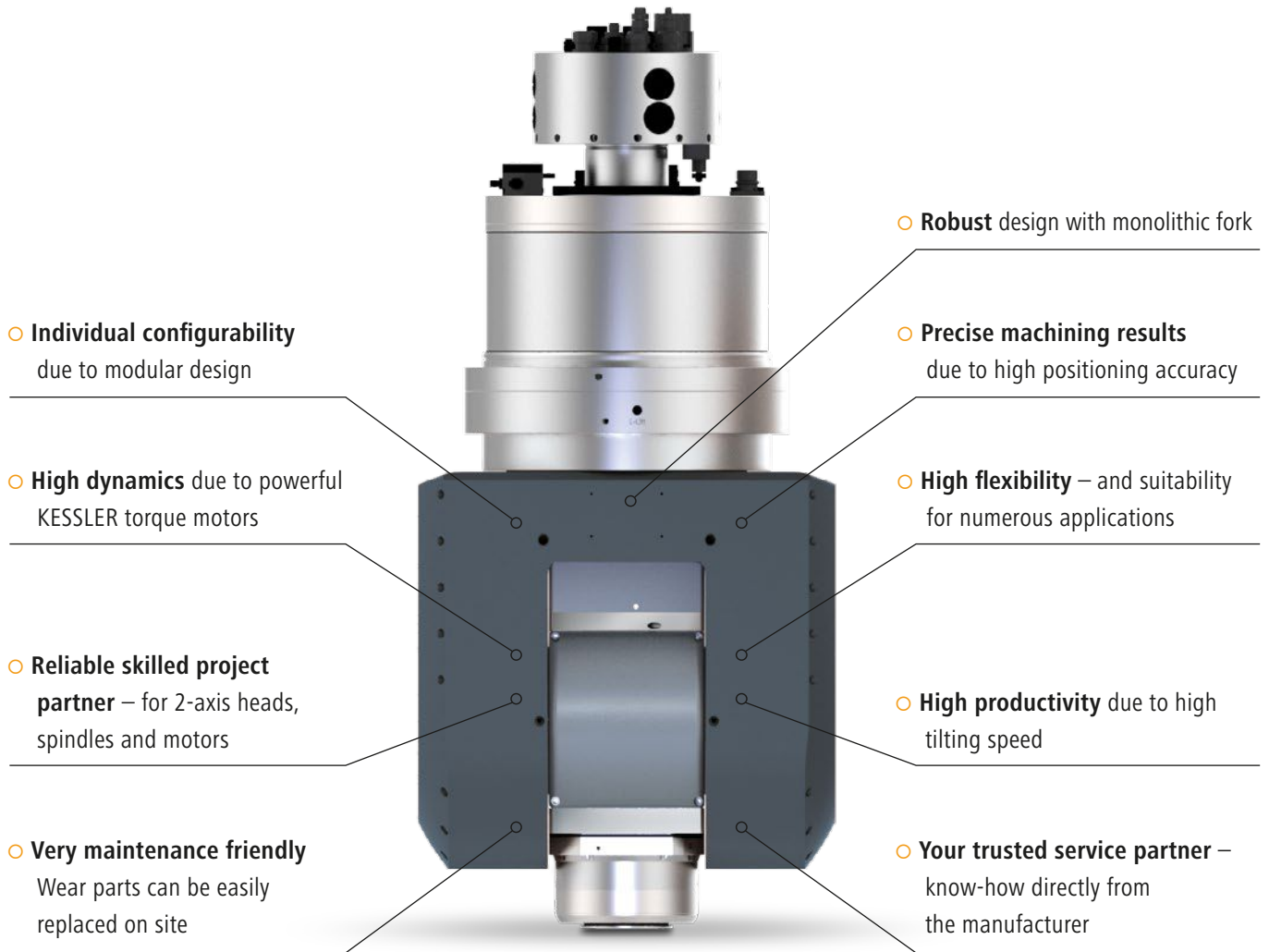
High-performance machine. The large and highly dynamic MEDIUM 2AK impresses with performance high chip removal rate and precise results whilst machining steel, with spindles up to 400 Nm torque.



LARGE 2AK

Power solution for heavy cutting requirements. Large-scale 2-axis head for powerful operation with spindles up to 700 Nm torque, for effortlessly mastering the machining of challenging materials such as titanium Inconel.

All advantages at a glance



HIGH QUALITY



MADE IN GERMANY

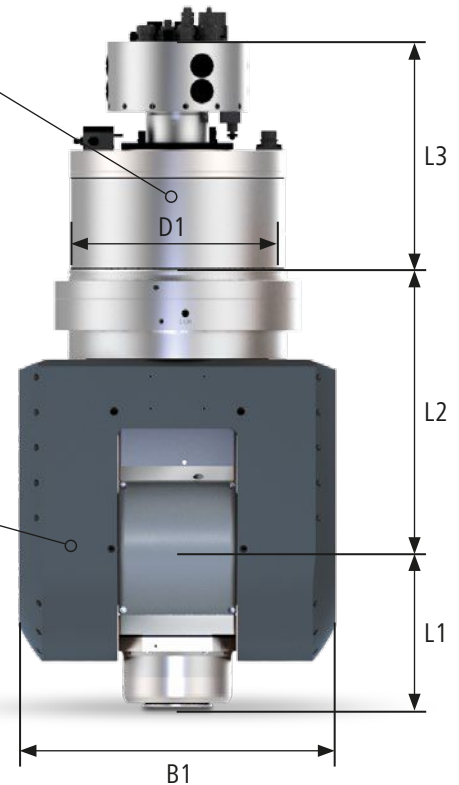
MINI 2AK

C-axis (turning axis)

- Torque S1: 300 Nm
- Maximum torque: 600 Nm
- Clamping: pneumatic
- Clamping torque: 1,080 Nm
- Clamping with safety function
- Tilting angle: $\pm 360^\circ$
- Measuring system: incremental
- Accuracy of measuring system: $\pm 6''$

A-axis (tilting axis)

- Torque S1: 150 Nm
 - Maximum torque: 280 Nm
 - Clamping: pneumatic
 - Clamping torque: 650 Nm
 - Clamping with safety function
 - Tilting angle: $\pm 95^\circ$
 - Measuring system: incremental
 - Accuracy of measuring system: $\pm 5''$
- www.precise-rotation.ru



Dimensions (mm)

Fitting diameter of C-axis	D1	310
Vector length	L1	225
Projection length of A-axis	L2	381
Fitting depth of C-axis	L3	340
Width of A-axis	B1	450
Depth of A-axis		310
Collision circle C-axis		500
Gross weight	kg	360



Modular extensions available

A-axis

- + **Second clamping**
Clamping torque: 1,170 Nm
- + **Second motor**
Torque S1: 300 Nm
Maximum torque: 560 Nm
- + **Measuring system**
with enhanced accuracy for all standard CNCs
- + **Leakage monitoring**

C-axis

- + **Reduced fitting diameter**
230 mm
- + **Second clamping**
Clamping torque: 1,944 Nm
- + **Measuring system**
with enhanced accuracy for all standard CNCs
- + **Horizontal or vertical installation position**

Motor spindles



Model	Max. speed (rpm)	S1		S6 / 40%		Tool interface	Bearing lubrication
		Torque (Nm)	Power (kW)	Torque (Nm)	Power (kW)		
SMS 060.20-696.367	20,000	23	20	30	23	HSK 63	Re-greasing
SMS 060.20-650.176	20,000	26	20	34	26	HSK 63	Oil-air lubrication
SMS 060.20-688.815	24,000	26	20	34	26	HSK 63	Oil-air lubrication

Other tool interfaces possible on request

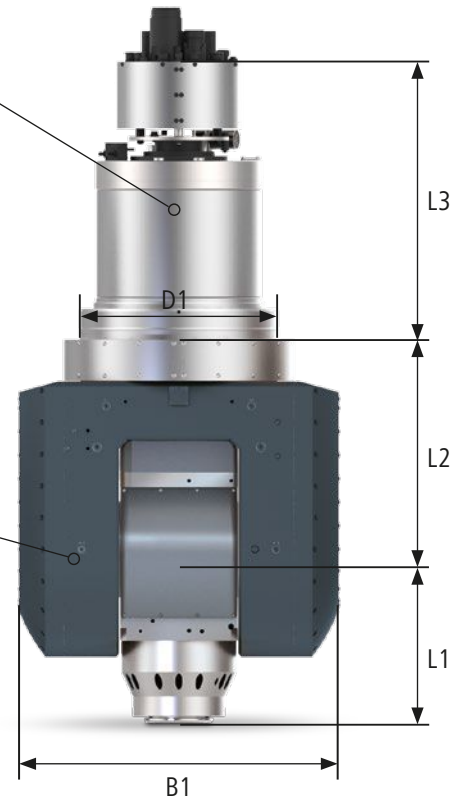
SMALL 2AK

C-axis (turning axis)

- Torque S1: 810 Nm
- Maximum torque: 1,100 Nm
- Clamping: pneumatic
- Clamping torque: 1,680 Nm
- Clamping with safety function
- Tilting angle: $\pm 360^\circ$
- Measuring system: incremental
- Accuracy of measuring system: $\pm 3''$

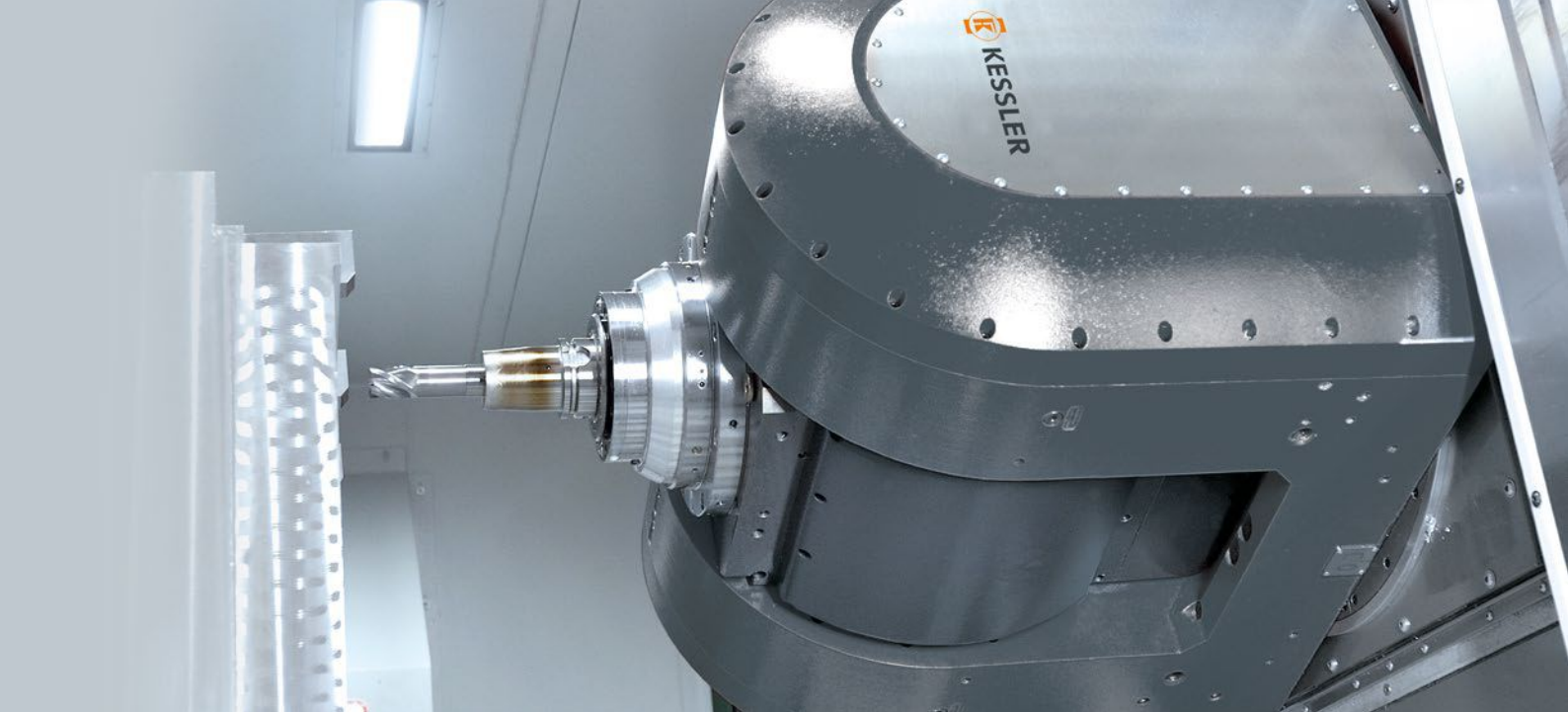
A-axis (tilting axis)

- Torque S1: 382 Nm
- Maximum torque: 590 Nm
- Clamping: pneumatic
- Clamping torque: 2,160 Nm
- Clamping with safety function
- Tilting angle: $\pm 105^\circ$
- Measuring system: absolute
- Accuracy of measuring system: $\pm 5''$



Dimensions (mm)

Fitting diameter of C-axis	D1	335
Vector length	L1	280 (HSK 63) / 340 (HSK 100)
Projection length of A-axis	L2	470
Fitting depth of C-axis	L3	483
Width of A-axis	B1	624
Depth of A-axis		420
Collision circle C-axis		670
Gross weight	kg	535



Modular extensions available

A-axis

- + **Second motor**
Torque S1: 764 Nm
Maximum torque: 1,200 Nm
- + **High-torque motors**
Torque S1: 840 Nm
Maximum torque: 1,680 Nm
- + **Extended tilting angle**
Tilting angle: $\pm 120^\circ$ (only for variant with one motor in the A-axis)
- + **Measuring system**
with enhanced accuracy for all standard CNCs
- + **Leakage monitoring**

C-axis

- + **Fitting diameter**
390 mm
- + **Second clamping**
Clamping torque: 3,024 Nm
- + **Measuring system**
with enhanced accuracy for all standard CNCs
- + **Horizontal or vertical installation position**

Motor spindles

Model	Max. speed (rpm)	S1		S6 / 40%		Tool interface	Bearing lubrication
		Torque (Nm)	Power (kW)	Torque (Nm)	Power (kW)		
SMS 080.40-680.393	12,000	119	25	143	30	HSK 100	Oil-air lubrication
SMS 080.40-681.520	15,000	120	45	145	45	HSK 100	Oil-air lubrication
SMS 080.40-690.595	15,000	89	56	111	70	HSK 63	Permanent grease lubrication
SMS 080.30-680.395	18,000	89	56	111	70	HSK 63	Oil-air lubrication
SMS 080.30-680.443	20,000	60	37	73	46	HSK 63	Re-greasing
SMS 080.36-680.396	20,000	60	60	75	75	HSK 63	Oil-air lubrication
SMS 080.32-675.519	24,000	60	37	73	46	HSK 63	Oil-air lubrication
SMS 090.32-697.467	24,000	60	60	77	60	HSK 63	Oil-air lubrication
HSC-S 080.32-676.050	30,000	38	60	48	75	HSK 63	Oil-air lubrication

Other tool interfaces possible on request

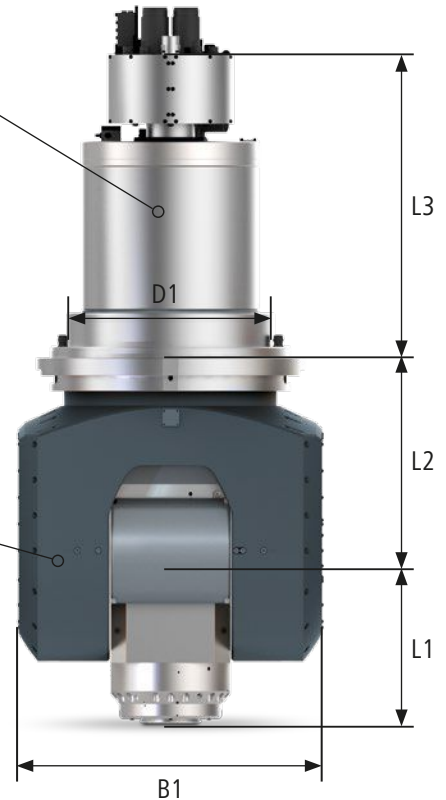
MEDIUM 2AK

C-axis (turning axis)

- Torque S1: 2,100 Nm
- Maximum torque: 3,200 Nm
- Clamping: pneumatic
- Clamping torque: 5,500 Nm
- Clamping with safety function
- Tilting angle: $\pm 360^\circ$
- Measuring system: incremental
- Accuracy of measuring system: $\pm 3''$

A-axis (tilting axis)

- Torque S1: 680 Nm
- Maximum torque: 1,050 Nm
- Clamping: pneumatic
- Clamping torque: 4,080 Nm
- Clamping with safety function
- Tilting angle: $\pm 105^\circ$
- Measuring system: absolute
- Accuracy of measuring system: $\pm 5''$



Dimensions (mm)

Fitting diameter of C-axis	D1	540
Vector length	L1	290 (HSK 63) / 390 (HSK 100)
Projection length of A-axis	L2	435
Fitting depth of C-axis	L3	684.5
Width of A-axis	B1	685
Depth of A-axis		500
Collision circle C-axis		780
Gross weight	kg	1,150



Modular extensions available

A-axis

- + **Second clamping**
Clamping torque: 7,344 Nm
- + **Second motor**
Torque S1: 1,360 Nm
Maximum torque: 2,100 Nm
- + **Measuring system**
with enhanced accuracy for all standard CNCs
- + **Leakage monitoring**

C-axis

- + **Reduced fitting diameter**
420 mm
- + **Second clamping**
Clamping torque: 9,000 Nm
- + **Measuring system**
with enhanced accuracy for all standard CNCs
- + **Horizontal or vertical installation position**



Motor spindles

Model	Max. speed (rpm)	S1		S6 / 40%		Tool interface	Bearing lubrication
		Torque (Nm)	Power (kW)	Torque (Nm)	Power (kW)		
SMS 112.52-681.608	7,000	318	50	382	60	HSK 100	Oil-air lubrication
SMS 112.52-697.729	10,000	318	50	382	60	HSK 100	Oil-air lubrication
DMS 112.54-665.172	12,000	228	60	344	90	HSK 100	Oil-air lubrication
DMS 112.46-691.272	15,000	187	49	267	70	HSK 100	Oil-air lubrication
HSC-S 090.14-676.078	30,000	50	100	62	124	HSK 63	Oil-air lubrication



Other tool interfaces possible on request

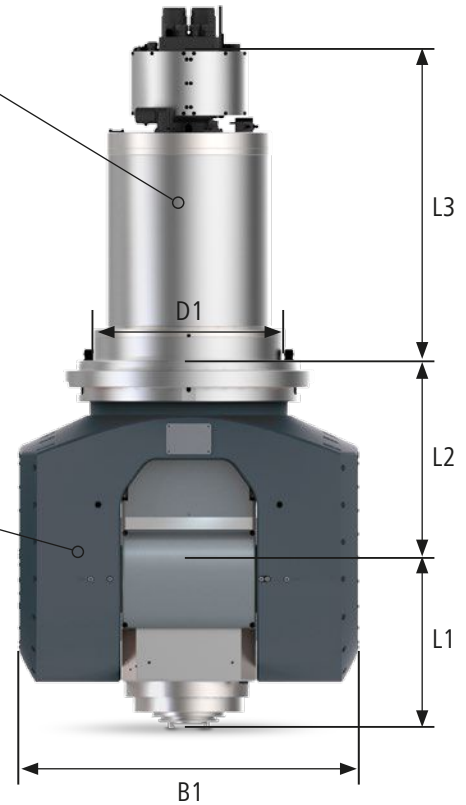
LARGE 2AK

C-axis (turning axis)

- Torque S1: 2,675 Nm
- Maximum torque: 4,050 Nm
- Clamping: pneumatic
- Clamping torque: 5,500 Nm
- Clamping with safety function
- Tilting angle: $\pm 360^\circ$
- Measuring system: incremental
- Accuracy of measuring system: $\pm 3''$

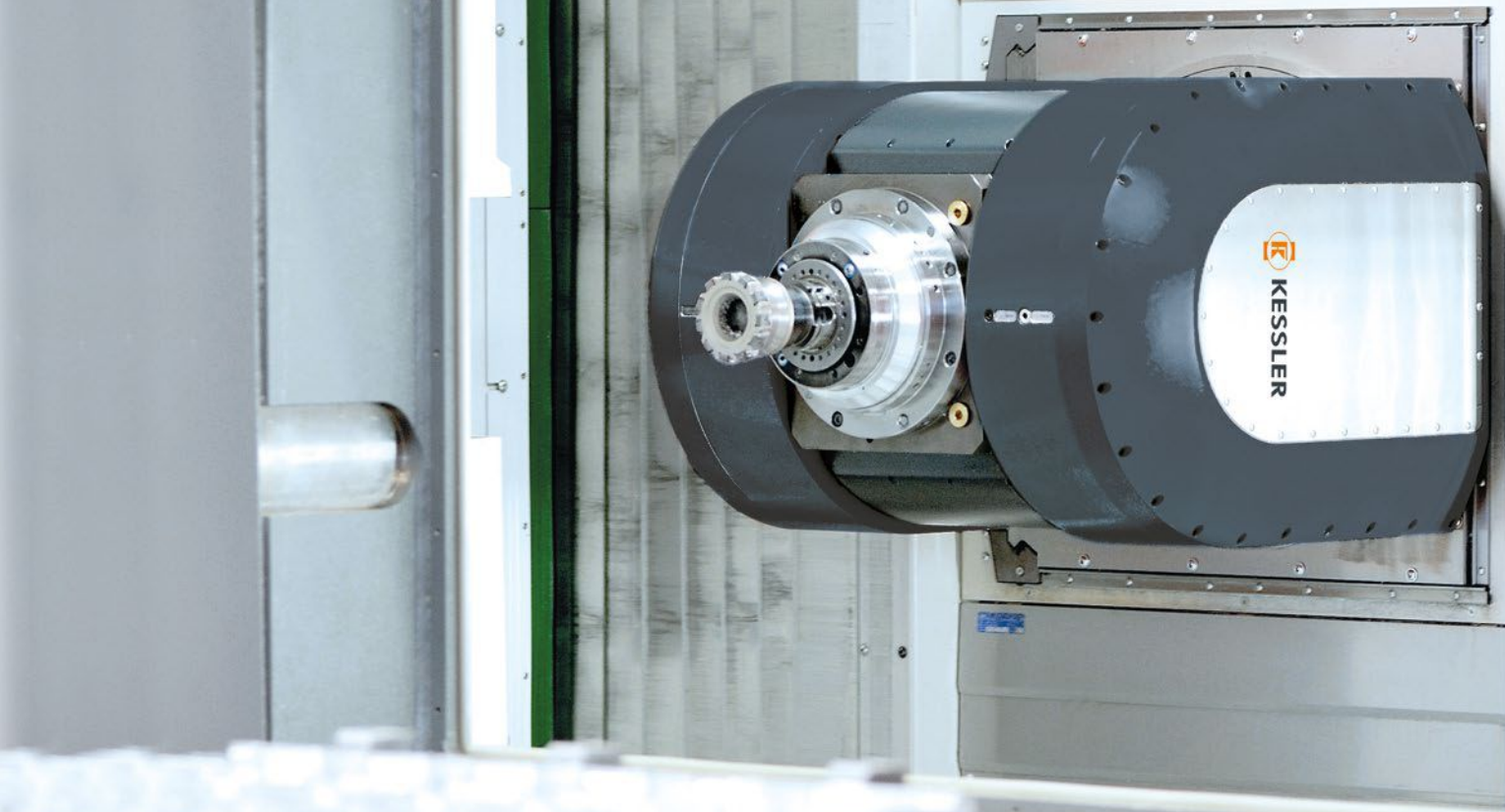
A-axis (tilting axis)

- Torque S1: 1,130 Nm
- Maximum torque: 2,260 Nm
- Clamping: pneumatic
- Clamping torque: 4,080 Nm
- Clamping with safety function
- Tilting angle: $\pm 105^\circ$
- Measuring system: absolute
- Accuracy of measuring system: $\pm 5''$



Dimensions (mm)

Fitting diameter of C-axis	D1	540
Vector length	L1	350
Projection length of A-axis	L2	505
Fitting depth of C-axis	L3	774.5
Width of A-axis	B1	821
Depth of A-axis		500
Collision circle C-axis		890
Gross weight	kg	1,234



Modular extensions available

A-axis

- + **Second clamping**
Clamping torque: 7,344 Nm
- + **Second motor**
Torque S1: 2,260 Nm
Maximum torque: 4,520 Nm
- + **Measuring system**
with enhanced accuracy for all standard control systems
- + **Leakage monitoring**

C-axis

- + **Reduced fitting diameter**
420 mm
- + **Second clamping**
Clamping torque: 9,900 Nm
- + **Measuring system**
with enhanced accuracy for all standard control systems
- + **Horizontal or vertical installation position**

Motor spindles



Model	Max. speed (rpm)	S1		S6 / 40%		Tool interface	Bearing lubrication
		Torque (Nm)	Power (kW)	Torque (Nm)	Power (kW)		
SMS 132.60-684.199	7,000	500	52	700	73	HSK 100	Permanent grease lubrication
DMS 132.56-684.207	12,000	300	48	452	71	HSK 100	Oil-air lubrication

Other tool interfaces possible on request

2AK Specials

- Special housing / special designs, 2-axis head for grinding applications
- Composite machining
- Turning applications
- A-axis available separately



MINI 2AK for composite materials

Motor spindle: SMS 060.20-696.367

- Torque (S6 / 40%): 30 Nm
- Power (S6 / 40%): 23 kW
- Maximum speed: 20,000 rpm
- HSK 63
- Re-greasing
- Chips suction device: optional



SMALL 2AK for mold & die

Motor spindle: SMS 090.24-674.237

- Torque (S6 / 40%): 73 Nm
- Power (S6 / 40%): 46 kW
- Maximum speed: 20,000 rpm
- HSK 63
- Grease replenishment



MEDIUM 2AK for aerospace structural components

Motor spindle: HSC-S 090.14-676.078

- Torque (S6 / 40%): 62 Nm
- Power (S6 / 40%): 124 kW
- Maximum speed: 30,000 rpm
- HSK 63
- Oil-air lubrication

SMALL 2AK Special

High performance spindle for high-performance machining

○ **High-performance machining**

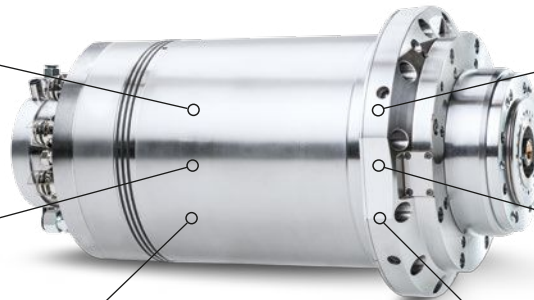
Processing of high-strength aluminium alloys and composite materials

○ **Short processing times**

due to high chip removal rate

○ **High processing quality**

due to maximum retention force of the tool clamping system



○ **Powerful**

Standard converter for the use with 8 kHz rated frequency

○ **High productivity**

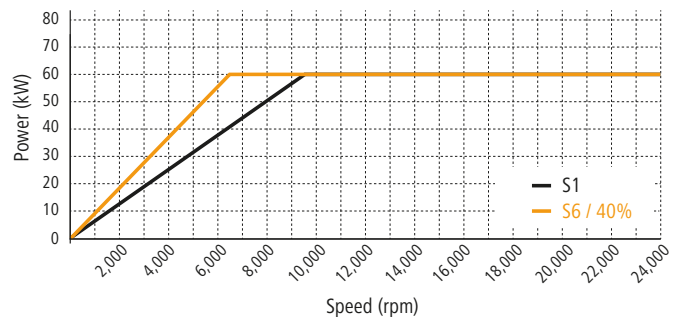
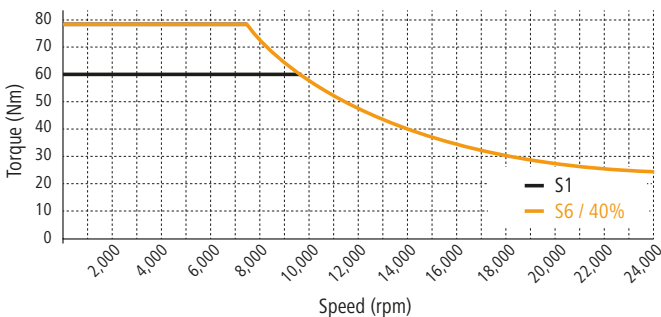
due to maximum cutting capacity

○ **Precise results**

Usage of long extending tools possible

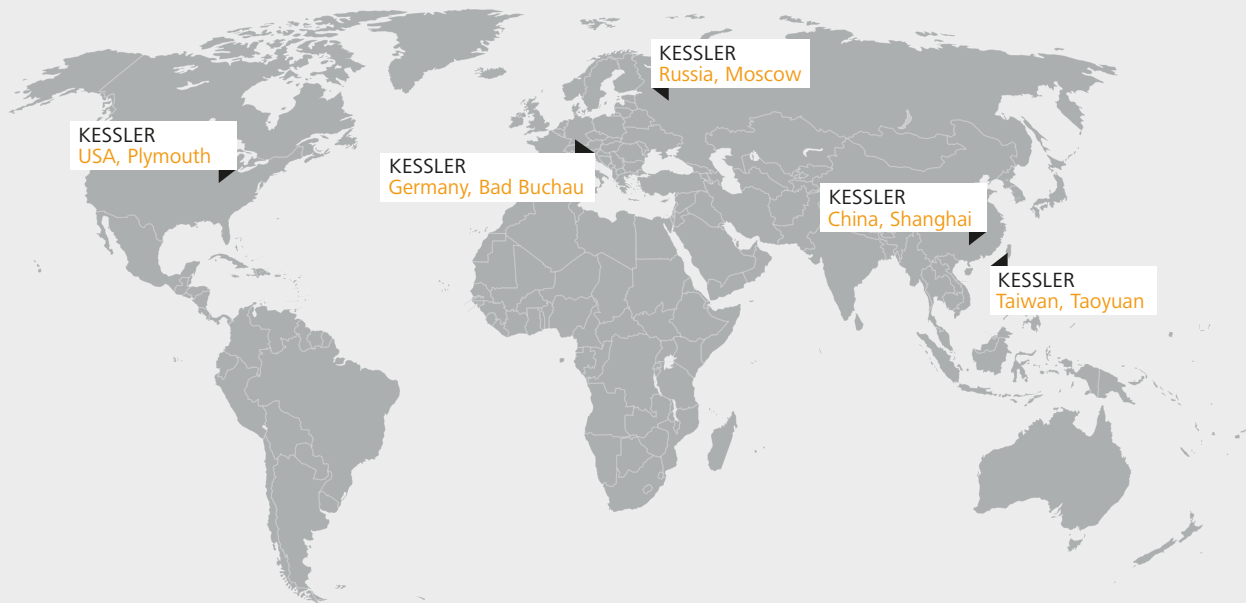
Model	Max. speed (rpm)	S1		S6 / 40%		Tool interface	Bearing lubrication
		Torque (Nm)	Power (kW)	Torque (Nm)	Power (kW)		
SMS 090.32-697.467	24,000	60	60	77	60	HSK 63	Oil-air lubrication

Other tool interfaces possible on request



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Operating Worldwide for our Customers



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