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Jäger

High Performance Spindles

Product Catalogue
Produktprogramm

The new factory in Ober-Mörlen, Germany
Das neue Gebäude in Ober-Mörlen, Deutschland

Jäger
High Performance Spindles

Jäger High Performance Spindles

Alfred Jäger GmbH SF-Elektromaschinenbau, with its location in Ober-Mörlen, Germany, offers more than 35 years of experience in the area of spindles and application technology, grounded technical knowledge and reliability. A team of more than 50 employees develops and produces high quality spindles as well as continuing to extend the product range. Development, design, and production in Germany assures success for our customers in using Jäger High Performance Spindles. Worldwide representations provide optimal advisory service to meet customer needs.

Jäger High Performance Spindles

Die Firma Alfred Jäger GmbH SF-Elektromaschinenbau, mit Ihrem Sitz in Ober-Mörlen, bietet mit mehr als 35 Jahren Erfahrung im Bereich der Spindel- und Anwendungstechnologie fundiertes Fachwissen und Zuverlässigkeit. Ein 50-köpfiges Mitarbeiterteam entwickelt und produziert mit ständig gleicher Qualität, um die Variantenvielfalt unseres Produktprogrammes weiter auszubauen. Entwicklung, Konstruktion und Produktion in Deutschland garantieren höchste Qualität. Weltweite Vertretungen sichern zudem optimale Kundenbetreuung.

Jäger
High Performance Spindles

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Alfred Jäger GmbH SF-Elektromaschinenbau offers, with its extensive product range of high-speed spindles, complete solutions for accurate cutting tasks. ***JÄGER High Performance Spindles*** offer decisive advantages because of powerful technology:

- Ceramic hybrid precision ball bearings (standard)
- Bearings lubricated for life
- Short overall spindle length
- High stiffness because of special bearing arrangement
- High true running accuracy
- Inner protection against dust by air sealing
- Silent running and less vibration because of electronic fine balancing
- Own motor design
- Three-phase alternating current induction motor that is wear resistant and maintenance free

The product program consists of manual spindles, spindles with cylindrical design and mounting taper spindles. In addition, Jäger offers all accessories such as converters and chillers to run the spindles.

Jäger High Performance Spindles range in diameter from 33 mm up to 150 mm, using various clamping systems as well as with customized flanges.

The spindle power range starts at 80 W and goes up to maximum of 67 kW. Greater powered spindles can be manufactured upon request.

Jäger
High Performance Spindles

M-SPINDLES FOR MANUAL USE

M-Spindles are high-frequency spindles for high-speed milling, grinding, drilling and engraving for manual operating by hand.

Spindle overview

Spindle Type	Steel bearings (pcs.)	Nominal output power (kw)	Current voltage max. Volt	Current max. A	Frequency max. HZ	Motor pole pairs	Rotation speed max. rpm	Housing diameter mm	Manual tool change	Clamping range up to mm	Weight (kg)
29 K0	2	0,17	21	7	1000	1	60.000	29	x	3,5	0,35
33 K1	2	0,17	21	7	1000	1	60.000	33	x	3,5	0,4

more on request

29 K0

High-frequency spindle
Manual tool change

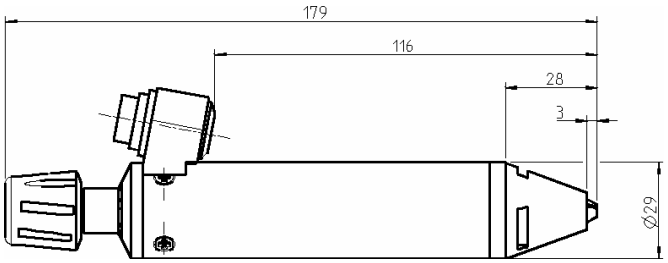
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

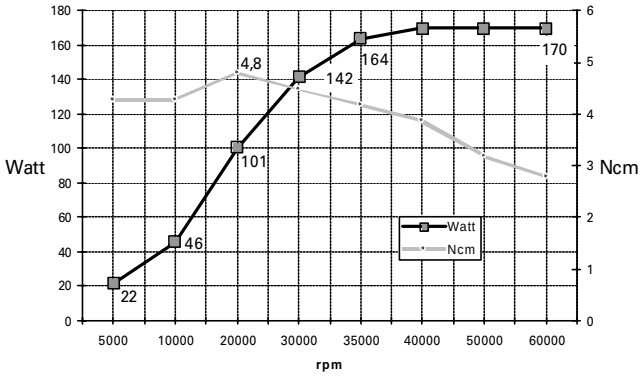
Technical specifications

- High precision steel ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 0
- Nominal output power: max. 0,17 kW
- Current voltage: max. 21 V
- Current: max. 7 A
- Frequency: max. 1000 Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Housing diameter: 29 mm
- Cooling system: air cooled
- Tool change: Manual tool change
- Clamping range: up to 3,5 mm
- Coupler plug: 3-pole plastics
- Weight: 0,35 Kg

Dimensions



Power-, torque- and speed diagram



33 K1

High-frequency spindle
Manual tool change

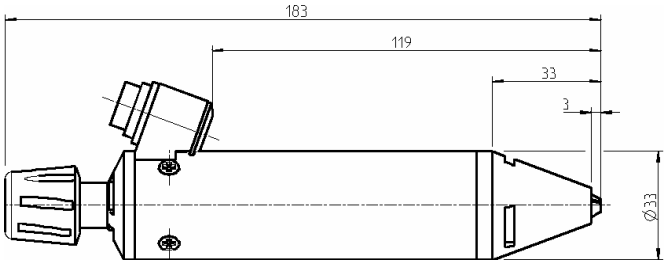
Spindle for high-speed milling, grinding -drilling, -engraving

Example of design

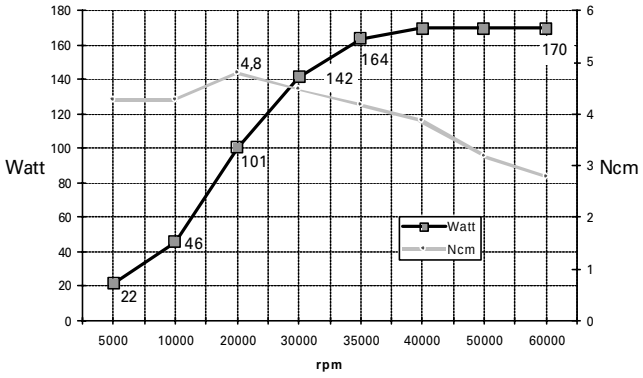
Technical specifications

- High precision steel ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 0
- Nominal output power: max. 0,17 kW
- Current voltage: max. 21 V
- Current: max. 7 A
- Frequency: max. 1000 Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Housing diameter: 33 mm
- Cooling system: air cooled
- Tool change: manual tool change
- Clamping range: up to 3,5 mm
- Coupler plug: 3-pole plastics
- Weight: 0,40 Kg

Dimensions



Power-, torque- and speed diagram



Jäger
High Performance Spindles

Z-SPINDLES MANUAL TOOL CHANGE

Z-Spindles manual tool change are high-frequency machine spindles for high-speed milling, grinding, drilling, and engraving. The tool used in each case is changed manually by hand into the Z-Spindle. Tools are clamped through the use of pressure collets or traction collets.Jäger High Performance Spindles utilize **hybrid ceramic** ball bearings.

Spindle overview

Spindle type	Ceramic Hybrid Bearings (pcs.)	Steel Bearings (pcs.)	Nominal Output Power (kw)	Voltage (V)	Current (A)	Max. Hz	Rotation Speed (max. rpm)	Housing Diameter	Manual Tool Cahnge	Clamping Range Up To (mm)	Weight (kg)
Z33-M060.01 S1A		2	0,17	21	7	1000	60.000	33	x	3,5	0,6
Z33-M060.03 K2S1		2	0,17	21	7	1000	60.000	33	x	3,5	0,65
33-1 W02		2	0,17	21	7	1000	60.000	33	x	3,5	0,5
Z33-M060.05 S14	2	1	0,17	71	3	1000	60.000	33	x	3,5	0,5
42-2 W27 FS	2		0,30	23	7	1000	60.000	42	x	6	1
42-2 W38 FS	2		0,30	23	7	1000	60.000	42	x	6	1
33-1 W02 - 10	2		0,30	21	7	1666	100.000	33	x	3,5	0,5
Z33-M0100.01 K1S1	2		0,30	21	7	1666	100.000	33	x	3,5	1
KS2-07/80	2		1,20	142	4	1333	80.000	62	x	6	2,6
KS3-11/60	2		1,60	140	6	1000	60.000	62	x	8	2,7
Z62-M360.22 S5	2		1,60	140	10	1000	60.000	62	x	6	2,7
Z80-M440.23 S5	3		6,0	330	20	1333	40.000	80	x	12	4,6
Z80-M450.39 S5	3		2,60	186	11,50	833	50.000	80	x	10	4,6
Z80-M530.03 S6	4		6,90	200	11,50	1000	30.000	80	x	16	8
Z80-M530.03 S8	4		6,90	200	11,50	1000	30.000	80	x	16	8

more on request

Z33-M060.01 S1A

High-frequency spindle
Manual tool change

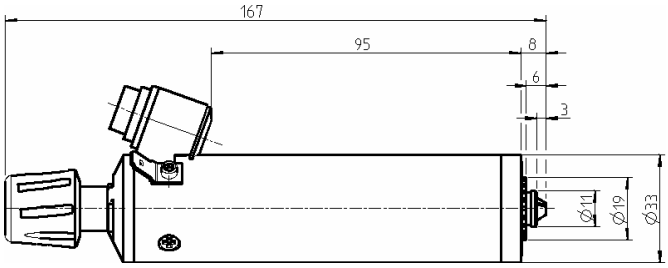
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

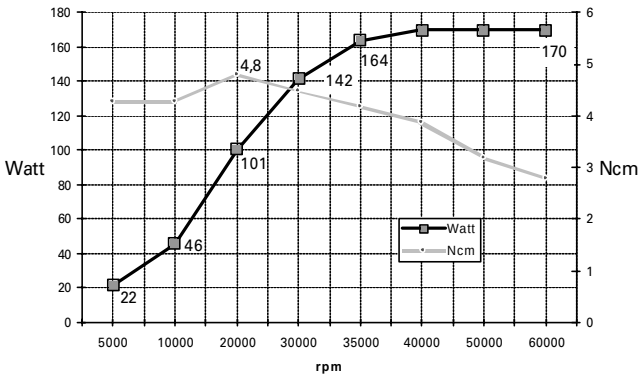
Technical specifications

- High precision steel ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 1
- Nominal output power: max. 0,17 kW
- Current voltage: max. 21 V
- Current: max. 7 A
- Frequency: max. 1000 Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Housing diameter: 33 mm
- Cooling system: non cooled
- Tool change: manual tool change
- Clamping range: up to 3,5 mm
- Coupler plug: 3-pole plastics
- Weight: 0,6 Kg
- Contact by touch

Dimensions



Power-, torque- and speed diagram



Z33-M060.03 K2S1

High-frequency spindle
Manual tool change

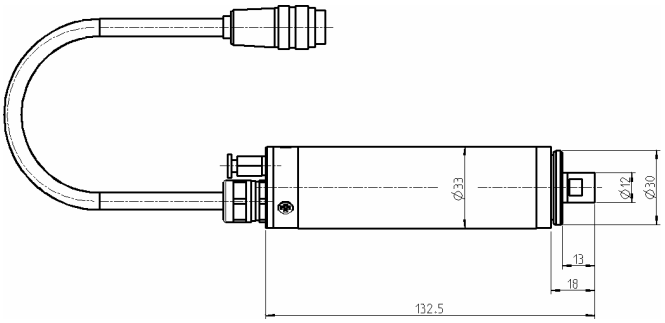
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

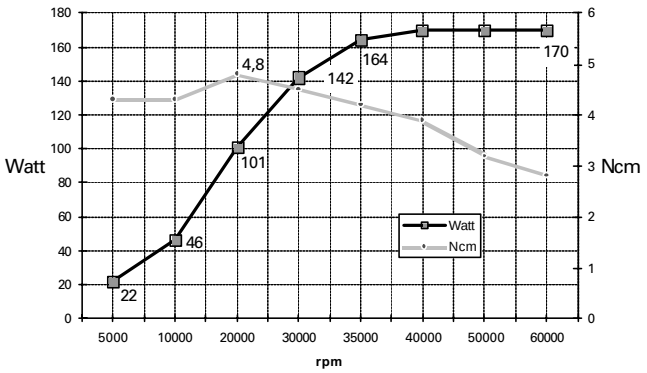
Technical specifications

- High precision steel ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 1
- Nominal output power: max. 0,17 kW
- Current voltage: max. 21 V
- Current: max. 7 A
- Frequency: max. 1000 Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Sealing-air
- Housing diameter: 33 mm
- Cooling system: non cooled
- Tool change: manual tool change
- Clamping range: up to 3,5 mm
- Coupler plug: 3-pole plastics with cable 2 m
- Weight: 0,65 Kg

Dimensions



Power-, torque- and speed diagram



33-1 W02

High-frequency spindle
Manual tool change

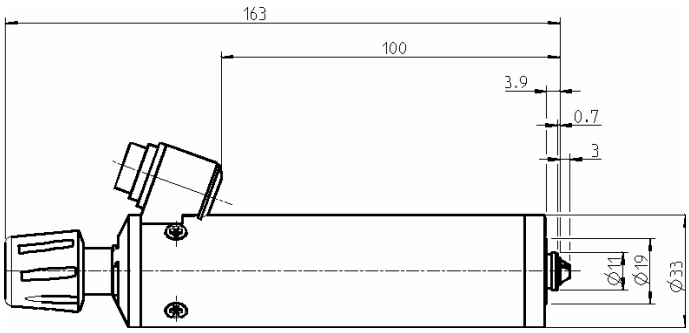
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

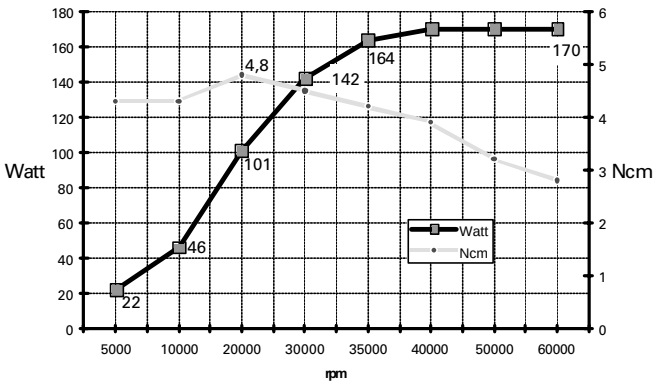
Technical specifications

- High precision steel ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 1
- Nominal output power: max. 0,17 kW
- Current voltage: max. 21 V
- Current: max. 7 A
- Frequency: max. 1000 Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Housing diameter: 33 mm
- Cooling system: non cooled
- Tool change: manual tool change
- Clamping range: up to 3,5 mm
- Coupler plug: 3-pole plastics
- Weight: 0,5 Kg

Dimensions



Power-, torque- and speed diagram



Z33-M060.05 S14

High-frequency spindle
Manual tool change

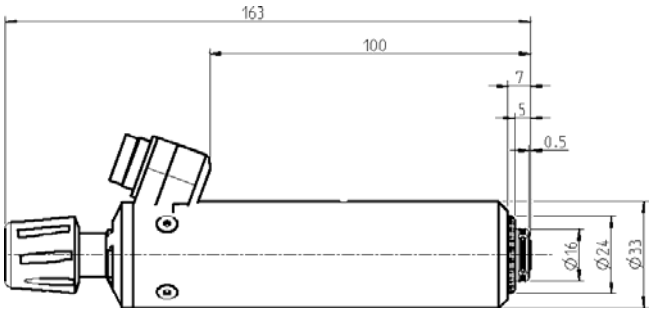
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

Technical specifications

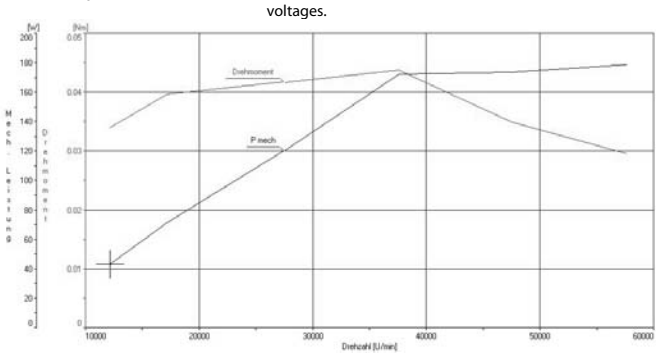
- High precision hybrid ball bearings – 2 Pcs. front
- High precision steel ball bearing – 1 Pcs. rear
- Lifetime lubricated, maintenance free
- Motor: type 1
- Output power: S1-100% ED 170 W
- Output power: S6-60% ED 400 W
- Voltage: S1-100% ED 71 V
- Voltage: S6-60% ED 87 V
- Current: S1-100% ED 3 A
- Current: S6-60% ED 4,2 A
- Frequency: max. 1000 Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Housing diameter: 33 mm, stainless steel
- Cooling system: non cooled
- Tool change: manual tool change
- Clamping range: up to 3,5 mm
- Coupler plug: 8-pole plastics
- Weight: 0,5 Kg

Dimensions

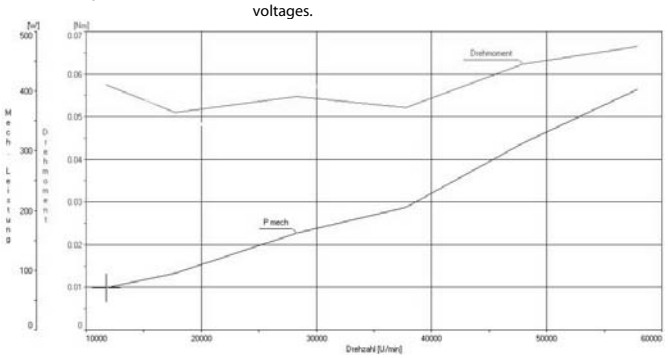


Power diagram

Mode of operation S1-100% The power ratings are for sinusoidal currents and sinusoidal voltages.



Mode of operation S6-60% The power ratings are for sinusoidal currents and sinusoidal voltages.



42-2 W27 FS

High-frequency spindle
Manual tool change

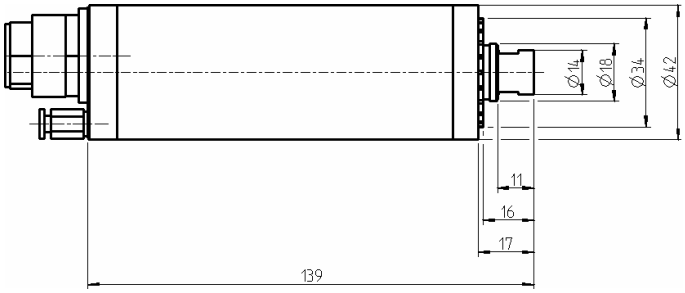
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

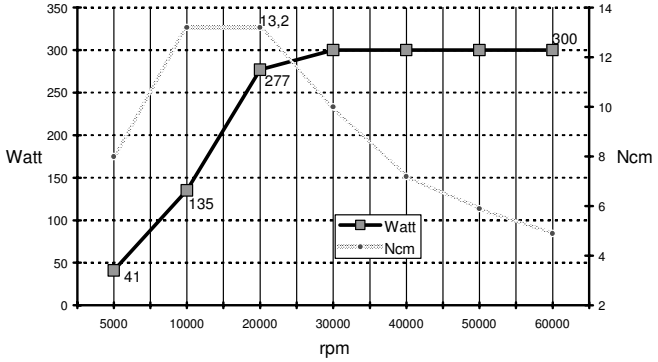
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 2
- Nominal output power: max. 0,3 kW
- Current voltage: max. 23 V
- Current: max. 7 A
- Frequency: max. 1000Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 42 mm
- Cooling system: non cooled
- Tool change: manual tool change
- Clamping range: up to 6 mm (1/4")
- Coupler plug: 7-pole plastics
- Weight: 1kg

Dimensions



Power-, torque- and speed diagram



42-2 W38 FS

High-frequency spindle
Manual tool change

Spindle for high-speed milling, -grinding, -drilling, -engraving

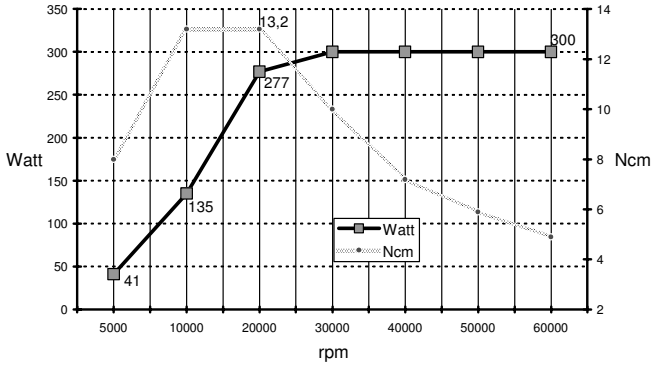
Example of design

Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 2
- Nominal output power: max. 0,3 kW
- Current voltage: max. 23 V
- Current: max. 7 A
- Frequency: max. 1000Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 42 mm
- Cooling system: non cooled
- Tool change: manual tool change
- Clamping range: up to 6 mm (1/4")
- Coupler plug: 7-pole plastics
- Weight: 1kg

Dimensions

Power-, torque- and speed diagram



33-1 W02 - 10

High-frequency spindle
Manual tool change

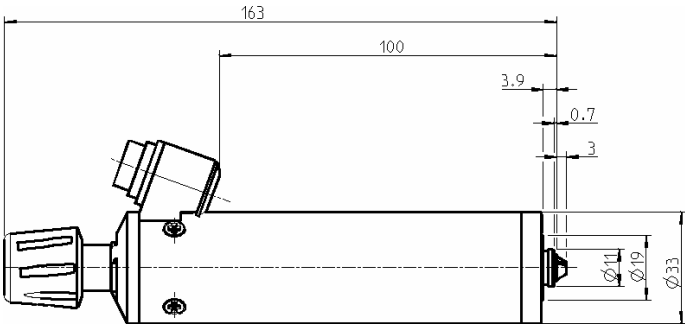
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

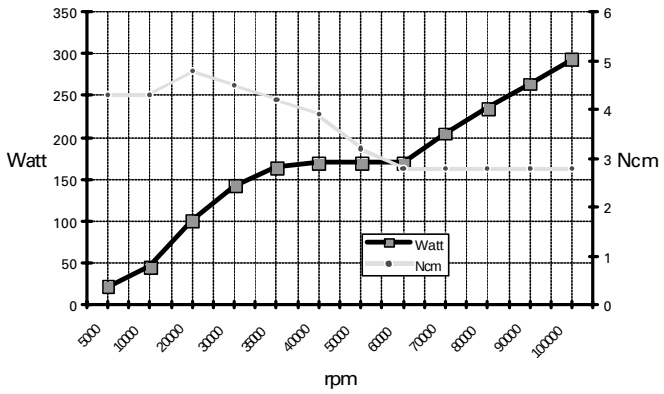
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 1
- Nominal output power: max. 0,3 kW
- Current voltage: max. 21 V
- Current: max. 7 A
- Frequency: max. 1666,6 Hz
- Motor poles: 1 pair
- Rotation speed: max. 100.000 rpm
- Housing diameter: 33 mm
- Cooling system: non cooled
- Tool change: manual tool change
- Clamping range: up to 3,5 mm
- Coupler plug: 3-pole plastics
- Weight: 0,5 Kg

Dimensions



Power-, torque- and speed diagram



Z33-M0100.01 K1S1

High-frequency spindle
Manual tool change

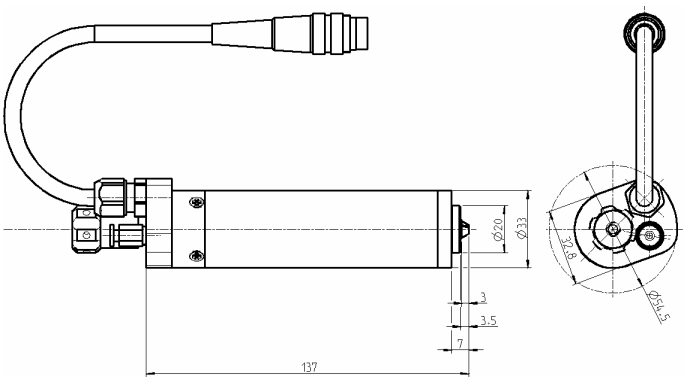
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

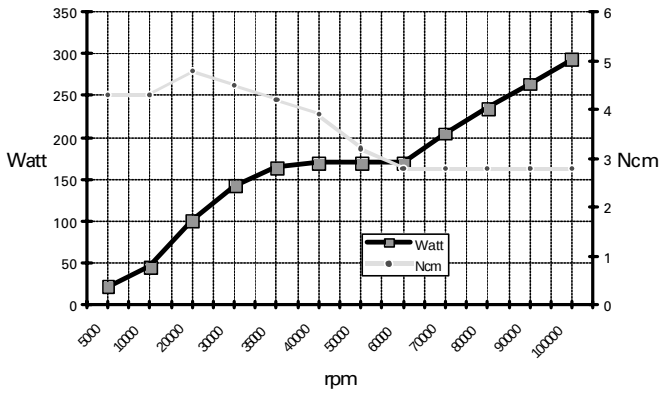
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 1
- Nominal output power: max. 0,3 kW
- Current voltage: max. 21 V
- Current: max. 7 A
- Frequency: max. 1666,6 Hz
- Motor poles: 1 pair
- Rotation speed: max. 100.000 rpm
- Sealing-air
- Housing diameter: 33 mm
- Cooling system: non cooling
- Tool change: manual tool change
- Clamping range: up to 3,5 mm
- Coupler plug: 3-pole plastics with cable 1m

Dimensions



Power-, torque- and speed diagram



KS2-07/80

High-frequency spindle
Manual tool change

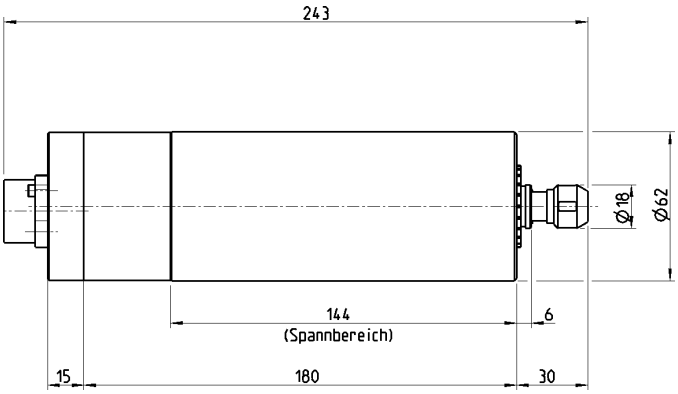
Spindle for high-speed milling, - grinding, -drilling, -engraving

Example of design

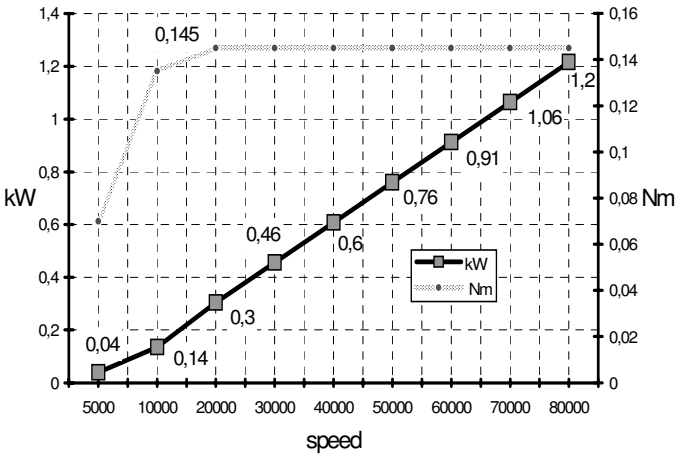
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 2
- Nominal output power: max. 1,2 kW
- Current voltage: max. 142 V
- Current: max. 4 A
- Frequency: max. 1333,4 Hz
- Motor poles: 1 pair
- Rotation speed: max. 80.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 62 mm
- Cooling system: liquid cooled
- Tool change: Manual tool change
- Clamping range: up to 6 mm
- Coupler plug: 9-pole plastics
- Weight: 2,6 Kg

Dimensions



Power-, torque- and speed diagram



KS3-11/60

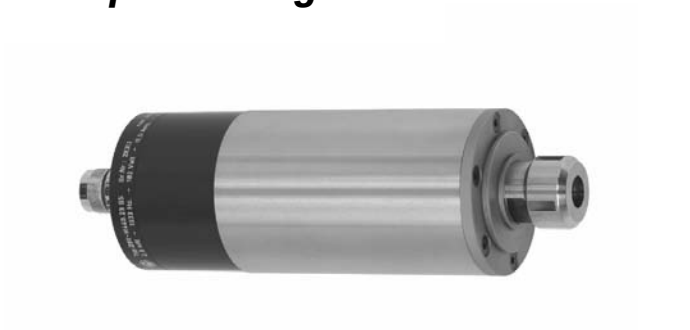
High-frequency spindle
Manual tool change

Spindle for high-speed milling, -grinding -drilling, -engraving

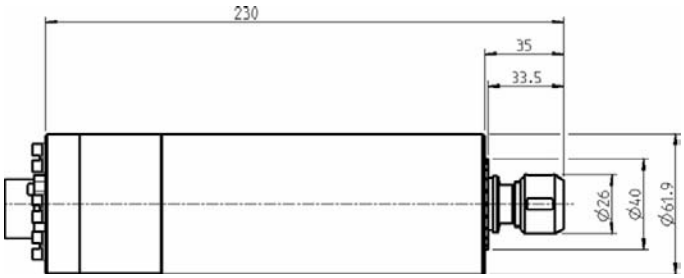
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 4
- Nominal output power: max. 1,6 kW
- Current voltage: max. 140 V
- Current: max. 6 A
- Frequency: max. 1000 Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 62 mm
- Cooling system: liquid cooled
- Tool change: manual tool change
- Clamping range: up to 8 mm
- Coupler plug: 9-pole plastics
- Weight: 2,7 Kg

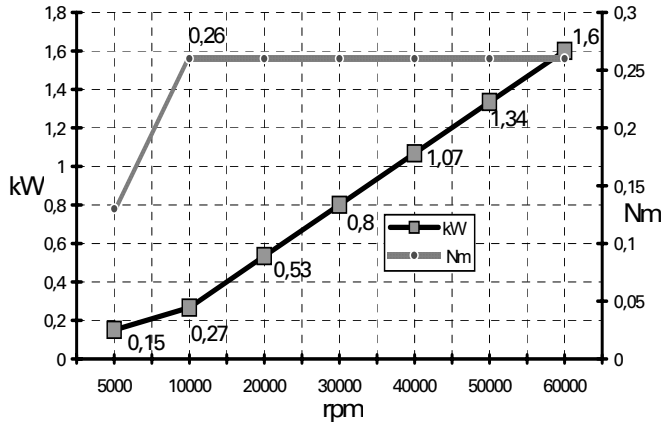
Example of design



Dimensions



Power-,torque- and speed diagram



Z62-M360.22 S5

High-frequency spindle
Manual tool change

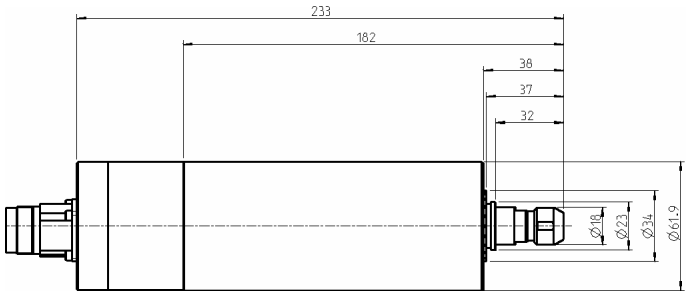
Spindle for high-speed milling, -grinding -drilling, -engraving

Example of design

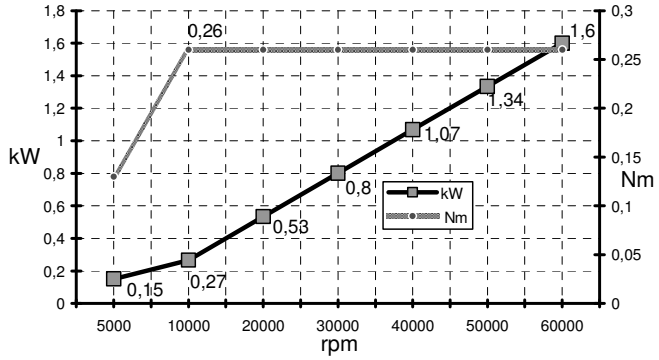
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 4
- Nominal output power: max. 1,6 kW
- Current voltage: max. 140 V
- Current: max. 10 A
- Frequency: max. 1000 Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 62 mm
- Cooling system: liquid cooled
- Tool change: Manual tool change
- Clamping range: up to 6 mm
- Coupler plug: 9-pole metal
- Weight: 2,7 Kg

Dimensions



Power-, torque- and speed diagram



Z80-M440.23 S5

High-frequency spindle
Manual tool change

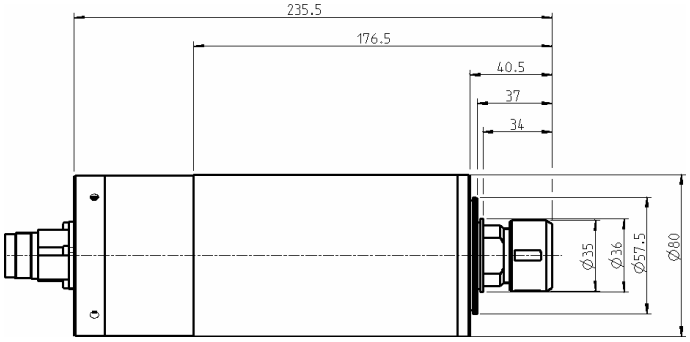
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

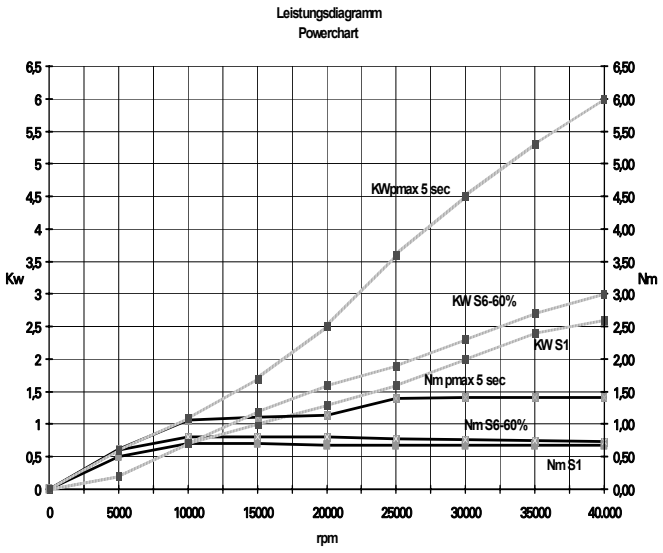
Technical specifications

- High precision hybrid ball bearings – 3 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: pmax. 6 kW
- Nominal output power: S1-100% ED 2,5 kW
- Nominal output power: S6-60% 3,0KW
- Voltage: pmax. 330 V
- Current: pmax. 20 A
- Frequency: max. 1333 Hz
- Motor poles: 2 pairs
- Rotation speed: max. 40.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Tool change: manual tool change
- Clamping range: up to 12 mm
- Coupler plug: 9-Pol metal
- Weight: 4,6 Kg

Dimensions

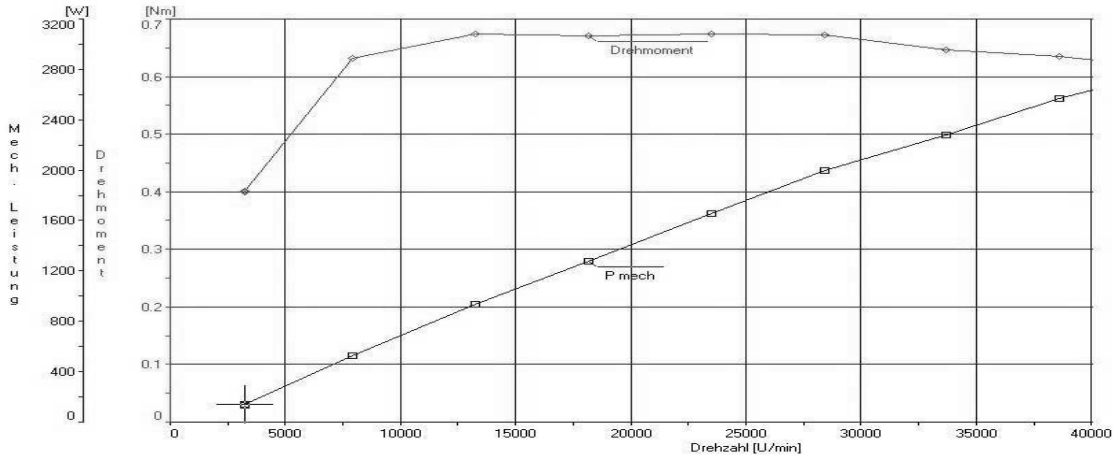


Power-, torque- and speed diagram

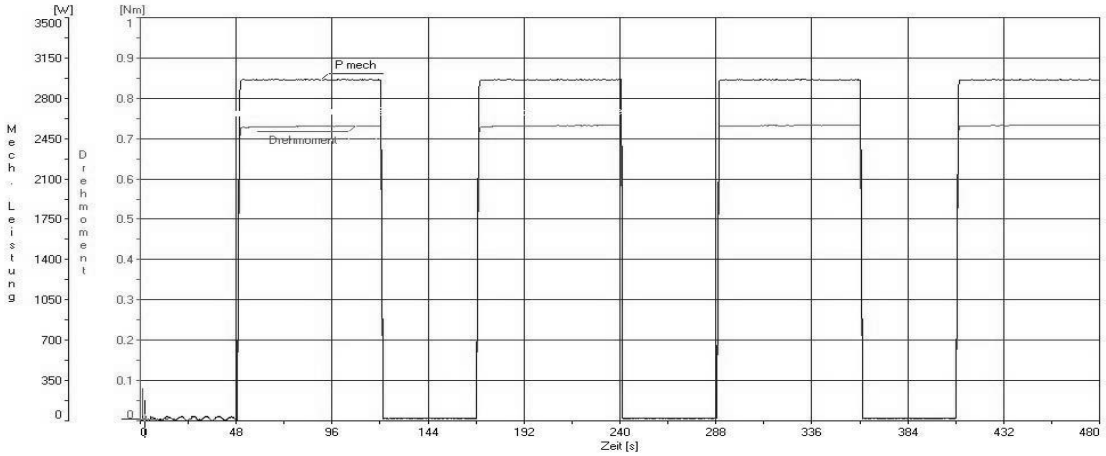


Z80-M440.23 S5 – measured datas

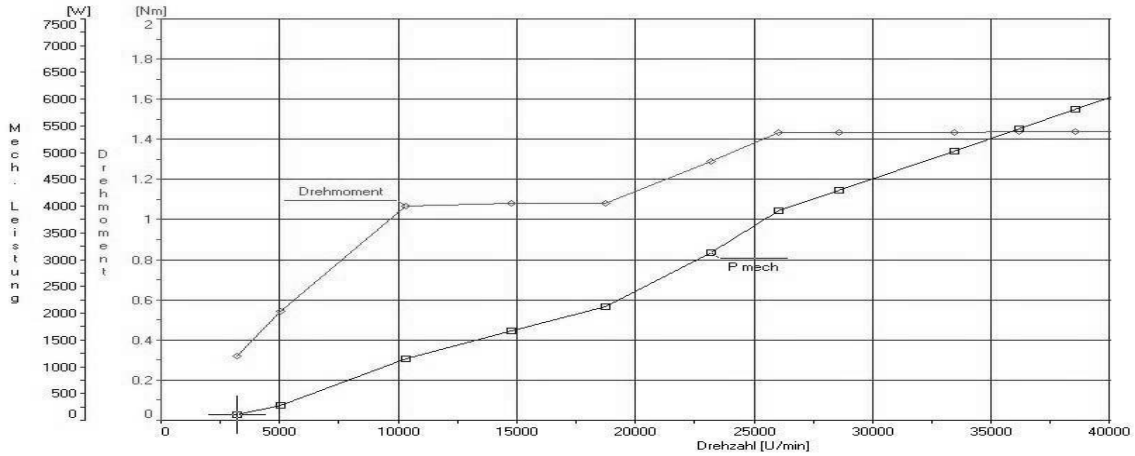
Power chart S1-100% ED (40.000 rpm = ***2,5 kw***; 40.000 rpm = ***0,63Nm***)



Power chart S6-60% (40.000 rpm = ***3,0 kw***; 40.000 rpm = ***0,73Nm***)



Power chart pmax 5sec (40.000 rpm = ***6,0 kw***; 40.000 rpm = ***1,44Nm***)



Z80-M450.39 S5

High-frequency spindle
Manual tool change

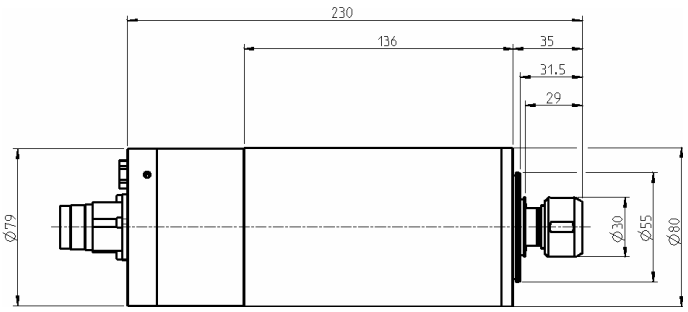
Spindle for high-speed milling, -grinding -drilling, -engraving

Example of design

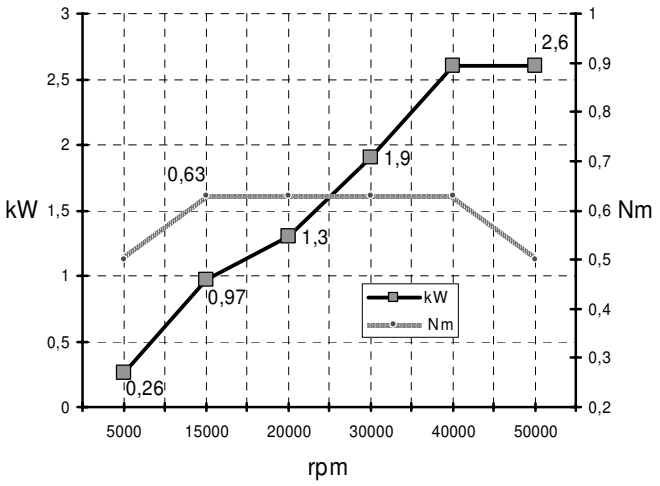
Technical specifications

- High precision hybrid ball bearings – 3 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: max. 2,6 kW
- Current voltage: max. 186 V
- Current: max. 11,5 A
- Frequency: max. 833 Hz
- Motor poles: 1 pair
- Rotation speed: max. 50.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Tool change: manual tool change
- Clamping range: up to 10 mm
- Coupler plug: 9-pole metal
- Weight: 4,6 Kg

Dimensions



Power-,torque- and speed diagram

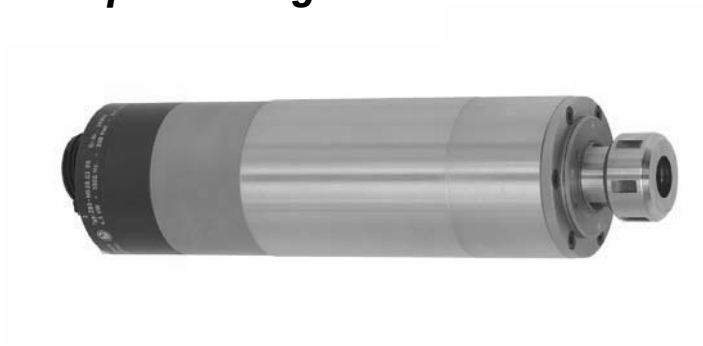


Z80-M530.03 S6

High-frequency spindle
Manual tool change

Spindle for high-speed milling, -grinding, -drilling, -engraving

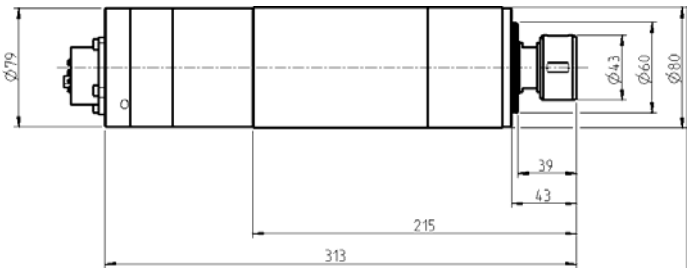
Example of design



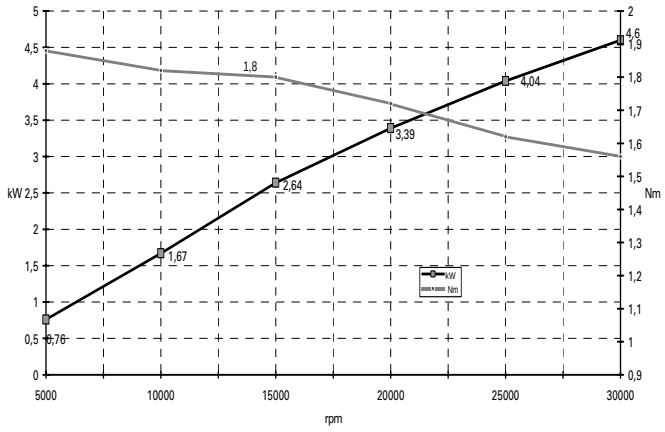
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 7
- Nominal output power: 4,6 kW (S1-100%)
- Nominal output power: max. 5,1 kW (S6-60%)
- Nominal output power: max. 6,9 kW (pmax 5 sec)
- Current voltage: max. 366 V
- Current: max. 16 A
- Frequency: max. 1000 Hz
- Motor poles: 2 pairs
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Tool change: manual tool change
- Clamping range: up to 16 mm
- Coupler plug: 13-pole plastics
- Weight: 8 Kg

Dimensions

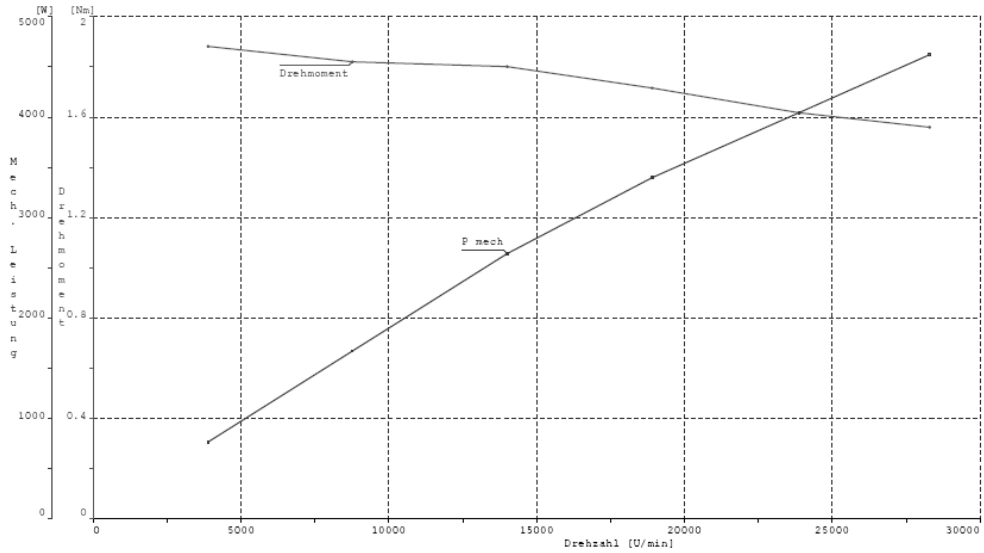


Power-, torque- and speed diagramS1-100%

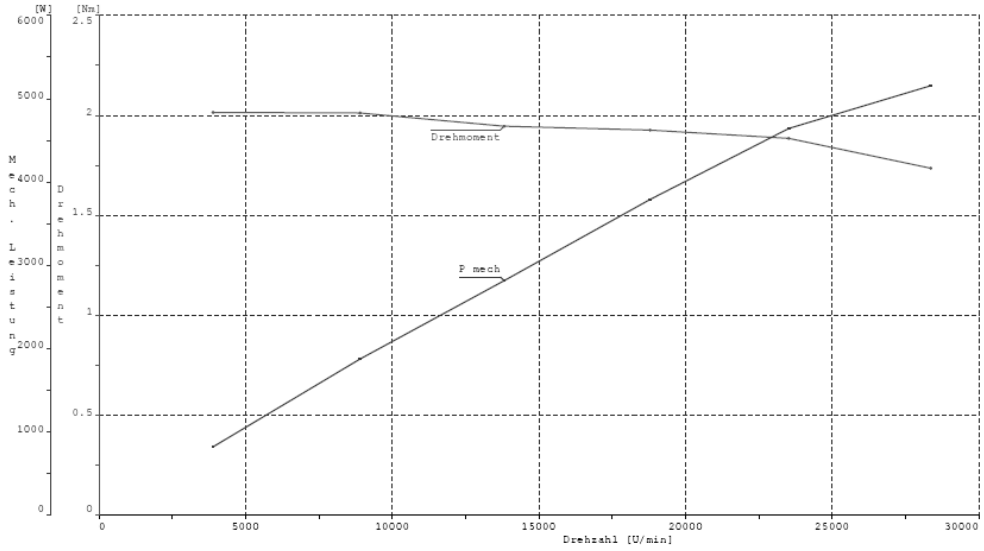


Z80–M530.03 S6 measured datas

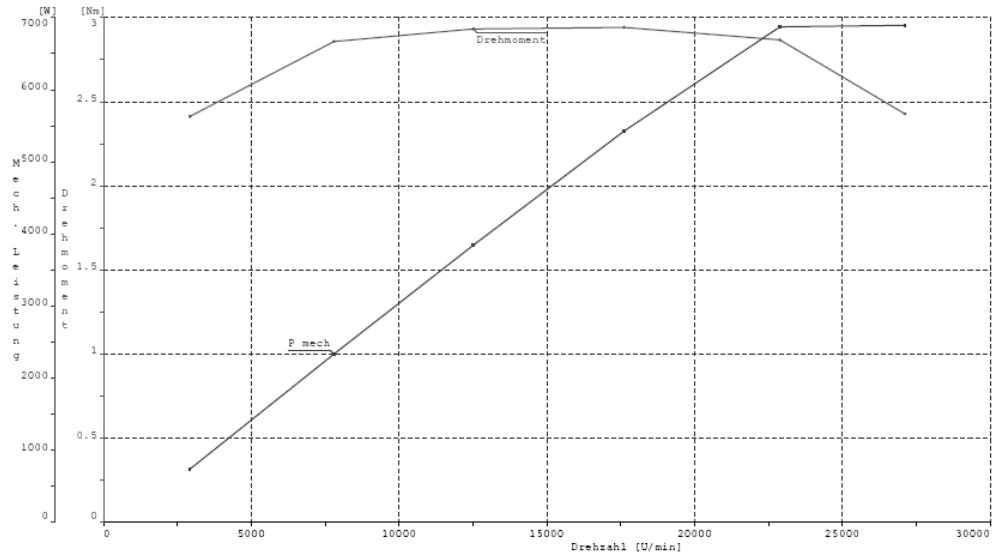
Power chart S1-100% ED (30.000 rpm = ***4,6 kw***; 30.000 rpm = ***1,88 Nm***)



Power chart S6-60% (30.000 rpm = ***5,1 kw***; 30.000 rpm =***2,02***N***m***)



Power chart pmax 5sec (30.000 rpm = ***6,9 kw***; 30.000 rpm =***2,94***N***m***)

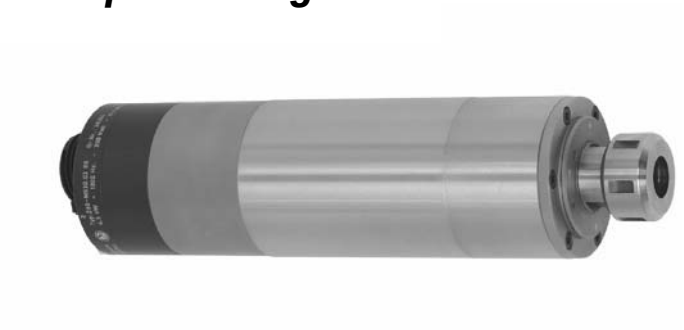


Z80-M530.03 S8

High-frequency spindle
Manual tool change

Spindle for high-speed milling, - grinding, -drilling, -engraving

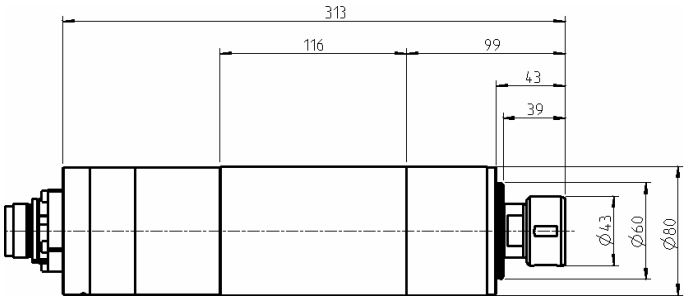
Example of design



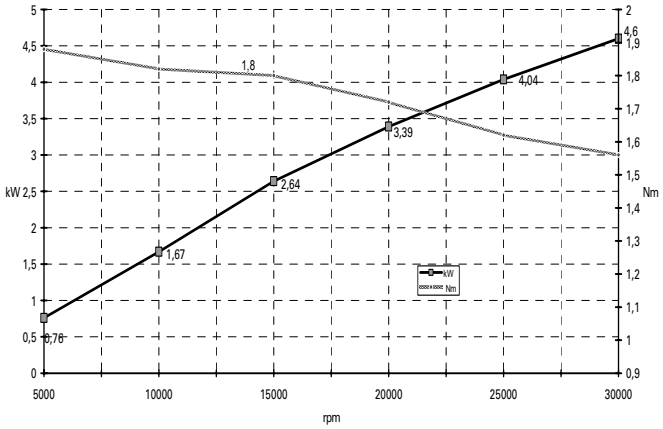
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 7
- Nominal output power: 4,6 kW (S1-100%)
- Nominal output power: max. 5,1 kW (S6-60%)
- Nominal output power: max. 6,9 kW (pmax 5 sec)
- Current voltage: max. 366 V
- Current: max. 16 A
- Frequency: max. 1000 Hz
- Motor poles: 2 pairs
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Tool change: Manual tool change
- Clamping range: up to 16 mm
- Coupler plug: 18-pole metal
- Weight: 8 Kg

Dimensions

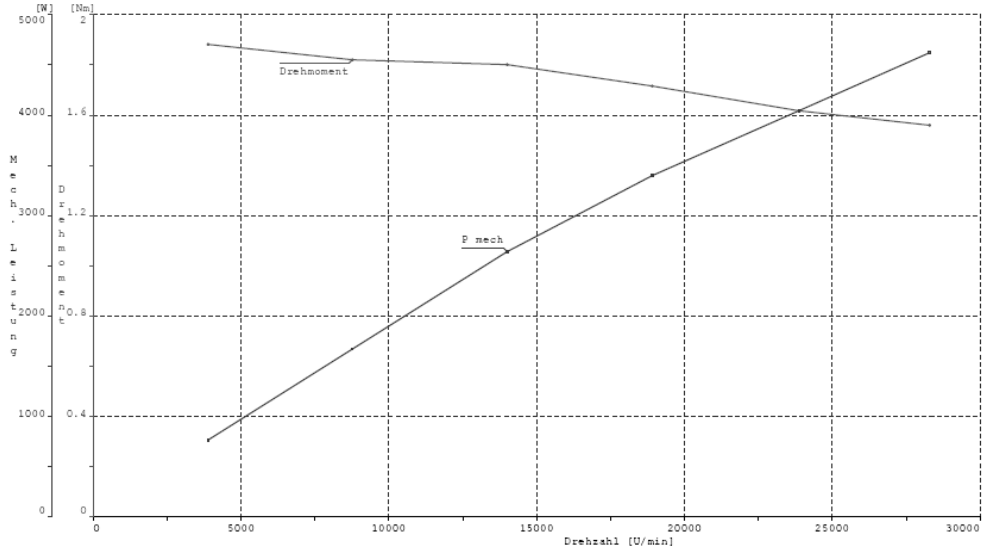


Power-, torque- and speed diagram S1-100%

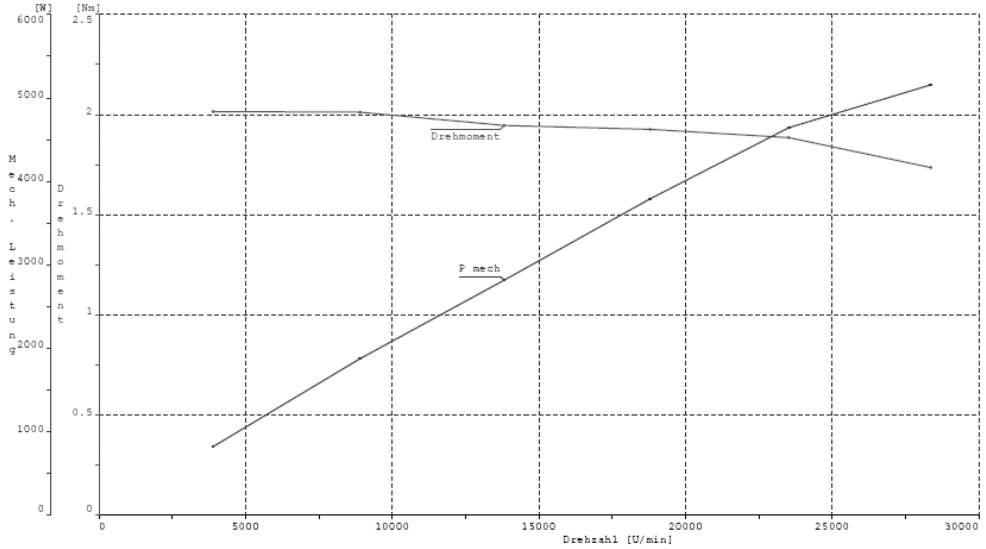


Z80–M530.03 S8 measured datas

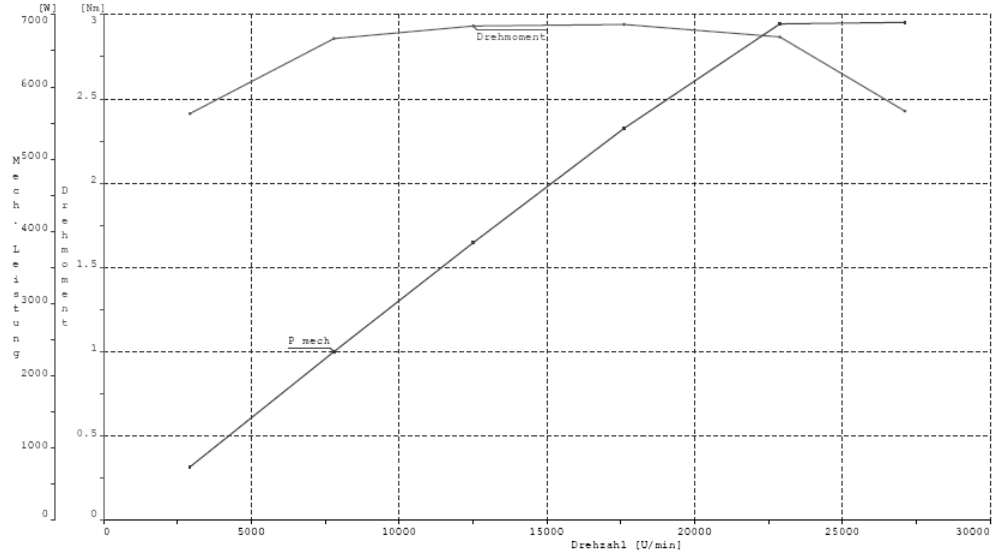
Power chart S1-100% ED (30.000 rpm = ***4,6 kw***; 30.000 rpm = ***1,88 Nm***)



Power chart S6-60% (30.000 rpm = ***5,1 kw***; 30.000 rpm =***2,02***N***m***)



Power chart pmax 5sec (30.000 rpm = ***6,9 kw***; 30.000 rpm =***2,94***N***m***)



Jäger High Performance Spindles

Z-SPINDLES PNEUMATIC DIRECT CHANGE

Z-Spindles pneumatic direct change are high-frequency machine spindles for high-speed milling, grinding, drilling and engraving.
The tool used in each case is changed automatically by a built-in pneumatic cylinder into the Z-Spindle. Tools are clamped through the use of traction collets.

Jäger High Performance Spindles utilize ***hybrid ceramic*** ball bearings. These bearings have standard steel bearing races and are matched with silicon nitride balls. Advantages of hybrid bearings compared with normal spindle bearings are improvement of:

- Reduced wear
- Rigidity
- Friction
- Axial shaft movement
- Reliability of operation
- Vibrations
- Fatigue life
- Accuracy

Spindle overview

Spindle type	Ceramic Hybrid Bearings (pcs)	Steel Bearings (pcs.)	Nominal Output Power (kw)	Voltage (V)	Current (A)	Max. Hz	Rotation Speed (max. rpm)	Housing Diameter (mm)	Pneumatic Direct Tool Change	Clamping Range Up To (mm)	Weight (kg)	Contact By Touch
33-1.26 W02		2	0,17	21	7	1000	60.000	33	x	3	0,65	
33-1.45 W07 S		2	0,17	21	7	1000	60.000	33	x	3	1,1	
33-1.26 W02-10	2		0,30	21	7	1666	100.000	33	x	3	1	
33-1.45 W07 S 10	2		0,30	21	7	1666	100.000	33	x	3	1,1	
Z33-D1100.02 S2Y	2		0,30	21	7	1666	100.000	33	x	3	1,1	
42-2.5 W32 FS	2		0,30	23	7	1000	60.000	42	x	6	2,2	
42-2.5 W34 FS	2		0,30	23	7	1000	60.000	42	x	6	2,2	x
Z45-D160.02 S3	3		1,2	106	11	1000	60.000	45	x	6	3,1	
Z45-D160.02 S15A	3		1,2	106	11	1000	60.000	45	x	6	3,1	x
Z62-D260.20 S2A	2		0,65	56	7	1000	60.000	62	x	6	3,3	x
KS2-10/80	2		1,20	142	4	1333	80.000	62	x	6	3,2	
Z62-D360.47 S2	2		1,20	140	6	1000	60.000	62	x	8	3,6	
Z62-D360.13 S4	2		1,60	140	6	1000	60.000	62	x	8	3,6	

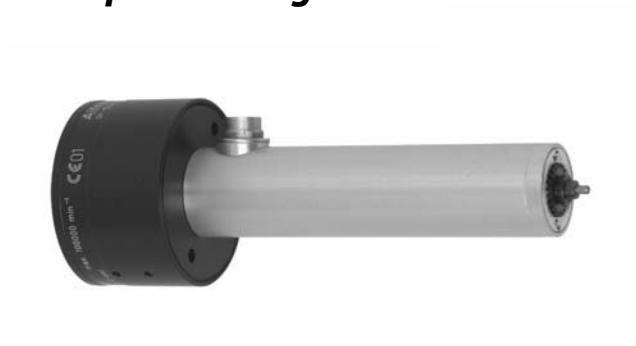
more on request

33-1.26 W02

High-frequency spindle
Pneumatic direct tool change

Spindle for high-speed milling, -grinding -drilling, -engraving

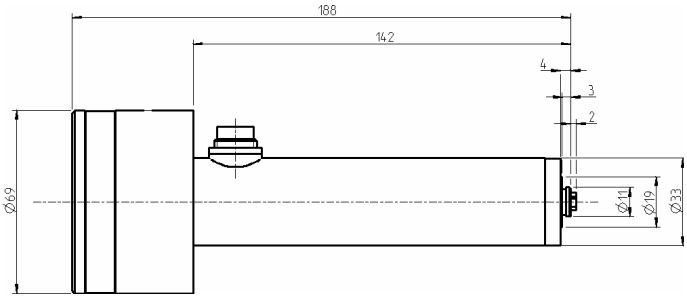
Example of design



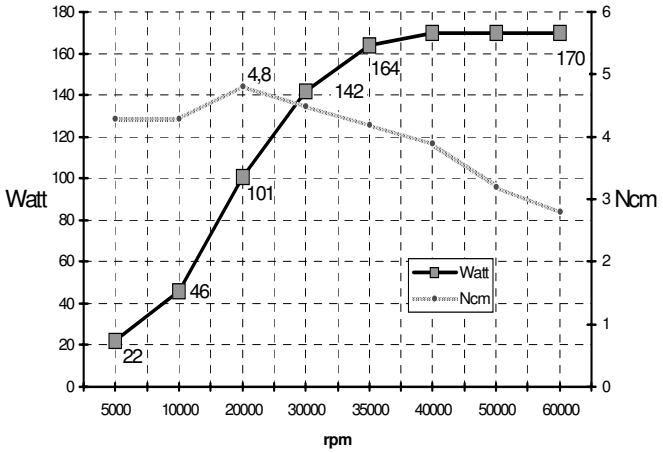
Technical specifications

- High precision steel ball bearings – 2Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 1
- Nominal output power: max. 0,17 kW
- Current voltage: max. 21 V
- Current: max. 7 A
- Frequency: max. 1000 Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Housing diameter: 33 mm
- Cooling system: non cooled
- Tool change: pneumatic direct tool change
- Clamping range: up to 3mm
- Coupler plug: 3-pole metal
- Weight: 0,65 Kg

Dimensions



Power-, torque -and speed diagram



33-1.45 W07 S

High-frequency spindle
Pneumatic direct tool change

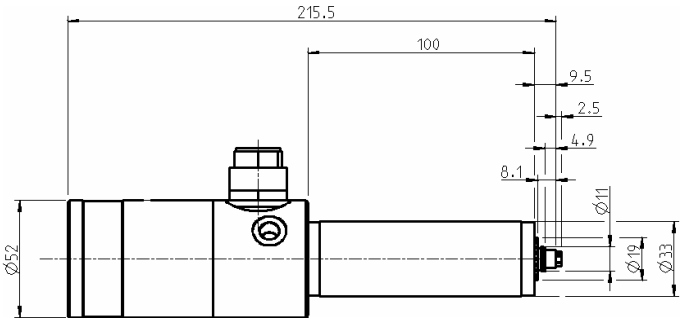
Spindle for high-speed milling, -grinding -drilling, -engraving

Example of design

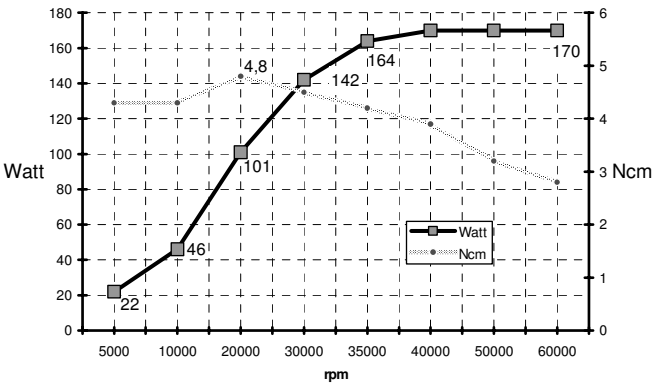
Technical specifications

- High precision steel ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 1
- Nominal output power: max. 0,17 kW
- Current voltage: max. 21 V
- Current: max. 7 A
- Frequency: max. 1000 Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Motor protection: thermistor
- Sealing-air
- Housing diameter: 33 mm
- Cooling system: non cooled
- Tool change: pneumatic direct tool change
- Clamping range: up to 3mm
- Coupler plug: 7-pole plastics
- Weight: 1,1 Kg

Dimensions



Power-, torque- and speed diagram

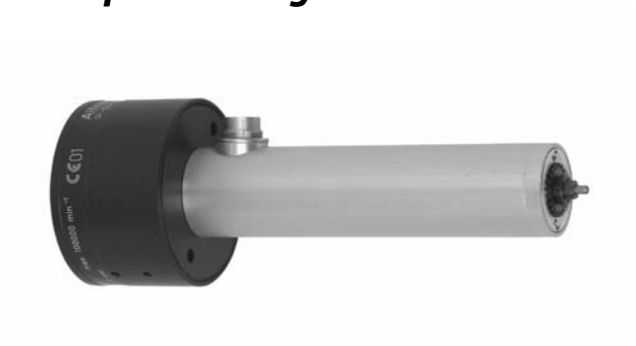


33-1.26 W02-10

High-frequency spindle
pneumatic direct tool change

Spindle for high-speed milling, -grinding, -drilling, -engraving

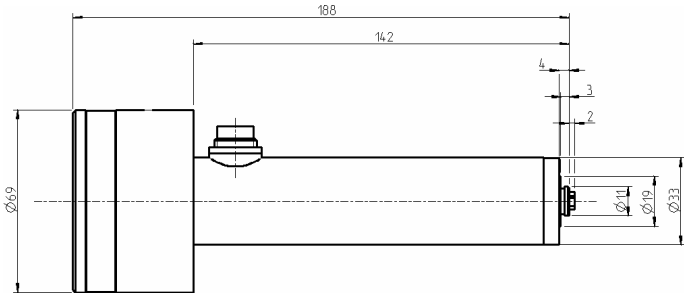
Example of design



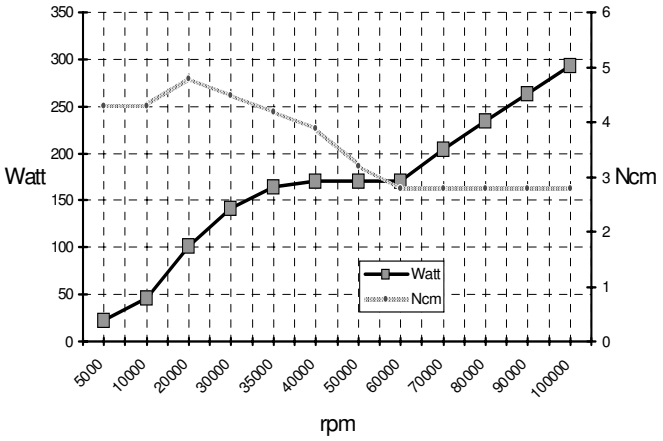
Technical specifications

- High precision hybrid ball bearings – 2Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 1
- Nominal output power: max. 0,3 kW
- Current voltage: max. 21 V
- Current: max. 7 A
- Frequency: max. 1666,6 Hz
- Motor poles: 1 pair
- Rotation speed: max. 100.000 rpm
- Housing diameter: 33 mm
- Cooling system: non cooled
- Tool change: pneumatic direct tool change
- Clamping range: up to 3mm
- Coupler plug: 3-pole metal
- Weight: 1 Kg

Dimensions



Power-, torque- and speed diagram



33-1.45 W07 S10

High-frequency spindle
Pneumatic direct tool change

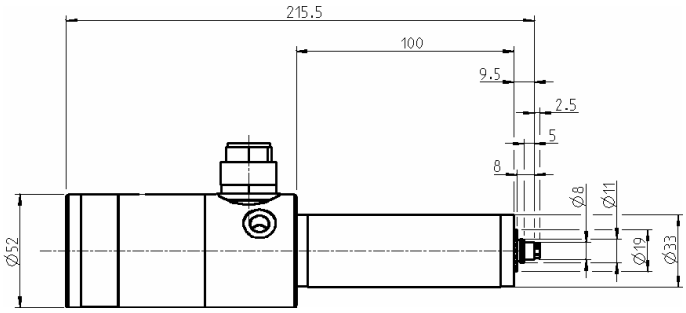
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

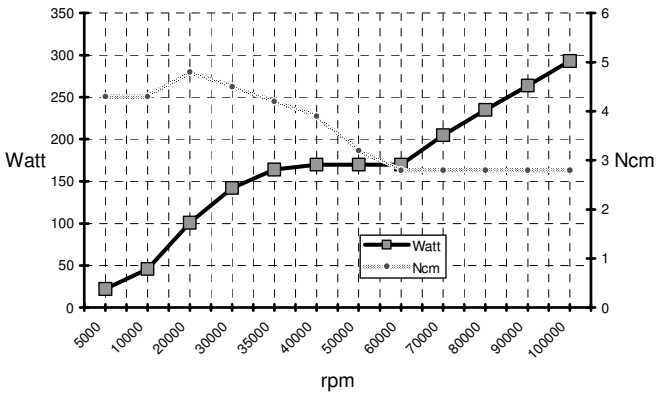
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 1
- Nominal output power: max. 0,3 kW
- Current voltage: max. 21 V
- Current: max. 7 A
- Frequency: max. 1666,6 Hz
- Motor poles: 1 pair
- Rotation speed: max. 100.000 rpm
- Motor protection: thermistor
- Sealing-air
- Housing diameter: 33 mm
- Cooling system: non cooled
- Tool change: pneumatic direct tool change
- Clamping range: up to 3mm
- Coupler plug: 7-pole plastics
- Weight: 1,1 Kg

Dimensions



Power-, torque- and speed diagram

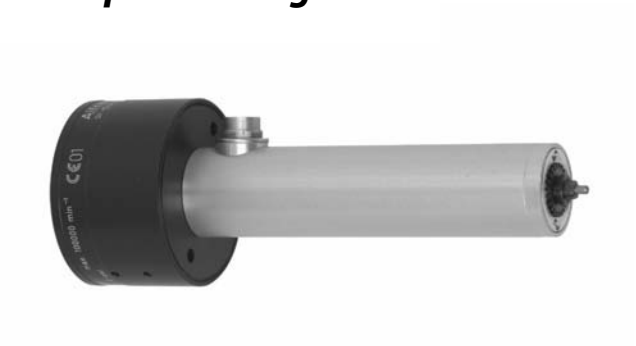


Z33-D1100.02 S2Y

High-frequency spindle
Pneumatic direct tool change

Spindle for high-speed milling, -grinding, -drilling, -engraving

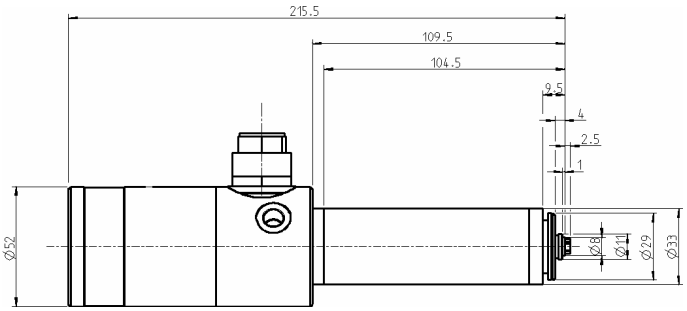
Example of design



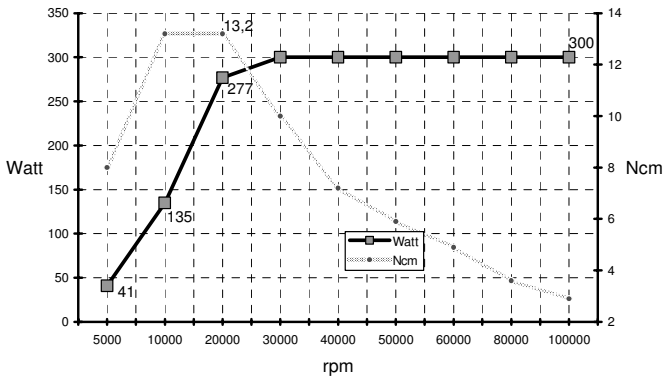
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 1
- Nominal output power: max. 0,3 kW
- Current voltage: max. 21 V
- Current: max. 7 A
- Frequency: max. 1666 Hz
- Motor poles: 1 pair
- Rotation speed: max. 100.000 rpm
- Motor protection: thermistor
- Sealing-air
- Housing diameter: 33 mm
- Cooling system: non cooled
- Tool change: pneumatic direct tool change
- Clamping range: up to 3mm
- Coupler plug: 7-pole plastics
- Weight: 1,1 Kg

Dimensions



Power-, torque- and speed diagram



42-2.5 W32 FS

High-frequency spindle
Pneumatic direct tool change

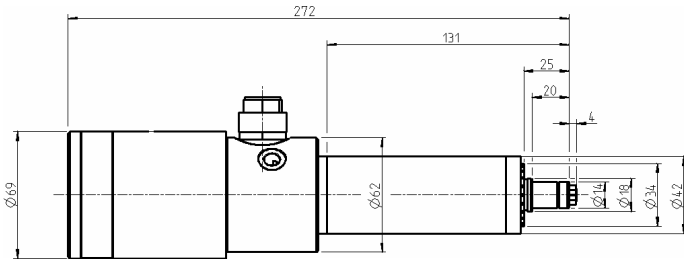
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

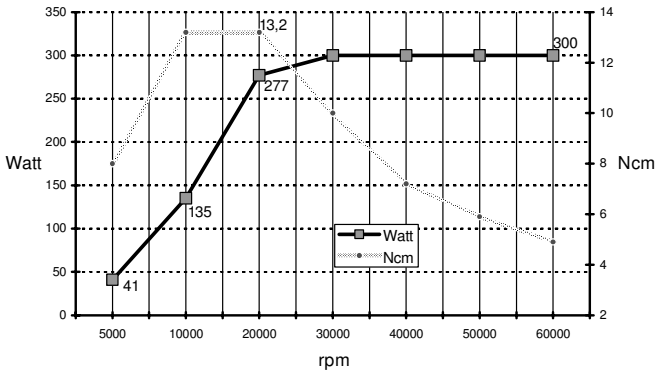
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 2
- Nominal output power: max. 0,3 kW
- Current voltage: max. 23 V
- Current: max. 7 A
- Frequency: max. 1000Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 42 mm
- Cooling system: non cooled
- Tool change: pneumatic direct tool change
- Clamping range: up to 6 mm (1/4")
- Coupler plug: 7-pole plastics
- Weight: 2,2 kg

Dimensions



Power-, torque- and speed diagram



42-2.5 W34 FS

High-frequency spindle
Pneumatic direct tool change

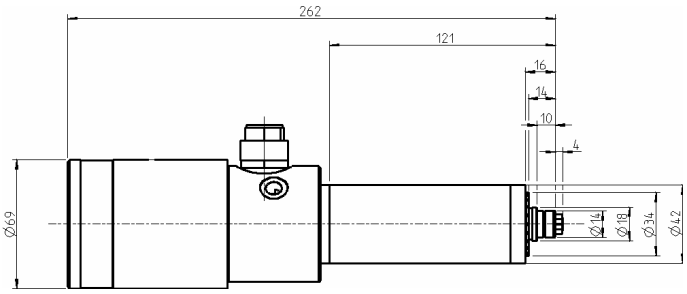
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

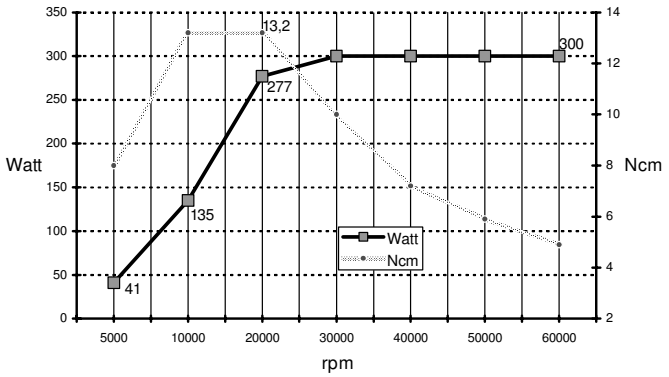
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 2
- Nominal output power: max. 0,3 kW
- Current voltage: max. 23 V
- Current: max. 7 A
- Frequency: max. 1000Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 42 mm
- Cooling system: non cooled
- Tool change: pneumatic direct tool change
- Clamping range: up to 6 mm (1/4")
- Coupler plug: 7-pole plastics
- Contact by touch
- Weight: 2,2 kg

Dimensions



Power-, torque- and speed diagram



Z45-D160.02 S3

High-frequency spindle
Pneumatic direct tool change

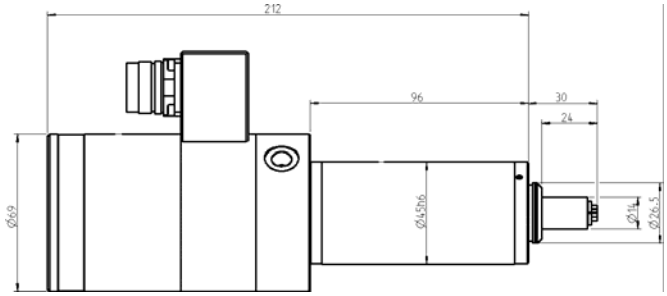
Spindle for high-speed milling, -grinding, -drilling, -engraving

Technical specifications

- High precision hybrid ball bearings – 3pcs.
- Lifetime lubricated, maintenance free
- Motor: Type 2
- Nominal output power (non-cooled): Pmax. 1,0 kW
  S1-100% ED 0,5 kW
  - Rated voltage : Pmax. 91V
    S1-100% ED 90 V
  - Rated current: Pmax. 9 A
    S1- 100% ED 5 A
- Nominal output power (cooled): Pmax. 1,2 kW
  S1-100% ED 0,5 kW
  - Rated voltage : Pmax. 106V
    S1-100% ED 95 V
  - Rated current: Pmax. 11,0 A
    S1- 100% ED 6 A
- Frequency: max. 1000Hz
- Motor Poles: 1 pair
- Speed: max. 60.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 45 mm
- Cooling System: non-cooled /via spindle bracket
- Tool change: pneumatic direct tool change
- Clamping range: up to 6 mm (1/4")
- Coupler plug: 8-pole metal
- Weight: 3,1 kg

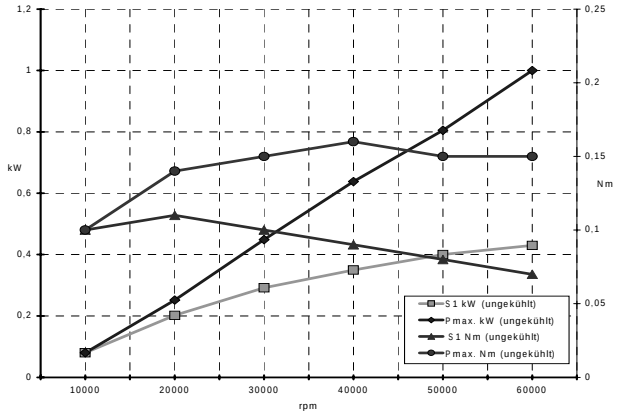
Example of design

Dimensions

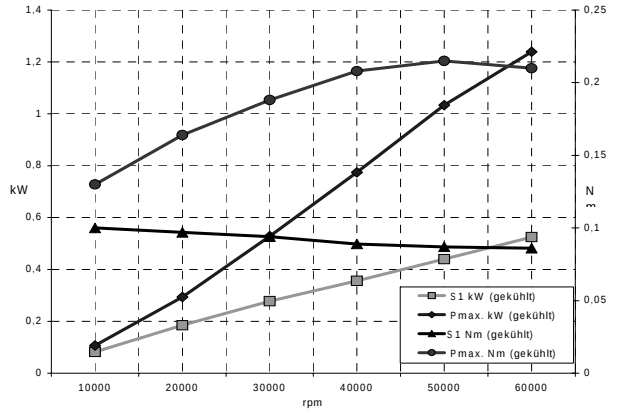


Power-, torque- and speed diagram

Non-cooled:



Cooled (via clamping bracket):



Z45-D160.02 S15A

High-frequency spindle
Pneumatic direct tool change

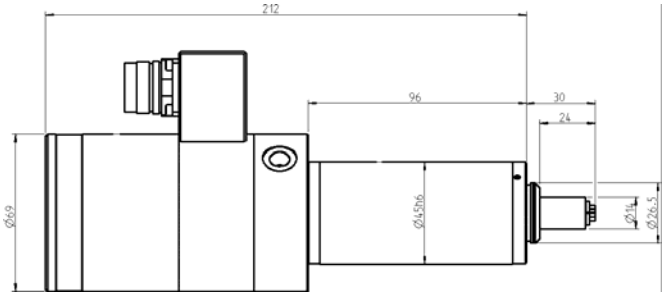
Spindle for high-speed milling, -grinding, -drilling, -engraving

Technical specifications

- High precision hybrid ball bearings – 3pcs.
- Lifetime lubricated, maintenance free
- Motor: Type 2
- Nominal output power (non-cooled): Pmax. 1,0 kW; S1-100% ED 0,5 kW
  - Rated voltage : Pmax. 91V; S1-100% ED 90 V
  - Rated current: Pmax. 9 A; S1- 100% ED 5 A
- Nominal output power (cooled): Pmax. 1,2 kW; S1-100% ED 0,5 kW
  - Rated voltage : Pmax. 106V; S1-100% ED 95 V
  - Rated current: Pmax. 11,0 A; S1- 100% ED 6 A
- Frequency: max. 1000Hz
- Motor Poles: 1 pair
- Speed: max. 60.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 45 mm
- Cooling System: non-cooled /via spindle bracket
- Tool change: pneumatic direct tool change
- Clamping range: up to 6 mm (1/4")
- Coupler plug: 7-pole plastics
- Weight: 3,1 kg
- Contact by touch (or ESD Protection)

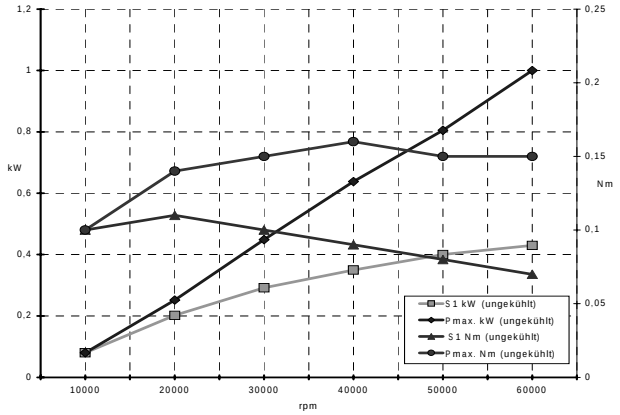
Example of design

Dimensions

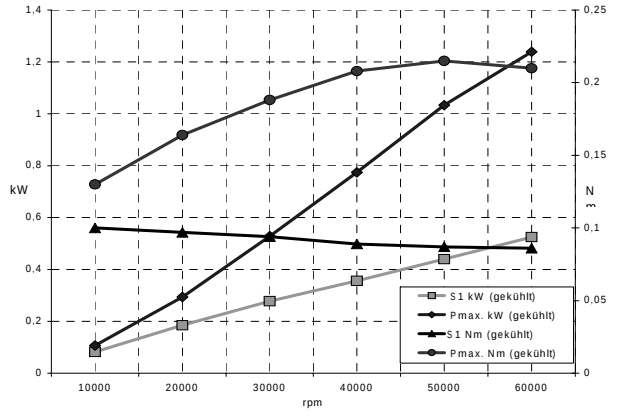


Power-, torque- and speed diagram

Non-cooled:



Cooled (via clamping bracket):



Z62-D260.20 S2A

High-frequency spindle
Pneumatic direct tool change

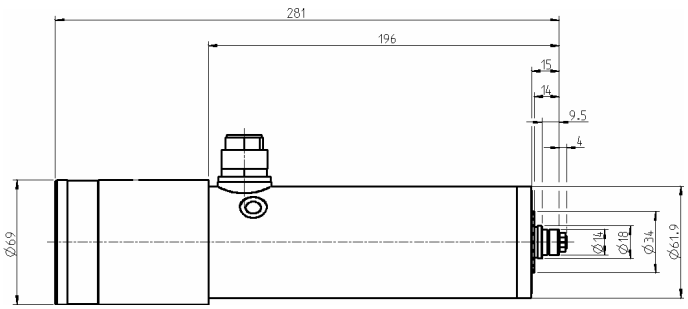
Spindle for high-speed milling, -grinding, -drilling, -engraving

Technical specifications

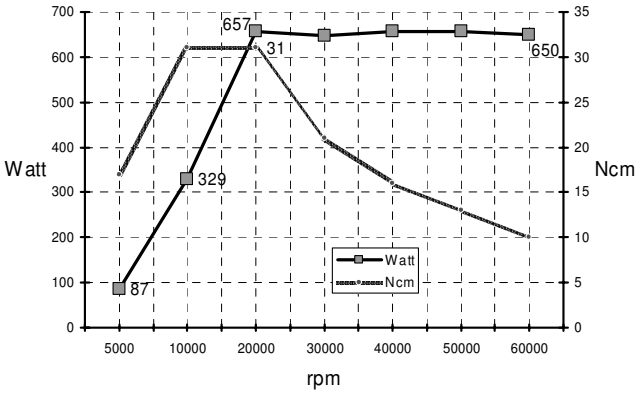
- High precision hybrid ball bearings – 2Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: max. 0,65 kW
- Current voltage: max. 56 V
- Currrent: max. 7 A
- Frequency: max. 1000 Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 62 mm
- Cooling system: non cooled
- Tool change: manual tool change
- Clamping range: up to 6 mm (1/4“)
- Coupler plug: 7-pol plastics
- Weight: ca. 3,3 kg
- Contact by touch

Example of design

Dimensions



Power-, torque- and speed diagram



KS2-10/80

High-frequency spindle
Pneumatic direct tool change

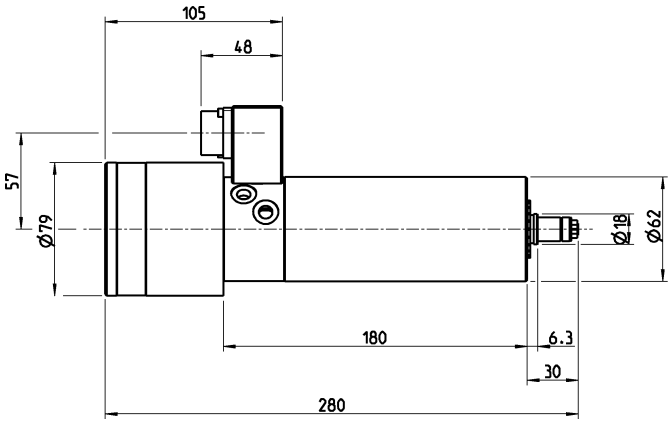
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

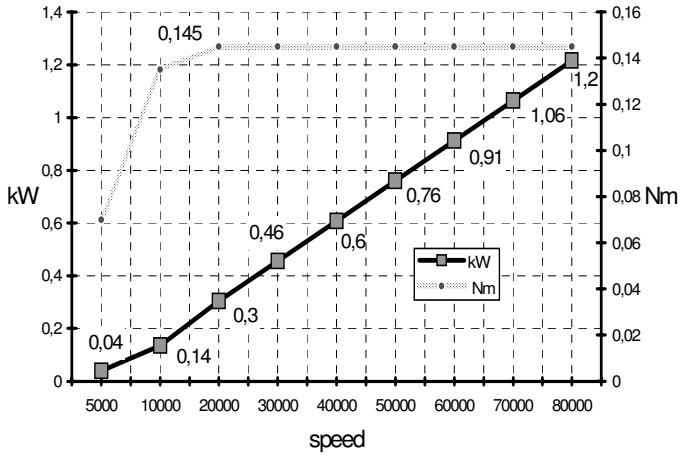
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 2
- Nominal output power: max. 1,2 kW
- Current voltage: max. 142 V
- Current: max. 4 A
- Frequency: max. 1333,4 Hz
- Motor poles: 1 pair
- Rotation speed: max. 80.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 62 mm
- Cooling system: liquid cooled
- Tool change: pneumatic direct tool change
- Clamping range: up to 6 mm
- Coupler plug: 9-pole plastics
- Weight: 3,2 Kg

Dimensions



Power-, torque- and speed diagram



Z62-D360.47 S2

High-frequency spindle
Pneumatic direct tool change

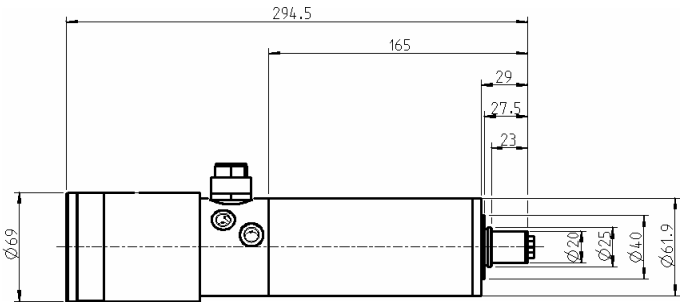
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

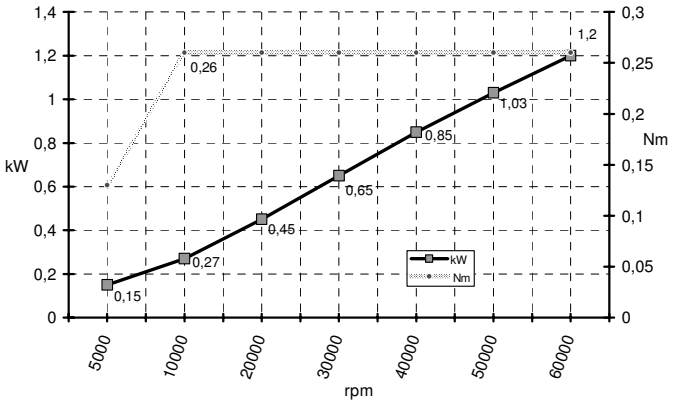
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 4
- Nominal output power: max. 1,2 kW
- Current voltage: max. 140 V
- Current: max. 6 A
- Frequency: max. 1000 Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 62 mm
- Cooling system: liquid cooled
- Tool change: pneumatic direct tool change
- Clamping range: up to 8 mm
- Coupler plug: 7-pole plastics
- Weight: 3,6 Kg

Dimensions



Power-, torque- and speed diagram



Z62-D360.13 S4

High-frequency spindle
Pneumatic direct tool change

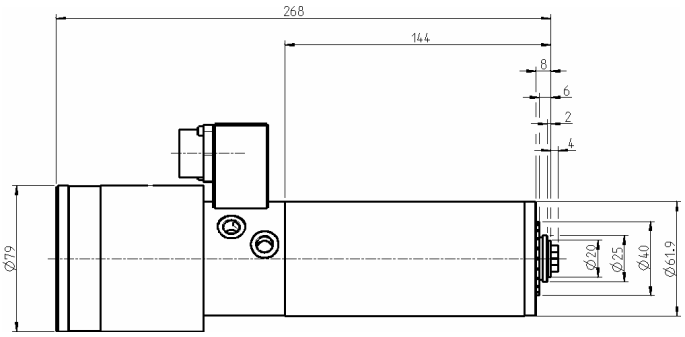
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

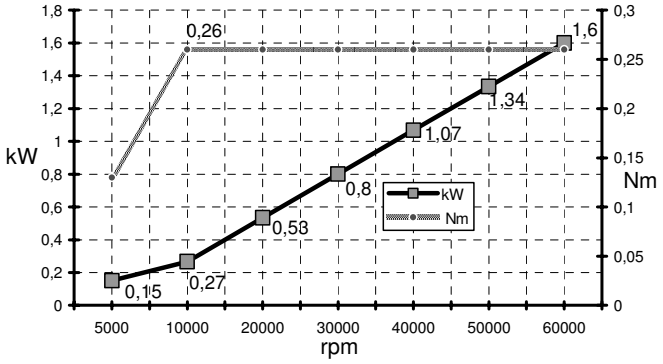
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 4
- Nominal output power: max. 1,6 kW
- Current voltage: max. 140 V
- Current: max. 6 A
- Frequency: max. 1000 Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 62 mm
- Cooling system: liquid cooled
- Tool change: pneumatic direct tool change
- Clamping range: up to 8 mm
- Coupler plug: 9-pole plastics
- Weight: 3,6 Kg

Dimensions



Power-, torque- and speed diagram



Jäger
High Performance Spindles

Z-SPINDLES PNEUMATIC TAPER CHANGE

Z-Spindles pneumatic taper change are high-frequency machine spindles for high-speed milling, grinding, drilling and engraving. The tool used in each case is changed automatically by a built-in pneumatic cylinder into the Z-Spindle. Tools are clamped through the use of WK-tapers, WK-shrinking tapers or HSK-tapers.
Jäger High Performance Spindles utilize ***hybrid ceramic*** ball bearings . These bearings have standard steel bearing races and are matched with silicon nitride balls. Advantages of hybrid bearings compared with normal spindle bearings are improvement of:

- Reduced wear
- Rigidity
- Friction
- Axial shaft movement
- Reliability of operation
- Vibrations
- Fatigue life
- Accuracy

Spindle overview

Spindle Tyoe	Ceramic Hybrid Bearings (pcs.)	Nominal Output Power (kw)	Voltage (V)	Current (A)	Max. Hz	Rotation Speed (max. rpm)	Housing Diameter (mm)	Pneumatic Change Of Toolholder	HSK	Clamping Range Up To (mm)	Tool Change Monitoring	Encoder Controlled	Minimal Lubrication System
Z62-K360.12 S4	2	1,60	140	6	1000	60.000	62	x		6			
Z62-K360.40 S4	4	1,60	140	6	1000	60.000	62	x		6			
Z62-K360.41 S5 AC	4	1,60	140	6	1000	60.000	62	x		6			x
Z80-H450.03 S5W2	2	1,80	191	7	1666	50.000	80	x	E-25	10	x		
Z80-K450.16 S4	2	1,80	156	7	833	50.000	80	x		8			
Z80-K450.16 S5	2	1,80	156	7	833	50.000	80	x		8			
Z80-K440.21 S4	4	6	330	20	1333	40.000	80	x		10			
Z80-K450.21 S4	4	2,60	186	11,50	833	50.000	80	x		10			
Z80-K450.21 S5	4	2,60	186	11,50	833	50.000	80	x		10			
Z80-K440.55 S5W2	4	6	330	20	1333	40.000	80	x		10	x		
Z80-H542.05 S8W2	4	7	366	16	1400	42.000	80	x	E-32	13	x		
Z80-K530.02 S6	4	6,9	366	16	1000	30.000	80	x		16			
Z80-K530.02 S6W2	4	6,9	366	16	1000	30.000	80	x		16	x		
Z100-H535.01 S11	4	11,2	252	43	1166	35.000	100	x	E-40	16	opt.		
Z100-H530.01 K06W2V	4	10	252	43	1000	30.000	100	x	E-40	16	x	x	

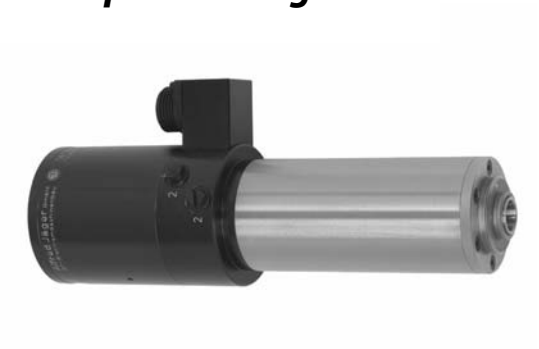
more on request

Z62-K360.12 S4

High-frequency spindle
Pneumatic change of toolholder

Spindle for high-speed milling, -grinding, -drilling, -engraving

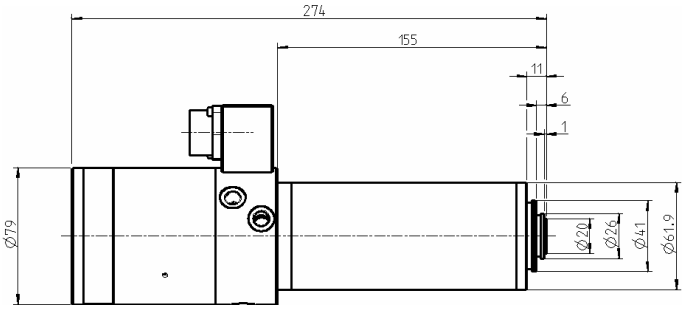
Example of design



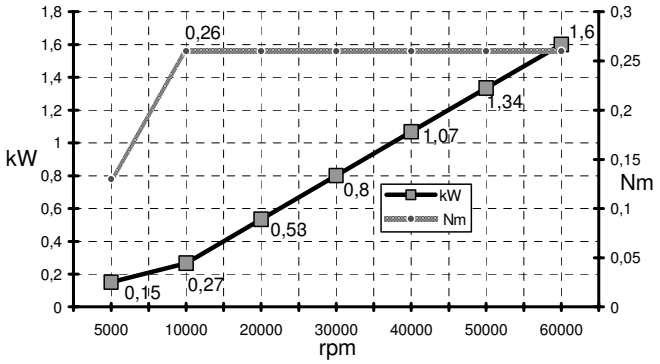
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 4
- Nominal output power: max. 1,6 kW
- Current voltage: max. 140 V
- Current: max. 6 A
- Frequency: max. 1000 Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 62 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of toolholder
- Clamping range: up to 6 mm
- Coupler plug: 9-pole plastics
- Weight: 3,8 Kg

Dimensions



Power-, torque- and speed diagram



Z62-K360.40 S4

High-frequency spindle
Pneumatic change of toolholder

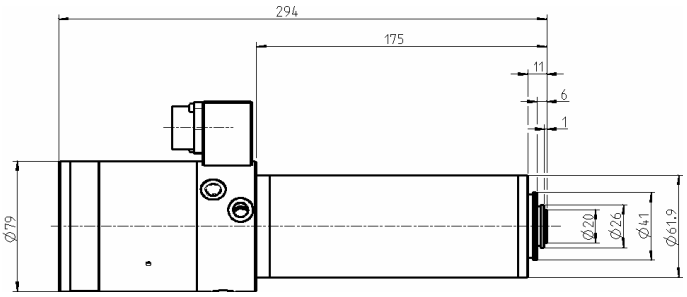
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

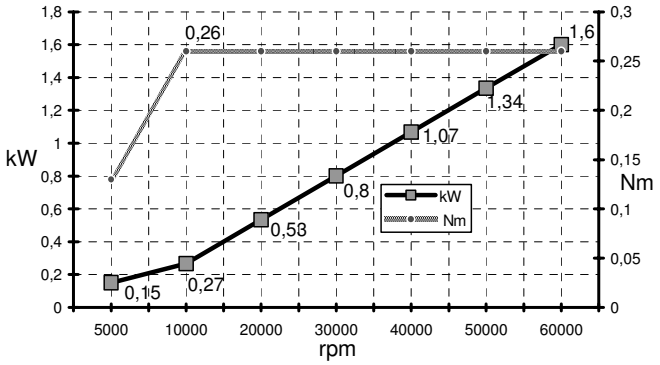
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 4
- Nominal output power: max. 1,6 kW
- Current voltage: max. 140 V
- Current: max. 6 A
- Frequency: max. 1000 Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 62 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of toolholder
- Clamping range: up to 6 mm
- Coupler plug: 9-pole plastics
- Weight: 4 Kg

Dimensions



Power-, torque- and speed diagram



Z80-H450.03 S5W2

High-frequency spindle
Pneumatic change of toolholder
HSK-E 25

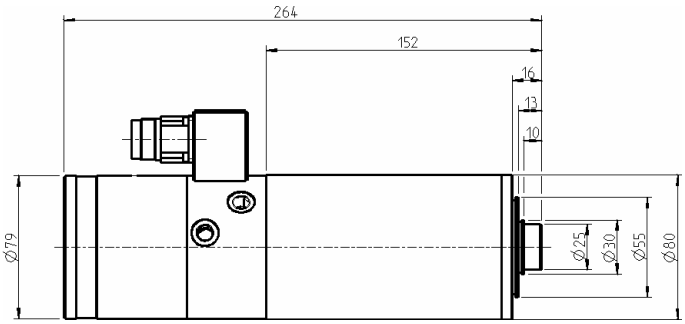
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

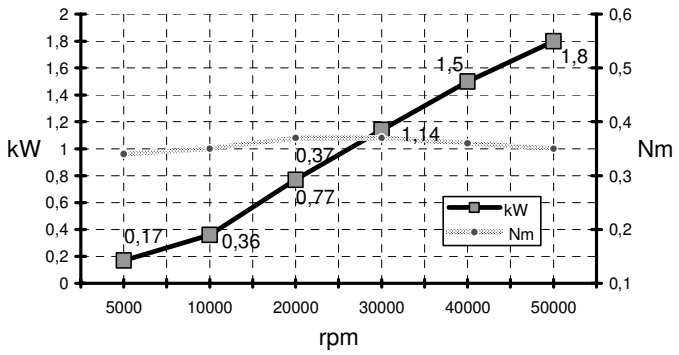
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: max. 1,8 kW
- Current voltage: max. 191 V
- Current: max. 7 A
- Frequency: max. 1666Hz
- Motor poles: 2 pair
- Rotation speed: max. 50.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of HSK-E 25
- Tool change monitoring: inductiv
- Clamping range: up to 10 mm
- Coupler plug: 9-pole metal
- Weight: 6 Kg

Dimensions



Power-, torque- and speed diagram



Z80-K450.16 S4

High frequency spindle
Pneumatic change of toolholder

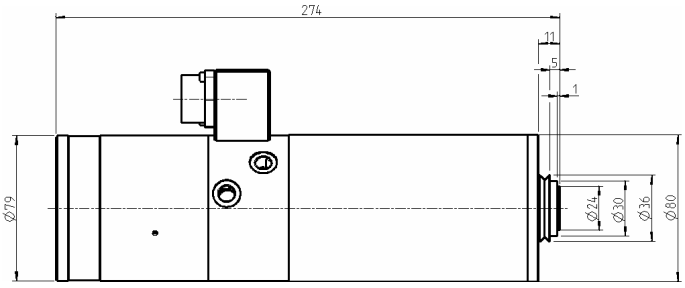
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

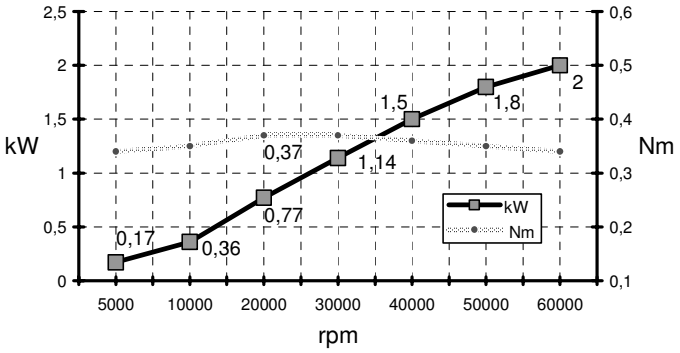
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: max. 1,8 kW
- Current voltage: max. 156 V
- Current: max. 7 A
- Frequency: max. 833 Hz
- Motor poles: 1 pair
- Rotation speed: max. 50.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of toolholder
- Clamping range: up to 8 mm
- Coupler plug: 9-pole plastics
- Weight: 5,3 Kg

Dimensions



Power-, torque- and speed diagram



Z80-K450.16 S5

High-frequency spindle
Pneumatic change of toolholder

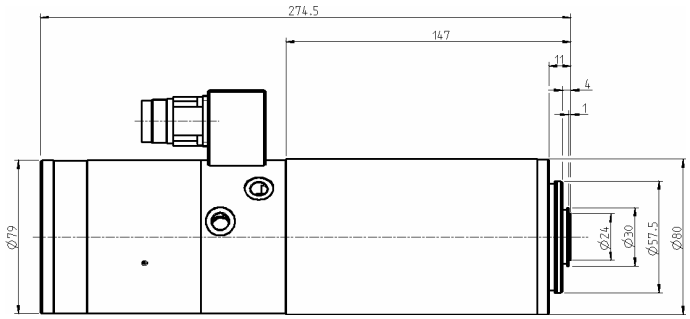
Spindle for high-speed milling, -grinding, -drilling, -engraving

Technical specifications

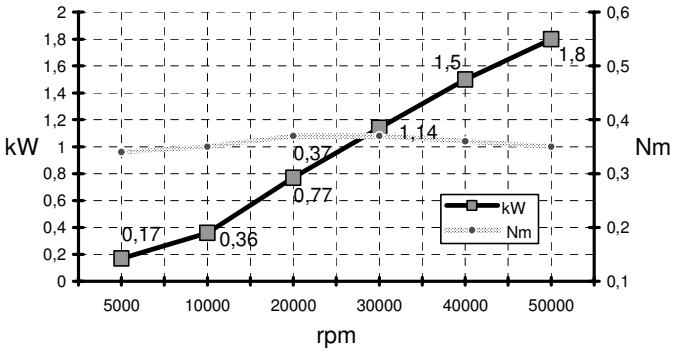
- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: max. 1,8 kW
- Current voltage: max. 156 V
- Current: max. 7 A
- Frequency: max. 833 Hz
- Motor poles: 1 pair
- Rotation speed: max. 50.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of toolholder
- Clamping range: up to 8 mm
- Coupler plug: 9-pole metal
- Weight: 5,3 Kg

Example of design

Dimensions



Power-, torque- and speed diagram



Z80-K440.21 S4

High-frequency spindle
Pneumatic change of toolholder

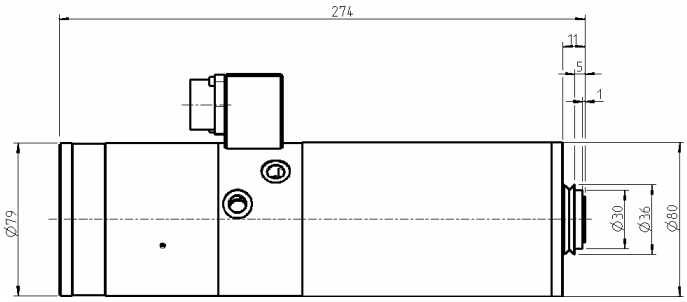
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

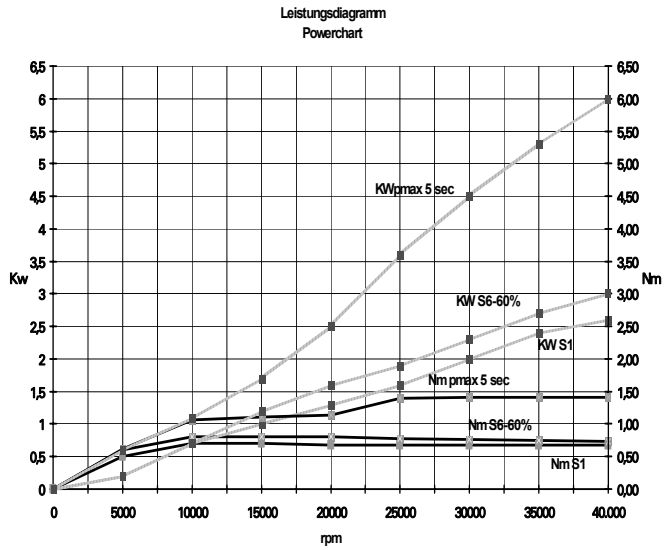
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: pmax. 6 kW
- Nominal output power: S1-100% ED 2,5 kW
- Nominal output power: S6-60% 3 kW
- Voltage: pmax. 330 V
- Current: pmax. 20 A
- Frequency: max. 1333 Hz
- Motor poles: 2 pairs
- Rotation speed: max. 40.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of toolholder
- Clamping range: up to 10 mm
- Coupler plug: 9-pole plastics
- Weight: 5,8 Kg

Dimensions

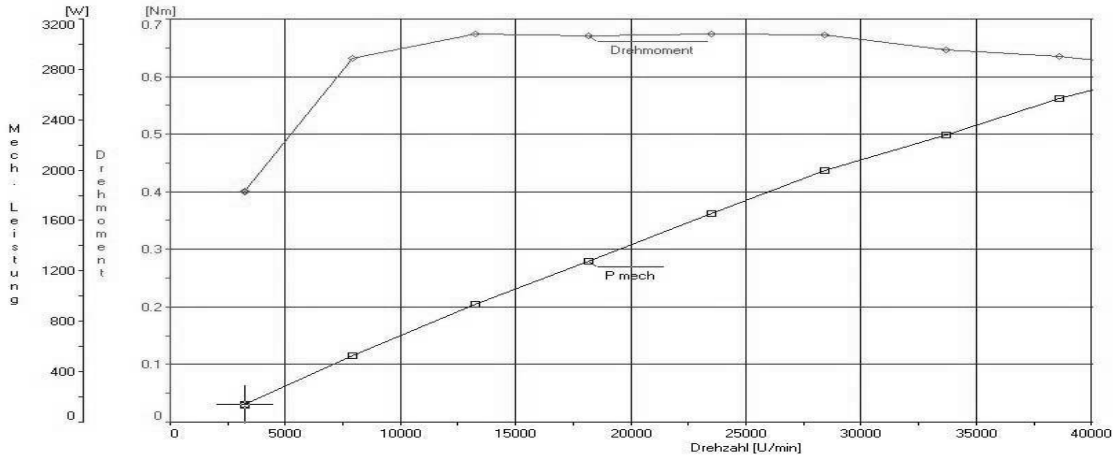


Power-, torque- and speed diagram

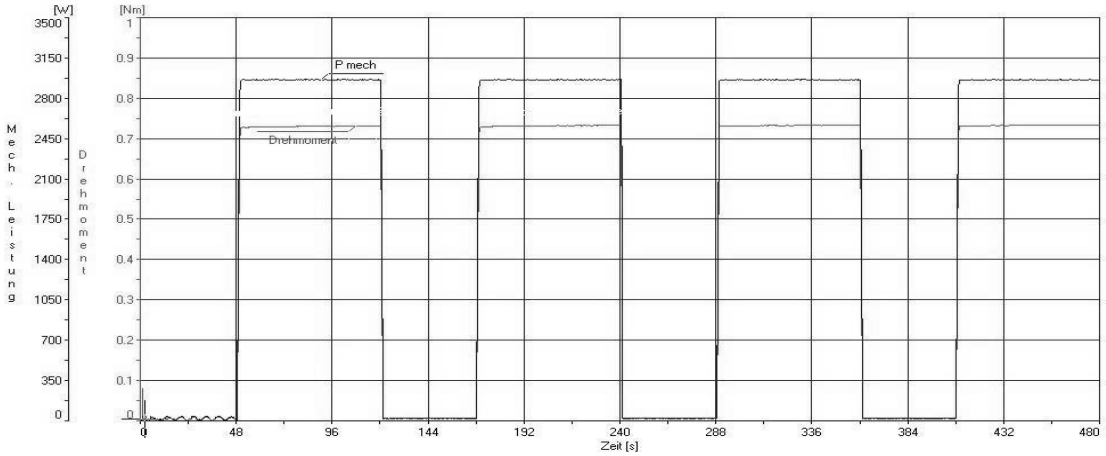


Z80-K440.21 S4 – measured datas

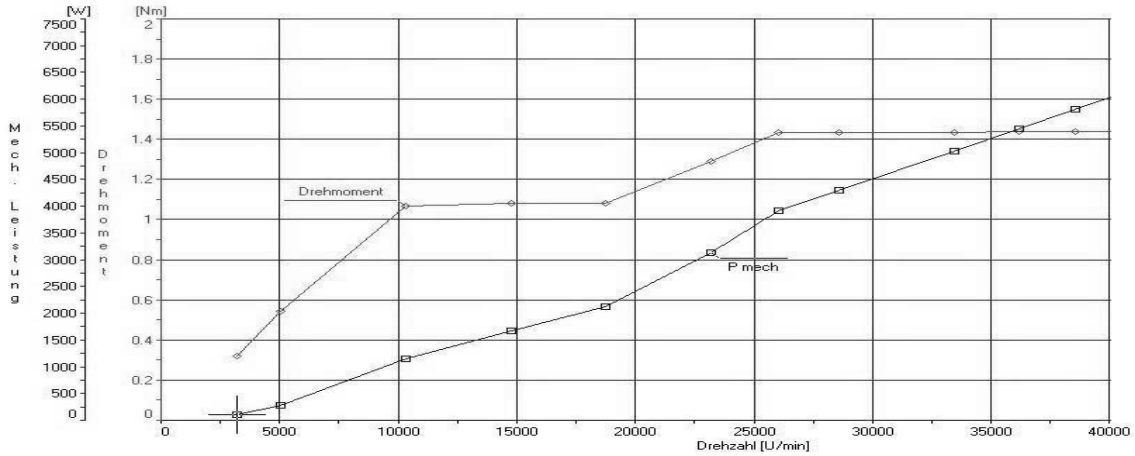
Power chart S1-100% ED (40.000 rpm = ***2,5 kw***; 40.000 rpm = ***0,63Nm***)



Power chart S6-60% (40.000 rpm = ***3,0 kw***; 40.000 rpm = ***0,73Nm***)



Power chart pmax 5sec (40.000 rpm = ***6,0 kw***; 40.000 rpm = ***1,44Nm***)



Z80-K450.21 S4

High-frequency spindle
Pneumatic change of toolholder

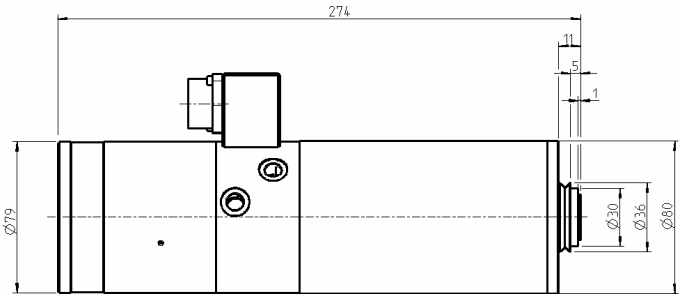
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

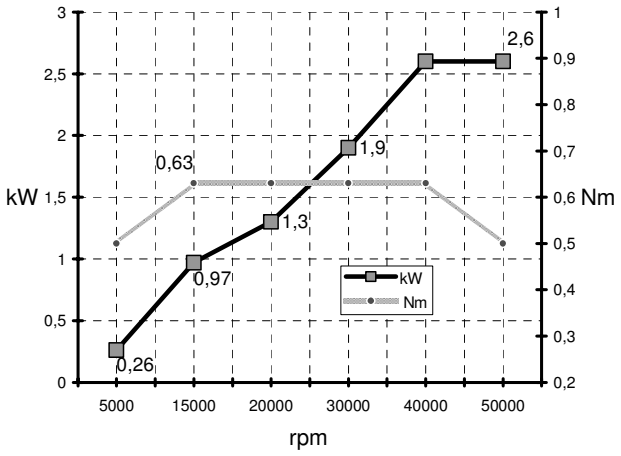
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: max. 2,6 kW
- Current voltage: max. 186 V
- Current: max. 11,5 A
- Frequency: max. 833 Hz
- Motor poles: 1 pair
- Rotation speed: max. 50.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of toolholder
- Clamping range: up to 10 mm
- Coupler plug: 9-pole plastics
- Weight: 5,8 Kg

Dimensions



Power-, torque- and speed diagram



Z80-K450.21 S5

High-frequency spindle
Pneumatic change of toolholder

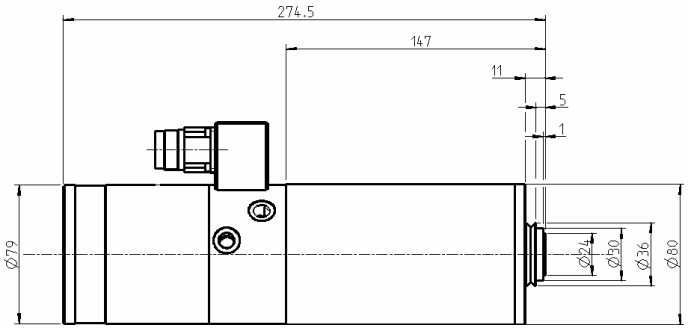
Spindle for high-speed milling, -grinding -drilling, -engraving

Example of design

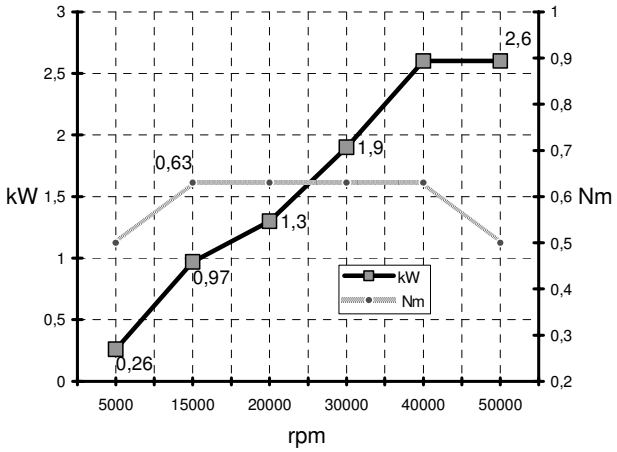
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: max. 2,6 kW
- Current voltage: max. 186 V
- Current: max. 11,5 A
- Frequency: max. 833Hz
- Motor poles: 1 pair
- Rotation speed: max. 50.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of toolholder
- Clamping range: up to 10 mm
- Coupler plug: 9-pole metal
- Weight: 5,8 Kg

Dimensions



Power-, torque- and speed diagram



Z80-K440.55 S5W2

High-frequency spindle
Pneumatic change of toolholder

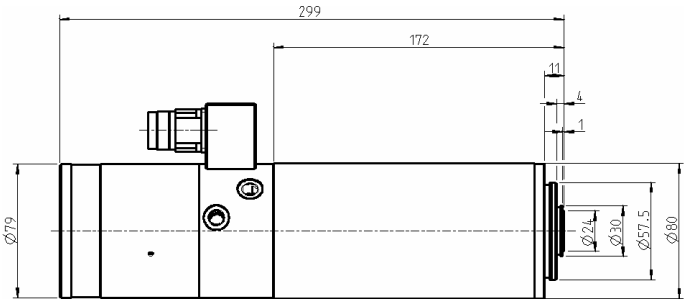
Spindle for high-speed milling, -grinding, -drilling, -engraving

Technical specifications

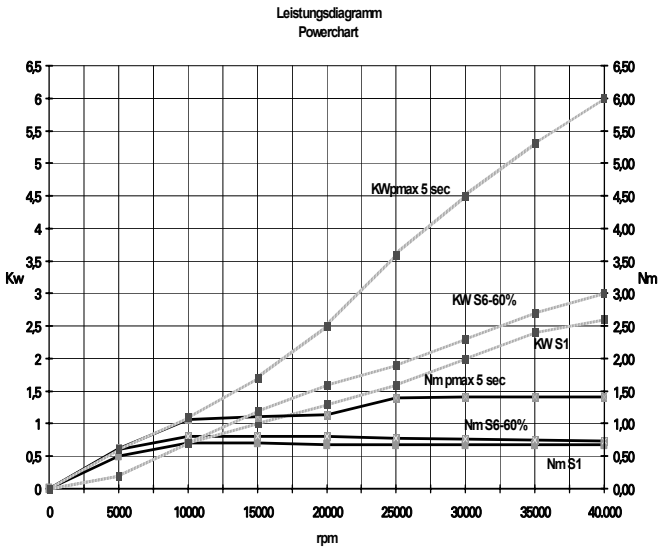
- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: pmax. 6 kW
- Nominal output power: S1-100% ED 2,5 kW
- Nominal output power: S6-60% 3,0 KW
- Voltage: pmax. 330 V
- Current: pmax. 20 A
- Frequency: max. 1333 Hz
- Motor poles: 2 pairs
- Rotation speed: max. 40.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of toolholder
- Tool change monitoring: inductiv
- Clamping range: up to 10 mm
- Coupler plug: 9-pole metal
- Weight: 6,0 Kg

Example of design

Dimensions

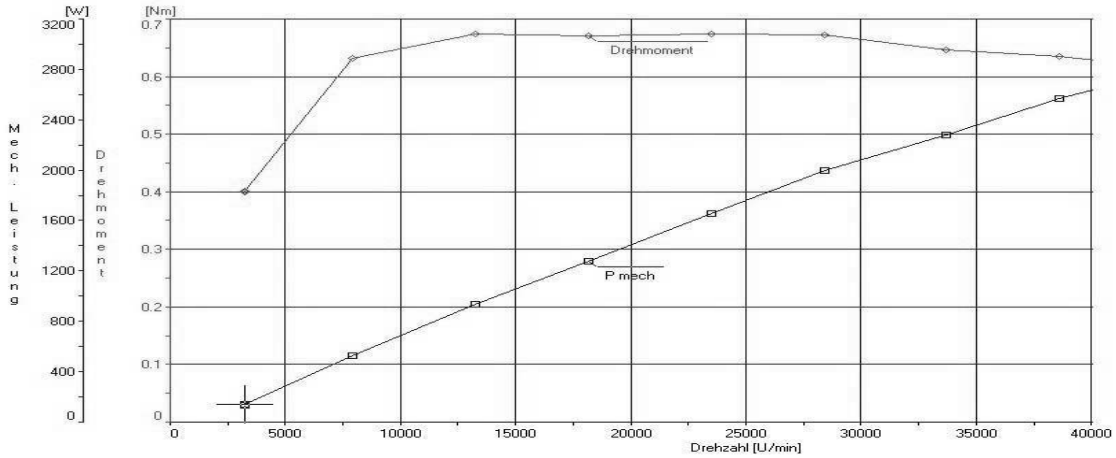


Power-, torque- and speed diagram

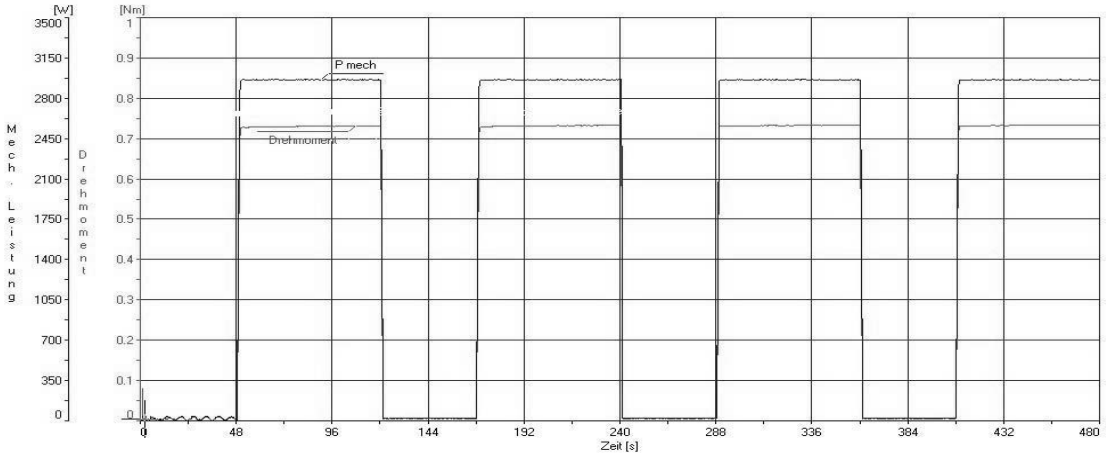


Z80-K440.55 S5W2 – measured datas

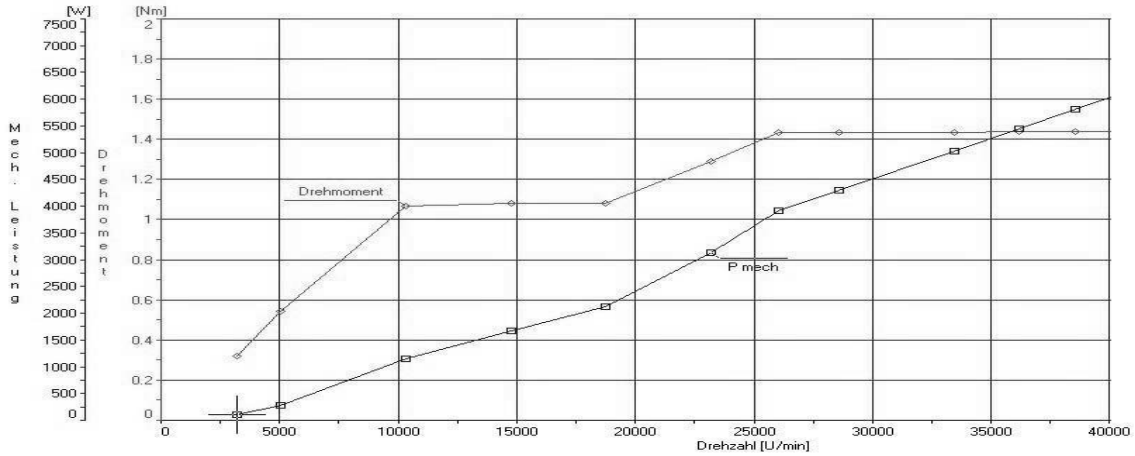
Power chart S1-100% ED (40.000 rpm = ***2,5 kw***; 40.000 rpm = ***0,63Nm***)



Power chart S6-60% (40.000 rpm = ***3,0 kw***; 40.000 rpm = ***0,73Nm***)



Power chart pmax 5sec (40.000 rpm = ***6,0 kw***; 40.000 rpm = ***1,44Nm***)



Z80-H542.05 S8W2

High-frequency spindle
Pneumatic change of toolholder
HSK-E 32

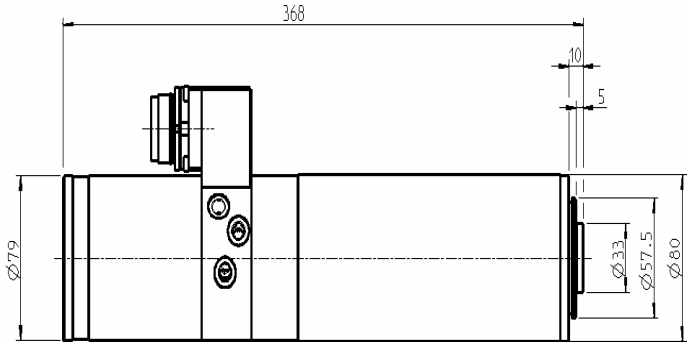
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

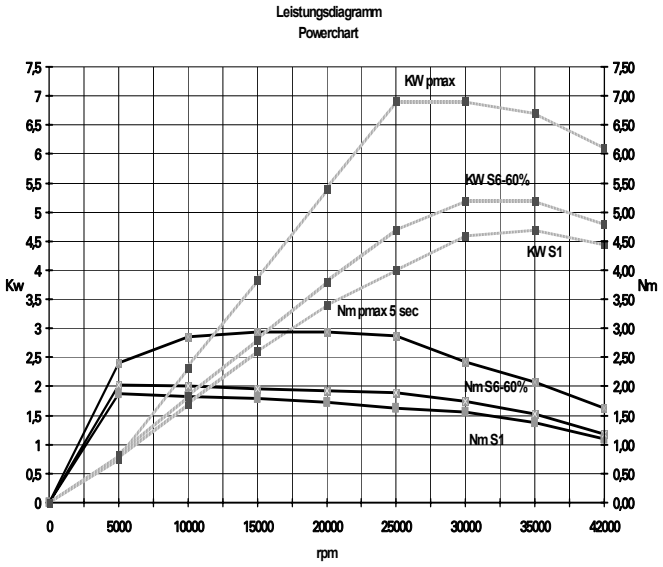
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 7
- Nominal output power: 4,7 kW (S1-100%)
- Nominal output power: 5,2 KW (S6-60%)
- Nominal output power: 7 KW (pmax 5 Sek.)
- Current voltage: max. 366 V
- Current: max. 16 A (pmax)
- Frequency: max. 1400 Hz
- Motor poles: 2 pairs
- Rotation speed: max. 42000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of HSK-E 32
- Tool change monitoring: inductiv
- Clamping range: up to 13 mm
- Coupler plug: 18-pole metal
- Weight: 9,5 Kg

Dimensions

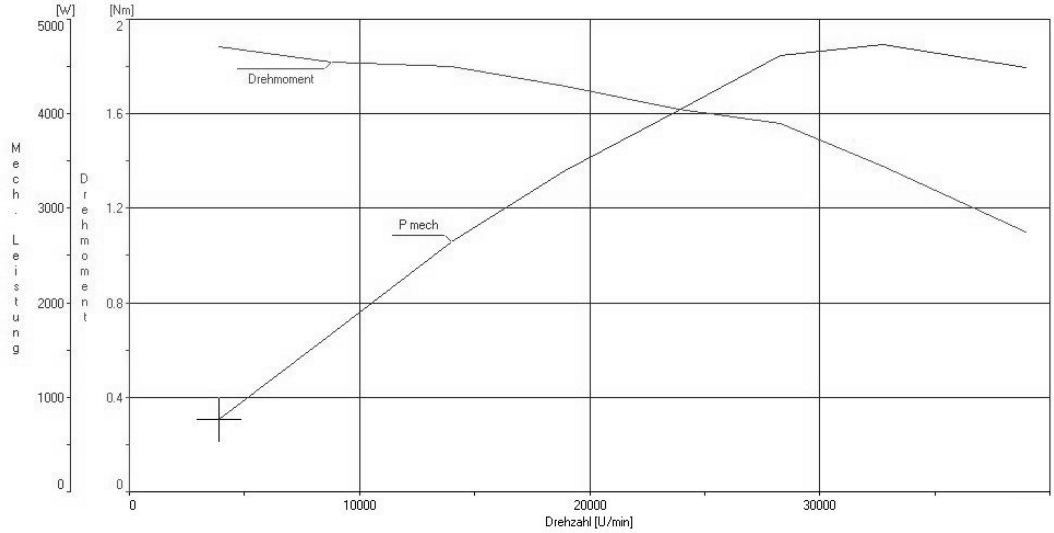


Power-, torque- and speed diagram

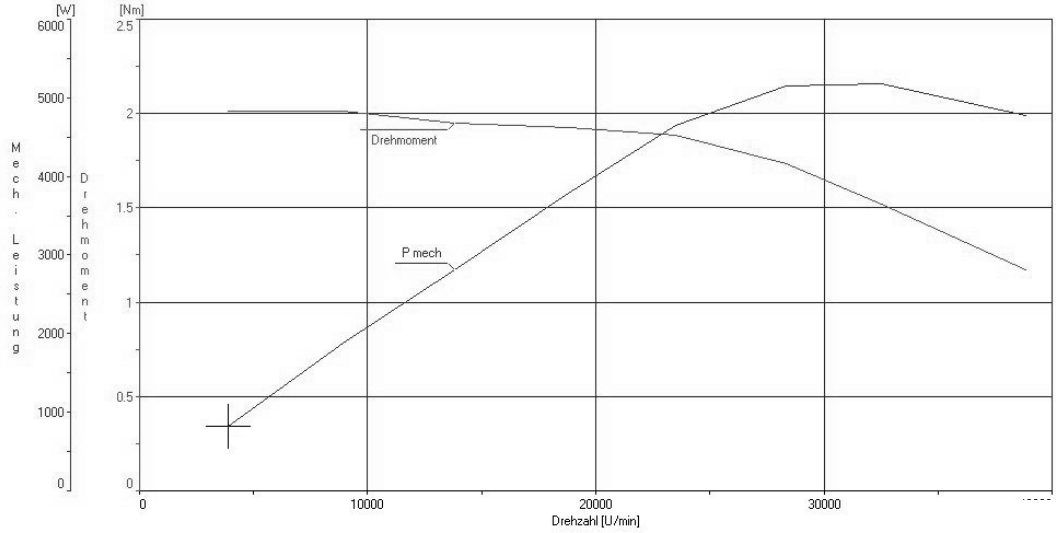


Z80–H542.05 S8W2 measured datas

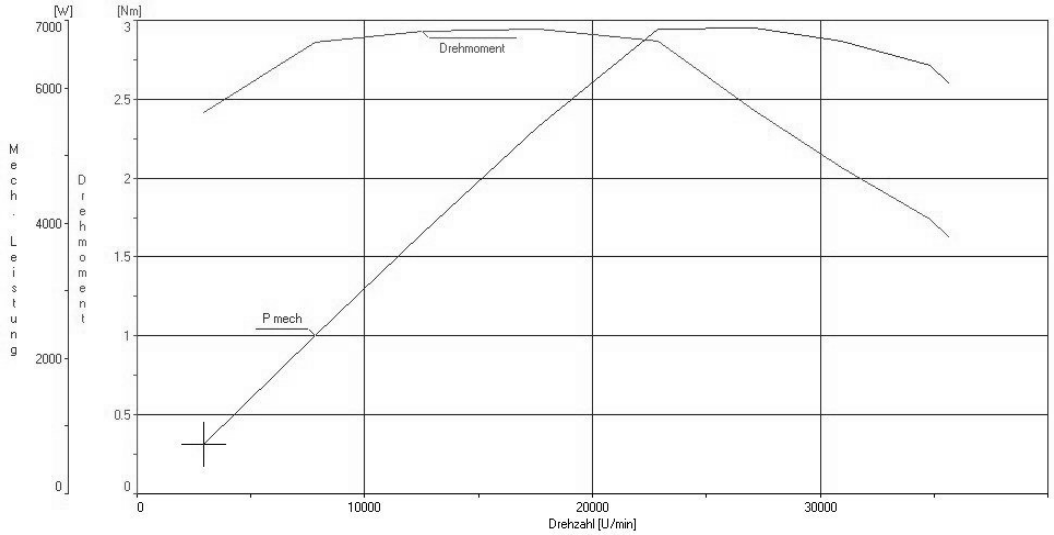
Power chart S1-100% ED (42.000 rpm = ***4,7 kw***; 42.000 rpm = ***1,88 Nm***)



Power chart S6-60% (42.000 rpm = ***5,2 kw***; 42.000 rpm =***2,02***N***m***)



Power chart pmax 5sec (42.000 rpm = ***7 kw***; 42.000 rpm =***2,94***N***m***)



Z80-K530.02 S6

High-frequency spindle
Pneumatic change of toolholder

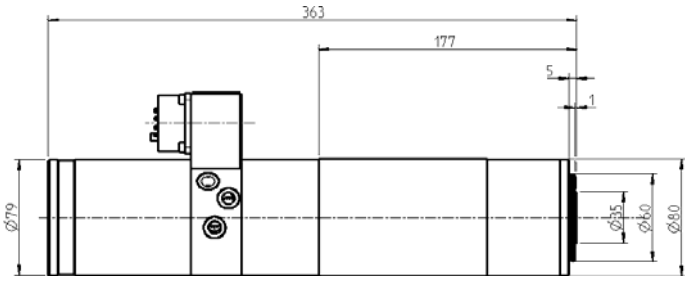
Spindle for high-speed milling, -grinding -drilling , -engraving

Example of design

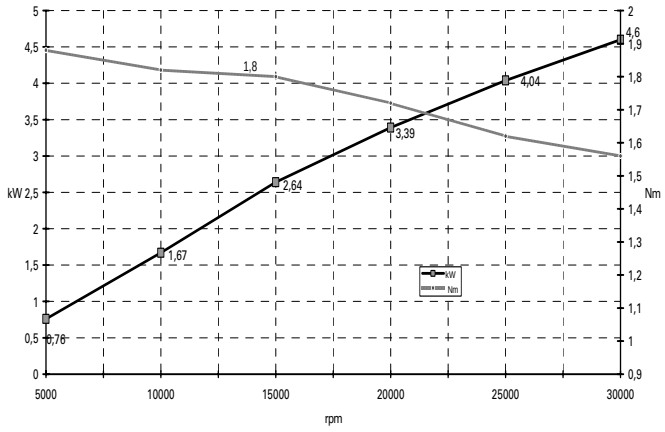
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 7
- Nominal output power: 4,6 kW (S1-100%)
- Nominal output power: max. 5,1 kW (S6-60%)
- Nominal output power: max. 6,9 kW (pmax 5 sec)
- Current voltage: max. 366 V
- Current: max. 16 A
- Frequency: max. 1000 Hz
- Motor poles: 2 pairs
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of toolholder
- Clamping range: up to 16 mm
- Coupler plug: 13-pole plastics
- Weight: 9,5 Kg

Dimensions

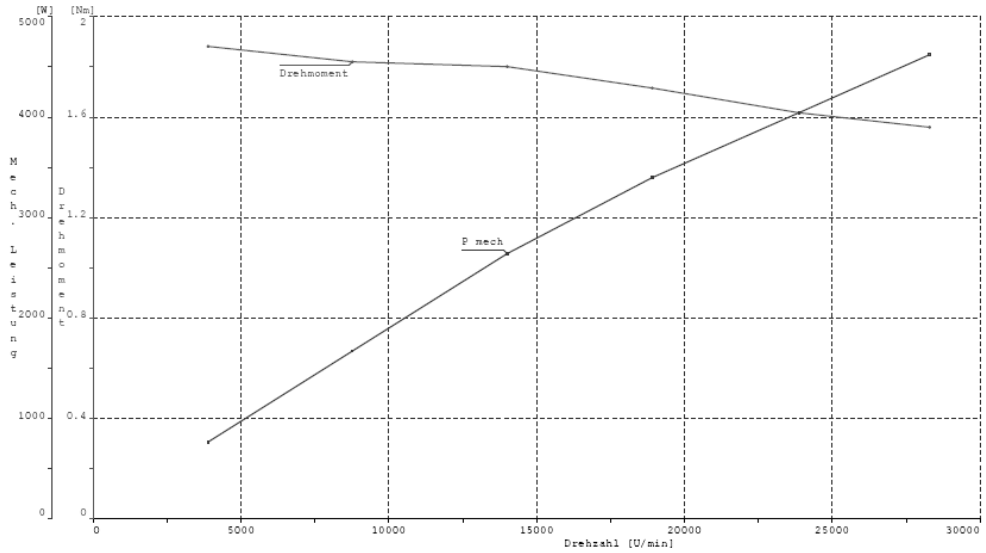


Power-, torque- and speed diagram

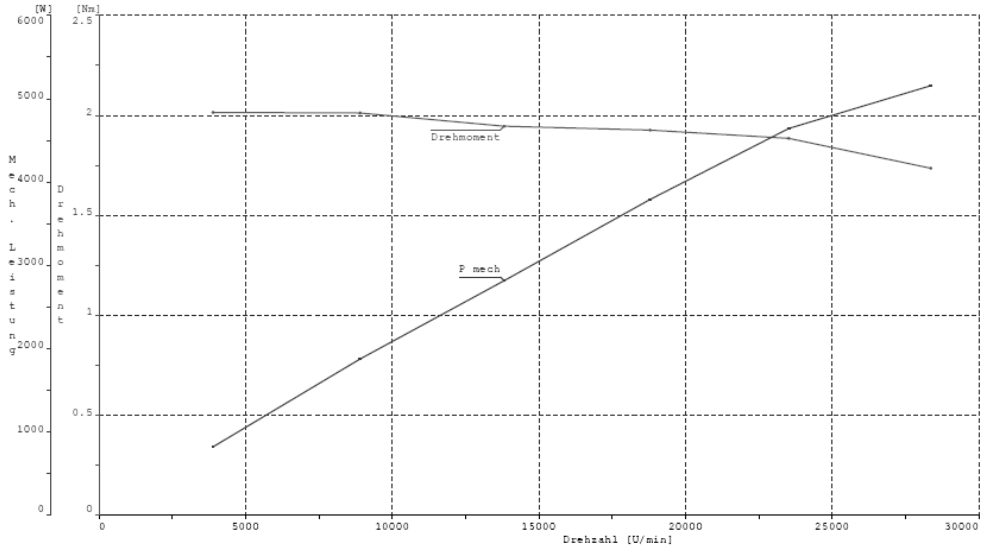


Z80–K530.02 S6 measured datas

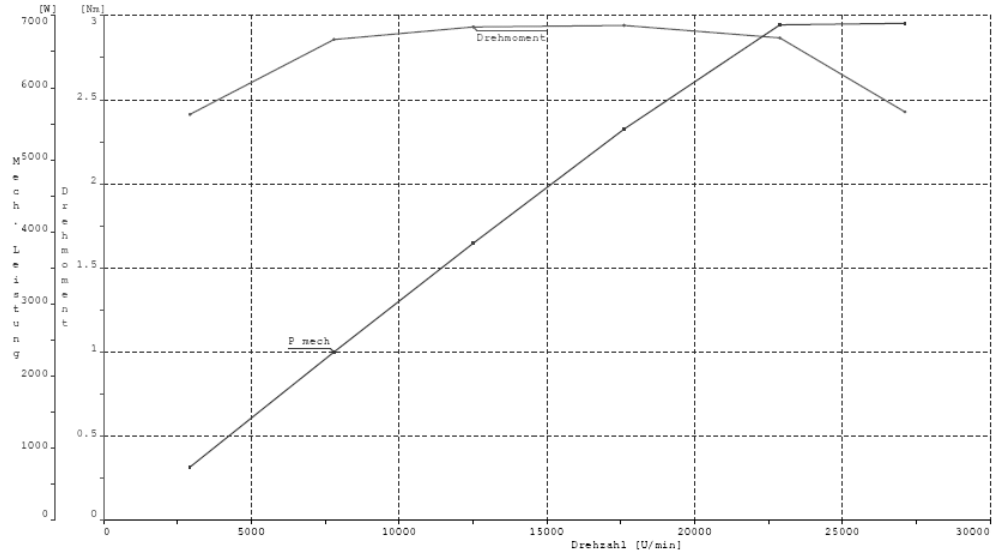
Power chart S1-100% ED (30.000 rpm = ***4,6 kw***; 30.000 rpm = ***1,88 Nm***)



Power chart S6-60% (30.000 rpm = ***5,1 kw***; 30.000 rpm =***2,02***N***m***)



Power chart pmax 5sec (30.000 rpm = ***6,9 kw***; 30.000 rpm =***2,94***N***m***)



Z80-K530.02 S6W2

High-frequency spindle
Pneumatic change of toolholder

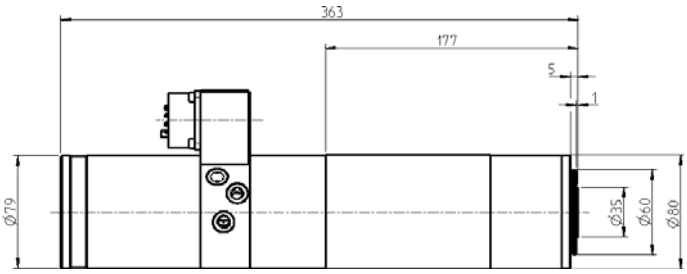
Spindle for high-speed milling, -grinding, -drilling, -engraving

Technical specifications

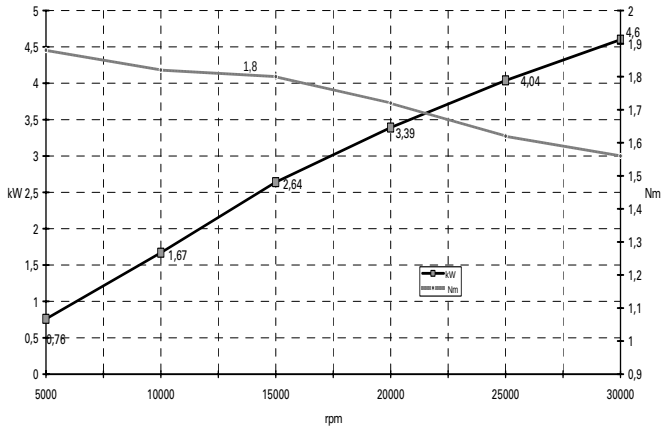
- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 7
- Nominal output power: 4,6 kW (S1-100%)
- Nominal output power: max. 5,1 kW (S6-60%)
- Nominal output power: max. 6,9 kW (pmax 5 sec)
- Current voltage: max. 366 V
- Current: max. 16 A
- Frequency: max. 1000 Hz
- Motor poles: 2 pairs
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of toolholder
- Tool change monitoring: inductiv
- Clamping range: up to 16 mm
- Coupler plug: 13-pole plastics
- Weight: 9,5 Kg

Example of design

Dimensions

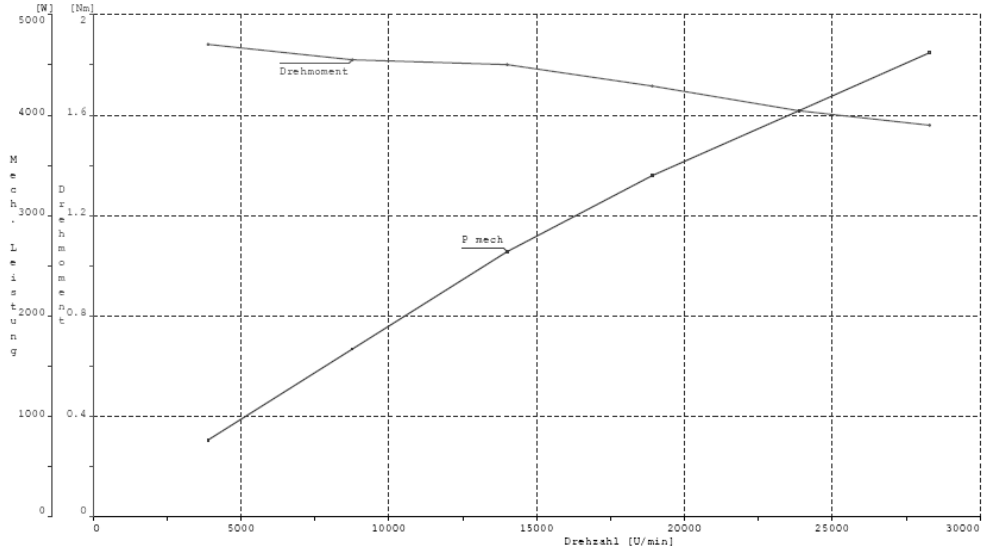


Power-, torque- and speed diagram (S1-100%)

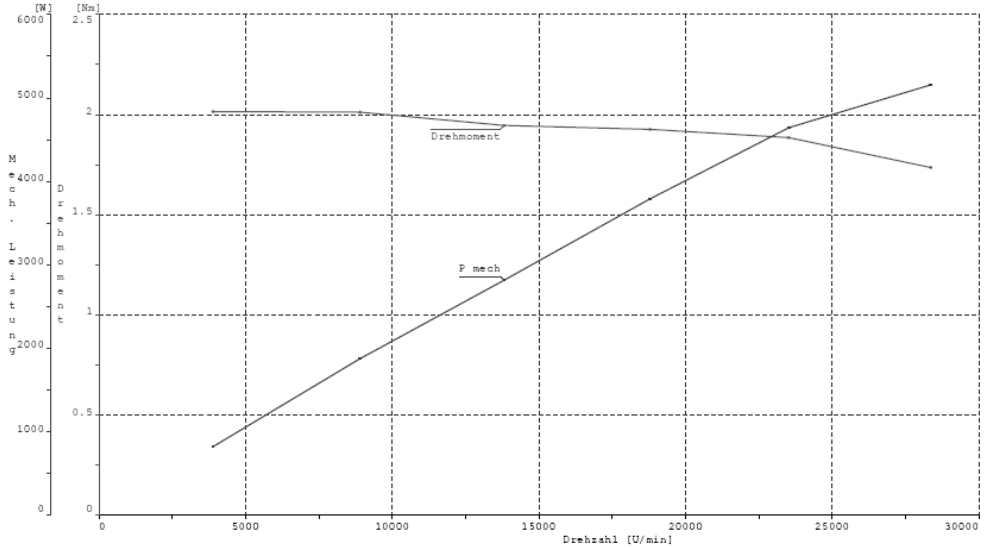


Z80–K530.02 S6W2 measured datas

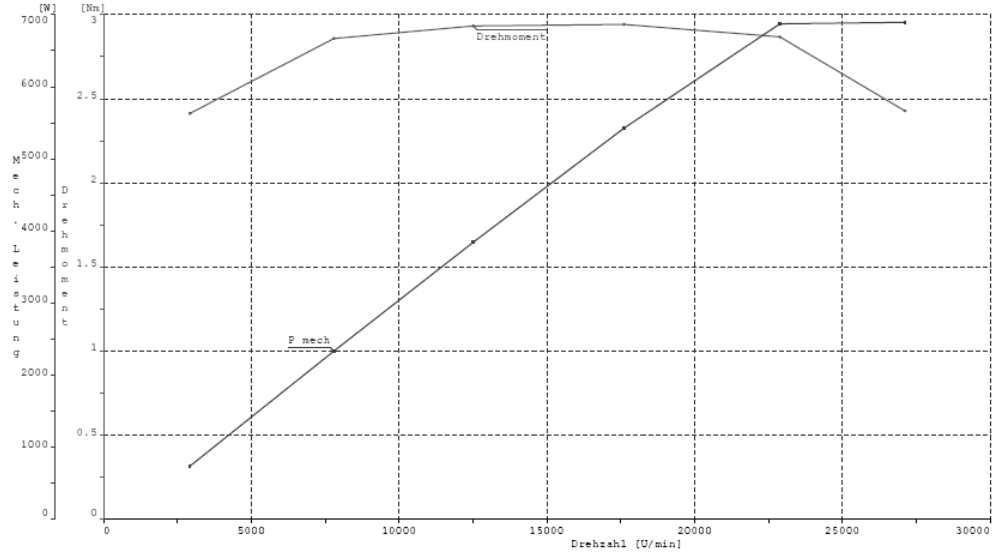
Power chart S1-100% ED (30.000 rpm = ***4,6 kw***; 30.000 rpm = ***1,88 Nm***)



Power chart S6-60% (30.000 rpm = ***5,1 kw***; 30.000 rpm =***2,02***N***m***)



Power chart pmax 5sec (30.000 rpm = ***6,9 kw***; 30.000 rpm =***2,94***N***m***)



Z100-H535.01 S11

High-frequency spindle
Pneumatic change of toolholder
HSK-E 40

Spindle for high-speed milling, -grinding, -drilling, engraving

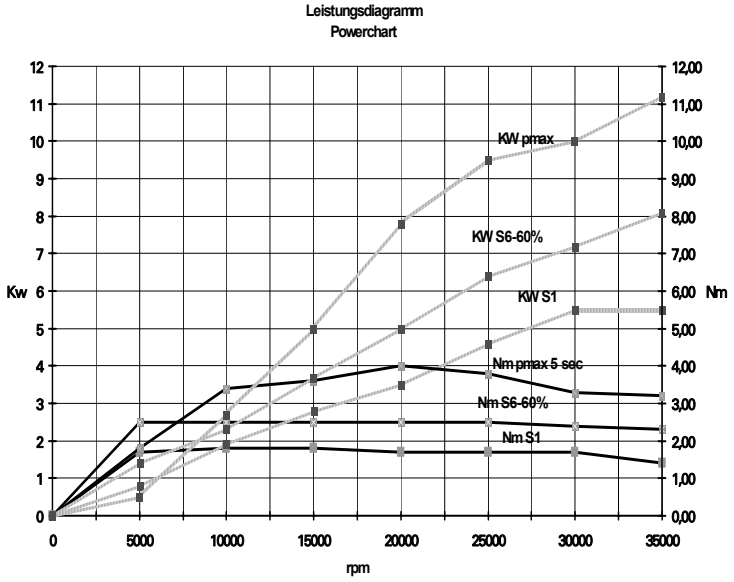
Example of design

Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 8
- Nominal output power pmax : 11,2 kW
- Nominal output power S6-60% : max. 8,1 kW
- Nominal output power S1-100% ED: 5,5 kW
- Voltage: max. 252V
- Current: max. 43 A
- Frequency: max. 1166 Hz
- Motor poles: 2 pairs
- Rotation speed: max. 35.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing air
- Cooling system: liquid cooled
- Housing diameter: 100 mm
- Tool change: pneumatic change of HSK-E40
- Tool change monitoring: (optional)
- Clamping range: up to 16 mm
- Coupler plug: 5-pole metal

Dimensions

Power-, torque- and speed diagram



Z100-H530.01 K06W2V

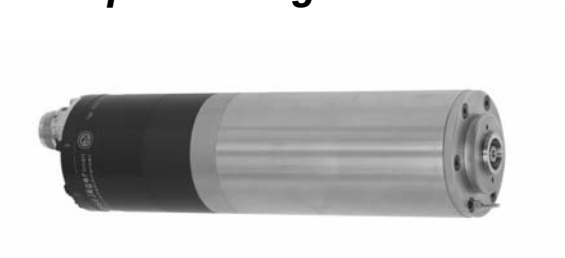
High-frequency spindle
Pneumatic change of toolholder
HSK-E 40

Spindle for high-speed milling, -grinding, -drilling, -engraving

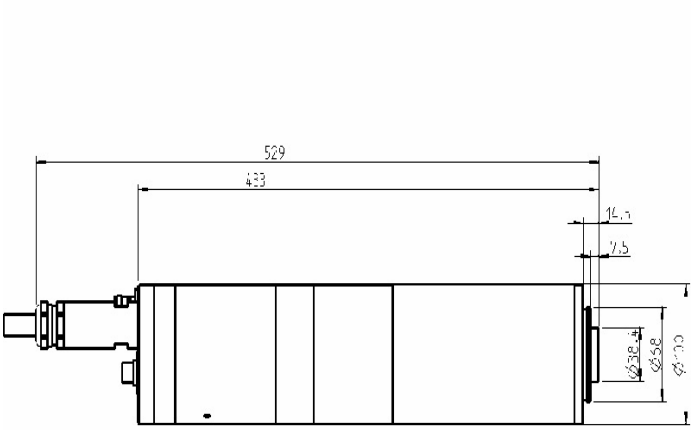
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 8
- Encoder controlled
- Nominal output power pmax : 10 kW
- Nominal output power S6-60% : max. 7,2 kW
- Nominal output power S1-100% ED: 5,5 kW
- Voltage: max. 252 V
- Current: max. 43 A
- Frequency: max. 1000 Hz
- Motor poles: 2 pairs
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Sealing air
- Cooling system: liquid cooled
- Housing diameter: 100 mm
- Tool change: pneumatic change of HSK-E40
- Tool change monitoring: induktiv
  3 positions
- Clamping range: up to 16 mm
- Coupler plug: cable 0,5m with 6-pole metal
- Weight: 20kg

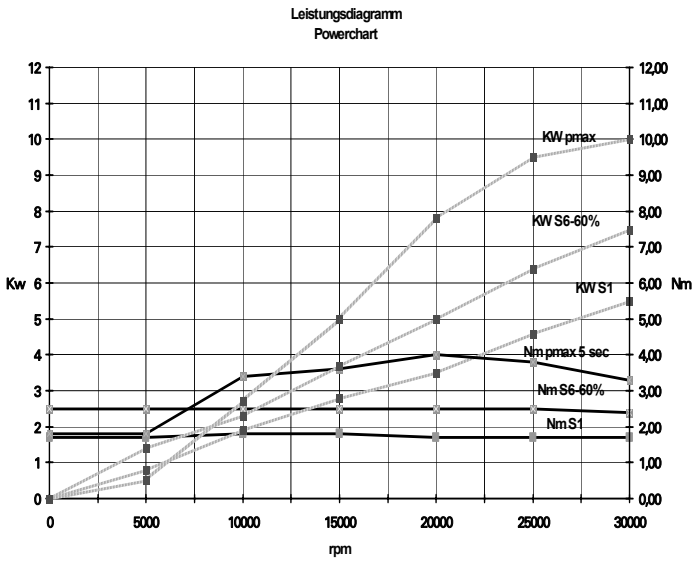
Example of design



Dimensions



Power-, torque- and speed diagram



Jäger
High Performance Spindles

SK-SPINDLES MANUAL TOOL CHANGE

SK-Spindles manual tool change are high-frequency machine spindles for high-speed milling, grinding, drilling and engraving. The insertion of the SK-Spindle into a machine tool is made by a taper adapter. The tool used in each case is changed manually by hand into the SK-Spindle. Tools are clamped through the use of pressure collets or HSK-tapers operated manually.

Jäger High Performance Spindles utilize **hybrid ceramic** ball bearings. These bearings have standard steel bearing races and are matched with silicon nitride balls. Advantages of hybrid bearings compared with normal spindle bearings are improvement of:

- Reduced wear
- Rigidity
- Friction
- Axial shaft movement
- Reliability of operation
- Vibrations
- Fatigue life
- Accuracy

Spindle overview

Spindle Type	Ceramic Hybrid Berainges (pcs.)	Nominal Output Power (kw)	Voltage (V)	Current max. (A)	Max. Hz	Rotation Speed (max. rpm)	Housing Diameter (mm)	Holder: Taper Adapter	Manual Tool Change	Weight (kg)	Torque Support	Automatic Multi-Coupling	Minimal Lubrication System
SK3-01/60	2	1,6	140	6	1000	60.000	62	x	x	8			
SK3-04/60	2	1,6	140	6	1000	60.000	62	x	x	8	x		
SK4-01/50	2	1,8	156	7	833	50.000	80	x	x	10			
SK4-06/50 30°	2	1,8	156	7	833	50.000	80		x	10		x	
SK4-33/50	2	2,6	186	11,5	833	50.000	80		x	10			
S80-M440.02 S4	3	6	330	20	1333	40.000	80	x	x	12			
S120-M630.14 S5C	4	7,0	380	12	2000	30.000	120	x	x	16			x
S120-M730.01 S8	4	11,0	350	24,9	2000	30.000	120	x	x	25			

more on request

SK3-01/60

High-frequency spindle
Manual tool change

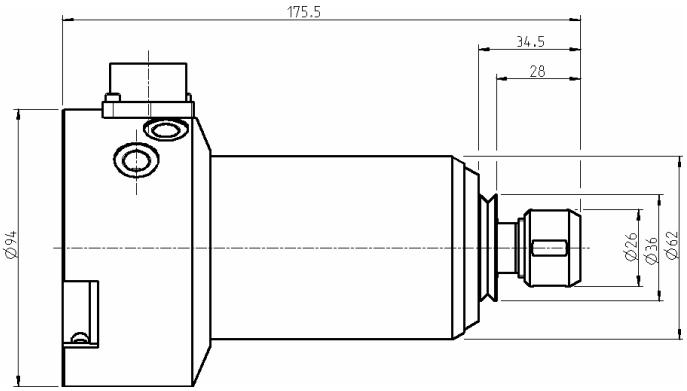
Spindle for high-speed milling, -grinding, -drilling, -engraving

Technical specifications

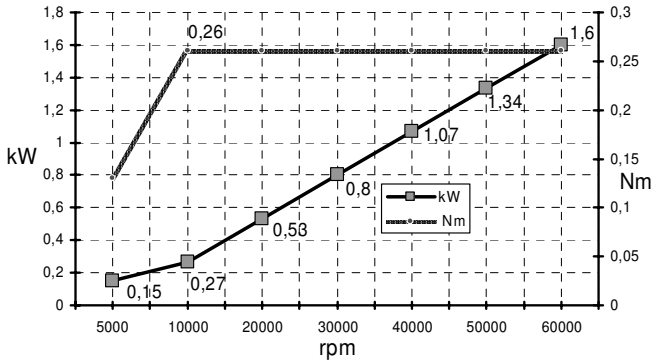
- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 4
- Nominal output power: max. 1,6 kW
- Current voltage: max. 140 V
- Current: max. 6 A
- Frequency: max. 1000Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 62 mm
- Cooling system: liquid cooled
- Holder: taper adapter
- Tool change: manual tool change
- Clamping range: up to 8 mm
- Coupler plug: 9-pole plastics
- Weight: 3,6 kg

Example of design

Dimensions



Power-, torque- and speed diagram



SK3-04/60

High frequency spindle
Manual tool change

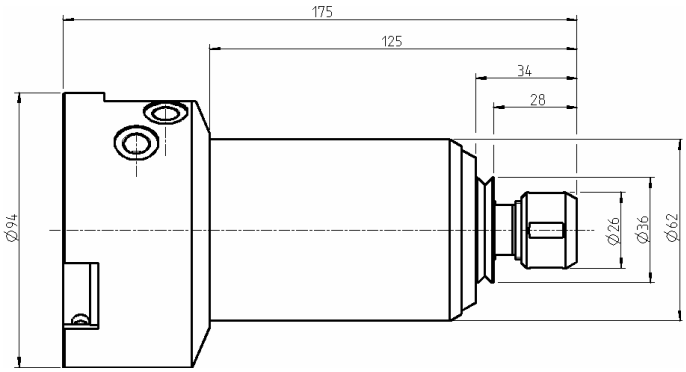
Spindle for high-speed milling, -grinding -drilling, -engraving

Example of design

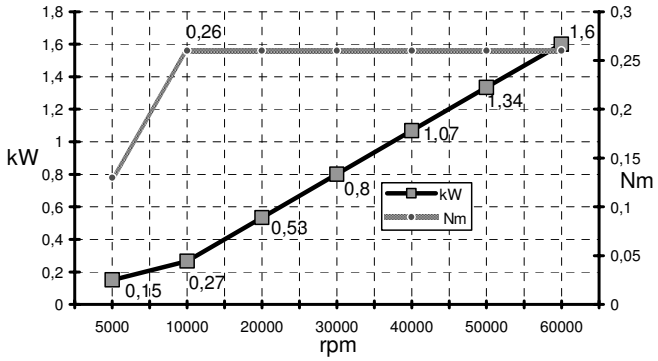
Technical spicifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 4
- Nominal output power: max. 1,6 kW
- Current voltage: max. 140 V
- Current: max. 6 A
- Frequency: max. 1000Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 62 mm
- Cooling system: liquid cooled
- Holder: taper adapter
- Tool change: manual tool change
- Clamping range: up to 8 mm
- Coupler plug: 13-pole plastics
- Torque support

Dimensions



Power-, torque- and speed diagram



SK4-01/50

High-frequency spindle
Manual tool change

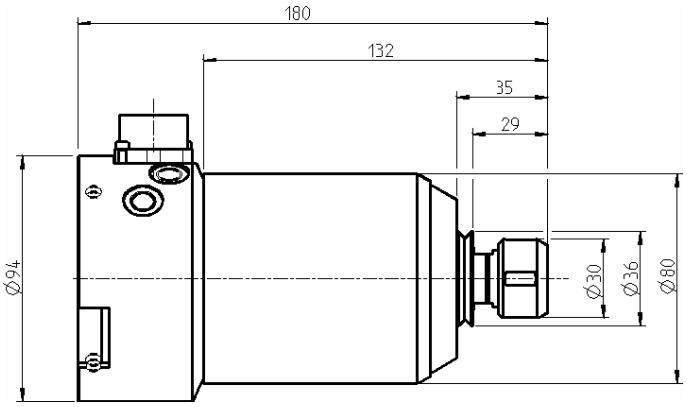
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

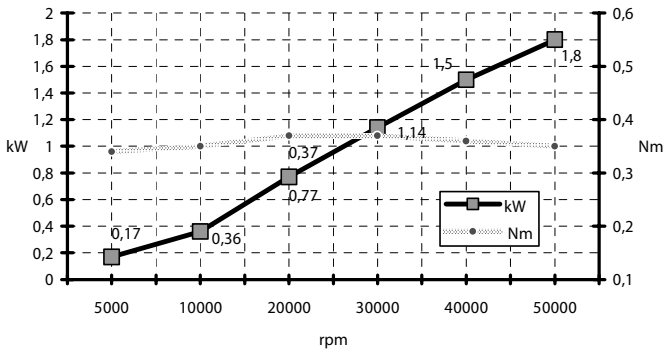
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: max. 1,8 kW
- Current voltage: max. 156,6 V
- Current: max. 7 A
- Frequency: max. 833,4 Hz
- Motor poles: 1 pair
- Rotation speed: max. 50.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Holder: taper adapter
- Tool change: manual tool change
- Clamping range: up to 10 mm
- Coupler plug: 9-pole plastics
- Weight: 4,7 kg

Dimensions



Power-, torque- and speed diagram



SK4-06/50 30°

High-frequency spindle
Manual tool change

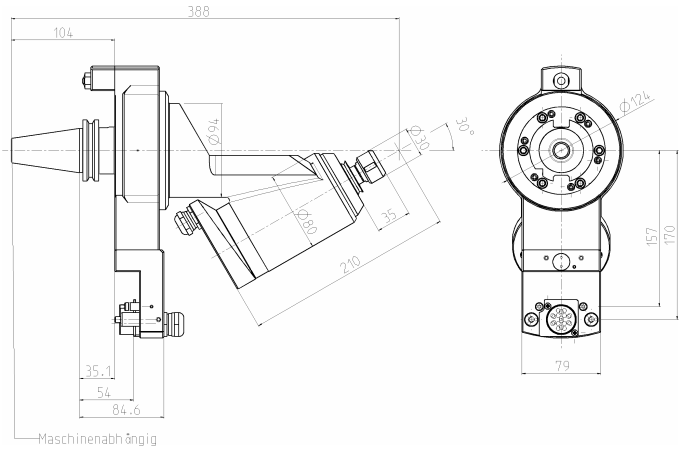
Spindle for high-speed milling, -grinding -drilling, -engraving

Example of design

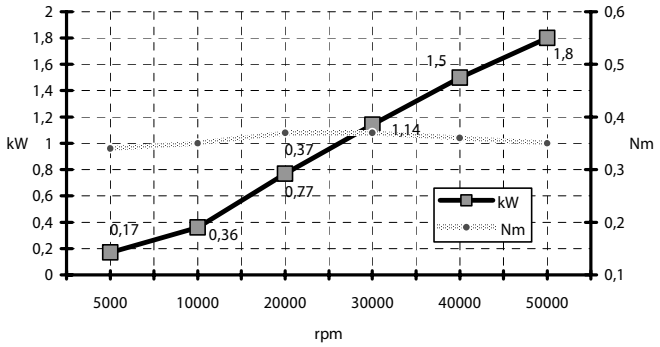
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: max. 1,8 kW
- Current voltage: max. 156,6 V
- Current: max. 7 A
- Frequency: max. 833 Hz
- Motor poles: 1 pair
- Rotation speed: max. 50.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm/ 30°
- Cooling system: liquid cooled
- Holder: taper adapter SK40 DIN 69871A
- Toll change: manual tool change
- Clamping range: up to 10 mm
- Coupler plug: 10-pole, automatic multi-coupling
- Weight: 9,5 kg

Dimensions



Power-, torque- and speed diagram



SK4-33/50

High-frequency spindle
Manual tool change

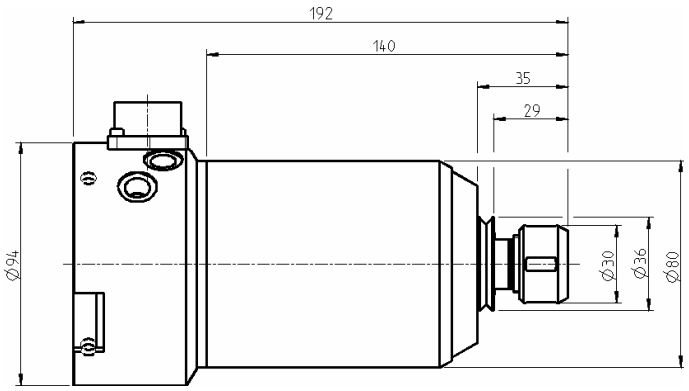
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

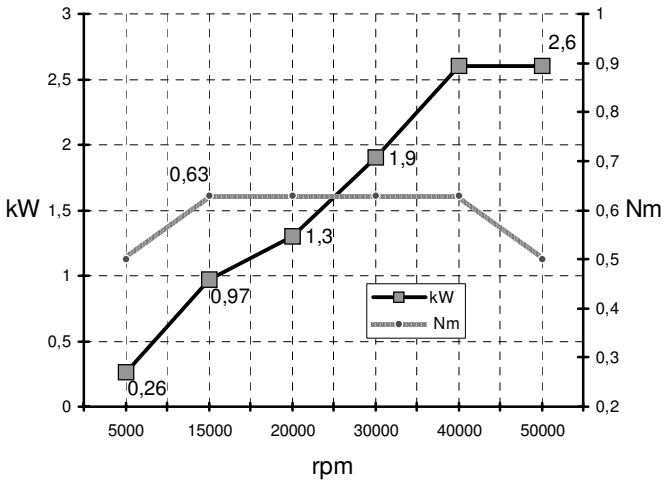
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: max. 2,6 kW
- Current voltage: max. 186 V
- Current: max. 11,5 A
- Frequency: max. 833,4 Hz
- Motor poles: 1 pair
- Rotation speed: max. 50.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Holder: taper adapter / grinded housing
- Tool change: manual tool change
- Clamping range: up to 10 mm
- Coupler plug: 9-pole plastics
- Weight: 5,6 kg

Dimensions



Power-, torque- and speed diagram



S80-M440.02 S4

High-frequency spindle
Manual tool change

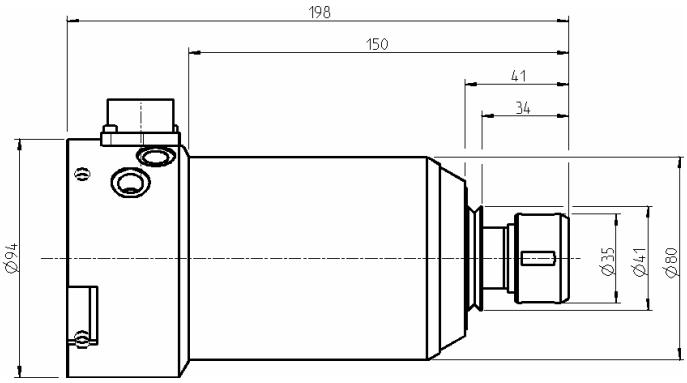
Spindle for high-speed milling, -grinding -drilling, -engraving

Technical specifications

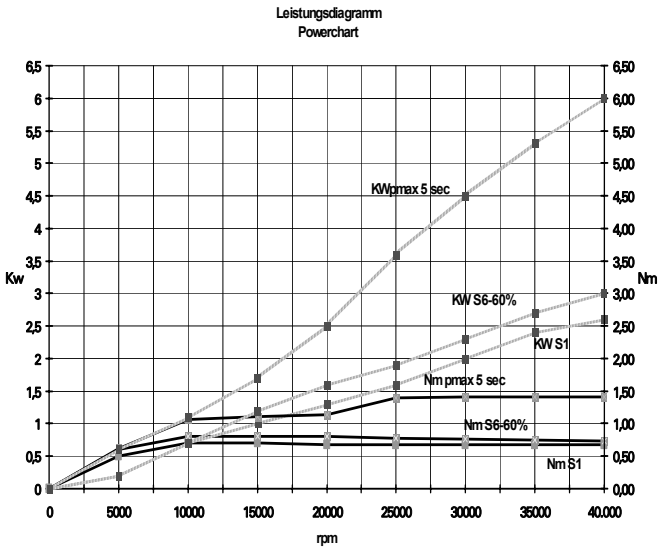
- High precision hybrid ball bearings – 3 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: pmax. 6 kW
- Nominal output power: S1-100% ED 2,5 kW
- Nominal output power: S6-60% 3,0 KW
- Voltage: pmax. 330 V
- Current: pmax. 20 A
- Frequency: max. 1333,4 Hz
- Motor poles: 2 pairs
- Rotation speed: max. 40.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Holder: taper adapter
- Tool change: manual tool change
- Clamping range: up to 12 mm
- Coupler plug: 9-pole plastics
- Weight: 5,5 kg

Example of design

Dimensions

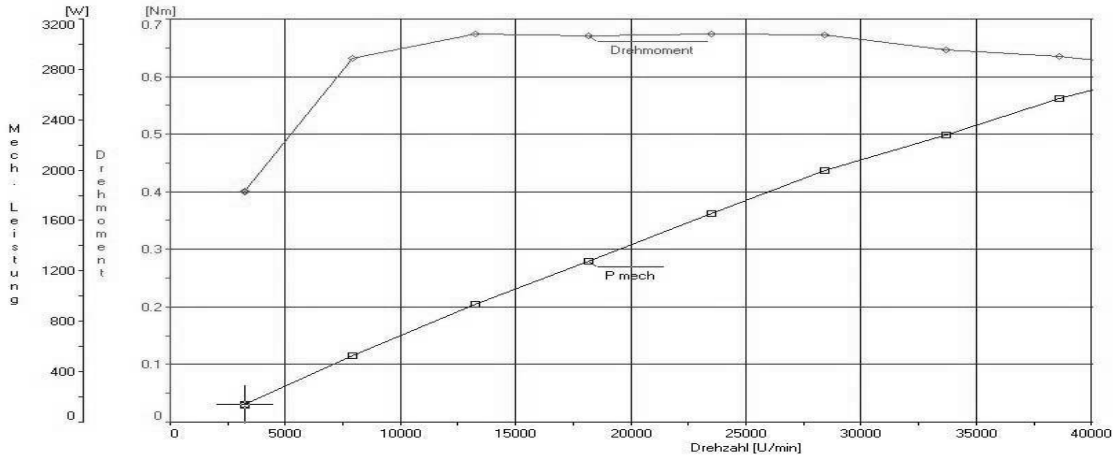


Power-, torque- and speed diagram

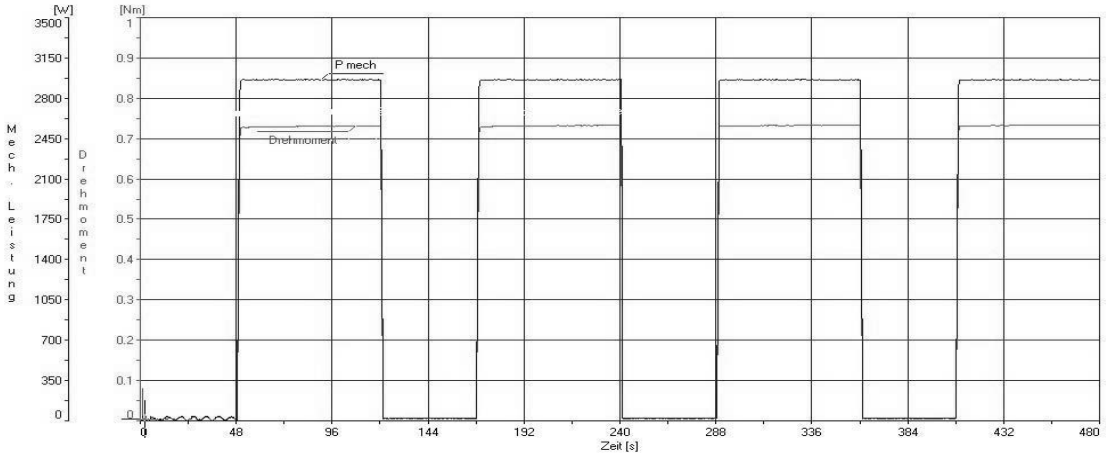


S80–M440.02 S4 measured datas

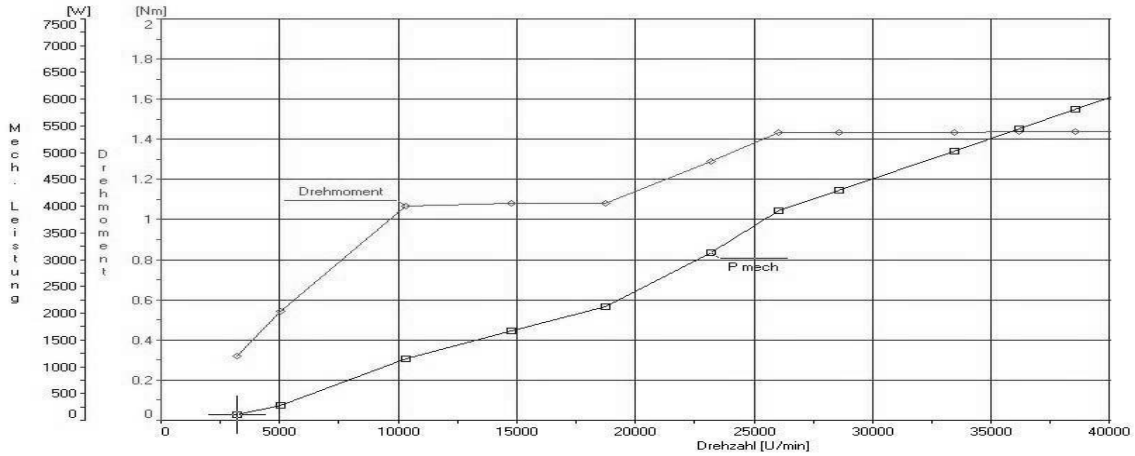
Power chart S1-100% ED (40.000 rpm = ***2,5 kw***; 40.000 rpm = ***0,63Nm***)



Power chart S6-60% (40.000 rpm = ***3,0 kw***; 40.000 rpm = ***0,73Nm***)



Power chart pmax 5sec (40.000 rpm = ***6,0 kw***; 40.000 rpm = ***1,44Nm***)



S120-M630.14 S5C

High-frequency spindle
Manual tool change

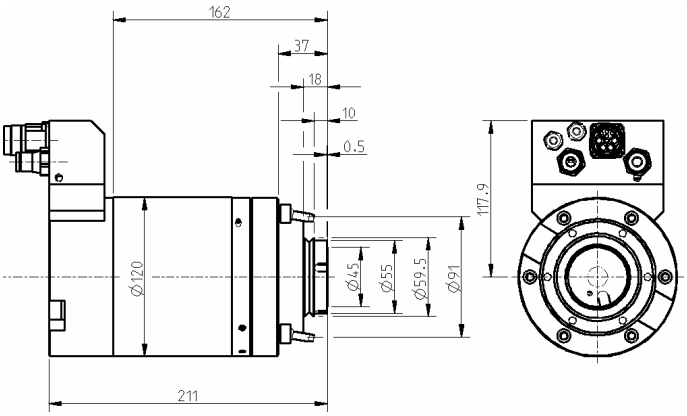
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

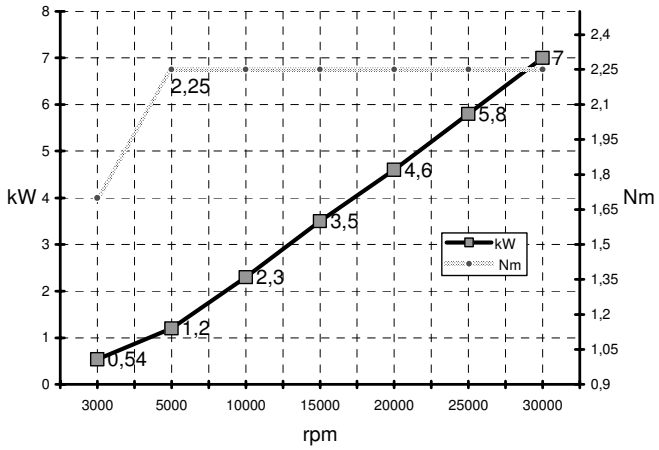
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 8
- Nominal output power: 7 kW
- Current voltage: max. 380 V
- Current: max. 12 A
- Frequency: max. 2000 Hz
- Motor poles: 4 pairs
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 120 mm
- Cooling system: liquid cooled
- Holder: taper adapter
- Tool change: manual tool change
- Clamping range: up to 16 mm
- Coupler plug: 9-pole metal
- Minimal lubrication system
- Weight: 9 kg

Dimensions



Power-, torque- and speed diagram



S120-M730.01 S8

High-frequency spindle
Manual tool change

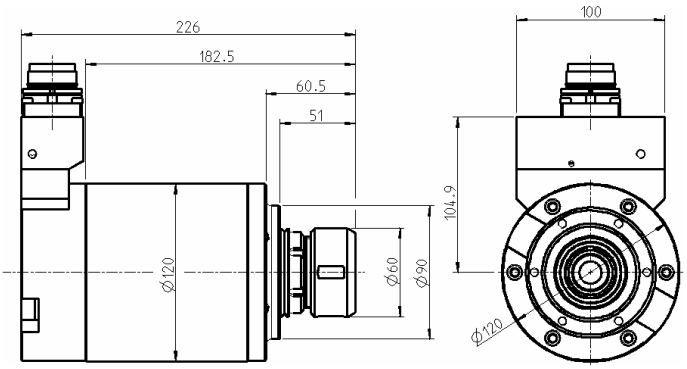
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

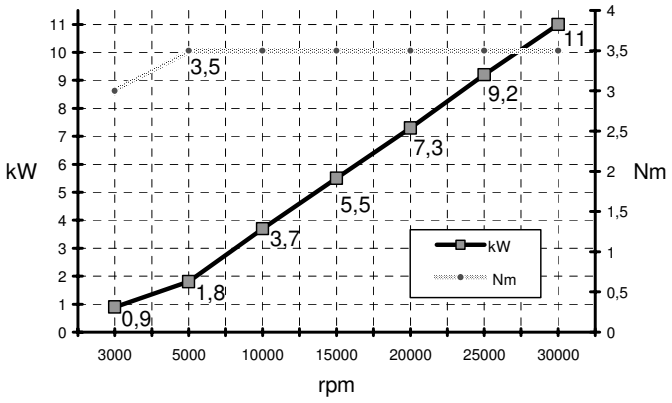
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 9
- Nominal output power: 11 kw
- Current voltage: max. 350 V
- Current: max. 24,9 A
- Frequency: max. 2000 Hz
- Motor poles: 4 pair
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 120 mm
- Cooling system: liquid cooled
- Holder: taper adapter
- Tool change: manual tool change
- Clamping range: up to 25 mm
- Coupler plug: 18-pole metal
- Weight: 10,5 kg

Dimensions



Power-, torque- and speed diagram



Jäger
High Performance Spindles

SK-SPINDLES PNEUMATIC DIRECT CHANGE

SK-Spindles pneumatic direct change are high-frequency machine spindles for high-speed milling, grinding, drilling and engraving. The insertion of the SK-Spindle into a machine tool is made by a taper adapter. The tool used in each case is changed automatically by a built-in pneumatic cylinder into the SK-Spindle. Tools are clamped through the use of traction collets.

Jäger High Performance Spindles utilize **hybrid ceramic** ball bearings. These bearings have standard steel bearing races and are matched with silicon nitride balls. Advantages of hybrid bearings compared with normal spindle bearings are improvement of:

- Reduced wear
- Rigidity
- Friction
- Axial shaft movement
- Reliability of operation
- Vibrations
- Fatigue life
- Accuracy

Spindle overview

Spindle Type	Ceramic Hybrid Bearings (yes)	Nominal Output Power (kw)	Voltage (V)	Current (A)	Max. Hz	Rotation Speed (max. rpm)	Housing Diameter (mm)	Holder: Taper Adapter	Pneumatic Direct Tool Change	Clamping Range Up To (mm)	Weight (kg)
S80-D280.37 S5	2	1,2	150	7	1333	80.000	80	x	x	6	10,0

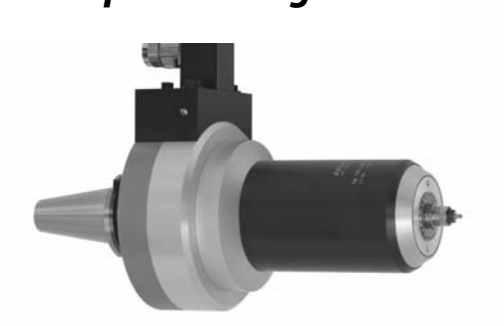
more on request

S80-D280.37 S5

High-frequency spindle
Pneumatic direct tool change

Spindle for high-speed milling, -grinding, -drilling, -engraving

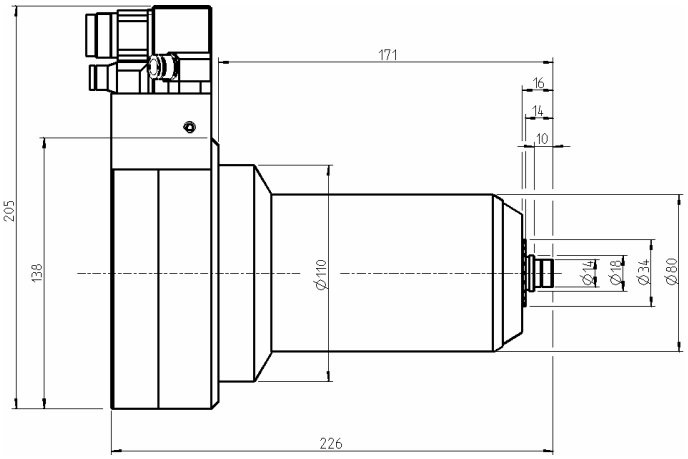
Example of design



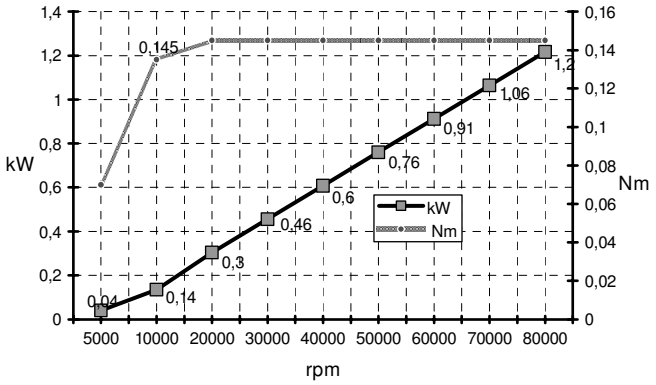
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: max. 1,2 kW
- Current voltage: max. 150 V
- Current: max. 7 A
- Frequency: max. 1333 Hz
- Motor poles: 1 pair
- Rotation speed: max. 80.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Holder: taper adapter
- Tool change: pneumatic direct tool change
- Clamping range: up to 6 mm
- Coupler plug: 9-pole metal
- Weight: 10 Kg

Dimensions



Power-, torque- and speed diagram



Jäger
High Performance Spindles

SK-SPINDLES PNEUMATIC TAPER CHANGE

SK-Spindles pneumatic taper change are high-frequency machine spindles for high-speed milling, grinding, drilling and engraving. The insertion of the SK-Spindle into a machine tool is made by a taper adapter. The tool used in each case is changed automatically by a built-in pneumatic cylinder into the SK-Spindle. Tools are clamped through the use of WK-tapers, WK-shrinking tapers or HSK-tapers.

Jäger High Performance Spindles utilize ***hybrid ceramic*** ball bearings. These bearings have standard steel bearing races and are matched with silicon nitride balls. Advantages of hybrid bearings compared with normal spindle bearings are improvement of:

- Reduced wear
- Rigidity
- Friction
- Axial shaft movement
- Reliability of operation
- Vibrations
- Fatigue life
- Accuracy

Spindle overview

Spindle Type	Ceramic Hybrid Bearings (pcs.)	Nominal Output Power (kw)	Voltage (V)	Current (A)	Max. Hz	Rotation Speed (max. rpm)	Housing Diameter (mm)	Pneumaitc Change Of Toolholder	HSK	Clamping Range Up To (mm)	Tool Change Monitoring	Automatic Multi Coupling	Manual Multi Coupling
SK4-23/50	4	2,6	186	11,5	833	50.000	80	x		10			
SK4-24/50	4	2,6	186	11,5	833	50.000	80	x		10			x
SK4-22/50	4	2,6	186	11,5	833	50.000	80	x		10		x	
S80-K450.34 S5	4	2,6	186	11,5	833	50.000	80	x		10			
S120-H640.08 P2	4	7,0	380	16	2666	40.000	120	x	E-32	13		x	
S120-H642.11 S8W2	4	7,0	380	16	2666	42.000	120	x	E-32	13	x		
S120-H727.11 P2W2	4	10,5	350	24,9	1800	27.000	120	x	E-40	16	x	x	
S120-H727.02 P2W2	4	10,5	350	24,9	1800	27.000	120	x	E-40	16	x	x	
S120-H730.07 S8W2	4	11,0	350	24,9	2000	30.000	120	x	E-40	16	x	x	x
S120-H742.14 S5W2	4	11,0	350	24,9	2800	42.000	120	x	E-32	13	x		
S120-H730.06 S8W2	4	11,0	350	24,9	2000	30.000	120	x	E-40	16	x		

more on request

SK4-23/50

High-frequency spindle
Pneumatic change of toolholder

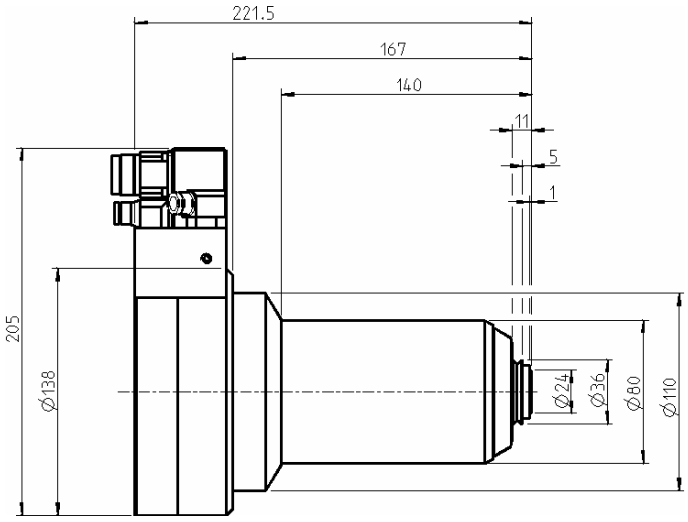
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

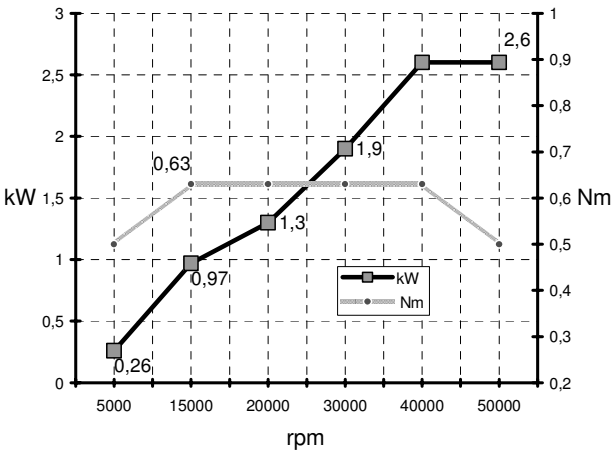
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: max. 2,6 kW
- Current voltage: max. 186 V
- Current: max. 11,5 A
- Frequency: max. 833,4 Hz
- Motor poles: 1 pair
- Rotation speed: max. 50.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Holder: taper adapter
- Tool change: pneumatic change of toolholder
- Clamping range: up to 10 mm
- Coupler plug: 9-pole metal, axial
- Weight: 8,8 kg

Dimensions



Power-, torque- and speed diagram



SK4-24/50

High-frequency spindle
Pneumatic change of toolholder

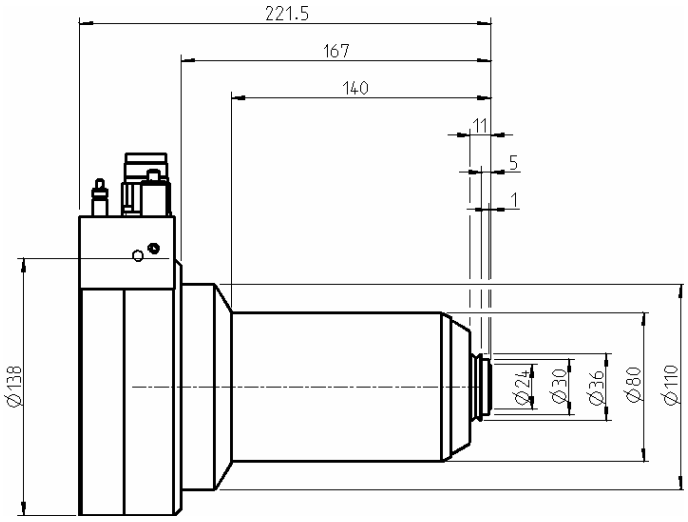
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

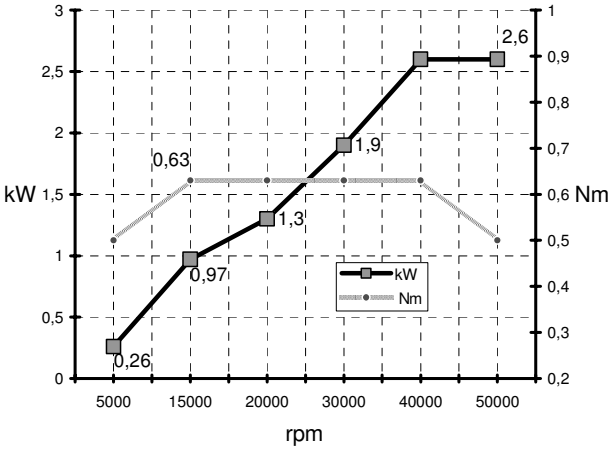
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: max. 2,6 kW
- Current voltage: max. 186 V
- Current: max. 11,5 A
- Frequency: max. 833,4 Hz
- Motor poles: 1 pair
- Rotation speed: max. 50.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Holder: taper adapter
- Tool change: pneumatic change of toolholder
- Clamping range: up to 10 mm
- Coupler plug: 9-pole metal, manual multi-coupling
- Weight: 7,6 kg

Dimensions



Power-, torque- and speed diagram



SK4-22/50

High-frequency spindle
Pneumatic change of toolholder

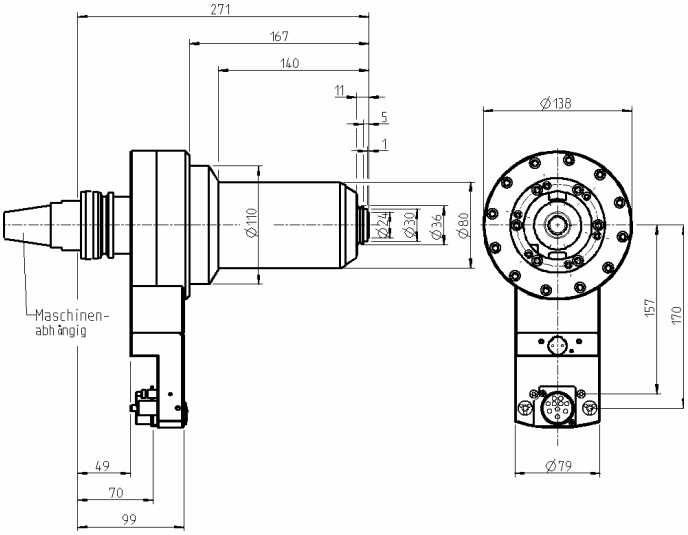
Spindle for high-speed milling, -grinding,-drilling, -engraving

Example of design

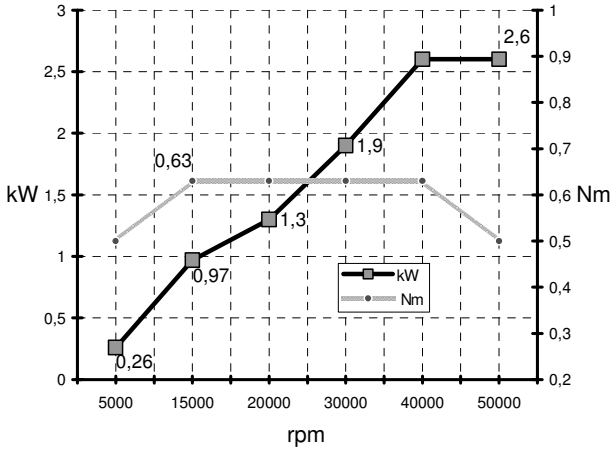
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: max. 2,6 kW
- Current voltage: max. 186 V
- Current: max. 11,5 A
- Frequency: max. 833,4 Hz
- Motor poles: 1 pair
- Rotation speed: max. 50.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Holder: taper adapter SK40 DIN 69871A
- Tool change: pneumatic change of toolholder
- Clamping range: up to 10 mm
- Coupler plug: 10-pole, automatic multi-coupling
- Weight: 9,9 kg

Dimensions



Power-, torque- and speed diagram

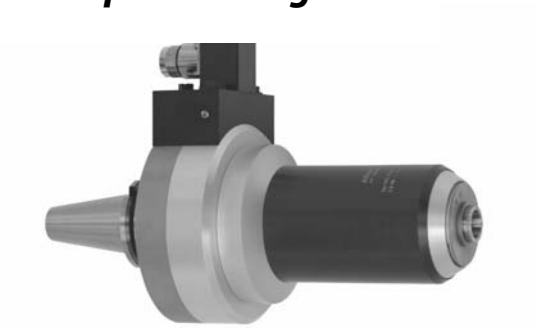


S80-K450.34 S5

High-frequency spindle
Pneumatic change of toolholder

Spindle for high-speed milling, -grinding -drilling, -engraving

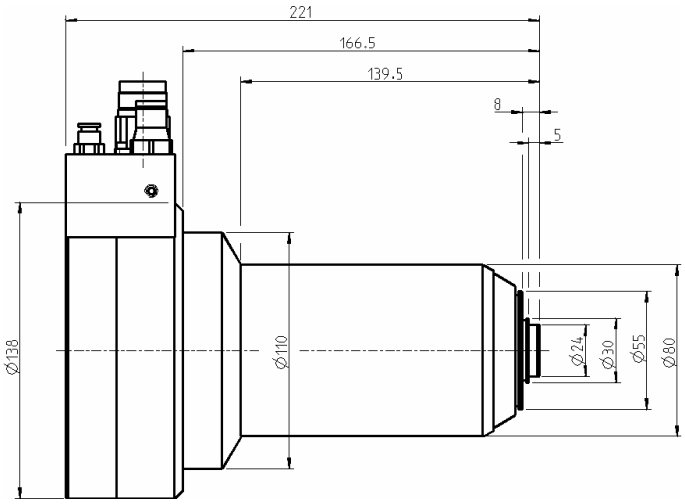
Example of design



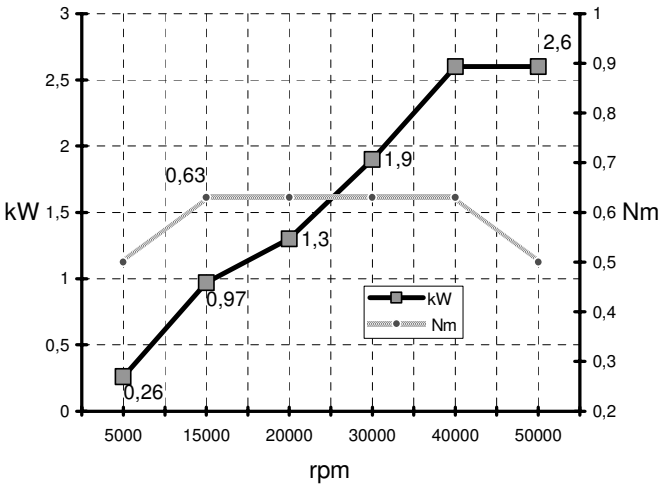
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 3
- Nominal output power: max. 2,6 kW
- Current voltage: max. 186 V
- Current: max. 11,5 A
- Frequency: max. 833 Hz
- Motor poles: 1 pair
- Rotation speed: max. 50.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 80 mm
- Cooling system: liquid cooled
- Holder: taper adapter
- Tool change: pneumatic change of toolholder
- Clamping range: up to 10 mm
- Coupler plug: 9-pole metal
- Weight: 8,8 Kg

Dimensions



Power-, torgue- and speed diagram



S120-H640.08 P2

High-frequency spindle
Pneumatic change of toolholder
HSK-E 32

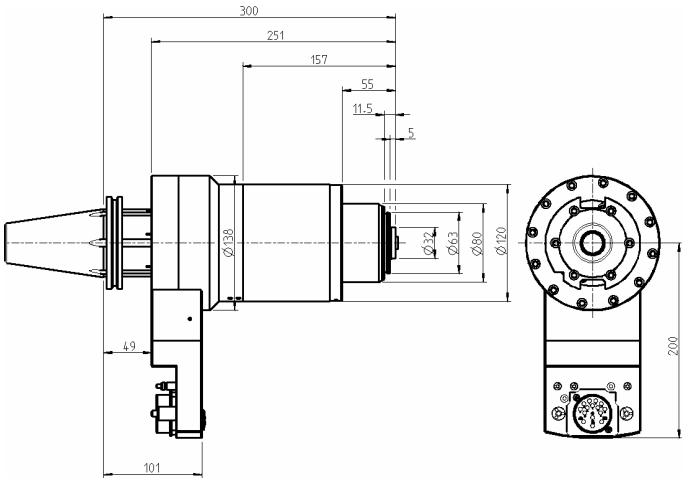
Spindle for high-speed milling, -grinding -drilling, -engraving

Example of design

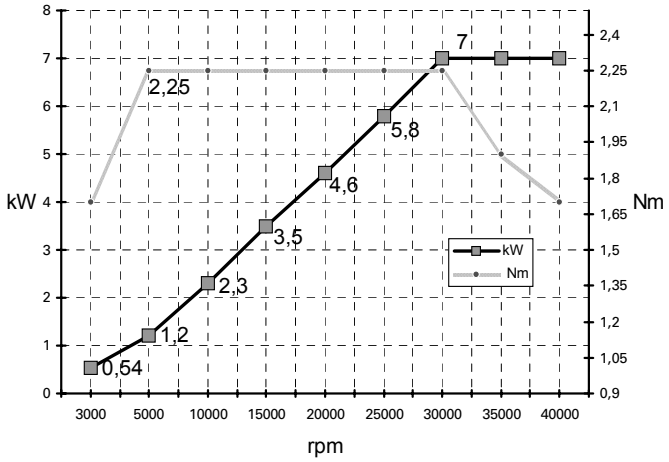
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 9
- Nominal output power: max. 7 kW
- Current voltage: max. 380 V
- Current: max. 16 A
- Frequency: max. 2666,6 Hz
- Motor poles: 4 pairs
- Rotation speed: max. 40.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 120 mm
- Cooling system: liquid cooled
- Holder: taper adapter SK 50 DIN 69871A
- Tool change: pneumatic change of HSK-E 32
- Clamping range: up to 13 mm
- Coupler plug: 19-pole, automatic multi-coupling
- Weight: 19,5 kg

Dimensions



Power-, torgue- and speed diagram

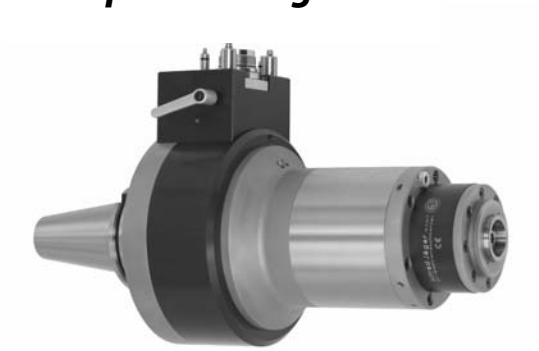


S120-H642.11 S8W2

High-frequency spindle
Pneumatic change of toolholder
HSK-E 32

Spindle for high-speed milling, -grinding, -drilling, -engraving

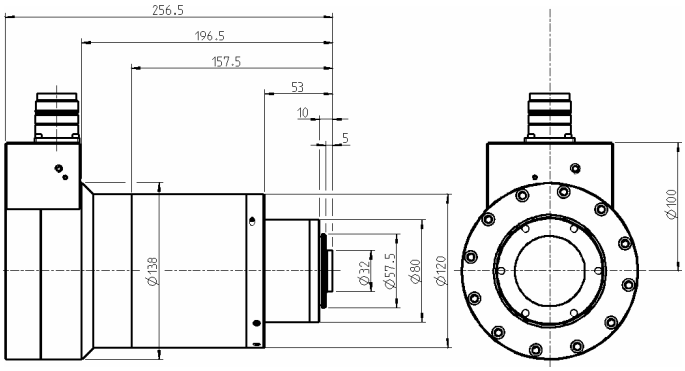
Example of design



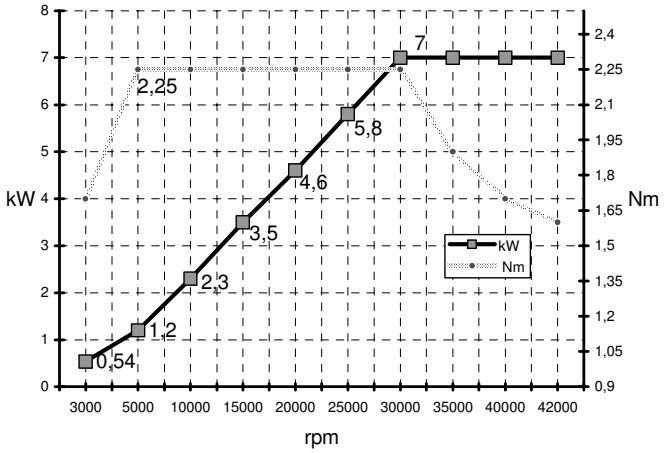
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 9
- Nominal output power: max. 7 kW
- Current voltage: max. 380 V
- Current: max. 16 A
- Frequency: max. 2666,6 Hz
- Motor poles: 4 pairs
- Rotation speed: max. 42.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 120 mm
- Cooling system: liquid cooled
- Holder: taper adapter
- Tool change: pneumatic change of HSK-E 32
- Tool change monitoring: inductiv
- Clamping range: up to 13 mm
- Coupler plug: 18-pole metal, radial
- Weight: 19,5 kg

Dimensions



Power-, torque- and speed diagram



S120-H727.11 P2W2

High-frequency spindle
Pneumatic change of toolholder
HSK-E 40

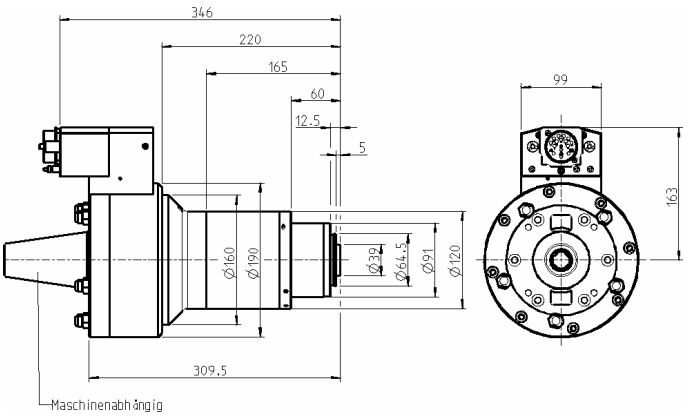
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

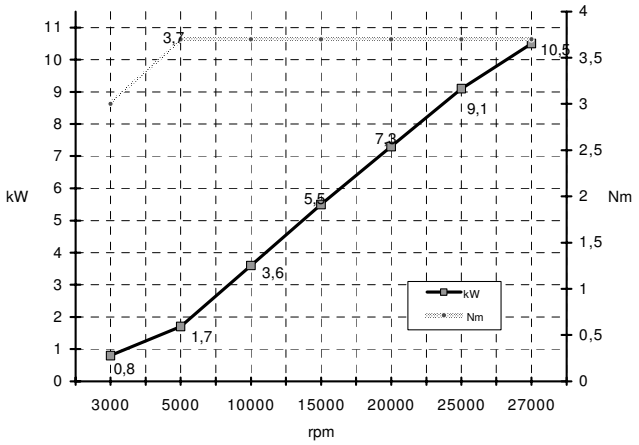
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 9
- Nominal output power: max. 10,5 kW
- Current voltage: max. 350 V
- Current: max. 24,9 A
- Frequency: max. 1800 Hz
- Motor poles: 4 pairs
- Rotation speed: max. 27.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 120 mm
- Cooling system: liquid cooled
- Holder: taper adapter
- Tool change: pneumatic change of HSK-E 40
- Clamping range: up to 16 mm
- Coupler plug: 19-pole, automatic multi-coupling
- Weight: 29 kg

Dimensions



Power-, torque- and speed diagram

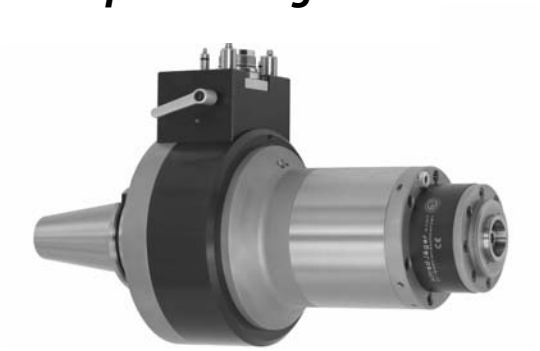


S120-H742.14 S5W2

High-frequency spindle
Pneumatic change of toolholder
HSK-E 32

Spindle for high-speed milling, -grinding -drilling, -engraving

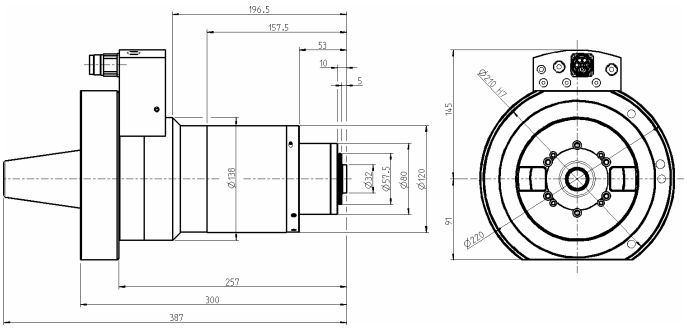
Example of design



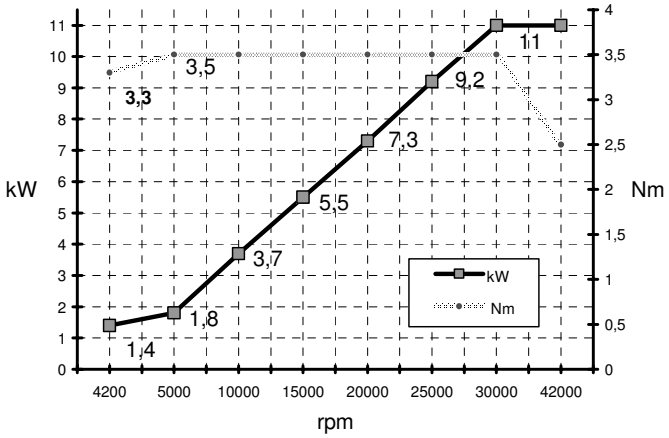
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 9
- Nominal output power: max. 11 kW
- Current voltage: max. 350 V
- Current: max. 24,9 A
- Frequency: max. 2800 Hz
- Motor poles: 4 pairs
- Rotation speed: max. 42.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 120 mm
- Cooling system: liquid cooled
- Holder: taper adapter SK 50
- Tool change: pneumatic change of HSK-E 32
- Tool change monitoring: inductiv
- Clamping range: up to 13 mm
- Coupler plug: 9-pole metal
- Weight: 21,5 kg

Dimensions



Power-, torque- and speed diagram



S120-H730.07 S8W2

High-frequency spindle
Pneumatic change of toolholder
HSK-E 40

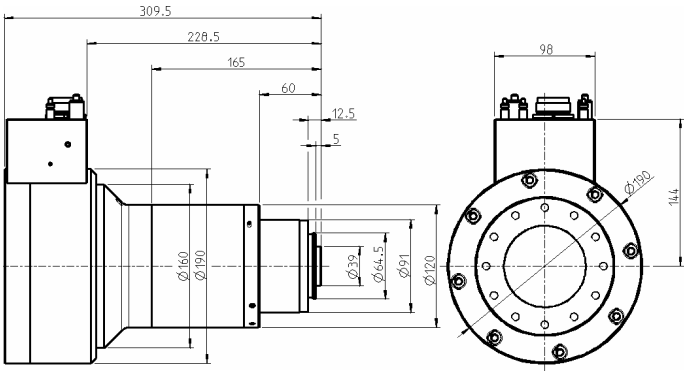
Spindle for high-speed milling, -grinding -drilling, -engraving

Example of design

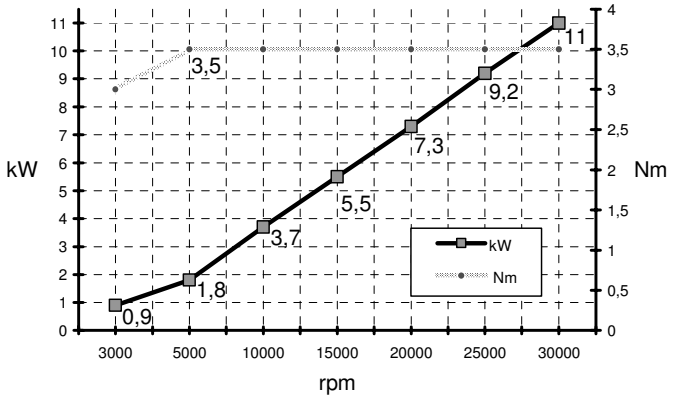
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 9
- Nominal output power: max. 11 kW
- Current voltage: max. 350 V
- Current: max. 24,9 A
- Frequency: max. 2000 Hz
- Motor poles: 4 pairs
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 120 mm
- Cooling system: liquid cooled
- Holder: taper adapter
- Tool change: pneumatic change of HSK-E 40
- Tool change monitoring: inductiv
- Clamping range: up to 16 mm
- Coupler plug: 18-pole, automatic multi-coupling

Dimensions



Power-, torque- and speed diagram



S120-H727.02 P2W2

High-frequency spindle
Pneumatic change of toolholder
HSK-E 40

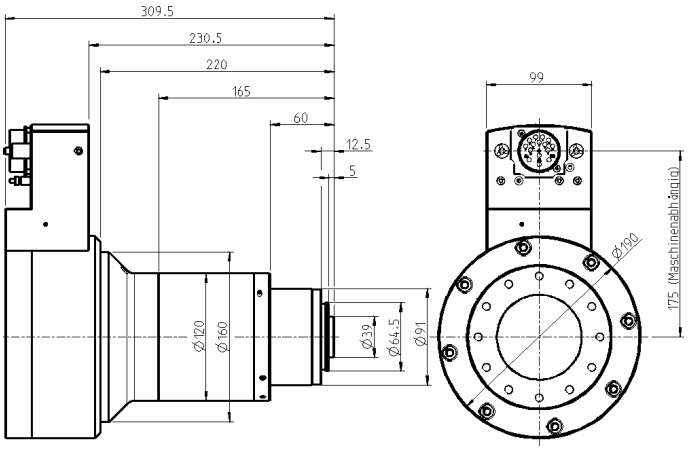
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

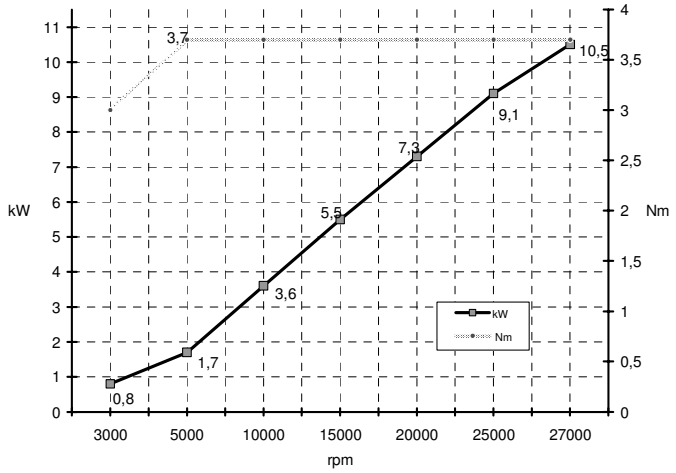
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 9
- Nominal output power: max. 10,5 kW
- Current voltage: max. 350 V
- Current: max. 24,9 A
- Frequency: max. 1800 Hz
- Motor poles: 4 pairs
- Rotation speed: max. 27.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 120 mm
- Cooling system: liquid cooled
- Holder: taper adapter
- Tool change: pneumatic change of HSK-E 40
- Tool change monitoring: inductive
- Clamping range: up to 16 mm
- Coupler plug: 19-pole, automatic multi-coupling
- Weight: 30 kg

Dimensions



Power-, torque- and speed diagram

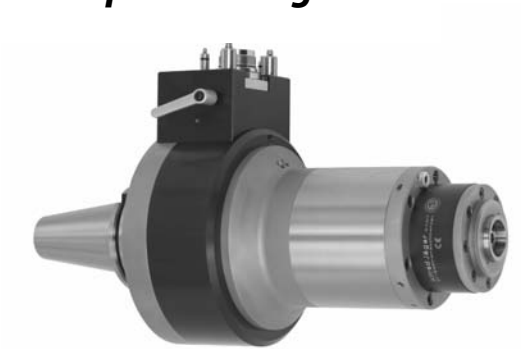


S120-H730.06 S8W2

High-frequency spindle
Pneumatic change of toolholder
HSK-E 40

Spindle for high-speed milling, -grinding -drilling, -engraving

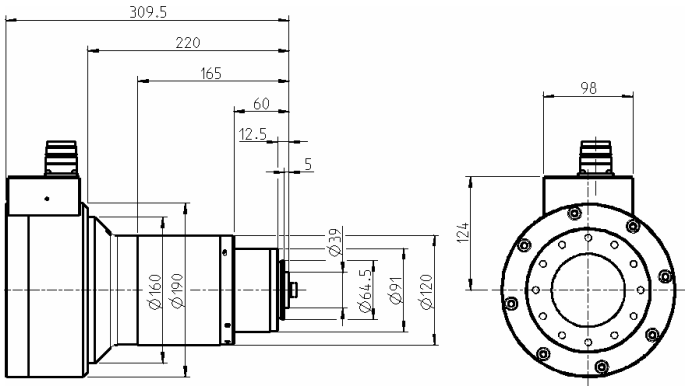
Example of design



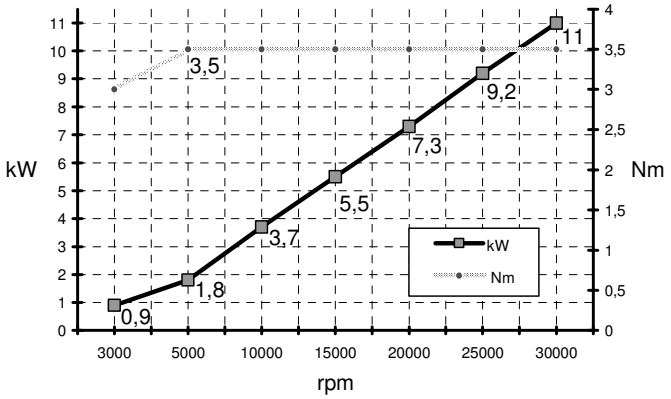
Technical specifications

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 9
- Nominal output power: max. 11 kW
- Current voltage: max. 350 V
- Current: max. 24,9 A
- Frequency: max. 2000 Hz
- Motor poles: 4 pairs
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Speed monitoring: transmitter
- Sealing-air
- Housing diameter: 120 mm
- Cooling system: liquid cooled
- Holder: taper adapter
- Tool change: Pneumatic change of HSK-E 40
- Tool change monitoring: inductiv
- Clamping range: up to 16 mm
- Coupler plug: 18-pole metal
- Weight: 30 kg

Dimensions



Power-, torque- and speed diagram



Jäger
High Performance Spindles

Flange Spindles

Flange-Spindles are high-frequency machine spindles for high-speed milling, grinding, drilling and engraving with spindle flange.

Jäger High Performance Spindles utilize ***hybrid ceramic*** ball bearings. These bearings have standard steel bearing races and are matched with silicon nitride balls. Advantages of hybrid bearings compared with normal spindle bearings are improvement of:

- Reduced wear
- Rigidity
- Friction
- Axial shaft movement
- Reliability of operation
- Vibrations
- Fatigue life
- Accuracy

Spindle overview

Spindle Tyoe	Ceramic Hybrid Bearings (pcs.)	Nominal Output Power (kw)	Voltage (V)	Current (A)	Max. Hz	Rotation Speed (max. rpm)	Housing Diameter (mm)	Flange Diameter (mm)	HSK	Pneumatic Change Of Toolholder	Clamping Range Up To (mm)	Encoder Controlled	Internal Coolant Supply
F120-H830.01 S9W2V	4	11,5	350	39	1000	30.000	120	144	E-50	x	20	opt.	opt.
F120-H830.04 S9W2V	4	11,5	350	39	1000	30.000	120	144	E-40	x	16	opt.	opt.
F120-H830.02 S9W2V	4	16,6	380	50	1000	30.000	120	144	E-50	x	20	opt.	opt.
F120-H830.03 S9W2V	4	16,6	380	50	1000	30.000	120	144	E-40	x	16	opt.	opt.
F150-H930.01 K1VW2	4	27	380	50	1000	30.000	150	190	E-50	x	20	x	opt.
F150-H930.01 K1RVW3	4	27	380	50	1000	30.000	150	190	E-50	x	20	x	x

more on request

F120-H830.01 S9W2V

High-frequency spindle
Pneumatic change of toolholder
HSK E-50

Spindle for high-speed milling, -grinding, -drilling, -engraving

Technical specifications

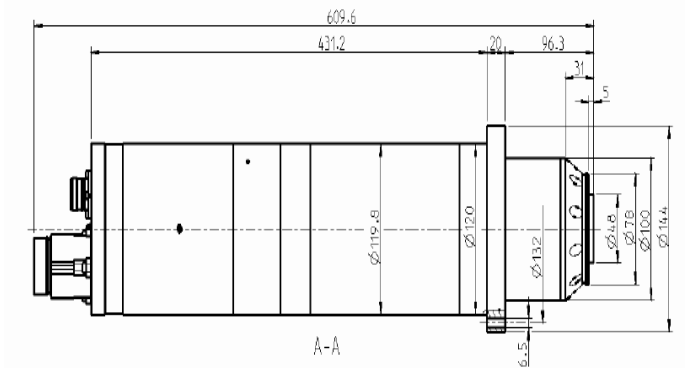
- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 9
- Encoder controlled
- Nominal output power: 11,5 kw (S1)
- Nominal output power: 15 kw (S6)
- Current voltage: max. 350 V
- Current: 39 A
- Frequency: max. 1000 Hz
- Motor poles: 2 pairs
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Sealing air
- Housing diameter: 120 mm
- Flange: 144 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of HSK-E 50*
- Tool change monitoring: inductiv, 3 positions
- Clamping range: up to 20 mm

- Coupler plug: 6 pole metal (motorphases and PTC)
  17 pole metal (encoder)
  7 pole metal (tool change monitoring)

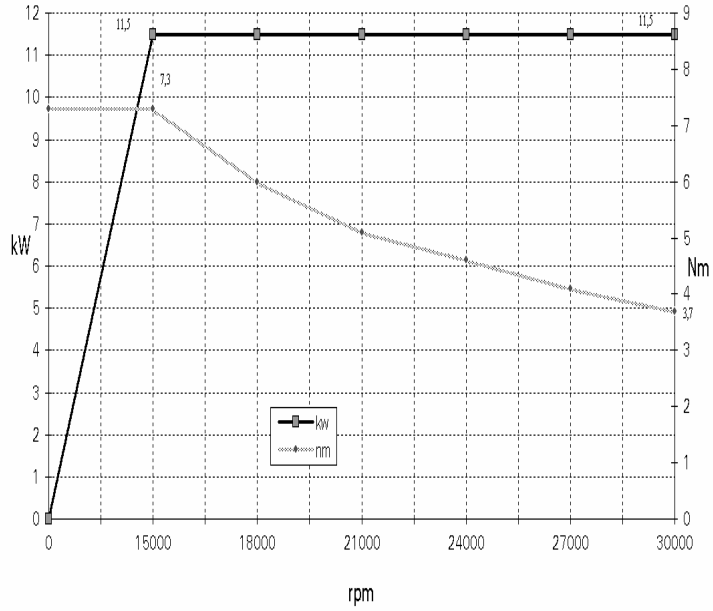
*Option: Internal Coolant Supply

Example of design

Dimensions



Power-, torque- and speed diagram



F120-H830.04 S9W2V

High-frequency spindle
Pneumatic change of toolholder
HSK E-40

Spindle for high-speed milling, -grinding, -drilling, -engraving

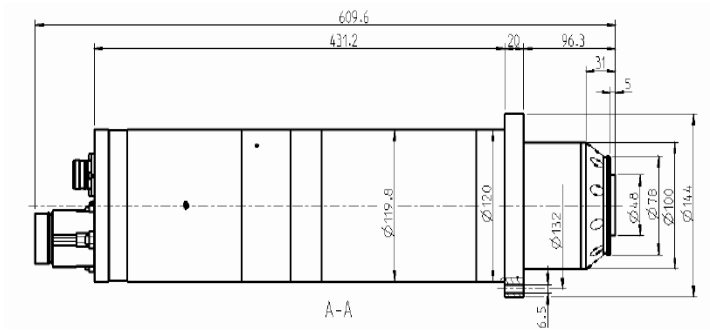
Example of design

Technical specifications

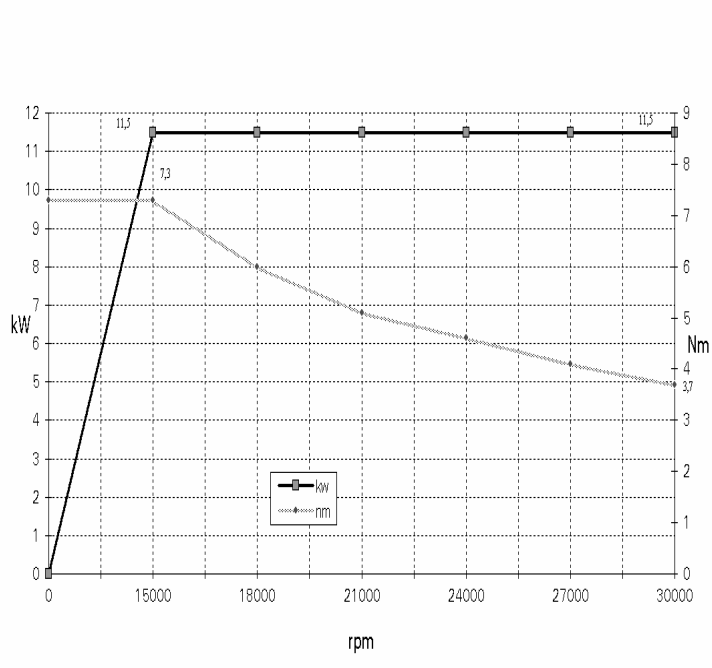
- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 9
- Encoder controlled
- Nominal output power: 11,5 kw (S1)
- Nominal output power: 15 kw (S6)
- Current voltage: max. 350 V
- Current: 39 A
- Frequency: max. 1000 Hz
- Motor poles: 2 pairs
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Sealing air
- Housing diameter: 120 mm
- Flange: 144 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of HSK-E 40*
- Tool change monitoring: inductiv, 3 positions
- Clamping range: up to 16 mm
- Coupler plug: 6 pole metal (motorphases and PTC)
  17 pole metal (encoder)
  7 pole metal (tool change monitoring)

*Option: Internal Coolant Supply

Dimensions



Power-, torque- and speed diagram



F120-H830.02 S9W2V

High-frequency spindle
Pneumatic change of toolholder
HSK E-50

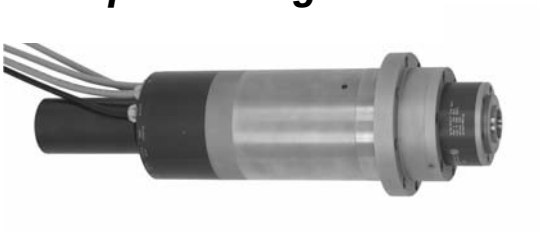
Spindle for high-speed milling, -grinding, -drilling, -engraving

Technical datas

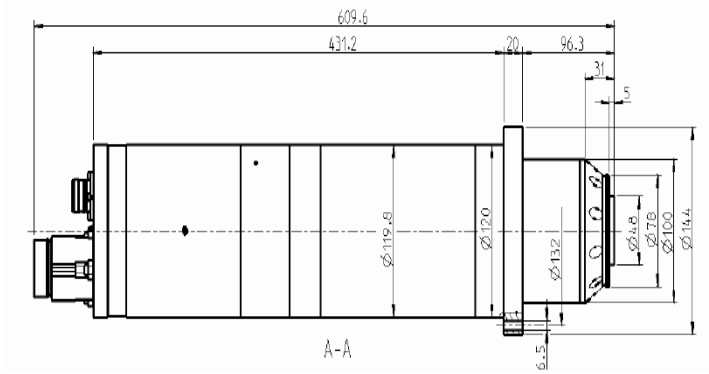
- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: Type 10.6
- Encoder controlled
- Nominal output power: 16,6KW (S1)
- Nominal output power: 19KW (S6)
- Nominal output power: 36KW (pmax)
- Current voltage:: max. 380 V
- Rated current: 50 A
- Frequency: max. 1000 Hz
- Motor poles: 2 pairs
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Seailing air
- Housing diameter: 120 mm
- Flange: 144 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of HSK-E 50*
- Tool change monitoring: inductiv, 3 positions
- Clamping range: up to 20 mm
- Coupler plug: 6 pole metal (motorphases and PTC)
  17 pole metal (Encoder)
  7 pole metal (tool change monitoring)

*Option: Internal Coolant Supply

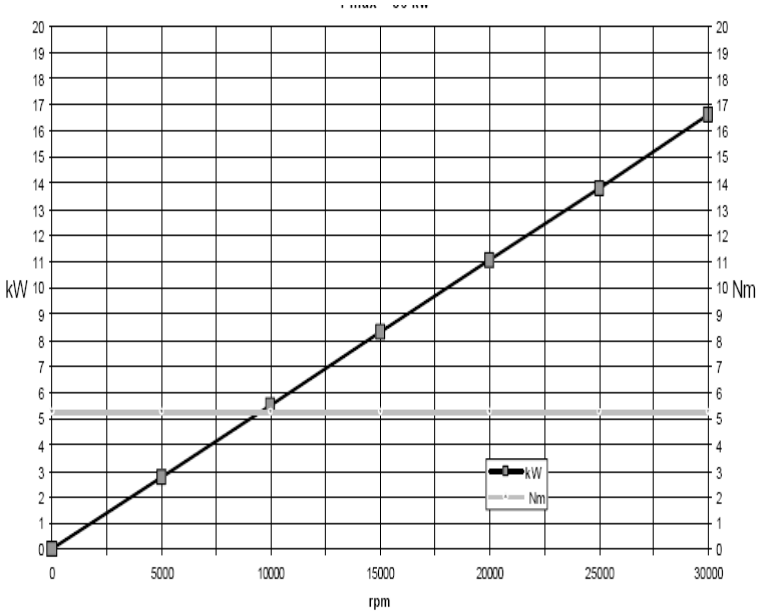
Exampel of design



Dimensions



Leistungsdiagramm

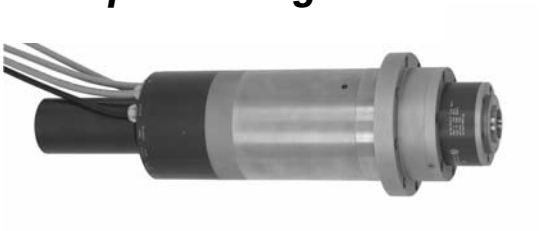


F120-H830.03 S9W2V

High-frequency spindle
Pneumatic change of toolholder
HSK E-40

Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

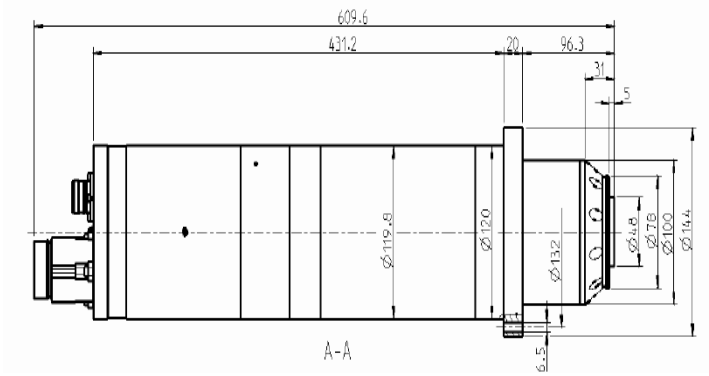


Technical datas

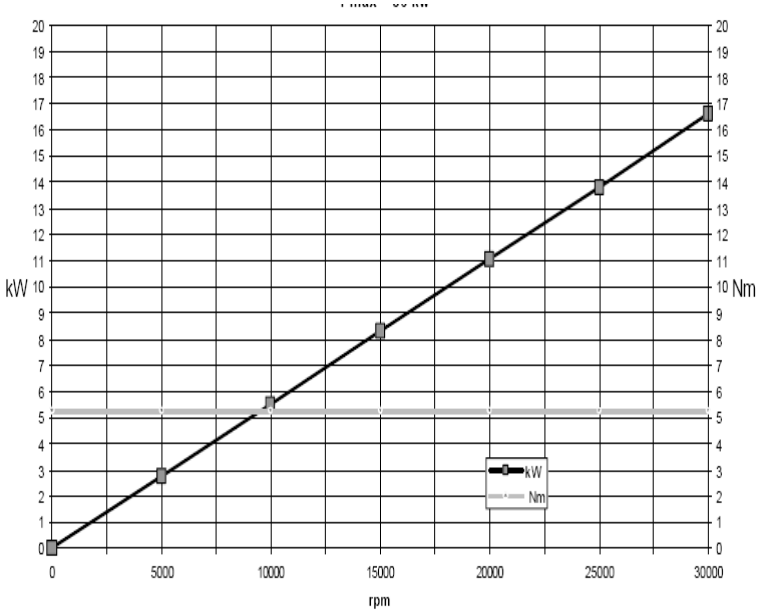
- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: Type 10.6
- Encoder controlled
- Nominal output power: 16,6KW (S1)
- Nominal output power: 19KW (S6)
- Nominal output power: 36KW (pmax)
- Current voltage:: max. 380 V
- Rated current: 50 A
- Frequency: max. 1000 Hz
- Motor poles: 2 pairs
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Seailing air
- Housing diameter: 120 mm
- Flange: 144 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of HSK-E 40
- Tool change monitoring: inductiv, 3 positions
- Clamping range: up to 16 mm
- Coupler plug: 6 pole metal (motorphases and PTC)
  17 pole metal (Encoder)
  7 pole metal (tool change monitoring)

*Option: Internal Coolant Supply

Dimensions



Leistungsdiagramm



F150-H930.01 K1V W2

High-frequency spindle
Pneumatic change of toolholder
HSK E-50

Spindle for high-speed milling, -grinding, -drilling, -engraving

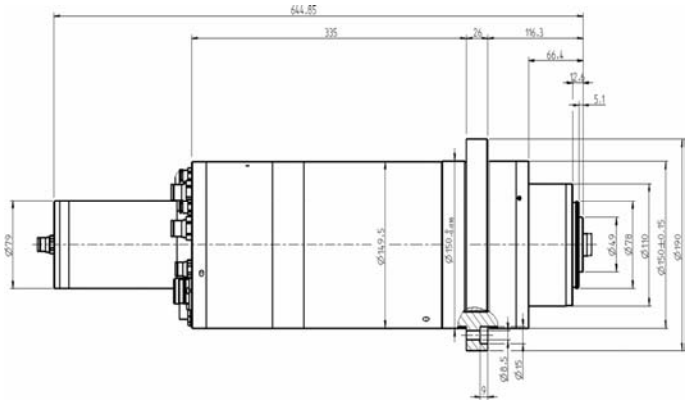
Example of design

Technical specifications

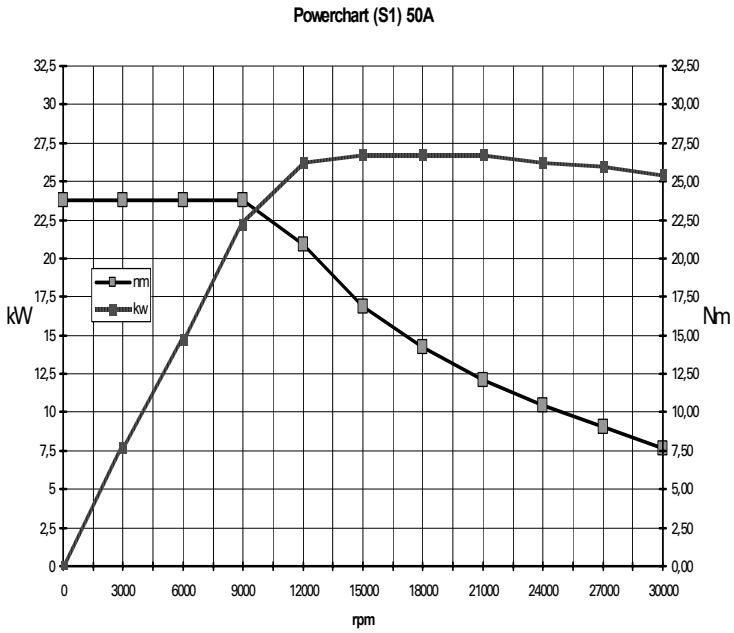
- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 10
- Encoder controlled
- Nominal output power: 27 KW (S1)
- Nominal output power: 37 KW (S6)
- Nominal output power: 67KW pmax
- Voltage: max. 380 V
- Rated current: 50 A
- Frequency: max. 1000 Hz
- Motor poles: 2 pairs
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Seailing air
- Housing diameter: 150 mm
- Flange: 190 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of HSK-E 50
- Tool change monitoring: inductiv, 3 positions
- Clamping range: up to 20 mm
- Coupler plug: 4 x motorcables 1m
  17 pole metal (Encoder, thermistor)
  7 pole (tool change monitoring)
- Gewicht: 49,5 Kg

*Option: Internal Coolant Supply

Dimensions



Power-, torque- and speed diagram



F150-H930.02 K1RVW3

High-frequency spindle
Pneumatic change of toolholder
HSK E-50

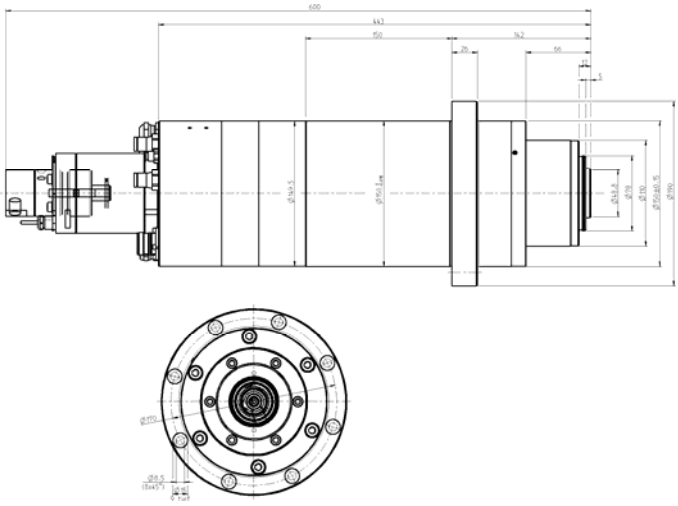
Spindle for high-speed milling, -grinding, -drilling, -engraving

Technische Daten

- High precision hybrid ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: Typ 10
- Encoder controlled
- Nominal output power : 26,8 KW (S1-100% ED)
- Nominal output power: 37 KW (S6-60%)
- Nominal output power: 67 KW (pmax)
- Voltage: max. 380 V
- Rated current: 50 A
- Frequency: max. 1000 Hz
- Motor poles: 2 Polpaare
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Sealing air
- Housing diameter: 150 mm
- Flange: 190 mm
- Cooling system: liquid cooled
- Tool change: pneumatic change of HSK-E 50
- Internal Coolant Supply
- Tool change monitoring: inductiv, 3 positions
- Clamping range: up to 20 mm
- Geräteanschluss:
  Coupler plug: 4 x motorcables 1m
  1x cable tool change monitoring
  1x cable for ptc
  17pole metal (Encoder)
- Weight: approx.. 50 Kg

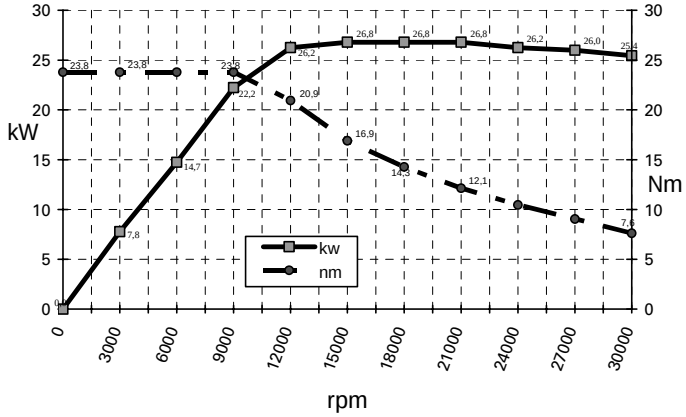
Example of design

Dimensions

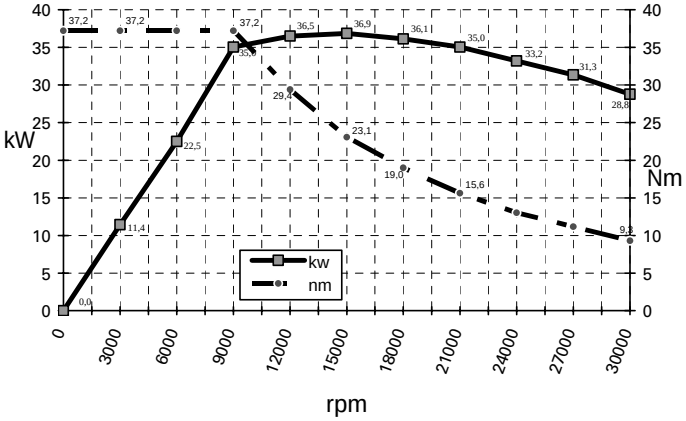


Power-, torque- and speed diagram

Power-diagram (S1)



Power-diagram (S6)



Chopper-Serie

The Chopper is a leaner variant of a high-end, Jäger High Performance Spindle. The main aspect taken into consideration in the development of this product was saving manufacturing costs and ultimately, an attractive final price for the customer.

A cleverly thought out basic spindle concept means that various tool clamping systems up to a maximum of 10mm are available to potential customers at a reasonable price – simply and quickly manual, pneumatic or with a taper change – all these can be integrated into the basic body.

Some Chopper-Spindles can be attached without spindle bracket directly to the machine axis using the available T-slots according DIN 650-8. An integrated ventilation system for cooling the spindle means no additional costs for otherwise necessary cooling units.

Jäger-High-Performance Spindles offers each Chopper-Spindle also in a "Chopper-Bundle", that means Chopper-Spindle incl. converter at a reasonable price – please ask us.

Spindle overview

Spindle-type	Steel bearings (pcs.)	Power (kw) pmax	Voltage (V)	Current (A)	Max. Hz	Max. rpm.	Housing diameter (mm)	Pneumatic change of toolholder	Manual clamping	Pneumatic direct change	Clamping range up to (mm)	Weight (kg)	Liquid cooled
Chopper 1500H	2	4,1	230	5,2	500	30.000	100		ER 16		10	5	
Chopper 1500D	2	4,1	230	5,2	500	30.000	100			x	8	7	
Chopper 1500K	2	4,1	230	5,2	500	30.000	100	x			10	7	
C 80 M 430.01 S4	2	5,8			500	30.000			12 D		12	5,5	x

More on request

Chopper 1500 H

High-frequency spindle
Manual tool change
ER 16

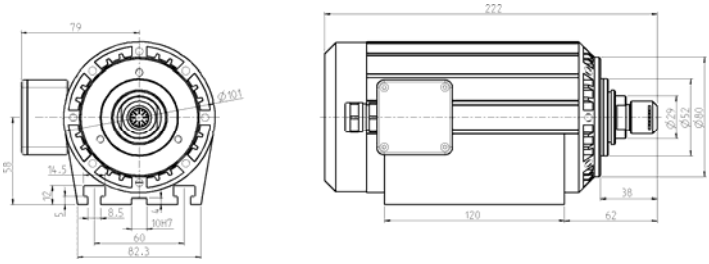
Spindle for high-speed milling, -grinding -drilling, -engraving

Technical specifications

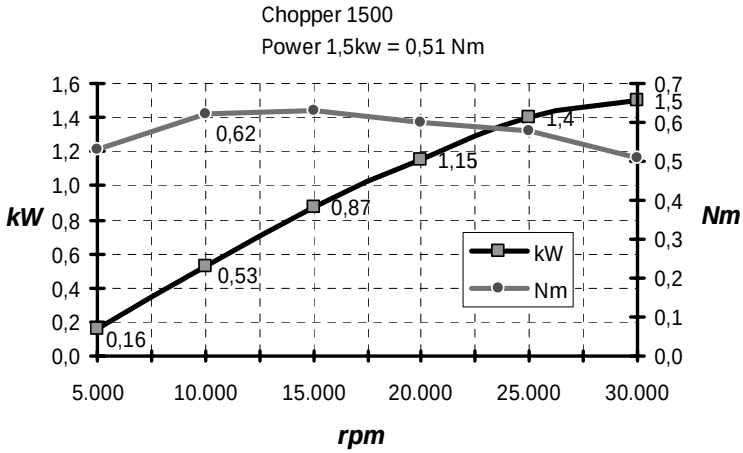
- High precision steel ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 50.2
- Nominal output power: 1,5 kW (S1)
- Nominal output power: 4,1 kW (pmax)
- Voltage: max. 230 V
- Current: 5,2 A
- Frequency: max. 500 Hz
- Motor poles: 1 pair
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Sealing-air
- Cooling system: air cooled
- Housing diameter: 100 mm
- Tool change: manual tool change
  collet ER 16
- Clamping range: up to 10 mm
- Coupler plug: cable 3m
- Weight: approx. 5 kg

Example of design

Dimensions



Power-, torque- and speed diagram



Chopper 1500 D

High-frequency spindle
Pneumatic direct tool change

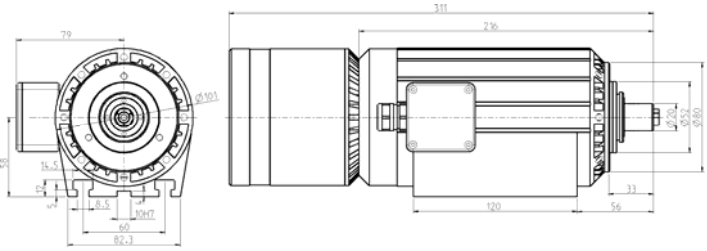
Spindle for high-speed milling, -grinding -drilling, -engraving

Technical specifications

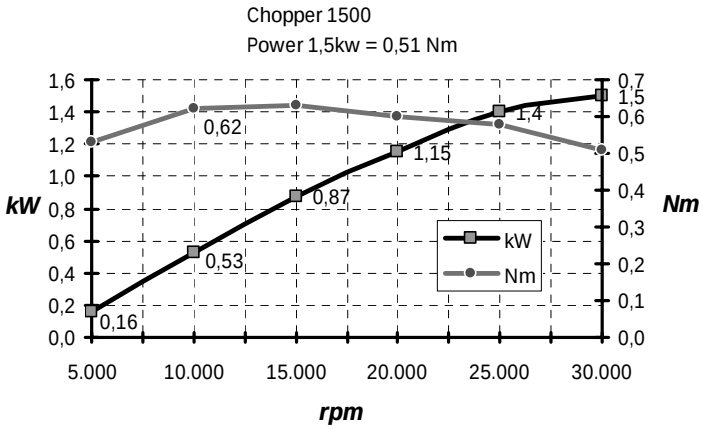
- High precision steel ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 50.2
- Nominal output power: 1,5 kW (S1)
- Nominal output power: 4,1 kW (pmax)
- Voltage: max. 230 V
- Current: 5,2 A
- Frequency: max. 500 Hz
- Motor poles: 1 pair
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Sealing-air
- Cooling system: air cooled
- Housing diameter: 100 mm
- Tool change: pneumatic direct tool change
- Clamping range: up to 8 mm
- Coupler plug: cable 3m
- Weight: approx. 7 kg

Example of design

Dimensions



Power-, torque- and speed diagram



Chopper 1500 K

High-frequency spindle
Pneumatic change of toolholder

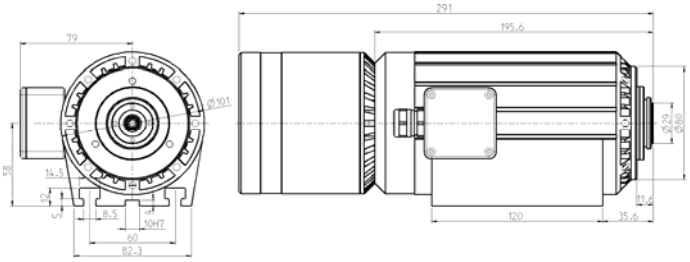
Spindle for high-speed milling, -grinding -drilling, -engraving

Technical specifications

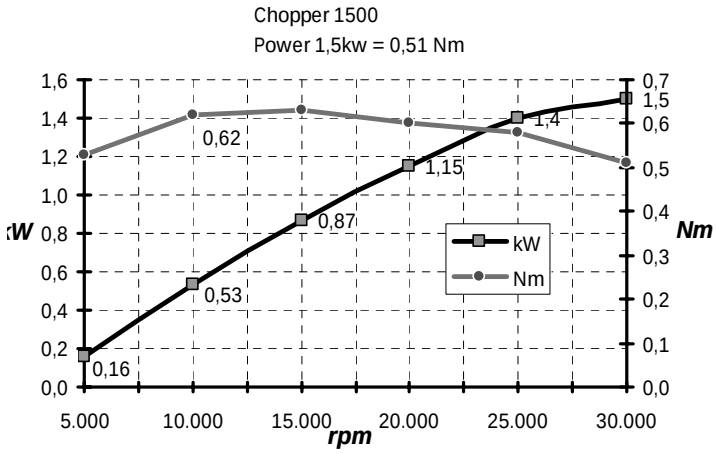
- High precision steel ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 50.2
- Nominal output power: 1,5 kW (S1)
- Nominal output power: 4,1 kW (pmax)
- Voltage: max. 230 V
- Current: 5,2 A
- Frequency: max. 500 Hz
- Motor poles: 1 pair
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Sealing-air
- Cooling system: air cooled
- Housing diameter: 100 mm
- Tool change: pneumatic change of toolholder
- Clamping range: up to 8 mm
- Coupler plug: cable 3m
- Weight: approx. 7 kg

Example of design

Dimensions



Power-, torque- and speed diagram



Chopper C 80 M 430.01 S4

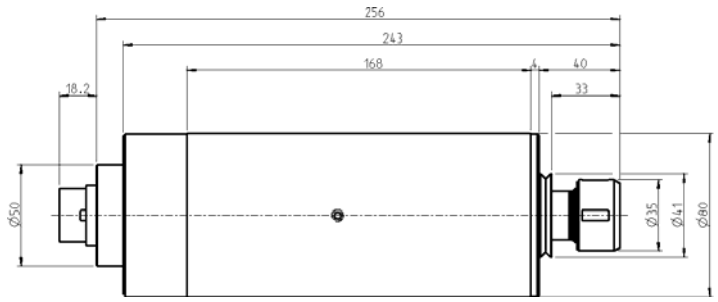
High-frequency spindle
Manual tool change
Collet type 12D

Spindle for high-speed milling, -grinding -drilling, -engraving

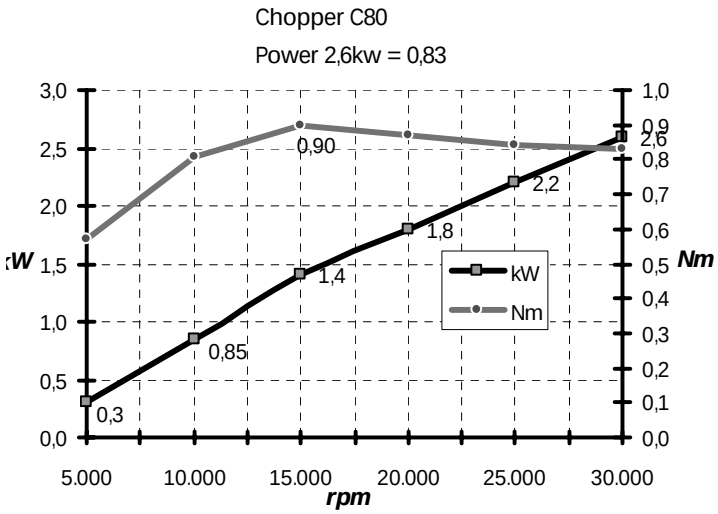
Technical specifications

- High precision steel ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type AC
- Nominal output power: 2,6 KW
- Nominal output power: 5,8 kW (pmax)
- Voltage: max. 230 V
- Current: 11 A
- Frequency: max. 500 Hz
- Motor poles: 1 pair
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Sealing-air
- Cooling system: liquid cooled
- Housing diameter: 80 mm
- Tool change: manual tool change
  Collet type: 12D
- Clamping range: up to 12 mm
- Coupler plug: 9 pole plastic
- Weight: approx. 5,5 kg

Dimensions



Power-, torque- and speed diagram



Jäger
High Performance Spindles

Application Built Spindles

Deburring

The classical use of excursion systems is to burr workpieces with robots. In this application a rotating tool is passed along the contour to be trimmed by a robot. The pressing force is generated either by springs or by pneumatic cylinders. If the pressing force rises above a certain value, the excursion system yields automatically around a pivot.

Unlike conventional air-operated angular excursion systems, this system works with a powerful high frequency spindle and axis-parallel excursion movements in all three axes.

Jäger High Performance Spindles utilize ***hybrid ceramic*** ball bearings . These bearings have standard steel bearing races and are matched with silicon nitride balls. Advantages of hybrid bearings compared with normal spindle bearings are improvement of:

- Reduced wear
- Rigidity
- Friction
- Axial shaft movement
- Reliability of operation
- Vibrations
- Fatigue life
- Accuracy

Spindle overview

Spindle Tyoe	Ceramic Hybrid Bearings (pcs.)	Nominal Output Power (kw)	Voltage (V)	Current (A)	Max. Hz	Rotation Speed (max. rpm)	Housing Diameter (mm)	Pneumatic Direct Change	Clamping Range Up To (mm)
Excursion System	2	0,3	90	4	100	60.000	155	x	6

more on request

Jäger
High Performance Spindles

New Spindle-System !

Universal three-dimensional excursion system for robots and machine tools with automatic tool change.

Below we would like to present a versatile, new type of excursion system for robots and machine tools. Unlike conventional air-operated angular excursion systems, this system works with a powerful high frequency spindle and **axis-parallel excursion movements in all three axes**. The main advantages of a high frequency spindle are its high power density and large speed control range. Program-controlled speeds from 5,000-60,000 rpm can be set **without any need for expensive compressed air**. The classical use of excursion systems is to burr workpieces with robots. In this application a rotating tool is passed along the contour to be trimmed by a robot. The pressing force is generated either by springs or by pneumatic cylinders. If the pressing force rises above a certain value, the excursion system yields automatically around a pivot.

In the system being presented here the excursion movement is not passed around a pivot, but parallel to the contour in all three axes. This means that in the case of a tool with an angle of 45° the chamfer produced is also 45°. In confined spaces smaller than the tool diameter, the system, for example, yields vertically and self-adaptively to the contour. The pressing force is generated pneumatically and can be adjusted separately for the vertical axis. If electropneumatic pressure controllers are used, the pressing force can be varied during machining and can therefore be adjusted optimally to the application. If a negative pressure is applied to the cylinder of the vertical axis, the own weight of the high frequency spindle can be balanced.

An absolute novelty is the possibility to change the tools automatically. In the past it was necessary to carry a second spindle or to change to a second or third spindle with chucked tools. Since a complete spindle incl. change interface and storage station has to be kept for every tool, the investment costs are correspondingly high. In the new system the additional investment costs relate solely to the tools and the toolholder stations. Another advantage is that the tool magazine can be virtually any size. It is possible to change from a large to a small or from a roughing to a finishing tool. In a man-less shift the robot can, for example, change automatically from a blunt to a sharp sister tool by defined wear criteria. At the back of the excursion system there is a centring diameter with threaded hole pattern. At this interface the interfaces commonly used by the robot industry as well as those from the machine tool sector SK, HSK or other tapers can be adapted. When used in a CNC machining centre, the excursion system can be placed in the tool-changer of the machining centre via, for example, an HSK taper. After the tool change the excursion system is supplied through a media connecting system as already tried and tested with our SK spindles.

The excursion system can therefore be integrated in the machining process like any other tool. It is imaginable that a CNC machine machines a gearbox case, a mould or a forging die. The excursion system is changed in and trims, for example, the casting seams or the burrs that arose from machining. Since the excursion system is able to change tools itself, it can change from a burring tool to a grinding tool in order to refine some contours. Thereafter the machine can change to a polishing felt to polish, for example, the surfaces of a blowing mould. Since the pressing force is controllable and the excursion system is guided by the program of the CNC machine, very good surface qualities are likely. If the pneumatic cylinders of the excursion system are pressurised with full pressure, the excursion axes are virtually rigid and light milling work can be carried out. By using burins, it is possible to engrave serial numbers or company logos or to machine or cut superfine lines.

2004-05

Excursion system

High-frequency spindle
Pneumatic direct change

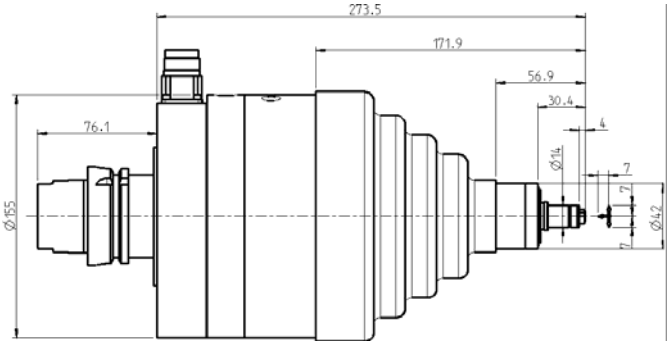
Spindle for high-speed milling, -grinding, -drilling, -engraving

Example of design

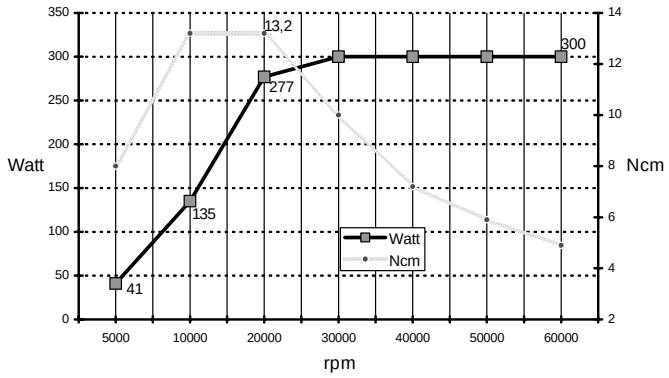
Technical specifications

- High precision hybrid ball bearings – 2 Pcs.
- Lifetime lubricated, maintenance free
- Motor: type 2
- Nominal output power: max. 0,3 kW
- Voltage: max. 90 V
- Current: max. 4 A
- Frequency: max. 1000Hz
- Motor poles: 1 pair
- Rotation speed: max. 60.000 rpm
- Motor protection: thermistor
- Sealing-air
- Auslenkbewegung: 3- achsig, achsparallel
- Housing diameter: 155mm/42 mm
- Cooling system: non cooled
- Tool change: pneumatic direct tool change
- Clamping range: up to 6 mm (1/4")
- Auslenkweg: horizontal +/- 7 mm, vertikal +7 mm
- Auslenkkraft: stufenlos einstellbar, 10-100 N
- Weight: approx. 8 kg

Dimensions



Power-, torque and speed diagram



Engraving Spindle

The basis of the engraving spindle is a motor with a constant power of 170 watt and a maximum speed of 60,000rpm. Easy-to-operate mechanics enable the depth of the engraving to be determined. Unevenness in the engraving material can be levelled out by means of a height adjuster which can be preset using spring force. The “lock ability” of the height adjustment also enables “milling work”!

Tool change is via a comfortable knob clamping which is located on the rear of the spindle. The clamping diameter of the engraving spindle is 35mm, and therefore complies with the diameter of the most common “belt-driven spindles”.

Jäger High Performance Spindles utilize ***hybrid ceramic*** ball bearings. These bearings have standard steel bearing races and are matched with silicon nitride balls. Advantages of hybrid bearings compared with normal spindle bearings are improvement of:

- Reduced wear
- Rigidity
- Friction
- Axial shaft movement
- Reliability of operation
- Vibrations
- Fatigue life
- Accuracy

Spindle overview

Spindle	Ball Bearings pcs	Power (kw)	Voltage (V)	Current (A)	max. Hz	max. rpm	Housing Diameter (mm)	Manual Clamping	Clamping Range up to (mm)
G33-M060.01 K02 S16	3	0,17	21	7	1000	60.000	29/33	x	3

more on request

G33-M060.01 K02 S16

High-frequency spindle
Manual tool change

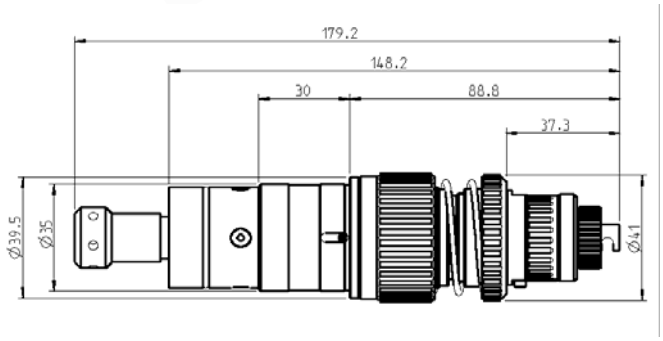
Spindle for High-Speed-Engraving and High-Speed-Milling

Example of design

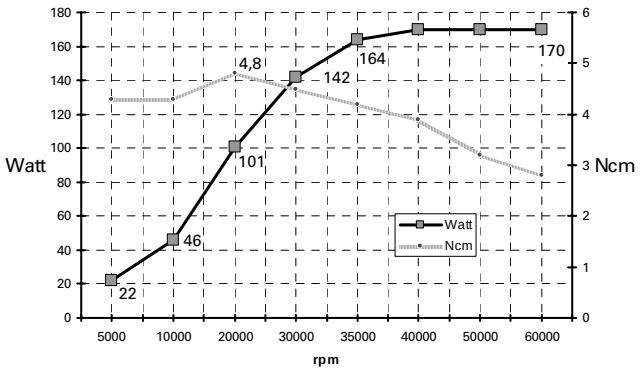
Technical specifications

- High precision hybrid ball bearings frontside 2 pcs.
- High precision steel ball bearing rear 1 pcs.
- Lifetime lubricated, maintenanc free
- Motor: type 0
- Nominal output power: max. 0,17 kW
- Current voltage max. 21 V
- Current: max. 7 A
- Frequency: max. 1000,0 Hz
- Motor pole: 1 pair
- Rotation speed: max. 60.000 rpm
- Housing diameter: 29/33 mm
- Clamping diam. of spindle 35 mm
- Cooling system: non cooled
- Tool change: manual tool change
- Clamping range: up to 3,0 mm
- Coupler plug: 7-pole metal with cable 0,2 m
- Free lift range: 5 mm, w/quick locking mechanism
- Depthnose: adjustable range 7 mm, steps 0,02 mm
- weight: 0,8 Kg

Dimensions



Power-, torque- and speed diagram



C 100 M 430.01 K3

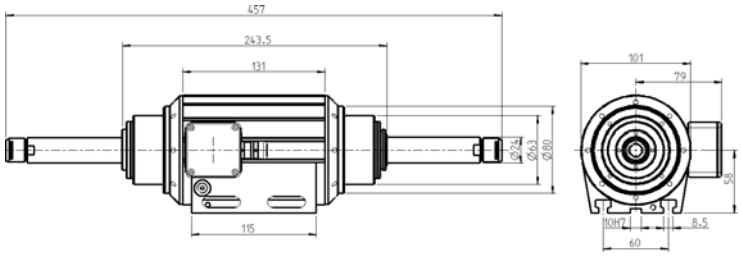
Double-ended spindle
Manual tool change
ER 16

Spindle for high-speed milling, -grinding -drilling, -engraving

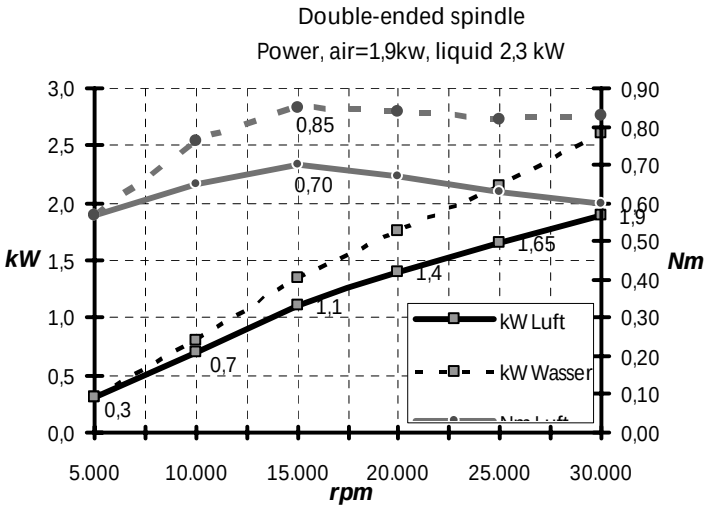
Technical specifications

- High precision steel ball bearings – 4 Pcs.
- Lifetime lubricated, maintenance free
- Motor: AC
- Nominal output power: S1 - 100% ED 1,9 kW
  cooled by compressed air
- S1 - 100% ED 2,3 kW
  liquid cooled
- Nominal output power: Pmax. 4,1 kW (5 Sek.)
  cooled by compressed air
- Pmax. 4,1 kW (5 Sek.)
  liquid cooled
- Voltage: max. 230 V
- Frequency: max. 500 Hz
- Motor poles: 1 pair
- Rotation speed: max. 30.000 rpm
- Motor protection: thermistor
- Sealing-air
- Cooling system: compressed air/ or liquid cooled
- Housing diameter: 100 mm
- Tool change: manual tool change/ collet ER 16
- Clamping range: up to 10 mm
- Coupler plug: cable
- Weight: approx. 9 kg

Dimensions



Power-, torque- and speed diagram



Accessories

For more information contact our
sales department please.

Cooling units

Cooling units for liquid cooled spindles. Available as 19 inch insert, housing verion or as system cabinet (cooling unit + converter)

- from 600 up to 2500 W
- up to 42° C ambient temperature limit

Example of design

Frequency converters

Frequency converters to operate High-frequency-spindles. Available as tabletop unit, 19 inch insert, housing version, system cabinet (converter + cooling unit) or switch cabinet version.

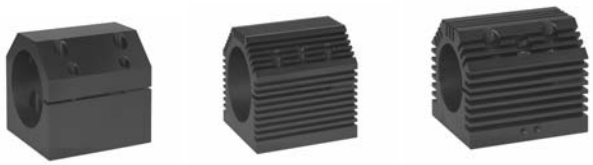
- from 0,08 kw up to 67 kw power

Example of design

Spindle brackets / Spindle flanges

Spindle brackets to fixing cylindrical spindle systems. Spindle flanges will designed on customers specification.

Example of design



Accessories

For more information contact our
sales department please.

Pick up stations for tool change in various types

Example of design

Toolholders

Example of design

Shrinking toolholders

Example of design

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English/ Chinese

Keyword translation

English	*Chinese*
High-frequency spindle	电主轴
Manual tool change	手动更换刀具
Pneumatic direct change of tool	气动式自动换刀
Pneumatic change of toolholder	气动式自动换刀架
Pneumatic change of HSK...	气动更换 HSK…
spindle for high-speed milling	高速研磨轴
-grinding, -drilling, -engraving	-碾磨、 -钻孔、 -雕刻
Pcs. high precision hybrid ball bearings	高精度混合轴承
Lifetime lubricated	油脂润滑
Motor	马达 型
Nominal output power	额定输出功率
Current voltage	电压
Current	电流
Frequency	频率
Motor poles: pair	马达极：一对
Rotation speed	转速：
Motor protection: thermistor	马达保护：马达温度保护装置
Speed monitoring: transmitter	速度侦测：传感器
Sealing-air	空气轴封
Housing diameter	主轴外径
Cooling system	冷却系统
Non cooled	无冷却系统
Liquid cooled	液体冷却
Tool change	刀具更换
Clamping range: up to	刀具挟持范围：最大
Coupler plug	联结器接头
Plastics	塑料
Metal	金属
Weight	重量
Contact by touch	接触
Example of design	设计样例
Technical specifications	技术说明
Dimensions	尺寸
Power-, torque- and speed diagram	功率-、扭矩-和速度图表

English/ French

Keyword translation

English	*French*
High-frequency spindle	Broche haute fréquence
Manual tool change	Serrage manuel
Pneumatic direct change of tool	Changement pneumatique direct
Pneumatic change of toolholder	Changement pneumatique de cône
Pneumatic change of HSK...	Changement pneumatique de cône HSK...
spindle for high-speed milling	Broche pour fraisage à grande vitesse
-grinding, -drilling, -engraving	Meulage, perçage, gravure
Pcs. high precision hybrid ball bearings	roulements à billes hybrides
Lifetime lubricated, maintenance free	graissage à vie
Motor:	Moteur :
Nominal output power:	Courant de sortie nominal : maximum
Current voltage:	Tension :
Current:	Courant :
Frequency:	Fréquence :
Motor poles: pair	Nombre pôles moteur : paire
Rotation speed:	Régime :
Motor protection: thermistor	Protection du moteur : PTC
Speed monitoring: transmitter	Capteur de régime : transducteur
Sealing-air	Air de retenue
Housing diameter:	Diamètre du boîtier :
Cooling system:	Refroidissement :
Non cooled	Pas refroidi
Liquid cooled	Refroidi par liquide
Tool change:	Changement d'outil :
Clamping range: up to	Plage de serrage : jusqu'à
Coupler plug:	Connecteur :
Plastics	Plastique
Metal	Métal
Weight	Poids
Contact by touch	Contact
Example of design	Exemple échantillon
Technical specifications	Spécifications techniques
Dimensions	Dimensions
Power-, torque- and speed diagram	Diagramme de la courbe de puissance

English/ Japanese

Keyword translation / キーワード

English	Japanese
High-frequency spindle	高周波スピンドル
Manual tool change	手動ツール交換
Pneumatic direct change of tool	空圧式ツール直接交換
Pneumatic change of toolholder	空圧式ツールホルダー交換
Pneumatic change of HSK...	空圧式HSK交換
spindle for high-speed milling -grinding, -drilling, -engraving	高速ミリング、グラインディング、ドリリング、彫刻用
Pcs. high precision hybrid ball bearings	超精度ハイブリッド・ボールベアリング
Lifetime lubricated, maintenance free	グリース潤滑、メンテナンスフリー
Motor:	モーター
Nominal output power:	定格出力：
Current voltage:	電圧：
Current:	電流：
Frequency:	周波数：
Motor poles: pair	モーターポール数：対
Rotation speed:	回転数：
Motor protection: thermistor	モーター保護：サーミスター
Speed monitoring: transmitter	回転数モニター：トランスミッター
Sealing-air	シーリング・エアー
Housing diameter:	ハウジング外径
Cooling system:	冷却システム
Non cooled	冷却無し
Liquid cooled	水冷
Tool change:	ツール交換
Clamping range: up to	クランプ範囲：最大
Coupler plug:	カップラープラグ：
Plastics	プラスチック
Metal	金属
Weight	重さ
Contact by touch	お問い合せ
Example of design	デザイン例
Technical specifications	技術仕様
Dimensions	寸法
Power-, torque- and speed diagram	出力、トルク−回転数ダイヤグラム

English/ Korean

Keyword translation

English	*Korean*
High-frequency spindle	고주파 스핀들
Manual tool change	수동 공구 교환
Pneumatic direct change of tool	공압식 공구 직교환
Pneumatic change of toolholder	공압식 툴홀더 교환
Pneumatic change of HSK...	HSK의 공압식 교환
spindle for high-speed milling	고속 밀링을 위한 스핀들
-grinding, -drilling, -engraving	연마, 드릴링, 조각
Pcs. high precision hybrid ball bearings	개, 고정밀 하이브리드 볼 베어링
Lifetime lubricated, maintenance free	영구적윤활, 자유로운 유지보수
Motor:	모터 :
Nominal output power:	정격 출력 전원
Current voltage:	전류 전압
Current:	전류
Frequency:	주파수
Motor poles: pair	모터 극수 :
Rotation speed:	회전 속도
Motor protection: thermistor	모터 보호 : 서미스터
Speed monitoring: transmitter	속도 감찰 트랜스미터
Sealing-air	봉합-공기
Housing diameter:	하우징 지름:
Cooling system:	냉각 시스템
Non cooled	냉각되지 않음
Liquid cooled	액체 냉각
Tool change:	공구 변화:
Clamping range: up to	조임범위: 까지
Coupler plug:	커플러 플러그:
Plastics	플라스틱
Metal	금속
Weight	무게
Contact by touch	접촉에 의한 교신
Example of design	설계 예
Technical specifications	기술 설계서
Dimensions	면적
Power-, torque- and speed diagram	전력-, 토크- 그리고 속도 도표

English/ Portuguese

Keyword translation

English	*Portuguese*
High-frequency spindle	Fuso de alta frequência
Manual tool change	Ferramenta de aperto manual
Pneumatic direct change of tool	Substituição pneumática directa
Pneumatic change of toolholder	Substituição pneumática do porta-ferramentas
Pneumatic change of HSK...	Substituição pneumática do porta- ferramentas do HSK...
spindle for high-speed milling	Fuso para fresa de alta velocidade
-grinding, -drilling, -engraving	esmerilar, furar, graver
Pcs. high precision hybrid ball bearings	Rolamento de esferas híbrido
Lifetime lubricated, maintenance free	Lubrificação com massa para todo o tempo de vida
Motor	Motor
Nominal output power	Potência de descarga: max.
Current voltage	Tensão de alimentação
Current	Intensidade da corrente
Frequency	Frequência
Motor poles: pair	Nº de pólos do motor
Rotation speed	r.p.m
Motor protection: thermistor	Protecção do motor: PTC
Speed monitoring: transmitter	Indicador de r.p.m.: magnetoresistência
Sealing-air	Ar de vedação
Housing diameter	Diâmetro da caixa
Cooling system:	Refrigeração
Non cooled	Não refrigerado
Liquid cooled	Refrigerado por líquido
Tool change	Substituição de ferramenta
Clamping range: up to	Capacidade de fixação: até
Coupler plug	Ficha do aparelho:Conector
Plastics	Plástico
Metal	Metal
Weight	Peso
Contact by touch	Apalpação
Example of design	Representação da amostra
Technical specifications	Especificações técnicas
Dimensions	Dimensões
Power-, torque- and speed diagram	Diagrama de potência

English/ Spanish

Keyword translation

English	*Spanish*
High-frequency spindle	Husillo de alta frecuencia
Manual tool change	Sujeción manual
Pneumatic direct change of tool	Cambio neumático directo
Pneumatic change of toolholder	Cambio neumático del cono
Pneumatic change of HSK...	Cambio neumático del cono HSK...
spindle for high-speed milling	Husillo para el fresado de alta velocidad
-grinding, -drilling, -engraving	-rectificar, taladrar, grabar
Pcs. high precision hybrid ball bearings	Suspensión híbrida por rodamiento doble
Lifetime lubricated, maintenance free	Engrase de por vida
Motor:	Motor
Nominal output power	Potencia de salida: máx.:
Current voltage	Voltaje
Current	Amperaje
Frequency	Frecuencia
Motor poles: pair	Número de polos: par
Rotation speed	Régimen de revoluciones
Motor protection: thermistor	Protección del motor: termistor
Speed monitoring: transmitter	Transmisor de revoluciones: célula fotorresistiva mandada por campo magnético
Sealing-air	Aire de sellado
Housing diameter	Diámetro de la carcasa
Cooling system	Refrigeración
Non cooled	Sin refrigerar
Liquid cooled	Refrigerado por líquido
Tool change	Cambio de herramienta
Clamping range: up to	Margen de sujeción: hasta
Coupler plug	Conector
Plastics	Plástico
Metal	Metal
Weight	Peso
Contact by touch	Palpación
Example of design	Representación de la muestra
Technical specifications	Datos técnicos
Dimensions	Dimensiones
Power-, torque- and speed diagram	Diagrama de rendimientos

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