

Henninger

P R Ä Z I S I O N S T E C H N I K

High-Speed Motor Spindles Types 960/965



*20 years of
experience
in*

**Henninger
Speed...
Cutting**

State-of-the-art milling and tool technology requires high rotational speeds from the machine operators. Tool manufacturers are working at full capacity developing ever-newer coatings for their milling cutters. Which company has not yet experienced the problem of their machine's rotational speeds not being sufficiently fast to make use of the newest technologies.

It is exactly this gap that Henninger high-speed motor spindles, Types 960 / 965, can bridge. Your machine is used to mount the Henninger spindles. With rotational speeds reaching 80.000 rpm and 15 kW power, the extensive Henninger product line guarantees a suitable spindle for every type of application.

High-frequency motors guarantee a quiet, vibration-free and constant torque drive of the motor spindle. The frequency converter enables infinitely variable rotational speeds.

The spindle cooling medium is thermostatically held to constant temperatures by means of a refrigeration unit. The cooling medium flow is controlled by a flow monitor which ensures that the spindle remains undamaged if the cooling circuit malfunctions.

Four-fold, pre-loaded ceramic bearings, as well as grease permanent lubrication ensure a vibration and maintenance free operation of the motor spindle.

The 960-402 /965-402 types are equipped additionally with automatic rotational speed control. These spindle types can also be interlinked with the machine tool controls.

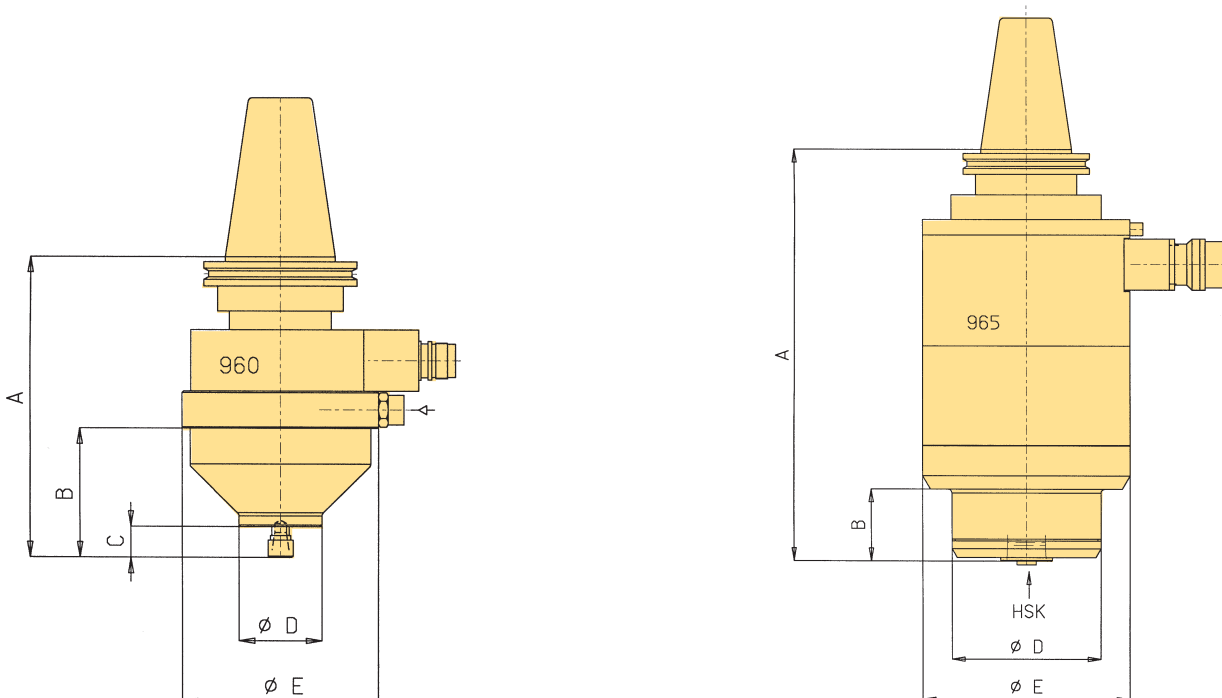
The spindles are equipped with the Henninger-Modular-System allowing them to be easily adapted to various machines.

The 965-400/402 spindles are quoted with automatic tool clamping (HSK).

Special designs are also possible.

Type	A	B	C	D	E
960 - 101	185	90	18	45	94
960 - 200	188	79	18	53	125
960 - 300	210	102	30	73	147
960 - 351/352	228	127	32	80	136
960 - 402/422	315	95	42	115	160

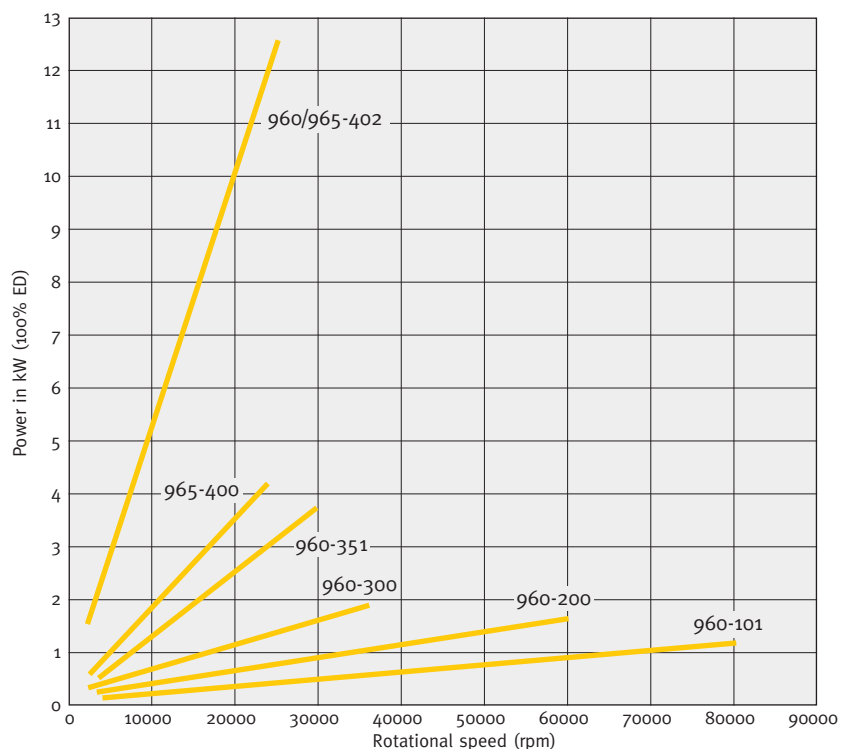
Type	A	B	C	D	E
965 - 400	312	43		82	140
965 - 402	320	55		115	160



High-Speed Motor Spindles, Types 960/965

Spindle type	960-101	960-200	960-300	960-351/352	960-402/422	965-400	965-402
Max. rotational speed rpm	80.000	60.000	36.000	30.000	25.000	25.000	25.000
at frequency (Hz)	1334	1000	600	1000	834	834	834
Nominal power (100% ED)	1,1 kW	1,6 kW	1,9 kW	3,7 kW	12,5 kW	4,1 kW	12,5 kW
Max. power (60 % ED)	1,2 kW	1,8 kW	2,2 kW	4,5 kW	15,0 kW	4,4 kW	15,0 kW
Voltage	230 V	230 V	230 V	400 V	400 V	300 V	400 V
Clamping Ø	0,5 - 5 mm	0,5 - 7 mm	1,0 - 13 mm	1,0 - 16 mm	2,0 - 25 mm	HSK 40 E	HSK 40 E
Standard	DIN 6499	DIN 6499	DIN 6499	DIN 6499 DIN 6388	DIN 6499 DIN 6388	DIN 69893-5	DIN 69893-5
Spindle bearings, pre-loaded	4-fold	4-fold	4-fold	4-fold	5-fold	4-fold	5-fold
Lubrication (maintenance-free)	Grease	Grease	Grease	Grease	Grease	Grease	Grease
Taper mount SK	30 - 60	30 - 60	40 - 60	40 - 60	50 - 60	40 - 60	50 - 60
Taper mount	modular I	modular I	modular I	modular I	modular II	modular II or flange	modular II
Weight approx. (without taper)	3,5 kg	7,3 kg	10,2 kg	9,4 kg	22,5 kg	17,0 kg	28,5 kg
Order No.	960-101-500	960-201-500	960-301-500	960-351-500 960-352-500	960-402-500 965-421-500	965-400-500	965-402-500
Frequency converter	1296-005	1296-006	1296-007	1296-009	1296-010	1296-009	1296-010
Connected power Hz	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz	3x400 V, 50 Hz	3x400 V, 50 Hz	3x400 V 50 Hz	3x400 V, 50
Chiller unit	1298-001	1298-001	1298-001	1298-001	1298-001	1298-001	1298-001
Connected power	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz
Min. Coolant-spray and lubrication system (MCL)	1299-001	1299-001	1299-001	1299-001	1299-002 Solenoid valve	1299-001	1299-002 Solenoid valve
Movable 19" steel cabinet							

Power diagram



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P R Ä Z I S I O N S T E C H N I K

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Contained in scope of supply:

- Spindle
- Frequency converter
- Cooling system
- MCL –system
- 19" steel cabinet

Special tapers upon request

Special clamping upon request

Minimal-Coolant-Spray and Lubrication system

- Increases the tool life span by cooling and chip removal
- Minimal usage of the supplied cooling lubricant

Main switch

- Actuates the frequency converter and cooling system

Movable 19" steel cabinet

- W x H x D: 80 x 115 x 70 cm
- Farbe: light grey, RAL 7035



Frequency converter

- For infinitely variable rotational speed control of the motor spindle
- Digital display of the set rpm
- 6 m long cable to the motor spindle

Drawer

- For motor spindle and accessories

Cooling system

- Closed water circuit
- Constant cooling temperature
- Biologically degradable anti-corrosion and water-ageing additives.