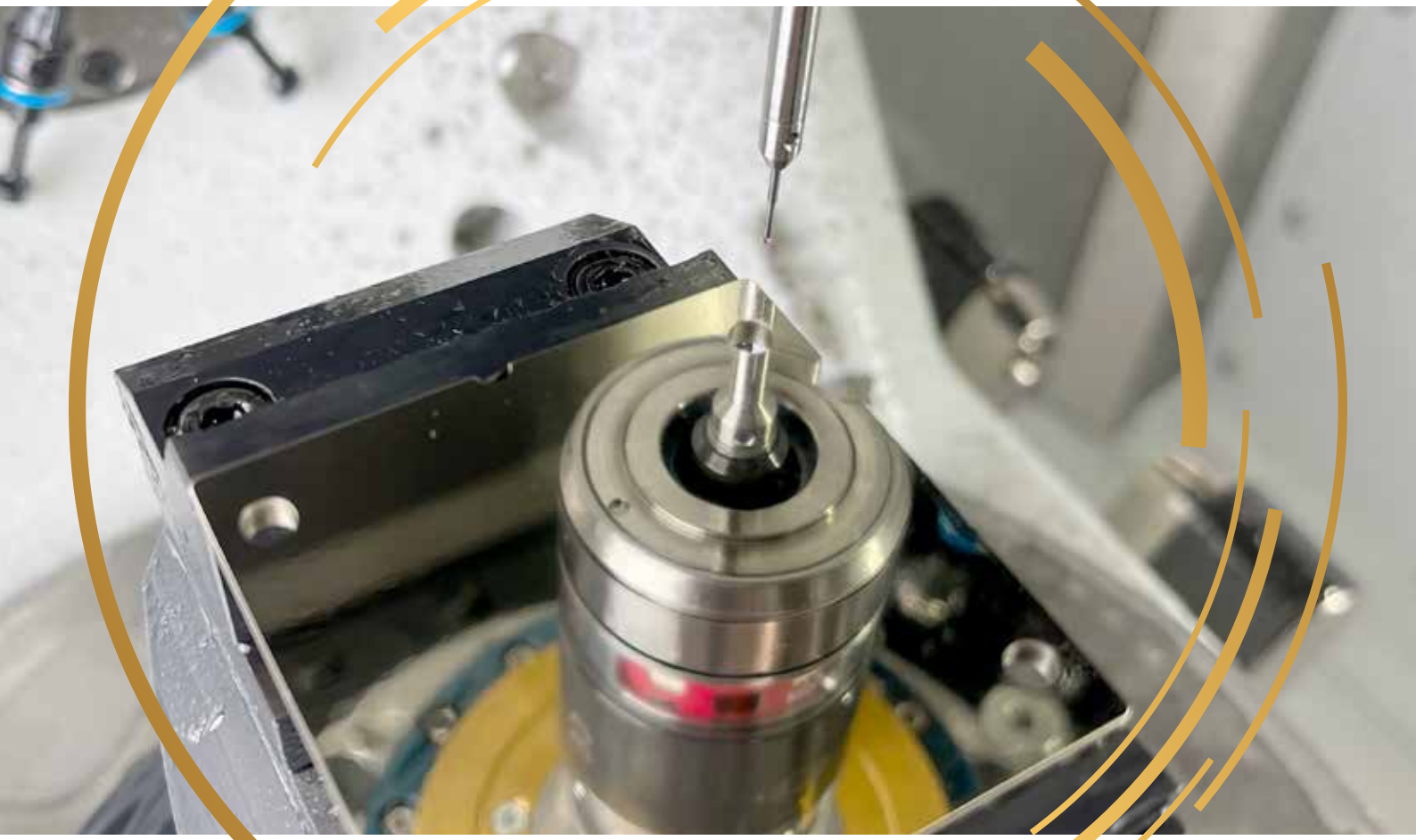
FISCHER

MOLD & DIE SPINDLES

HIGHEST PRECISION.



Perfect Rotation.

www.fischerspindle.com

TECHNOLOGY LEADER

FOR PRECISE, FAST AND POWERFUL ROTATION

We are the world leader in precise, fast and high-performance rotation. Our more than 85 years of experience is reflected in our technical innovations. As an international technology leader, we distinguish ourselves through our expertise in the areas of development, simulation, production and performance testing. Market leaders from all over the world rely on FISCHER products.

Thanks to high-torque motors, our motor spindles work highly dynamically with extremely short start-up and braking times and impress with their high power density. Standardized tool holders as well as robust feeding and clamping systems ensure flexibility and durability. Fast tool changes and automatic changing systems enable reliable use without restrictions.

Thermal symmetry and long-term stability as well as excellent running smoothness and long-term accuracy make our spindles the preferred choice for the extreme requirements in the field of mold and die.

We equip selected variants with the unique CSC (Compact Shaft Cooling) cooling system, which offers several outstanding advantages due to the internal cooling of the spindle shaft. Even under the highest load and at high speeds, the spindle shaft heats up only minimally and hardly expands. Even with changing loads, speeds and torques, it remains thermally stable, thus shortening the time to thermal constancy.

SPINDLE FEATURES

HIGH PERFORMANCE IN PRECISION MANUFACTURING

Molds and tooling are an essential part of the manufacturing industry. Exact shaping and material processing are the basis for precision. They are crucial for the production of precise and complex components in a wide range of industries. These include the automotive, medical, aviation, consumer goods, food and packaging industries as well as many other industries.

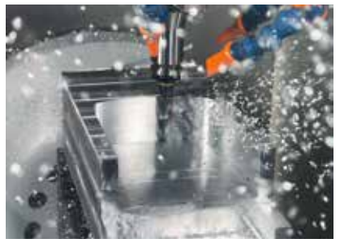
Molds and tools are made of different materials and with a wide variety of manufacturing processes. This places high demands on a spindle and requires a combination of flexibility and absolutely consistent precision.

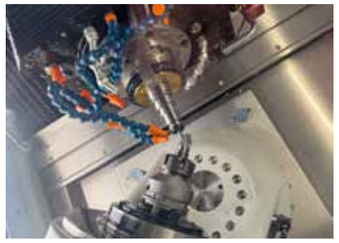
High Accuracy
- Standard R1/R2: ≤ 0.003/0.010 mm
- Ground after assembly: ≤ 0.0015/0.0050 mm

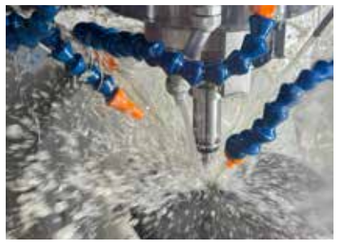
High speed Requirements
- HSK-32: Up to 60'000 rpm
- HSK-40: Up to 42'000 1/min (up to 45'000 1/min with CSC)
- HSK-63: Up to 30'000 rpm

Smooth Operation
- Lowest vibration
- Standard V1/V2: ≤ 1.0 mm/s

Shaft Cooling Option Facts
- Up to 70% lower axial expansion
- Up to 80% shorter saturation times after tool and speed changes
- Reduced heat input to new tools or probes due to cool tool interface
- Further increased service life due to stable thermal conditions







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MOLD & DIE SPINDLES

HIGHEST PERFORMANCE IN A COMPACT DESIGN

TYPE		MFW-1224/60	MFW-1224/42	MFW-1224/45	MFW-1406/24	MFW-1412/36
Outer diameter	D [mm]	120	120	120	140	140
Tool interface		HSK-E32	HSK-E32 HSK-E40	HSK-E40	HSK-E50	HSK-E40 HSK-E50
Max. speed	nmax [min^{-1}]	60'000	42'000	45'000	24'000	36'000
Lubrication		DLS	DLS	DLS	Grease	DLS
Direction of rotation		left & right	left & right	left & right	left & right	left & right
Power S1 / S6 40%	P [kW]	8.5 / 9.7	15.0 / 20.0	15.0 / 20.0	15.0 / 18.7	15.2 / 19.5
Torque S1 / S6 40%	M [Nm]	3.4 / 3.9	6.0 / 8.0	6.0 / 8.0	23.0 / 28.8	12.4 / 15.9
Nominal speed	nN [min^{-1}]	23'700	23'740	23'740	6'200	12'000
Motor frequency	[Hz]	2'000	1'500	1'500	800	1'200
Motor technology		ASYN	ASYN	SYN	SYN	ASYN
Voltage	[V]	350	420	420	490	350
Current S1	[A]	22	32.2	32.2	60	59
Length	L [mm]	365	333	333	465	455
Weight	[kg]	21.0	24.0	24.0	38.0	42.0
Shaft cooling system		–	–	Yes	–	–
Coolant Through Unit		Yes	Yes	Yes	Yes	Yes
Encoder		Yes	Yes	Yes	Yes	Yes
OPTIONS						
Shaft clamping		–	–	Yes	–	–
Dilation sensor		Yes	Yes	Yes	Yes	Yes
Vibration sensor		Yes	Yes	Yes	Yes	Yes
Suitable milling head		–	–	–	–	–

TYPE		MFW-2102/20	MFW-2104/28	MFW-2104/28	MFW-2702/20	MFW-3601/08
Outer diameter	D [mm]	210	210	210	275	360
Tool interface		HSK–A63	HSK-A63	HSK-A63	HSK–A100	HSK–A100 HSK–A125
Max. speed	nmax [min^{-1}]	20'000	28'000	28'000	20'000	8'000
Lubrication		DLS	DLS	DLS	DLS	DLS
Direction of rotation		left & right	left & right	left & right	left & right	left & right
Power S1 / S6 40%	P [kW]	25.0 / 31.0	29.0 / 36.0	29.0 / 36.0	50.0 / 62.0	100.0 / 123.0
Torque S1 / S6 40%	M [Nm]	119.4 / 148.0	71.2 / 89.5	71.2 / 89.5	251 .0/ 313.0	1'000.0 / 1'239.0
Nominal speed	nN [min^{-1}]	2'000	4'050	4'050	1'900	1'000
Motor frequency	[Hz]	1'000	933	933	1'333	533
Motor technology		SYN	ASYN	ASYN	ASYN	ASYN
Voltage	[V]	814	420	420	380	420
Current S1	[A]	131	82	82	133	199
Length	L [mm]	558	477	477	707	930
Weight	[kg]	103.0	93.0	95.0	220.0	550.0
Shaft cooling system		–	–	Yes	Yes	–
Coolant Through Unit		Yes	Yes	Yes	Yes	Yes
Encoder		Yes	Yes	Yes	Yes	Yes
OPTIONS						
Shaft clamping		–	–	–	Yes	–
Dilation sensor		Yes	Yes	Yes	Yes	Yes
Vibration sensor		Yes	Yes	Yes	Yes	Yes
Suitable milling head		D21	D21	D21	D27	–

OPTIONS

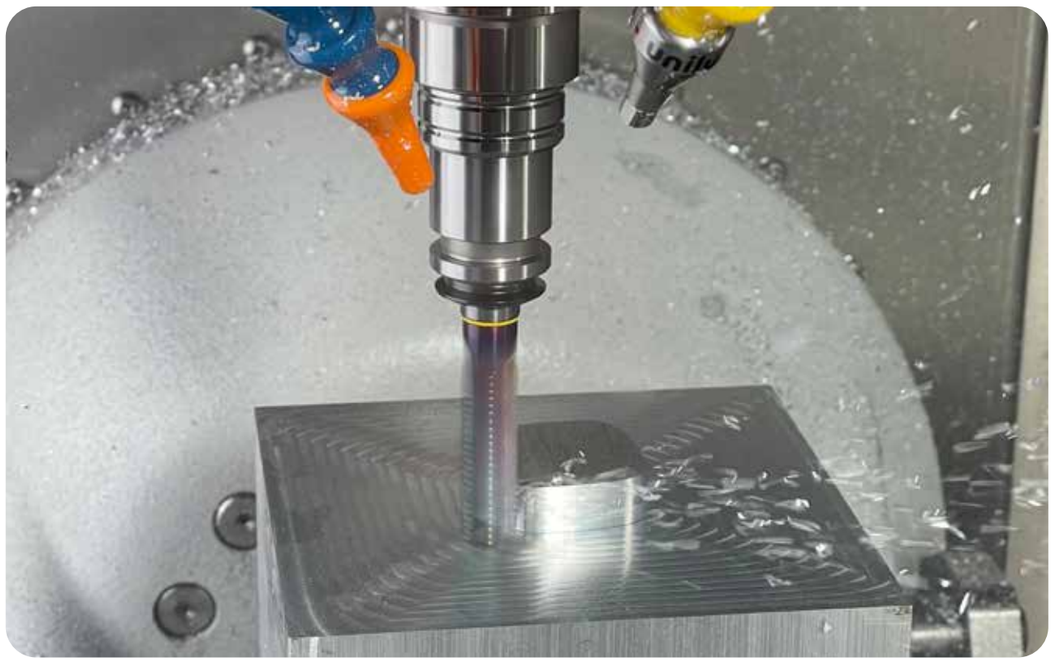
The **dilation sensor** is a spindle-integrated length measuring sensor, which determines the axial shaft expansion and enables length compensation on the machine.

The **vibration sensor** integrated into the spindle can be used to detect imbalance and provides the signals essential for process and spindle monitoring.

MFW-1412/36	MFW-1709/30	MFW-1709/30	MFW-1906/24	MFW-1906/26
140	170	170	190	190
HSK-E50	HSK–A63	HSK–A63	HSK-A63	HSK-A63
36'000	30'000	30'000	24'000	26'000
DLS	DLS	DLS	DLS	DLS
left & right	left & right	left & right	left & right	left & right
15.2 / 20.0	20.0 / 22.0	34.0 / 40.5	42.0 / 47.5	20.0 / 30.0
12.1 / 15.9	21.5 / 23.7	39.3 / 49.0	66.9 / 75.6	27.1 / 40.9
12'000	9'000	9'000	6'000	7'180
1'200	1'000	1'000	1'200	1'400
ASYN	ASYN	SYN	SYN	ASYN
350	350	612	420	420
59	56	83	108	60
463	465	417	421	421
37.0	56.0	55.0	72.0	76.0
Yes	–	–	Yes	Yes
Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes
–	–	–	–	–
Yes	Yes	Yes	Yes	Yes
–	Yes	Yes	Yes	Yes
–	D17	D17	D19	–

ASYN = Asynchronous motor
SYN = Synchronous motor
DLS = Direct Lubrication System
CSC = Compact Shaft Cooling

Product overview not exhaustive. Other products / data on request.

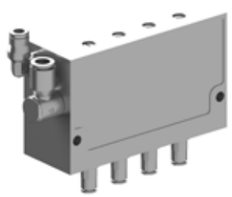



FISCHER

PERIPHERALS

PERFECT FOR YOUR SPINDLE

Oil-air central lubrication unit
Pre-assembled central lubrication unit on aluminium base plate with the following components:
- Lubrication pump with level control
- Main shut-off valve
- Ultra-fine filter for oil
- Air treatment for central lubrication unit and sealing air



Oil-air dosing unit
- Used for oil metering in spindles with oil-air bearing type
- 100 % tested and certified

Exhaust air filter
- For collecting waste oil coming out of spindle oil return path
- Dampens the air noise of the lubrication system

CSC-Aggregate
- Shaft cooling unit for all common CSC spindles
- Low pressure for shaft cooling
- High pressure for tool change

Frequency converter
The correct design of the converter is decisive for the smooth running, power development and heat generation of your spindle unit. FISCHER has been working closely with the leading converter manufacturers for years and regularly exchanges experience. As a result, we offer you optimum conditions when defining the inverter and are happy to support you in choosing the suitable supplier.

Filter choke
When using pulse width modulating (PWM) frequency inverters in the low-cost price segment, the interposition of a motor choke is mandatory. The FISCHER test center supports you in the design of the motor choke.

The ideal frequency inverter/choke combination results in less heat loss in the rotor and stator and higher power output. Results were measured and documented on the FISCHER test bench.

Operating fluids
Proven auxiliary and operating materials such as lubricating oil, hydraulic oil, coolant and coolant additives for maximum service life of FISCHER products.

Accessories
Our accessories can be found on our website at:
www.fischerspindle.com/accessories

SERVICE AND REPAIRS

THE RIGHT OFFER FOR EVERY NEED

SERVICE AND SUPPORT

- Support for commissioning of spindle systems
- Maintenance training and application consulting
- Service visits for minor repairs or optimizations
- Vibration and bearing analysis
- Individualized Training

REPAIR OF FISCHER SPINDLES AND MILLING HEADS

- FISCHER Spindle Group has service centers and production facilities around the world
- Repair FISCHER spindles with original parts
- Refurbish key components as needed
- Bring spindle to like new condition
- Express repairs
- Repair of FISCHER milling heads

THIRD PARTY SPINDLE REPAIRS

- We repair all brands of spindles in our worldwide group companies
- Analysis, repairs and retrofits of all your spindles
- FISCHER quality, service and advice
- All from one source

SERVICES

Spindle hotel
Your spindle is stored at FISCHER and checked for proper function at regular intervals. The warranty begins with delivery of the spindle.

Spindle pool for machine manufacturers
While your spindle is being repaired, you can benefit from one of our pool spindles. You can continue adding value without interruption and keep production going.

Exchange spindles for end customers
We offer exchange spindles available in short notice with your defective spindle. This depends on the spindle type and availability.

Spindle repair service
We offer a professional and binding repair service. On request we provide a detailed analysis of the defective spindle as well as individual quotations.

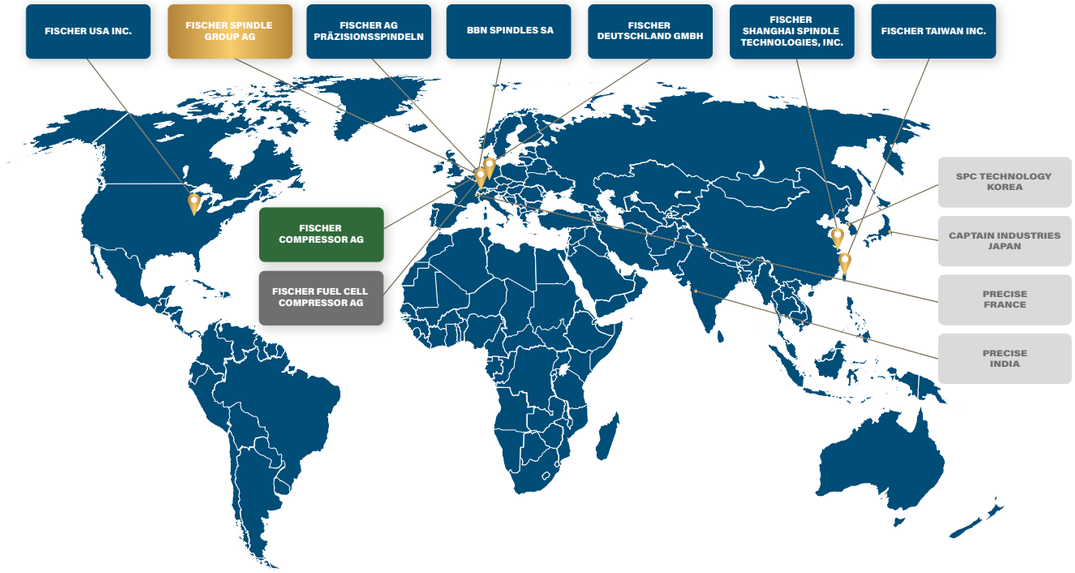
Spindle Taxi
Your spindle will be picked up free of charge in Europe.

Spindle periphery
We support you in the selection and design of the appropriate periphery for a safe operation of the spindle.

LOCATIONS WORLDWIDE

OF THE FISCHER GROUP

The FISCHER family is present at six locations worldwide and employs over 450 people. A strong global team with the greatest enthusiasm for technology, ensuring customer satisfaction through successful, innovative products and outstanding service.



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