# MILLING SPINDLES

## PRECISION. SPEED. POWER.




Perfect Rotation.

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# TECHNOLOGY LEADER

## IN PRECISE, FAST AND POWERFUL ROTATION.

We are the world leader in precise, fast and powerful rotation. Our more than 80 years of experience are reflected in all our technical innovations.

As an international technology leader, our expertise in development, simulation, manufacturing and performance testing stands out - market leaders from all over the world rely on FISCHER products.

**Comprehensive Program**
Thanks to high-torque motors, FISCHER motor spindles operate highly dynamically with extremely short start-up and braking times and impress with their high power density. They have standardized tool holders as well as robust infeed and clamping systems. This ensures fast and reliable tool changes with automatic change systems.

A wide range of variants is available with diameters from 35 to 360 mm; speeds up to 90'000 rpm; drive powers up to 200 kW and 1'000 Nm torque. This makes the high-quality motor spindles from FISCHER suitable for a wide range of applications. This includes productive roughing and high-precision finishing milling, heavy-duty cutting at high torques as well as precise micro-milling and micro-drilling at the highest speeds.

**Staying Cool Under Maximum Load**
We equip selected variants of our motor spindles with the unique CSC (Compact Shaft Cooling) cooling system. This internal cooling of the spindle shaft has several outstanding advantages.

Even under maximum load and at high speeds, the spindle shaft heats up only slightly. It expands only minimally. Even with changing loads, speeds and torques, it remains thermally stable. This significantly increases the machining accuracy on the workpiece. Under changing conditions, machining can be repeatedly and continuously carried out with high precision.

The controlled spindle cooling also shortens the time it takes for the spindle to start up and reach thermal stability. This creates additional time that can be used productively. With motor spindles that have the sophisticated CSC cooling system, manufacturing companies work much more economically and flexibly.

# FAST ROTATING SPINDLES
# HSK-15 TO HSK-40

All spindles have high rotational speeds and torques that are responsive for the size. Efficient bearing, flange, motor and shaft cooling systems guarantee the highest manufacturing precision.

- Precise, high-speed spindles with outside diameters from 35-140 mm
- Grease-lubricated bearings with speeds up to 65'000 rpm
- Oil-air lubricated bearings with speeds up to 90'000 rpm

ASYN = Asynchronous motor
SYN = Synchronous motor
DLS = Direct Lubrication System

**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.

| TYPE | | MLW-360/4 S | MFW-650 A | MFW-650 S | MFW-660 A | MFW-660/80/1 S | MFW-665 A |
|---|---|---|---|---|---|---|---|
| Outer diameter | D [mm] | 35 | 61.91 | 61.91 | 60 / 61.91 | 60 | 60 |
| Tool interface | | HSK-EZ15 | HSK-E25 | HSK-E25 | DS / SK10 | HSK-E20 | HSK-E20 |
| Max. speed | nmax [min⁻¹] | 60'000 | 50'000 | 50'000 | 60'000 | 80'000 | 65'000 |
| Lubrication | | Grease | Grease | Grease | Grease | DLS | Grease |
| Direction of rotation | | left & right | | | | | |
| Power S1 / S6 40% | P [kW] | 0.5 / 1.0 | 1.2 / 1.8 | 2.3 / 3.45 | 1.2 / 1.8 | 1.5 / 2.2 | 1.2 / 1.8 |
| Torque S1 / S6 40% | M [Nm] | 0.08 /0.16 | 0.29 / 0.43 | 0.55 / 0.82 | 0.19 / 0.29 | 0.24 / 0.36 | 0.19 / 0.29 |
| Nominal speed | nN [min⁻¹] | 60'000 | 40'000 | 40'000 | 60'000 | 60'000 | 60'000 |
| Motor frequency | [Hz] | 1'000 | 834 | 834 | 1'000 | 1'334 | 1'083 |
| Motor technology | | SYN | ASYN | SYN | ASYN | SYN | ASYN |
| Voltage | [V] | 194 | 220 | 270 | 200 | 350 | 200 |
| Current S1 | [A] | 5.8 | 5.5 | 7.0 | 5.0 | 3.5 | 5.2 |
| Length | L [mm] | 225 | 356 | 356 | 297 | 330 | 289 |
| Weight | [kg] | 1.48 | 5.0 | 7.5 | 4.5 | 4.5 | 4.5 |
| Shaft cooling system | | – | – | – | – | – | – |
| Coolant Through Unit | | – | – | Yes | – | – | – |
| Encoder | | Yes | Yes | Yes | – | Yes | Yes |
| **Options** | | | | | | | |
| Dilation sensor | | – | Yes | Yes | – | – | – |
| Vibration sensor | | – | – | – | – | – | – |

| MFW-665 S | MFW-680 A | MFW-840/50 A | MFW-840/50 S | MFW-825-S | MFW-860/1 A | | TYPE |
|---|---|---|---|---|---|---|---|
| 60 | 60 / 61.91 | 80 | 80 | 80 | 80 | D [mm] | Outer diameter |
| HSK-E20 | DS | HSK-E25 | HSK-E25 | HSK-E32 | HSK-E25 | | Tool interface |
| 65'000 | 80'000 | 50'000 | 50'000 | 25'000 | 60'000 | nmax [min⁻¹] | Max. speed |
| Grease | Grease | Grease | Grease | Grease | DLS | | Lubrication |
| left & right | | | | | | | Direction of rotation |
| 2.0 / 3.0 | 1.0 / 1.5 | 3.4 / 5.1 | 6.0 / 9.0 | 7.5 / 11.25 | 2.1 / 3.0 | P [kW] | Power S1 / S6 40% |
| 0.3 / 0.48 | 0.12 / 0.18 | 0.81 / 1.22 | 1.59 / 2.15 | 4.0 / 5.97 | 0.65 | M [Nm] | Torque S1 / S6 40% |
| 60'000 | 80'000 | 40'000 | 40'000 | 18'000 | 32'000 | nN [min⁻¹] | Nominal speed |
| 1'083 | 1'333 | 1'667 | 1'667 | 833 | 2'000 | [Hz] | Motor frequency |
| SYN | ASYN | ASYN | SYN | SYN | ASYN | | Motor technology |
| 209 | 200 | 380 | 380 | 380 | 360 | [V] | Voltage |
| 7.3 | 4.7 | 10.0 | 15.0 | 17.0 | 6.0 | [A] | Current S1 |
| 289 | 266 | 375 | 375 | 410 | 360 | L [mm] | Length |
| 4.5 | 4.8 | 11.2 | 11.2 | 11.2 | 10.5 | [kg] | Weight |
| – | – | – | – | – | – | | Shaft cooling system |
| – | – | Yes | Yes | Yes | – | | Coolant Through Unit |
| Yes | Yes | Yes | Yes | Yes | Yes | | Encoder |
| | | | | | | | **Options** |
| Yes | – | Yes | Yes | Yes | Yes | | Dilation sensor |
| – | – | – | – | – | – | | Vibration sensor |

| TYPE | | MFW-1032-A | MFW-1040-A | MFW-1045 A | MFW-1045 S | MFW-1060/90 | MFW-1030/70 |
|---|---|---|---|---|---|---|---|
| Outer diameter | D [mm] | 100 | 100 | 100 | 100 | 100 | 100 |
| Tool interface | | HSK-E32<br>HSK-E40<br>HSK-F40 | HSK-E32<br>HSK-A32 | HSK-E25 | HSK-E25 | HSK-E20 | HSK-E25 |
| Max. speed | nmax [min⁻¹] | 32´000 | 40´000 | 45'000 | 45'000 | 90'000 | 70'000 |
| Lubrication | | Grease | Grease | Grease | Grease | DLS | DLS |
| Direction of rotation | | left & right | | | | | |
| Power S1 / S6 40% | P [kW] | 9.0 / 13.5 | 6.3 / 9.45 | 3.5 / 5.25 | 6.3 / 9.45 | 3.0 / 3.8 | 4.0 / 5.0 |
| Torque S1 / S6 40% | M [Nm] | 3.5 / 5.22 | 2.0 / 3.0 | 1.4 / 2.0 | 2.0 / 3.0 | 0.5 / 0.6 | 1.2 / 1.5 |
| Nominal speed | nN [min⁻¹] | 24'700 | 30'000 | 25'000 | 30'000 | 60'000 | 32'000 |
| Motor frequency | [Hz] | 1'067 | 1'333 | 1'500 | 1'500 | 1'500 | 1'170 |
| Motor technology | | ASYN | ASYN | ASYN | SYN | ASYN | ASYN |
| Voltage | [V] | 350 | 350 | 350 | 355 | 370 | 350 |
| Current S1 | [A] | 28.0 | 18.0 | 11.0 | 17.0 | 7.0 | 12.5 |
| Length | L [mm] | 433 | 413 | 245 | 245 | 330 | 360 |
| Weight | [kg] | 15.0 | 13.5 | 7.0 | 7.6 | 13.0 | 15.0 |
| Shaft cooling system | | - | - | – | – | – | – |
| Coolant Through Unit | | Yes | - | – | – | – | – |
| Encoder | | Yes | Yes | Yes | Yes | Yes | Yes |
| **Options** | | | | | | | |
| Dilation sensor | | Yes | Yes | Yes | Yes | Yes | Yes |
| Vibration sensor | | - | - | – | – | – | – |

| MFW-1024/50 | MFW-1028-S | MFW-1206/20 | MFW-1216/20 | MFW-1216/24 | MFW-1220/1 | | TYPE |
|---|---|---|---|---|---|---|---|
| 100 | 100 | 120 | 120 | 120 | 120 | D [mm] | Outer diameter |
| HSK-E32 | HSK-A40 | HSK-E40 | HSK-E40 | HSK-E40 | HSK-E40 | | Tool interface |
| 50'000 | 28'000 | 20'000 | 20'000 | 24'000 | 20'000 | nmax [min⁻¹] | Max. speed |
| DLS | Grease | Grease | Grease | Grease | Grease | | Lubrication |
| left & right | | | | | | | Direction of rotation |
| 6.0 / 7.5 | 14.0 / 18.5 | 9.5 / 12.5 | 17.0 / 23.0 | 17.0 / 20.0 | 10.5 / 14.0 | P [kW] | Power S1 / S6 40% |
| 2.4 / 3.0 | 9.0 / 11.8 | 15.0 / 20.0 | 10.1 / 13.7 | 10.1 / 13.7 | 5.0 / 6.7 | M [Nm] | Torque S1 / S6 40% |
| 24'000 | 15'000 | 6'000 | 16'000 | 16'000 | 20'000 | nN [min⁻¹] | Nominal speed |
| 1'667 | 1'400 | 1'000 | 667 | 800 | 667 | [Hz] | Motor frequency |
| ASYN | SYN | SYN | SYN | SYN | ASYN | | Motor technology |
| 350 | 444 | 465 | 355 | 414 | 350 | [V] | Voltage |
| 21.8 | 31.0 | 35 | 36 | 36 | 27 | [A] | Current S1 |
| 400 | 442 | 486 | 486 | 486 | 517 | L [mm] | Length |
| 17.0 | 13.5 | 28 | 28 | 28 | 27 | [kg] | Weight |
| – | – | – | – | – | – | | Shaft cooling system |
| – | Yes | Yes | Yes | Yes | Yes | | Coolant Through Unit |
| Yes | Yes | Yes | Yes | Yes | Yes | | Encoder |
| | | | | | | | **Options** |
| Yes | Yes | – | – | – | – | | Dilation sensor |
| – | – | Yes | Yes | Yes | Yes | | Vibration sensor |

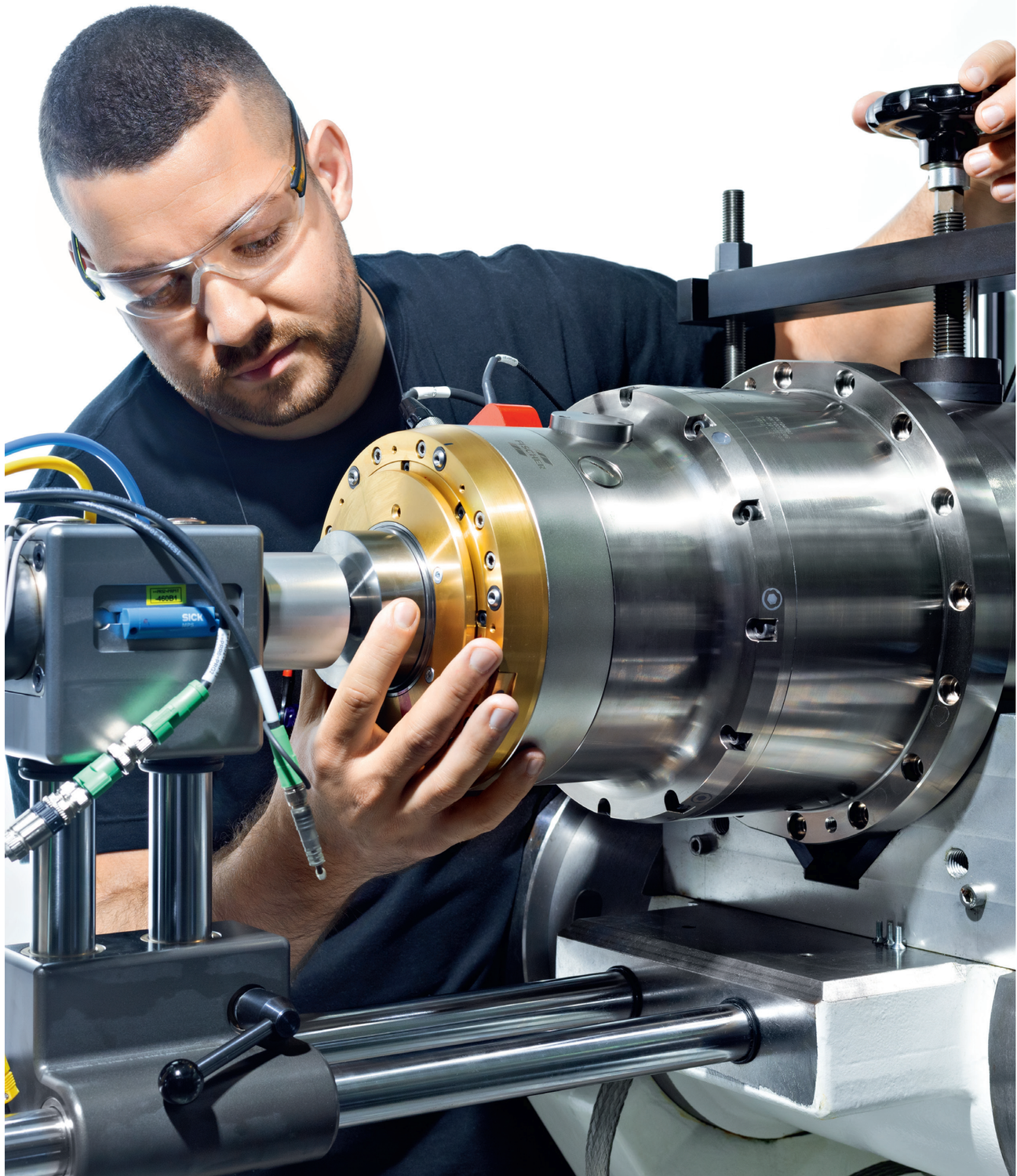
# FAST ROTATING SPINDLES HSK-15 TO HSK-40

| TYPE | | MFW-1230/70 | MFW-1224/60 | MFW-1260 | MFW-1224/42 | MFW-1224/45 |
|---|---|---|---|---|---|---|
| Outer diameter | D [mm] | 120 | 120 | 120 | 120 | 120 |
| Tool interface | | HSK-E25 | HSK-E32 | HSK-E32 | HSK-E32<br>HSK-E40<br>HSK-T40 | HSK-E40<br>HSK-T40 |
| Max. speed | nmax [min⁻¹] | 70'000 | 60'000 | 60'000 | 42'000 | 45'000 |
| Lubrication | | DLS | DLS | DLS | DLS | DLS |
| Direction of rotation | | left & right | | | | |
| Power S1 / S6 40% | P [kW] | 4.0 / 4.7 | 8.5 / 7.9 | 11.0 / 12.5 | 15.0 / 18.5 | 15.0 / 20.0 |
| Torque S1 / S6 40% | M [Nm] | 1.3 / 1.6 | 3.4 / 3.9 | 1.8 / 2.0 | 6.0 / 7.5 | 6.0 / 7.5 |
| Nominal speed | nN [min⁻¹] | 30'000 | 24'000 | 60'000 | 24'000 | 24'000 |
| Motor frequency | [Hz] | 1'170 | 2'000 | 1'000 | 1'400 | 1'500 |
| Motor technology | | ASYN | ASYN | ASYN | SYN | SYN |
| Voltage | [V] | 200 | 350 | 330 | 446 | 446 |
| Current S1 | [A] | 20 | 22 | 25 | 28 | 28 |
| Length | L [mm] | 341 | 365 | 365 | 333 | 383 |
| Weight | [kg] | 19.0 | 21.0 | 21.0 | 24.0 | 25.0 |
| Shaft cooling system | | - | - | - | - | Yes |
| Coolant Through Unit | | - | Yes | Yes | Yes | Yes |
| Encoder | | Yes | Yes | Yes | Yes | Yes |
| **Options** | | | | | | |
| Dilation sensor | | Yes | Yes | Yes | Yes | Yes |
| Vibration sensor | | Yes | Yes | Yes | Yes | Yes |

ASYN = Asynchronous motor
SYN = Synchronous motor
DLS = Direct Lubrication System

**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.



# COMPACT SPINDLES
# HSK-50 TO HSK-100

- Compact spindles with outside diameters from 140-230 mm
- Oil-air lubricated bearings with speeds up to 40'000 rpm
- Grease lubricated bearings with speeds up to 24'000 rpm

ASYN = Asynchronous motor
SYN = Synchronous motor
DLS = Direct Lubrication System

**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.

| **TYPE** | | **MFW-1309/24** | **MFW-1303/12** | **MFW-1406/24** | **MFW-1412/36** | **MFW-1708/15** | **MFW-1709/24** |
|---|---|---|---|---|---|---|---|
| Outer diameter | D [mm] | 130 | 130 | 140 | 140 | 170 | 170 |
| Tool interface | | HSK-E50 | HSK-E50 | HSK-E50 | HSK-E40<br>HSK-E50 | HSK-A63 | HSK-A63 |
| Max. speed | nmax [min$^{-1}$] | 24'000 | 12'000 | 24'000 | 36'000 | 15'000 | 24'000 |
| Lubrication | | Grease | Grease | Grease | DLS | Grease | Grease |
| Direction of rotation | | left & right | | | | | |
| Power S1 / S6 40% | P [kW] | 27.0 / 37.0 | 8.0 / 11.0 | 15.0 / 19.0 | 15.2 / 19.5 | 44.0 / 49.0 | 20.0 / 22.0 |
| Torque S1 / S6 40% | M [Nm] | 29.0 / 40.0 | 25.5 / 35.0 | 23.0 / 29.0 | 12.4 / 15.9 | 50.0 / 60.2 | 21.5 / 23.7 |
| Nominal speed | nN [min$^{-1}$] | 9'000 | 3'000 | 6'200 | 12'000 | 8'400 | 9'000 |
| Motor frequency | [Hz] | 1'200 | 600 | 800 | 1'200 | 500 | 800 |
| Motor technology | | SYN | SYN | SYN | ASYN | SYN | ASYN |
| Voltage | [V] | 569 | 500 | 490 | 350 | 439 | 350 |
| Current S1 | [A] | 72 | 30 | 60 | 59 | 79 | 56 |
| Length | L [mm] | 595 | 595 | 465 | 455 | 595 | 417 |
| Weight | [kg] | 40 | 40 | 38.0 | 42.0 | 67.0 | 52.0 |
| Shaft cooling system | | | | – | – | – | – |
| Coolant Through Unit | | Yes | Yes | Yes | Yes | Yes | Yes |
| Encoder | | Yes | Yes | Yes | Yes | Yes | Yes |
| **Options** | | | | | | | |
| Dilation sensor | | – | – | Yes | Yes | Yes | Yes |
| Vibration sensor | | Yes | Yes | Yes | Yes | Yes | Yes |

| **MFW-1709/24** | **MFW-1709/30** | **MFW-1709/30** | **MFW-1718/30** | **MFW-1912/24** | **MFW-1906/24** | **TYPE** | |
|---|---|---|---|---|---|---|---|
| 170 | 170 | 170 | 170 | 190 | 190 | D [mm] | Outer diameter |
| HSK-A63 | HSK-A63 | HSK-A63 | HSK-A63 | HSK-A63 | HSK-A63 | | Tool interface |
| 24'000 | 30'000 | 30'000 | 30'000 | 24'000 | 24'000 | nmax [min$^{-1}$] | Max. speed |
| Grease | DLS | DLS | DLS | Grease | DLS | | Lubrication |
| left & right | | | | | | | Direction of rotation |
| 39.0 / 40.5 | 20.0 / 22.0 | 34.0 / 40.5 | 42.0 / 48.0 | 33.0 / 46.5 | 42.0 / 50.0 | P [kW] | Power S1 / S6 40% |
| 39.3 / 49.0 | 21.5 / 23.7 | 39.3 / 49.0 | 22.5 / 25.7 | 25.6 / 36.1 | 66.9 / 83.8 | M [Nm] | Torque S1 / S6 40% |
| 9'000 | 9'000 | 9'000 | 18'000 | 12'300 | 6'000 | nN [min$^{-1}$] | Nominal speed |
| 800 | 1'000 | 1'000 | 1'000 | 800 | 1'200 | [Hz] | Motor frequency |
| SYN | ASYN | SYN | ASYN | ASYN | SYN | | Motor technology |
| 420 | 350 | 612 | 350 | 360 | 724 | [V] | Voltage |
| 83 | 56 | 83 | 103 | 85 | 108 | [A] | Current S1 |
| 417 | 465 | 417 | 417 | 491 | 489 | L [mm] | Length |
| 54.0 | 56.0 | 55.0 | 56.0 | 70.0 | 73.0 | [kg] | Weight |
| – | – | – | – | – | Yes | | Shaft cooling system |
| Yes | Yes | Yes | Yes | Yes | Yes | | Coolant Through Unit |
| Yes | Yes | Yes | Yes | Yes | Yes | | Encoder |
| | | | | | | | **Options** |
| Yes | Yes | Yes | Yes | Yes | Yes | | Dilation sensor |
| Yes | Yes | Yes | Yes | Yes | Yes | | Vibration sensor |

| **TYPE** | | **MFW-1906/28** | **MFW-1920/30** | **MFW-2102/20** | **MFW-2106/24** | **MFW-2104/24** | **MFW-2310/30** |
|---|---|---|---|---|---|---|---|
| Outer diameter | D [mm] | 190 | 190 | 210 | 210 | 210 | 230 |
| Tool interface | | HSK-A63 | HSK-A63 | HSK-A63 | HSK-A63 | HSK-A63 | HSK-A63/80 |
| Max. speed | nmax [min$^{-1}$] | 28'000 | 30'000 | 20'000 | 24'000 | 24'000 | 30'000 |
| Lubrication | | DLS | DLS | DLS | DLS | DLS | DLS |
| Direction of rotation | | left & right | | | | | |
| Power S1 / S6 40% | P [kW] | 20.0 / 30.0 | 63.0 / 81.0 | 25.0 / 31.0 | 54.0 / 68.0 | 29.0 / 38.0 | 74.0 / 78.0 |
| Torque S1 / S6 40% | M [Nm] | 27.1 / 40.9 | 30.7 / 39.5 | 119.4 / 148.0 | 85.8 / 108.8 | 69.2 / 90.7 | 73.0 / 92.0 |
| Nominal speed | nN [min$^{-1}$] | 7'180 | 19'600 | 2'000 | 6'010 | 4'000 | 9'690 |
| Motor frequency | [Hz] | 1'400 | 1'000 | 1'000 | 1'200 | 800 | 1'000 |
| Motor technology | | ASYN | ASYN | SYN | ASYN | ASYN | SYN |
| Voltage | [V] | 420 | 380 | 814 | 420 | 350 | 617 |
| Current S1 | [A] | 60 | 128 | 131 | 118 | 66 | 180 |
| Length | L [mm] | 421 | 491 | 558 | 565 | 542 | 582 |
| Weight | [kg] | 76.0 | 70.0 | 103.0 | 103.0 | 95.0 | 122.0 |
| Shaft cooling system | | Yes | – | – | – | Yes | – |
| Coolant Through Unit | | Yes | Yes | Yes | Yes | Yes | Yes |
| Encoder | | Yes | Yes | Yes | Yes | Yes | Yes |
| **Options** | | | | | | | |
| Dilation sensor | | Yes | Yes | Yes | Yes | Yes | Yes |
| Vibration sensor | | Yes | Yes | Yes | Yes | Yes | Yes |

| **MFW-2318/30** | **MFW-2303/10** | **MFW-2304/15** | **MFW-2309/20** | **MFW-2314/20** | **TYPE** | |
|---|---|---|---|---|---|---|
| 230 | 230 | 230 | 230 | 230 | D [mm] | Outer diameter |
| HSK-A63/80 | HSK-A100 | HSK-A100 | HSK-A100 | HSK-A100 | | Tool interface |
| 30'000 | 10'000 | 15'000 | 20'000 | 20'000 | nmax [min$^{-1}$] | Max. speed |
| DLS | DLS | DLS | DLS | DLS | | Lubrication |
| left & right | | | | | | Direction of rotation |
| 125.0 / 156.0 | 63.0 / 74.0 | 70.0 / 86.0 | 85.0 / 91.0 | 125.0 / 156.0 | P [kW] | Power S1 / S6 40% |
| 66.0 / 83.0 | 240.0 / 250.0 | 167.0 / 229.0 | 84.0 / 106.0 | 85.0 / 106.0 | M [Nm] | Torque S1 / S6 40% |
| 18'000 | 3'000 | 4'000 | 9'000 | 14'000 | nN [min$^{-1}$] | Nominal speed |
| 1'000 | 667 | 750 | 667 | 667 | [Hz] | Motor frequency |
| SYN | SYN | SYN | SYN | SYN | | Motor technology |
| 528 | 588 | 438 | 438 | 468 | [V] | Voltage |
| 219 | 187 | 149 | 200 | 231 | [A] | Current S1 |
| 582 | 607 | 607 | 607 | 607 | L [mm] | Length |
| 130.0 | 145.0 | 145.0 | 152.0 | 152.0 | [kg] | Weight |
| – | – | – | – | – | | Shaft cooling system |
| Yes | Yes | Yes | Yes | Yes | | Coolant Through Unit |
| Yes | Yes | Yes | Yes | Yes | | Encoder |
| | | | | | | **Options** |
| Yes | Yes | Yes | Yes | Yes | | Dilation sensor |
| Yes | Yes | Yes | Yes | Yes | | Vibration sensor |

# POWERFUL AND ROBUST SPINDLES HSK-63 TO HSK-125

- Powerful and robust spindles with outside diameters of 240-360 mm
- Power up to 200 kW and torques up to 1'000 Nm

| TYPE | | MFW-2401/15 | MFW-2401/18 | MFW-2401/20 | MFW-2612/18 | MFW-2702/08 |
|---|---|---|---|---|---|---|
| Outer diameter | D [mm] | 240 | 240 | 240 | 260 | 275 |
| Tool interface | | HSK-A63<br>HSK-A80 | HSK-A63<br>HSK-A80 | HSK-A80 | HSK-A100 | HSK-A100 |
| Max. speed | nmax [min⁻¹] | 15'000 | 18'000 | 20'000 | 18'000 | 8'000 |
| Lubrication | | Grease | DLS | DLS | DLS | DLS |
| Direction of rotation | | left & right | | | | |
| Power S1 / S6 40% | P [kW] | 20.0 / 22.0 | 20.0 / 22.0 | 20.0 / 22.0 | 100.0 / 110.0 | 93.0 / 103.0 |
| Torque S1 / S6 40% | M [Nm] | 166.0 / 182.0 | 166.0 / 182.0 | 166.0 / 182.0 | 64.0 / 88.0 | 444.0 / 553.0 |
| Nominal speed | nN [min⁻¹] | 1'000 | 1'000 | 1'000 | 12'000 | 2'000 |
| Motor frequency | [Hz] | 500 | 600 | 667 | 600 | 667 |
| Motor technology | | ASYN | ASYN | ASYN | ASYN | SYN |
| Voltage | [V] | 380 | 380 | 380 | 350 | 451 |
| Current S1 | [A] | 116 | 116 | 116 | 199 | 200 |
| Length | L [mm] | 874 | 874 | 874 | 666 | 702 |
| Weight | [kg] | 185.0 | 185.0 | 185.0 | 180.0 | 244.0 |
| Shaft cooling system | | – | – | – | – | – |
| Coolant Through Unit | | Yes | Yes | Yes | Yes | Yes |
| Encoder | | Yes | Yes | Yes | Yes | Yes |
| **Options** | | | | | | |
| Dilation sensor | | Yes | Yes | Yes | Yes | Yes |
| Vibration sensor | | Yes | Yes | Yes | Yes | Yes |

| TYPE | | MFW-2701/15 | MFW-2715/20 | MFW-2714/20 | MFW-2702/20 | MFW-2801/14 | MFW-3601/08 |
|---|---|---|---|---|---|---|---|
| Outer diameter | D [mm] | 275 | 275 | 275 | 275 | 285 | 360 |
| Tool interface | | HSK-A100 | HSK-A100 | HSK-A100 | HSK-A100<br>HSK-T100 | HSK-A100 | HSK-A100<br>HSK-A125 |
| Max. speed | nmax [min⁻¹] | 15'000 | 20'000 | 20'000 | 20'000 | 14'000 | 8'000 |
| Lubrication | | DLS | DLS | DLS | DLS | DLS | DLS |
| Direction of rotation | | left & right | | | | | |
| Power S1 / S6 40% | P [kW] | 63.0 / 82.0 | 150.0 / 187.0 | 200.0 / 250.0 | 50.0 / 62.0 | 32.0 / 40.0 | 100.0 / 113.0 |
| Torque S1 / S6 40% | M [Nm] | 300.0 / 391.0 | 96.0 / 119.0 | 140.0 / 176.0 | 251.0/ 313.0 | 305.0 / 389.0 | 1'000.0 / 1'134.0 |
| Nominal speed | nN [min⁻¹] | 2'000 | 15'000 | 13'600 | 1'900 | 1'000 | 954 |
| Motor frequency | [Hz] | 1'000 | 667 | 667 | 1'333 | 700 | 533 |
| Motor technology | | ASYN | SYN | SYN | ASYN | ASYN | ASYN |
| Voltage | [V] | 400 | 450 | 462 | 380 | 420 | 420 |
| Current S1 | [A] | 172 | 228 | 342 | 133 | 84 | 199 |
| Length | L [mm] | 675 | 573 | 573 | 707 | 921 | 930 |
| Weight | [kg] | 239.0 | 180.0 | 180 | 220.0 | 290.0 | 550.0 |
| Shaft cooling system | | – | – | – | Yes | – | – |
| Coolant Through Unit | | Yes | Yes | Yes | Yes | Yes | Yes |
| Encoder | | Yes | Yes | Yes | Yes | Yes | Yes |
| **Options** | | | | | | | |
| Dilation sensor | | Yes | Yes | Yes | Yes | Yes | Yes |
| Vibration sensor | | Yes | Yes | Yes | Yes | Yes | Yes |



# SPINDLES FOR MANUAL TOOL CHANGE

| MFM-650 | MFM-660-A | MFM-825-S | MFM-850 | MFM-850-A | | TYPE |
|---|---|---|---|---|---|---|
| 60 | 60 | 80 | 80 | 80 | D [mm] | Outer diameter |
| HSK-C25 | Collet SRP6 | HSK-C32 | Collet SRP20 | HSK-C25 | | Tool interface |
| 50'000 | 60'000 | 25'000 | 50'000 | 50'000 | nmax [min⁻¹] | Max. speed |
| Grease | Grease | Grease | DLS | Grease | | Lubrication |
| left & right | | | right | left & right | | Direction of rotation |
| 1.2 / 1.8 | 1.2 / 1.8 | 7.0/ 10.5 | 3.0 / 3.4 | 3.4 / 5.1 | P [kW] | Power S1 / S6 40% |
| 0.29 / 0.43 | 0.19 / 0.29 | 4.0 / 5.57 | 0.7 / 0.8 | 0.81 / 1.22 | M [Nm] | Torque S1 / S6 40% |
| 40'000 | 60'000 | 18'000 | 50'000 | 40'000 | nN [min⁻¹] | Nominal speed |
| 834 | 1'000 | 833 | 1'667 | 1'667 | [Hz] | Motor frequency |
| ASYN | ASYN | SYN | ASYN | ASYN | | Motor technology |
| 220 | 200 | 380 | 350 | 380 | [V] | Voltage |
| 5.5 | 5.0 | 17.0 | 7.0 | 10.0 | [A] | Current S1 |
| 228 | 234 | 289.6 | 288 | 364 | L [mm] | Length |
| 3.8 | 3.5 | 10.0 | 8.0 | 10.0 | [kg] | Weight |
| – | – | – | – | – | | Shaft cooling system |
| – | – | Yes | – | Yes | | Coolant Through Unit |
| Yes | – | Yes | – | Yes | | Encoder |
| | | | | | | **Options** |
| – | – | – | – | – | | Dilation sensor |
| – | – | – | – | – | | Vibration sensor |

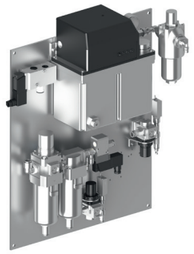
| MFM-850-S | MFM-1032-A | | TYPE |
|---|---|---|---|
| 80 | 100 | D [mm] | Outer diameter |
| HSK-C25 | HSK-C40 | | Tool interface |
| 50'000 | 32'000 | nmax [min⁻¹] | Max. speed |
| Grease | Grease | | Lubrication |
| left & right | | | Direction of rotation |
| 6.0 / 9.0 | 9.0 / 13.5 | P [kW] | Power S1 / S6 40% |
| 1.59 / 2.15 | 3.0 / 4.3 | M [Nm] | Torque S1 / S6 40% |
| 40'000 | 25'000 | nN [min⁻¹] | Nominal speed |
| 1'667 | 1'067 | [Hz] | Motor frequency |
| SYN | ASYN | | Motor technology |
| 380 | 350 | [V] | Voltage |
| 15.0 | 28.0 | [A] | Current S1 |
| 364 | 433 | L [mm] | Length |
| 10.0 | 13.5 | [kg] | Weight |
| – | – | | Shaft cooling system |
| Yes | – | | Coolant Through Unit |
| Yes | Yes | | Encoder |
| | | | **Options** |
| – | – | | Dilation sensor |
| – | – | | Vibration sensor |

ASYN = Asynchronous motor
SYN = Synchronous motor
DLS = Direct Lubrication System

**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.

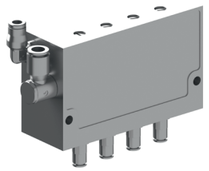
# PERIPHERALS



### 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

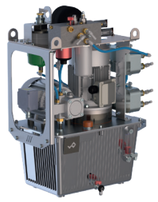
| MAIN TYPES* | ARTICLE NO. |
|---|---|
| OLA 106212110 | 147889 |



### Oil-air dosing unit

- Used for oil metering in spindles with oil-air bearing type
- 100 % tested and certified
- Compatible with current competitor product

| TYPE | SPECIFICATION | ARTICLE NO. |
|---|---|---|
| SFJ 4G | 4 injectors, 0.01cm³ each | 104235 |



### CSC Aggregate

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

| TYPE | ARTICLE NO. |
|---|---|
| CSC-Peripherie III | 126317 |



### Exhaust air filter

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

| DESIGNATION EXHAUST AIR FILTER | SPINDLE SIZE | ARTICLE NO. |
|---|---|---|
| ALF 310 for 1 oil return line<br>ALF 310 for 2 oil return lines<br>ALF 310 for 3 oil return lines | Suitable up to spindle-diameter 210 mm | 107061<br>106807<br>107057 |
| ALF 510 for 1 oil return line<br>ALF 510 for 2 oil return lines<br>ALF 510 for 3 oil return lines | Suitable from spindle-diameter 230 mm | 108107<br>108106<br>108108 |





### 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

| TYPE | SPECIFICATION | CONTENTS | ARTICLE NO. |
|---|---|---|---|
| MOTOREX Spindel oil ISO VG68 | Bearing lubrication | 5 Litres | 133563 |
| MOTOREX Cool-Oil | Motor, bearing, shaft cooling | 20 Litres | 152421 |
| MOTOREX Cool-X | Motor and bearing cooling | 25 Litres | 107657 |
| MOTOREX CS-Cleaner | Cleaning agent for cooling circuit | 1 Litres | 120891 |



### 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

- On-site support: Support for commissioning of spindle systems
- Maintenance training and application consulting
- Service visits for minor repairs or optimizations
- On-site vibration and bearing analysis
- Trainings

### REPAIRS 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 the call-off and 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.

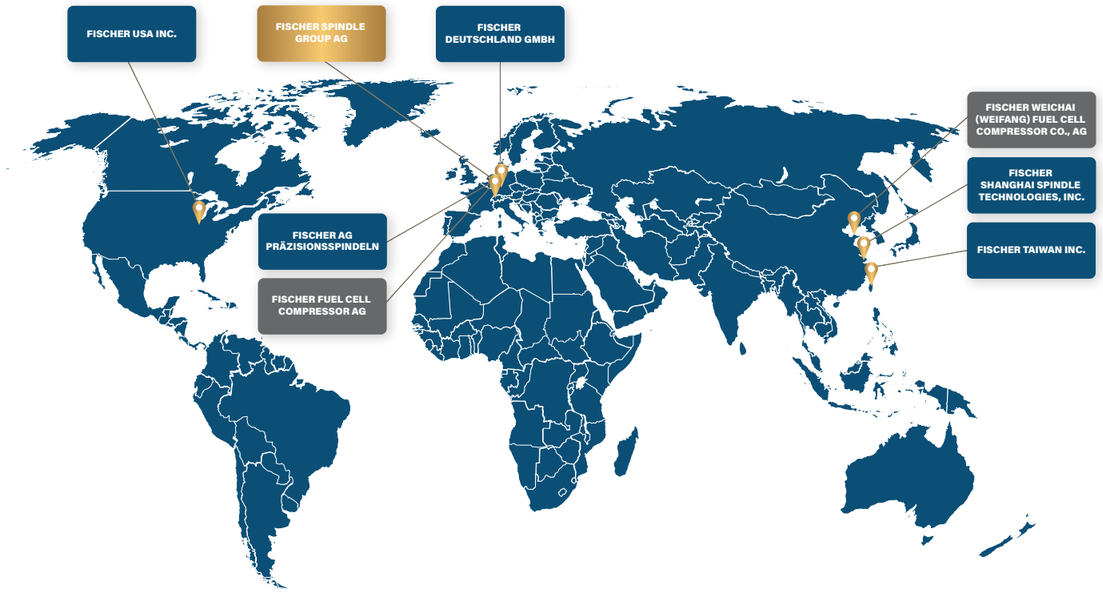
**Spindle periphery**
We support you in the selection and design of the appropriate periphery for a safe operation of the spindle.




# LOCATIONS WORLDWIDE

## OF THE FISCHER GROUP

The FISCHER family is present at five locations worldwide and employs over 400 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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