## Machine Spindles

### Special Spindles
- **High speed spindles for automatic tool change**
  - **Series:** HC, HCS
  - **Housing:** Ø 80 up to 130 mm
  - **Speed:** max. 90,000 rpm
  - **Output (S1):** max. 120 kW
  - **Torque (S1):** max. 450 Nm
  - **Motor:** asynchronous or synchronous motor
  - **Tool Interface:** HSK, SK, Capto
  - **Lubrication:** oil/air or permanent grease lubrication
  - **Application:** milling
  - **Catalogue:** 2017

- **High performance spindles**
  - **Series:** ASE, HPD, WSE, ...
  - **Housing:** Ø according to customer’s specifications
  - **Output (S1):** max. 350 kW
  - **Torque (S1):** max. 1,750 Nm
  - **Motor:** asynchronous or synchronous motor
  - **Tool Interface:** standardised or according to customer’s specifications
  - **Lubrication:** oil/air or permanent grease lubrication
  - **Application:** workpiece spindles, test bench motor, high speed pump motor, generator for energy recovery, centrifuges
  - **On request**

### Accessories
- **Accessories**
  - **Lubrication units PKEUB Gp**
  - Internal or external distributor for supply of maximum 6 spindles.

- **Cooling units**
  - Available as desktop or stand-alone model.

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### Special Spindles
- **High speed spindles for manual tool change**
  - **Series:** UHS, HS, HV, HSK
  - **Housing:** Ø 80 up to 170 mm
  - **Speed:** max. 250,000 rpm
  - **Output (S1):** max. 39 kW
  - **Torque (S1):** max. 25.5 Nm
  - **Motor:** asynchronous or synchronous motor
  - **Tool Interface:** GMN grinding quill interface - internal taper with face contact or fitting hole with face contact
  - **Lubrication:** oil/air lubrication
  - **Application:** grinding, milling, drilling
  - **Catalogue:** 2018

- **Precision spindles for external drive**
  - **Series:** TSA, TSL, TSE
  - **Housing:** Ø 20 up to 100 mm
  - **Housing length:** max. 105 mm
  - **Speed:** max. 80,000 rpm
  - **Tool Interface:** external taper, internal taper, GMN grinding quill interface - fitting hole with face contact
  - **Application:** machining of small, medium and large bores
  - **Catalogue:** 2018

- **High performance spindles**
  - **Series:** TSE
  - **Housing:** Ø 40 up to 200 mm
  - **Housing length:** max. 1,000 mm
  - **Speed:** max. 32,000 rpm
  - **Tool Interface:** external taper
  - **Application:** machining of large, deep bores with high stiffness requirements
  - **Catalogue:** 2018

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### Special Spindles
- **High speed spindles for manual tool change**
  - **Series:** HV, HSP, HSP, g
  - **Housing:** Ø 100 up to 230 mm
  - **Speed:** max. 60,000 rpm
  - **Output (S1):** max. 45 kW
  - **Torque (S1):** max. 85.3 Nm
  - **Motor:** asynchronous or synchronous motor
  - **Tool Interface:** HSK-C
  - **Lubrication:** oil/air or permanent grease lubrication
  - **Application:** grinding, milling, drilling
  - **Catalogue:** 2019

### Accessories
- **Accessories**
  - **Lubrication units PKEUB Gp**
  - Internal or external distributor for supply of maximum 6 spindles.

- **Cooling units**
  - Available as desktop or stand-alone model.