High Precision Spindle

Specialized in Spindle Manufacturing. Dedicated to Higher Technology Level.
VYU CHENG
High Precision Spindle

Specialized in Spindle Manufacturing.
Dedicated to Higher Technology Level.

Direct-Drive Spindle ........................................ 09-16
Tapping Center Spindle .................................. 17-18
Belt-Drive Spindle ........................................ 19-22
Spindle for Lathe ........................................... 23-24
Gear-Drive Spindle ........................................ 25-26

HIGH PRECISION SPINDLES
Designed with precision, stability and dependability in mind.
Vyu Cheng Industrial Co., Ltd. was founded in 1978 with the initial company name as Lien Chen Ironworks. As with the company growth, the company was renamed as Vyu Cheng Industrial Co., Ltd. in 1978, specialized in machining service of spindles and quills for various CNC lathes, milling machines and other machinery. In 2014, with the new factory completed, located at Wuguang Rd. Wurih Dist. Taichung, Vyu Cheng was able to combine all machining processes including turning, milling and grinding, etc. in one plant. This allows Vyu Cheng to achieve an integrated machining system. In the same time, Vyu Cheng transformed its business type into a specialized spindle manufacturer.

Vyu Cheng's Affiliated Enterprises:
- J-G Accurate Technique Industrial Co., Ltd.
- Lien Jeng Industrial Co., Ltd.
- Guan Jing Grinding Industrial Co., Ltd.

COMPANY PHILOSOPHY:
Dedicated to company operation. Quality priority.

High Efficiency Company Operation Management
Vyu Cheng's company operation has been recognized by customers for its high efficiency and comprehensive services. Such reputation is backed by our outstanding management team. Every management personnel has been well trained, so as to provide quick response to customers' inquiries and requirements. The entire processes form order treatment, procurement, production to delivery, etc. are conducted in good order, while reducing operational mistake and delay to a minimum.
Technical Research And Development

Vyu Cheng's technical research and development department is composed of a team of spindle professionals, who also have a considerable knowledge in various precision machine tools. In addition to the design of general standard spindles, our design staffs also offer custom design of spindle to fully meet customers' requirements. Our technical R&D department not only establishes the spindle manufacturing process according to the drawings provided by customers, but also can help customers to make drawings depending on the semi-finished products supplied by customers.

In an increasingly competitive business environment, upgrading efficiency and insisting on quality are the only ways for any enterprise who wants to become a winner. As such, over years Vyu Cheng has constantly invested in various precision machining equipment to achieve an integrated spindle production line. The spindle manufacturing processes from design, turning, milling, grinding, tempering to sand blasting, etc. are completely implemented in-house. The integrated production system enables us to dramatically increase production efficiency, shorten delivery time, lower production costs and total control of spindle quality.

Integrated Manufacturing Process.
90% Production Rate In-House.

Spindle Assembly
Each spindle is carefully assembled by our highly skilled technicians with the most meticulous attitude.

Spindle Running Test
After a spindle is well assembled, it is then subject to running tests to inspect its dynamic running performance and thermal growth condition.
Quality Policy

QUALITY CONTROL SYSTEM

- Incoming Inspection
- In-Process Inspection
- Finished Product Inspection
- Self-Inspection
- Running Test

Dynamic Balance Calibration For Spindle

With the dynamic balance calibration, extremely smooth running performance on the spindle can be ensured. Our dynamic balance calibration reaches G1 grade.

GERMANY ZEISS
Three Dimensional Coordinate Measuring Machine

Vyu Cheng utilizes the world-famous Germany ZEISS 3D coordinate measuring machine to inspect the geometric accuracy of parts, thus high spindle accuracy can be achieved.

Total Quality Control

Providing customers with the highest quality of spindle has been Vyu Cheng's unwavering commitment.

To meet this commitment, Vyu Cheng has set up a total quality control system. Besides, we also enhance the quality concept to each personnel. Our objective is to allow quality to be fully monitored at each stage during the spindle manufacturing process, and hence ensuring high quality, high accuracy and minimum trouble of each spindle form Vyu Cheng.
Features of Spindle:

1. All rotating parts are precision ground completely to avoid imbalance problem due to poor concentricity between inside and outside diameter.

2. Patented labyrinth design at the front end of the spindle where an air seal is equipped in combination with internal labyrinth. In addition, after the spindle is assembled, an external labyrinth is hot-fitted that fully prevents cutting fluid from permeating into the spindle bearings.

3. The end key-seat is a non-through design. Although it requires a higher production cost, the benefit is that no intermittent grinding occurs when performing taper grinding. As a result, an optimal taper fitting can be ensured, while dramatically reducing thermal expansion of spindle at high speed running.

4. The pull stud, tool-knocking ring and spindle are all designed with rigid support. This combined with clearance of within 10um and concentricity within 5um to assure that the pull stud is concentric with the spindle when it runs at a high speed, while avoiding variation on dynamic balance.

---

VYU CHENG
Specialized in Spindle Manufacturing.
Dedicated to Higher Technology Level.

www.vyuchengs.com
Direct-Drive Spindle ➔ TV series

**TV40-140**

- A: PT1/4 (Side in) Coolant jet fluid inlet hole
- B: Ø8xØ12 thru hole Ø18x83
- C: PT1/4 (Side in) Coolant outlet hole
- D: PT1/4 (Side in) Coolant inlet hole
- E: PT1/8 (Side in) Air curtain inlet hole
- F: PT1/4 (Side in) Coolant jet fluid inlet hole

**TV50-190**

- A: PT1/4” (Side in)(Coolant jet fluid inlet hole, COI)
- B: PT1/4” (Side in) (Coolant inlet hole, CI)
- C: PT1/8” (Side in)(Air curtain inlet hole, AI)
- D: PT1/4” (Side in)(Coolant jet fluid inlet hole, COI)
- E: 2-PCDØ220-Ø8.5 drill thru, tap M10xP1.5
- F: 2-PCDØ220-Ø8.5 drill thru, tap M12xP1.75
- G: 8-PCDØ220-Ø13 drill thru x Ø20x13 countersink hole

**TV50-155**

- A: PT1/4” (Side in) Coolant jet fluid inlet hole
- B: PT1/4” (Side in) Coolant inlet hole
- C: PT1/8” (Side in) Air curtain inlet hole
- D: PT1/4” (Side in) Coolant jet fluid inlet hole

**Specifications**

<table>
<thead>
<tr>
<th></th>
<th>TV40</th>
<th>TV50</th>
<th>TV50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. speed</td>
<td>15000 rpm</td>
<td>10000 rpm</td>
<td>10000 rpm</td>
</tr>
<tr>
<td>Tool shank type</td>
<td>BT40</td>
<td>BT50</td>
<td>BT50</td>
</tr>
<tr>
<td>Bearing type</td>
<td>7013 x 2</td>
<td>7016 x 2</td>
<td>7016 x 2</td>
</tr>
<tr>
<td>Bearing lubrication</td>
<td>Grease</td>
<td>Grease</td>
<td>Grease</td>
</tr>
<tr>
<td>Bearing preload</td>
<td>Fixed position preload</td>
<td>Fixed position preload</td>
<td>Fixed position preload</td>
</tr>
<tr>
<td>Bearing temperature control</td>
<td>Within room temperature +18°C</td>
<td>Within room temperature +18°C</td>
<td>Within room temperature +18°C</td>
</tr>
<tr>
<td>Drive type</td>
<td>Direct drive</td>
<td>Direct drive</td>
<td>Direct drive</td>
</tr>
<tr>
<td>Tool pulling force</td>
<td>1000 ± 10 kgf</td>
<td>1500 ±10%kgf</td>
<td>1800 ±10%kgf</td>
</tr>
<tr>
<td>Tool pulling method</td>
<td>4-jaw</td>
<td>4-jaw</td>
<td>4-jaw</td>
</tr>
<tr>
<td>Air curtain of spindle nose</td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td>Cooling method</td>
<td>Oil cooling</td>
<td>Oil cooling</td>
<td>Oil cooling</td>
</tr>
<tr>
<td>Spindle cooling required</td>
<td>1500 kca/h</td>
<td>1500 kca/h</td>
<td>1500 kca/h</td>
</tr>
<tr>
<td>No. of coolant jets</td>
<td>4 holes (Standard)</td>
<td>4 holes (Standard)</td>
<td>6 holes (Standard)</td>
</tr>
<tr>
<td>Spindle taper runout</td>
<td>0.002 mm</td>
<td>0.002 mm</td>
<td>0.002 mm</td>
</tr>
<tr>
<td>Spindle nose runout with test bar</td>
<td>0.003 mm</td>
<td>0.003 mm</td>
<td>0.003 mm</td>
</tr>
<tr>
<td>Test bar runout (300mm)</td>
<td>0.008 mm</td>
<td>0.008 mm</td>
<td>0.008 mm</td>
</tr>
<tr>
<td>Dynamic balance</td>
<td>G1</td>
<td>G1</td>
<td>G1</td>
</tr>
<tr>
<td>Installation type</td>
<td>Vertical</td>
<td>Vertical</td>
<td>Vertical</td>
</tr>
</tbody>
</table>

The manufacturer keeps the right of design change without prior notice. If any design change is required, contact our business department.
### SV40-120

- **Max. speed**: 15000 rpm
- **Tool shank type**: BT40
- **Bearing type**: Front bearing 7012 x 2, Rear bearing 7014 x 2
- **Bearing lubrication**: Grease
- **Bearing preload**: Fixed position preload
- **Bearing temperature control**: Within room temperature +18°C
- **Drive type**: Direct drive
- **Tool pulling force**: 700 ± 10% kgf
- **Tool pulling method**: 4-jaw
- **Coolant through spindle**: Optional
- **Tool knocking cylinder**: Standard
- **Air curtain at spindle nose**: Standard
- **Cooling method**: Oil cooling
- **Spindle cooling required**: 1000 kca/h
- **No. of coolant jets**: 4 holes (Standard)
- **Spindle taper runout**: 0.002 mm
- **Spindle nose runout with test bar**: 0.003 mm
- **Test bar runout (100mm)**: 0.005 mm
- **Dynamic balance**: G1
- **Installation type**: Vertical

### SV40-150

- **Max. speed**: 15000 rpm
- **Tool shank type**: BT40
- **Bearing type**: Front bearing 7012 x 2, Rear bearing 7014 x 2
- **Bearing lubrication**: Grease
- **Bearing preload**: Fixed position preload
- **Bearing temperature control**: Within room temperature +18°C
- **Drive type**: Direct drive
- **Tool pulling force**: 1000 ± 10% kgf
- **Tool pulling method**: 4-jaw
- **Coolant through spindle**: Optional
- **Tool knocking cylinder**: Standard
- **Air curtain at spindle nose**: Standard
- **Cooling method**: Oil cooling
- **Spindle cooling required**: 1500 kca/h
- **No. of coolant jets**: 4 holes (Standard)
- **Spindle taper runout**: 0.002 mm
- **Spindle nose runout with test bar**: 0.003 mm
- **Test bar runout (100mm)**: 0.005 mm
- **Dynamic balance**: G1
- **Installation type**: Vertical

---

**The manufacturer keeps the right of design change without prior notice. If any design change is required, contact our business department.**
### Direct-Drive Spindle
#### SV series

#### SV40-140

- **A**: PT1/4 (Side in) Coolant jet fluid inlet hole
- **B**: 8xØ12 drill thru, Ø18x10 countersink hole
- **C**: PT1/4 (Side in) Coolant outlet hole
- **D**: PT1/4 (Side in) Coolant inlet hole
- **E**: PT1/8 (Side in) Air curtain inlet hole
- **F**: PT1/4 (Side in) Coolant jet fluid inlet hole

#### SV50-190

- **A**: PT1/4" (Side in) Coolant jet fluid inlet hole, OI
- **B**: PT1/8" (Side in) Air curtain inlet hole, AI
- **C**: PT1/4" (Side in) Coolant fluid inlet hole, COI
- **D**: 2-PCD0320-08.5 drill thru, tap M12xP1.75
- **E**: PT1/4" (Side in) Coolant jet fluid inlet hole, COI
- **F**: 8-PCDØ180-Ø11 drill thru x Ø17.5x11 countersink hole

#### SV50-155

- **A**: 8-PCD0180-Ø11 drilling thru Ø17.5x11 countersink hole
- **B**: PT1/8" (Side in) Air curtain inlet hole, AI
- **C**: PT1/4" (Side in) Coolant fluid inlet hole, COI
- **D**: PT1/4" (Side in) Coolant outlet hole

### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>SV40</th>
<th>SV50</th>
<th>SV50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. speed</td>
<td>15000 rpm</td>
<td>10000 rpm</td>
<td>10000 rpm</td>
</tr>
<tr>
<td>Tool shank type</td>
<td>BT40</td>
<td>BT50</td>
<td>BT50</td>
</tr>
<tr>
<td>Bearing type</td>
<td>7012 x 2</td>
<td>7016 x 2</td>
<td>7018 x 2</td>
</tr>
<tr>
<td>Bearing lubrication</td>
<td>Grease</td>
<td>Grease</td>
<td>Grease</td>
</tr>
<tr>
<td>Bearing preload</td>
<td>Fixed position preload</td>
<td>Fixed position preload</td>
<td>Fixed position preload</td>
</tr>
<tr>
<td>Bearing temperature control</td>
<td>Within room temperature +18°C</td>
<td>Within room temperature +18°C</td>
<td>Within room temperature +18°C</td>
</tr>
<tr>
<td>Drive type</td>
<td>Direct drive</td>
<td>Direct drive</td>
<td>Direct drive</td>
</tr>
<tr>
<td>Tool pulling force</td>
<td>1000 ±10 kgf</td>
<td>1500 ±10%kgf</td>
<td>1800 ±10%kgf</td>
</tr>
<tr>
<td>Tool pulling method</td>
<td>4-jaw</td>
<td>4-jaw</td>
<td>4-jaw</td>
</tr>
<tr>
<td>Tool knock cylinder</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>Air curtain at spindle nose</td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td>Cooling method</td>
<td>Oil cooling</td>
<td>Oil cooling</td>
<td>Oil cooling</td>
</tr>
<tr>
<td>Spindle cooling required</td>
<td>1000 kca/h</td>
<td>1500 kca/h</td>
<td>1500 kca/h</td>
</tr>
<tr>
<td>No. of coolant jets</td>
<td>4 holes (Standard)</td>
<td>4 holes (Standard)</td>
<td>6 holes (Standard)</td>
</tr>
<tr>
<td>Spindle taper runout</td>
<td>-0.002 mm</td>
<td>-0.002 mm</td>
<td>-0.002 mm</td>
</tr>
<tr>
<td>Spindle nose runout with test bar</td>
<td>-0.003 mm</td>
<td>-0.003 mm</td>
<td>-0.003 mm</td>
</tr>
<tr>
<td>Test bar runout (2000mm)</td>
<td>-0.008 mm</td>
<td>-0.008 mm</td>
<td>-0.008 mm</td>
</tr>
<tr>
<td>Dynamic balance</td>
<td>G1</td>
<td>G1</td>
<td>G1</td>
</tr>
<tr>
<td>Installation type</td>
<td>Vertical</td>
<td>Vertical</td>
<td>Vertical</td>
</tr>
<tr>
<td>Machine Front</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Tapping Center Spindle  

FD / SD series

Features of Spindle:
1. Simple construction. Easy to install on a machine.
2. High precision and low vibration.
3. Same mounting interface sizes for high interchangeability and easy use.
4. Suitable for high speed machining.
5. High accuracy of dynamic rotation.

FD31-095

A: 2-Ø6.8 drill thru, tap M8xP1.25x6 deep (extract hole) PCDØ146
B: 7-Ø9.05 drill thru x Ø16x18 countersink hole (PCDØ146)
C: PT1/8 (Coolant inlet )

SF30-100

A: PT1/8 Spindle nose (Positive pressure air inlet hole )
B: 4-Ø9 drill thru x Ø14x8.5 countersink hole

<table>
<thead>
<tr>
<th>SPECIFICATIONS</th>
<th>FD31</th>
<th>SD30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø95</td>
<td>24000 rpm</td>
<td>24000 rpm</td>
</tr>
<tr>
<td>Ø100</td>
<td>24000 rpm</td>
<td>24000 rpm</td>
</tr>
<tr>
<td>Tool shank type</td>
<td>BT30</td>
<td>BT30</td>
</tr>
<tr>
<td>Bearing type</td>
<td>Front bearing: 7008 x 2 Rear bearing: 7008 x 2</td>
<td>Front bearing: 7008 x 2 Rear bearing: 7008 x 2</td>
</tr>
<tr>
<td>Bearing lubrication</td>
<td>Grease</td>
<td>Grease</td>
</tr>
<tr>
<td>Bearing preload</td>
<td>Fixed position preload</td>
<td>Fixed position preload</td>
</tr>
<tr>
<td>Bearing temperature control</td>
<td>Within room temperature +18°C</td>
<td>Within room temperature +18°C</td>
</tr>
<tr>
<td>Drive type</td>
<td>Direct drive</td>
<td>Direct drive</td>
</tr>
<tr>
<td>Tool pulling force</td>
<td>280 ±10%kgf</td>
<td>280 ±10%kgf</td>
</tr>
<tr>
<td>Tool pulling method</td>
<td>4-jaw</td>
<td>4-jaw</td>
</tr>
<tr>
<td>Air curtain at spindle nose</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td>Cooling method</td>
<td>Oil cooling</td>
<td>Oil cooling</td>
</tr>
<tr>
<td>Spindle cooling required</td>
<td>1000 kca/h</td>
<td>1000 kca/h</td>
</tr>
<tr>
<td>No. of coolant jets</td>
<td>Without</td>
<td>Without</td>
</tr>
<tr>
<td>Spindle taper runout</td>
<td>0.002 mm</td>
<td>0.002 mm</td>
</tr>
<tr>
<td>Spindle nose runout with test bar</td>
<td>0.003 mm</td>
<td>0.003 mm</td>
</tr>
<tr>
<td>Test bar runout (300mm)</td>
<td>0.008 mm</td>
<td>0.008 mm</td>
</tr>
<tr>
<td>Dynamic balance</td>
<td>G1</td>
<td>G1</td>
</tr>
<tr>
<td>Installation type</td>
<td>Vertical</td>
<td>Vertical</td>
</tr>
</tbody>
</table>

© The manufacturer keeps the right of design change without prior notice. If any design change is required, contact our business department.
Belt-Drive Spindle  » PD series

Features of Spindle:

1. Simple construction with minimum trouble.
2. Lower production cost.
3. Easy to maintain.
4. Complete taper hole with high accuracy and high rigidity.

PD40-120

PD40-150

PD40

PD40

SPECIFICATIONS

<table>
<thead>
<tr>
<th></th>
<th>D120</th>
<th>D150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. speed</td>
<td>12000 rpm</td>
<td>12000 rpm</td>
</tr>
<tr>
<td>Tool shank type</td>
<td>BT40</td>
<td>BT40</td>
</tr>
<tr>
<td>Bearing type</td>
<td>Front bearing, Rear bearing</td>
<td>7012 x 2, 7014 x 2</td>
</tr>
<tr>
<td>Bearing lubrication</td>
<td>Grease</td>
<td>Grease</td>
</tr>
<tr>
<td>Bearing preload</td>
<td>Fixed position preload</td>
<td>Fixed position preload</td>
</tr>
<tr>
<td>Bearing temperature control</td>
<td>Within room temperature +18°C</td>
<td>Within room temperature +18°C</td>
</tr>
<tr>
<td>Drive type</td>
<td>Belt drive</td>
<td>Belt drive</td>
</tr>
<tr>
<td>Positioning method</td>
<td>Concave sensing</td>
<td>Concave sensing</td>
</tr>
<tr>
<td>Tool pulling force</td>
<td>700 ±10%kgf</td>
<td>1000 ±10%kgf</td>
</tr>
<tr>
<td>Tool pulling method</td>
<td>4-jaw</td>
<td>4-jaw</td>
</tr>
<tr>
<td>Air curtain of spindle nose</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td>Cooling method</td>
<td>Oil cooling</td>
<td>Oil cooling</td>
</tr>
<tr>
<td>Spindle cooling required</td>
<td>1000 kca/h</td>
<td>1000 kca/h</td>
</tr>
<tr>
<td>No. of coolant( jets)</td>
<td>4 holes (Standard)</td>
<td>4 holes (Standard)</td>
</tr>
<tr>
<td>Spindle taper runout</td>
<td>0.002 mm</td>
<td>0.002 mm</td>
</tr>
<tr>
<td>Spindle nozzle runout with test bar</td>
<td>0.003 mm</td>
<td>0.003 mm</td>
</tr>
<tr>
<td>Test bar runout (300mm)</td>
<td>0.008 mm</td>
<td>0.008 mm</td>
</tr>
<tr>
<td>Dynamic balance</td>
<td>G1</td>
<td>G1</td>
</tr>
<tr>
<td>Installation type</td>
<td>Vertical</td>
<td>Vertical</td>
</tr>
</tbody>
</table>

Features of Spindle:

1. Simple construction with minimum trouble.
2. Lower production cost.
3. Easy to maintain.
4. Complete taper hole with high accuracy and high rigidity.

Machine Front

A: 6-PCDØ146-Ø19 drill thru x Ø14x9 countersink hole
B: 2-PT1/8" (Side in)(Coolant jet fluid inlet hole, CD)
C: PT1/8" (Side in)(Air curtain inlet hole, AI)
D: 2-PT1/4" (Side in)(Coolant jet fluid inlet hole, CD)
### Belt-Drive Spindle ▶ PD series

#### PD50-155

- **Max. speed:** 8000 rpm
- **Tool shank type:** BT50
- **Bearing type:** Front bearing: 7016 x 2, Rear bearing: 7020 x 2
- **Bearing lubrication:** Grease
- **Bearing preload:** Fixed position preload
- **Bearing temperature control:** Within room, temperature +18°C
- **Drive type:** Belt drive
- **Positioning method:** Concave sensing
- **Air curtain at spindle nose:** Standard
- **Cooling method:** Oil cooling
- **Spindle cooling required:** 1000 kcal/h
- **No. of coolant jets:** 4 holes (Standard), 6 holes (Standard), 4 holes (Standard)
- **Spindle taper runout:** 0.002 mm
- **Spindle nose runout with test bar:** 0.002 mm
- **Dynamic balance:** G1
- **Installation type:** Vertical

#### PD50-190

- **Max. speed:** 8000 rpm
- **Tool shank type:** BT50
- **Bearing type:** Front bearing: 7016 x 2, Rear bearing: 7018 x 2
- **Bearing lubrication:** Grease
- **Bearing preload:** Fixed position preload
- **Bearing temperature control:** Within room, temperature +18°C
- **Drive type:** Belt drive
- **Positioning method:** Concave sensing
- **Air curtain at spindle nose:** Standard
- **Cooling method:** Oil cooling
- **Spindle cooling required:** 1000 kcal/h
- **No. of coolant jets:** 4 holes (Standard)
- **Spindle taper runout:** 0.002 mm
- **Spindle nose runout with test bar:** 0.002 mm
- **Dynamic balance:** G1
- **Installation type:** Vertical

#### PD51-190

- **Max. speed:** 8000 rpm
- **Tool shank type:** BT50
- **Bearing type:** Front bearing: 7016 x 2, Rear bearing: 7020 x 2
- **Bearing lubrication:** Grease
- **Bearing preload:** Fixed position preload
- **Bearing temperature control:** Within room, temperature +18°C
- **Drive type:** Belt drive
- **Positioning method:** Concave sensing
- **Air curtain at spindle nose:** Standard
- **Cooling method:** Oil cooling
- **Spindle cooling required:** 1000 kcal/h
- **No. of coolant jets:** 4 holes (Standard), 6 holes (Standard), 4 holes (Standard)
- **Spindle taper runout:** 0.002 mm
- **Spindle nose runout with test bar:** 0.002 mm
- **Dynamic balance:** G1
- **Installation type:** Vertical

---

*The manufacturer keeps the right of design change without prior notice. If any design change is required, contact our business department.*
Belt-Drive Spindle  > PD series

**PM50-200**

A: 6-PCDØ220-Ø11 drill xØ18x15 countersink hole
B: 4-PCDØ101.6-M16xP2.0x32L

**PM53-190**

**Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>PM50</th>
<th>PM52</th>
<th>PM53</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>200</td>
<td>190</td>
<td>190</td>
</tr>
<tr>
<td>Max Speed</td>
<td>1500 rpm</td>
<td>1000 rpm</td>
<td>1000 rpm</td>
</tr>
<tr>
<td>Tool Shank Type</td>
<td>BT50-FMA47.625-Ø200</td>
<td>BT50-FMA47.625-Ø190</td>
<td>BT50-FMA50.80-Ø190</td>
</tr>
<tr>
<td>Bearing Type</td>
<td>Front Bearing - NN3020K+100BTR10S</td>
<td>Rear Bearing - NN3018K+6216ZZ</td>
<td>NN3018K</td>
</tr>
<tr>
<td>Bearing Lubrication</td>
<td>Grease</td>
<td>Grease</td>
<td>Grease</td>
</tr>
<tr>
<td>Bearing Preload</td>
<td>Fixed Position Preload</td>
<td>Fixed Position Preload</td>
<td>Fixed Position Preload</td>
</tr>
<tr>
<td>Bearing Temperature Control</td>
<td>Within Room Temperature+18℃</td>
<td>Within Room Temperature+18℃</td>
<td>Within Room Temperature+18℃</td>
</tr>
<tr>
<td>Drive Type</td>
<td>Belt Drive</td>
<td>Belt Drive</td>
<td>Belt Drive</td>
</tr>
<tr>
<td>Positioning Method</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tool Pulling Force</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tool Pulling Method</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Air Curtain at Spindle Nose</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cooling Method</td>
<td>Oil Cooling</td>
<td>Oil Cooling</td>
<td>Oil Cooling</td>
</tr>
<tr>
<td>Spindle Cooling Required</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No. of Coolant Jets</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spindle Taper Runout</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spindle Nose Runout with Test Bar</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Test Bar Runout (300mm)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Dynamic Balance</td>
<td>G1</td>
<td>G1</td>
<td>G1</td>
</tr>
<tr>
<td>Installation Type</td>
<td>Horizontal</td>
<td>Horizontal</td>
<td>Horizontal</td>
</tr>
</tbody>
</table>

*The manufacturer keeps the right of design change without prior notice. If any design change is required, contact our business department.*
### Belt-Drive Spindle

#### PS40-150

- **A:** 8-PCD Ø180 - Ø11 drill thru x Ø17.5x11 countersink hole
- **B:** Ø8, R90 (Vertical in) (Air curtain inlet hole, OI)
- **C:** Ø5, R90 (Vertical in) (Air curtain inlet hole, AI)
- **D:** 2-PCD Ø80 - Ø8 (Vertical in) (Coolant jet fluid inlet hole, COI)

#### PS41-150

- **A:** 8-PCD Ø180 - Ø11 drill thru x Ø17.5x11 countersink hole
- **B:** PT 1/8" (Side in) (Air curtain inlet hole, OI)
- **C:** PT 1/4" (Side in) (Air curtain inlet hole, AI)
- **D:** PT 1/4" (Side in) (Air curtain inlet hole, AI)

#### PS51-155

- **A:** 8-PCD Ø180 - Ø11 drill thru x Ø17.5x11 countersink hole
- **B:** PT 1/8" (Side in) (Air curtain inlet hole, OI)
- **C:** PT 1/4" (Side in) (Coolant inlet hole, AI)
- **D:** PT 1/4" (Side in) (Coolant jet fluid inlet hole, COI)

### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>PS40</th>
<th>S41</th>
<th>PS51</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max speed</td>
<td>12000 rpm</td>
<td>10000 rpm</td>
<td>8000 rpm</td>
</tr>
<tr>
<td>Tool shank type</td>
<td>BT40, Ø150</td>
<td>BT40, Ø150</td>
<td>BT40</td>
</tr>
<tr>
<td>Bearing type</td>
<td>Front bearing 7014 x 2</td>
<td>Rear bearing 7014 x 2</td>
<td>Rear bearing 7014 x 2</td>
</tr>
<tr>
<td>Bearing lubrication</td>
<td>Grease</td>
<td>Grease</td>
<td>Grease</td>
</tr>
<tr>
<td>Bearing preload</td>
<td>Fixed position preload</td>
<td>Fixed position preload</td>
<td>Fixed position preload</td>
</tr>
<tr>
<td>Bearing temperature control</td>
<td>Within room temperature + 18°C</td>
<td>Within room temperature + 18°C</td>
<td>Within room temperature + 18°C</td>
</tr>
<tr>
<td>Drive type</td>
<td>Belt drive</td>
<td>Belt drive</td>
<td>Belt drive</td>
</tr>
<tr>
<td>Positioning method</td>
<td>Concave sensing</td>
<td>Concave sensing</td>
<td>Concave sensing</td>
</tr>
<tr>
<td>Tool pulling force</td>
<td>1500 ± 10% kgf</td>
<td>1500 ± 10% kgf</td>
<td>1500 ± 10% kgf</td>
</tr>
<tr>
<td>Tool pulling method</td>
<td>4-jaw</td>
<td>4-jaw</td>
<td>4-jaw</td>
</tr>
<tr>
<td>Air curtain at spindle nose</td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td>Cooling method</td>
<td>Oil cooling</td>
<td>Oil cooling</td>
<td>Oil cooling</td>
</tr>
<tr>
<td>Spindle cooling required</td>
<td>1000 kca/h</td>
<td>1000 kca/h</td>
<td>1000 kca/h</td>
</tr>
<tr>
<td>No. of coolant jets</td>
<td>4 holes (Standard)</td>
<td>4 holes (Standard)</td>
<td>4 holes (Standard)</td>
</tr>
<tr>
<td>Spindle taper runout</td>
<td>0.002 mm</td>
<td>0.002 mm</td>
<td>0.002 mm</td>
</tr>
<tr>
<td>Spindle nose runout with test bar</td>
<td>0.003 mm</td>
<td>0.003 mm</td>
<td>0.003 mm</td>
</tr>
<tr>
<td>Test bar runout (300mm)</td>
<td>0.008 mm</td>
<td>0.008 mm</td>
<td>0.008 mm</td>
</tr>
<tr>
<td>Dynamic balance</td>
<td>G1</td>
<td>G1</td>
<td>G1</td>
</tr>
<tr>
<td>Installation type</td>
<td>Vertical</td>
<td>Vertical</td>
<td>Vertical</td>
</tr>
</tbody>
</table>

© The manufacturer keeps the right of design change without prior notice. If any design change is required, contact our business department.
### Spindle for Lathe ➤ A2 series

**Features of Spindle:**
1. High rigidity in axial and radial directions.
2. Stable thermal growth on spindle.
3. High accuracy of dynamic rotation.
4. Applicable for turning and milling multitasking machines.

### A2-4-110

![A2-4-110 Image](image)

**Specifications:**
- Max. speed: 8000 rpm
- Spindle nose: A2-4
- Hole through spindle: Ø34
- Bearing type: Front bearing 7011 x 2
- Bearing lubrication: Grease
- Bearing preload: Fixed position preload
- Bearing temperature control: Within room temperature +18°C
- Drive type: Belt drive
- Positioning method: Encoder with wheel
- Spindle taper: 1/20
- Spindle balance calibration: G1
- Installation type: Horizontal

### A2-4-150

![A2-4-150 Image](image)

**Specifications:**
- Max. speed: 8000 rpm
- Spindle nose: A2-4
- Hole through spindle: Ø34
- Bearing type: Front bearing 7014 x 2
- Bearing lubrication: Grease
- Bearing preload: Fixed position preload
- Bearing temperature control: Within room temperature +18°C
- Drive type: Belt drive
- Positioning method: Encoder with wheel
- Spindle taper: 1/20
- Spindle balance calibration: G1
- Installation type: Horizontal

### A2-5-170

![A2-5-170 Image](image)

**Specifications:**
- Max. speed: 6000 rpm
- Spindle nose: A2-5
- Hole through spindle: Ø36
- Bearing type: Front bearing 7016 x 2
- Bearing lubrication: Grease
- Bearing preload: Fixed position preload
- Bearing temperature control: Within room temperature +18°C
- Drive type: Belt drive
- Positioning method: Encoder with wheel
- Spindle taper: 1/20
- Spindle balance calibration: G1
- Installation type: Horizontal

### A2-5-190

![A2-5-190 Image](image)

**Specifications:**
- Max. speed: 6000 rpm
- Spindle nose: A2-5
- Hole through spindle: Ø36
- Bearing type: Front bearing 7018 x 3
- Bearing lubrication: Grease
- Bearing preload: Fixed position preload
- Bearing temperature control: Within room temperature +18°C
- Drive type: Belt drive
- Positioning method: Encoder with wheel
- Spindle taper: 1/20
- Spindle balance calibration: G1
- Installation type: Horizontal
Spindle of Lathe  >  A2 series

**A2-4-120**
- Above the machine
- 6-Ø7 drill thru Ø11x6.5L
- P.C.D. Ø138
- 12-M6x13L P.C.D. Ø58
- Drainage hole

**A2-5-180**
- L-32T OD Ø56.28
- 4-Ø7 drill thru Ø11x6.5L
- P.C.D. Ø138
- Drainage hole

**A2-6-200**
- Above the machine
- 6Pc. Ø0.5mm Ø147.2

### SPECIFICATIONS

<table>
<thead>
<tr>
<th></th>
<th>A2-4</th>
<th>A2-5</th>
<th>A2-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. speed</td>
<td>6000 rpm</td>
<td>7000 rpm</td>
<td>4200 rpm</td>
</tr>
<tr>
<td>Spindle nose</td>
<td>A2-4</td>
<td>A2-4</td>
<td>A2-6</td>
</tr>
<tr>
<td>Hole through spindle</td>
<td>Ø120</td>
<td>Ø110, Ø180</td>
<td>Ø200</td>
</tr>
<tr>
<td>Bearing type</td>
<td>Front bearing 7011 x 3</td>
<td>Rear bearing 7010 x 2</td>
<td>Bearing type</td>
</tr>
<tr>
<td>Bearing lubrication</td>
<td>Grease</td>
<td>Grease</td>
<td>Grease</td>
</tr>
<tr>
<td>Bearing preload</td>
<td>Fixed position preload</td>
<td>Fixed position preload</td>
<td>Fixed position preload</td>
</tr>
<tr>
<td>Bearing temperature control</td>
<td>Within room temperature +18°C</td>
<td>Within room temperature +18°C</td>
<td>Within room temperature +18°C</td>
</tr>
<tr>
<td>Drive type</td>
<td>Belt drive</td>
<td>Encoder with wheel</td>
<td>Encoder with wheel</td>
</tr>
<tr>
<td>Positioning method</td>
<td>Encoder with wheel</td>
<td>Encoder with wheel</td>
<td>Encoder with wheel</td>
</tr>
<tr>
<td>Spindle taper</td>
<td>1/20</td>
<td>1/20</td>
<td>1/20</td>
</tr>
<tr>
<td>Spindle skew inner hole deflection</td>
<td>0.002 mm</td>
<td>0.002 mm</td>
<td>0.002 mm</td>
</tr>
<tr>
<td>Spindle nose deflection</td>
<td>0.002 mm</td>
<td>0.002 mm</td>
<td>0.002 mm</td>
</tr>
<tr>
<td>Test rod deflection</td>
<td>0.008 mm</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spindle balance calibration</td>
<td>G1</td>
<td>G1</td>
<td>G1</td>
</tr>
<tr>
<td>Installation type</td>
<td>Horizontal</td>
<td>Horizontal</td>
<td>Horizontal</td>
</tr>
</tbody>
</table>

© The manufacturer keeps the right of design change without prior notice. If any design change is required, contact our business department.
Features of Spindle:
1. Low Production cost.
2. Easy to maintain.
3. High torque output.
5. High cutting efficiency.

GL51-160

Machine Front
A: PT1/4”(Side in)(Coolant inlet hole, OI)
B: PT1/4”(Side in)(Coolant jet fluid inlet hole, COI)
C: PT1/8”(Side in)(Air curtain inlet hole, AI)
D: 8-PCDØ185-Ø11 drill thru x Ø17.5x11 countersink hole

GM50-190

Drain hole down
A: PT1/4”(Side in)(Coolant jet fluid inlet hole, COI)
B: Ø6.5 x Ø12 x 1.5 countersink hole (R110)(Coolant inlet hole, OI)
C: PT1/8”(Side in)(Air curtain inlet hole, AI)
D: 2-M12 x P1.75
E: 8-PCDØ220-Ø14 drill thru x Ø20 x 13 countersink hole

GW50-190

 Ø200
32
144
15
191
303
141
134
30
633
25(Tool Clamp)
27(No Tool)

Table: Specifications

<table>
<thead>
<tr>
<th></th>
<th>GL51</th>
<th>GM50</th>
<th>GW50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. speed</td>
<td>8000 rpm</td>
<td>2000 rpm</td>
<td>6000 rpm</td>
</tr>
<tr>
<td>Tool shank type</td>
<td>BT50</td>
<td>BT50-FMA47.625</td>
<td>BT50</td>
</tr>
<tr>
<td>Bearing type</td>
<td>Front bearing 7016 x 2</td>
<td>Rear bearing 7016 x 2</td>
<td>NN3018K</td>
</tr>
<tr>
<td>Bearing lubrication</td>
<td>Grease</td>
<td>Grease</td>
<td>Grease</td>
</tr>
<tr>
<td>Bearing preload</td>
<td>Fixed position preload</td>
<td>-</td>
<td>Fixed position preload</td>
</tr>
<tr>
<td>Bearing temperature control</td>
<td>Within room temperature + 18 ℃</td>
<td>Within room temperature + 18 ℃</td>
<td>Within room temperature + 18 ℃</td>
</tr>
<tr>
<td>Drive type</td>
<td>Gear drive</td>
<td>Gear drive</td>
<td>Gear drive</td>
</tr>
<tr>
<td>Positioning method</td>
<td>Concave sensing</td>
<td>Convex sensing</td>
<td>Convex sensing</td>
</tr>
<tr>
<td>Tool pulling force</td>
<td>1200 ± 10%kgf</td>
<td>-</td>
<td>1800 ± 10%kgf</td>
</tr>
<tr>
<td>Tool pulling method</td>
<td>4-jaw</td>
<td>-</td>
<td>4-jaw</td>
</tr>
<tr>
<td>Air curtain at spindle nose</td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td>Cooling method</td>
<td>Oil cooling</td>
<td>Oil cooling</td>
<td>Oil cooling</td>
</tr>
<tr>
<td>Spindle cooling required</td>
<td>1000 kcal/h</td>
<td>1000 kcal/h</td>
<td>1000 kcal/h</td>
</tr>
<tr>
<td>Spindle taper runout</td>
<td>0.002 mm</td>
<td>0.002 mm</td>
<td>0.002 mm</td>
</tr>
<tr>
<td>Spindle nose runout with test bar</td>
<td>0.003 mm</td>
<td>0.003 mm</td>
<td>0.003 mm</td>
</tr>
<tr>
<td>Test bar runout (300mm)</td>
<td>0.008 mm</td>
<td>0.008 mm</td>
<td>0.008 mm</td>
</tr>
<tr>
<td>No. of coolant jets</td>
<td>4 holes (Standard)</td>
<td>-</td>
<td>4 holes (Standard)</td>
</tr>
<tr>
<td>Dynamic balance</td>
<td>G1</td>
<td>G1</td>
<td>G1</td>
</tr>
<tr>
<td>Installation type</td>
<td>Vertical</td>
<td>Horizontal</td>
<td>Horizontal</td>
</tr>
</tbody>
</table>

The manufacturer keeps the right of design change without prior notice. If any design change is required, contact our business department.
Built-in spindle

A2 permanent magnet

**YCD150**

- Specifications: Ø150 , A2-4
- Maximum speed: 8000 r / min
- Series: Level 8
- Bearing type:
  - Front bearing: 7012C x 3
  - Rear bearing: 7010C x 2
- Cooling method: Oil cooling
- Braking method: Hydraulic disc brake
- Spindle end taper: <0.002
- Balance level: G0.4(GB / T9239)
- Targeting: Encoder(S08-MR60-124-02)

**YCD180**

- Specifications: Ø180 , A2-4
- Maximum speed: 6000 r / min
- Series: Level 8
- Bearing type:
  - Front bearing: 7014C x 3
  - Rear bearing: 7012C x 2
- Cooling method: Oil cooling
- Braking method: Hydraulic disc brake
- Spindle end taper: ≤0.002
- Balance level: G0.4(GB / T9239)
- Targeting: Encoder(S08-MR82-162-02)

The manufacturer reserves the right to make design changes without prior notice. If any design change is required, contact our business department.