INDEX

HAND WORK

1
ULTRA-PRECISION BRUSHLESS MICRO-GRINDER
Emax EVOlution
(Electrically Driven) 1,000–40,000 min⁻¹ (rpm)

1
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ESPERT 500
(Electrically Driven) 1,000–50,000 min⁻¹ (rpm)

1
ULTRA-PRECISION HIGH TORQUE AIR GRINDER
ROTUS
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1
HIGH TORQUE PENCIL TYPE AIR GRINDER
IMPULSE SERIES
(Pneumatically Driven) 60,000 min⁻¹ (rpm)

1
ULTRA-PRECISION HIGH SPEED AIR TURBINE GRINDER
PRESTO II
(Pneumatically Driven) 320,000 min⁻¹ (rpm)

1
ULTRASONIC FINISHING SYSTEM
SHEENUS neo

Not available in Europe.
### MACHINE TOOL SPINDLES

<table>
<thead>
<tr>
<th>Electric Motor Spindle</th>
<th>Pneumatic Motor Spindle</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2</strong> ELECTRIC MICRO SPINDLE iSpeed3 SERIES</td>
<td><strong>3</strong> MODULAR AIR SPINDLE / MOTOR MA SERIES</td>
</tr>
<tr>
<td>1,000~80,000 min⁻¹ (rpm) &lt;Ø0.75&quot;, Ø0.79&quot;, Ø0.87&quot;, Ø0.98&quot;&gt;</td>
<td>&lt;Ø0.897&quot;, Ø0.98&quot;, Ø1.0&quot;, Ø1.18&quot;&gt;</td>
</tr>
<tr>
<td><strong>2</strong> BRUSHLESS MOTOR &amp; SPINDLE E2280 SERIES</td>
<td><strong>3</strong> ONE PIECE AIR SPINDLE / MOTOR MS SERIES (MSS·MSST·MSSH)</td>
</tr>
<tr>
<td>1,000~50,000 min⁻¹ (rpm) &lt;Ø0.897&quot;, Ø0.98&quot;, Ø1.0&quot;&gt;</td>
<td>&lt;Ø0.75&quot;~Ø1.0&quot;&gt;</td>
</tr>
<tr>
<td><strong>2</strong> BRUSHLESS MOTOR &amp; SPINDLE E3000 SERIES (One Piece Type)</td>
<td></td>
</tr>
<tr>
<td>1,000~60,000 min⁻¹ (rpm) &lt;Ø0.79&quot;, Ø0.98&quot;, Ø1.18&quot;&gt;</td>
<td></td>
</tr>
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<td></td>
</tr>
<tr>
<td><strong>2</strong> BRUSHLESS MOTOR &amp; SPINDLE E3000 SERIES (80,000 min⁻¹ (rpm))</td>
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</tr>
<tr>
<td>1,000~80,000 min⁻¹ (rpm) &lt;Ø1.18&quot;, Ø1.97&quot;&gt;</td>
<td></td>
</tr>
<tr>
<td><strong>2</strong> BRUSHLESS MOTOR &amp; SPINDLE E4000 SERIES (One Piece Type) (Modular Type)</td>
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</tr>
<tr>
<td>1,000~40,000 min⁻¹ (rpm) &lt;Ø1.18&quot;&gt;</td>
<td></td>
</tr>
</tbody>
</table>

### INDEX

- **Electric Motor Spindle**
  - P1
  - P15
  - P17
  - P35
  - P37
  - P51
  - P52
  - P69
  - P70
  - P76
  - P77
  - P87
- **Pneumatic Motor Spindle**
  - P1
  - P25
  - P27
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HAND WORK SOLUTIONS

Micro-Grinder
Electrically Driven

Emax EVOlution

1,000~40,000 min⁻¹ (rpm)

ULTRA-PRECISION BRUSHLESS MICRO-GRINDER
- Digital display enhances safety and efficiency.
- Compact and functional design makes the unit portable.
- Soft-touch switches permit easy operation and long service life.

ESPERT 500

1,000~50,000 min⁻¹ (rpm)

ULTRA-PRECISION BRUSHLESS MICRO-GRINDER
- High output power, 200W, and high reliability are achieved by combining a hall-element brushless DC motor and high-grade electronics.
HAND WORK SOLUTIONS

Micro-Grinder Electrically Driven

Emax EVolution

1,000~40,000 min⁻¹ (rpm)

ULTRA-PRECISION BRUSHLESS MICRO-GRINDER
- Digital display enhances safety and efficiency.
- Compact and functional design makes the unit portable.
- Soft-touch switches permit easy operation and long service life.

ESPERT 500

1,000~50,000 min⁻¹ (rpm)

ULTRA-PRECISION BRUSHLESS MICRO-GRINDER
- High output power, 200W, and high reliability are achieved by combining a hall-element brushless DC motor and high-grade electronics.
## Emax EVOlution System Chart

### Motor

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Control Unit

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Attachment

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Wide selection of attachments available depending on the application.

### Speed Reducer - Extension Joint

<table>
<thead>
<tr>
<th>Speed Reducer</th>
<th>Extension Joint</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/15 Speed Reducer</td>
<td>15° Angle Type</td>
</tr>
<tr>
<td>1/10 Speed Reducer</td>
<td>10° Angle Type</td>
</tr>
</tbody>
</table>

- May be connected between the motor and the attachment as required for increased torque.

---

*Order by catalog number.*
### Emax EVOlution System Chart

#### Motor

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>RE1108</td>
<td>IR-310</td>
<td></td>
</tr>
<tr>
<td>RE1018</td>
<td>HG-200</td>
<td></td>
</tr>
<tr>
<td>RE1019</td>
<td>SMH-300</td>
<td></td>
</tr>
<tr>
<td>RE1025</td>
<td>MFC-305M</td>
<td></td>
</tr>
<tr>
<td>RE1028</td>
<td>KC-3000</td>
<td></td>
</tr>
<tr>
<td>LS1015</td>
<td>LS-100</td>
<td></td>
</tr>
<tr>
<td>LS1307</td>
<td>ML-8</td>
<td></td>
</tr>
<tr>
<td>LS1310</td>
<td>SLS-16</td>
<td></td>
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<tr>
<td>RE1000</td>
<td>HA-500</td>
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</tr>
<tr>
<td>KIS1002</td>
<td>KBS-101</td>
<td></td>
</tr>
</tbody>
</table>

#### Control Unit

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>3224</td>
<td>TME100</td>
<td></td>
</tr>
</tbody>
</table>

#### Attachment

- **LUSTER (Reciprocating motion)**
- **Ring Type**
- **Level Type**
- **Straight Type**
- **Torque Type**
- **Long Type**
- **90° Mini Angle Type**
- **90° Mini Angle Type (Very Small Head)**
- **45° Angle Type**
- **LUSTER (Reciprocating motion)**
- **MINI-LUSTER (Reciprocating motion)**
- **SWING-LUSTER (Right to Left motion)**
- **Hammer Action Type**
- **FIVE BELT SANDER**
- **90° Mini Angle Type (Very Small Head)**

- **E2530 / E2550**
  - 30,000 min⁻¹ (rpm) Max. (**) (1)
  - ø1.0”/ø0.98”

- **E2530 / E2550**
  - 27,000 min⁻¹ (rpm) Max. (**) (2)
  - ø1.0”/ø0.98”

- **E3000**
  - 35,000 min⁻¹ (rpm) Max. (**) (1)
  - ø1.5”/ø0.98”

- **E3000**
  - 30,000 min⁻¹ (rpm) Max. (**) (2)
  - ø1.5”/ø0.98”

- **MS**

- **AIR LINE KIT**

- **PARTS**

- **APPLICATION**

- **INDEX**

#### Optional

- **Torque Type Motor with Cord**
  - 1,000–25,000 min⁻¹ (rpm) (**) (1)
  - ø1.0”/ø0.98”

- **Standard Type Motor with Cord**
  - 1,000–25,000 min⁻¹ (rpm) (**) (1)
  - ø1.0”/ø0.98”

- **Cable Cord 4.5 ft** with Socket
  - 2005 (plug) 1 snap
  - 2006 (plug) 1 snap

---

*Order by catalog number.*

---

*1 : Maximum Allowable Speed, intermittent use.
2 : Maximum Allowable Speed, continuous use.*

---

*All information is subject to change, and sales are subject to change depending on the nominal energy cut and other application conditions.*
“Emax EVOlution” FEATURES

- Digital display enhances safety and efficiency.
- Compact and functional design makes the unit portable.
- Soft touch switches permit easy operation and long service life.

New Advanced Design Control Unit

**Advanced Control Function**

Upped Digital Display: EVOLUTION Speed Control with Flash Load Indicator.

**Diversity for work efficiency**

2 Motors A and B can be connected to cover multiple work requirements. *Simultaneous motor operation is not allowed.*

**Memory Speed Function FiXspeed™**

An exclusive new feature of the Emax EVOlution is the FiXspeed™ system allowing independent foot switch operation for Motor A and B. The control unit can be switched in and out of speed memory function which can be on and B Motor foot switch can be variable speed. This function brings unprecedented versatility and workability.

**Advanced User Friendly Design**

New Industrial Design. EVOLUTION new user friendly case meets design and performance requirements.

**Auto Cruise Function**

The control unit is equipped with an Auto Cruise Function. While using foot control for work, anyone could fix the motor at any speed by the embedded motor switch. Once speed is set, foot pedal control is not required. This function eliminates foot fatigue during operation.

**Forward / Reverse Select Switch**

- e472" Speed Control Volume
  - Easy to operate by one finger

**Ultra-Precision Micro-Grinder**

- Motor speed digital display
- Memory Speed Function FiXspeed™

**NAKANISHI Smart Switch**

The switch provides a click sensation. A confirmation tone is reacted by the control unit when the switch is operated. The motor type is distinguishable by the switch color.

**2 Types of Motors**

- Standard Type Motor 1,000~40,000 min⁻¹ (rpm) (ENK-410S)
- Torque Type Motor 1,000~25,000 min⁻¹ (rpm) (ENK-250T)

**Excellent Durability**

- High performance brushless motor eliminates the need of changing carbon brushes.
- RPM variation is minimal even when load changes. Allows difficult and stable cutting in stress free motion. Suitable performance for finish grinding.
- Provides superior quietness and smoothness from low speed to high speed.

**Various Collet Size**

Various sizes ranging from ultra-small diameter (Ø3 mm) are available for each attachment. Each attachment in the system can be easily performed without wrench.

- Provides superior quietness and smoothness from low speed to high speed.

**Special Dust Protection**

The chuck section of Emax EVOlution has a special built-in dust protection mechanism that prevents entry of foreign materials such as chips, and provides superior durability as well.

**17 Types of Attachments for All Types of Applications**

Capable of infinite applications with 14 different handpieces and 3 types of intermediate attachments.

**Emax EVOlution vs E-max Torque Characteristic**

- EVO-T (Torque Type)
- EVO-S (Standard Type)
- E-max-T (Torque Type)
- E-max-S (Standard Type)

**Showroom**

NANAKISHI Smart Switch

- Standard Type Motor 1,000~40,000 min⁻¹ (rpm) (ENK-410S)
- Torque Type Motor 1,000~25,000 min⁻¹ (rpm) (ENK-250T)

**E2530 / E2550**

ø1.0”/ø0.98”

**E2530 / E2550**

ø0.897”

**E3000**

ø1.0”/ø0.98”

**E3000**

ø0.897”

**E4000**

ø1.0”/ø0.98”

**E4000**

ø0.897”

**E3000**

ø1.18”

**E3000**

ø1.0”/ø0.98”

**E3000**

ø0.897”

**E3000**

ø1.18”

**E3000**

ø1.0”/ø0.98”

**E3000**

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**E3000**

ø0.897”
**Emax EVOlution** FEATURES

- Digital display enhances safety and efficiency.
- Compact and functional design makes the unit portable.
- Soft touch switches permit easy operation and long service life.

### New Advanced Design Control Unit

#### Advanced Control Function

- Upgraded Digital Display: **EVOLUTION** Speed Control with Flash Load Indication.

#### Diversity for work efficiency

2 Motors A and B can be connected to cover multiple work requirements.

- *Simultaneous motor operation is not allowable.*

#### Memory Speed Function FXspeed®

- An exclusive new feature of the Emax EVOlution is the FXspeed® system, allowing independent foot switch operation of Motor A and B. Motor A foot switch can be on/off and B Motor foot switch can be variable speed. This function brings unprecedented versatility and workability.

### Advanced User Friendly Design

- New Industrial Design. **EVOLUTION** new user-friendly case meets design and performance requirements.

### Auto Cruise Function

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### Ultra-Precision Micro-Grinder

**NAKANISHI Smart Switch**

- The switch provides a click sensation. A confirmation tone is reacted by the control unit when the switch is operated. The motor type is distinguishable by the switch color.

**One Touch Tool Changing**

- Easy twist open/close chuck

#### Excellent Durability

- High performance brushless motor eliminates the need of changing carbon brushes.
- RPM variation is minimal even when load changes. Allowable difficult and stable cutting in stress free motion. Suitable performance for finish grinding.

#### Special Dust Protection Mechanism (patented)

- The chuck section of Emax EVOlution has a special built-in dust protection mechanism that prevents entry of foreign materials such as chips, and provides superior durability as well.

#### 17 Types of Attachments for All Types of Applications

- Capable of infinite applications with 14 different handpieces and 3 types of intermediate attachments. Interchangeable with attachments form the E-max and ROTUS system.

### Memory Speed Function FXspeed®

- Motor A

### Motor B

ON/OFF Function

### Motor Speed

Digital display

- Load Meter

### Control Volume

Forward / Reverse Select Switch

- Forward/Reverse operation can be selected.

- $4.72^\circ$ Speed Control Volume

### Easy to operate by one finger

### 2 Types of Motors

- E-max-T (Torque Type)
  - Provides choice of various applications.
  - Standard Type Motor: 1,000~40,000 min-1 (rpm) (ENK-410S)
  - Torque Type Motor: 1,000~25,000 min-1 (rpm) (ENK-250T)

- *Exclusive use for Emax EVOlution*  

- E-max Evolution and Electer E-max have different motor cord pin configurations.

### E2530 / E2550

- Memory Speed Function FiXspeed®

### E3000

- One Piece

### E4000

- Continuous load area

### E2530 / E2550

### E3000

- Intermittent load area

### E4000

- Modular

### HES510

- Forward / Reverse rotation

### HES810

### HTS

### HPS

### Xpeed

### HES510

### HES810

### HTS

### HPS

### Xpeed

### Memory Speed

### Function FiXspeed®

### TECHNICAL DATA

<table>
<thead>
<tr>
<th>Model</th>
<th>Specifications</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE249</td>
<td>Motor B (ON/OFF Function)</td>
<td>1 pc.</td>
</tr>
<tr>
<td>NE249</td>
<td>Motor A (ON/OFF Function)</td>
<td>1 pc.</td>
</tr>
<tr>
<td>NE249</td>
<td>Power Supply Cord</td>
<td>1 pc.</td>
</tr>
</tbody>
</table>

*Order by catalog number.*
“Emax EVOlution” STANDARD SET

RING TYPE STANDARD SET

Capabilities for a wide variety of applications. Excellent balance and motor power for smooth speed and handling. 1,000~40,000 min-1 (rpm)

- New Ring Type IR-310 is the standard attachment for Emax EVOlution standard set EV410-IR

RING TYPE TORQUE SET

For heavy duty and larger tools, Torque type promises to extend operation ranges. 1,000~25,000 min-1 (rpm)

- New Ring Type IR-310 is the standard attachment for Emax EVOlution torque set EV250-IR

Motor for EVOlution (Electrically Driven)

- NAKANISHI Smart Switch.
- High performance samarium cobalt magnet.
- High accuracy, lightweight, compact, high reliability and superior durability.
- Major reduction of RF noise.
- Provides extremely quiet operation from low to high speed with stepless speed adjustment.

Motor Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Speed</th>
<th>Weight (w/o Cord)</th>
<th>Max. Torque</th>
<th>Output Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENK-410S</td>
<td>1,000~40,000 min-1 (rpm)</td>
<td>3.17 oz.</td>
<td>4.8 cN·m</td>
<td>73W</td>
</tr>
<tr>
<td>ENK-250T</td>
<td>1,000~25,000 min-1 (rpm)</td>
<td>5.19 oz.</td>
<td>4.3 cN·m</td>
<td>76W</td>
</tr>
</tbody>
</table>

“Emax EVOlution” MOTOR

Order by catalog number.
“Emax EVOlution” STANDARD SET

RING TYPE STANDARD SET

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<td>3.17 oz.</td>
<td>4.3 cN·m</td>
<td>73 W</td>
</tr>
<tr>
<td>ENK-250T</td>
<td>1,000~25,000 min⁻¹</td>
<td>5.19 oz.</td>
<td>4.6 cN·m</td>
<td>76 W</td>
</tr>
</tbody>
</table>

CAT. No. 8086 STANDARD TYPE MOTOR ENK-410S

1,000~40,000 min⁻¹ (rpm)

- Excellent combination of high speed, lightweight, small diameter and high torque. This lightweight and compact general-use type is perfect for precision work.

CAT. No. 8087 TORQUE TYPE MOTOR ENK-250T

1,000~25,000 min⁻¹ (rpm)

- Combines the best of both high speed and high torque. It is perfect for applications requiring large burs.

- Order by catalog number.
“Emax EVOlution” & “ROTUS” ATTACHMENTS

**RING TYPE ATTACHMENT IR-310**

- Perfectly designed for powerful and delicate cutting and grinding, and made slim and light weight for comfortable gripping.
- Weight: 3.35 oz.
- Simple, 2-way chuck tool replacement.
- Wrench is not required to exchange the chuck.
- Standard Size: ø1/8" (CHM-3.175)
- Optional Collets: CHM-

**LEVER TYPE ATTACHMENT IH-300**

- Perfectly designed for powerful and delicate cutting and grinding, and made slim and light weight for comfortable gripping.
- Weight: 3.35 oz.
- Just from the lever to exchange the bur.
- Wrench is not required to exchange the chuck.
- Collet: ø1/8" (CHM-3.175)

**STRAIGHT TYPE ATTACHMENT IG-400**

- Light weight ergonomically designed with minimal vibration for extended use.
- High precision NL-Maxx Collet for maximum tool retention.
- Weight: 1.24 oz.
- Collet: ø1/8" (NMK6-3.175)

**TORQUE TYPE ATTACHMENT HG-200**

- The resistance produced by cutting and grinding is absorbed by a special rubber grip to eliminate slipping.
- Chuck is tightened by a Wrench.
- Weight: 7.41 oz.
- Collet: ø1/4" (CHG-6.35)

**For Deep Hole Grinding LONG ATTACHMENT BMH-300**

- This unique slim body makes it ideal for cutting and grinding the bottom surface of deep holes or holes.
- Weight: 5.03 oz.
- Wrench is not required to exchange the chuck.
- Collet: ø1/4" (CHG-6.35)

**For Chamfering Deep Hole 90° MINI ANGLE TYPE ATTACHMENT MFC-300S**

- Ideal for chamfering and deburring the inside of slit pipe.
- Minimum Inner Diameter: ø0.79"
- Weight: 1.79 oz.
- Standard Collet: ø0.897" (CHG-6.35)
- Speed Reduction Ratio: 10/11

**For Chamfering Deep Hole 90° MINI ANGLE TYPE ATTACHMENT MFC-300M**

- The smallest 90°Angle type head is suitable for chamfering and deburring the inside of the slit pipe.
- Minimum Inner Diameter: ø0.01"
- Weight: 1.68 oz.
- Standard Collet: ø0.27" (CHG-6.35)
- Speed Reduction Ratio: 10/11

---

Order by catalog number.

---

Please use it with Speed Reducer. (ROTUS Air Motor)
**Emax EVOlution** & **“ROTUS” ATTACHMENTS**

**CAT. No. RE11008**

**RING TYPE ATTACHMENT IR-310**

- Perfectly designed for powerful and delicate cutting and grinding, and made slim and light weight for comfortable gripping.
- Weight : 3.35 oz.
- Simple, no wrench box replacement. Wrench is not required to exchange the chuck.

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>IR-310</td>
<td>• Collet ø1/8&quot; (CHH-3.175), ø2.35 mm (CHH-2.35) : 1 pc. each</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Wrench (7 x 5.1), (7 x 5.1) : 1 pc. each</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Pin Wrench (K-253) : 1 pc.</td>
<td></td>
</tr>
</tbody>
</table>

**CAT. No. RE10178**

**LEVER TYPE ATTACHMENT IH-300**

- Perfectly designed for powerful and delicate cutting and grinding, and made slim and light weight for comfortable gripping.
- Weight : 2.52 oz.
- Just turn the lever to exchange the bur. Wrench is not required to exchange the bur.

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>IH-300</td>
<td>• Collet ø1/8&quot; (CHH-3.175), ø2.35 mm (CHH-2.35) : 1 pc. each</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Wrench (7 x 5.1), (7 x 5.1) : 1 pc. each</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Pin Wrench (K-253) : 1 pc.</td>
<td></td>
</tr>
</tbody>
</table>

**CAT. No. 2811**

**STRAIGHT TYPE ATTACHMENT IG-400**

- Light weight ergonomically designed with minimal vibration for extended use.
- High precision NL Minus Collet for maximum tool retention.
- Weight : 0.27 oz.
- Collet Standard Size : ø1/8" (NKM6-3.175) Optional Collets: NKM4-3 are shown in page (6-p6)

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>IG-400</td>
<td>• Collet ø1/8&quot; (NKM6-3.175) : 1 pc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Collet Nut (OPN4) : 1 pc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Wrench (8 x 8), (13 x 13, 15 x 15) : 1 pc. each</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Bar Wrench (PCR-30) : 1 pc.</td>
<td></td>
</tr>
</tbody>
</table>

**CAT. No. RE10188**

**TORQUE TYPE ATTACHMENT HG-200**

- The resistance produced by cutting and grinding is absorbed by a special rubber grip to eliminate slipping.
- Chuck is tightened by a Wrench. Weight : 7.41 oz.
- Collet Standard Size : ø1/8" (CHH-3.175) Optional Collets : CHH-2.35 are shown in page (6-p6)

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>HG-200</td>
<td>• Collet ø1/8&quot; (CHH-3.175), ø2.35 mm (CHH-2.35) : 1 pc. each</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Wrench (7 x 5.1), (7 x 5.1) : 1 pc. each</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Pin Wrench (K-253) : 1 pc.</td>
<td></td>
</tr>
</tbody>
</table>

**CAT. No. RE10235**

**For Deep Hole Grinding LONG ATTACHMENT BMH-300**

- This torque slim body makes it ideal for cutting and grinding the bottom surface of deep holes or holes.
- Weight : 5.50 oz.
- Wrench is not required to exchange the bur. Chuck is tightened by a Wrench.

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMH-300</td>
<td>• Collet ø1/8&quot; (CHH-3.175), ø2.35 mm (CHH-2.35) : 1 pc. each</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Wrench (7 x 5.1), (7 x 5.1) : 1 pc. each</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Pin Wrench (K-253) : 1 pc.</td>
<td></td>
</tr>
</tbody>
</table>

**CAT. No. RE10248**

**For Chamfering Deep Hole 90º MINI ANGLE TYPE ATTACHMENT MFC-300S**

- Ideal for chamfering and de-burring the inside of slit pipe.
- Minimum Inner Diameter : ø0.79" Max. ø1.6 mm (Very Small Head)
- Weight : 1.76 oz.
- Standard Collet : ø1.6 mm (K-253)

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFC-300S</td>
<td>• Collet ø3.35 mm (X-253) : 1 pc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Chuck Wrench (K-253) : 1 pc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Pin Wrench (K-253) : 1 pc.</td>
<td></td>
</tr>
</tbody>
</table>

**CAT. No. RE10252**

**For Chamfering Deep Hole 90º MINI ANGLE TYPE ATTACHMENT MFC-300M**

- The smallest 90º angle head is suitable for chamfering and de-burring the inside of the slit pipe.
- Minimum Inner Diameter : ø0.01" Max. ø1.6 mm (Very Small Head)
- Weight : 1.66 oz.
- Standard Collet : ø1.6 mm (K-253)
- Speed Reduction Ratio : 15/1

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFC-300M</td>
<td>• Collet ø3.35 mm (X-253) : 1 pc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Chuck Wrench (K-253) : 1 pc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Pin Wrench (K-253) : 1 pc.</td>
<td></td>
</tr>
</tbody>
</table>
"Emax EVOlution" & "ROTUS" ATTACHMENTS & ACCESSORIES

**CAT. No.** RE10182  **90° ANGLE ATTACHMENT IC-300**

- **90° Angle attachment with ø1.18” (ø30 mm) Collet. Most suitable for polishing flat surfaces, corners and internal surfaces of pipes with paper disk mounted on rubber pad.
  - Reduction Ratio : 3/4
  - Weight : 1.25 oz.
  - Collet ø1/8” (CHC-3.175)
  - Standard Accessories : 1 set
  - Chuck Wrench (K-231)
  - Pin Wrench (K-233)

**CAT. No.** RE10266  **45° ANGLE ATTACHMENT KC-300**

- Ideal for the work at 45° angle, especially corners and deep concaves.
- Use the motor in reverse rotation for clockwise rotation.

**Standard Accessories for IC-300 and KC-300**

<table>
<thead>
<tr>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
<th>O.D.</th>
<th>Grits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rubber Pad</td>
<td>RE11915</td>
<td>S-008</td>
<td>ø10 mm (ø0.39”)</td>
<td>1</td>
</tr>
<tr>
<td>Sandpaper Disk for small</td>
<td>RE11915</td>
<td>S-012</td>
<td>ø11 mm (ø0.43”)</td>
<td>180 5</td>
</tr>
<tr>
<td>Sandpaper Disk for med.</td>
<td>RE11915</td>
<td>S-018</td>
<td>ø12 mm (ø0.47”)</td>
<td>180 5</td>
</tr>
<tr>
<td>Sandpaper Disk for large</td>
<td>RE11915</td>
<td>S-024</td>
<td>ø13 mm (ø0.51”)</td>
<td>180 5</td>
</tr>
<tr>
<td>Sandpaper Disk for large</td>
<td>RE11915</td>
<td>S-032</td>
<td>ø14 mm (ø0.55”)</td>
<td>180 5</td>
</tr>
<tr>
<td>Sandpaper Disk for large</td>
<td>RE11915</td>
<td>S-040</td>
<td>ø15 mm (ø0.59”)</td>
<td>180 5</td>
</tr>
</tbody>
</table>

**Optional Accessories for IC-300 and KC-300**

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
<th>O.D.</th>
<th>Grits</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rubber Pad</strong></td>
<td>(Small)</td>
<td>RE11915</td>
<td>————</td>
<td>ø10 mm (ø0.39”)</td>
<td>—</td>
<td>1 pc.</td>
</tr>
<tr>
<td><strong>Rubber Pad</strong></td>
<td>(Med)</td>
<td>RE11916</td>
<td>————</td>
<td>ø20 mm (ø0.79”)</td>
<td>—</td>
<td>1 pc.</td>
</tr>
<tr>
<td><strong>Rubber Pad</strong></td>
<td>(Large)</td>
<td>RE11917</td>
<td>————</td>
<td>ø30 mm (ø1.18”)</td>
<td>—</td>
<td>1 pc.</td>
</tr>
</tbody>
</table>

**Sandpaper Disk (Paper Type for Metals, Adhesive Back)**

<table>
<thead>
<tr>
<th>Pocket</th>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
<th>O.D.</th>
<th>Grits</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandpaper Disk for small</td>
<td>(ø11 mm (ø0.43”) )</td>
<td>RE11900</td>
<td>M-008</td>
<td>—</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Sandpaper Disk for med.</td>
<td>(ø17 mm (ø0.67”) )</td>
<td>RE11901</td>
<td>M-012</td>
<td>—</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>Sandpaper Disk for large</td>
<td>(ø21 mm (ø0.83”) )</td>
<td>RE11902</td>
<td>M-018</td>
<td>—</td>
<td>160</td>
<td></td>
</tr>
<tr>
<td>Sandpaper Disk for large</td>
<td>(ø21 mm (ø0.83”) )</td>
<td>RE11903</td>
<td>M-024</td>
<td>—</td>
<td>200</td>
<td></td>
</tr>
</tbody>
</table>

**Order by catalog number.**

1-p10
### Optional Accessories for IC-300 and KC-300

<table>
<thead>
<tr>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
<th>O.D.</th>
<th>Grits</th>
<th>Q’ty</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rubber Pad</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Designed for</td>
<td>RE11915</td>
<td>___</td>
<td>ø10 mm</td>
<td>ø0.39”</td>
<td>1 pc</td>
</tr>
<tr>
<td><strong>Sandpaper Disk</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Designed for</td>
<td>LS10902</td>
<td>S-012</td>
<td>ø11 mm</td>
<td>#8</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>LS10903</td>
<td>S-018</td>
<td>ø11 mm</td>
<td>#12</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>LS10904</td>
<td>S-024</td>
<td>ø11 mm</td>
<td>#18</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>LS10905</td>
<td>S-040</td>
<td>ø11 mm</td>
<td>#60</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>LS10906</td>
<td>M-008</td>
<td>ø15 mm</td>
<td>#80</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>LS10907</td>
<td>M-018</td>
<td>ø15 mm</td>
<td>#120</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>LS10908</td>
<td>M-024</td>
<td>ø15 mm</td>
<td>#180</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>LS10909</td>
<td>M-040</td>
<td>ø15 mm</td>
<td>#320</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>LS10910</td>
<td>M-060</td>
<td>ø15 mm</td>
<td>#600</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>LS10911</td>
<td>M-080</td>
<td>ø15 mm</td>
<td>#1,000</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>LS10912</td>
<td>M-100</td>
<td>ø15 mm</td>
<td>#1,500</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>LS10913</td>
<td>M-150</td>
<td>ø15 mm</td>
<td>#2,000</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>LS10914</td>
<td>M-200</td>
<td>ø15 mm</td>
<td>#3,000</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>LS10915</td>
<td>M-300</td>
<td>ø15 mm</td>
<td>#5,000</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>LS10916</td>
<td>M-500</td>
<td>ø15 mm</td>
<td>#10,000</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>LS10917</td>
<td>M-1,000</td>
<td>ø15 mm</td>
<td>#20,000</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>LS10918</td>
<td>M-2,000</td>
<td>ø15 mm</td>
<td>#40,000</td>
<td>100</td>
</tr>
</tbody>
</table>

### Standard Accessories for IC-300 and KC-300

<table>
<thead>
<tr>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
<th>O.D.</th>
<th>Grits</th>
<th>Q’ty</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rubber Pad</strong></td>
<td>RE11915</td>
<td>___</td>
<td>ø10 mm</td>
<td>ø0.39”</td>
<td>1 pc</td>
</tr>
<tr>
<td><strong>Sandpaper Disk</strong></td>
<td>L11000</td>
<td>L-030</td>
<td>ø11 mm</td>
<td>ø0.39”</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>L11001</td>
<td>L-060</td>
<td>ø11 mm</td>
<td>ø0.39”</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>L11002</td>
<td>L-120</td>
<td>ø11 mm</td>
<td>ø0.39”</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>L11003</td>
<td>L-180</td>
<td>ø11 mm</td>
<td>ø0.39”</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>L11004</td>
<td>L-240</td>
<td>ø11 mm</td>
<td>ø0.39”</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>L11005</td>
<td>L-300</td>
<td>ø15 mm</td>
<td>ø0.39”</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>L11006</td>
<td>L-400</td>
<td>ø15 mm</td>
<td>ø0.39”</td>
<td>10</td>
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<td>L11007</td>
<td>L-600</td>
<td>ø15 mm</td>
<td>ø0.39”</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>L11008</td>
<td>L-800</td>
<td>ø15 mm</td>
<td>ø0.39”</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>L11009</td>
<td>L-1,000</td>
<td>ø15 mm</td>
<td>ø0.39”</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>L11010</td>
<td>L-2,000</td>
<td>ø15 mm</td>
<td>ø0.39”</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>L11011</td>
<td>L-3,000</td>
<td>ø15 mm</td>
<td>ø0.39”</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>L11012</td>
<td>L-5,000</td>
<td>ø15 mm</td>
<td>ø0.39”</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>L11013</td>
<td>L-10,000</td>
<td>ø15 mm</td>
<td>ø0.39”</td>
<td>10</td>
</tr>
</tbody>
</table>

---

*Order by catalog number. 1-p11*
The Features of LUSTER NLS-110 (Built-in Motor)

- NAKANISHI Smart Switch
- High Power LUSTER (NLS-110) is a powerful reciprocating stroke polisher equipped with 1/4 Speed Reducer to multiply the torque by 4 times.
- Reciprocating Stroke : 0~7,600 times/min. Fully adjustable.
- Ultra-Precision Grinder All important parts are hardened by heat treatment to provide excellent durability.
- Designed with comfortable rubber-grip Well balanced, rubber-grip absorbs vibration from reciprocating strokes reducing fatigue and allowing long, continuous operation.

Stroke Range : 0~6 mm adjustable by stroke cam

The Features of MINI-LUSTER ML-8

- Reciprocating Stroke (variable) : Approx 0~9,000 times/min.
- Stroke Range (fixed) : 0.8 mm.
- Due to pencil type grip, it is most suitable for polishing narrow grooves, details, etc.
- Lightweight, compact design and minimal vibration keep the hand free from fatigue for long continuous operation.
- By using the grindstone holder provided, various tools such as oil stone, super stone, diamond files, etc. can be used.

The Features of SWING-LUSTER SLS-16

- Stroke Range (variable) : 0~1.6 mm
- Max. tool shank diameter ø0.20”, Screw clamp type.
- Various types of attachment tools are provided as standard accessories.

High speed grinding and polishing operations can be performed while maintaining the fine and delicate feeling of hand polishing.

Well balanced, rubber-grip absorbs vibration from reciprocating strokes reducing fatigue and allowing long, continuous operation.

Maximum Allowable Speed, intermittent use. Max. tool shank diameter ø0.15", Screw clamp type.

Order by catalog number. 1-p13
The Features of LUSTER NLS-110 (Built-in Motor)

- Stroke Range : 0~6 mm adjustable by stroke cam
- The tilt angle of grindstone arbor is adjustable.
  The grinding surface can be set at any angle between 0 and 360˚ enabling grinding of bottom, right, left and top surfaces without moving the machine itself.
- Weight : 1 lb. 12.22 oz.
- Max. tool shank diameter ø0.87” - ø0.91” Screw clamp type.
- Various types of attachment tools are provided as standard accessories.

Pencil-Type Reciprocating Polishing Finisher MINI-LUSTER Attachment

- Stroke Range (fixed) : 0.8 mm.
- Reciprocating Stroke : Approx 0~9,000 times/min.
- Reciprocating Stroke : 0~7,600 times/min. Fully adjustable.
- High Power LUSTER (LS-100) is a powerful reciprocating stroke polisher.
- Reciprocating Stroke : 0~7,600 times/min. Fully adjustable.
- High Precision Grinder
- All important parts are hardened by heat treatment to provide excellent durability.
- Designed with comfortable rubber-grip
  Well-balanced, rubber-grip absorbs vibration from reciprocating strokes reducing fatigue and allowing long, continuous operation.


drive motor & control unit

- Weight : 1 lb. 7.99 oz.
- Max. tool shank diameter ø0.897”
- Various types of attachment tools are provided as standard accessories.

The Features of LUSTER LS-100

- Stroke Range : 0~6 mm adjustable by stroke cam
- The tilt angle of grindstone arbor is adjustable.
  The grinding surface can be set at any angle between 0 and 360˚ enabling grinding of bottom, right, left and top surfaces without moving the machine itself.
- Weight : 1 lb. 13.22 oz.
- Max. tool shank diameter ø0.87” - ø0.91” Screw clamp type.
- Various types of attachment tools are provided as standard accessories.

Reciprocating Motion Polishing Finisher LUSTER

CAT. No. 1483 NLS-110

- Standard Accessories : 1 set
- Lubrication Oil
- Lubrication Nozzle for LUSTER

Reciprocating Motion Miniature Polisher LUSTER

CAT. No. LS10815 LS-100

- Standard Accessories : 1 set
- Lubrication Oil
- Lubrication Nozzle for LUSTER

The Features of MINI-LUSTER ML-8

- Reciprocating Stroke (variable) : Approx 0~9,000 times/min.
- Stroke Range (fixed) : 0.8 mm.
- Due to pencil type grip, it is most suitable for polishing narrow grooves, details, etc.
- Lightweight, compact design and minimal vibration keep the hand free from fatigue for long continuous operation.
- By using the grindstone holder provided, various tools such as oil stone, super stone, diamond files, etc. can be used.

The Features of SWING-LUSTER SLS-16

- High speed grinding and polishing operations can be performed while maintaining the fine and delicate feeling of hand polishing.
- Lightweight pencil type design makes it easy to work in tight areas.
- Ergonomically designed to provide high sensitivity for precision work.
- Easily adjustable stroke length allows efficient work on minute areas or large sections.

Reciprocating Motion Miniature Polisher SWING-LUSTER

CAT. No. LS11380 SLS-16

- Standard Accessories : 1 set
- Lubrication Oil
- Lubrication Nozzle for SWING-LUSTER

Order by catalog number. 1-p13
### Tool and standard accessories for LUSTER, MINI-LUSTER, SWING-LUSTER

<table>
<thead>
<tr>
<th>Product</th>
<th>Model</th>
<th>CAT. No.</th>
<th>Price (Package)</th>
<th>LS10710</th>
<th>LS10716</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grindstone Holder VES</td>
<td>LS10879</td>
<td>(1 pc/pack)</td>
<td>$5.00</td>
<td>$5.00</td>
<td></td>
</tr>
<tr>
<td>Tool Holder with Spring FVA</td>
<td>LS10867</td>
<td>(1 pc/pack)</td>
<td>$5.00</td>
<td>$5.00</td>
<td></td>
</tr>
<tr>
<td>Rectangular Pad LKE-2A</td>
<td>LS10891</td>
<td>(1 pc/pack)</td>
<td>$5.00</td>
<td>$5.00</td>
<td></td>
</tr>
<tr>
<td>Angle Rod NGA</td>
<td>LS10853</td>
<td>(1 pc/pack)</td>
<td>$5.00</td>
<td>$5.00</td>
<td></td>
</tr>
<tr>
<td>Diamond Grindstone DLA x 1-100</td>
<td>LS10918</td>
<td>(1 pc/pack)</td>
<td>$5.00</td>
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<td></td>
</tr>
<tr>
<td>Ceramic Fiber Grindstone</td>
<td>60737</td>
<td>(2 pcs/pack)</td>
<td>$5.00</td>
<td>$5.00</td>
<td></td>
</tr>
</tbody>
</table>

- Each product is provided with tool as standard.

### Memo

- Order by catalog number.
### Tool and standard accessories for LUSTER, MINI-LUSTER, SWING-LUSTER

<table>
<thead>
<tr>
<th>Product</th>
<th>Model</th>
<th>CAT. No.</th>
<th>Price (Package)</th>
<th>LS10-110</th>
<th>LS2-16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grindstone Holder VES</td>
<td>LS10875</td>
<td>(1 pc/pack)</td>
<td>(2 pcs.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. clampable size: Thickness 0.03” x width 0.03”</td>
<td>1.00”</td>
<td>LKE-2A</td>
<td>(1 pc/pack)</td>
<td>(2 pcs.)</td>
<td></td>
</tr>
<tr>
<td>Tool Holder with Spring FVA</td>
<td>LS10867</td>
<td>(1 pc/pack)</td>
<td>(1 pcs.)</td>
<td></td>
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<tr>
<td>Rectangular Pad LKE-2A</td>
<td>LS10891</td>
<td>(1 pc/pack)</td>
<td>(1 pcs.)</td>
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<td></td>
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<tr>
<td>Adapter for Rectangular Pad FBA-2</td>
<td>LS10848</td>
<td>(1 pc/pack)</td>
<td>(1 pcs.)</td>
<td></td>
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<tr>
<td>Angle Rod NGA</td>
<td>LS10853</td>
<td>(1 pc/pack)</td>
<td>(1 pcs.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diamond Grindstone DLA4 x 1-100</td>
<td>LS10918</td>
<td>(1 pc/pack)</td>
<td>(2 pcs.)</td>
<td></td>
<td></td>
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<tr>
<td>Ceramic Fiber Grindstone (1.230)</td>
<td>60737</td>
<td>(2 pcs/pack)</td>
<td>(1 pc.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Each product is provided with tool as standard.

*Order by catalog number.*

---

**Illustration Usage**

1. [Image of Illustration Usage 1]
2. [Image of Illustration Usage 2]
“Emax EVOlution” & “ROTUS” ATTACHMENTS & ACCESSORIES

The Features of HA-500

- Stroke speed: 25,000 strokes/min
- A wide variety of patterns can be cut by varying the spring pressure and hammer speed.
- Light weight, pencil type grip makes the handpiece very comfortable to hold and easy to use.
- Adjustable spring pressure.
- Self lubricating hammer mechanism ensures excellent durability.

The Features of FINE BELT SANDER KBS-101

- Belt runs Approx. 0~2,700 ft/min
- 8 mm, 6 mm and 4 mm width belts are available.
- The angle of the belt section is fully adjustable.
- Exchanging the belt is simply done by lever release.
- Weight: 12.35 oz.
- Light-weight, compact, minimal vibration and a small diameter grip design keep the hand free from fatigue for long, continuous operation.
- When polishing a curved surface, the tension between the front and central pulley can be utilized. When polishing a flat surface or a groove, use the flat part of the belt.

Belt for FINE BELT SANDER (Ring Type)

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>Cat. No.</th>
<th>Grit</th>
<th>Width (in)</th>
<th>Length (in)</th>
<th>Package</th>
<th>Price (Package)</th>
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<tbody>
<tr>
<td>Sand Belt</td>
<td>8 mm Belt</td>
<td>65001</td>
<td>80</td>
<td>80</td>
<td>300</td>
<td>30 pcs/pack</td>
<td>8</td>
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<tr>
<td></td>
<td>Zirconia</td>
<td>65027</td>
<td>100</td>
<td>8</td>
<td>300</td>
<td>3 pcs/pack</td>
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<td></td>
<td>Diamond (Hard Type)</td>
<td>65012</td>
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<td>8</td>
<td>300</td>
<td>3 pcs/pack</td>
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<td></td>
<td>Diamond (Soft Type)</td>
<td>65016</td>
<td>320</td>
<td>8</td>
<td>300</td>
<td>3 pcs/pack</td>
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<td>Diamond (Soft Type)</td>
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<td>Diamond (Soft Type)</td>
<td>65020</td>
<td>400</td>
<td>8</td>
<td>300</td>
<td>3 pcs/pack</td>
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<td></td>
<td>Diamond (Soft Type)</td>
<td>65025</td>
<td>600</td>
<td>8</td>
<td>300</td>
<td>3 pcs/pack</td>
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<td></td>
<td>Diamond (Soft Type)</td>
<td>65028</td>
<td>900</td>
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<td>300</td>
<td>3 pcs/pack</td>
<td>8</td>
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<tr>
<td></td>
<td>Diamond (Soft Type)</td>
<td>65029</td>
<td>1,200</td>
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<td>300</td>
<td>3 pcs/pack</td>
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<td></td>
<td>Felt</td>
<td>65101</td>
<td>80</td>
<td>300</td>
<td>3 pcs/pack</td>
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Order by catalog number. 1-p17
The Features of HA-500

- Stroke speed: 25,000 strokes/min
- A wide variety of patterns can be produced by varying the spring pressure and hammer speed.
- Light weight, pencil type grips makes the handpiece very comfortable to hold and easy to use.
- Adjustable spring pressure.
- Self lubricating hammer mechanism ensure excellent durability.

Engraving and Ornament Processing Work Hammer Attachment

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Accessories</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>RE65301</td>
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<td>RE65301</td>
<td>3 pcs./pack</td>
<td>8</td>
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The Features of FINE BELT SANDER KBS-101

- Belt runs Approx. 0~2,700 ft/min
- 8 mm, 6 mm and 4 mm width belts are available.
- The angle of the belt section is fully adjustable.
- Exchanging the belt is simply done by lever release.
- Weight: 12.35 oz.
- Light-weight, compact, minimal vibration and a small diameter grip design keep the hand free from fatigue for long, continuous operation.
- When polishing a curved surface, the tension between the front and central pulley can be utilized. When polishing a flat surface or a groove, use the flat part of belt.

FINE BELT SANDER Attachment

<table>
<thead>
<tr>
<th>Product</th>
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<th>Standard Accessories</th>
<th>Price</th>
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<tr>
<td>KBS1005</td>
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<td>KBS-101</td>
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<td>8</td>
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</tbody>
</table>
**Cat. No.** RO10214  **SPEED REDUCER**  **RG-01**

- **TORQUE UP 4 TIMES**  
  (1/4 Speed Reducer)
- **Weight:** 3.40 oz.
- **Maximum Speed:** 0.080 min⁻¹ (rpm) Max. 
- **Standard Accessories:** Pin Wrench (K-233)
- **Price:** $0.16

**Cat. No.** RO10228  **SPEED REDUCER**  **RG-02**

- **TORQUE UP 15 TIMES**  
  (1/15 Speed Reducer)
- **Weight:** 3.20 oz.
- **Maximum Speed:** 0.050 min⁻¹ (rpm) Max. 
- **Standard Accessories:** Pin Wrench (K-233)
- **Price:** $2.21

**Cat. No.** RE10210  **EXTENSION JOINT**  **CN-01**

- **Weight:** 2.93 oz.
- **Maximum Speed:** 0.080 min⁻¹ (rpm) Max. 
- **Standard Accessories:** Pin Wrench (K-233)
- **Price:** $0.16

**Cat. No.** 8106  **FOOT PEDAL**  **FC-64**

- **Foot Pedal**
- **Standard Accessories:** Emx EVolution
- **Price:** $2.24

---

**Common Tools for LUSTER, MINI-LUSTER**

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Description</th>
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<th>Price</th>
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<tr>
<td>LS1084</td>
<td>Angle Rod</td>
<td>NGA</td>
<td>100 pcs. Package</td>
</tr>
<tr>
<td>LS1084</td>
<td>Rod for Lapping</td>
<td>FBA-2</td>
<td>100 pcs. Package</td>
</tr>
<tr>
<td>LS1089</td>
<td>LKE-JA with Hinge</td>
<td>Use with FBA-2</td>
<td></td>
</tr>
<tr>
<td>LS1129</td>
<td>Hinge (Diamond)</td>
<td>LAC-L x 10-100</td>
<td></td>
</tr>
<tr>
<td>LS1129</td>
<td>Ball Joint</td>
<td>LAA-3A, Use with 50V</td>
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<tr>
<td>LS1129</td>
<td>Ball Joint with Diamond</td>
<td>DDL-100-75</td>
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**Sandpaper Disk**

- **Product Code:** LS1083
- **Description:** VEA
- **Price:** $0.30

**Sandpaper**

- **Product Code:** LS1083
- **Description:** VES
- **Price:** $0.30

---

**Notes:**

1. **Maximum Allowable Speed:** Continuous use may change depending on the material being cut and other application variables.
2. Please See Page 1-p14 for Illustration Usage.
3. Other than noted, prices are per piece.
4. Available while supply lasts. Check with NSK America.
### “Emax EVolution” & “ROTUS” SPEED REDUCER & PARTS

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
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<tbody>
<tr>
<td>RO10214</td>
<td>SPEED REDUCER RG-01</td>
<td>RO10228</td>
<td>SPEED REDUCER RG-02</td>
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<tr>
<td>RE10210</td>
<td>EXTENSION JOINT CN-01</td>
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<td></td>
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</tr>
<tr>
<td>8106</td>
<td>FOOT PEDAL FC-64</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SPEED REDUCER (1/4)***

- **RO10214**: 1.85”
- **RO10228**: 2.1”

**SPEED REDUCER (1/15)***

- **RE10210**: 1.97” (Speed 1 : 1)

**FOOT PEDAL**

- **8106**: Used as an ON/OFF switch as well as a variable speed control.

### “Emax EVolution” & “ROTUS” ACCESSORIES

**Common Tools for LUSTER, MINI-LUSTER**

<table>
<thead>
<tr>
<th>Product</th>
<th>Catalog No.</th>
<th>Description</th>
<th>Model</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>LS1086</td>
<td></td>
<td>Angle Rod</td>
<td>NGA</td>
<td></td>
</tr>
<tr>
<td>LS1084</td>
<td></td>
<td>Rod for Lapping</td>
<td>FBA-2</td>
<td></td>
</tr>
<tr>
<td>LS1085</td>
<td></td>
<td>LKE-2A with Hinge</td>
<td>Use with FBA-2</td>
<td></td>
</tr>
<tr>
<td>LS1086</td>
<td></td>
<td>Hinge (Diamond)</td>
<td>DLC-1 x 10-100</td>
<td></td>
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<tr>
<td>LS1127</td>
<td></td>
<td>Ball Joint LAA-3A</td>
<td>Use with 80V</td>
<td></td>
</tr>
<tr>
<td>LS1126</td>
<td></td>
<td>Ball Joint LAA-3A</td>
<td>Use with 80V</td>
<td></td>
</tr>
</tbody>
</table>

**Order by catalog number.**

---

**FBA-2 & FBA-3**

- **Extension Joint (Speed 1 : 1)**

- **RO10210**: 1.97” (Speed 1 : 1)

- **8106**: FOOT PEDAL FC-64

---

**Foot Pedal**

- **8106**: Used as an ON/OFF switch as well as a variable speed control.

---

**Data**

- **INDEX**

---

---
**ULTRA-PRECISION BRUSHLESS MICRO-GRINDER “ESPERT 500”**

Evolutionary New Design High-Performance Brushless Micro Grinder.

### Ultra-Precision Micro-Grinder

The ESPERT 500 brushless motor takes motor technology to an even higher level. The new state-of-the-art motor has dramatically increased efficiency and torque output. The microprocessor-based control unit provides optimal control of the motors and allows for increased flexibility in this multi-function system.

#### Speed: 1,000–50,000 min⁻¹ (rpm)

Speed is steplessly variable from 1,000–50,000 min⁻¹ (rpm). Smooth and powerful torque has resulted in a quieter, more comfortable work environment. Dramatically compared with conventional grinders.

#### Low Noise, Low Vibration

The brushless motor and incorporated cooling fan have reduced the vibration and noise levels, resulting in a quieter, more comfortable work environment. Dramatically compared with conventional grinders.

#### Special Dust-Proof Mechanism

The handpiece has a patented built-in dust protection system to prevent the infiltration of dust and debris into the front bearings. This NAKANISHI patented design assures long-term durability.

#### Excellent Durability

High precision brushless motor eliminates the need to change carbon brushes. NAKANISHI’s internal load test has proven continuous use for more than 5,000 hours.

#### Wide Range of Collet Available

Collet sizes range from a tiny 0.3 mm up, with a wide variety of sizes available. Tools can be changed without the use of any wrenches.

#### Micro Grinder & Handpiece Stand

This specially designed microdust stand allows easy pick-up and set-down of the micro-grinder. Strong, but soft to the touch, the micro-grinder stand contains convenient, integrated storage compartments for adjustment wrenches and a spare chuck.

#### Simple Screw on Attachments

### New Advanced Design Control Unit

#### Optimal Control via Microcomputer

The operation of all ESPERT 500 units is controlled by a high performance microcomputer that is programmed with NAKANISHI’s proprietary technology. NAKANISHI’s CPU has direct access to the microprocessor, which greatly reduces response time and enables precise cutting and polishing of a wide variety of materials. No “chatter” has been eliminated. The system automatically senses which micromotor is attached (ENK-500C or ENK-500T) and self-adjusts to provide optimum micro-grinder performance.

#### Eco-Friendly Design

The electronic circuits are designed using NAKANISHI’s proprietary technology to meet eco-friendly expectations by minimizing power consumption. Since power demands are minimal, no significant heat is generated and no cooling fan is required.

#### Auto Cruise Function

The control unit is equipped with an auto cruise function that operates the micro-grinder at a preset speed without the need to use the foot pedal. This function eliminates foot fatigue during prolonged operation.

#### Memory Speed Function FixSpeed®

An exclusive new feature of the ESPERT 500 system, the FixSpeed® system allows the user to independently preset the speed of motor A and motor B. For example motor A can be set to maintain the speed set by the FixSpeed® system while motor B has variable control using a foot pedal. This function allows for unprecedented flexibility.

#### Simplified Hand and Foot Pedal Control

You no longer need to push a switch on the control unit to switch between hand and foot pedal control. If you want to operate the motor handpiece by hand simply push the NAKANISHI Smart Switch, if you want to use foot pedal control simply depress the foot pedal.

### Compliance with EMC and other Safety Standards

NAKANISHI has given considerable thought to ‘behind the scenes’ performance. The ESPERT 500 system complies with the world’s most rigorous EMC standards. In electromagnetic terms, it has been designed to be very safe so as to curb the generation of electromagnetic interference (noise), which may cause failure or malfunctions in other equipment. The ESPERT 500 system also complies with the strict European safety standard EN61010-1. Operator safety is always NAKANISHI’s highest priority.

- **NMC (Electromagnetic Compatibility)**
- **A/B 2 Motors Can Be Connected**
- **High Quality Metallic Silver Body**

### Other Features

- Self Check Function (Maintenance Mode)
- Smooth Operation
- Operation Check Sound
- Highly Visible and easy to operate front panel
- 2-Digit Digital Display
- Error Code Display Function

### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Specifications</th>
<th>Price</th>
</tr>
</thead>
</table>
| ES5000T   | • Power Source: AC110V, 50/60Hz
           | • Dimension: 108.0 x 118.0 x 350.0
           | • Weight: 7 lb. 14.6 oz.
           | • Accessories: Handpiece Stand: 1 pc.
           | • Dust Collection System: 1 pc. |
| ES5000K   | • Power Source: AC120V, 50/60Hz
           | • Dimension: 108.0 x 118.0 x 350.0
           | • Weight: 7 lb. 14.6 oz.
           | • Accessories: Handpiece Stand: 1 pc.
           | • Dust Collection System: 1 pc. |

*Order by catalog number.*
ULTRA-PRECISION
BRUSHLESS MICRO-GRINDER
“ESPERT 500”

Evolutionary New Design High-Performance Brushless Micro Grinder.

Ultra-Precision Micro-Grinder

The ESPERT 500 brushless motor takes motor technology to an even higher level. The new state of the art motor has dramatically increased efficiency and torque output. The microprocessor based control unit provides optimal control of the motors and allows for increased flexibility in this multi-function system.

- Speed: 1,000~50,000 min⁻¹ (rpm)
  - Speed is steplessly variable from 1,000~50,000 min⁻¹ (rpm). Smooth and powerful torque have reduced the vibration and noise levels, resulting in a quieter, more comfortable work environment. Dramatically compared with conventional grinders.

- Low Noise, Low Vibration
  - The brushless motor and incorporated cooling fan have reduced the vibration and noise levels, resulting in a quieter, more comfortable work environment. Dramatically compared with conventional grinders.

- Special Dust-Proof Mechanism
  - The handpiece has a patented built-in dust protection system to prevent the infiltration of dust and debris into the front bearings. This ESPERT 500 patented design assures long-term durability.

- Excellent Durability
  - High performance brushless motor eliminates the need to change carbon brushes. NAKANISHI’s internal load test has proven continuous use for more than 5,000 hours.

- Wide Range of Collet Available
  - Collet sizes range from a tiny 0.3 mm up, with a wide variety of sizes available. Tools can be changed without the use of any wrenches.

- Micro Grinder & Handpiece Stand
  - The specially designed microgrinder stand allows easy pick-up and set-down of the micro-grinder. Strong, but soft to the touch, the micro-grinder stand contains convenient, integrated storage compartments for adjustment wrenches and a spare chuck.

- Simple Screw on Attachments
  - NAKANISHI’s ultra-precision technology ensures bur concentricity of 0.02 mm (0.00008”) or less, which allows for very high precision finishing.

New Advanced Design Control Unit

- Optimal Control via Microcomputer
  - The operation of all ESPERT 500 functions is controlled by a high performance microcomputer (CPU) that is programmed with NAKANISHI’s proprietary technology. NAKANISHI’s CPU has direct power control of the brushless motors, allowing for precisely cutting and polishing of a wide variety of materials. Bur “ chatter” has been eliminated. The system automatically senses which micromotor is attached (ENK-500C or ENK-500T) and self adjusts to provide optimum micro-grinder performance.

- Eco-Friendly Design
  - The electronic circuits are designed using NAKANISHI’s proprietary technology to meet eco-friendly expectations by minimizing power consumption. Since power demands are minimal, no significant heat is generated and no cooling fan is required.

- Auto Cruise Function
  - The control unit is equipped with an auto cruise function that operates the micro-grinder at a preset speed without the need to use the foot pedal. This function eliminates foot fatigue during prolonged operation.

- Memory Speed Function Xpeed®
  - An exclusive new feature of the ESPERT 500 system, the Xpeed® system allows the user to independently preset the speed of motor A and motor B. For example motor A can be set to maintain the speed set by the Xpeed® system while motor B has variable control using a foot pedal. This function allows for unprecedented flexibility.

- Simplified Hand and Foot Pedal Control
  - You no longer need to push a switch on the control unit to switch between hand and foot pedal control. If you want to operate the microhandpiece by hand simply push the NAKANISHI Smart Switch, if you want to use foot pedal control simply depress the foot pedal.

ESPERT 500 Control Unit

<table>
<thead>
<tr>
<th>Model</th>
<th>Specifications</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE9K</td>
<td></td>
<td></td>
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</tbody>
</table>

Compliance with EMC and other Safety Standards

NAKANISHI has given considerable thought to ‘behind the scenes’ performance. The ESPERT 500 system complies with the world’s most rigorous EMC standards. In electromagnetic terms, it has reduced electromagnetic interference (noise), which may cause failure or malfunction in other equipment. The ESPERT 500 system will not be affected by external electromagnetic interference. The ESPERT 500 system also complies with the strict European safety standard EN61010-1. Operator safety is always NAKANISHI’s highest priority.

*EMC (Electromagnetic Compatibility)
**Espert 500 Standard Set (Ring Type)**

- High Power System. Max. Output 140W
- Speed Range : 1,000–50,000 min⁻¹ (rpm)
- Microprocessor controlled for optimal motor control
- Hand Switch [NAKANISHI Smart Switch]
- Memory Speed Function [FXSpeed™]

**Espert 500 Compact Motor Handpiece**

NAKANISHI Smart Switch (Blue)

**Espert 500 Torque Set (Ring Type)**

- Highest Power in its Class. Max. Output 200W
- Speed Range : 1,000–50,000 min⁻¹ (rpm)
- Microprocessor controlled for optimal motor control
- Hand Switch [NAKANISHI Smart Switch]
- Memory Speed Function [FXSpeed™]

**Espert 500 Torque Motor Handpiece**

NAKANISHI Smart Switch (Gray)

---

**Espert 500 Torque Motor Handpiece**

NAKANISHI Smart Switch (Gray)

---

**Espert 500 Torque Motor Handpiece**

NAKANISHI Smart Switch (Gray)

---

**System Chart**

1. **Speed Reducer**

   - 1/4 Speed Reducer

   May be connected between the motor and the spindle as required for increased torque.

2. **Motor**

   - Compact Motor and Cord 1,000–50,000 min⁻¹ (rpm)
   - Torque Motor and Cord 1,000–50,000 min⁻¹ (rpm)

3. **Control Unit**

   - Espert 500

---

*Maximum Allowable Speed: maximum speed under no load (product information).
*1: Maximum Allowable Speed: allowable maximum speed. Please refer to the catalog for detailed information.*

---

*Order by catalog number. 1-p23*
### Espert 500 Standard Set (Ring Type)
- High Power System. Max. Output 140W
- Speed Range: 1,000–50,000 min⁻¹ (rpm)
- Microprocessor controlled for optimal motor control
- Hand Switch [NAKANISHI Smart Switch]
- Memory Speed Function [FIXspeed™]

### Espert 500 Torque Set (Ring Type)
- Highest Power in its Class. Max. Output 200W
- Speed Range: 1,000–50,000 min⁻¹ (rpm)
- Microprocessor controlled for optimal motor control
- Hand Switch [NAKANISHI Smart Switch]
- Memory Speed Function [FIXspeed™]

#### System Chart

**Speed Reducer**
- 1/4 Speed Reducer
  - 40,000 min⁻¹ (rpm)
  - May be connected between the motor and the spindle as required for increased torque.

**Motor**
- Compact Motor and Cord
  - 1,000–50,000 min⁻¹ (rpm)

**Control Unit**
- Use ECN-011 or ERG-01 for ELECTER Emax EVOlution, ROTUS attachments

### Accessories
- Hand Switch [NAKANISHI Smart Switch (Gray)]
- NAKANISHI Smart Switch (Blue)
- NAKANISHI Smart Switch (Gray)

#### CAT. No. Model Price

<table>
<thead>
<tr>
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<td>ES511</td>
<td>ENK50C-HR</td>
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</table>

*Order by catalog number.*

---

1-p22
## “ESPERT 500” MOTORS & ATTACHMENTS

### Compact Type Motor

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Model</th>
<th>Specifications</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES9088</td>
<td>ENK-500C</td>
<td>1,000~50,000 min⁻¹ (rpm)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small, lightweight, high-speed brushless DC motor. Incorporates the NAKANISHI Smart Switch for easy on/off operation. Mutually compatible for easy interchangeability. Very low vibration noise and maintenance.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weight: 4.58 oz. excluding cord</td>
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</table>

### Torque Type Motor

<table>
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<th>Cat. No.</th>
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<tbody>
<tr>
<td>ES9089</td>
<td>ENK-500T</td>
<td>1,000~50,000 min⁻¹ (rpm)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>High-power, high-speed brushless DC motor. Incorporates the NAKANISHI Smart Switch for easy on/off operation. Very low vibration noise and maintenance.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Weight: 5.84 oz. excluding cord</td>
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</tr>
</tbody>
</table>

### Ring Type Attachment

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Model</th>
<th>Specifications</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES9090</td>
<td>EHR-500</td>
<td>1,000~50,000 min⁻¹ (rpm)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manufactured with micron level precision for high accuracy and high reliability.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ring Type one touch bar release.</td>
<td></td>
</tr>
</tbody>
</table>

### Lever Type Attachment

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Model</th>
<th>Specifications</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES11515</td>
<td>EHL-401</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Slim, lightweight design allows for fine finishing of delicate parts.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Simple lever turning for bur exchange.</td>
<td></td>
</tr>
</tbody>
</table>

### Technical Data

- **Model**: ENK-500C
- **Type**: Compact Type Motor
- **Output Power**: 140W
- **Maximum Torque**: 6.0 cN·m
- **Cord Length**: 4.5 ft
- **Weight**: 3.88 oz.
- **Attachment**: Torque type attachment used with ø1/4" chuck diameter as standard and nicely fits in hand grip.
- **40,000 min⁻¹ (rpm)**
- **Impulse**: Very low vibration noise and maintenance.
- **45° Angle Attachment**: Suitable for working in corners, cavities, etc.
- **80,000 rpm**
- **AIR LINE KIT**: Refer to 1-p10~p11 about the detail of Accessories.
**“ESPERT 500” MOTORS & ATTACHMENTS**

**COMPACT TYPE MOTOR ENK-500C**

**Torque Type Motor**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Model</th>
<th>Specifications</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES9088</td>
<td>ENK-500C</td>
<td></td>
<td>Output Power : 1400W</td>
<td>Maximum Torque : 6.0 cN·m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Weight : 3.88 oz.</td>
<td>Excluding cord</td>
</tr>
</tbody>
</table>

1,000~50,000 min⁻¹ (rpm)

- Small, lightweight, high-speed brushless DC motor.
- Incorporates the NAKANISHI Smart Switch for easy on/off operation.
- Very low vibration noise and maintenance.

**RING TYPE ATTACHMENT EHR-500**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Model</th>
<th>Specifications</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES9090</td>
<td>EHR-500</td>
<td></td>
<td>Collet ø1/8&quot; (CHH-3.175), ø2.35 mm (CHH-2.35) : 1 pc. each</td>
<td>Wrench (7 x 5.5) : 1 pc.</td>
</tr>
</tbody>
</table>

**TORQUE TYPE ATTACHMENT EHG-400**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Model</th>
<th>Standard Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES41552</td>
<td>EHG-400</td>
<td></td>
<td>Collet ø1/8&quot; (CHH-3.175), ø2.35 mm (CHH-2.35) : 1 pc. each</td>
<td>Wrench (7 x 5.5) : 1 pc.</td>
</tr>
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</table>

**90°ANGLE ATTACHMENT EIC-300**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Model</th>
<th>Standard Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES81526</td>
<td>EKC-300</td>
<td></td>
<td>Collet ø1/8&quot; (CHH-3.175), ø2.35 mm (CHH-2.35) : 1 pc. each</td>
<td>Wrench (7 x 5.5) : 1 pc.</td>
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**90° ANGLE TORQUE ATTACHMENT ERA-270**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Model</th>
<th>Standard Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES41551</td>
<td>ERA-270</td>
<td></td>
<td>Collet ø1/8&quot; (CHH-3.175), ø2.35 mm (CHH-2.35) : 1 pc. each</td>
<td>Wrench (7 x 5.5) : 1 pc.</td>
</tr>
</tbody>
</table>

**APPLICATION**

- To attain more powerful grinding and fine polishing finish, attachment EHL-401 is designed to make it lightweight and fit to pen-grip type holding.
- Simple lever turning for bar exchange.
- Same chuck as used in EHR-500.

**INDEX**

- Order by catalog number. 1-p25
**“ESPERT 500” ATTACHMENTS**

**“ESPERT 500” SPEED REDUCER & PARTS**

---

**CAT. No. ES11516**
Reciprocating Motion Polishing Finisher LUSTER ATTACHMENT ELS-100

- Reciprocating Stroke (variable): 0~7,600 times/min (Max.)
- Perfect for final finishing such as lapping and honing after grinding. Streamlines conventional hand-finishing of metal molds.
- Reciprocating type compact special polisher for ESPERT motor.
- Stroke is adjustable from 0~6 mm.
  - Max. tool shank diameter ø0.25", Screw clamp type.
  - Weight: 3.79 oz.
  - ø0.88" x 1.77" Large

**CAT. No. ES11517**
Speed Reducer (1/4) ERG-01B

- Speed Reduction Ratio 1/4
- Weight: 2.19 oz.
- ø1.0" x 1.61"

**CAT. No. ES11518**
Extension Adaptor ECN-011

- The Adaptor can be used with the attachments for Emax EVOlution and ROTUS you already have.
- Weight: 1.09 oz.

**CAT. No. ES41553**
Speed Reducer (1/4) ERG-01

- Speed Reduction Ratio 1/4
- Weight: 2.29 oz.
- ø1.0" x 1.61"

---

**CAT. No. ES51554**
Pencil-Type Reciprocating Polishing Finisher MINI-LUSTER ATTACHMENT EML-8

- Reciprocating Stroke (variable): 0~10,000 times/min (Max.)
- Max. tool shank diameter ø0.13", Screw clamp type.
- Weight: 4.59 oz.
- ø0.13" x 0.31"

**CAT. No. ES51556**
Pencil-Type Reciprocating Polishing Finisher MINI-LUSTER ATTACHMENT EML-8

- Reciprocating Stroke (variable): 0~10,000 times/min (Max.)
- Max. tool shank diameter ø0.13", Screw clamp type.
- Weight: 4.59 oz.
- ø0.13" x 0.31"

---

**CAT. No. KB61557**
FINE BELT SANDER ATTACHMENT EBS-101

- The angle of belt section is steplessly adjustable.
  - Width of Belt: 8 mm, 6 mm, 4 mm.
  - Belt Speed: 0~2,820 ft/min (Max.).
  - Weight: 12.52 oz.
  - ø0.87" x ø0.91"

---

**CAT. No. ES9093**
Foot Pedal

- Variable Speed Control Foot Pedal
- ES9093

---

**CAT. No. ES9096**
Compact Motor Cord EKCD-50C

- Compact Motor Cord
- 3 Hautmann Core
- 3 ME
- 3 ME

---

**CAT. No. ENKCD-50T**
Torque Motor Cord EKCD-50T

- Torque Motor Cord
- 3 Hautmann Core
- 3 ME
- 3 ME

---

**CAT. No. ENKCD-50C**
Compact Motor Cord EKCD-50C

- Compact Motor Cord
- 3 Hautmann Core
- 3 ME
- 3 ME

---

**CAT. No. ES004**
Expert 500 Handpiece Stand

- 104 K-274

---

**CAT. No. ENKCD-50C**
Compact Motor Cord EKCD-50C

- Compact Motor Cord
- 3 Hautmann Core
- 3 ME
- 3 ME

---

**INDEX**

- 1-p26

---

**Order by catalog number. 1-p27**
**“ESPERT 500” ATTACHMENTS**

**ES11516** Reciprocating Motion Polishing Finisher LUSTER ATTACHMENT ELS-100

- Reciprocating Stroke (variable): 0~7,600 times/min (Max.)
- Perfect for final finishing such as lapping and honing after grinding. Streamlines conventional hand-finishing of metal molds.
- Reciprocating type compact special polisher for ESPERT motor.
- Stroke is adjustable from 0~6 mm.
  - Max. tool shank diameter ø0.25", Screw clamp type.
  - Weight: 2.29 oz.
  - ø0.897” x 0.707” x 1.167”
- Standard Accessories: 1 set
  - Lubrication Nozzle for LUSTER
  - Variable Speed Control Foot Pedal

**ES5154** Pencil-Type Reciprocating Polishing Finisher MINI-LUSTER ATTACHMENT EML-8

- Reciprocating Stroke (variable): 0~10,000 times/min (Max.)
- Stroke Range: 0.8 mm
  - Max. tool shank diameter ø0.13", Screw clamp type.
  - Weight: 4.59 oz.
  - ø1.18” x 0.31” x 0.13”
- Standard Accessories: 1 set
  - Variable Speed Control Foot Pedal

**KBS61557** FINE BELT SANDER ATTACHMENT EBS-101

- The angle of belt section is steplessly adjustable.
  - Width of Belt: 8 mm, 6 mm, 4 mm.
  - Belt Speed: 0~2,820 ft/min (Max.)
  - Weight: 12.52 oz.
  - ø1.0” x 0.98” x 0.87”
- Standard Accessories: 1 set
  - Variable Speed Control Foot Pedal

**ES11517** SPEED REDUCER (1/4) ERG-01B

- 1/4 Speed Reducer ERG-01B provides 4 times greater torque by mounting it in between the motor and the attachment.
  - Weight: 2.19 oz.
  - ø0.87” x 0.91” x 1.14”
- Standard Accessories: 1 set
  - Variable Speed Control Foot Pedal

**ES11518** EXTENSION ADAPTOR ECN-011

- The Adaptor can be used with the attachments for Emax Evolution and ROTUS you already have.
  - Weight: 1 lb. 7.99 oz.
  - ø4.69” x 3.32” x 0.897”
- Standard Accessories: 1 set
  - Variable Speed Control Foot Pedal

### ESPERT 500 Spare Parts

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Specifications</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot Pedal</td>
<td>Variable Speed Control Foot Pedal</td>
<td>ED11404</td>
<td>FC-40</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Expert 500 Handpiece Stand</td>
<td></td>
<td>8104</td>
<td>K-274</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Expert 500 Compact Motor Cord</td>
<td></td>
<td>89093</td>
<td>ENKCD-50C</td>
<td>• Compact Motor Cord • 6.5 ft Long</td>
<td>1</td>
</tr>
<tr>
<td>Expert 500 Compact Motor Cord</td>
<td></td>
<td>9095</td>
<td>ENKCD-50C-3M</td>
<td>• Compact Motor Cord • 9.9 ft Long</td>
<td>1</td>
</tr>
<tr>
<td>Expert 500 Torque Motor Cord</td>
<td></td>
<td>89094</td>
<td>ENKCD-50T</td>
<td>• Torque Motor Cord • 4.5 ft Long</td>
<td>1</td>
</tr>
<tr>
<td>Expert 500 Torque Motor Cord</td>
<td></td>
<td>9096</td>
<td>ENKCD-50T-3M</td>
<td>• Torque Motor Cord • 9.9 ft Long</td>
<td>1</td>
</tr>
</tbody>
</table>
Micro-Grinder
Air Driven

ROTUS
ULTRA-PRECISION HIGH TORQUE AIR GRINDER
- High torque air motor assembled with special vane mechanism.
- Two types of air motors can be selected depending on the application.
- 1/4 and 1/15 Speed Reducers (RG-01, RG-02) can be connected.
- Lubricating oil is required.

30,000 min⁻¹(rpm)

IMPULSE
ULTRA-PRECISION HIGH-TORQUE AIR GRINDER
- Durable and quiet high-efficient air grinder.
- The IMPULSE Series also offers 45 degree and 90 degree models. Choose the type that best fits your application requirements.
- Lubricating oil is required.

60,000 min⁻¹(rpm)

PRESTO II
ULTRA-PRECISION HIGH SPEED AIR TURBINE GRINDER
- Most suitable for delicate processing works due to no-lube air turbine handpiece.

320,000 min⁻¹(rpm)
Micro-Grinder
Air Driven

ROTUS
ULTRA-PRECISION HIGH TORQUE AIR GRINDER
• High torque air motor assembled with special vane mechanism.
• Two types of air motors can be selected depending on the application.
• 1/4 and 1/15 Speed Reducers (RG-01, RG-02) can be connected.
• Lubricating oil is required.

IMPULSE
ULTRA-PRECISION HIGH-TORQUE AIR GRINDER
• Durable and quiet high-efficient air grinder.
• The IMPULSE Series also offers 45 degree and 90 degree models. Choose the type that best fits your application requirements.
• Lubricating oil is required.

PRESTO II
ULTRA-PRECISION HIGH SPEED AIR TURBINE GRINDER
• Most suitable for delicate processing works due to no-lube air turbine handpiece.
**Ultra-Precision High-Torque Air Grinder**

- 30,000 min⁻¹ (rpm)
- High-torque air motor assembled with special vane mechanism.
- Two types of air motors can be selected depending on the application.
- 1/4 and 1/15 Speed Reducers (RG-01, RG-02) can be connected.

**One Touch Tool Changing**
- Ring Type (R-310): Ring-operated open/close chuck

**Wide-range of Collet Sizes**
Various sizes ranging from ultra-small diameter (0.3 mm) are available for each attachment. Furthermore, collet replacement can be easily performed without wrench.

**Special Dust Protection Mechanism (patented)**
The chuck section of ROTUS has a special built-in dual protection mechanism that prevents entry of foreign matter such as chips and provides superior durability.

**Ring Switch**
Assembled with ON/OFF, speed control and FWD/REV control ring switch.

**Order by catalog number.**
Ultra-Precision High-Torque Air Grinder

- 30,000 min⁻¹ (rpm)
- High torque air motor assembled with special vane mechanism.
- Two types of air motors can be selected depending on the application.
- 1/4 and 1/15 Speed Reducers (RG-01, RG-02) can be connected.

One Touch Tool Changing
- Ring Type (IR-310), Ring-operated open/close chuck

A Special Rotary Vane Air Motor is Incorporated

The air motor utilizes a special vane design which keeps constant speed even under load providing stable grinding and polishing operation.

Wide-range of Collet Sizes
Various sizes ranging from ultra-small diameter (0.3 mm) are available for each attachment. Furthermore, collet replacement can be easily performed without wrench.

Special Dust Protection Mechanism (patented)
The chuck section of ROTUS has a special built-in dust protection mechanism that prevents entry of foreign matter such as chips and provides superior durability.

17 Types of Attachments for All Types of Applications
- Capable of infinite applications with 14 different handpieces and 3 types of intermediate attachments.
- Interchangeable with attachments form the Emex EVolution series.

Order by catalog number.

---

**Attachment IR-310 + Air motor IM-301**

- 6.33"
"ROTUS" STANDARD SET

**CAT. No. 1148 ROTUS STANDARD SET (Ring Type)**

The ROTUS System is a hand-held grinder with an energy saving air motor. Since it is an air driven system, there is virtually no heat generation resulting in excellent durability. Select from a variety of attachments depending on the application.

30,000 min⁻¹ (rpm)

*The new ring type IR-310 is the standard attachment for ROTUS standard set R301-IR.*

---

**"ROTUS" MOTOR**

**Motor for ROTUS (Pneumatically Driven)**

**Air motor designed for high-efficiency**

To achieve high torque, ROTUS air motor is assembled with micron precision between the vanes and the internal surface of cylinder using NAKANISHI’s proprietary techniques. This high performance air motor with minimal power loss from load fluctuation has excellent performance in its grinding stability. Moreover, the motor with minimal air consumption runs quietly and the energy-saving mechanism makes it possible to operate with a 1 hp (0.75KW) air compressor.

**Air Cooling System generates no heat for a continuous operation**

The motor prevents heat generation and expansion of metal by air cooling system and provides stable rotation speed.

**Light-weight and compact design**

The motor with attachment IR-310 is only 8.74 oz. Its light-weight and well balanced design provides excellent grinding performance.

**Assembled with Speed Control and Forward/Reverse Control Ring**

Forward/Reverse Rotating Direction Control Ring located at the end of the motor can control the motor speed as well.

**Speed control by Foot Control**

Fine adjustment of variable speed can be controlled by Foot Control.

**Excellent quietness with Silencer**

By attaching the silencer to the end of the exhaust air tubing, the motor is operated extremely quiet.
**“ROTUS” STANDARD SET**

The ROTUS System is a hand-held grinder with an energy saving air motor. Since it is an air driven system, there is virtually no heat generation resulting in excellent durability. Select from a variety of attachments depending on the application.

30,000 min⁻¹ (rpm)

The new ring type IR-310 is the standard attachment for ROTUS standard set R301-IR.

**“ROTUS” MOTOR**

Motor for ROTUS (Pneumatically Driven)

Air motor designed for high efficiency

To achieve high torque, ROTUS air motor is assembled with micron precision between the vanes and the internal surface of cylinder using NAKANISHI’s proprietary techniques. This high performance air motor with minimal power loss from load fluctuation has excellent performance in its grinding stability. Moreover, the motor with minimal air consumption runs quietly and the energy-saving mechanism makes it possible to operate with a 1 hp (0.75KW) air compressor.

Air Cooling System generates no heat for a continuous operation

The motor prevents heat generation and expansion of metal by air cooling system and provides stable rotation speed.

Light-weight and compact design

The motor with attachment R301-IR is only 8.74 oz. Its light-weight and well balanced design provides excellent grinding performance.

Assembled with Speed Control and Forward/Reverse Control Ring

Forward/Reverse Rotating Direction Control Ring located at the end of the motor can control the motor speed as well.

Speed control by Foot Control

Fine adjustment of variable speed can be controlled by Foot Control.

Excellent quietness with Silencer

By attaching the silencer to the end of the exhaust air tubing, the motor is operated extremely quiet.

---

**PARTS**

- 1-p32
- 1-p33

*Order by catalog number.*
The IMPULSE Series also offers 45 degree and 90 degree models. Choose the type that best fits your application requirements.

- Angled model housings are all aluminum alloy.
- Optional Collets : CHS-3 shown in page (6-p4)
- Weight : 7.41 oz.
- Optional Collet ø1/8" (CHS-3.175) : 1 pc.
- Wrench (8 x 5) : 1 pc.
- Bar Wrench (K-212) : 1 pc.
- Hose (K-231) : 1 pc.
- Silencer (K-208) : 1 pc.
- Collet ø1/8" (CHS-3.175) : 1 pc.
- Special Grindstone Arbor (NCH-01) : 1 pc.
- Wrench (6 x 10)-4.5 : 1 pc.
- Bar Wrench (K-212) : 1 pc.
- Hose (K-231) : 1 pc.
- Hose (K-231) : 6.5 ft
- Silencer (K-208) : 1 pc.
- Rubber Pad (NK11033) : 1 pc.
- Sandpaper Disk (Grits #120,320,600,1000) : 2 pcs. each

### Cat. No. NK60100 IMPULSE NSP-601

- 60,000 min⁻¹ (rpm)
- Durable and quiet high-efficient air grinder.
- The shape of the grinder is specially designed for sensitive finger touch control toward the top of the cutting tool. The front part of the NSP-601 model is made of stainless steel ; the back portion of aluminum alloy. The exhaust air line hose with silencer keeps the noise level to a minimum. To prevent twisting of the double line hose, a 360 degree twist-free joint connects the motor and the hose.
- Excellent Silencer
- Silencer on the exhaust air hose keeps the grinder very quiet.

### Features
- Set-Up Drawing
- Connecting Part To Air Line Kit

#### Specifications
- Rotating Speed : 60,000 min⁻¹ (rpm)
- Air Consumption : 6.06CFM
- Proper Air Pressure : 50 - 85PSI
- Hose Length : 9.8 ft
- Bar Wrench ø1/2" : 1 pc.
- Hose Length : 4.9 ft
- Input Air Hose Length : 3.0 ft
- Exter Air Hose Length : 1.9 ft

**Order by catalog number.** 1-p35
## HIGH TORQUE PENCIL TYPE AIR GRINDER

### “IMPULSE”

- 60,000 min’(rpm)
- Durable and quiet high-efficient air grinder.
- The IMPULSE Series also offers 45 degree and 90 degree models. Choose the type that best fits your application requirements.

### Specifications

**Model**: IMPULSE NSP-601

**Features**

- The shape of the grinder is specially designed for sensitive finger touch control toward the top of the cutting tool. The front part of the NSP-601 model is made of stainless steel; the back portion of aluminum alloy. The exhaust air line hose with silencer keeps the noise level to a minimum. To prevent twisting of the double line hose, a 360-degree twist-free joint connects the motor and the hose.

- Excellent Silencer

- The shape of the grinder is specially designed for sensitive finger touch control toward the top of the cutting tool.

- Free From Twisting Hose

- To prevent the twisting of hose, 360˚ Twist-Free Joint connects the motor and the hose.

- Mounting & Dismounting Cutting Tool

- Insert the wrench provided into the hole on the spindle and open or close the chuck with the Chuck Wrench to exchange the cutting tool.

- Exchangeable Collet

- Standard Size : ø1/8” (CHS-3.175)

- Optional Collets: CHS-[] are shown in page (6-p4)

### Applications

- The safety design of clamping the chuck up to 1.14” maintains stable rotation of the cutting tool.

### Accessories

- Collet ø1/8” (CHS-3.175) : 1 pc.  • Wrench (8 x 5) : 1 pc.  • Bar Wrench (K-212) : 1 pc.

### Prices

<table>
<thead>
<tr>
<th>Model</th>
<th>Accessory Details</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSP-601</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Model

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>NK60100</td>
<td>IMPULSE NSP-601</td>
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</tr>
</tbody>
</table>

### Model

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>NK45400</td>
<td>IMPULSE NA45-400</td>
<td></td>
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</tbody>
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### Model

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>NK45230</td>
<td>IMPULSE NA45-230</td>
<td></td>
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### Model

<table>
<thead>
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<th>Model No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>NK90230</td>
<td>IMPULSE NA90-230</td>
<td></td>
</tr>
</tbody>
</table>

---

*Order by catalog number. 1-p35*
When using IMPULSE series, use with the air line kit AL-H1206 shown below or equivalent air line kit in order to provide proper air pressure and lubrication to the air motor.

All lubricators offered by NAKANISHI are micro-mist type. They are specially designed to supply about 3% of visual drip rate (about 30 drops/min) into the secondary side (air motor).

- **Air Line Kit**
  - AL-H1206
  - Supplies smooth air flow and automatic lubrication, ensuring stable speed and power.
  - Adjustable lubrication and air pressure settings provide longevity to the Air Grinder.
  - Best for grinding and polishing applications. This compact Air Line Kit allows for portability or stationary mounting as well as a carrier for the Impulse.

### Optional Accessories

<table>
<thead>
<tr>
<th>Product</th>
<th>Cat. No.</th>
<th>Description</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cup Wheel</td>
<td>4452</td>
<td>4452</td>
<td>4.50&quot;</td>
<td>$2.70</td>
</tr>
<tr>
<td>Polishing Sender</td>
<td>4464</td>
<td>4464</td>
<td>$2.70</td>
<td></td>
</tr>
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<td></td>
<td>4466</td>
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<td></td>
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<td></td>
<td>4467</td>
<td>4467</td>
<td>$3.70</td>
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<tr>
<td></td>
<td>4469</td>
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</tbody>
</table>

### The Exchangeable Attachment Chart

If you replace the Cup Grinding Stone with a ø1/8" Collet, a mounted grindstone can be used. When using a Collet, the wheel cover is removable for better visibility if necessary.

- When using a rubber pad, slow down the rotating speed.
- Grindstone Arbor
  - NCH-01
- Rubber Pad
  - (6 pcs./pack)
- Mounted Grindstone
  - ø1.0" / ø0.98"

### IMPULSE Spare Parts

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>Cat. No.</th>
<th>Model</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grindstone Arbor</td>
<td>For Cup Wheel / Rubber Pad</td>
<td>NK11045</td>
<td>NCH-01</td>
<td>IMPULSE</td>
<td></td>
</tr>
<tr>
<td>Head Cover</td>
<td></td>
<td>NK11043</td>
<td>CNA</td>
<td>IMPULSE</td>
<td></td>
</tr>
<tr>
<td>Hose 4.5 ft</td>
<td></td>
<td>K076211</td>
<td>K-213</td>
<td>IMPULSE</td>
<td></td>
</tr>
<tr>
<td>Silencer Small</td>
<td>(w/Metal Fittings)</td>
<td>AA10055</td>
<td>K-208</td>
<td>IMPULSE</td>
<td></td>
</tr>
<tr>
<td>Wrench 8 x 5 mm</td>
<td>(0.33&quot; x 0.20&quot;)</td>
<td>RA12012</td>
<td>—</td>
<td>IMPULSE</td>
<td></td>
</tr>
<tr>
<td>Bar Wrench</td>
<td>(0.50&quot;)</td>
<td>RE22015</td>
<td>K-212</td>
<td>IMPULSE</td>
<td></td>
</tr>
<tr>
<td>Allen Wrench</td>
<td>(2.5 mm)</td>
<td>—</td>
<td>—</td>
<td>IMPULSE</td>
<td></td>
</tr>
<tr>
<td>Lubricating Oil</td>
<td>(8 oz.)</td>
<td>AA10478</td>
<td>K-211</td>
<td>For Air Line Kit AL-H1206</td>
<td></td>
</tr>
<tr>
<td>Lubricating Oil</td>
<td>(32 oz.)</td>
<td>AA10480</td>
<td>K-202</td>
<td>For Air Line Kit AL-H1206</td>
<td></td>
</tr>
</tbody>
</table>
“IMPULSE” AIR LINE KIT & PARTS

When using IMPULSE series, use with the air line kit AL-H1206 shown below or equivalent air line kit in order to provide proper air pressure and lubrication to the air motor.

All lubricators offered by NAKANISHI are micro-mist type. They are specially designed to supply about 3% of visual drip rate (about 30 drops/min) into the secondary side (air motor).

**Optional Accessories**

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Description Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cup Wheel</td>
<td>K40180</td>
<td>ø1.38&quot;/ø35mm (for ø6mm Hose)</td>
<td>1 pc.</td>
</tr>
<tr>
<td>Hose 4.5 ft</td>
<td>K076211</td>
<td>K-213 IMPULSE</td>
<td>IMPULSE</td>
</tr>
<tr>
<td>Wrench 8 x 5 mm</td>
<td>AA10055</td>
<td>K-208 IMPULSE</td>
<td>IMPULSE</td>
</tr>
<tr>
<td>Bar Wrench (5/8&quot;)</td>
<td>RE22015</td>
<td>K-212 IMPULSE</td>
<td>IMPULSE</td>
</tr>
<tr>
<td>Allen Wrench (1.5 mm)</td>
<td>—</td>
<td>— IMPULSE</td>
<td>—</td>
</tr>
<tr>
<td>Lubricating Oil (8 oz.)</td>
<td>AA10478</td>
<td>K-211 IMPULSE</td>
<td>IMPULSE</td>
</tr>
<tr>
<td>Lubricating Oil (32 oz.)</td>
<td>AA10480</td>
<td>K-202 IMPULSE</td>
<td>IMPULSE</td>
</tr>
</tbody>
</table>

**The Exchangeable Attachment Chart**

If you replace the Cup Grinding Stone with a ø1/8" Collar, a mounted grindstone can be used. When using a Collar, the wheel cover is removable for better visibility if necessary.

When using a rubber pad, slow down the rotating speed.

**IMPULSE Spare Parts**

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grindstone Arbor</td>
<td>NK11045</td>
<td>NCH-01 IMPULSE</td>
<td>IMPULSE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head Cover</td>
<td>NK11043</td>
<td>CNA IMPULSE</td>
<td>IMPULSE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hose 4.5 ft</td>
<td>K076211</td>
<td>K-213 IMPULSE</td>
<td>IMPULSE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silencer Small (w/Metal Fittings)</td>
<td>AA10055</td>
<td>K-208 IMPULSE</td>
<td>IMPULSE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wrench 8 x 5 mm (0.31&quot; x 0.20&quot;)</td>
<td>AA12015</td>
<td>K-212 IMPULSE</td>
<td>IMPULSE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bar Wrench (5/8&quot;)</td>
<td>RE22015</td>
<td>K-212 IMPULSE</td>
<td>IMPULSE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allen Wrench (1.5 mm)</td>
<td>—</td>
<td>— IMPULSE</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubricating Oil (8 oz.)</td>
<td>AA10478</td>
<td>K-211 IMPULSE</td>
<td>IMPULSE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubricating Oil (32 oz.)</td>
<td>AA10480</td>
<td>K-202 IMPULSE</td>
<td>IMPULSE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Order by catalog number.*
**Ultra Sonic Products**

**SHEENUS neo**

22.5 KHz

**ULTRASONIC POLISHER**

• SHEENUS neo can be used for grinding, polishing and mirror finishing on a wide range of materials from aluminum dies to cemented carbide dies. It is also perfect for plastic molds, press, casting, forging, trimming and header dies.

• This tool quickly removes hard layer of EDM deposits and polishes difficult areas such as complex corners and ribs.

**SONIC-CUTTER**

39.5 KHz

**HIGH PERFORMANCE ULTRA-SONIC CUTTER**

*Not available for sale in Europe.*

• Max. Output Power : 30W

• Intricate and accurate cutting with a light touch.

• Machine attachment type is also available.

---

**PRESTO II**

320,000 min⁻¹ (rpm)

Ultra-high speed no lube air turbine handpiece ideal for delicate processing application.

Chip air blows away the cutting powder and cools the cutting tool.

Built-in dust protect mechanism developed by NAKANISHI ensures long durability.

**Applications Examples**

- EmaxEVO
- ESPERT
- ROTUS
- IMPULSE
- PRESTO II
- SHEENUS neo
- SONIC CUTTER

**Part Dimensions**

- ø1.0"
- ø0.98"
- ø1.18"
- MS: ø0.75" ø0.79"
- ø0.87" ø0.91"
- ø1.0" ø0.98"
- ø0.897"

---

**PRESTO II Standard Set**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y150022-3</td>
<td>PR2-304S</td>
<td>Presto Handpiece (PR-304) Air Line Kit (PR2-06) Foot Control (AFC-40) Handpiece Holder (Z014)</td>
</tr>
</tbody>
</table>

**PRESTO II Spare Parts**

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T815001</td>
<td>PR-304</td>
<td>6 ft Hose</td>
</tr>
</tbody>
</table>

**Price**

- T815016I: 2.44" Pin Wrench T-751 HR10303
iSpeed3 Series
Electric System

- One Piece Type
  - Shorter spindle length is suitable for compact sized automatic CNC lathes.
  - The iSpeed3 series have sensorless motors and are equipped with super precision hybrid ceramic bearings for longer spindle life.

Outside Diameter
ø0.75", ø0.79", ø0.87" and ø0.98”

1,000~90,000 min⁻¹ (rpm)
Output 140W / 150W

• One Piece Type
  - The iSpeed3 series have sensorless motors and are equipped with super precision hybrid ceramic bearings for longer spindle life.
**iSpeed3 Series**

**Electric System**

- **Outside Diameter**: ø0.75", ø0.79", ø0.87" and ø0.98"
  - (ø19.05, ø20, ø22 and ø25 mm)
- **Maximum Speed**: 1,000~80,000 min⁻¹ (rpm)
- **Output**: 140W / 150W

**One Piece Type**

- Shorter spindle length is suitable for compact sized automatic CNC lathes.
- The iSpeed3 series have sensorless motors and are equipped with super precision hybrid ceramic bearings for longer spindle life.

---

**Application Examples**

- EmaxEVO
- ESPERT
- ROTUS
- IMPULSE
- PRESTO II
- SHEENUS
- neo
- SONIC CUTTER

**Parts**

- E2530 / E2550 ø1.0"/ø0.98"
- E2530 / E2550 ø0.897"
iSpeed3 Series System Chart

Features

- **Maximum 60,000 / 80,000 min^(-1) (rpm)**
  - A maximum motor speed 60,000 min^(-1) (rpm) is realized by using a high performance brushless motor and ceramic bearings. A maximum motor speed 80,000 min^(-1) (rpm) is realized by using a high performance brushless motor and ceramic bearings.

- **Spindle Accuracy**
  - Spindle Accuracy is within 1 µm (TIR).

- **High Rigidity, Short Body**
  - iSpeed3 series uses a short body that is hardened and precision ground for excellent durability.

- **Motor Connector Attaches Directly to the Back of the Motor / Spindle.**
  - Simple screw-lock connector makes changing motors extremely easy. Electric and Air feed incorporated into a single connector.

Tourque Characteristics Graph

- **BM-319**
  - BM-320
  - BM-320F
  - BM-318
  - BM-320
  - BM-319
  - BM-320

- **BM-322F**
  - BM-325
  - BM-322
  - BM-322FL
  - BM-322FR

- **BMJ-319**
  - BMJ-320
  - BMF-319
  - BMF-320

- **HES510**
  - HES810

- **HTS**
  - HPS

- **Xpeed**

- **AL-C1204**

Motor Cord is Sold Separately.

Clean dry air is required.

*1: Motor Cord is Sold Separately.

2-p2 - 2-p3
One Piece Type
SERIES
Outside Diameter ø0.75"(19.05mm), ø0.79"(20mm), ø0.87"(22mm) and ø0.98"(25mm)

**iSpeed3 Series System Chart**

- **Automatic Control System Chart**
- **Sequential Operation of up to 2 Motor / Spindles**
  - 2 motors cannot be operated simultaneously.

- **Features**
  - **Maximum 60,000 / 80,000 min-1(rpm)**
  - **Motor Connector Attaches Directly to the Back of the Motor / Spindle.**
    - Simple screw-lock connector makes changing motors extremely easy. Electric and Air feed incorporated into a single connector.
  - **Air-Cooling System**
    - Air-cooled motor uses a small volume of air (1.0 CFM) to minimize heat buildup and allow continuous operation. Air pressure required is 23-35 PSI.

**Torque Characteristics Graph**

- **BM-319**
  - BM-320
  - BM-320FL
  - BM-320FR
  - BM-320FS
  - BM-320H
  - BM-319H
  - BMF-319
  - BMF-319H
  - BMF-320
  - BMF-320H
  - BMF-320F
  - BMF-320FR

- **BM-322**
  - BM-322FL
  - BM-322FR
  - BM-322FS
  - BM-325
  - BMJ-322
  - BMJ-325
  - BMF-325
  - BMF-325H

- **BM-322FS**
  - BM-325F
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMF-322**
  - BM-325F
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMF-325**
  - BM-325F
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMF-325F**
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMF-325FS**
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMF-325H**
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMJ-322**
  - BM-325F
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMJ-325**
  - BM-325F
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMF-325**
  - BM-325F
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMF-325**
  - BM-325F
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMF-325**
  - BM-325F
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMF-325**
  - BM-325F
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMF-325**
  - BM-325F
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMF-325**
  - BM-325F
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMF-325**
  - BM-325F
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMF-325**
  - BM-325F
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMF-325**
  - BM-325F
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMF-325**
  - BM-325F
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS

- **BMF-325**
  - BM-325F
  - BM-325FR
  - BM-325FS
  - BM-325H
  - BM-325FR
  - BM-325FS
"iSpeed3 SERIES" SENSORLESS MOTOR SPINDLE

<iSpeed3 SERIES</i> CONTROL UNIT

- 1,000~80,000 min⁻¹ (rpm)
- Maximum Output 150W
- External Input / Output Control Signal (Refer to 7-p24~p29 page of this catalog)

**Power Source Required**
Input power required is 120VAC for U.S. usage.

**Power Source Plug**
Please refer to Technical Data 7-p24~p29 in detail about External Input/Output Connector.

**Input / Output Controls Signal Examples:**
- Input Signal Examples:
  - Start / Stop, Forward / Reserve, Pulse Speed Increase / Decrease, Speed Control, Error Code Release.
- Output Signal Examples:
  - Error / Warning, At-Speed, RPM Monitoring, Motor Torque Output.

**Motor Protection System**
Motor Spindle is stopped safely and quickly. A Warning / Error LED is lit, Warning / Error Signal is output to an external device when a problem occurs.

**Motor Spindle is stopped safely and quickly. A Warning / Error LED is lit, Warning / Error Signal is output to an external device when a problem occurs.**

**Centering Mode Switch**
This switch activates the centering mode, which maintains a constant 500 min⁻¹ spindle speed for centering the tool.

**Model**:
- NE273
- E2530 / E2550
- E3000
- E4000

**Specifications**
- **Motor Speed**: 1,000~80,000 min⁻¹ (rpm)
- **Rated Power Consumption**: 1.1A
- **Air Flow Volume**: 1.0CFM (23-50PSI)
- **Weight**: 7 lb. 11.46 oz.
- **Dimensions**: W5.59" x D9.21" x H2.83"

**Flange Type**
- Flange type for easy mounting.
- Flange type for flexible mounting.

**Straight Type**
- Flange type for flexible mounting.

**Parts**
- 120V
- 200V
- 230V

**Price**
- Order by catalog number.

---

**Mounting Example**

- CAT. No. Plug Type Model Standard Equipment · Accessories Price
- 8478 120V NE273
- 8490 230V

**Interface Cable**

---

**Power Source Plug**

---

**Application Examples**

---

**INDEX**

---
### “iSpeed3 SERIES” SENSORLESS MOTOR SPINDLE

**Flange Type**  
- Flange type for easy mounting.

- Ø0.75” (ø20mm)  
  - BM-319FC  
  - Max. 80,000min⁻¹  
  - Max. 140W

- Ø0.87” (ø22mm)  
  - BM-322FR  
  - Max. 60,000min⁻¹  
  - Max. 150W

**Straight Type**  
- Straight type for flexible mounting.

- Ø0.87” (ø22mm)  
  - BM-332  
  - Max. 60,000min⁻¹  
  - Max. 150W

- Ø0.98” (ø25mm)  
  - BM-335  
  - Max. 60,000min⁻¹  
  - Max. 150W

---

### “iSpeed3 SERIES” CONTROL UNIT

- Maximum Output 150W
- External Input / Output Control Signal (Refer to 7-p24~p29 page of this catalog)

**Power Source Required**  
Input power required is 120VAC for U.S. usage.

**Input / Output Controls Signal Examples:**

- Input Signal Examples:
  - Start / Stop, Forward / Reverse, Pulse Speed Increase / Decrease, Speed Control, Error Code Release.

- Output Signal Examples:
  - Error / Warning, At-Speed, RPM Monitoring, Motor Torque Output.

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Motor Spindle is stopped safely and quickly. A Warning / Error LED is lit, Warning / Error Signal is output to an external device when a problem occurs.

**Centering Mode Switch**  
This switch activates the centering mode, which maintains a constant 500 min⁻¹ spindle speed for centering the tool.

---

**iSpeed3 Control Unit**

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Plug Type</th>
<th>Model</th>
<th>Standard Equipment / Accessories</th>
<th>Price</th>
</tr>
</thead>
</table>
| 8478     | 120V      | NE273 | • Power Cord : 6 ft  
  - Air Hose with filter  
  - Motor Connector Cap  
  - Connector Cap A / B (Provided)  
  - Bracket  
  - Plate nut  
  - M3 Screw | 
| 8490     | 230V      |       |                                   |       |

*Please refer to Technical Data 7-p24~p29 in detail about External Input-Output Connector.*

---

**Power Source Plug**

- Order by catalog number.
"iSpeed3 SERIES" SENSORLESS MOTOR SPINDLE BM

BM

Straight and Flange Type with Quick Disconnect

Features:
- Straight and Flange Type Motor/Spindles with pigtail for Motor cords with Quick-Disconnect.
- Flange Type Motor Spindles for machines with tool block with a blind hole.
- O.D. sizes for all Swiss type machines.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>SENSORLESS MOTOR SPINDLE BM-319</th>
<th>80,000 min⁻¹ (rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside Diameter</td>
<td>ø0.75&quot; (ø19.05mm)</td>
<td></td>
</tr>
</tbody>
</table>

- Motor Speed: 1,000~80,000 min⁻¹ (rpm)
- Spindle Accuracy: Within 1 µm
- Max. Output Power: 140W
- Standard Size Collet (CHA-3.175): ø0.5mm~ø4.0mm
- Weight: 3.48 oz.
- Motor Cord: Length 10 ft, 16 ft, 22 ft

Note: Motor Cord is sold separately.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>SENSORLESS MOTOR SPINDLE BM-320</th>
<th>80,000 min⁻¹ (rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside Diameter</td>
<td>ø0.79&quot; (ø20mm)</td>
<td></td>
</tr>
</tbody>
</table>

- Motor Speed: 1,000~80,000 min⁻¹ (rpm)
- Spindle Accuracy: Within 1 µm
- Max. Output Power: 140W
- Standard Size Collet (CHA-3.175): ø0.5mm~ø4.0mm
- Weight: 3.48 oz.
- Motor Cord: Length 10 ft, 16 ft, 22 ft

Note: Motor Cord is sold separately.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>SENSORLESS MOTOR SPINDLE BM-322</th>
<th>60,000 min⁻¹ (rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside Diameter</td>
<td>ø0.87&quot; (ø22mm)</td>
<td></td>
</tr>
</tbody>
</table>

- Motor Speed: 1,000~60,000 min⁻¹ (rpm)
- Spindle Accuracy: Within 1 µm
- Max. Output Power: 150W
- Standard Size Collet (CHA-3.175): ø0.5mm~ø4.0mm
- Weight: 6.82 oz.
- Motor Cord: Length 10 ft, 16 ft, 22 ft

Note: Motor Cord is sold separately.
### iSpeed3 Series

**Features:**
- Straight and Flange Type Motor/Spindles with quick disconnect.
- Flange Type Motor/Spindles for machines with a blind hole.
- O.D. sizes for all Swiss type machines.

### Straight and Flange Type with Quick Disconnect

#### 7626 SENSORLESS MOTOR SPINDLE BM-319

<table>
<thead>
<tr>
<th>Outside Diameter</th>
<th>0.75&quot; (19.05 mm)</th>
</tr>
</thead>
</table>

- **Motor Speed:** 1,000~80,000 min⁻¹ (rpm)
- **Spindle Accuracy:** Within 1 μm
- **Max. Output Power:** 140W
- **Standard Size Collet (CHA-3.175):** ø1/8" (0.5 mm)
- **Weight:** 9.52 oz.
- **Motor Cord:** Length 10 ft, 16 ft, 22 ft

**Note:** Motor Cord is sold separately.

### 7628 SENSORLESS MOTOR SPINDLE BM-320

<table>
<thead>
<tr>
<th>Outside Diameter</th>
<th>0.79&quot; (20 mm)</th>
</tr>
</thead>
</table>

- **Motor Speed:** 1,000~80,000 min⁻¹ (rpm)
- **Spindle Accuracy:** Within 1 μm
- **Max. Output Power:** 140W
- **Standard Size Collet (CHA-3.175):** ø1/8" (0.5 mm)
- **Weight:** 8.82 oz.
- **Motor Cord:** Length 10 ft, 16 ft, 22 ft

**Note:** Motor Cord is sold separately.

### 7633 SENSORLESS MOTOR SPINDLE BM-320F

<table>
<thead>
<tr>
<th>Outside Diameter</th>
<th>ø0.79&quot; (20 mm)</th>
</tr>
</thead>
</table>

- **Motor Speed:** 1,000~80,000 min⁻¹ (rpm)
- **Spindle Accuracy:** Within 1 μm
- **Max. Output Power:** 150W
- **Standard Size Collet (CHA-3.175):** ø1/8" (0.5 mm)
- **Weight:** 9.52 oz.
- **Motor Cord:** Length 10 ft, 16 ft, 22 ft

**Note:** Motor Cord is sold separately.

### 7635 SENSORLESS MOTOR SPINDLE BM-322

<table>
<thead>
<tr>
<th>Outside Diameter</th>
<th>ø0.87&quot; (22 mm)</th>
</tr>
</thead>
</table>

- **Motor Speed:** 1,000~80,000 min⁻¹ (rpm)
- **Spindle Accuracy:** Within 1 μm
- **Max. Output Power:** 150W
- **Standard Size Collet (CHA-3.175):** ø1/8" (0.5 mm)
- **Weight:** 8.82 oz.
- **Motor Cord:** Length 10 ft, 16 ft, 22 ft

**Note:** Motor Cord is sold separately.

---

**Order by catalog number.**
**SENSORLESS MOTOR SPINDLE BM-322FL / BM-322FR 60,000 min⁻¹(rpm)**

- **Motor Speed** ................................... 1,000~60,000 min⁻¹(rpm)
- **Spindle Accuracy** ................................ Within 1 µm
- **Max. Output Power** ................................ 150W
- **Standard Size Collet (CHA-3.175)** ........................ ø0.46" (ø1.18"
- **Weight** ............................................. 12.70 oz.

**Note:** Motor Cord is sold separately.

---

**IDLE GEAR BM3-IG for Applicable Swiss Machines**

- This 34mm O.D. / 22mm I.D. Sleeve with idler Gear is designed to replace the Star CNC standard 4,000 min⁻¹(rpm) gear driven spindle with an NSK BM-322FL 60,000 min⁻¹(rpm) Motor/Spindle. The rear mounted idler Gear assures there is no gear interference of the other Star line spindles. This sleeve is used on the 3,300 and 3,400 positions on the 5210-22.863, SR201 and SR32.

---

**SPACER for BM-322FL / BM-322FR**

- Inserting the spacer between the back of the flange and the face of the machines tool block moves the back of the Motor Spindle forward 10mm to eliminate gear face interference.

**SPLIT BUSHING**

- Hardened and ground split bushings are available in several sizes to fit most NSK Spindles/Motors.

---

**IDENTICAL DIMENSIONS**

- Motor Speed ................................... 1,000~60,000 min⁻¹(rpm)
- Spindle Accuracy ................................. 1.00~1.0 µm
- Max. Output Power ............................... 150W
- Standard Size Collet (CHA-3.175) .................. ø0.46" (ø1.18"
- Weight ................................................. 14.46 oz.

**Note:** Motor Cord is sold separately.
"iSpeed3 SERIES" SENSORLESS MOTOR SPINDLE & PARTS

SENSORLESS MOTOR SPINDLE BM-322FL / BM-322FR 60,000 min⁻¹(rpm)

- Motor Speed ................................... 1,000~60,000 min⁻¹(rpm)
- Spindle Accuracy ................................... Within 1 µm
- Max. Output Power ................................... 150W
- Standard Size Collet (CHA-3.175) ................................... ø1.18"
- Weight ................................... 12.70 oz.
- Motor Cord ....................................... Length 10 ft, 16 ft, 22 ft

Note: Motor Cord is sold separately.

IDLE GEAR BM-322FL / BM-322FR

- Gear Teeth ................................... 22
- Bore Diameter ................................... ø1.0" (ø0.98"")
- Outside Diameter ................................... ø4.5"

- Hardened and ground split bushings are available in several sizes to fit most NSK Spindles/Motors.

- Inserting the spacer between the back of the flange and the face of the machines tool block moves the back of the Motor Spindle forward 10mm to eliminate gear face interference.

ORDER by catalog number.

CAT. No. Model Specifications Price

1882 SP-22x10L Dimensions (Ø0.3) x 10mm

SPLICE BUSHING

Note: Motor Cord is sold separately.

CAT. No. Model Specifications Price

7704 Sensorless Motor Spindle ø0.87"(ø22 mm)

- Motor Speed ................................... 1,000~60,000 min⁻¹(rpm)
- Spindle Accuracy ................................... Within 1 µm
- Max. Output Power ................................... 150W
- Standard Size Collet (CHA-3.175) ................................... ø1.18"
- Weight ................................... 14.46 oz.
- Motor Cord ....................................... Length 10 ft, 16 ft, 22 ft

Note: Motor Cord is sold separately.

CAT. No. Model Specifications Price

7639 BM-322FL
7641 BM-322FR

Note: Motor Cord is sold separately.

CAT. No. Model Specifications Price

8533 BM-322FL/FR

Note: Motor Cord is sold separately.

CAT. No. Model Specifications Price

7704 Sensorless Motor Spindle ø0.87"(ø22 mm)

- Motor Speed ................................... 1,000~60,000 min⁻¹(rpm)
- Spindle Accuracy ................................... Within 1 µm
- Max. Output Power ................................... 150W
- Standard Size Collet (CHA-3.175) ................................... ø1.18"
- Weight ................................... 14.46 oz.
- Motor Cord ....................................... Length 10 ft, 16 ft, 22 ft

Note: Motor Cord is sold separately.

CAT. No. Model Specifications Price

7639 BM-322FL
7641 BM-322FR

Note: Motor Cord is sold separately.
### "iSpeed3 SERIES" SENSORLESS MOTOR SPINDLE BMJ

**BMJ**

**Straight Type without Motor Cord**

**Features:**
- Straight Motor/Spindles with O.D. sizes for all Swiss type machines.
- Uses a Straight or 90-Degree Motor Cord that attach to the rear of the Motor/Spindle.
- Ability to insert the Motor/Spindle from the front or rear of the tool block.

< Optional >

Motor Cord

### Table: Sensorless Motor Spindle Specifications

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Outside Diameter</th>
<th>Length</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7653</td>
<td>BMJ-322</td>
<td>ø0.87&quot;(ø22mm)</td>
<td>Length 13 ft, 19 ft, 26 ft</td>
<td>60,000 min⁻¹(rpm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Note: Motor Cord is sold separately.</td>
</tr>
</tbody>
</table>

- Motor Speed: 1,000~60,000 min⁻¹(rpm)
- Spindle Accuracy: Within 1 µm
- Max. Output Power: 150W
- Standard Size Collet (CHA-3.175): ø1/8"
- Weight: 6.70 oz.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Outside Diameter</th>
<th>Length</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7654</td>
<td>BMJ-325</td>
<td>ø0.98&quot;(ø25mm)</td>
<td>Length 13 ft, 19 ft, 26 ft</td>
<td>60,000 min⁻¹(rpm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Note: Motor Cord is sold separately.</td>
</tr>
</tbody>
</table>

- Motor Speed: 1,000~60,000 min⁻¹(rpm)
- Spindle Accuracy: Within 1 µm
- Max. Output Power: 150W
- Standard Size Collet (CHA-3.175): ø1/8"
- Weight: 8.99 oz.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Outside Diameter</th>
<th>Length</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7655</td>
<td>BMJ-319</td>
<td>ø0.75&quot;(ø19mm)</td>
<td>Length 13 ft, 19 ft, 26 ft</td>
<td>80,000 min⁻¹(rpm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Note: Motor Cord is sold separately.</td>
</tr>
</tbody>
</table>

- Motor Speed: 1,000~60,000 min⁻¹(rpm)
- Spindle Accuracy: Within 1 µm
- Max. Output Power: 140W
- Standard Size Collet (CHA-3.175): ø1/8"
- Weight: 5.64 oz.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Outside Diameter</th>
<th>Length</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7656</td>
<td>BMJ-320</td>
<td>ø0.79&quot;(ø20mm)</td>
<td>Length 13 ft, 19 ft, 26 ft</td>
<td>80,000 min⁻¹(rpm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Note: Motor Cord is sold separately.</td>
</tr>
</tbody>
</table>

- Motor Speed: 1,000~80,000 min⁻¹(rpm)
- Spindle Accuracy: Within 1 µm
- Max. Output Power: 140W
- Standard Size Collet (CHA-3.175): ø1/8"
- Weight: 8.99 oz.

### Note:
- Motor Cord is sold separately.
- Order by catalog number.

---

**INDEX**

- PARTS
- TECHNICAL DATA
- EXAMPLES
- AIR LINE KIT
- ORDER BY CATALOG NUMBER
"iSpeed3 SERIES" SENSORLESS MOTOR SPINDLE

**BMJ**

**Features:**
- Straight Motor/Spindles with O.D. sizes for all Swiss type machines.
- Uses a Straight or 90-Degree Motor Cord that attach to the rear of the Motor/Spindle.
- Ability to insert the Motor/Spindle from the front or rear of the tool block.

**BMJ-319**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Spindle Diameter</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7651</td>
<td>BMJ-319</td>
<td>0.75&quot; (19.05mm)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Motor Speed: 1,000~60,000 min⁻¹ (rpm)
- Spindle Accuracy: Within 1 µm
- Max. Output Power: 140W
- Standard Size Collet (CHA-3.175): ø1/8" (0.125"
- Weight: 6.7 oz.

**BMJ-320**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Spindle Diameter</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7652</td>
<td>BMJ-320</td>
<td>0.79&quot; (20mm)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Motor Speed: 1,000~60,000 min⁻¹ (rpm)
- Spindle Accuracy: Within 1 µm
- Max. Output Power: 140W
- Standard Size Collet (CHA-3.175): ø1/8"
- Weight: 6.7 oz.

**BMJ-322**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Spindle Diameter</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7653</td>
<td>BMJ-322</td>
<td>0.87&quot; (22mm)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Motor Speed: 1,000~60,000 min⁻¹ (rpm)
- Spindle Accuracy: Within 1 µm
- Max. Output Power: 150W
- Standard Size Collet (CHA-3.175): ø1/8"
- Weight: 6.7 oz.

**BMJ-325**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Spindle Diameter</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7654</td>
<td>BMJ-325</td>
<td>0.98&quot; (25mm)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Motor Speed: 1,000~60,000 min⁻¹ (rpm)
- Spindle Accuracy: Within 1 µm
- Max. Output Power: 150W
- Standard Size Collet (CHA-3.175): ø1/8"
- Weight: 6.7 oz.

Note: Motor Cord is sold separately.

**Note:** Motor Cord is sold separately.
### BMF

**Fixed Flange Type without Motor Cord**

**Features:**
- Fixed Flange with Straight or 90-Degree Motor Cord that attach to the rear of the Motor/Spindle.
- Flange mount eliminates the need to clamp on the O.D.
- O.D. sizes for all Swiss type machines.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7655</td>
<td>BMF-319</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sensorless Motor Spindle ø0.75&quot;(ø19.05mm)</td>
<td>• Motor Speed ................................... 1,000~80,000 min⁻¹ (rpm)</td>
<td>• Spindle Accuracy .............................................. Within 1 µm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7656</td>
<td>BMF-320</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sensorless Motor Spindle ø0.79&quot;(ø20mm)</td>
<td>• Motor Speed ................................... 1,000~80,000 min⁻¹ (rpm)</td>
<td>• Spindle Accuracy .............................................. Within 1 µm</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Motor Cord is sold separately.
Fixed Flange Type without Motor Cord

Features:
- Fixed Flange with Straight or 90-Degree Motor Cord that attach to the rear of the Motor/Spindle.
- Flange mount eliminates the need to clamp on the O.D.
- O.D. sizes for all Swiss type machines.

**Features:**
- Motor Speed ................................... 1,000~80,000 min⁻¹(rpm)
- Spindle Accuracy .............................................. Within 1 µm
- Max. Output Power .................................................... 150W
- Standard Size Collet (CHA-3.175) .................................. ø1/8" (0.5 mm~ ø4.0 mm)
- Weight .................................................................. 6.88 oz.
- Motor Cord ....................................... Length 13 ft, 19 ft, 26 ft
- No Clamping
- O.D. sizes for all Swiss type machines.

**Price**
- HES510
  - CAT. No. BMF-320
  - Model 7658
  - Price 7658 BMF-325 60,000 min⁻¹(rpm)
  - Motor Speed 1,000~60,000 min⁻¹(rpm)
  - Spindle Accuracy Within 1 µm
  - Max. Output Power 140W
  - Standard Size Collet (CHA-3.175) ø1.0" (ø25 mm)
  - Weight 6.88 oz.
  - Motor Cord Length 13 ft, 19 ft, 26 ft
  - Sensorless Motor Spindle ø0.98" (ø25 mm)
  - Note: Motor Cord is sold separately.

**Order by catalog number. 2-p13**
“iSpeed3 SERIES” MOTOR CORD & INTERFACE CABLE

**MOTOR CORD** for **BM Type**

<table>
<thead>
<tr>
<th>Product</th>
<th>Cat. No.</th>
<th>Description</th>
<th>Model</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9261</td>
<td>EMCD-BM3-3M</td>
<td>10 ft (3.0m)</td>
<td></td>
<td></td>
<td></td>
<td>BM-212 - BM-213</td>
<td></td>
</tr>
<tr>
<td>9262</td>
<td>EMCD-BM3-5M</td>
<td>16 ft (4.8m)</td>
<td></td>
<td></td>
<td></td>
<td>BM-222 - BM-223</td>
<td></td>
</tr>
<tr>
<td>9263</td>
<td>EMCD-BM3S-7M</td>
<td>22 ft (6.7m)</td>
<td></td>
<td></td>
<td></td>
<td>BMF-319 - BMF-320</td>
<td></td>
</tr>
</tbody>
</table>

**MOTOR CORD** for **BMJ Type & BMP Type**

<table>
<thead>
<tr>
<th>Product</th>
<th>Cat. No.</th>
<th>Description</th>
<th>Model</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9264</td>
<td>EMCD-BM3A-4M</td>
<td>13 ft (3.9m)</td>
<td></td>
<td></td>
<td></td>
<td>BM-212 - BM-213</td>
<td></td>
</tr>
<tr>
<td>9265</td>
<td>EMCD-BM3A-6M</td>
<td>19 ft (5.8m)</td>
<td></td>
<td></td>
<td></td>
<td>BMF-319 - BMF-320</td>
<td></td>
</tr>
<tr>
<td>9266</td>
<td>EMCD-BM3A-8M</td>
<td>26 ft (7.9m)</td>
<td></td>
<td></td>
<td></td>
<td>BMF-319 - BMF-320</td>
<td></td>
</tr>
</tbody>
</table>

**25 Pin INTERFACE CABLE**

- A 25 pin interface cable provides a DB25 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of I/O signals from any NSK Control to a CNC Control.

**15 Pin INTERFACE CABLE**

- A 15 pin interface cable provides a DB15 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of the OP1 “E-Stop Input Circuit” and “Safety Relay Circuit” from the NSK Control to a CNC Control.

---

**“iSpeed3 SERIES” AIR LINE KIT**

- The AL-C1204 Air Line Kit is designed to deliver clean, dry air to Electric Motors via the Control Unit. The filter removes small amounts of debris while the adjustable regulator provides the correct air pressure for cooling and purging.

**Air Line Kit** (For ø6 mm Hose Filter Mesh 0.3 µm)

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Description</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4504</td>
<td>Air Line Kit AL-C1204</td>
<td>AL-C1204</td>
<td></td>
</tr>
</tbody>
</table>

- Includes Air Filter, Air Regulator, Air Pressure Gauge, Air ON-OFF Valve, Hose for Piping (K-275): 6 ft

---

**Order by catalog number. 2-p15**
### MOTOR CORD for BM Type

<table>
<thead>
<tr>
<th>Product</th>
<th>Cat. No.</th>
<th>Description · Model</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9261</td>
<td>EMCD-BM3-3M</td>
<td>10 ft (3.0m)</td>
<td></td>
<td></td>
<td>BM-219 · BM-229</td>
<td></td>
</tr>
<tr>
<td>9262</td>
<td>EMCD-BM3-5M</td>
<td>16 ft (4.8m)</td>
<td></td>
<td></td>
<td>BM-220 · BM-229</td>
<td></td>
</tr>
<tr>
<td>9263</td>
<td>EMCD-BM3-7M</td>
<td>22 ft (6.7m)</td>
<td></td>
<td></td>
<td>BM-220 · BM-235</td>
<td></td>
</tr>
</tbody>
</table>

### MOTOR CORD for BMJ Type & BMP Type

<table>
<thead>
<tr>
<th>Product</th>
<th>Cat. No.</th>
<th>Description · Model</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9264</td>
<td>EMCD-BM3S-4M</td>
<td>13 ft (3.9m)</td>
<td></td>
<td></td>
<td>BMJ-219 · BMP-229</td>
<td></td>
</tr>
<tr>
<td>9265</td>
<td>EMCD-BM3S-6M</td>
<td>19 ft (5.8m)</td>
<td></td>
<td></td>
<td>BMJ-220 · BMP-235</td>
<td></td>
</tr>
<tr>
<td>9266</td>
<td>EMCD-BM3S-8M</td>
<td>26 ft (7.9m)</td>
<td></td>
<td></td>
<td>BMJ-220 · BMP-235</td>
<td></td>
</tr>
</tbody>
</table>

### 25 Pin INTERFACE CABLE

- 25 Pin Interface Cable provides a DB25 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of I/O signals from any NSK Control to a CNC Control.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB25M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DB25M</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 15 Pin INTERFACE CABLE

- 15 Pin Interface Cable provides a DB15 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of the OPF1 “E-Stop Input Circuit” and “Safety Relay Circuit” from the NSK Control to a CNC Control.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB15M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DB15M</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
E2280 SERIES

1,000~50,000 min⁻¹ (rpm)
Output 200W

Outside Diameter
ø0.897", ø0.98", ø1.0"
(ø22.8, ø25, ø25.4 mm)

- The E2280 Series is capable of up to 50,000 min⁻¹ (rpm) and employs a high-speed, ultra-quiet brushless motor.
- High-performance system and state of the art design allows high-speed machining and a variety of safety functions.

E3000 SERIES

1,000~60,000 min⁻¹ (rpm)
Output 350W

Outside Diameter [One Piece Type]
ø0.79", ø0.98", ø1.18"
(ø20, ø25, ø30 mm)

Outside Diameter [Modular Type]
ø0.897", ø0.98", ø1.0", ø1.18"
(ø22.8, ø25, ø25.4, ø30 mm)

1,000~80,000 min⁻¹ (rpm)
Output 350W

Outside Diameter [Modular Type]
ø1.18" (ø30 mm)
ø1.97" (ø50 mm) - Air Bearing

E4000 SERIES

1,000~40,000 min⁻¹ (rpm)
Max. Output 1,200W

Outside Diameter
ø1.57" (ø40 mm)

- Up to ø0.375" Collet Capacity
- Designed for use on CNC Lathes, Robots and Special Application Machines for precision milling, drilling, grinding, slitting and deburring applications.
E2280 Series
Series Electric System

**Straight Spindle**
(Modular Type)
Suitable for small diameter milling & drilling, slitting, chamfer and grinding operation.

**Angle Spindle**
(Modular Type)
Capable of working on corners difficult to work with straight type and drilling and milling on side face. Three type Angle Head Sizes available.

- **Modular Type**

**Outside Diameter**

<table>
<thead>
<tr>
<th>ø1.0&quot;</th>
<th>ø0.98&quot; (ø25.4, ø25 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000~50,000 min⁻¹ (rpm)</td>
<td>Output 200W</td>
</tr>
</tbody>
</table>

**Outside Diameter**

<table>
<thead>
<tr>
<th>ø0.897&quot; (ø22.8 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000~50,000 min⁻¹ (rpm)</td>
</tr>
</tbody>
</table>

**Technical Data**

- E2280 ø1.0/ø0.98
- E3000 ø0.897
- E3000 ø0.897 (Modular)
- E3000 ø1.0
- E3000 ø1.0 (Modular)

**Application Examples**

- Emave EVO
- ESPERT
- ROTUS
- IMPULSE
- PRESTO II
- SHEENUS neo
- SONIC CUTTER

**Parts**

- AIR LINE KIT
- 5
- HES
- HTS
- HPS
- PLANET
- Xpeed
- ABT

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- 1
- 2
- 3
- 4
- 5
- 6
E2280 Series φ1.0", φ0.98" (φ25.4, φ25 mm) System Chart

- Interchangeable with a variety of attachments depending on the application.

- Clean dry air is required.

- Do not exceed the maximum motor speed recommendation for the spindles. Excess speed will dramatically reduce bearing life.
Features of E2280 Series

- **Maximum Output 200W**
  The E2280 Series motor is a brushless DC motor utilizing hall elements and rare-earth magnets in the rotor. The Motor develops 200W.

- **Brushless Motor**
  The brushless DC Motor designs allows for excellent reliability and durability. The brushless DC Motor can be steplessly controlled up to 50,000 min⁻¹ (rpm).

- **Air-Cooling System**
  Air-cooled motor uses a small volume of dry air (1.0 CFM) to minimize heat buildup and allow continuous operation. Air pressure required is 36-44 PSI.

- **Wide Variety of Interchangeable Spindles are Available**
  Straight-type spindles are available along with speed reducers to increase torque as well as 90° degree spindles to provide outstanding system flexibility.

- **System Protection Function**
  The E2280 Series is equipped with a protective function to stop the spindle rotation automatically in case of overload ensuring safe and smooth operation. When the protective circuit is activated, an error code is shown on the digital display. In case of an air supply failure, the protective circuit limits the motor/spindle to 30,000 min⁻¹ (rpm) maximum.

- **Centering Mode Switch**
  This switch activates the centering mode, which maintains a constant 500 min⁻¹ (rpm) spindle speed for centering the tool.

- **Operating Parameters**
  The operating parameters can be preset for:
  - *Fixed Motor Speed*
  - *Maximum Motor Speed*
  - *Operating without Air and several other functions.*

- **2 Motors can be connected (No Simultaneous Operation)**
  Up to 2 motors may be connected to 1 controller and operated sequentially making this system very easy to use when multiple live tools are required.

- **Compact Vertical Controller**
  The compact, vertical design of the controller makes it extremely easy to mount in cramped control cabinets.

- **Power Source Auto Detection**
  The controller is capable of being connected to AC100V or AC240V power sources. The Auto Sensing feature reduces installation time and eliminates the possibility of connecting the incorrect voltage.

- **Stainless Steel Body**
  The housings of the motor and spindle are made from precision ground stainless steel (SUS416).

- **Emergency Stop Function**
  By setting a parameter, an emergency stop signal can be activated. Using the open detection signal of the motor power line through the safety relay, the E2280 controller can establish a safe operating system.

### Automatic Control System Chart

- **Sequential Operation of up to 2 Motor / Spindles**

  ![Automatic Control System Chart Diagram]

  *The E2280 Series controller has the ability to control up to 2 motors sequentially. 2 motors can not be run simultaneously.*
High Precision and High-Performance Controller

- **High-Performance Electric Circuit**
  ‘High grade feedback loop maintains constant spindle speed even if load is varied’, and ‘Gentle start/Quick stop functions’ are provided.

- **Warning/Error Functions**
  Motor/Spindle is stopped when an Error or Warning Code has been detected and indicated on the LED Display. An output signal can be sent to the CNC control.
  - Warnings Codes: i.e. • High Air Pressure • Low Air Pressure
  - Errors Codes: i.e. • Rotor Lock • Overheat • Overload
  - Torque Load • External Signal Error
  - E-Stop • Incompatible Motor

- **Selector Function**
  Max. 2 motors can be controlled sequentially. 2 motors cannot be run simultaneously.

- **Motor Speed Display**
  Motor speed is displayed precisely and digitally.

- **LOAD Monitor LED**
  Motor load is displayed by 6 LED’s to indicate load level.

- **External Input-Output Signals**
  (Refer to Technical Data 7-p10~p17 in detail)
  Motor/Spindle can be controlled and monitored by external input-output signals. Controls: Start/Stop, Motor Speed Control, FWD./REV. Rotation and etc. Monitor: While Rotating, Rotation Pulse, Controller Power Source Detection, AUTO Mode, Motor Speed Voltage, Torque Load etc.

- **Selection of Illumination Brightness**
  Select the brightness of the blue illumination from 4 patterns.

### E2280 Series Combination Example

<table>
<thead>
<tr>
<th>Model</th>
<th>NE314</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Source</td>
<td>AC 100 - 240V, 50-60 Hz</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>1.45A</td>
</tr>
<tr>
<td>Weight</td>
<td>4 lb. 13.60 oz.</td>
</tr>
<tr>
<td>Dimensions</td>
<td>W4.25&quot; x D6.60&quot; x H6.93&quot;</td>
</tr>
</tbody>
</table>

- **Motor & Spindle**
  - Motor: EM25N-5000-J4
  - Spindle: NR-2551
  - Speed: 1,000-50,000 min⁻¹(rpm)
  - 500 min⁻¹(rpm) : for centering
  - Weight: 1 lb. 1.74 oz. (w/o motor cable)
  - Dimensions: ø0.98" x 7.41"

### E2280, NR-2551 Combination Example

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>NE314</th>
<th>EM25N-5000-J4</th>
<th>NR-2551</th>
<th>AL-C1204</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product</td>
<td>Controller</td>
<td>Brushless Motor</td>
<td>Spindle</td>
<td>Air Line Kit</td>
</tr>
<tr>
<td>Price</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Total    |       |              |         |           |
**“E2280 SERIES” CONTROLLER**

- 1,000~50,000 min⁻¹ (rpm)
- Maximum Output 200W
- 2 motors can be connected (No Simultaneous Operation).
- External Input / Output Control Signal (Refer to 7-p10~p17 page of this catalog)

### E2280 CONTROLLER NE314

#### Specifications
- Model: NE314
- Power Source: AC 100-240V, 50-60 Hz
- Power Consumption: 1.45A
- Weight: 4 lb. 13.60 oz.
- Dimensions: W4.25" x D6.60" x H6.93"

#### Load Monitor
- Rotating LED (RUN)
- Warning LED (WARNING)
- Error LED (ERROR)
- Error Reset Button (RESET)
- KEY HOLD LED Button
- Digital Speed Indicator
- Load Monitor (LOAD)
- Motor Speed Adjustment Button (SPEED)
- DISPLAY (DISP) Button
- Control Button (CTRL)
- Motor Spindle Selection Button (MOTOR)
- Rotation Direction Button (DIR)
- Start / Stop Button (START / STOP)

#### Interface Cable
- Page 2-p24

### E2280 Controller

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Plug Type</th>
<th>Model</th>
<th>Standard Equipment · Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7720</td>
<td>100 - 240V</td>
<td>NE314</td>
<td>• Power Cord  • ø6mm Air Hose with Filter  • Power Cord Hook  • Reducer  • Connector Cap (Provided) : 2 pcs.  • Connector Cover A / B (Provided)  • Bracket : 2 pcs.  • Air branching joint : 1 pc.  • Fuse : 2 pcs.  • Mounting Screw : 6 pcs.</td>
<td></td>
</tr>
</tbody>
</table>

* Please refer to Technical Data 7-p10–p17 in detail about External Input-Output Connector.
* AC100-240V for international operation.

#### Mounting Bracket

**Back Mounting**

**Bottom Mounting**

[Image of mounting bracket diagrams]

* Order by catalog number. 2–p21
**“E2280 SERIES” ø0.98” (ø25 mm) MOTOR**

New Model Name for E2280 Series Motor

**CAT. No.** AS88322P  **BRUSHLESS MOTOR**  **EM25N-5000-J4** (Cord with Quick Disconnect)  50,000 min⁻¹ (rpm)

**Torque Characteristics of EM25N-5000-J4**

- **Motor Speed** .................. 1,000~50,000 min⁻¹ (rpm)
- **Max. Output Power** ............. 200W
- **Housing** .................. Stainless steel (SU416)
- **Cord** .................. Length 13 ft
- **Air Coolant Hose** .............. Length 13 ft
- **Weight** .................. 8.82 oz. (w/o Cord)

**Brushless Motor**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Outside Diameter</th>
<th>Standard Equipment - Accessories</th>
<th>Price</th>
</tr>
</thead>
</table>
| AS88322P  | EM25N-5000-J4   | ø0.98” (ø25 mm) | • Cord with Quick Disconnect  
|           |          |                  | • Air Coolant Hose  
|           |          |                  | • Reducer  
|           |          |                  | • Wrench (22 x 27) : 1 pc. |

*There is not an outside diameter ø1.0” (ø25.4 mm) dimension.*
“E2280 SERIES” ø1.0", ø0.98"(ø25.4, ø25 mm) SPINDLE

E2280 Series can be used in conjunction with water or oil based coolants.

CAT. No. AS81820P SPINDLE NR-H2551 (Ceramic Bearing) 50,000 min⁻¹(rpm)

- Allowable Motor Speed: 50,000 min⁻¹(rpm)
- Spindle Accuracy: Within 1 µm
- Standard Size Collet (CHK-3.175): ø1/8"
- Weight: 8.92 oz.
- Collet (CHK): ø0.5 mm–ø6.35 mm

< Optional >
- Collet Nut (K-265): 1 pc.
- Metal Saw Arbor (KCH-03): ø0.24" (I.D.) x ø1.18" (O.D.)
- Grindstone Arbor (AGM-03): For grinding wheel with I.D. of ø5

Spindle D = ø1.0"(ø25.4 mm), ø0.98"(ø25 mm)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Outside Diameter</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS81820P</td>
<td>NR-H2551</td>
<td>ø1.0&quot;(ø25.4 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS81819P</td>
<td>NR-2551</td>
<td>ø0.98&quot;(ø25 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CAT. No. AS81835P LEVER TYPE SPINDLE NRR-2651 50,000 min⁻¹(rpm)

- Allowable Motor Speed: 50,000 min⁻¹(rpm)
- Spindle Accuracy: Within 1 µm
- Standard Size Collet (CHB-3.175): ø1/8"
- Weight: 11.64 oz.
- Collet (CHB): ø2.0, ø3.0 mm, ø1/8", ø4.0 mm

< Optional >
- Collet (CHB): ø2.0, ø3.0 mm, ø1/8", ø4.0 mm

Lever Type Spindle ø0.98"(ø25 mm)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Outside Diameter</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS81835P</td>
<td>NRR-2651</td>
<td>ø0.98&quot;(ø25 mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Do not exceed the allowable motor speed for the spindle.

- Designed for increased durability by utilizing ceramic bearings, for obtaining strong rigidity in both radial direction and thrust directions by utilizing 2 super-precision ceramic bearings on the front side and 2 on the rear side. This spindle can be used for small-diameter milling, drilling, slitting, chamfering, grinding, etc.

- No wrenches are required for tool changing.

- There is not an outside diameter ø1.0"(ø25.4 mm) dimension.

*Order by catalog number.
“E2280 SERIES” ø1.0", ø0.98"(ø25.4, ø25 mm) SPEED REDUCER

Caution: Use the motor at motor speed less than maximum allowable speed or use a speed reducer. DO NOT exceed the allowable motor speed for the spindle and the reducer.

**SPEED REDUCER 1/4 ARG-H2504N**

If the speed reducer is connected between the motor and the spindle, it reduces the rotating speed and increases the torque while keeping the motor speed unchanged.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Outside Diameter</th>
<th>Reduction</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS81826P</td>
<td>ARG-H2504N</td>
<td>ø1.0&quot;, ø0.98&quot;</td>
<td>1/4</td>
<td></td>
</tr>
<tr>
<td>AS81822P</td>
<td>ARG-2504N</td>
<td>ø0.98&quot;</td>
<td>1/16</td>
<td></td>
</tr>
</tbody>
</table>

Maximum allowable motor speed: 30,000 min⁻¹ (rpm)

Maximum rotating speed at the cutting tool: 7,500 min⁻¹ (rpm)

**SPEED REDUCER 1/16 ARG-H2516N**

If the speed reducer is connected between the motor and the spindle, it reduces the rotating speed and increases the torque while keeping the motor speed unchanged.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Outside Diameter</th>
<th>Reduction</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS81828P</td>
<td>ARG-H2516N</td>
<td>ø1.0&quot;, ø0.98&quot;</td>
<td>1/16</td>
<td></td>
</tr>
<tr>
<td>AS81824P</td>
<td>ARG-2516N</td>
<td>ø0.98&quot;</td>
<td>1/4</td>
<td></td>
</tr>
</tbody>
</table>

Maximum allowable motor speed: 30,000 min⁻¹ (rpm)

Maximum rotating speed at the cutting tool: 1,870 min⁻¹ (rpm)

**25 Pin INTERFACE CABLE**

3 Meter long Interface Cable provides a DB25 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of I/O signals from any NSK Control to a CNC Control.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB25M</td>
<td>DB25M</td>
<td></td>
</tr>
</tbody>
</table>

**15 Pin INTERFACE CABLE**

3 Meter long Interface Cable provides a DB15 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of the (OP1) “E-Stop Input Circuit” and “Safety Relay Circuit” from the NSK Control to a CNC Control.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB15M</td>
<td>DB15M</td>
<td></td>
</tr>
</tbody>
</table>
Rotary Coupling

An electric/pneumatic coupling is now available that allows NAKANISHI Electric Spindles up to 30mm diameter, to be mounted to the turret of a CNC turning machine. The rotary coupling prevents power cable and pneumatic lines from getting tangled when the turret is rotated. Contact NSK America at 800-585-4675 for complete details.
Do not exceed the maximum motor speed recommendation for the spindles. Excess speed will dramatically reduce bearing life.

※ Clean dry air is required.
Features of E2280 Series

- **Maximum Output 200W**
The E2280 Series motor is a brushless DC motor utilizing hall elements and rare-earth magnets in the rotor. The Motor develops 200W.

- **Brushless Motor**
The brushless DC Motor designs allows for excellent reliability and durability. The brushless DC Motor can be steplessly controlled up to 50,000 min⁻¹ (rpm).

- **Air-Cooling System**
Air-cooled motor uses a small volume of dry air (1.0 CFM) to minimize heat buildup and allow continuous operation. Air pressure required is 36-44 PSI.

- **Wide Variety of Interchangeable Spindles are Available**
Straight-type spindles are available along with speed reducers to increase torque as well as 90° degree spindles to provide outstanding system flexibility.

- **System Protection Function**
The E2280 Series is equipped with a protective function to stop the spindle rotation automatically in case of overload ensuring safe and smooth operation. When the protective circuit is activated, an error code is shown on the digital display. In case of an air supply failure, the protective circuit limits the motor/spindle to 30,000 min⁻¹ (rpm) maximum.

- **Centering Mode Switch**
This switch activates the centering mode, which maintains a constant 500 min⁻¹ (rpm) spindle speed for centering the tool.

- **Operating Parameters**
The operating parameters can be preset for: *Fixed Motor Speed* *Maximum Motor Speed* *Operating without Air and several other functions.*

- **2 Motors can be connected (No Simultaneous Operation)**
Up to 2 motors may be connected to 1 controller and operated sequentially making this system very easy to use when multiple live tools are required.

- **Compact Vertical Controller**
The compact, vertical design of the controller makes it extremely easy to mount in cramped control cabinets.

- **Power Source Auto Detection**
The controller is capable of being connected to AC100V or AC240V power sources. The Auto Sensing feature reduces installation time and eliminates the possibility of connecting the incorrect voltage.

- **Stainless Steel Body**
The housings of the motor and spindle are made from precision ground stainless steel (SUS416).

- **Emergency Stop Function**
By setting a parameter, an emergency stop signal can be activated. Using the open detection signal of the motor power line through the safety relay, the E2280 controller can establish a safe operating system.

Automatic Control System Chart

- **Sequential Operation of up to 2 Motor / Spindles**

---

*The E2280 Series controller has the ability to control up to 2 motors sequentially. 2 motors can not be run simultaneously.*
High Precision and High-Performance Controller

- **High-Performance Electric Circuit**
  “High grade feedback loop maintains constant spindle speed even if load is varied”, and ‘Gentle start/Quick stop functions’ are provided.

- **Warning/Error Functions**
  Motor/Spindle is stopped when an Error or Warning Code has been detected and indicated on the LED Display. An output signal can be sent to the CNC control.

  **Warnings Codes**: i.e. • High Air Pressure • Low Air Pressure
  • Controller Overheat • Motor Overload

  **Errors Codes**: i.e. • Rotor Lock • Overheat • Overload
  • Torque Load • External Signal Error
  • E-Stop • Incompatible Motor

- **Selector Function**
  Max. 2 motors can be controlled sequentially. 2 motors cannot be run simultaneously.

- **Motor Speed Display**
  Motor speed is displayed precisely and digitally.

- **LOAD Monitor LED**
  Motor load is displayed by 6 LED’s to indicate load level.

External Input-Output Signals
(Refer to Technical Data 7-p10–p17 in detail)
Motor/Spindle can be controlled and monitored by external input-output signals. Controls : Start/Stop, Motor Speed Control, FWD./REV. Rotation and etc. Monitor : While Rotating, Rotation Pulse, Controller Power Source Detection, AUTO Mode, Motor Speed Voltage, Torque Load etc.

Selection of Illumination Brightness

Select the brightness of the blue illumination from 4 patterns.

---

E2280 Series Combination Example

**50,000 min⁻¹(rpm)**

**Controller Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>NE314</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Source</td>
<td>AC 100 - 240V, 50-60 Hz</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>1.45A</td>
</tr>
<tr>
<td>Weight</td>
<td>4 lb. 13.60 oz.</td>
</tr>
<tr>
<td>Dimensions</td>
<td>W4.25″ x D6.60″ x H6.93″</td>
</tr>
</tbody>
</table>

**Motor & Spindle**

<table>
<thead>
<tr>
<th>Motor</th>
<th>EM25-5000-J4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spindle</td>
<td>NR-2351</td>
</tr>
<tr>
<td>Speed</td>
<td>1,000–50,000 min⁻¹(rpm)</td>
</tr>
<tr>
<td></td>
<td>500 min⁻¹(rpm) : for centering</td>
</tr>
<tr>
<td>Weight</td>
<td>1 lb. 0.40 oz. (w/o motor cable)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>ø0.98″ x 7.41″</td>
</tr>
</tbody>
</table>

**E2280, NR-2351 Combination Example**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7720</td>
<td>NE314</td>
<td>Controller</td>
<td></td>
</tr>
<tr>
<td>AS8822</td>
<td>EM25-5000-J4</td>
<td>Brushless Motor</td>
<td></td>
</tr>
<tr>
<td>AS18220</td>
<td>NR-2351</td>
<td>Spindle</td>
<td></td>
</tr>
<tr>
<td>4504</td>
<td>AL-C1204</td>
<td>Air Line Kit</td>
<td></td>
</tr>
</tbody>
</table>

**Total** |
**E2280 SERIES** CONTROLLER

- 1,000–50,000 min⁻¹ (rpm)
- Maximum Output 200W
- 2 motors can be connected (No Simultaneous Operation).
- External Input / Output Control Signal (Refer to 7-p10–p17 page of this catalog)

---

**Cat. No.** 7720 **E2280 CONTROLLER** NE314

**NEW**

* : Load Monitor

- : Continuous load area
- : Intermittent load area
- : Overload

**Motor Connector No.1, No.2**

**Air Output Joint**

**Air Input Joint**

**External Input / Output Connector A, B**

**Fixing Power Cord Hook Bar**

**Power Cord Hook**

**Main Power Switch**

**Main Power Intake with Power Supply Fuses**

---

**E2280 Controller**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Plug Type</th>
<th>Model</th>
<th>Standard Equipment - Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7720</td>
<td>100 - 240V (Without Plug)</td>
<td>NE314</td>
<td>• Power Cord • ø6mm Air Hose with Filter • Power Cord Hook • Reducer • Connector Cap (Provided) : 2 pcs. • Connector Cover A / B (Provided) • Bracket : 2 pcs. • Air branching joint : 1 pc. • Fuse : 2 pcs. • Mounting Screw : 6 pcs.</td>
<td></td>
</tr>
</tbody>
</table>

*Please refer to Technical Data 7-p10–p17 in detail about External Input-Output Connector.
*AC100-240V for international operation.

---

**Mounting Bracket**

**Back Mounting**

**Bottom Mounting**

---

*Order by catalog number. 2–p29*
“E2280 SERIES” BRUSHLESS MOTOR

CAT. No. AS88322 BRUSHLESS MOTOR EM25-5000-J4 (Cord with Quick Disconnect) 50,000 min⁻¹(rpm)

- Motor Speed ........................................ 1,000–50,000 min⁻¹(rpm)
- Max. Output Power ........................................ 200W
- Housing ........................................ Stainless steel (SUS416)
- Cord .................................................. Length 13 ft
- Air Coolant Hose ......................................... Length 13 ft
- Weight ............................................... 8.82 oz. (w/o Cord)

Brushless Motor

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Basis/Option</th>
<th>Standard Equipment - Accessories</th>
<th>Price</th>
</tr>
</thead>
</table>
| AS88322 | EM25-5000-J4 | ø0.98" (ø25.4 mm) | • Cord with Quick Disconnect  
  • Air Coolant Hose  
  • Reducer  
  • Wrench (22 x 27) : 1 pc. |       |

* There is not an outside diameter ø1.0" (ø25.4 mm) dimension.

CAT. No. 7721 BRUSHLESS MOTOR EM-2350J 50,000 min⁻¹(rpm)

- Motor Speed ........................................ 1,000–50,000 min⁻¹(rpm)
- Max. Output Power ........................................ 200W
- Housing ........................................ Stainless steel (SUS416)
- Weight ............................................... 9.17 oz. (w/ Cord)

Brushless Motor

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Basis/Option</th>
<th>Standard Equipment - Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7721</td>
<td>EM-2350J</td>
<td></td>
<td>• Wrench (20 x 24) : 1 pc.</td>
<td></td>
</tr>
</tbody>
</table>

Note: Motor Cord is sold separately. Please select a cord from the list below.

Motor Cord

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Description - Model</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
</table>
|         | 7722     | Motor Cord 4M EMCD-2350J-4M | 12.1 ft (3.7m) | Air Hose  
  Connector Cap (Provided) | EM-2350J |       |
|         | 7723     | Motor Cord 6M EMCD-2350J-6M | 18.7 ft (5.7m) |       |        |       |
|         | 7724     | Motor Cord 8M EMCD-2350J-8M | 25.3 ft (7.7m) |       |        |       |

Torque Characteristics of EM25-5000-J4 / EM-2350J
“E2280 SERIES” φ0.897" (φ22.8 mm) SPINDLE

E2280 Series can be used in conjunction with water or oil based coolants.

Do not exceed the allowable motor speed for the spindle.

**Application Examples**
- **Emax EVO**
- **ESPERT**
- **ROUTUS**
- **IMPULSE**
- **PRESTO II**
- **SHEENUS neo**
- **SONIC CUTTER**

**Parts**
- AIR LINE KIT
- HES
- HTS
- HPS
- PLANET Xpeed
- ABT

**Index**
1. **Technical Data**
2. **Spindle**
3. **Parts and Accessories**
4. **Spindle**
5. **Order by catalog number. 2-p31**
**“E2280 SERIES” ø0.897”(ø22.8 mm) SPINDLE**

Caution: Use the motor at motor speed less than maximum allowable speed or use the speed reducer. DO NOT exceed the allowable motor speed for the spindle and the reducer.

### APPLICATION EXAMPLES
- **Emax EVO**
- **ESPERT**
- **ROTUS**
- **IMPULSE**
- **PRESTO II**
- **SHEENUSneo**
- **SONIC CUTTER**

<table>
<thead>
<tr>
<th>ø1.0”</th>
<th>ø0.98”</th>
</tr>
</thead>
<tbody>
<tr>
<td>ø1.18”</td>
<td>MS ø0.75”</td>
</tr>
<tr>
<td>ø0.79”</td>
<td>ø0.87”</td>
</tr>
<tr>
<td>ø0.91”</td>
<td>ø1.0”</td>
</tr>
<tr>
<td>ø0.98”</td>
<td>ø0.897”</td>
</tr>
</tbody>
</table>

### IO LINE KIT
- **HES**
- **HTS**
- **HPS**
- **PLANET**
- **Xspeed**
- **ABT**

### INDEX

#### PARTS
- CAT. No. 11411 AS11411 90° ANGLE SPINDLE RA-100
  - **Maximum allowble motor speed for the spindle**: 20,000 min⁻¹(rpm)
  - **Maximum rotating speed at the cutting tool**: <Reduction Ratio : 1/2.67>
    - 7,490 min⁻¹(rpm)

  - **Optional**
    - Collet (CHK-18) for ø0.8 mm–ø3.175 mm
    - Metal Saw Arbor (KCH-02) for ø0.24” (I.D.) x ø1.18” (O.D.)
    - Grindstone Arbor (AGM-03) for ø0.24” (I.D.) x ø1.18” (O.D.)

  - **90° Angle Spindle**
  - **Standard Size Collet (CH8-3.175)**: ø1/8”
  - **Weight**: 9.56 oz.
  - **Spindle Accuracy**: Within 2 µm
  - **Recommended Clamping Area**: ø22.8 mm - 0.01

#### PARTS
- CAT. No. 11412 AS11412 90° ANGLE SPINDLE RA-200
  - **Maximum allowble motor speed for the spindle**: 20,000 min⁻¹(rpm)
  - **Maximum rotating speed at the cutting tool**: <Reduction Ratio : 1/1.5>
    - 13,330 min⁻¹(rpm)

  - **Optional**
    - Collet (CH8-3.175) for ø0.8 mm–ø3.175 mm

  - **90° Angle Spindle**
  - **Standard Size Collet (CH8-3.175)**: ø1/8”
  - **Weight**: 5.82 oz.
  - **Spindle Accuracy**: Within 2 µm
  - **Recommended Clamping Area**: ø22.8 mm - 0.01

### INDEX

#### TECHNICAL DATA

- **90° Angle Spindle**
  - **Standard Size Collet (CH8-3.175)**: ø1/8”
  - **Weight**: 9.56 oz.
  - **Spindle Accuracy**: Within 2 µm
  - **Recommended Clamping Area**: ø22.8 mm - 0.01

- **90° Angle Spindle**
  - **Standard Size Collet (CH8-3.175)**: ø1/8”
  - **Weight**: 5.82 oz.
  - **Spindle Accuracy**: Within 2 µm
  - **Recommended Clamping Area**: ø22.8 mm - 0.01

---

- **Standard Size Collet**: CH8-3.175
- **Weight**: 5.82 oz.
- **Spindle Accuracy**: Within 2 µm
- **Recommended Clamping Area**: ø22.8 mm - 0.01

- **Standard Size Collet**: CH8-3.175
- **Weight**: 5.82 oz.
- **Spindle Accuracy**: Within 2 µm
- **Recommended Clamping Area**: ø22.8 mm - 0.01

---

- **Standard Size Collet**: CH8-3.175
- **Weight**: 5.82 oz.
- **Spindle Accuracy**: Within 2 µm
- **Recommended Clamping Area**: ø22.8 mm - 0.01

- **Standard Size Collet**: CH8-3.175
- **Weight**: 5.82 oz.
- **Spindle Accuracy**: Within 2 µm
- **Recommended Clamping Area**: ø22.8 mm - 0.01

---

**This spindle can be used for working on corners difficult to work or unfit for working with straight type, drilling on side face, etc.**

**90° Angle Spindle**
- **Spindle Accuracy**: Within 2 µm
- **Weight**: 11.48 oz.
- **Optional**
  - Collet (K-265) for ø0.5 mm–ø6.35 mm
  - Metal Saw Arbor (KCH-03) for ø0.24” (I.D.) x ø1.18” (O.D.)
  - Grindstone Arbor (AGM-03) for ø0.24” (I.D.) x ø1.18” (O.D.)

---

**90° Angle type spindle with wide clucking range up to ø1/4”(ø6.35 mm) is suitable for installations where space restrictions exist.**

---

**This spindle is capable of working on corners difficult to work with straight type, drilling on side face and, slitting of aluminum, brass, etc. with the use of ø1.18”(ø30 mm) Metal Saw.**

---

**90˚Angle type spindle with wide clucking range up to ø1/4”(ø6.35 mm) is suitable for installations where space restrictions exist.**

---

**This spindle can be used for working on corners difficult to work or unfit for working with straight type, drilling on side face, etc.**
1. **Caution:** Use the motor at motor speed less than maximum allowable speed or use the speed reducer. Do not exceed the allowable motor speed for the spindle.

2. **Recommended Clamping Area:**
   - For ø0.24” (I.D.) x ø1.18” (O.D.)
   - For grinding wheel with I.D. of ø5 mm

3. **90° Angle Spindle with wide chucking range up to ø1/4” (ø6.35 mm) is suitable for installations where space restrictions exist.

4. **90° Angle Spindle:** Suitable for the inner grinding of ø0.59” or more and with the depth of 1.57” or less.

5. **Large precision journal ball bearings are assembled on the front part of the spindle to provide rigidity on both the radial and the thrust sides.**

6. **Summary of Typical Machine Spindles:***
   - **AS51094 RAS-101**: 90° Angle Spindle, 90° Angle type spindle with wide chucking range up to ø1/4” (ø6.35 mm), is suitable for installations where space restrictions exist.
   - **AS11411 RA-100**: 90° Angle Spindle, This spindle is capable of working on corners difficult to work with straight type, drilling on side face and, slitting of aluminum, brass, etc. with the use of ø1.38” (ø30 mm) Metal Saw.
   - **AS11412 RA-200**: 90° Angle Spindle, This spindle can be used for working on corners difficult to work or unfit for working with straight type, drilling on side face, etc.

7. **Specifications:**
   - **AS51094 RAS-101**
     - Model: 90° Angle Spindle
     - CAT. No.: AS51094
     - Standard Size Collet: ø0.8 mm to ø6.35 mm
     - Maximum allowable motor speed for the spindle: 20,000 min⁻¹ (rpm)
     - Spindle Accuracy: Within 2 µm
     - Weight: 13.5 oz.

   - **AS11411 RA-100**
     - Model: 90° Angle Spindle
     - CAT. No.: AS11411
     - Standard Size Collet: ø0.8 mm to ø6.35 mm
     - Maximum allowable motor speed for the spindle: 20,000 min⁻¹ (rpm)
     - Spindle Accuracy: Within 2 µm
     - Weight: 11.46 oz.

   - **AS11412 RA-200**
     - Model: 90° Angle Spindle
     - CAT. No.: AS11412
     - Standard Size Collet: ø0.8 mm to ø6.35 mm
     - Maximum allowable motor speed for the spindle: 20,000 min⁻¹ (rpm)
     - Spindle Accuracy: Within 2 µm
     - Weight: 6.03 oz.

8. **Order by catalog number:**
   - **2-p36**
   - **2-p37**
Caution: Use the motor at motor speed less than maximum allowable speed or use the speed reducer. DO NOT exceed the allowable motor speed for the spindle and the reducer.

**CAT. No. AS11414  SPEED REDUCER 1/3.92  ARG-01**

- Maximum allowable motor speed: 30,000 min⁻¹ (rpm)
- Maximum rotating speed at the cutting tool: 7,650 min⁻¹ (rpm)

• Speed Reducing Mechanism: By planetary gear system
• Weight: 3.81 oz.

If the speed reducer is connected between the motor and the spindle, it reduces the rotating speed and increases the torque while keeping the motor speed unchanged.

**CAT. No. AS11428  SPEED REDUCER 1/15.39  ARG-02**

- Maximum allowable motor speed: 30,000 min⁻¹ (rpm)
- Maximum rotating speed at the cutting tool: 1,940 min⁻¹ (rpm)

• Speed Reducing Mechanism: By planetary gear system
• Weight: 5.22 oz.

If the speed reducer is connected between the motor and the spindle, it reduces the rotating speed and increases the torque while keeping the motor speed unchanged.

**25 Pin INTERFACE CABLE**

- 3 Meter long Interface Cable provides a DB25 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of I/O signals from any NSK Control to a CNC Control.

**15 Pin INTERFACE CABLE**

- 3 Meter long Interface Cable provides a DB15 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of the (OP1) “E-Stop Input Circuit” and “Safety Relay Circuit” from the NSK Control to a CNC Control.
Rotary Coupling

An electric/pneumatic coupling is now available that allows NAKANISHI Electric Spindles up to 30mm diameter, to be mounted to the turret of a CNC turning machine. The rotary coupling prevents power cable and pneumatic lines from getting tangled when the turret is rotated. Contact NSK America at 800-585-4675 for complete details.

Air Line Kit (For ø6 mm Hose · Filter Mesh 0.3 µm)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment - Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4504</td>
<td>AL-C1204</td>
<td>• Air Filter • Air Regulator</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Air Pressure Gauge</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Air ON-OFF Valve</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Hose for Piping (K-275) : 6 ft</td>
<td></td>
</tr>
</tbody>
</table>
NC / CNC LATHE & AUTOMATION SOLUTIONS

E3000 Series
Electric System

1,000~60,000 min⁻¹ (rpm)

- One Piece Type
  Outside Diameter: ø1.18", ø0.98", ø0.79"
  (ø30, 25, 20 mm)

- Modular Type
  Outside Diameter: ø1.18", ø1.0", ø0.98", ø0.897"
  (ø30, 25.4, 25, 22.8 mm)

1,000~80,000 min⁻¹ (rpm)

- Modular Type
  Outside Diameter: ø1.97", ø1.18"
  (ø50, 30 mm)
NC / CNC LATHE & AUTOMATION SOLUTIONS

E3000 Series
Electric System

1,000~60,000 min⁻¹(rpm)

• One Piece Type
  Outside Diameter  ø1.18", ø0.98", ø0.79" (ø30, 25, 20 mm)

• Modular Type
  Outside Diameter  ø1.18", ø1.0", ø0.98", ø0.897" (ø30, 25.4, 25, 22.8 mm)

1,000~80,000 min⁻¹(rpm)

• Modular Type
  Outside Diameter  ø1.97", ø1.18" (ø50, 30 mm)
### One Piece Type

**Straight Motor Spindles**

<table>
<thead>
<tr>
<th>Max. Speed (rpm)</th>
<th>O.D.</th>
<th>Model</th>
<th>Collet Size: Max. ø3.175mm</th>
<th>Features</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>60,000</td>
<td>ø1.18&quot; (30mm)</td>
<td>EMS-3060K CHK</td>
<td>for light duty Grinding</td>
<td>2-p48</td>
<td></td>
</tr>
<tr>
<td>8,000</td>
<td>ø1.06&quot; (26mm)</td>
<td>EMS-3080A CHA</td>
<td></td>
<td>2-p48</td>
<td></td>
</tr>
<tr>
<td>60,000</td>
<td>ø0.96&quot; (24mm)</td>
<td>EM30-S6000 CHK</td>
<td></td>
<td>2-p52</td>
<td></td>
</tr>
<tr>
<td>60,000</td>
<td>ø0.75&quot; (20mm)</td>
<td>EM20-S6000 CHA</td>
<td></td>
<td>2-p53</td>
<td></td>
</tr>
</tbody>
</table>

**Straight Motor Spindles (Flange Type)**

<table>
<thead>
<tr>
<th>Max. Speed (rpm)</th>
<th>O.D.</th>
<th>Model</th>
<th>Collet Size: Max. ø3.175mm</th>
<th>Features</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>60,000</td>
<td>ø1.0&quot;</td>
<td>EMSP-3060K CHK</td>
<td></td>
<td>2-p50</td>
<td></td>
</tr>
</tbody>
</table>

### Modular Type

**90˚ Angle Spindles**

<table>
<thead>
<tr>
<th>Max. Speed (rpm)</th>
<th>O.D.</th>
<th>Model</th>
<th>Collet Size: Max. ø3.175mm</th>
<th>Features</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>7,490</td>
<td>ø1.18&quot; (30mm)</td>
<td>RAS-151E CHK</td>
<td></td>
<td>2-p62</td>
<td></td>
</tr>
<tr>
<td>20,000</td>
<td>ø1.0&quot;</td>
<td>RAX-271E CHA</td>
<td></td>
<td>2-p62</td>
<td></td>
</tr>
<tr>
<td>5,000</td>
<td>ø0.96&quot; (24mm)</td>
<td>RAX-71E CHS</td>
<td></td>
<td>2-p62</td>
<td></td>
</tr>
<tr>
<td>7,490</td>
<td>ø0.97&quot; (24mm)</td>
<td>RA-151E CHB</td>
<td></td>
<td>2-p63</td>
<td></td>
</tr>
<tr>
<td>13,330</td>
<td>ø0.98&quot; (25mm)</td>
<td>RA-271E CHB</td>
<td></td>
<td>2-p63</td>
<td></td>
</tr>
</tbody>
</table>

**ATC Spindles**

<table>
<thead>
<tr>
<th>Max. Speed (rpm)</th>
<th>O.D.</th>
<th>Model</th>
<th>Collet Size: Max. ø3.175mm</th>
<th>Features</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>50,000</td>
<td>ø1.97&quot; (50mm)</td>
<td>NR50-5100 ATC EM-3060</td>
<td></td>
<td>2-p56</td>
<td></td>
</tr>
<tr>
<td>50,000</td>
<td>ø1.57&quot; (40mm)</td>
<td>NR40-5100 ATC EM-3080</td>
<td></td>
<td>2-p59</td>
<td></td>
</tr>
</tbody>
</table>

**Spindle for deep hole grinding**

<table>
<thead>
<tr>
<th>Max. Speed (rpm)</th>
<th>O.D.</th>
<th>Model</th>
<th>Collet Size: Max. ø3.175mm</th>
<th>Features</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>30,000</td>
<td>ø0.897&quot; (22.8mm)</td>
<td>NR-311 CHK</td>
<td></td>
<td>2-p37</td>
<td></td>
</tr>
<tr>
<td>50,000</td>
<td>ø1.0&quot;</td>
<td>NR-3080S CHA</td>
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<td>2-p76</td>
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</table>

**Lever Type Spindle**

<table>
<thead>
<tr>
<th>Max. Speed (rpm)</th>
<th>O.D.</th>
<th>Model</th>
<th>Collet Size: Max. ø3.175mm</th>
<th>Features</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>60,000</td>
<td>ø1.06&quot; (26mm)</td>
<td>NRR-3060 CHB</td>
<td></td>
<td>2-p58</td>
<td></td>
</tr>
<tr>
<td>50,000</td>
<td>ø1.06&quot; (26mm)</td>
<td>NRR-2651 CHB</td>
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<td>2-p59</td>
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</table>

**Quick Change Spindle**

<table>
<thead>
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<th>Max. Speed (rpm)</th>
<th>O.D.</th>
<th>Model</th>
<th>Collet Size: Max. ø3.175mm</th>
<th>Features</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>60,000</td>
<td>ø1.18&quot; (30mm)</td>
<td>NRR30-QC CHK</td>
<td></td>
<td>2-p74</td>
<td></td>
</tr>
<tr>
<td>80,000</td>
<td>ø1.0&quot;</td>
<td>NRR-5080 CHA</td>
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<td>2-p77</td>
<td></td>
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**Air Bearing Spindle (Flange Type)**

<table>
<thead>
<tr>
<th>Max. Speed (rpm)</th>
<th>O.D.</th>
<th>Model</th>
<th>Collet Size: Max. ø3.175mm</th>
<th>Features</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>80,000</td>
<td>ø0.897&quot; (22.8mm)</td>
<td>NRAF-5080 CHK</td>
<td></td>
<td>2-p76</td>
<td></td>
</tr>
</tbody>
</table>

### Technical Data

- Max. Speed (rpm) and O.D. for various models.
- Features include collet size and maximum workpiece size.
- Page numbers indicate where to find more detailed information.
### Modular Type

#### 90° Angle Spindles

<table>
<thead>
<tr>
<th>Max. Speed (rpm)</th>
<th>O.D.</th>
<th>Model</th>
<th>Collet</th>
<th>Page</th>
<th>Motors</th>
<th>Max. Speed (rpm)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>7,490</td>
<td>Ø1.18&quot; (Ø30mm)</td>
<td>RAS-151E</td>
<td>CHK</td>
<td>2-p60</td>
<td>32,000</td>
<td>EM-3530J</td>
<td>2-p56</td>
</tr>
<tr>
<td>20,000</td>
<td></td>
<td>RAX-271E</td>
<td>CHK</td>
<td>2-p60</td>
<td>30,000</td>
<td>EM-3030T-J</td>
<td>2-p57</td>
</tr>
<tr>
<td>5,000</td>
<td></td>
<td>RAX-71E</td>
<td>CHK</td>
<td>2-p60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7,490</td>
<td>Ø0.897&quot; (Ø22.8mm)</td>
<td>RAS-101</td>
<td>CHK</td>
<td>2-p32</td>
<td>50,000</td>
<td>EM-25500-J</td>
<td>2-p30</td>
</tr>
<tr>
<td>13,330</td>
<td></td>
<td>RA-100</td>
<td>CH8</td>
<td>2-p32</td>
<td>50,000</td>
<td>EM-2350J</td>
<td>2-p30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RA-200</td>
<td>CHS</td>
<td>2-p32</td>
<td></td>
<td></td>
<td></td>
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</table>

#### ATC Spindles

<table>
<thead>
<tr>
<th>Max. Speed (rpm)</th>
<th>O.D.</th>
<th>Model</th>
<th>Collet</th>
<th>Page</th>
<th>Motors</th>
<th>Max. Speed (rpm)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>50,000</td>
<td>Ø1.97&quot; (Ø50mm)</td>
<td>NR50-5100 ATC</td>
<td>CHR</td>
<td>2-p62</td>
<td>60,000</td>
<td>EM-3060</td>
<td>2-p54</td>
</tr>
<tr>
<td></td>
<td>Ø1.57&quot; (Ø40mm)</td>
<td>NR40-5100 ATC</td>
<td>CHB</td>
<td>2-p62</td>
<td>60,000</td>
<td>EM-3060J</td>
<td>2-p55</td>
</tr>
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</table>

#### Spindle for deep hole grinding

<table>
<thead>
<tr>
<th>Max. Speed (rpm)</th>
<th>O.D.</th>
<th>Model</th>
<th>Collet</th>
<th>Page</th>
<th>Motors</th>
<th>Max. Speed (rpm)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>30,000</td>
<td>Ø0.897&quot; (Ø22.8mm)</td>
<td>NR-311</td>
<td>CHK</td>
<td>2-p33</td>
<td>50,000</td>
<td>EM-25500-J</td>
<td>2-p30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AMH-301</td>
<td>CHM</td>
<td>2-p33</td>
<td>50,000</td>
<td>EM-2350J</td>
<td>2-p30</td>
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</table>

#### Lever Type Spindle

<table>
<thead>
<tr>
<th>Max. Speed (rpm)</th>
<th>O.D.</th>
<th>Model</th>
<th>Collet</th>
<th>Page</th>
<th>Motors</th>
<th>Max. Speed (rpm)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>60,000</td>
<td>Ø1.06&quot; (Ø26.8mm)</td>
<td>NRR-3060</td>
<td>CHB</td>
<td>2-p63</td>
<td>60,000</td>
<td>EM-3060</td>
<td>2-p54</td>
</tr>
<tr>
<td>50,000</td>
<td>Ø1.06&quot; (Ø26.8mm)</td>
<td>NRR-2651</td>
<td>CHB</td>
<td>2-p23</td>
<td>50,000</td>
<td>EM-25N-5000-J</td>
<td>2-p22</td>
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#### Quick Change Spindle

<table>
<thead>
<tr>
<th>Max. Speed (rpm)</th>
<th>O.D.</th>
<th>Model</th>
<th>Collet</th>
<th>Page</th>
<th>Motors</th>
<th>Max. Speed (rpm)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>60,000</td>
<td>Ø1.18&quot; (Ø30mm)</td>
<td>NR3060-AQC</td>
<td>CHK</td>
<td>2-p64</td>
<td>60,000</td>
<td>EM-3060</td>
<td>2-p54</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NR3060-QC</td>
<td>CHK</td>
<td>2-p65</td>
<td>60,000</td>
<td>EM-3060J</td>
<td>2-p55</td>
</tr>
</tbody>
</table>

#### Air Bearing Spindle (Flange Type)

<table>
<thead>
<tr>
<th>Max. Speed (rpm)</th>
<th>O.D.</th>
<th>Model</th>
<th>Collet</th>
<th>Page</th>
<th>Motors</th>
<th>Max. Speed (rpm)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>80,000</td>
<td>Flange Type</td>
<td>NRAF-5080</td>
<td>CHK</td>
<td>2-p75</td>
<td>80,000</td>
<td>EM-3080J</td>
<td>2-p74</td>
</tr>
</tbody>
</table>
One Piece Type - System Chart

Features of E3000 Series

- **Maximum Motor Speed 60,000 min⁻¹ (rpm)**
  The maximum motor speed 60,000 min⁻¹ (rpm) is realized by using high performance brushless motor and ceramic bearings.

- **Maximum Motor Output with 350W**
  350W/48V for ø1.18” (ø30 mm) spindle.

- **Motor Spindle Diameter**
  ø1.18” (ø30 mm), ø0.98” (ø25 mm), ø0.79” (ø20 mm) motor spindle diameters are available.

- **Air-Cooling System**
  Air-cooled motor uses a small volume of air (1.0 CFM) to minimize heat buildup and allow continuous operation. Air pressure required is 36-44 PSI.

- **Motor Spindle Accuracy**
  E3000 series uses a short body that is hardened and precision ground for excellent durability.

- **Motor Connector Attaches Directly to the Back of the Motor / Spindle.**
  Simple screw-lock connector makes changing motors extremely easy. Electric and Air feed incorporated into a single connector.

- **Power Source Auto Detection**
  Power Source is 100-240V for international operation. Eliminate the need of setting the voltage or changing fuses.

- **Protection System, External Input / Output Control Signal**
  Error function: Motor/Spindle is stopped safety, Error LED is lit.

- **Use E2550 Motor & Spindle with E3000 Control Unit**
  E2550 motor & spindle can be used with E3000 control unit. (Less than 50,000 min⁻¹ rpm).

- **ø0.897” (ø22.8 mm) Spindle Usage**
  Use ø0.897” (ø22.8 mm) spindles from our general catalog and an EM25-5000-J4 motor (ø0.98” (ø25 mm) 250W) with NE211.

Automatic Control System Chart

- **Single Motor Spindle Operation**
  Motor Cord EM30-S6000

- **Sequential Operation of up to 4 Motor / Spindles**
  Motor Cord EMCD-3000J-3M/4M/6M/8M

*When connecting NE211 to NE212, up to 4 motors can be connected to NE212 providing individual control of each motor. (4 motors can not be run simultaneously.)
Motor Cord Sold Separately

One Piece Type - System Chart

Features of E3000 Series

- Maximum Motor Speed 60,000 min⁻¹ (rpm)
  The maximum motor speed 60,000 min⁻¹ (rpm) is realized by using high performance brushless motor and ceramic bearings.
- Maximum Motor Output with 350W
  Motor output is 350W with ø1.0" (ø25 mm) and ø0.79" (ø20 mm) spindle.
- Motor Spindle Diameter
  A ø7/8" (ø20 mm), ø9/16" (ø25 mm), ø1.0" (ø30 mm) motor spindle diameter are available.
- Air-Cooling System
  Air-cooled motor uses a small volume of air (1.0 CFM) to minimize heat buildup and allow continuous operation. Air pressure required is 36-44 PSI.
- Spindle Accuracy
  Spindle accuracy is within 1 µm (TIR).
- High Rigidity, Short Body
  E3000 series uses a short body that is hardened and precision ground for excellent durability.
- Motor Connector Attaches Directly to the Back of the Motor / Spindle.
  Simple screw-lock connector makes changing motors extremely easy. Electric and Air feed incorporated into a single connector.
- Power Source Auto Detection
  Power Source is 100-240V for international operation. Eliminate the need of setting the voltage or changing fuses.
- Protection System, External Input / Output Control Signal
  Error function: Motor/Spindle is stopped safety, Error LED is lit. ex. Overload operation, Air shortage. Motor Spindle can be controlled and monitored by external input-output connector. ex. Control ; Start/Stop, FWD/REV., Monitor ; Motor rotating, Torque Load.
- Use E2550 Motor & Spindle with E3000 Control Unit
  E2550 motor & spindle can be used with E3000 control unit. (Less than 50,000 min⁻¹ (rpm))
- ø0.897" (ø22.8 mm) Spindle Usage
  Use ø0.897" (ø22.8 mm) spindle from one general catalog and an EM3-500-34 motor (ø9/16" (ø25 mm) 250W) with NE211.
- Centering Mode Switch
  This switch activates the centering mode, which maintains a constant 500 min⁻¹ (rpm) spindle speed for centering the tool.

Automatic Control System Chart

- Single Motor Spindle Operation
- Sequential Operation of up to 4 Motor / Spindles

*When connecting NE211 to NE212, up to 4 motors can be connected to NE212 providing individual control of each motor. (4 motors can not be run simultaneously.)
**“E3000 SERIES” CONTROL UNIT**

- AC100-240V for international operation
- 1,000~6,000 min⁻¹ (rpm)
- Maximum Output 350W
- Up to 4 motors can be connected to NE212 providing individual control of each motor.

**Specifications**

- Load Meter
- Running LED (RUN)
- Warning LED (WARNING)
- Error LED (ERROR)
- Error Reset Switch (RESET)
- Gear Setting Switch (GEAR)
- Control Switch (MONITOR)
- Rotating Direction Selector Switch (FWD./REV.)
- Start Switch (START)
- Motor Speed Adjustment Switch (SPEED)
- Display

**E3000 Control Unit**

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Plug Type</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9775</td>
<td>120V (B type)</td>
<td>NE211</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Optional**

- Control Panel Extension Cord

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Model</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>8407</td>
<td></td>
<td>NE211</td>
<td></td>
</tr>
</tbody>
</table>

---

**“E3000 SERIES” SELECTOR UNIT**

- AC100-240V for international operation
- Up to 4 motors can be connected to NE212 providing individual control of each motor.

**Specifications**

- External Input-Output Connector Signal (Refer to 7-p2~p9 page of this catalog)

**E3000 Selector Unit**

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Plug Type</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9781</td>
<td>120V (B type)</td>
<td>NE212</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Power Source Plug**

- Plug Type
- Main-Use Area
- Product

<table>
<thead>
<tr>
<th>Plug Type</th>
<th>Main-Use Area</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>For 100V (A type)</td>
<td>For Japan</td>
<td></td>
</tr>
<tr>
<td>For 120V (B type)</td>
<td>For U.S.A. and Canada</td>
<td></td>
</tr>
<tr>
<td>For 120V (B type)</td>
<td>For Japan</td>
<td></td>
</tr>
<tr>
<td>For 200V (B type)</td>
<td>For Europe</td>
<td></td>
</tr>
<tr>
<td>For 230V (B type)</td>
<td>Without Plug</td>
<td></td>
</tr>
</tbody>
</table>
### E3000 SERIES CONTROL UNIT

- AC100-240V for international operation
- 1,000–60,000 min⁻¹ (rpm)
- Maximum Output 350W

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>CONTROL UNIT</th>
<th>NE211</th>
<th>60,000 min⁻¹ (rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9775</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- External Input / Output Control Signal (Refer to 7-p2~p9 page of this catalog)

- AC100-240V for international operation

---

### E3000 SERIES SELECTOR UNIT

- AC100-240V for international operation
- Up to 4 motors can be connected to NE212 providing individual control of each motor. (Simultaneous motor operation is not possible)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>SELECTOR UNIT</th>
<th>NE212</th>
<th>60,000 min⁻¹ (rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9781</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### E3000 Control Unit

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Plug Type</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9775</td>
<td>120V (B type)</td>
<td>NE211</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Power Cord
- Air Hose with filter
- Reducer
- Air Plugs (Provided)
- Connector Cap (Provided)
- Bracket
- Power Cord Grip
- Screw
- Rubber Pad
- Fuse (T1.5A) 250V: 2 pcs.

*Please refer to Technical Data 7-p2~p8 in detail about External Input-Output Connector.

---

### E3000 Selector Unit

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Plug Type</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9781</td>
<td>120V (B type)</td>
<td>NE212</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Power Cord
- Connect NE211 to NE212 Cable
- 20.63" (with cable)
- 25 / 15 Pin Interface Cable
- Connector for Communication (B-type female)
- Power Switch
- Intake with Power Fuse
- Air Output Joint 1-4

*Power Source for Global Operation (AC100-240V). Please check the power source plug type and order accordingly.

---

### Optional

- Control Panel Extension Cord

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>8407</td>
<td></td>
<td>NE211</td>
<td></td>
</tr>
</tbody>
</table>

- 25 / 15 Pin Interface Cable

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB125M</td>
<td></td>
<td>NE211</td>
<td></td>
</tr>
<tr>
<td>DB15M</td>
<td></td>
<td>NE211</td>
<td></td>
</tr>
</tbody>
</table>

---

*Order by catalog number. 2-p47
**“E3000 SERIES” ø1.18” (ø30 mm) BRUSHLESS MOTOR SPINDLE**

E3000 Series can be used in conjunction with water or oil based coolants.

**CAT. No. 1756**
**BRUSHLESS MOTOR SPINDLE EMS-3060K** 60,000 min⁻¹ (rpm)

- **Motor Speed**: 60,000 min⁻¹ (rpm)
- **Spindle Accuracy**: Within 1 µm
- **Max. Output Power**: 350W
- **Standard Size Collet (CH3-3.175)** ø18
- **Weight**: 1 lb. 6.93 oz.

**Note**: Motor Cord is sold separately.

**CAT. No. 1755**
**BRUSHLESS MOTOR SPINDLE EMS-3060A** 60,000 min⁻¹ (rpm)

- **Motor Speed**: 60,000 min⁻¹ (rpm)
- **Spindle Accuracy**: Within 1 µm
- **Max. Output Power**: 350W
- **Standard Size Collet (CHA-3.175)** ø18
- **Weight**: 1 lb. 1.46 oz.

**Note**: Motor Cord is sold separately.

**CAUTION**: Use the motor at motor speed less than maximum allowable speed or use the speed reducer. DO NOT exceed the allowable motor speed for the spindle and the reducer.

**Caution**: To extend the life expectancy of the Speed Reducer, inject grease every 70 to 100 hours. Grease injection prevents friction of the internal gears as well as heat generation. Adding grease also prevents the degradation of the existing grease in the reducer. Please maintain a reducer grease maintenance program.

**MOTOR CORD**

<table>
<thead>
<tr>
<th>Product</th>
<th>Cat. No.</th>
<th>Description</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1778</td>
<td>Motor Cord 3M</td>
<td>EMS-3000J-3M</td>
<td>10 ft (3.0m)</td>
<td>No Noise</td>
<td>EMS-3000K</td>
<td>EMS-3008K</td>
</tr>
<tr>
<td>1768</td>
<td>Motor Cord 4M</td>
<td>EMS-3000J-4M</td>
<td>12.1 ft (3.7m)</td>
<td>Connector Cap (Provided)</td>
<td>EMS-3008A</td>
<td>EMS-3008K</td>
</tr>
<tr>
<td>1767</td>
<td>Motor Cord 6M</td>
<td>EMS-3000J-6M</td>
<td>18.7 ft (5.7m)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1766</td>
<td>Motor Cord 8M</td>
<td>EMS-3000J-8M</td>
<td>25.3 ft (7.7m)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Torque Characteristics Graph**

- EMS-3060K, EMS-3060A
- EMR-3008K

**INDEX**

2-p48

Order by catalog number. 2-p49
**E3000 SERIES ø1.18" (ø30 mm) BRUSHLESS MOTOR SPINDLE**

Maximum allowable motor speed for the spindle

For grinding wheel with I.D. of ø5 mm

ø0.5 mm~ø6.35 mm

For ø0.24" (I.D.) x ø1.18" (O.D.)

**E3000 SERIES** ø1.18" (ø30 mm) BRUSHLESS MOTOR SPINDLE

E3000 Series can be used in conjunction with water or oil based coolants.

Use the motor at motor speed less than maximum allowable speed or use the speed reducer.

Caution :

• DO NOT exceed the allowable motor speed for the spindle and the reducer.

**CAT. No.** 1756 **BRUSHLESS MOTOR SPINDLE** EMS-3060K

Maximum allowable motor speed for the spindle

60,000 min⁻¹ (rpm)

Note : Motor Cord is sold separately.

**CAT. No.** 1755 **BRUSHLESS MOTOR SPINDLE** EMS-3060A

Maximum allowable motor speed for the spindle

60,000 min⁻¹ (rpm)

Note : Motor Cord is sold separately.

**CAT. No.** 1757 **BRUSHLESS MOTOR SPINDLE** EMR-3008K

Maximum allowable motor speed for the spindle

32,000 min⁻¹ (rpm)

Note : Motor Cord is sold separately.

**MOTOR CORD**

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Description</th>
<th>Model</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1778</td>
<td>Motor Cord 3M</td>
<td>EMCD-3000UJ-3M</td>
<td>10 ft</td>
<td>(3.0m)</td>
<td>+ No Hose</td>
<td>EMS-3000K</td>
<td><strong>EMS-3000K</strong></td>
</tr>
<tr>
<td>1766</td>
<td>Motor Cord 6M</td>
<td>EMCD-3000UJ-6M</td>
<td>18.7 ft</td>
<td>(5.7m)</td>
<td>+ No Hose</td>
<td>EMS-3000K</td>
<td><strong>EMS-3000K</strong></td>
</tr>
<tr>
<td>1767</td>
<td>Motor Cord 8M</td>
<td>EMCD-3000UJ-8M</td>
<td>25.3 ft</td>
<td>(7.7m)</td>
<td>+ No Hose</td>
<td>EMS-3000K</td>
<td><strong>EMS-3000K</strong></td>
</tr>
</tbody>
</table>

**Torque Characteristics Graph**

EMC-3006K, EMS-3006A

EMR-3008K

Order by catalog number. 2-p48

*Order by catalog number. 2-p49*
"E3000 SERIES" ø1.18" (ø30 mm) FLANGE TYPE BRUSHLESS MOTOR SPINDLE

**Features:**
- 30mm Spindle with a Pre-mounted (1.3" x 1.69") Flange.
- Pre-mounted flange for easy installation on a machines standard boring bar holder.
- Eliminates the chance of spindle damage due to over tightening.
- Flange is mountable on either side of the machines holder.

**Flange Type Brushless Motor Spindle**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Speed (rpm)</th>
<th>Torque (cN.m)</th>
<th>Output (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7644</td>
<td>EMSF-3060K</td>
<td>60,000 min^{-1}</td>
<td>9.96</td>
<td>350</td>
</tr>
</tbody>
</table>

**MOTOR CORD**

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Description · Model</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fill to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1778</td>
<td>Motor Cord 3M</td>
<td>EMCD-3000J-3M</td>
<td>10 ft (3.0m)</td>
<td>*No Hose</td>
<td>E2530 / E2550</td>
<td></td>
</tr>
<tr>
<td>1768</td>
<td>Motor Cord 4M</td>
<td>EMCD-3000J-4M</td>
<td>12.1 ft (3.7m)</td>
<td>*No Hose</td>
<td>E2530 / E2550</td>
<td></td>
</tr>
<tr>
<td>1767</td>
<td>Motor Cord 5M</td>
<td>EMCD-3000J-5M</td>
<td>18.7 ft (5.7m)</td>
<td>*Connector Cap (Provided)</td>
<td>E2530 / E2550</td>
<td></td>
</tr>
<tr>
<td>1766</td>
<td>Motor Cord 6M</td>
<td>EMCD-3000J-6M</td>
<td>25.3 ft (7.7m)</td>
<td>*Connector Cap (Provided)</td>
<td>E2530 / E2550</td>
<td></td>
</tr>
</tbody>
</table>

**Torque Characteristics Graph**

- EMSF-3060K

Note: Motor Cord is sold separately.

Order by catalog number. 2-p51
"E3000 SERIES" ø1.18" (ø30 mm) FLANGE TYPE BRUSHLESS MOTOR SPINDLE

Features:
- 30mm Spindle with a Pre-mounted (1.3" x 1.69") Flange.
- Pre-mounted flange for easy installation on a machines standard boring bar holder.
- Eliminates the chance of spindle damage due to over tightening.
- Flange is mountable on either side of the machines holder.

Flange Type Brushless Motor Spindle

Note: Motor Cord is sold separately.

Torque Characteristics Graph

**EMSF-3060K**

**MOTOR CORD**

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Description Model</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fill to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Cord 3M</td>
<td>1778</td>
<td>EMCD-3000J-3M</td>
<td>10 ft</td>
<td></td>
<td>EMSF-3060K</td>
<td></td>
</tr>
<tr>
<td>Motor Cord 4M</td>
<td>1769</td>
<td>EMCD-3000J-4M</td>
<td>12.1 ft</td>
<td></td>
<td>EMSF-3060K</td>
<td></td>
</tr>
<tr>
<td>Motor Cord 6M</td>
<td>1766</td>
<td>EMCD-3000J-6M</td>
<td>18.7 ft</td>
<td></td>
<td>EMSF-3060K</td>
<td></td>
</tr>
</tbody>
</table>

*Order by catalog number.* 2-p51
### “E3000 SERIES” BRUSHLESS MOTOR SPINDLE

#### BRUSHLESS MOTOR SPINDLE EM30-S6000 60,000 min⁻¹(rpm)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1747</td>
<td>EM30-S6000</td>
<td>Motor Cord ø0.79&quot; (ø20 mm)</td>
<td>Note: Motor Cord is sold separately.</td>
</tr>
</tbody>
</table>

- **Motor Speed**: 60,000 min⁻¹(rpm)
- **Spindle Accuracy**: Within 1 µm
- **Max. Output Power**: 250 W
- **Standard Size Collet (CHA-3.175)**: ø0.79" (ø20 mm)
- **Weight**: 8.11 oz.
- **Wrench (8 x 5), (9 x 11)**: 1 pc.
- **Max. Output Power**: 350 W
- **Standard Size Collet (CHA-3.175)**: ø0.79" (ø20 mm)
- **Weight**: 1 lb. 4.28 oz.
- **Wrench (12 x 14)**: 2 pcs.

**Note**: Motor Cord is sold separately.

#### BRUSHLESS MOTOR SPINDLE EM25-S6000 60,000 min⁻¹(rpm)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1746</td>
<td>EM25-S6000</td>
<td>Motor Cord ø0.98&quot; (ø25 mm)</td>
<td>Note: Motor Cord is sold separately.</td>
</tr>
</tbody>
</table>

- **Motor Speed**: 60,000 min⁻¹(rpm)
- **Spindle Accuracy**: Within 1 µm
- **Max. Output Power**: 250 W
- **Standard Size Collet (CHA-3.175)**: ø0.98" (ø25 mm)
- **Weight**: 13.23 oz.
- **Wrench (8 x 5), (9 x 11)**: 1 pc.
- **Max. Output Power**: 350 W
- **Standard Size Collet (CHA-3.175)**: ø0.98" (ø25 mm)
- **Weight**: 1 lb. 4.28 oz.
- **Wrench (12 x 14)**: 2 pcs.

**Note**: Motor Cord is sold separately.

### MOTOR CORD Straight Type

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Description</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Cord 4M</td>
<td>1748</td>
<td>EMCD-3000-4M</td>
<td>13 ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor Cord 6M</td>
<td>1749</td>
<td>EMCD-3000-6M</td>
<td>19 ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor Cord 8M</td>
<td>1750</td>
<td>EMCD-3000-8M</td>
<td>26 ft</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Motor Cord 4M**
- Image: [EMCD-3000-4M](#)

**Motor Cord 6M**
- Image: [EMCD-3000-6M](#)

**Motor Cord 8M**
- Image: [EMCD-3000-8M](#)

### MOTOR CORD 90° Angle Type

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Description</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Cord 4M</td>
<td>1744</td>
<td>EMCD-3000A-4M</td>
<td>13 ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor Cord 6M</td>
<td>1743</td>
<td>EMCD-3000A-6M</td>
<td>19 ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor Cord 8M</td>
<td>1742</td>
<td>EMCD-3000A-8M</td>
<td>26 ft</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Motor Cord 4M**
- Image: [EMCD-3000A-4M](#)

**Motor Cord 6M**
- Image: [EMCD-3000A-6M](#)

**Motor Cord 8M**
- Image: [EMCD-3000A-8M](#)

### Torque Characteristics Graph

- **EM30-S6000**
- **EM20-S6000, EM25-S6000**

*Order by catalog number. 2-p52*
“E3000 SERIES” BRUSHLESS MOTOR SPINDLE

**CAT. No. 1747** BRUSHLESS MOTOR SPINDLE EM30-S6000 60,000 min⁻¹(rpm)

- **Outside Diameter**: ø1.18” (ø30mm)
- **Motor Speed**: 60,000 min⁻¹(rpm)
- **Max. Output Power**: 250 W
- **Spindle Accuracy**: Within 1 µm
- **Standard Size Collet (CHA-3.175)**: ø0.5 mm~ø4.0 mm
- **Weight**: 1 lb. 4.28 oz.
- **Motor Cord**: Length 13 ft, 19 ft, 26 ft

**CAT. No. 1745** BRUSHLESS MOTOR SPINDLE EM20-S6000 60,000 min⁻¹(rpm)

- **Outside Diameter**: ø0.79” (ø20mm)
- **Motor Speed**: 60,000 min⁻¹(rpm)
- **Max. Output Power**: 250 W
- **Spindle Accuracy**: Within 1 µm
- **Standard Size Collet (CHA-3.175)**: ø0.5 mm~ø4.0 mm
- **Weight**: 0.11 lb.
- **Motor Cord**: Length 13 ft, 19 ft, 26 ft

**CAT. No. 1746** BRUSHLESS MOTOR SPINDLE EM25-S6000 60,000 min⁻¹(rpm)

- **Outside Diameter**: ø0.98” (ø25mm)
- **Motor Speed**: 60,000 min⁻¹(rpm)
- **Spindle Accuracy**: Within 1 µm
- **Max. Output Power**: 250 W
- **Standard Size Collet (CHA-3.175)**: ø0.5 mm~ø4.0 mm
- **Weight**: 1 lb. 19.3 oz.
- **Motor Cord**: Length 13 ft, 19 ft, 26 ft

**Note**: Motor Cord is sold separately.

**MOTOR CORD Straight Type**

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Description</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fit to</th>
</tr>
</thead>
<tbody>
<tr>
<td>1748</td>
<td></td>
<td>Motor Cord 4M EMCD-3000-4M</td>
<td>13 ft</td>
<td></td>
<td>EM30-S6000</td>
</tr>
<tr>
<td>1749</td>
<td></td>
<td>Motor Cord 6M EMCD-3000-6M</td>
<td>19 ft</td>
<td>Motor Nut (CHN-A)</td>
<td>EM30-S6000, EM30-S6000</td>
</tr>
<tr>
<td>1750</td>
<td></td>
<td>Motor Cord 8M EMCD-3000-8M</td>
<td>26 ft</td>
<td></td>
<td>EM30-S6000, EM30-S6000</td>
</tr>
</tbody>
</table>

**MOTOR CORD 90° Angle Type**

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Description</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fit to</th>
</tr>
</thead>
<tbody>
<tr>
<td>1744</td>
<td></td>
<td>Motor Cord 4M EMCD-3000A-4M</td>
<td>13 ft</td>
<td></td>
<td>EM30-S6000</td>
</tr>
<tr>
<td>1743</td>
<td></td>
<td>Motor Cord 6M EMCD-3000A-6M</td>
<td>19 ft</td>
<td>Motor Nut (CHN-A)</td>
<td>EM30-S6000, EM30-S6000</td>
</tr>
<tr>
<td>1742</td>
<td></td>
<td>Motor Cord 8M EMCD-3000A-8M</td>
<td>26 ft</td>
<td></td>
<td>EM30-S6000, EM30-S6000</td>
</tr>
</tbody>
</table>

**Torque Characteristics Graph**

- EM30-S6000
- EM20-S6000, EM25-S6000

*Order by catalog number. 2-p53*
Use the motor at motor speed less than maximum allowable speed or use the speed reducer. DO NOT exceed the allowable motor speed for the spindle and the reducer.

90° Brushless Motor Spindle

Maximum allowable motor speed for the spindle
32,000 min⁻¹ (rpm)

Maximum rotating speed at the cutting tool
21,300 min⁻¹ (rpm)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1759</td>
<td>EMA-3020K</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Motor Cord is sold separately.

To extend the life expectancy of the Speed Reducer, inject grease every 70 to 100 hours. Grease injection prevents friction of the internal gears as well as heat generation. Adding grease also prevents the degradation of the existing grease in the reducer. Please maintain a reducer grease maintenance program.

Air Line Kit (For ø6 mm Hose · Filter Mesh 0.3 µm)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>4504</td>
<td>AL-C1204</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Rotary Coupling

An electric/pneumatic coupling is now available that allows NAKANISHI Electric Spindles up to 30mm diameter, to be mounted to the turret of a CNC turning machine. The rotary coupling prevents power cable and pneumatic lines from getting tangled when the turret is rotated. Contact NSK America at 800-585-4675 for complete details.
### Torque Characteristics Graph

- **EMA-3020K, EMA-3020S**

  - Use the motor at motor speed less than maximum allowable speed or use the speed reducer. DO NOT exceed the allowable motor speed for the spindle and the reducer.

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Description</th>
<th>Model</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fill to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1778</td>
<td>EMCD-3000J-3M</td>
<td>Motor Cord 3M</td>
<td>10 ft</td>
<td>AL-C1204</td>
<td><strong>Note</strong></td>
<td>Motor Cord is sold separately.</td>
<td></td>
</tr>
<tr>
<td>1768</td>
<td>EMCD-3000J-4M</td>
<td>Motor Cord 4M</td>
<td>12.1 ft</td>
<td>AL-C1204 <strong>Filter</strong></td>
<td>Motor Cord is sold separately.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1767</td>
<td>EMCD-3000J-6M</td>
<td>Motor Cord 6M</td>
<td>18.7 ft</td>
<td>AL-C1204 <strong>Filter</strong></td>
<td>Motor Cord is sold separately.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1766</td>
<td>EMCD-3000J-8M</td>
<td>Motor Cord 8M</td>
<td>25.3 ft</td>
<td>AL-C1204 <strong>Filter</strong></td>
<td>Motor Cord is sold separately.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MOTOR CORD**

- **Note**:
  - Motor Cord is sold separately.

**Note**:

To extend the life expectancy of the Speed Reducer, inject grease every 70 to 100 hours. Grease injection prevents friction of the internal gears as well as heat generation. Adding grease also prevents the degradation of the existing grease in the reducer. Please maintain a reducer grease maintenance program.

### Rotary Coupling

An electric/pneumatic coupling is now available that allows NIKANISHI Electric Spindles up to 30mm diameter, to be mounted to the turret of a CNC turning machine. The rotary coupling prevents power cable and pneumatic lines from getting tangled when the turret is rotated. Contact NIKAM America at 800-585-4876 for complete details.

**Order by catalog number.** 2-p55

---

**E3000 SERIES** ø1.18" (ø30 mm) BRUSHLESS MOTOR SPINDLE

- **E3000 SERIES** MOTOR CORD & AIR LINE KIT

**Note**:

- Motor Cord is sold separately.
1,000–60,000 min⁻¹ (rpm)  Maximum Output 350W  Auto or Manual Control Modes.
Can be installed on Special-Purpose Machines, NC Lathes, Robots, etc.
Motor speed is displayed accurately on the front panel.

Modular Type φ1.18” (φ30 mm) System Chart

- May be connected between the motor and the spindle as required for increasing torque.
- Reduction Gears can be used only with NR-3060S, NR-453E, and NR-403E.
- Do not exceed the maximum motor speed recommendation for the spindles. Excess speed will dramatically reduce bearing life.
**Modular Type ø1.18" (ø30 mm) System Chart**

<table>
<thead>
<tr>
<th>Spindle</th>
<th>Motor Cord</th>
<th>Speed Reducer</th>
<th>Accessory</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>ø1.0&quot; (ø25 mm)</td>
<td>EMCD-3000-4M</td>
<td>EM-3060</td>
<td>Collet</td>
<td>Start Switch</td>
</tr>
<tr>
<td>ø0.98&quot; (ø25 mm)</td>
<td>EMCD-3000-4M</td>
<td>EM-3060</td>
<td>Collet</td>
<td>Start Switch</td>
</tr>
<tr>
<td>ø0.897&quot; (ø22.8 mm)</td>
<td>EMCD-3000-4M</td>
<td>EM-3060</td>
<td>Collet</td>
<td>Start Switch</td>
</tr>
<tr>
<td>ø0.75&quot; (ø19 mm)</td>
<td>EMCD-3000-4M</td>
<td>EM-3060</td>
<td>Collet</td>
<td>Start Switch</td>
</tr>
</tbody>
</table>

**Specifications**

- **Max. Output Power**: 350W
- **Max. Output**: 350W
- **Spindle Speed**: 1,000~60,000 min⁻¹ (rpm)
- **Power Source**: AC100-240V for international operation
- **Motor Supply Voltage**: 100V~60,000 min⁻¹ (rpm)

**Order by catalog number.**

---

**Note:**

- Interchangeable with a variety of attachments depending on the application.
- Do not exceed the maximum motor speed recommendation for the spindles. Excess speed will dramatically reduce bearing life.
**BRUSHLESS MOTOR EM-3060**

**Technical Specifications**
- **Cat. No.**: 1597
- **Model**: EM-3060
- **Speed**: 60,000 min⁻¹ (rpm)
- **Motor Speed**: 1,000~60,000 min⁻¹ (rpm)
- **Max. Output Power**: 350W
- **Continuous Duty Area**: 80,000 rpm
- **Weight**: 11.46 oz. (w/o Cord)
- **Housing**: Stainless steel (SUS416)
- **Wrench (22 x 27)**: 1 pc.

**Motor Cord**
EMCD-3000J-3M / 4M / 6M / 8M and EMCD-3000A-4M / 6M / 8M on page 2-p58 cannot be used for this motor.

**Motor Cord EMCD-3000J-8M (25.3 ft / 8m long)** cannot be used for this motor.

**Order by catalog number. 2-p59**
"E3000 SERIES" ø1.18" (ø30 mm) BRUSHLESS MOTOR

**BRUSHLESS MOTOR** EM-3060

**Motor Cord**

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Description</th>
<th>Model</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1748</td>
<td>Motor Cord 4M EMCD-3000-4M</td>
<td>13 ft</td>
<td></td>
<td></td>
<td>Air Hose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1749</td>
<td>Motor Cord 5M EMCD-3000-4M</td>
<td>19 ft</td>
<td></td>
<td></td>
<td>Air Hose, Connector Cap (Provided)</td>
<td>EM-3060</td>
<td></td>
</tr>
<tr>
<td>1750</td>
<td>Motor Cord 8M EMCD-3000-4M</td>
<td>25 ft</td>
<td></td>
<td></td>
<td>Air Hose, Connector Cap (Provided)</td>
<td>EM-3060</td>
<td></td>
</tr>
</tbody>
</table>

**Motor Cord**

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Description</th>
<th>Model</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1778</td>
<td>Motor Cord 4M EMCD-3000U-4M</td>
<td>10 ft</td>
<td></td>
<td></td>
<td>Air Hose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1768</td>
<td>Motor Cord 4M EMCD-3000U-6M</td>
<td>12.1 ft (3.7 m)</td>
<td></td>
<td></td>
<td>Air Hose, Connector Cap (Provided)</td>
<td>EM-3060U</td>
<td></td>
</tr>
<tr>
<td>1767</td>
<td>Motor Cord EM CD-3000U-6M</td>
<td>16.7 ft (5.1 m)</td>
<td></td>
<td></td>
<td>Air Hose, Connector Cap (Provided)</td>
<td>EM-3060U</td>
<td></td>
</tr>
<tr>
<td>1766</td>
<td>Motor Cord 8M EMCD-3000U-8M</td>
<td>25.3 ft (7.7 m)</td>
<td></td>
<td></td>
<td>Air Hose, Connector Cap (Provided)</td>
<td>EM-3060U</td>
<td></td>
</tr>
</tbody>
</table>

**CAUTION:**

- Brushless Motor with 0.5 ft (2 m) long quick disconnect cord cannot be used with EMCD-3000U-6M.
- EMCD-3000U-8M (25.3 ft / 8m long) cannot be used for this motor.

**Note:** Motor Cord is sold separately. Please select a cord from the list.

- Motor Cord EMCD-3000U-3M / 4M / 6M / 8M on page 2-p58 cannot be used for this motor.
**“E3000 SERIES” ø1.18" (ø30 mm) BRUSHLESS MOTOR**

**BRUSHLESS MOTOR EM-3030J**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1769</td>
<td>EM-3030J</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Motor Cord is sold separately. Please select a cord from the list below.

**EMCD-3000-4M / 6M / 8M and EMCD-3000A-4M / 6M / 8M on page 2-p58 cannot be used for this motor.**

**“E3000 SERIES” ø1.18" (ø30 mm) SPINDLE**

**SPINDLE NR-3060S (Ceramic Bearing)**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1583</td>
<td>NR-3060S</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This spindle can be used for small-diameter milling, drilling, slitting, chamfering, grinding, etc.

**SPINDLE NR-453E (Ceramic Bearing)**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1503</td>
<td>NR-453E</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This spindle can be used for small-diameter milling, drilling, slitting, chamfering, grinding, etc.

**SPINDLE NR-403E (Ceramic Bearing)**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1514</td>
<td>NR-403E</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This spindle can be used for small-diameter milling, drilling, slitting, chamfering, grinding, etc.

**Motor Cord**

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Description</th>
<th>Model</th>
<th>Length (mm)</th>
<th>Std. Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMCD-3000-4M</td>
<td>1778</td>
<td>Motor Cord 3M</td>
<td>EM-3000J-3M</td>
<td>(3.0m)</td>
<td>EM-3000J-3M</td>
<td></td>
</tr>
<tr>
<td>EMCD-3000-4M</td>
<td>1768</td>
<td>Motor Cord 4M</td>
<td>EM-3000J-4M</td>
<td>(3.0m)</td>
<td>EM-3000J-4M</td>
<td></td>
</tr>
<tr>
<td>EMCD-3000-4M</td>
<td>1767</td>
<td>Motor Cord 6M</td>
<td>EM-3000J-6M</td>
<td>(3.0m)</td>
<td>EM-3000J-6M</td>
<td></td>
</tr>
<tr>
<td>EMCD-3000-4M</td>
<td>1766</td>
<td>Motor Cord 8M</td>
<td>EM-3000J-8M</td>
<td>(3.0m)</td>
<td>EM-3000J-8M</td>
<td></td>
</tr>
</tbody>
</table>

**Motor Cord 3M**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Description</th>
<th>Model</th>
<th>Length (mm)</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1778</td>
<td>Motor Cord 3M</td>
<td>EM-3000J-3M</td>
<td>(3.0m)</td>
<td>EM-3000J-3M</td>
<td></td>
</tr>
</tbody>
</table>

**Motor Cord 4M**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Description</th>
<th>Model</th>
<th>Length (mm)</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1768</td>
<td>Motor Cord 4M</td>
<td>EM-3000J-4M</td>
<td>(3.0m)</td>
<td>EM-3000J-4M</td>
<td></td>
</tr>
</tbody>
</table>

**Motor Cord 6M**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Description</th>
<th>Model</th>
<th>Length (mm)</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1767</td>
<td>Motor Cord 6M</td>
<td>EM-3000J-6M</td>
<td>(3.0m)</td>
<td>EM-3000J-6M</td>
<td></td>
</tr>
</tbody>
</table>

**Motor Cord 8M**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Description</th>
<th>Model</th>
<th>Length (mm)</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1766</td>
<td>Motor Cord 8M</td>
<td>EM-3000J-8M</td>
<td>(3.0m)</td>
<td>EM-3000J-8M</td>
<td></td>
</tr>
</tbody>
</table>
**BRUSHLESS MOTOR EM-3030T-J**

* torque type: **EM-3030T-J** is designed for high performance (power and torque) at a lower rpm.

**NEW**

![Brushless Motor with 6.5 ft Cord](image)

*Note: Motor Cord is sold separately. Please select a cord from the list below.

**Caution:** Brushless Motor with 6.5 ft (2 m) long quick disconnect cord cannot be used with EMCD-3000J-8M.

---

**MOTOR CORD**

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Description - Model</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Cord 3M</td>
<td>1778</td>
<td>EMCD-3000J-3M</td>
<td>10 ft</td>
<td></td>
<td>EM-3030T-J</td>
<td></td>
</tr>
<tr>
<td>Motor Cord 4M</td>
<td>1768</td>
<td>EMCD-3000J-4M</td>
<td>12.1 ft</td>
<td>Air Hose, Connector Cap (Provided)</td>
<td>EM-3030T-J, EM-3030T-J-2M</td>
<td></td>
</tr>
<tr>
<td>Motor Cord 6M</td>
<td>1767</td>
<td>EMCD-3000J-6M</td>
<td>18.7 ft</td>
<td></td>
<td>EM-3030T-J</td>
<td></td>
</tr>
<tr>
<td>Motor Cord 8M</td>
<td>1766</td>
<td>EMCD-3000J-8M</td>
<td>25.3 ft</td>
<td></td>
<td>EM-3030T-J</td>
<td></td>
</tr>
</tbody>
</table>

*Order by catalog number.*


**“E3000 SERIES” ø1.18” (Ø30 mm) SPINDLE**

E3000 Series can be used in conjunction with water or oil based coolants.

---

**CAT. No. 1583 SPINDLE NR-3060S (Ceramic Bearing)**

- **Allowable Motor Speed**: 60,000 min⁻¹(rpm)
- **Spindle Accuracy**: Within 1 µm
- **Standard Size Collet (CHK-3.175)**: ø1/8”
- **Weight**: 9.17 oz.

< Optional >
- **Collet (CHK-ILA)**: ø0.5 mm - ø6.35 mm (See Page 6-p3 for details)
- **Collet Nut (K-265)**: For Collet (CHK)
- **Metal Saw Arbor (KCH-03)**: For ø0.24” (I.D.) x ø1.18” (O.D.)
- **Grindstone Arbor (AGM-03)**: For grinding wheel with I.D. of ø5 mm
- **Grindstone Flange (EGF-19)**: ø19.05 (I.D.) x ø40 (O.D.) x 7 (W) mm

<table>
<thead>
<tr>
<th>Spindle</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment - Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1583</td>
<td>NR-3060S</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Collet ø1/8” (CHK-3.175)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Collet Nut (K-265) : 1 pc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Wrench (12 x 14) : 2 pcs., (22 x 27) : 1 pc.</td>
<td></td>
</tr>
</tbody>
</table>

This spindle can be used for small-diameter milling, drilling, slitting, chamfering, grinding, etc.

---

**CAT. No. ASE1566 SPINDLE NR-453E (Ceramic Bearing)**

- **Allowable Motor Speed**: 50,000 min⁻¹(rpm)
- **Spindle Accuracy**: Within 1 µm
- **Standard Size Collet (CHK-3.175)**: ø1/8”
- **Weight**: 15.52 oz.

< Optional >
- **Collet (CHK-ILA)**: ø0.5 mm - ø6.35 mm (See Page 6-p3 for details)
- **Collet Nut (K-265)**: For Collet (CHK)
- **Metal Saw Arbor (KCH-03)**: For ø0.24” (I.D.) x ø1.18” (O.D.)
- **Grindstone Arbor (AGM-03)**: For grinding wheel with I.D. of ø5 mm
- **Grindstone Flange (EGF-19)**: ø19.05 (I.D.) x ø40 (O.D.) x 7 (W) mm

<table>
<thead>
<tr>
<th>Spindle</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment - Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASE1566</td>
<td>NR-453E</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Collet ø1/8” (CHK-3.175)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Collet Nut (K-265) : 1 pc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Wrench (12 x 14) : 2 pcs., (22 x 27) : 1 pc.</td>
<td></td>
</tr>
</tbody>
</table>

This spindle can be used for small-diameter milling, drilling, slitting, chamfering, grinding, etc.

---

*Do not exceed the allowable motor speed for the spindle.*
This spindle can be used for small-diameter milling, drilling, slitting, chamfering, grinding, etc.
“E3000 SERIES” ø1.18” (ø30 mm) SPINDLE

90° ANGLE SPINDLE RAS-151E

Maximum allowable motor speed for the spindle (Reduction Ratio : 1/3.67)
20,000 min⁻¹ (rpm)

Maximum rotating speed at the cutting tool (Reduction Ratio : 1/3.67) 7,490 min⁻¹ (rpm)

- Spindle Accuracy: Within 2 µm
- Standard Size Collet (CHK-3.175): ø1/8”
- Weight: 11.46 oz.

Optional:
- Collet (CHK-3.175): ø0.5 mm ~ ø1.35 mm
- Metal Saw Arbor (KCH-03): For ø1.22” (O.D.)
- Grinding Stone Arbor (AGM-03): For grinding wheel with I.D. of ø5 mm

90° Angle Spindle

CAT. No. AISE1559 RAS-151E

- ø0.5 mm ~ ø6.35 mm
- ø0.24” (I.D.) x ø1.18” (O.D.)

Use the motor at motor speed less than maximum allowable speed or use the speed reducer.

DO NOT exceed the allowable motor speed for the spindle and the reducer.

COOLANT

No. 1: CAT. No. AISE1559 RAS-151E

- 90° Angle Spindle
- CAT. No. AISE1576 RAX-71E (Speed Reduction Ratio: 1/6)

- 90° Angle Spindle
- CAT. No. AISE1576 RAX-71E (Speed Reduction Ratio: 1/6)

Maximum allowable motor speed for the spindle (Reduction Ratio: 1/6)
30,000 min⁻¹ (rpm)

Maximum rotating speed at the cutting tool (Reduction Ratio: 1/6) 13,330 min⁻¹ (rpm)

- Spindle Accuracy
  - Within 2 µm
- Standard Size Collet
  - CHK-3.175: ø1/8”
- Weight: 8.47 oz.

Optional:
- Collet (CHK-3.175): ø0.5 mm ~ ø1.35 mm
- Metal Saw Arbor (KCH-03): For ø1.22” (O.D.)
- Grinding Stone Arbor (AGM-03): For grinding wheel with I.D. of ø5 mm

90° Angle Spindle

CAT. No. AISE1596 RAX-71E

- ø0.5 mm ~ ø6.35 mm
- ø0.24” (I.D.) x ø1.18” (O.D.)

Maximum allowable motor speed for the spindle: 20,000 min⁻¹ (rpm)

Maximum rotating speed at the cutting tool: 7,490 min⁻¹ (rpm)

- Standard Size Collet (CHS-3.175): ø1/8”
- Metal Saw Arbor (KCH-03): ø0.8 mm ~ ø1.175 mm
- Weight: 8.47 oz.

Optional:
- Collet (CHS-3.175): ø0.8 mm ~ ø1.175 mm (See Page 6-p5 for details)

90° Angle Spindle

This spindle is capable of working on corners difficult to work or unfit for working with straight type, drilling on side face and slitting of aluminum, brass, etc. with the use of ø1.18” (ø30 mm) Metal Saw.
### E3000 SERIES ø1.18” (ø30 mm) SPINDLE

#### Caution:
Use the motor at motor speed less than maximum allowable speed or use the speed reducer.

**DO NOT exceed the allowable motor speed for the spindle and the reducer.**

#### ASE1559 90° ANGLE SPINDLE-RAS-151E

- **Maximum allowable motor speed for the spindle**: 20,000 min⁻¹ (rpm)
- **Maximum rotating speed at the cutting tool**: 7,490 min⁻¹ (rpm)
- **Reduction Ratio**: 1/1.5

#### ASE1505 90° ANGLE SPINDLE-RA-151E

- **Maximum allowable motor speed for the spindle**: 20,000 min⁻¹ (rpm)
- **Maximum rotating speed at the cutting tool**: 7,490 min⁻¹ (rpm)
- **Reduction Ratio**: 1/1.5

### ASE1579 90° ANGLE SPINDLE-RAX-271E

- **Maximum allowable motor speed for the spindle**: 30,000 min⁻¹ (rpm)
- **Maximum rotating speed at the cutting tool**: 20,000 min⁻¹ (rpm)
- **Reduction Ratio**: 1/1.5

#### ASE1556 90° ANGLE SPINDLE-RA-271E

- **Maximum allowable motor speed for the spindle**: 20,000 min⁻¹ (rpm)
- **Maximum rotating speed at the cutting tool**: 30,000 min⁻¹ (rpm)
- **Reduction Ratio**: 1/1.5

---

**Model Standard Equipment · Accessories Price**

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASE1559 RAS-151E</td>
<td>Collet ø1/8&quot; (CHK-3.175)</td>
<td>Wrench (7 x 5.5), (8 x 5), (22 x 27)</td>
<td>80,000rpm</td>
</tr>
<tr>
<td>ASE1579 RAX-271E</td>
<td>Collet ø1/8&quot; (CHK-3.175)</td>
<td>Wrench (7 x 5.1), (8 x 5), (22 x 27), (22 x 27)</td>
<td>80,000rpm</td>
</tr>
</tbody>
</table>
| ASE1505 RA-151E | Collet ø1/8" (CHK-3.175) | Wrench (7 x 5.5), (8 x 5), (22 x 27) | 1pc.
| ASE1556 RA-271E | Collet ø1/8" (CHK-3.175) | Wrench (7 x 5.5), (8 x 5), (22 x 27) | 1pc.

---

- **30,000 min⁻¹ (rpm)**
- **20,000 min⁻¹ (rpm)**
- **13,330 min⁻¹ (rpm)**

---

**APPLICATION EXAMPLES**

- 90° Angle Spindle on corners difficult to work or unfit for working with straight type, drilling on side face, and milling of grooves.

---

**Technical Specifications**

- **Motor Speed**
- **Motor Power**
- **Motor Size**
- **Motor Type**
- **Motor Mounting Distance**
- **Motor Mounting Size**

---

**Recommended Clamping Area**

- **Spindle Accuracy**
- **Standard Size Collet**
- **Weight**
- **Optional Accessories**

---

**Order by catalog number.**

2-p62

---

**Note:** This spindle is capable of working on corners difficult to work with straight type, drilling on side faces and milling of grooves.
## "E3000 SERIES" ø1.18" (ø30 mm) SPINDLE

### CAT. No. 1580 AUTOMATIC TOOL REPLACEMENT SPINDLE NRR50-5100 ATC

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRR50-5100 ATC</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Allowable Motor Speed**: 50,000 min⁻¹ (rpm)
- **Spindle Accuracy**: Within 1 µm
- **Air for Collet Opening**: 80 - 87PSI
- **Standard Size Collet (CHR-3.175)**: ø1/8"
- **Weight**: 3 lb. 0.33 oz.
- **Recommended Clamping Area**: ø1.18", ø80 mm, ø2", ø4", ø6 mm, ø1/4" |

Specially designed for easy tool replacement. The cutting tool can be exchanged automatically by supplying air to the spindle. This high-precision spindle utilizes high-precision bearings.

### CAT. No. 7690 AUTOMATIC TOOL REPLACEMENT SPINDLE NRR50-5100 ATC RS

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRR50-5100 ATC RS</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Allowable Motor Speed**: 50,000 min⁻¹ (rpm)
- **Spindle Accuracy**: Within 1 µm
- **Air for Collet Opening**: 80 - 87PSI
- **Standard Size Collet (CHR-3.175 RS)**: ø1/8"
- **Weight**: 3 lb. 0.33 oz.
- **Recommended Clamping Area**: ø1.18", ø80 mm, ø2", ø4", ø6 mm, ø1/4" |

Specially designed for easy tool replacement. The cutting tool can be exchanged automatically by supplying air to the spindle. This high-precision spindle utilizes high-precision bearings.

### CAT. No. 1836 LEVER TYPE SPINDLE NRR3060

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRR3060</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Allowable Motor Speed**: 60,000 min⁻¹ (rpm)
- **Spindle Accuracy**: Within 1 µm
- **Weight**: 12.35 oz.
- **Optional Accessories**: ø2", ø3.0 mm, ø3/8", ø4.0 mm |

Features:
- New dust protection mechanism design exhausts air sideways. Side exhaust discharge keeps chips from being disorganized away from the machining area.
- The bottom of the spindle is equipped with an internal thread (M2 x 0.4 mm / 3mm long). This enables tool length pre-setting.

Order by catalog number. 2-p64
### COOLANT

- ø2.0, ø3.0 mm, ø1/8", ø4.0 mm

### AUTOMATIC TOOL REPLACEMENT SPINDLE NR50-5100 ATC

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1580</td>
<td>NR50-5100 ATC</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Specially designed for easy tool replacement.** The cutting tool can be exchanged automatically by supplying air to the spindle. This high-precision spindle utilizes high-precision bearings.

- **Allowable Motor Speed** ........................................... 50,000 min^{-1}(rpm)
- **Spindle Accuracy** .................................................. Within 1 µm
- **Air for Collet Opening** ........................................... 80 - 87 PSI
- **Standard Size Collet (CHR-3.175 RS)** ................. ø1/8"
- **Weight** ........................................................... 3 lb. 0.33 oz.
- **Optional:**
  - Collet (CHR-3.175 RS) .............. ø0.50, ø0.50 mm, ø1/16", ø4.0 mm, ø1/4"  
  (See Page 6-p4 for details)

### AUTOMATIC TOOL REPLACEMENT SPINDLE NR50-5100 ATC RS

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7690</td>
<td>NR50-5100 ATC RS</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Specially designed for easy tool replacement.** The cutting tool can be exchanged automatically by supplying air to the spindle. This high-precision spindle utilizes high-precision bearings.

- **Allowable Motor Speed** .......................................... 50,000 min^{-1}(rpm)
- **Spindle Accuracy** .................................................. Within 1 µm
- **Air for Collet Opening** ........................................... 80 - 87 PSI
- **Standard Size Collet (CHR-3.175 RS)** ................. ø1/8"
- **Weight** ........................................................... 3 lb. 0.33 oz.
- **Optional:**
  - Collet (CHR-3.175 RS) .............. ø0.50, ø0.50 mm, ø1/16", ø4.0 mm, ø1/4"  
  (See Page 6-p4 for details)

### AUTOMATIC TOOL REPLACEMENT SPINDLE NR40-5100 ATC

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1582</td>
<td>NR40-5100 ATC</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Specially designed for easy tool replacement.** The cutting tool can be exchanged automatically by supplying air to the spindle. This high-precision spindle utilizes high-precision bearings.
**NEW**

**Features:**

- The collet holder can be replaced by using Air ON/OFF.
- The Spindle housing is made from precision ground, hardened, stainless steel (SUS).
- There are 2 models of collet holders. The collet holder model depends on the collet type selected.
  
  Various sizes of collets are available. (CHK: 0.5mm-6.35mm, CHA: 0.5mm-4.0mm)

**Features:**

- Allowable Motor Speed ........................................... 60,000 min⁻¹ (rpm)
- Spindle Accuracy ............................................... Within 1 µm
- Air for Collet Opening ............................................ 80–87PSI
- Weight .......................................................... 2 lb. 11.39 oz.

**Optional**

- **Collet Holder** ................................................... QC3-K
- **Collet (CHK-A)** ........................................... ø0.5 mm–ø6.35 mm
  (See Page 6-p3 for details)
- **Collet Nut (K-265)** ........................................... for Collet (CHK)
- **Preset Adapter** .................................................. QC3-ADP
- **Wrench** .......................................................... 12 x 14 (2 pcs. not included)

**Optional**

- **Collet Holder** ................................................... QC3-A
- **Collet (CHA-A)** ........................................... ø0.5 mm–ø4.0 mm
  (See Page 6-p2 for details)
- **Collet Nut (CHN-A)** ........................................... for Collet (CHA)
- **Preset Adapter** .................................................. QC3-ADP
- **Wrench** .......................................................... 9 x 11, 8 x 5 (1 pc. each not included)

**COLLET HOLDER**  
Taper Shank Tools and Collet Nut

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Collet</th>
<th>Std. Accessories</th>
<th>Attaches to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Image: 1.57&quot;</td>
<td>1.56&quot;]</td>
<td>9210</td>
<td>QC3-K</td>
<td>CHK</td>
<td>Collet Nut (K-265) : 1 pc.</td>
<td>NR3060-AQC</td>
</tr>
<tr>
<td>[Image: 1.56&quot;]</td>
<td>9209</td>
<td>QC3-A</td>
<td>CHA</td>
<td>Collet Nut (CHN-A) : 1 pc.</td>
<td>NR3060-AQC</td>
<td>NR3060-QC</td>
</tr>
</tbody>
</table>

Note: The collet holder with collet nut, collet and wrenches for collet holder are sold separately.

---

Do not exceed the allowable motor speed for the spindle.
**Features:**
- Quick, easy and accurate tool change without the need for wrenches.
- Makes tool pre-setting outside the machine possible.
- There are 2 models of collet holders. The collet holder model depends on the collet type selected. Various sizes of collets are available. (CHK 0.5mm-6.35mm, CHA 0.5mm-4.0mm)
- 10 times the retention force as compared to the NRR-2651.

*Do not exceed the allowable motor speed for the spindle.*

---

**Preset Adapter**

- Insert the tool holder into the Preset Adapter.
- Align the tool holder with the drive dog notches in the Preset Adapter.
- Attached the Collet Nut and Collet to the tool holder. Lightly finger tighten the Collet Nut.
- Insert the cutting tool into the Collet.
- Place the wrenches on the Collet Nut and Collet Holder and securely tighten in a clockwise direction.

---

**Lever Type Quick Change Spindle**

- Allowable Motor Speed: 60,000 min⁻¹ (rpm)
- Spindle Accuracy: Within 1 µm
- Lever Operating Angle: 90°
- Weight: 1 lb. 4.11 oz.

< Optional >
- Collet Holder: QC3-K
- Collet (CHK-I): ø0.5 mm – ø6.35 mm
- Collet Nut (K-265)
- Preset Adapter: QC3-ADP
- Wrench: 12 x 14 (2 pcs. not included)

< Optional >
- Collet Holder: QC3-A
- Collet (CHA-I): ø0.5 mm – ø4.0 mm
- Collet Nut (CHN-A)
- Preset Adapter: QC3-ADP
- Wrench: 9 x 11, 8 x 5 (1 pc. each not included)

**Note:** The collet holder with collet nut, collet and wrenches for collet holder are sold separately.
**E3000 SERIES** φ1.18'' (φ30 mm) SPEED REDUCER

**Caution:** Use the motor at motor speed less than maximum allowable speed or use the speed reducer. DO NOT exceed the allowable motor speed for the spindle and the reducer.

**SPEED REDUCER 1/4** ARG-011E

- Maximum allowable motor speed: 30,000 min⁻¹ (rpm)
- Maximum rotating speed at the cutting tool: 7,500 min⁻¹ (rpm)
- Speed Reducing Mechanism: By planetary gear system
- Weight: 8.54 oz.

**SPEED REDUCER 1/16** ARG-021E

- Maximum allowable motor speed: 30,000 min⁻¹ (rpm)
- Maximum rotating speed at the cutting tool: 1,870 min⁻¹ (rpm)
- Speed Reducing Mechanism: By planetary gear system
- Weight: 11.46 oz.

To extend the life expectancy of the Speed Reducer, inject grease every 70 to 100 hours.Grease injection prevents friction of the internal gears as well as heat generation. Adding grease also prevents the degradation of the existing grease in the reducer. Please maintain a reducer grease maintenance program.

**AIR LINE KIT** AL-C1204

- Air Line Kit (For φ6 mm Hose)
- Filter Mesh 0.3 µm

**Rotary Coupling**

An electric/pneumatic coupling is now available that allows NAKANISHI Electric Spindles up to 30mm diameter, to be mounted to the turret of a CNC turning machine. The rotary coupling prevents power cable and pneumatic lines from getting tangled when the turret is rotated. Contact NSK America at 800-585-4675 for complete details.

---

**25 Pin INTERFACE CABLE**

- DB25 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of I/O signals and a pin-out wire diagram for easy interfacing of I/O signals from any NSK Control to a CNC Control.

**15 Pin INTERFACE CABLE**

- DB15 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of the (OP1) "E-Stop Input Circuit" and the (OP2) "Safety Relay Circuit" from the NSK Control to a CNC Control.
**“E3000 SERIES” ø1.18” (ø30 mm) SPEED REDUCER**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Speed Reduction Ratio</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASE1507</td>
<td>ARG-011E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASE1508</td>
<td>ARG-021E</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Caution:** Use the motor at motor speed less than maximum allowable speed or use the speed reducer. DO NOT exceed the allowable motor speed for the spindle and the reducer.

**SPEED REDUCER 1/4 ARG-011E**

- Maximum allowable motor speed: 30,000 min⁻¹ (rpm)
- Maximum rotating speed at the cutting tool: 7,500 min⁻¹ (rpm)

**SPEED REDUCER 1/16 ARG-021E**

- Maximum allowable motor speed: 30,000 min⁻¹ (rpm)
- Maximum rotating speed at the cutting tool: 1,870 min⁻¹ (rpm)

**AIR LINE KIT AL-C1204**

- Air Line Kit (For ø6 mm Hose - ø30 mm)
- Filter Mesh: 0.3 µm
- Maximum rotating speed at the cutting tool: 1,870 min⁻¹ (rpm)

**Rotary Coupling**

An electric/pneumatic coupling is now available that allows NAKANISHI Electric Spindles up to 30mm diameter, to be mounted to the turret of a CNC turning machine. The rotary coupling prevents power cable and pneumatic lines from getting tangled when the turret is rotated. Contact NSK America at 800-585-4675 for complete details.
High-performance brushless motor which provides compact size, light weight, output (Max. 300W), and excellent durability (motor endurance to 5,000 hours of continuous use by NAKANISHI’s internal standard load test). By the combination with high-performance spindles, it can be installed on a NC lathe, special purpose machine, robot, etc.

Do not exceed the maximum motor speed recommendation for the spindles. Excess speed will dramatically reduce bearing life.

Take note that model names and specifications will be changed.
High-performance brushless motor which provides compact size, light weight, output (Max. 300W), and excellent durability (motor endurance to 5,000 hours of continuous use by NAKANISHI's internal standard load test). By the combination with high-performance spindles, it can be installed on a NC lathe, special purpose machine, robot, etc.

Modular Type ø0.897" (ø22.8 mm) System Chart

- Collet Nut K-265
- Collet CHK-1
- Arbor for Metal Saw KCH-03
- Grindstone Arbor AGM-03
- Collet CH8-
- Arbor for Metal Saw KCH-02
- Grindstone Flange NGF-19
- Collet CHM-
- Grindstone Arbor AGM-01
- Spindle NR-303 Page 2-p31
- Spindle NR-2351 Page 2-p31
- 90° Angle Spindle RAS-101 (1/2.67 Reduction) Page 2-p32
- 90° Angle Spindle RA-100 (1/2.67 Reduction) Page 2-p32
- 90° Angle Spindle RA-200 (1/1.5 Reduction) Page 2-p32
- Spindle NR-311 Page 2-p33
- 90° Angle Spindle RAS-101 (1/2.67 Reduction) Page 2-p32
- Speed Reducer ARG-01 (1/3.92 Reduction) Page 2-p34
- Speed Reducer ARG-02 (1/15.39 Reduction) Page 2-p34
- Transmission Clutch
  - The connection part is "concave"
  - The connection part is "convex"
- 120V
- Controller NE211 Page 2-p42
- Selector NE212 Page 2-p43
- Air Line Kit AL-C1204 Page 2-p67

May be connected between the motor and the spindle as required for increased torque.

※ Only one motor can be operated at a time. No simultaneous operation.

※ Do not exceed the maximum motor speed recommendation for the spindles. Excess speed will dramatically reduce bearing life.
E3000 SERIES 80,000 min⁻¹ ø1.18"/ø1.97" (ø30 mm) / (ø50 mm)

- 1,000-80,000 min⁻¹ (rpm)
- Maximum Output 350W
- Auto or Manual Control Modes.
- Can be installed on a Special-Purpose Machine, NC Lathe, Robot, etc.
- Motor speed is displayed accurately on the front panel.

Features of E3000 Series

- Maximum Motor Speed 80,000 min⁻¹ (rpm)
- The maximum motor speed 80,000 min⁻¹ (rpm) is realized by using high performance brushless motor and ceramic bearings.

Motor Endurance

- Brushless motor has no carbon brushes or commutator, minimizing wear and resulting in a long service life. Due to the brushless construction, electrical interference and other noises are minimized.

Smooth Rotation

- The absence of a commutator and the use of a photo coupler sending a feedback signal of 48 pulses per revolution results in very smooth rotation with little vibration throughout the speed range.

Excellent Durability by air-cooling system

- Air-cooled motor uses a small volume of air (1.0CFM) to prevent heat buildup and allow long continuous operation.

Spindle Accuracy

- Spindle Accuracy is within 1 µm (TIR).

Automatic Control System Chart

- Single Motor Spindle Operation
- Sequential Operation of up to 4 Motor / Spindles

When connecting NE211 to NE212, up to 4 motors can be connected to NE212 providing individual control of each motor.

(4 motors cannot be run simultaneously.)
BRUSHLESS MOTOR & SPINDLE

**E3000 SERIES**  
80,000 min⁻¹  
ø1.18” / ø1.97” (ø30, ø50 mm)

- Maximum Motor Speed 80,000 min⁻¹ (rpm)  
- Maximum Output 350W  
- Auto or Manual Control Modes.

**Features of E3000 Series**

- **High Rigidity, Short Body**  
  E3000 series uses a short body that is hardened and precision ground for excellent durability.

- **Motor Connector Attaches Directly to the Back of the Motor / Spindle.**  
  Simple screw-lock connector makes changing motors extremely easy. Electric and Air feed incorporated into a single connector.

- **Power Source Auto Detection**  
  Power Source is 100-240V for international operation. Eliminate the need of setting the voltage or changing fuses.

- **Protection System, External Input / Output Control Signal**  
  Error function: Motor/Spindle is stopped safety, Error LED is lit.

- **Safety Protection System**  
  Centering Mode Switch This switch activates the centering mode, which maintains a constant 500 min⁻¹ (rpm) spindle speed for centering the tool.

**Automatic Control System Chart**

- **Single Motor Spindle Operation**

- **Sequential Operation of up to 4 Motor / Spindles**

- **When connecting NE211 to NE212, up to 4 motors can be connected to NE212 providing individual control of each motor. (4 motors can not be run simultaneously.)**
**“E3000 SERIES” CONTROL UNIT**

- AC100-240V for international operation
- External Input / Output Control Signal (Refer to 7-p2-p9 page of this catalog)
- Maximum Output 350W
- Up to 4 motors can be connected to NE212 providing individual control of each motor.
  - (Simultaneous motor operation is not possible)

**Specifications**

- Model: NE211
  - Power Source: AC120V
  - Motor Speed: 1,000-80,000 min⁻¹ (rpm)
  - Max. Output Power: 350W
  - Motor Input Connector: DB25M (Female)
  - Motor Output Connector 1~4: ø1.0"/ø0.98"
  - Dimensions: W3.46" x D5.43" x H9.37"

**E3000 Control Unit**

- CAT. No. 9775
  - 120V (B type)
  - Model: NE211
  - Standard Equipment: • Power Cord : 6 ft • Air Hose with filter • Reducer • Air Plug (Provided)
  - Accessories: • Connector Cap (Provided) • Bracket • Power Cord Grip • Screw

**Optional**

- Control Panel Extension Cord
  - CAT. No. 8407
    - E3000-PSX-4
    - NE211
  - 25 / 15 Pin Interface Cable
    - CAT. No. DB25M
      - DB15M
      - NE211

**CAT. No. Plug Type Model Standard Equipment Accessories Price**

| 9775 | 120V (B type) | NE211 | • Power Cord : 6 ft • Air Hose with filter • Reducer • Air Plug (Provided) • Connector Cap (Provided) • Bracket • Power Cord Grip • Screw | £ |

---

**“E3000 SERIES” SELECTOR UNIT**

- AC100-240V for international operation
- Up to 4 motors can be connected to NE212 providing individual control of each motor.
  - (Simultaneous motor operation is not possible)

**Specifications**

- Model: NE212
  - Power Source: AC120V
  - Motor Speed: 1,000-80,000 min⁻¹ (rpm)
  - Motor Speed Adjustment Switch: (D-SUB9 Female)
  - Dimensions: W3.46" x D5.43" x H9.37"

**E3000 Selector Unit**

- CAT. No. 9781
  - 120V (B type)
  - Model: NE212
  - Standard Equipment: • Power Cord : 6 ft • Connect NE211 to NE212 Cable : 23.62" • Communication Cable : 23.62" • Connector Cap (Provided) • Plug to avoid Air Flow • Power Cord Grip • Screw
  - Accessories: • Rubber Pad • Fuse (T1.6AL) 250V: 2 pcs.

**Power Source Plug**

- For 100V (A type)
  - For Japan
  - For U.S.A. and Canada

- For 120V (B type)
  - For For 230V (D type)
  - For Europe

---

*Order by catalog number.*
“E3000 SERIES” CONTROL UNIT

- AC100-240V for international operation
- 1,000~80,000 min⁻¹ (rpm) Maximum Output 350W
- External Input / Output Control Signal (Refer to 7-p2~p9 page of this catalog)

Specifications
- Motor Input Connector - Modular
- Output Joint ø6 mm
- Motor Selector Switch (MOTOR SEL)
- Motor Speed Adjustment Switch
- FWD./REV. LED (FWD/REV)
- Power Switch
- Intake with Power Fuse

Optional
- Control Panel Extension Cord
- 8407 E3000-PSX-4 NE211
- 25 / 15 Pin Interface Cable
- DB25M DB25M NE211
- DB15M DB15M NE211

CAT. No. 9775 CONTROL UNIT NE211 80,000 min⁻¹ (rpm)

“E3000 SERIES” SELECTOR UNIT

- AC100-240V for international operation
- Up to 4 motors can be connected to NE212 providing individual control of each motor.
  (Simultaneous motor operation is not possible)

Specifications
- Motor Output Connector 1~4
- Motor Input Connector
- Air Intake Joint ø6 mm
- Connector for Communication B-5009 Female
- Power Switch
- Intake with Power Fuse
- Air Intake Joint 1~4

CAT. No. 9781 SELECTOR UNIT NE212 80,000 min⁻¹ (rpm)

Parts List
- Model: NE212
- Price

Please refer to Technical Data 7-p2~p9 in detail about External Input-Output Connector.

For 100V

<table>
<thead>
<tr>
<th>Plug Type</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
</table>

For 200V

<table>
<thead>
<tr>
<th>Plug Type</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
</table>

For Japan

<table>
<thead>
<tr>
<th>Plug Type</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
</table>

For U.S.A.

<table>
<thead>
<tr>
<th>Plug Type</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
</table>

Order by catalog number. 2-p75
**“E3000 SERIES” ø1.18” (ø30 mm) BRUSHLESS MOTOR**

**Caution:** Brushless Motor with 6.5 ft (2 m) long quick disconnect cord cannot be used with EMCD-3000J-8M.

**BRUSHLESS MOTOR EM-3080J**

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM-3080J</td>
<td>80,000 min⁻¹ (rpm)</td>
</tr>
</tbody>
</table>

**Quick Disconnect Cord**

**Note:** Motor Cord is sold separately. Please select a cord from the list below.

EMCD-3000-4M / 6M / 8M and EMCD-3000A-4M / 6M / 8M on page 2-p6 cannot be used for this motor.

**Motor Cord**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
<th>Length</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1781</td>
<td>EM-3080J</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1786</td>
<td>EM-3080J-2M</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**E3000 Series can be used in conjunction with water or oil based coolants.**

**COOLANT**

- EmaxEVO
- ESPERT
- ROTUS
- IMPULSE
- PRESTO II
- SHEENUS neo
- SONIC

**CUTTER**

- 1’ / 12.1’
- ø300-0.01mm

**Quick Disconnect Cord**

**Spindle Accuracy**

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allowable Motor Speed</td>
<td>80,000 min⁻¹ (rpm)</td>
</tr>
<tr>
<td>Spindle Accuracy</td>
<td>Within 1 µm</td>
</tr>
<tr>
<td>Standard Size Collet (CHA-3.175)</td>
<td>ø1/8”</td>
</tr>
<tr>
<td>Weight</td>
<td>6.00 oz.</td>
</tr>
<tr>
<td>Optional</td>
<td>ø5.5 mm - ø4.7 mm</td>
</tr>
</tbody>
</table>

**Maximum Diameter of Grindstone**

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useable Max. Diameter of Grindstone</td>
<td>Less than ø8mm (For ø6.0mm shank)</td>
</tr>
</tbody>
</table>

**Application Examples**

- Air line Kit AL-A1205 and AL-A0611 are recommendable as air supply system.

**Order by catalog number. 2-p77**
"E3000 SERIES" ø1.18" (ø30 mm) BRUSHLESS MOTOR

**Caution:** Brushless Motor with 6.5 ft (2 m) long quick disconnect cord can not be used with EMCD-300J-8M.

### BRUSHLESS MOTOR EM-3080J 80,000 min⁻¹ (rpm)

**Quick Disconnect Cord**

- **Motor Speed:** 20,000-80,000 min⁻¹ (rpm)
- **Max. Output Power:** 3500 W
- **Housing:** Stainless steel (SU3416)
- **Weight (EM-3080J):** 12.70 oz. (w/o Cord)
- **Weight (EM-3080J-2M):** 18.70 oz. (w/o Cord)

#### Brushless Motor with 1 ft Cord

CAT. No. | Model | Standard Equipment · Accessories | Price
---|---|---|---
1781 | EM-3080J | | 

- Motor Cord is sold separately. Please select a cord from the list below.

EMCD-3060J-3M / 5M / 8M and EMCD-3060J-4M / 6M / 8M are not used for this motor.

### MOTOR CORD

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Description · Model</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Cord 3M EMCD-300J-3M</td>
<td>1778</td>
<td></td>
<td>10 ft</td>
<td></td>
<td>EM-3080J</td>
<td></td>
</tr>
<tr>
<td>Motor Cord 4M EMCD-300J-4M</td>
<td>1768</td>
<td></td>
<td>12.5 ft</td>
<td></td>
<td>EM-3080J-2M</td>
<td></td>
</tr>
<tr>
<td>Motor Cord 6M EMCD-300J-6M</td>
<td>1767</td>
<td></td>
<td>18.7 ft</td>
<td></td>
<td>EM-3080J</td>
<td></td>
</tr>
<tr>
<td>Motor Cord 8M EMCD-300J-8M</td>
<td>1766</td>
<td></td>
<td>25.2 ft</td>
<td></td>
<td>EM-3080J</td>
<td></td>
</tr>
</tbody>
</table>

Note: Motor Cord is sold separately. Please select a cord from the list below.

EMCD-3060J-3M / 5M / 8M and EMCD-3060J-4M / 6M / 8M are not used for this motor.

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---

"E3000 SERIES" ø1.18", ø1.97" (ø30, ø50mm) SPINDLE

E3000 Series can be used in conjunction with water or oil based coolants.

**Spindle**

- **Allowable Motor Speed:** 80,000 min⁻¹ (rpm)
- **Spindle Accuracy:** Within 1 µm
- **Main body mount method:** Flange mounting method, M3 bolt (8 locations, 45˚ Angle, PDC57)
- **Bearing Type:** Air static bearing
- **Main body mount: AIR BEAR SPINDLE**

**Air Bearing Spindle**

- **Allowable Motor Speed:** 80,000 min⁻¹ (rpm)
- **Spindle Accuracy:** Within 1 µm
- **Standard Size Collet (CHK-3.16):** ø1.18"
- **Air Bearing Consumption:** 1.24CFM (73PSI)
- **Useable Max. Diameter of Grindstone:** Less than ø8mm (For ø6.0mm shank)
- **Hose Diameter (Air Intake · Bearing):** ø4.0mm

*Order by catalog number.*

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The AL-C1204 Air Line Kit is designed to deliver clean, dry air to Electric Motors via the Control Unit. The filter removes small amounts of debris while the adjustable regulator provides the correct air pressure for cooling and purging.

Air Line Kit (For ø6 mm Hose • Filter Mesh 0.3 µm)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4504</td>
<td>AL-C1204</td>
<td>Air Filter • Air Regulator • Air Pressure Gauge • Air Off-ON Valve</td>
<td>Hose for Piping (K-275)</td>
<td>6.5</td>
</tr>
</tbody>
</table>

The AL-A0611 is a high filtered Air Line Kit utilizing a 0.01 µm micro mist filter system for NRAF-5080 Air Bearing Spindles combined with the NE211 (E3000) Control Unit. This Air Line Kit is highly recommended for use on all Xpeed Series Air Turbine / Air Bearing motor/spindles.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1548</td>
<td>AL-A0611</td>
<td>Mist Separator • Micro Mist Separator • Bandpass Air Dryer • Air Pressure Gauge • Air Off-ON Valve</td>
<td>Digital Pressure Switch</td>
<td>25.9</td>
</tr>
</tbody>
</table>

Order by catalog number.
HIGH POWER SOLUTIONS

E4000 Series

Electric System

- Up to ø0.375” Collet Capacity
- Designed for use on CNC Lathes, Robots and Special Application Machines for precision milling, drilling, grinding, slitting and deburring applications.

Outside Diameter ø1.57” (ø40 mm)

2,000~40,000 min⁻¹ (rpm)
Max. Output 1,200W

• One Piece Type / Modular Type
E4000 SERIES

One Piece Type Modular Type ø1.57” (ø40mm)

- High Speed, Power and Torque in a Brushless DC Motor/Spindle
- 2,000 ~ 40,000 min⁻¹ (rpm) with 1,200 Watts (1.6 HP) of Power
- 40 mm (1.57 Dia.) Body Diameter
- 375° Collet Capacity

Features of E4000 Series

- 2,000~40,000 min⁻¹ (rpm), 500 min⁻¹ (rpm) (for centering rotation)
- Rated output 400W (Max. output 1,200W)
- Spindle accuracy 1 µm or less.
- Achieved continuous run of over 5,000 hours.
- (NAKANISHI’s factory test without load at 40,000 min⁻¹ (rpm))
- Motor weight: 3 lb. 4.91 oz. (BMS-4020 / 4040), 2 lb. 13.86 oz. (EM-4020 / 4040),
  1 lb. 4.65 oz. (BMS-4020RA / 4040RA), 3 lb. 15.49 oz. (EM-4020A / 4040A)

One Piece Type System Chart

Modular Type System Chart

Automatic Control System Chart

Single Motor Spindle Operation

One Piece Type Combination Example 40,000 min⁻¹ (rpm)

Modular Type Combination Example 40,000 min⁻¹ (rpm)
Features of E4000 Series

- 2,000~40,000 min⁻¹ (rpm) (for centering rotation)
- Rated output 400W (Max. output 1,200W)
- Spindle accuracy 1 µm or less.
- Achieved continuous run of over 5,000 hours.
- Proper cooling air pressure 51PSI
- Cooling air consumption 3.53CFM
- Extremely low vibration brushless DC motor.
- Utilizes a double pair of ultra-precision ceramic bearings to obtain high rigidity in both radial and thrust directions. Incorporates 2 ceramic bearings on the front side and 2 on the rear side.
- External housing made of precision ground stainless steel SUS-416.
- One Piece Type
- Modular Type

One Piece Type System Chart

Modular Type System Chart

One Piece Type Combination Example

Modular Type Combination Example

Order by catalog number. 2-p81
**“E4000 SERIES” CONTROL UNIT**

**40,000 min−1 (rpm)**

- **High-Performance Electric Circuit**
  - ‘High grade feedback loop to maintain constant spindle speed even if load is varied’, and ‘Gentle start/quick stop functions’ are provided.
- **Warning/Error Function**
  - Motor Spindle is stopped safely and quickly, Warning/Error LED is lit, Warning/Error Signal is output to external device when a problem or tool breakage is detected.
  - Internal Circuit Error / Voltage/Currency Error
  - Motor Speed Setting by Parameter
- **External Input-Output Connector**
  - Start / Stop, Forward / Reverse, Pulse Speed Increase / Decrease, Speed Control, Error Code Release.

**E4000 Optional Safety Relay Box**

The Safety Relay Box is for use with the E4000 Control Unit. The Safety Relay “A” contacts switch the Motor Power Line and “B” contacts switch the external outputs to the machining center’s CNC controller.

- The Safety Relay utilizes Normally Open contacts. The Emergency Stop Signal lines must be supplied with power to hold the Safety Relay contacts closed and allow the E4000 Control Unit to supply power to the motor. Any system errors, trouble with the machining center or the connections between the E4000 Control Unit and the machining center’s controller will cause the relay contacts to open and the E4000 motor to stop.
- The Emergency Stop Signal Input can be connected to any input port of the machine’s safety system (I/O-Stop String) to stop the E4000 motor any time that stoppage of the spindle and motor is required.
- The “B” contact outputs can be used to detect an open circuit on the motor line and integrate with the machine’s safety systems to stop the machine in case a problem occurs.

**E4000 Control Unit**

**CAT. No.** 8472

**Model** CONTROL UNIT NE246

**Specifications**

<table>
<thead>
<tr>
<th>Power Cord : 3 ft.</th>
<th>Air Hose with filter : 8 ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector Cap (Provided)</td>
<td>Connector Cover (Provided)</td>
</tr>
<tr>
<td>Bracket : 4 pcs.</td>
<td>Rubber Pad</td>
</tr>
</tbody>
</table>

**Price**

**Standard Equipment / Accessories**

- Collet ø1/4" (CH16-6.35) : 1 pc.
- Collet Nut (CHN-16) : 1 pc.
- Wrench (15 x 17), (22 x 27) : 1 pc. each

---

**“E4000 SERIES” BRUSHLESS MOTOR SPINDLE**

**40,000 - 20,000 min−1 (rpm)**

- **STRAIGHT TYPE**
  - BMS-4020
  - BMS-4040

- **90˚ ANGLE TYPE (RA)**
  - BMS-4020RA
  - BMS-4040RA

**Specifications**

- Weight : 14 lb. 12.34 oz.
- Dimensions : W9.84" x D11.42" x H3.94"
- Spindle Accuracy : 0.5 N·m
- Max. Output : 1,200W
- Max. Torque : 60.84 lbf·in
- Spindle Speed : 40,000 min−1 (rpm)
- Max. RPM Setting by Parameter

**Price**

<table>
<thead>
<tr>
<th>Model</th>
<th>Torque</th>
<th>Max. Torque</th>
<th>Weight</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS-4020</td>
<td>0.5 N·m</td>
<td>60.84 lbf·in</td>
<td>3 lb 4.91 oz</td>
<td>W9.84&quot; x D11.42&quot; x H3.94&quot;</td>
</tr>
<tr>
<td>BMS-4040RA</td>
<td>90˚ Angle</td>
<td>0.5 N·m</td>
<td>4 lb 6.55 oz</td>
<td>6 ft</td>
</tr>
</tbody>
</table>

**40,000 min−1 (rpm)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Torque</th>
<th>Max. Torque</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS-4020</td>
<td>0.5 N·m</td>
<td>60.84 lbf·in</td>
<td>3 lb 4.91 oz</td>
</tr>
<tr>
<td>BMS-4040RA</td>
<td>90˚ Angle</td>
<td>0.5 N·m</td>
<td>4 lb 6.55 oz</td>
</tr>
</tbody>
</table>

**20,000 min−1 (rpm)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Torque</th>
<th>Max. Torque</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS-4020</td>
<td>0.5 N·m</td>
<td>60.84 lbf·in</td>
<td>3 lb 4.91 oz</td>
</tr>
<tr>
<td>BMS-4040RA</td>
<td>90˚ Angle</td>
<td>0.5 N·m</td>
<td>4 lb 6.55 oz</td>
</tr>
</tbody>
</table>

**Note**

- Motor Cable is sold separately.

---

**Order by catalog number. 2-p83**
**“E4000 SERIES” CONTROL UNIT**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Control Unit NE246</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8472</strong></td>
<td>High-Performance Electric Circuit</td>
</tr>
<tr>
<td></td>
<td>Maximum RPM Setting by Parameter</td>
</tr>
<tr>
<td></td>
<td>External Input-Output Connector</td>
</tr>
<tr>
<td></td>
<td>E4000 Optional Safety Relay Box</td>
</tr>
<tr>
<td></td>
<td>E4000 Control Unit</td>
</tr>
</tbody>
</table>

**Specifications**

- Power Source: AC 200V
- Motor Speed: 2,000-40,000 min⁻¹
- Motor Power: 1,200 W
- Air Flow Volume: 3.53 CFM
- Dimensions: W9.84” x D11.42” x H3.94”
- Weight: 14 lb. 12.34 oz.

**Recommended Clamping Area**

- ø0.897” ~ ø1.0”
- ø0.87” ~ ø0.91”

**Recommended Clamping Area**

- ø1.18” ~ ø1.28”
- ø0.75” ~ ø0.79”

**Applications**

- Collet (CH16-6.35) 1 pc.
- Collet Nut (CHN-16) 1 pc.
- Wrench (15 x 17), (22 x 27) 1 pc.
- Connector Cap (Provided) 1 pc.
- Connector Cover (Provided) 1 pc.
- Bracket: 4 pcs.
- Rubber Pad 2 pcs.

**Note:**

Please refer to Technical Data 7-p18~p23 in detail about External Input-Output Connector.

---

**“E4000 SERIES” BRUSHLESS MOTOR SPINDLE**

**E4000 Series**

- Can be used in conjunction with water or oil based coolants.
- Rated Output: 1,200 W
- Max. Output Power: 2,000-40,000 min⁻¹
- Motor Speed: 2,000-40,000 min⁻¹
- Air Flow Volume: 3.53 CFM

**Specifications**

- Power Source: AC 200V
- Motor Speed: 2,000-40,000 min⁻¹
- Motor Power: 1,200 W
- Air Flow Volume: 3.53 CFM

**Applications**

- Collet (CH16-6.35) 1 pc.
- Collet Nut (CHN-16) 1 pc.
- Wrench (15 x 17), (22 x 27) 1 pc.

**Note:**

Motor Cable is sold separately.

---

**Order by catalog number.** 2-p83
**“E4000 SERIES” BRUSHLESS MOTOR**

** BRUSHLESS MOTOR  40,000 - 20,000 min⁻¹ (rpm) **

- **STRAIGHT TYPE**
  - EM-4020
  - EM-4040

- **90° ANGLE TYPE (A)**
  - EM-4020A
  - EM-4040A

**Note:** Motor Cable is sold separately.

**“E4000 SERIES” SPINDLE**

** SPINDLE NR-4040  40,000 min⁻¹ (rpm) **

- **Allowable Motor Speed**: 40,000 min⁻¹ (rpm)
- **Spindle Accuracy**: Within 1 µm
- **Standard Size Collet (CH16-6.35)**: ø1/4”
- **Weight**: 1 lb. 8.69 oz.
  - < Optional >
  - Collet (CH16-6.35) ø1/4”
  - Collet Nut (CHN-16) For Collet (CH16)

**Note:** This spindle can be used for small-diameter milling, drilling, slitting, chamfering, grinding, etc.

**CAT. No.** 9213

**Spindle**

- [Cat. No.](#)
- Model
- Standard Equipment
- Accessories
- Price

- [9213](#)
  - Spindle
  - NR-4040
  - Price

**CAT. No.** 8346

- Model
- EM-4040
- Shape
- Straight
- Max. Torque: 0.5 N·m
- Max. Output: 1,200W
- Rated Output: 400W
- Weight: 2 lb. 13.86 oz.
- Cord Length: 1 ft

**CAT. No.** 8347

- Model
- EM-4040A
- Shape: 90° Angle
- Max. Torque: 0.5 N·m
- Max. Output: 1,200W
- Rated Output: 400W
- Weight: 3 lb. 15.49 oz.
- Cord Length: 6 ft

**CAT. No.** 8348

- Model
- EM-4020
- Shape
- Straight
- Max. Torque: 0.5 N·m
- Max. Output: 1,200W
- Rated Output: 400W
- Weight: 2 lb. 13.86 oz.
- Cord Length: 1 ft

**CAT. No.** 8349

- Model
- EM-4020A
- Shape: 90° Angle
- Max. Torque: 0.5 N·m
- Max. Output: 1,200W
- Rated Output: 400W
- Weight: 3 lb. 15.49 oz.
- Cord Length: 6 ft

**Index**

- Standard Equipment
- Accessories
- Price

- Wrench (36): 1 pc

---

*Order by catalog number.*
**“E4000 SERIES” BRUSHLESS MOTOR**

**BRUSHLESS MOTOR**

- **SRAIGHT TYPE**
  - EM-4020
  - EM-4040

- **90° ANGLE TYPE (A)**
  - EM-4020A
  - EM-4040A

**APPLICATION EXAMPLES**

- EmaxEVO
- ESPERT
- ROTUS
- IMPULSE
- PRESTO II
- SHEENUS
- neo
- SONIC
- CUTTER

**ø1.0”**

**ø0.98”**

**ø1.18”**

**ø0.75”**

**ø0.79”**

**ø0.87”**

**ø0.91”**

**ø1.0”**

**ø0.98”**

**ø0.897”**

**AIR LINE KIT**

- HES510
- HES810
- HTS
- HPS
- Xpeed

**PARTS**

**INDEX**

**TECHNICAL DATA**

- E2530 / E2550
  - ø1.0” / ø0.98”
  - ø0.897”

- E3000
  - One Piece
  - Modular
  - ø1.18”
  - ø1.0” / ø0.98” / ø0.897”

- E3000
  - 80,000rpm

- E4000

**Note**: Motor Cable is sold separately.

**SPINDLE NR-4040**

- **CAT. No.** 9213
- **Price**

**Order by catalog number.**
**Collet Holder** Taper Shank Tools and Collet Nut

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Collet</th>
<th>Std. Accessories</th>
<th>Attach to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9215</td>
<td></td>
<td>QCK-K</td>
<td>CHK</td>
<td>Collet Nut (0.080)</td>
<td>for Collet (CHK)</td>
<td></td>
</tr>
<tr>
<td>9216</td>
<td></td>
<td>QCK-16</td>
<td>CH16</td>
<td>Collet Nut (0.080)</td>
<td>for Collet (CH16)</td>
<td></td>
</tr>
</tbody>
</table>

**Preset Adapter**

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9217</td>
<td>QCK-K ADP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9218</td>
<td>QCK-16 ADP</td>
<td></td>
</tr>
</tbody>
</table>

**Features:**

- Quick, easy and accurate tool change without the need for wrenches.
- Makes tool pre-setting outside of the machine possible.
- 10 times the retention force as compared to the NRR-2651.

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9219</td>
<td>NRR4040-AQC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9214</td>
<td>NRR4040-QC</td>
<td></td>
</tr>
</tbody>
</table>

**Air Quick Change Spindle**

- Allowable Motor Speed: 40,000 min⁻¹ (rpm)
- Spindle Accuracy: Within 1 µm
- Weight: 2 lb. 13.86 oz.

**Lever Quick Change Spindle**

- Allowable Motor Speed: 40,000 min⁻¹ (rpm)
- Spindle Accuracy: Within 1 µm
- Weight: 4 lb. 12.19 oz.

- Collet Holder with Collet Nut, and Collet are sold separately.

- Quick, easy and accurate tool change without the need for wrenches.
- Makes tool pre-setting outside of the machine possible.
- 10 times the retention force as compared to the NRR-2651.

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9219</td>
<td>NRR4040-AQC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9214</td>
<td>NRR4040-QC</td>
<td></td>
</tr>
</tbody>
</table>

*Note: The Collet Holder with Collet Nut, and Collet are sold separately.*
"E4000 SERIES" SPINDLE

**NEW Features:**
- The collet holder can be replaced by using Air ON/OFF.
- The Spindle housing is made from precision ground, hardened, stainless steel (SUS).
- There are 2 types of collet holders. Various sizes of mounting collets are available depending on the collet holder used.
  - (CHK) 0.5mm - 6.35mm
  - (CH16) 3.0mm, 3.175mm, 4.0mm, 6.0mm, 6.35mm, 8.0mm and 10.0mm

**Air ON/OFF**

- **Air Quick Change Spindle**
  - **CAT. No.** 9219
  - **Model** NR4040-AQC
  - **Price** 40,000 min⁻¹ (rpm)

**Features:**
- Allowable Motor Speed: 40,000 min⁻¹ (rpm)
- Spindle Accuracy: Within 1 µm
- Weight: 4 lbs. 12.19 oz.
- Collet Holder: QCS-K
- Collet (CHK): ø0.5 mm - ø6.35 mm
- Collet Nut (K-265) for Collet (CH16)

**Note:** The Collet Holder with Collet Nut, and Collet are sold separately.

**COLLET HOLDER**

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Size</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHK</td>
<td>9215</td>
<td>QCS-K</td>
<td>–</td>
<td>Collet Nut (K-265)</td>
<td>1 pc.</td>
</tr>
<tr>
<td></td>
<td>9216</td>
<td>QCS-16</td>
<td>–</td>
<td>Collet Nut (CH16)</td>
<td>1 pc.</td>
</tr>
</tbody>
</table>

**PRESET ADAPTER**

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9217</td>
<td>QC5-K ADP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9218</td>
<td>QC5-16 ADP</td>
<td></td>
</tr>
</tbody>
</table>

**NEW Features:**
- Quick, easy and accurate tool change without the need for wrenches.
- Makes tool pre-setting outside of the machine possible.
- 2 collet styles available (CHK or CH16) depending on QCS Model.
- 10 times the retention force as compared to the NRR-2651.

**Features:**
- Allowable Motor Speed: 40,000 min⁻¹ (rpm)
- Spindle Accuracy: Within 1 µm
- Weight: 2 lbs. 13.86 oz.
- Collet Holder: QCS-K
- Collet (CHK): ø0.5 mm - ø6.35 mm
- Collet (CH16): ø0.5 mm - ø6.35 mm
- Collet Nut (K-265) for Collet (CHK)
- Collet Nut (CHN-16) for Collet (CH16)

**Note:** The Collet Holder with Collet Nut, and Collet are sold separately.

**LEVER QUICK CHANGE SPINDLE**

- **CAT. No.** 9214
- **Model** NRR4040-QC
- **Price** 40,000 min⁻¹ (rpm)
“E4000 SERIES” AIR LINE KIT & MOTOR CABLE

**AIR LINE KIT** AL-C1204

- The AL-C1204 Air Line Kit is designed to deliver clean, dry air to Electric Motors via the Control Unit. The filter removes small amounts of debris while the adjustable regulator provides the correct air pressure for cooling and purging.

**MOTOR POWER CABLE** with Air Hose

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9253</td>
<td>EMCD-4000-2M</td>
<td>6 ft (2.0m)</td>
<td></td>
<td>BM5-4000</td>
<td></td>
<td>8.66&quot;</td>
</tr>
<tr>
<td>9254</td>
<td>EMCD-4000-4M</td>
<td>13 ft (4.0m)</td>
<td></td>
<td>BM5-4000RA</td>
<td></td>
<td>7.48&quot;</td>
</tr>
<tr>
<td>9255</td>
<td>EMCD-4000-6M</td>
<td>20 ft (6.0m)</td>
<td></td>
<td>BM5-4000A</td>
<td></td>
<td>7.48&quot;</td>
</tr>
<tr>
<td>9256</td>
<td>EMCD-4000-8M</td>
<td>28 ft (8.0m)</td>
<td></td>
<td>BM5-4000A</td>
<td></td>
<td>9.06&quot;</td>
</tr>
</tbody>
</table>

- Not for use with the 90-Degree Angle Motor (RA)

**MOTOR SIGNAL CABLE**

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9257</td>
<td>EMCD-4000S-2M</td>
<td>6 ft (2.0m)</td>
<td></td>
<td>BM5-4000RA</td>
<td></td>
<td>6.77&quot;</td>
</tr>
<tr>
<td>9258</td>
<td>EMCD-4000S-4M</td>
<td>13 ft (4.0m)</td>
<td></td>
<td>BM5-4000RA</td>
<td></td>
<td>6.00&quot;</td>
</tr>
<tr>
<td>9259</td>
<td>EMCD-4000S-6M</td>
<td>20 ft (6.0m)</td>
<td></td>
<td>BM5-4000A</td>
<td></td>
<td>7.48&quot;</td>
</tr>
<tr>
<td>9260</td>
<td>EMCD-4000S-8M</td>
<td>28 ft (8.0m)</td>
<td></td>
<td>BM5-4000A</td>
<td></td>
<td>9.06&quot;</td>
</tr>
</tbody>
</table>

- Not for use with the 90-Degree Angle Motor (RA)

“E4000 SERIES” SAFETY RELAY BOX & PARTS

**SAFETY RELAY BOX**

- Mounts directly on E4000 Control Unit.
- Allows Emergency Stop Signal from the CNC to stop the E4000 Motor Spindle or the E4000 Control Unit to stop the machine operation.

**Example of using an E4000 control unit with the Safety Relay Box**

- Safety Relay Box

**Operation Panel Extension Cord / Box For Control Panel**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Product</th>
<th>Description / Specifications</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>8474</td>
<td>E4000-PEX4</td>
<td>Operation Panel Extension Cord (4m)</td>
<td>E4000 Control Unit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8475</td>
<td>E4000-SRB</td>
<td>Box For Control Panel: • Case A: + Case B: + Blind Plate: 8 pcs. + Screw (M3): 2 pcs.</td>
<td>E4000 Control Unit</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**25 Pin INTERFACE CABLE**

- Motor long Interface Cable provides a DB25 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of I/O signals from any NSK Control to a CNC Control.

**15 Pin INTERFACE CABLE**

- Motor long Interface Cable provides a DB15 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of the (OP1) “E-Stop Input Circuit” and “Safety Relay Circuit” from the NSK Control to a CNC Control.

- Order by catalog number.
**“E4000 SERIES” AIR LINE KIT & MOTOR CABLE**

- **The AL-C1204 Air Line Kit is designed to deliver clean, dry air to Electric Motors via the Control Unit. The filter removes small amounts of debris while the adjustable regulator provides the correct air pressure for cooling and purging.**

**MOTOR POWER CABLE with Air Hose**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9253</td>
<td>EMCD-4000-2M</td>
<td>6 ft</td>
<td>EM-6430</td>
<td>90</td>
</tr>
<tr>
<td>9254</td>
<td>EMCD-4000-4M</td>
<td>4 ft</td>
<td>EM-4430</td>
<td>65</td>
</tr>
<tr>
<td>9255</td>
<td>EMCD-4000-6M</td>
<td>20 ft</td>
<td>EM-6430</td>
<td>90</td>
</tr>
<tr>
<td>9256</td>
<td>EMCD-4000-8M</td>
<td>26 ft</td>
<td>EM-8430</td>
<td>139</td>
</tr>
</tbody>
</table>

**MOTOR SIGNAL CABLE**

- **Not for use with the 90-Degree Angle Motor (RA)**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Length</th>
<th>Std. Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9257</td>
<td>EMCD-4008S-2M</td>
<td>6 ft</td>
<td>EM-6450</td>
<td>90</td>
</tr>
<tr>
<td>9258</td>
<td>EMCD-4008S-4M</td>
<td>4 ft</td>
<td>EM-4450</td>
<td>65</td>
</tr>
<tr>
<td>9259</td>
<td>EMCD-4008S-6M</td>
<td>20 ft</td>
<td>EM-6450</td>
<td>90</td>
</tr>
<tr>
<td>9260</td>
<td>EMCD-4008S-8M</td>
<td>26 ft</td>
<td>EM-8450</td>
<td>139</td>
</tr>
</tbody>
</table>

- **Order by catalog number.**

---

**“E4000 SERIES” SAFETY RELAY BOX & PARTS**

- **Mounts directly on E4000 Control Unit. Allows Emergency Stop Signal from the CNC to stop the E4000 Motor Spindle or the E4000 Control Unit to stop the machine operation.**

**Operation Panel Extension Cord / Box For Control Panel**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Description / Specifications</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>8474</td>
<td>E4000-PX4</td>
<td>Operation Panel Extension Cord (4m)</td>
<td>E4000 Control Unit</td>
<td>71.2250</td>
</tr>
<tr>
<td>8473</td>
<td>E4000-PB</td>
<td>Box For Control Panel + Case A + Case B + Blind Plate + Screw (50): 6 pcs. + Screw (54): 2 pcs.</td>
<td>E4000 Control Unit</td>
<td>344.2</td>
</tr>
</tbody>
</table>

**25 Pin INTERFACE CABLE**

- **A motor long Interface Cable provides a DB25 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of I/O signals from any NSK Control to a CNC Control.**

**15 Pin INTERFACE CABLE**

- **A motor long Interface Cable provides a DB15 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of the (OP1) “E-Stop Input Circuit” and “Safety Relay Circuit” from the NSK Control to a CNC Control.**

---

For NSK Control Connector A

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB25M</td>
<td>DB25M</td>
<td>Order by catalog number.</td>
</tr>
</tbody>
</table>

For NSK Control Connector B

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB15M</td>
<td>DB15M</td>
<td>Order by catalog number.</td>
</tr>
</tbody>
</table>
### MA SERIES
- Modular Type
- Outside Diameter: ø0.897", ø0.98", ø1.0" and ø1.18" (ø22.8, ø25, ø25.4 and ø30 mm)

### MS SERIES
- One Piece Type
- Outside Diameter: ø0.75", ø0.79", ø0.87", ø0.91", ø0.98" and ø1.0" (ø19.05, ø20, ø22, ø23, ø25 and ø25.4 mm)

---

**Modular Type Spindle**
- Separate motor and spindle for flexible application changes.
- Easy to interchange components.
MODULAR AIR SPINDLE

MA Series
Air System

MA SERIES
- Modular Type
- Outside Diameter: ø0.897", ø0.98", ø1.0" and ø1.18"
  (ø22.8, ø25, ø25.4 and ø30 mm)

MS SERIES
- One Piece Type
- Outside Diameter: ø0.75", ø0.79", ø0.87", ø0.91", ø0.98" and ø1.0"
  (ø19.05, ø20, ø22, ø23, ø25 and ø25.4 mm)

Modular Type Spindle
- Separate motor and spindle for flexible application changes.
- Easy to interchange components.
FEATURES & DRILLING CAPACITY REFERENCE TABLE

**MA Series Features**

- Gang slide NC lathes can be transformed into complex machining centers.
- Specialized machine design will be made compact and universal.
- Mounting MA Series on existing equipment can eliminate secondary operations or the equipment can be turned into a special purpose machine.
- MA Series is applicable to secondary operation machines, single purpose machines or special machining and grinding machines.
- The air motors are explosion proof and do not generate heat even in continuous use.
- When MA Series is used at low motor speed, a speed reducer (ARG-01, or other selection) is added in order to obtain the speed of your choice.
- Collet, face, drill chuck, saw arbor and grinding stone arbor are available for grinding, drilling, milling, slitting, chamfer and deburring operations.

**Application Examples**

**Drilling Capacity Reference Table**

This table summarizes the drilling capacity for the MA Series spindles. Please use this table as a guide for the selection of the proper model given the torque, speed and size requirements for your application. Data is given for three materials: Medium Carbon Steel (S45C), aluminum and brass.

- Conditions: High speed steel drill was used with a feed rate of 60 mm/min. Tool life was not considered in determining the above capacities.
- Use this table as a reference to extrapolate suitability for a given application.

<table>
<thead>
<tr>
<th>Combination as System</th>
<th>Speed (min⁻¹)</th>
<th>Spindle</th>
<th>Output (W)</th>
<th>Max. Torque (Kgf·cm)</th>
<th>Max. Dial Diameter for drilling (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motor</strong></td>
<td><strong>Speed Reducer</strong></td>
<td><strong>Spindle</strong></td>
<td><strong>Output (W)</strong></td>
<td><strong>Max. Torque (Kgf·cm)</strong></td>
<td><strong>Max. Dial Diameter for drilling (mm)</strong></td>
</tr>
<tr>
<td>AM-300R</td>
<td>NR-251</td>
<td>30,000</td>
<td>57</td>
<td>6.8</td>
<td>ø1.18</td>
</tr>
<tr>
<td>AM-300R</td>
<td>ARG-01(1/16)</td>
<td>NR-251</td>
<td>5,000</td>
<td>2.8</td>
<td>ø1.0</td>
</tr>
<tr>
<td>AM-300R</td>
<td>ARG-16(1/16)</td>
<td>NR-251</td>
<td>2,000</td>
<td>107.9</td>
<td>ø1.5</td>
</tr>
<tr>
<td>AM-310R</td>
<td>NR-251</td>
<td>30,000</td>
<td>57</td>
<td>13.7</td>
<td>ø1.3</td>
</tr>
<tr>
<td>AM-310R</td>
<td>ARG-01(1/16)</td>
<td>NR-251</td>
<td>8,000</td>
<td>13.7</td>
<td>ø1.3</td>
</tr>
<tr>
<td>AM-310R</td>
<td>ARG-16(1/16)</td>
<td>NR-251</td>
<td>2,000</td>
<td>107.9</td>
<td>ø1.5</td>
</tr>
<tr>
<td>AM-2520R</td>
<td>NR-251</td>
<td>26,000</td>
<td>130</td>
<td>22.5</td>
<td>ø0.8</td>
</tr>
<tr>
<td>AM-2520R</td>
<td>ARG-2520(1/16)</td>
<td>NR-251</td>
<td>6,000</td>
<td>130</td>
<td>ø0.7</td>
</tr>
<tr>
<td>AM-2520R</td>
<td>ARG-2520(1/16)</td>
<td>NR-251</td>
<td>1,500</td>
<td>130</td>
<td>ø0.8</td>
</tr>
<tr>
<td>AM-3020R</td>
<td>NR-453E</td>
<td>19,000</td>
<td>130</td>
<td>27</td>
<td>ø0.8</td>
</tr>
<tr>
<td>AM-3020R</td>
<td>ARG-011E(1/16)</td>
<td>NR-453E</td>
<td>4,795</td>
<td>130</td>
<td>ø0.8</td>
</tr>
<tr>
<td>AM-3020R</td>
<td>ARG-011E(1/16)</td>
<td>NR-453E</td>
<td>1,150</td>
<td>130</td>
<td>ø0.8</td>
</tr>
</tbody>
</table>

**MA Series ø0.897"(ø22.8 mm) System Chart**

- MA Series has been designed to operate smoothly at high speed for long continuous cutting and grinding by connecting an air line kit directly between the air compressor and the air motor. (Air Line Kit Refer to 3-p10 in detail)
- Air supply and exhaust air hoses are supplied with an air motor. Air supply hose is provided with metal fitting to connect to ø0.24"(ø6 mm) one-touch joint. Air exhaust hose is supplied with silencer.
- Protipes: High speed steel drill was used with a feed rate of 60 mm/min. Tool life was not considered in determining the above capacities.

- Use this table as a reference to extrapolate suitability for a given application.

- Use this table as a reference to extrapolate suitability for a given application.

- Do not exceed the maximum motor speed recommendation for the spindles. Excess speed will dramatically reduce bearing life.
**Features & Drilling Capacity Reference Table**

**MA Series Features**
- Gang slide NC lathes can be transformed into complex machining centers.
- Specialized machine design will be made compact and universal.
- Mounting MA Series on existing equipment can eliminate secondary operations or the equipment can be turned into a special purpose machine.
- The MA Series is applicable to secondary operation machines, single purpose machines or special machining and grinding machines.
- Application Examples

**Drilling Capacity Reference Table**
This table summarizes the drilling capacity for the MA Series spindles. Please use this table as a guide for the selection of the proper model given the torque, speed and size requirements for your application. Data is given for three materials Medium Carbon Steel (S45C), aluminum and brass.

<table>
<thead>
<tr>
<th>Combination as System</th>
<th>Speed Reducer</th>
<th>Speed {min⁻¹ (rpm)}</th>
<th>Max. Torque (cN.m)</th>
<th>Max. Drill Diameter for drilling (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM-300R</td>
<td>ARG-01 (1/3.92)</td>
<td>30,000</td>
<td>6.9</td>
<td>ø1.0 / ø1.5 / ø2.0</td>
</tr>
<tr>
<td>AM-250R</td>
<td>ARG-01 (1/3.92)</td>
<td>24,000</td>
<td>10.8</td>
<td>ø2.0</td>
</tr>
<tr>
<td>AM-300R</td>
<td>ARG-01 (1/3.92)</td>
<td>20,000</td>
<td>15.9</td>
<td>ø2.5</td>
</tr>
<tr>
<td>AM-300R</td>
<td>ARG-01 (1/3.92)</td>
<td>16,000</td>
<td>21.3</td>
<td>ø3.0</td>
</tr>
<tr>
<td>AM-300R</td>
<td>ARG-01 (1/3.92)</td>
<td>12,000</td>
<td>26.6</td>
<td>ø3.5</td>
</tr>
<tr>
<td>AM-300R</td>
<td>ARG-01 (1/3.92)</td>
<td>9,000</td>
<td>31.9</td>
<td>ø4.0</td>
</tr>
<tr>
<td>AM-300R</td>
<td>ARG-01 (1/3.92)</td>
<td>6,000</td>
<td>37.3</td>
<td>ø4.5</td>
</tr>
<tr>
<td>AM-300R</td>
<td>ARG-01 (1/3.92)</td>
<td>3,000</td>
<td>42.7</td>
<td>ø5.0</td>
</tr>
<tr>
<td>AM-300R</td>
<td>ARG-01 (1/3.92)</td>
<td>1,500</td>
<td>47.7</td>
<td>ø5.5</td>
</tr>
</tbody>
</table>

**MA Series ø0.897" (Ø22.8 mm) System Chart**
- MA Series has been designed to operate smoothly at high speed for long continuous cutting and grinding by connecting an air line kit directly between the air compressor and the air motor. (Air Line Kit Refer to 3-p10 in detail)
- Air supply and exhaust air hoses are supplied with an air motor. Air supply hose is provided with metal fitting to connect to ø0.24"(ø6 mm) one-touch joint. Air exhaust hose is supplied with silencer.

Do not exceed the maximum motor speed recommendation for the spindles. Excess speed will dramatically reduce bearing life.
<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS11397</td>
<td>AM-300R</td>
<td></td>
<td></td>
<td>57W</td>
</tr>
<tr>
<td>AS81083</td>
<td>AM-300L</td>
<td></td>
<td></td>
<td>57W</td>
</tr>
<tr>
<td>AS11395</td>
<td>AM-300RA</td>
<td></td>
<td></td>
<td>57W</td>
</tr>
<tr>
<td>AS81084</td>
<td>AM-300LA</td>
<td></td>
<td></td>
<td>57W</td>
</tr>
<tr>
<td>AS41079</td>
<td>AM-310R</td>
<td></td>
<td></td>
<td>108W</td>
</tr>
<tr>
<td>AS81085</td>
<td>AM-310L</td>
<td></td>
<td></td>
<td>108W</td>
</tr>
<tr>
<td>AS12101</td>
<td>AM-310RA</td>
<td></td>
<td></td>
<td>108W</td>
</tr>
<tr>
<td>AS81082</td>
<td>AM-310LA</td>
<td></td>
<td></td>
<td>108W</td>
</tr>
</tbody>
</table>

- **Silencer**: ø0.897" (ø22.8 mm).
- **Small diameter**: ø0.897" (ø22.8 mm).
- **Ultra-precision vane type air motor**.
- **Outside housing is made of stainless steel (SU416)**.

**High-Torque Air Motor O.D. ø0.897" (ø22.8 mm)**

- **Ultra-precision, compact, vane-type air motor** provides high torque with small volume of air consumption. Withstands long continuous operation without heat generation. Silencer keeps noise to a minimum.

**CAT. No. AS11397**

- **Air Motor (Forward Rotation)** 57W, 30,000 min⁻¹ (rpm)
- **Motor Speed**: 30,000 min⁻¹ (rpm) (71PSI)
- **Max. Output Power**: 57W
- **Proper Air Pressure**: 42-71PSI
- **Air Consumption**: 3.18CFM
- **Length of Motor Hose**: 6 ft
- **Hose Diameter**: Air Intake I.D. ø4.0 mm x O.D. ø6.0 mm
- **Exhaust Air I.D. ø5.5 mm x O.D. ø7.5 mm
- **Weight (w/o hose)**: 4.76 oz.

**CAT. No. AS11395**

- **90° Angle Type Air Motor (Forward Rotation)** 57W, 30,000 min⁻¹ (rpm)
- **Motor Speed**: 30,000 min⁻¹ (rpm) (71PSI)
- **Max. Output Power**: 57W
- **Proper Air Pressure**: 42-71PSI
- **Air Consumption**: 3.18CFM
- **Length of Motor Hose**: 6 ft
- **Hose Diameter**: Air Intake I.D. ø4.0 mm x O.D. ø6.0 mm
- **Exhaust Air I.D. ø5.5 mm x O.D. ø7.5 mm
- **Weight (w/o hose)**: 4.76 oz.

**CAT. No. AS41079**

- **Air Motor (Forward Rotation)** 108W, 30,000 min⁻¹ (rpm)
- **Motor Speed**: 30,000 min⁻¹ (rpm) (71PSI)
- **Max. Output Power**: 108W
- **Proper Air Pressure**: 42-71PSI
- **Air Consumption**: 6.71CFM
- **Length of Motor Hose**: 6 ft
- **Hose Diameter**: Air Intake I.D. ø4.5 mm x O.D. ø6.7 mm
- **Exhaust Air I.D. ø5.5 mm x O.D. ø7.5 mm
- **Weight (w/o hose)**: 7.16 oz.

**CAT. No. AS12101**

- **90° Angle Type Air Motor (Forward Rotation)** 108W, 30,000 min⁻¹ (rpm)
- **Motor Speed**: 30,000 min⁻¹ (rpm) (71PSI)
- **Max. Output Power**: 108W
- **Proper Air Pressure**: 42-71PSI
- **Air Consumption**: 6.71CFM
- **Length of Motor Hose**: 6 ft
- **Hose Diameter**: Air Intake I.D. ø4.5 mm x O.D. ø6.7 mm
- **Exhaust Air I.D. ø5.5 mm x O.D. ø7.5 mm
- **Weight (w/o hose)**: 7.16 oz.

**CAT. No. AS11071**

- **Air Motor (Forward Rotation)** 76W, 58,000 min⁻¹ (rpm)
- **Motor Speed**: 58,000 min⁻¹ (rpm) (85PSI)
- **Max. Output Power**: 76W
- **Proper Air Pressure**: 5.12CFM
- **Air Consumption**: 6.71CFM
- **Length of Motor Hose**: 6 ft
- **Hose Diameter**: Air Intake I.D. ø4.5 mm x O.D. ø6.7 mm
- **Exhaust Air I.D. ø5.5 mm x O.D. ø7.5 mm
- **Weight (w/o hose)**: 7.58 oz.

**CAT. No. AS12512**

- **90° Angle Type Air Motor (Forward Rotation)** 69W, 55,000 min⁻¹ (rpm)
- **Motor Speed**: 55,000 min⁻¹ (rpm) (85PSI)
- **Max. Output Power**: 69W
- **Proper Air Pressure**: 5.12CFM
- **Air Consumption**: 6.71CFM
- **Length of Motor Hose**: 6 ft
- **Hose Diameter**: Air Intake I.D. ø4.5 mm x O.D. ø6.7 mm
- **Exhaust Air I.D. ø5.5 mm x O.D. ø7.5 mm
- **Weight (w/o hose)**: 8.99 oz.

**Order by catalog number.**
**High-Torque Air Motor O.D. ø0.897”(ø22.8 mm)**

- Small diameter ø0.897”(ø22.8 mm).
- Ultra-precision vane type air motor.
- Outside housing is made of stainless steel (SUS416).

### CAT. No. AS11397 AIR MOTOR AM-300R (Forward Rotation) 57W 30,000 min⁻¹(rpm)
- Motor Speed .................................. 30,000 min⁻¹(rpm) (56PSI)
- Max. Output Power ..................................................... 57W
- Proper Air Pressure .................................................. 42~71PSI
- Air Consumption ..................................................... 3.18CFM
- Length of Motor Hose .................................................... 6 ft
- Hose Diameter .......... Air Intake I.D. ø3.7 mm x O.D. ø7.7 mm
- Exhaust Air I.D. ø5.0 mm x O.D. ø8.0 mm
- Weight (w/o hose) ................................................... 4.76 oz.

**Air Motor** (R=Forward, L=Reverse)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS11397</td>
<td>AM-300R</td>
<td>AS41079</td>
<td>Wrench (20 x 24) : 1 pc.</td>
<td>AS81083</td>
</tr>
</tbody>
</table>

- Air hose is attached on the rear end of air motor at 90° angle which decreases the installation space.

### CAT. No. AS11395 90° ANGLE TYPE AIR MOTOR AM-300RA (Forward Rotation) 57W 30,000 min⁻¹(rpm)
- Motor Speed .................................. 30,000 min⁻¹(rpm) (56PSI)
- Max. Output Power ..................................................... 57W
- Proper Air Pressure .................................................. 42~71PSI
- Air Consumption ..................................................... 3.18CFM
- Length of Motor Hose .................................................... 6 ft
- Hose Diameter .......... Air Intake I.D. ø4.0 mm x O.D. ø8.0 mm
- Exhaust Air I.D. ø5.5 mm x O.D. ø7.5 mm
- Weight (w/o hose) ................................................... 6.21 oz.

**90° Angle Type Air Motor** (R=Forward, L=Reverse)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS11395</td>
<td>AM-300RA</td>
<td>AS41079</td>
<td>Wrench (20 x 24) : 1 pc.</td>
<td>AS81084</td>
</tr>
</tbody>
</table>

- Assembled with high quality ball bearings enabling higher grinding power at a maximum speed of 58,000 min (rpm). Suitable for very precise processing works.

### CAT. No. AS41079 AIR MOTOR AM-310R (Forward Rotation) 108W 30,000 min⁻¹(rpm)
- Motor Speed .................................. 30,000 min⁻¹(rpm) (71PSI)
- Max. Output Power ..................................................... 108W
- Proper Air Pressure .................................................. 42~71PSI
- Air Consumption ..................................................... 4.71CFM
- Length of Motor Hose .................................................... 6 ft
- Hose Diameter .......... Air Intake I.D. ø4.5 mm x O.D. ø7.7 mm
- Exhaust Air I.D. ø5.5 mm x O.D. ø7.5 mm
- Weight (w/o hose) ................................................... 7.16 oz.

**Air Motor** (R=Forward, L=Reverse)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS41079</td>
<td>AM-310R</td>
<td>AS41079</td>
<td>Wrench (20 x 24) : 1 pc.</td>
<td>AS81085</td>
</tr>
</tbody>
</table>

- Air hose is attached on the rear end of air motor at 90° angle which decreases the installation space.

### CAT. No. AS11071 AIR MOTOR AM-600R (Forward Rotation) 76W 30,000 min⁻¹(rpm)
- Motor Speed .................................. 30,000 min⁻¹(rpm) (56PSI)
- Max. Output Power ..................................................... 76W
- Proper Air Pressure .................................................. 51.03CFM
- Air Consumption ..................................................... 7.58CFM
- Length of Motor Hose .................................................... 6 ft
- Hose Diameter .......... Air Intake I.D. ø4.5 mm x O.D. ø8.0 mm
- Exhaust Air I.D. ø5.5 mm x O.D. ø7.5 mm
- Weight (w/o hose) ................................................... 7.58 oz.

**Air Motor**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS11071</td>
<td>AM-600R</td>
<td>AS11071</td>
<td>Wrench (20 x 24) : 1 pc.</td>
<td>AS81082</td>
</tr>
</tbody>
</table>

- Small diameter ø0.897”(ø22.8 mm).
- Ultra-precision vane type air motor.
- Outside housing is made of stainless steel (SUS416).
**SPINDLE O.D. ø0.897”(ø22.8 mm)**

**MA Series can be used in conjunction with water or oil based coolants.**

**Use the motor at motor speed less than maximum allowable speed or use the speed reducer.**

**DO NOT exceed the allowable motor speed for the spindle and the reducer.**

**COOLANT**

Do not exceed the allowable motor speed for the spindle.

*CAT. No. Model Standard Equipment Accessories Price

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS41830</td>
<td>NR-303</td>
<td>Collet ø1/8” (CHK-3.175)</td>
<td>Wrench (12 x 14) : 2 pcs. Wrench (20 x 24) : 1 pc.</td>
<td>7.58 oz.</td>
</tr>
<tr>
<td>AS18220</td>
<td>NR-2351 (Ceramic Bearings)</td>
<td>Collet ø1/8” (CHK-3.175)</td>
<td>Wrench (7 x 5.5), (8 x 5), (20 x 24) : 1 pc. each.</td>
<td>5.82 oz.</td>
</tr>
<tr>
<td>AS11411</td>
<td>RA-100</td>
<td>Collet ø1/8” (CHK-3.175)</td>
<td>Wrench (7 x 5.5), (8 x 5), (20 x 24) : 1 pc. each.</td>
<td>9.56 oz.</td>
</tr>
</tbody>
</table>

**CAUTION**

Use the motor at motor speed less than maximum allowable speed or use the speed reducer. DO NOT exceed the allowable motor speed for the spindle and the reducer.
**SPINDLE O.D. ø0.897"(ø22.8 mm)**

**MA Series can be used in conjunction with water or oil based coolants.**

### CAT. No. AS41830 SPINDLE NR-303

**30,000 min⁻¹ (rpm)**

- Allowable Motor Speed: 30,000 min⁻¹ (rpm)
- Spindle Accuracy: Within 2 μm
- Standard Size Collet (CHK-3.175): ø1/8" (0.125)
- Weight: 7.58 oz.

*Optional *
- Collet (CHK-3) : ø0.5 mm ø6.35 mm

For Collet (CHK)  For ø0.24" (0.67)ø1.18" (O.D.)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS41830</td>
<td>NR-303</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This spindle is ideal for small diameter drilling, milling and grinding. A wide selection of collets and accessories is available.

### CAT. No. AS18220 SPINDLE NR-2351 (Ceramic Bearings)

**50,000 min⁻¹ (rpm)**

- Allowable Motor Speed: 50,000 min⁻¹ (rpm)
- Spindle Accuracy: Within 1 μm
- Standard Size Collet (CHK-3.175): ø1/8" (0.125)
- Weight: 7.58 oz.

*Optional *
- Collet (CHK-3) : ø0.5 mm ø6.35 mm

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS18220</td>
<td>NR-2351</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This spindle is ideal for ultra-precision, small diameter drilling, milling and grinding. A wide selection of collets and accessories is available.

### CAT. No. AS51094 90° ANGLE SPINDLE RAS-101

**90° Angle Spindle**

- Maximum allowable motor speed for the spindle: 20,000 min⁻¹ (rpm)
- Maximum rotating speed at the cutting tool: 7,490 min⁻¹ (rpm)

| Reduction Ratio | 1/2.67 |

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS51094</td>
<td>RAS-101</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This spindle is ideal for small diameter drilling, milling and grinding. A wide selection of collets and accessories is available.

### CAT. No. AS11411 90° ANGLE SPINDLE RA-100

**90° Angle Spindle**

- Maximum allowable motor speed for the spindle: 20,000 min⁻¹ (rpm)
- Maximum rotating speed at the cutting tool: 7,490 min⁻¹ (rpm)

| Reduction Ratio | 1/1.5 |

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS11411</td>
<td>RA-100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This spindle is capable of working on corners difficult to work with straight type, drilling on side face and, slotting of aluminum, brass, etc. with the use of ø1.18"(ø30 mm) Metal Saw.

### CAT. No. AS11412 90° ANGLE SPINDLE RA-200

**90° Angle Spindle**

- Maximum allowable motor speed for the spindle: 20,000 min⁻¹ (rpm)
- Maximum rotating speed at the cutting tool: 13,330 min⁻¹ (rpm)

| Reduction Ratio | 1/1.5 |

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS11412</td>
<td>RA-200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This spindle can be used for working on corners difficult to work on or unfit for working with straight type, drilling on side face, etc.

*Order by catalog number.*

---

**Notes:**
- Do not exceed the allowable motor speed for the spindle.
- Use the motor at motor speed less than maximum allowable speed or use the speed reducer.
- This spindle is ideal for ultra-precision, small diameter drilling, milling and grinding. A wide selection of collets and accessories is available.
- This spindle is ideal for small diameter drilling, milling and grinding. A wide selection of collets and accessories is available.
- The spindle is capable of working on corners difficult to work with straight type, drilling on side face and, slotting of aluminum, brass, etc. with the use of ø1.18"(ø30 mm) Metal Saw.

---

**COOLANT**

- CAT. No. AS41830 30,000 min⁻¹ (rpm)
- CAT. No. AS18220 50,000 min⁻¹ (rpm)
- CAT. No. AS51094 20,000 min⁻¹ (rpm)
- CAT. No. AS11411 20,000 min⁻¹ (rpm)
- CAT. No. AS11412 20,000 min⁻¹ (rpm)
SPINDLE O.D. ø0.897"(ø22.8 mm)

- Large precision angular ball bearings are assembled on the front part of the spindle to provide rigidity on both the radial and the thrust sides. This spindle is suitable for grinding of deep holes, grinding by ø1.57" (40 mm) grindstone and small-diameter end milling.

SPEED REDUCER O.D. ø0.897"(ø22.8 mm)

- Do not exceed the allowable motor speed for the spindle.

Caution:
- Use the motor at motor speed less than maximum allowable speed or use the speed reducer. DO NOT exceed the allowable motor speed for the spindle and the reducer.

Large precision angular ball bearings are assembled on the front part of the spindle to provide rigidity on both the radial and the thrust sides. This spindle is suitable for grinding of deep holes, grinding by ø1.57" (40 mm) grindstone and small-diameter end milling.

- Suitable for the grinding of the inner surface of slender and deep holes. (Example) If ø0.55" grindstone is mounted on the grinding arbor AGM-01, this spindle is suitable for the inner grinding of ø0.59" or more and with the depth of 3.92" or less.

- This spindle with high-speed rotation is suitable for internal grinding. Also ideal for small-diameter drilling of higher accuracy.

Order by catalog number.
SPINDLE O.D. φ0.897"(φ22.8 mm)  

Large precision angular ball bearings are assembled on the front part of the spindle to provide rigidity on both the radial and the thrust sides. This spindle is suitable for grinding of deep hole, grinding by φ1.57" (40 mm) grindstone and small-diameter end milling.

CAT. No. AS42511 SPINDLE NR-311

- **Motor Speed**: 30,000 min⁻¹
- **Spindle Accuracy**: Within 2 µm
- **Weight**: 13.5 oz.
- **Collet (CHK-3.175)**: ø1.0 mm – ø3.175 mm

SPEED REDUCER O.D. φ0.897"(φ22.8 mm)  

Use the motor at motor speed less than maximum allowable speed or use the speed reducer. Caution : DO NOT exceed the allowable motor speed for the spindle and the reducer.

CAT. No. AS11414 SPEED REDUCER 1/3.92 ARG-01

- **Maximum allowable motor speed**: 30,000 min⁻¹
- **Maximum rotating speed at the cutting tool**: 7,650 min⁻¹
- **Speed Reducing Mechanism**: By planetary gear system
- **Weight**: 3.81 oz.

CAT. No. AS11428 SPEED REDUCER 1/15.39 ARG-02

- **Maximum allowable motor speed**: 30,000 min⁻¹
- **Maximum rotating speed at the cutting tool**: 1,940 min⁻¹
- **Speed Reducing Mechanism**: By planetary gear system
- **Weight**: 5.22 oz.

This spindle with high-speed rotation is suitable for internal grinding. Also ideal for small-diameter drilling of higher accuracy.

CAT. No. AS11073 SPINDLE NR-601

- **Adaptable Motor**: AM-600R (RA)
- **Motor Speed**: 60,000 min⁻¹
- **Spindle Accuracy**: Within 2 µm
- **Weight**: 7.4 oz.
- **Collet (CHM-3.175)**: ø1.0 mm – ø3.175 mm
- **Grindstone Flange (NGF2-19)**: ø35 x 7 x 3.92 mm

Order by catalog number.
AIR LINE KIT & OIL

CAT. No. 4502 AIR LINE KIT AL-M1202

- The AL-M1202 provides simple, automatic conditioning of the air supplied to NAKANISHI Air Motors. The filter removes water and impure substances from the input air supply. The regulator maintains the proper air pressure, and the lubricator ensures proper oil flow to the motor and spindle. This Air Line Kit is wall mountable.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4502</td>
<td>AL-M1202</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Air Line Kit (For ø6 mm Hose • Filter Mesh 0.3 µm)

CAT. No. 4503 AIR LINE KIT AL-M1203BS2

- The AL-M1203BS2 is equipped with 2 (DC=24 V) Air Solenoids, a large capacity filter, large capacity oil reservoir, high flow regulator and a low oil level warning alarm, making this unit ideal for use on CNC machines. This Air Line Kit allows for the operation of 2 Air Motors.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4503</td>
<td>AL-M1203</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LUBRICATING OIL

Lubricating Oil (4 oz.)

<table>
<thead>
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<th>CAT. No.</th>
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<th>Price</th>
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<tbody>
<tr>
<td>AA10478</td>
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<td>K-211</td>
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</tbody>
</table>

Lubricating Oil (32 oz.)

<table>
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<tr>
<th>CAT. No.</th>
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<tbody>
<tr>
<td>AA10480</td>
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<td>K-202</td>
<td></td>
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</tbody>
</table>

*Order by catalog number.*

CAT. No. 3-p10
AIR LINE KIT & OIL

**AIR LINE KIT AL-M1202**

- The AL-M1202 provides simple, automatic conditioning of the air supplied to NAKANISHI Air Motors. The filter removes water and impure substances from the input air supply. The regulator maintains the proper air pressure, and the lubricator ensures proper oil flow to the motor and spindle. This Air Line Kit is wall mountable.

**Air Line Kit (For ø6 mm Hose • Filter Mesh 0.3 µm)**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4502</td>
<td>AL-M1202</td>
<td>Air Filter • Air Regulator</td>
<td>- Air Pressure Gauge • Lubricator • Air On-Off Valve • Hose for Piping (K-275) : 6 ft</td>
<td>lubricating oil (K-211) : 1 pc.</td>
</tr>
</tbody>
</table>

**AIR LINE KIT AL-M1203BS2**

- The AL-M1203BS2 is equipped with 2 (DC+24V) Air Solenoids, a large-capacity filter, large capacity oil reservoir, high flow regulator and a low oil level warning alarm, making this unit ideal for use on CNC machines. This Air Line Kit allows for the operation of 2 Air Motors.

**Air Line Kit (For ø6 mm Hose • Filter Mesh 0.3 µm)**

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<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4503</td>
<td>AL-M1203BS2</td>
<td>Air Filter • Air Regulator</td>
<td>- Air Pressure Gauge • Lubricator • Solenoid Valve (DC 24V) : 2 pcs. • Buzzer (DC 24V)</td>
<td>- Hose for Piping (K-275) : 6 ft • Lubricating Oil (K-202) : 1 pc.</td>
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**LUBRICATION OIL**

**Lubricating Oil (2 oz.)**

<table>
<thead>
<tr>
<th>CAT. No.</th>
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<th>Product</th>
<th>Price</th>
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</thead>
</table>
| AA10480  | K-202  |         | lub \.

Order by catalog number.
**MA Series**

**MA Series ø1.0"(ø25.4 mm), ø0.98"(ø25 mm) System Chart**

- MA Series has been designed to operate smoothly at high speed for long continuous cutting and grinding by connecting an air line kit directly between the air compressor and the air motor. (Air Line Kit Refer to 3-p16 in detail)
- Air supply and exhaust air hoses are supplied with an air motor. Air supply hose is provided with metal fitting to connect to ø0.24"(ø6 mm) one-touch joint. Air exhaust hose is supplied with silencer.

**CAT. No.**

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<tr>
<th>E3000</th>
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<td>AM-H2526R</td>
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</tbody>
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**Cat. No. AS81805P**

- **AIR MOTOR** AM-H2526R (Forward Rotation) 130W
- **Motor Speed** 24,000 min⁻¹(rpm) (71PSI)
- **Max. Output Power** 130W
- **Proper Air Pressure** 42~71PSI
- **Air Consumption** 7.24CFM
- **Length of Motor Hose** 6 ft
- **Hose Diameter** Air Intake I.D. ø5.5 mm x O.D. ø7.5 mm
- **Exhaust Air I.D. ø5.5 mm x O.D. ø7.5 mm**
- **Weight (w/o hose)** 7.05 oz.

**Cat. No. AS81807P**

- **AIR MOTOR** AM-H2526RA (Forward Rotation) 220W
- **Motor Speed** 22,000 min⁻¹(rpm) (71PSI)
- **Max. Output Power** 220W
- **Proper Air Pressure** 42~71PSI
- **Air Consumption** 8.00CFM
- **Length of Motor Hose** 6 ft
- **Hose Diameter** Air Intake I.D. ø5 mm x O.D. ø6 mm
- **Exhaust Air I.D. ø5.5 mm x O.D. ø6 mm**
- **Weight (w/o hose)** 8.50 oz.

**Ultra precision, compact, vane-type air motor provides high torque with small volume of air consumption. Withstands long continuous operation without heat generation. Silencer keeps noise to a minimum.**

- **Do not exceed the maximum motor speed recommendation for the spindles. Excess speed will dramatically reduce bearing life.**

**AM-2526 Torque-Speed Characteristics**

- The installation space is reduced by installing the air intake and exhaust air hoses at 90° angle from the rear end of the motor.

**Cat. No.**

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</tbody>
</table>
MA Series Ø1.0”(Ø25.4 mm), Ø0.98”(Ø25 mm) System Chart

- MA Series has been designed to operate smoothly at high speed for long continuous cutting and grinding by connecting an air line kit directly between the air compressor and the air motor. (Air Line Kit Refer to 3-p16 in detail)
- Air supply and exhaust air hoses are supplied with an air motor. Air supply hose is provided with metal fitting to connect to ø0.24”(Ø6 mm) one-touch joint. Air exhaust hose is supplied with silencer.
- Do not exceed the maximum motor speed recommendation for the spindles. Exceed speed will dramatically reduce bearing life.

- Ultra-precision vane type air motor.
- Rigid stainless steel (SUS416) outer housing.

AM Series Ø1.0”(Ø25.4 mm), Ø0.98”(Ø25 mm)

Small diameter Ø1.0”(Ø25.4 mm), Ø0.98”(Ø25 mm).

Ultra-precision vane type air motor.

Rigid stainless steel (SUS416) outer housing.

**AM Series Ø1.0”(Ø25.4 mm), Ø0.98”(Ø25 mm) System Chart**

- Modular Type

- MA Series Ø1.0”(Ø25.4 mm), Ø0.98”(Ø25 mm)

- Small diameter Ø1.0”(Ø25.4 mm), Ø0.98”(Ø25 mm).

- Ultra-precision vane type air motor.

- Rigid stainless steel (SUS416) outer housing.

**AM-2526RA**

- 20,500 min⁻¹(rpm) (71PSI)
- Max. Output Power .................................................... 100W
- Proper Air Pressure .................................................. 42~71PSI
- Air Consumption ...................................................... 7.4A CFM
- Length of Motor Hose .................................................... 6 ft
- Hose Diameter ......................................................... ø4.5 mm x Ø0.7 mm
- Exhaust Air I.D. ......................................................... ø4.5 mm x Ø0.7 mm
- Weight (w/o hose) ................................................... 7.05 oz.

**AM-2526L**

- 80,000 rpm

**AM-2526RA**

- 22,000 min⁻¹(rpm) (71PSI)
- Max. Output Power .................................................... 120W
- Proper Air Pressure .................................................. 42~71PSI
- Air Consumption ...................................................... 6.00CFM
- Length of Motor Hose .................................................... 6 ft
- Hose Diameter ......................................................... ø4.5 mm x Ø0.7 mm
- Exhaust Air I.D. ......................................................... ø4.5 mm x Ø0.7 mm
- Weight (w/o hose) ................................................... 8.50 oz.

**AM-2526L**

- 80,000 rpm

- The installation space is reduced by installing the air intake and exhaust air hoses at 90° angle from the rear end of the motor.

- The connection part “+” is “convex”.

- The connection part “*” is “concave”.

- Order by catalog number. 3-p13
### Spindle O.D. ø1.0", ø0.98"(ø25.4, ø25 mm)

- Designed for increased durability by utilizing ceramic bearings, for obtaining strong rigidity in both radial direction and thrust directions by utilizing 2 super-precision ceramic bearings on the front side and 2 on the rear side. This spindle can be used for small-diameter milling, drilling, slitting, chamfering, grinding, etc.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Outside Diameter</th>
<th>Spindle Accuracy</th>
<th>Weight</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS81820P</td>
<td>NR-H2551</td>
<td>ø1.0&quot; (ø25.4 mm)</td>
<td>±0.5 µm</td>
<td>8.92 oz.</td>
<td>For ø0.24&quot; (I.D.) x ø1.18&quot; (O.D.)</td>
</tr>
<tr>
<td>AS81826P</td>
<td>NR-H2516N</td>
<td>ø0.897&quot; (ø22.3 mm)</td>
<td>±0.5 µm</td>
<td>5.29 oz.</td>
<td>For ø0.63&quot; (I.D.) x ø1.0&quot; (O.D.)</td>
</tr>
</tbody>
</table>

### Speed Reducer O.D. ø1.0", ø0.98"(ø25.4, ø25 mm)

- Use the motor at motor speed less than maximum allowable speed or use the speed reducer. DO NOT exceed the allowable motor speed for the spindle and the reducer.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Outside Diameter</th>
<th>Speed Reduction Ratio</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS81820P</td>
<td>NR-H2551</td>
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<td>1/4</td>
<td>7.23 oz.</td>
</tr>
<tr>
<td>AS81826P</td>
<td>NR-H2516N</td>
<td>ø0.897&quot; (ø22.3 mm)</td>
<td>1/16</td>
<td>5.29 oz.</td>
</tr>
</tbody>
</table>

**CAUTION:**

- Do not exceed the allowable motor speed for the spindle.

**Note:**

- Order by catalog number. 3-p15
SPINDLE O.D. ø1.0", ø0.98"(ø25.4, ø25 mm)

MA Series can be used in conjunction with water or oil based coolants.

Use the motor at motor speed less than maximum allowable speed or use the speed reducer. DO NOT exceed the allowable motor speed for the spindle.

If the speed reducer is connected between the motor and the spindle, it reduces the rotating speed and increases the torque while keeping the motor speed unchanged.

Order by catalog number.

3-p14
AIR LINE KIT & OIL

**AIR LINE KIT AL-M1202**

- The AL-M1202 provides simple, automatic conditioning of the air supplied to NAKANISHI Air Motors. The filter removes water and impure substances from the input air supply. The regulator maintains the proper air pressure, and the lubricator ensures proper oil flow to the motor and spindle. This Air Line Kit is wall mountable.

**Air Line Kit (For ø6 mm Hose) - Filter Mesh 0.3 µm**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
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<tbody>
<tr>
<td>AL-M1202</td>
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</tbody>
</table>

**Air Line Kit AL-M1203BS2**

- The AL-M1203BS2 is equipped with 2 (DC-24V) Air Solenoids, a large capacity filter, large capacity oil reservoir, high flow regulator and a low oil level warning alarm, making this unit ideal for use on CNC machines. This Air Line Kit allows for the operation of 2 Air Motors.

**Air Line Kit (For ø6 mm Hose) - Filter Mesh 0.3 µm**

<table>
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<tr>
<th>CAT. No.</th>
<th>Model</th>
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<th>Price</th>
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</thead>
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**LUBRICATING OIL**

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*Order by catalog number.*
AIR LINE KIT & OIL

**AIR LINE KIT AL-M1202**

- The AL-M1202 provides simple, automatic conditioning of the air supplied to NAKANISHI Air Motors. The filter removes water and impure substances from the input air supply. The regulator maintains the proper air pressure, and the lubricator ensures proper oil flow to the motor and spindle. This Air Line Kit is wall mountable.

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**AIR LINE KIT AL-M1203BS2**

- The AL-M1203BS2 is equipped with 2 (DC+24V) Air Solenoids, a large capacity filter, large capacity oil reservoir, high flow regulator and a low oil level warning alarm, making this unit ideal for use on CNC machines. This Air Line Kit allows for the operation of 2 Air Motors.

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**LUBRICATING OIL**

- Lubricating Oil (4 oz.)

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- Lubricating Oil (32 oz.)

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*Order by catalog number.*
**MA Series** consists of 3 kinds of air motors, AM-3020R (19,000 min\(^{-1}\) rpm, 130W), AM-3020RA (18,000 min\(^{-1}\) rpm, 125W), enabling a wide variety of operations by the combination of various kinds of spindles. Higher torque is provided by connecting speed reducers.

**Ultra-precision vane type air motor.**

**Rigid stainless steel (SUS416) outer housing.**

**MA Series** ø1.18”(ø30 mm) System Chart

- MA Series has been designed to operate smoothly at high speed for long continuous cutting and grinding by connecting an air line kit directly between the air compressor and the air motor. (Air Line Kit Refer to 3-p25 in detail)
- Air supply and exhaust air hoses are supplied with an air motor. Air supply hose is provided with metal fitting to connect to ø6 mm one-touch joint. Air exhaust hose is supplied with silencer.
- Air motor spindle and the spindle as the need of torque.
- EmaxEVO AS11797 AIR MOTOR AM-3020R (Forward Rotation)
- AS11798 AIR MOTOR AM-3020L (Reverse Rotation)

**AM-3020 Torque-Speed Characteristics**

- Do not exceed the maximum motor speed recommendation for the spindle. Exceed speed will dramatically reduce bearing life.

**AM-3020 Torque-Speed Characteristics**

- Transmission Clutch
  - The connection part \(+\) is “concave”
  - The connection part \(-\)” is “threaded”

**AM-3020 Torque-Speed Characteristics**

- The installation space is reduced by installing the air intake and exhaust air hoses at 90° angle from the rear end of the motor.

**Order by catalog number.**
MODULAR AIR SPINDLE

MA SERIES [Modular Type] ø1.18”(ø30 mm)

- MA Series consists of 3 kinds of air motors, AM-3020R (19,000 min-1(rpm), 130W), AM-3020RA (18,000 min-1(rpm), 125W), enabling a wide variety of operations by the combination of various kinds of spindles. Higher torque is provided by connecting speed reducers.

**MA Series ø1.18”(ø30 mm) System Chart**

- MA Series has been designed to operate smoothly at high speed for long continuous cutting and grinding by connecting speed reducers.

**AM-3020 Torque-Speed Characteristics**

- Do not exceed the maximum motor speed recommendation for the spindles. Excess speed will dramatically reduce bearing life.

**High-Torque Air Motor O.D. ø1.18”(ø30 mm)**

- Ultra-precision vane type air motor.
- Rigid stainless steel (SUS416) outer housing.

**CAT. No.** | **Model** | **Standard Equipment / Accessories** | **Price**
--- | --- | --- | ---
AS11797 | AIR MOTOR AM-3020R (Forward Rotation) | 130W | 19,000 min-1(rpm) |
AS11798 | AIR MOTOR AM-3020L (Reverse Rotation) | 125W | 18,000 min-1(rpm) |
AS11799 | AIR MOTOR AM-3020RA (Forward Rotation) |  |  |
AS11800 | AIR MOTOR AM-3020LA (Reverse Rotation) |  |  |

- Order by catalog number. 3-p19
### SPINDLE O.D. ø1.18"(ø30 mm)

**Note**: Do not exceed the allowable motor speed for the spindle.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>SPINDLE NR-3060S (Ceramic Bearing)</th>
<th>60,000 min⁻¹ (rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1583</td>
<td>Allowable Motor Speed: 60,000 min⁻¹ (rpm)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spindle Accuracy: ≤ 1 µm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard Size Collet (CHK-3.175): ø1.18&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Weight: 9.52 oz.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional: Collet (CHK-3.175) ø0.5 mm - ø6.35 mm (See Page 6-p3 for details)</td>
<td></td>
</tr>
</tbody>
</table>

This spindle can be used for small-diameter milling, drilling, slitting, chamfering, grinding, etc.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>SPINDLE NR-403E (Ceramic Bearing)</th>
<th>40,000 min⁻¹ (rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASE1514</td>
<td>Allowable Motor Speed: 40,000 min⁻¹ (rpm)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spindle Accuracy: ≤ 1 µm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard Size Collet (CHK-3.175): ø1.18&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Weight: 15.52 oz.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optional: Collet (CHK-3.175) ø0.5 mm - ø6.35 mm (See Page 6-p3 for details)</td>
<td></td>
</tr>
</tbody>
</table>

This spindle can be used for small-diameter milling, drilling, slitting, chamfering, grinding, etc.

---

**Notes**:
- Order by catalog number. 3-p20
- These spindles can be used in conjunction with water or oil based coolants.
- Do not exceed the allowable motor speed for the spindle.
- Do not exceed the allowable motor speed for the spindle.

---

**CAT. No.**

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1583</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NR-3060S</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASE1514</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NR-403E</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Parts**

1. **CAT. No. Model Standard Equipment Accessories Price**
2. **Parts Index**
3. **Technical Data**
4. **Application Examples**
5. **Index**

---

**Order by catalog number.** 3-p21
### SPINDLE O.D. ø1.18”(ø30 mm)

**MA Series** can be used in conjunction with water or oil based coolants.

#### 1. ϖʔδQ

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**CAT. No.** 1583  **SPINDLE NR-3060S (Ceramic Bearing)**  **60,000 min⁻¹ (rpm)**

- **Allowable Motor Speed** .................. 60,000 min⁻¹ (rpm)
- **Spindle Accuracy** .......................... Within 1 µm
- **Standard Size Collet (CHK-3.175)** ........... ø1/8”
- **Weight** .......................... 9.52 oz.
- **Optional** ..................................... ø0.5 mm–ø6.35 mm

**CAT. No.** ASE1514  **SPINDLE NR-403E**  **40,000 min⁻¹ (rpm)**

- **Allowable Motor Speed** .................. 40,000 min⁻¹ (rpm)
- **Spindle Accuracy** .......................... Within 1 µm
- **Standard Size Collet (CHK-3.175)** ........... ø1/8”
- **Weight** .......................... 15.52 oz.
- **Optional** ..................................... ø0.5 mm–ø6.35 mm

---

**CAT. No.** 1583  **SPINDLE NR-3060S (Ceramic Bearing)**

- **Max Tool Mounting Depth** ............... ø0.79”
- **Recommended Clamping Area** ............ ø1.0”/ø0.98”

**CAT. No.** ASE1514  **SPINDLE NR-403E**

- **Max Tool Mounting Depth** ............... ø0.79”
- **Recommended Clamping Area** ............ ø1.0”/ø0.98”

---

This spindle can be used for small-diameter milling, drilling, slitting, chamfering, grinding, etc.

---

**CAT. No.** 1583  **SPINDLE NR-3060S (Ceramic Bearing)**

- **Allowable Motor Speed** .................. 60,000 min⁻¹ (rpm)
- **Spindle Accuracy** .......................... Within 1 µm
- **Standard Size Collet (CHK-3.175)** ........... ø1/8”
- **Weight** .......................... 9.52 oz.

**CAT. No.** ASE1514  **SPINDLE NR-403E**

- **Allowable Motor Speed** .................. 40,000 min⁻¹ (rpm)
- **Spindle Accuracy** .......................... Within 1 µm
- **Standard Size Collet (CHK-3.175)** ........... ø1/8”
- **Weight** .......................... 15.52 oz.

---

**CAT. No.** 1583  **SPINDLE NR-3060S (Ceramic Bearing)**

- **Max Tool Mounting Depth** ............... ø0.79”

**CAT. No.** ASE1514  **SPINDLE NR-403E**

- **Max Tool Mounting Depth** ............... ø0.79”

---

This spindle can be used for small-diameter milling, drilling, slitting, chamfering, grinding, etc.
### 90° Angle Spindle

**CAT. No.**
- **ASE1559** RA-151E
- **ASE1579** RAX-271E
- **ASE1576** RAX-71E

**90° Angle Spindle RAS-151E**

- **Maximum allowable motor speed for the spindle:** 20,000 min⁻¹ (rpm)
- **Maximum rotating speed at the cutting tool (Reduction Ratio: 1/1.5):**
  - **RA-151E:** 30,000 min⁻¹ (rpm)
  - **RAX-271E:** 20,000 min⁻¹ (rpm)
  - **RAX-71E:** 5,000 min⁻¹ (rpm)

**90° Angle Spindle RAX-271E (Speed Reduction Ratio 1/1.5)**

- **Maximum allowable motor speed for the spindle:** 20,000 min⁻¹ (rpm)
- **Maximum rotating speed at the cutting tool (Reduction Ratio: 1/1.5):**
  - **RA-271E:** 20,000 min⁻¹ (rpm)
  - **RA-71E:** 5,000 min⁻¹ (rpm)

**90° Angle Spindle RAX-71E (Speed Reduction Ratio 1/6)**

- **Maximum allowable motor speed for the spindle:** 20,000 min⁻¹ (rpm)
- **Maximum rotating speed at the cutting tool (Reduction Ratio: 1/6):**
  - **RA-71E:** 2,000 min⁻¹ (rpm)

**90° Angle Spindle**

- **Maximum allowable motor speed for the spindle:** 20,000 min⁻¹ (rpm)
- **Maximum rotating speed at the cutting tool (Reduction Ratio: 1/2.67):**
  - **RA-71E (RAX-71E):** 7,490 min⁻¹ (rpm)

**90° Angle Type Spindle**

- This spindle is capable of working on corners difficult to work or unfit for working with straight type, drilling on side faces and milling of grooves.

**Recommended Clamping Area**

- **RA-151E** (RAX-151E): ø1.0" (ø1.18")
- **RA-271E** (RAX-271E): ø1.0" (ø1.18")
- **RA-71E** (RAX-71E): ø0.897" (ø1.0")

**Maximum Rotating Speed at the Cutting Tool**

- **RAX-151E:** 3,150 min⁻¹ (rpm)
- **RAX-71E:** 2,000 min⁻¹ (rpm)

**To extend the life expectancy of the Speed Reducer, inject grease every 70 to 100 hours. Grease injection prevents friction of the internal gears as well as heat generation. Adding grease also prevents the degradation of the existing grease in the reducer. Please maintain a grease maintenance program.**

**Order by catalog number.**

---

### 90° Angle Spindle RA-151E

- **Maximum allowable motor speed for the spindle:** 20,000 min⁻¹ (rpm)
- **Maximum rotating speed at the cutting tool (Reduction Ratio: 1/2.67):**
  - **RA-151E:** 7,490 min⁻¹ (rpm)

**90° Angle Type Spindle**

- This spindle is capable of working on corners difficult to work or unfit for working with straight type, drilling on side face, etc.

**Recommended Clamping Area**

- **RA-151E:** ø1.0" (ø1.18")

**Order by catalog number.**

---

### 90° Angle Spindle RA-271E

- **Maximum allowable motor speed for the spindle:** 20,000 min⁻¹ (rpm)
- **Maximum rotating speed at the cutting tool (Reduction Ratio: 1/2.67):**
  - **RA-271E:** 7,490 min⁻¹ (rpm)

**90° Angle Type Spindle**

- This spindle is capable of working on corners difficult to work or unfit for working with straight type, drilling on side face, etc.

**Recommended Clamping Area**

- **RA-271E:** ø1.0" (ø1.18")

**Order by catalog number.**

---

### 90° Angle Spindle RA-71E

- **Maximum allowable motor speed for the spindle:** 20,000 min⁻¹ (rpm)
- **Maximum rotating speed at the cutting tool (Reduction Ratio: 1/6):**
  - **RA-71E:** 13,300 min⁻¹ (rpm)

**90° Angle Type Spindle**

- This spindle can be used for working on corners difficult to work or unfit for working with straight type, drilling on side face, etc.

**Recommended Clamping Area**

- **RA-71E:** ø1.0" (ø1.18")

**Order by catalog number.**

---

### Caution:

- Use the motor at motor speed less than maximum allowable speed or use the speed reducer. DO NOT exceed the allowable motor speed for the spindle and the reducer.

---

### Technical Data

- **Spindle Accuracy:** Within 2 µm
- **Standard Size Collet (CH8-3.175):** ø1/8" (~0.19")
- **Machine Type:** 90° Angle Spindle
- **motor speed less than maximum allowable speed or use the speed reducer.**
Use the motor at motor speed less than maximum allowable speed or use the speed reducer. DO NOT exceed the allowable motor speed for the spindle and the reducer.

This spindle is capable of working on corners difficult to work with straight type, drilling on side faces and milling of grooves.

This spindle can be used for working on corners difficult to work or unfit for working with straight type, drilling on side face, etc.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment · Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASE1559</td>
<td>RAS-151E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASE1579</td>
<td>RAX-271E (Speed Reduction Ratio 1/1.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASE1567</td>
<td>RAX-71E (Speed Reduction Ratio 1/6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAT. No.</td>
<td>Model</td>
<td>Standard Equipment · Accessories</td>
<td>Price</td>
</tr>
<tr>
<td>----------</td>
<td>-------</td>
<td>----------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>ASE1505</td>
<td>RA-151E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASE1506</td>
<td>RA-271E</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**SPEED REDUCER O.D. ø1.18” (ø30 mm)**

![Image of Speed Reducer O.D. ø1.18” (ø30 mm)]

**Notice:**

- Using the motor at motor speed less than maximum allowable speed or use the speed reducer.
- DO NOT exceed the allowable motor speed for the spindle and the reducer.

---

**SPEED REDUCER 1/4 ARG-011E**

![Image of Speed Reducer 1/4 ARG-011E]

**In case of the use of Air Motor AM-3022R**

<table>
<thead>
<tr>
<th>Allowable motor speed</th>
<th>Rotating speed at the cutting tool (Reduction Ratio 1/4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19,000 min⁻¹ (rpm)</td>
<td>4,750 min⁻¹ (rpm)</td>
</tr>
</tbody>
</table>

**Speed Reducer 1/4**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Speed Reduction Ratio</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASE1507</td>
<td>ARG-011E</td>
<td>Speed Reduction Ratio 1/4</td>
<td></td>
</tr>
</tbody>
</table>

**If the speed reducer is connected between the motor and the spindle, it reduces the rotating speed and increases the torque while keeping the motor speed unchanged.**

---

**SPEED REDUCER 1/16 ARG-021E**

![Image of Speed Reducer 1/16 ARG-021E]

**In case of the use of Air Motor AM-3022R**

<table>
<thead>
<tr>
<th>Allowable motor speed</th>
<th>Rotating speed at the cutting tool (Reduction Ratio 1/16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19,000 min⁻¹ (rpm)</td>
<td>1,187 min⁻¹ (rpm)</td>
</tr>
</tbody>
</table>

**Speed Reducer 1/16**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Speed Reduction Ratio</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASE1508</td>
<td>ARG-021E</td>
<td>Speed Reduction Ratio 1/16</td>
<td></td>
</tr>
</tbody>
</table>

**If the speed reducer is connected between the motor and the spindle, it reduces the rotating speed and increases the torque while keeping the motor speed unchanged.**

---

**AIR LINE KIT & OIL**

---

**4502 AIR LINE KIT AL-M1202**

- The AL-M1202 provides simple, automatic conditioning of the air supplied to NAKANISHI Air Motors. The filter removes water and impure substances from the input air supply. The regulator maintains the proper air pressure, and the lubricator ensures proper oil flow to the motor and spindle. This Air Line Kit is wall mountable.

**LUBRICATING OIL**

- **Lubricating Oil (4 oz.)**
  - **Cat. No.:** AA10478
  - **K-211**
  - **Price:**

- **Lubricating Oil (32 oz.)**
  - **Cat. No.:** AA10480
  - **K-202**
  - **Price:**

---

**INDEX**

- Order by catalog number. 
  - 3-p25
**SPEED REDUCER O.D. ø1.18”(ø30 mm)**

**Caution:** Use the motor at motor speed less than maximum allowable speed or use the speed reducer. DO NOT exceed the allowable motor speed for the spindle and the reducer.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Speed Reducing Ratio</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASE1507</td>
<td>ARG-011E</td>
<td>Speed Reducer 1/4</td>
<td></td>
</tr>
</tbody>
</table>

In case of the use of Air Motor AM-3022R

- **Allowable motor speed:** 19,000 min⁻¹ (rpm)
- **Rotating speed at the cutting tool (Reduction Ratio: 1/4):** 4,750 min⁻¹ (rpm)
- **Speed Reducing Mechanism:** By planetary gear system
- **Weight:** 8.54 oz.

To extend the life expectancy of the Speed Reducer, inject grease every 70 to 100 hours. Grease injection prevents friction of the internal gears as well as heat generation. Adding grease also prevents the degradation of the existing grease in the reducer. Please maintain a reducer grease maintenance program.

**Air Line Kit & Oil**

**AIR LINE KIT & OIL**

- The AL-M1202 provides simple, automatic conditioning of the air supplied to NAKANISHI Air Motors. The filter removes water and impure substances from the input air supply. The regulator maintains the proper air pressure, and the lubricator ensures proper oil flow to the motor and spindle. This Air Line Kit is wall mountable.

**4502 AIR LINE KIT AL-M1202**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL-M1202</td>
<td>AL-M1202</td>
<td>24V Solenoid Valve</td>
<td>2 pcs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AL-M1202</td>
<td>Air Pressure Gauge</td>
<td>1 pc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AL-M1202</td>
<td>Air Oil-OFF Valve</td>
<td>1 pc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AL-M1202</td>
<td>Hose for Piping (K-275), ø g</td>
<td>1 pc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AL-M1202</td>
<td>Lubricating Oil (K-211), 1 pc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Air Line Kit (For ø6 mm Hose)**

**Filter Mesh 0.3 µm**

**4503 AIR LINE KIT AL-M1203BS2**

- The AL-M1203BS2 is equipped with 2 (DC+24V) Air Solenoids, a large capacity filter, large capacity oil reservoir, high flow regulator and a low oil level warning alarm, making this unit ideal for use on CNC machines. This Air Line Kit allows for the operation of 2 Air Motors.

**LUBRICATING OIL**

- Lubricating Oil (4 oz.)

**AA10478-K-211**

- Lubricating Oil (32 oz.)

**AA10480-K-202**

*Order by catalog number.*
One Piece Type Spindle

- Shorter overall length suitable for CNC lathes and special purpose machines.
- Hardened and precision ground for high rigidity & excellent durability.
- External one-piece housing includes both the motor & spindle.

Spindle
Motor

O.D. ø0.75” (ø19.05mm)
(One Piece Type)

O.D. ø0.79” (ø20mm)
(One Piece Type)

O.D. ø0.87” (ø22mm)
(One Piece Type)

O.D. ø1.0” (ø25.4mm)
(One Piece Type)
One Piece Type Spindle

- Shorter overall length suitable for CNC lathes and special purpose machines.
- Hardened and precision ground for high rigidity & excellent durability.
- External one-piece housing includes both the motor & spindle.

O.D. ø0.75” (ø19.05mm) (One Piece Type)

O.D. ø0.79” (ø20mm) (One Piece Type)

O.D. ø0.87” (ø22mm) (One Piece Type)

O.D. ø1.0” (ø25.4mm) (One Piece Type)

O.D. ø0.91” (ø23mm) (One Piece Type)

O.D. ø0.897” (One Piece Type)

O.D. ø1.18” (One Piece Type)

O.D. ø0.98” (One Piece Type)

O.D. ø1.0” (One Piece Type)
SYSTEM CHART

**MS Series System Chart**

**Configuration & Characteristics**

- **Outer Housing Material**
  - The outer housing is SUS 416 precision ground to +0/-0.01mm.

- **Coolant**
  - MS Series can be used in conjunction with water or oil based coolants.

- **Outer Housing Material**
  - The outer housing is SUS 416 precision ground to +0/-0.01mm.

- **Air Motor**
  - The design of NAKANISHI's air motors gives the highest output power in this small spindle class.

- **Silencer**
  - By utilizing a silencer on the exhaust air tubing the noise generated by the motor or turbine is greatly reduced.

- **Speed Reduction System**
  - A planetary gear speed reduction system is incorporated in some of the MS Series motors/spindles. The speed reduction ratio is either 1/4 or 1/16. This maintains a high motor speed while giving very high torque, low speed rotation at the spindle. By carefully selecting only the highest grade materials for the planetary gear reducers we can ensure high load capacity.

- **Installation of 90° Angle Type**
  - The motor speed of 90° Air connection type motor/spindles are 10% less than that of the straight type.

---

**Configuration & Characteristics**

- **Outer Housing Material**
  - The outer housing is SUS 416 precision ground to +0/-0.01mm.

- **Coolant**
  - MS Series can be used in conjunction with water or oil based coolants.

- **Outer Housing Material**
  - The outer housing is SUS 416 precision ground to +0/-0.01mm.

- **Air Motor**
  - The design of NAKANISHI's air motors gives the highest output power in this small spindle class.

- **Silencer**
  - By utilizing a silencer on the exhaust air tubing the noise generated by the motor or turbine is greatly reduced.

- **Speed Reduction System**
  - A planetary gear speed reduction system is incorporated in some of the MS Series motors/spindles. The speed reduction ratio is either 1/4 or 1/16. This maintains a high motor speed while giving very high torque, low speed rotation at the spindle. By carefully selecting only the highest grade materials for the planetary gear reducers we can ensure high load capacity.

- **Installation of 90° Angle Type**
  - The motor speed of 90° Air connection type motor/spindles are 10% less than that of the straight type.

---

**MS Series System Chart**

**Configuration & Characteristics**

- **Outer Housing Material**
  - The outer housing is SUS 416 precision ground to +0/-0.01mm.

- **Coolant**
  - MS Series can be used in conjunction with water or oil based coolants.

- **Outer Housing Material**
  - The outer housing is SUS 416 precision ground to +0/-0.01mm.

- **Air Motor**
  - The design of NAKANISHI's air motors gives the highest output power in this small spindle class.

- **Silencer**
  - By utilizing a silencer on the exhaust air tubing the noise generated by the motor or turbine is greatly reduced.

- **Speed Reduction System**
  - A planetary gear speed reduction system is incorporated in some of the MS Series motors/spindles. The speed reduction ratio is either 1/4 or 1/16. This maintains a high motor speed while giving very high torque, low speed rotation at the spindle. By carefully selecting only the highest grade materials for the planetary gear reducers we can ensure high load capacity.

- **Installation of 90° Angle Type**
  - The motor speed of 90° Air connection type motor/spindles are 10% less than that of the straight type.
MS Series System Chart

1. Air Motor
2. Air Motor Spindle
3. Compressor
4. Air Line Kit
5. Parts
6. Performance
7. Technical Data
8. Index

**Configuration & Characteristics**

- **Outer Housing Material**
  - The outer housing is SUS416 precision ground to ±0.01mm.

- **Configuration**
  - Either straight or 90° air connection types are available depending on the mounting and plumbing restrictions in your installation.

- **Very high spindle accuracy makes ultra-precision machining possible.**

- **Spindle Accuracy**
  - Spindle accuracy is the spindle runout as measured at the tip of taper on the ID of the spindle.

- **The design of NAKANISHI’s air motors gives the highest output power in this small spindle class.**

- **Air Motor**
  - The rotor of the air motor rotates off center in the cylinder. The vanes are pushed by compressed air and this rotates the rotor. This small air motor produces high torque making it suitable for small diameter drilling, milling, slitting and grinding.

- **Silencer**
  - By utilizing a silencer on the exhaust air tubing the noise generated by the motor or turbine is greatly reduced.

- **Speed Reduction System**
  - A planetary gear speed reduction system is incorporated in some of the MS Series motors/spindles. The speed reduction ratio is either 1/4 or 1/16. This maintains a high motor speed while giving very high torque, low speed rotation at the spindle. By carefully selecting only the highest grade materials for the planetary gear reducers we can ensure high load capacity.

- **Installation of 90° Angle Type**
  - MS-MSST-MSM series angle (RA) type air and exhaust air pipes can be removed enabling the motor spindle installed through the front of a holder with backside restriction as shown in the illustration.

  **Installation**
  1. Remove intake and exhaust air pipes from motor spindle.
  2. Insert the straight spindle from the front side of holder and fix it.
  3. Mount the intake and exhaust air pipes to the spindle fixed on the holder and attach hose to the quick disconnect joint.

  *Urethane hose of 6 x 4 for intake air and 8 x 5 for exhaust air can be installed.*

  *The motor speed of 90° Angle connection type motor / spindle is 10% less than that of the straight type.*
# MSS-19 · MSS-20 Series

## MSS-19 · MSS-20 Series STRAIGHT · 90° ANGLE TYPE

**MSS-19 · MSS-20 Series STRAIGHT TYPE (R)**

<table>
<thead>
<tr>
<th>Model</th>
<th>CAT. No.</th>
<th>Shape</th>
<th>Spindle</th>
<th>Max. Torque</th>
<th>Max. Output</th>
<th>Length</th>
<th>M</th>
<th>Weight (MSS-19 / MSS-20)</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSS-19R</td>
<td>AS41601</td>
<td>90° Angle</td>
<td>FWD. (CW)</td>
<td>8.82 oz.</td>
<td>9.88 oz.</td>
<td>4.99&quot;</td>
<td>1.54&quot;</td>
<td>5.24&quot;</td>
<td>11.39 oz.</td>
</tr>
<tr>
<td>MSS-20R</td>
<td>AS41609</td>
<td>90° Angle</td>
<td>FWD. (CW)</td>
<td>7.62 oz.</td>
<td>8.50 oz.</td>
<td>7.62 oz.</td>
<td>10.23 oz.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### MSS-19 · MSS-20 Series 90° ANGLE TYPE (RA)

<table>
<thead>
<tr>
<th>Model</th>
<th>CAT. No.</th>
<th>Shape</th>
<th>Spindle</th>
<th>Max. Torque</th>
<th>Max. Output</th>
<th>Length</th>
<th>M</th>
<th>Weight (MSS-19 / MSS-20)</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSS-19RA</td>
<td>AS41617</td>
<td>90° Angle</td>
<td>FWD. (CW)</td>
<td>4.99&quot;</td>
<td>7.73 oz.</td>
<td>0.91&quot;</td>
<td>6.03 oz.</td>
<td>6.70 oz.</td>
<td>0.46&quot;</td>
</tr>
<tr>
<td>MSS-20RA</td>
<td>AS41625</td>
<td>90° Angle</td>
<td>FWD. (CW)</td>
<td>4.06&quot;</td>
<td>7.73 oz.</td>
<td>0.91&quot;</td>
<td>6.03 oz.</td>
<td>6.70 oz.</td>
<td>0.46&quot;</td>
</tr>
</tbody>
</table>

### Caution:

Two recommended clamp areas are laser-marked on the spindle. Select one of them for clamping, and do not clamp both areas.

---

# MSS-22 Series

## MSS-22 Series STRAIGHT · 90° ANGLE TYPE

**MSS-22 Series STRAIGHT TYPE (R)**

<table>
<thead>
<tr>
<th>Model</th>
<th>CAT. No.</th>
<th>Spindle</th>
<th>Torque (cN.m)</th>
<th>Max. Output</th>
<th>Length</th>
<th>M</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSS-22R</td>
<td>AS91710</td>
<td>Straight</td>
<td>30,000 min-1(rpm)</td>
<td>71PSI</td>
<td>4.37&quot;</td>
<td>0.91&quot;</td>
<td>6.03 oz.</td>
<td>6.70 oz.</td>
</tr>
<tr>
<td>MSS-22RA</td>
<td>AS91712</td>
<td>90° Angle</td>
<td>30,000 min-1(rpm)</td>
<td>71PSI</td>
<td>4.06&quot;</td>
<td>0.91&quot;</td>
<td>6.03 oz.</td>
<td>6.70 oz.</td>
</tr>
</tbody>
</table>

### MSS-22 Series 90° ANGLE TYPE (RA)

<table>
<thead>
<tr>
<th>Model</th>
<th>CAT. No.</th>
<th>Spindle</th>
<th>Torque (cN.m)</th>
<th>Max. Output</th>
<th>Length</th>
<th>M</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSS-22R</td>
<td>AS91810</td>
<td>Straight</td>
<td>8,000 min-1(rpm)</td>
<td>71PSI</td>
<td>4.99&quot;</td>
<td>1.54&quot;</td>
<td>7.73 oz.</td>
<td>7.94 oz.</td>
</tr>
<tr>
<td>MSS-22RA</td>
<td>AS91818</td>
<td>90° Angle</td>
<td>8,000 min-1(rpm)</td>
<td>71PSI</td>
<td>4.06&quot;</td>
<td>1.54&quot;</td>
<td>7.73 oz.</td>
<td>7.94 oz.</td>
</tr>
</tbody>
</table>

### MSS-22 Series STRAIGHT Torque-Speed Characteristics Graph

**MSS-22 Series STRAIGHT Torque-Speed Characteristics Graph**

<table>
<thead>
<tr>
<th>Model</th>
<th>CAT. No.</th>
<th>Spindle</th>
<th>Speed (x 103 min-1(rpm))</th>
<th>Max. Torque</th>
<th>Length</th>
<th>M</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSS-2230R</td>
<td>AS91720</td>
<td>Straight</td>
<td>2,000 min-1(rpm)</td>
<td>71PSI</td>
<td>2.09&quot;</td>
<td>5.50&quot;</td>
<td>7.62 oz.</td>
<td>8.50 oz.</td>
</tr>
<tr>
<td>MSS-2230RA</td>
<td>AS91728</td>
<td>90° Angle</td>
<td>2,000 min-1(rpm)</td>
<td>71PSI</td>
<td>2.09&quot;</td>
<td>5.50&quot;</td>
<td>7.62 oz.</td>
<td>8.50 oz.</td>
</tr>
</tbody>
</table>

### Caution:

Two recommended clamp areas are laser-marked on the spindle. Select one of them for clamping, and do not clamp both areas.

---

# TECHNICAL DATA

**CAT. No.**

- AS91710 AS91712
- AS91810 AS91818

**Model**

- MSS-2230R
- MSS-2230RA
- MSS-2208R
- MSS-2208RA
- MSS-2102R
- MSS-2102RA
- MSS-2108R
- MSS-2108RA

**Shape**

- Straight
- 90° Angle

**Spindle**

- FWD. (CW)

**Max. Torque**

- 30,000 min-1(rpm) 71PSI
- 8,000 min-1(rpm) 71PSI
- 2,000 min-1(rpm) 71PSI

**Max. Output**

- 9.2 cN · m
- 9.7 cN · m
- 8.3 cN · m

**Length**

- 5.50" ± 0.01" (ø0.87")
- 4.99" ± 0.01" (ø0.87")
- 5.24" ± 0.01" (ø0.897")

**M**

- 0.91" ± 0.01" (ø0.87")
- 1.54" ± 0.01" (ø0.87")
- 2.09" ± 0.01" (ø0.897")

**Weight (MSS-19 / MSS-20)**

- 8.18 oz.
- 9.70 oz.
- 10.23 oz.

---

# APPLICATION

**APPLICATION EXAMPLES**

- 90˚ Angle
- 90˚ Angle

**INDEX**

- Standard Equipment · Accessories
- Standard Equipment · Accessories

---

*Refer to Page 3-p29 for mounting instructions for the 90˚ Angle Type.

---

*Order by catalog number. 3-p31
**AIR MOTOR SPINDLE**  
O.D. ø0.75”(ø19.05 mm), ø0.79”(ø20 mm) <Output 72W>  
O.D. ø0.87”(ø22 mm) <Output 72W>

---

**MSS-19 · MSS-20 SERIES STRAIGHT · 90° ANGLE TYPE 30,000 · 8,000 · 2,000 min ‘rpm’**

- **MSS-19 · MSS-20 Series STRAIGHT TYPE (R)**
- **MSS-19 · MSS-20 Series 90° ANGLE TYPE (RA)**

---

**MSS-22 SERIES STRAIGHT · 90° ANGLE TYPE 30,000 · 8,000 · 2,000 min ‘rpm’**

- **MSS-22 Series STRAIGHT TYPE (R)**
- **MSS-22 Series 90° ANGLE TYPE (RA)**

---

**APPLICATION EXAMPLES**

1. **Proper Air Pressure**
   - 42~71PSI
2. **Spindle Accuracy**
   - Within 2 µm
3. **Length of Motor Hose**
   - 6 ft
4. **Hose Diameter (R-type) : Air Intake**
   - ø5.7 mm (O.D.)
5. **Hose Diameter (RA-type) : Air Intake**
   - ø6.0 mm (O.D.)
6. **Exhaust Air**
   - ø8.0 mm (O.D.)
7. **Grindstone Arbor (AGM-01A)**
   - For grinding wheel with I.D. of ø5 mm

---

**INDEX**

- 1. **CAT. No.**
- 2. **Model**
- 3. **Shape**
- 4. **Input Diameter (Min.)**
- 5. **Output Diameter (Max.)**
- 6. **Max. Torque**
- 7. **Weight (MSS-19 / MSS-20)**
- 8. **Price**

---

**CAT. No.**

- AS91710 · MSS-2230R
- AS91712 · MSS-2230RA
- AS91760 · MSS-2250R
- AS91762 · MSS-2250RA

---

**Model**

- Straight
- 90° Angle

---

**Input Diameter (Min.)**

- MSS-19 Series
  - ø1.0”
  - ø0.98”
  - ø0.897”

- MSS-20 Series
  - ø1.18”

---

**Output Diameter (Max.)**

- MSS-19 Series
  - ø0.59”
  - ø0.47”

- MSS-22 Series
  - ø1.18”

---

**Max. Torque**

- MSS-19 Series
  - 501 cN · m

- MSS-22 Series
  - 141 cN · m

---

**Weight (MSS-19 / MSS-20)**

- MSS-19 Series
  - 8.18 oz.

- MSS-22 Series
  - 9.88 oz.

---

**Price**

- MSS-19 Series
  - 3.99

- MSS-22 Series
  - 6.99

---

**INDEX**

- 1. **CAT. No.**
- 2. **Model**
- 3. **Shape**
- 4. **Input Diameter (Min.)**
- 5. **Output Diameter (Max.)**
- 6. **Max. Torque**
- 7. **Weight (MSS-19 / MSS-20)**
- 8. **Price**

---

**CAT. No.**

- AS91710 · MSS-2230R
- AS91712 · MSS-2230RA
- AS91760 · MSS-2250R
- AS91762 · MSS-2250RA

---

**Model**

- Straight
- 90° Angle

---

**Input Diameter (Min.)**

- MSS-19 Series
  - ø1.0”
  - ø0.98”
  - ø0.897”

- MSS-20 Series
  - ø1.18”

---

**Output Diameter (Max.)**

- MSS-19 Series
  - ø0.59”
  - ø0.47”

- MSS-22 Series
  - ø1.18”

---

**Max. Torque**

- MSS-19 Series
  - 501 cN · m

- MSS-22 Series
  - 141 cN · m

---

**Weight (MSS-19 / MSS-20)**

- MSS-19 Series
  - 8.18 oz.

- MSS-22 Series
  - 9.88 oz.

---

**Price**

- MSS-19 Series
  - 3.99

- MSS-22 Series
  - 6.99
### MSST-23 SERIES

**STRAIGHT • 90° ANGLE TYPE**

- **Model**: MSST-2330R
- **Max. Torque (ø0.5 mm~ø6.35 mm)**: 202 cN·m
- **Max. Output**: 130 W
- **Shape**: 90° Angle

### MSSH-25 • MSS-25 SERIES

**STRAIGHT • 90° ANGLE TYPE**

- **Model**: MSSH-2501R
- **Max. Torque (ø0.5 mm~ø6.35 mm)**: 332 cN·m
- **Max. Output**: 130 W
- **Shape**: 90° Angle
### MSST-23 Series

**STRAIGHT · 90° ANGLE TYPE**

- **Max. Output**: 30,000 - 8,000 - 2,000 min⁻¹ (rpm)
- **Shape**: Straight
- **Rotating Direction**: FWD. (CW)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Shape</th>
<th>Max. Output</th>
<th>Max. Torque (cN.m)</th>
<th>Length M</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS41637</td>
<td>MSST-230R</td>
<td>Straight</td>
<td>108W</td>
<td>13.7 ch - m</td>
<td>5.01&quot;</td>
<td>11.57 oz</td>
</tr>
<tr>
<td>AS41639</td>
<td>MSST-230RA</td>
<td>90° Angle</td>
<td>108W</td>
<td>5.27&quot;</td>
<td>13.02 oz</td>
<td></td>
</tr>
</tbody>
</table>

### MSSH-25 · MSS-25 Series

**STRAIGHT · 90° ANGLE TYPE**

- **Max. Output**: 24,000 - 6,000 - 1,500 min⁻¹ (rpm)
- **Shape**: Straight
- **Rotating Direction**: FWD. (CW)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Shape</th>
<th>Max. Output</th>
<th>Max. Torque (cN.m)</th>
<th>Length M</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS61627</td>
<td>MSSH-2524RA</td>
<td>90° Angle</td>
<td>240W</td>
<td>22.5 ch - m</td>
<td>5.11&quot;</td>
<td>9.89 oz</td>
</tr>
<tr>
<td>AS61628</td>
<td>MSSH-2524RA</td>
<td>90° Angle</td>
<td>240W</td>
<td>5.43&quot;</td>
<td>15.38 oz</td>
<td></td>
</tr>
</tbody>
</table>

**Note**: Refer to Page 3-p29 for mounting instructions for the 90° Angle Type.
**AIR LINE KIT & OIL**

**Cat. No. 4502**  
**AIR LINE KIT AL-M1202**

- The AL-M1202 provides simple, automatic conditioning of the air supplied to NAKANISHI air motors. The filter removes water and impure substances from the input air supply. The regulator maintains the proper air pressure, and the lubricator ensures proper oil flow to the motor and spindle. This Air Line Kit is wall mountable.

Air Line Kit (For ø6 mm Hose)  
Filter Mesh 0.3 µm

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4502</td>
<td>AL-M1202</td>
<td>• Air Filter • Air Regulator • Air Pressure Gauge • Lubricator</td>
<td>• Lubricating Oil (K-211) : 1 pc.</td>
<td></td>
</tr>
</tbody>
</table>

**Cat. No. 4503**  
**AIR LINE KIT AL-M1203BS2**

- The AL-M1203BS2 is equipped with 2 (DC+24V) Air Solenoids, a large capacity filter, large capacity oil reservoir, high flow regulator and a low oil level warning alarm, making this unit ideal for use on CNC machines. This Air Line Kit allows for the operation of 2 Air Motors.

Air Line Kit (For ø6 mm Hose)  
Filter Mesh 0.3 µm

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4503</td>
<td>AL-M1203BS2</td>
<td>• Air Filter • Air Regulator • Air Pressure Gauge • Lubricator</td>
<td>• Solenoid Valve (DC 24V) : 2 pcs. • Buzzer (DC 24V)</td>
<td></td>
</tr>
</tbody>
</table>

**LUBRICATING OIL**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA10478</td>
<td>K-211</td>
<td></td>
</tr>
<tr>
<td>AA10480</td>
<td>K-202</td>
<td></td>
</tr>
</tbody>
</table>

*Order by catalog number.*
AIR LINE KIT & OIL

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>AIR LINE KIT AL-M1202</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The AL-M1202 provides simple, automatic conditioning of the air supplied to NAKANISHI Air Motors. The filter removes water and impure substances from the input air supply. The regulator maintains the proper air pressure, and the lubricator ensures proper oil flow to the motor and spindle. This Air Line Kit is wall mountable.</td>
</tr>
<tr>
<td></td>
<td>Air Line Kit (For ø6 mm Hose - Filter Mesh 0.3 µm)</td>
</tr>
<tr>
<td></td>
<td>CAT. No. Model Standard Equipment Accessories Price</td>
</tr>
<tr>
<td>4502</td>
<td>AL-M1202</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>AIR LINE KIT AL-M1203BS2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The AL-M1203BS2 is equipped with 2 (DC-24V) Air Solenoids, a large capacity filter, large capacity oil reservoir, high flow regulator and a low oil level warning alarm, making this unit ideal for use on CNC machines. This Air Line Kit allows for the operation of 2 Air Motors.</td>
</tr>
<tr>
<td></td>
<td>Air Line Kit (For ø6 mm Hose - Filter Mesh 0.3 µm)</td>
</tr>
<tr>
<td></td>
<td>CAT. No. Model Standard Equipment Accessories Price</td>
</tr>
<tr>
<td>4503</td>
<td>AL-M1203 BS2</td>
</tr>
</tbody>
</table>

LUBRICATING OIL

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA10478</td>
<td>K-211</td>
<td></td>
</tr>
</tbody>
</table>

Lubricating Oil (4 oz.)

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA10480</td>
<td>K-202</td>
<td></td>
</tr>
</tbody>
</table>

Lubricating Oil (8 oz.)

Order by catalog number.
HSM SOLUTIONS
HES Series
Electric System

Upgrade your existing NC Milling machines and CNC machining centers to high speed machines.

**HES510**
5,000–50,000 min⁻¹ (rpm)  Output: 340W

BT30 / 40 / 50, NT30 / 40 / 50 (M), CAT40 / 50
IT40 / 50, ST32, R8, HSK A63 / A100

**HES810**
20,000–80,000 min⁻¹ (rpm)  Output: 350W

BT30 / 40 / 50, NT40, CAT40
HSK A63, ST32
Upgrade your existing NC Milling machines and CNC machining centers to high speed machines.

### HES510

- **Range:** 5,000~50,000 min⁻¹ (rpm)
- **Output:** 340W

**Specifications:**
- BT30 / 40 / 50, NT30 / 40 / 50 (M), CAT40 / 50
- IT40 / 50, ST32, R8, HSK A63 / A100

### HES810

- **Range:** 20,000~80,000 min⁻¹ (rpm)
- **Output:** 350W

**Specifications:**
- BT30 / 40 / 50, NT40, CAT40
- HSK A63, ST32
“HES • HTS • HPS SERIES” SPECIFICATION’S COMPARISON

UPGRADE YOUR EXISTING NC MILLING MACHINES AND CNC MACHINING CENTERS TO HIGH SPEED MACHINES

HES510 Features

- 5,000-50,000 min⁻¹ (rpm)
- Maximum Output 340W

The HES510 motor is a brushless DC motor that utilizes hall elements and rare-earth magnets to realize max. output 340W in a very compact size.

Ceramic Bearings

The spindle uses a double pair of ceramic bearings in the front and in the rear. This arrangement maximizes both radial and axial rigidity to ensure extremely high-precision cutting. The motor also uses ceramic bearings to maximize life expectancy.

Smooth Rotation

The absence of a commutator and the use of a photo coupler sending a feedback signal of 48 pulses per revolution result in very smooth rotation with low vibration throughout the speed range.

One-Piece motor and spindle construction

The motor and spindle are built as a single unit minimizing size and weight and allowing usage on a very wide variety of machines.

Emergency Connector

The system incorporates an emergency, breakaway connector to help prevent system damage in case the machine’s main spindle is rotated accidentally.

Excellent Durability by air-cooling system

An air-cooling motor uses a small volume of air (≤5 CPM) to prevent heat buildup and allow long, continuous operation.

Best for small diameter drilling and milling

Less than ø0.08” (ø2 mm) small diameter drilling and milling with extremely good surface finishes, using a high-speed brushless motor.

HES510 Specifications

- Speed ................................................................... 5,000-50,000 min⁻¹ (rpm)
- Max. Output Power ................................................. 340W
- Sprinkle Accuracy ................................................. ±1.5 µm
- Standard Size Collet (CHK-3.175) .................... ø1/8”
- Optional >
  - Air Line Kit (AL-C1204) ........................................ For Control Unit NE211
  - Collet (CHK-3.175) ............................................. ø0.5 mm - ø6.35 mm
  - Motor Cord (EMCD-810-3.175) .................. Length 13 ft (9248) / 19 ft (9249) / 26 ft (9250)
  - Provided with Air Cooling Hose ø4 mm

Note : Motor Cord is sold separately.

HES510 Connection Drawing

The HES510 motor and spindle require dry, clean, regulated air. Please refer to the drawing to the right for proper components. Air Line Kit AL-C1204 supplies clean dry air to the control unit through the filter and the regulator.

Specifications Comparison

<table>
<thead>
<tr>
<th>Series</th>
<th>Speed (min⁻¹)</th>
<th>Max. Output Power</th>
<th>Available Chuck Size</th>
<th>Shaft</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>HES Series</td>
<td>5,000-50,000</td>
<td>340W</td>
<td>ø1/4”</td>
<td>BT30 / BT40 / BT50 / NT40 / CAT40 / ST32 / HSK63 / A100</td>
<td>NE211</td>
</tr>
<tr>
<td>HES510</td>
<td>Electric System</td>
<td>5,000-50,000</td>
<td>340W</td>
<td>Max. ø1/4”</td>
<td>BT30 / BT40 / BT50 / NT40 / CAT40 / ST32 / HSK63 / A100</td>
</tr>
<tr>
<td>HES810</td>
<td>30,000-80,000</td>
<td>350W</td>
<td>Max. ø4.0 mm</td>
<td>NH40 / CAT40 / ST32 / HSK63</td>
<td>NE211</td>
</tr>
</tbody>
</table>

HSeries

| Air System (Air Turbine) | 150,000 (71PSI) | 25W | Max. ø4.0 mm | ø1/2” | For Control Unit NE211 |

HPS Series

<table>
<thead>
<tr>
<th>Air System (Air Motor)</th>
<th>250,000 (73PSI)</th>
<th>25W</th>
<th>Max. ø4.0 mm</th>
<th>BT30 / CAT40</th>
<th>NE211</th>
</tr>
</thead>
</table>

- Torque & Output Power Characteristic of HES510

- Cooling Air
  Clean dry air is required to cool the motor and protect the spindle from contaminants. Please use a filter and regulator (proper air pressure 28-42PSI) (use Air Line Kit AL-C1204)

- Large Variety of Tapers Available
  BT, NT, CAT, ST32, R8 and HSK A tapers are available.

- Protection Circuit
  The control unit is compact and lightweight. It features a protection circuit to stop the motor automatically in case of overload ensuring safe and smooth operation.

- Maximum Output 340W

- Clean dry air is required to cool the motor and protect the spindle from contaminants. Please use a filter and regulator.

- Use Air Line Kit AL-C1204

- Clean dry air is required to cool the motor and protect the spindle from contaminants. Please use a filter and regulator.

- Use Air Line Kit AL-C1204
**“HES • HTS • HPS SERIES” SPECIFICATION’S COMPARISON**

**UPGRADE YOUR EXISTING NC MILLING MACHINES AND CNC MACHINING CENTERS TO HIGH SPEED MACHINES**

- **ULTRA-PRECISION HIGH-SPEED MILLING SPINDLE**
  - **“HES SERIES”**

- **ULTRA-HIGH SPEED AIR TURBINE MILLING SPINDLE**
  - **“HTS SERIES”**

- **HIGH-SPEED AIR MOTOR MILLING SPINDLE**
  - **“HPS SERIES”**

---

### Specification’s Comparison

<table>
<thead>
<tr>
<th>Series</th>
<th>Drive System</th>
<th>Speed (min-1)</th>
<th>Max. Output Power</th>
<th>Available Chuck Size</th>
<th>Collet (CHK-[][])</th>
<th>Motor Cord (EMCD-810-[])</th>
<th>Parts Provided</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>HES510</td>
<td>Electric System</td>
<td>5,000 - 50,000</td>
<td>340W</td>
<td>ø1/4&quot;</td>
<td>BT30 / 40 / 50</td>
<td>HSK A65 / A100</td>
<td>Air Cooling Hose ø4 mm</td>
<td>NE211</td>
</tr>
<tr>
<td>HES510</td>
<td>Brushless Motor</td>
<td>20,000 - 80,000</td>
<td>350W</td>
<td>ø4.0 mm</td>
<td>NT40 / 50</td>
<td>HSK A65, ST32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HTS510</td>
<td>Air System (Air Turbine)</td>
<td>150,000 (71PS)</td>
<td>25W</td>
<td>ø4.0 mm</td>
<td>Straight ø20 mm</td>
<td>HSK 625 / 32 / 40 / 50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPS510</td>
<td>Air System (Air Motor)</td>
<td>25,000 (73PS)</td>
<td>77W</td>
<td>ø1/4&quot;</td>
<td>BT30</td>
<td>CAT40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPS510</td>
<td></td>
<td>50,000 (73PS)</td>
<td>51W</td>
<td>ø4.0 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### HES510 Features

- **5,000-50,000 min⁻¹ (rpm)**
- **Maximum Output 340W**
  - The HES510 motor is a brushless DC motor that utilizes hall elements and rare-earth magnets to realize max. output 340W in a very compact size.
- **Ceramic Bearings**
  - Ceramic bearings are used to ensure extremely high-precision cutting.
- **Air Line Kit AL-C1204**
  - Provides clean dry air to the control unit through the filter and the regulator.

### HES510 Specifications

- **Speed**
  - 5,000-50,000 min⁻¹ (rpm)
- **Max. Output Power**
  - 340W
- **Ceramic Bearings**
  - Ensure high-precision cutting.
- **Emergency Connector**
  - Helps prevent system damage in case the machine's main spindle is rotated accidently.
- **Excellent Durability by air-cooling system**
  - Prevents overheating and allows long, continuous operation.
- **Best for small diameter drilling and milling**
  - Less than ø0.08” (ø2 mm) small diameter drilling and milling with extremely good surface finishes, using a high-speed brushless motor.

### HES510 Connection Drawing

The HES510 motor and spindle require dry, clean, regulated air. Please refer to the drawing to the right for proper components. Air Line Kit AL-C1204 supplies clean dry air to the control unit through the filter and the regulator.
“HES510” ULTRA-PRECISION HIGH-SPEED MILLING SPINDLE

Note: Motor Cord is sold separately.

HES Series can be used in conjunction with water or oil based coolants.

Note: All HES Series Spindles incorporate an emergency connector.

HES510-BT30 / NT30 (M)

HES510-BT40 / NT40 (M) / CAT40 / IT40

HES510-BT50 / NT50 (M) / CAT50 / IT50

HES510-IT40

HES510-NT30

HES510-NT40

HES510-NT50

HES510-CAT40

HES510-CAT50

HES510-IT50

Caution

* If the machine’s main spindle is rotated by mistake, the Emergency Connector on the motor is designed to separate. In order for the Emergency Connector to function as designed it must be set and positioned correctly. Please refer to the owner's manual for proper installation and check the integrity of the Emergency Connector and suspension prior to each use.

* For dimensions of taper shanks, please see page 4-p30, 31.

* Order by catalog number.
**“HES510” ULTRA-PRECISION HIGH-SPEED MILLING SPINDLE**

HES Series can be used in conjunction with water or oil based coolants.

**Note:** Motor Cord is sold separately.

**HES510-BT30 / NT30 (M)**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1943</td>
<td>HES510-BT30</td>
<td></td>
<td></td>
<td>5.07 lb</td>
<td></td>
</tr>
<tr>
<td>1944</td>
<td>HES510-NT30</td>
<td>• Collet ø1/8&quot; (CHK-3.175) : 1 pc.</td>
<td>• Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs.</td>
<td>4.85 lb</td>
<td></td>
</tr>
<tr>
<td>1945</td>
<td>HES510-NT30M</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** All HES Series Spindles incorporate an emergency connector.

**HES510-BT40 / NT40 (M) / CAT40 / IT40**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1946</td>
<td>HES510-BT40</td>
<td></td>
<td></td>
<td>5.07 lb</td>
<td></td>
</tr>
<tr>
<td>1947</td>
<td>HES510-NT40</td>
<td>• Collet ø1/8&quot; (CHK-3.175) : 1 pc.</td>
<td>• Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs.</td>
<td>5.29 lb</td>
<td></td>
</tr>
<tr>
<td>1948</td>
<td>HES510-NT40M</td>
<td></td>
<td></td>
<td>5.29 lb</td>
<td></td>
</tr>
<tr>
<td>1949</td>
<td>HES510-CAT40</td>
<td></td>
<td></td>
<td>5.07 lb</td>
<td></td>
</tr>
<tr>
<td>1950</td>
<td>HES510-IT40</td>
<td></td>
<td></td>
<td>5.07 lb</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Motor Cord is sold separately.

**HES510-BT50 / NT50 (M) / CAT50 / IT50**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951</td>
<td>HES510-BT50</td>
<td></td>
<td></td>
<td>5.07 lb</td>
<td></td>
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<tr>
<td>1952</td>
<td>HES510-NT50</td>
<td>• Collet ø1/8&quot; (CHK-3.175) : 1 pc.</td>
<td>• Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs.</td>
<td>5.29 lb</td>
<td></td>
</tr>
<tr>
<td>1953</td>
<td>HES510-NT50M</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1954</td>
<td>HES510-CAT50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1955</td>
<td>HES510-IT50</td>
<td></td>
<td></td>
<td>5.07 lb</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** All HES Series Spindles incorporate an emergency connector.

* NT50M — Retention knob threads are metric.

---

**Caution**

If the machine’s main spindle is rotated by mistake, the Emergency Connector on the motor is designed to separate. In order for the Emergency Connector to function as designed it must be set and positioned correctly. Please refer to the owner’s manual for proper installation and check the integrity of the Emergency Connector and suspension prior to each use.

*NT50M — Retention knob threads are metric.

*For dimensions of taper shanks, please see page 4-p30, 31.

*Order by catalog number.
**“HES510” ULTRA-PRECISION HIGH-SPEED MILLING SPINDLE**

**ST32**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9197</td>
<td>HES510-ST32</td>
<td>Collet ø1/8&quot; (CHK-3.175)</td>
<td>1 pc.</td>
<td>Collet Nut (K-265)</td>
<td>1 pc.</td>
</tr>
</tbody>
</table>

**R8**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9196</td>
<td>HES510-R8</td>
<td>Collet ø1/8&quot; (CHK-3.175)</td>
<td>1 pc.</td>
<td>Collet Nut (K-265)</td>
<td>1 pc.</td>
</tr>
</tbody>
</table>

**HSK A63**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1957</td>
<td>HES510-HSK A63</td>
<td>Collet ø1/8&quot; (CHK-3.175)</td>
<td>1 pc.</td>
<td>Collet Nut (K-265)</td>
<td>1 pc.</td>
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</table>

**HSK A100**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1956</td>
<td>HES510-HSK A100</td>
<td>Collet ø1/8&quot; (CHK-3.175)</td>
<td>1 pc.</td>
<td>Collet Nut (K-265)</td>
<td>1 pc.</td>
</tr>
</tbody>
</table>

**Caution**

*If the machine’s main spindle is rotated by mistake, the Emergency Connector on the motor is designed to separate. In order for the Emergency Connector to function as designed it must be set and positioned correctly. Please refer to the owner's manual for proper installation and check the integrity of the Emergency Connector and suspension prior to each use.

*For dimensions of taper shanks, please see page 4-p31, 32.
*Order by catalog number.
**“HES510” ULTRA-PRECISION HIGH-SPEED MILLING SPINDLE**

**Note:** Motor Cord is sold separately.

**HES510-ST32**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment / Accessories</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9197</td>
<td>HES510-ST32</td>
<td>• Collet ø1/8” (CHK-3.175) : 1 pc. • Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs.</td>
<td>5.29 lb</td>
<td></td>
</tr>
</tbody>
</table>

**HES510-R8**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment / Accessories</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9196</td>
<td>HES510-R8</td>
<td>• Collet ø1/8” (CHK-3.175) : 1 pc. • Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs.</td>
<td>5.29 lb</td>
<td></td>
</tr>
</tbody>
</table>

**HES510-HSK A63**

**HES510-HSK A100**

**Note:** Motor Cord is sold separately.

**Caution**

*If the machine’s main spindle is rotated by mistake, the Emergency Connector on the motor is designed to separate. In order for the Emergency Connector to function as designed it must be set and positioned correctly. Please refer to the owner’s manual for proper installation and check the integrity of the Emergency Connector and suspension prior to each use.*

*For dimensions of taper shanks, please see page 4-p31, 32.*
**“HES510” CONTROL UNIT**

- AC100-240V for international operation
- 1,000~50,000 min⁻¹ (rpm)
- Maximum Output 350W

**Specifications**

- Model: NE211
- Power Source: AC100V
- Motor Speed: 1,000~50,000 min⁻¹ (rpm)
- Max. Output Power: 350W
- Air Flow Volume: 1.0 CFM (36-44 PSI)
- Inlet with Power Fuse: ø0.87” × ø0.91”
- Weight: 6 lb. 2.77 oz.
- Dimensions: W3.46” × D5.43” × H9.37”

**Product Catalog**

- CAT. No.: 9775
  - CONTROL UNIT: NE211
  - Price: 50,000 min⁻¹ (rpm)

**Motor Connector**

- Air Output Joint ø6 mm
- Power Switch
- Communication Connector

**External Input-Output Connector**

- Connector A (D-SUB15 Female)
- Connector B (D-SUB25 Female)

**Features**

- (i) Load Motor
- (ii) Running LED (RUN)
- (iii) Error LED (ERR/ERR0)
- (iv) Filter Switch (FILTER)
- (v) Motor Setting Switch (MAX)
- (vi) Control Switch (AUTO/MANUAL)
- (vii) Air Cooling Hose: ø4 mm
- (viii) Reducer
- (ix) Plug Cap
- (x) Connector Cap (Provided)
- (xi) Bracket
- (xii) Power Cord Grip
- (xiii) Screw
- (xiv) Rubber Pad
- (xv) Fuse (T6.3A) 250V: 2 pcs.

**Interface Cable**

- Page 4-p13

*Please refer to Technical Data 7-p2~p9 in detail about External Input-Output Connector. AC100-240V for international operation. Please check the power source plug type and order accordingly.

---

**“HES510” AIR LINE KIT & MOTOR CORD**

- The AL-C1204 Air Line Kit is designed to deliver clean, dry air to Electric Motors via the Control Unit. The filter removes small amounts of debris while the adjustable regulator provides the correct air pressure for cooling and purging.

**Air Line Kit**

- For ø6 mm Hose: Filter Mesh 0.3 µm

**Motor Cord**

- Motor Cord 4M
- Motor Cord 6M
- Motor Cord 8M

**Control Panel Extension Cord**

- Control Panel Extension Cord

**HES Purchasing Example**

- Spindle with CAT40: 1949 HES510-CAT40
- Control Unit: 9775 NE211
- 13 ft Motor Cord: 9248 EMCD-810-4M
- Air Line Kit: 4504 AL-C1204

*Order by catalog number.*
“HES510” CONTROL UNIT

- AC100-240V for international operation
- 1,000~50,000 min(\(^{-1}\)) (rpm)
- Maximum Output 350W

Cat. No. 9775 CONTROL UNIT NE211

Specifications:
- Model: NE211
- Power Source: AC100V
- Motor Speed: 1,000~50,000 min\(^{-1}\)
- Max. Output Power: 350W
- Power Consumption: 1.8A
- Air Cooling Hose: ø4 mm
- Reducer
- Plug Cap
- Power Cord: For 100V (A type)
- For Japan
- For U.S.A. and Canada
- Air Filter  • Air Regulator  • Air Pressure Gauge  • Air ON-OFF Valve  • Hose for Piping (K-275) : 6 ft

“HES510” AIR LINE KIT & MOTOR CORD

Cat. No. 4504 AIR LINE KIT AL-C1204

The AL-C1204 Air Line Kit is designed to deliver clean, dry air to remove debris while the adjustable regulator provides the correct air pressure for cooling and purging.

Air Line Kit (For ø6 mm Hose) Filter Mesh 0.3 µm

- Air Filter
- Air Regulator
- Air Pressure Gauge
- Air ON-OFF Valve
- Hose for Piping (K-275) : 6 ft

Motor Cord 6M
- ø0.79" ø1.0"/ø0.98"
- 19 ft

Motor Cord 8M
- ø0.897" ø1.0"/ø0.98"ø0.897"
- 26 ft

Motor Cord 13 ft
- ø0.897" ø1.0"/ø0.98"ø0.897"
- For Europe

Motor Cord 19 ft
- ø0.897" ø1.0"/ø0.98"ø0.897"
- For Europe

CONTROL PANEL EXTENSION CORD

Control Panel Extension Cord

Cat. No. 8407 E3000-P1X-4 NE211

HES Purchasing Example

HES Purchasing Example

- Spindle with CAT40
- Control Unit
- 13 R Motor Cord
- Air Line Kit

* Please refer to Technical Data 7-p2~p9 in detail about External Input-Output Connector.
The Ultra-Precision, High-Speed HES810 spindles allow you to use your existing equipment for a much larger variety of operations. Conventional milling machines and machining centers can now do high-speed machining, small diameter drilling and milling with extremely good surface finishes with the HES810. Max. Output 350W

HES810 Features

- Maximum Output 350W
- Ideal Operating Speed 50,000-80,000 min⁻¹ (rpm)
- Max. Output Power 350W
- Spindle Accuracy ±0.1 µm
- Standard Size Collet [CHA-3.175] ø1/8"

- Emergency Connector
- The system incorporates an emergency, breakaway connector to help prevent system damage in case the machine’s main spindle is rotated accidentally.

- Excellent Durability by air-cooling system
- Air-cooling motors use a small volume of air (0.53 CFM) to prevent local buildup and allow long, continuous operation.

- Best for small diameter drilling and milling
- Less than ø0.08" (ø2 mm) small diameter drilling and milling with extremely good surface finishes, using a high-speed brushless motor.

HES810 Specifications

- Motor Cord (EMCD-810-___) (See Page 6-p2 for details)
- Air Line Kit (AL-C1204) (Refer to 4-p15 in detail)

HES810 Connection Drawing

The HES810 motor and spindle require dry, clean, regulated air. Please refer to the drawing on this page for proper components.

- Air Line Kit AL-C1204 supplies clean dry air to the control unit through the filter and the regulator.

Note: Motor Cord is sold separately.

HES810-BT30

- Motor Cord is sold separately.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7611</td>
<td>HES810-BT30</td>
<td>• Collet ø1/8&quot; (CHA-3.175) : 1 pc. • Collet Nut (CHN-A) : 1 pc. • Wrench (8 x 5), (9 x 11) : 1 pc. each</td>
<td></td>
<td>4.4 lb</td>
<td>4.45</td>
</tr>
</tbody>
</table>

HES810-BT40 / NT40 / CAT40

- Motor Cord is sold separately.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7612</td>
<td>HES810-BT40</td>
<td>• Collet ø1/8&quot; (CHA-3.175) : 1 pc. • Collet Nut (CHN-A) : 1 pc. • Wrench (8 x 5), (9 x 11) : 1 pc. each</td>
<td></td>
<td>4.4 lb</td>
<td>4.45</td>
</tr>
<tr>
<td>7613</td>
<td>HES810-NT40</td>
<td>• Collet ø1/8&quot; (CHA-3.175) : 1 pc. • Collet Nut (CHN-A) : 1 pc. • Wrench (8 x 5), (9 x 11) : 1 pc. each</td>
<td></td>
<td>4.8 lb</td>
<td>4.85</td>
</tr>
<tr>
<td>9201</td>
<td>HES810-CAT40</td>
<td>• Collet ø1/8&quot; (CHA-3.175) : 1 pc. • Collet Nut (CHN-A) : 1 pc. • Wrench (8 x 5), (9 x 11) : 1 pc. each</td>
<td></td>
<td>3.07 lb</td>
<td>3.07</td>
</tr>
</tbody>
</table>

For dimensions of taper shanks, please see page 4-p30.

Order by catalog number. 4-p11
HES810 Specifications

- **Speed**: 20,000-80,000 min⁻¹ (rpm)
- **Rated Operating Speed**: 50,000-80,000 min⁻¹ (rpm)
- **Max. Output Power**: 350W
- **Spindle Accuracy**: ±0.25 μm (CHA-3.177)
- **Standard Size Collet**: 0.3-1.0 (CHA-3.177)
- **Optional**:
  - Air Line Kit (AL-CL204)
  - Motor Cord (EMCD-810) ø4 mm Air Cooling Hose

Note: Motor Cord is sold separately.

HES810 Features

- **Cooling Air**: Clean dry air is required to cool the motor and protect the spindle from contaminants. Please use a filter and regulator.
- **One-Piece motor and spindle construction**: The motor and spindle are built as a single unit, minimizing size and weight and allowing usage on a very wide variety of machines.
- **Emergency Connector**: The system incorporates an emergency, breakaway connector to help prevent system damage in case the machine's main spindle is rotated accidentally.
- **Excellent Durability by air-cooling system**: Less than ø12 mm small diameter drilling and milling with extremely good surface finishes, using a high-speed brushless motor.

HES810 Connection Drawing

The HES810 motor and spindle require dry, clean, regulated air. Please refer to the drawing to the right for proper components.

Air Line Kit AL-CL204 supplies clean dry air to the control unit through the filter and the regulator.

HES810 can be used in conjunction with water or oil based coolants.

Note: Motor Cord is sold separately.

HES810 Specifications

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HES810-BT30</td>
<td>ø1/8'' (CHA-3.177)</td>
<td>1 pc.</td>
<td>ø1.0'' x 6.0''</td>
<td>4.45 lb.</td>
</tr>
<tr>
<td>HES810-BT40 / NT40 / CAT40</td>
<td>ø1.0''</td>
<td>ø0.98''</td>
<td>ø0.897''</td>
<td>5.07 lb.</td>
</tr>
<tr>
<td>HES810-CAT40</td>
<td>ø1.0''</td>
<td>ø0.98''</td>
<td>ø0.897''</td>
<td>5.28 lb.</td>
</tr>
</tbody>
</table>

HES810-BT30

- Speed: 20,000-80,000 min⁻¹ (rpm)
- Maximum Output: 350W
- Motor Cord: ø0.897''
- Emergency Connector: ø1.0''
- Dimensions: (ø40 mm x 4.41 lb.)

HES810-CAT40

- Speed: 20,000-80,000 min⁻¹ (rpm)
- Maximum Output: 350W
- Motor Cord: ø0.897''
- Emergency Connector: ø1.0''
- Dimensions: (ø40 mm x 4.41 lb.)

For dimensions of taper shanks, please see page 4-p30.

Order by catalog number. 4-p11
"HES810" ULTRA-PRECISION HIGH-SPEED MILLING SPINDLE

**APPLICATION EXAMPLES**
- EmaxEVO
- ESPERT
- ROTUS
- IMPULSE
- PRESTO II
- SHEENUS
- neo
- SONIC CUTTER

**HES810-BT50**

**HES810-HSK A63**

**HES810-ST32**

**Note:** Motor Cord is sold separately.

**Weight**
- HES810-BT50: 10.80 lb.
- HES810-HSK A63: 5.73 lb.
- HES810-ST32: 5.07 lb.

**25 Pin INTERFACE CABLE**
- 3 Meter long Interface Cable provides a DB25 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of I/O signals from any NSK Control to a CNC Control.

**15 Pin INTERFACE CABLE**
- 3 Meter long Interface Cable provides a DB15 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of the (OP1) "E-Stop Input Circuit" and "Safety Relay Circuit" from the NSK Control to a CNC Control.

**Order by catalog number.**

---

For dimensions of taper shanks, please see page 4-p31, 32.
**“HES810” ULTRA-PRECISION HIGH-SPEED MILLING SPINDLE**

---

**APPLICATION EXAMPLES**

- EmaxEVO
- ESPERT
- ROTUS
- IMPULSE
- PRESTO II
- SHEENUS
- neo
- SONIC
- CUTTER

---

**PARTS**

- ø1.0"
- ø0.98"
- ø1.18"
- MS
- ø0.75" ø0.79"
- ø0.87" ø0.91"
- ø1.0" ø0.98"
- MA
- ø0.897"

---

**AIR LINE KIT**

- HES510
- HES810
- HTS
- HPS
- Xpeed

---

**INDEX**

- TECHNICAL DATA
- E2530 / E2550 ø1.0"/ø0.98"
- E2530 / E2550 ø0.897"
- iSpeed3
- E3000 - One Piece
- E3000 - Modular ø1.18"
- E3000 - 80,000rpm
- E4000

---

**COOLANT**

- For dimensions of taper shanks, please see page 4-p31, 32.

---

**Caution**

- If the machine’s main spindle is rotated by mistake, the Emergency Connector on the motor is designed to separate. In order for the Emergency Connector to function as designed it must be set and positioned correctly. Please refer to the owner’s manual for proper installation and check the integrity of the Emergency Connector and suspension prior to each use.

---

**25 Pin INTERFACE CABLE**

- 3 Meter long Interface Cable provides a DB25 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of I/O signals from any NSK Control to a CNC Control.

---

**15 Pin INTERFACE CABLE**

- 3 Meter long Interface Cable provides a DB15 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of the (OP1) “E-Stop Input Circuit” and “Safety Relay Circuit” from the NSK Control to a CNC Control.

---

**ORDER by catalog number.**
"HES810" CONTROL UNIT

- AC100-240V for international operation
- 1,000-80,000 min⁻¹ (rpm)
- Maximum Output 350W

CAT. No. 9775 CONTROL UNIT NE211

<table>
<thead>
<tr>
<th>Outdoor Area</th>
<th>Main Control Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>For 100V (A type)</td>
<td>For For Japan</td>
</tr>
<tr>
<td>For 120V (B type)</td>
<td>For U.S.A. and Canada</td>
</tr>
</tbody>
</table>

Specifications
- HES810
- Motor Speed : ~1,000-80,000 min⁻¹ (rpm)
- Max. Output Power : 350W
- Power Consumption : 1.8A
- Air Flow Volume : 1.0CFM (36-44PSI)
- Power Source : AC100-240V
- Dimensions : W3.46" x D5.43" x H9.37"

"HES810" AIR LINE KIT & MOTOR CORD

- The AL-C1204 Air Line Kit is designed to deliver clean, dry air to Electric Motors via the Control Unit. The filter removes small amounts of debris while the adjustable regulator provides the correct air pressure for cooling and purging.

CAT. No. 4504 AIR LINE KIT AL-C1204

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Description</th>
<th>Model</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Source Plug</td>
<td>9248</td>
<td>Motor Cord 4M EMCD-810-4M</td>
<td>13 ft</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9249</td>
<td>Motor Cord 6M EMCD-810-6M</td>
<td>19 ft</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9250</td>
<td>Motor Cord 8M EMCD-810-8M</td>
<td>26 ft</td>
<td></td>
</tr>
</tbody>
</table>

HES Purchasing Example

- Order by catalog number.
### “HES810” CONTROL UNIT

- AC100-240V for international operation
- 1,000~80,000 min⁻¹ (rpm)
- Maximum Output 350W

**CAT. No.** | Control Unit NE211 | 80,000 min⁻¹ (rpm)
---|---|---
9775 | E2530 / E2550

**Specifications**

- **Model**: NE211
- **Power Source**: AC100V
- **Motor Speed**: 1,000~80,000 min⁻¹ (rpm)
- **Max. Output Power**: 350W
- **Air Flow Volume**: 1.0CFM (36-44PSI)
- **Weight**: 6 lb. 2.77 oz.
- **Dimensions**: W3.46" x D5.43" x H9.37"

### “HES810” AIR LINE KIT & MOTOR CORD

**CAT. No.** | 4504 | AIR LINE KIT AL-C1204
---|---|---

**Specifications**

- The AL-C1204 Air Line Kit is designed to deliver clean, dry air to Electric Motors via the Control Unit. The filter removes small amounts of debris while the adjustable regulator provides the correct air pressure for cooling and purging.

**Product** | CAT. No. | Model | Description | Length | Standard Equipment | Accessories | Price
---|---|---|---|---|---|---|---
Motor Cord 4M | 9248 | EMCD-810-4M | Motor Cord 4M | 13 ft | | | HES810
Motor Cord 6M | 9249 | EMCD-810-6M | Motor Cord 6M | 19 ft | | | HES810
Motor Cord 8M | 9250 | EMCD-810-8M | Motor Cord 8M | 26 ft | | | HES810

### Control Panel Extension Cord

**CAT. No.** | 8407 | E3000-PEX-4 | NE211
---|---|---|---

**Control Panel Extension Cord**

- **For use with**: NE211
- **Price**: 24 ft

### HES Purchasing Example

**Order by catalog number:**

- **Spindle with CAT40**: 9201 HES810-CAT40
- **Control Unit**: 9775 NE211
- **110V Motor Cord**: 9248 EMCD-810-6M
- **Air Line Kit**: 4504 AL-C1204

**Total**: 14 ft

---

*Please refer to Technical Data 7-p2~p9 in detail about External Input-Output Connector. A AC100-240V for international operation. Please check the power source plug type and order accordingly.*

---

**Interface Cable**

Page 4-p13
**HSM SOLUTIONS**

**HTS Series**

Air System

Dramatically shorten mold cavity machining time.

### APPLICATION EXAMPLES

<table>
<thead>
<tr>
<th>Product</th>
<th>CAT. No.</th>
<th>Model Description</th>
<th>Price</th>
<th>Fit to</th>
</tr>
</thead>
<tbody>
<tr>
<td>EmaxEVO</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESPERT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROTUS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMPULSE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRESTO II</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHEENUS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>neo</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SONIC CUTTER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### PARTS

1. Drill Shank
2. Air Line Kit
3. 8-p16
4. 4-p16
5. 4-p17
6. 8-p17
7. 7-p17
8. 6-p17
9. 5-p17
10. 4-p17
11. 3-p17
12. 2-p17
13. 1-p17

### TECHNICAL DATA

- HTS1501S-BT30 / 40 / 50
  - 150,000 min⁻¹ (rpm) Output: 25W

- HTS1501S-HSK E25 / 32 / 40 / 50
  - 150,000 min⁻¹ (rpm) Output: 25W

- HTS1501S-HSK A63
  - 150,000 min⁻¹ (rpm) Output: 25W

- HTS1501S-HSK F63
  - 150,000 min⁻¹ (rpm) Output: 25W

- HTS1501S-M2040
  - 150,000 min⁻¹ (rpm) Output: 25W
### APPLICATION EXAMPLES
- EmaxEVO
- ESPERT
- ROTUS
- IMPULSE
- PRESTO II
- SHEENUS neo
- SONIC CUTTER

### Ø1.0” Ø0.98” Ø1.18”
- MS Ø0.75” Ø0.79”
- Ø0.87” Ø0.91” Ø1.0” Ø0.98”
- MA Ø0.897”

### AIR LINE KIT
- HES510
- HES810
- HTS
- HPS
- Xpeed

### PARTS
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

### INDEX
- TECHNICAL DATA
- E2530 / E2550 Ø1.0” Ø0.98”
- E2530 / E2550 Ø0.897”
- E3000 Ø1.18”
- E3000 - One Piece
- E3000 - Modular
- E3000 - Ø1.0” Ø0.98” Ø0.897”
- E4000 - 80,000rpm

### HSM SOLUTIONS
#### HTS Series
**Air System**
Dramatically shorten mold cavity machining time.

**HTS1501S-BT30 / 40 / 50**
- 150,000 min⁻¹ (rpm)
- Output: 25W

**HTS1501S-HSK E25 / 32 / 40 / 50**
- 150,000 min⁻¹ (rpm)
- Output: 25W

**HTS1501S-HSK A63**
- 150,000 min⁻¹ (rpm)
- Output: 25W

**HTS1501S-HSK F63**
- 150,000 min⁻¹ (rpm)
- Output: 25W

**HTS1501S-M2040**
- 150,000 min⁻¹ (rpm)
- Output: 25W

---

### "HES SERIES" SHANKS

<table>
<thead>
<tr>
<th>Product</th>
<th>Cat. No.</th>
<th>Model</th>
<th>Description</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASE 9148</td>
<td>HES510-BT30-SK</td>
<td>3.80”</td>
<td>• Type: BT30 • Weight: 23.28 oz.</td>
<td>HES510-BT30</td>
<td>HES810-BT30</td>
</tr>
<tr>
<td>ASE 9153</td>
<td>HES510-NT30-SK</td>
<td>4.57”</td>
<td>• Type: NT30 • Weight: 24.00 oz.</td>
<td>HES510-NT30</td>
<td>HES810-NT30</td>
</tr>
<tr>
<td>ASE 9154</td>
<td>HES510-NT30M-SK</td>
<td>4.57”</td>
<td>• Type: NT30M • Metric threads • Weight: 24.00 oz.</td>
<td>HES510-NT30M</td>
<td>HES810-NT30M</td>
</tr>
<tr>
<td>ASE 9149</td>
<td>HES510-BT40-SK</td>
<td>4.57”</td>
<td>• Type: BT40 • Weight: 33.32 oz.</td>
<td>HES510-BT40</td>
<td>HES810-BT40</td>
</tr>
<tr>
<td>ASE 9155</td>
<td>HES510-NT40-SK</td>
<td>5.94”</td>
<td>• Type: NT40 • Weight: 30.00 oz.</td>
<td>HES510-NT40</td>
<td>HES810-NT40</td>
</tr>
<tr>
<td>ASE 9156</td>
<td>HES510-NT40M-SK</td>
<td>5.94”</td>
<td>• Type: NT40M • Metric threads • Weight: 30.00 oz.</td>
<td>HES510-NT40M</td>
<td>HES810-NT40M</td>
</tr>
<tr>
<td>9191</td>
<td>HES510-IT40-SK</td>
<td>5.94”</td>
<td>• Type: IT40 • Weight: 37.00 oz.</td>
<td>HES510-IT40</td>
<td>HES810-IT40</td>
</tr>
<tr>
<td>ASE 9153</td>
<td>HES510-CAT40-SK</td>
<td>4.33”</td>
<td>• Type: CAT40 • Weight: 36.00 oz.</td>
<td>HES510-CAT40</td>
<td>HES810-CAT40</td>
</tr>
<tr>
<td>ASE 9150</td>
<td>HES510-BT50-SK</td>
<td>3.87”</td>
<td>• Type: BT50 • Weight: 123.75 oz.</td>
<td>HES510-BT50</td>
<td>HES810-BT50</td>
</tr>
<tr>
<td>ASE 9157</td>
<td>HES510-NT50-SK</td>
<td>3.87”</td>
<td>• Type: NT50 • Weight: 135.60 oz.</td>
<td>HES510-NT50</td>
<td>HES810-NT50</td>
</tr>
<tr>
<td>ASE 9158</td>
<td>HES510-NT50M-SK</td>
<td>3.87”</td>
<td>• Type: NT50M • Metric threads • Weight: 135.60 oz.</td>
<td>HES510-NT50M</td>
<td>HES810-NT50M</td>
</tr>
<tr>
<td>9190</td>
<td>HES510-IT50-SK</td>
<td>4.56”</td>
<td>• Type: IT50 • Weight: 103.56 oz.</td>
<td>HES510-IT50</td>
<td>HES810-IT50</td>
</tr>
<tr>
<td>ASE 9192</td>
<td>HES510-CAT50-SK</td>
<td>4.96”</td>
<td>• Type: CAT50 • Weight: 103.56 oz.</td>
<td>HES510-CAT50</td>
<td>HES810-CAT50</td>
</tr>
<tr>
<td>ASE 9152</td>
<td>HES510-HSK A63-SK</td>
<td>4.78”</td>
<td>• Type: HSK A63 • Weight: 43.03 oz.</td>
<td>HES510-HSK A63</td>
<td>HES810-HSK A63</td>
</tr>
<tr>
<td>ASE 9151</td>
<td>HES510-HSK A100-SK</td>
<td>4.78”</td>
<td>• Type: HSK A100 • Weight: 103.56 oz.</td>
<td>HES510-HSK A100</td>
<td>HES810-HSK A100</td>
</tr>
<tr>
<td>K812 A271</td>
<td>HES510-R8-SK</td>
<td>4.96”</td>
<td>• Type: R8 • Weight: 32.00 oz.</td>
<td>HES510-R8</td>
<td>HES810-R8</td>
</tr>
<tr>
<td>K812 A272</td>
<td>HES510-ST32-SK</td>
<td>4.96”</td>
<td>• Type: ST32 • Weight: 31.82 oz.</td>
<td>HES510-ST32</td>
<td>HES810-ST32</td>
</tr>
</tbody>
</table>

*For dimensions of taper shanks, please see page 4-p30~32.*

*Order by catalog number.*
HTS Series Features

- High Speed 150,000 min⁻¹ (rpm)
- Suitable for cutting tool diameters of less than R0.5mm in reference to Ball End Mills
- Negligible spindle expansion
Air Turbine mechanism has extremely low heat generation.
- Spindle Accuracy is within 1 µm

HTS Series Milling Capacity Reference

Milling : Straight Milling / Work : NAK80 / Motor Speed : 150,000 min⁻¹ (rpm)

- Cutting depth (     )
- Cutting depth (     )
- Cutting depth (     )

HTS Series Specifications

- Speed ........................................................ 150,000 min⁻¹ (rpm)/(71PSI)
- Max. Output Power .............................................. 25W
- Air Type ........................................................ Side Air Supply Type
- Shank .......... Straight, BT30 / 40 / 50, HSK E25 / 32 / 40 / 50 / A63 / F63
- Proper Air Pressure .............................................. 42 ~ 71PSI
- Air Consumption .............................................. 3.18CFM
- Spindle Accuracy .............................................. Within 1 µm
- Hose Diameter (Air Intake) ..................................... ø6 mm (O.D.)
- Standard Size Collet (CHA-4.5) .............................. ø4.0 mm

HTS Series Connection Drawing

Clean, lubricated, and regulated air is required for HTS Series spindles. Please refer to the diagram to the right for proper connections. AL-M1203 incorporates a filter, regulator and lubricator to provide the appropriate air.

* For dimensions of taper shanks, please see page 4-p30, 31.

* Order by catalog number. 4-p19
## HTS Series Features

- **High Speed 150,000 min⁻¹(rpm)***
- Suitable for cutting tool diameters of less than R0.5mm in reference to Ball End Mills
- Negligible spindle expansion
  - Air Turbine mechanism has extremely low heat generation.
- **Highly stable milling conditions are possible even with very small diameter cutting tools.***
  - Usable max. cutting tool diameter: Ball End Mill R0.5 mm, Square End Mill ø1 mm.
- **Spindle Accuracy is within 1 µm***
  - Dramatically short mold cavity machining time
- **Very High Feed Rates are possible**

### HTS Series Milling Capacity Reference

**Milling** : Straight Milling / Work : NAK80 / Motor Speed : 150,000 min⁻¹(rpm)

<table>
<thead>
<tr>
<th>Tool Size</th>
<th>Cutting Condition</th>
<th>Chip Breaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ball End Mill Size : R0.25 mm L = 0.1 mm</td>
<td>1000 1500 2000 2500 3000</td>
<td>NAK80</td>
</tr>
<tr>
<td>Ball End Mill Size : R0.1 mm L = 0.5 mm</td>
<td>1000 1500 2000 2500 3000</td>
<td>NAK80</td>
</tr>
<tr>
<td>Ball End Mill Size : R0.5 mm L = 2.5 mm</td>
<td>1000 1500 2000 2500 3000</td>
<td>NAK80</td>
</tr>
</tbody>
</table>

### HTS Series Specifications

- **Speed** : 150,000 min⁻¹(rpm) (71PSI)
- **Max. Output Power** : 25W
- **Air Type** : Side Air Supply Type
- **Shank** : Straight, BT30 / 40 / 50, HSK E25 / 33 / 40 / 50 / 63 / 80
- **Proper Air Pressure** : 42~71PSI
- **Air Consumption** : 3.18CFM
- **Spindle Accuracy** : Within 1 µm
- **Hose Diameter (Air Intake)** : ø6 mm (O.D.)
- **Standard Size Collet (CHA-4.0)** : ø4.0 mm

### HTS Series Connection Drawing

Clean, lubricated, and regulated air is required for HTS Series spindles. Please refer to the diagram to the right for proper connections. AL-M1202 incorporates a filter, regulator and lubricator to provide the appropriate air.

### HTS Series

**Air System**

- **Q** • 54 "RYE 1.ϖʔδ Q**

**ULTRA-HIGH SPEED AIR TURBINE MILLING SPINDLE**

**HTS SERIES**

**Air Turbine Milling Spindle**

**HTS Series can be used in conjunction with water or oil based coolants.**

---

### Price Table

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>8296</td>
<td>HTS1501S-BT30</td>
<td>8.33 oz</td>
<td></td>
</tr>
<tr>
<td>8297</td>
<td>HTS1501S-BT40</td>
<td>9.07 oz</td>
<td></td>
</tr>
<tr>
<td>8281</td>
<td>HTS1501S-BT50</td>
<td>18.75 oz</td>
<td></td>
</tr>
</tbody>
</table>

**HTS Series Milling Capacity Reference**

- **BT50 taper shanks make this spindle very easy to attach to small machining centers. Very High speed milling is possible.**
- **BT40 taper shanks make this spindle very easy to attach to a wide variety of machining centers. Very High speed milling is possible.**

---

*Order by catalog number. 4-p19

*For dimensions of taper shanks, please see page 4-p30, 31.*
**HTS SERIES** ULTRA-HIGH SPEED AIR TURBINE MILLING SPINDLE

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>8300</td>
<td>HTS1501S-HSK E25</td>
<td>18.81 oz.</td>
</tr>
<tr>
<td>8283</td>
<td>HTS1501S-HSK E32</td>
<td>27.67 oz.</td>
</tr>
<tr>
<td>8279</td>
<td>HTS1501S-HSK E40</td>
<td>14.67 oz.</td>
</tr>
<tr>
<td>8280</td>
<td>HTS1501S-HSK E50</td>
<td>27.74 oz.</td>
</tr>
</tbody>
</table>

**Air Turbine Spindle**

- HSK E25 taper shanks make this spindle very easy to attach to your machining centers. Very High speed milling is possible.
- HSK E32 taper shanks make this spindle very easy to attach to your machining centers. Very High speed milling is possible.
- HSK E40 taper shanks make this spindle very easy to attach to your machining centers. Very High speed milling is possible.
- HSK E50 taper shanks make this spindle very easy to attach to your machining centers. Very High speed milling is possible.

**Standard Equipment · Accessories**

- Collet ø4.0 mm (CHA-4.0)
- Collet Nut (CHN-AA)
- Wrench (8 x 5), (9 x 11) : 1 pc. each
- Filter Joint (FJ-01)
- Hose (K-247) : ø6 mm x 13 ft

**Caution**

- Do not rotate the machining center’s main spindle with the HTS1501 spindle installed.

**Application Examples**

- **E4000**

**Order by catalog number.** 4-p21

**Price**

- HTS1501S-HSK E32 27.67 oz.
- HTS1501S-HSK E40 14.67 oz.
- HTS1501S-HSK E50 27.74 oz.

**For dimensions of taper shanks, please see page 4-p31.**
**HTS SERIES** ULTRA-HIGH SPEED AIR TURBINE MILLING SPINDLE

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>8300</td>
<td>HTS1501S-HSK E25</td>
<td>18.81 oz</td>
<td></td>
</tr>
<tr>
<td>8283</td>
<td>HTS1501S-HSK E32</td>
<td>27.67 oz</td>
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</tr>
<tr>
<td>8279</td>
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<tr>
<td>8280</td>
<td>HTS1501S-HSK E50</td>
<td>10.74 oz</td>
<td></td>
</tr>
</tbody>
</table>

**Standard Equipment · Accessories**

- Collet ø4.0 mm (CHA-4.0)
- Collet Nut (CHN-AA)
- Wrench (8 x 5), (9 x 11) : 1 pc. each
- Filter Joint (FJ-01)
- Hose (K-247) : ø6 mm x 13 ft

**Caution**

- Do not rotate the machining center’s main spindle with the HTS1501 spindle installed.

*For dimensions of taper shanks, please see page 4-p31.*

*Order by catalog number. 4-p21*
"HTS SERIES" AIR LINE KIT & OIL

The AL-M1202 provides simple, automatic conditioning of the air supplied to NAKANISHI Air Motors. The filter removes water and impure substances from the input air supply. The regulator maintains the proper air pressure, and the lubricator ensures proper oil flow to the motor and spindle. This Air Line Kit is wall mountable.

Air Line Kit (For ø6 mm Hose - Filter Mesh 0.3 µm)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4502 AL-M1202</td>
<td>4-ø7 mm</td>
<td>Air Filter • Air Regulator • Air Pressure Gauge • Lubricator • Air ON-OFF Valve</td>
<td>Hose for Piping (K-275) : 6 ft</td>
<td></td>
</tr>
</tbody>
</table>

LUBRICATING OIL

Lubricating Oil (4 oz.)

<table>
<thead>
<tr>
<th>CAT. No.</th>
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<th>Price</th>
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</thead>
<tbody>
<tr>
<td>AA10478</td>
<td>K-211</td>
<td></td>
<td></td>
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Lubricating Oil (32 oz.)

<table>
<thead>
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<th>Price</th>
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<tbody>
<tr>
<td>AA10480</td>
<td>K-202</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Order by catalog number.
HPS Series
Air System

Fully Tool Changeable Air Motor Spindle.

**HPS SERIES BT30**

- 25,000 min⁻¹ (rpm) Output: 77W
- 50,000 min⁻¹ (rpm) Output: 51W

**HPS SERIES CAT40**

- 25,000 min⁻¹ (rpm) Output: 77W
- 50,000 min⁻¹ (rpm) Output: 51W
HPS Series Features

- **25,000 & 50,000 min−1 (rpm)**
  Meets micro mill and drill manufacturers spindle speed requirements for many applications where small hole drilling and light milling are required.

- **Uninterrupted Machining**
  Fully tool changeable spindles for transfer from the machine magazine to the main spindle without the need to connect the air supply.

- **High Precision Spindle**
  All Spindles are guaranteed to be less than 1um T.I.R. at the spindle taper, allowing for excellent surface finish and extended tool life. True High Speed Machining can be achieved with the high speed and accuracy of the HPS250 / 500.

- **Minimal Thermal Growth**
  Constant cooling and lubrication of the spindle and motor ensures minimal thermal growth, which promotes extremely high accuracy and long bearing life.

- **Integral Motor and Spindle**
  The motor and spindle are built as a single unit to minimize length and weight for usage on a wide variety of machines. Spindle and motor constructed of precision ground SUS-416.

- **Minimal Vibration**
  Gearless operation eliminates heat and vibration affording high RPM for micro milling and micro drilling of all materials. Helps extend spindle bearing and cutting tool life.

- **Dedicated Air System**
  Our Air Line Kit provides lubricated air to cool, purge and lubricate the motor and spindle for extended machining operations that are typical for high speed machining. Unused lubrication oil is returned to the reservoir.

- **No Main Spindle Wear**
  Machines main spindle is used only to hold the HPS Spindle, providing longer main spindle life. Running a machine spindle at the maximum rpm for extended periods of time will severely affect the machines spindle longevity.

- **Positioning Block**
  We provide the positioning block to mate the HPS spindle with the machine. Several designs are available depending on the machine manufacturer and machine model and year of manufacture.

### HPS250 Series Specifications

- **Speed**
  25,000 min−1 (rpm) (73PSI)

- **Max. Output Power**
  277W (73PSI)

- **Air Pressure**
  73PSI

- **Air Consumption**
  6.36CFM

- **Spindle Accuracy**
  Within 1 µm

- **Standard Size Collet (CHK-3.175)**
  0.5 mm to 6.35 mm

- **Grindstone Arbor (AGM-03)**
  For grinding wheel I.D. of ø5 mm

### HPS500 Series Specifications

- **Speed**
  50,000 min−1 (rpm) (73PSI)

- **Max. Output Power**
  51W (73PSI)

- **Proper Air Pressure**
  73PSI

- **Air Consumption**
  5.12CFM

- **Spindle Accuracy**
  Within 1 µm

- **Standard Size Collet (CHA-3.175)**
  0.5 mm to 4.0 mm

- **Grindstone Arbor (AGM-01A)**
  For grinding wheel I.D. of ø5 mm

### HPS System Example

<table>
<thead>
<tr>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Price</th>
</tr>
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<tbody>
<tr>
<td>Spindle with CAT40</td>
<td>HPS10</td>
<td>HPS500-CAT40</td>
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</tr>
<tr>
<td>Generic Block</td>
<td>BLG3</td>
<td>GB40</td>
<td></td>
</tr>
<tr>
<td>Air Line Kit</td>
<td>R03</td>
<td>XL-M1002</td>
<td></td>
</tr>
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*Order by catalog number. 4-p25
HPS Series Features

- **Dedicated Air System**
  Our Air Line Kit provides lubricated air to cool, purge and lubricate the motor and spindle for extended machining operations that are typical for high speed machining. Unused lubrication oil is returned to the reservoir.

- **Minimal Thermal Growth**
  Constant cooling and lubrication of the spindle and motor ensures minimal thermal growth, which promotes extremely high accuracy and long bearing life.

- **Integral Motor and Spindle**
  The motor and spindle are built as a single unit to minimize length and weight for usage on a wide variety of machines. Spindle and motor constructed of precision ground SUS 441.

- **Minimal Vibration**
  Gearless operation eliminates heat and vibration affording high RPM for micro milling and micro drilling of all materials. Helps extend spindle bearing and cutting tool life.

- **25,000 & 50,000 min-1 (rpm)**
  Meets micro mill and drill manufacturer spindle speed requirements for many applications where small hole drilling and light milling are required.

- **Uninterrupted Machining**
  Fully tool changeable spindles for transfer from the machine magazine to the main spindle without the need to connect the air supply.

- **High Precision Spindle**
  All Spindles are guaranteed to be less than 5µm T.I.R. at the spindle taper, allowing for excellent surface finish and extended tool life. True High Speed Machining can be achieved with the high speed and accuracy of the HPS250 / 500.

- **No Main Spindle Wear**
  Machines main spindle is used only to hold the HPS Spindle, providing longer main spindle life. Running a machine spindle at the machines maximum rpm for extended periods of time will severely affect the machines spindle longevity.

- **Positioning Block**
  We provide the positioning block to mate the HPS spindle with the machine. Several designs are available depending on the machine manufacturer and machine model and year of manufacture.

HPS250 Series Specifications

- **Speed**
  25,000 min-1 (rpm) / 73PSI

- **Max. Output Power**
  77W (73PSI)

- **Proper Air Pressure**
  73PSI

- **Air Consumption**
  6.36 CFM

- **Proper Air Pressure**
  73PSI

- **Standard Size Collet (CHK-3.175)**
  Within 1 µm

- **Cushion (CHK-30)**
  ø0.5 mm to ø4.0 mm

- **Grindstone Arbor (AGM-01)**
  For grinding wheel with I.D. of ø5 mm

HPS500 Series Specifications

- **Speed**
  50,000 min-1 (rpm) / 73PSI

- **Max. Output Power**
  51W (73PSI)

- **Proper Air Pressure**
  73PSI

- **Air Consumption**
  5.12 CFM

- **Proper Air Pressure**
  73PSI

- **Standard Size Collet (CHA-3.175)**
  ø1/8"

- **Cushion (CHK-30)**
  ø0.897 mm to ø4.0 mm

- **Grindstone Arbor (AGM-31)**
  For grinding wheel with I.D. of ø5 mm

HPS System Example

<table>
<thead>
<tr>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>50,000 min-1 Spindle with CAT40</td>
<td>HPS1000</td>
<td>FTCAT40</td>
<td><strong>$5000</strong></td>
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<tr>
<td>Generic Block</td>
<td>BC500</td>
<td>BC500</td>
<td><strong>$500</strong></td>
</tr>
<tr>
<td>Air Line Kit</td>
<td>KB1000</td>
<td>KL-1200</td>
<td><strong>$350</strong></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td><strong>$5850</strong></td>
</tr>
</tbody>
</table>

*Order by catalog number. 4-p25
**“HPS SERIES” SPINDLE**

### HPS250-BT30 / HPS500-BT30

- **Air Motor Spindle**: 25,000 min⁻¹ (rpm)

#### HPS250-BT30A
- Spindle Key relationship to Driven Pin 0˚ fixed position
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

#### HPS250-BT30B
- Spindle Key relationship to Driven Pin 90˚, 180˚, 270˚, 360˚ rotation position
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

#### HPS250-BT30C
- Spindle Key relationship to Driven Pin 0˚ fixed position
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

### HPS250-CAT40A / HPS500-CAT40A

- **Air Motor Spindle**: 25,000 min⁻¹ (rpm)

#### HPS250-CAT40A
- Spindle Key relationship to Driven Pin 0˚ fixed position
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

### HPS500-BT30A

- Spindle Key relationship to Driven Pin 0˚ fixed position
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

### HPS500-BT30B

- Spindle Key relationship to Driven Pin 90˚, 180˚, 270˚, 360˚ rotation position
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

### HPS500-BT30C

- Spindle Key relationship to Driven Pin 0˚ fixed position
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

### HPS500-CAT40A

- Spindle Key relationship to Driven Pin 0˚ fixed position
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

### HPS500-CAT40B

- Spindle Key relationship to Driven Pin 90˚, 180˚, 270˚, 360˚ rotation position
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

### HPS500-CAT40C

- Spindle Key relationship to Driven Pin 0˚ fixed position
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

### Notes:

- Dimensions shown on this page are all in metric (mm). Please divide them by 25.4 for conversion to inch.
- HPS Series can be used in conjunction with water or oil based coolants.
- For dimensions of taper shanks, please see page 4-p30.
- Order by catalog number. 4-p27

---

**CAT40**

### HPS250-CAT40B / HPS500-CAT40B

- **Air Motor Spindle**: 25,000 min⁻¹ (rpm)

#### HPS250-CAT40B
- Spindle Key relationship to Driven Pin 0˚ fixed position
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

#### HPS500-CAT40B
- Spindle Key relationship to Driven Pin 0˚ fixed position
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

### HPS250-CAT40A / HPS500-CAT40A

- **Air Motor Spindle**: 25,000 min⁻¹ (rpm)

#### HPS250-CAT40A
- Spindle Key relationship to Driven Pin 0˚ fixed position
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

#### HPS500-CAT40A
- Spindle Key relationship to Driven Pin 0˚ fixed position
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

### Notes:

- Dimensions shown on this page are all in metric (mm). Please divide them by 25.4 for conversion to inch.
- Call NSK America at 800-585-4675 for the correct HPS Spindle for your machines builder and model.

---

**Price**

- **HPS Motor Spindle**: 50,000 min⁻¹ (rpm)

#### HPS250-BT30A
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

#### HPS250-BT30B
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

#### HPS250-BT30C
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

#### HPS500-BT30A
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

#### HPS500-BT30B
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

#### HPS500-BT30C
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

#### HPS500-CAT40A
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

#### HPS500-CAT40B
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

#### HPS500-CAT40C
- Standard Equipment: Collet ø1/8″ (CHA-3.175)
- Accessories: Collet Nut CHN-A

---

**Data**

- **Dimensions shown on this page are all in metric (mm). Please divide them by 25.4 for conversion to inch.**

---

**Weight**

- **HPS Motor Spindle**: 6.83 lb.

- **HPS Motor Spindle**: 7.94 lb.

---

**Order by catalog number. 4-p27**
"HPS SERIES" SPINDLE

**BT30**

HPS Series can be used in conjunction with water or oil based coolants.

**HPS250-BT30 / HPS500-BT30**

Dimensions shown on this page are all in metric (mm). Please divide them by 25.4 for conversion to inch.

**CAT40**

**HPS250-CAT40 / HPS500-CAT40**

Dimensions shown on this page are all in metric (mm). Please divide them by 25.4 for conversion to inch.

---

Air Motor Spindle : 25,000 min⁻¹ (rpm)

<table>
<thead>
<tr>
<th>Type</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>HPS01</td>
<td>HPS250-BT30A</td>
<td>• Collet at 1/4&quot; (CH4-3.175) • Collet Nut (K-200) • Wrench (1/2 x 14) : 2 pcs.</td>
<td></td>
<td>6.83 lb</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>HPS02</td>
<td>HPS250-BT30B</td>
<td>• Collet at 1/4&quot; (CH4-3.175) • Collet Nut (K-200) • Wrench (1/2 x 14) : 2 pcs.</td>
<td></td>
<td>6.83 lb</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>HPS03</td>
<td>HPS250-BT30C</td>
<td>• Collet at 1/4&quot; (CH4-3.175) • Collet Nut (K-200) • Wrench (1/2 x 14) : 2 pcs.</td>
<td></td>
<td>6.83 lb</td>
<td></td>
</tr>
</tbody>
</table>

Air Motor Spindle : 50,000 min⁻¹ (rpm)

<table>
<thead>
<tr>
<th>Type</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>HPS04</td>
<td>HPS500-BT30A</td>
<td>• Collet at 1/4&quot; (CH4-3.175) • Collet Nut (CH4-4) • Wrench [1/8, (10 x 10)] : 1 pc. each</td>
<td></td>
<td>7.94 lb</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>HPS05</td>
<td>HPS500-BT30B</td>
<td>• Collet at 1/4&quot; (CH4-3.175) • Collet Nut (CH4-4) • Wrench [1/8, (10 x 10)] : 1 pc. each</td>
<td></td>
<td>7.94 lb</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>HPS06</td>
<td>HPS500-BT30C</td>
<td>• Collet at 1/4&quot; (CH4-3.175) • Collet Nut (CH4-4) • Wrench [1/8, (10 x 10)] : 1 pc. each</td>
<td></td>
<td>7.94 lb</td>
<td></td>
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</tbody>
</table>

Air Motor Spindle : 80,000 rpm

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<th>Type</th>
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<th>Accessories</th>
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<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>HPS10</td>
<td>HPS500-CAT40A</td>
<td>• Collet at 1/4&quot; (CH4-3.175) • Collet Nut (CH4-4) • Wrench [1/8, (10 x 10)] : 1 pc. each</td>
<td></td>
<td>7.94 lb</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>HPS11</td>
<td>HPS500-CAT40B</td>
<td>• Collet at 1/4&quot; (CH4-3.175) • Collet Nut (CH4-4) • Wrench [1/8, (10 x 10)] : 1 pc. each</td>
<td></td>
<td>7.94 lb</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>HPS12</td>
<td>HPS500-CAT40C</td>
<td>• Collet at 1/4&quot; (CH4-3.175) • Collet Nut (CH4-4) • Wrench [1/8, (10 x 10)] : 1 pc. each</td>
<td></td>
<td>7.94 lb</td>
<td></td>
</tr>
</tbody>
</table>

---

**Note:**

1. Compressed Position / 2: Free Position

---

*Call NSK America at 800-585-4675 for the correct HPS Spindle for your machines builder and model.*

---

*For dimensions of taper shanks, please see page 4-p30.

*Order by catalog number. 4-p27*
The AL-M1202 provides simple, automatic conditioning of the air supplied to NAKANISHI Air Motors. The filter removes water and impure substances from the input air supply. The regulator maintains the proper air pressure, and the lubricator ensures proper oil flow to the motor and spindle. This Air Line Kit is wall mountable.

**Positioning Block**

- **Generic Block** +Sub-plate to be prepared by the end-user to adjust distance between gauge line and spindle flange.
- **Special Block for Haas Machines**
- **Special Block for Fanuc Machines**
- **Customized Special Block** to be designed for your machine

**LUBRICATING OIL**

Chevron Superla #9 lubrication oil, available from NSK America, is highly recommended for use with the above air line kits.

---

**PRODUCTS**

**PARTS**

**INDEX**
The AL-M1202 provides simple, automatic conditioning of the air supplied to NAKANISHI Air Motors. The filter removes water and impure substances from the input air supply. The regulator maintains the proper air pressure, and the lubricator ensures proper oil flow to the motor and spindle. This Air Line Kit is wall mountable.

**Product Details:**
- **Model:** AL-M1202
- **Features:**
  - Air Filter
  - Air Regulator
  - Air Pressure Gauge
  - Lubricator
  - Air ON-OFF Valve
  - Hose for Piping (K-275) : 6 ft
- **Accessories:**
  - Lubricating Oil (K-202) : 1 pc.

**Applications:**
- For models with a 6 mm hose.

**Technical Specifications:**
- Filter Mesh: 0.3 µm

**Order by Catalog Number:**
- 4-p28

**Lubricating Oil:**
- Chevron Superla #9 lubrication oil, available from NSK America, is highly recommended for use with the above air line kits.

**Product Catalogue:**
- **Model:** AL-M1202
- **Product Price:**
  - High Flow Regulator: $19.29
  - Low Oil Level Warning Alarm: $12.60

**Order Information:**
- Please consult your NSK representative for special blocks and customized solutions.

---

**Control System Chart**

- **Main Spindle**
  - Air Hose
  - Air Valve
  - Air Line Kit
  - AL-M1202 / AL-M1203BS2

- **CNC Unit**
  - Solenoid Valve (DC 24V)
  - Alarm

- **Positioning Block**
  - Generic Block + Sub-plate to be prepared by the end-user to adjust distance between gauge line and spindle flange.
  - Special Block for Haas Machines
  - Special Block for Fanuc Machines
  - Customized Special Block

---

**Positioning Block**

- **Generic Block**
  - BLC1: GB30
  - BLC2: GB40

- **Special Block for Haas Machines**
  - Block for BT30 Taper: BLC3
  - Block for CAT40 Taper: SBHS

- **Special Block for Fanuc Machines**
  - Block for Robodrill: BLC4

- **Customized Special Block**
  - to be designed for your machine

---

**Lubricating Oil**

- **Chevron Superla #9**
  - Available from NSK America
  - Order by catalog number.
**Taper Shanks**

### Taper Shanks Dimensions

#### 30

- **BT30**
- **NT30 (M)**

#### 40

- **BT40**
- **NT40 (M)**

#### 50

- **BT50**
- **NT50 (M)**

#### HSK A63

- **HSK A63**

#### HSK A100

- **HSK A100**
### Taper Shanks Dimensions

#### 30

<table>
<thead>
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<th>Taper Shank</th>
<th>Dimensions</th>
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<tbody>
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<td>BT30</td>
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<tr>
<td>NT30 (A1)</td>
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#### 40

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<td>BT40</td>
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#### 50

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#### HSK A63

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#### HSK A100

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</table>
TAPER SHANKS

Taper Shanks Dimensions

ST32

R8

ST 32

R 8

ST32

R8

Taper Shanks Dimensions

ST32

R8

Taper Shanks Dimensions
JIG GRINDER SOLUTIONS

PLANET Series
Air System

PLANET 600

65,000 min⁻¹ (rpm)

- Turns a Milling Machine into a Jig Grinding Machine, a Lathe into Internal Grinding Machine.
EASILY MOUNTED ON AVAILABLE BORING HEAD.
Typical application example of jig grinding after material hardening.

PLANET Series Features

- The PLANET 600 System has an adapted air exhaust system that keeps noise to a minimum.
- Excellent performance at a relatively low cost.
- Turns a milling machine or machining center into a Jig Grinding machine when attaching a standard adjustable boring head to the machine and utilizing the PLANET 600.
- When mounted in a turning center, the PLANET 600 can be used as a precision internal grinder.
- Can be used as a high speed grinder in specialty built machines.
- Collets ranging from 0.5mm thru 6.35mm are available to accommodate all the most common tool shanks.

Special Built-In type high speed bearings will withstand extended periods of operation.
Ultra Precision ball bearing technology has been developed due to several years of cooperative studies between Nakanishi and several major bearing manufacturers.

PLANET Series Connection Drawing
Clean, lubricated, and regulated air is required for PLANET Series spindles. Please refer to the diagram to the right for proper connections. AL-M1202 incorporates a filter, regulator and lubricator to provide the appropriate air.
PLANET 600

**Straight Shank : ø20mm, ø3/4"**

- Makes Jig Grinding possible for small and large diameter holes (~ ø2.76"").

**Processable Range**

<table>
<thead>
<tr>
<th>Maximum</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø2.76&quot;</td>
<td>65,000 min⁻¹ (rpm)</td>
</tr>
<tr>
<td>Ø2.36&quot;</td>
<td>65,000 min⁻¹ (rpm)</td>
</tr>
<tr>
<td>Ø0.63&quot;</td>
<td>65,000 min⁻¹ (rpm)</td>
</tr>
</tbody>
</table>

**Note:** CHK Collet is sold separately.

---

**Specifications:**

- **Speed:** 65,000 min⁻¹ (rpm)
- **Air Input:** Side Air Supply
- **Proper Air Pressure:** 58 PSI
- **Air Consumption:** 6.18 CFM
- **Spindle Accuracy:** Within 1 µm
- **Hose Diameter (Air Intake):** ø6 mm (O.D.)
- **Collet (CHK-[]):** ø0.5 mm – ø6.35 mm
- **Collet Nut:** K-265
- **Max. Grindstone Diameter:** ø0.63"
- **Max. Processable Diameter:** ø2.76"
- **Max. Processable Depth:** ø2.36"

---

**CAT. No.**

<table>
<thead>
<tr>
<th>Shank øD</th>
<th>Model</th>
<th>Standard Equipment - Accessories</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ø20mm x 1.57&quot;</td>
<td>PL600-M2040</td>
<td>Collet Nut (K-265) : 1 pc.</td>
<td>3 lb.13.38 oz.</td>
<td></td>
</tr>
<tr>
<td>ø3/4&quot; x 1.57&quot;</td>
<td>PL600-H3440</td>
<td>Collet Nut (K-265) : 1 pc. Intake Air Hose (K-254) with Filter Joint (FJ-01) : ø6 mm x 6 ft : 1 pc. Silencer : 1 pc. Anti-Rotation Bar : 1 set Wrench (12 x 14) : 2 pcs.</td>
<td>3 lb.13.20 oz.</td>
<td></td>
</tr>
</tbody>
</table>

---

PLANET Series can be used in conjunction with water or oil based coolants.
The AL-M1202 provides simple, automatic conditioning of the air supplied to NAKANISHI Air Motors. The filter removes water and impure substances from the input air supply. The regulator maintains the proper air pressure, and the lubricator ensures proper oil flow to the motor and spindle. This Air Line Kit is wall mountable.

### LUBRICATING OIL

#### Lubricating Oil (4 oz.)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA10478</td>
<td>K-211</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Lubricating Oil (32 oz.)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA10480</td>
<td>K-202</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Procedures for Grindstone Dressing
With the PLANET 600 affixed to the machine spindle, clamp the Dressing unit to the machines table, close to the grindstone to be dressed. Turn the knob to advance the diamond toward the grindstone (0.03mm per graduation). Move the grindstone slowly up and down until full contact is achieved over the entire surface of the grindstone O.D.

As precaution for the dressing, start dressing at a low speed in the beginning (air pressure 22PSI~36PSI), and finish with a high-speed rotation.

Natural Diamond Single Stone Dresser (for KMD-8 Adjustable Infeed Dressing Unit)

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Carat</th>
<th>External Diameter (mm)</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Diamond Single Stone</td>
<td>Dresser</td>
<td>PL57551</td>
<td>—</td>
<td>1/4 (0.25ct)</td>
<td>ø75</td>
<td></td>
</tr>
<tr>
<td>Natural Diamond Single Stone</td>
<td>Dresser</td>
<td>PL57552</td>
<td>—</td>
<td>1/2 (0.5ct)</td>
<td>ø150~ø200</td>
<td></td>
</tr>
<tr>
<td>Natural Diamond Single Stone</td>
<td>Dresser</td>
<td>PL57553</td>
<td>—</td>
<td>3/4 (0.75ct)</td>
<td>ø255~ø300</td>
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</tr>
<tr>
<td>Natural Diamond Single Stone</td>
<td>Dresser</td>
<td>PL57554</td>
<td>—</td>
<td>1ct</td>
<td>ø300~ø355</td>
<td></td>
</tr>
</tbody>
</table>
**AIR BEARING SPINDLE**

**Xpeed Series**

**Air Turbine**

**Xpeed 1600**

160,000 min⁻¹ (rpm) Output: 56W

Outside Diameter ø1.57" (ø40 mm)

**Xpeed 1200**

120,000 min⁻¹ (rpm) Output: 192W

Outside Diameter ø2.56" (ø65 mm)

---

**AIR BEARING Xpeed Series**

- Ideal for extremely high precision, small diameter machining applications.
- Air bearings use compressed air blown into a small gap between the spindle and the bearing surface. The spindle floats on an even cushion of compressed air. This non-contact type of bearing means the spindle has a very long service life because of low friction and wear; it also means that the spindle generates almost no heat or vibration.
- The spindle and bearing are finished with a very high-accuracy process to ensure extremely low vibration and very high rotating accuracy.

**Xpeed Series Connection Drawing**

The Xpeed Series motor and spindle require dry, clean, regulated air. Please refer to the drawing for proper components.
Xpeed Series can be used in conjunction with water or oil based coolants.

**Dimensions shown on this page are all in metric (mm). Please divide them by 25.4 for conversion to inch.**

**Note:**  in conjunction with water or oil based coolants.

---

**Specifications**

- Spindle Accuracy: Within 1 µm
- Main body mount method: Flange mounting method,
  - M6 bolt (9 locations, 45° Angle, PDC47)
- Bearing Type: Static Air Bearing
- Proper Air Pressure for Air Bearing: 87 PSI
- Air Consumption for Air Bearing: 8.7 CFM
- Proper Air Pressure for Air Turbine: 22-65 psig
- Air Consumption for Air Turbine: 5.65 CFM
- Bearing Load Capacity: Radial: Less than 25N, Thrust: Less than 70N
- (Bearing Air supply pressure 87 PSI)
- Useable Max. Diameter of Grinding Stone: Less than ø2.0 mm (For ø4.0 mm Shank)
- Hose Diameter: Bearing supply ø4 mm (2 locations)
- Turbine Air supply ø4 mm (2 locations)
- Others: Detection of Rotation Speed Mark

---

**Optional Equipment / Accessories**

- Collet (CHK-4.0AA) ø4.0 mm (CHA-4.0AA)  • Collet Nut (CHN-3A)
- ø6 mm Plug : 2 pcs.  • ø4 mm Plug : 4 pcs.  • Steped Test Bar (ø2.0 mm x ø4.0 mm x 34L) : 1 pc.
- Torque Wrench (10 mm) : 1 pc.  • Allen Wrench (3 mm) : 1 pc.  • Hexagon Socket Button Head Bolt (ø6 x ø8L) : 1 pc.
- Gauge (for NPS) : 1 pc.

---

**Applications / Examples**

- Caution
  - Always supply clean, dry air to the bearing surfaces even when the spindle is not being rotated.

---

**Order by catalog number.**

---

**Specifications**

- Spindle Accuracy: Within 1 µm
- Main body mount method: Flange mounting method,
  - M6 bolt (9 locations, 90° Angle, PCD75)
- Bearing Type: Static Air Bearing
- Proper Air Pressure for Air Bearing: 87 PSI
- Air Consumption for Air Bearing: 3.0 CFM
- Proper Air Pressure for Air Turbine: 35-75 PSI
- Air Consumption for Air Turbine: 90 PSI
- Bearing Load Capacity: Radial: Less than 25N, Thrust: Less than 70N
- (Bearing Air supply pressure 87 PSI)
- Useable Max. Diameter of Grinding Stone: Less than ø2.0 mm (For ø4.0 mm Shank)
- Hose Diameter: Bearing supply ø4 mm (2 locations)
- Break Air supply ø4 mm (2 locations)
- Turbine Air supply ø4 mm (2 locations)
- Others: Detection of Rotation Speed Mark

---

**Optional Equipment / Accessories**

- Collet (CHK-4.0AA) ø4.0 mm, ø1/8", ø4.0 mm, ø1/4" (See Page 6-p3 for details)

---

**Applications / Examples**

- Caution
  - Air bearing spindles require clean dry air for proper operation.
  - Never rotate the spindle, change cutting tools or collet without supplying clean, dry air to the bearing surfaces.
  - Always supply clean, dry air to the bearing surfaces even when the spindle is not being rotated.
  - Do not start work process until after stable rotation has been established and verified.
**Xpeed SERIES** SPINDLE

Xpeed Series can be used in conjunction with water or oil based coolants.

**CAT. No.** 1855
**Xpeed1600** O. D. ø1.57" (ø40 mm) <Output 56W>
160,000 min⁻¹ (rpm)

- **Speed**
  - 80,000 min⁻¹ (rpm)
  - 90,000 min⁻¹ (rpm)

- **Max. Output**
  - 56W

- **Weight**
  - 9 lb. 2.34 oz.

- **Price**
  - Call For Details. (Factory Direct)

**Specifications**
- **Spindle Accuracy**: Within 1 µm
- **Bearing Type**: Static Air Bearing
- **Proper Air Pressure for Air Bearing**: 87 PSI
- **Main-bolt Mounting Method**: Flange mounting method,
  - 80 bolt (8 locations, 45˚ Angle, PDC47)
- **Proper Air Pressure for Air Turbine**: 22~65 psi
- **Air Consumption for Air Bearing**: 1.41 CFM
- **Bearing Load Capacity**: Radial: Less than 25N, Thrust: Less than 70N
- **Proper Air Pressure for Air Turbine**: 10,000 RPM
- **Air Consumption for Air Turbine**: 5.65 CFM
- **Useable Max. Diameter of Grinding Stone**: Less than ø2.0 mm (For ø4.0 mm shank)
- **Hose Diameter**: Bearing Supply ø4 mm (2 locations)

**Optional**
- Collet (CHA-4.0): ø0.75", ø0.79", ø0.897" (CHA-4.0AA)
- Collet Nut (CHN-3A)
- ø4 mm Hose (transparent 6 ft): 1 pc.
- ø6 mm Hose (blue 6 ft): 1 pc.
- ø6 mm Plug: 2 pcs.
- ø4 mm Plug: 2 pcs.
- Stepped Test Bar (ø2.0 mm x ø4.0 mm x 34L): 1 pc.
- Bar Wrench (K-277): 1 pc.
- Torque Wrench (10 mm): 1 pc.
- Allen Wrench (2 mm): 1 pc.
- Hexagon Socket Button Head Bolt (M3 x 5L): 1 pc.
- Gasket (for M3): 1 pc.

---

**CAT. No.** 1854
**Xpeed1200** O. D. ø2.56" (ø65 mm) <Output 192W>
120,000 min⁻¹ (rpm)

- **Speed**
  - 80,000 min⁻¹ (rpm)
  - 90,000 min⁻¹ (rpm)

- **Max. Output**
  - 192W

- **Weight**
  - 12 lb. 1.13 oz.

- **Price**
  - Call For Details. (Factory Direct)

**Specifications**
- **Spindle Accuracy**: Within 1 µm
- **Bearing Type**: Static Air Bearing
- **Proper Air Pressure for Air Bearing**: 87 PSI
- **Main-bolt Mounting Method**: Flange mounting method,
  - 80 bolt (8 locations, 90˚ Angle, PDC75)
- **Proper Air Pressure for Air Turbine**: 22~75 psi
- **Air Consumption for Air Bearing**: 2.83 CFM
- **Bearing Load Capacity**: Radial: Less than 25N, Thrust: Less than 70N
- **Proper Air Pressure for Air Turbine**: 10,000 RPM
- **Air Consumption for Air Turbine**: 10.60 CFM
- **Useable Max. Diameter of Grinding Stone**: Less than ø2.0 mm (For ø4.0 mm shank)
- **Hose Diameter**: Bearing Supply ø4 mm (2 locations)

**Optional**
- Collet (CHA-4.0): ø0.75", ø0.79", ø0.897" (CHA-4.0AA)
- Collet Nut (CHN-3A)
- ø4 mm Hose (transparent 6 ft): 1 pc.
- ø6 mm Hose (blue 6 ft): 1 pc.
- ø6 mm Plug: 6 pcs.
- Stepped Test Bar (ø2.0 mm x ø4.0 mm x 34L): 1 pc.
- Wrench (12 x 14): 1 pc.
- Torque Wrench (10 mm): 1 pc.
- Allen Wrench (2 mm): 1 pc.
- Hexagon Socket Button Head Bolt (M3 x 5L): 1 pc.

---

**Caution**
- Air bearing spindles require clean dry air for proper operation.
- Never rotate the spindle, change cutting tools or collet without supplying clean, dry air to the bearing surfaces.
- Always supply clean, dry air to the bearing surfaces even when the spindle is not being rotated.
- Do not start work process until after stable rotation has been established and verified.

**Order by catalog number.** 4-p37

---

Call NSK America at 800-585-4675 for the correct Xpeed Spindle for your machines builder and model.
**Xpeed SERIES** AIR LINE KIT

### AIR LINE KIT AL-A0611

- The AL-A0611 is a high filtered Air Line Kit utilizing a *0.01µm micro mist filter system.
- This Air Line Kit is highly recommended for use on all Xpeed Series Air Turbine / Air Bearing motor/spindles.
- Exterior screw Type (Model KK13P-02M by SMC Corporation)

#### Air Line Kit (For ø6 mm Hose · Filter Mesh 0.01 µm)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment · Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1548</td>
<td>AL-A0611</td>
<td>Mist Separator · Micro Mist Separator · Membrane Air Dryer · Regulator · Solenoid Valve · Digital Pressure Switch</td>
<td></td>
</tr>
</tbody>
</table>

**Fit to**

- Spindle: Xpeed1600 · Xpeed1200

### AIR LINE KIT AL-A1205

- This unit is also designed for use on Air Turbine / Air Bearing Motor/Spindles such as the Xpeed1600. One air output drives the Air Turbine Motor. The other air output drives the Air Bearing Spindle.
- Always supply air to the Air Bearing Spindle before starting the Air Turbine Motor. When stopping the spindle, always stop the Air Turbine Motor before removing the air from the Air Bearing Spindle.

#### Air Line Kit (For ø6 mm Hose · Filter Mesh 0.3 µm)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment · Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4505</td>
<td>AL-A1205</td>
<td>Air Filter · Air Regulator · Air Pressure Gauge · Air ON-OFF Valve · Hose for Piping (K-275) : 6 ft</td>
<td></td>
</tr>
</tbody>
</table>

**Fit to**

- Spindle: Xpeed1600

*Order by catalog number.*
**Features**

- Ideal for extremely high precision, small diameter machining applications.
- Air bearings use compressed air blown into a small gap between the spindle and the bearing surface. The spindle floats on an even cushion of compressed air. This non-contact type of bearing means the spindle has a very long service life because of low friction and wear; it also means that the spindle generates almost no heat or vibration.
- The spindle and bearing are finished with a very high-accuracy process to ensure extremely low vibration and very high rotating accuracy.
- The ABT Series are equipped with a Rotational Speed Detection Sensor. When in operation, a digital pulse signal representing the RPM can be output. The rotation speed and load condition can be monitored using a high performance, locally available speed meter.

---

**Principle of Air Bearing**

- **Nozzle**
- **Air**
- **Spindle**

---

**ABT Series Connection Drawing**

The ABT Series motor and spindle require dry, clean, regulated air. Please refer to the drawing for proper components.
### APPLICATION EXAMPLES

- **EmaxEVO**
- **ESPERT**
- **ROTUS**
- **IMPULSE II**
- **SHEENUS neo**
- **SONIC CUTTER**

### Technical Data

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Speed</th>
<th>Max. Output</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1856</td>
<td>ABT-1000</td>
<td>100,000 min⁻¹(rpm)</td>
<td>88W</td>
<td>1 lb. 12.92 oz.</td>
<td></td>
</tr>
</tbody>
</table>

**Standard Equipment - Accessories**

- Collet ø1/8” (CHA-3.175)
- Collet Nut (CHN-3A)
- Test Bar (ø3.0 mm x 40L) : 1 pc.
- Bar Wrench (K-277) : 1 pc.
- Wrench (10 x 10) : 1 pc.
- Allen Wrench (2 mm) : 1 pc.
- Hexagon Socket Button Head Bolt (M3 x 5L) : 1 pc.
- Gasket (for M3 Screw) : 1 pc.
- Protective Cover : 1 pc.
- Connection Joint (KQ2S06-M5N) : 3 pcs.
- Connection Joint (M-5P) : 1 pc.
- Cap (K1020A223) : 1 pc.

**Note:** Dimensions shown on this page are in metric (mm). Please divide them by 25.4 for conversion to inch.

**Caution:**

- Air bearing spindles require clean dry air for proper operation.
- Never rotate the spindle, change cutting tools or collet without supplying clean, dry air to the bearing surfaces.
- Always supply clean, dry air to the bearing surfaces even when the spindle is not being rotated.
- Do not start the machine process until after stable rotation has been established and verified.

---

**Specifications**

- **Spindle Accuracy:** Within 1 µm
- **Standard Size Collet (CHA-3.175):** ø1/8”
- **Main Body Mount Method:** Outside Mounting Diameters clamp method
- **Bearing Type:** Static Air Bearing
- **Proper Air Pressure for Air Bearing:** 80 PSI
- **Air Consumption for Air Bearing:** Less than 1.77 CFM
- **Proper Air Pressure for Air Turbine:** 80 PSI
- **Air Consumption for Air Turbine:** 4.24 CFM
- **Bearing Load Capacity:**
  - Radial: Less than 20N
  - Thrust: Less than 35N
  - (Bearing Air supply pressure 80 PSI)
- **Useable Max. Diameter of Grindstone:** Less than ø2.0 mm (For ø4.0 mm shank)
- **Hose Diameter:**
  - Bearing Supply ø6 mm (1 location)
  - Turbine Air supply ø6 mm (2 locations)
- **Others:**
  - Rotational Speed Detection Sensor with 5 meter cable

---

**Optional**

- Collet (CHA-3.175): ø0.5 mm – ø4.0 mm (See Page 6-p2 for details)
The AL-A0611 is a high filtered Air Line Kit utilizing a *0.01µm micro mist filter system.

This Air Line Kit is highly recommended for use on all ABT Series Air Turbine / Air Bearing motor/spindles.

*Exterior screw Type (Model KK13P-02M by SMC Corporation)

Air Line Kit (For ø6 mm Hose · Filter Mesh 0.01 µm)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment - Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1548</td>
<td>AL-A0611</td>
<td>• Mist Separator • Micro Mist Separator • Membrane Air Dryer • Regulator • Solenoid Valve • Digital Pressure Switch</td>
<td></td>
</tr>
</tbody>
</table>

Fit to

| Spindle ABT-1000 |

This unit is also designed for use on Air Turbine / Air Bearing Motor/Spindles such as the ABT Series. One air output drives the Air Turbine Motor. The other air output drives the Air Bearing Spindle.

Always supply air to the Air Bearing Spindle before starting the Air Turbine Motor. When stopping the spindle, always stop the Air Turbine Motor before removing the air from the Air Bearing Spindle.

Air Line Kit (For ø6 mm Hose · Filter Mesh 0.3 µm)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment - Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4505</td>
<td>AL-A1205</td>
<td>• Air Filter • Air Regulator • Air Pressure Gauge • Air ON-OFF Valve • Hose for Piping (K-275) : 6 ft</td>
<td></td>
</tr>
</tbody>
</table>

Fit to

| Spindle ABT-1000 |
AIR LINE KIT
FOR HAND WORK / MACHINE SPINDLES

FOR HAND WORK

- AIR LINE KIT AL-H1206
- AIR LINE KIT AL-H1207F
- FOOT CONTROL AFC-45
  + Use Air Line Kit AL-H1207F, CAT. No. 4687 with this foot control.

FOR MACHINE SPINDLES

- AIR LINE KIT AL-C1204
- AIR LINE KIT AL-A1205
- AIR LINE KIT AL-M1202
- AIR LINE KIT AL-A0611
- AIR LINE KIT AL-M1203BS2

AIR BRANCHING JOINT

- AIR BRANCHING JOINT DJ-6

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AIR LINE KIT
PARTS
TECHNICAL DATA
When using Air Motors, be sure to install either an NSK Air Line Kit shown below or a similar Air Line Kit system. To ensure the longevity of Air Motors and Spindles, proper lubrication and air pressure are very important.

**FOR MACHINE SPINDLES**

- **The AL-C1204 Air Line Kit is designed to deliver clean, dry air to NAKANISHI Air Motors via the Control Unit. The filter removes small amounts of debris while the adjustable regulator provides the correct air pressure for cooling and purging.**

**FOR HAND WORK**

- **Air Line Kit**
  - **AL-C1204**
    - **CAT. No.** 4506
    - **AIR LINE KIT**
    - **AL-H1206** (Automatic Lubricating Device)
    - Supplies smooth air flow and automatic lubrication, ensuring stable speed and power.
    - The Filter, Lubricator and Regulator can be used to adjust motor speed.
    - Adjustable lubrication and air pressure setting provides longevity to the Air Grinder.
    - Nozzle for grinding and polishing applications. This compact Air Line Kit allows for portability or stationary mounting as well as a carrier for the impulse.

- **Air Line Kit (For ø6 mm Hose Filter Mesh 5 µm)**
  - **CAT. No.** 4507
  - **AIR LINE KIT**
  - **AL-H1207F** (For Rotus System)
  - Supplies smooth, conditioned air flow and automatic lubrication to ensure stable speed and power.
  - The Filter, Lubricator and Regulator can be used to adjust motor speed.
  - Adjustable lubrication and air pressure setting provides longevity to the Air Grinder.
  - Its compact size allows for portability or stationary mounting.
  - Unit includes a Tool Holder to store the Rotus Motor.

- **Air Line Kit (For ø6 mm Hose Filter Mesh 5 µm)**
  - **CAT. No.** 4503
  - **AIR LINE KIT**
  - **AL-M1203BS2** (For Air Motors)
  - The AL-M1203BS2 is equipped with 2 (DC+24V) Air Solenoids, a large capacity filter, large capacity oil reservoir, high flow regulator and a low oil level warning alarm, making this unit ideal for use on CNC machines. This Air Line Kit allows for the operation of 2 Air Motors.

*Order by catalog number.*
When using Air Motors, be sure to install either an NSK Air Line Kit shown below or a similar Air Line Kit system.

**The ROLE OF AIR LINE KIT**

The Air Line Kit is designed to trap small amounts of moisture, debris and rust from the incoming air from the compressor. This provides a stable and accurate air supply through the regulator. The lubricator then meters the correct amount of lubricating oil to the air motor and spindle to ensure efficiency and longevity.

**FOR MACHINE SPINDLES**

**AIR LINE KIT**

When using Air Motors, be sure to install either an NSK Air Line Kit shown below or a similar Air Line Kit system.

**FOR MACHINE SPINDLES**

**AIR LINE KIT**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>AIR LINE KIT</th>
<th>AL-C1204 (For Electric Motors)</th>
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<tbody>
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**FOR HAND WORK**

**AIR LINE KIT**

<table>
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<th>CAT. No.</th>
<th>AIR LINE KIT</th>
<th>AL-H1206 (Automatic Lubricating Device)</th>
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<tr>
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<th>AIR LINE KIT</th>
<th>AL-H1206F (For Rotus System)</th>
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<th>FOOT CONTROL</th>
<th>AFC-45</th>
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**FOR MACHINE SPINDLES**

**AIR LINE KIT**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>AIR LINE KIT</th>
<th>AL-M1202 (For Air Motors)</th>
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<thead>
<tr>
<th>CAT. No.</th>
<th>AIR LINE KIT</th>
<th>AL-M1203BS2 (For Air Motors)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

**AIR LINE KIT**

<table>
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<th>AIR LINE KIT</th>
<th>AL-H1207F (For Rotus System)</th>
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**AIR LINE KIT**

<table>
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<tr>
<th>CAT. No.</th>
<th>AIR LINE KIT</th>
<th>AL-M1203BS2 (For Air Motors)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The AL-A1205 is a dual output dry air, Air Line Kit designed for use on Electric Motor Systems that use the NRAF-5080 Air Bearing Spindle and the NE211 (E3000) Control Unit. One output is for the Electric Motor cooling, and the second output is for the Air Bearing Spindle operation. This unit is also designed for use on Air Turbine / Air Bearing Motor/Spindles such as the ABT Series. One air output drives the Air Turbine Motor. The other air output drives the Air Bearing Spindle.

- Always supply air to the Air Bearing before starting the EM-3080 Motor. When stopping the spindle, always stop the motor before removing the air from the Air Bearing Spindle.
- Please use with the AL-M1203BS2 High Volume, High Capacity Air Line Kit.

The AL-A0611 is a high filtered Air Line Kit utilizing a 0.01 µm micro mist filter system for NRAF-5080 Air Bearing Spindles combined with the NE211 (E3000) Control Unit.

- This Air Line Kit is highly recommended for use on all Xpeed Series Air Turbine / Air Bearing motors/spindles.
- Exterior screw Type (Model KK13P-02M by SMC Corporation)

Air Line Kit (For ø6 mm Hose) Filter Mesh 0.3 µm

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4505</td>
<td>AL-A1205</td>
<td>- Air Filter * Air Regulator * Air Pressure Gauge</td>
<td>- Air On-Off Valve * Hose for Piping (K-275) : 6 ft.</td>
<td></td>
</tr>
</tbody>
</table>

11.81” 10.34”

Air Line Kit (For ø6 mm Hose) Filter Mesh 0.01 µm

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1548</td>
<td>AL-A0611</td>
<td>- Air Filter * Micro Mist Separator * Membrane Air Dryer * Regulator * Solenoid Valve * Digital Pressure Switch</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17.53” 18.70”

LUBRICATING OIL

Lubricating Oil (4 oz.)

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA10478</td>
<td>K-211</td>
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<td></td>
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</tbody>
</table>

Lubricating Oil (32 oz.)

<table>
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<th>CAT. No.</th>
<th>Model</th>
<th>Product</th>
<th>Price</th>
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<tbody>
<tr>
<td>AA10480</td>
<td>K-202</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The following products need Lubricating oil to use the AIR LINE KIT.

- ROTOUS - MS Series
- RPMUSGE - MA Series
- HPS Series

- Order by catalog number.
AIR LINE KIT

**Cat. No. 4505 AIR LINE KIT AL-A1205 (For Air Bearing Spindles)**

- The AL-A1205 is a dual output dry air, Air Line Kit designed for use on Electric Motor Systems that use the NRAF-5080 Air Bearing Spindle and the NE211 (E3000) Control Unit. One output is for the Electric Motor cooling, and the second output is for the Air Bearing operation. This unit is also designed for use on Air Turbine / Air Bearing Motor/Spindles such as the ABT Series. One air output drives the Air Turbine Motor. The other air output drives the Air Bearing Spindle.
- Always supply air to the Air Bearing before starting the EM-1080 Motor. When stopping the spindle, always stop the motor before removing the air from the Air Bearing Spindle.
- Always supply air to the Air Bearing Spindle before starting the Air Turbine Motor. When stopping the spindle, always stop the Air Turbine Motor before removing the air from the Air Bearing Spindle.

**Air Line Kit (For ø6 mm Hose Filter Mesh 0.3 µm)**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4505</td>
<td>AL-A1205</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fit to**

- Control Unit: NE211
- Spindle: NRAF-5080

**Cat. No. 1548 AIR LINE KIT AL-A0611 (For Air Bearing Spindles)**

- The AL-A0611 is a high filtered Air Line Kit utilizing a *0.01µm micro mist filter system for NRAF-5080 Air Bearing Spindles combined with the NE211 (E3000) Control Unit.
- This Air Line Kit is highly recommended for use on all Xpeed Series Air Turbine / Air Bearing motor/spindles.
- Exterior screw Type (Model KK13P-02M by SMC Corporation)

**Air Line Kit (For ø6 mm Hose Filter Mesh 0.01 µm)**

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Standard Equipment</th>
<th>Accessories</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1548</td>
<td>AL-A0611</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fit to**

- Control Unit: NE211
- Spindle: NRAF-5080 / Xpeed1600 / Xpeed1200

**Cat. No. AS02051 AIR BRANCHING JOINT DJ-6**

- It is essential to run air motors with Air Line Kits to ensure proper air pressure and lubrication. This branching joint is designed to supply even, compressed air and oil for 3 to 6 air motors where installation of individual air kits is not feasible.
- The intake hose size is ø12 mm and the exhaust hose size is ø6 mm.
- Please use with the AL-M1203BS2 High Volume, High Capacity Air Line Kit.

**LUBRICATING OIL**

- The following products need Lubricating oil to use the AIR LINE KIT.
- Order by catalog number.

<table>
<thead>
<tr>
<th>CAT. No.</th>
<th>Model</th>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA10478</td>
<td>K-211</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA10480</td>
<td>K-202</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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Collet Nut .......................................................... 6-p6~6-p7
Motor Cord ....................................................... 6-p8~6-p9
Foot Pedal & Handpiece Stand etc. ..................... 6-p9
Parts for Air Turbine & FINE BELT SANDER ........... 6-p10
Oil, Grease & Silencer ........................................ 6-p11
Hose ................................................................. 6-p12~6-p13
Metal Fitting, Filter Joint & Grindstone Flange etc. 6-p13
Special Arbor .................................................... 6-p14~6-p15
Wrench ............................................................... 6-p16~6-p17
Grip Ring, Split Bushing ...................................... 6-p18~6-p19
APPLICATION EXAMPLES

EmaxEVO
ESPERT
ROTUS
IMPULSE
PRESTO II
SHEENUS
neo
SONIC CUTTER

ø1.0”
ø0.98”
ø1.18”
MS
ø0.75” ø0.79”
ø0.87” ø0.91”
ø1.0” ø0.98”
ø0.897”

AIR LINE KIT

HES510
HES810
HTS
HPS
Xpeed

PARTS

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Collet .......................................................... 6-p2~6-p6
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Hose ........................................................... 6-p12~6-p13
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Special Arbor ................................................. 6-p14~6-p15
Wrench ......................................................... 6-p16~6-p17
Grip Ring, Split Bushing ................................. 6-p18~6-p19
### Parts > Collet

**CHA Group**

Fit to: K-263
: CHN-A

<table>
<thead>
<tr>
<th>Model</th>
<th>Inside Diameter d</th>
<th>Price</th>
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<tbody>
<tr>
<td>CHA-0.5</td>
<td>ø0.5</td>
<td>CHA-0.6</td>
</tr>
<tr>
<td>CHA-0.7</td>
<td>ø0.7</td>
<td>CHA-0.8</td>
</tr>
<tr>
<td>CHA-0.9</td>
<td>ø0.9</td>
<td>CHA-1.0</td>
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</table>

**CHC Group**

Fit to: K-300
: K-300
: K-300
: KC-3-000
: KC-3

<table>
<thead>
<tr>
<th>Model</th>
<th>Inside Diameter d</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>CHC-2.25</td>
<td>ø2.25</td>
<td>CHC-2.50</td>
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<tr>
<td>CHC-3.175</td>
<td>ø3.175</td>
<td>CHC-4.00</td>
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</table>

**CHK Group**

Fit to: K-265
: K-265

<table>
<thead>
<tr>
<th>Model</th>
<th>Inside Diameter d</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHK-0.5</td>
<td>ø0.5</td>
<td>CHK-0.6</td>
</tr>
<tr>
<td>CHK-0.7</td>
<td>ø0.7</td>
<td>CHK-0.8</td>
</tr>
<tr>
<td>CHK-0.9</td>
<td>ø0.9</td>
<td>CHK-1.0</td>
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**CHF Group**

Fit to: NM-301
: NM-301

<table>
<thead>
<tr>
<th>Model</th>
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<th>Price</th>
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</thead>
<tbody>
<tr>
<td>CHF-1.0</td>
<td>ø1.0</td>
<td>CHF-1.5</td>
</tr>
<tr>
<td>CHF-2.0</td>
<td>ø2.0</td>
<td>CHF-2.5</td>
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**CHG Group**

Fit to: NM-301
: NM-301

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<th>Model</th>
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<th>Price</th>
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</thead>
<tbody>
<tr>
<td>CHG-0.8</td>
<td>ø0.8</td>
<td>CHG-1.0</td>
</tr>
<tr>
<td>CHG-1.1</td>
<td>ø1.1</td>
<td>CHG-1.2</td>
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**CHH Group**

Fit to: JR-310
: JR-310

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<th>Inside Diameter d</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>CHH-1.0</td>
<td>ø1.0</td>
<td>CHH-1.5</td>
</tr>
</tbody>
</table>

---

*Order by catalog number.

---

**Indicates Hand Grinder use**

---

**Indicates Machine Spindle use**

---

**Note:** Order by catalog number.
### Parts > Collet

#### CHA Group

- **Model**: Inside Diameter d
- **Cat. No.**: Price
- **Fit to**: K-263

#### CHC Group

- **Model**: Inside Diameter d
- **Cat. No.**: Price
- **Fit to**: K-265

#### CHK Group

- **Model**: Inside Diameter d
- **Cat. No.**: Price
- **Fit to**: K-266

#### CHF Group

- **Model**: Inside Diameter d
- **Cat. No.**: Price
- **Fit to**: K-267

#### CHG Group

- **Model**: Inside Diameter d
- **Cat. No.**: Price
- **Fit to**: K-268

#### CHH Group

- **Model**: Inside Diameter d
- **Cat. No.**: Price
- **Fit to**: K-269

---

**1. Specifications**

**2. Standards**

**3. Accessories**

**4. Attached Parts**

**5. Parts List**

---

**6. Parts**

- **7. Technical Data**

---

**8. Index**

---

*Indicates Hand Grinder use

*Indicates Machine Spindle use

---

**Order by catalog number.**
### CHM Group

<table>
<thead>
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<th>CAT. No.</th>
<th>Price</th>
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<td>CHM-0.8</td>
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<tr>
<td>CHM-0.9</td>
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<td>CHM-1.0</td>
<td>900102</td>
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<td>CHM-1.1</td>
<td>900103</td>
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<td>CHM-1.2</td>
<td>900104</td>
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<td>CHM-1.3</td>
<td>900105</td>
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<td>CHM-1.4</td>
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<td>CHM-1.5</td>
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<td>CHM-1.7</td>
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### CHS Group

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<td>CHS-0.9</td>
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<td>CHS-1.2</td>
<td>900904</td>
<td></td>
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<td>CHS-1.3</td>
<td>900905</td>
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<td>CHS-1.4</td>
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<td>CHS-1.5</td>
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<td>CHS-1.6</td>
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<td>CHS-1.7</td>
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### CH5 Group

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<td>CH5-1.0</td>
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<td>CH6-0.8</td>
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<td>CH6-0.9</td>
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### CHP Group

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<td>CHP-0.8</td>
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<tr>
<td>CHP-0.9</td>
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### CHR Group

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### CHS Group

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<th>CAT. No.</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>CHS-0.9</td>
<td>902001</td>
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<td>902002</td>
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### CHSS Group

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<th>Price</th>
</tr>
</thead>
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<tr>
<td>CHS-0.8</td>
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<tr>
<td>CHS-0.9</td>
<td>903001</td>
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<td>CHS-1.0</td>
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### CHRS Group

<table>
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<th>Price</th>
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<td>CHRS-0.9</td>
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### CH16 Group

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### CH20-16 Group

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</thead>
<tbody>
<tr>
<td>CH20-0.8</td>
<td>906000</td>
<td></td>
</tr>
</tbody>
</table>

---

* Indicating Hand Grinder use

---

* Indicates Machine Spindle use

---

Order by catalog number.
### Collet Nut CHN-A
- **Fit to:** CHN-E
- **Model:** ER16-UP / AR16-AA
- **Available in:** CHN-A, AR16-AA

### Collet Nut CHN-AA
- **Fit to:** CHA
- **Model:** ER16-UP / AR16-AA

### Collet Nut CHN-B (For EMS-6040/8040K)
- **Fit to:** CHK
- **Model:** EMS-6040 / EMS-8040K

### Collet Nut CHN-E
- **Fit to:** ER16-UP / AR16-AA

### Collet Nut CHN-L
- **Fit to:** CHL

### Collet Nut CHN-6
- **Fit to:** CHN-E
- **Model:** EMS-6040 / EMS-8040K

### Collet Nut CHN-02
- **Fit to:** CHS

### Collet Nut CHN-3A
- **Fit to:** CHA-AA

### Collet Nut K-635
- **Fit to:** CHAsk

### Collet Nut K-263
- **Fit to:** CHA

### Collet Nut K-265
- **Fit to:** CHK

### Collet Nut K-265A
- **Fit to:** CHK

### NKM6 Group (NK Micron Collet)
- **Fit to:** CHN-6

---

### Notes
- CKCA, K-253, and CHN-6 are available on the market.
- For a detailed list of models and specifications, please refer to the catalog.
### Parts: Collet & Collet Nut

#### ER16-UP / AR16-AA
- **Fit to:** CHN-E

#### Collet Nut CHN-A
- **Fit to:** CHA

#### Collet Nut CHN-6
- **Fit to:** CHN-6

#### Collet Nut CHN-B
- **Fit to:** CHA-AA

#### Collet Nut CHN-E
- **Fit to:** CH16

#### Collet Nut CHN-L
- **Fit to:** CHL

#### Collet Nut CHN-AA
- **Fit to:** CHA

#### Collet Nut CHN-3A
- **Fit to:** CHA-A

#### Collet Nut CHN-02
- **Fit to:** CH5

#### Collet Nut K-263
- **Fit to:** CHA

#### Collet Nut K-265
- **Fit to:** CHK

#### Collet Nut K-265A
- **Fit to:** CHK

### Specifications
- **Model Inside Diameter $d$:** Various values are listed, indicating different models and specifications.
- **Fit to:** Various categories are listed, such as CHA, CHN-E, and CHK.

### Notes
- Order by catalog number.
- Indicates Hand Grinder use.
- Indicates Machine Spindle use.
### < PARTS > MOTOR CORD

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Fit to</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>Emax EVOlution Motor Cord</td>
<td>Straight Cord : 4.5 ft (with Switch)</td>
<td>ENK-410S</td>
<td>ENK-410S</td>
<td>Standard Motor</td>
<td>ENK-410S (Standard Motor)</td>
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<tr>
<td></td>
<td>Cabled Cord : 4.5 ft (with Switch)</td>
<td>ENK-410C</td>
<td>ENK-410C</td>
<td>Standard Motor</td>
<td>ENK-410C (Standard Motor)</td>
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<tr>
<td></td>
<td>Straight Cord : 4.5 ft (with Switch)</td>
<td>ENK-410D</td>
<td>ENK-410D</td>
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<td>ENK-410D (Standard Motor)</td>
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<tr>
<td></td>
<td>Coiled Cord : 4.5 ft (with Switch)</td>
<td>ENK-410E</td>
<td>ENK-410E</td>
<td>Standard Motor</td>
<td>ENK-410E (Standard Motor)</td>
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<tr>
<td></td>
<td>Extension Cord : 10 ft</td>
<td>ENK-410F</td>
<td>ENK-410F</td>
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<td>ENK-410F (Standard Motor)</td>
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### < PARTS > FOOT PEDAL & HANDPIECE STAND ETC.

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<tbody>
<tr>
<td>ELEcTER E-max Motor Cord Adaptor</td>
<td>Motor Cord Adapter</td>
<td>ENK-401</td>
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<td>Standard Motor</td>
<td>ENK-401 (Standard Motor)</td>
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<tr>
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<td>ENK-402</td>
<td>ENK-402</td>
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<td>ENK-402 (Standard Motor)</td>
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### Handpiece Stand, Handpiece Holder & Head Cover

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<tr>
<td></td>
<td>Handpiece Stand</td>
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<td>ENK-401</td>
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<td>Handpiece Holder</td>
<td>ENK-402</td>
<td>ENK-402</td>
<td>Standard Motor</td>
<td>ENK-402 (Standard Motor)</td>
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<td></td>
<td>Head Cover</td>
<td>ENK-403</td>
<td>ENK-403</td>
<td>Standard Motor</td>
<td>ENK-403 (Standard Motor)</td>
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### <PARTS> MOTOR CORD

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<th>Price</th>
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<tbody>
<tr>
<td>Emax EVOlution Motor Cord</td>
<td>Straight Cord : 4.5 ft (with Switch), ENK-410S (Standard Motor)</td>
<td>8088</td>
<td>ENKCD-410S</td>
<td>ENK-410S (Standard Motor)</td>
<td>10 ft</td>
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<td>Straight Cord : 4.5 ft (with Switch), ENK-410S (Standard Motor)</td>
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<td>ENKCD-250T</td>
<td>ENK-250T (Torque Motor)</td>
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<td>Cabled Cord : 4.5 ft (with Switch), ENK-410S (Standard Motor)</td>
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<td>ENKCD-410C</td>
<td>ENK-410C (Standard Motor)</td>
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<td>Cabled Cord : 4.5 ft (with Switch), ENK-410S (Standard Motor)</td>
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### <PARTS> FOOT PEDAL & HANDPIECE STAND ETC.

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<th>Fit to</th>
<th>Price</th>
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<tr>
<td>Foot Pedal</td>
<td>Foot Pedal (On-Off switch only)</td>
<td>8106</td>
<td>FC-64</td>
<td>Foot Pedal</td>
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<tr>
<td></td>
<td>Control Unit ELECTER E-max NE129</td>
<td>851404</td>
<td>FC-40</td>
<td>Control Unit</td>
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<tr>
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<td>ELECTER-GX NE22E</td>
<td>851405</td>
<td>FC-45</td>
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<td>VIVA-MATE 3 NE77-A</td>
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<td>FC-50</td>
<td>VIVA-MATE 3 NE77-A</td>
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<td></td>
<td>SHEENUS NE124</td>
<td>851407</td>
<td>FC-55</td>
<td>SHEENUS NE124</td>
<td>10 ft</td>
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<td>Handpiece Stand, Handpiece Holder &amp; Head Cover</td>
<td>Handpiece Stand ELECTER E-max SHEENUS, SHEENUS NEO</td>
<td>851408</td>
<td>K-274</td>
<td>Handpiece Stand ELECTER E-max SHEENUS, SHEENUS NEO</td>
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<td>Handpiece Holder ELECTER-E-max NE129</td>
<td>851409</td>
<td>HH-01</td>
<td>Handpiece Holder ELECTER-E-max NE129</td>
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<td></td>
<td>Head Cover CNA-8L</td>
<td>851410</td>
<td>1042</td>
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*Indicates Hand Grinder use
*Indicates Machine Spindle use
< PARTS > PRESTO II & FINE BELT SANDER ETC.

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
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<th>Fit to</th>
<th>Price</th>
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<td>Power Supply Cord</td>
<td>Control Unit</td>
<td>1484</td>
<td>K-268</td>
<td>Emax EVOLUTION NE240</td>
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<tr>
<td>PRESTO II / PRESTO</td>
<td>Cartridge</td>
<td>1850104</td>
<td>PR-03</td>
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<tr>
<td>FINE BELT SANDER PARTS</td>
<td>Tension Pulley</td>
<td>1005</td>
<td>TP-12</td>
<td>KBS-100 · EBS-100</td>
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<tr>
<td></td>
<td>Tension Pulley Assembly</td>
<td>1103</td>
<td>TP-12A KBS-101 · EBS-101</td>
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<tr>
<td>Carbon Brush</td>
<td>Carbon Brush (each 2 pcs.)</td>
<td>E037011</td>
<td>NK-261</td>
<td>NK-150 ET II NK-260N</td>
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< PARTS > OIL, GREASE & SILENCER

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<th>Price</th>
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<tbody>
<tr>
<td>Oil List</td>
<td>Lubricating Oil</td>
<td>AA10478</td>
<td>K-211</td>
<td>For Air Motor · Air Line Kit</td>
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</tr>
<tr>
<td></td>
<td>Lubricating Oil (32 oz.)</td>
<td>AA10480</td>
<td>K-202</td>
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<tr>
<td></td>
<td>Lubricating Oil for ECONOMO Series (4 oz.)</td>
<td>1055</td>
<td>K-268</td>
<td>ECONOMO</td>
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<tr>
<td>Oil List</td>
<td>Grease for Reducer (2.5mL)</td>
<td>1547</td>
<td>ARG-011E · ARG-021E · EMA-3020K</td>
<td>RAX-271E · RAX-71E</td>
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<tr>
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<td>Grease for Reducer (10mL)</td>
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<td>ARG-011E · ARG-021E · EMA-3020K</td>
<td>RAX-271E · RAX-71E</td>
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<td>Grease for Reducer (100mL)</td>
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<td>RAX-271E · RAX-71E</td>
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<tr>
<td>Grease</td>
<td>Silencer Large (with Metal Fitting)</td>
<td>AA10490</td>
<td>K-209</td>
<td>EMAX-8203 · EMAX-8001</td>
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<tr>
<td></td>
<td>Silencer Small (with Metal Fitting)</td>
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<td>K-208</td>
<td>EMAX-8203 · EMAX-8001</td>
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<tr>
<td>Silencer</td>
<td>AS1546</td>
<td>K-246</td>
<td>AMX-8203 · AMX-8001</td>
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Order by catalog number. 6-p11
### APPLICATION EXAMPLES

**EmaxEVO**
- **ESPERT**
- **ROTUS**
- **IMPULSE**
- **PRESTO II**
- **SHEENUS**
- **neo**
- **SONIC CUTTER**

### < PARTS > PRESTO II & FINE BELT SANDER ETC.

#### Power Supply Cord

<table>
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<tr>
<th>Product</th>
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<th>Model</th>
<th>Fit to</th>
<th>Price</th>
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<tr>
<td>Power Supply Cord</td>
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<td>1484</td>
<td>K-269</td>
<td>Control Unit Emax EVolution NE249</td>
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#### PRESTO II / PRESTO

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<th>Model</th>
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<th>Price</th>
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<tr>
<td>POWER II / PRESTO Cartridge</td>
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<td>1815016</td>
<td>PR-03</td>
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#### FINE BELT SANDER PARTS

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<th>Description</th>
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<th>Model</th>
<th>Fit to</th>
<th>Price</th>
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<tbody>
<tr>
<td>Tension Pulley</td>
<td></td>
<td>KB51057</td>
<td>TP-12</td>
<td>KB-100 · EB-100</td>
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<td></td>
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<td>1103</td>
<td>TP-12A</td>
<td>KB-101 · EB-101</td>
<td></td>
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<tr>
<td>Tension Pulley Assembly</td>
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<td>KB51068</td>
<td>TPA-12</td>
<td>KB-100 · EB-100</td>
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<td>1104</td>
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#### Carbon Brush

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<tbody>
<tr>
<td>Carbon Brush (each 2 pcs.)</td>
<td></td>
<td>E033011</td>
<td>E033011</td>
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<td>E037011</td>
<td>E037011</td>
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### Oil List

#### Lubricating Oil

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<th>Model</th>
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<tbody>
<tr>
<td>Lubricating Oil (4 oz.)</td>
<td></td>
<td>AA10478</td>
<td>K-211</td>
<td>For Air Motor · Air Line Kit</td>
<td></td>
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<tr>
<td>Lubricating Oil (32 oz.)</td>
<td></td>
<td>AA10488</td>
<td>K-202</td>
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<td></td>
</tr>
<tr>
<td>Lubricating Oil for ECOMO Series (4 oz.)</td>
<td></td>
<td>1055</td>
<td>K-268</td>
<td>ECOMO</td>
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### Grease

<table>
<thead>
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<th>Model</th>
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<th>Price</th>
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</thead>
<tbody>
<tr>
<td>Grease for Reducer (2.5mL)</td>
<td></td>
<td>1547</td>
<td>ARG-021E · ARG-021E · EMA-3020K</td>
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<td>Grease for Reducer (10mL)</td>
<td></td>
<td>1550</td>
<td>RAX-271E · RAX-71E</td>
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<tr>
<td>Grease for Reducer (100mL)</td>
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### Silencer

<table>
<thead>
<tr>
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<th>Model</th>
<th>Fit to</th>
<th>Price</th>
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<tbody>
<tr>
<td>Silencer Large (with Metal Fitting)</td>
<td></td>
<td>AA10040</td>
<td>K-209</td>
<td>For Motor · Machine Spindle use</td>
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<tr>
<td>Silencer Small (with Metal Fitting)</td>
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<td>K-208</td>
<td>For Motor · Machine Spindle use</td>
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<td>Silencer with Metal Fitting</td>
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<td>AS1546</td>
<td>K-246</td>
<td>AMX-8003 · AMX-8001</td>
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### Oil List

- Order by catalog number.

### Indicates Hand Grinder use

- Indicates Machine Spindle use

---

**Copy of Table:**

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<tr>
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<th>Description</th>
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<th>Model</th>
<th>Fit to</th>
<th>Price</th>
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<tbody>
<tr>
<td>Lubricating Oil (4 oz.)</td>
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<td>K-211</td>
<td>For Air Motor · Air Line Kit</td>
<td></td>
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<tr>
<td>Lubricating Oil (32 oz.)</td>
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<td>AA10488</td>
<td>K-202</td>
<td>For Air Motor · Air Line Kit</td>
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<tr>
<td>Lubricating Oil for ECOMO Series (4 oz.)</td>
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### Grease

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<th>Price</th>
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### Silencer

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<th>Model</th>
<th>Fit to</th>
<th>Price</th>
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<tbody>
<tr>
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<td>AA10040</td>
<td>K-209</td>
<td>For Motor · Machine Spindle use</td>
<td></td>
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<tr>
<td>Silencer Small (with Metal Fitting)</td>
<td></td>
<td>AA10055</td>
<td>K-208</td>
<td>For Motor · Machine Spindle use</td>
<td></td>
</tr>
<tr>
<td>Silencer with Metal Fitting</td>
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<td>AS1546</td>
<td>K-246</td>
<td>AMX-8003 · AMX-8001</td>
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### Hose List

<table>
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<tr>
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<td>AA10428</td>
<td>K-206</td>
<td>E04052</td>
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<td>Hose 6 ft (INTAKE, Chip Air Mechanism)</td>
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<td>K-207</td>
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<td>EMCD-3000A</td>
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<td>Air Hose with Joint</td>
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<td>Exhaust Air Hose</td>
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<td>Hose 4.5 ft</td>
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<td>Z010240</td>
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<td>Turbine Hose 6 ft (ø6.1 mm)</td>
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<td>K-275</td>
<td>—</td>
<td>For Air Line Kit</td>
</tr>
<tr>
<td>Hose ø6 mm (O.D.) (INTAKE) 13 ft - Blue</td>
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<td>2056</td>
<td>K-247</td>
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<td>Hose ø6 mm (O.D.) (INTAKE) 6 ft - Blue</td>
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<td>Hose ø6 mm (O.D.) (INTAKE) 6 ft</td>
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<td>PL10322</td>
<td>K-257</td>
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<td>ROTUS IM-300</td>
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<tr>
<td>Hose ø6 mm (O.D.) (EXHAUST) 6 ft</td>
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<td>PL10325</td>
<td>K-258</td>
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<td>ROTUS AS12035</td>
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<td>Hose ø8 mm (O.D.) (EXHAUST) 6 ft</td>
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<td>PLANET 550-AMS-20 55 150</td>
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<td>Hose ø10 mm (O.D.) (INTAKE) 6 ft</td>
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<td>Hose ø8 mm (O.D.) (EXHAUST) 6 ft</td>
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<tr>
<td>Hose ø10 mm (O.D.) (EXHAUST) 3.94&quot;</td>
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<td>AA10420</td>
<td>K-224</td>
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<tr>
<td>Hose ø6 ft</td>
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<td>AA10280</td>
<td>K-204</td>
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<td>PRESTO II - PRESTO</td>
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<tr>
<td>Hose 6 ft</td>
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<td>K-221</td>
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<td>PRESTO II - PRESTO</td>
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<tr>
<td>Air Hose with filter ø6 mm (O.D.) 6 ft</td>
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<td>ECOMO</td>
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### Hose List

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<tr>
<th>Product</th>
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<th>Model</th>
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<td>Hose 6 R (INTAKE)</td>
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<td>Hose 6 R (INTAKE, Chip Air Mechanism)</td>
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<td>K-207</td>
<td>NOTUS IM-300</td>
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<td>Air Hose with Joint</td>
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<td>Exhaust Hose</td>
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<td>Turbine Hose 6 ft (ø0.1 mm)</td>
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<td>Hose 6 R</td>
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<tr>
<td>Hose for Piping 6 R with Metal Fitting</td>
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<td>K-275</td>
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<tr>
<td>Hose ø6 mm (O.D.) (INTAKE) 6 ft. Blue</td>
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<td>2056</td>
<td>K-247</td>
<td>EMS-6040 · EMS-6040K · HTS SERIES</td>
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<tr>
<td>Hose ø6 mm (O.D.) (INTAKE) 6 ft. Blue</td>
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<td>2059</td>
<td>K-254</td>
<td>EMS-6040 · EMS-6040K · HTS SERIES</td>
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<tr>
<td>Hose ø6 mm (O.D.) (INTAKE) 16 ft.</td>
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<td>PL1020</td>
<td>K-257</td>
<td>PLANET 550 · EMS-250 550</td>
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<td>Hose ø6 mm (O.D.) (INTAKE) 6 ft.</td>
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<td>Hose ø6 mm (O.D.) (EXHAUST) 6 ft.</td>
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<td>PL1020</td>
<td>K-258</td>
<td>PLANET 550 · EMS-250 550</td>
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<td>Hose ø6 mm (O.D.) (EXHAUST) 6 ft.</td>
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<td>091140-0020</td>
<td>K-215</td>
<td>EMS-6040 · EMS-6040K · HTS SERIES</td>
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<td>Hose ø6 mm (O.D.) (EXHAUST) 3 ft.</td>
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<td>EMS-6040 · EMS-6040K · HTS SERIES</td>
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<tr>
<td>Hose ø6 mm (O.D.) (EXHAUST) 6 ft.</td>
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<td>2043</td>
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<td>EMS-6040 · EMS-6040K</td>
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<tr>
<td>Hose ø10 mm (O.D.) (EXHAUST) 3.34&quot;</td>
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<td>EMS-6040 · EMS-6040K</td>
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<td>Hose ø10 mm (O.D.) (EXHAUST) 3.34&quot;</td>
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<td>2050</td>
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<td>EMS-6040 · EMS-6040K</td>
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<tr>
<td>Hose 6 ft</td>
<td></td>
<td>AA10200</td>
<td>K-204</td>
<td>EMS-6040 · EMS-6040K</td>
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<tr>
<td>Hose 6 ft</td>
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<td>2049</td>
<td>K-221</td>
<td>EMS-6040 · EMS-6040K</td>
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<tr>
<td>Air Hose with filter all O.D. (6 ft)</td>
<td></td>
<td>2058</td>
<td>K-251</td>
<td>EMS-6040 · EMS-6040K</td>
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### Metal Fitting & Filter Joint

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Fit to Specifications</th>
<th>Price</th>
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<tbody>
<tr>
<td>Metal Fitting (for ø6 mm Quick Disconnecting joint)</td>
<td></td>
<td>AS10205</td>
<td>K-241</td>
<td>— For K-215 Hose (For K-259 Hose)</td>
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</tr>
<tr>
<td>Metal Fitting (for ø6 mm Quick Disconnecting joint)</td>
<td></td>
<td>AS10206</td>
<td>K-242</td>
<td>— For K-204 Hose (For K-259 Hose)</td>
<td>—</td>
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<tr>
<td>Filter Joint (for ø6 mm Quick Disconnecting joint)</td>
<td></td>
<td>AS10207</td>
<td>K-244</td>
<td>— For K-257 Hose (For K-259 Hose)</td>
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<tr>
<td>Filter Joint (for ø6 mm Quick Disconnecting joint)</td>
<td></td>
<td>AA82038</td>
<td>FJ-01</td>
<td>— For K-215 Hose (For K-247 Hose)</td>
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<tr>
<td>Filter Joint (for ø6 mm Quick Disconnecting joint)</td>
<td></td>
<td>AA82039</td>
<td>FJ-02</td>
<td>— For K-254 Hose (For K-259 Hose)</td>
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<tr>
<td>Filter Joint (for ø6 mm Quick Disconnecting joint)</td>
<td></td>
<td>AA82040</td>
<td>FJ-03</td>
<td>— For K-257 Hose (For K-259 Hose)</td>
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<tr>
<td>Filter Joint (for ø6 mm Quick Disconnecting joint)</td>
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<td>AA82053</td>
<td>FJ-04</td>
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### Grindstone Flange

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
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<tbody>
<tr>
<td>Grindstone Flange</td>
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<td>AS45127</td>
<td>NGF2-19</td>
<td>— For NGF2-19, EGF-19, For right hand (ce) rotation only.</td>
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<tr>
<td>Grindstone Flange</td>
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<td>AS2138</td>
<td>EGF-19</td>
<td>— For NGF2-19, EGF-19, For right hand (ce) rotation only.</td>
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### Unmounted Vitrified Grindstone for Internal Grinding

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Price</th>
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<tr>
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<td>PL-10341</td>
<td>PL-10341</td>
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<td>PL-10341</td>
<td>PL-10341</td>
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*NGF2-19, EGF-19 for right hand (ce) rotation only.

## Hose List

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<thead>
<tr>
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<th>Description</th>
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<th>Model</th>
<th>Fit to Specifications</th>
<th>Price</th>
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<tr>
<td>EMCD-3000 · EMCD-3000A</td>
<td>Air Hose</td>
<td>E304502</td>
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<td>EMCD-3000 · EMCD-3000A</td>
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## Metal Fitting & Filter Joint

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<th>Product</th>
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<th>Model</th>
<th>Fit to Specifications</th>
<th>Price</th>
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<tbody>
<tr>
<td>Metal Fitting (for all ø6 mm Quick Disconnecting joint)</td>
<td></td>
<td>AS10205</td>
<td>K-241</td>
<td>— For K-215 Hose (For K-259 Hose)</td>
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<tr>
<td>Metal Fitting (for all ø6 mm Quick Disconnecting joint)</td>
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<td>AS10206</td>
<td>K-242</td>
<td>— For K-204 Hose (For K-259 Hose)</td>
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<td>Filter Joint (for all ø6 mm Quick Disconnecting joint)</td>
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<td>Filter Joint (for all ø6 mm Quick Disconnecting joint)</td>
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<td>Filter Joint (for all ø6 mm Quick Disconnecting joint)</td>
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<td>— For K-223 Hose</td>
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## Grindstone Flange

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## Unmounted Vitrified Grindstone for Internal Grinding

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*NGF2-19, EGF-19 for right hand (ce) rotation only.

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<tr>
<th>Product</th>
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*Indicates Grinder use
*Indicates Machine Spindle use

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| Order by catalog number. 6-p13 |
### Special Drill Chuck Arbor

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>Cat. No.</th>
<th>Model</th>
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<th>Fit to</th>
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<tbody>
<tr>
<td>2.01” Special Drill Chuck Arbor (for 0.20” Hole)</td>
<td>MSS-19</td>
<td>AS02136</td>
<td>DCH-J0A</td>
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<tr>
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<tr>
<td>2.00” Special Drill Chuck Arbor (for 0.20” Hole)</td>
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*For right hand (c.e) rotation only.

### Special Metal Saw Arbor

<table>
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<th>Model</th>
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<th>Fit to</th>
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<tbody>
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<td>MSS-19</td>
<td>AS07019</td>
<td>KCH-01A</td>
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<td>AS07019</td>
<td>KCH-01A</td>
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<td>AS07019</td>
<td>KCH-01A</td>
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<td>AS07019</td>
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<tr>
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<td>KCH-01N</td>
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<td>KCH-01N</td>
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*For right hand (c.e) rotation only.

### Grindstone Arbor

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<th>Model</th>
<th>Price</th>
<th>Fit to</th>
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<tbody>
<tr>
<td>1.14” Grindstone Arbor (for Cup Wheel &amp; Rubber Pad)</td>
<td>MSS-19</td>
<td>AS11029</td>
<td>AGM-01</td>
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<tr>
<td>1.14” Grindstone Arbor (for Cup Wheel &amp; Rubber Pad)</td>
<td>MSS-20</td>
<td>AS11029</td>
<td>AGM-01</td>
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<td></td>
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<tr>
<td>1.14” Grindstone Arbor (for Cup Wheel &amp; Rubber Pad)</td>
<td>MSS-22</td>
<td>AS11029</td>
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<tr>
<td>1.14” Grindstone Arbor (for Cup Wheel &amp; Rubber Pad)</td>
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<td>AS11029</td>
<td>AGM-01</td>
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<tr>
<td>1.14” Grindstone Arbor (for Cup Wheel &amp; Rubber Pad)</td>
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<td>AS11029</td>
<td>AGM-01</td>
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*For right hand (c.e) rotation only.

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**Order by catalog number. 6-p15**
### Special Drill Chuck Arbor

*For right hand (cw) rotation only.*

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Price</th>
<th>Fit to</th>
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### Grindstone Arbor

*For right hand (cw) rotation only.*

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
<th>Price</th>
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---

**Order by catalog number.** 6-p15

*Indicates Hand Grinder use
*Indicates Machine Spindle use

---

**For Grindstone with ø 0.20”**

**For Drill Chuck Jacob’s Taper No. 0**

Run-out Accuracy: Within 0.05 mm

**For Deep Hole**

Run-out Accuracy: Within 0.02 mm

---

**FOR ORDERING**

Order by catalog number. 6-p15

---

**INDICATIONS**

- Indicates Hand Grinder use
- Indicates Machine Spindle use

---

**NOTES**

- Special Metal Saw Arbor
- Special Drill Chuck Arbor
- Grindstone Arbor
- Dimensions of Metal Saw Arbor
- Run-out Accuracy

---

**Index**

- Catalog Number
- Model Number
- Fit to Description

---

**Parts**

- Special Drill Chuck Arbor
- Grindstone Arbor

---

**CATALOG NUMBERS**

- MSS-19 MSS-20 MSS-22 PS20-79/120 PS20-70 PS20-120 PS20-40
- MSS-19 MSS-20 MSS-22 PS20-79/120 PS20-70 PS20-120 PS20-40
- MSS-19 MSS-20 MSS-22 PS20-79/120 PS20-70 PS20-120 PS20-40

---

**TECHNICAL DATA**

- Catalog Number
- Model Number
- Fit to Description

---

**APPLICATION EXAMPLES**

- Catalog Number
- Model Number
- Fit to Description

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**INDEX**

- Catalog Number
- Model Number
- Fit to Description

---

**NOTES**

- Special Metal Saw Arbor
- Special Drill Chuck Arbor
- Grindstone Arbor
- Dimensions of Metal Saw Arbor
- Run-out Accuracy

---

**AIR LINE KIT**

- Catalog Number
- Model Number
- Fit to Description

---

**PARTS**

- Catalog Number
- Model Number
- Fit to Description

---

**INDEX**

- Catalog Number
- Model Number
- Fit to Description
**< PARTS > WRENCH**

### Wrench List

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<th>Product</th>
<th>Description</th>
<th>Cat. No.</th>
<th>Model</th>
<th>Specifications</th>
<th>Fit to</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrench 20 x 24 mm</td>
<td>(0.79&quot; x 0.94&quot;) (Length 0.97&quot;)</td>
<td>RA12018</td>
<td>—</td>
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<tr>
<td>Wrench 22 x 27 mm</td>
<td>(0.87&quot; x 1.06&quot;) (Length 0.68&quot;)</td>
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<tr>
<td>Wrench 19 x 21 mm (0.75&quot; x 0.83&quot;)</td>
<td>(Length 0.3&quot;)</td>
<td>RA12013</td>
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<tr>
<td>Wrench 17 x 19 mm</td>
<td>(0.67&quot; x 0.75&quot;) (Length 0.39&quot;)</td>
<td>RA12012</td>
<td>—</td>
<td>—</td>
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<td>—</td>
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<tr>
<td>Wrench 9 x 9 mm</td>
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<tr>
<td>Wrench 8 x 8 mm</td>
<td>(0.31&quot; x 0.31&quot;)</td>
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<tr>
<td>Wrench 7 x 5.5 mm</td>
<td>(0.28&quot; x 0.22&quot;)</td>
<td>RE10209</td>
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<td>—</td>
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<tr>
<td>Wrench 7 x 3.1 mm (0.28&quot; x 0.20&quot;)</td>
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<tr>
<td>Wrench 6.1 x 8 mm</td>
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<td>Z103117</td>
<td>2069</td>
<td>NRR-2651 · NR-5100 · NRR-3020 · SRAX-3025</td>
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<td>Wrench 6 x 4.5 mm</td>
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<tr>
<td>Wrench 5 x 4.7 mm</td>
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<td>PL10622</td>
<td>PLANET 2000</td>
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<tr>
<td>Wrench 4 x 7 mm (0.16&quot; x 0.29&quot;)</td>
<td>(for K-231)</td>
<td>K-231</td>
<td>IC-300 · KC-300 · ICX-300 · ICX-300</td>
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<tr>
<td>Wrench for Straight ECOMO</td>
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<td>PCR-30</td>
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<td>Chuck Wrench</td>
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<td>RE10398</td>
<td>K-232</td>
<td>MFC-300S · MFC-300M</td>
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<td>Chuck Wrench</td>
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<td>RE10394</td>
<td>K-231</td>
<td>IC-300 · KC-300 · EIC-300 · EKC-300</td>
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---

*Order by catalog number.*
## Wrench List

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>Cat. No.</th>
<th>Model</th>
<th>Specifications</th>
<th>Fit to</th>
<th>Price</th>
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<tbody>
<tr>
<td><strong>Chuck Wrench</strong></td>
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<td>K-232</td>
<td>MCC-300S</td>
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<tr>
<td><strong>Chuck Wrench</strong></td>
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<td>KC-300</td>
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<td>Wrench 4.7 x 7 mm (0.15” x 0.29”) (for K-231)</td>
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<td>K-212</td>
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<tr>
<td>Bar Wrench (24”)</td>
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<td>K-236</td>
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<tr>
<td>Bar Wrench (ø1.0”/ø1.0”)</td>
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<td>Xpeed1600</td>
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<tr>
<td>Wrench for Straight Type ECOMO</td>
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<td>PCR-30</td>
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<td>Wrench K-220</td>
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<td>Wrench 6 x 4.5 mm (0.24” x 0.18”)</td>
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<td>Wrench 6 x 8 mm (0.24” x 0.31”)</td>
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<td>Z103117</td>
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<td>Wrench 7 x 5.1 mm (0.28” x 0.20”)</td>
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<td>Wrench 7 x 5.5 mm (0.28” x 0.22”)</td>
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<tr>
<td>Wrench 8 x 5 mm (0.31” x 0.20”)</td>
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<td>Wrench 9 x 5 mm (0.35” x 0.20”)</td>
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<td>Wrench 12 x 14 mm (0.47” x 0.55”) (Length: 3.04”)</td>
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<tr>
<td>Wrench 12 x 16 mm (0.47” x 0.63”) (Length: 3.04”)</td>
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<tr>
<td>Wrench 18 x 21 mm (0.67” x 0.83”) (Length: 3.04”)</td>
<td>2047</td>
<td>—</td>
<td>—</td>
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<tr>
<td>Wrench 20 x 24 mm (0.79” x 0.94”) (Length: 5.91”)</td>
<td>RA12018</td>
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<tr>
<td>Wrench 22 x 27 mm (0.87” x 1.06”) (Length: 6.08”)</td>
<td>RA12045</td>
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### Available in the market

- Wrench 16 x 18 mm (0.63” x 0.71”)
- Wrench 18 x 21 mm (0.67” x 0.83”)
- Wrench 20 x 24 mm (0.79” x 0.94”)
- Wrench 22 x 27 mm (0.87” x 1.06”)

## Order by catalog number.

<table>
<thead>
<tr>
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<th>Description</th>
<th>Cat. No.</th>
<th>Model</th>
<th>Specifications</th>
<th>Fit to</th>
<th>Price</th>
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<td>RE22014</td>
<td>K-233</td>
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<td>Pin Wrench</td>
<td>HRI303</td>
<td>T-751</td>
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*Order by catalog number.*
<PARTS> GRIP RING

The Grip Ring is an adjustable position split type flange for 40mm and 30mm spindles.

The Grip Ring can easily be mounted or removed from any CNC machine or specialty machine tool block or tool post.

Eliminates the chance of over tightening and damaging the spindle in the sleeve during installation.

Caution

• Do not remove the Lock Bolt. If the Lock Bolt is removed, the Washer inside may move. Once the Washer is moved, it may make it impossible to attach the Lock Bolt.

• Do not remove the spindle while the Grip Ring is attached to the machine's holder. This may cause deformation and / or damage to the Grip Ring.

CAT. No. 1885 GRIP RING GR-30

CAT. No. 1886 GRIP RING GR-40

<PARTS> SPLIT BUSHING

Split Bushing : Bushings to allow smaller dia. spindles to be mounted in larger dia. holders

<table>
<thead>
<tr>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
<th>i.d.</th>
<th>o.d.</th>
<th>Length</th>
<th>Part No.</th>
<th>Price</th>
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<tr>
<td>1871</td>
<td>RB-22.x25</td>
<td>ø0.897 (ø22.8 mm)</td>
<td>ø0.98 (ø25 mm)</td>
<td>44 mm</td>
<td>RA-100</td>
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<td></td>
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<tr>
<td>1872</td>
<td>RBS-22.8x25</td>
<td>ø0.897 (ø22.8 mm)</td>
<td>ø0.98 (ø25 mm)</td>
<td>25 mm</td>
<td>NR-203 · NR-2351</td>
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<tr>
<td>1873</td>
<td>RB-22.8x25.4</td>
<td>ø0.897 (ø22.8 mm)</td>
<td>ø1.01 (ø25.4 mm)</td>
<td>44 mm</td>
<td>RA-100</td>
<td></td>
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<tr>
<td>1874</td>
<td>RBS-22.8x25.4</td>
<td>ø0.897 (ø22.8 mm)</td>
<td>ø1.01 (ø25.4 mm)</td>
<td>25 mm</td>
<td>NR-203 · NR-2351</td>
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<tr>
<td>1875</td>
<td>RB-20x23</td>
<td>ø0.79 (ø20 mm)</td>
<td>ø0.91 (ø23 mm)</td>
<td>40 mm</td>
<td>EM-3520-S6000 · MS2030 · MS2008 · MS2002</td>
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<td>1876</td>
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<td>ø0.90 (ø22.8 mm)</td>
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<td>1877</td>
<td>RB-20x22</td>
<td>ø0.79 (ø20 mm)</td>
<td>ø0.98 (ø22 mm)</td>
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<td>ø0.98 (ø25 mm)</td>
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<td>1879</td>
<td>RB-20x25.4</td>
<td>ø0.79 (ø20 mm)</td>
<td>ø1.01 (ø25.4 mm)</td>
<td>40 mm</td>
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<td>1880</td>
<td>RB-30x32</td>
<td>ø1.18 (ø32 mm)</td>
<td>ø1.26 (ø32 mm)</td>
<td>45 mm</td>
<td>NR-3060S · NR-453E · NR-403E</td>
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<td>RB-30x36</td>
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<td>33.5 mm</td>
<td>BM-322 · BM-322FL · BM-322FR</td>
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Note : After inserting spindle into bushing, verify the O.D. measurement vs. the machine holder i.d.
< PARTS > GRIP RING

The Grip Ring is an adjustable position split type flange for 40mm and 30mm spindles.

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CAT. No. 1885 GRIP RING GR-30

CAT. No. Model Standard Equipment / Accessories Price
1885 GR-30 • Mounting Bolt (M5x25) 3 pcs. 6-p18

CAT. No. 1886 GRIP RING GR-40

CAT. No. Model Standard Equipment / Accessories Price
1886 GR-40 • Mounting Bolt (M5x30) 4 pcs. 6-p19

< PARTS > SPLIT BUSHING

Split Bushing : Bushings to allow smaller dia. spindles to be mounted in larger dia. holders

<table>
<thead>
<tr>
<th>Description</th>
<th>CAT. No.</th>
<th>Model</th>
<th>ID</th>
<th>OD</th>
<th>Length</th>
<th>Price</th>
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<td>1871</td>
<td>RB-22.8x25</td>
<td>ø0.897&quot;</td>
<td>ø0.98&quot;</td>
<td>44 mm</td>
<td>RA-100</td>
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<tr>
<td>1872</td>
<td>RBS-22.8x25</td>
<td>ø0.897&quot;</td>
<td>ø0.98&quot;</td>
<td>25 mm</td>
<td>NR-303 / NR-2351</td>
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<tr>
<td>1873</td>
<td>RB-22.8x25.4</td>
<td>ø0.897&quot;</td>
<td>ø1.01&quot;</td>
<td>44 mm</td>
<td>RA-100</td>
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<td>1874</td>
<td>RBS-22.8x25.4</td>
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<td>ø1.01&quot;</td>
<td>25 mm</td>
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<td>RB-20x23</td>
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<td>ø0.91&quot;</td>
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<td>ø0.897&quot;</td>
<td>40 mm</td>
<td>EM20-S6000 / MS2008 / MS2002</td>
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<td>1877</td>
<td>RB-20x22</td>
<td>ø0.79&quot;</td>
<td>ø0.897&quot;</td>
<td>40 mm</td>
<td>EM20-S6000 / MS2008 / MS2002</td>
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<td>1878</td>
<td>RB-20x25</td>
<td>ø0.79&quot;</td>
<td>ø0.897&quot;</td>
<td>40 mm</td>
<td>EM20-S6000 / MS2008 / MS2002</td>
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<td>1879</td>
<td>RB-20x25.4</td>
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<td>RB-30x32</td>
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<td>NR-3060S / NR-453E / NR-403E</td>
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<tr>
<td>1881</td>
<td>RB-30x36</td>
<td>ø1.18&quot;</td>
<td>ø1.42&quot;</td>
<td>45 mm</td>
<td>NR-3060S / NR-453E / NR-403E</td>
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<td>33.5 mm</td>
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<td>1883</td>
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<td>33.5 mm</td>
<td>BM-322 / BM-322FL / BM-322FR</td>
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</tbody>
</table>

Note : After inserting spindle into bushing, verify the O.D. measurement vs. the machine holder I.D.
"Nakanishi’s Super Precision Motors & Spindles"

Nakanishi’s Advanced Technologies Meet Tomorrow’s Needs.

Nakanishi’s Small Diameter Spindles best meet the super precision work requirements with the utmost efficiency in ‘Drilling, Milling, Grinding and Polishing’ applications.

In addition, Nakanishi offers spindles that save energy and natural resources and are friendly to nature and Mother Earth.

NSK America

Motors & Spindles Micro-grinders

Ultra-Precision Electrically / Pneumatically Driven

2016/17 EDITION

NSK America Corp.

www.nskamerica.com

† Specifications and prices may be changed without notice.

† Manufactured by Nakanishi Inc.