**HIGH TORQUE BRUSHLESS MICRO-GRINDER**

**Espert 500 Series**

- **Features of Motor Handpiece**
  - **Speed**: 1,000–50,000 min⁻¹
  - **NAKANISHI Smart Switch**
  - **Max. Output**: 200W

- **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.

- **High Precision**
  - NAKANISHI’s ultra-precision technology ensures bur concentricity of 0.02 mm or less, which allows for very high precision finishing.

- **Simple Screw on Attachments**

- **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.

- **Special Dust-Proof Mechanism**
  - Then 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.

- **9 Types of Attachments Available**
  - 9 different types of attachments making an almost infinite number of applications possible.

- **Wide Range of Collet Available**
  - Collet sizes range from a tiny 0.3 mm up, with a wide variety of sizes available. (P.55)

- **Micro Grinder & Handpiece Stand**
  - This specially designed micromotor 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 spanners and a spare chuck.
Features of Controller

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 control of the brushless micro-grinder allowing smooth and highly precise 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.

Auto Cruise Function
The controller 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.

Simplified Hand and Foot Pedal Control
You no longer need to push a switch on the controller 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.

Memory Speed Function FiXpeed®
An exclusive new feature of the Espert 500 system, the FiXpeed® 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 FiXpeed® system while motor B has variable control using a foot pedal. This function allows for unprecedented flexibility.

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.

Error Code Display Function
Detects trouble and failures occurring within the motor or unit and displays them as one of seven types of error codes (E0-E6). This reassuring function permits the user to correct the problem. Possible errors are overload, open circuit, motor lock, controller overheat, etc.

Other Features
• Self Check Function (Maintenance Model)
• Smooth Operation • Operation Check Sound
• Highly Visible and easy to operate front panel
• 2-Digit Digital Display
• A/B 2 Motors Can Be Connected
(Simultaneous motor operation is not allowable)
Espert 500 Series

**Espert 500 Sets**

- With Motor ON/OFF Switch
- Speed Range: 1,000–50,000 min⁻¹
- Microprocessor controlled for optimal motor control
- Hand Switch [NAKANISHI Smart Switch]
- Memory Speed Function [FixSpeed™]

**Espert 500 Standard Set**

- 1,000–50,000 min⁻¹
- High Power System: <Max. Output 140W>
- Hand Switch [NAKANISHI Smart Switch]
- Microprocessor controlled for optimal motor control

**Espert 500 Torque Set**

- 1,000–50,000 min⁻¹
- Highest Power in its Class: <Max. Output 200W>

**Espert 500 Motor Handpiece**

- 1,000–50,000 min⁻¹
- High Power & High Torque!!

**Espert 500 Compact Motor Handpiece**

- 1,000–50,000 min⁻¹
- 140W

**Espert 500 Torque Handpiece**

- 1,000–50,000 min⁻¹
- 200W

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**Espert 50 Controller (P26)**

- Code No.: 9794 (Gray), Model: NE50C

<table>
<thead>
<tr>
<th>Model</th>
<th>d</th>
<th>D1</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>Weight</th>
<th>Max. Output</th>
<th>Speed Range</th>
<th>Collet</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE96C</td>
<td>ø13.3</td>
<td>ø26.3</td>
<td>59.4</td>
<td>121.4</td>
<td>180.8</td>
<td>250 g (w)</td>
<td>140W</td>
<td>1,000–50,000 min⁻¹</td>
<td>ø0.3–ø1.75 mm</td>
</tr>
</tbody>
</table>

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*Order by Code No.*
Espert 500 Series

Espert 500 Series System Chart

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>9000</td>
<td>EHR-500</td>
</tr>
<tr>
<td>1016</td>
<td>ENC-667</td>
</tr>
<tr>
<td>1017</td>
<td>EHD-600</td>
</tr>
<tr>
<td>1025</td>
<td>ELC-360</td>
</tr>
<tr>
<td>1092</td>
<td>ERE-123</td>
</tr>
<tr>
<td>1092</td>
<td>ENC-300</td>
</tr>
</tbody>
</table>

Attachment

- Ring Type
- Lever Type
- 2 mm Torque Type
- 90° Angle Type
- 50° Angle Type
- 90° Angle Torque Type
- LUSTER (Reciprocating motion)
- MINI-LUSTER (Reciprocating motion)
- FINE BELT Sander

Motor

- Compact Motor and Cord
- Torque Motor and Cord

Speed Reducer

- 1/4 Speed Reducer

Controller

- Controller

Sets

Espert 500 Standard Set

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>9951</td>
<td>500A-HR</td>
</tr>
<tr>
<td>9652</td>
<td>500V</td>
</tr>
</tbody>
</table>

Standard Equipment
- Controller (500A) : 1 pc.
- Compact Motor-Handle (EMK500C-HR) : 1 pc.
- Cable (ø2.5 mm x 3.5 m, ø2 mm x 2.5 m) : 1 pc.

Standard Accessories
- Handpiece (1 pc.)
- Handpiece Stand : 1 pc.
- Spanner (2 x 5.5) : 1 pc.
- Pin Spanner (K-230) : 1 pc.
- L-shaped Spanner (6) : 1 pc.

Espert 500 Controller

- Microprocessor controlled for optimal motor control.
- Memory Speed Function FixSpeed™.
- Power Source : AC110/220V, 50/60 Hz
- Dimensions : W172 x D230 x H94 mm
- Weight : 2.8 kg

Standard Accessories
- Handpiece Stand : 1 pc.
- Handpiece Holder : 1 pc.

Espert 500 Compact Type Motor

- Code No. 9088
- Model  ENK-500C

1,000~50,000 min⁻¹

- Incorporates the NAKANISHI Smart Switch for easy on/off operation.
- Small, lightweight, high-speed brushless DC motor.
- Output Power : 140W
- Max. Torque : 6.0 N·cm
- Cord Length : 1.5 m
- Weight : 115 g (w/o cord)

Espert 500 Torque Type Motor

- Code No. 9089
- Model  ENK-500T

1,000~50,000 min⁻¹

- Incorporates the NAKANISHI Smart Switch for easy on/off operation.
- High-power, high-torque, high-speed brushless DC motor.
- Output Power : 200 W
- Max. Torque : 8.7 N·cm
- Cord Length : 1.5 m
- Weight : 140 g (w/o cord)

Details of Maximum Allowable speed on intermittent use or continuous use P31~33

Order by Code No.
90° Angle Torque Attachment

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Model</th>
<th>90° Angle Torque Attachment</th>
</tr>
</thead>
<tbody>
<tr>
<td>9090</td>
<td>EHR-500</td>
<td>50,000 min⁻¹ Max.</td>
</tr>
<tr>
<td>1515</td>
<td>EHL-401</td>
<td>50,000 min⁻¹ Max.</td>
</tr>
<tr>
<td>1551</td>
<td>ERA-270</td>
<td>27,000 min⁻¹ Max.</td>
</tr>
<tr>
<td>1525</td>
<td>EIC-300</td>
<td>30,000 min⁻¹ Max.</td>
</tr>
</tbody>
</table>

- Weight: 94 g
- 43.0 mm (CHH-3.0), 43.26 mm (CHH-3.26)
- Optional Collets: CHH group are shown in page (P.6)
- Standard Accessories:
  - Spanner (13.5): 1 pc.
  - Pin Spanner (K-233): 1 pc.
  - 1.5 Shaped Spanner (6): 1 pc.

- Weight: 70 g
- 43.0 mm (CHH-3.0), 43.26 mm (CHH-3.26)
- Optional Collets: CHH group are shown in page (P.6)
- Standard Accessories:
  - Spanner (13.5): 1 pc.
  - Pin Spanner (K-233): 1 pc.

- Weight: 54 g
- 43.0 mm (CHH-3.0), 43.26 mm (CHH-3.26)
- Optional Collets: CHH group are shown in page (P.6)
- Standard Accessories:
  - Chuck Wrench (K-235): 1 pc.
  - Spanner (20 x 24): 1 pc.
  - Standard Accessories: 1 set

- Weight: 54 g
- 43.0 mm (CHH-3.0), 43.26 mm (CHH-3.26)
- Optional Collets: CHH group are shown in page (P.6)
- Standard Accessories:
  - Chuck Wrench (K-235): 1 pc.
  - Spanner (20 x 24): 1 pc.
  - Standard Accessories: 1 set

- Weight: 680 g
- 30,000 min⁻¹ Max.
- 50° Angle Attachment

<table>
<thead>
<tr>
<th>Code No.</th>
<th>Model</th>
<th>50° Angle Attachment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1552</td>
<td>EHG-400</td>
<td>Reciprocating motion</td>
</tr>
</tbody>
</table>

- Weight: 110 g
- 43.0 mm (CHH-3.0), 43.26 mm (CHH-3.26)
- Optional Collets: CHH group are shown in page (P.6)
- Standard Accessories:
  - Spanner (10 x 10): 1 pc.
  - Bar Wrench (K-212): 1 pc.

- Weight: 107 g
- 43.0 mm (CHH-3.0), 43.26 mm (CHH-3.26)
- Optional Collets: CHH group are shown in page (P.6)
- Standard Accessories:
  - Spanner (10 x 10): 1 pc.
  - Bar Wrench (K-212): 1 pc.

- Weight: 54 g
- 43.0 mm (CHH-3.0), 43.26 mm (CHH-3.26)
- Optional Collets: CHH group are shown in page (P.6)
- Standard Accessories:
  - Chuck Wrench (K-235): 1 pc.
  - Spanner (20 x 24): 1 pc.
  - Standard Accessories: 1 set

- Weight: 54 g
- 43.0 mm (CHH-3.0), 43.26 mm (CHH-3.26)
- Optional Collets: CHH group are shown in page (P.6)
- Standard Accessories:
  - Chuck Wrench (K-235): 1 pc.
  - Spanner (20 x 24): 1 pc.
  - Standard Accessories: 1 set

- Weight: 680 g
- 25,000 min⁻¹ Max.
- 50° Angle Attachment

- Weight: 680 g
- Max. tool Shank diameter ø4.4 mm.
- Screw clamp type
Espert 500 Series

MINI-LUSTER Attachment (Pen-Type Reciprocating Polishing Finisher)

Code No. 1554 Model EML-8 (ø2.0 mm)

Reciprocating motion

25,000 min-1 Max.
- High Speed reciprocating polisher for rapid finishing of small surfaces.
- The lightweight pencil type design makes it very controllable.
- Ideal for small, tight areas such as tight corners, ribs, etc.
- Reciprocating Speed (variable), 0-10,000 strokes/min
- Weight: 150 g
- Max. tool shank diameter ø2.2 mm

Standard Accessories
- Allen Wrench (1.5 mm): 1 pc.
- Standard Accessories: 1 set

Code No. 62711 Model SPR-101

Belt Sizes: 4, 6, 8 mm wide x 300 mm long

Belt Speed: 0-705 m/min

Weight: 355 g

Product Description Code No. Model Specifications

Espert 500 Series Spare Parts

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Code No.</th>
<th>Model</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot Pedal</td>
<td>1440</td>
<td>FC-40</td>
<td>Variable Speed Control Foot Pedal</td>
</tr>
<tr>
<td>Espert 500 Handpiece Stand</td>
<td>8104</td>
<td>K-274</td>
<td>—</td>
</tr>
<tr>
<td>Espert 500 Compact Motor Cord</td>
<td>9093</td>
<td>ENKCD-50C</td>
<td>Compact Motor Cord • 1.5 m Long</td>
</tr>
<tr>
<td>Espert 500 Torque Motor Cord</td>
<td>9094</td>
<td>ENKCD-50T</td>
<td>Torque Motor Cord • 1.5 m Long</td>
</tr>
</tbody>
</table>

FINE BELT SANDER Attachment

Code No. 1145 Model EBS-101

30,000 min-1 Max.

- Very high belt speed, ideal for applications from deburring to radius finishing.
- Belt Speed: 0-750 mm/min
- Weight: 355 g
- Belt Sizes: 4, 6, 8 mm wide x 300 mm long

Standard Accessories
- Allen Wrench (3 mm): 1 pc.
- Standard Accessories: 1 set

Code No. 1518 Model ECN-011

40,000 min-1 Max.

- The Adaptor can be used with the attachments for Emax EVolution, E-max and ROTUS you already have.
- Weight: 31 g

Standard Accessories
- Spanner (20 x 24): 1 pc.

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Espert 500 Motor

Order by Code No.

INDEX
Precautions for using Nakanishi Tools

For safe use of the tools
- Read operation manuals before using any tools.
- Keep all operation manuals on hand for reference whenever necessary.

**Caution** Incorrect use of the tools, or ignoring ‘CAUTIONS for safety’ described in the operating manuals, could cause fatal or serious bodily injury.

**CAUTIONS**

- Always use safety glasses, mask, face guard for your safety.
- Fasten the collet firmly. Make sure the tool is fully installed in the collet to avoid tool slippage.
- Do not touch the tips when in operation. Make sure the work area is neat and there is sufficient light.
- Do not use damaged or broken electric cords and air hoses.
- Do not use the tool where flammable liquids or gas exist.
- Start at low speed and increase gradually to insure safe work. This is particularly important for the use of new tools, large cutting tools and elastic tools such as rubber grindstone, sander and brush tools.
- Do not operate tools without the collet.
- Keep the tools and products in a cool, dry place.
- Select proper tools and products for your application. Select tools carefully considering the performance of the tools, work procedure and type/shape of the material.
- Check the tools carefully before use. Confirm that the tools are free of chips, cracks, splits, scratches, irregular bondings, and out of round shanks, etc.
- Fix the work material firmly in a vise and/or other clamping fixture.
- Stop grinding or polishing immediately whenever unusual sounds, vibrations, or wear are found. Restart the work only after the problem is found and corrected.
- Do not wear loose clothing and/or accessories that may be caught in machinery. Long hair should be secured prior to machine operation.
- Only use attachments, parts, consumable articles and accessories produced by NAKANISHI.
- Do not apply high pressure to or pry with the tools. This can break and/or bend the tools. Use the tools within their design limitation. Excessive pressure will decrease the efficiency of your work and cause excessive wear of the tools.

- Check all tools carefully before use. Clean the inside of the collet and tool shank, chips or fine metals inside the collet could cause tool slippage and result in damage to machinery or bodily injury.

- The tools should be used by taking care of the overhang and below maximum allowable speed. The catalogue shows the maximum allowable speed at 13 mm overhang (distance between the face of the collet and the top of the tool shank).

<table>
<thead>
<tr>
<th>Overhang</th>
<th>Maximum allowable speed (mm/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 13 mm</td>
<td>Shown in the catalogue (A)</td>
</tr>
<tr>
<td>Less than 20 mm</td>
<td>14 x 0.5</td>
</tr>
<tr>
<td>Less than 25 mm</td>
<td>14 x 0.3</td>
</tr>
<tr>
<td>Less than 50 mm</td>
<td>14 x 0.1</td>
</tr>
</tbody>
</table>

Symbols used in NAKANISHI Tools Catalogue

**Shank Diameter**
- Shows shank diameter of the tools. Nakanishi produces tools with several shank diameters. A Nakanishi micro grinder utilizes a collet system, which insures maximum precision. Therefore, please use the collet that best corresponds to the tool shank diameter.

**Standard Package**
- One package is the minimum shipping unit. This number shows the number of pieces in the standard package (bag, box and etc.). Please order the number of packages needed for the desired quantity.

**Maximum allowable speed**
- Do not exceed the maximum allowable speed. For your safety, use the tools below the indicated allowable speed. Start at low speed and increase gradually to insure safety. The preceding is particularly important for the use of new tools and machines.
- Maximum allowable speed assumes an overhang of less than 13 mm. Decrease speed if the overhang is more than 13 mm.
- For your safety, use the tools below the indicated allowable speed. See “Precautions for using Nakanishi Tools” on the next page.
- Check the tools and machinery for mechanical defects prior to each use.

**Grit**
- This shows grain size of various grinding tools.
- Rough Cutting: 46, 54, 60, 70, 80, 90
- Medium Cutting: 100, 120, 150, 180
- Pre Finishing: 220, 240, 280, 320, 400
- Finishing: 500, 600, 700, 800, 1000
- Fine Finishing and Mirror Polishing: 1200, 1500, 1800, 2000, 3000, 4000, 6000, 8000

**End Code number on each page**

**Standard package quantity**

**Shank diameter of the tool**

**Maximum allowable speed**

**Total length of the tool (mm)**

Note: Specifications may be changed without notice. Colors of the tools in this catalogue may not be the same as actual colors due to printing limitations.