

HIGH TORQUE BRUSHLESS MICRO-GRINDER

# Espert 500 Series

## ESPERT 500 SERIES ◀◀



Espert 500 Standard Set

Code No.	<b>9881</b> (120V)	Model	<b>ES50C-HR</b>
	<b>9882</b> (230V)		

- Speed : 1,000~50,000 min<sup>-1</sup>
- NAKANISHI Smart Switch
- Max. Output : 200W



### Low Noise, Low Vibration

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

### Wide Range of Collet Available

Collet sizes range from a tiny 0.3 mm up, with a wide variety of sizes available. (P.55)  
Tools can be changed without the use of any spanners.



Espert 500 Compact Motor Handpiece

Code No.	<b>9091</b>	Model	<b>ENK50C-HR</b>
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Standard Size Collet : ø3.0 mm (CHH-3.0), ø2.35 mm (CHH-2.35)

### Features of Motor Handpiece

#### Speed : 1,000~50,000 min<sup>-1</sup>

Speed is steplessly variable from 1,000~50,000 min<sup>-1</sup>. Smooth and powerful torque is delivered at both high and low speeds. The extremely high maximum speed of 50,000 min<sup>-1</sup> allows high precision micro-machining.

#### 2 Types of Motors

Very high torque from compact motors.

		NAKANISHI Smart Switch Color
• Compact Type	(ENK-500C) 140W	Blue
• Torque Type	(ENK-500T) 200W	Gray

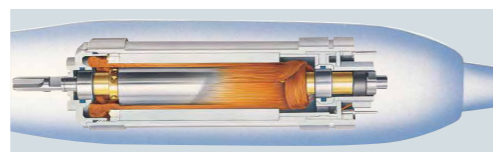
#### NAKANISHI Smart Switch

The switch provides a click sensation and a confirmation tone is produced by the Controller when the switch is operated. The motor type is distinguishable by the switch color.



#### 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

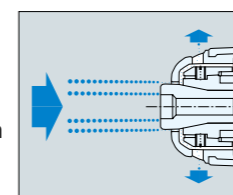
NAKANISHI's ultra-precision technology ensures bur concentricity of 0.02 mm or less, which allows for very high precision finishing.

#### Simple Screw on Attachments



### Special Dust-Proof Mechanism

This 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.



### 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.



### 9 Types of Attachments Available

9 different types of attachments making an almost infinite number of applications possible.



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Air Driven

ROTUS IMPULSE PRESTO II

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ADVANCED HIGH PERFORMANCE CONTROLLER

# Espert 500 Series

ESPERT 500 SERIES ◀◀



Espert 500 Torque Set

Code No.	<b>9883</b> (120V)	Model	<b>ES50T-HR</b>
	<b>9884</b> (230V)		



### Portable Controller with Carrying Handle

Very convenient to be carried.



### 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 Mode)
- 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)

Code No.	<b>9793</b> (120V)
	<b>9794</b> (230V)
Model	<b>NE96</b>

\*Please check the power source plug type (P.58).

#### Specifications

Description	Espert 500 Controller
Power Source	AC 120/230V, 50-60 Hz
Dimensions	W172 x D230 x H94 mm
Weight	2.6 kg

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

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PRECISION BRUSHLESS MICRO-GRINDER

# Esperit 500 Sets

With Motor ON/OFF Switch

- Speed Range : 1,000~50,000 min<sup>-1</sup>
- Microprocessor controlled for optimal motor control
- Hand Switch [NAKANISHI Smart Switch]
- Memory Speed Function [Fixspeed®]

**High Power &  
High Torque !!**



MOTOR-HANDPIECE ◀◀

PRECISION BRUSHLESS MICRO-GRINDER

# Esperit 500 Motor Handpiece

With Motor ON/OFF Switch

1,000~50,000 min<sup>-1</sup>

- Speed Range : 1,000~50,000 min<sup>-1</sup>
- Microprocessor controlled for optimal motor control
- Hand Switch [NAKANISHI Smart Switch]
- Memory Speed Function [Fixspeed®]



## Esperit 500 Standard Set



**1,000~50,000 min<sup>-1</sup>** **140w**

- High Power System.  
<Max. Output 140W>

Code No.	<b>9881</b> (120V)
	<b>9882</b> (230V)
Model	<b>ES50C-HR</b>

\*Please check the power source plug type (P.58).

- Standard Equipment
- Controller (NE96) : 1 pc.
  - Compact Motor Handpiece (ENK50C-HR) : 1 pc.

- Standard Accessories
- Collet ø3.0 mm (CHH-3.0), ø2.35 mm (CHH-2.35)
  - Handpiece Holder : 1 pc. • Handpiece Stand : 1 pc.
  - Spanner (7 x 5.1) : 1 pc. • Pin Spanner (K-233) : 1 pc.
  - L Shaped Spanner (9) : 1 pc.

## Esperit 500 Compact Motor Handpiece

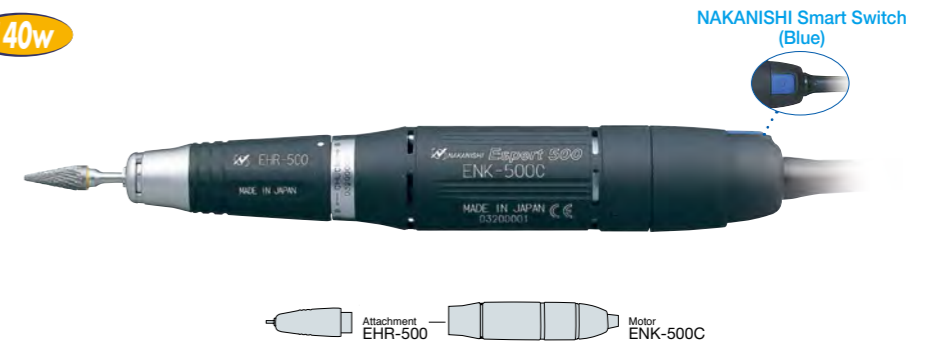
**1,000~50,000 min<sup>-1</sup>** **140w**

Code No.	<b>9091</b>
Model	<b>ENK50C-HR</b>

Standard Size Collet

ø3.0 mm (CHH-3.0) ø2.35 mm (CHH-2.35)  
Optional Collets : CHH group are shown in page (P.55)

- Standard Accessories
- Spanner (7x5.1) : 1 pc.
  - Pin Spanner (K-233) : 1 pc.
  - L Shaped Spanner (9) : 1 pc.



## Esperit 500 Torque Motor Handpiece

**1,000~50,000 min<sup>-1</sup>** **200w**

Code No.	<b>9092</b>
Model	<b>ENK50T-HR</b>

Standard Size Collet

ø3.0 mm (CHH-3.0) ø2.35 mm (CHH-2.35)  
Optional Collets : CHH group are shown in page (P.55)

- Standard Accessories
- Spanner (7x5.1) : 1 pc.
  - Pin Spanner (K-233) : 1 pc.
  - L Shaped Spanner (9) : 1 pc.



## Esperit 500 Torque Set



**1,000~50,000 min<sup>-1</sup>** **200w**

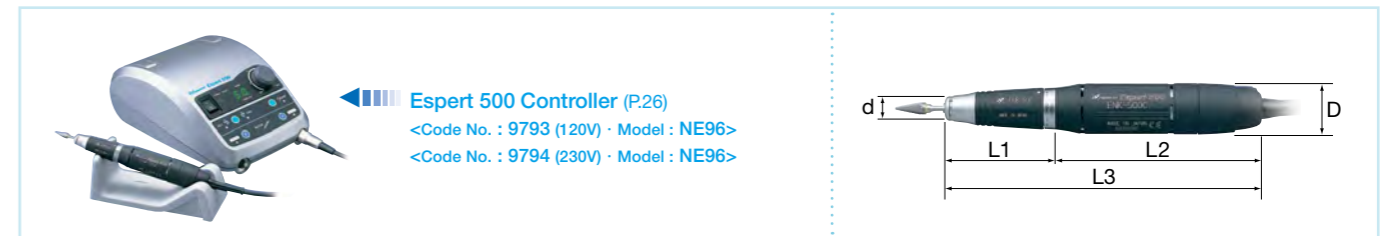
- Highest Power in its Class.  
<Max. Output 200W>

Code No.	<b>9883</b> (120V)
	<b>9884</b> (230V)
Model	<b>ES50T-HR</b>

\*Please check the power source plug type (P.58).

- Standard Equipment
- Controller (NE96) : 1 pc.
  - Torque Motor Handpiece (ENK50T-HR) : 1 pc.

- Standard Accessories
- Collet ø3.0 mm (CHH-3.0), ø2.35 mm (CHH-2.35)
  - Handpiece Holder : 1 pc. • Handpiece Stand : 1 pc.
  - Spanner (7 x 5.1) : 1 pc. • Pin Spanner (K-233) : 1 pc.
  - L Shaped Spanner (9) : 1 pc.



Code No.	d	D	L1	L2	L3	Weight	Max. Output	Speed Range	Collet
<b>9091</b>	ø13.3	ø26.8	59.4	107.8	167.2	210 g(*)	140W	1,000~50,000 min <sup>-1</sup>	ø0.3~ø3.175 mm CHH Group (P.55)
<b>9092</b>	ø13.3	ø28.3	59.4	121.4	180.8	250 g(*)	200W	1,000~50,000 min <sup>-1</sup>	CHH Group (P.55)

\* Weight (w/o Coiled Cord)

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Espert 500 Series System Chart

Code No.	Model
<b>Attachment</b>	
<b>9090</b>	<b>EHR-500</b>
Ring Type	
<b>1515</b>	<b>EHL-401</b>
Lever Type	
<b>1552</b>	<b>EHG-400</b>
6 mm Torque Type	
<b>1525</b>	<b>EIC-300</b>
90° Angle Type	
<b>1526</b>	<b>EKC-300</b>
50° Angle Type	
<b>1551</b>	<b>ERA-270</b>
90° Angle Torque Type	
<b>1516</b>	<b>ELS-100</b>
LUSTER (Reciprocating motion)	
<b>1554</b>	<b>EML-8</b>
MINI-LUSTER (Reciprocating motion)	
<b>1145</b>	<b>EBS-101</b>
FINE BELT SANDER	
<b>Speed Reducer</b>	
<b>1553</b>	<b>ERG-01B</b>
1/4 Speed Reducer	
• May be connected between the motor and the attachment when required increased torque.	
<b>Motor</b>	
<b>9088</b>	<b>ENK-500C</b>
Compact Motor and Cord 1,000~50,000 min <sup>-1</sup>	
<b>9089</b>	<b>ENK-500T</b>
Torque Motor and Cord 1,000~50,000 min <sup>-1</sup>	
<b>Controller</b>	
<b>9793</b>	<b>NE96</b>
<b>9794</b>	<b>NE96</b>
Espert 500 Controller	
<b>Sets</b>	
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<b>9882</b>	<b>ES50C-HR</b>
Espert 500 Standard Set	
<b>Code No.</b>	<b>Model</b>
<b>9881</b> (120V)	<b>ES50C-HR</b>
<b>9882</b> (230V)	
<b>Standard Equipment</b>	
• Controller (NE96) : 1 pc.	
• Compact Motor Handpiece (ENK50C-HR) : 1 pc.	
• Collet ø3.0 mm (CHH-3.0), ø2.35 mm (CHH-2.35)	
<b>Standard Accessories</b>	
• Handpiece Holder : 1 pc. • Handpiece Stand : 1 pc.	
• Spanner (7 x 5.1) : 1 pc. • Pin Spanner (K-233) : 1 pc.	
• L Shaped Spanner (9) : 1 pc.	
Emax EVOLUTION, ELECTER E-max and ROTUS attachments can be connected using these adaptors.	
<b>1518</b>	<b>ECN-011</b>
Extension Adaptor	
<b>1517</b>	<b>ERG-01</b>
1/4 Speed Reducer	

⚠ Details of Maximum Allowable speed on intermittent use or continuous use P.31~33

Espert 500 Series

Espert 500 Controller

Code No.	<b>9793</b> (120V)
	<b>9794</b> (230V)
Model	<b>NE96</b>

- Microprocessor controlled for optimal motor control.
- Memory Speed Function FiXspeed®.
- Power Source : AC120/230V, 50-60 Hz
- Dimensions : W172 x D230 x H94 mm
- Weight : 2.6 kg

**Standard Accessories**

- Handpiece Stand : 1 pc. • Handpiece Holder : 1 pc.

\*Please check the power source plug type (P.58).



Espert 500 Compact Type Motor

Code No.	<b>9088</b>
Model	<b>ENK-500C</b>

**1,000~50,000 min<sup>-1</sup>**

- Incorporates the NAKANISHI Smart Switch for easy on/off operation.
- Small, lightweight, high-speed brushless DC motor.

- Output Power : 140W
- Max. Torque : 6.0 cN·m
- Cord Length : 1.5 m
- Weight : 115 g (w/o cord)



Espert 500 Torque Type Motor

Code No.	<b>9089</b>
Model	<b>ENK-500T</b>

**1,000~50,000 min<sup>-1</sup>**

- 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 cN·m
- Cord Length : 1.5 m
- Weight : 160 g (w/o cord)



### Ring Type Attachment

Code No. **9090** Model **EHR-500**



- 50,000 min<sup>-1</sup> Max.**
- High precision and high reliability is realized by micron precision.
  - Slim, lightweight design allows for fine finishing of delicate parts.
  - One-touch ring type bur replacement.



◆ Weight : 94 g  
 Standard Size Collet  
**ø3.0 mm (CHH-3.0) ø2.35 mm (CHH-2.35)**  
 Optional Collets : CHH group are shown in page (P.55)  
 Standard Accessories  
 • Spanner (7x5.1) : 1 pc. • Pin Spanner (K-233) : 1 pc.  
 • L Shaped Spanner (9) : 1 pc.

### Lever Type Attachment

Code No. **1515** Model **EHL-401**



- 50,000 min<sup>-1</sup> Max.**
- High precision and high reliability is realized by micron precision.
  - Slim, lightweight design allows for fine finishing of delicate parts.
  - Lever Type one touch bur release.



◆ Weight : 70 g  
 Standard Size Collet  
**ø3.0 mm (CHH-3.0) ø2.35 mm (CHH-2.35)**  
 Optional Collets : CHH group are shown in page (P.55)  
 Standard Accessories  
 • Spanner (7x5.1) : 1 pc. • Pin Spanner (K-233) : 1 pc.

### 6 mm Torque Type Attachment

Code No. **1552** Model **EHG-400**



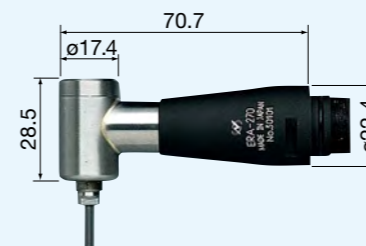
- 40,000 min<sup>-1</sup> Max.**  
 Please use it with Speed Reducer.
- Permits the use of ø6.0 mm shank burs.
  - Collet is tightened by a spanner.



◆ Weight : 110 g  
 Standard Size Collet  
**ø6.0 mm (CHG-6.0)**  
 Optional Collets : CHG group are shown in page (P.55)  
 Standard Accessories  
 • Spanner (10 x 10) : 1 pc.  
 • Bar Wrench (K-212) : 1 pc.

### 90° Angle Torque Attachment

Code No. **1551** Model **ERA-270**



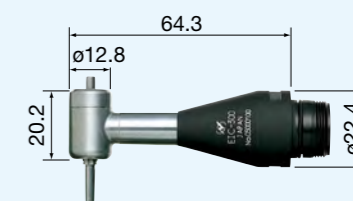
- 27,000 min<sup>-1</sup> Max.**
- Large gear for better durability and high load capacity.
  - Perfect for finishing bottom surfaces and other tight, hard to reach areas.
  - Suitable for polishing a flat surface at speed with a grinding disk pad.



◆ Speed Reduction Ratio : 1/1.5  
 ◆ Weight : 107 g  
 Standard Size Collet  
**ø3.0 mm (CHS-3.0)**  
 Optional Collets : CHS group are shown in page (P.56)  
 Standard Accessories  
 • Spanner (8x5) , (7x5.1) , (20x24) : 1 pc. each

### 90° Angle Attachment

Code No. **1525** Model **EIC-300**



- 30,000 min<sup>-1</sup> Max.**
- Suitable for polishing a flat surface at speed with a grinding disk pad.
  - Capable of applications for rough cutting to mirror finishing.
  - Speed Reduction Ratio : 3/4

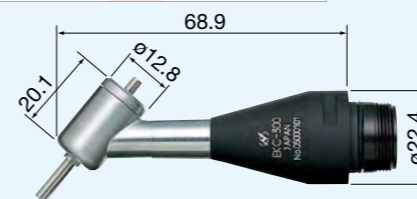


◆ Weight : 54 g  
 Standard Size Collet  
**ø3.0 mm (CHC-3.0)**  
 Optional Collets : CHC group are shown in page (P.55)  
 Standard Accessories  
 • Chuck Wrench (K-231) : 1 pc.  
 • Spanner (20 x 24) : 1 pc.  
 • Standard Accessories : 1 set

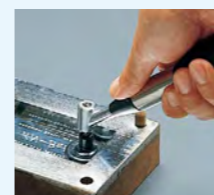
Code No.	Description	Package
64101	Rubber Pad (Small) O.D. ø10 mm	1 pc./pack
64102	Rubber Pad (Med) O.D. ø20 mm	
64103	Rubber Pad (Large) O.D. ø30 mm	
64133	Sand Paper Disk for small pad ø11 #180	5 pcs./pack
64137	Sand Paper Disk for small pad ø11 #600	
64153	Sand Paper Disk for med. pad ø21 #180	
64157	Sand Paper Disk for med. pad ø21 #600	
64173	Sand Paper Disk for large pad ø31 #180	
64177	Sand Paper Disk for large pad ø31 #600	

### 50° Angle Attachment

Code No. **1526** Model **EKC-300**



- 30,000 min<sup>-1</sup> Max.**
- Perfect for finishing bottom surfaces and other tight, hard to reach areas.
  - Suitable for polishing a flat surface at speed with a grinding disk pad.
  - Speed Reduction Ratio : 3/4. Use the motor in reverse rotation for clockwise rotation.



◆ Weight : 54 g  
 Standard Size Collet  
**ø3.0 mm (CHC-3.0)**  
 Optional Collets : CHC group are shown in page (P.55)  
 Standard Accessories  
 • Chuck Wrench (K-231) : 1 pc.  
 • Spanner (20x24) : 1 pc.  
 • Standard Accessories : 1 set

Code No.	Description	Package
64101	Rubber Pad (Small) O.D. ø10 mm	1 pc./pack
64102	Rubber Pad (Med) O.D. ø20 mm	
64103	Rubber Pad (Large) O.D. ø30 mm	
64133	Sand Paper Disk for small pad ø11 #180	5 pcs./pack
64137	Sand Paper Disk for small pad ø11 #600	
64153	Sand Paper Disk for med. pad ø21 #180	
64157	Sand Paper Disk for med. pad ø21 #600	
64173	Sand Paper Disk for large pad ø31 #180	
64177	Sand Paper Disk for large pad ø31 #600	

### LUSTER Attachment (Pistol-Type Polisher)

Code No. **1516** Model **ELS-100**



- 25,000 min<sup>-1</sup> Max.**
- High performance grinding & polishing with high power and reciprocating stroke.
  - Well-balanced, rubber-grip absorbs vibration.
  - Stroke Range : 0-6 mm (variable)
  - Reciprocating Stroke (variable) : 0-6,300 times/min.



◆ Weight : 680 g  
 ◆ Max. tool shank diameter ø6.4 mm, Screw clamp type  
 Standard Accessories  
 • Allen Wrench (2 mm), (3 mm) : 1 pc. each  
 • Lubricating Oil • Lubrication Nozzle for LUSTER  
 • Standard Accessories : 1 set

Code No.	Description	Package
62502	Stone Holder	1 pc./pack
62505	Stone Holder	
62751	Spring Holder	
62525	Rectangular Pad	10 pcs./pack
62526	Rod for Rectangular Pad	
62527	Angle Rod	
62552	Sand Paper Tip #120	
62555	Sand Paper Tip #320	
62557	Sand Paper Tip #600	
62559	Sand Paper Tip #1000	

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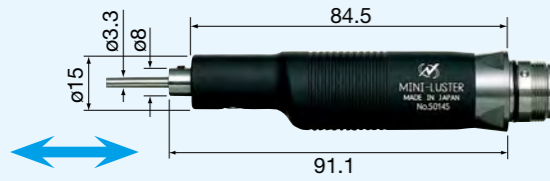
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Protective Equip.

### MINI-LUSTER Attachment (Pencil-Type Reciprocating Polishing Finisher)

Code No. **1554** Model **EML-8** Stroke (0.8 mm)

#### Reciprocating motion



- 25,000 min<sup>-1</sup> 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) : 0-6,380 strokes/min
  - Weight : 130 g
  - Max. tool shank diameter  $\phi 3.2$  mm, Screw clamp type

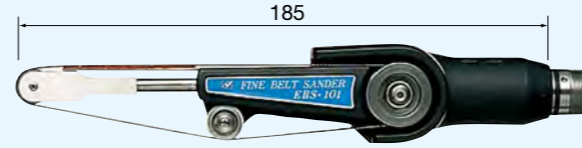
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Standard Accessories  
• Allen Wrench (1.5 mm) : 1 pc. • Standard Accessories : 1 set

Code No.	Description	Package
62751	Spring Holder	1 pc./pack
62510	Ceramic Fiber Grindstone Holder	
62814	Electroplated Diamond File 1.2 x 4 x 50 #100	
60737	Ceramic Fiber Grindstone 1 x 6 x 50 #1200	

### FINE BELT SANDER Attachment

Code No. **1145** Model **EBS-101**



**30,000 min<sup>-1</sup> Max.**

- Very high belt speed, ideal for applications from deburring to radius finishing.
- Belt Speed : 0-705 m/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

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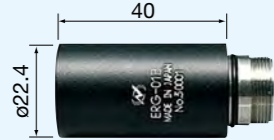
Code No.	Description	Package
64902	Abrasive Belt Width 4mm #120	2 pcs. each
64904	Abrasive Belt Width 4mm #240	
64906	Abrasive Belt Width 4mm #400	
64912	Abrasive Belt Width 6mm #120	
64914	Abrasive Belt Width 6mm #240	
64916	Abrasive Belt Width 6mm #400	
64922	Abrasive Belt Width 8mm #120	
64924	Abrasive Belt Width 8mm #240	
64926	Abrasive Belt Width 8mm #400	

### Espert 500 Series Spare Parts

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

### 1/4 Speed Reducer

Code No. **1553** Model **ERG-01B**



- 30,000 min<sup>-1</sup> Max.**
- Mounted between an attachment and a motor.
  - The speed is reduced to 1/4 but the torque is multiplied by 4 times.
  - Suitable for high torque grinding process or drilling.
  - Weight : 65 g

Standard Accessories  
• Pin Spanner (K-233) : 1 pc.

### Extension Adaptor

Code No. **1518** Model **ECN-011**



- 40,000 min<sup>-1</sup> 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.

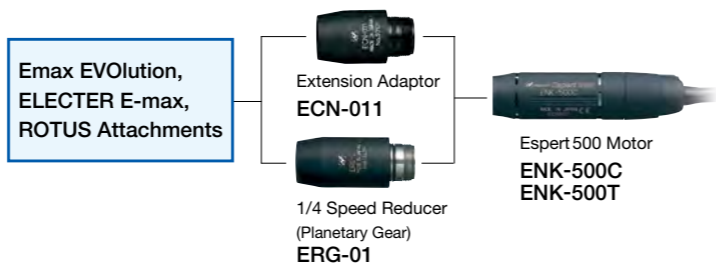
### 1/4 Speed Reducer

Code No. **1517** Model **ERG-01**



- 30,000 min<sup>-1</sup> Max.**
- The Speed Reducer can be used with the attachments for Emax EVOLUTION, E-max and ROTUS you already have.
  - The speed is reduced to 1/4 but the torque is multiplied by 4 times.
  - Suitable for high torque grinding process or drilling.
  - Weight : 62 g

Standard Accessories  
• Pin Spanner (K-233) : 1 pc.



# Precautions for using Nakanishi Tools

## For safe use of the tools



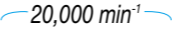

- Please read operation manuals before using any tools.
- Please keep all operation manuals on hand for reference whenever necessary.

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

## CAUTIONS

 <p><b>Always use safety glasses, mask, face guard for your safety.</b></p>	 <p><b>Fasten the collet firmly.</b> Make sure the tool is fully installed in the collet to avoid tool slippage.</p>										
 <p><b>Do not touch the tools when in operation.</b> Make sure the work area is neat and there is sufficient light.</p>	 <p><b>Do not use damaged or broken electric cords and air hoses.</b></p>										
 <p><b>Do not use the tool where flammable liquids or gases exist.</b></p>	 <p><b>Start at low speed and increase gradually to insure safe work.</b> This is particularly important for the use of new tools, large cutting tools and elastic tools such as rubber grindstone, sander and brush tools.</p>										
 <p><b>Do not leave operating tools.</b> Confirm that the tool has stopped completely after switching off.</p>	 <p><b>Keep the tools and products in a cool, dry place.</b></p>										
 <p><b>Select proper tools and products for your application.</b> Select tools carefully considering the performance of the tools, work procedure and type/shape of the material.</p>	 <p><b>Check the tools carefully before use.</b> Confirm that the tools are free of chips, cracks, splits, scratches, irregular bondings, and out of round shanks, etc.</p>										
 <p><b>Fix the work material firmly in a vise and/or other clamping fixture.</b></p>	 <p><b>Stop grinding or polishing immediately whenever unusual sounds, vibrations, or wear are found.</b> Restart the work only after the problem is found and corrected.</p>										
 <p><b>Do not wear loose clothing and/or accessories that may be caught in machinery.</b> Long hair should be secured prior to machine operation.</p>	 <p><b>Only use attachments, parts, consumable articles and accessories produced by NAKANISHI.</b></p>										
 <p><b>Check all tools carefully before use.</b> 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.</p>	 <p><b>Do not apply high pressure to or pry with the tools.</b> 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.</p>										
 <p><b>The tools should be used by taking care of the overhang and below maximum allowable speed.</b> 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).</p>	<p>Decrease the speed as shown in the table below, if you are using a longer overhang than 13 mm.</p> <table border="1"> <thead> <tr> <th>Overhang</th> <th>Maximum allowable speed (min<sup>-1</sup>)</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>(A) x 0.5</td> </tr> <tr> <td>Less than 25 mm</td> <td>(A) x 0.3</td> </tr> <tr> <td>Less than 50 mm</td> <td>(A) x 0.1</td> </tr> </tbody> </table>	Overhang	Maximum allowable speed (min <sup>-1</sup> )	Less than 13 mm	Shown in the catalogue (A)	Less than 20 mm	(A) x 0.5	Less than 25 mm	(A) x 0.3	Less than 50 mm	(A) x 0.1
Overhang	Maximum allowable speed (min <sup>-1</sup> )										
Less than 13 mm	Shown in the catalogue (A)										
Less than 20 mm	(A) x 0.5										
Less than 25 mm	(A) x 0.3										
Less than 50 mm	(A) x 0.1										

# Symbols used in NAKANISHI Tools Catalogue

	<p><b>Shank Diameter</b> Shows shank diameter of the tools. Nakanishi produces tools with several shank diameters. * Nakanishi micro grinders utilize a collet system, which insures maximum precision. Therefore, please use the collet that best corresponds to the tool shank diameter.</p>
	<p><b>Standard Package</b> 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.</p>
	<p><b>Maximum allowable speed</b> Do not exceed the maximum allowable tool 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 13mm. Decrease speed if the overhang is more than 13mm. Refer to "Precautions for using Nakanishi Tools" on the next page. * Check the tools and machinery for mechanical defects prior to each use.</p>
	<p><b>Grit</b> This shows grain size of various grinding tools.</p> <p>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 ....</p>

Code No. **62801~** End Code number on each page

**NAKANISHI's EXCLUSIVE TOOLS**

**SHANK Ø3.0** Code number (Order number)

1 pc./pack Electroplated Diamond File

<p>Flat taper 1/15 56 Thickness 1.4 Grit #200 62801 #400 62802 #600 62803</p> <p>Flat taper 1/15 56 Thickness 1.4 Grit #200 62805 #400 62806 #600 62807</p> <p>Flat 1.5/20 55 Grit #150 62811 #200 62812 #400 62813</p> <p>Flat (Single side electroplating) 1.2/10 50 Grit #100 62814</p> <p>Flat 1.4/5.0 55 Grit #150 62815 #200 62816 #400 62817</p> <p>Flat (Single side electroplating) 1/15 50 Grit #150 62821 #200 62822 #400 62823</p> <p>Flat (Single side electroplating) 1.5/20 55 Grit #150 62825 #200 62826 #400 62827</p>	<p>Angular 2/15 50</p> <p>Round ø1/15 50</p> <p>Round ø2/20 50</p> <p>Round ø3/20 55</p> <p>Round taper ø1.5/25 51</p> <p>Half-round 1.5/15 50</p> <p>Half-round 2/20 55</p> <p>Triangular 2.5/4 20 55</p>
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**SHANK Ø3.0** Standard package quantity

15 pcs./pack Special Rubber Pad For Abrasive and

**SHANK Ø3.0** Shank diameter of the tool

Exclusive Tools of "50° & 90° ANGLE" Maximum allowable speed

Special tools for Nakanishi Micro-grinder "Angle Attachment". Highly efficient for grinding, polishing, finishing, etc.

**SHANK Ø3.0** Total length of the tool (mm)

20,000 min<sup>-1</sup>

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.

**NAKANISHI's EXCLUSIVE TOOLS**

Exclusive Tools of Electromotive Polisher

**"LUSTER", "MINI-LUSTER", "SWING-LUSTER"**



**LUSTER**

Best for finishing large open work areas.

**SHANK  $\phi 3.0$**

1 pc./pack

**Electroplated Diamond File**

Flat taper		Thickness 1.4	Grit	
			# 200	<b>62301</b>
			# 400	<b>62302</b>
			# 600	<b>62303</b>
Flat taper		Thickness 1.4	# 200	<b>62305</b>
			# 400	<b>62306</b>
			# 600	<b>62307</b>
Flat			# 150	<b>62311</b>

Half-round		Grit	
		# 150	<b>62313</b>
Round		# 150	<b>62315</b>
Angular		# 150	<b>62317</b>

1 pc./pack

**Diamond File Flat Type**

\*Use with stone holder No.62502.

	Grit	
	# 150	<b>62351</b>
	# 200	<b>62352</b>
	# 400	<b>62353</b>

	Grit	
	# 150	<b>62355</b>
	# 200	<b>62356</b>
	# 400	<b>62357</b>
	# 150	<b>62361</b>
	# 200	<b>62362</b>
	# 400	<b>62363</b>

**SHANK  $\phi 3.0, \phi 3.5$**

3 pcs./pack

**Precision Finishing Files (Flat, Round, Angular, Triangular, Half-Round)**

	Total length The length of file	140mm		180mm
		70mm	90mm	90mm
1(1.3) 5(6) (Flat)		Standard	Fine	Standard
		<b>57301</b>	<b>57311</b>	<b>57321</b>
3(3.5) (Round)		<b>57302</b>	<b>57312</b>	<b>57322</b>
2.5(2.7) (Angular)		<b>57303</b>	<b>57313</b>	<b>57323</b>

\*(Figures) means dimensions for standard file total length 180mm.

	Total length The length of file	140mm		180mm
		70mm	Fine	Standard
3.3(4.1) (Triangular)		<b>57304</b>	<b>57314</b>	<b>57324</b>
2 5(6) (Half-round)		<b>57305</b>	<b>57315</b>	<b>57325</b>

- 5 files-pack set**
- **Standard (total length 140mm) set** (No.57301~No.57305 : 1pc. each) ..... **57309**
  - **Fine (total length 140mm) set** (No.57311~No.57315 : 1pc. each) ..... **57319**
  - **Standard (total length 180mm) set** (No.57321~No.57325 : 1pc. each) ..... **57329**

**SHANK  $\phi 3.0$**

3 pcs./pack

**Rasps for plastics and wood working (Flat, Round, Angular, Triangular, Half-Round)**

2.2 5.7 (Flat)		Total length 140 mm (The length of file is 69 mm)	<b>57401</b>
3.8 (Round)			<b>57402</b>
3.3 (Angular)			<b>57403</b>

3.8 (Triangular)		<b>57404</b>
2.3 5.7 (Half-round)		<b>57405</b>

- 5 files-pack set**
- **Rasps set for plastics and wood working** (No.57401~No.57405 : 1pc. each) ..... **57410**

Electrically Driven  
EmaxEVO  
ESPERT

Air Driven  
ROTUS  
IMPULSE  
PRESTO II

General Parts  
GENERAL PARTS

CAUTION

Exclusive Tools  
EXCLUSIVE TOOLS

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Protective Equip.