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Precision Brushless Micro Grinder

EmaxPROgress

EmaxPROgress



NAKANISHI



80,000 min^{-1} High-Speed Rotation

Controls up to 80,000 min^{-1} enables more precise micro-machining than ever before.

Lighter than an Air Grinder at 132 g

The compact body fits comfortably in your hand, and the handpiece is surprisingly light at just 132 g.

Speed Tracking Performance More Than Doubled *(compared to conventional models)*

Unprecedented smoothness achieved through 180-degree vector control.
With speed tracking performance more than doubled, it delivers the "feeling of grinding exactly as intended."

“PROgress”: A New Step Beyond EVOlution



80,000 min^{-1}
Introducing the High-Speed Motor Handpiece

*Shown In Actual Size.

Equipped with a Brushless DC motor



High-Speed Rotation

High-speed rotation of up to 80,000 min^{-1} enables precise micro-machining. Stable rotation contributes to a precise finish.

Compact and Lightweight

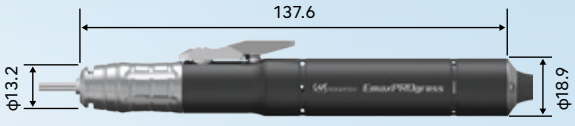
The compact design significantly reduces weight. Weight has been reduced by up to 48% compared to conventional set handpieces.

Reduced Heat Generation

The use of an amorphous core enables smooth machining with low heat generation even at high speeds.

Specifications

- Speed: 1,000–80,000 min^{-1}
- Max. Power: 125 W
- Max. Torque: 4.0 cN·m
- Net Weight: 132 g (excluding cord)
- Cord Length: 1.5 m



Standard Collets

- ϕ3.0 mm (CHH-3.0) ϕ2.35 mm (CHH-2.35)

Standard Accessories

- Wrench (7 × 5.1): 1 pc.
- L-shaped Wrench (9): 1 pc.

7954 | ESP-800

*Scheduled for release in December 2026

A Major Step Forward for Professionals (Progress)

Espert 500
50,000 min⁻¹ Motor

Emax EVOlution
40,000 min⁻¹ Motor

Torque Motor



9089 | ENK-500T

Specifications

- Speed: 1,000–50,000 min⁻¹
- Max. Power: 200 W ■ Max. Torque: 8.7 cN·m
- Net Weight: 160 g (excluding cord) ■ Cord Length: 1.5 m
- ON/OFF Smart Switch

Standard Motor



8086 | ENK-410S

Specifications

- Speed: 1,000–40,000 min⁻¹
- Max. Power: 73 W ■ Max. Torque: 4.3 cN·m
- Net Weight: 90 g (excluding cord) ■ Cord Length: 1.5 m
- ON/OFF Smart Switch

Compact Motor

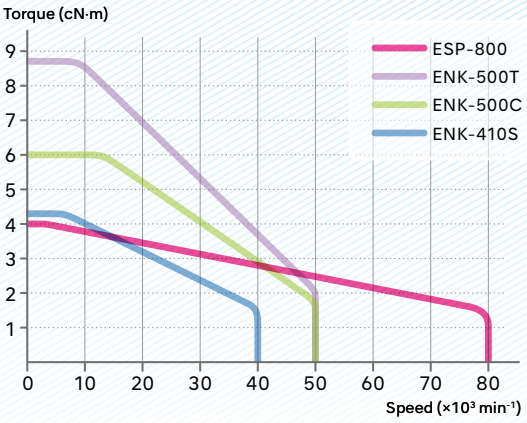


9088 | ENK-500C

Specifications

- Speed: 1,000–50,000 min⁻¹
- Max. Power: 140 W ■ Max. Torque: 6.0 cN·m
- Net Weight: 115 g (excluding cord) ■ Cord Length: 1.5 m
- ON/OFF Smart Switch

Torque Level



Reasons to Choose
Brushless DC Motors

1 Long Service Life and Maintenance-Free

While carbon brushes typically need to be replaced after 200 to 500 hours, these motors require no replacement because there is no wear. They are ideal for use on production lines with long continuous operating times.

2 Stable Even at High-Speeds

Capable of operating at high-speeds, with electronic control that minimizes speed fluctuations. This ensures consistent machining quality.

3 Low Vibration and Low Heat Generation

With no mechanical sliding parts, vibration and heat generation are minimal. This enhances the user experience when holding the handpiece.

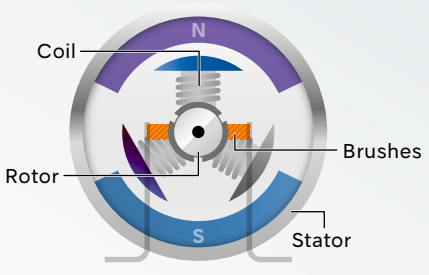
4 Compact, Lightweight, Yet Powerful

Ideal for creating compact, lightweight handpieces. Achieves higher torque and power density than brushed motors of the same size.

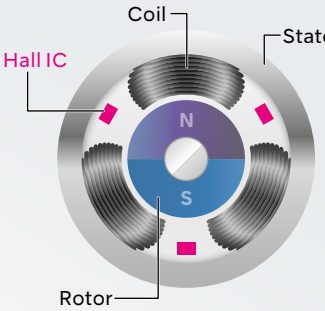
Key Features — Rotational Position Detection via Hall IC and Electronic Control

In response to increased load, the Hall IC detects the current rotational speed and position. Since the control board immediately increases the electronic current and torque, this motor features outstanding speed stability and strong torque at low speeds.

Conventional Brushed DC Motors



Brushless DC Motor



Motor Cross-Section

Next-Gen Drive Performance with the New Controller

*Shown In Actual Size.



High-Speed Up To 80,000 min^{-1}

Rotation speed can be adjusted between 1,000 and 80,000 min^{-1} (in 500 min^{-1} increments). It delivers smooth yet powerful torque across the entire speed range, from low to high speeds.

Outstanding Operability

Features a large-diameter volume knob for excellent operability. It makes adjusting the speed easy and improves work efficiency.

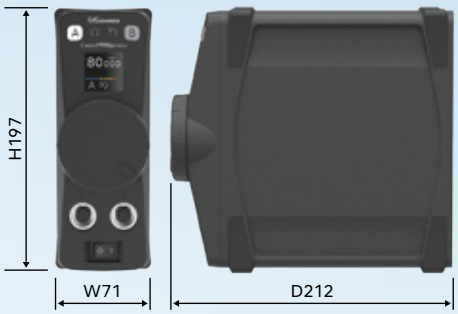
Two Handpieces Can Be Connected

By connecting two sets of handpieces and switching channels according to the task, you can improve efficiency.

*Two sets cannot be used simultaneously.

Specifications

- Input Voltage: AC 100 V–AC 240 V, 50/60 Hz
- Dimensions: 71 (W) × 212 (D) × 197 (H) mm
- Net Weight: 1.25 kg
- Accessories: Handpiece Stand: 1 pc., Power Cord (2 m): 1 pc.



7960	EmaxPROgress Controller 120V
7970	EmaxPROgress Controller 230V

*Features a switching power supply compatible with worldwide input voltages.
*Please choose the plug type of main Power Cord.

All-New Control System.
Unrivaled Smoothness.

Completely Redesigned Motor Control System; 180-Degree Vector Control

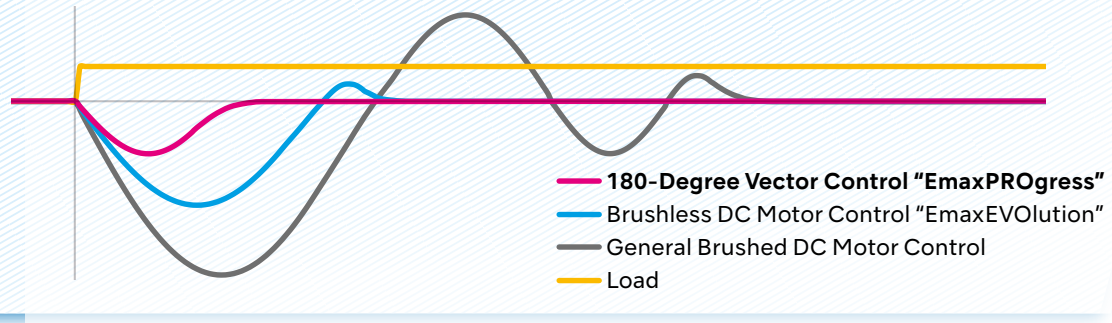
Compared to conventional drive systems, this reduces rotational irregularities and enables quieter, more stable operation. With unprecedented smoothness and responsiveness*, it delivers "the feeling of cutting exactly as intended."

*Compared to conventional control methods: Speed tracking performance is more than double

Speed Tracking Performance Comparison (40,000 min⁻¹)	EmaxPROgress		Emax EVOlution
	High-Acceleration (FAST)*	Low-Acceleration (SLOW)	
Starting Time	0.45 Sec	0.9 Sec	1.2 Sec
Stopping Time	0.45 Sec	0.9 Sec	1.1 Sec

*"High Acceleration" is the default setting at the factory.

[for Reference] Illustration of Speed Variation Based on Load



Load Visualization with a Flash Load Meter

Equipped with a Load Meter that displays load status. It visualizes the load rate, enabling standardization of operations. Additionally, the meter display changes depending on the connected motor, expanding the range of machining applications.

ESP-800 / ENK-410S



ENK-500T / ENK-500C



Display Settings for Vertical or Horizontal Mounting



You can choose to place the controller vertically or horizontally to suit your installation space (layout).



Lightweight Body

Controller weight: 1.25 kg.
Achieves a significant weight reduction of over 50% compared to previous models.

kg WEIGHT DOWN

Equipped with Various Safety Features

Equipped with safety features such as overheating protection, load warning audio alert, safety functions, and acceleration selection.

SAFETY

Supports a wide range of finishing applications with a diverse selection of motors and attachments

In addition to the newly introduced 80,000 min⁻¹ high-speed motor handpiece, all motors and attachments for the high-end Espert 500 and the industry-standard EmaxEVOlution are compatible.

Espert 500

Motors



Attachments



Emax EVOlution

Motor



Attachments



See pages 9–10 for details on motor and attachment combinations

High Speed Set



Speed 1,000–80,000 min^{-1}

Max. Torque 4.0 cN•m **Max. Power** 125 W

Set Contents

- Controller: 1 pc.
- High Speed Motor Handpiece (ESP-800): 1 pc.

Standard Equipment and Accessories

- Collet ϕ3.0 mm (CHH-3.0), ϕ2.35 mm (CHH-2.35)
- Handpiece Stand: 1 pc. ■ Power Cord (2 m): 1 pc.
- Wrench (7×5.1): 1 pc.
- L Shaped Wrench (9): 1 pc.





ESP-800 Net Weight / 132 g (excluding cord)

7961	EP800-120 (Plug type: 120V)
7971	EP800-230 (Plug type: 230V)

*Please choose the plug type of main Power Cord.
*Scheduled for release in December 2026

Torque Set



Speed 1,000–50,000 min^{-1}

Max. Torque 8.7 cN•m **Max. Power** 200 W

Set Contents

- Controller: 1 pc.
- Torque Motor (ENK-500T): 1 pc.
- Ring Type Attachment (EHR-500): 1 pc.

Standard Equipment and Accessories

- Collet ϕ3.0 mm (CHH-3.0), ϕ2.35 mm (CHH-2.35)
- Handpiece Stand: 1 pc. ■ Power Cord (2 m): 1 pc.
- Wrench (7×5.1): 1 pc. ■ Pin Wrench (K-233): 1 pc.
- L Shaped Wrench (9): 1 pc.





EHR-500 + ENK-500T Net Weight / 250 g (excluding cord)

7964	EP50T-HR-120 (Plug type: 120V)
7974	EP50T-HR-230 (Plug type: 230V)

*Please choose the plug type of main Power Cord.

/ Code No. | Model

Compact Torque Set



Speed **1,000–50,000 min^{-1}**

Max. Torque **6.0 cN•m** Max. Power **140 W**

Set Contents

- Controller: 1 pc.
- Compact Torque Motor (ENK-500C): 1 pc.
- Ring Type Attachment (EHR-500): 1 pc.

Standard Equipment and Accessories

- Collet ϕ3.0 mm (CHH-3.0), ϕ2.35 mm (CHH-2.35)
- Handpiece Stand: 1 pc. ■ Power Cord (2 m): 1 pc.
- Wrench (7×5.1): 1 pc. ■ Pin Wrench (K-233): 1 pc.
- L Shaped Wrench (9): 1 pc.



EHR-500 + ENK-500C Net Weight / 210 g (excluding cord)

/ 7963 | EP50C-HR-120 (Plug type: 120V)

/ 7973 | EP50C-HR-230 (Plug type: 230V)

*Please choose the plug type of main Power Cord.

Standard Set



Speed **1,000–40,000 min^{-1}**

Max. Torque **4.3 cN•m** Max. Power **73 W**

Set Contents

- Controller: 1 pc.
- Standard Motor (ENK-410S): 1 pc.
- Ring Type Attachment (IR-310): 1 pc.

Standard Equipment and Accessories

- Collet ϕ3.0 mm (CHH-3.0), ϕ2.35 mm (CHH-2.35)
- Handpiece Stand: 1 pc. ■ Power Cord (2 m): 1 pc.
- Wrench (7×5.1): 1 pc. ■ Pin Wrench (K-233): 1 pc.
- L Shaped Wrench (9): 1 pc.



IR-310 + ENK-410S Net Weight / 182 g (excluding cord)

/ 7962 | EP410-IR-120 (Plug type: 120V)

/ 7972 | EP410-IR-230 (Plug type: 230V)

*Please choose the plug type of main Power Cord.

EmaxPROgress 80,000 min^{-1} System

Handpiece

High Speed
Motor Handpiece



7954 | ESP-800
*Scheduled for release in December 2026

Controller



7960 | EmaxPROgress Controller 120V
7970 | EmaxPROgress Controller 230V
*Please choose the plug type of main Power Cord.

Foot Pedal



8106 | FC-64

Espert 500 50,000 min^{-1} System

Attachment

Ring Type



9090 | EHR-500

Lever Type



1515 | EHL-401

6 mm Torque Type



1552 | EHG-400

90° Angle Type



1525 | EIC-300

50° Angle Type



1526 | EKC-300

90° Angle Torque Type



1551 | ERA-270

Luster
(Reciprocating motion)



1516 | ELS-100

Mini-Luster
(Reciprocating motion)



1554 | EML-8

Fine Belt Sander



1145 | EBS-101

Speed Reducer

1/4 Speed Reducer



1553 | ERG-01B
*Increases torque by 4 times.

Motor

Torque Motor
with Cord



9089 | ENK-500T

Compact Motor
with Cord



9088 | ENK-500C

Controller



7960 | EmaxPROgress Controller 120V
7970 | EmaxPROgress Controller 230V
*Please choose the plug type of main Power Cord.

Foot Pedal



8106 | FC-64

EmaxEVOlution attachments can be connected by using these adaptors.

Extension Adaptor



1518 | ECN-011

1/4 Speed Reducer



1517 | ERG-01

Learn more about the Espert 500 attachments here

*For detailed information on attachment products, please refer to the Micro Grinder catalog or our website.

Emax EVOlution 40,000 min⁻¹ System

Attachment

Ring Type
1147 | IR-310



Lever Type
1005 | IH-300



Long Type
1017 | BMH-300



90° Mini Angle Type
1012 | MFC-300S



90° Mini Angle Type
(Very Small Head)
1013 | MFC-300M



90° Angle Type
1006 | IC-300



50° Angle Type
1014 | KC-300



Luster
(Reciprocating motion)
1302 | LS-100



Mini-Luster
(Reciprocating motion)
1307 | ML-8



Swing-Luster
(Right to Left motion)
1380 | SLS-16



Hammer Action Type
8060 | HA-500



Fine Belt Sander
1146 | KBS-101



Attachment

Luster
(Reciprocating motion)
Built-in Motor
1483 | NLS-110



Speed Reducer / Extension Joint

Extension Joint
1015 | CN-01



1/4 Speed Reducer
1009 | RG-01
*Increases torque by 4 times.



1/15 Speed Reducer
1010 | RG-02
*Increases torque by 15 times.



Motor

Standard Motor
with Cord
8086 | ENK-410S



Controller



7960 | EmaxPROgress Controller 120V
7970 | EmaxPROgress Controller 230V
*Please choose the plug type of main Power Cord.

Foot Pedal



8106 | FC-64

Learn more about the EmaxEVOlution attachments here

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*Specifications and design are subject to change without notice.