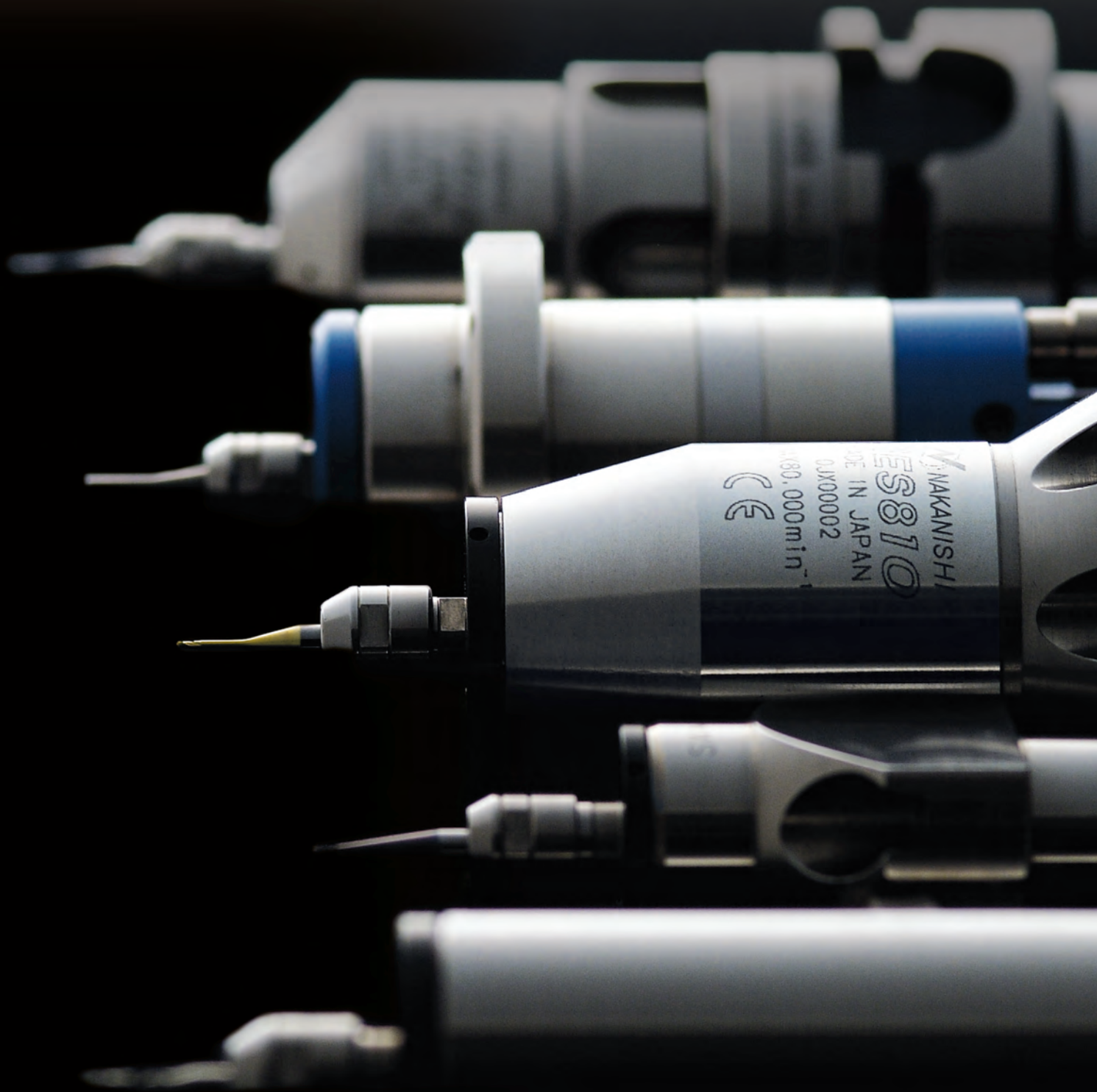


MACHINE TOOLS SPINDLES



1	EmaxEVO ESPERT ROTUS IMPULSE PRESTO II Sheenus ZERO Sonic-Cutter ZERO
2	iSpeed3 E2000 ø1.0"/ø0.98"/ø0.897" E3000 — One Piece E3000 — Modular ø1.18" ø1.0"/ø0.98"/ø0.897" E3000 — 80,000rpm E4000
3	MA ø0.897" ø1.0"/ø0.98" ø1.18" MS ø0.75"/ø0.73" ø0.87"/ø0.91" ø1.0"/ø0.98"
4	HES iSpeed5 HTS PLANET Xpeed ABT
5	AIR LINE KIT
6	PARTS
7	TECHNICAL DATA
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LIVE LONG AND PROSPER



iSpeed3

Long Lasting Precision and Productivity

Outside Diameter $\phi 19.05, \phi 20, \phi 22$

1,000~80,000 rpm
Output 140W / 150W

● One Piece Motor Spindle 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.



1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

$\phi 1.0''/\phi 0.98''/\phi 0.897''$

E3000

— One Piece

E3000

— Modular

$\phi 1.18''$

$\phi 1.07''/\phi 0.98''$

$\phi 0.897''$

E3000

— 80,000rpm

E4000

3

MA

$\phi 0.897''$

$\phi 1.0''$

$\phi 0.98''$

$\phi 1.18''$

MS

$\phi 0.75''$

$\phi 0.79''$

$\phi 0.89''$

$\phi 0.91''$

$\phi 1.0''$

$\phi 0.98''$

4

HES

iSpeed5

HTS

PLANET

Xspeed

ABT

5

AIR LINE KIT

6

PARTS

7

TECHNICAL

DATA

8

APPLICATION

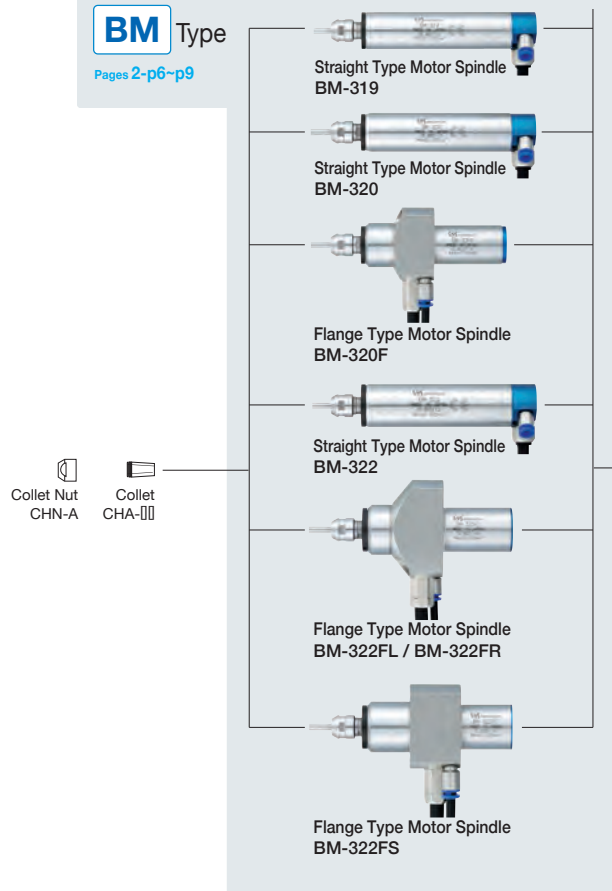
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iSpeed3 Series System Chart

BM Type

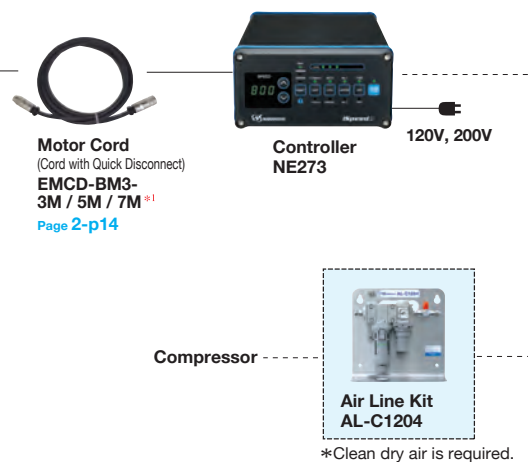
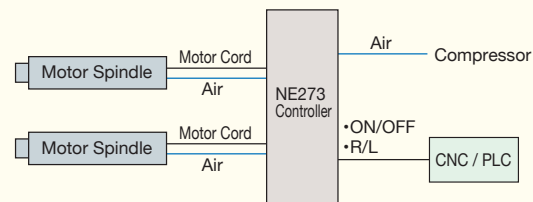
Pages 2-p6~p9



Automatic Control System Chart

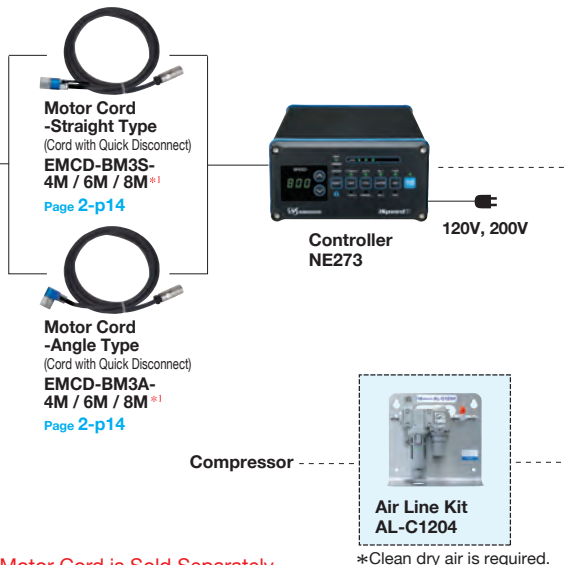
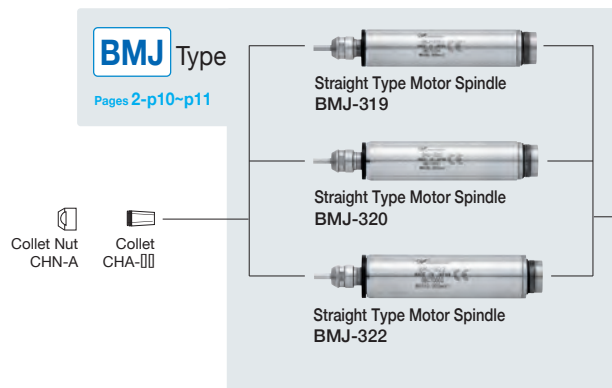
Sequential Operation of up to 2 Motor / Spindles

* 2 motors can not be operated simultaneously.



BMJ Type

Pages 2-p10~p11



*1 : Motor Cord is Sold Separately.

*Clean dry air is required.

Features

- **Maximum 60,000 / 80,000 rpm**

A maximum motor speed 80,000 rpm (BM-319, BM-320, BM-320F, BMJ-319, BMJ-320) is realized by using a high performance brushless motor and ceramic bearings. A maximum motor speed 60,000 rpm (BM-322, BM-322FL/BM-322FR, BM-322FS, BMJ-322, BMF-322) is realized by using a high performance brushless motor and ceramic bearings.

- **Maximum Motor Power Output 140W / 150W**

- **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 23-50 PSI.

- **Spindle Accuracy**

Spindle Accuracy is within 1 μ m (TIR).

- **High Rigidity, Short Body**

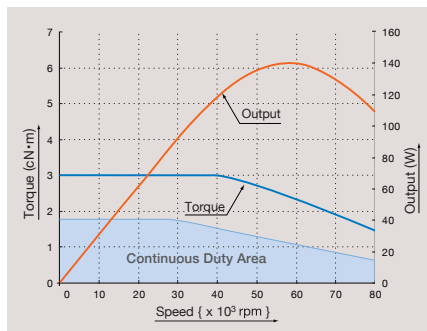
iSpeed3 series uses a short body that is hardened and precision ground for excellent durability.

- **Motor Connector Attaches Directly to the Back of the Motor / Spindle.**

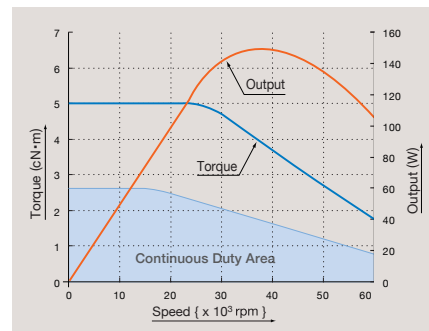
Simple screw-lock connector makes changing motors extremely easy. Electric and Air feed incorporated into a single connector.

Torque Characteristics Graph

- BM-319
- BM-320
- BM-320F
- BMJ-319
- BMJ-320



- BM-322
- BM-322FL
- BM-322FR
- BM-322FS
- BMJ-322



1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus ZERO

Sonic-Cutter ZERO

2

iSpeed3

E2000

±1.0°/±0.98°/±0.897°

E3000

— One Piece

E3000

— Modular

±1.18°

±1.0°/±0.98°/±0.897°

E3000

— 80,000rpm

E4000

3

MA

±0.897°

±1.0°/±0.98°

±1.18°

MS

±0.75°

±0.79°

±0.89°

±0.91°

±1.0°/±0.98°

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

AIR LINE KIT

6

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EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

ø1.0"/ø0.98"/ø0.897"

E3000

One Piece

E3000

Modular

ø1.18"

ø1.1"/ø0.98"/ø0.897"

E3000

60,000rpm

E4000

3

MA

ø0.897"

ø1.0"/ø0.98"

ø1.18"

MS

ø0.75"/ø0.79"

ø0.897"/ø0.91"

ø1.0"/ø0.98"

4

HES

iSpeed5

HTS

PLANET

Xspeed

ABT

5

AIR LINE KIT

6

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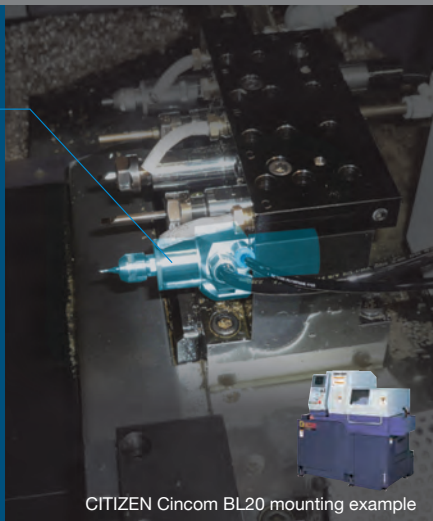
<Mounting Example>

Flange Type Flange type for easy mounting.

ø19.05mm

BM-319FC

- Max. 80,000 rpm
- Max. 140W

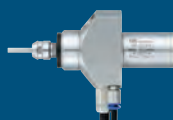


CITIZEN Cincom BL20 mounting example

ø22mm

BM-322FR

- Max. 60,000 rpm
- Max. 150W



+ ø25.4 Bush

- O.D. : ø25.4 mm
- Length : 33.5 mm



CITIZEN Cincom C16 mounting example

Straight Type Straight type for flexible mounting.

ø22mm

BM-322

- Max. 60,000 rpm
- Max. 150W



STAR SB-16 mounting example

iSpeed3 SERIES CONTROLLER

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

Product Code **8478 iSpeed3 CONTROLLER NE273**

80,000 rpm

● Power Source Required

Input power required is either 120VAC or 230VAC.

● 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.

● 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.

● Emergency Stop Circuit

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 controller to supply power to the motor. Any system errors, trouble with the machine or the connection between the iSpeed3 Series controller and the machine's controller will cause the relay contacts to open and the iSpeed3 Series motor to stop.



* : Load LED



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

Specifications

Product Name	: NE273
Power Source	: AC 120V 60Hz AC 230V 50Hz (2 types)
Motor Speed	: 1,000-80,000 rpm
Max. Output Power	: 150W (For ø22mm, ø25mm)
Rated Power Consumption	: 1.1A
Air Flow Volume	: 1.0CFM (23-50PSI)
Weight	: 7 lb. 11.46 oz.
Dimensions	: W5.67" x D9.21" x H2.91"

- [1] Load LED (LOAD)* [2] Running LED (RUN) [3] Warning LED (WARNING) [4] Error LED (ERROR) [5] Motor Speed Switch (UP / DOWN)
[6] Rotating Speed Display (SPEED) [7] Error Reset Switch (RESET) [8] KEY HOLD Switch [9] DISP (DISPLAY) Switch [10] Control Switch (AUTO / MANUAL)
[11] Motor Selection Switch (No.1 / No.2) [12] Rotating Direction Selector Switch (FWD./REV.) [13] Start Switch (START)

iSpeed3 Controller

Product Code	Plug Type	Product Name	Standard Equipment · Accessories
8478	120V	NE273	• Power Cord : 6 ft • Air Hose with filter : 6 ft • Motor Connector Cap : 2 pcs. • Bracket : 2 pcs. • Plate nut : 4 pcs. • M3 Bolt : 2 pcs. • Fuse : 2 pcs.
8490	230V		

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

*Please check the power source plug type and order accordingly.

Interface Cable
Page 2-p14



1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

ø1.0"/ø0.98"/ø0.89"

E3000

— One Piece

E3000

— Modular

ø1.18"

ø1.07"/ø0.98"/ø0.89"

E3000

— 80,000rpm

E4000

3

MA

ø0.897"

ø1.0"

ø0.98"

ø1.18"

MS

ø0.75"

ø0.75"

ø0.89"

ø0.81"

ø1.0"

ø0.98"

4

HES

iSpeed5

HTS

PLANET

Xspeed

ABT

5

AIR LINE KIT

6

PARTS

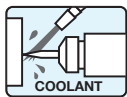
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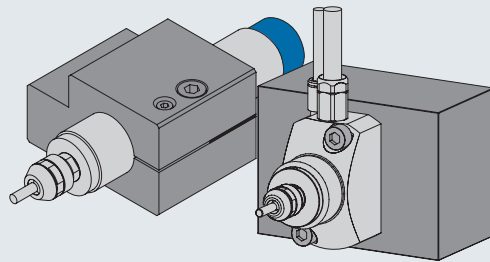
iSpeed3 Series can be used in conjunction with water or oil based coolants.

BM

Straight and Flange Type with Quick Disconnect

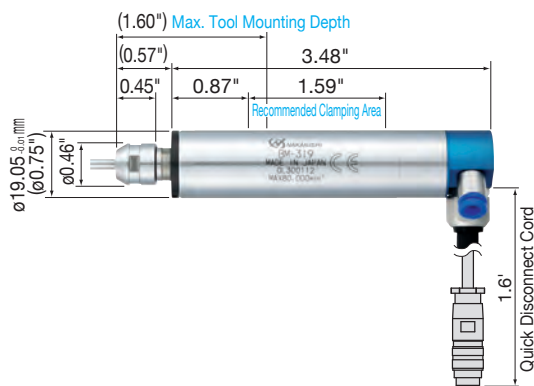
Features:

- 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.



Product Code 7810 STRAIGHT TYPE MOTOR SPINDLE BM-319 80,000 rpm

Outside Diameter $\phi 19.05\text{mm}$ ($\phi 0.75''$)



- Motor Speed 1,000~80,000 rpm
- Spindle Accuracy Within 1 μm
- Max. Output Power 140W
- Weight 7.41 oz.

Additional collet purchase required:

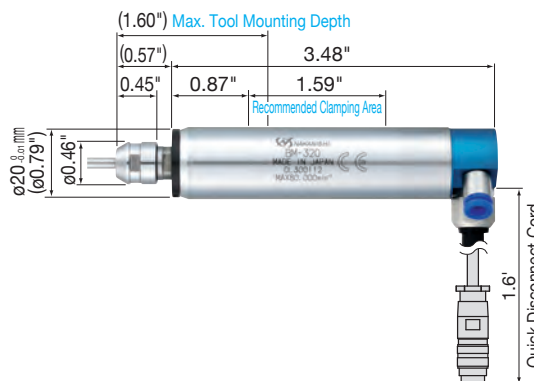
- Collet Series CHA-XX $\phi 0.5\text{mm} \sim \phi 4.0\text{mm}$
Recommended CHA-3.175 $\phi 1/8''$
(See Page 6-p2 for additional sizes)
- Motor Cord Length 10 ft, 16 ft, 22 ft

Straight Type Motor Spindle $\phi 0.75''$ ($\phi 19.05\text{ mm}$)

Product Code	Product Name	Standard Equipment · Accessories	
7810	BM-319	• Collet Nut (CHN-A) : 1 pc. • Wrench (8 x 5), (9 x 11) : 1 pc. each	

Product Code 7811 STRAIGHT TYPE MOTOR SPINDLE BM-320 80,000 rpm

Outside Diameter $\phi 20\text{mm}$ ($\phi 0.79''$)



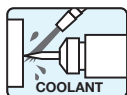
- Motor Speed 1,000~80,000 rpm
- Spindle Accuracy Within 1 μm
- Max. Output Power 140W
- Weight 8.11 oz.

Additional collet purchase required:

- Collet Series CHA-XX $\phi 0.5\text{mm} \sim \phi 4.0\text{mm}$
Recommended CHA-3.175 $\phi 1/8''$
(See Page 6-p2 for additional sizes)
- Motor Cord Length 10 ft, 16 ft, 22 ft

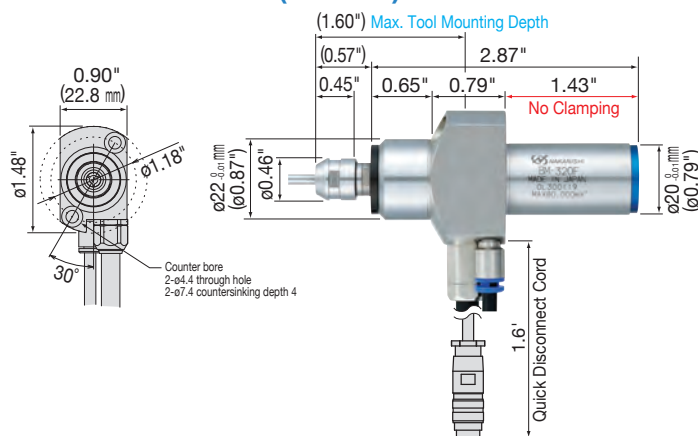
Straight Type Motor Spindle $\phi 0.79''$ ($\phi 20\text{ mm}$)

Product Code	Product Name	Standard Equipment · Accessories	
7811	BM-320	• Collet Nut (CHN-A) : 1 pc. • Wrench (8 x 5), (9 x 11) : 1 pc. each	



Product Code 7816 FLANGE TYPE MOTOR SPINDLE BM-320F 80,000 rpm

Outside Diameter **ø20mm (ø0.79")**



- Motor Speed 1,000~80,000 rpm
- Spindle Accuracy Within 1 μ m
- Max. Output Power 140W
- Weight 9.52 oz.

Additional collet purchase required:

Collet Series CHA-XX ø0.5mm~ø4.0mm
Recommended CHA-3.175 ø1/8"
(See Page 6-p2 for additional sizes)

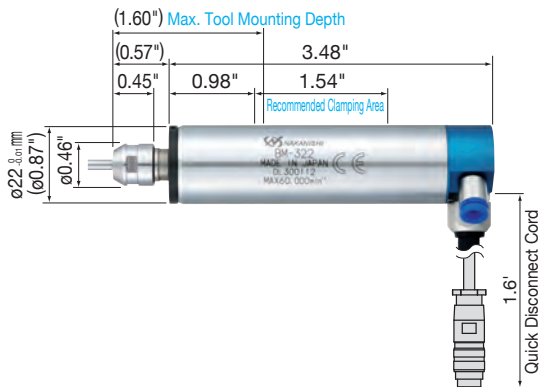
- Motor Cord Length 10 ft, 16 ft, 22 ft

Flange Type Motor Spindle ø0.79"(ø20 mm)

Product Code	Product Name	Standard Equipment · Accessories	
7816	BM-320F	• Collet Nut (CHN-A) : 1 pc. • Wrench (8 x 5), (9 x 11) : 1 pc. each • Hex socket bolt (M4 x L25) : 2 pcs.	

Product Code 7814 STRAIGHT TYPE MOTOR SPINDLE BM-322 60,000 rpm

Outside Diameter **ø22mm (ø0.87")**



- Motor Speed 1,000~60,000 rpm
- Spindle Accuracy Within 1 μ m
- Max. Output Power 150W
- Weight 8.82 oz.

Additional collet purchase required:

Collet Series CHA-XX ø0.5mm~ø4.0mm
Recommended CHA-3.175 ø1/8"
(See Page 6-p2 for additional sizes)

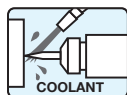
- Motor Cord Length 10 ft, 16 ft, 22 ft

Straight Type Motor Spindle ø0.87"(ø22 mm)

Product Code	Product Name	Standard Equipment · Accessories	
7814	BM-322	• Collet Nut (CHN-A) : 1 pc. • Wrench (8 x 5), (9 x 11) : 1 pc. each	

Motor Cord
Page 2-p14





1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

ø1.0"/ø0.98"/ø0.897"

E3000

One Piece

E3000

Modular

ø1.18"

ø1.0"/ø0.98"/ø0.897"

E3000

60,000rpm

E4000

3

MA

ø0.897"

ø1.0"/ø0.98"

ø1.18"

MS

ø0.75"/ø0.79"

ø0.897"/ø0.91"

ø1.0"/ø0.98"

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

AIR LINE KIT

6

PARTS

7

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8

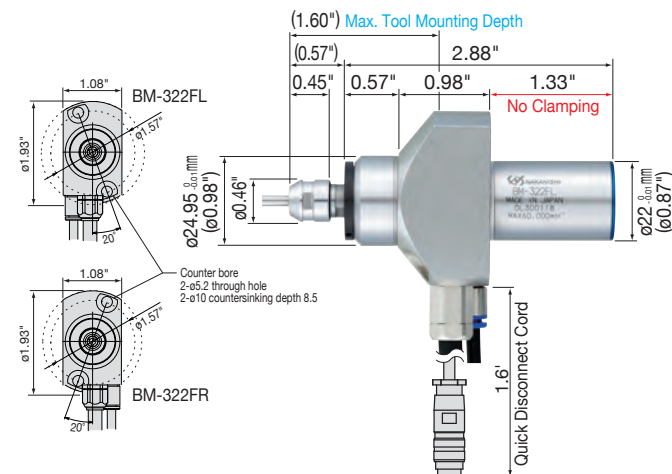
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FLANGE TYPE MOTOR SPINDLE BM-322FL / BM-322FR

60,000 rpm

Outside Diameter **ø22mm (ø0.87")**



- Motor Speed 1,000~60,000 rpm
- Spindle Accuracy Within 1 µm
- Max. Output Power 150W
- Weight 12.70 oz.

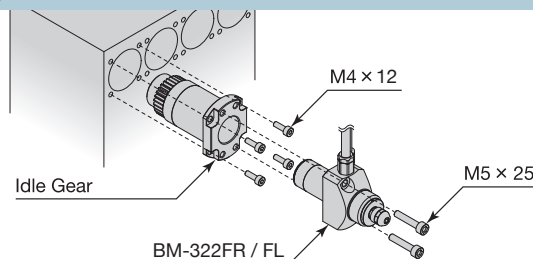
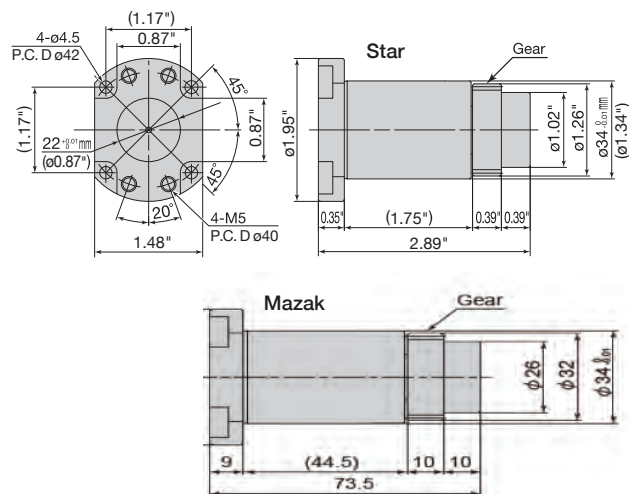
Additional collet purchase required:

- Collet Series CHA-XX ø0.5mm~ø4.0mm
- Recommended CHA-3.175 ø1/8"
- (See Page 6-p2 for additional sizes)
- Motor Cord Length 10 ft, 16 ft, 22 ft

Flange Type Motor Spindle ø0.87"(ø22 mm)

Product Code	Product Name	Standard Equipment · Accessories	
7815	BM-322FL	• Collet Nut (CHN-A) : 1 pc. • Wrench (8 x 5), (9 x 11) : 1 pc. each • Hex socket bolt (M5 x L25) : 2 pcs.	
7817	BM-322FR		

IDLE GEARS for Applicable Swiss Machines



- Weight 12.70 oz.
- Applicable Swiss Machines Star Micronics Co., Ltd : SR-20J type C, SR-20R III, SR-32J, SR-20J type N, SR-32J type N
- Mazak Corp. All SYNCREX Models

Idle Gear (Star BM322FL & FR / Mazak BM320F)

Product Code	Product Name	Standard Equipment · Accessories	
8533	BM3-IG	• Hex socket bolt (M4 x L12) : 4 pcs.	
7905	BM3-IG-20	• Hex socket bolt (M4 x L12) : 4 pcs.	

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.

Spacer

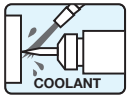
Product Code	Product Name	Specifications	
1882	SP-22x10L	Dimensions ø22 (I.D.) x 10mm	

SPLIT BUSHING



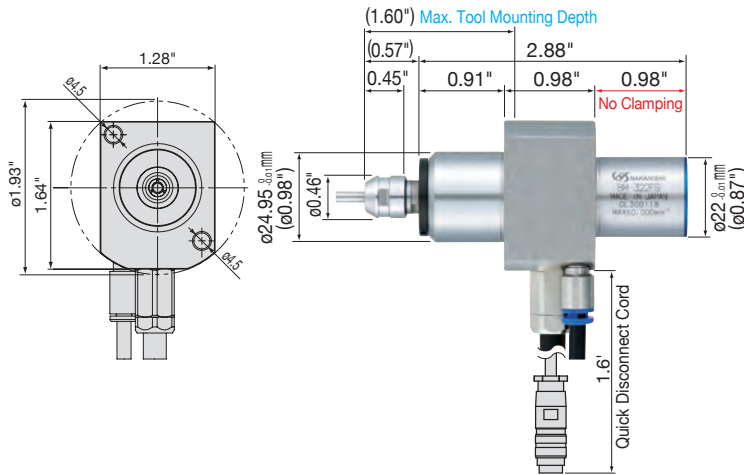
- Hardened and ground split bushings are available in several sizes to fit most NSK Spindle/Motors.

Page 6-p19



Product Code **7823** **FLANGE TYPE MOTOR SPINDLE BM-322FS** **60,000 rpm**

Outside Diameter **ø22mm (ø0.87")**



- Motor Speed 1,000~60,000 rpm
- Spindle Accuracy Within 1 μ m
- Max. Output Power 150W
- Weight 14.46 oz.
- **Additional collet purchase required:**
 - Collet Series CHA-XX ø0.5mm~ø4.0mm
 - Recommended CHA-3.175 ø1/8"
 - (See Page 6-p2 for additional sizes)
- Motor Cord Length 10 ft, 16 ft, 22 ft

Flange Type Motor Spindle ø0.87"(ø22 mm)

Product Code	Product Name	Standard Equipment · Accessories	
7823	BM-322FS	• Collet Nut (CHN-A) : 1 pc. • Wrench (8 x 5), (9 x 11) : 1 pc. each • Hex socket bolt (M4 x L35) : 2 pcs.	

Motor Cord
Page 2-p14



*Order by product code.

2-p9

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

ø1.0"/ø0.98"/ø0.897"

E3000

— One Piece

E3000

— Modular

ø1.18"

ø1.07"/ø0.98"

ø0.897"

E3000

— ø0.000rpm

E4000

3

MA

ø0.897"

ø1.0"

ø0.98"

ø1.18"

MS

ø0.75"

ø0.79"

ø0.89"

ø0.91"

ø1.0"

ø0.98"

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

AIR LINE KIT

6

PARTS

7

TECHNICAL

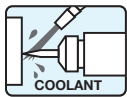
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1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

ø1.0"/ø0.98"/ø0.897"

E3000

One Piece

E3000

Modular

ø1.18"

ø1.12"/ø0.98"/ø0.897"

E3000

80,000rpm

E4000

3

MA

ø0.897"

ø1.0"/ø0.98"

ø1.18"

MS

ø0.75"/ø0.79"

ø0.83"/ø0.81"

ø1.0"/ø0.98"

4

HES

iSpeed5

HTS

PLANET

Xspeed

ABT

5

AIR LINE KIT

6

PARTS

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TECHNICAL DATA

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APPLICATION EXAMPLES

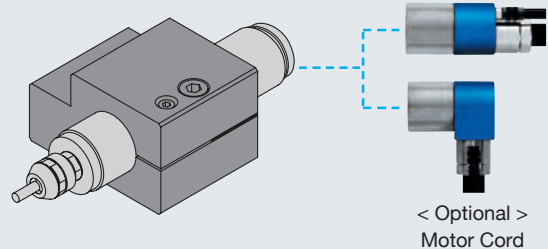
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BMJ

Straight Type without Motor Cord

Features:

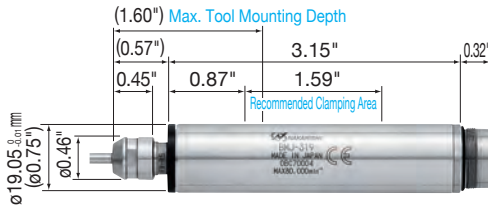
- Straight Motor/Spindles with O.D. sizes for all Swiss type machines.
- Uses a Straight or 90-Degree Motor Cord that attach to the rear of the Motor/Spindle.
- Ability to insert the Motor/Spindle from the front or rear of the tool block.



< Optional >
Motor Cord

Product Code **7819** **STRAIGHT TYPE MOTOR SPINDLE** **BMJ-319** **80,000 rpm**

Outside Diameter **ø19.05mm (ø0.75")**



- Motor Speed 1,000~80,000 rpm
- Spindle Accuracy Within 1 µm
- Max. Output Power 140W
- Weight 5.11 oz.

Additional collet purchase required:

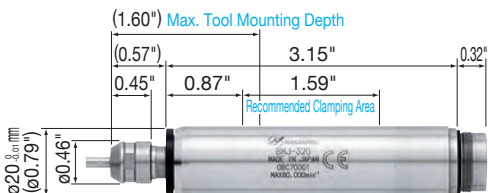
- Collet Series CHA-XX ø0.5mm~ø4.0mm
- Recommended CHA-3.175 ø1/8"
- (See Page 6-p2 for additional sizes)
- Motor Cord Length 13 ft, 19 ft, 26 ft

Straight Type Motor Spindle ø0.75"(ø19.05 mm)

Product Code	Product Name	Standard Equipment · Accessories	
7819	BMJ-319	• Collet Nut (CHN-A) : 1 pc. • Wrench (8 x 5), (9 x 11) : 1 pc. each	

Product Code **7820** **STRAIGHT TYPE MOTOR SPINDLE** **BMJ-320** **80,000 rpm**

Outside Diameter **ø20mm (ø0.79")**



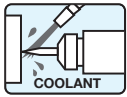
- Motor Speed 1,000~80,000 rpm
- Spindle Accuracy Within 1 µm
- Max. Output Power 140W
- Weight 5.64 oz.

Additional collet purchase required:

- Collet Series CHA-XX ø0.5mm~ø4.0mm
- Recommended CHA-3.175 ø1/8"
- (See Page 6-p2 for additional sizes)
- Motor Cord Length 13 ft, 19 ft, 26 ft

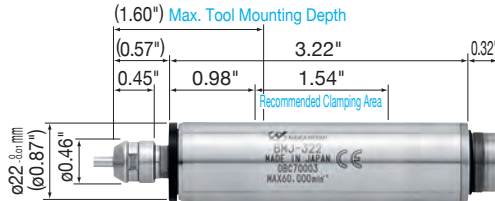
Straight Type Motor Spindle ø0.79"(ø20 mm)

Product Code	Product Name	Standard Equipment · Accessories	
7820	BMJ-320	• Collet Nut (CHN-A) : 1 pc. • Wrench (8 x 5), (9 x 11) : 1 pc. each	



Product Code **7821** **STRAIGHT TYPE MOTOR SPINDLE BMJ-322** **60,000 rpm**

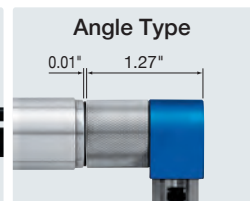
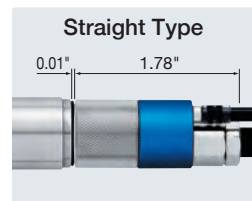
Outside Diameter **ø22mm (ø0.87")**



- Motor Speed 1,000~60,000 rpm
- Spindle Accuracy Within 1 μ m
- Max. Output Power 150W
- Weight 6.70 oz.
- Additional collet purchase required:
 - Collet Series CHA-XX ø0.5mm~ø4.0mm
 - Recommended CHA-3.175 ø1/8"
 - (See Page 6-p2 for additional sizes)
- Motor Cord Length 13 ft, 19 ft, 26 ft

Straight Type Motor Spindle ø0.87" (ø22 mm)

Product Code	Product Name	Standard Equipment · Accessories	
7821	BMJ-322	• Collet Nut (CHN-A) : 1 pc. • Wrench (8 x 5), (9 x 11) : 1 pc. each	



1
E-maxEVO
ESPERT
ROTUS
IMPULSE
PRESTO II
Sheenus ZERO
Sonic-Cutter ZERO
2
iSpeed3
E2000 ø1.0"/ø0.98"/ø0.897"
E3000 - One Piece
E3000 - Modular
ø1.18"
ø1.07"/ø0.98" ø0.897"
E3000 - 80,000rpm
E4000
3
MA
ø0.897"
ø1.0" ø0.98"
ø1.18"
MS
ø0.75" ø0.79"
ø0.89" ø0.91"
ø1.0" ø0.98"
4
HES
iSpeed5
HTS
PLANET
Xpeed
ABT
5
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INDEX

iSpeed3 SERIES MOTOR CORD & INTERFACE CABLE

1

MOTOR CORD for BM Type

Product	Product Code	Description · Product Name	Length	Std. Accessories	Fit to	
	9261	Motor Cord 3M EMCD-BM3-3M	10 ft (3.0m)	- Air Hose - Connector Cap (Provided)	BM-319 · BM-320 BM-320F · BM-322 BM-322FL · BM-322FR BM-322FS ·	
	9262	Motor Cord 5M EMCD-BM3-5M	16 ft (5.0m)			
	9263	Motor Cord 7M EMCD-BM3-7M	22 ft (7.0m)			

2

MOTOR CORD for BMJ Type

Product	Product Code	Description · Product Name	Length	Std. Accessories	Fit to	
	9264	Motor Cord 4M EMCD-BM3S-4M	13 ft (4.0m)	- Air Hose - Connector Cap (Provided)	BMJ-319 · BMJ-320 BMJ-322 · BMJ-325 BMF-319	
	9265	Motor Cord 6M EMCD-BM3S-6M	19 ft (6.0m)			
	9266	Motor Cord 8M EMCD-BM3S-8M	26 ft (8.0m)			

3

Product	Product Code	Description · Product Name	Length	Std. Accessories	Fit to	
	9267	Motor Cord 4M EMCD-BM3A-4M	13 ft (4.0m)	- Air Hose - Connector Cap (Provided)	BMJ-319 · BMJ-320 BMJ-322	
	9268	Motor Cord 6M EMCD-BM3A-6M	19 ft (6.0m)			
	9269	Motor Cord 8M EMCD-BM3A-8M	26 ft (8.0m)			

4

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.

25 Pin Interface Cable

Product Code	Product Name		
DB25M	DB25M	For NSK Control Connector A 12.5 ft	
DB25MXL	DB25MXL	For NSK Control Connector A 25 ft	

15 Pin INTERFACE CABLE

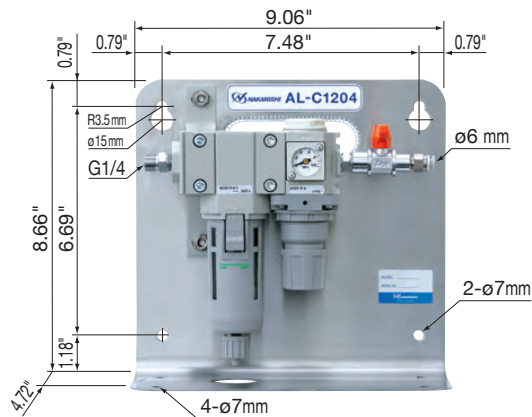


- 3 Meter long Interface Cable provides a DB15 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of the (OP1) "E-Stop Input Circuit" and "Safety Relay Circuit" from the NSK Control to a CNC Control.

15 Pin Interface Cable

Product Code	Product Name		
DB15M	DB15M	For NSK Control Connector B	

Product Code **4504** **AIR LINE KIT** **AL-C1204**



- The AL-C1204 Air Line Kit is designed to deliver clean, dry air to Electric Motors via the Controller. 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)

Product Code	Product Name	Standard Equipment · Accessories	
4504	AL-C1204	• Air Filter · Air Regulator • Air Pressure Gauge • Air ON-OFF Valve • Hose for Piping (K-275) : 6 ft	

E-speed

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000
ø1.0"/ø0.98"/ø0.897"

E3000
— One Piece

E3000
— Modular

ø1.18"

ø1.0"/ø0.98"

ø0.897"

E3000
— 80,000rpm

E4000

3

MA

ø0.897"

ø1.0"/ø0.98"

ø1.18"

MS

ø0.75"

ø0.79"

ø0.87"

ø0.91"

ø1.0"

ø0.98"

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

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E2000 SERIES

1,000~50,000 rpm
Output 200W

Outside Diameter

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

- The E2000 Series is capable of up to 50,000 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 rpm
Output 350W

ø25mm (ø0.98")

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)

Outside Diameter [Modular Type]

ø1.18" (ø30 mm)
ø1.97" (ø50 mm) -Air Bearing



E4000 SERIES

1,000~40,000 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.



Outside Diameter $\phi 1.0''$, $\phi 0.98''$ ($\phi 25.4$, $\phi 25$ mm)

1,000~50,000 rpm
Output 200W

● Modular Type

Outside Diameter $\phi 0.897''$ ($\phi 22.8$ mm)

1,000~50,000 rpm
Output 200W

● Modular Type

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.



Straight Spindle (Modular Type)

Suitable for small diameter milling & drilling, slitting, chamfer and grinding operation.

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

$\phi 1.0''/\phi 0.98''/\phi 0.897''$

E3000

- One Piece

E3000

- Modular

$\phi 1.18''$

$\phi 1.0''/\phi 0.98''$

$\phi 0.897''$

E3000

- 80,000rpm

E4000

3

MA

$\phi 0.897''$

$\phi 1.0''$

$\phi 0.98''$

$\phi 1.18''$

MS

$\phi 0.75''$

$\phi 0.75''$

$\phi 0.87''$

$\phi 0.91''$

$\phi 1.0''$

$\phi 0.98''$

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

AIR LINE KIT

6

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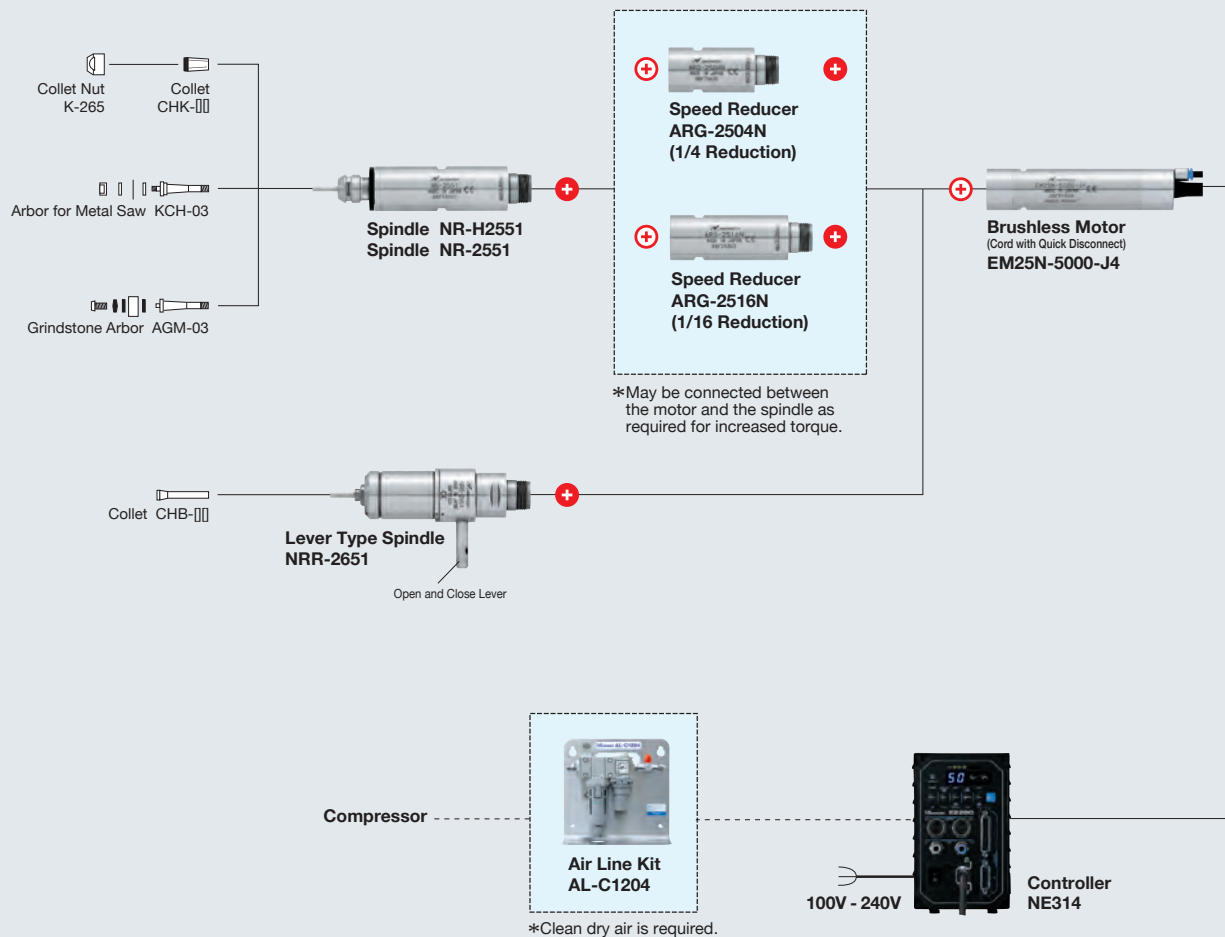
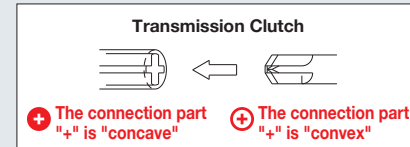
APPLICATION

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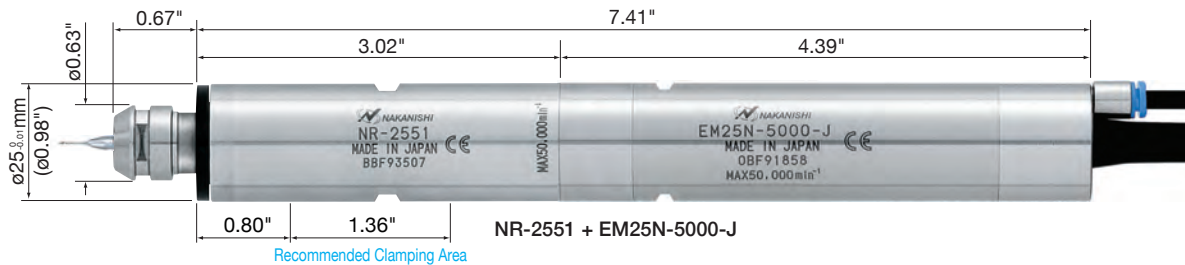
E2000 Series ø1.0", ø0.98"(ø25.4, ø25 mm) System Chart

- 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.

Features of E2000 Series



• Maximum Output 200W

The E2000 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 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 E2000 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 rpm maximum.

• 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

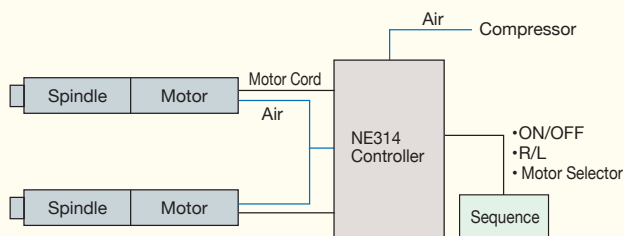
The housings of the motor and spindle are made from precision ground stainless steel (SUS416).

• 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 E2000 controller can establish a safe operating system.

Automatic Control System Chart

• Sequential Operation of up to 2 Motor / Spindles



*The E2000 Series controller has the ability to control up to 2 motors sequentially. 2 motors can not be run simultaneously.

1

EmaxEVO
ESPERT
ROTUS
IMPULSE
PRESTO II
Sheenus
ZERO
Sonic-Cutter
ZERO

2

iSpeed3
E2000
ø1.0"/ø0.98"/ø0.897"
E3000
- One Piece
E3000
- Modular
ø1.18"
ø1.07"/ø0.98"
ø0.897"
E3000
- 80,000rpm
E4000

3

MA
ø0.897"
ø1.0"
ø0.98"
ø1.18"
MS
ø0.75"
ø0.79"
ø0.89"
ø0.91"
ø1.0"
ø0.98"

4

HES
iSpeed5
HTS
PLANET
Xpeed
ABT

5

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EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus
ZERO

Sonic-Cutter
ZERO

2

iSpeed3

E2000
ø1.0"/ø0.98"/ø0.897"

E3000
One Piece

E3000
Modular

ø1.18"

ø1.0"/ø0.98"
ø0.897"

E3000
60,000rpm

E4000

3

MA

ø0.897"

ø1.0"
ø0.98"

ø1.18"

MS

ø0.75"
ø0.79"

ø0.897"
ø0.91"

ø1.0"
ø0.98"

4

HES

iSpeed5

HTS

PLANET

Xpeed

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5

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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 can not 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.

E2000 Series Combination Example

50,000 rpm



Controller Specifications

Product Name	NE314
Power Source	AC 100 - 240V, 50-60 Hz
	1 Phase
Power Consumption	1.45A
Weight	4 lb. 13.60 oz.
Dimensions	W4.25" x D6.60" x H6.93"

Motor & Spindle

Motor	EM25N-5000-J
Spindle	NR-2551
Speed	1,000~50,000 rpm
Weight	1 lb. 8.74 oz.
Dimensions	ø0.98" x 8.07"

E2000, NR-2551 Combination Example

Product Code	Product Name	Product	
7720	NE314	Controller	
7904	EM25N-5000-J	Brushless Motor	
7853	NR-2551	Spindle	
4504	AL-C1204	Air Line Kit	

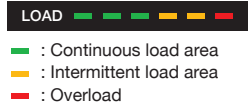
E2000 SERIES CONTROLLER

- 1,000~50,000 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)

Product Code **7720** **E2000 CONTROLLER NE314**

50,000 rpm

* : Load Monitor



Motor Connector No.1, No.2

Air Output Joint

Air Input Joint

External Input / Output Connector A, B

Fixing Power Cord Hook Bar

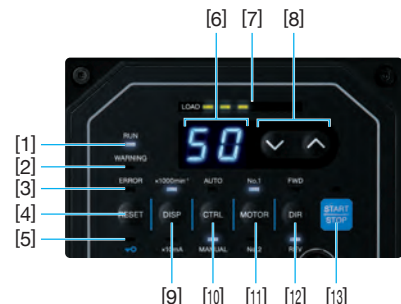
Power Cord Hook

Main Power Switch

Main Power Intake with Power Supply Fuses



- [1] Rotating LED (RUN)
- [2] Warning LED (WARNING)
- [3] Error LED (ERROR)
- [4] Error Reset Button (RESET)
- [5] KEY HOLD LED Button
- [6] Digital Speed Indicator
- [7] Load Monitor (LOAD)
- [8] Motor Speed Adjustment Button (SPEED)
- [9] DISPLAY (DISP) Button
- [10] Control Button (CTRL)
- [11] Motor Spindle Selection Button (MOTOR)
- [12] Rotation Direction Button (DIR)
- [13] Start / Stop Button (START / STOP)



Specifications

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

E2000 Controller

Product Code	Plug Type	Product Name	Standard Equipment · Accessories
7720	100 - 240V (Without Plug) 	NE314	• 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.

*Please refer to Technical Data 7-p10~p17 in detail about External Input-Output Connector.

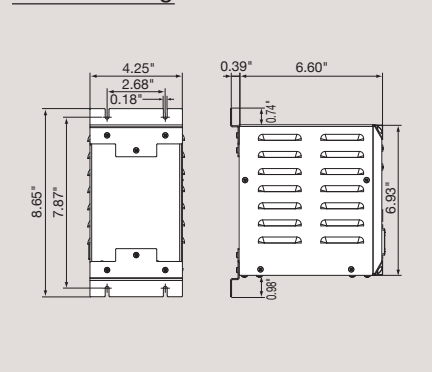
*AC100-240V for international operation.

Interface Cable
Page 2-p24

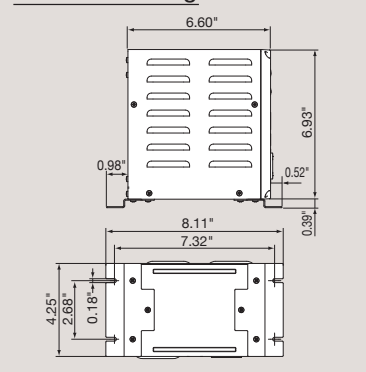


● Mounting Bracket

Back Mounting



Bottom Mounting



*Order by product code. **2-p19**

1

EmaxEVO
ESPERT
ROTUS
IMPULSE
PRESTO II
Sheenus
ZERO
Sonic-Cutter
ZERO

2

iSpeed3
E2000
ø1.0"/ø0.98"/ø0.89"
E3000
- One Piece
E3000
- Modular
ø1.18"
ø1.0"/ø0.98"
ø0.89"
E3000
- 80,000rpm
E4000

3

MA
ø0.897"
ø1.0"
ø0.98"
ø1.18"
MS
ø0.75"
ø0.79"
ø0.93"
ø0.91"
ø1.0"
ø0.98"

4

HES
iSpeed5
HTS
PLANET
Xpeed
ABT

5

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E2000 SERIES ø0.98"(ø25 mm) MOTOR

EM

25

N

-

5000

-

J

N = ⊕ Clutch

Product Symbol

Outside Diameter

⊕ Clutch

Max. Motor Speed

Cord Variety

New Model Name for E2000 Series Motor

Product Code

7904

BRUSHLESS MOTOR

EM25N-5000-J

50,000 rpm



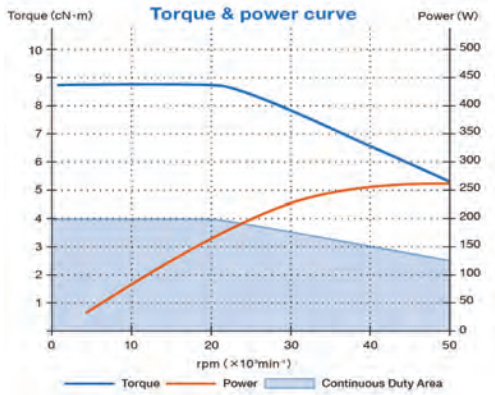
- Motor Speed 1,000~50,000 rpm
- Max. Output Power 250W
- Housing Stainless steel (SUS416)
- Cord Length 1 ft
- Air Coolant Hose Length 1 ft
- Weight 8.92 oz.

Brushless Motor

Product Code	Product Name	Outside Diameter	Standard Equipment・Accessories
7904	EM25N-5000-J	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.

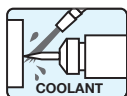
Torque Characteristics of EM25N-5000-J



Motor Cord

Product	Product Code	Description・Product Name	Length	Std. Accessories	Fit to
	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)		

E2000 SERIES $\phi 1.0"$, $\phi 0.98"$ ($\phi 25.4$, $\phi 25$ mm) MOTOR



E2000 Series can be used in conjunction with water or oil based coolants.

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

Product Code **7854**

SPINDLE NR-H2551 (Ceramic Bearing)

50,000 rpm



- 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.

- Allowable Motor Speed 50,000 rpm
- Spindle Accuracy Within 1 μ m
- Weight 8.92 oz.

Additional collet purchase required:

Collet Series CHK-XX $\phi 0.5$ mm~ $\phi 6.35$ mm
Recommended CHK-3.175 $\phi 1/8"$
(See Page 6-p3 for additional sizes)

- Collet Nut (K-265) For Collet (CHK)
- Metal Saw Arbor (KCH-03) For $\phi 0.24"$ (I.D.) x $\phi 1.18"$ (O.D.)
- Grindstone Arbor (AGM -03) For grinding wheel with I.D. of $\phi 5$ mm

Spindle D= $\phi 1.0"$ ($\phi 25.4$ mm), $\phi 0.98"$ ($\phi 25$ mm)

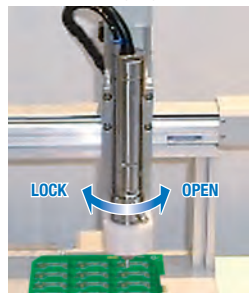
Product Code	Product Name	Outside Diameter	Standard Equipment - Accessories
7854	NR-H2551	$\phi 1.0"$ ($\phi 25.4$ mm)	• Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs., (22 x 27) : 1 pc.
7853	NR-2551	$\phi 0.98"$ ($\phi 25$ mm)	

Product Code **1835**

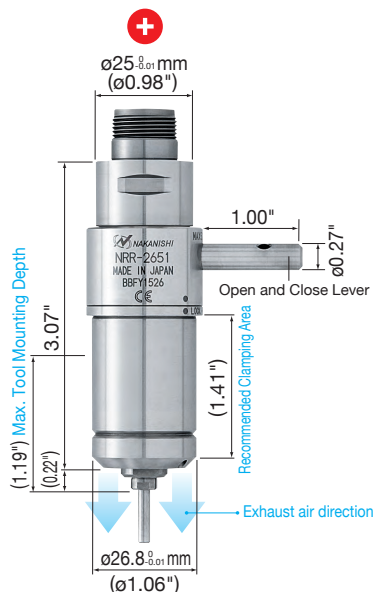
LEVER TYPE SPINDLE NRR-2651

50,000 rpm

No wrenches are required for tool changing.



NRR-2651 Installed Example



- Allowable Motor Speed 50,000 rpm
- Spindle Accuracy Within 1 μ m
- Standard Size Collet (CHB-3.175) $\phi 1/8"$
- Weight 11.64 oz.

< Optional >

- Collet (CHB- []) $\phi 2.0$, $\phi 3.0$ mm, $\phi 1/8"$, $\phi 4.0$ mm
(See Page 6-p2 for details)

Lever Type Spindle $\phi 0.98"$ ($\phi 25$ mm)

Product Code	Product Name	Outside Diameter	Standard Equipment - Accessories
1835	NRR-2651	$\phi 0.98"$ ($\phi 25$ mm)	• Collet $\phi 1/8"$ (CHB-3.175) • Wrench (6.1 x 8), (10 x 10), (22 x 27): 1 pc. each

*There is not an outside diameter $\phi 1.0"$ ($\phi 25.4$ mm) dimension.

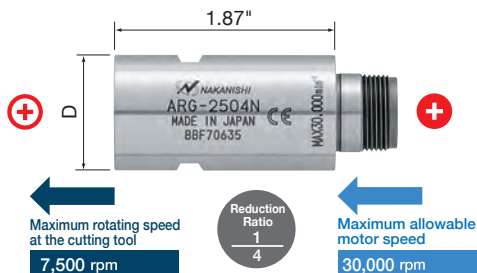
E2000 SERIES $\phi 0.98"$ ($\phi 25$ mm) SPEED REDUCER



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.

1

Product Code **1822** SPEED REDUCER 1/4 ARG-2504N



Maximum allowable motor speed **30,000 rpm**

Maximum rotating speed at the cutting tool
<Reduction Ratio : 1/4> **7,500 rpm**

- Speed Reducing Mechanism By planetary gear system
- Weight 5.29 oz.

2

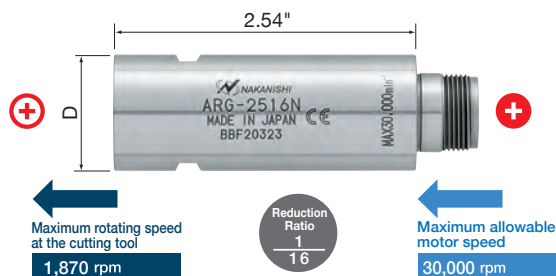
- If the speed reducer is connected between the motor and the spindle, it reduces the rotating speed and increases the torque while keeping the motor speed unchanged.

Speed Reducer D = $\phi 1.0"$ ($\phi 25.4$ mm), $\phi 0.98"$ ($\phi 25$ mm)

Product Code	Product Name	Outside Diameter	Speed Reduction Ratio
1822	ARG-2504N	$\phi 0.98"$ ($\phi 25$ mm)	Speed Reduction Ratio 1/4

3

Product Code **1824** SPEED REDUCER 1/16 ARG-2516N



Maximum allowable motor speed **30,000 rpm**

Maximum rotating speed at the cutting tool
<Reduction Ratio : 1/16> **1,870 rpm**

- Speed Reducing Mechanism By planetary gear system
- Weight 7.23 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.

Speed Reducer D = $\phi 1.0"$ ($\phi 25.4$ mm), $\phi 0.98"$ ($\phi 25$ mm)

Product Code	Product Name	Outside Diameter	Speed Reduction Ratio
1824	ARG-2516N	$\phi 0.98"$ ($\phi 25$ mm)	Speed Reduction Ratio 1/16

5

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.

25 Pin Interface Cable

Product Code	Product Name		
DB25M	DB25M	For NSK Control Connector A 12.5 ft	
DB25MXL	DB25MXL	For NSK Control Connector A 25 ft	

15 Pin INTERFACE CABLE

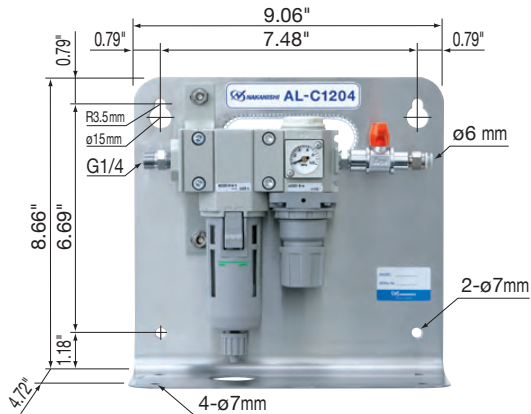


- 3 Meter long Interface Cable provides a DB15 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of the (OP1) "E-Stop Input Circuit" and "Safety Relay Circuit" from the NSK Control to a CNC Control.

15 Pin Interface Cable

Product Code	Product Name		
DB15M	DB15M	For NSK Control Connector B	

Product Code **4504** **AIR LINE KIT AL-C1204**



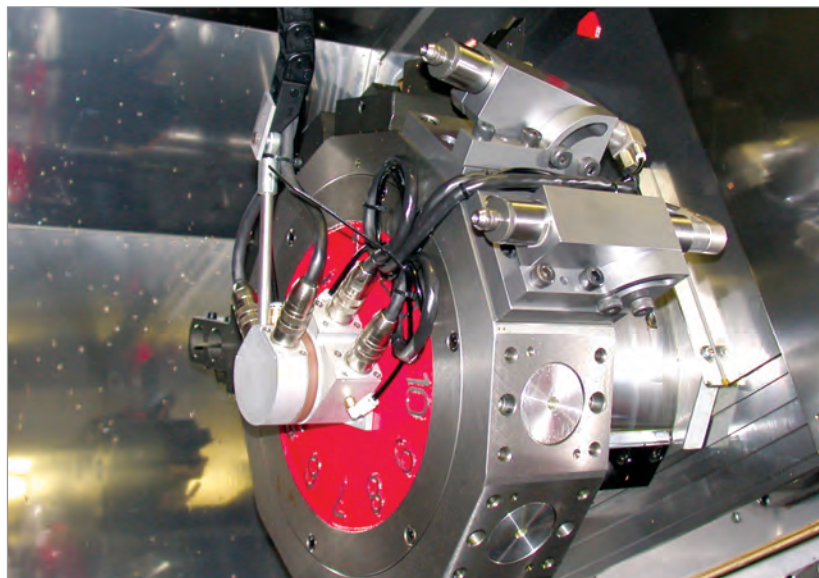
- The AL-C1204 Air Line Kit is designed to deliver clean, dry air to Electric Motors via the Controller. The filter removes small amounts of debris while the adjustable regulator provides the correct air pressure for cooling and purging.

Air Line Kit (For $\phi 6$ mm Hose · Filter Mesh $0.3 \mu\text{m}$)

Product Code	Product Name	Standard Equipment · Accessories	
4504	AL-C1204	• Air Filter · Air Regulator • Air Pressure Gauge • Air ON-OFF Valve • Hose for Piping (K-275) : 6 ft	

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.

**1**

EmaxEVO
ESPERT
ROTUS
IMPULSE
PRESTO II
Sheenus
ZERO
Sonic-Cutter
ZERO

2

iSpeed3
E2000
 $\phi 1.0''/\phi 0.98''/\phi 0.897''$
E3000
— One Piece
E3000
— Modular
 $\phi 1.18''$
 $\phi 1.07''/\phi 0.98''/\phi 0.897''$
E3000
— 80,000rpm
E4000

3

MA
 $\phi 0.897''$
 $\phi 1.0''$
 $\phi 0.98''$
 $\phi 1.18''$
MS
 $\phi 0.75''$
 $\phi 0.79''$
 $\phi 0.89''$
 $\phi 0.91''$
 $\phi 1.0''$
 $\phi 0.98''$

4

HES
iSpeed5
HTS
PLANET
Xspeed
ABT

5

AIR LINE KIT

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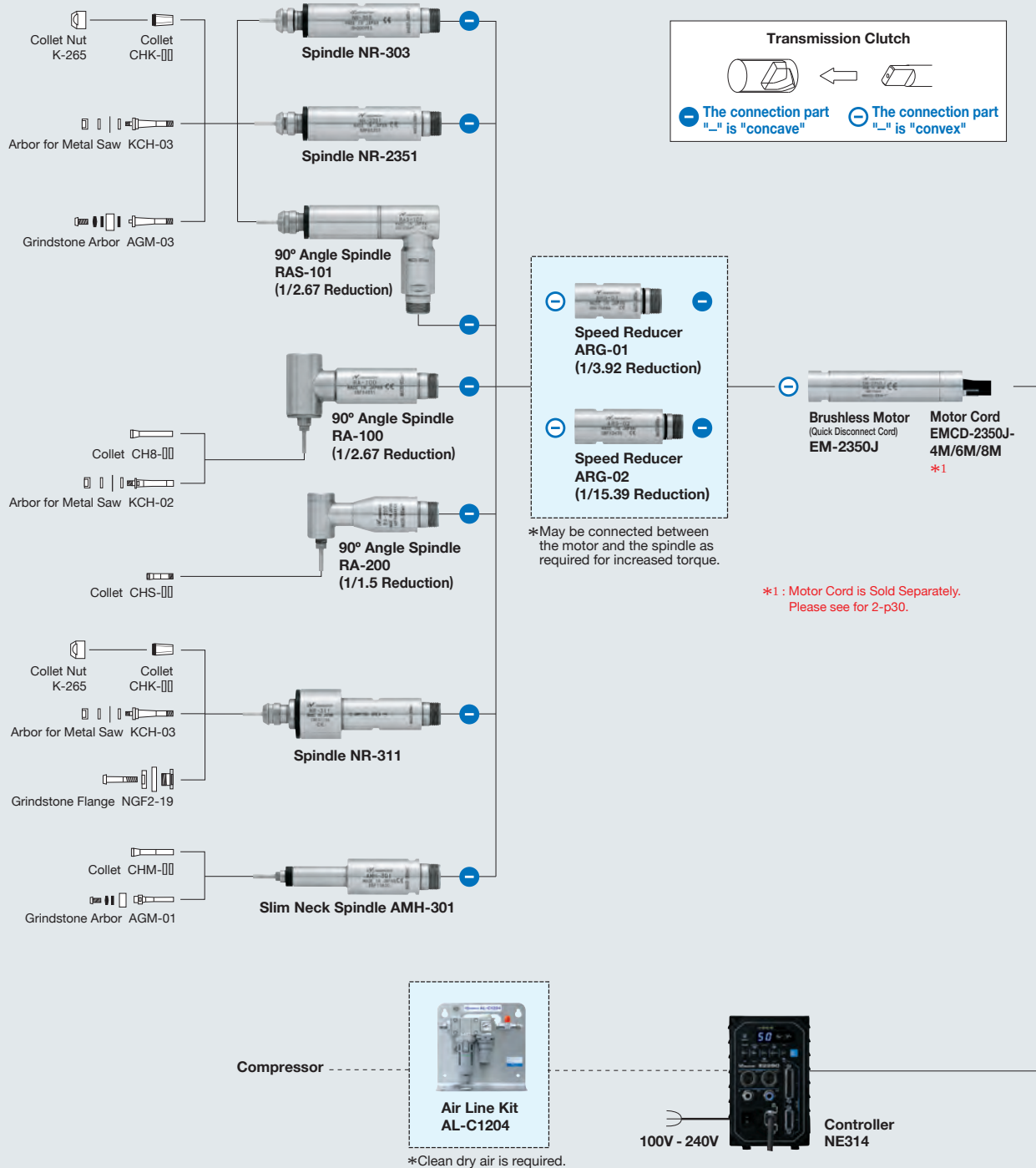
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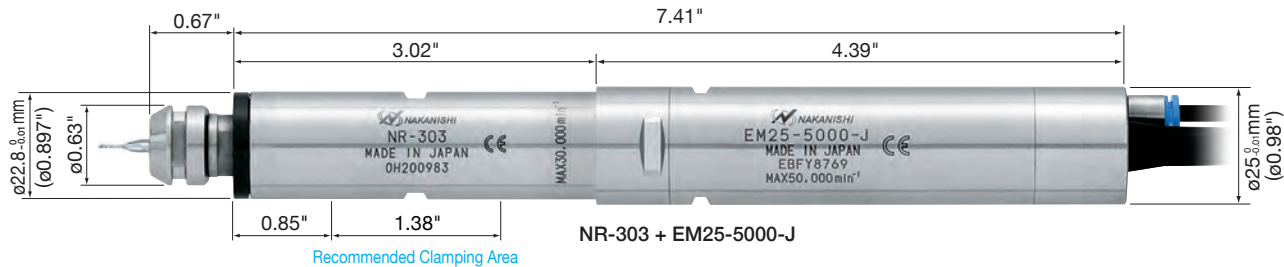
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E2000 Series ø0.897" (ø22.8 mm) System Chart



*Do not exceed the maximum motor speed recommendation for the spindles.
Excess speed will dramatically reduce bearing life.

Features of E2000 Series



• Maximum Output 200W

The E2000 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 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 E2000 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 rpm maximum.

• 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

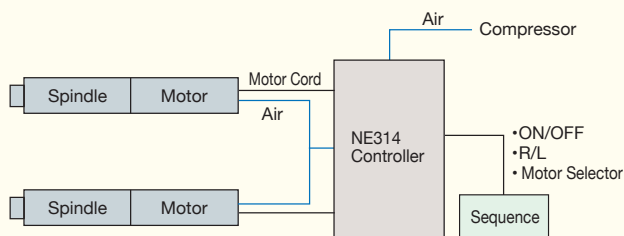
The housings of the motor and spindle are made from precision ground stainless steel (SUS416).

• 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 E2000 controller can establish a safe operating system.

Automatic Control System Chart

• Sequential Operation of up to 2 Motor / Spindles



*The E2000 Series controller has the ability to control up to 2 motors sequentially. 2 motors can not be run simultaneously.

1

EmaxEVO
ESPERT
ROTUS
IMPULSE
PRESTO II
Sheenus
ZERO
Sonic-Cutter
ZERO

2

iSpeed3
E2000
ø1.0"/ø0.98"/ø0.897"
E3000
- One Piece
E3000
- Modular
ø1.18"
ø1.07"/ø0.98"
ø0.897"
E3000
- 80,000rpm
E4000

3

MA
ø0.897"
ø1.0"
ø0.98"
ø1.18"
MS
ø0.75"
ø0.79"
ø0.93"
ø0.91"
ø1.0"
ø0.98"

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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 can not 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.

2

iSpeed3
E2000
ø1.0"/ø0.98"/ø0.897"
E3000
One Piece
E3000
Modular
ø1.18"
ø1.0"/ø0.98"/ø0.897"
E3000
60,000rpm
E4000

3

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

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E2000 Series Combination Example

50,000 rpm



Controller Specifications

Product Name	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"

Motor & Spindle

Motor	EM-2350J
Spindle	NR-2351
Speed	1,000~50,000 rpm
Weight	1 lb. 8.74 oz.
Dimensions	ø0.98" x 8.07"

E2000, NR-2351 Combination Example

Product Code	Product Name	Product	
7720	NE314	Controller	
7721	EM-2350J	Brushless Motor	
7855	NR-2351	Spindle	
4504	AL-C1204	Air Line Kit	

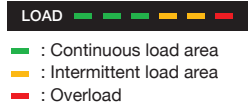
E2000 SERIES CONTROLLER

- 1,000~50,000 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)

Product Code **7720** **E2000 CONTROLLER NE314**

50,000 rpm

* : Load Monitor



Motor Connector No.1, No.2

Air Output Joint

Air Input Joint

External Input / Output Connector A, B

Fixing Power Cord Hook Bar

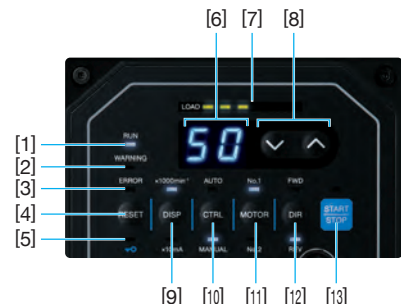
Power Cord Hook

Main Power Switch

Main Power Intake with Power Supply Fuses



- [1] Rotating LED (RUN)
- [2] Warning LED (WARNING)
- [3] Error LED (ERROR)
- [4] Error Reset Button (RESET)
- [5] KEY HOLD LED Button
- [6] Digital Speed Indicator
- [7] Load Monitor (LOAD)
- [8] Motor Speed Adjustment Button (SPEED)
- [9] DISPLAY (DISP) Button
- [10] Control Button (CTRL)
- [11] Motor Spindle Selection Button (MOTOR)
- [12] Rotation Direction Button (DIR)
- [13] Start / Stop Button (START / STOP)



Specifications

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

E2000 Controller

Product Code	Plug Type	Product Name	Standard Equipment · Accessories
7720	100 - 240V (Without Plug) 	NE314	• 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.

*Please refer to Technical Data 7-p10~p17 in detail about External Input-Output Connector.

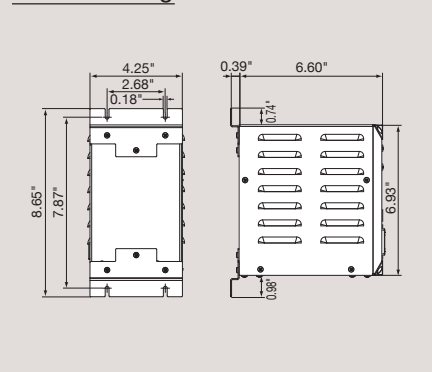
*AC100-240V for international operation.

Interface Cable
Page 2-p24

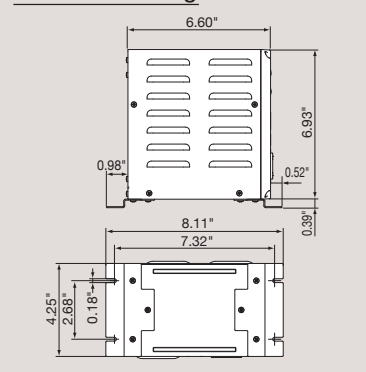


● Mounting Bracket

Back Mounting



Bottom Mounting



*Order by product code. **2-p27**

1

EmaxEVO
ESPERT
ROTUS
IMPULSE
PRESTO II
Sheenus
ZERO
Sonic-Cutter
ZERO

2

iSpeed3
E2000
ø1.0"/ø0.98"/ø0.89"
E3000
— One Piece
E3000
— Modular
ø1.18"
ø1.0"/ø0.98"
ø0.89"
E3000
— 50,000rpm
E4000

3

MA
ø0.897"
ø1.0"
ø0.98"
ø1.18"
MS
ø0.75"
ø0.79"
ø0.89"
ø0.91"
ø1.0"
ø0.98"

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HES
iSpeed5
HTS
PLANET
Xpeed
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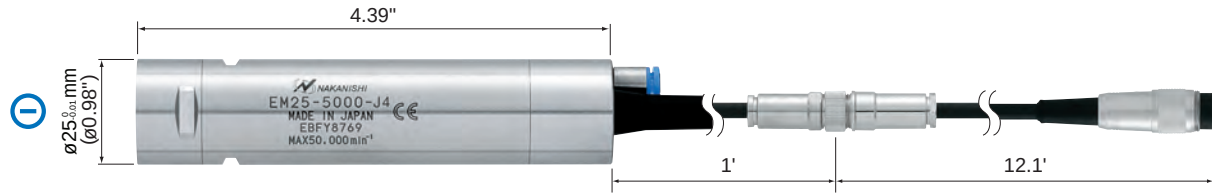
E2000 SERIES BRUSHLESS MOTOR

EM **23** - **50** - **J4**  **Clutch**

Product Symbol Outside Diameter Max. Motor Speed Cord Variety

New Model Name for E2000 Series Motor

Product Code 8333 BRUSHLESS MOTOR EM25-5000-J4 (Cord with Quick Disconnect) 50,000 rpm



- Motor Speed 1,000~50,000 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

Product Code	Product Name	Outside Diameter	Standard Equipment · Accessories
8333	EM25-5000-J4	ø0.98" (ø25mm)	• 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.

Product Code 7721 BRUSHLESS MOTOR EM-2350J 50,000 rpm



- Motor Speed 1,000~50,000 rpm
- Max. Output Power 200W
- Housing Stainless steel (SUS416)
- Cord Length 1 ft
- Air Coolant Hose Length 1 ft
- Weight 9.17 OZ. (w/ Cord)

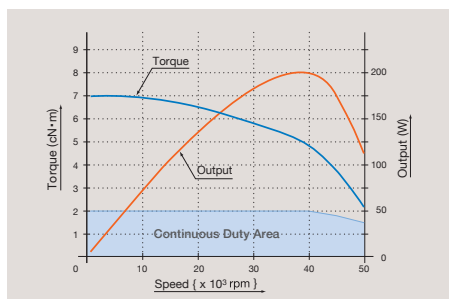
Brushless Motor

Product Code	Product Name	Standard Equipment · Accessories
7721	EM-2350J	• Wrench (20 x 24) : 1 pc.

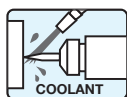
Motor Cord

Product	Product Code	Description · Product Name	Length	Std. Accessories	Fit to
	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 EM-2350J



E2000 SERIES $\phi 0.897$ "($\phi 22.8$ mm) SPINDLE



E2000 Series can be used in conjunction with water or oil based coolants.

Product Code **7861**

SPINDLE NR-303

30,000 rpm



- This spindle is ideal for small diameter drilling, milling and grinding. A wide selection of collets and accessories is available.

- Allowable Motor Speed 30,000 rpm
- Spindle Accuracy Within 2 μ m
- Weight 7.58 oz.

Additional collet purchase required:

Collet Series CHK-XX $\phi 0.5$ mm~ $\phi 6.35$ mm
Recommended CHK-3.175 $\phi 1/8$ "
(See Page 6-p3 for additional sizes)

- Collet Nut (K-265) For Collet (CHK)
- Metal Saw Arbor (KCH-03) For $\phi 0.24$ " (I.D.) x $\phi 1.18$ " (O.D.)
- Grindstone Arbor (AGM -03) For grinding wheel with I.D. of $\phi 5$ mm

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

Spindle

Product Code	Product Name	Standard Equipment · Accessories	
7861	NR-303	• Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs., (20 x 24) : 1 pc.	

Product Code **7855**

SPINDLE NR-2351 (Ceramic Bearings)

50,000 rpm



- This spindle is ideal for ultra-precision, small diameter drilling, milling and grinding. A wide selection of collets and accessories is available.

- Allowable Motor Speed 50,000 rpm
- Spindle Accuracy Within 1 μ m
- Weight 7.58 oz.

Additional collet purchase required:

Collet Series CHK-XX $\phi 0.5$ mm~ $\phi 6.35$ mm
Recommended CHK-3.175 $\phi 1/8$ "
(See Page 6-p3 for additional sizes)

- Collet Nut (K-265) For Collet (CHK)
- Metal Saw Arbor (KCH-03) For $\phi 0.24$ " (I.D.) x $\phi 1.18$ " (O.D.)
- Grindstone Arbor (AGM -03) For grinding wheel with I.D. of $\phi 5$ mm

Spindle

Product Code	Product Name	Standard Equipment · Accessories	
7855	NR-2351	• Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs., (20 x 24) : 1 pc.	

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus ZERO

Sonic-Cutter ZERO

2

iSpeed3

E2000

$\phi 1.0$ "($\phi 25.4$)/ $\phi 0.897$ "

E3000

— One Piece

E3000

— Modular

$\phi 1.18$ "

$\phi 1.07$ "/ $\phi 0.98$ "

$\phi 0.897$ "

E3000

— 30,000rpm

E4000

3

MA

$\phi 0.897$ "

$\phi 1.0$ "

$\phi 0.98$ "

$\phi 1.18$ "

MS

$\phi 0.75$ "

$\phi 0.79$ "

$\phi 0.93$ "

$\phi 0.91$ "

4

HES

iSpeed5

HTS

PLANET

Xspeed

ABT

5

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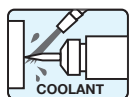
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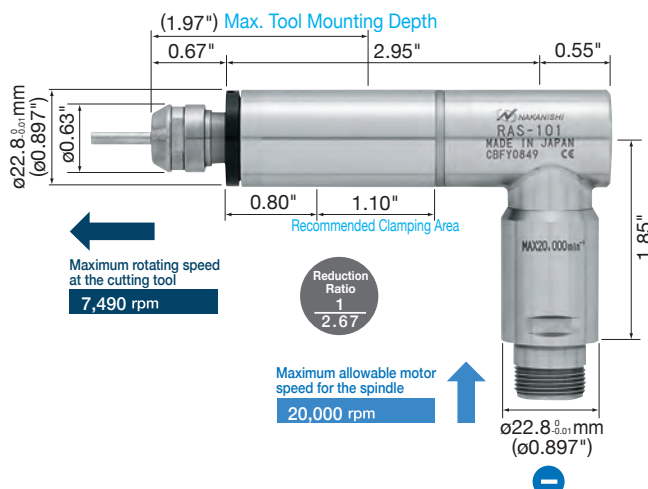
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E2000 SERIES $\phi 0.897"$ ($\phi 22.8$ mm) SPINDLE



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.

Product Code **7839** 90° ANGLE SPINDLE **RAS-101**



- 90° Angle type spindle with wide chucking range up to $\phi 1/4"$ ($\phi 6.35$ mm) is suitable for installations where space restrictions exist.

Maximum allowable motor speed for the spindle **20,000 rpm**

Maximum rotating speed at the cutting tool
<Reduction Ratio : 1/2.67> **7,490 rpm**

- Spindle Accuracy Within 2 μ m
- Weight 11.46 oz.

• Additional collet purchase required:

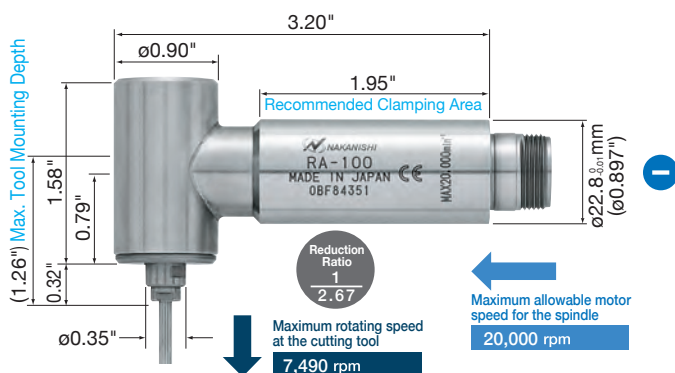
Collet Series CHK-XX $\phi 0.5$ mm~ $\phi 6.35$ mm
Recommended CHK-3.175 $\phi 1/8"$
(See Page 6-p3 for additional sizes)

- Collet Nut (K-265) For Collet (CHK)
- Metal Saw Arbor (KCH-03) For $\phi 0.24"$ (I.D.) x $\phi 1.18"$ (O.D.)
- Grindstone Arbor (AGM-03) For grinding wheel I.D. of $\phi 5$ mm

90° Angle Spindle

Product Code	Product Name	Standard Equipment · Accessories	
7839	RAS-101	• Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs., (20 x 24) : 1 pc.	

Product Code **2902** 90° ANGLE SPINDLE **RA-100**



- 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 $\phi 1.18"$ ($\phi 30$ mm) Metal Saw.

Maximum allowable motor speed for the spindle **20,000 rpm**

Maximum rotating speed at the cutting tool
<Reduction Ratio : 1/2.67> **7,490 rpm**

- Standard Size Collet (CH8-3.175) $\phi 1/8"$
- Weight 9.56 oz.

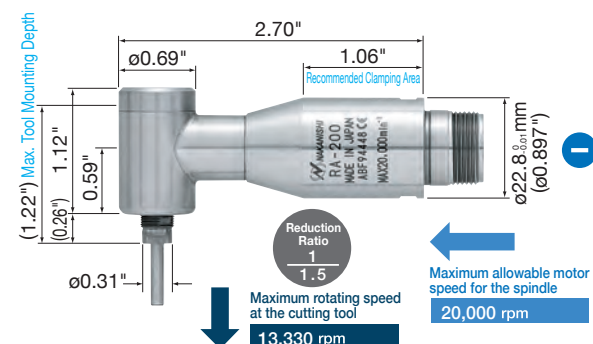
< Optional >

- Collet (CH8-) $\phi 0.8$ mm~ $\phi 3.175$ mm
(See Page 6-p5 for details)
- Metal Saw Arbor (KCH-02) For $\phi 0.24"$ (I.D.) x $\phi 1.18"$ (O.D.)

90° Angle Spindle

Product Code	Product Name	Standard Equipment · Accessories	
2902	RA-100	• Collet $\phi 1/8"$ (CH8-3.175) : 1 pc. • Wrench (7 x 5.5), (8 x 5), (20 x 24) : 1 pc. each.	

Product Code **2903** 90° ANGLE SPINDLE **RA-200**



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

Maximum allowable motor speed for the spindle **20,000 rpm**

Maximum rotating speed at the cutting tool
<Reduction Ratio : 1/1.5> **13,330 rpm**

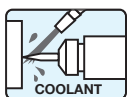
- Standard Size Collet (CHS-3.175) $\phi 1/8"$
- Weight 5.82 oz.

< Optional >

- Collet (CHS-) $\phi 0.8$ mm~ $\phi 3.175$ mm
(See Page 6-p4 for details)

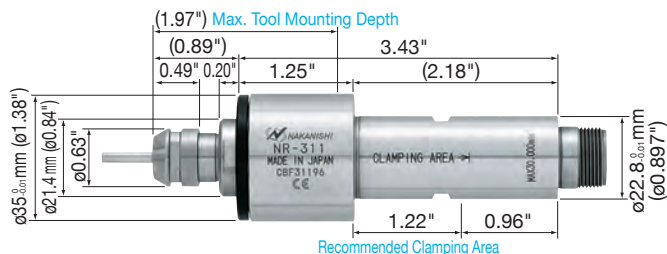
90° Angle Spindle

Product Code	Product Name	Standard Equipment · Accessories	
2903	RA-200	• Collet $\phi 1/8"$ (CHS-3.175) : 1 pc. • Wrench (7 x 5.1), (8 x 5), (20 x 24) : 1 pc. each.	



Product Code 7832 SPINDLE NR-311

30,000 rpm



- 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 $\phi 1.57$ " (40 mm) grindstone and small-diameter end milling.

- Allowable Motor Speed 30,000 rpm
- Spindle Accuracy Within 2 μ m
- Weight 13.05 oz.

Additional collet purchase required:

Collet Series CHK-XX $\phi 0.5$ mm~ $\phi 6.35$ mm
 Recommended CHK-3.175 $\phi 1/8$ "
 (See Page 6-p3 for additional sizes)

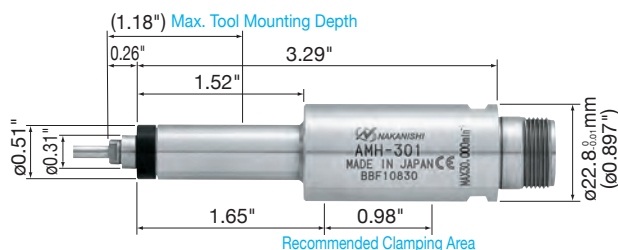
- Collet Nut (K-265) For Collet (CHK)
- Metal Saw Arbor (KCH-03) For $\phi 0.24$ " (I.D.) x $\phi 1.18$ " (O.D.)
- Grindstone Flange (NGF2-19) ... $\phi 19.05$ (I.D.) x $\phi 40$ (O.D.) x 7 (W) mm

Spindle

Product Code	Product Name	Standard Equipment · Accessories	
7832	NR-311	• Collet Nut (K-265) : 1 pc. • Wrench (12 x 14), (20 x 24) : 1 pc. each	

Product Code 2974 SPINDLE AMH-301

30,000 rpm



- Suitable for the grinding of the inner surface of slender and deep holes. (Example) If a $\phi 0.55$ " grindstone is mounted on the grinding arbor AGM-01, this spindle is suitable for the inner grinding of $\phi 0.59$ " or more and with the depth of 1.57" or less.

- Allowable Motor Speed 30,000 rpm
- Standard Size Collet (CHM-3.175) $\phi 1/8$ "
- Weight 6.03 oz.

< Optional >

- Collet (CHM-) $\phi 1.0$ mm~ $\phi 3.175$ mm
 (See Page 6-p4 for details)
- Grindstone Arbor (AGM -01) For grinding wheel with I.D. of $\phi 5$ mm

Spindle

Product Code	Product Name	Standard Equipment · Accessories	
2974	AMH-301	• Collet $\phi 1/8$ " (CHM-3.175) : 1 pc. • Wrench (7 x 5.1), (6 x 4.5), (20 x 24) : 1 pc. each	

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

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

$\phi 1.0$ "/ $\phi 0.98$ "/ $\phi 0.897$ "

E3000

— One Piece

E3000

— Modular

$\phi 1.18$ "

$\phi 1.07$ "/ $\phi 0.98$ "

$\phi 0.897$ "

E3000

— 30,000rpm

E4000

3

MA

$\phi 0.897$ "

$\phi 1.0$ "

$\phi 0.98$ "

$\phi 1.18$ "

MS

$\phi 0.75$ "

$\phi 0.79$ "

$\phi 0.93$ "

$\phi 0.91$ "

$\phi 1.0$ "

$\phi 0.98$ "

4

HES

iSpeed5

HTS

PLANET

Xspeed

ABT

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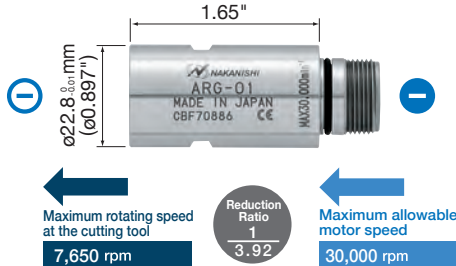
E2000 SERIES ø0.897"(ø22.8 mm) SPEED REDUCER



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.

1

Product Code 1022 SPEED REDUCER 1/3.92 ARG-01



Maximum allowable motor speed **30,000 rpm**

Maximum rotating speed at the cutting tool
<Reduction Ratio : 1/3.92> **7,650 rpm**

- Speed Reducing Mechanism By planetary gear system
- Weight 3.81 oz.

Speed Reducer 1/3.92

Product Code	Product Name	Speed Reduction Ratio	
1022	ARG-01	Speed Reduction Ratio 1/3.92	

- 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.

3

Product Code 1023 SPEED REDUCER 1/15.39 ARG-02



Maximum allowable motor speed **30,000 rpm**

Maximum rotating speed at the cutting tool
<Reduction Ratio : 1/15.39> **1,940 rpm**

- Speed Reducing Mechanism By planetary gear system
- Weight 5.22 oz.

Speed Reducer 1/15.39

Product Code	Product Name	Speed Reduction Ratio	
1023	ARG-02	Speed Reduction Ratio 1/15.39	

- 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.

4

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.

25 Pin Interface Cable

Product Code	Product Name		
DB25M	DB25M	For NSK Control Connector A 12.5 ft	
DB25MXL	DB25MXL	For NSK Control Connector A 25 ft	

15 Pin INTERFACE CABLE

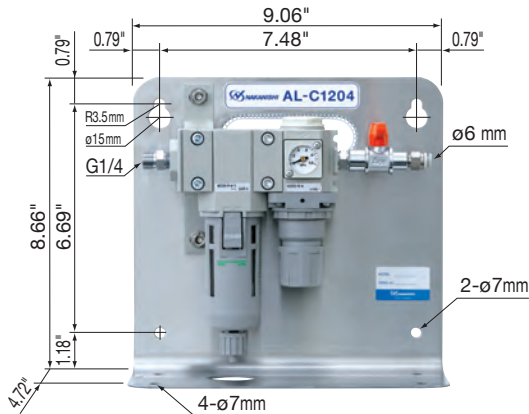


- 3 Meter long Interface Cable provides a DB15 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of the (OP1) "E-Stop Input Circuit" and "Safety Relay Circuit" from the NSK Control to a CNC Control.

15 Pin Interface Cable

Product Code	Product Name		
DB15M	DB15M	For NSK Control Connector B	

Product Code **4504** **AIR LINE KIT AL-C1204**



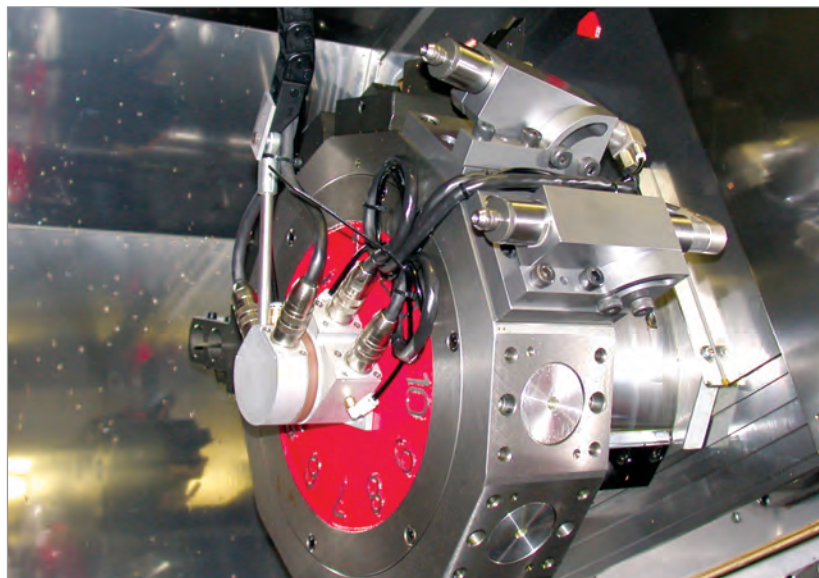
- The AL-C1204 Air Line Kit is designed to deliver clean, dry air to Electric Motors via the Controller. The filter removes small amounts of debris while the adjustable regulator provides the correct air pressure for cooling and purging.

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

Product Code	Product Name	Standard Equipment · Accessories	
4504	AL-C1204	• Air Filter · Air Regulator • Air Pressure Gauge • Air ON-OFF Valve • Hose for Piping (K-275) : 6 ft	

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.



1

EmaxEVO
ESPERT
ROTUS
IMPULSE
PRESTO II
Sheenus
ZERO
Sonic-Cutter
ZERO

2

iSpeed3
E2000
ø1.0"/ø0.98"/ø0.897"
E3000
— One Piece
E3000
— Modular
ø1.18"
ø1.07"/ø0.98"
ø0.897"
E3000
— 80,000rpm
E4000

3

MA
ø0.897"
ø1.0"
ø0.98"
ø1.18"
MS
ø0.75"
ø0.79"
ø0.897"
ø0.91"
ø1.0"
ø0.98"

4

HES
iSpeed5
HTS
PLANET
Xspeed
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5

AIR LINE KIT

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1	EmaxEVO ESPERT ROTUS IMPULSE PRESTO II Sheenus ZERO Sonic-Cutter ZERO
2	iSpeed3 E2000 ø1.0"/ø0.98"/ø0.897" E3000 — One Piece E3000 — Modular ø1.18" ø1.0"/ø0.98" ø0.897" E3000 — 80,000rpm E4000
3	MA ø0.897" ø1.0" ø0.98" ø1.18" MS ø0.75" ø0.73" ø0.87" ø0.91" ø1.0" ø0.98"
4	HES iSpeed5 HTS PLANET Xpeed ABT
5	AIR LINE KIT
6	PARTS
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TO INFINITY AND BEYOND



E-Speed

The Possibilities Are Endless
with the Versatile E-Speed

1,000~60,000 rpm

● One Piece Type

Outside Diameter $\phi 1.18"$, $\phi 0.98"$, $\phi 0.79"$
($\phi 30$, 25, 20 mm)

● Modular Type

Outside Diameter $\phi 1.18"$, $\phi 1.0"$, $\phi 0.98"$, $\phi 0.897"$
($\phi 30$, 25.4, 25, 22.8 mm)

1,000~80,000 rpm

● Modular Type

Outside Diameter $\phi 1.97"$, $\phi 1.18"$
($\phi 50$, 30 mm)



1

EmaxEVO
ESPERT
ROTUS
IMPULSE
PRESTO II
Sheenus
ZERO
Sonic-Cutter
ZERO

2

iSpeed3
E2000
 $\phi 1.0"/\phi 0.98"/\phi 0.897"$
E3000
- One Piece
E3000
- Modular
 $\phi 1.18"$
 $\phi 1.0"/\phi 0.98"/\phi 0.897"$
E3000
- 80,000rpm
E4000

3

MA
 $\phi 0.897"$
 $\phi 1.0"$
 $\phi 0.98"$
 $\phi 1.18"$
MS
 $\phi 0.75"$
 $\phi 0.79"$
 $\phi 0.87"$
 $\phi 0.91"$
 $\phi 1.0"$
 $\phi 0.98"$

4

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One Piece Type

Straight Motor Spindles

Max. Speed (rpm)	O.D.	Product Name	Collet		Features	Page
60,000	ø1.18" (ø30mm)	EMS-3060K	CHK			2-p44
8,000		EMR-3008K	CHK			2-p45
60,000	ø0.98" (ø25mm)	EM30-S6000	CHK			2-p48
		EM25-S6000	CHA			2-p48
		EM20-S6000	CHA			2-p49

Straight Motor Spindles (Flange Type)

60,000	Flange Type	EMSF-3060K	CHK			2-p46
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90° Angle Motor Spindle

21,300	ø1.18" (ø30mm)	EMA-3020K	CHK		Collet Size : Max. ø6.35mm	2-p50
		EMA-3020S	CHSS		Collet Size : Max. ø3.175mm	2-p50

Modular Type

Straight Spindles

Max. Speed (rpm)	O.D.	Product Name	Collet	Page	Motors	Page
80,000	ø1.18" (ø30mm)	NR-3080S	CHA	2-p75	80,000 EM-3080J	2-p74
60,000		NR-3060S	CHK	2-p58	60,000 EM-3060	2-p54
50,000		NR-403E	CHK	2-p59	60,000 EM-3060J	2-p55
40,000					50,000 EM25N-5000-J4	2-p22
50,000	ø1.0" (ø25.4mm)	NR-H2551	CHK	2-p23	50,000 EM25-5000-J4	2-p30
	ø0.98" (ø25mm)	NR-2551	CHK	2-p23	50,000 EM-2350J	2-p30
	ø0.897" (ø22.8mm)	NR-2351	CHK	2-p31		
30,000		NR-303	CHK	2-p31		

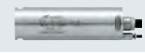
Modular Type

90°Angle Spindles

Max. Speed (rpm)	O.D.	Product Name	Collet		Page
7,490	ø1.18" (ø30mm)	RAS-151E	CHK		2-p60
20,000		RAX-271E	CHK		2-p60
5,000		RAX-71E	CHK		2-p60
7,490		RA-151E	CH8		2-p61
13,330		RA-271E	CHS		2-p61
7,490	ø0.897" (ø22.8mm)	RAS-101	CHK		2-p32
		RA-100	CH8		2-p32
13,330		RA-200	CHS		2-p32

Motors

Max. Speed (rpm) Page

30,000		2-p57
EM-3030T-J		

50,000		2-p30
EM-2350J		

ATC Spindles

50,000	ø1.97" (ø50mm)	NR50-5100 ATC	CHR		2-p62
		NR50-5100 ATC-RS	CHR-RS		2-p62
	ø1.57" (ø40mm)	NR40-5100 ATC	CHB		2-p62

60,000		2-p54
EM-3060		
60,000		2-p55
EM-3060J		

Spindle for deep hole grinding

30,000	ø0.897" (ø22.8mm)	NR-311	CHK		2-p33
		AMH-301	CHM		2-p33

50,000		2-p30
EM-2350J		

Lever Type Spindle

60,000	ø1.06" (ø26.8mm)	NRR-3060	CHB		2-p63
50,000	ø1.06" (ø26.8mm)	NRR-2651	CHB		2-p23

60,000		2-p54
EM-3060		
60,000		2-p55
EM-3060J		

50,000		2-p22
EM-3060J		

Quick Change Spindle

60,000	Flange Type	NR3060-AQC	CHK CHA		2-p64
	ø1.18" (ø30mm)	NRR3060-QC	CHK CHA		2-p65

60,000		2-p54
EM-3060		
60,000		2-p55
EM-3060J		

Air Bearing Spindle (Flange Type)

80,000	Flange Type	NRAF-5080	CHK		2-p75
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80,000		2-p74
EM-3080J		

1

Emax EVO
ESPERT
ROTUS
IMPULSE
PRESTO II
Sheenus
ZERO
Sonic-Cutter
ZERO

2

iSpeed3
E2000
ø1.0"/ø0.98"/ø0.897"
E3000
- One Piece
E3000
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ø1.18"
ø1.07"/ø0.98"
ø0.897"
E3000
- 80,000rpm
E4000

3

MA
ø0.897"
ø1.0"
ø0.98"
ø1.18"
MS
ø0.75"
ø0.79"
ø0.89"
ø0.91"
ø1.0"
ø0.98"

4

HES
iSpeed5
HTS
PLANET
Xspeed
ABT

5

AIR LINE KIT

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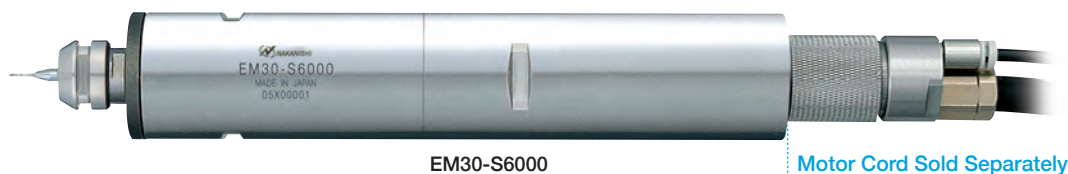
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Features of E3000 Series



● Maximum Motor Speed 60,000 rpm

The maximum motor speed 60,000 rpm is realized by using high performance brushless motor and ceramic bearings.

● Maximum Motor Output with 350W Power Supply

350W for $\phi 1.18"$ ($\phi 30$ mm) spindle.

250W for $\phi 0.98"$ ($\phi 25$ mm) and $\phi 0.79"$ ($\phi 20$ mm) spindle.

● Motor Spindle Diameter

A $\phi 0.79"$ ($\phi 20$ mm), $\phi 0.98"$ ($\phi 25$ mm), $\phi 1.18"$ ($\phi 30$ 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 μ m (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., Motor Speed Control Monitor ; Motor rotating, Torque Load.

● Use E2280 Motor & Spindle with E3000 Controller

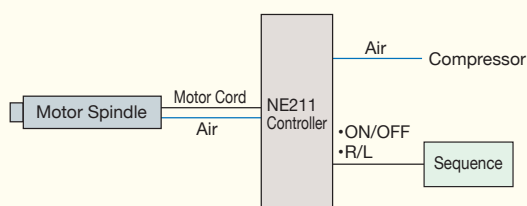
E2280 motor & spindle can be used with E3000 controller. {Less than 50,000 rpm}

● $\phi 0.897"$ ($\phi 22.8$ mm) Spindle Usage

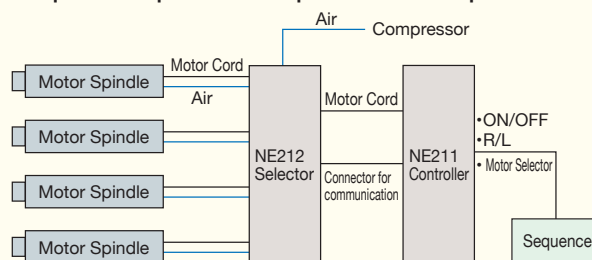
Use $\phi 0.897"$ ($\phi 22.8$ mm) spindles from our general catalog and an EM25-5000-J4 and EM-2350J motors { $\phi 0.98"$ ($\phi 25$ mm) 200W} with NE211.

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.)

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

$\phi 1.0"/\phi 0.98"/\phi 0.897"$

E3000

- One Piece

E3000

- Modular

$\phi 1.18"$

$\phi 1.0"/\phi 0.98"/\phi 0.897"$

E3000

- 80,000rpm

E4000

3

MA

$\phi 0.897"$

$\phi 1.0"/\phi 0.98"$

$\phi 1.18"$

MS

$\phi 0.75"/\phi 0.79"/\phi 0.897"/\phi 0.91"$

$\phi 0.897"/\phi 0.91"$

$\phi 1.0"/\phi 0.98"$

4

HES

iSpeed5

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E3000 SERIES CONTROLLER

- AC100-240V for international operation
- 1,000~60,000 rpm ● Maximum Output 350W
- External Input / Output Control Signal (Refer to 7-p2~p9 page of this catalog)

Product Code **9775** **CONTROLLER NE211**

60,000 rpm

* : Load Meter



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

External Input-Output
Connector A (D-SUB25 Female)

External Input-Output
Connector B (D-SUB15 Female)

Motor Connector

Air Output Joint $\phi 6$ mm

Air Input Joint $\phi 6$ mm

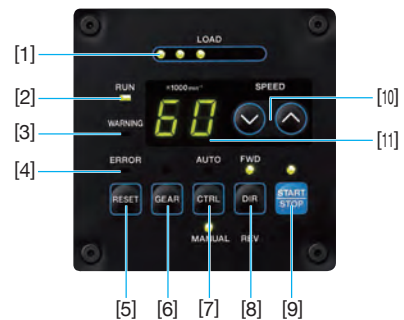
Power Switch

Communication Connector
for NE212

Intake with Power Fuse



- [1] Load Meter*
- [2] Running LED (RUN)
- [3] Warning LED (WARNING)
- [4] Error LED (ERROR)
- [5] Error Reset Switch (RESET)
- [6] Gear Setting Switch (GEAR)
- [7] Control Switch (AUTO/MANUAL)
- [8] Rotating Direction Selector Switch (FWD./REV.)
- [9] Start Switch (START)
- [10] Motor Speed Adjustment Switch (SPEED)
- [11] Display



Specifications

Product Name	: NE211
Power Source	: AC120V / 240V
Motor Speed	: 1,000-60,000 rpm
Max. Output Power	: 350W (For $\phi 1.18$ ")
Power Consumption	: 1.8A
Air Flow Volume	: 1.0CFM (36-44PSI)
Weight	: 6 lb. 2.77 oz.
Dimensions	: W3.46" x D5.43" x H9.37"

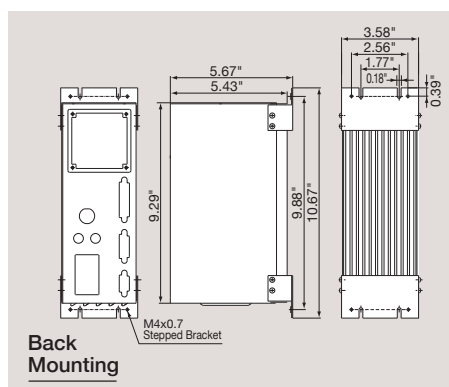
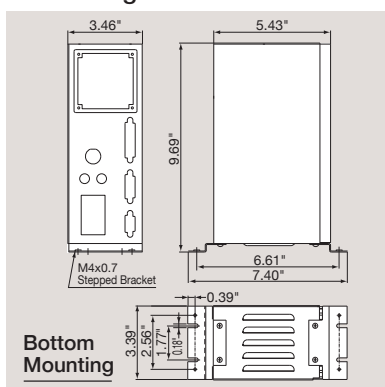
E3000 Controller

Product Code	Plug Type	Product Name	Standard Equipment · Accessories
9775	120V (B type)	NE211	• Power Cord : 6 ft · Air Hose with filter · Reducer • Connector Cap (Provided) · Bracket · Nylon Clip • Screw · Rubber Pad · Fuse (T6.3AL) 250V: 2 pcs.

*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 (2-p43) and order accordingly.

● Mounting Bracket



Optional



Control Panel Extension Cord

Product Code	Product Name	Fit to
8407	E3000-PEX4	NE211

25 / 15 Pin Interface Cable

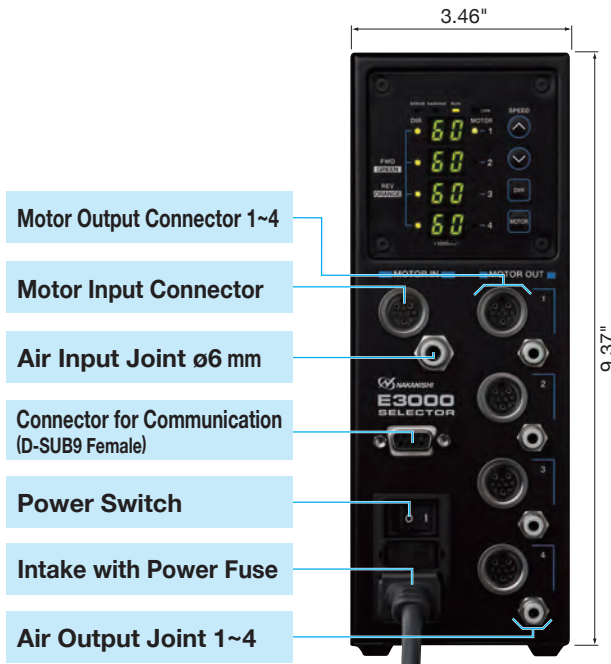
Product Code	Product Name	Fit to
DB25M	DB25M	NE211
DB25MXL	DB25MXL	NE211
DB15M	DB15M	NE211

E3000 SERIES SELECTOR

- 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)

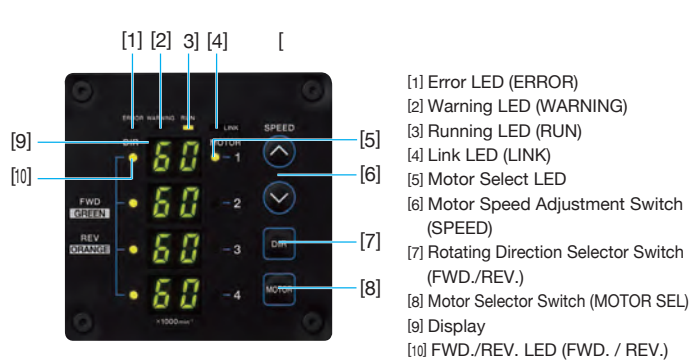
Product Code **9781** **SELECTOR NE212**

60,000 rpm

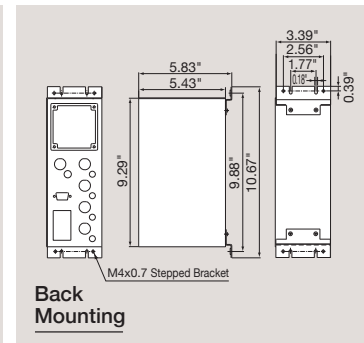
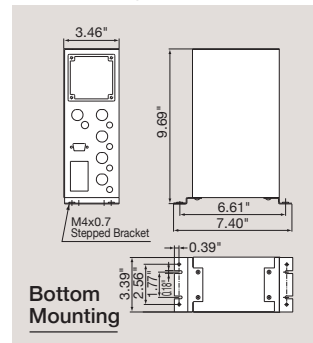


Specifications

Product Name : NE212
 Power Source : AC120V / 240V
 Power Consumption : 0.15A
 Air Flow Volume : Max. 4.0CFM
 (51PSI / Using max. 4 motor/spindles)
 Weight : 4 lb. 3.02 oz.
 Dimensions : W3.46" x D5.43" x H9.37"



● Mounting Bracket



E3000 Selector

Product Code	Plug Type	Product Name	Standard Equipment · Accessories
9781	120V (B type)	NE212	• Power Cord : 6 ft • Connect NE211 to NE212 Cable : 23.62" • Communication Cable : 23.62" • Connector Cap (Provided) • Plug to avoid Air Flow • Bracket • Nylon Clip • Screw • Rubber Pad • Fuse (T1.6AL) 250V: 2 pcs.

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

● Power Source Plug

Plug Type	Main Usable Area	Product
For 120V (B type)	For U.S.A. and Canada	

1

EmaxEVO
 ESPERT
 ROTUS
 IMPULSE
 PRESTO II
 Sheenus
 ZERO
 Sonic-Cutter
 ZERO

2

iSpeed3
 E2000
 ø1.0"/ø0.98"
 ø0.89"
 E3000
 - One Piece
 E3000
 - Modular
 ø1.18"
 ø1.07"/ø0.98"
 ø0.89"
 E3000
 - 80,000rpm
 E4000

3

MA
 ø0.897"
 ø1.0"
 ø0.98"
 ø1.18"
 MS
 ø0.75"
 ø0.79"
 ø0.89"
 ø0.91"
 ø1.0"
 ø0.98"

4

HES
 iSpeed5
 HTS
 PLANET
 Xspeed
 ABT

5

AIR LINE KIT

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PARTS

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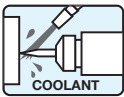
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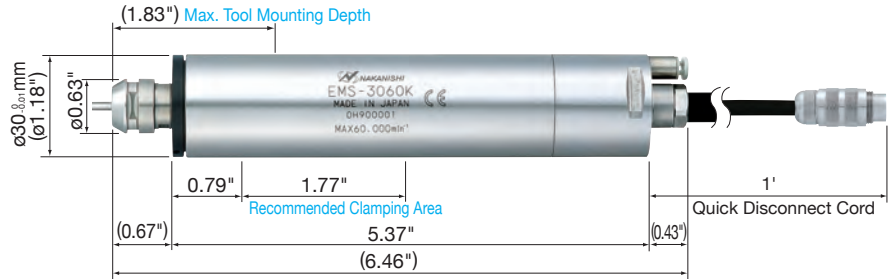
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E3000 SERIES ø1.18"(ø30 mm) BRUSHLESS MOTOR SPINDLE



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

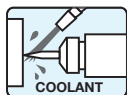
Product Code	7862	BRUSHLESS MOTOR SPINDLE	EMS-3060K	60,000 rpm
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- Motor Speed 60,000 rpm
- Spindle Accuracy Within 1 μ m
- Max. Output Power 350W
- Weight 1 lb. 3.93 oz.
- Additional collet purchase required:
 - Collet Series CHK-XX ø0.5mm~ø6.35mm
 - Recommended CHK-3.175 ø1/8"
 - (See Page 6-p3 for additional sizes)
- Motor Cord Length 10 ft, 12.1 ft, 18.7 ft, 25.3 ft
- 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

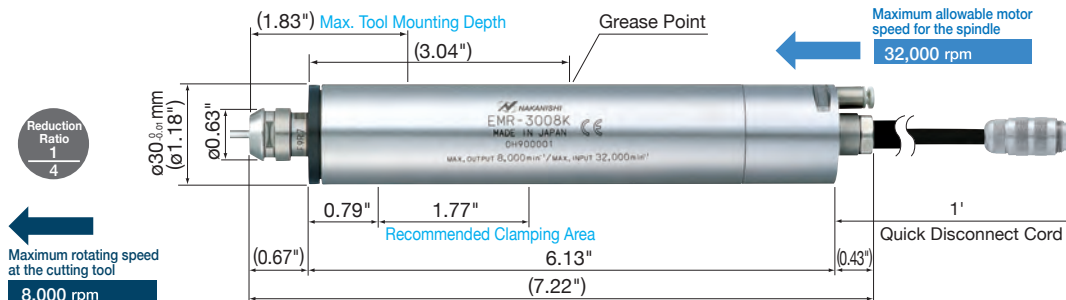
Brushless Motor Spindle

Product Code	Product Name	Standard Equipment · Accessories	
7862	EMS-3060K	• Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs.	



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.

Product Code **7869** BRUSHLESS MOTOR SPINDLE **EMR-3008K**



Maximum allowable motor speed for the spindle **32,000 rpm**

Maximum rotating speed at the cutting tool
<Reduction Ratio : 1/4> **8,000 rpm**

- Spindle Accuracy Within 1 μ m
- Max. Output Power 350W
- Weight 1 lb. 6.93 oz.

• Additional collet purchase required:

Collet Series CHK-XX ϕ 0.5mm~ ϕ 6.35mm
Recommended CHK-3.175 ϕ 1/8"
(See Page 6-p3 for additional sizes)

- Motor Cord Length 10 ft, 12.1 ft, 18.7 ft, 25.3 ft
- Metal Saw Arbor (KCH-03) For ϕ 0.24" (I.D.) x ϕ 1.18" (O.D.)
- Grindstone Arbor (AGM-03) For grinding wheel with I.D. of ϕ 5 mm

Brushless Motor Spindle

Product Code	Product Name	Standard Equipment · Accessories	
7869	EMR-3008K	• Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs. • Gear Grease (10 mL) · Grease Nipple : 1 pc.	



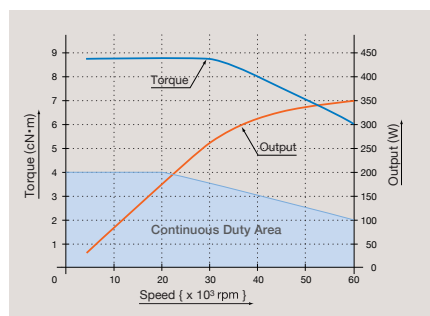
To extend the life expectancy of the Speed Reducer, inject grease every 70 to 100 hours. Grease injection prevents friction of the internal gears as well as heat generation. Adding grease also prevents the degradation of the existing grease in the reducer. Please maintain a reducer grease maintenance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

MOTOR CORD

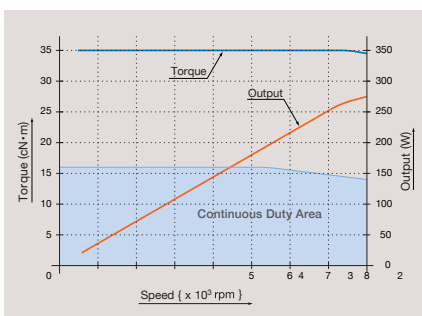
Product	Product Code	Description · Product Name	Length	Std. Accessories	Fit to	
	1778	Motor Cord 3M EMCD-3000J-3M	10 ft (3.0m)	• Air Hose • Connector Cap (Provided)	EMS-3060K EMR-3008K	
	1768	Motor Cord 4M EMCD-3000J-4M	12.1 ft (3.7m)			
	1767	Motor Cord 6M EMCD-3000J-6M	18.7 ft (5.7m)			
	1766	Motor Cord 8M EMCD-3000J-8M	25.3 ft (7.7m)			

Torque Characteristics Graph

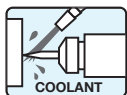
• EMS-3060K



• EMR-3008K



E3000 SERIES $\phi 1.18"$ ($\phi 30$ mm) FLANGE TYPE BRUSHLESS MOTOR SPINDLE



1

Product Code

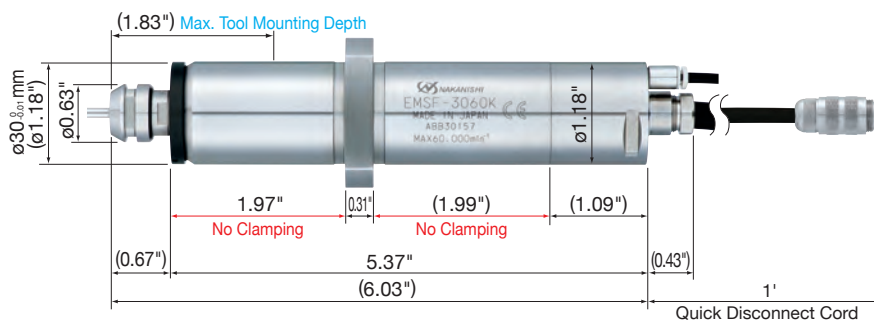
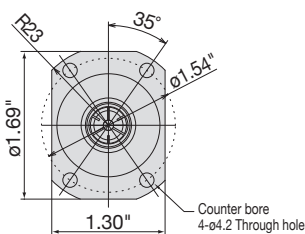
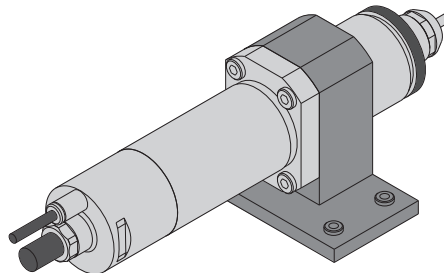
7863

FLANGE TYPE BRUSHLESS MOTOR SPINDLE EMSF-3060K

60,000 rpm

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.



- Motor Speed 60,000 rpm
- Spindle Accuracy Within 1 μ m
- Max. Output Power 350W
- Weight 1 lb. 5.87 oz.
- **Additional collet purchase required:**

Collet Series CHK-XX $\phi 0.5$ mm~ $\phi 6.35$ mm
Recommended CHK-3.175 $\phi 1/8"$
(See Page 6-p3 for additional sizes)

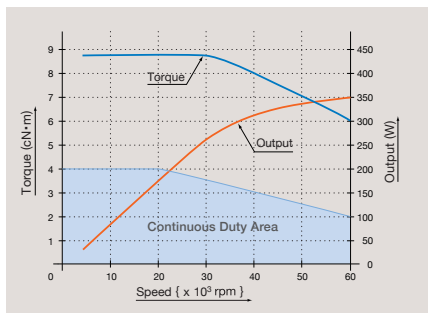
- Motor Cord Length 10 ft, 12.1 ft, 18.7 ft, 25.3 ft
- Metal Saw Arbor (KCH-03) For $\phi 0.24"$ (I.D.) x $\phi 1.18"$ (O.D.)
- Grindstone Arbor (AGM -03) For grinding wheel with I.D. of $\phi 5$ mm
- Grindstone Flange (EGF-19) $\phi 19.05$ (I.D.) x $\phi 40$ (O.D.) x 7 (W)mm

Flange Type Brushless Motor Spindle

Product Code	Product Name	Standard Equipment · Accessories
7863	EMSF-3060K	• Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs. • Air Hose 0.3m : 1 pc. • Hex socket bolt (M4 x L16) : 4 pcs.

Torque Characteristics Graph

- EMSF-3060K



MOTOR CORD

Product	Product Code	Description - Product Name	Length	Std. Accessories	Fit to	
	1778	Motor Cord 3M EMCD-3000J-3M	10 ft (3.0m)	- Air Hose - Connector Cap (Provided)	EMSF-3060K	
	1768	Motor Cord 4M EMCD-3000J-4M	12.1 ft (3.7m)			
	1767	Motor Cord 6M EMCD-3000J-6M	18.7 ft (5.7m)			
	1766	Motor Cord 8M EMCD-3000J-8M	25.3 ft (7.7m)			

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus
ZERO

Sonic-Cutter
ZERO

2

iSpeed3

E2000

ø1.0"/ø0.98"/ø0.897"

E3000

— One Piece

E3000

— Modular

ø1.18"

ø1.07"/ø0.98"

ø0.897"

E3000

— 80,000rpm

E4000

3

MA

ø0.897"

ø1.0"

ø0.98"

ø1.18"

MS

ø0.75"

ø0.79"

ø0.897"

ø0.91"

ø1.0"

ø0.98"

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

AIR LINE KIT

6

PARTS

7

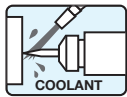
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E3000 SERIES BRUSHLESS MOTOR SPINDLE



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EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

ø1.0"/ø0.98"/ø0.897"

E3000

One Piece

E3000

Modular

ø1.18"

ø1.0"/ø0.98"/ø0.897"

E3000

60,000rpm

E4000

3

MA

ø0.897"

ø1.0"

ø0.98"

ø1.18"

MS

ø0.75"

ø0.79"

ø0.81"

ø1.0"

ø0.98"

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

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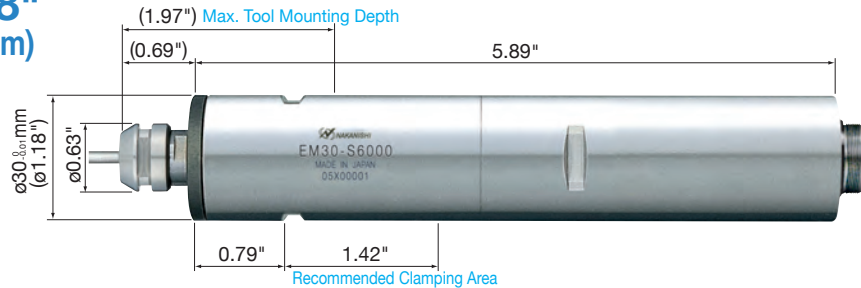
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Product Code **7903** BRUSHLESS MOTOR SPINDLE **EM30-S6000**

60,000 rpm

Outside Diameter **ø1.18"**
(ø30mm)



- Motor Speed 60,000 rpm
- Spindle Accuracy Within 1 µm
- Max. Output Power 350 W
- Weight 1 lb. 4.28 oz.

Additional collet purchase required:

- Collet Series CHK-XX ø0.5mm~ø6.35mm
- Recommended CHK-3.175 ø1/8"
- (See Page 6-p3 for additional sizes)

*High precision type is also available for CHK-3.0, 3.175, 4.0, 6.0, 6.35
Refer to 6-p3 page of this catalog.

- Motor Cord Length 13 ft, 19 ft, 26 ft
- 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

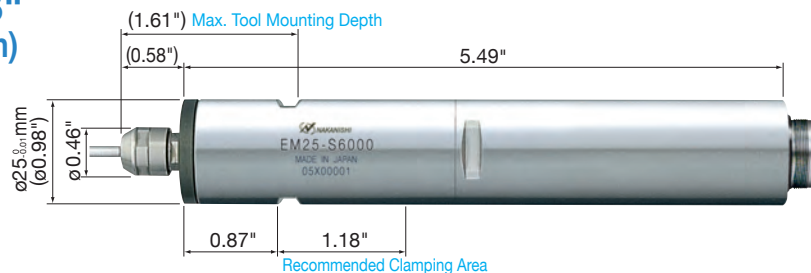
Brushless Motor Spindle ø1.18"(ø30 mm)

Product Code	Product Name	Standard Equipment · Accessories	
7903	EM30-S6000	• Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs.	

Product Code **7858** BRUSHLESS MOTOR SPINDLE **EM25-S6000**

60,000 rpm

Outside Diameter **ø0.98"**
(ø25mm)



- Motor Speed 60,000 rpm
- Spindle Accuracy Within 1 µm
- Max. Output Power 250 W
- Weight 13.23 oz.

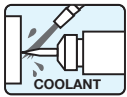
Additional collet purchase required:

- Collet Series CHA-XX ø0.5mm~ø4.0mm
- Recommended CHA-3.175 ø1/8"
- (See Page 6-p2 for additional sizes)

- Motor Cord Length 13 ft, 19 ft, 26 ft

Brushless Motor Spindle ø0.98"(ø25 mm)

Product Code	Product Name	Standard Equipment · Accessories	
7858	EM25-S6000	• Collet Nut (CHN-A) : 1 pc. • Wrench (8 x 5) : 1 pc. • Wrench (9 x 11) : 1 pc.	

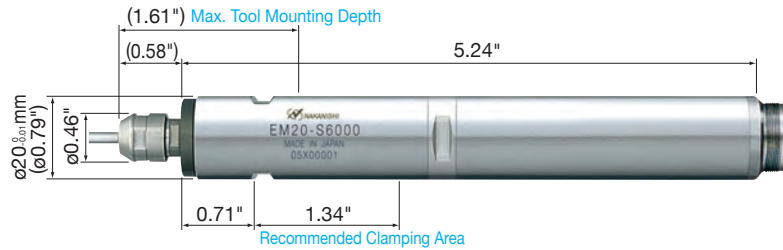


Product Code **7860**

BRUSHLESS MOTOR SPINDLE EM20-S6000

60,000 rpm

Outside Diameter **ø0.79"**
(ø20mm)



- Motor Speed 60,000 rpm
- Spindle Accuracy Within 1 µm
- Max. Output Power 250 W
- Weight 8.11 oz.
- Additional collet purchase required:
Collet Series CHA-XX ø0.5mm~ø4.0mm
Recommended CHA-3.175 ø1/8"
(See Page 6-p2 for additional sizes)
- Motor Cord Length 13 ft, 19 ft, 26 ft

Brushless Motor Spindle ø0.79"(ø20 mm)

Product Code	Product Name	Standard Equipment · Accessories	
7860	EM20-S6000	• Collet Nut (CHN-A) : 1 pc. • Wrench (8 x 5) : 1 pc. • Wrench (9 x 11) : 1 pc.	

MOTOR CORD Straight Type

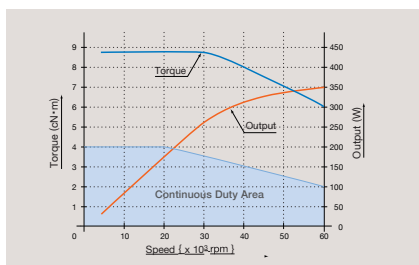
Product	Product Code	Description · Product Name	Length	Std. Accessories	Fit to	
	1748	Motor Cord 4M EMCD-3000-4M	13 ft	• Air Hose • Connector Cap (Provided)	EM30-S6000 EM25-S6000 EM20-S6000	
	1749	Motor Cord 6M EMCD-3000-6M	19 ft			
	1750	Motor Cord 8M EMCD-3000-8M	26 ft			

MOTOR CORD 90° Angle Type

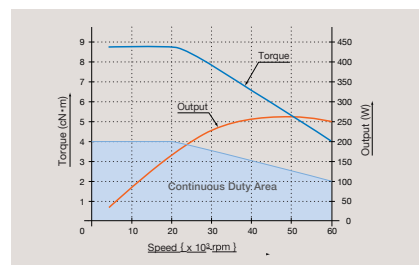
Product	Product Code	Description · Product Name	Length	Std. Accessories	Fit to	
	1744	Motor Cord 4M EMCD-3000A-4M	13 ft	• Air Hose • Connector Cap (Provided)	EM30-S6000 EM25-S6000 EM20-S6000	
	1743	Motor Cord 6M EMCD-3000A-6M	19 ft			
	1742	Motor Cord 8M EMCD-3000A-8M	26 ft			

Torque Characteristics Graph

● EM30-S6000



● EM20-S6000, EM25-S6000



1

EmaxEVO
ESPRT
ROTUS
IMPULSE
PRESTO II
Sheenus
ZERO
Sonic-Cutter
ZERO

2

iSpeed3
E2000
ø1.0"/ø0.98"/ø0.897"
E3000
— One Piece
E3000
— Modular
ø1.18"
ø1.07"/ø0.98"
ø0.897"
E3000
— 80,000rpm
E4000

3

MA
ø0.897"
ø1.0"
ø0.98"
ø1.18"
MS
ø0.75"
ø0.79"
ø0.897"
ø0.91"
ø1.0"
ø0.98"

4

HES
iSpeed5
HTS
PLANET
Xpeed
ABT

5

AIR LINE KIT

6

PARTS

7

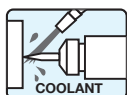
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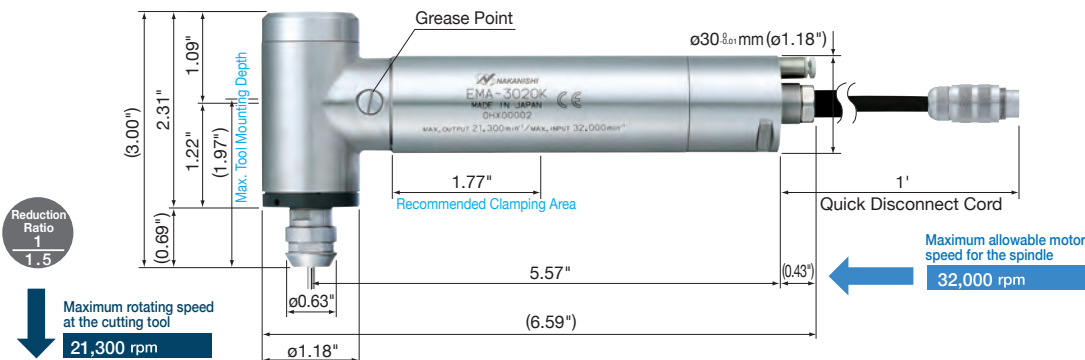
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E3000 SERIES $\phi 1.18"$ ($\phi 30$ mm) BRUSHLESS MOTOR SPINDLE



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.

Product Code **7874** 90°ANGLE BRUSHLESS MOTOR SPINDLE **EMA-3020K**



Maximum allowable motor speed for the spindle **32,000 rpm**

Maximum rotating speed at the cutting tool
<Reduction Ratio : 1/1.5> **21,300 rpm**

- Spindle Accuracy Within 2 μ m
- Max. Output Power 280W
- Weight 1 lb. 10.81 oz.

• Additional collet purchase required:

- Collet Series CHK-XX $\phi 0.5$ mm~ $\phi 6.35$ mm
Recommended CHK-3.175 $\phi 1/8"$
(See Page 6-p3 for additional sizes)
- Motor Cord Length 10 ft, 12.1 ft, 18.7 ft, 25.3 ft
- Metal Saw Arbor (KCH-03) For $\phi 0.24"$ (I.D.) x $\phi 1.18"$ (O.D.)
- Grindstone Arbor (AGM -03) For grinding wheel with I.D. of $\phi 5$ mm

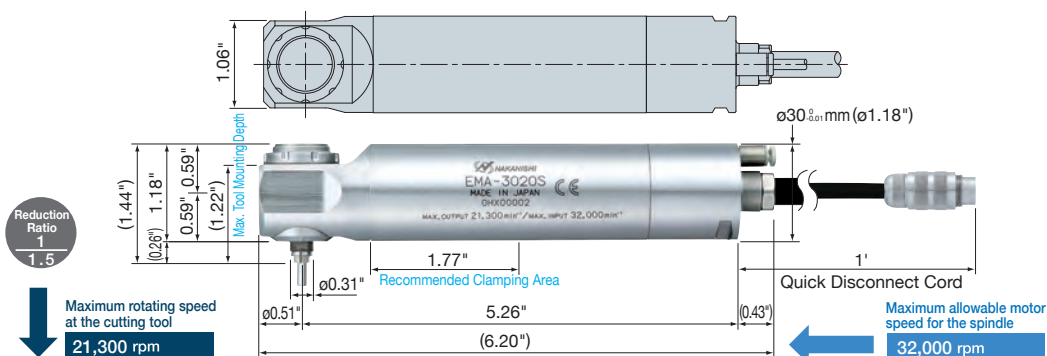
90° Angle Brushless Motor Spindle

Product Code	Product Name	Standard Equipment · Accessories	
7874	EMA-3020K	• Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs. • Gear Grease (10 mL) · Grease Nipple : 1 pc.	



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.

Product Code **7605** 90°ANGLE BRUSHLESS MOTOR SPINDLE **EMA-3020S**



Maximum allowable motor speed for the spindle **32,000 rpm**

Maximum rotating speed at the cutting tool
<Reduction Ratio : 1/1.5> **21,300 rpm**

- Spindle Accuracy Within 3 μ m
 - Max. Output Power 275W
 - Standard Size Collet (CHSS-3.175) $\phi 1/8"$
 - Weight 1 lb. 5.34 oz.
- < Optional >
- Collet (CHSS- []) $\phi 1.0$ mm~ $\phi 3.175$ mm
(See Page 6-p4 for details)
 - Motor Cord Length 10 ft, 12.1 ft, 18.7 ft, 25.3 ft

90° Angle Brushless Motor Spindle

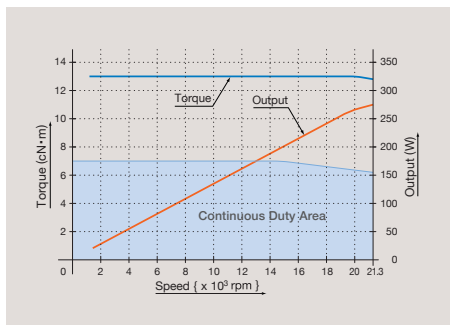
Product Code	Product Name	Standard Equipment · Accessories	
7605	EMA-3020S	• Collet $\phi 1/8"$ (CHSS-3.175) : 1 pc. • Wrench (7 x 5.1), (8 x 6.1) : 1 pc. each	

MOTOR CORD

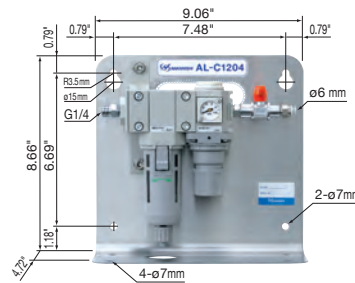
Product	Product Code	Description · Product Name	Length	Std. Accessories	Fit to	
	1778	Motor Cord 3M EMCD-3000J-3M	10 ft (3.0m)	• Air Hose • Connector Cap (Provided)	EMA-3020K EMA-3020S	
	1768	Motor Cord 4M EMCD-3000J-4M	12.1 ft (3.7m)			
	1767	Motor Cord 6M EMCD-3000J-6M	18.7 ft (5.7m)			
	1766	Motor Cord 8M EMCD-3000J-8M	25.3 ft (7.7m)			

Torque Characteristics Graph

- EMA-3020K, EMA-3020S



Product Code 4504 AIR LINE KIT AL-C1204



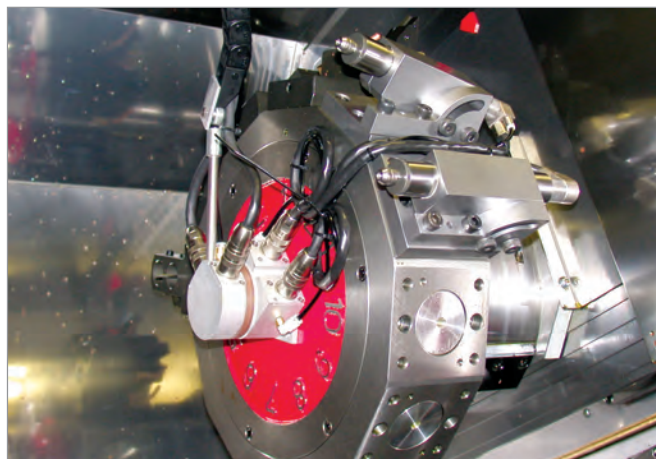
- The AL-C1204 Air Line Kit is designed to deliver clean, dry air to Electric Motors via the Controller. The filter removes small amounts of debris while the adjustable regulator provides the correct air pressure for cooling and purging.

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

Product Code	Product Name	Standard Equipment · Accessories	
4504	AL-C1204	• Air Filter · Air Regulator • Air Pressure Gauge • Air ON-OFF Valve • Hose for Piping (K-275) : 6 ft	

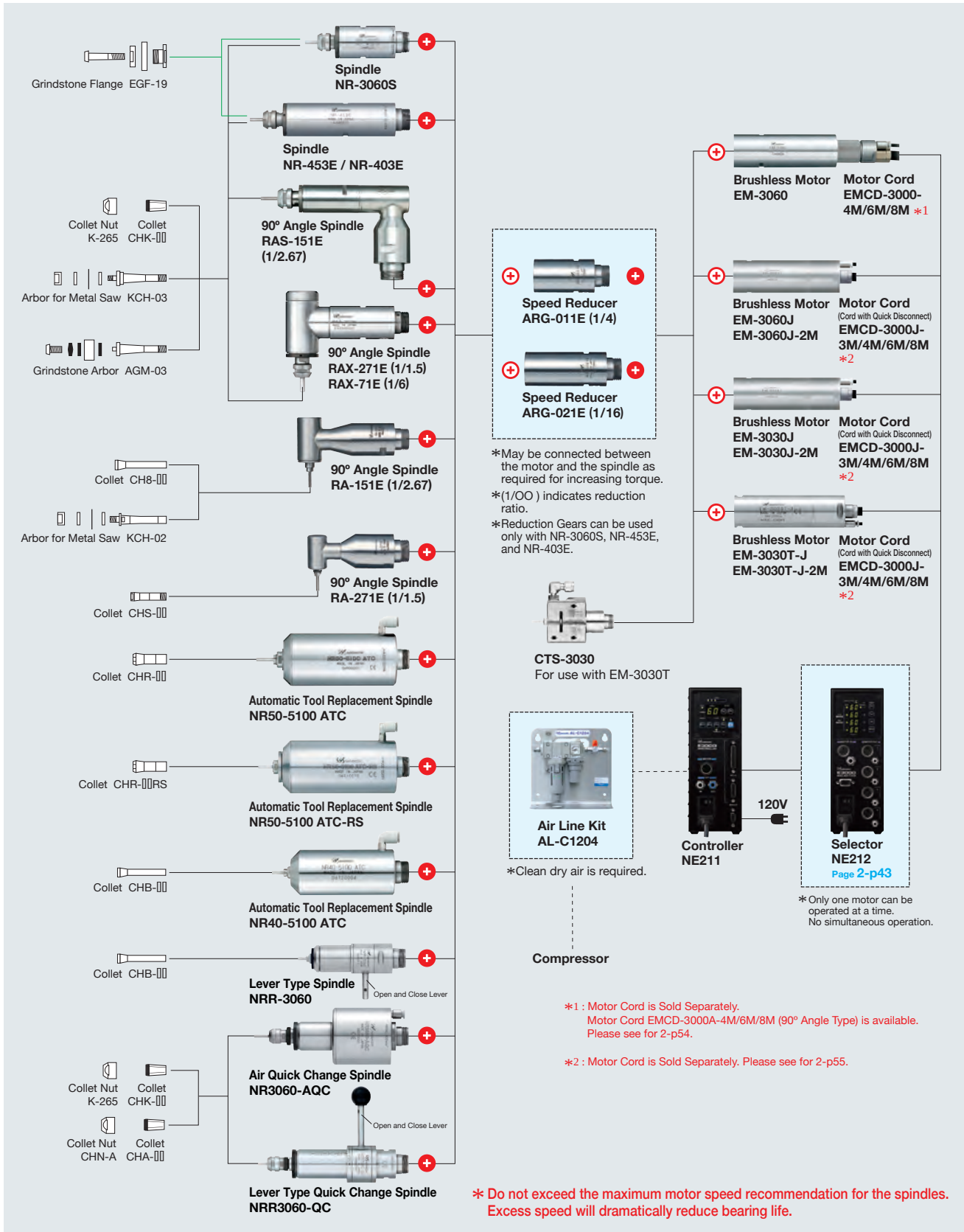
Rotary Coupling

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.



- 1,000~60,000 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 ø1.18"(ø30 mm) System Chart



E3000 SERIES CONTROLLER

- AC100-240V for international operation
- 1,000~60,000 rpm
- Maximum Output 350W
- ø0.79"(ø20 mm), ø0.897"(ø22.8 mm), ø0.98"(ø25 mm), ø1.0"(ø25.4 mm), ø1.18"(ø30 mm) spindles are available.

Product Code **9775** **CONTROLLER NE211**

60,000 rpm

*: Load Meter



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

External Input-Output Connector A (D-SUB25 Female)

External Input-Output Connector B (D-SUB15 Female)

Motor Connector

Air Output Joint ø6 mm

Air Input Joint ø6 mm

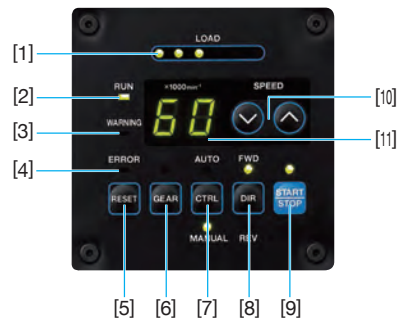
Power Switch

Communication Connector for NE212

Intake with Power Fuse



- [1] Load Meter*
- [2] Running LED (RUN)
- [3] Warning LED (WARNING)
- [4] Error LED (ERROR)
- [5] Error Reset Switch (RESET)
- [6] Gear Setting Switch (GEAR)
- [7] Control Switch (AUTO/MANUAL)
- [8] Rotating Direction Selector Switch (FWD./REV.)
- [9] Start Switch (START)
- [10] Motor Speed Adjustment Switch (SPEED)
- [11] Display



Specifications

Product Name	: NE211
Power Source	: AC120V / 240V
Motor Speed	: 1,000-60,000 rpm
Max. Output Power	: 350W
Power Consumption	: 1.8A
Air Flow Volume	: 1.0CFM (36-44PSI)
Weight	: 6 lb. 2.77 oz.
Dimensions	: W3.46" x D5.43" x H9.37"

E3000 Controller

Product Code	Plug Type	Product Name	Standard Equipment · Accessories
9775	120V (B type)	NE211	• Power Cord : 6 ft • Air Hose with filter • Reducer • Connector Cap (Provided) • Bracket • Nylon Clip • Screw • Rubber Pad • Fuse (T6.3AL) 250V: 2 pcs.

*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.

Interface Cable
Page 2-p66



● Power Source Plug

Plug Type	Main Usable Area	Product
For 120V (B type)	For U.S.A. and Canada	

1

EmaxEVO
ESPERT
ROTUS
IMPULSE
PRESTO II
Sheenus ZERO
Sonic-Cutter ZERO

2

iSpeed3
E2000
ø1.0"/ø0.98"/ø0.897"
E3000
- One Piece
E3000
- Modular
ø1.18"
ø1.0"/ø0.98"
ø0.897"
E3000
- 80,000rpm
E4000

3

MA
ø0.897"
ø1.0"
ø0.98"
ø1.18"
MS
ø0.75"
ø0.79"
ø0.93"
ø0.91"
ø1.0"
ø0.98"

4

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

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EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

ø1.0"/ø0.98"/ø0.897"

E3000

One Piece

E3000

Modular

ø1.18"

ø1.0"/ø0.98"/ø0.897"

E3000

60,000rpm

E4000

3

MA

ø0.897"

ø1.0"

ø0.98"

ø1.18"

MS

ø0.75"

ø0.79"

ø0.87"

ø0.91"

ø1.0"

ø0.98"

4

HES

iSpeed5

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ABT

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Product Code **1597** **BRUSHLESS MOTOR EM-3060** **60,000 rpm**

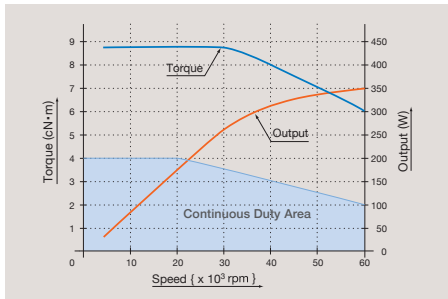


Motor Cord EMCD-3000J-3M / 4M / 6M / 8M on page 2-p55 can not used for this motor.

- Motor Speed 1,000~60,000 rpm
- Max. Output Power 350W
- Housing Stainless steel (SUS416)
- Weight 11.46 oz. (w/o Cord)

Brushless Motor

Product Code	Product Name	Standard Equipment · Accessories	
1597	EM-3060	• Wrench (22 x 27) : 1 pc.	



MOTOR CORD Straight Type

Product	Product Code	Description · Product Name	Length	Std. Accessories	Fit to	
	1748	Motor Cord 4M EMCD-3000-4M	13 ft	• Air Hose • Connector Cap (Provided)	EM-3060	
	1749	Motor Cord 6M EMCD-3000-6M	19 ft			
	1750	Motor Cord 8M EMCD-3000-8M	26 ft			

MOTOR CORD 90° Angle Type

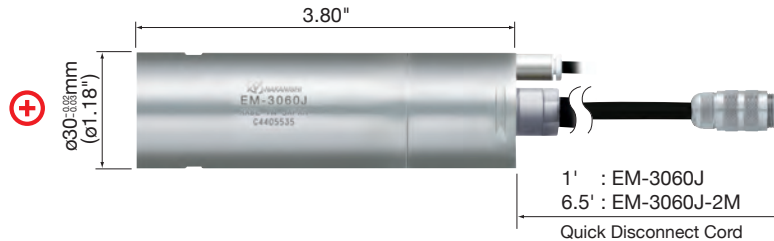
Product	Product Code	Description · Product Name	Length	Std. Accessories	Fit to	
	1744	Motor Cord 4M EMCD-3000A-4M	13 ft	• Air Hose • Connector Cap (Provided)	EM-3060	
	1743	Motor Cord 6M EMCD-3000A-6M	19 ft			
	1742	Motor Cord 8M EMCD-3000A-8M	26 ft			



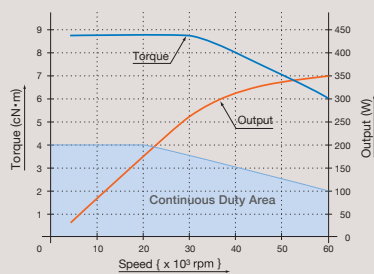
Caution : Brushless Motor with 6.5 ft (2 m) long quick disconnect cord can not used with EMCD-3000J-8M.

BRUSHLESS MOTOR EM-3060J

60,000 rpm



EMCD-3000-4M / 6M / 8M and EMCD-3000A-4M / 6M / 8M on page 2-p54 can not used for this motor.



- Motor Speed 1,000~60,000 rpm
- Max. Output Power 350W
- Housing Stainless steel (SUS416)
- Weight 12.70 oz. (w/o Cord)

Brushless Motor with 1 ft Cord

Product Code	Product Name	Standard Equipment · Accessories	
1765	EM-3060J	• Wrench (22 x 27) : 1 pc.	

Brushless Motor with 6.5 ft Cord

Product Code	Product Name	Standard Equipment · Accessories	
1779	EM-3060J-2M	• Wrench (22 x 27) : 1 pc.	

*EMCD-3000J-8M (25.3 ft / 8m long) can not be used for this motor.

MOTOR CORD

Product	Product Code	Description · Product Name	Length	Std. Accessories	Fit to	
	1778	Motor Cord 3M EMCD-3000J-3M	10 ft (3.0m)	• Air Hose • Connector Cap (Provided)	EM-3060J EM-3060J-2M	
	1768	Motor Cord 4M EMCD-3000J-4M	12.1 ft (3.7m)			
	1767	Motor Cord 6M EMCD-3000J-6M	18.7 ft (5.7m)			
	1766	Motor Cord 8M EMCD-3000J-8M	25.3 ft (7.7m)		EM-3060J	

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

~ One Piece

E3000

~ Modular

~ One Piece

E3000

~ 80,000rpm

E4000

3

MA

~ 0.897"

~ 1.0"

~ 1.18"

MS

~ 0.75"

~ 0.93"

~ 1.0"

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

AIR LINE KIT

6

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

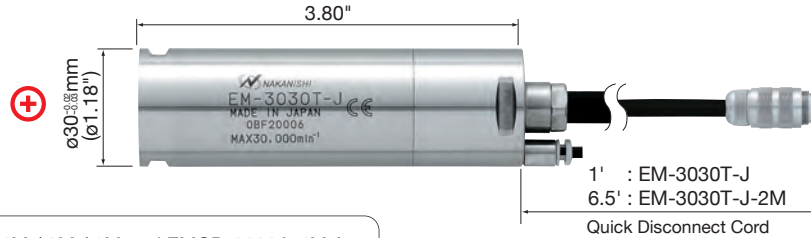


Caution : Brushless Motor with 6.5 ft (2 m) long quick disconnect cord can not used with EMCD-3000J-8M.

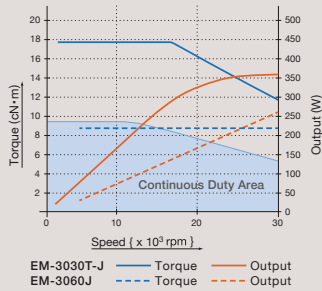
BRUSHLESS MOTOR EM-3030T-J

30,000 rpm

Torque Type ● EM-3030T-J is designed for high performance (power and torque) at a lower rpm.



EMCD-3000-4M / 6M / 8M and EMCD-3000A-4M / 6M / 8M on page 2-p54 can not used for this motor.



- Motor Speed 1,000~30,000 rpm
- Max. Output Power 350W
- Housing Stainless steel (SUS416)
- Weight 14.64 oz. (w/o Cord)

Brushless Motor with 1 ft Cord

Product Code	Product Name	Standard Equipment · Accessories	
7358	EM-3030T-J	• Wrench (22 x 27) : 1 pc.	

Brushless Motor with 6.5 ft Cord

Product Code	Product Name	Standard Equipment · Accessories	
7359	EM-3030T-J-2M	• Wrench (22 x 27) : 1 pc.	

*EMCD-3000J-8M (25.3 ft / 8m long) can not be used for this motor.



This Brushless Motor should be connected to the Applicable E3000 CONTROLLER.

Color of Air Output Joint



Blue



First letter of the Serial No. on the Rating Plate

First letter : " D "

MOTOR CORD



Product	Product Code	Description · Product Name	Length	Std. Accessories	Fit to	
	1778	Motor Cord 3M EMCD-3000J-3M	10 ft (3.0m)	• Air Hose • Connector Cap (Provided)	EM-3030T-J EM-3030T-J-2M	
	1768	Motor Cord 4M EMCD-3000J-4M	12.1 ft (3.7m)			
	1767	Motor Cord 6M EMCD-3000J-6M	18.7 ft (5.7m)			
	1766	Motor Cord 8M EMCD-3000J-8M	25.3 ft (7.7m)		EM-3030T-J	

COOLANT THROUGH SPINDLE CTS-3030

30,000 rpm



- Max rpm 30,000 rpm
- Coolant Pressure 3.0 – 20.0 MPa
- Shank Diameter of Corresponding Tool $\varnothing 3.0$, $\varnothing 3.175$, $\varnothing 4.0$ mm
- Spindle Accuracy Within 1 μ m

< Optional >

- Collet²: CHA-3.0AA (91494), CHA-3.175AA (91496), CHA-4.0AA (91495) Collet, CHA-3.0 (91430), CHA-3.175 (91493), CHA-4.0 (91440)
- Collet Nut: CHN-CTA-3.0 (7798), CHN-CTA-3.175 (7799), CHN-CTA-4.0 (7800)

Coolant Through Spindle

Product Code	Product Name	Standard Equipment • Accessories	
7797	CTS-3030	• Wrench (8 x 5): 1 pc. • Wrench (9 x 11): 1 pc. • Wrench (22 x 27): 1 pc.	

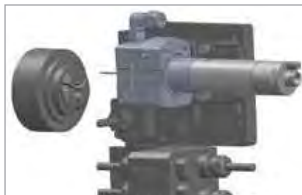
The collet and the collet nut are sold separately. Please match the collet and collet nut size.

*2 High precision AA grade types are highly recommended.



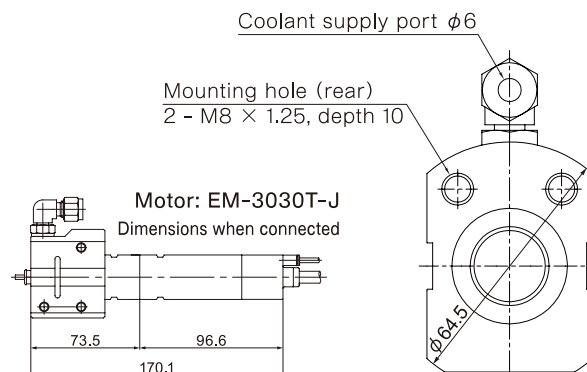
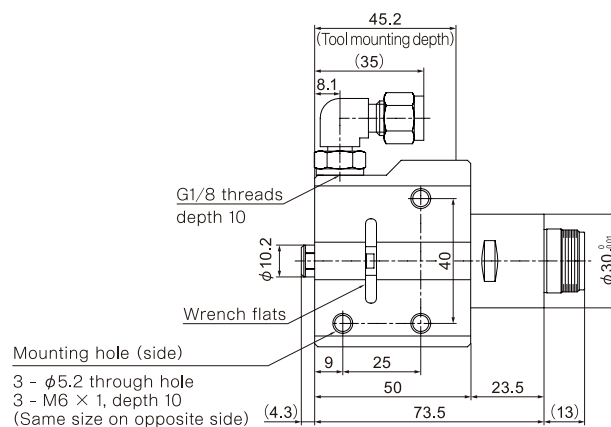
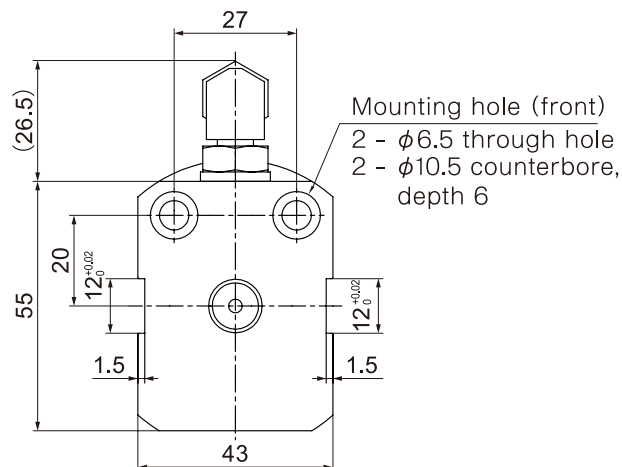
S50C Drilling Example

Tool Diameter: $\varnothing 2.0$
Depth: 20mm, No Peck



Lathe Installation Image

When connected to the EM-3030T-J motor



1

EmaxEVC

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

$\varnothing 1.0''/\varnothing 0.98''/\varnothing 0.99''$

E3000

— One Piece

E3000

— Modular

$\varnothing 1.18''$

$\varnothing 1.07''/\varnothing 0.98''/\varnothing 0.99''$

E3000

— 30,000rpm

E4000

3

MA

$\varnothing 0.897''$

$\varnothing 1.0''/\varnothing 0.98''$

$\varnothing 1.18''$

MS

$\varnothing 0.75''/\varnothing 0.79''$

$\varnothing 0.99''/\varnothing 0.91''$

$\varnothing 1.0''/\varnothing 0.98''$

4

HES

iSpeed5

HTS

PLANET

Xspeed

ABT

5

AIR LINE KIT

6

PARTS

7

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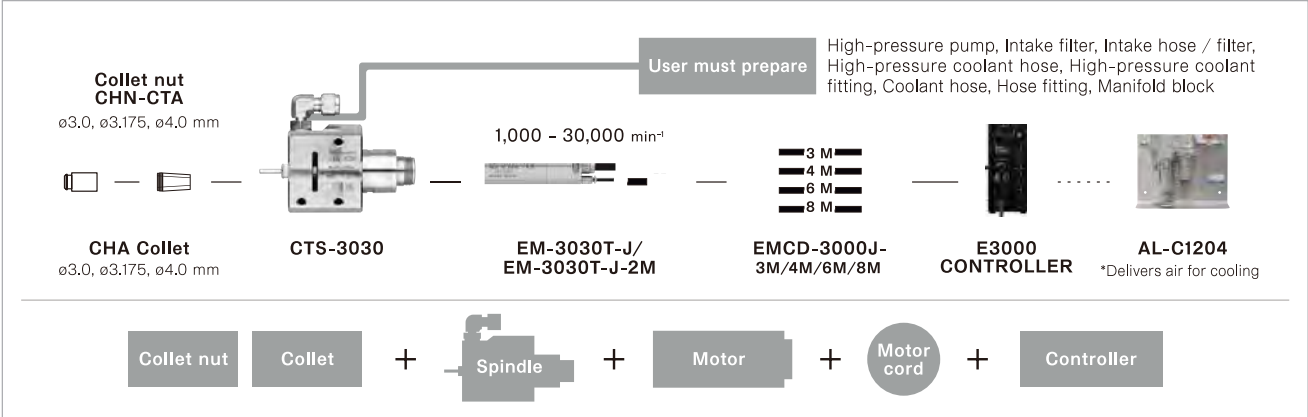
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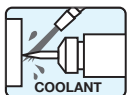
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E3000 One Piece
E3000 Modular
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E3000 80,000rpm
E4000
3
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ø1.0" ø0.98"
ø1.18"
MS ø0.75" ø0.79"
ø0.87" ø0.91"
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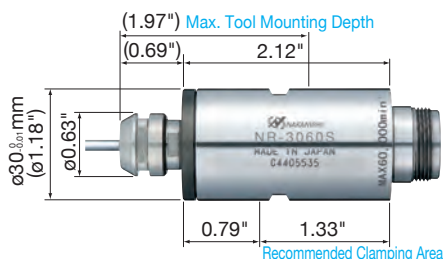
CTS-3030 CONNECTION DRAWING





Product Code **7859** **SPINDLE NR-3060S**

60,000 rpm



- This spindle can be used for small-diameter milling, drilling, slitting, chamfering, grinding, etc.

- Allowable Motor Speed 60,000 rpm
- Spindle Accuracy Within 1 μ m
- Weight 9.17 oz.
- Ceramic Bearing

Additional collet purchase required:

- Collet Series CHK-XX ϕ 0.5mm~ ϕ 6.35mm
- Recommended CHK-3.175 ϕ 1/8"
- (See Page 6-p3 for additional sizes)

- Collet Nut (K-265) For Collet (CHK)
- Metal Saw Arbor (KCH-03) For ϕ 0.24" (I.D.) x ϕ 1.18" (O.D.)
- Grindstone Arbor (AGM-03) For grinding wheel with I.D. of ϕ 5 mm
- Grindstone Flange (EGF-19) ϕ 19.05 (I.D.) x ϕ 40 (O.D.) x 7 (W) mm

Spindle

Product Code	Product Name	Standard Equipment · Accessories	
7859	NR-3060S	• Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs. • Wrench (22 x 27) : 1 pc.	

Product Code **7847** **SPINDLE NR-403E**

40,000 rpm



- This spindle can be used for small-diameter milling, drilling, slitting, chamfering, grinding, etc.

- Allowable Motor Speed 40,000 rpm
- Spindle Accuracy Within 1 μ m
- Standard Size Collet (CHK-3.175) ϕ 1/8"
- Weight 15.52 oz.
- Steel Bearing

Additional collet purchase required:

- Collet Series CHK-XX ϕ 0.5mm~ ϕ 6.35mm
- Recommended CHK-3.175 ϕ 1/8"
- (See Page 6-p3 for additional sizes)

- Collet Nut (K-265) For Collet (CHK)
- Metal Saw Arbor (KCH-03) For ϕ 0.24" (I.D.) x ϕ 1.18" (O.D.)
- Grindstone Arbor (AGM-03) For grinding wheel with I.D. of ϕ 5 mm
- Grindstone Flange (EGF-19) ϕ 19.05 (I.D.) x ϕ 40 (O.D.) x 7 (W) mm

Spindle

Product Code	Product Name	Standard Equipment · Accessories	
7847	NR-403E	• Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs. • Wrench (22 x 27) : 1 pc.	

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

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

ϕ 1.0"/ ϕ 0.98"/ ϕ 0.89"

E3000

— One Piece

E3000

— Modular

ϕ 1.18"

ϕ 1.07"/ ϕ 0.98"

ϕ 0.89"

E3000

— 80,000rpm

E4000

3

MA

ϕ 0.897"

ϕ 1.0"

ϕ 0.98"

ϕ 1.18"

MS

ϕ 0.75"

ϕ 0.79"

ϕ 0.89"

ϕ 0.91"

ϕ 1.0"

ϕ 0.98"

4

HES

iSpeed5

HTS

PLANET

Xspeed

ABT

5

AIR LINE KIT

6

PARTS

7

TECHNICAL

DATA

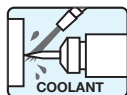
8

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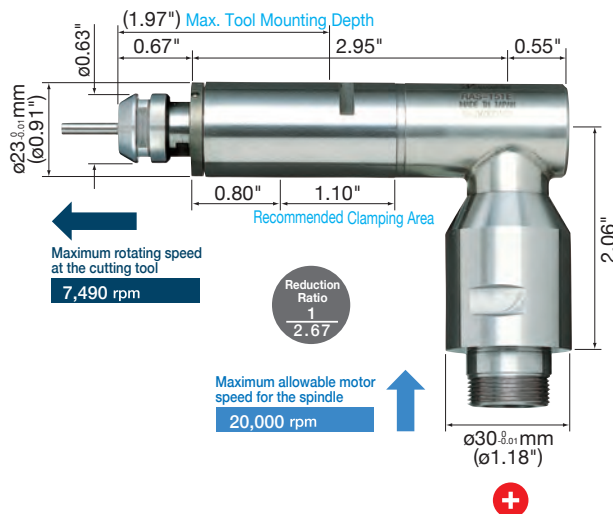
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E3000 SERIES $\phi 1.18"$ ($\phi 30$ mm) SPINDLE



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.

Product Code **7840** 90° ANGLE SPINDLE **RAS-151E**



Maximum allowable motor speed for the spindle **20,000 rpm**

Maximum rotating speed at the cutting tool
<Reduction Ratio : 1/2.67> **7,490 rpm**

- Spindle Accuracy Within 2 μ m
- Weight 14.57 oz.
- **Additional collet purchase required:**
 - Collet Series CHK-XX $\phi 0.5$ mm~ $\phi 6.35$ mm
 - Recommended CHK-3.175 $\phi 1/8"$
 - (See Page 6-p3 for additional sizes)
- Collet Nut (K-265) For Collet (CHK)
- Metal Saw Arbor (KCH-03) For $\phi 0.24"$ (I.D.) x $\phi 1.18"$ (O.D.)
- Grindstone Arbor (AGM-03) For grinding wheel with I.D. of $\phi 5$ mm

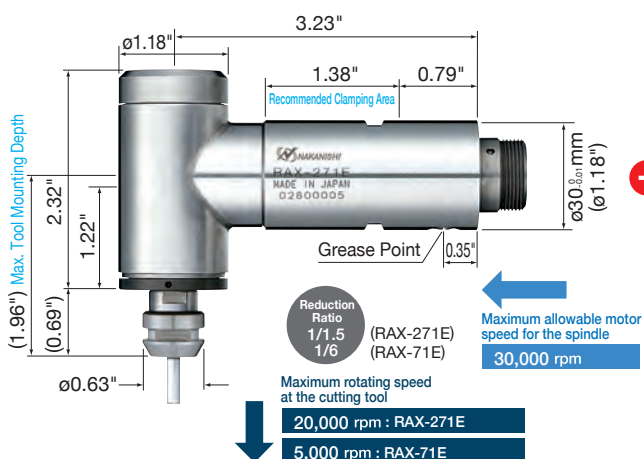
90° Angle Spindle

Product Code	Product Name	Standard Equipment · Accessories	
7840	RAS-151E	• Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs. • Wrench (22 x 27) : 1 pc.	

- 90° Angle Type Spindle can use up to a $\phi 1/4"$ ($\phi 6.35$ mm) collet and is suitable for installation where space restrictions exist.

Product Code **7856** 90° ANGLE SPINDLE **RAX-271E**

Product Code **7857** 90° ANGLE SPINDLE **RAX-71E**



Maximum allowable motor speed for the spindle **30,000 rpm**

Maximum rotating speed at the cutting tool
RAX-271E <Reduction Ratio : 1/1.5> **20,000 rpm**
RAX-71E <Reduction Ratio : 1/6> **5,000 rpm**

- Spindle Accuracy Within 2 μ m
- Weight 1 lb. 4.46 oz.
- **Additional collet purchase required:**
 - Collet Series CHK-XX $\phi 0.5$ mm~ $\phi 6.35$ mm
 - Recommended CHK-3.175 $\phi 1/8"$
 - (See Page 6-p3 for additional sizes)
- Collet Nut (K-265) For Collet (CHK)
- Metal Saw Arbor (KCH-03) For $\phi 0.24"$ (I.D.) x $\phi 1.18"$ (O.D.)
- Grindstone Arbor (AGM-03) For grinding wheel with I.D. of $\phi 5$ mm

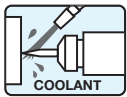
90° Angle Spindle

Product Code	Product Name	Standard Equipment · Accessories	
7856	RAX-271E	• Collet $\phi 1/8"$ (CHK-3.175) • Collet Nut (K-265) : 1 pc. • Wrench (12 x 14) : 2 pcs.	
7857	RAX-71E	• Wrench (22 x 27) : 1 pc. • Gear Grease (10mL) • Grease Nipple : 1 pc.	

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

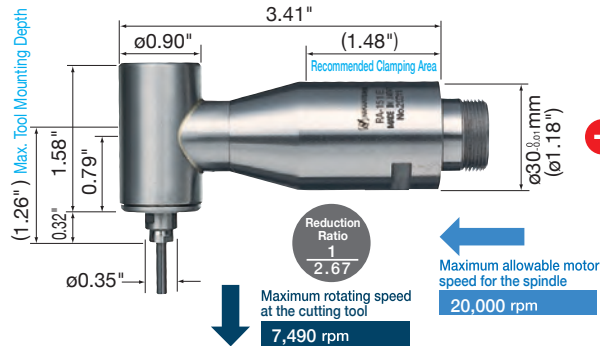


To extend the life expectancy of the Speed Reducer, inject grease every 70 to 100 hours. Grease injection prevents friction of the internal gears as well as heat generation. Adding grease also prevents the degradation of the existing grease in the reducer. Please maintain a reducer grease maintenance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



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.

Product Code **2910** 90°ANGLE SPINDLE RA-151E



- 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 0.118" (0.30 mm) Metal Saw.

Maximum allowable motor speed for the spindle **20,000 rpm**

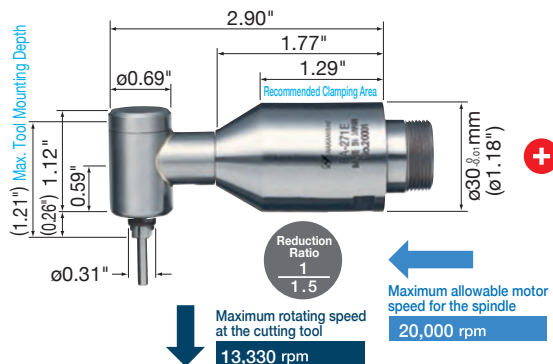
Maximum rotating speed at the cutting tool
<Reduction Ratio : 1/2.67> **7,490 rpm**

- Standard Size Collet (CH8-3.175) 0.118"
- Weight 13.58 oz.
- < Optional >
- Collet (CH8- []) 0.8 mm~0.3.175 mm
(See Page 6-p5 for details)
- Metal Saw Arbor (KCH-02) For 0.24" (I.D.) x 0.118" (O.D.)

90° Angle Spindle

Product Code	Product Name	Standard Equipment · Accessories	
2910	RA-151E	• Collet 0.118" (CH8-3.175) : 1 pc. • Wrench (7 x 5.5) : 1 pc. • Wrench (8 x 5) : 1 pc. • Wrench (22 x 27) : 1 pc.	

Product Code **2911** 90°ANGLE SPINDLE RA-271E



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

Maximum allowable motor speed for the spindle **20,000 rpm**

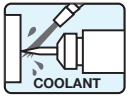
Maximum rotating speed at the cutting tool
<Reduction Ratio : 1/1.5> **13,330 rpm**

- Standard Size Collet (CHS-3.175) 0.118"
- Weight 8.47 oz.
- < Optional >
- Collet (CHS- []) 0.8 mm~0.3.175 mm
(See Page 6-p4 for details)

90° Angle Spindle

Product Code	Product Name	Standard Equipment · Accessories	
2911	RA-271E	• Collet 0.118" (CHS-3.175) : 1 pc. • Wrench (7 x 5.1) : 1 pc. • Wrench (8 x 5) : 1 pc. • Wrench (22 x 27) : 1 pc.	

E3000 SERIES $\phi 1.18"$ ($\phi 30$ mm) SPINDLE



1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

$\phi 1.07"/\phi 0.98"/\phi 0.897"$

E3000

One Piece

E3000

Modular

$\phi 1.18"$

$\phi 1.07"/\phi 0.98"/\phi 0.897"$

E3000

80,000rpm

E4000

3

MA

$\phi 0.897"$

$\phi 1.07"/\phi 0.98"$

$\phi 1.18"$

MS

$\phi 0.75"/\phi 0.79"$

$\phi 0.91"/\phi 0.91"$

$\phi 1.07"/\phi 0.98"$

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

AIR LINE KIT

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PARTS

7

TECHNICAL

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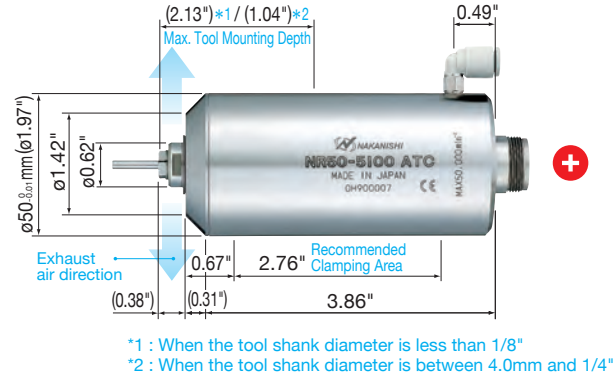
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Product Code **1580** AUTOMATIC TOOL REPLACEMENT SPINDLE NR50-5100 ATC 50,000 rpm



- 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 rpm
- Spindle Accuracy Within 1 μ m
- Air for Collet Opening 80~87PSI
- Standard Size Collet (CHR-3.175) $\phi 1/8"$
- Weight 3 lb. 0.33 oz.

< Optional >

- Collet (CHR-□□) $\phi 2.0$, $\phi 3.0$ mm, $\phi 1/8"$, $\phi 4.0$, $\phi 6.0$ mm, $\phi 1/4"$
(See Page 6-p4 for details)

Automatic Tool Replacement Spindle

Product Code	Product Name	Standard Equipment · Accessories	
1580	NR50-5100 ATC	• Collet $\phi 1/8"$ (CHR-3.175) • Air Hose with filter (K-251) : $\phi 6$ mm x 6 ft • Wrench (9 x 11) : 1 pc. • Wrench (12 x 14) : 1 pc. • Bar Wrench (K-236) : 1 pc	

Product Code **7690** AUTOMATIC TOOL REPLACEMENT SPINDLE NR50-5100 ATC-RS 50,000 rpm



- 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. Utilizes a sealed collet to prevent powder debris and residue from entering the spindle during dental, circuit board and other non-ferrous material machining.

- Allowable Motor Speed 50,000 rpm
- Spindle Accuracy Within 1 μ m
- Air for Collet Opening 80~87PSI
- Weight 3 lb. 0.33 oz.
- Standard Size Collet (CHR-3.175 RS)

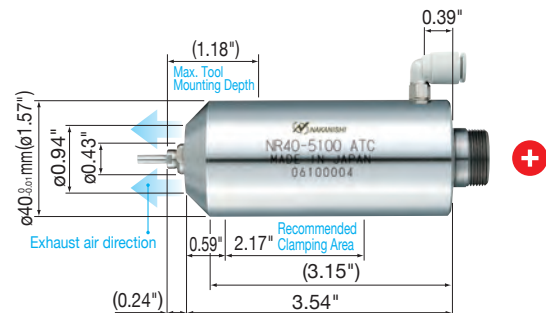
< Optional >

- Collet (CHR-□□ RS) $\phi 3.0$ mm, $\phi 1/8"$, $\phi 4.0$, $\phi 6.0$ mm, $\phi 1/4"$
(See Page 6-p4 for details)

Automatic Tool Replacement Spindle

Product Code	Product Name	Standard Equipment · Accessories	
7690	NR50-5100 ATC-RS	• Air Hose with filter (K-251) : $\phi 6$ mm x 6 ft • Wrench (9 x 11) : 1 pc. • Wrench (12 x 14) : 1 pc. • Bar Wrench (K-236) : 1 pc	

Product Code **1582** AUTOMATIC TOOL REPLACEMENT SPINDLE NR40-5100 ATC 50,000 rpm



- 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.

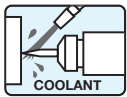
- Allowable Motor Speed 50,000 rpm
- Spindle Accuracy Within 2 μ m
- Air for Collet Opening 80~87PSI
- Standard Size Collet (CHB-3.175) $\phi 1/8"$
- Weight 1 lb. 10.10 oz.

< Optional >

- Collet (CHB-□□) $\phi 2.0$, $\phi 3.0$ mm, $\phi 1/8"$, $\phi 4.0$ mm
(See Page 6-p2 for details)

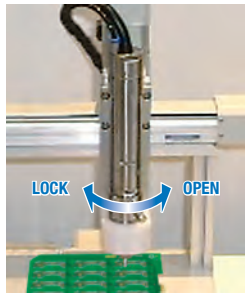
Automatic Tool Replacement Spindle

Product Code	Product Name	Standard Equipment · Accessories	
1582	NR40-5100 ATC	• Collet $\phi 1/8"$ (CHB-3.175) • Air Hose with filter (K-251) : $\phi 6$ mm x 6 ft • Wrench (6.1 x 8) : 1 pc. • Wrench (9 x 11) : 1 pc. • Bar Wrench (K-236) : 1 pc	

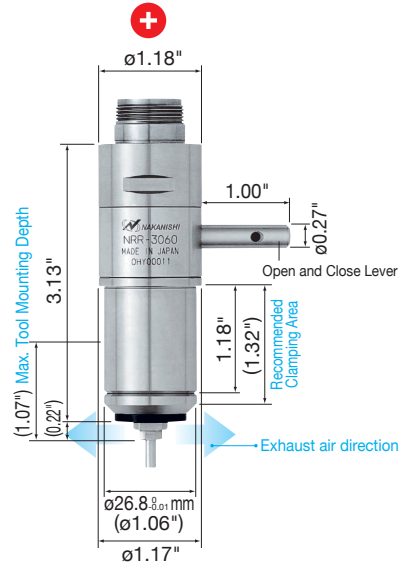


Product Code **1836** **LEVER TYPE SPINDLE NRR-3060** **60,000 rpm**

No wrenches are required for tool changing.



NRR-3060 Installed Example



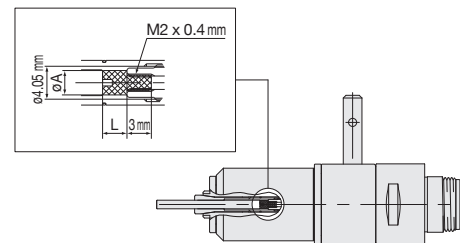
- Allowable Motor Speed 60,000 rpm
 - Spindle Accuracy Within 1 μm
 - Standard Size Collet (CHB-3.175) $\phi 1/8''$
 - Weight 12.35 oz.
- < Optional >
- Collet (CHB- []) $\phi 2.0, \phi 3.0 \text{ mm}, \phi 1/8'', \phi 4.0 \text{ mm}$
(See Page 6-p2 for details)

Lever Type Spindle

Product Code	Product Name	Standard Equipment · Accessories	
1836	NRR-3060	• Collet $\phi 1/8''$ (CHB-3.175) • Wrench (6.1 x 8) : 2 pcs., (22 x 27): 1 pc.	

Features:

- Dust protection mechanism design exhausts air sideways. Side exhaust discharge keeps chips from being disbursed away from the machining area.
- The bottom of the spindle is equipped with an internal thread (M2 x 0.4mm / 3mm long). This enables tool length pre-setting.



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

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

$\phi 1.0''/\phi 0.98''/\phi 0.89''$

E3000

— One Piece

E3000

— Modular

$\phi 1.18''$

$\phi 1.07''/\phi 0.98''/\phi 0.89''$

E3000

— 80,000rpm

E4000

3

MA

$\phi 0.897''$

$\phi 1.0''$

$\phi 0.98''$

$\phi 1.18''$

MS

$\phi 0.75''$

$\phi 0.79''$

$\phi 0.89''$

$\phi 0.91''$

$\phi 1.0''$

$\phi 0.98''$

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

AIR LINE KIT

6

PARTS

7

TECHNICAL

DATA

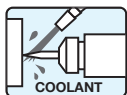
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APPLICATION

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E3000 SERIES $\phi 1.18"$ ($\phi 30$ mm) SPINDLE



Product Code

9220

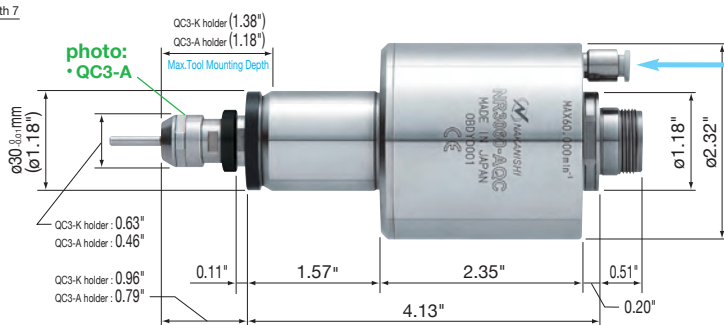
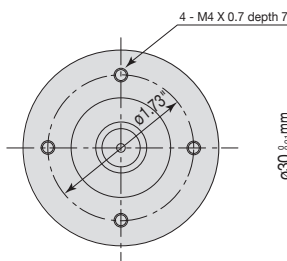
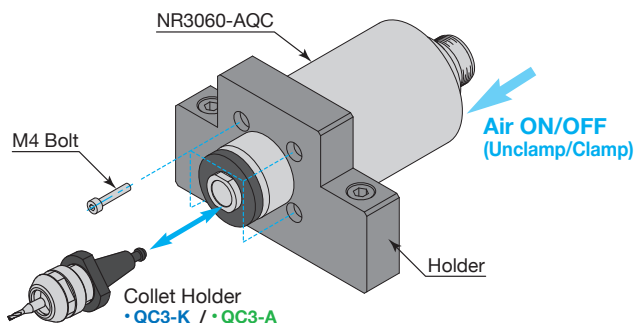
AIR QUICK CHANGE SPINDLE NR3060-AQC

60,000 rpm

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)



Air ON/OFF (Unclamp/Clamp)



- Allowable Motor Speed 60,000 rpm
- Spindle Accuracy Within 1 μ m
- Air for Collet Opening 80~87PSI
- Weight 2 lb. 11.39 oz.

< Optional >

- Collet Holder **QC3-K**
- Collet (CHK-□□) $\phi 0.5$ mm~ $\phi 6.35$ 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-□□) $\phi 0.5$ mm~ $\phi 4.0$ 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)

Air Quick Change Spindle

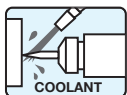
Product Code	Product Name	Standard Equipment · Accessories
9220	NR3060-AQC	• Air Hose with filter (K-251) : $\phi 6$ mm x 6 ft • Wrench (22 x 27) : 1 pc.

Note : Collet and wrenches for the collet holder are sold separately.

COLLET HOLDER Taper Shank Tools and Collet Nut

Product	Product Code	Product Name	Collet	Std. Accessories	Attaches to
	9210	• QC3-K	CHK	• Collet Nut (K-265) : 1 pc.	NR3060-AQC NRR3060-QC
	9209	• QC3-A	CHA	• Collet Nut (CHN-A) : 1 pc.	NR3060-AQC NRR3060-QC

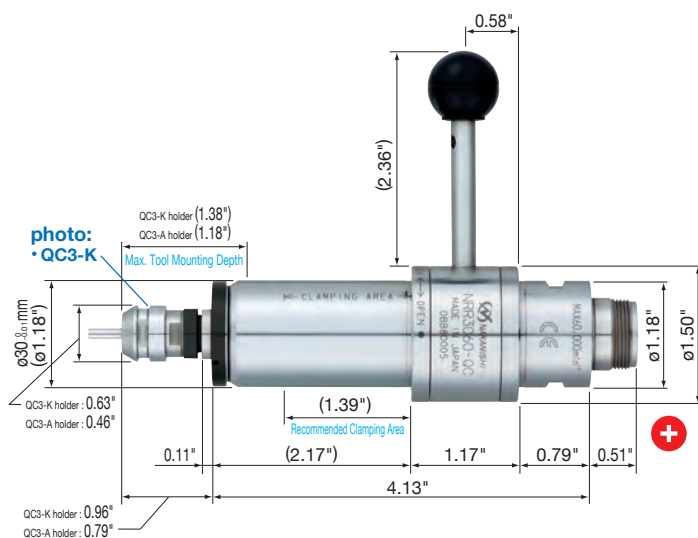
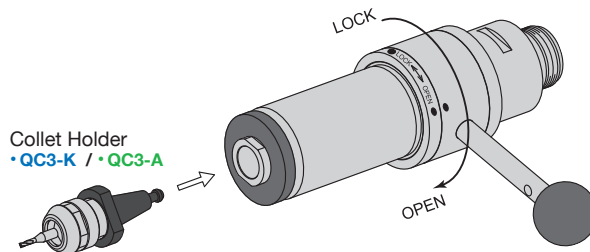
*Do not exceed the allowable motor speed for the spindle.



Product Code **9208** **LEVER TYPE QUICK CHANGE SPINDLE** **NRR3060-QC** **60,000 rpm**

Features:

- Quick, easy and accurate tool change without the need for wrenches.
- Makes tool pre-setting outside of 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.



- Allowable Motor Speed 60,000 rpm
- Spindle Accuracy Within 1 μ m
- Lever Operating Angle 90°
- Weight 1 lb. 4.11 oz.

< Optional >

- Collet Holder **QC3-K**
- Collet (CHK-□□) $\phi 0.5 \text{ mm} \sim \phi 6.35 \text{ mm}$
(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-□□) $\phi 0.5 \text{ mm} \sim \phi 4.0 \text{ mm}$
(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)

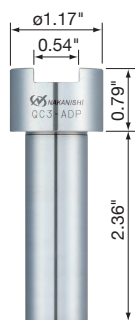
Lever Type Quick Change Spindle

Product Code	Product Name	Standard Equipment · Accessories	
9208	NRR3060-QC	• Wrench (22 x 27) : 1 pc.	

Note : Collet and wrenches for the collet holder are sold separately.

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

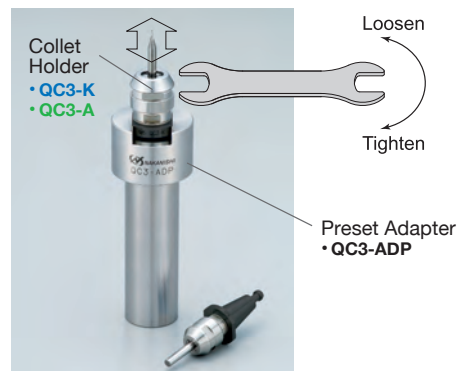
PRESET ADAPTER



- 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.

Preset Adapter

Product Code	Product Name	Standard Equipment · Accessories	
9211	QC3-ADP	—	



*Order by product code. **2-p63**

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

$\phi 1.0''/\phi 0.98''/\phi 0.897''$

E3000

— One Piece

E3000

— Modular

$\phi 1.18''$

$\phi 1.07''/\phi 0.98''$

$\phi 0.897''$

E3000

— 80,000rpm

E4000

3

MA

$\phi 0.897''$

$\phi 1.0''$

$\phi 0.98''$

$\phi 1.18''$

MS

$\phi 0.75''$

$\phi 0.79''$

$\phi 0.63''$

$\phi 0.81''$

$\phi 1.0''$

$\phi 0.98''$

4

HES

iSpeed5

HTS

PLANET

Xspeed

ABT

5

AIR LINE KIT

6

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E3000 SERIES ø1.18" (ø30 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.

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

ø1.0"/ø0.98"/ø0.897"

E3000

One Piece

E3000

Modular

ø1.18"

ø1.12"/ø0.98"/ø0.897"

E3000

ø0.000rpm

E4000

3

MA

ø0.897"

ø1.0"

ø0.98"

ø1.18"

MS

ø0.75"

ø0.79"

ø0.81"

ø1.0"

ø0.98"

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

AIR LINE KIT

6

PARTS

7

TECHNICAL

DATA

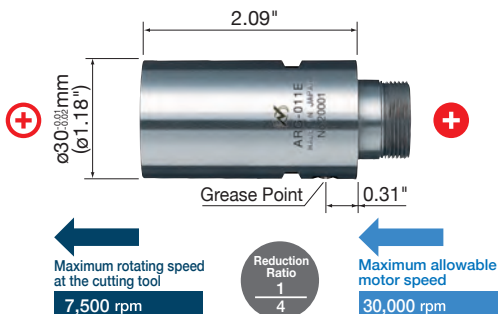
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Product Code 1507 SPEED REDUCER 1/4 ARG-011E



- 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.

Maximum allowable motor speed **30,000 rpm**

Maximum rotating speed at the cutting tool
<Reduction Ratio : 1/4> **7,500 rpm**

- Speed Reducing Mechanism By planetary gear system
- Speed Reduction Ratio 1/4
- Weight 8.54 oz.

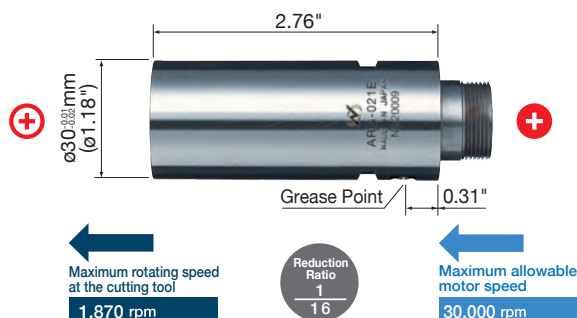
Speed Reducer 1/4

Product Code	Product Name	Standard Equipment · Accessories	
1507	ARG-011E	• Gear Grease (10mL) • Grease Nipple : 1 pc.	



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.

Product Code 1508 SPEED REDUCER 1/16 ARG-021E



- 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.

Maximum allowable motor speed **30,000 rpm**

Maximum rotating speed at the cutting tool
<Reduction Ratio : 1/16> **1,870 rpm**

- Speed Reducing Mechanism By planetary gear system
- Speed Reduction Ratio 1/16
- Weight 11.46 oz.

Speed Reducer 1/16

Product Code	Product Name	Standard Equipment · Accessories	
1508	ARG-021E	• Gear Grease (10mL) • Grease Nipple : 1 pc.	



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.

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.

25 Pin Interface Cable

Product Code	Product Name		
DB25M	DB25M	For NSK Control Connector A 12.5 ft	
DB25MXL	DB25MXL	For NSK Control Connector A 25 ft	

15 Pin INTERFACE CABLE

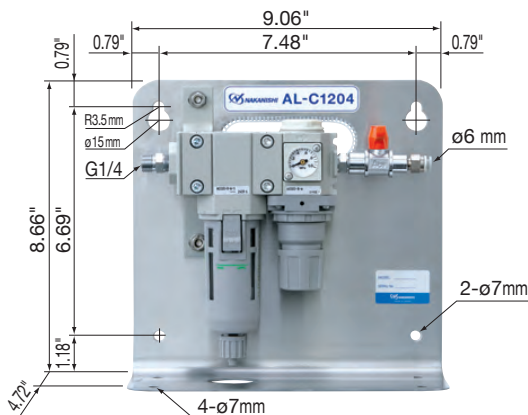


- 3 Meter long Interface Cable provides a DB15 Male Connector at one end and a blunt cut on the opposite end. Includes a pin-out wire diagram for easy interfacing of the (OP1) "E-Stop Input Circuit" and "Safety Relay Circuit" from the NSK Control to a CNC Control.

15 Pin Interface Cable

Product Code	Product Name		
DB15M	DB15M	For NSK Control Connector B	

Product Code **4504** AIR LINE KIT AL-C1204



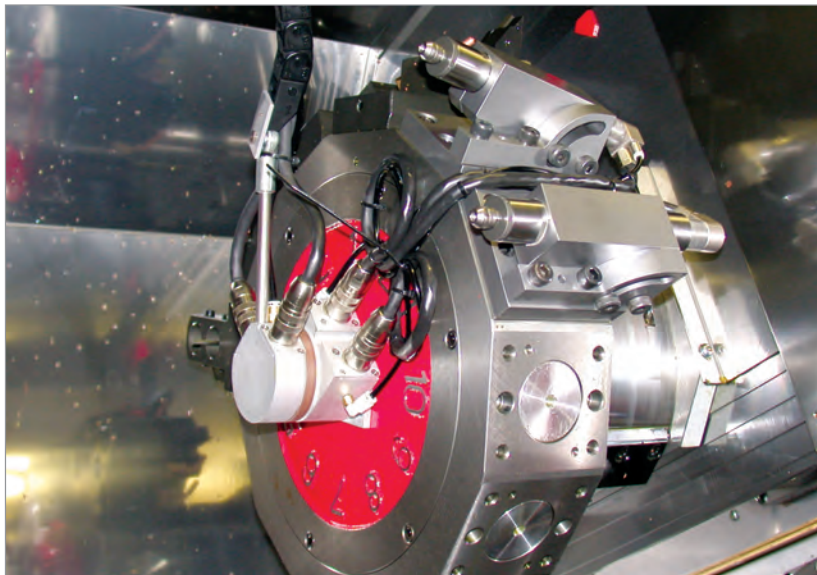
- The AL-C1204 Air Line Kit is designed to deliver clean, dry air to Electric Motors via the Controller. The filter removes small amounts of debris while the adjustable regulator provides the correct air pressure for cooling and purging.

Air Line Kit (For $\phi 6$ mm Hose · Filter Mesh $0.3 \mu\text{m}$)

Product Code	Product Name	Standard Equipment · Accessories	
4504	AL-C1204	• Air Filter · Air Regulator • Air Pressure Gauge • Air ON-OFF Valve • Hose for Piping (K-275) : 6 ft	

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.



1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

$\phi 1.0"/\phi 0.98"/\phi 0.897"$

E3000

— One Piece

E3000

— Modular

$\phi 1.18"$

$\phi 1.0"/\phi 0.98"/\phi 0.897"$

E3000

— 80,000rpm

E4000

3

MA

$\phi 0.897"$

$\phi 1.0"$

$\phi 0.98"$

$\phi 1.18"$

MS

$\phi 0.75"$

$\phi 0.79"$

$\phi 0.897"$

$\phi 0.98"$

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

AIR LINE KIT

6

PARTS

7

TECHNICAL

DATA

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APPLICATION

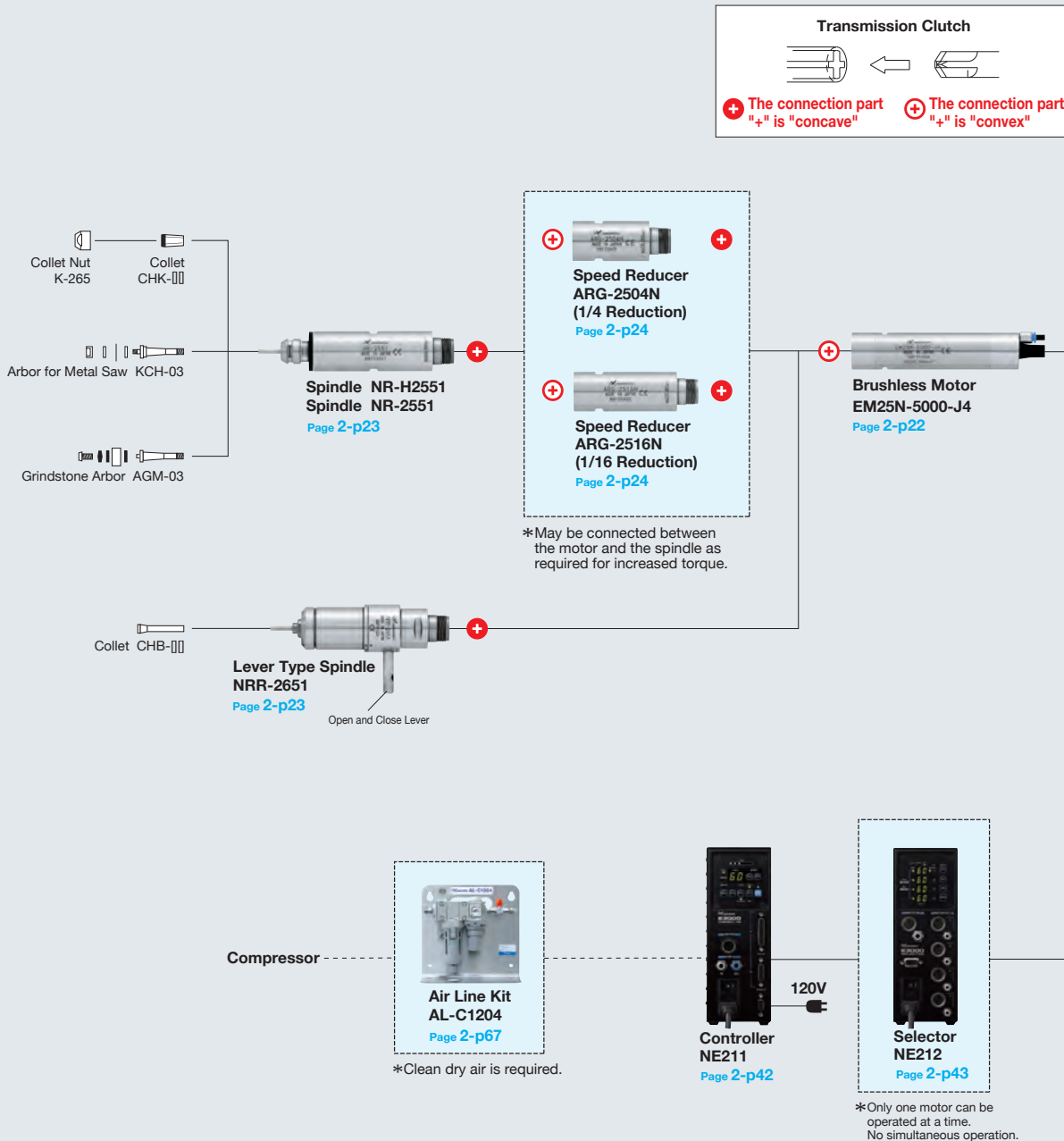
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- Interchangeable with a variety of attachments depending on the application.

Modular Type ø1.0", ø0.98" (ø25.4, ø25 mm) System Chart

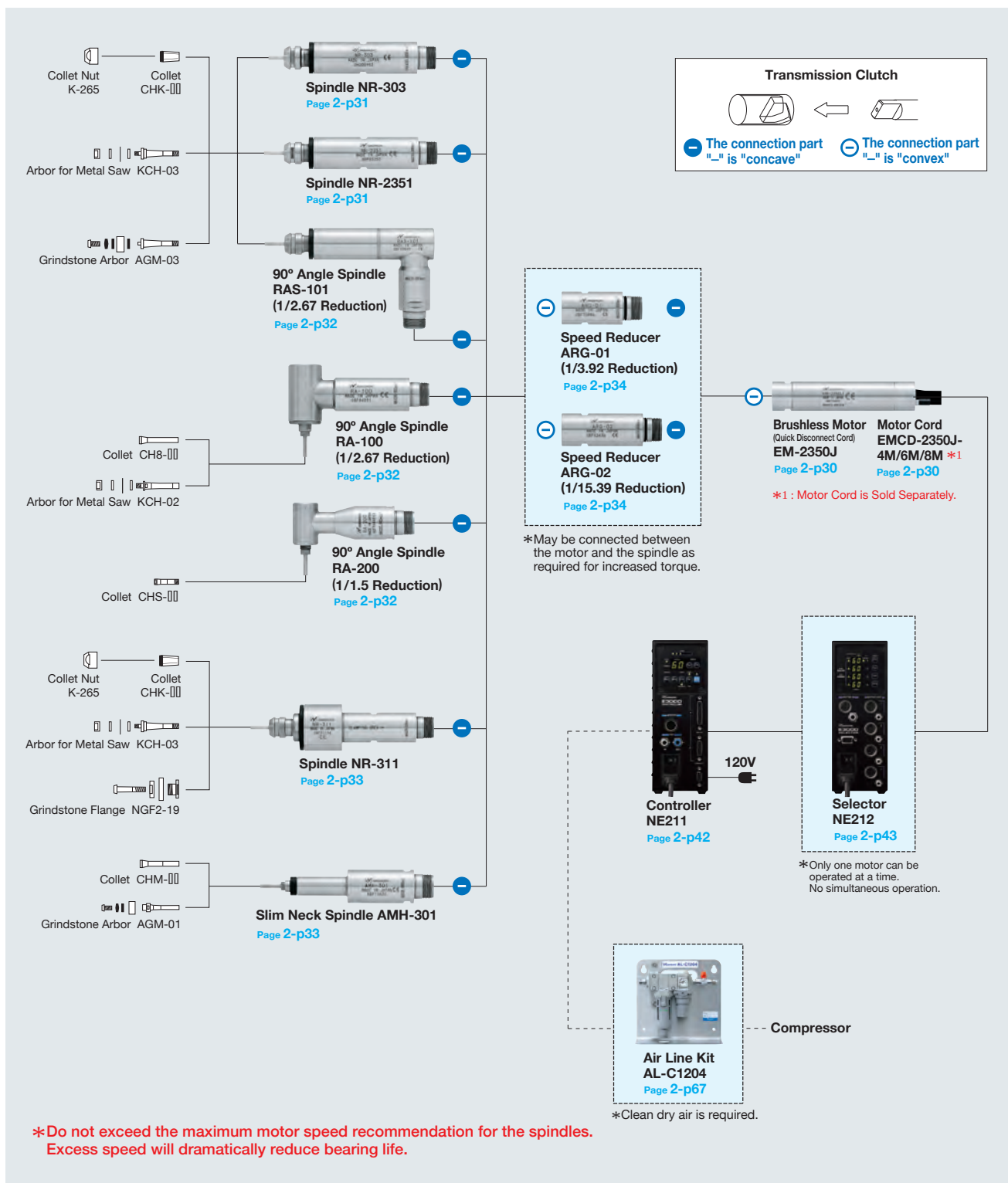
*Take note that product names and specifications will be changed.



*Do not exceed the maximum motor speed recommendation for the spindles.
 Excess speed will dramatically reduce bearing life.

- 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



1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

ø1.0"/ø0.98"/ø0.897"

E3000

— One Piece

E3000

— Modular

ø1.18"

ø1.07"/ø0.98"/ø0.897"

E3000

— 80,000rpm

E4000

3

MA

ø0.897"

ø1.0"

ø0.98"

ø1.18"

MS

ø0.75"

ø0.79"

ø0.89"

ø0.91"

ø1.0"

ø0.98"

4

HES

iSpeed5

HTS

PLANET

Xspeed

ABT

5

AIR LINE KIT

6

PARTS

7

TECHNICAL

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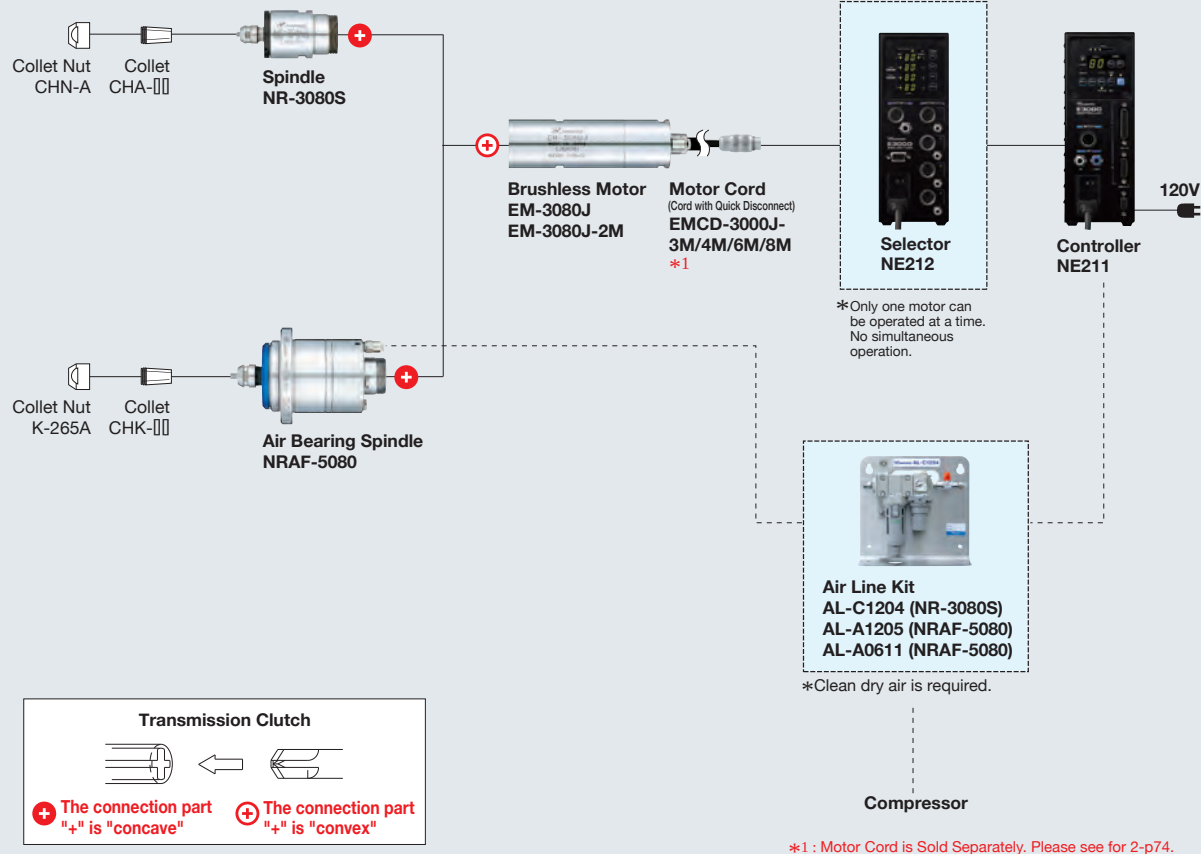
EXAMPLES

INDEX

Ø1.18" / Ø1.97"
(ø30 mm) (ø50 mm)

- 1,000~80,000 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.

Modular Type Ø1.18", Ø1.97"(ø30, ø50 mm) System Chart



Features of E3000 Series



● Maximum Motor Speed 80,000 rpm

The maximum motor speed 80,0 rpm is realized by using high performance brushless motor and ceramic bearings.

● Maximum Motor Output with 350W Power Supply

The E Series motor is a brushless DC motor utilizing hall elements, the rotor unit is a rare-earth magnet, motor develops 350W.

● 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’ result 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.

Clean dry air is required to cool the motor and protect the spindle from contaminants. Use a filter, regulator and lubricator.
(Proper air pressure 29~73PSI) (Use Air Line Kit AL-C1204)

● Spindle Accuracy

Spindle Accuracy is within 1 μ m (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

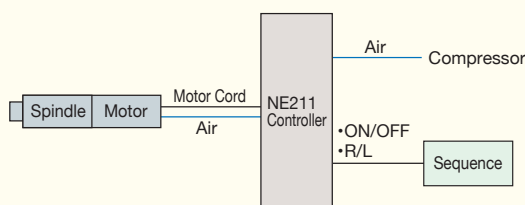
Power Source is 100-240V for international operation. Eliminate the need of setting the voltage or changing fuses.

● Protection System, External Input / Output Control Signal

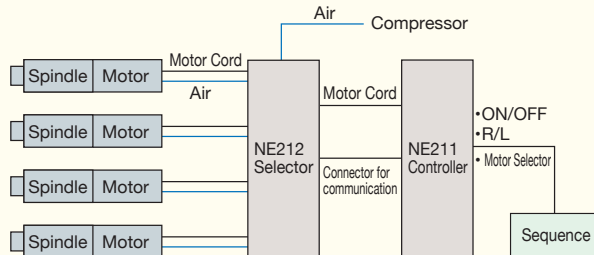
Error function : Motor/Spindle is stopped safety, Error LED is lit. ex.) Overload operation, Air shortage, Motor Spindle can be controlled and monitored by external input-output connector. ex.) Control ; Start/Stop, FWD/REV., Motor Speed Control Monitor ; Motor rotating, Torque Load.

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.)

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

ø1.0"/ø0.98"/ø0.89"

E3000

— One Piece

E3000

— Modular

ø1.18"

ø1.07"/ø0.98"

ø0.89"

E3000

— 80,000rpm

E4000

3

MA

ø0.897"

ø1.0"

ø0.98"

ø1.18"

MS

ø0.75"

ø0.79"

ø0.69"

ø0.81"

ø1.0"

ø0.98"

4

HES

iSpeed5

HTS

PLANET

Xspeed

ABT

5

AIR LINE KIT

6

PARTS

7

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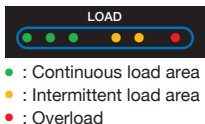
E3000 SERIES CONTROLLER

- AC100-240V for international operation
- 1,000~80,000 rpm ● Maximum Output 350W
- External Input / Output Control Signal (Refer to 7-p2~p9 page of this catalog)

Product Code **9775** **CONTROLLER NE211**

80,000 rpm

* : Load Meter



External Input-Output Connector A (D-SUB25 Female)

External Input-Output Connector B (D-SUB15 Female)

Motor Connector

Air Output Joint $\phi 6$ mm

Air Input Joint $\phi 6$ mm

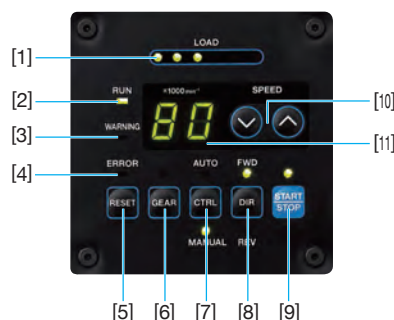
Power Switch

Communication Connector for NE212

Intake with Power Fuse



- [1] Load Meter*
- [2] Running LED (RUN)
- [3] Warning LED (WARNING)
- [4] Error LED (ERROR)
- [5] Error Reset Switch (RESET)
- [6] Gear Setting Switch (GEAR)
- [7] Control Switch (AUTO/MANUAL)
- [8] Rotating Direction Selector Switch (FWD./REV.)
- [9] Start Switch (START)
- [10] Motor Speed Adjustment Switch (SPEED)
- [11] Display



Specifications

Product Name	: NE211
Power Source	: AC120V / 240V
Motor Speed	: 1,000-80,000 rpm
Max. Output Power	: 350W
Power Consumption	: 1.8A
Air Flow Volume	: 1.0CFM (36-44PSI)
Weight	: 6 lb. 2.77 oz.
Dimensions	: W3.46" x D5.43" x H9.37"

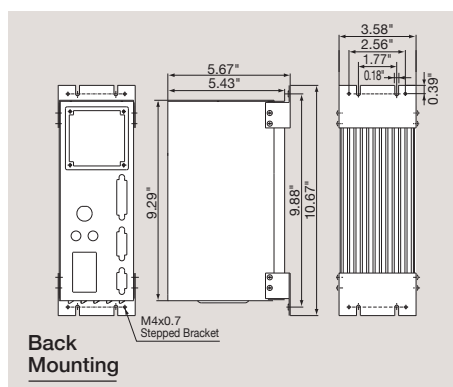
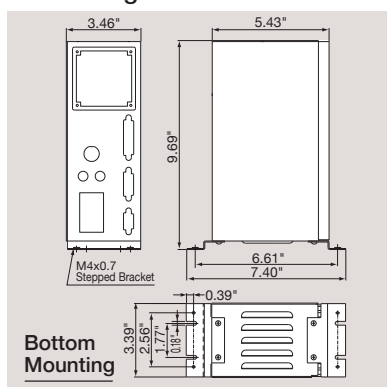
E3000 Controller

Product Code	Plug Type	Product Name	Standard Equipment · Accessories
9775	120V (B type)	NE211	• Power Cord : 6 ft • Air Hose with filter • Reducer • Connector Cap (Provided) • Bracket • Nylon Clip • Screw • Rubber Pad • Fuse (T6.3AL) 250V: 2 pcs.

*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 (2-p73) and order accordingly.

● Mounting Bracket



Optional



Control Panel Extension Cord

Product Code	Product Name	Fit to
8407	E3000-PEX4	NE211

25 / 15 Pin Interface Cable

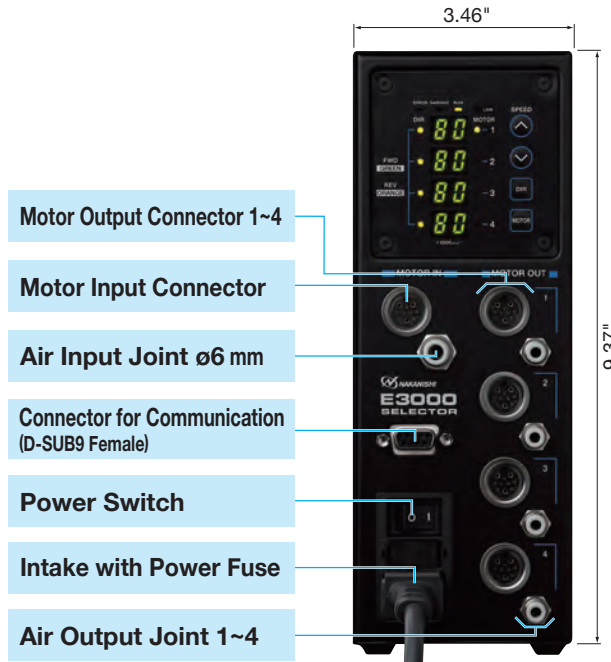
Product Code	Product Name	Fit to
DB25M	DB25M	NE211
DB25MXL	DB25MXL	NE211
DB15M	DB15M	NE211

E3000 SERIES SELECTOR

- 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)

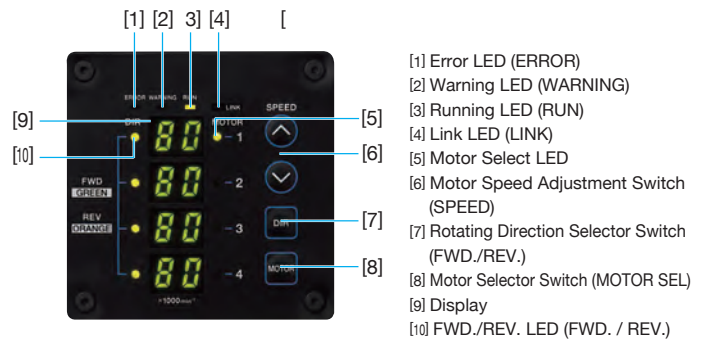
Product Code **9781** **SELECTOR NE212**

80,000 rpm

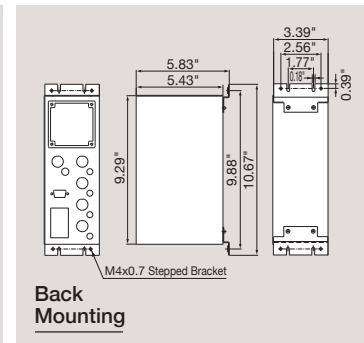
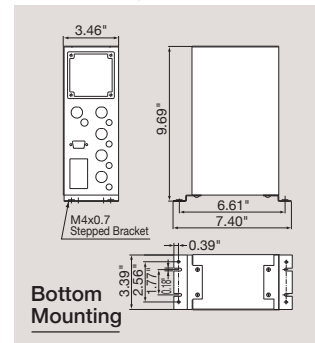


Specifications

Product Name : NE212
 Power Source : AC120V / 240V
 Power Consumption : 0.15A
 Air Flow Volume : Max. 4.0CFM
 (51PSI / Using max. 4 motor/spindles)
 Weight : 4 lb. 3.02 oz.
 Dimensions : W3.46" x D5.43" x H9.37"



● Mounting Bracket



E3000 Selector

Product Code	Plug Type	Product Name	Standard Equipment · Accessories
9781	120V (B type)	NE212	• Power Cord : 6 ft • Connect NE211 to NE212 Cable : 23.62" • Communication Cable : 23.62" • Connector Cap (Provided) • Plug to avoid Air Flow • Bracket • Nylon Clip • Screw • Rubber Pad • Fuse (T1.6AL) 250V: 2 pcs.

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

● Power Source Plug

Plug Type	Main Usable Area	Product
For 120V (B type)	For U.S.A. and Canada	

1

EmaxEVO
 ESPERT
 ROTUS
 IMPULSE
 PRESTO II
 Sheenus
 ZERO
 Sonic-Cutter
 ZERO

2

iSpeed3
 E2000
 ø1.0"/ø0.98"/ø0.89"
 E3000
 - One Piece
 E3000
 - Modular
 ø1.18"
 ø1.07"/ø0.98"
 ø0.89"
 E3000
 - 80,000rpm
 E4000

3

MA
 ø0.897"
 ø1.0"
 ø0.98"
 ø1.18"
 MS
 ø0.75"
 ø0.79"
 ø0.93"
 ø0.91"
 ø1.0"
 ø0.98"

4

HES
 iSpeed5
 HTS
 PLANET
 Xpeed
 ABT

5

AIR LINE KIT

6

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7

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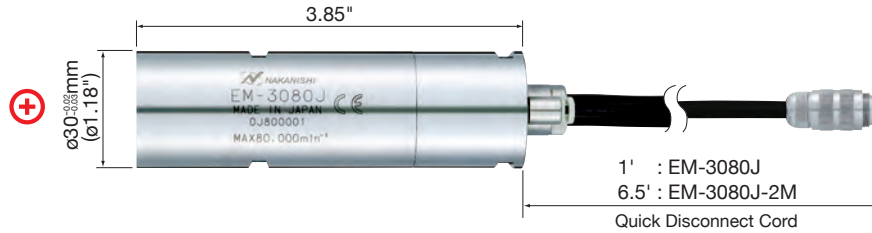
E3000 SERIES ø1.18"(ø30 mm) BRUSHLESS MOTOR



Caution : Brushless Motor with 6.5 ft (2 m) long quick disconnect cord can not used with EMCD-3000J-8M.

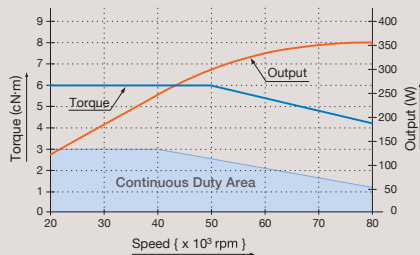
BRUSHLESS MOTOR EM-3080J

80,000 rpm



EMCD-3000-4M / 6M / 8M and EMCD-3000A-4M / 6M / 8M on page 2-p54 can not used for this motor.

- Motor Speed 20,000~80,000 rpm
- Max. Output Power 350W
- Housing Stainless steel (SUS416)
- Weight 12.70 oz. (w/o Cord)



Brushless Motor with 1 ft Cord

Product Code	Product Name	Standard Equipment · Accessories	
1781	EM-3080J	• Wrench (22 x 27) : 1 pc.	

Brushless Motor with 6.5 ft Cord

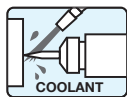
Product Code	Product Name	Standard Equipment · Accessories	
1788	EM-3080J-2M	• Wrench (22 x 27) : 1 pc.	

*EMCD-3000J-8M (25.3 ft / 8m long) can not be used for this motor.

MOTOR CORD

Product	Product Code	Description · Product Name	Length	Std. Accessories	Fit to	
	1778	Motor Cord 3M EMCD-3000J-3M	10 ft (3.0m)	• Air Hose • Connector Cap (Provided)	EM-3080J EM-3080J-2M	
	1768	Motor Cord 4M EMCD-3000J-4M	12.1 ft (3.7m)			
	1767	Motor Cord 6M EMCD-3000J-6M	18.7 ft (5.7m)			
	1766	Motor Cord 8M EMCD-3000J-8M	25.3 ft (7.7m)		EM-3080J	

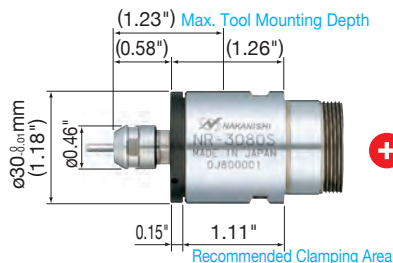
E3000 SERIES $\phi 1.18"$, $1.97"$ ($\phi 30$, $\phi 50$ mm) SPINDLE



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

Product Code **7876** SPINDLE NR-3080S

80,000 rpm



- This spindle can be used for small-diameter milling, drilling, slitting, chamfering, grinding, etc.

- Allowable Motor Speed 80,000 rpm
- Spindle Accuracy Within 1 μ m
- Weight 6.00 oz.
- Ceramic Bearing

Additional collet purchase required:

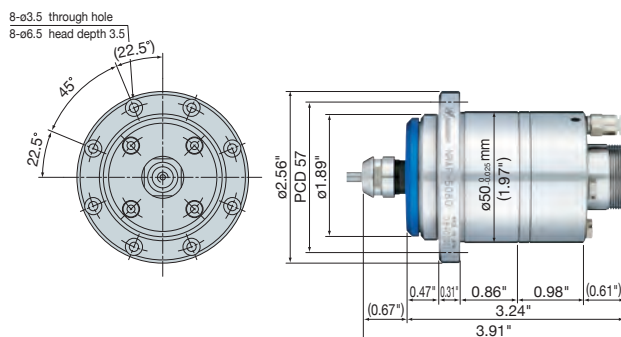
- Collet Series CHA-XX $\phi 0.5$ mm~ $\phi 4.0$ mm
 - Recommended CHA-3.175 $\phi 1/8"$
- (See Page 6-p2 for additional sizes)

Spindle

Product Code	Product Name	Standard Equipment · Accessories	
7876	NR-3080S	- Collet Nut (CHN-A) : 1 pc. - Wrench (8 x 5), (9 x 11), (22 x 27) : 1 pc. each	

Product Code **1793** AIR BEARING SPINDLE NRAF-5080

80,000 rpm



- This air bearing type spindle incorporates an air pressure bearing that floats the spindle resulting in almost no vibration and extremely high accuracy for extremely high precision machining.
- *Air line kit AL-A1205 and AL-A0611 are recommendable as air supply system.

- Allowable Motor Speed 80,000 rpm
- Spindle Accuracy Within 1 μ m
- Standard Size Collet (CHK-3.175) $\phi 1/8"$
- Air Bearing Consumption 1.24CFM (73PSI)
- Weight 1 lb. 3.75 oz.
- Main body mount method Flange mounting method, M3 bolt (8 locations, 45° Angle, PDC57)

- Bearing Type Air static bearing
- Bearing Load Capacity Radial : 20N, Thrust : 40N
- Useable Max. Diameter of Grindstone Less than $\phi 8$ mm (For $\phi 6.0$ mm shank)
- Hose Diameter (Air Intake · Bearing) $\phi 4.0$ mm

< Optional >

- Collet (CHK- □□) $\phi 0.5$ mm~ $\phi 6.35$ mm
- (See Page 6-p3 for details)

Air Bearing Spindle

Product Code	Product Name	Standard Equipment · Accessories	
1793	NRAF-5080	- Collet $\phi 1/8"$ (CHK-3.175) - Collet Nut (K-265A) : 1 pc. - Wrench (12 x 14) : 2 pcs., (22 x 27) : 1 pc. - Fitting (KQ2H04-M5-X2) : 1 pc. - Plug (KQ2P-04) : 1 pc. - Intake Air Hose : $\phi 4$mm x 13ft, 1 pc. - Bar Wrench (K-236) : 1 pc.	

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

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

$\phi 1.0"/\phi 0.98"/\phi 0.897"$

E3000

One Piece

E3000

Modular

$\phi 1.18"$

$\phi 1.07"/\phi 0.98"/\phi 0.897"$

E3000

80,000rpm

E4000

3

MA

$\phi 0.897"$

$\phi 1.0"/\phi 0.98"$

$\phi 1.18"$

MS

$\phi 0.75"/\phi 0.79"/\phi 0.73"$

$\phi 0.93"/\phi 0.91"/\phi 0.897"$

4

HES

iSpeed5

HTS

PLANET

Xspeed

ABT

5

AIR LINE KIT

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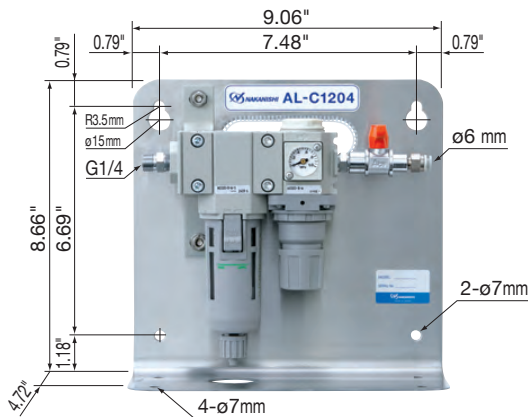
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1

Product Code 4504 AIR LINE KIT AL-C1204



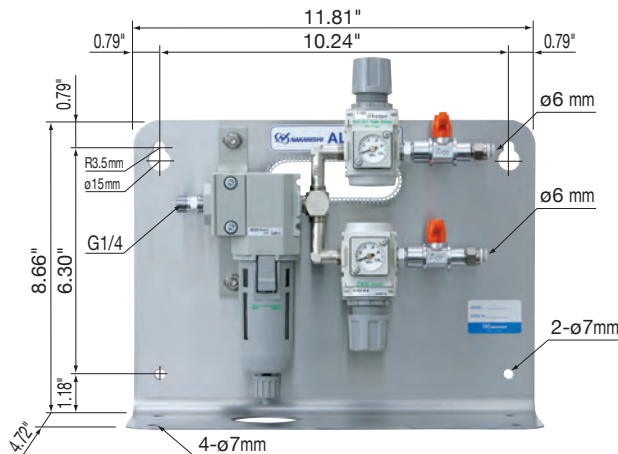
- The AL-C1204 Air Line Kit is designed to deliver clean, dry air to Electric Motors via the Controller. The filter removes small amounts of debris while the adjustable regulator provides the correct air pressure for cooling and purging.

Air Line Kit (For 06 mm Hose · Filter Mesh 0.3 μm)

Product Code	Product Name	Standard Equipment · Accessories	
4504	AL-C1204	• Air Filter • Air Regulator • Air Pressure Gauge • Air ON-OFF Valve • Hose for Piping (K-275) : 6 ft	

2

Product Code 4505 AIR LINE KIT AL-A1205 (For Air Bearing Spindles)



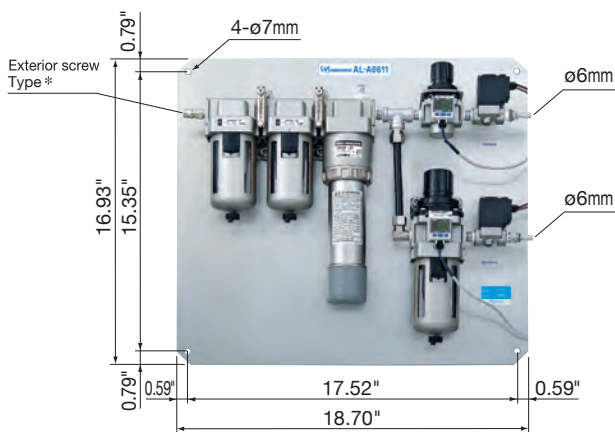
- The AL-A1205 is a dual output dry air, Air Line Kit designed for use on Electric Motor Systems that use the NRAF-5080 Air Bearing Spindle and the NE211 (E3000) Controller. One output is for the Electric Motor cooling, and the second output is for the Air Bearing operation. This unit is also designed for use on Air Turbine / Air Bearing Motor/Spindles such as the Xpeeds series and 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.
- 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 06 mm Hose · Filter Mesh 0.3 μm)

Product Code	Product Name	Standard Equipment · Accessories	
4505	AL-A1205	• Air Filter • Air Regulator • Air Pressure Gauge • Air ON-OFF Valve • Hose for Piping (K-275) : 6 ft	

3

Product Code 1548 AIR LINE KIT AL-A0611 (For Air Bearing Spindles)



- 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) Controller.
 - This Air Line Kit is highly recommended for use on all Xpeed Series and the ABT series (Air Turbine / Air Bearing motor/spindles).
- *Exterior screw Type (Model KK13P-02M by SMC Corporation)

Air Line Kit (For 06 mm Hose · Filter Mesh 0.01 μm)

Product Code	Product Name	Standard Equipment · Accessories	
1548	AL-A0611	• Mist Separator • Micro Mist Separator • Membrane Air Dryer • Regulator • Solenoid Valve • Digital Pressure Switch	

E4000 SERIES

HIGH POWER SOLUTIONS

ELECTRIC SYSTEM

Outside Diameter **Ø1.57" (Ø40 mm)**

1,000~40,000 rpm
Max. Output 1,200W

- 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.

● One Piece Type / Modular Type



1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

Ø1.0"/Ø0.98"/Ø0.897"

E3000

— One Piece

E3000

— Modular

Ø1.18"

Ø1.07"/Ø0.98"

Ø0.897"

E3000

— 80,000rpm

E4000

3

MA

Ø0.897"

Ø1.0"

Ø0.98"

Ø1.18"

MS

Ø0.75"

Ø0.79"

Ø0.89"

Ø0.91"

Ø1.0"

Ø0.98"

4

HES

iSpeed5

HTS

PLANET

Xspeed

ABT

5

AIR LINE KIT

6

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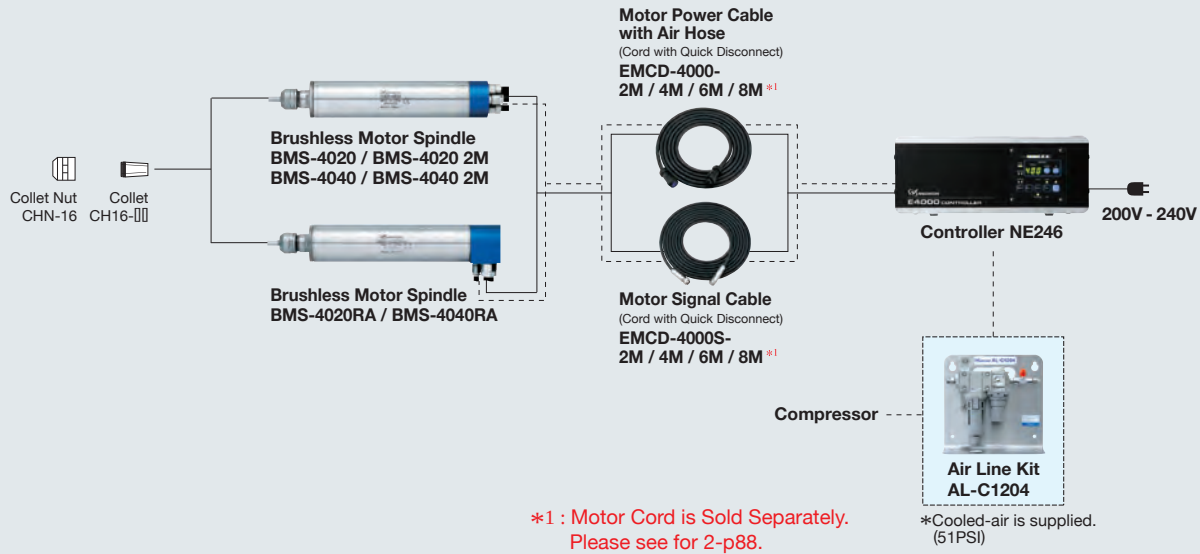
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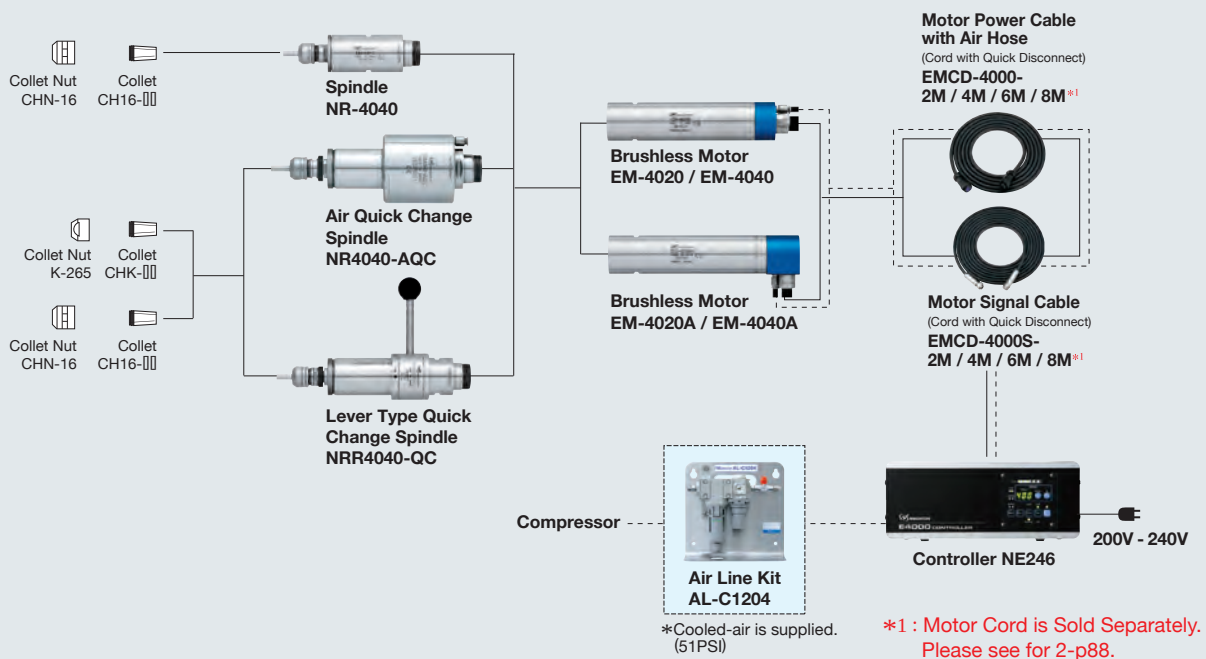
INDEX

- High Speed, Power and Torque in a Brushless DC Motor/Spindle
- 1,000 ~ 40,000 rpm with 1,200 Watts (1.6 HP) of Power
- 40 mm (1.57 Dia.) Body Diameter
- .375" Collet Capacity

One Piece Type System Chart



Modular Type System Chart

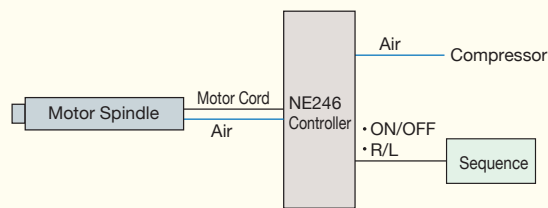


Features of E4000 Series

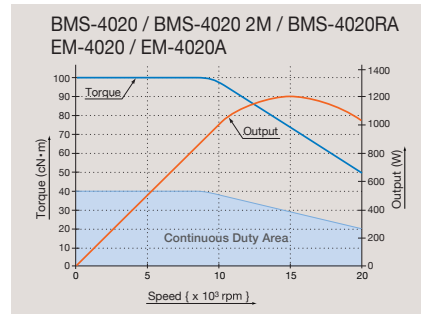
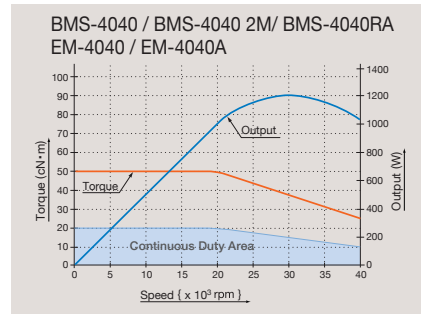
- 1,000~40,000 rpm, 500 rpm (for centering rotation)
- Rated output 400W (Max. output 1,200W) • Spindle accuracy 1 μ m or less.
- Achieved continuous run of over 5,000 hours.
{NAKANISHI's factory test without load at 40,000 min-1(rpm)}
- Motor weight : 3 lb. 4.91 oz. (BMS-4020 / 4020 2M / 4040 / 4040 2M), 2 lb. 13.86 oz. (EM-4020 / 4040),
4 lb. 6.55 oz. (BMS-4020RA / 4040RA), 3 lb. 15.49 oz. (EM-4020A / 4040A)
- 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.

Automatic Control System Chart

Single Motor Spindle Operation



Torque Characteristics



One Piece Type Combination Example

40,000 rpm



E4000, BMS-4040 Combination Example

Product Code	Product Name	Product	
8472	NE246	Controller	
7806	BMS-4040	Motor Spindle	
9253	EMCD-4000-2M	Motor Power Cable	
9257	EMCD-4000S-2M	Motor Signal Cable	
4504	AL-C1204	Air Line Kit	

Modular Type Combination Example

40,000 rpm



E4000, EM-4040, NR-4040 Combination Example

Product Code	Product Name	Product	
8472	NE246	Controller	
8346	EM-4040	Motor	
7902	NR-4040	Spindle	
9253	EMCD-4000-2M	Motor Power Cable	
9257	EMCD-4000S-2M	Motor Signal Cable	
4504	AL-C1204	Air Line Kit	

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

ø1.0"/ø0.98"/ø0.897"

E3000

One Piece

E3000

Modular

ø1.18"

ø1.0"/ø0.98"/ø0.897"

E3000

ø0.000rpm

E4000

3

MA

ø0.897"

ø1.0"

ø0.98"

ø1.18"

MS

ø0.75"

ø0.79"

ø0.87"

ø0.81"

ø1.0"

ø0.98"

4

HES

iSpeed5

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Xpeed

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Product Code **8472** **CONTROLLER NE246**

40,000 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.

Warning : • Air shortage • Overload operation

• Motor Sensor Error • Controller Overheat

Error : • Internal Circuit Error • Voltage/Currency Error

• Overheat/Overload operation • Operation Error

• Air shortage

● Maximum RPM Setting by Parameter

Capable of setting a maximum allowable motor speed by Parameter Setting

● External Input-Output Connector

(Refer to Technical Data 7-p18~p23 in detail)

• Input Signal Examples :

Start / Stop, Forward / Reverse, Pulse Speed Increase / Decrease, Speed Control, Error Code Release.

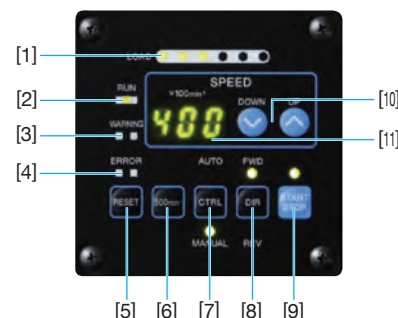
• Output Signal Examples :

Error / Warning, At-Speed, RPM Monitoring, Torque Monitoring, Rotating Signal.

● Motor Speed Display

Motor speed is displayed precisely and digitally.

● Operation Panel Extension Cord 4 meter (13 ft.) is available



- [1] Load Meter
- [2] Running LED (RUN)
- [3] Warning LED (WARNING)
- [4] Error LED (ERROR)
- [5] Error Reset Switch (RESET)
- [6] Centering Mode
- [7] Control Switch (AUTO/MANUAL)
- [8] Rotating Direction Selector Switch (FWD./REV.)
- [9] Start Switch (START)
- [10] Motor Speed Adjustment Switch (SPEED)
- [11] Display



● E4000 Optional Safety Relay Box

The Safety Relay Box is for use with the E4000 Controller. 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 Controller to supply power to the motor. Any system errors, trouble with the machining center or the connections between the E4000 Controller 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 and all portions of the machine's safety systems (E-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 integrated with the machines safety systems to stop the machine in case a problem occurs.

Specifications

Product Name	: NE246
Power Source	: AC 200-240V
Motor Speed	: 1,000-40,000 rpm
Max. Output Power	: 1,200 W
Power Consumption	: 3.2 A
Air Flow Volume	: 3.53 CFM (29-51PSI)
Weight	: 14 lb. 12.34 oz.
Dimensions	: W9.84" x D11.42" x H3.94"

E4000 Controller

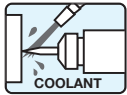
Product Code	Plug Type	Product Name	Standard Equipment · Accessories
8472	200 - 240V (Without Plug)	NE246	• Power Cord : 13 ft • Air Hose with filter : 6 ft • Connector Cap (Provided) • Connector Cover (Provided) • Bracket : 4 pcs. • Rubber Pad : 4 pcs.

*Please refer to Technical Data 7-p18~p23 in detail about External Input-Output Connector.

Interface Cable
Page 2-p89



E4000 SERIES BRUSHLESS MOTOR SPINDLE



E4000 Series can be used
in conjunction with water or
oil based coolants.

BRUSHLESS MOTOR SPINDLE BMS SERIES

20,000 · 40,000 rpm

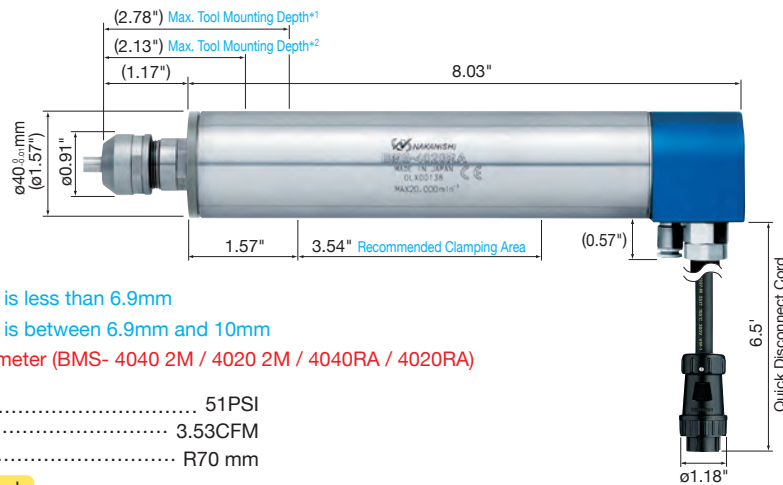
● STRAIGHT TYPE

BMS-4020 / BMS-4020 2M
BMS-4040 / BMS-4040 2M



● 90° ANGLE TYPE (RA)

BMS-4020RA
BMS-4040RA



*1 : When the tool shank diameter is less than 6.9mm

*2 : When the tool shank diameter is between 6.9mm and 10mm

*3 : Max. Motor Cable length is 6 meter (BMS- 4040 2M / 4020 2M / 4040RA / 4020RA)

- Proper Air Pressure 51PSI
- Air Consumption 3.53CFM
- Min. Bending Cord Radius R70 mm

• Additional collet purchase required:

Collet Series CH16-XX $\varnothing 3.0\text{mm} \sim \varnothing 10.0\text{mm}$
Recommended CH16-6.35 $\varnothing 1/4"$
(See Page 6-p5 for additional sizes)

- Motor Power Cable *3 $\varnothing 1.18"$
- Motor Signal Cable *3 $\varnothing 0.63"$
- Air Hose $\varnothing 6\text{mm}$

20,000 rpm

Product Code	Product Name	Shape	Max. Torque	Spindle Accuracy	Max. Output	Rated Output	Weight *	Cord Length	
7803	BMS-4020	Straight	1.0 N · m	Within 1 μm	1,200W	400W	3 lb 4.91 oz.	1 ft	
7805	BMS-4020 2M	Straight					3 lb 4.91 oz.	6.5 ft	
7804	BMS-4020RA	90° Angle					4 lb 6.55 oz.	6.5 ft	

* w/o Motor Cable

40,000 rpm

Product Code	Product Name	Shape	Max. Torque	Spindle Accuracy	Max. Output	Rated Output	Weight *	Cord Length	
7806	BMS-4040	Straight	0.5 N · m	Within 1 μm	1,200W	400W	3 lb 4.91 oz.	1 ft	
7809	BMS-4040 2M	Straight					3 lb 4.91 oz.	6.5 ft	
7807	BMS-4040RA	90° Angle					4 lb 6.55 oz.	6.5 ft	

* w/o Motor Cable

Standard Equipment · Accessories

- Collet $\varnothing 1/4"$ (CH16-6.35) : 1 pc.
- Collet Nut (CHN-16)
- Wrench (17 x 22) : 2 pcs.

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

$\varnothing 1.0"/\varnothing 0.98"/\varnothing 0.897"$

E3000

— One Piece

E3000

— Modular

$\varnothing 1.18"$

$\varnothing 1.07"/\varnothing 0.98"/\varnothing 0.897"$

E3000

— $\varnothing 0.000\text{rpm}$

E4000

3

MA

$\varnothing 0.897"$

$\varnothing 1.0"/\varnothing 0.98"/\varnothing 0.897"$

$\varnothing 1.18"$

MS

$\varnothing 0.75"/\varnothing 0.73"/\varnothing 0.697"$

$\varnothing 0.63"/\varnothing 0.61"/\varnothing 0.591"$

$\varnothing 1.0"/\varnothing 0.98"/\varnothing 0.897"$

4

HES

iSpeed5

HTS

PLANET

Xspeed

ABT

5

AIR LINE KIT

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E4000 SERIES BRUSHLESS MOTOR

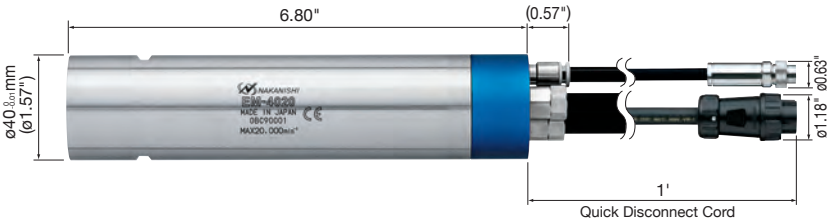
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BRUSHLESS MOTOR

20,000 · 40,000 rpm

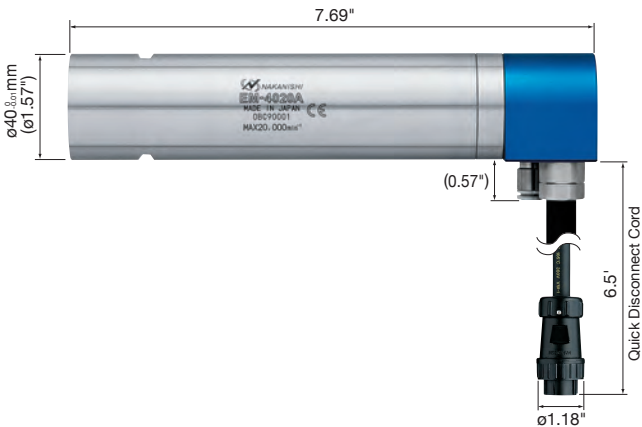
● STRAIGHT TYPE

EM-4020
EM-4040



● 90° ANGLE TYPE (A)

EM-4020A
EM-4040A



- Proper Air Pressure 51PSI
- Air Consumption 3.53CFM
- Min. Bending Cord Radius R70 mm
- < Optional >
- Motor Power Cable *3 $\phi 1.18''$
- Motor Signal Cable *3 $\phi 0.63''$
- Air Hose $\phi 6\text{mm}$

*3 : Max. Motor Cable length is 6 meter (90° ANGLE TYPE)

20,000 rpm

Product Code	Product Name	Shape	Max. Torque	Max. Output	Rated Output	Weight *	Cord Length	
8348	EM-4020	Straight	1.0 N · m	1,200W	400W	2 lb 13.86 oz.	1 ft	
8349	EM-4020A	90° Angle				3 lb 15.49 oz.	6.5 ft	

* w/o Motor Cable

40,000 rpm

Product Code	Product Name	Shape	Max. Torque	Max. Output	Rated Output	Weight *	Cord Length	
8346	EM-4040	Straight	0.5 N · m	1,200W	400W	2 lb 13.86 oz.	1 ft	
8347	EM-4040A	90° Angle				3 lb 15.49 oz.	6.5 ft	

* w/o Motor Cable

Standard Equipment · Accessories

- Wrench (36) : 1 pc.

2

iSpeed3

E2000

$\phi 1.0''/\phi 0.98''/\phi 0.897''$

E3000

One Piece

E3000

Modular

$\phi 1.18''$

$\phi 1.1''/\phi 0.98''/\phi 0.897''$

E3000

00,000rpm

E4000

3

MA

$\phi 0.897''$

$\phi 1.0''/\phi 0.98''$

$\phi 1.18''$

MS

$\phi 0.75''/\phi 0.79''$

$\phi 0.63''/\phi 0.61''$

$\phi 1.0''/\phi 0.98''$

4

HES

iSpeed5

HTS

PLANET

Xspeed

ABT

5

AIR LINE KIT

6

PARTS

7

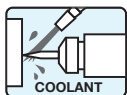
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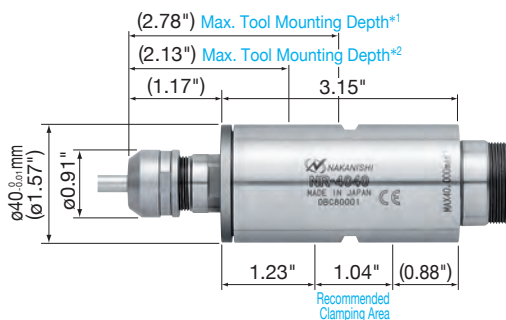
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E4000 SERIES SPINDLE



Product Code **7902 SPINDLE NR-4040**

40,000 rpm



*1 : When the tool shank diameter is less than 6.9mm

*2 : When the tool shank diameter is between 6.9mm and 10mm

- Allowable Motor Speed 40,000 rpm
- Spindle Accuracy Within 1 μ m
- Weight 1 lb. 8.69 oz.

Additional collet purchase required:

Collet Series CH16-XX ϕ 3.0mm~ ϕ 10.0mm
Recommended CH16-6.35 ϕ 1/4"
(See Page 6-p5 for additional sizes)

- Collet Nut (CHN-16) For Collet (CH16)

- This spindle can be used for small-diameter milling, drilling, slitting, chamfering, grinding, etc.

Spindle

Product Code	Product Name	Standard Equipment · Accessories	
7902	NR-4040	• Collet Nut (CHN-16) : 1 pc. • Wrench (17 x 22) : 2 pcs., (36) : 1 pc.	

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

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus ZERO

Sonic-Cutter ZERO

2

iSpeed3

E2000

ϕ 1.0"/ ϕ 0.98"/ ϕ 0.897"

E3000

— One Piece

E3000

— Modular

ϕ 1.18"

ϕ 1.07"/ ϕ 0.98"

ϕ 0.897"

E3000

— 80,000rpm

E4000

3

MA

ϕ 0.897"

ϕ 1.0"

ϕ 0.98"

ϕ 1.18"

MS

ϕ 0.75"

ϕ 0.79"

ϕ 0.89"

ϕ 0.91"

ϕ 1.0"

ϕ 0.98"

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

AIR LINE KIT

6

PARTS

7

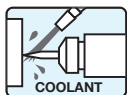
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E4000 SERIES BRUSHLESS MOTOR SPINDLE



1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

ø1.0"/ø0.98"/ø0.897"

E3000

One Piece

E3000

Modular

ø1.18"

ø1.12"/ø0.98"/ø0.897"

E3000

80,000rpm

E4000

3

MA

ø0.897"

ø1.0"/ø0.98"

ø1.18"

MS

ø0.75"/ø0.79"

ø0.897"/ø0.91"

ø1.0"/ø0.98"

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

AIR LINE KIT

6

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MOTOR SPINDLE BMS-4040-MQL

40,000 rpm



CENTER THROUGH COOLANT SPINDLE

- Pressurized coolant entered through the back of the spindle and through the cutting tool at a speed of 40,000 RPM.
- Through coolant improves chip clearance, accuracy, productivity and extends tool-life.
- "High pressure coolant device" or "oil mist supply device" to be arranged by the customer.

- Allowable Motor Speed 40,000 rpm
- Spindle Runout Within 1 μ m
- Standard Size Collet ϕ 3.0- ϕ 10.0 mm
- Weight 2.3-2.8 kg
- Min. Bending Cord Radius 70mm
- O.D. ϕ 40mm

Product Code	Product Name	Max. Torque	Max. Output	Max RPM	Weight	Cord Length	
7714	BMS-4040-MQL	0.5N * m	1,200W	40,000	2.3kg	0.3m	
7715	BMS-4040-MQL-2M				2.8kg	2.0m	

Standard Accessories

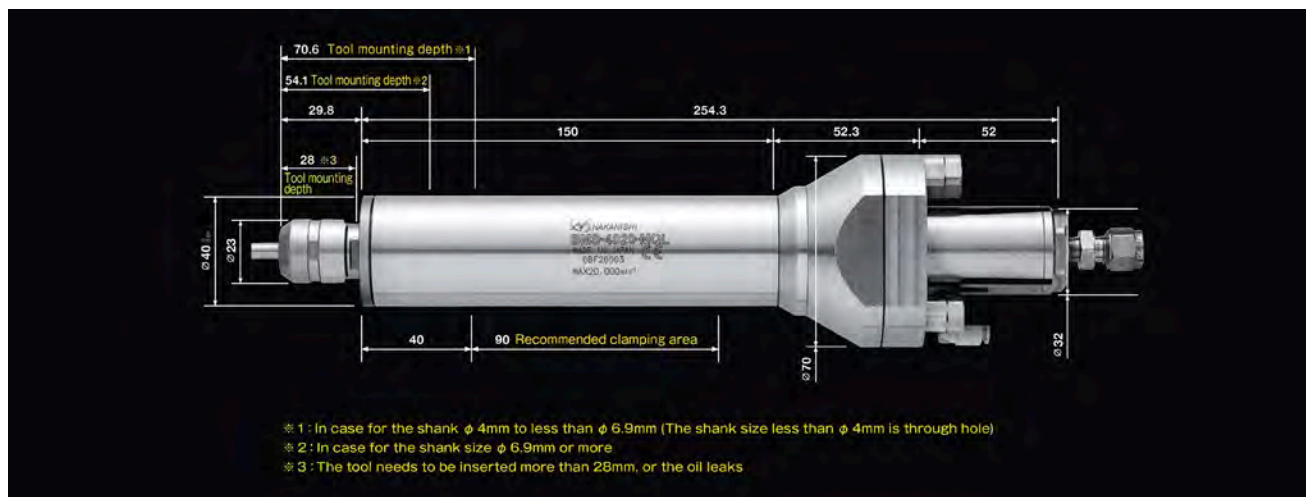
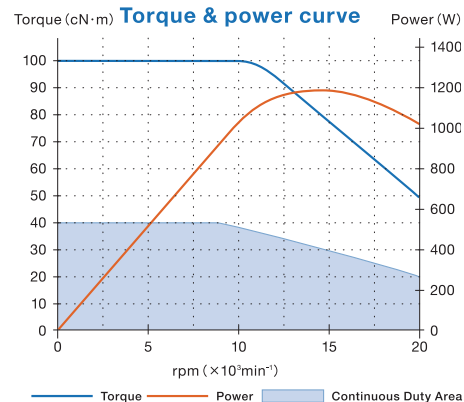
Collet Nut (CHN-16) / Insert / Ferrule Set
Spanner (17 x 22) 2 pcs.

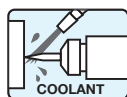
Specifications

Coolant Pressure: 0.2 - 3.0MPa
Oil Mist Pressure: 0.2-1.0MPa
Power Cable with Air Hose: Connector Diameter: ϕ 30mm
Signal Cable: Connector Diameter: ϕ 16mm / Air hose: ϕ 6mm

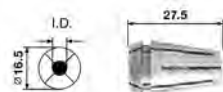
Options

Collet (Ch16OH Group): ϕ 3.0 - ϕ 10.0mm
Power Cable with Air Hose: Length 2m (9253), 4m (9254), 6m (9255), 8m (9256)
Signal cable: Length 2m (9257), 4m (9258), 6m (9259), 8m (9260)





Collet CH16OH Group



CH16OH-9.0, 10.0 Length 24.5

Product Code	Product Name	Inside Diameter d	Compatible Model	Price
93330	CH16OH-3.0	ø3.0	BMS-4020-MQL BMS-4040-MQL BMS-4020-MQL-2M BMS-4040-MQL-2M	
93331	CH16OH-3.175	ø3.175		
93340	CH16OH-4.0	ø4.0		
93350	CH16OH-5.0	ø5.0		
93360	CH16OH-6.0	ø6.0		
93363	CH16OH-6.35	ø6.35		
93370	CH16OH-7.0	ø7.0		
93380	CH16OH-8.0	ø8.0		
93390	CH16OH-9.0	ø9.0		
93400	CH16OH-10.0	ø10.0		

Adjuster Bolt

Product Code	Product Name	Dimensions	Compatible Model	Price
7739	Adjuster Bolt		BMS-4020-MQL BMS-4040-MQL BMS-4020-MQL-2M BMS-4040-MQL-2M	

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

ø1.0"/ø0.98"/ø0.897"

E3000

— One Piece

E3000

— Modular

ø1.18"

ø1.07"/ø0.98"

ø0.897"

E3000

— 80,000rpm

E4000

3

MA

ø0.897"

ø1.0"

ø0.98"

ø1.18"

MS

ø0.75"

ø0.79"

ø0.897"

ø0.91"

ø1.0"

ø0.98"

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

AIR LINE KIT

6

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7

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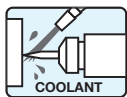
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PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

ø1.0"/ø0.98"/ø0.897"

E3000

One Piece

E3000

Modular

ø1.18"

ø1.0"/ø0.98"/ø0.897"

E3000

80,000rpm

E4000

3

MA

ø0.897"

ø1.0"/ø0.98"

ø1.18"

MS

ø0.75"/ø0.79"

ø0.81"/ø0.81"

ø1.0"/ø0.98"

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

AIR LINE KIT

6

PARTS

7

TECHNICAL DATA

8

APPLICATION EXAMPLES

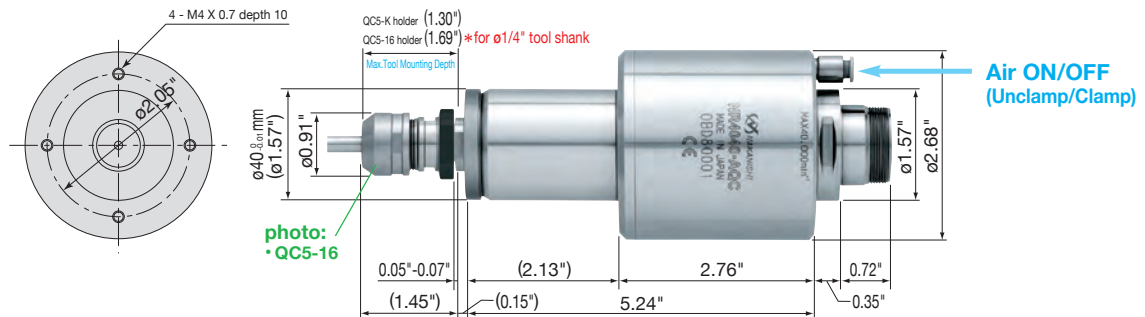
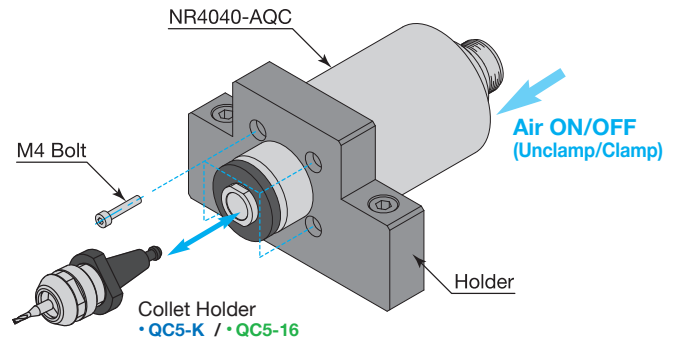
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Product Code **9219** **AIR QUICK CHANGE SPINDLE NR4040-AQC** **40,000 rpm**

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, CH16 3.0mm, 3.175mm, 4.0mm, 6.0mm, 6.35mm, 8.0mm and 10.0mm)



- Allowable Motor Speed 40,000 rpm
- Spindle Accuracy Within 1 μ m
- Air for Collet Opening 80~87PSI
- Weight 4 lb. 12.19 oz.

< Optional >

- Collet Holder **QC5-K**
- Collet (CHK-□□) ø0.5 mm~ø6.35 mm
(See Page 6-p3 for details)
- Collet Nut (K-265)..... for Collet (CHK)
- Preset Adapter QC5-K ADP
- Wrench 12 x 14 (2 pcs. not included)

< Optional >

- Collet Holder **QC5-16**
- Collet (CH16-□□) ø3.0 mm~ø10.0 mm
(See Page 6-p5 for details)
- Collet Nut (CHN-16) for Collet (CH16)
- Preset Adapter QC5-16 ADP
- Wrench 17 x 22 (2 pcs. not included)

Air Quick Change Spindle

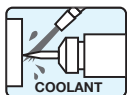
Product Code	Product Name	Standard Equipment · Accessories	
9219	NR4040-AQC	• Air Hose with filter (K-251) : ø6 mm x 6 ft • Wrench (36) : 1 pc.	

Note : Collet and wrenches for collet holder are sold separately.

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

COLLET HOLDER Taper Shank Tools and Collet Nut

Product	Product Code	Product Name	Collet	Std. Accessories	Attaches to	
	9215	• QC5-K	CHK	• Collet Nut (K-265) : 1 pc.	NR4040-AQC NRR4040-QC	
	9216	• QC5-16	CH16	• Collet Nut (CHN-16) : 1 pc.	NR4040-AQC NRR4040-QC	



Product Code **9214** **LEVER TYPE QUICK CHANGE SPINDLE** **NRR4040-QC** **40,000 rpm**

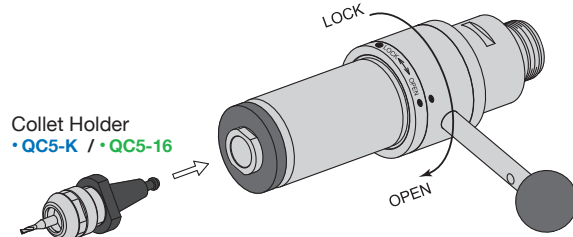
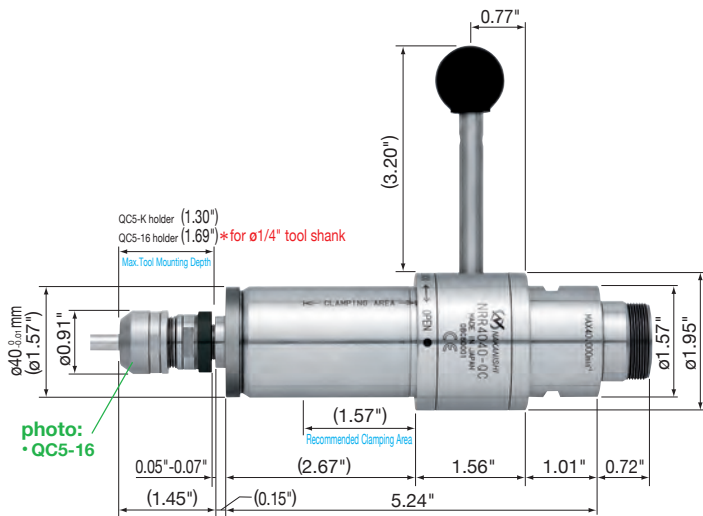
Features:

- Quick, easy and accurate tool change without the need for wrenches.
- Makes tool pre-setting outside of 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, CH16 3.0mm, 3.175mm, 4.0mm, 6.0mm, 6.35mm, 8.0mm and 10.0mm)

- 10 times the retention force as compared to the NRR-2651.



- Allowable Motor Speed 40,000 rpm
- Spindle Accuracy Within 1 μ m
- Lever Operating Angle 90°
- Weight 2 lb. 13.86 oz.

< Optional >

- Collet Holder **QC5-K**
- Collet (CHK-□□) ϕ 0.5 mm~ ϕ 6.35 mm
(See Page 6-p3 for details)
- Collet Nut (K-265)..... for Collet (CHK)
- Preset Adapter QC5-K ADP
- Wrench 12 x 14 (2 pcs. not included)

< Optional >

- Collet Holder **QC5-16**
- Collet (CH16-□□) ϕ 3.0 mm~ ϕ 10.0 mm
(See Page 6-p5 for details)
- Collet Nut (CHN-16) for Collet (CH16)
- Preset Adapter QC5-16 ADP
- Wrench 17 x 22 (2 pcs. not included)

Lever Type Quick Change Spindle

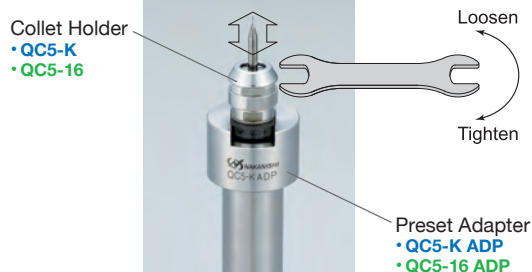
Product Code	Product Name	Standard Equipment · Accessories	
9214	NRR4040-QC	• Wrench (36) : 1 pc.	

Note : Collet and wrenches for collet holder are sold separately.

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

PRESET ADAPTER

Product	Product Code	Product Name	
	9217	• QC5-K ADP	
	9218	• QC5-16 ADP	



E4000 SERIES AIR LINE KIT & MOTOR CABLE

1

EmaxEVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

ø1.0"/ø0.98"/ø0.897"

E3000

One Piece

E3000

Modular

ø1.18"

ø1.1"/ø0.98"/ø0.897"

E3000

80,000rpm

E4000

3

MA

ø0.897"

ø1.0"/ø0.98"

ø1.18"

MS

ø0.75"/ø0.79"

ø0.897"/ø0.91"

ø1.0"/ø0.98"

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

AIR LINE KIT

6

PARTS

7

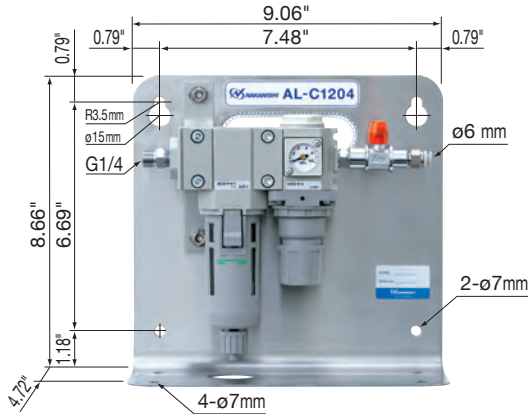
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Product Code 4504 AIR LINE KIT AL-C1204



- The AL-C1204 Air Line Kit is designed to deliver clean, dry air to Electric Motors via the Controller. 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)

Product Code	Product Name	Standard Equipment · Accessories	
4504	AL-C1204	• Air Filter • Air Regulator • Air Pressure Gauge • Air ON-OFF Valve • Hose for Piping (K-275) : 6 ft	

MOTOR POWER CABLE with Air Hose

Product	Product Code	Product Name	Length	Std. Accessories	Fit to	
Connector Diameter : ø1.18"	9253	EMCD-4000-2M	6.5 ft (2.0m)	• Air Hose	BMS-4020 · BMS-4020 2M BMS-4040 · BMS-4040 2M	
	9254	EMCD-4000-4M	13 ft (4.0m)		BMS-4020RA BMS-4040RA	
	9255	EMCD-4000-6M	20 ft (6.0m)		EM-4020 · EM-4040 EM-4020A · EM-4040A	
	9256	EMCD-4000-8M	26 ft * (8.0m)		BMS-4020 · BMS-4040 EM-4020 · EM-4040	

*Not for use with the 90-Degree Angle Motor (RA/A), BMS-4020 2M, BMS-4040 2M.

MOTOR SIGNAL CABLE

Product	Product Code	Product Name	Length	Std. Accessories	Fit to	
Connector Diameter : ø0.63"	9257	EMCD-4000S-2M	6.5 ft (2.0m)		BMS-4020 · BMS-4020 2M BMS-4040 · BMS-4040 2M	
	9258	EMCD-4000S-4M	13 ft (4.0m)		BMS-4020RA BMS-4040RA	
	9259	EMCD-4000S-6M	20 ft (6.0m)		EM-4020 · EM-4040 EM-4020A · EM-4040A	
	9260	EMCD-4000S-8M	26 ft * (8.0m)		BMS-4020 · BMS-4040 EM-4020 · EM-4040	

*Not for use with the 90-Degree Angle Motor (RA/A), BMS-4020 2M, BMS-4040 2M.



Please purchase both the Motor Power Cable and the Motor Signal Cable

Product Code **8475** SAFETY RELAY BOX

- Mounts directly on E4000 Controller.
- Allows Emergency Stop Signal from the CNC to stop the E4000 Motor Spindle or the E4000 Controller to stop the machine operation.



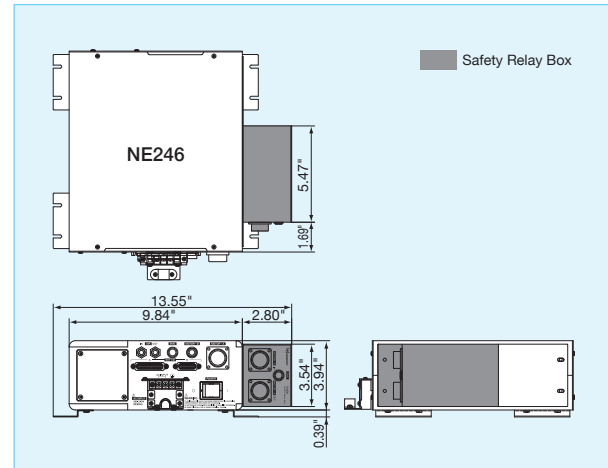
Weight : 11 lb. 13.98 oz.
Size : W3.54" x H2.80"

Safety Relay Box

Product Code	Product Name	Standard Equipment - Accessories	
8475	E4000-SRB	- Relay Cord (Motor Power Line) : 1.3 ft - Emergency Stop Cord : 1.3 ft	

Please contact NSK America for specification and pricing.

Example of mounting an E4000 controller with the Safety Relay Box



Operation Panel Extension Cord / Box For Control Panel

Product Code	Product Name	Product	Description / Specifications	Fit to	
8474	E4000-PEX4		Operation Panel Extension Cord (4m) • Screw (M3) : 4 pcs.	E4000 Controller	
8473	E4000-PB		Box For Control Panel Weight : 7.62 oz. Size : W3.46" x H3.46" • Case • Blind Plate • Screw (M3) : 6 pcs. • Screw (M4) : 2 pcs.	E4000 Controller	

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.

25 Pin Interface Cable

Product Code	Product Name		
DB25M	DB25M	For NSK Control Connector A 12.5 ft	
DB25MXL	DB25MXL	For NSK Control Connector A 25 ft	

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.

15 Pin Interface Cable

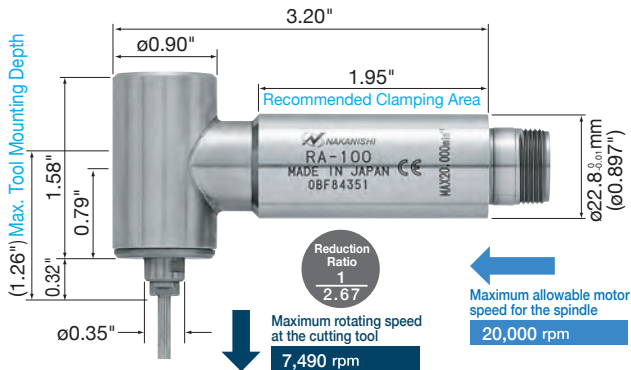
Product Code	Product Name		
DB15M	DB15M	For NSK Control Connector B	

MACHINE TOOL SPINDLES INFORMATION

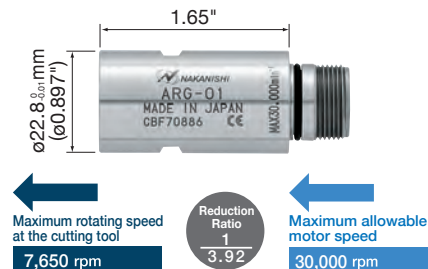
Maximum Motor Speed for Angle Type Spindles / Speed Reducers.

- When using an angle type spindle or a speed reducer, do not exceed the maximum motor speed or the reducer.

Example : 90° Angle Spindle RA-100
(Reduction Ratio = 1 : 2.67)



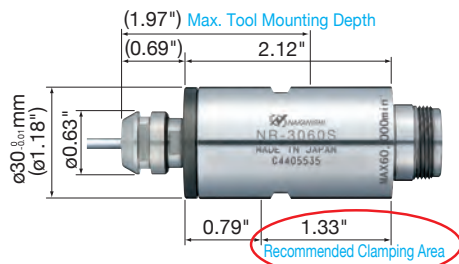
Example : Speed Reducer ARG-01
(Reduction Ratio = 1 : 3.92)



"Recommended Clamping Area" and "Maximum Motor Speed"

- Please refer to the picture below for proper clamping location.

Example : Spindle NR-3060S



Please refer to the appropriate spindle's catalog page for dimensions.

- The allowable motor speed is printed on the spindle housing.

Example : Spindle NR-3060S 60,000 rpm



Please refer to the appropriate spindle's catalog page for dimensions.

"External Input / Output Control Signal Specifications"

- For iSpeed3, iSpeed5, E2000, E3000 & E4000 control signal specifications, please refer to TECHNICAL DATA (7-p2~p39) for complete details.

• iSpeed3



• iSpeed5



• E2000



• E3000

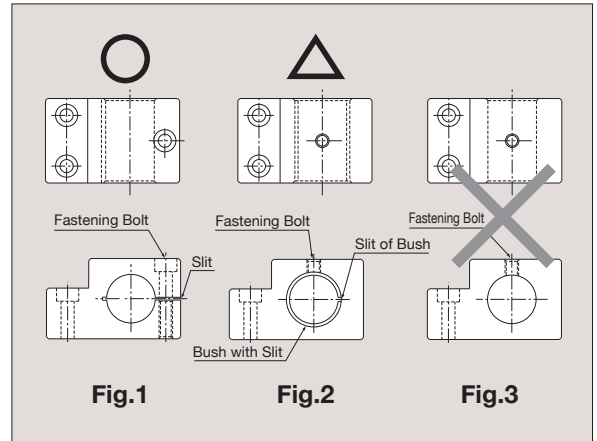


• E4000



Installation of Motor and Spindle

- When installing a motor and spindle, it is not recommended to fix the motor or spindle with a fastening bolt in direct contact with the spindle body as shown in Fig.3. This can cause deformation of the spindle body and damage internal components. The installation shown in Fig.1 is the recommended installation method. Therefore, the installation as shown in Fig.1 is the most recommendable.
(In case it is impossible, install as shown in Fig.2.)
- When mounting the spindle avoid the area where ball bearings are located. If the spindle is mounted inappropriately, this will cause damage to the spindle.
(Refer to the recommended clamping area drawing in this catalog.)
- Tighten the spindle in the holder using a well-calibrated torque wrench. The correct torque will be different depending on the holder type and accuracy.

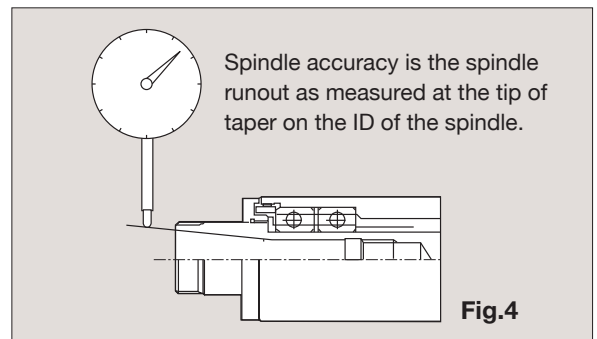


Caution

- Even when using the recommended installation method it is possible to deform the spindle housing from excessive clamping force. Use only the clamping force needed to secure the spindle. Do not over tighten.

Spindle Accuracy

- NAKANISHI's spindle accuracy is measured by the method indicated in the drawings shown in Fig.4.



Lubricating Oil

- Lubricating oil is required for air motors, air turbine motors. Please use our standard lubricating oil, or Chevron Superla white oil #9.



• Lubricating Oil (4 oz.)



• Lubricating Oil (32 oz.)

Drilling Capacity Reference Table

This table summarizes the drilling capacity for the 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, Iron, Stainless Steel and Aluminum.

*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.

*Cutting tool capabilities vary depending on the tools being used or cutting conditions.

E3000 Series (Page 2-p37~)

- The following table expresses the E3000 milling & drilling capacity with the max usable cutting tool diameter under our conditions.

ø : Tool Size (mm) S : Spindle Motor Speed {rpm} F : Feed Rate (mm/min) f : Drilling Step (mm/rev)

	Milling			Drilling		
	S50C (Iron)	SUS304 (Stainless Steel)	A2017 (Aluminum)	S50C (Iron)	SUS304 (Stainless Steel)	A2017 (Aluminum)
EM30-S6000	ø2.0	ø2.0	ø2.0	ø2.5	ø1.5	ø3.0
	S16,000 / F480	S12,000 / F250	S57,000 / F2,400	S18,000 / f 0.06	S10,000 / f 0.01	S23,000 / f 0.08
EM25-S6000	ø1.5	ø1.5	ø1.5	ø2.0	ø1.0	ø2.5
	S20,000 / F1,000	S16,000 / F700	S60,000 / F5,000	S20,000 / f 0.05	S12,000 / f 0.01	S23,000 / f 0.07
EM20-S6000	ø1.5	ø1.5	ø1.5	ø2.0	ø1.0	ø2.5
	S20,000 / F100	S16,000 / F100	S60,000 / F1,000	S20,000 / f 0.05	S12,000 / f 0.01	S23,000 / f 0.07

E2000 Series (Page 2-p17~)

- The following table expresses the E2000 milling & drilling capacity with the max usable cutting tool diameter under our conditions.

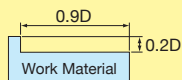
ø : Tool Size (mm) S : Spindle Motor Speed {rpm} F : Feed Rate (mm/min) f : Drilling Step (mm/rev)

	Milling			Drilling		
	S50C (Iron)	SUS304 (Stainless Steel)	A2017 (Aluminum)	S50C (Iron)	SUS304 (Stainless Steel)	A2017 (Aluminum)
NR-303+ EM25-5000-J4	ø1.5	ø1.5	ø2.0	ø1.5	ø1.0	ø2.5
	S20,000 / F600	S18,000 / F540	S30,000 / F1,500	S20,000 / f 0.05	S15,000 / f 0.01	S25,000 / f 0.03
NR-303+ARG-01+ EM25-5000-J4	ø3.0	ø2.5	ø4.0	ø2.5	ø1.5	ø3.5
	S7,500 / F380	S7,500 / F300	S7,500 / F750	S7,500 / f 0.08	S5,000 / f 0.02	S7,500 / f 0.1

*End Mill Cutting Condition

- Use End Mill 2 flutes with ultra hard coating.
- Used in conjunction with water or oil based coolants.

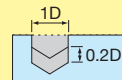
*Milling Depth/per
1D : End Mill Size



*Drilling Conditions

- Use Micro Drill with ultra hard coating
- Used in conjunction with water or oil based coolants.

*Drilling/Step
D : Drilling Size



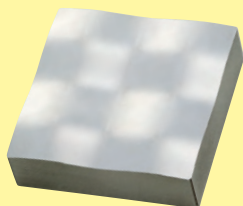
MA Series (Page 3-p1~)

Combination as System			Speed {rpm}	Output (W)	Max. Torque (cN·m)	Max. Drill Diameter for drilling (mm)		
Motor	Speed Reducer	Spindle				S45C	Aluminum	Brass
AM-300R	—	NR-2351	30,000	57	6.9	ø1.0	ø1.5	ø2.0
AM-300R	ARG-01 (1/3.92)	NR-2351	8,000	57	26.5	ø1.9	ø2.9	ø3.4
AM-300R	ARG-02 (1/15.39)	NR-2351	2,000	57	100.9	ø2.8	ø3.8	ø4.5
AM-310R	—	NR-2351	30,000	108	13.7	ø1.5	ø2.0	ø3.0
AM-310R	ARG-01 (1/3.92)	NR-2351	8,000	108	51.9	ø2.5	ø3.5	ø4.0
AM-310R	ARG-02 (1/15.39)	NR-2351	2,000	108	201.9	ø3.5	ø4.3	ø4.8
AM-2526R	—	NR-2551	24,000	130	22.5	ø2.0	ø3.0	ø3.5
AM-2526R	ARG-2504N (1/4)	NR-2551	6,000	130	85.3	ø2.7	ø3.8	ø4.4
AM-2526R	ARG-2516N (1/16)	NR-2551	1,500	130	332.2	ø4.3	ø5.2	ø5.5
AM-3020R	—	NR-453E	19,000	130	27	ø2.3	ø4.0	ø4.5
AM-3020R	ARG-011E (1/4)	NR-453E	4,750	130	108	ø3.2	ø5.0	ø5.5
AM-3020R	ARG-021E (1/16)	NR-453E	1,190	130	432	ø4.0	ø6.0	ø6.0

MS Series (Page 3-p27~)

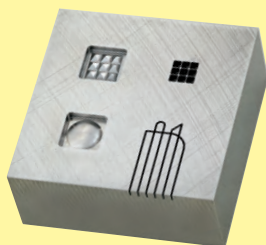
Series Code	Speed {rpm}	Output (W)	Max. Torque (cN·m)	Max. Dia. of Drill (mm)		
				S45C	Aluminum	Brass
MSS-19 Series <Outside Diameter $\phi 0.75"$ >	30,000	72	9.2	$\phi 1.0$	$\phi 1.5$	$\phi 2.0$
MSS-20 Series <Outside Diameter $\phi 0.79"$ >	8,000	72	36	$\phi 2.0$	$\phi 3.0$	$\phi 3.5$
MSS-22 Series <Outside Diameter $\phi 0.87"$ >	2,000	72	141	$\phi 3.0$	$\phi 4.0$	$\phi 4.0$
MSST-23 Series <Outside Diameter $\phi 0.91"$ >	30,000	108	13.7	$\phi 1.5$	$\phi 2.0$	$\phi 3.0$
	8,000	108	52	$\phi 2.5$	$\phi 3.5$	$\phi 4.0$
	2,000	108	202	$\phi 4.0$	$\phi 4.6$	$\phi 5.2$
MSSH-25 Series <Outside Diameter $\phi 1.0"$ >	24,000	130	22.5	$\phi 2.0$	$\phi 3.0$	$\phi 3.5$
MSS-25 Series <Outside Diameter $\phi 0.98"$ >	6,000	130	85	$\phi 2.7$	$\phi 3.8$	$\phi 4.4$
	1,500	130	332	$\phi 4.3$	$\phi 5.2$	$\phi 5.5$

HES810 (Page 4-p10~)



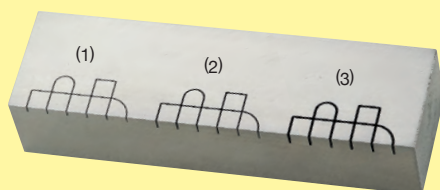
Material		STAVAX (HRC 52) 50 x 50 x 15 (mm)							
Usable Tool		Ultra-Hard Coated Ball End Mill R1.0		CBN Ball End Mill R1.0					
Cutting Process		1. Rough Cutting	2. Semi-Finishing Cutting	3. Finishing Cutting					
Cutting Depth		0.2 x 0.3mm	0.1 x 0.2mm	0.02 x 0.03mm	Total Time	Surface Roughness			
						Cutting Direction		Pf Direction	
						Ryμm	Raμm	Ryμm	Raμm
M/C Main Spindle 20,000 rpm	Work Feed mm / min	1,600	1,600	1,000	2h12min	1.1687	0.1420	1.6646	0.2336
HES810 80,000 rpm						45min	0.8518	0.1305	1.7495

HTS1501 (Page 4-p17~)



Material	NAK80 (HRC 40)		
Motor Speed	150,000 rpm		
Usable Tool	R 0.2 x 2L Ball End Mill		
Rough Cutting	Ad 0.03 x Rd 0.04mm		
Work Feed	2,000mm/min		
Finishing Cutting	Ad 0.01 x Rd 0.01mm		
Work Feed	1,500mm/min		
Total Time	4h 31min		

HTS1501 (Page 4-p17~)



Material	NAK80 (HRC 40)		
Motor Speed	150,000 rpm		
Sample No.	(1)	(2)	(3)
Usable Tool	$\phi 0.2 \times 2$	$\phi 0.3 \times 3$	$\phi 0.4 \times 4$
Cutting Depth	Ad 0.003mm	Ad 0.005mm	Ad 0.007mm
Work Feed	2,000mm/min		
Total Time	29min. 50sec.	27min. 43sec.	26min. 22sec.

E3000 SERIES

• APPLICATION EXAMPLE : COMPLEX PROCESS

• WORK PIECE : BRASS

• WORK CONDITIONS :

(1) EM-3060 + ARG-021E + NR-453E

ø45 x t 1.1 METAL SAWING ; TOOL SPEED : 1,800 rpm ; FEED : 20 mm/min

(2) EM-3060 + NR-453E

ø1 DRILLING ; TOOL SPEED : 10,000 rpm ; FEED : 100 mm/min

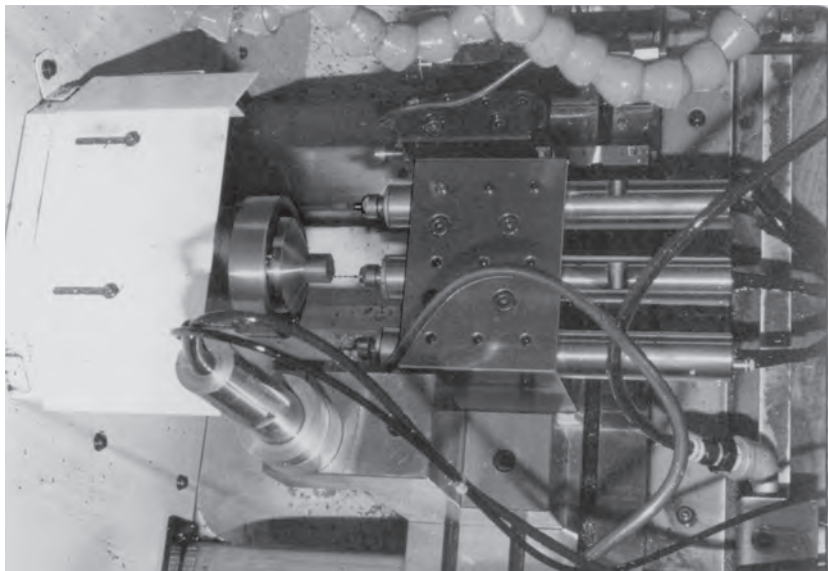
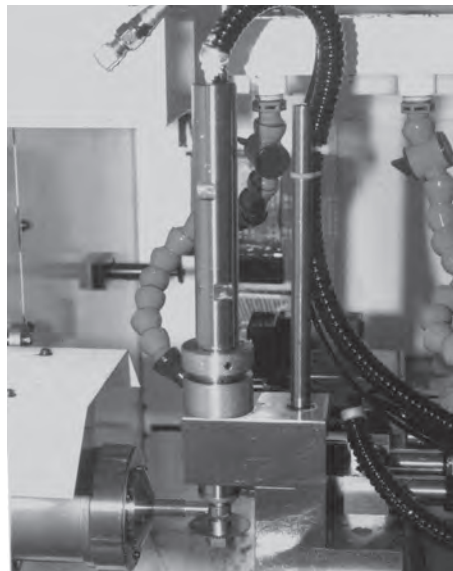
(3) EM-3060 + ARG-011E + NR-453E

ø3 DRILLING ; TOOL SPEED : 4,000 rpm ; FEED : 80 mm/min

• INSTALLATION : NC LATHE



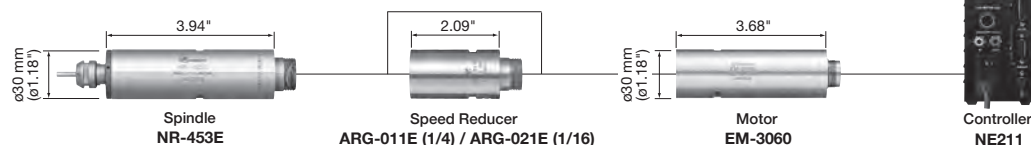
INSTALLATION



<Application Example, Installation>

E3000 SERIES

1,000~60,000 rpm Output 350 W



E3000 SERIES

• APPLICATION EXAMPLE : COMPLEX PROCESS

• WORK PIECE : RESIN

• WORK CONDITIONS :

(1) EM-3060 + NR-453E

ø1.0 DRILLING ; TOOL SPEED : 3,000 rpm ; FEED : 180 mm/min

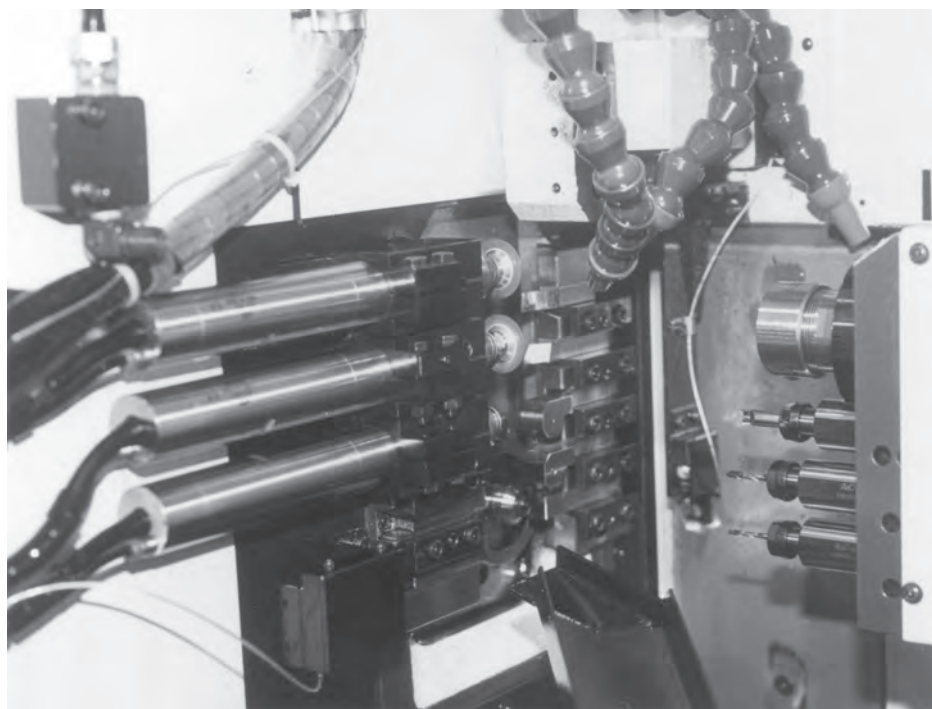
(2) EM-3060 + NR-453E

ø30 GRINDING STONE ; TOOL SPEED : 35,000 rpm ; FEED : 250 mm/min

• INSTALLATION : NC LATHE



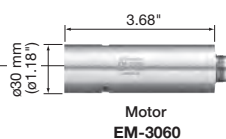
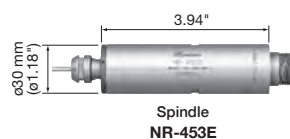
INSTALLATION



<Application Example, Installation>

E3000 SERIES

1,000~60,000 rpm Output 350 W



1	Emax EVO
	ESPERT
	ROTUS
	IMPULSE
	PRESTO II
	Sheenus ZERO
	Sonic-Cutter ZERO
2	iSpeed3
	E2000 ø1.0"/ø0.98"/ø0.897"
	E3000 — One Piece
	E3000 — Modular
	ø1.18"
	ø1.0"/ø0.98" ø0.897"
	E3000 — 80,000rpm
	E4000
3	MA
	ø0.897"
	ø1.0" ø0.98"
	ø1.18"
	MS
	ø0.75" ø0.73"
	ø0.897" ø0.91"
	ø1.0" ø0.98"
4	HES
	iSpeed5
	HTS
	PLANET
	Xpeed
	ABT
5	AIR LINE KIT
6	PARTS
7	TECHNICAL DATA
8	APPLICATION EXAMPLES
	INDEX

E3000 SERIES / MS SERIES

• APPLICATION EXAMPLE : COMPLEX PROCESS

• WORK PIECE : BRASS

• WORK CONDITIONS :

(1) EM-3060 + NR-453E

ø1.5 END MILLING ; TOOL SPEED : 7,500 rpm ; FEED : 60 mm/min

(2) MSS-1902RA

ø2 DRILLING ; TOOL SPEED : 2,000 rpm ; FEED : 100 mm/min

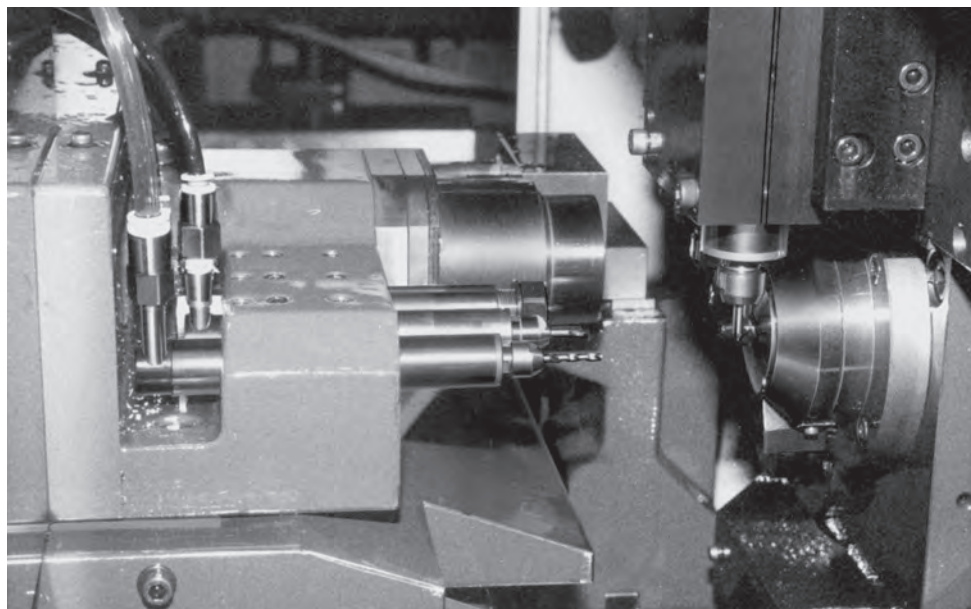
(3) MSS-1908RA

ø1 DRILLING ; TOOL SPEED : 8,000 rpm ; FEED : 100 mm/min

• INSTALLATION : NC LATHE



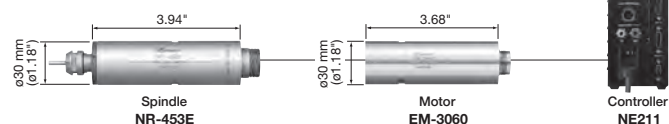
INSTALLATION



<Application Example, Installation>

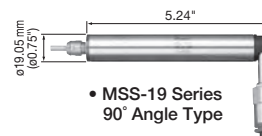
E3000 SERIES

1,000~60,000 rpm Output 350 W



MS SERIES

30,000 · 8,000 · 2,000 rpm Output 72 W



E3000 SERIES

• APPLICATION EXAMPLE : COMPLEX PROCESS

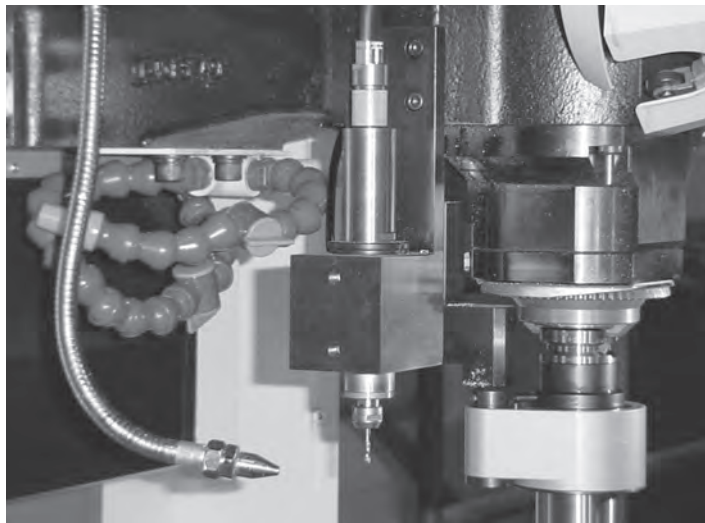
• WORK CONDITIONS :

(1) SPINDLE : E3000 EM30-S6000

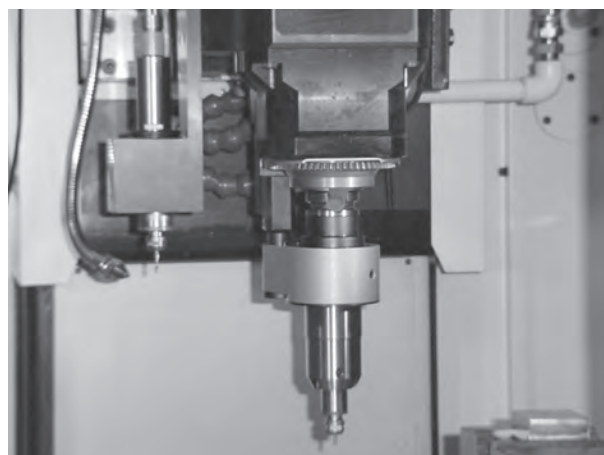
MAX POWER : 350 W ; MAX RPM : 60,000 rpm ; SPINDLE SIZE : $\phi 30$ mm

MACHINE : FANUC ROBODRILL

MAX RPM : 10,000 rpm



EXAMPLE: NAKANISHI E3000 ELECTRIC MOTOR / SPINDLE MOUNTED DIRECTLY INTO THE SIDE OF THE MACHINES MAIN SPINDLE. THIS APPLICATION ALLOWS AN ELECTRIC HIGH SPEED SPINDLE TO BE USED WITHOUT THE NEED FOR A TOOL CHANGEABLE ELECTRIC SPINDLE.

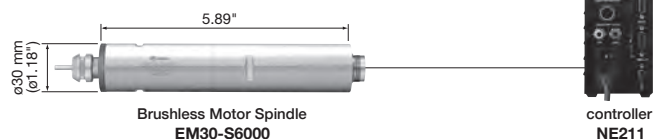


ALL NAKANISHI SPINDLE FUNCTIONS ARE COMMANDED AND MONITORED FROM THE MACHINES CONTROLLER.
(Shown with HPS500-BT30 Tool Changeable Air Spindle in machines main spindle)

<Application Example, Installation>

E3000 SERIES

1,000~60,000 rpm Output 350 W



1	Emax EVO
	ESPERT
	ROTUS
	IMPULSE
	PRESTO II
	Sheenus ZERO
	Sonic-Cutter ZERO
2	iSpeed3
	E2000 $\phi 1.0''/\phi 0.98''/\phi 0.897''$
	E3000 — One Piece
	E3000 — Modular
	$\phi 1.18''$
	$\phi 1.0''/\phi 0.98''/\phi 0.897''$
	E3000 — 80,000rpm
	E4000
3	MA
	$\phi 0.897''$
	$\phi 1.0''/\phi 0.98''$
	$\phi 1.18''$
	MS
	$\phi 0.75''/\phi 0.73''$
	$\phi 0.897''/\phi 0.91''$
	$\phi 1.0''/\phi 0.98''$
4	HES
	iSpeed5
	HTS
	PLANET
	Xpeed
	ABT
5	AIR LINE KIT
6	PARTS
7	TECHNICAL DATA
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E3000 SERIES

• APPLICATION EXAMPLE : END MILLING

• WORK PIECE : RESIN

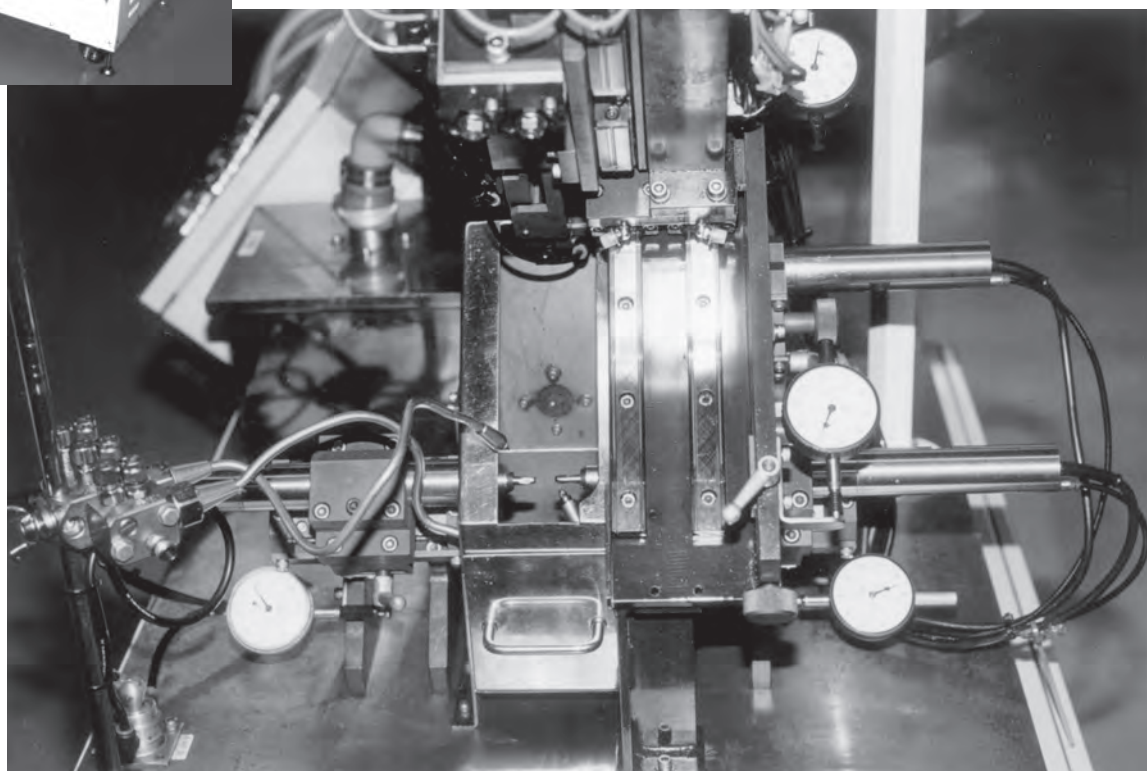
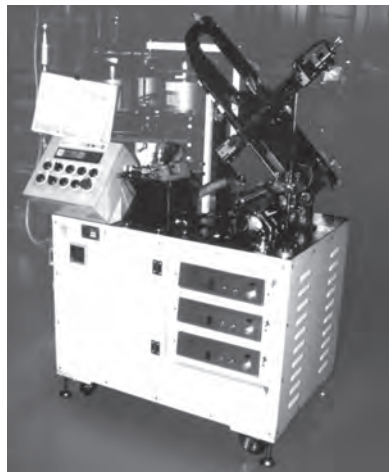
• WORK CONDITIONS :

(1) EM-3060 + ARG-011E + NR-453E

ø6 END MILLING ; TOOL SPEED : 5,000 rpm ; FEED : 500 mm/min

• INSTALLATION : SPECIAL PURPOSE MACHINE

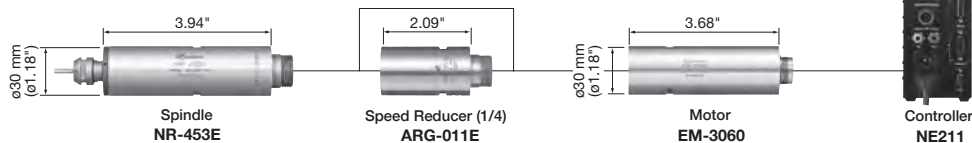
INSTALLATION



<Application Example, Installation>

E3000 SERIES

1,000~60,000 rpm Output 350 W



MA SERIES / E3000 SERIES

• APPLICATION EXAMPLE : AIR MOTOR CYLINDER PLATE

• WORK PIECE : BRASS

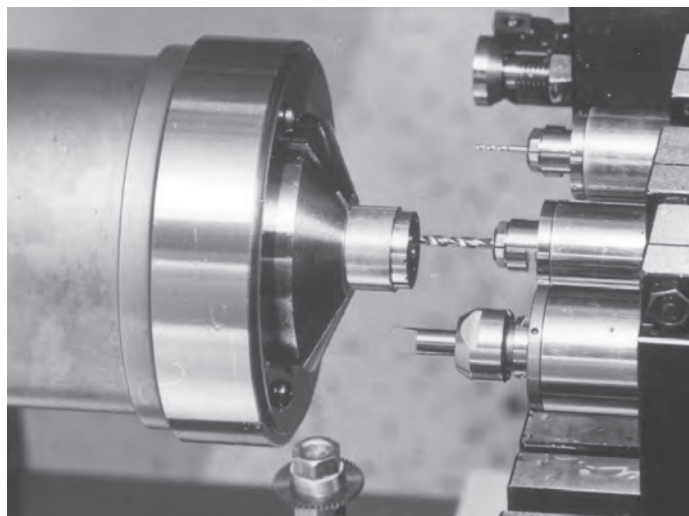
• WORK CONDITIONS :

- (1) AM-300R + ARG-02 + NR-303
 $\phi 24 \times t 1.1$ METAL SAWING ; TOOL SPEED : 2,000 rpm ; FEED : 50 mm/min
- (2) EM-3060 + ARG-021E + NR-453E
 $\phi 3.6^{+0.04}_{+0.03}$ END MILLING ; TOOL SPEED : 1,750 rpm ; FEED : 50 mm/min
- (3) AM-300R + ARG-02 + NR-303
 $\phi 2.5$ DRILLING ; TOOL SPEED : 2,000 rpm ; FEED : 70 mm/min
- (4) AM-300RA + ARG-01 + NR-303
 $\phi 1.1$ DRILLING ; TOOL SPEED : 8,000 rpm ; FEED : 50 mm/min

• INSTALLATION : GANG TOOL NC LATHE



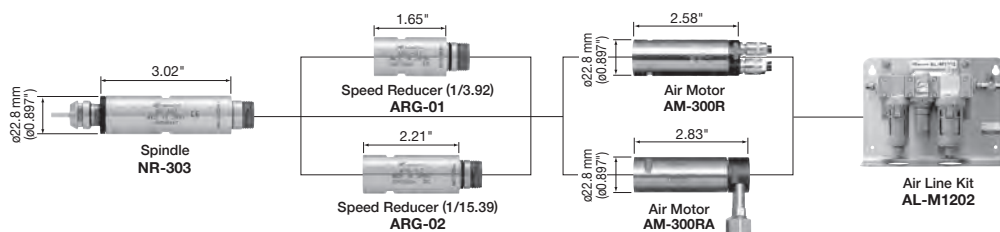
INSTALLATION



<Application Example, Installation>

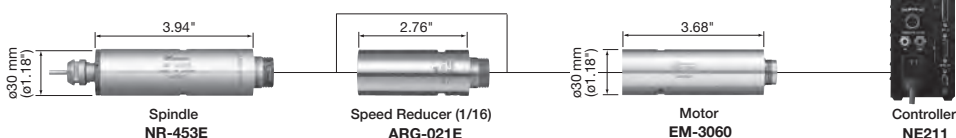
MA SERIES

2,000~30,000 rpm Output 57 W



E3000 SERIES

1,000~60,000 rpm Output 350 W



1

Eimax EVO

ESPERT

ROTUS

IMPULSE

PRESTO II

Sheenus

ZERO

Sonic-Cutter

ZERO

2

iSpeed3

E2000

$\phi 1.0^{+0.07}_{+0.05}$ / $\phi 0.98^{+0.07}_{+0.05}$

E3000

— One Piece

E3000

— Modular

$\phi 1.18^{+0.07}_{+0.05}$ / $\phi 0.98^{+0.07}_{+0.05}$

E3000

— 80,000rpm

E4000

3

MA

$\phi 0.897^{+0.07}_{+0.05}$

$\phi 1.0^{+0.07}_{+0.05}$ / $\phi 0.98^{+0.07}_{+0.05}$

$\phi 1.18^{+0.07}_{+0.05}$

MS

$\phi 0.75^{+0.07}_{+0.05}$ / $\phi 0.73^{+0.07}_{+0.05}$

$\phi 0.89^{+0.07}_{+0.05}$ / $\phi 0.91^{+0.07}_{+0.05}$

$\phi 1.0^{+0.07}_{+0.05}$ / $\phi 0.98^{+0.07}_{+0.05}$

4

HES

iSpeed5

HTS

PLANET

Xpeed

ABT

5

AIR LINE KIT

6

PARTS

7

TECHNICAL

DATA

8

APPLICATION

EXAMPLES

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