

# NAKANISHI SPINDLE E2000

E2000

Specifications and design are subject to change without notice.



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NAKANISHI INC. 2018



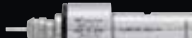

PR-K333E Ver.5 '18.11.03. ©

Nature of Tochigi, Japan  
Mt.Nasu in Summer


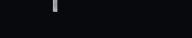
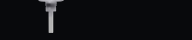


# Index

## Straight type spindle

- NR-303 .....  p.5
- NR-2351 .....  p.5
- NR-311 .....  p.7
- AMH-301 .....  p.7

## Angle type spindle

- RA-100 .....  p.9
- RA-200 .....  p.9
- RAS-101 .....  p.11


## Motor

- EM-2350J .....  p.13  
1,000 ~ 50,000min<sup>-1</sup>

## Reduction gear

- ARG-01 .....  p.13  
Reduction gear( 1:3.92 )
- ARG-02 .....  p.13  
Reduction gear( 1:15.39 )

## Motor cord

- EMCD-2350J Motor cord .....  p.16  
Motor cord [ Length 4m, 6m, 8m ]

## Controller



- E2280 Controller ..... p.15  
Controller

## Accessories



- AL-C1204 ..... p.16  
Air line kit



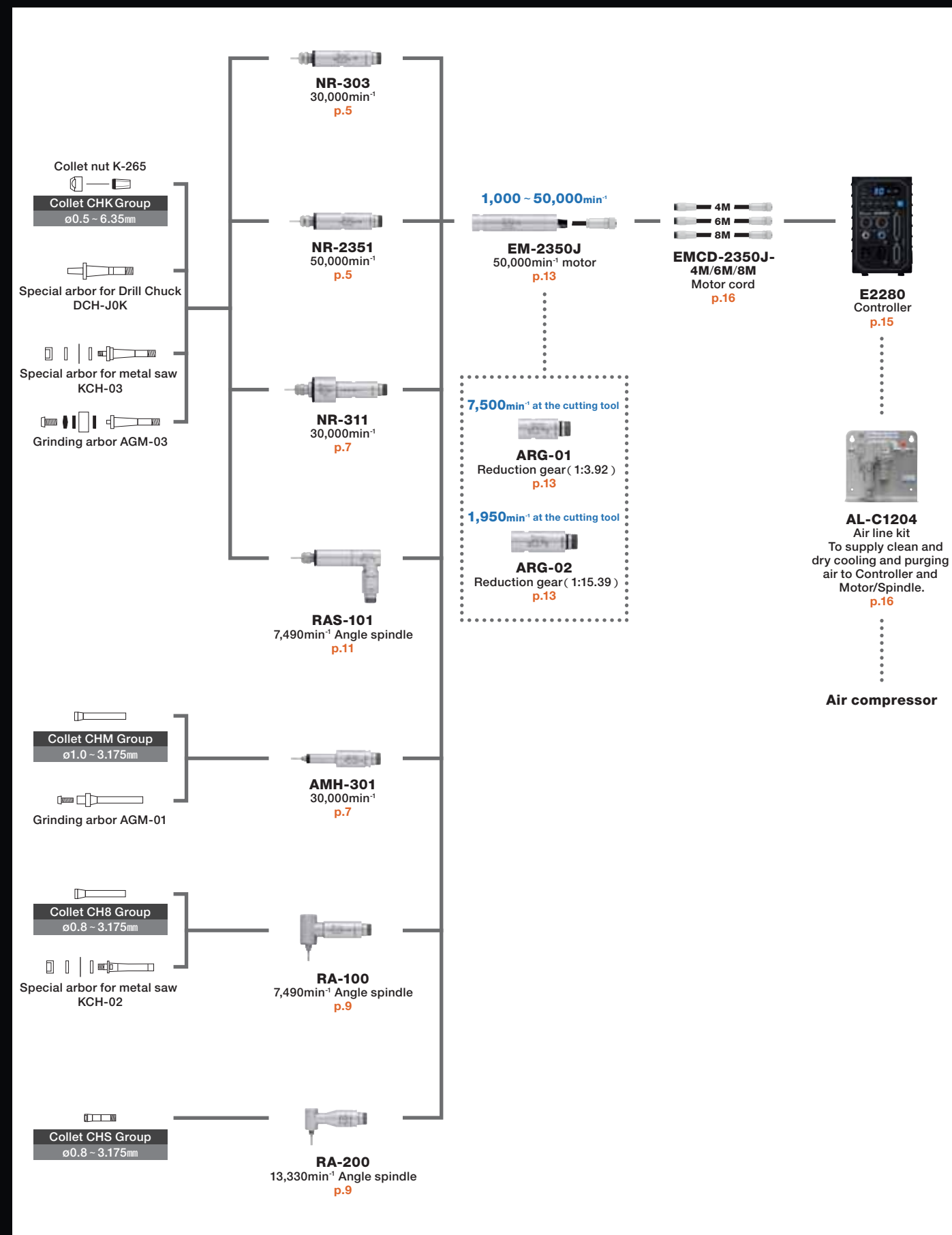
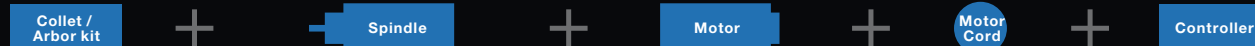
- GR-22.8 ..... p.16  
Grip ring



- CHK / CHM .....  
CHS / CH8 ..... p.17  
Collet

# System Chart

## 「E2000」

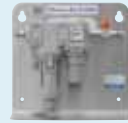


Spindle  
GuideCHK  
p.17

NR-303



NR-2351

EM-2350J  
p.13EMCD-2350J  
p.16E2280  
p.15AL-C1204  
p.16

E2000 SERIES

Shown In Actual Size

## Straight type spindle

## NR-303



O.D. 22.8mm



## Specifications

Order by Code No.

## NR-303

Code No. **1830** Model **NR-303**

O.D.	Max. rpm	Spindle runout	Collet	Weight
Ø22.8mm	30,000min <sup>-1</sup>	Within 2µm	CHK group (Ø0.5 ~ Ø6.35mm)	215g
Standard Accessories	Collet : Ø3.0mm(CHK-3.0) / Collet nut( K-265 ) Spanner( 12×14 ): 2pcs( 20×24 ): 1pc			
Options	Collet(CHK group) : Ø0.5 ~ Ø6.35mm <b>p.17</b> Metal Saw Axis( KCH-03 ) : For Ø6.0( I.D. ) × Ø30mm( O.D. ) Grindstone Axis( AGM-03 ) : For grinding wheel with I.D. of Ø5.0mm			

## NR-2351



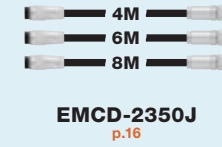
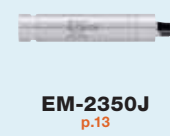
O.D. 22.8mm



## NR-2351

Code No. **8220** Model **NR-2351**

O.D.	Max. rpm	Spindle runout	Collet	Weight
Ø22.8mm	50,000min <sup>-1</sup>	Within 1µm	CHK group (Ø0.5 ~ Ø6.35mm)	215g
Standard Accessories	Collet : Ø3.0mm(CHK-3.0) / Collet nut( K-265 ) Spanner( 12×14 ): 2pcs( 20×24 ): 1pc			
Options	Collet(CHK group) : Ø0.5 ~ Ø6.35mm <b>p.17</b> Metal Saw Axis( KCH-03 ) : For Ø6.0( I.D. ) × Ø30mm( O.D. ) Grindstone Axis( AGM-03 ) : For grinding wheel with I.D. of Ø5.0mm			

Spindle  
Guide

E2000 SERIES

Shown In Actual Size

## Straight type spindle

## NR-311



O.D. 22.8mm



## Specifications

Order by Code No.

## NR-311

Code No. **2511** Model **NR-311**

O.D.	Max. rpm	Spindle runout	Collet	Weight
Ø22.8mm	30,000min <sup>-1</sup>	Within 2 <sub>μ</sub> m	CHK group (ø0.5 ~ ø6.35mm)	370g
Standard Accessories	Collet : ø3.0mm(CHK-3.0) / Collet nut( K-265 ) Spanner( 12×14 )( 20×24 ): 1pc each			
Options	Collet(CHK group) : ø0.5 ~ ø6.35mm <b>p.17</b> Special arbor for metal saw( KCH-03 ) : ø30mm( O.D. ) / Grindstone Flange( NGF2-19 ) : ø19.05( I.D. ) × ø40( O.D. ) × 7mm( W )			

## AMH-301



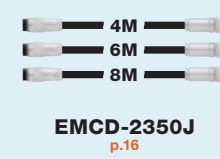
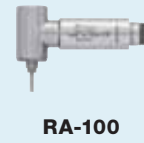
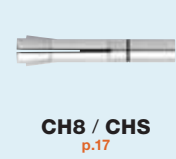
O.D. 22.8mm



## AMH-301

Code No. **1074** Model **AMH-301**

O.D.	Max. rpm	Collet	Weight
Ø22.8mm	30,000min <sup>-1</sup>	CHM group (ø1.0 ~ ø3.175mm)	171g
Standard Accessories	Collet : ø3.0mm( CHM-3.0 ) Spanner( 7×5.1 )( 6×4.5 )( 20×24 ): 1pc each		
Options	Collet( CHM group ) : ø1.0 ~ ø3.175mm <b>p.17</b> Grinding arbor( AGM-01 ) : for grindstone I.D. ø5.0mm		

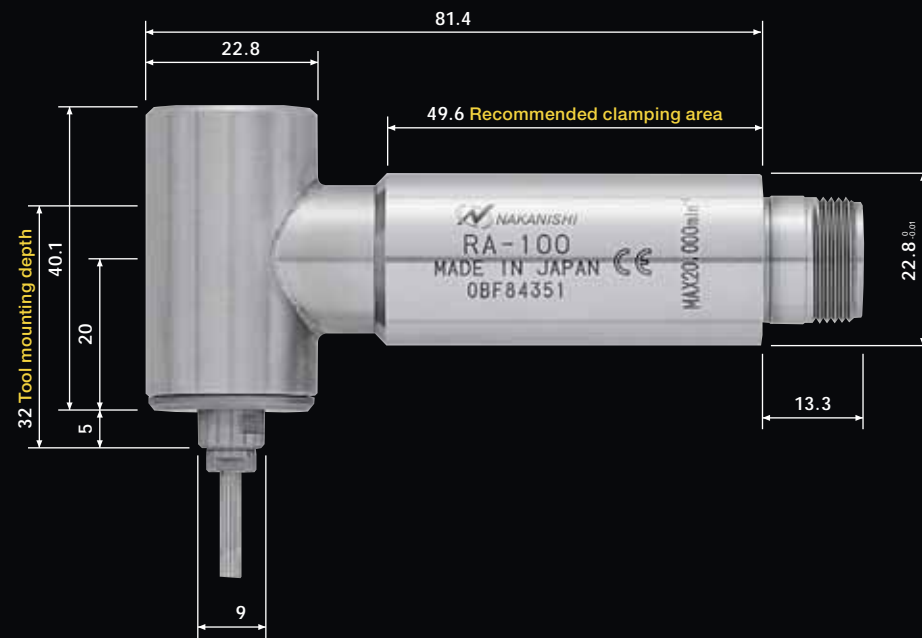
Spindle  
Guide

E2000 SERIES

Shown In Actual Size

## Angle type spindle

## RA-100



## Specifications

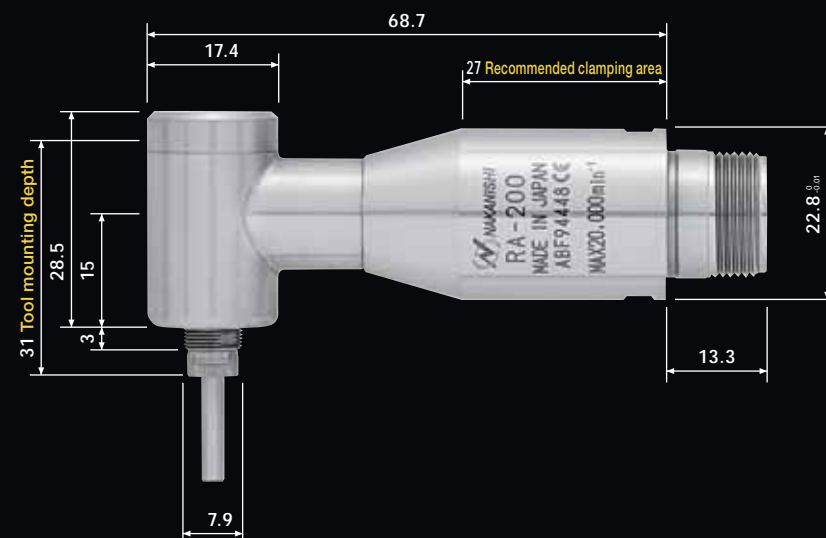
Order by Code No.

## RA-100

Code No. **1024** Model **RA-100**

O.D.	Max. speed at the cutting tool	Reduction ratio	Max. Allowable Motor Speed for The Spindle	Collet	Weight
∅22.8mm	<b>7,490</b> min <sup>-1</sup>	$\frac{1}{2.67}$	<b>20,000</b> min <sup>-1</sup>	<b>CH8</b> group (∅0.8 ~ ∅3.175mm)	<b>271g</b>
Standard Accessories	Collet : ∅3.0mm( CH8-3.0 ) Spanner( 7×5.5 ) · ( 8×5 ) · ( 20×24 ) : 1pc each				
Options	Collet( CH8 group ) : ∅0.8 ~ ∅3.175mm <b>p.17</b> Special arbor for metal saw( KCH-02 ) : ∅6( I.D. ) × ∅30( O.D. )				

## RA-200



## RA-200

Code No. **1075** Model **RA-200**

O.D.	Max. speed at the cutting tool	Reduction ratio	Max. Allowable Motor Speed for The Spindle	Collet	Weight
∅22.8mm	<b>13,330</b> min <sup>-1</sup>	$\frac{1}{1.5}$	<b>20,000</b> min <sup>-1</sup>	<b>CHS</b> group (∅0.8 ~ ∅3.175mm)	<b>165g</b>
Standard Accessories	Collet : ∅3.0mm( CHS-3.0 ) Spanner( 7×5.1 ) · ( 8×5 ) · ( 20×24 ) : 1pc each				
Options	Collet( CHS group ) : ∅0.8 ~ ∅3.175mm <b>p.17</b>				

Spindle  
GuideCHK  
p.17

RAS-101

EM-2350J  
p.13EMCD-2350J  
p.16E2280  
p.15AL-C1204  
p.16

E2000 SERIES

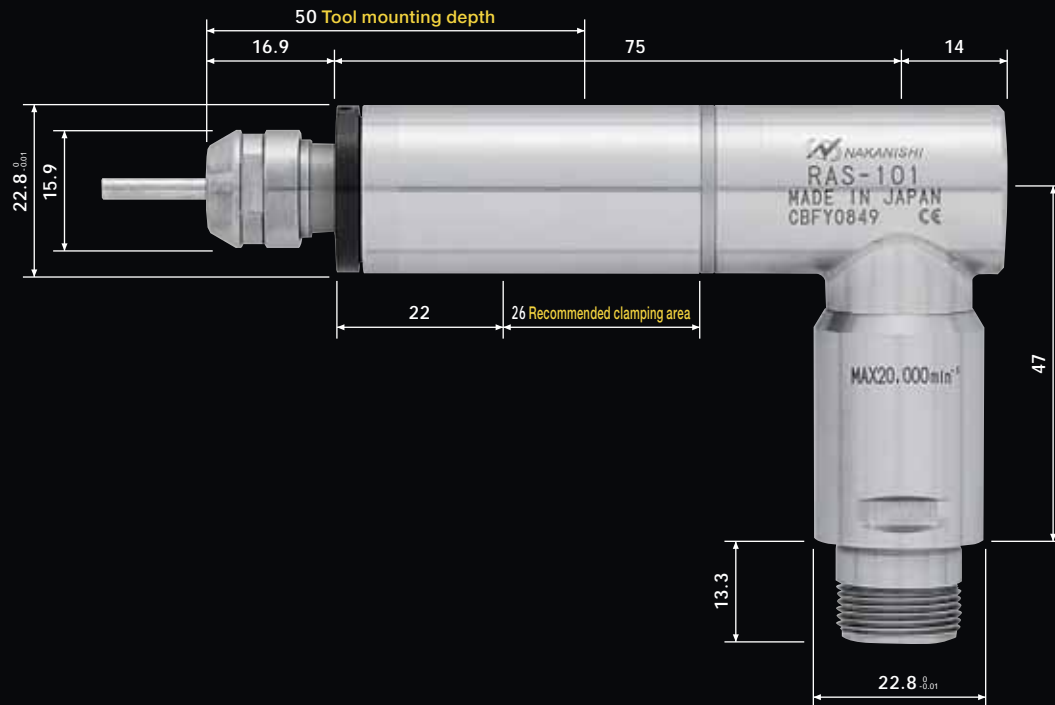
Shown In Actual Size

# Angle type spindle

## RAS-101



O.D. 22.8mm



# Specifications

Order by Code No.

RAS-101

Code No. **1094**Model **RAS-101**

O.D.	Max. speed at the cutting tool	Reduction ratio	Max. Allowable Motor Speed for The Spindle	Spindle runout	Collet	Weight
Ø22.8mm	7,490min <sup>-1</sup>	$\frac{1}{2.67}$	20,000min <sup>-1</sup>	Within 2µm	CHK group (Ø0.5 ~ Ø6.35mm)	325g
Standard Accessories	Collet : Ø3.0mm(CHK-3.0) / Collet nut( K-265 ) Spanner( 12×14 ) : 2pcs · ( 20×24 ) : 1pc					
Options	Collet( CHK group ) : Ø0.5 ~ Ø6.35mm p.17					

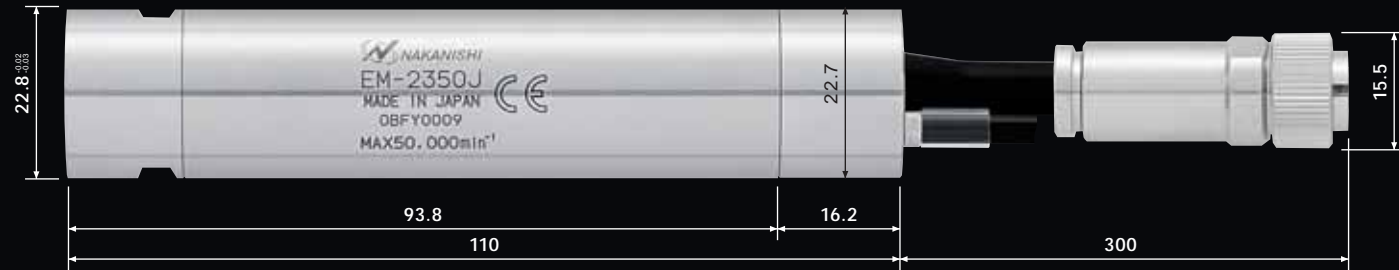
# Motor / Reduction gear

## EM-2350J

Motor



O.D. 22.8mm

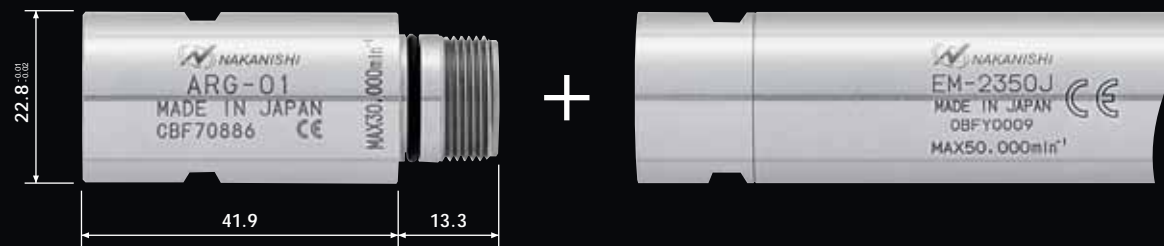


## ARG-01

Reduction gear( 1:3.92 )



O.D. 22.8mm

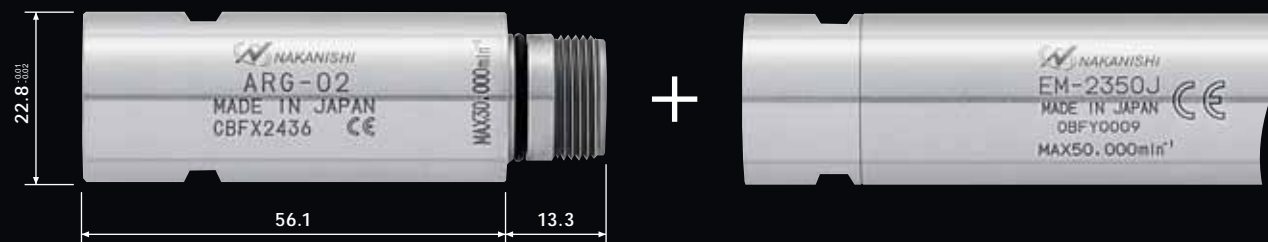


## ARG-02

Reduction gear( 1:15.39 )



O.D. 22.8mm



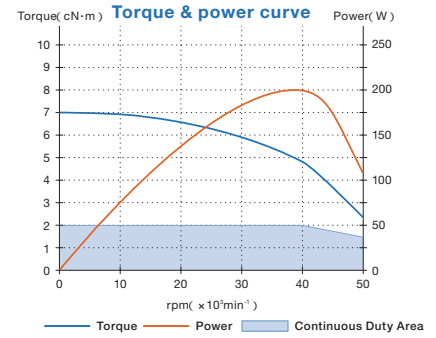
# Specifications

Order by Code No.

## EM-2350J

Code No. **7721** Model **EM-2350J**

O.D.	Speed Range	Max. power	Weight
Ø22.8mm	1,000 ~ 50,000min <sup>-1</sup>	200w	260g (Motor cord is included.)
Standard Accessories	Spanner (20×24) : 1pc		
Options	Motor cord : Length 3.7m, 5.7m, 7.7m		



## ARG-01

Code No. **1022** Model **ARG-01**

O.D.	Max. speed at the cutting tool	Reduction ratio	Max. rpm	Weight
Ø22.8mm	7,650min <sup>-1</sup>	$\frac{1}{3.92}$	30,000min <sup>-1</sup>	108g

## ARG-02

Code No. **1023** Model **ARG-02**

O.D.	Max. speed at the cutting tool	Reduction ratio	Max. rpm	Weight
Ø22.8mm	1,950min <sup>-1</sup>	$\frac{1}{15.39}$	30,000min <sup>-1</sup>	148g

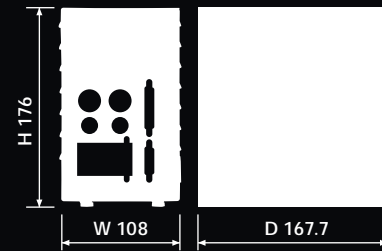


# E2280 Controller



## E2280 Controller

Code No. **7720**



### Equipped with selector

Up to 2 motors to control  
not simultaneously  
Providing individual speed control of  
each motor

### External Input / Output Control Signal Operation

**External Input**  
Motor Rotating / Stopped,  
Error Released, Rotating Direction,  
Motor Speed Setting and etc.

**External Monitor**  
Motor Current, Error, Warning,  
Rotating pulse and etc.

**Parameter Setting**  
Maximum motor speed setting,  
Fix the motor speed

For more information, please refer to the  
operation manual on our website.

Speed Range		Input Voltage	Max. power
1,000 ~ 50,000min <sup>-1</sup>		AC100 ~ 240v Without plug Multiple output power	200w
Power consumption	Air consumption		Weight
AC1.4A	1motor : 30N /min(0.25MPa) / 2motors : 63N /min(0.30MPa)		2.2kg

Standard Accessories  
Power cord : 3m / Air hose with filter( K-251 : 2058 ) 2m / Power cord hook  
Connector cap( Included )/ Connector cover( Included )  
Bracket / Air branching joint / Fuse  
Mounting screw / Reducer

# Accessories

## AL-C1204 Air line kit



Recommendation of nominal filtration rating:0.3µm, Pressure range:0.1-1.0Mpa  
Recommendation of air filter:M2000-WS( CKD )

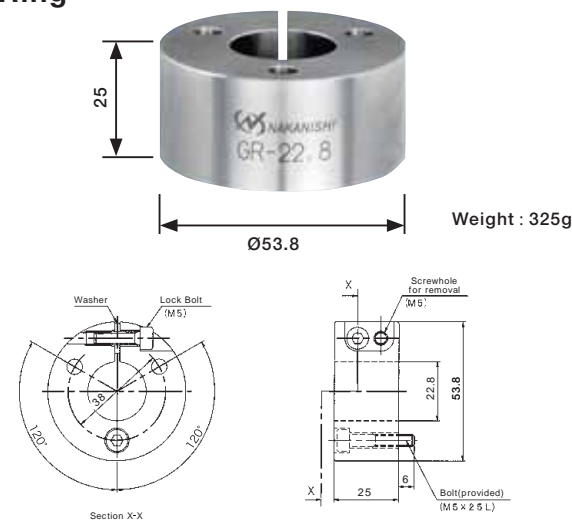
Code No. **4504** Model **AL-C1204**

Standard Accessories Hose pipe( K-260 ) : 2m

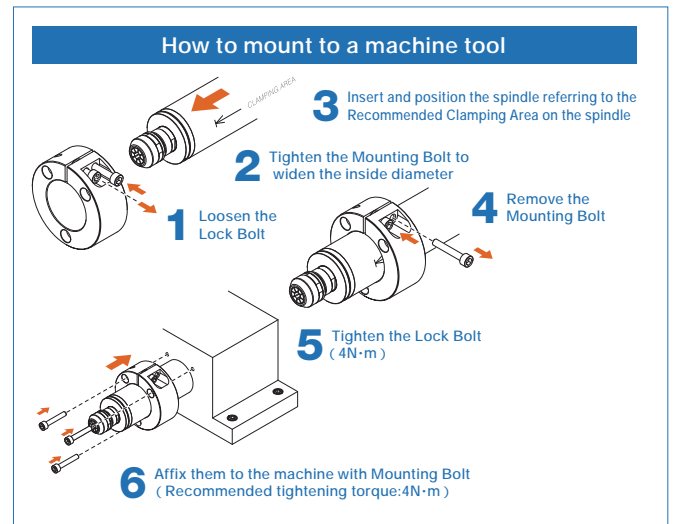
Motor cord	Code No.	Model	Length	Standard Accessories	Compatible model
4M	<b>7722</b>	EMCD-2350J-4M	3.7m	Air hose Connector cap ( Included )	EM-2350J
6M	<b>7723</b>	EMCD-2350J-6M	5.7m		
8M	<b>7724</b>	EMCD-2350J-8M	7.7m		

## GR-22.8 Grip Ring

Code No. **1888** Model **GR-22.8**



Standard Accessories Mounting Bolt( GR-22.8 ) M5 × 25 : 3pcs





# Accessories

Collet	Code No.	Model	I.D. / Description / Specifications	Compatible model		
<p>1.0 ~ 6.35</p>	<b>91597</b>	CHK-3.0AA	ø3.0AA	NR-2351 · NR-303 · NR-311 RAS-101 High precision type AA (Spindle runout within 2 μm)		
	<b>91598</b>	CHK-3.175AA	ø3.175AA			
	<b>91599</b>	CHK-4.0AA	ø4.0AA			
	<b>91600</b>	CHK-6.0AA	ø6.0AA			
	<b>91601</b>	CHK-6.35AA	ø6.35AA			
	<b>91592</b>	CHK-2.35	ø2.35			
	<b>91530</b>	CHK-3.0	ø3.0			
	<b>91593</b>	CHK-3.175	ø3.175			
	<b>91540</b>	CHK-4.0	ø4.0			
	<b>91560</b>	CHK-6.0	ø6.0			
	<b>91596</b>	CHK-6.35	ø6.35			
	<p>0.5 ~ 0.9</p>	-	CHK-		ø0.5, ø0.6, ø0.7, ø0.8, ø0.9 ø1.0, ø1.5, ø2.0, ø2.5, ø3.5, ø4.5, ø4.76, ø5.5 ø1.1, ø1.2, ø1.3, ø1.4, ø1.7, ø1.8, ø1.9 ø2.1, ø2.2, ø2.3, ø2.4, ø2.6, ø2.7, ø2.8, ø2.9 ø3.1, ø3.2, ø3.3, ø3.4, ø3.6, ø3.7, ø3.8, ø3.9 ø4.1, ø4.2, ø4.3, ø4.4, ø4.6, ø4.7, ø4.8, ø4.9 ø5.1, ø5.2, ø5.3, ø5.4, ø5.6, ø5.7, ø5.8, ø5.9 ø1.6, ø5.0 ø2.35	AMH-301
		<b>90992</b>	CHM-2.35		ø2.35	AMH-301
		<b>90930</b>	CHM-3.0		ø3.0	
<b>90993</b>		CHM-3.175	ø3.175			
<b>90916</b>		CHM-1.6	ø1.6			
-		CHM-	ø1.0, ø2.0			
<b>90592</b>		CHS-2.35	ø2.35	RA-200		
<b>90530</b>		CHS-3.0	ø3.0			
<b>90593</b>		CHS-3.175	ø3.175			
<b>90516</b>		CHS-1.6	ø1.6			
-		CHS-	ø0.8, ø0.9 ø1.0, ø2.0, ø2.5 ø1.1, ø1.2, ø1.3, ø1.4, ø1.5, ø1.7, ø1.8, ø1.9, ø2.1, ø2.2, ø2.3, ø2.4, ø2.6, ø2.7, ø2.8, ø2.9			
<b>91092</b>		CH8-2.35	ø2.35		RA-100	
<b>91030</b>		CH8-3.0	ø3.0			
<b>91093</b>		CH8-3.175	ø3.175			
-	CH8-	ø0.8, ø0.9 ø1.0, ø1.5, ø2.0, ø2.5 ø1.1, ø1.2, ø1.3, ø1.4, ø1.6, ø1.7, ø1.8, ø1.9, ø2.1, ø2.2, ø2.3, ø2.4, ø2.6, ø2.7, ø2.8, ø2.9				
<b>2129</b>	K-265	Collet nut for CHK collet	NR-2351 · NR-303 · NR-311 RAS-101			

Special arbor · Grinding arbor	Code No.	Model	Description	Compatible model
	<b>2132</b>	DCH-J0K	Special arbor for Drill Chuck For drill chuck Jacob's taper No.0 Spindle runout : within 0.05mm	NR-2351 · NR-303 · NR-311 RAS-101
	<b>2146</b>	KCH-02( 5.0 )	Special arbor for metal saw ød( I.D. ) x ø30mm( O.D. ) and under Spindle runout : within 0.02mm	RA-100
	<b>1077</b>	KCH-02( 6.0 )		
	<b>2147</b>	KCH-02( 8.0 )		
	<b>2148</b>	KCH-03( 5.0 )		
	<b>2130</b>	KCH-03( 6.0 )	Special arbor for metal saw ød( I.D. ) x ø30mm( O.D. ) and under Spindle runout : within 0.02mm	NR-2351 · NR-303 · NR-311 RAS-101
	<b>2149</b>	KCH-03( 8.0 )		
	<b>1029</b>	AGM-01		
	<b>2131</b>	AGM-03	Grinding arbor Spindle runout : within 0.02mm for grindstone I.D. ø5.0mm	NR-2351 · NR-303 · RAS-101

\* For right hand (cw) rotation only.

# NAKANISHI Solutions LINE UP

## Electric Motors & Spindles

Brushless Motors & Spindles



Application for CNC lathes / Special purpose machines

Application for machining centers and milling machines

### E4000 SERIES

1,000 ~ 40,000min<sup>-1</sup> Max.1,200W  
[ ø40mm ]



World's highest power in this class  
Max. power: 1,200W, Max. torque: 1.0N·m

### E3000 SERIES

1,000 ~ 80,000min<sup>-1</sup> Max.350W  
[ ø30/25/20mm ]



The largest product lines for various processing  
Space-saving solution for small CNC lathe

### HES SERIES

Max.80,000min<sup>-1</sup>  
[ For small diameter endmills and drills only ]



[ HES810 ]  
The most cost effective solution to add high-speed machining capability  
80,000min<sup>-1</sup>, 6.0cN·m  
BT, NT, HSK A63, ST shanks are available  
Driven by E3000 Controller

### E2000 SERIES

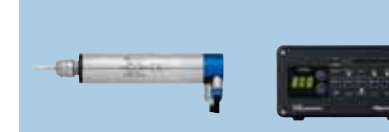
1,000 ~ 50,000min<sup>-1</sup> Max.200W  
[ ø22.8/25mm ]



Small size spindle allows multi-axis installation in limited space

### iSpeed3 SERIES

1,000 ~ 80,000min<sup>-1</sup> Max.150W  
[ ø19.05/20/22/25mm ]



Super short motor spindle  
High efficiency brushless motor



[ HES510 ]  
50,000min<sup>-1</sup>, 8.75cN·m  
BT, NT, CAT, IT, HSK A, ST shanks are available  
Driven by E3000 Controller

## Air Motors & Spindles



Application for CNC lathes / Special purpose machines

Application for machining centers and milling machines

### AM SERIES One-piece type

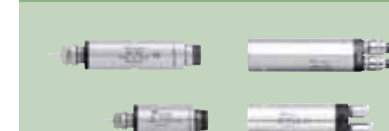
1,000 ~ 60,000min<sup>-1</sup> Max.350W  
[ ø30/25/20mm ]



Short body enables the spindle to mount in a limited space on a small NC/CNC lathe or on a special purpose machine

### AM SERIES Modular type

5,000 ~ 30,000min<sup>-1</sup> Max.125W  
[ ø22.8mm ]



Separate motor and spindle for flexible application changes  
Adjustable to various application through changing spindles

### SMS SERIES

40,000min<sup>-1</sup>  
[ For small diameter endmills and drills only ]



Ceramic bearings for higher rigidity and precision  
Straight and BT, NT shanks are available

## Air Turbine Spindles

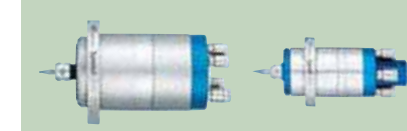


Application for CNC lathes / Special purpose machines

Application for machining centers and milling machines

### Xped SERIES

Max.160,000min<sup>-1</sup>  
[ ø65/40mm ]



Extreme accuracy-Runout 1 μm  
For high precision small diameter drilling, internal grinding of ceramics  
Long life of spindle thanks to contactless rotation mechanism

### PLANET SERIES

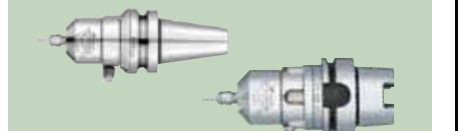
Max.65,000min<sup>-1</sup>



A milling machine turns into a jig grinder  
For high precision internal grinding

### HTS SERIES

150,000min<sup>-1</sup>  
[ For small diameter endmills and drills only ]



No thermal expansion on Z axis thanks to air turbine generating little heat  
Ultra high speed 150,000min<sup>-1</sup> with higher rigidity thanks to ceramic bearings  
BT, HSK E and straight( M2040 ) shanks are available

Electric spindle

Air spindle