

EE2000



SERIES E2000

ULTRA-HIGH-SPEED & SUPER-PRECISION

「Baby-E」

Smallest model in Nakanishi E series

✓ Spindle accuracy within 1 μm

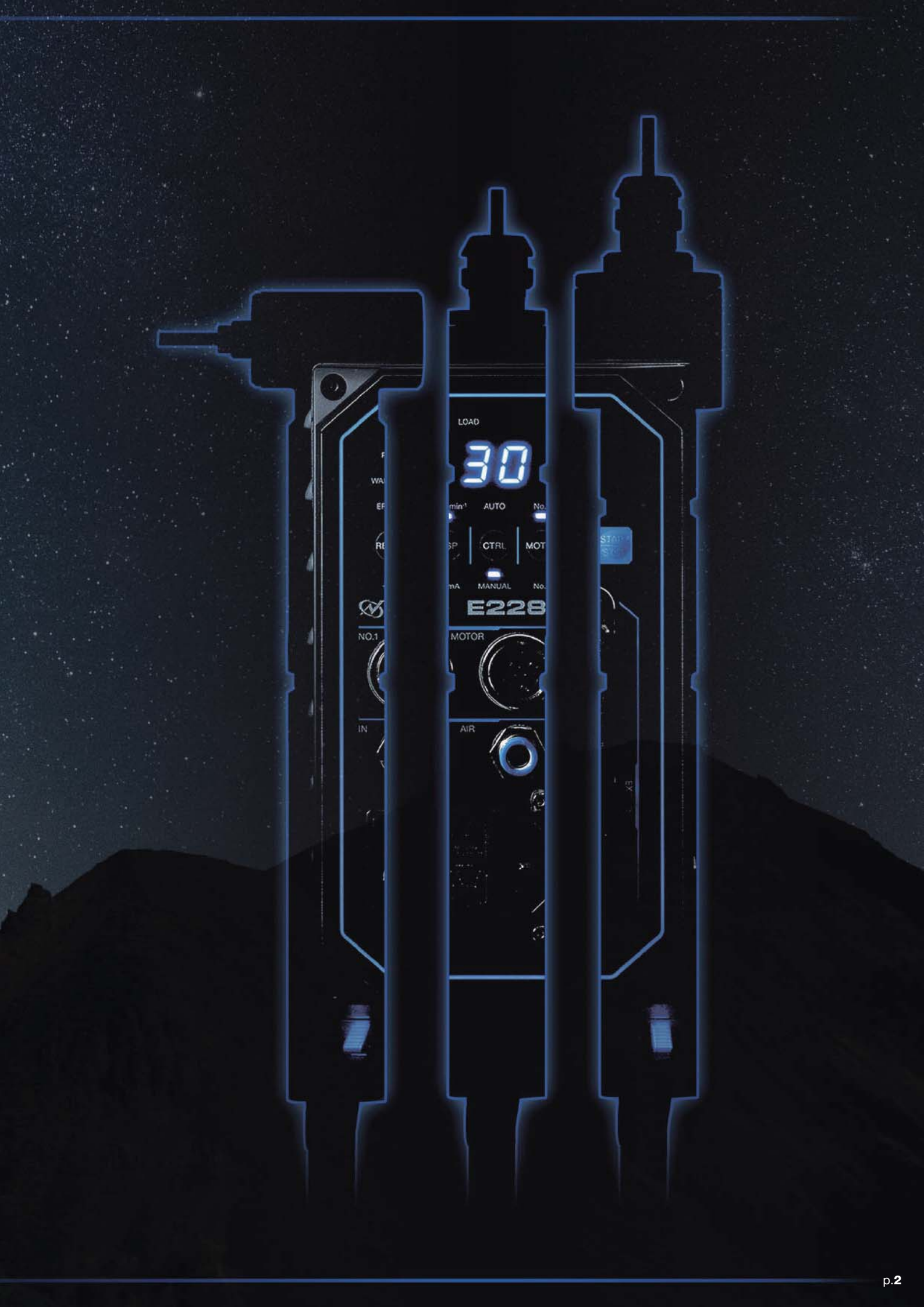
- Optimum for high-precision machining
- Longer tool life

✓ Ceramic Bearing

- Higher rigidity for heavy cutting
- Longer bearing life

✓ Brushless motor

- No need to replace carbon brushes to enable maintenance-free operation
- Carbon brush dust will no longer penetrate the bearing to extend the product life



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 ⁻¹		

Speed reducer

ARG-01		p.13	ARG-02		p.13
Speed reducer (1/3.92)			Speed reducer (1/15.39)		

Motor cord

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

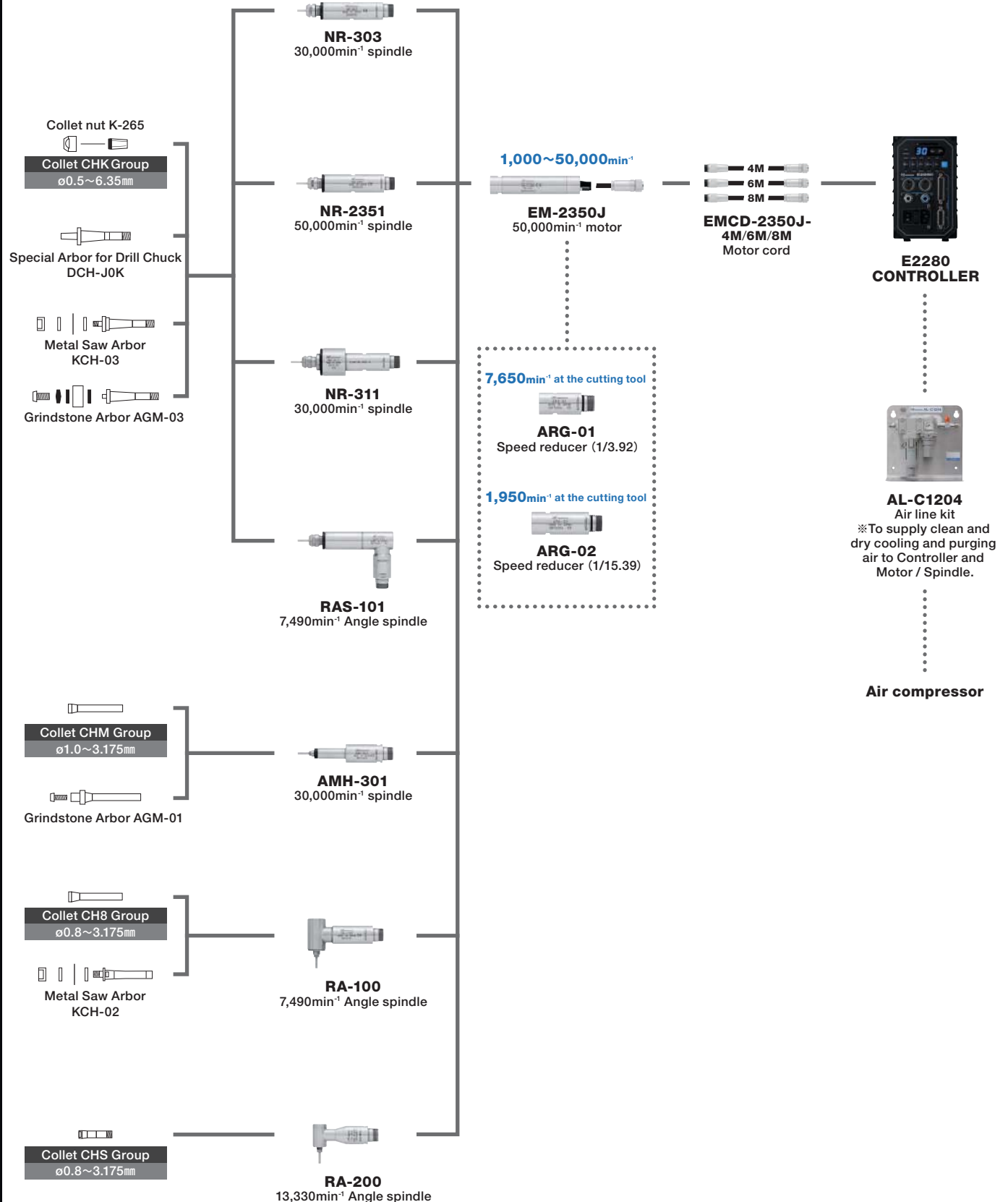
Controller

Accessories

			
E2280 CONTROLLER	AL-C1204	GR-22.8	CHK / CHM
Controller	Air line kit	Grip ring	CHS / CH8
p.15	p.16	p.16	p.17

System Chart

[E2000]



Spindle
Guide

CHK



NR-303



NR-2351



EM-2350J

E2000 SERIES

Shown In Actual Size

Straight type spindle

NR-303

O.D. $\varnothing 22.8\text{mm}$ 

NR-2351

O.D. $\varnothing 22.8\text{mm}$ 



EMCD-2350J



E2280 CONTROLLER



AL-C1204

Specifications

DXF
data

 DXF files are available
on our website

Order by Code No.

NR-303



Code No.

7861

Model

NR-303

O.D.	Max. rpm	Spindle Accuracy	Collet	Weight
Ø22.8mm	30,000min ⁻¹	Within 2μm	CHK Group (Ø0.5 ~ Ø6.35mm)	215g
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs. · (20×24) : 1pc.			
Options	Collet (CHK Group) : Ø0.5~Ø6.35mm p.17			
	Metal Saw Arbor (KCH-03) : Ød (I.D.) × under Ø30mm (O.D.)			
	Grindstone Arbor (AGM-03) : Grindstone I.D. Ø5.0mm			

※ Collet is sold separately.

NR-2351



Code No.

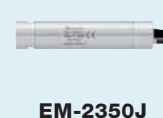
7855

Model

NR-2351

O.D.	Max. rpm	Spindle Accuracy	Collet	Weight
Ø22.8mm	50,000min ⁻¹	Within 1μm	CHK Group (Ø0.5 ~ Ø6.35mm)	215g
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs. · (20×24) : 1pc.			
Options	Collet (CHK Group) : Ø0.5~Ø6.35mm p.17			
	Metal Saw Arbor (KCH-03) : Ød (I.D.) × under Ø30mm (O.D.)			
	Grindstone Arbor (AGM-03) : Grindstone I.D. Ø5.0mm			

※ Collet is sold separately.

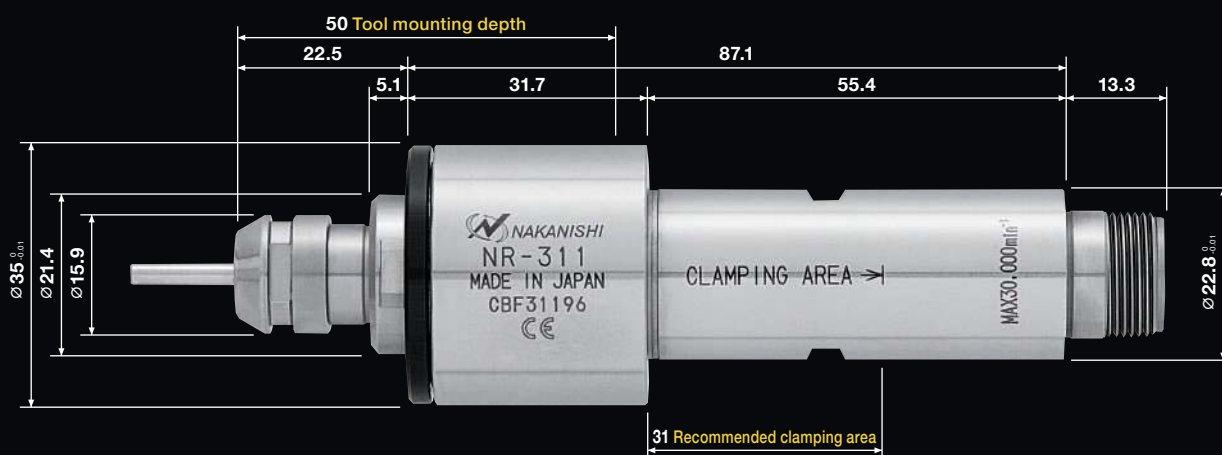
Spindle
Guide

E2000 SERIES

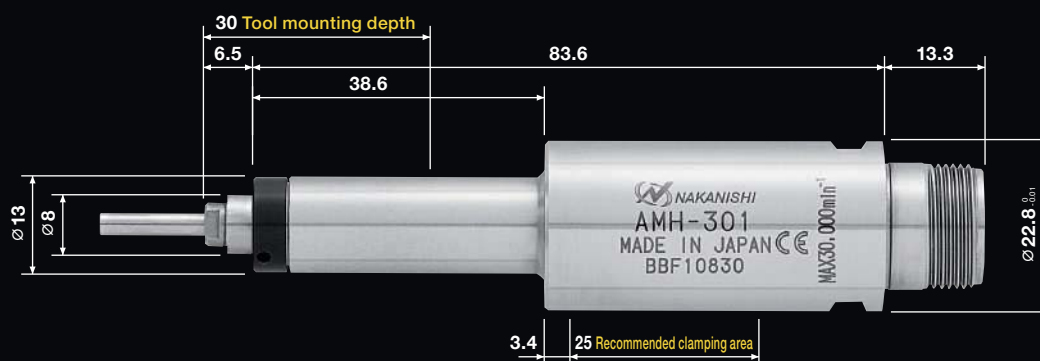
Shown In Actual Size

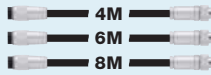
Straight type spindle

NR-311

O.D. $\varnothing 22.8_{-0.011}^{+0.011}$ mm

AMH-301

O.D. $\varnothing 22.8_{-0.011}^{+0.011}$ mm



EMCD-2350J



E2280 CONTROLLER



AL-C1204

Specifications

DXF
data

 DXF files are available
on our website

Order by Code No.

NR-311



Code No.

7832

Model

NR-311

O.D.	Max. rpm	Spindle Accuracy	Collet	Weight
Ø22.8mm	30,000min ⁻¹	Within 2μm	CHK Group (Ø0.5 ~ Ø6.35mm)	370g
Standard Accessories	Collet nut (K-265) / Wrench (12×14) · (20×24) : 1pc. each			
Options	Collet (CHK Group) : Ø0.5~Ø6.35mm p.17			
	Metal Saw Arbor (KCH-03) : Ød (I.D.) × under Ø30mm (O.D.)			
	Grindstone Flange (NGF2-19) : Ø19.05 (I.D.) × Ø40 (O.D.) × 7mm (W)			

※ Collet is sold separately.

AMH-301



Code No.

1074

Model

AMH-301

O.D.	Max. rpm	Collet	Weight
Ø22.8mm	30,000min ⁻¹	CHM Group (Ø1.0 ~ Ø3.175mm)	171g
Standard Accessories	Collet : Ø3.0mm (CHM-3.0) / Wrench (7×5.1) · (6×4.5) · (20×24) : 1pc. each		
Options	Collet (CHM Group) : Ø1.0~Ø3.175mm p.17		
	Grindstone Arbor (AGM-01) : Grindstone I.D. Ø5.0mm		

Spindle
Guide

CH8 / CHS



RA-100



RA-200



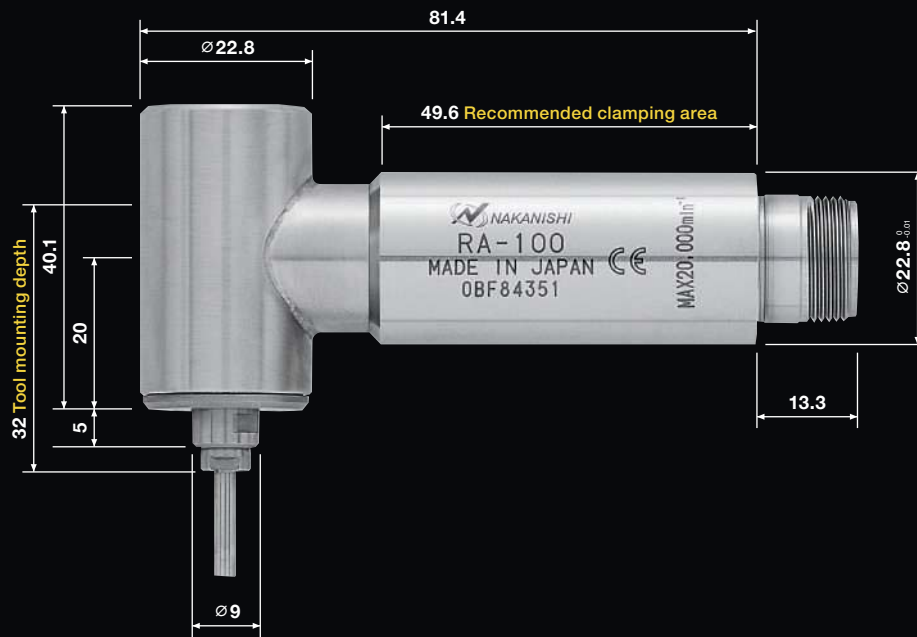
EM-2350J

E2000 SERIES

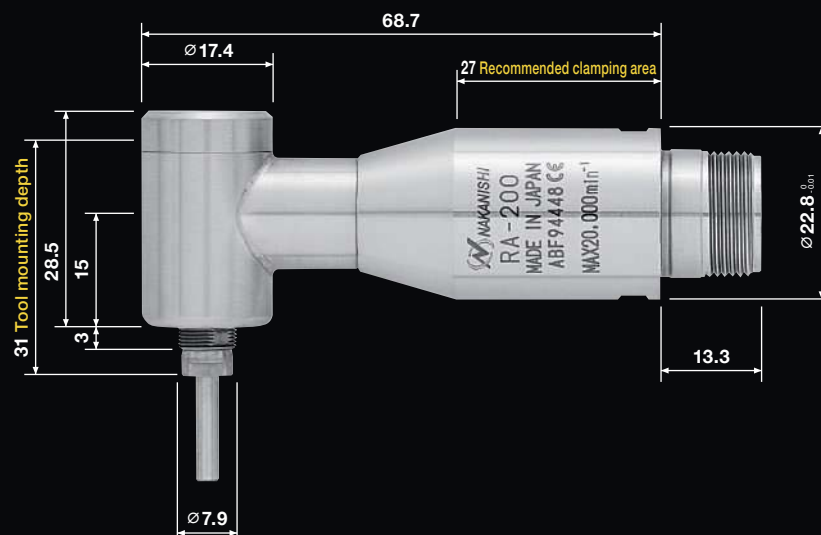
Shown In Actual Size

Angle type spindle

RA-100

O.D. $\varnothing 22.8$ mm

RA-200

O.D. $\varnothing 22.8$ mm



EMCD-2350J



E2280 CONTROLLER



AL-C1204

Specifications

**DXF
data**

 DXF files are available
on our website

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
Ø22.8mm	7,490 min ⁻¹	$\frac{1}{2.67}$	20,000 min ⁻¹	CH8 Group (Ø0.8 ~ Ø3.175mm)	271g
Standard Accessories		Collet : Ø3.0mm (CH8-3.0) / Wrench (7×5.5) · (8×5) · (20×24) : 1pc. each			
Options		Collet (CH8 Group) : Ø0.8~Ø3.175mm p.17			
		Metal Saw Arbor (KCH-02) : Ød (I.D.) × under Ø30mm (O.D.)			

RA-200



Code No.

1075

Model

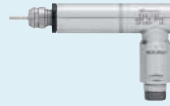
RA-200

O.D.	Max. speed at the cutting tool	Reduction ratio	Max. Allowable Motor Speed for The Spindle	Collet	Weight
Ø22.8mm	13,330 min ⁻¹	$\frac{1}{1.5}$	20,000 min ⁻¹	CHS Group (Ø0.8 ~ Ø3.175mm)	165g
Standard Accessories		Collet : Ø3.0mm (CHS-3.0) / Wrench (7×5.1) · (8×5) · (20×24) : 1pc. each			
Options		Collet (CHS Group) : Ø0.8~Ø3.175mm p.17			

Spindle
Guide



CHK



RAS-101



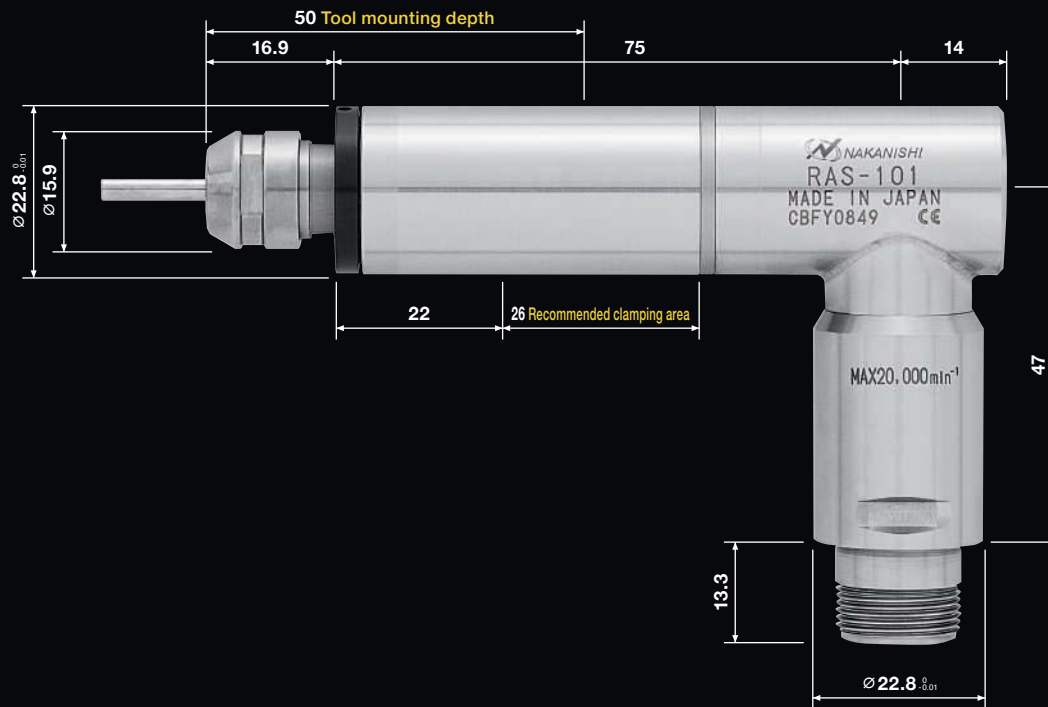
EM-2350J

E2000 SERIES

Shown In Actual Size

Angle type spindle

RAS-101

O.D. $\varnothing 22.8$ mm



EMCD-2350J



E2280 CONTROLLER



AL-C1204

Specifications

DXF
data

 DXF files are available
on our website

Order by Code No.

RAS-101



Code No.

7839

Model

RAS-101

O.D.	Max. speed at the cutting tool	Reduction ratio	Max. Allowable Motor Speed for The Spindle	Spindle Accuracy	Collet	Weight
Ø22.8mm	7,490 min ⁻¹	$\frac{1}{2.67}$	20,000 min ⁻¹	Within 2 μm	CHK Group (ø0.5 ~ ø6.35mm)	325g
Standard Accessories		Collet nut (K-265) / Wrench (12×14) : 2pcs. · (20×24) : 1pc.				
Options		Collet (CHK Group) : ø0.5~ø6.35mm p.17				
		Metal Saw Arbor (KCH-03) : ød (I.D.) × under ø30mm (O.D.)				
		Grindstone Arbor (AGM-03) : Grindstone I.D. ø5.0mm				

※ Collet is sold separately.

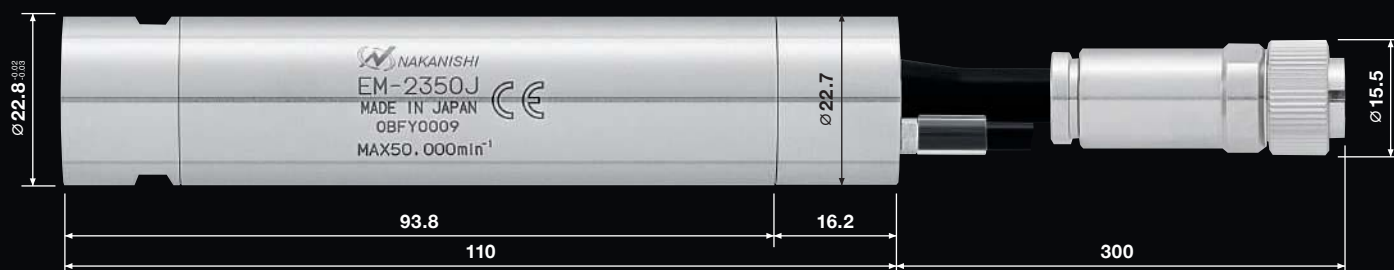
Motor / Speed reducer

EM-2350J

Motor



O.D. $\varnothing 22.8\text{mm}$

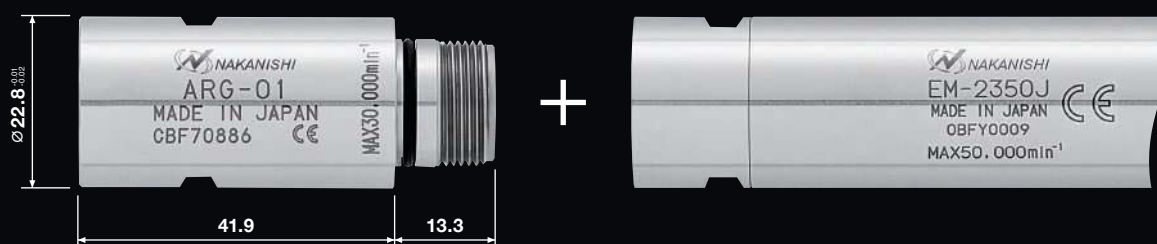


ARG-01

Speed reducer (1/3.92)



O.D. $\varnothing 22.8\text{mm}$

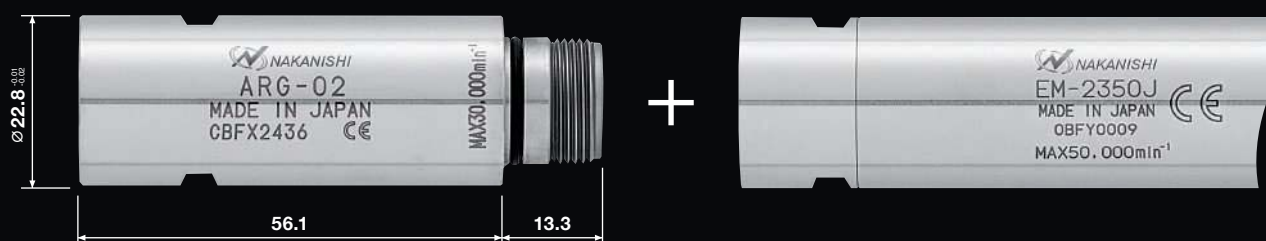


ARG-02

Speed reducer (1/15.39)



O.D. $\varnothing 22.8\text{mm}$



Specifications

DXF data DXF files are available on our website

Order by Code No.

EM-2350J

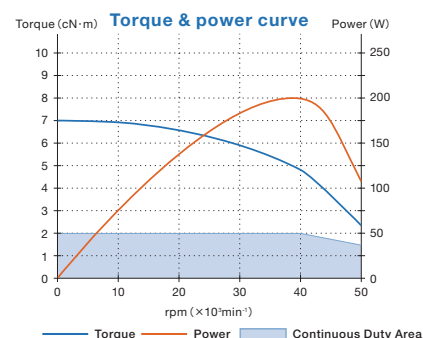


Code No. **7721** Model **EM-2350J**

O.D.	Speed Range	Max. power	Weight
Ø22.8mm	1,000~50,000min ⁻¹	200w	260g (Motor cord is included.)

Standard Accessories Wrench (20×24) : 1pc.

Options Motor cord : Length 4m (7722), 6m (7723), 8m (7724)



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 ⁻¹	$\frac{1}{3.92}$	30,000min ⁻¹	108g

ARG-02



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

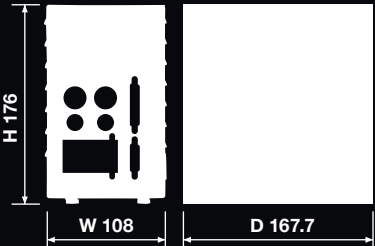
O.D.	Max. speed at the cutting tool	Reduction ratio	Max. rpm	Weight
Ø22.8mm	1,950min ⁻¹	$\frac{1}{15.39}$	30,000min ⁻¹	148g

E2280 Controller



E2280 CONTROLLER
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 ON / OFF,
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 ⁻¹		AC100~240v Without plug Multiple output power	200w
Power consumption	Air consumption		Weight
AC1.4A	1motor : 30Nℓ/min (0.25MPa) / 2motors : 63Nℓ/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 (Air line kit, etc.)

AL-C1204

Air line kit



※Recommendation of nominal filtration rating:0.3 μ m, Pressure range:0.1-1.0MPa
Recommendation of air filter:M2000-WS (CKD)

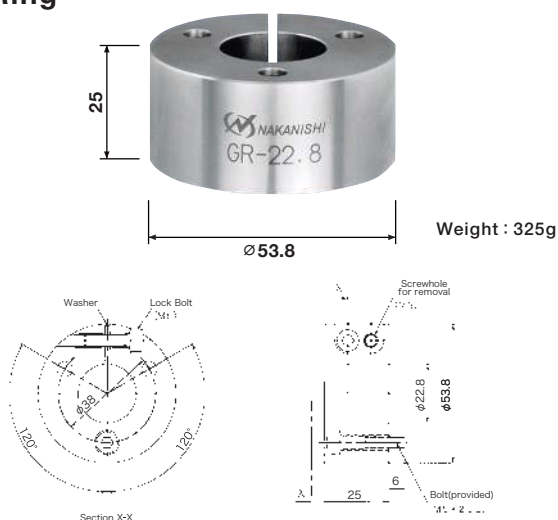
Code No.	4504	Model	AL-C1204
Standard Accessories	Hose pipe (K-260) : 2m		

Motor cord

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

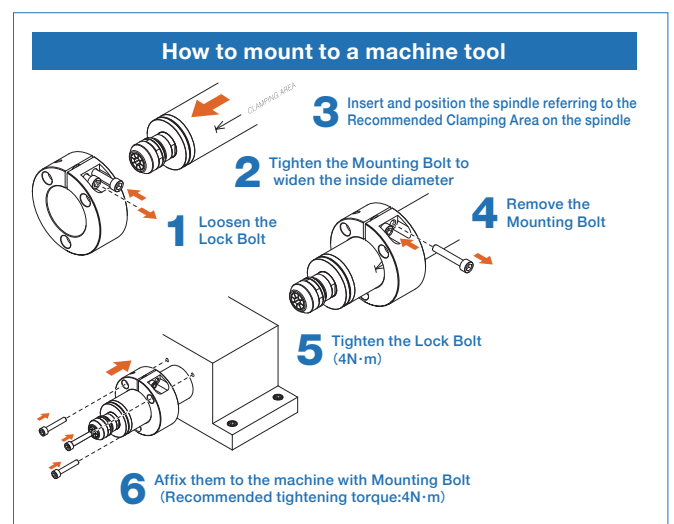
GR-22.8

Grip Ring

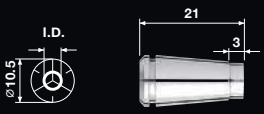
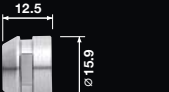


Standard Accessories Mounting Bolt (GR-22.8) M5 × 25 : 3pcs.

Code No.	1888	Model	GR-22.8
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Accessories (Collet, etc.)

Collet	Code No.	Model	I.D. / Description	Compatible model
 ø1.0 ~ ø6.35	91597	CHK-3.0AA	ø3.0AA※	NR-2351 · NR-303 · NR-311 RAS-101 ※ High precision type AA (Run-out Accuracy within 2 μm)
	91598	CHK-3.175AA	ø3.175AA※	
	91599	CHK-4.0AA	ø4.0AA※	
	91600	CHK-6.0AA	ø6.0AA※	
	91601	CHK-6.35AA	ø6.35AA※	
	91592	CHK-2.35	ø2.35	
	91530	CHK-3.0	ø3.0	
	91593	CHK-3.175	ø3.175	
	91540	CHK-4.0	ø4.0	
	91560	CHK-6.0	ø6.0	
	91596	CHK-6.35	ø6.35	
	—	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	
 Collet CHM Group	90992	CHM-2.35	ø2.35	AMH-301
	90930	CHM-3.0	ø3.0	
	90993	CHM-3.175	ø3.175	
	90916	CHM-1.6	ø1.6	
	—	CHM-□□	ø1.0, ø2.0	
 Collet CHS Group	90592	CHS-2.35	ø2.35	RA-200
	90530	CHS-3.0	ø3.0	
	90593	CHS-3.175	ø3.175	
	90516	CHS-1.6	ø1.6	
	—	CHS-□□	ø0.8, ø0.9	
			ø1.0, ø2.0, ø2.5	
 Collet CH8 Group	91092	CH8-2.35	ø2.35	RA-100
	91030	CH8-3.0	ø3.0	
	91093	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	
	2129	K-265	Collet nut for CHK collet	NR-2351 · NR-303 · NR-311 RAS-101

Metal Saw Arbor · Grindstone Arbor	Code No.	Model	I.D. / Description / Specifications	Compatible model
	2132	DCH-J0K	Special Arbor for Drill Chuck For drill chuck Jacob's taper No.0 Run-out Accuracy : within 0.05mm	NR-2351 · NR-303 · NR-311 RAS-101
	2146	KCH-02 (5.0)	ø5.0 (I.D.)	RA-100
	1077	KCH-02 (6.0)	ø6.0 (I.D.)	
	2147	KCH-02 (8.0)	ø8.0 (I.D.)	
	2148	KCH-03 (5.0)	ø5.0 (I.D.)	NR-2351 · NR-303 · NR-311 RAS-101
	2130	KCH-03 (6.0)	ø6.0 (I.D.)	
	2149	KCH-03 (8.0)	ø8.0 (I.D.)	
	1029	AGM-01	Grindstone Arbor Run-out Accuracy : within 0.02mm Grindstone I.D. ø5.0mm	AMH-301
	2131	AGM-03	Grindstone Arbor Run-out Accuracy : within 0.02mm Grindstone I.D. ø5.0mm	NR-2351 · NR-303 · RAS-101

※ For right hand (cw) rotation only.

NAKANISHI Solutions LINE UP

Electric Motors & Spindles

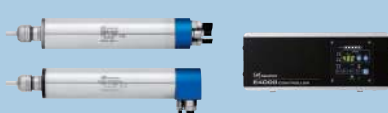
Brushless Motors & Spindles



Application for CNC lathes / Special purpose machines

E4000 SERIES

1,000~40,000min⁻¹ Max.1,200W
[$\phi 40\text{mm}$]



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

E2000 SERIES

1,000~50,000min⁻¹ Max.200W
[$\phi 22.8/25\text{mm}$]



- Small size spindle allows multi-axis installation in limited space

E3000 SERIES

1,000~80,000min⁻¹ Max.350W
[$\phi 30/25/20\text{mm}$]



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

iSpeed3 SERIES

1,000~80,000min⁻¹ Max.150W
[$\phi 19.05/20/22\text{mm}$]



- Super short motor spindle
- High efficiency brushless motor

HES SERIES

Max.80,000min⁻¹
[For small diameter endmills and drills only]



[HES810]

- The most cost effective solution to add high-speed machining capability
- 80,000min⁻¹, 6.0cN·m
- BT, HSK A63, ST shanks are available
- Driven by E3000 Controller



[HES510]

- 50,000min⁻¹, 8.75cN·m
- BT, NT, CAT, IT, HSK A, ST shanks are available
- Driven by E3000 Controller

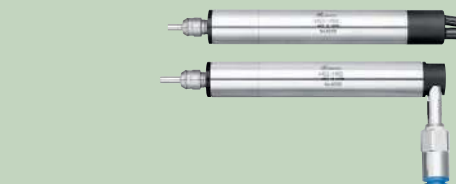
Air Motors & Spindles



Application for CNC lathes / Special purpose machines

Air-Speed SERIES One-piece type

Max.30,000min⁻¹ Max.130W
[$\phi 25/23/20/19.05\text{mm}$]



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

Air-Speed SERIES Modular type

Max.30,000min⁻¹ Max.130W
[$\phi 30/25/22.8\text{mm}$]



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

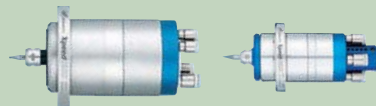
Air Turbine Spindles



Application for CNC lathes / Special purpose machines

Xpeed SERIES

Max.160,000min⁻¹
[$\phi 65/40\text{mm}$]



- 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⁻¹



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

Application for machining centers and milling machines

HTS SERIES

150,000min⁻¹
[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⁻¹ with higher rigidity thanks to ceramic bearings
- BT, HSK E and straight (M2040) shanks are available

Electric spindle

Air spindle



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※Specifications and design are subject to change without notice.