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PR-K370E Ver.2 2022-06-28 XX. © XXX

※Specifications and design are subject to change without notice.





SERIES **HES**

ULTRA-HIGH-SPEED & SUPER-PRECISION

# Transformer

Your machining center transforms to the high speed machining center

HES510 Max. rpm 50,000min<sup>-1</sup>

HES810 Max. rpm 80,000min<sup>-1</sup>

## ✔ Spindle accuracy within 1 μm

- Optimum for high-precision machining
- Longer tool life

## ✔ Ceramic Bearing

- Longer bearing life
- Higher rigidity for heavy cutting

## ✔ 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



[BT]



[NT]

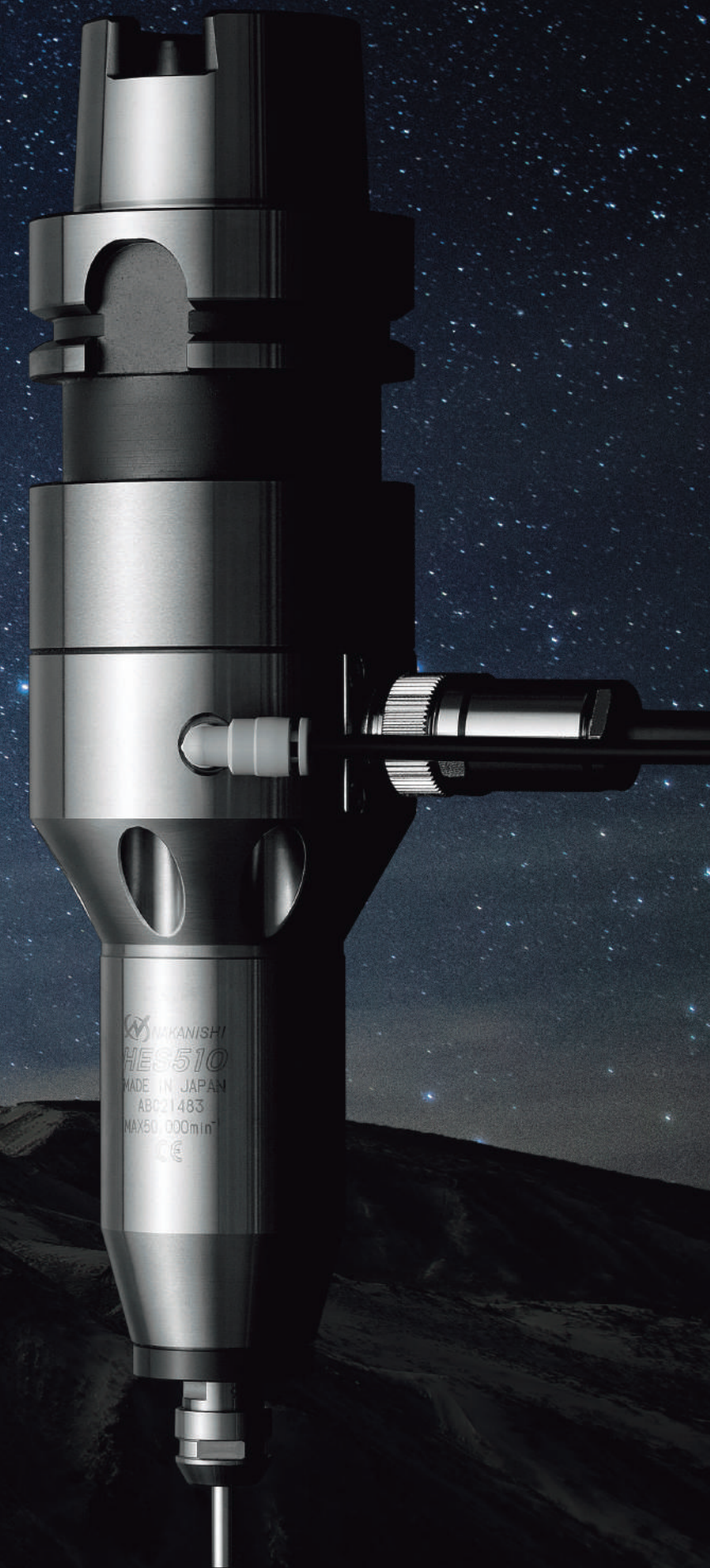


[IT]



[HSK A]







A large variety of shank types are available.











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## 80,000min<sup>-1</sup> Motor Spindle

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## 50,000min<sup>-1</sup> Motor Spindle

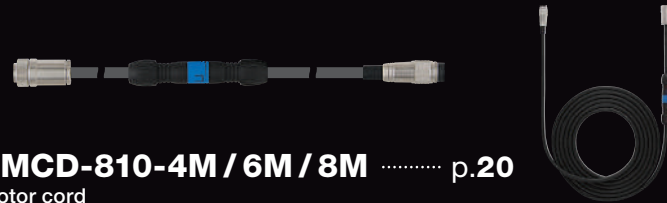
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## Controller



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## Motor cord




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Motor cord

## Accessories



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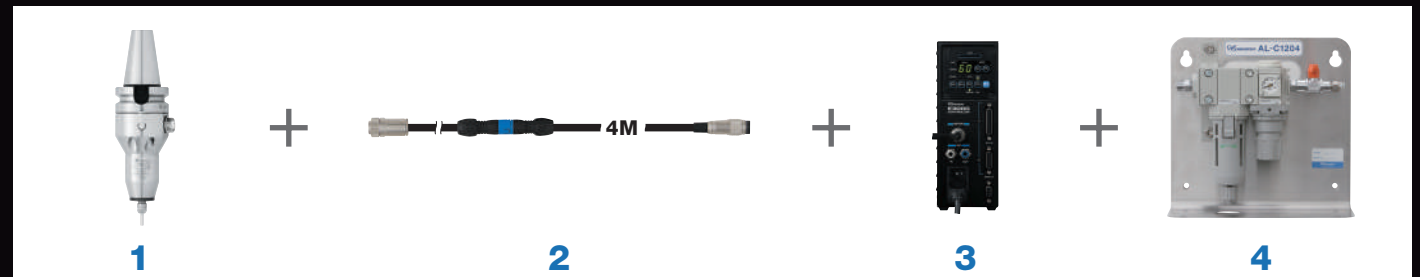
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**CHN-A / K-265**  
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# Combination Example

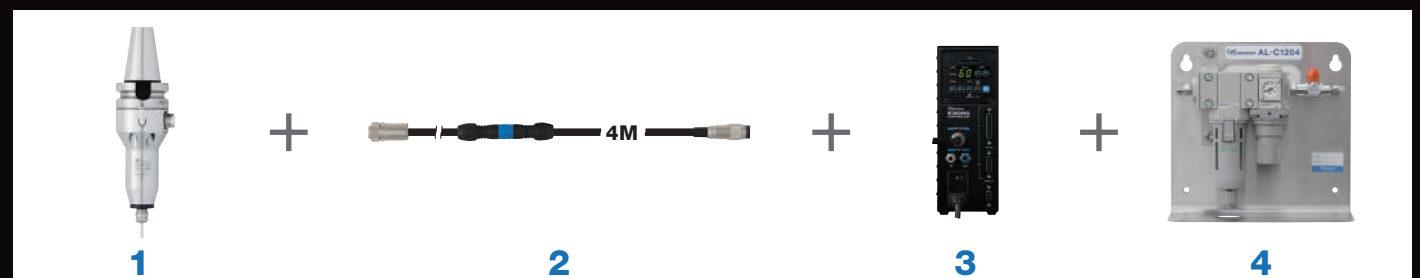
## [HES810 SERIES] HES810-BT40 + EMCD-810-4M + E3000 + AL-C1204 + CHA-4.0



**[HES810-BT40]**

	Code No.	Model	Description
1	7879	HES810-BT40	Motor Spindle
2	9248	EMCD-810-4M	Motor Cord 4m
3	8421	E3000	E3000 Controller
4	4504	AL-C1204	Air line kit
5	91440	CHA-4.0	Collet ø4.0mm

## [HES510 SERIES] HES510-BT40 + EMCD-810-4M + E3000 + AL-C1204 + CHK-4.0



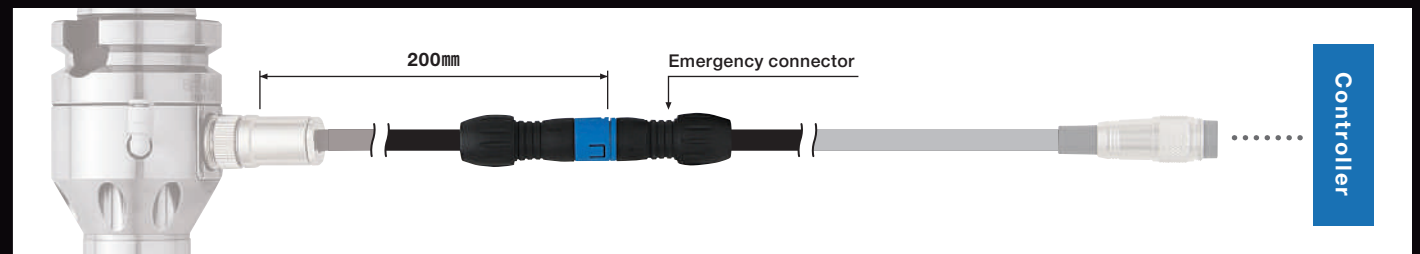
**[HES510-BT40]**

	Code No.	Model	Description
1	7891	HES510-BT40	Motor Spindle
2	9248	EMCD-810-4M	Motor Cord 4m
3	8421	E3000	E3000 Controller
4	4504	AL-C1204	Air line kit
5	91540	CHK-4.0	Collet ø4.0mm

## Safety function

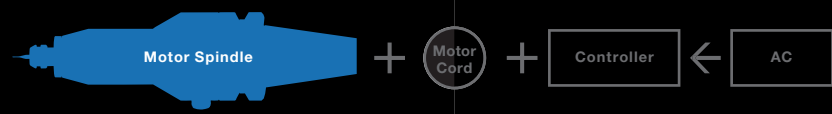
HES810 / 510 have a motor cord with the Emergency connector.

In case the machine spindle rotates by accident, the Emergency connector disconnects by itself to minimize the damage both the machine and controller.



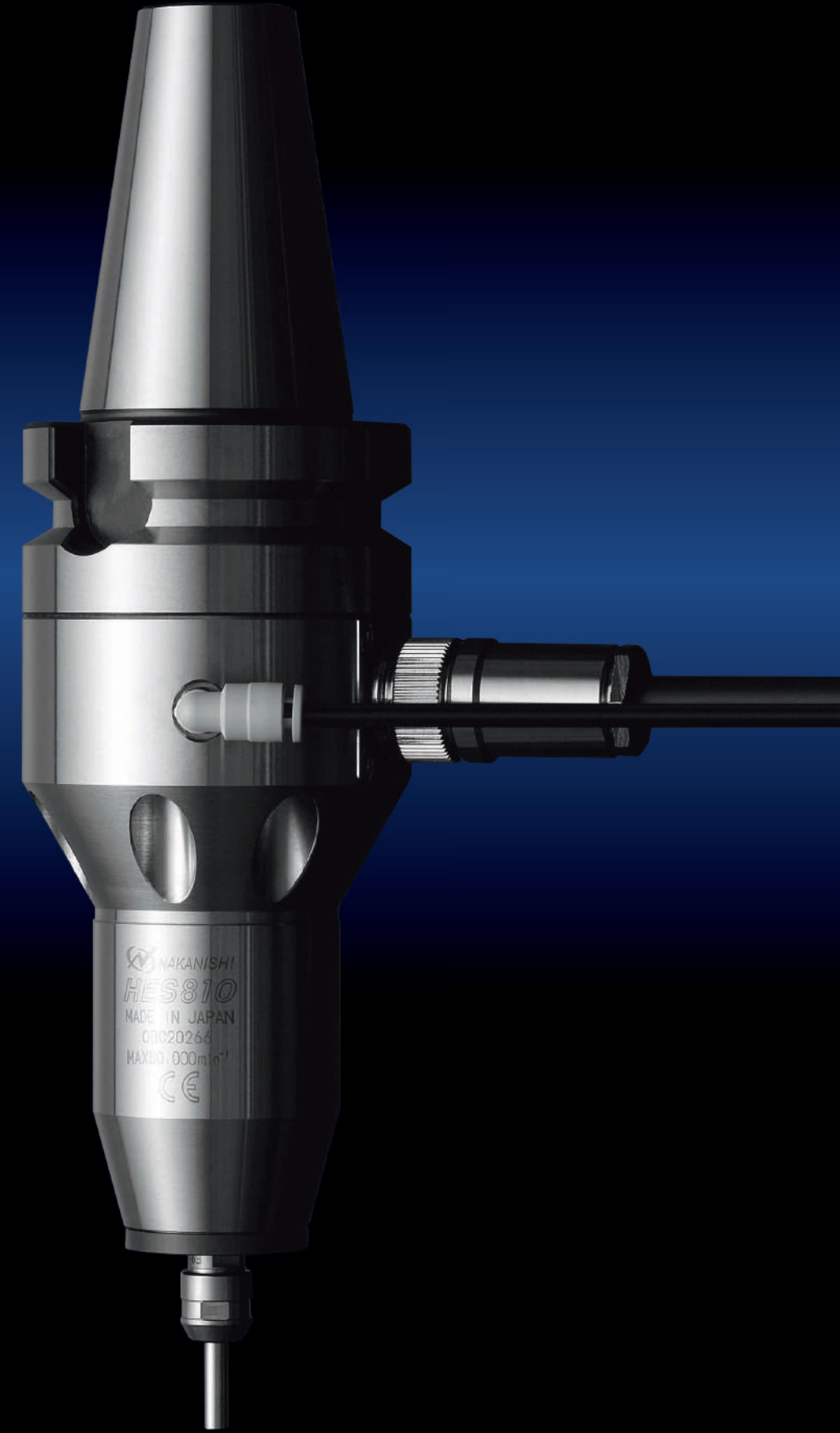
**!** It is crucial to install the controller and the cable according to "OPERATION MANUAL" in order to function the Emergency connector properly.

# 80,000min<sup>-1</sup> Motor Spindle



**HES810-BT30**  
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**HES810-BT40 / IT40**  
p.7



**HES810-BT50**  
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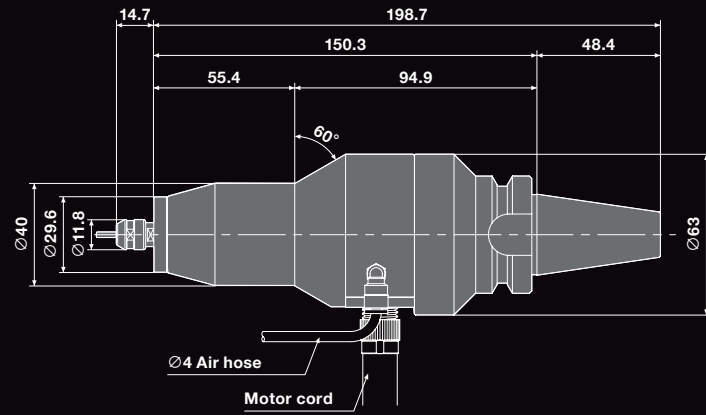
**HES810-HSK A63**  
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**HES810-ST32**  
p.9

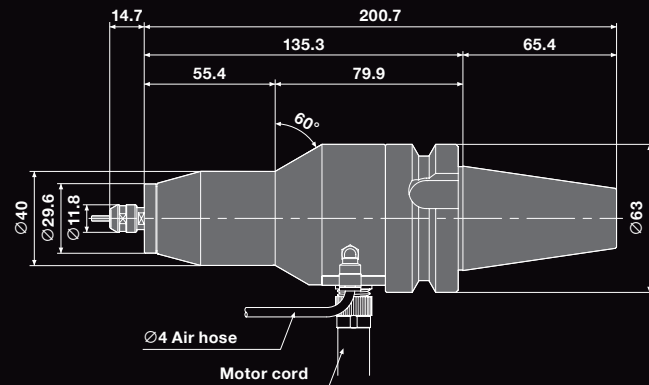
# 80,000min<sup>-1</sup> Motor Spindle

Order by Code No.

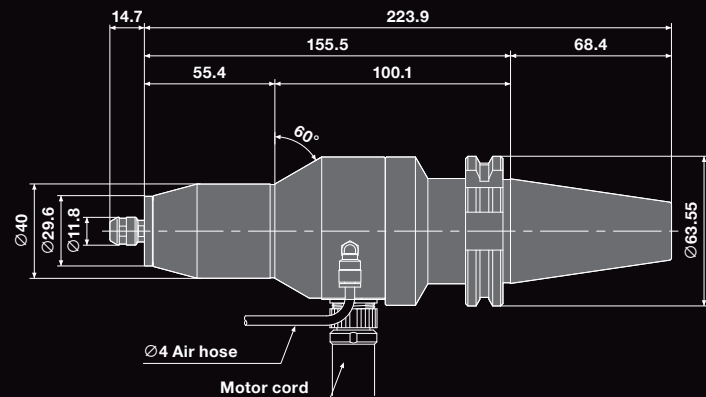
## HES810-BT30



## HES810-BT40



## HES810-IT40



# Specifications

**DXF data** DXF files are available on our website

### HES810-BT30

Code No. **7878** Model **HES810-BT30**



Max. power	Speed Range	Spindle Accuracy	Weight
<b>350w</b>	<b>20,000~80,000min<sup>-1</sup></b> ※Recommended motor speed : 50,000~80,000min <sup>-1</sup>	<b>Within 1μm</b>	<b>2.0kg</b>
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each		
Options	Collet (CHA Group) : ø0.5 ~ ø4.0mm <b>p.21</b> Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with ø4.0mm Air cooling hose		

※Collet is sold separately.

### HES810-BT40

Code No. **7879** Model **HES810-BT40**



Max. power	Speed Range	Spindle Accuracy	Weight
<b>350w</b>	<b>20,000~80,000min<sup>-1</sup></b> ※Recommended motor speed : 50,000~80,000min <sup>-1</sup>	<b>Within 1μm</b>	<b>2.2kg</b>
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each		
Options	Collet (CHA Group) : ø0.5 ~ ø4.0mm <b>p.21</b> Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with ø4.0mm Air cooling hose		

※Collet is sold separately.

### HES810-IT40

Code No. **7883** Model **HES810-IT40**



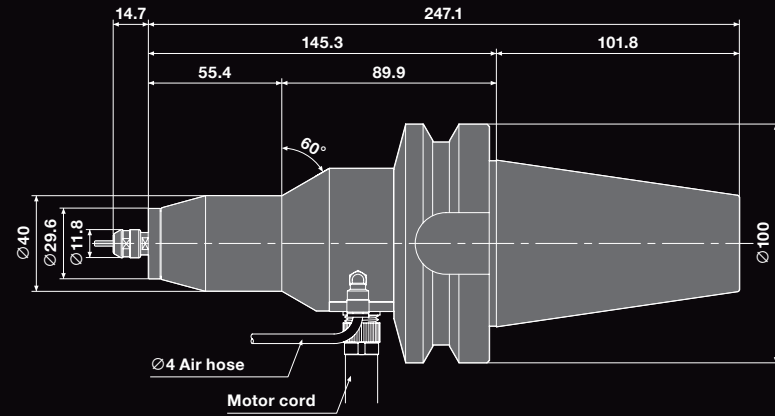
Max. power	Speed Range	Spindle Accuracy	Weight
<b>350w</b>	<b>20,000~80,000min<sup>-1</sup></b> ※Recommended motor speed : 50,000~80,000min <sup>-1</sup>	<b>Within 1μm</b>	<b>2.4kg</b>
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each		
Options	Collet (CHA Group) : ø0.5 ~ ø4.0mm <b>p.21</b> Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with ø4.0mm Air cooling hose		

※Collet is sold separately.

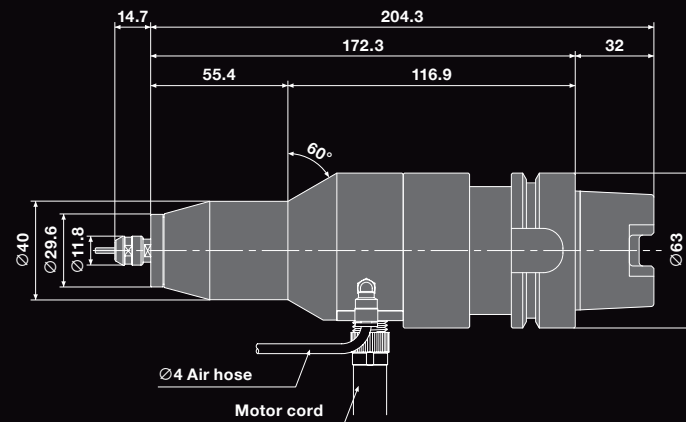
# 80,000min<sup>-1</sup> Motor Spindle

Order by Code No.

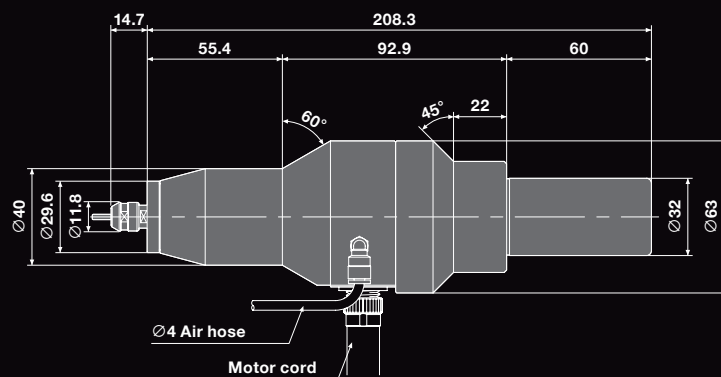
## HES810-BT50



## HES810-HSK A63



## HES810-ST32



## Specifications

**DXF data** DXF files are available on our website

### HES810-BT50

Code No. **7880** Model **HES810-BT50**



Max. power	Speed Range	Spindle Accuracy	Weight
<b>350w</b>	<b>20,000~80,000min<sup>-1</sup></b> ※Recommended motor speed : 50,000~80,000min <sup>-1</sup>	Within <b>1μm</b>	<b>4.9kg</b>
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each		
Options	Collet (CHA Group) : ø0.5 ~ ø4.0mm <b>p.21</b> Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with ø4.0mm Air cooling hose		

※Collet is sold separately.

### HES810-HSK A63

Code No. **7884** Model **HES810-HSK A63**



Max. power	Speed Range	Spindle Accuracy	Weight
<b>350w</b>	<b>20,000~80,000min<sup>-1</sup></b> ※Recommended motor speed : 50,000~80,000min <sup>-1</sup>	Within <b>1μm</b>	<b>2.6kg</b>
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each		
Options	Collet (CHA Group) : ø0.5 ~ ø4.0mm <b>p.21</b> Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with ø4.0mm Air cooling hose		

※Collet is sold separately.

### HES810-ST32

Code No. **7885** Model **HES810-ST32**

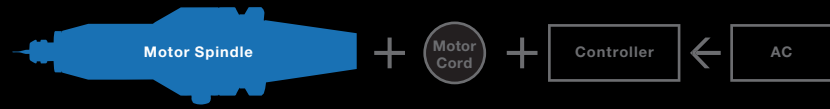


Max. power	Speed Range	Spindle Accuracy	Weight
<b>350w</b>	<b>20,000~80,000min<sup>-1</sup></b> ※Recommended motor speed : 50,000~80,000min <sup>-1</sup>	Within <b>1μm</b>	<b>2.3kg</b>
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each		
Options	Collet (CHA Group) : ø0.5 ~ ø4.0mm <b>p.21</b> Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with ø4.0mm Air cooling hose		

※Collet is sold separately.



# 50,000min<sup>-1</sup> Motor Spindle



**HES510-BT30**

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**HES510-BT40 / NT40 / IT40**

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**HES510-BT50 / NT50**

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**HES510-ST32**

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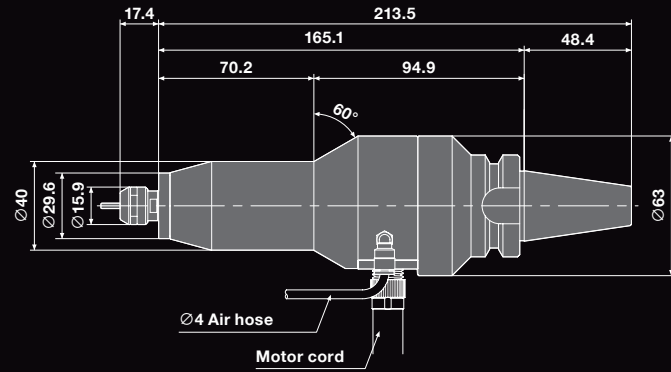
**HES510-HSK A63**

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# 50,000min<sup>-1</sup> Motor Spindle

Order by Code No.

## HES510-BT30



## Specifications

**DXF data** DXF files are available on our website

### HES510-BT30

Code No. **7890** Model **HES510-BT30**



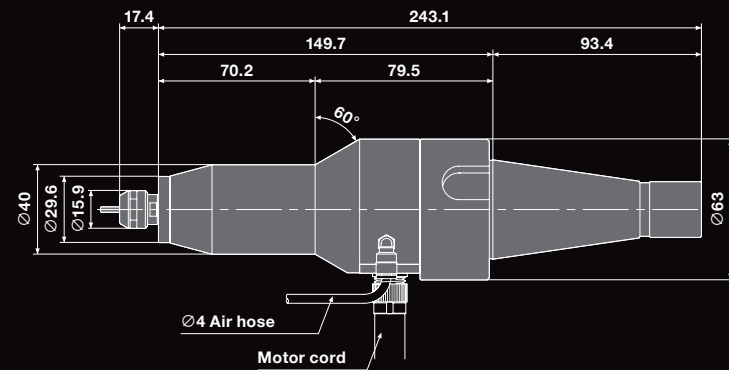
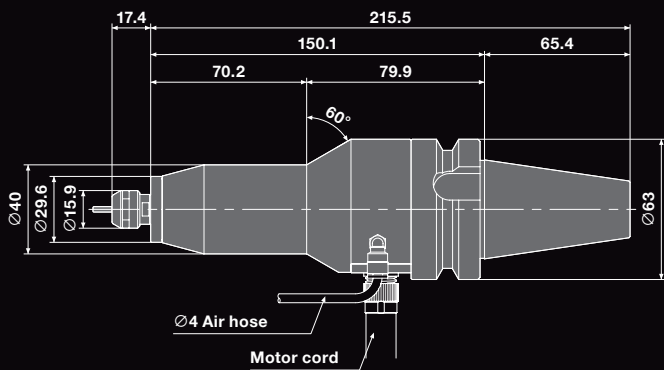
Max. power	Speed Range	Spindle Accuracy	Weight
<b>340w</b>	<b>5,000~50,000min<sup>-1</sup></b>	<b>Within 1μm</b>	<b>2.2kg</b>
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs.		
Options	Collet (CHK Group) : ø0.5 ~ ø6.35mm <b>p.21</b> Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with ø4.0mm Air cooling hose		

※Collet is sold separately.

## HES510-BT40 / NT40 (M)

[ BT40 ]

[ NT40 ]



### HES510-BT40 / NT40 (M)

Code No. **7891** Model **HES510-BT40**

Code No. **7887** Model **HES510-NT40**

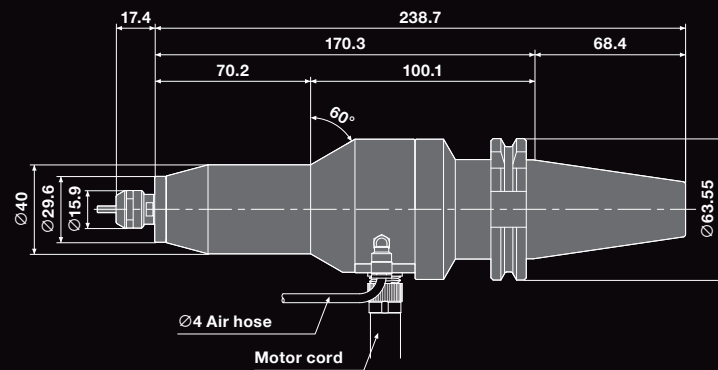
Code No. **7888** Model **HES510-NT40M**

※NT40M-Retention knob threads are metric.  
※NT40 and NT40M are discontinued products and limited in stock.

Max. power	Speed Range	Spindle Accuracy	Weight
<b>340w</b>	<b>5,000~50,000min<sup>-1</sup></b>	<b>Within 1μm</b>	BT40 : <b>2.3kg</b> NT40(M) : <b>2.4kg</b>
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs.		
Options	Collet (CHK Group) : ø0.5 ~ ø6.35mm <b>p.21</b> Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with ø4.0mm Air cooling hose		

※Collet is sold separately.

## HES510-IT40



### HES510-IT40

Code No. **7895** Model **HES510-IT40**



Max. power	Speed Range	Spindle Accuracy	Weight
<b>340w</b>	<b>5,000~50,000min<sup>-1</sup></b>	<b>Within 1μm</b>	<b>2.6kg</b>
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs.		
Options	Collet (CHK Group) : ø0.5 ~ ø6.35mm <b>p.21</b> Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with ø4.0mm Air cooling hose		

※Collet is sold separately.

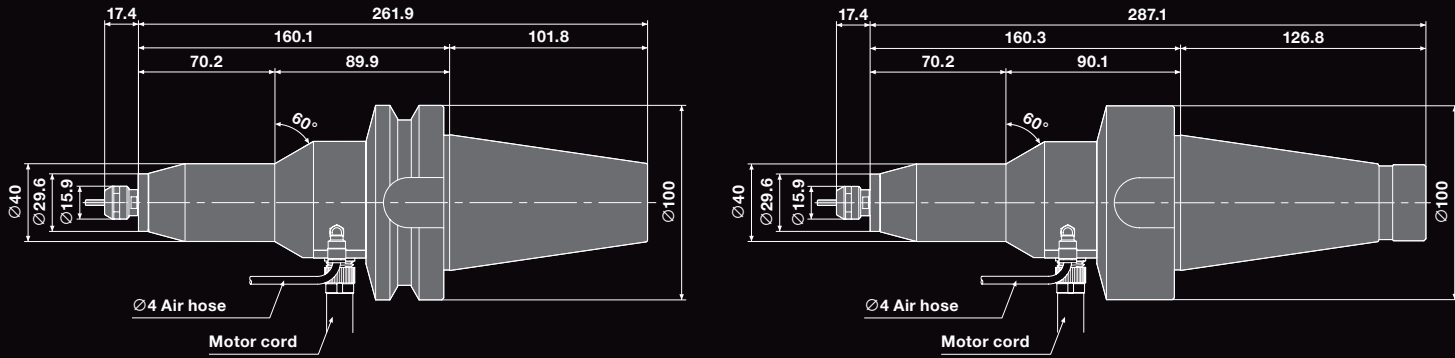


# 50,000min<sup>-1</sup> Motor Spindle

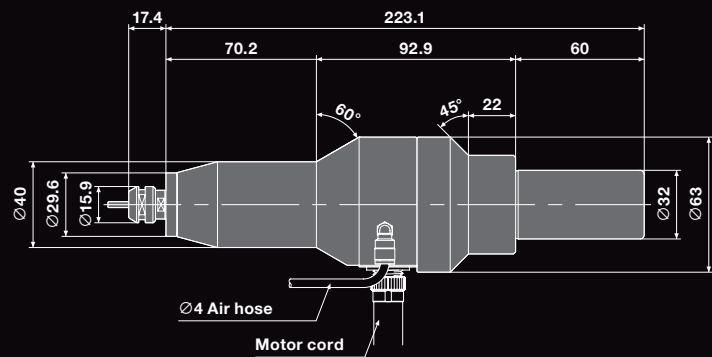
## HES510-BT50 / NT50

[ BT50 ]

[ NT50 ]



## HES510-ST32



## Specifications

**DXF data** DXF files are available on our website

Order by Code No.

### HES510-BT50 / NT50



Code No.	<b>7892</b>	Model	<b>HES510-BT50</b>
Code No.	<b>7889</b>	Model	<b>HES510-NT50</b>

※NT50 is a discontinued product and limited in stock.

Max. power	Speed Range	Spindle Accuracy	Weight
<b>340w</b>	<b>5,000~50,000min<sup>-1</sup></b>	<b>Within 1<math>\mu</math>m</b>	BT50 : <b>5.0kg</b> NT50 : <b>5.4kg</b>
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs.		
Options	Collet (CHK Group) : $\phi$ 0.5 ~ $\phi$ 6.35mm <b>p.21</b> Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with $\phi$ 4.0mm Air cooling hose		

※Collet is sold separately.

### HES510-ST32



Code No.	<b>7899</b>	Model	<b>HES510-ST32</b>
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Max. power	Speed Range	Spindle Accuracy	Weight
<b>340w</b>	<b>5,000~50,000min<sup>-1</sup></b>	<b>Within 1<math>\mu</math>m</b>	<b>2.4kg</b>
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs.		
Options	Collet (CHK Group) : $\phi$ 0.5 ~ $\phi$ 6.35mm <b>p.21</b> Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with $\phi$ 4.0mm Air cooling hose		

※Collet is sold separately.

# 50,000min<sup>-1</sup> Motor Spindle

## Specifications

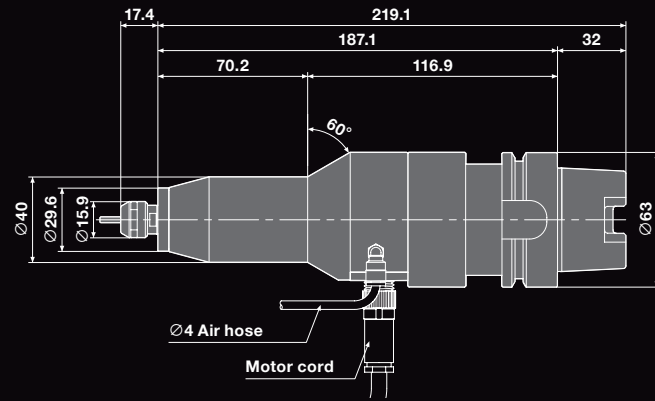
**DXF data** DXF files are available on our website

Order by Code No.

### HES510-HSK A63

### HES510-HSK A63

Code No. **7897** Model **HES510-HSK A63**

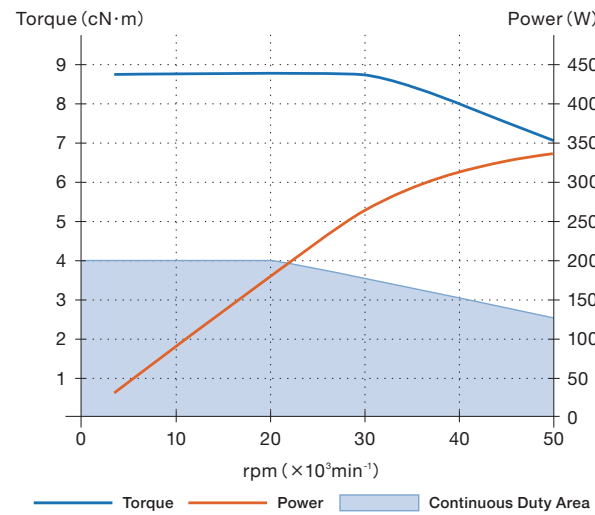


Max. power	Speed Range	Spindle Accuracy	Weight
<b>340w</b>	<b>5,000~50,000min<sup>-1</sup></b>	<b>Within 1μm</b>	<b>2.7kg</b>
<b>Standard Accessories</b>	Collet nut (K-265) / Wrench (12×14) : 2pcs.		
<b>Options</b>	Collet (CHK Group) : ø0.5 ~ ø6.35mm <b>p.21</b> Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with ø4.0mm Air cooling hose		

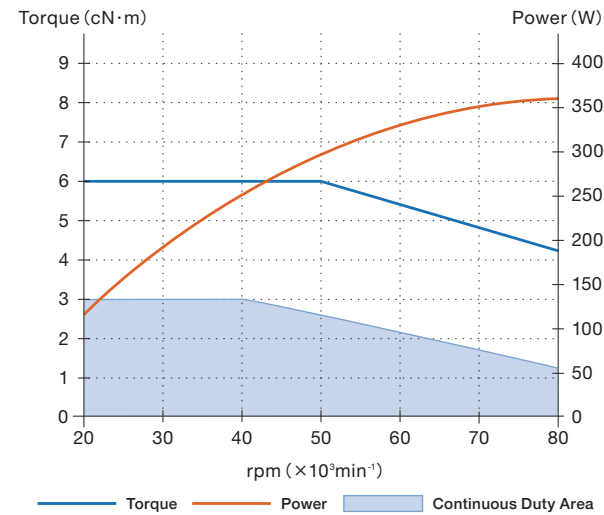
\* Collet is sold separately.

## HES510, HES810 Torque & power

[ HES510 Torque & power curve ]



[ HES810 Torque & power curve ]



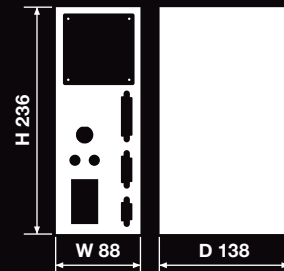


# E3000 Controller



## E3000 CONTROLLER Controller

Code No. **8422**



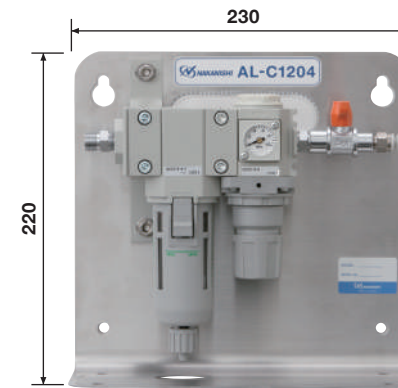
### External Input / Output Control Signal Operation

- 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.
- Equipped with safety relay break and speed point

Speed Range	
1,000~80,000min <sup>-1</sup>	
Input Voltage	
AC100~240v Without plug Multiple output power	
Max. power	Power consumption
350w	AC1.8A
Air consumption	Weight
30Nℓ/min (at 0.25~0.3MPa)	2.8kg
Standard Accessories	
Power cord : 2m / Air hose with filter (K-251 : 2058)	
Reducer / Connector cap (Included)	
Bracket / Nylon Clip / Screw / Rubber pad	
Fuse (T6.3AL) 250V : 2pcs.	

# Accessories (Air line kit, Motor cord)

## AL-C1204 Air line kit



1.9kg

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

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

## Motor cord

Motor cord	Code No.	Model	Length	Standard Accessories
4M	<b>9248</b>	<b>EMCD-810-4M</b>	<b>4m</b>	Air cooling hose : ø4mm Connector cap (Included)
6M	<b>9249</b>	<b>EMCD-810-6M</b>	<b>6m</b>	
8M	<b>9250</b>	<b>EMCD-810-8M</b>	<b>8m</b>	

# Accessories (Collet, Collet nut)

Collet	Code No.	Model	I.D.	Compatible model
<p>ø1.0 and over</p>	91494	CHA-3.0AA	ø3.0AA ※	HES810
	91496	CHA-3.175AA	ø3.175AA ※	
	91495	CHA-4.0AA	ø4.0AA ※	
	91492	CHA-2.35	ø2.35	
	91430	CHA-3.0	ø3.0	
	91493	CHA-3.175	ø3.175	
<p>ø0.5~ø0.9</p> <p>Collet CHA Group</p>	91440	CHA-4.0	ø4.0	※ High precision type AA (Run-out Accuracy within 2 μm)
	—	CHA-□□	ø0.5,ø0.6,ø0.7,ø0.8,ø0.9	
	—	CHA-□□	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	
	—	CHA-□□	ø1.0,ø1.5,ø2.0,ø2.5,ø3.5	
	—	CHA-□□	ø1.6	
	—	CHA-□□	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	
<p>ø1.0 and over</p>	91597	CHK-3.0AA	ø3.0AA ※	HES510
	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	
	<p>ø0.5~ø0.9</p> <p>Collet CHK Group</p>	—	CHK-□□	
—		CHK-□□	ø1.0,ø1.5,ø2.0,ø2.5,ø3.5,ø4.5,ø4.76,ø5.5	
—		CHK-□□	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	
—		CHK-□□	ø1.6,ø5.0	
—		CHK-□□	ø0.5,ø0.6,ø0.7,ø0.8,ø0.9	
—		CHK-□□	ø1.0,ø1.5,ø2.0,ø2.5,ø3.5,ø4.5,ø4.76,ø5.5	
—		CHK-□□	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	
—		CHK-□□	ø1.6,ø5.0	
—		CHK-□□	ø0.5,ø0.6,ø0.7,ø0.8,ø0.9	
—		CHK-□□	ø1.0,ø1.5,ø2.0,ø2.5,ø3.5,ø4.5,ø4.76,ø5.5	
—		CHK-□□	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	

Collet nut	Code No.	Model	Description	Compatible model
	2102	CHN-A	Collet nut for CHA collet	HES810
	2129	K-265	Collet nut for CHK collet	HES510

# NAKANISHI Solutions LINE UP

## Electric 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, HSK A63, ST shanks are available
- Driven by E3000 Controller

### E2000 SERIES

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

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

### iSpeed3 SERIES

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

- 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

### Air-Speed SERIES One-piece type

Max.30,000min<sup>-1</sup> Max.130W  
[ ø25/23/20/19.05mm ]

- 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<sup>-1</sup> Max.130W  
[ ø30/25/22.8mm ]

- 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

Application for machining centers and milling machines

### Xpeed SERIES

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

- Extreme accuracy-Runout 1μm
- 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