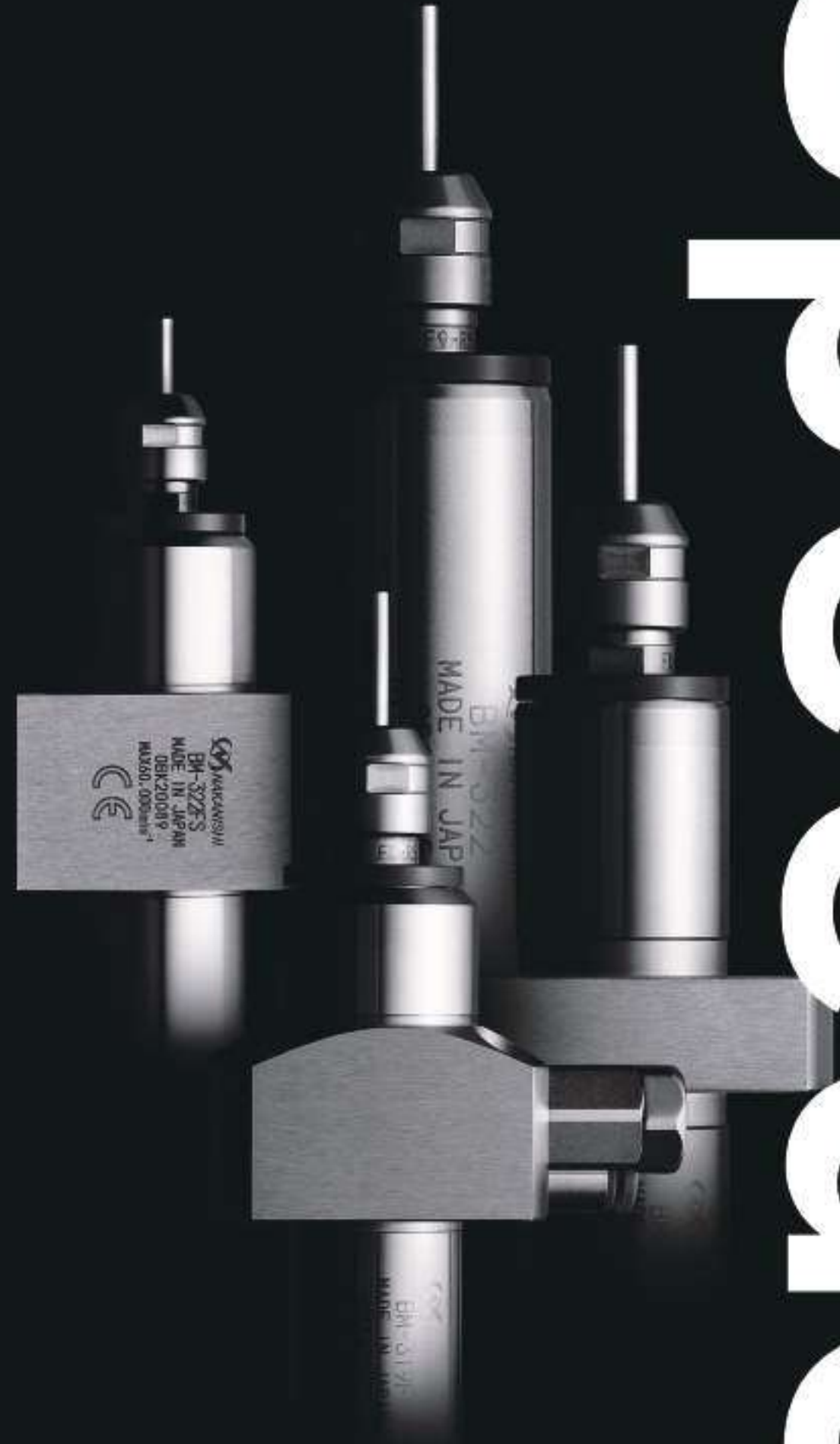




2021 CATALOG



Speed 3



iSpeed3

NAKANISHI INC. 2022



NAKANISHI INC.

Headquarters・Factory
700 Shimohinata, Kanuma, Tochigi 322-8666, Japan
TEL: +81-289-64-3520 / FAX: +81-289-62-1135

www.nakanishi-inc.com
PR-K368E Ver.1 2022-02-28 03. ㊞ 440

※Specifications and design are subject to change without notice.

The Finger Tips

You can arrange this finger spindle as you wish and realize a magical machining

Max. power 140W, Max. rpm 80,000min⁻¹

Max. power 150W, Max. rpm 60,000min⁻¹

✓ Spindle accuracy within 1 μm

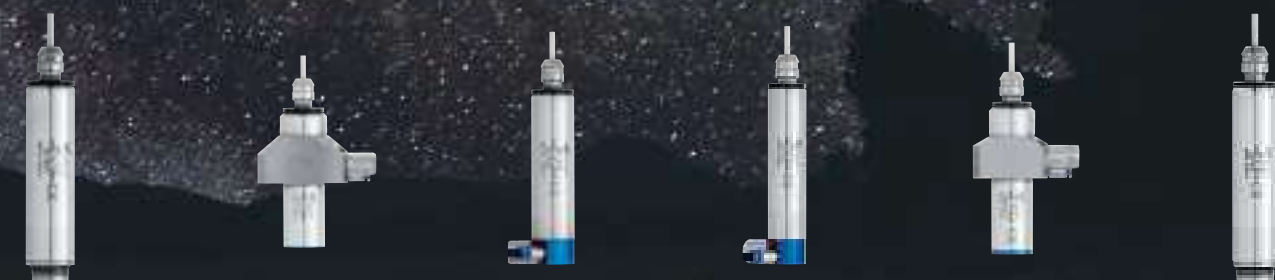
- Optimum for high-precision machining
- Longer tool life

✓ Ceramic Bearing

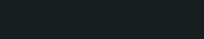
- Longer bearing life
- Higher rigidity for heavy cutting

✓ Brushless motor

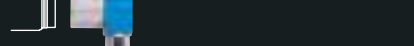
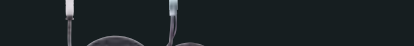
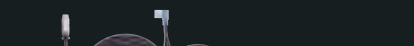
- No need to replace carbon brushes to enable maintenance-free operation
- Carbon brush dust will no longer penetrate the bearing to extend the product life



Index

Flange type motor spindle		Straight type motor spindle	
BM-319F With 50cm joint cord Max.rpm 80,000min ⁻¹	 p.5	BMJ-319 Max.rpm 80,000min ⁻¹	 p.13
BM-320F With 50cm joint cord Max.rpm 80,000min ⁻¹	 p.5	BMJ-320 Max.rpm 80,000min ⁻¹	 p.13
BM-322FL With 50cm joint cord Max.rpm 60,000min ⁻¹	 p.7	BMJ-322 Max.rpm 60,000min ⁻¹	 p.15
BM-322FR With 50cm joint cord Max.rpm 60,000min ⁻¹	 p.7	BM-319 With 50cm joint cord Max.rpm 80,000min ⁻¹	 p.17
BM-322FS With 50cm joint cord Max.rpm 60,000min ⁻¹	 p.9	BM-320 With 50cm joint cord Max.rpm 80,000min ⁻¹	 p.17
BMF-319 Max.rpm 80,000min ⁻¹	 p.11	BM-322 With 50cm joint cord Max.rpm 60,000min ⁻¹	 p.19

Motor cord

1.Joint type [Feature] Connection possible out of the machine [Length] 3m, 5m, 7m	2.Straight type [Feature] Connection at the body end [Length] 4m, 6m, 8m	3.Angle type [Feature] Connection at the body end into 90° degrees [Length] 4m, 6m, 8m
		
		
EMCD-BM3 Joint type motor cord p.22	EMCD-BM3S Straight type motor cord p.22	EMCD-BM3A Angle type motor cord p.22

Controller

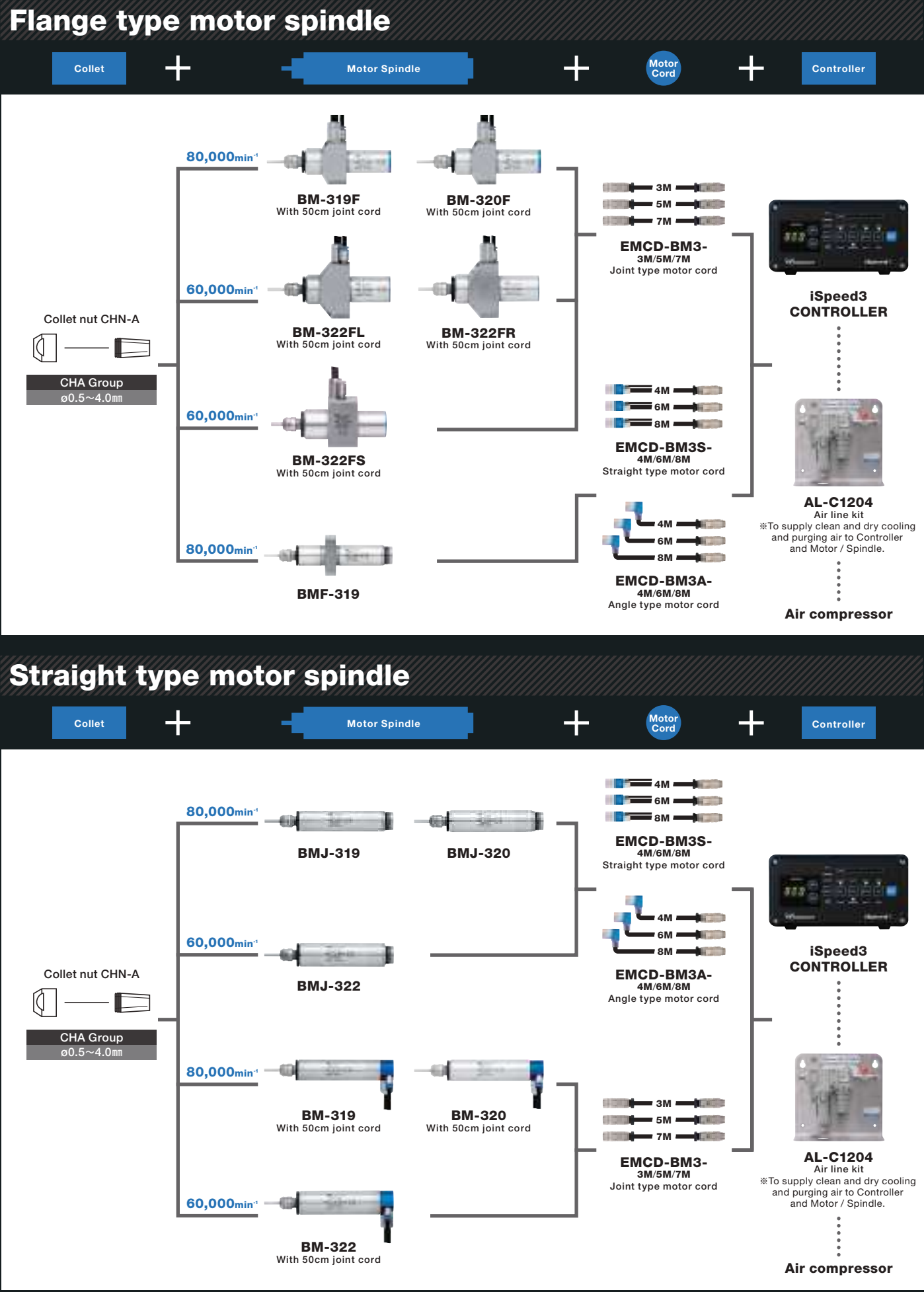
**iSpeed3
CONTROLLER**
Controller
p.21

Accessories

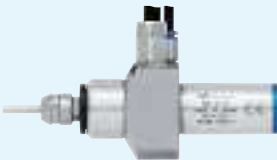
**AL-C1204**
Air line kit
p.22

**CHA / CHN-A**
Collet / Collet nut
p.23

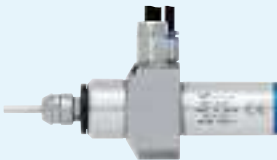
System Chart



Spindle
Guide



BM-319F



BM-320F



EMCD-BM3



iSpeed3 CONTROLLER



AL-C1204

iSpeed3 SERIES

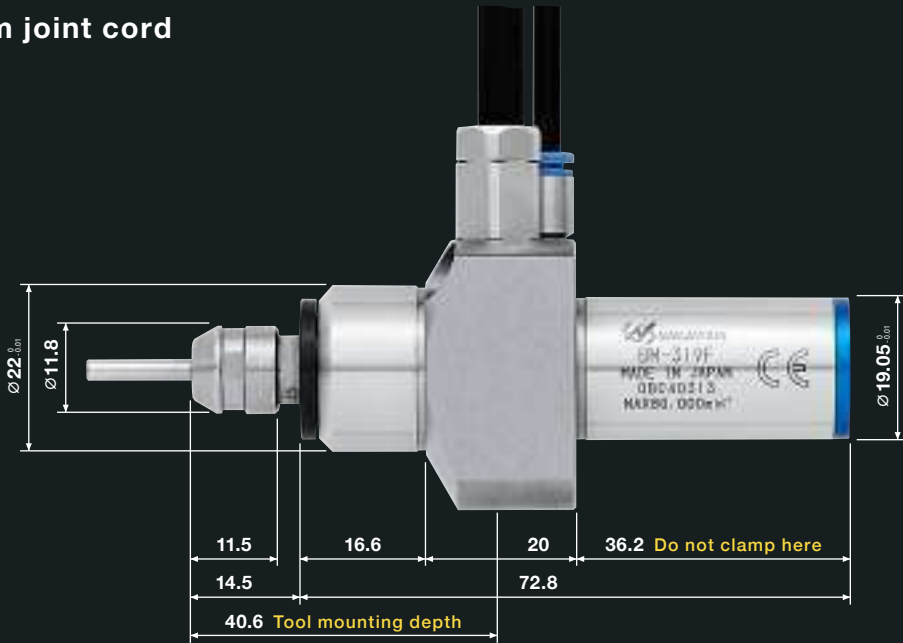
Shown In Actual Size

Flange type motor spindle

BM-319F
With 50cm joint cord



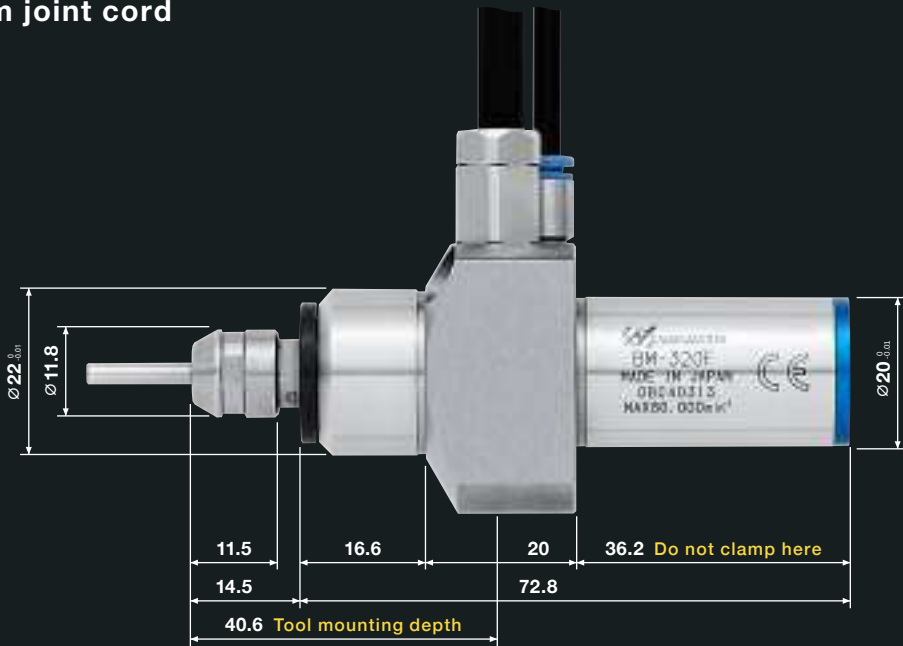
O.D. ϕ 19.05mm



BM-320F
With 50cm joint cord



O.D. ϕ 20mm



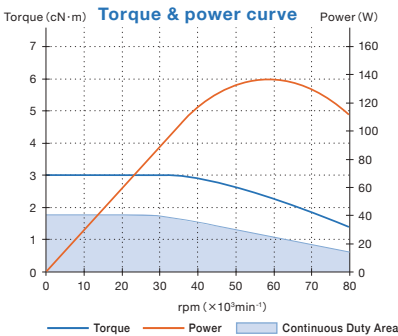
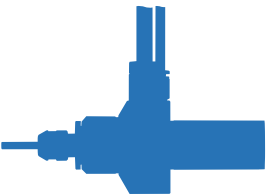
Specifications

DXF data DXF files are available on our website

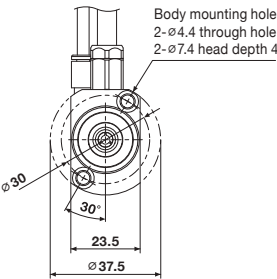
Order by Code No.

BM-319F

Code No.	7813	Model	BM-319F
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Dimensions of the holes on the flange

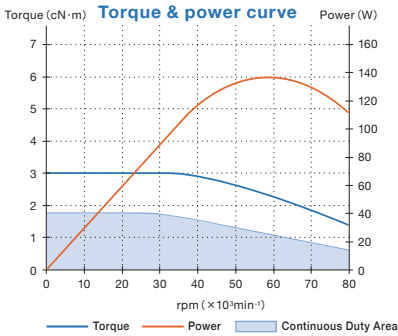
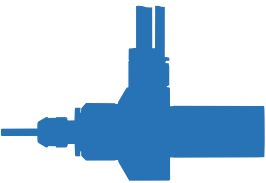


O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
ϕ 19.05mm	80,000min ⁻¹	140w	Within1 μ m	260g
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each / Bolt : 2pcs. (M4×L25)			
Options	Collet (CHA Group) : ϕ 0.5~ ϕ 4.0mm p.23 Motor cord : Length 3m (9261), 5m (9262), 7m (9263)			

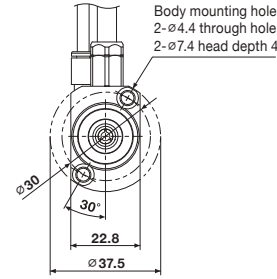
※ Cord length L=0.5m
※ Collet is sold separately.

BM-320F

Code No.	7816	Model	BM-320F
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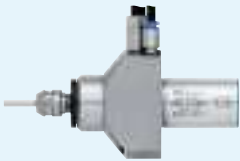
Dimensions of the holes on the flange



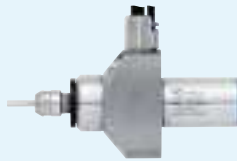
O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
ϕ 20mm	80,000min ⁻¹	140w	Within1 μ m	270g
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each / Bolt : 2pcs. (M4×L25)			
Options	Collet (CHA Group) : ϕ 0.5~ ϕ 4.0mm p.23 Motor cord : Length 3m (9261), 5m (9262), 7m (9263)			

※ Cord length L=0.5m
※ Collet is sold separately.

Spindle
Guide



BM-322FL



BM-322FR



EMCD-BM3



iSpeed3 CONTROLLER



AL-C1204

iSpeed3 SERIES

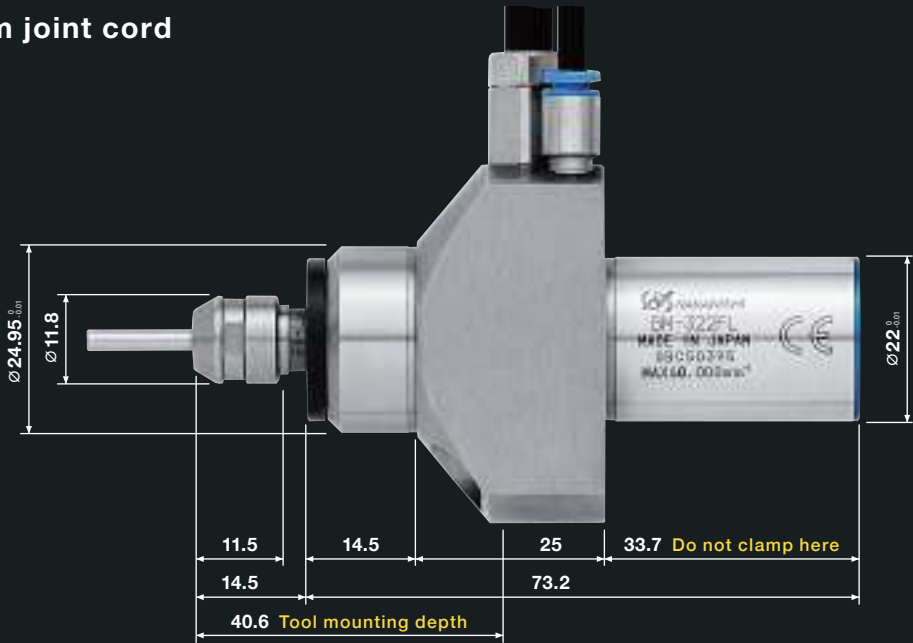
Shown In Actual Size

Flange type motor spindle

BM-322FL
With 50cm joint cord



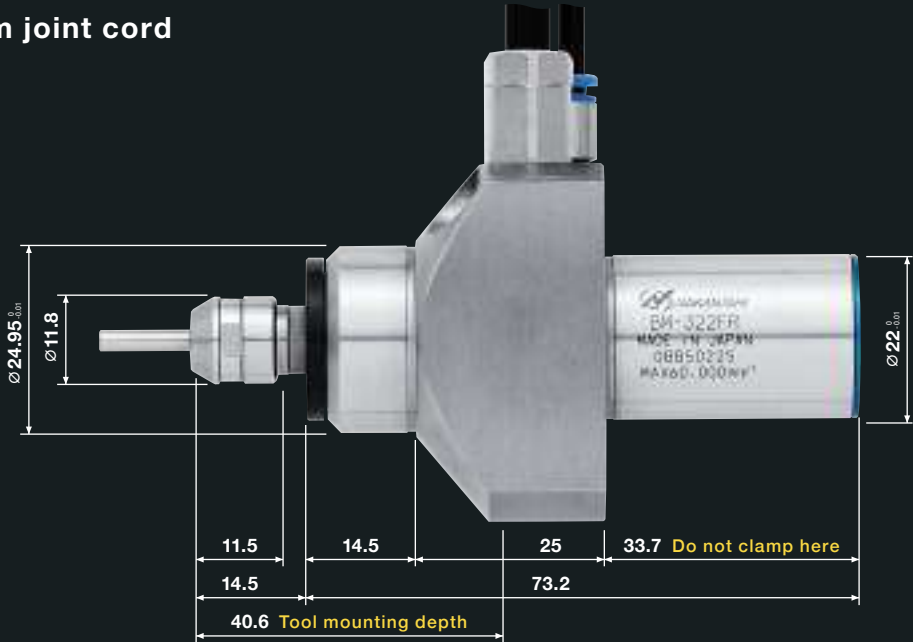
O.D. $\varnothing$ 22mm



BM-322FR
With 50cm joint cord



O.D. $\varnothing$ 22mm



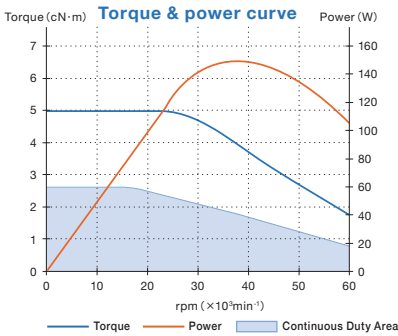
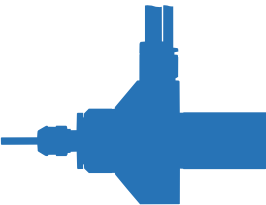
Specifications

DXF data DXF files are available on our website

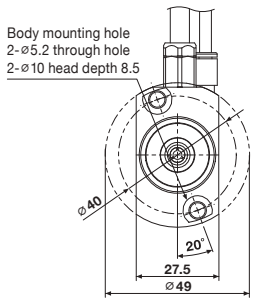
Order by Code No.

BM-322FL

Code No.	7815	Model	BM-322FL
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Dimensions of the holes on the flange

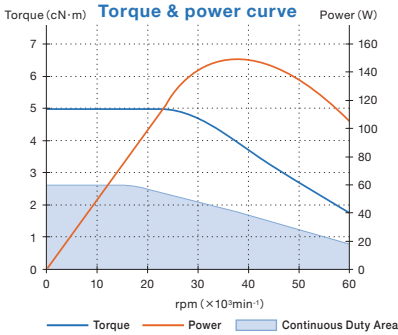
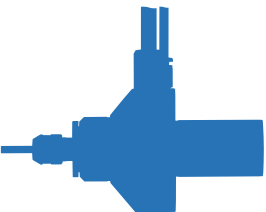


O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
$\varnothing$ 22mm	60,000min ⁻¹	150w	Within1 μ m	360g
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each / Bolt : 2pcs. (M5×L25)			
Options	Collet (CHA Group) : $\varnothing$ 0.5~ $\varnothing$ 4.0mm p.23 Motor cord : Length 3m (9261), 5m (9262), 7m (9263)			

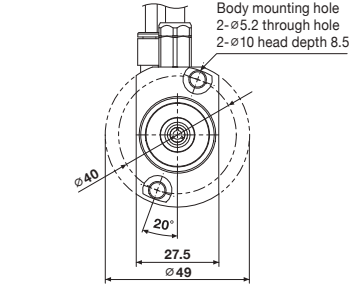
※ Cord length L=0.5m
※ Collet is sold separately.

BM-322FR

Code No.	7817	Model	BM-322FR
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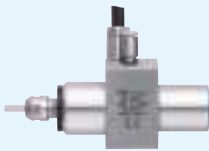
Dimensions of the holes on the flange



O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
$\varnothing$ 22mm	60,000min ⁻¹	150w	Within1 μ m	360g
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each / Bolt : 2pcs. (M5×L25)			
Options	Collet (CHA Group) : $\varnothing$ 0.5~ $\varnothing$ 4.0mm p.23 Motor cord : Length 3m (9261), 5m (9262), 7m (9263)			

※ Cord length L=0.5m
※ Collet is sold separately.

Spindle
Guide



BM-322FS



EMCD-BM3



iSpeed3 CONTROLLER



AL-C1204

iSpeed3 SERIES

Shown In Actual Size

Flange type motor spindle

BM-322FS
With 50cm joint cord



O.D. 22mm



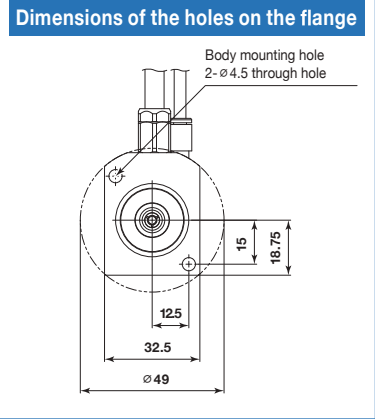
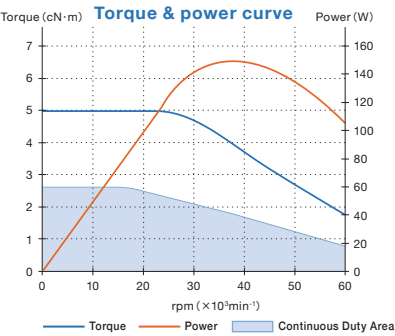
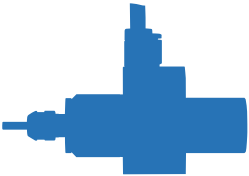
Specifications

DXF data DXF files are available on our website

Order by Code No.

BM-322FS

Code No.	7823	Model	BM-322FS
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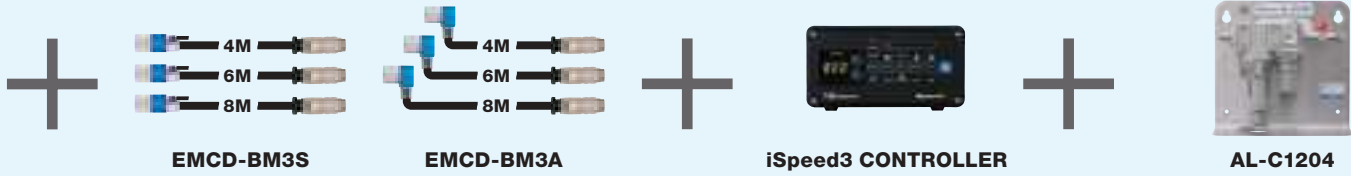
O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
Ø22mm	60,000min ⁻¹	150w	Within1μm	430g
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each / Bolt : 2pcs. (M4×L35)			
Options	Collet (CHA Group) : ø0.5~ø4.0mm p.23			
	Motor cord : Length 3m (9261), 5m (9262), 7m (9263)			

※ Cord length L=0.5m
※ Collet is sold separately.

Spindle
Guide



BMF-319



iSpeed3 SERIES

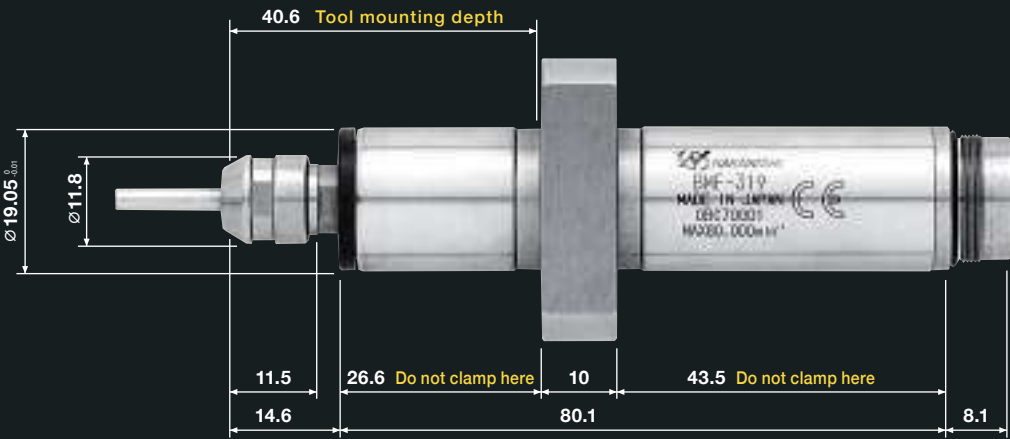
Shown In Actual Size

Flange type motor spindle

BMF-319



O.D. $\varnothing$ 19.05mm



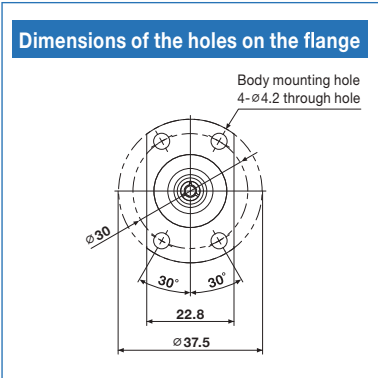
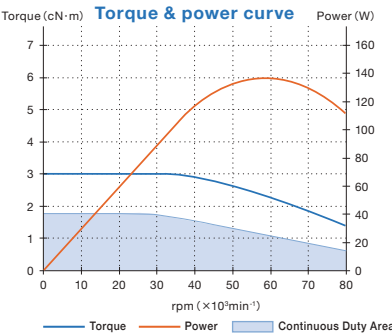
Specifications

DXF data DXF files are available on our website

Order by Code No.

BMF-319

Code No.	7822	Model	BMF-319
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O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
$\varnothing$ 19.05mm	80,000min ⁻¹	140w	Within1μm	180g
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each / Bolt : 2pcs. (M4×L16)			
Options	Collet (CHA Group) : $\varnothing$ 0.5~ $\varnothing$ 4.0mm p.23			
	Motor cord (Straight) : Length 4m (9264), 6m (9265), 8m (9266)			
	Motor cord (Angle) : Length 4m (9267), 6m (9268), 8m (9269)			

※ Collet is sold separately.

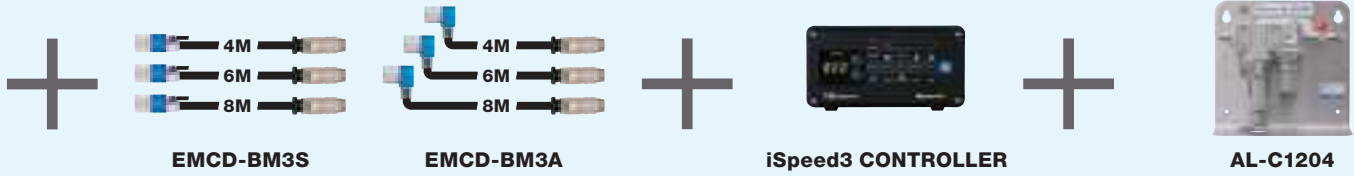
Spindle
Guide



BMJ-319



BMJ-320



iSpeed3 SERIES

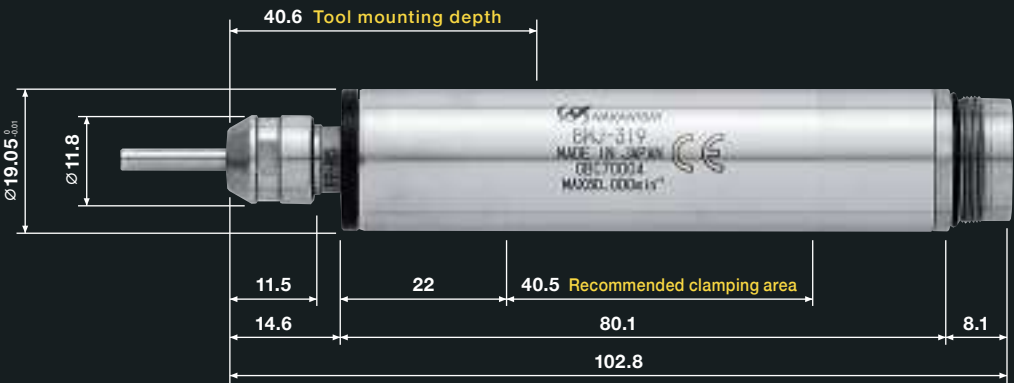
Shown In Actual Size

Straight type motor spindle

BMJ-319



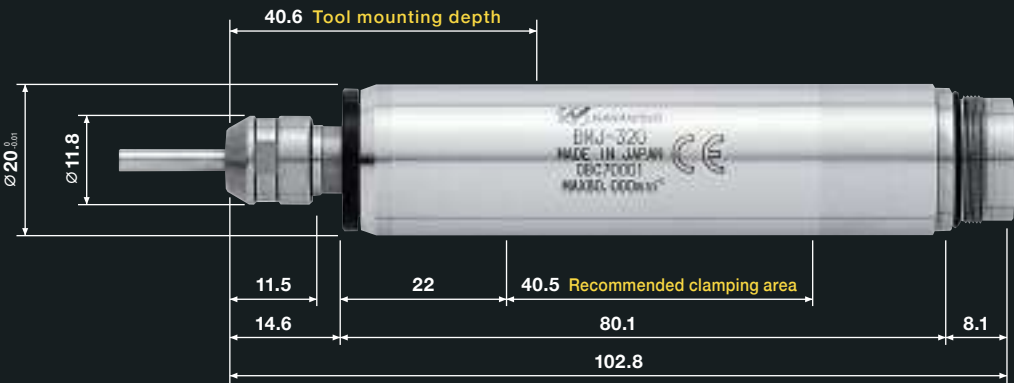
O.D. $\varnothing$ 19.05mm



BMJ-320



O.D. $\varnothing$ 20mm



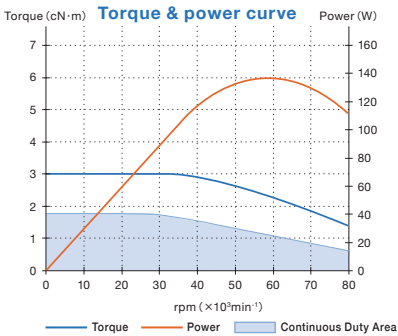
Specifications

DXF data DXF files are available on our website

Order by Code No.

BMJ-319

Code No.	7819	Model	BMJ-319
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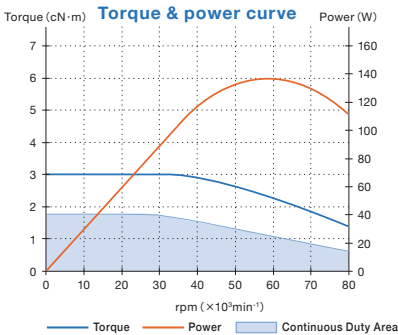


O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
$\varnothing$ 19.05mm	80,000min ⁻¹	140w	Within1 μ m	145g
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each			
Options	Collet (CHA Group) : $\varnothing$ 0.5~ $\varnothing$ 4.0mm p.23			
	Motor cord (Straight) : Length 4m (9264), 6m (9265), 8m (9266)			
	Motor cord (Angle) : Length 4m (9267), 6m (9268), 8m (9269)			

※ Collet is sold separately.

BMJ-320

Code No.	7820	Model	BMJ-320
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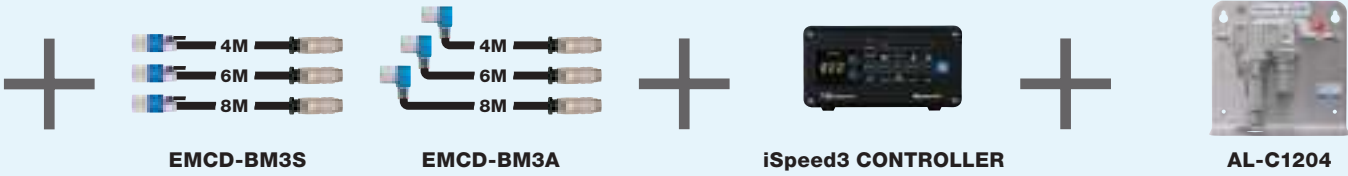
O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
$\varnothing$ 20mm	80,000min ⁻¹	140w	Within1 μ m	160g
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each			
Options	Collet (CHA Group) : $\varnothing$ 0.5~ $\varnothing$ 4.0mm p.23			
	Motor cord (Straight) : Length 4m (9264), 6m (9265), 8m (9266)			
	Motor cord (Angle) : Length 4m (9267), 6m (9268), 8m (9269)			

※ Collet is sold separately.

Spindle
Guide



BMJ-322



iSpeed3 SERIES

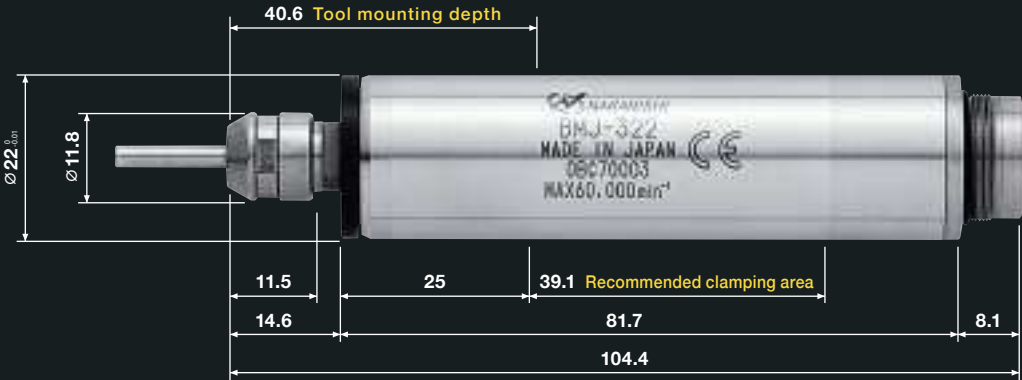
Shown In Actual Size

Straight type motor spindle

BMJ-322



O.D. 22mm



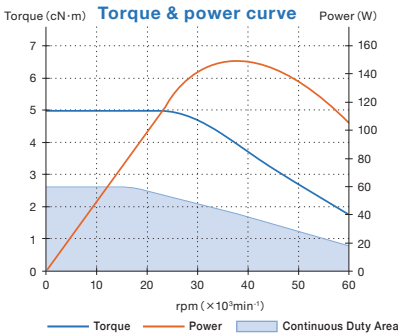
Specifications

DXF data DXF files are available on our website

Order by Code No.

BMJ-322

Code No.	7821	Model	BMJ-322
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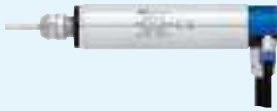
O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
Ø22mm	60,000min ⁻¹	150w	Within1μm	190g
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each			
Options	Collet (CHA Group) : ø0.5~ø4.0mm p.23			
	Motor cord (Straight) : Length 4m (9264), 6m (9265), 8m (9266)			
	Motor cord (Angle) : Length 4m (9267), 6m (9268), 8m (9269)			

※ Collet is sold separately.

Spindle
Guide



BM-319



BM-320



EMCD-BM3



iSpeed3 CONTROLLER



AL-C1204

iSpeed3 SERIES

Shown In Actual Size

Straight type motor spindle

BM-319
With 50cm joint cord



O.D. ϕ 19.05mm



BM-320
With 50cm joint cord



O.D. ϕ 20mm



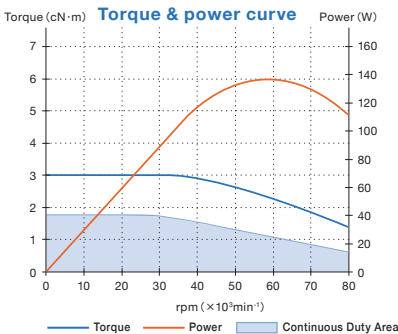
Specifications

DXF data DXF files are available on our website

Order by Code No.

BM-319

Code No.	7810	Model	BM-319
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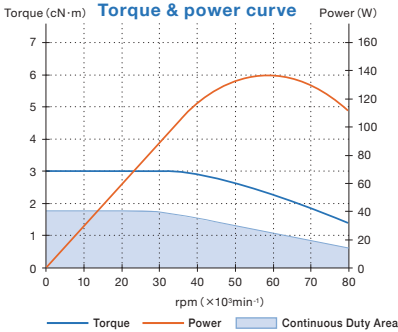


O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
ϕ 19.05mm	80,000min ⁻¹	140w	Within1 μ m	210g
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each			
Options	Collet (CHA Group) : ϕ 0.5~ ϕ 4.0mm p.23 Motor cord : Length 3m (9261), 5m (9262), 7m (9263)			

※ Cord length L=0.5m
※ Collet is sold separately.

BM-320

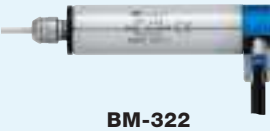
Code No.	7811	Model	BM-320
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O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
ϕ 20mm	80,000min ⁻¹	140w	Within1 μ m	230g
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each			
Options	Collet (CHA Group) : ϕ 0.5~ ϕ 4.0mm p.23 Motor cord : Length 3m (9261), 5m (9262), 7m (9263)			

※ Cord length L=0.5m
※ Collet is sold separately.

Spindle
Guide



BM-322



EMCD-BM3



iSpeed3 CONTROLLER



AL-C1204

iSpeed3 SERIES

Shown In Actual Size

Straight type motor spindle

BM-322
With 50cm joint cord



O.D. 22mm



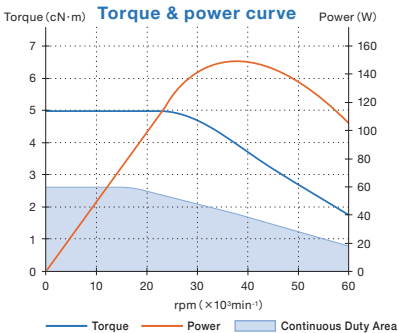
Specifications

DXF data DXF files are available on our website

Order by Code No.

BM-322

Code No.	7814	Model	BM-322
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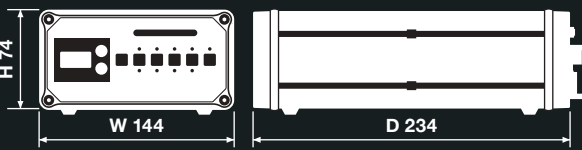


O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
Ø22mm	60,000min ⁻¹	150w	Within1μm	250g
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each			
Options	Collet (CHA Group) : ø0.5~ø4.0mm p.23			
	Motor cord : Length 3m (9261), 5m (9262), 7m (9263)			

※ Cord length L=0.5m
※ Collet is sold separately.

iSpeed3 Controller

iSpeed3 CONTROLLER
Controller



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.

Plug type	Code No.	
200V (C Type)	8479	

※ 8477 (100V), 8478 (120V), 8480 (230V) are available.

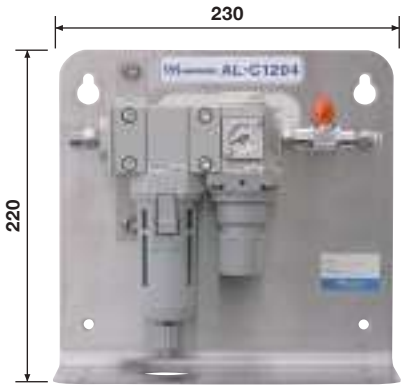
Plug type	Area	Product
100V (A Type)	Japan	
120V (B Type)	USA Canada	
200V (C Type)	Without plug	
230V (D Type)	Europe	

※ Please select Voltage for purchasing.

Accessories (Air line kit, Motor cord)

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	

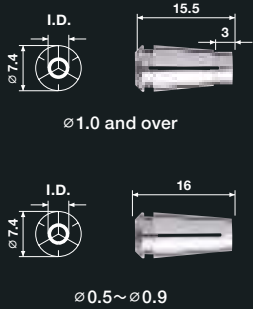
Motor cord

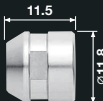
Motor cord	Code No.	Model	Length	Standard Accessories	Compatible model
 Straight type	9264	EMCD-BM3S-4M	4m	Air hose Connector cap (Included)	BMF-319・BMF-320 BMF-322・BMF-325 BMJ-319・BMJ-320 BMJ-322・BMJ-325
	9265	EMCD-BM3S-6M	6m		
	9266	EMCD-BM3S-8M	8m		
 Angle type	9267	EMCD-BM3A-4M	4m	Air hose Connector cap (Included)	BMF-319・BMF-320 BMF-322・BMF-325 BMJ-319・BMJ-320 BMJ-322・BMJ-325
	9268	EMCD-BM3A-6M	6m		
	9269	EMCD-BM3A-8M	8m		

Motor cord	Code No.	Model	Length	Standard Accessories	Compatible model
 Joint type	9261	EMCD-BM3-3M	3m	Air hose Connector cap (Included)	BM-319F・BM-320F BM-322FL・BM-322FR BM-322FS BM-319・BM-320 BM-322・BM-325
	9262	EMCD-BM3-5M	5m		
	9263	EMCD-BM3-7M	7m		

Motor output	Speed Range	Max. power	Power consumption	Air consumption	Weight
2 Motor spindles (Can't be operated simultaneously.)	1,000~80,000min ⁻¹	150w	0.65A (200V)	1 spindle : 30Nℓ/min (0.25MPa) 2 spindles : 60Nℓ/min (0.25MPa)	3.5kg
Standard Accessories	Power cord : 2m / Air hose with filter (K-251 : 2058) : 2m / Motor connector cap : 2pcs.				
	Bracket : 2pcs. / Plate nut : 4pcs. / M3 bolt : 4pcs. / Fuse : 2pcs.				

Accessories (Collet, etc.)

Collet	Code No.	Model	I.D.	Compatible model
 Collet CHA Group	91494	CHA-3.0AA	ø3.0AA※	BMF-319・BMF-320 BMF-322・BMF-325 BMJ-319・BMJ-320 BMJ-322・BMJ-325 BM-319F・BM-320F BM-322FL・BM-322FR BM-322FS BM-319・BM-320 BM-322・BM-325
	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	
	91440	CHA-4.0	ø4.0	
	—	CHA-□□	ø0.5、ø0.6、ø0.7、ø0.8、ø0.9	※High precision type AA (Run-out Accuracy within 2 μm)
			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	
			ø1.0、ø1.5、ø2.0、ø2.5、ø3.5 ø1.6	

Collet nut	Code No.	Model	Description	Compatible model
	2102	CHN-A	Collet nut for CHA collet	BMF-319・BMF-320・BMF-322 BMF-325・BMJ-319・BMJ-320 BMJ-322・BMJ-325・BM-319F BM-320F・BM-322FL BM-322FR・BM-322FS BM-319・BM-320 BM-322・BM-325

Spacer・Bush	Code No.	Model	Description	Compatible model
	1882	SP-22×10L	Spacer (for BM-322FL / BM-322FR) Dimensions : ø22 (I.D.) ×10mm	BM-322FL・BM-322FR
	1875	RB-20×23	ø23 Bush Dimensions : ø20 (I.D.) ×ø23 (O.D.) ×40mm	BMJ-320・BM-320 BMF-320
	1876	RB-20×22.8	ø22.8 Bush Dimensions : ø20 (I.D.) ×ø22.8 (O.D.) ×40mm	BMJ-320・BM-320 BMF-320
	1877	RB-20×22	ø22 Bush Dimensions : ø20 (I.D.) ×ø22 (O.D.) ×40mm	BMJ-320・BM-320 BMF-320
	1878	RB-20×25	ø25 Bush Dimensions : ø20 (I.D.) ×ø25 (O.D.) ×40mm	BMJ-320・BM-320 BMF-320
	1879	RB-20×25.4	ø25.4 Bush Dimensions : ø20 (I.D.) ×ø25.4 (O.D.) ×40mm	BMJ-320・BM-320 BMF-320
	1883	RB-22×25×34L	ø25 Bush Dimensions : ø22 (I.D.) ×ø25 (O.D.) ×33.5mm	BM-322FL・BM-322FR BM-322FS・BMF-322 BMJ-322・BM-322
	1884	RB-22×25.4×34L	ø25.4 Bush Dimensions : ø22 (I.D.) ×ø25.4 (O.D.) ×33.5mm	BM-322FL・BM-322FR BM-322FS・BMF-322 BMJ-322・BM-322
	1887	RB-19.05×25.4×36L	ø25.4 Bush Dimensions : ø19.05 (I.D.) ×ø25.4 (O.D.) ×36mm	BM-319F・BMJ-319 BM-319・BMF-319

NAKANISHI Solutions LINE UP

Electric spindle

Electric Motors & Spindles

Brushless Motors & Spindles

Spindle + Motor + Controller ← AC

Application for CNC lathes / Special purpose machines

E4000 SERIES

1,000~40,000min⁻¹ Max.1,200W
[ø40mm]



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

E3000 SERIES

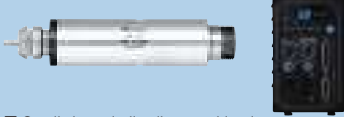
1,000~80,000min⁻¹ Max.350W
[ø30/25/20mm]



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

E2000 SERIES

1,000~50,000min⁻¹ Max.200W
[ø22.8/25mm]



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

iSpeed3 SERIES

1,000~80,000min⁻¹ Max.150W
[ø19.05/20/22mm]



- 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



[HESS10]

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

Application for machining centers and milling machines

Air spindle

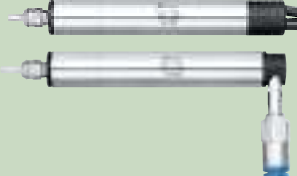
Air Motors & Spindles

Spindle + Motor + Air line kit ← Air compressor

Application for CNC lathes / Special purpose machines

Air-Speed SERIES One-piece type

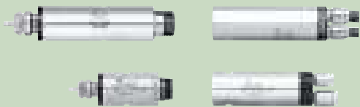
Max.30,000min⁻¹ Max.130W
[ø25/23/20/19.05mm]



- 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⁻¹ Max.130W
[ø30/25/22.8mm]



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

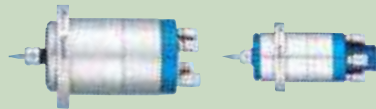
Air Turbine Spindles

Air Turbine Spindles + Air line kit ← Air compressor

Application for CNC lathes / Special purpose machines

Xpeed SERIES

Max.160,000min⁻¹
[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

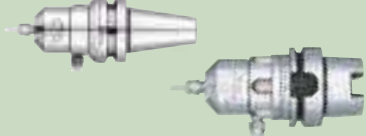
Max.65,000min⁻¹



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

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

Application for machining centers and milling machines

p.23



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www.nakanishi-inc.com
PR-K364E Ver.1 2022-06-16 05. 590

※Specifications and design are subject to change without notice.

SERIES E3000

ULTRA-HIGH-SPEED & SUPER-PRECISION

De Facto

E3000 Series has become the largest product lines of electric motor spindle with the decades of effort to respond to the customer's requests from all over the world.

✓ ø30mm Spindle

- Max. power 350w
- Max. rpm 80,000min⁻¹

✓ The largest product lines

- 26 types of spindles are available.

✓ Spindle accuracy within 1 μm

- Optimum for high-precision machining
- Longer tool life

✓ Ceramic Bearing

- Longer bearing life
- Higher rigidity for heavy cutting

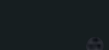
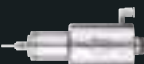
✓ Brushless motor

- Maintenance free
- Longer product life thanks to no dust from carbon brushes

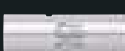


Index

Spindle (Modular type)

NR-3060S Short spindle		p.9	NRR-3060 Manual tool change spindle Open / close by lever operation		p.19
NRF-3060S Short spindle with flange		p.9	NR3060-AQC Air quick change spindle Clamp / unclamp by air operation		p.21
NR-3060 Straight spindle		p.9	NRR3060-QC Lever quick change spindle		p.23
RAX-271E / RAX-71E Angle spindle Standard angle head		p.11	CTS-3030 Coolant through spindle		p.25
RA-151E Angle spindle with short head		p.11	ARG-011E Speed reducer (1/4)		p.27
RAS-151E Angle spindle with long head		p.13	ARG-021E Speed reducer (1/16)		p.27
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NR50-5100 ATC RS Automatic tool change spindle Open / close by air cylinder		p.17	NRAF-5080 Air bearing spindle		p.29
NR40-5100 ATC Automatic tool change spindle Open / close by air cylinder		p.19			

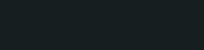
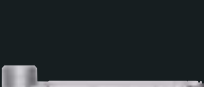
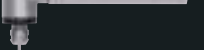
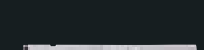
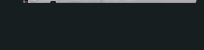
Motor (Modular type)

EM-3060 60,000min ⁻¹ motor		p.31
EM-3060J 60,000min ⁻¹ motor with joint type motor cord		p.31
EM-3030T 30,000min ⁻¹ torque motor		p.33
EM-3030T-J 30,000min ⁻¹ torque motor with joint type motor cord		p.33
EM-3080J 80,000min ⁻¹ motor with joint type motor cord		p.33

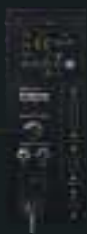
Spindle & Motor ø25 Specifications (Modular type)

NR-2551 Straight spindle		p.35
EM25N-5000J 50,000min ⁻¹ motor		p.35

Motor Spindle (One-piece type)

EMS-3060K ø30 Motor spindle CHK collet·30cm joint cord		p.39
EMR-3008K Motor spindle with reduction gear		p.39
EMA-3020K Angle motor spindle Standard angle head		p.41
EMA-3020S Angle motor spindle Built-in angle head		p.41
EM30-S6000 ø30 Motor spindle·CHK collet		p.43
EM25-S6000 ø25 Motor spindle·CHA collet		p.43
EM20-S6000 ø20 Motor spindle·CHA collet		p.43
EMSF-3060K Motor spindle with flange		p.45

Controller

E3000 CONTROLLER Controller		p.47
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Selector

E3000 SELECTOR Selector Up to 4 motors to control with connecting selector to controller		p.48
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Motor cord

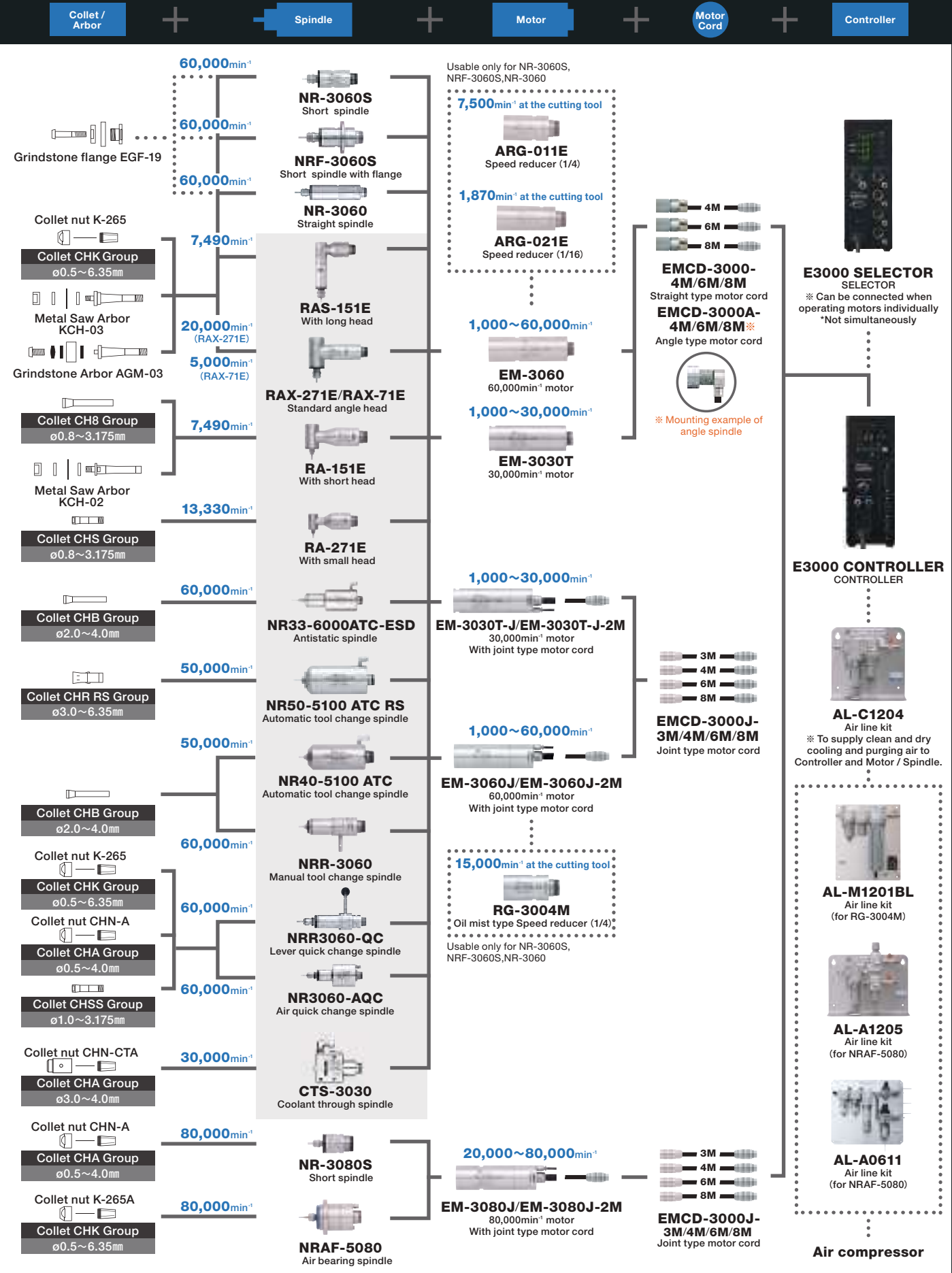
EMCD-3000 Straight type	p.49	EMCD-3000A Angle type	p.49	EMCD-3000J Joint type	p.49
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Accessories

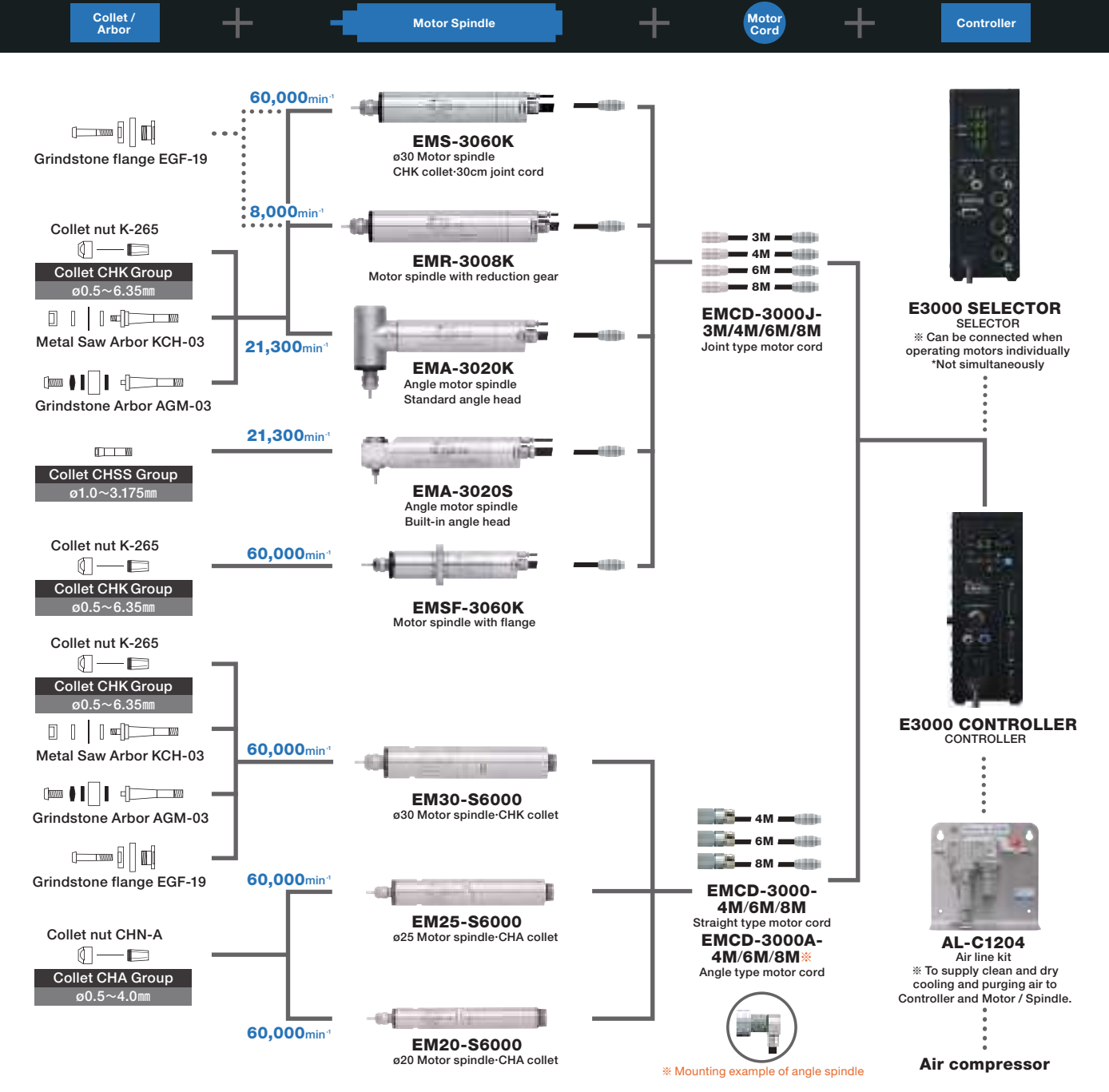
Air line kits p.50	GR-30 Grip ring	p.50	Collets p.51	Collet holders p.52
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System Chart

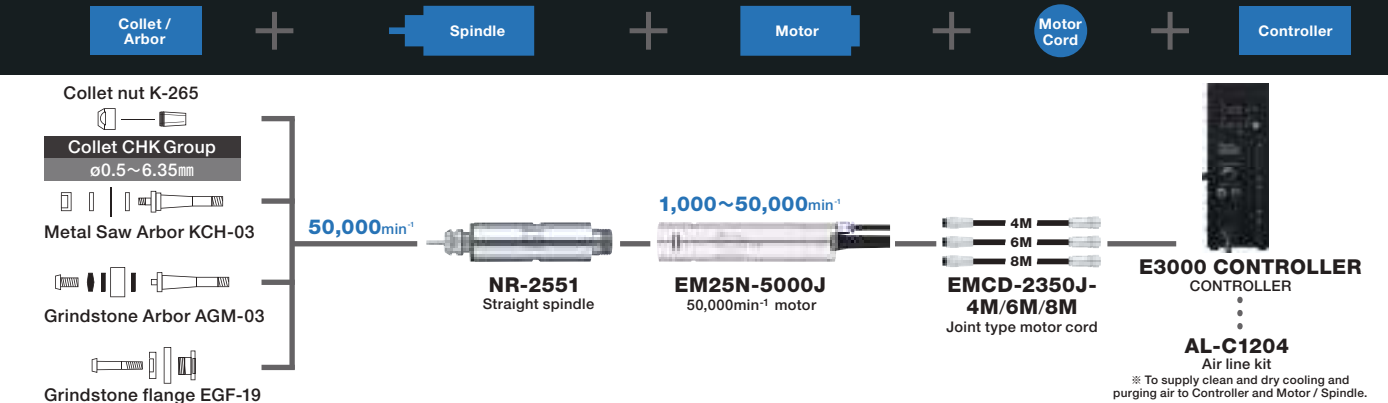
Modular type ø30mm



One-piece type ø30/ø25/ø20mm



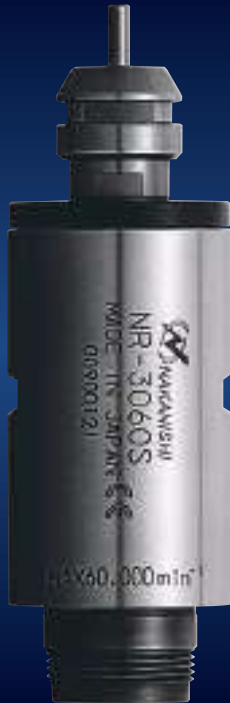
Modular type ø25mm



Spindle (Modular type)



- 30 NR-3060S p.9
- 30 NRF-3060S p.9
- 30 NR-3060 p.9
- 30 RAX-271E / RAX-71E p.11
- 30 RA-151E p.11
- 30 RAS-151E p.13
- 30 RA-271E p.13
- 30 NR-3080S p.29
- 48 NRAF-5080 p.29



- 33 NR33-6000ATC-ESD p.15
- 50 NR50-5100 ATC RS p.17
- 40 NR40-5100 ATC p.19

Shown In Actual Size

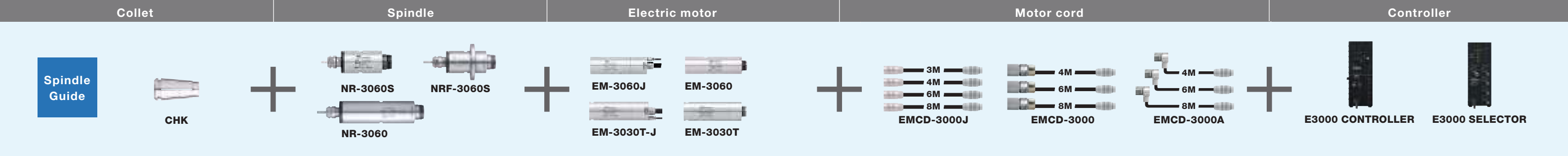


- 26 NRR-3060 p.19
- 30 NR3060-AQC p.21
- 30 NRR3060-QC p.23
- 30 CTS-3030 p.25
- 30 ARG-011E p.27
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- 30 RG-3004M p.27

- 30 EM-3060 p.31
- 30 EM-3060J p.31
- 30 EM-3030T p.33
- 30 EM-3030T-J p.33
- 30 EM-3080J p.33



- 25 NR-2551 p.35
- 25 EM25N-5000J p.35



E3000 SERIES

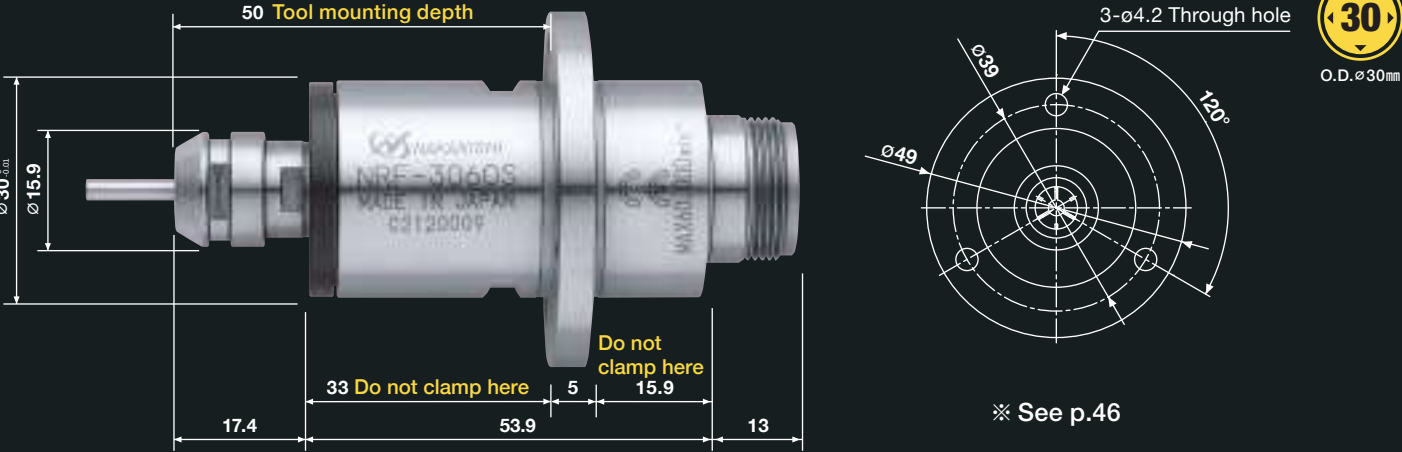
Spindle (Modular type)

Shown In Actual Size

NR-3060S
Short spindle



NRF-3060S
Short spindle with flange



NR-3060
Straight spindle



Specifications

DXF data DXF files are available on our website

Order by Code No.

NR-3060S

Code No. 7859 Model NR-3060S

O.D.	Max. rpm	Spindle Accuracy	Collet	Weight
ø30mm	60,000min ⁻¹	Within 1μm	CHK Group (ø0.5 ~ ø6.35mm)	260g
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs. · (22×27) : 1pc.			
Options	Collet (CHK Group) : ø0.5~ø6.35mm p.51 Metal Saw Arbor (KCH-03) : ød (I.D.) × under ø30mm (O.D.) / Grindstone Arbor (AGM-03) : Grindstone I.D. ø5.0mm Grindstone Flange (EGF-19) : applicable grindstone I.D. ø19.05×O.D.ø40×7mm			

※ Collet is sold separately.

NRF-3060S

Code No. 7795 Model NRF-3060S

O.D.	Max. rpm	Spindle Accuracy	Collet	Weight
ø30mm	60,000min ⁻¹	Within 1μm	CHK Group (ø0.5 ~ ø6.35mm)	285g
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs. · (22×27) : 1pc. Hexagon Socket Head Screw (M4×12) : 3pcs.			
Options	Collet (CHK Group) : ø0.5~ø6.35mm p.51 Metal Saw Arbor (KCH-03) : ød (I.D.) × under ø30mm (O.D.) / Grindstone Arbor (AGM-03) : Grindstone I.D. ø5.0mm Grindstone Flange (EGF-19) : applicable grindstone I.D. ø19.05×O.D.ø40×7mm			

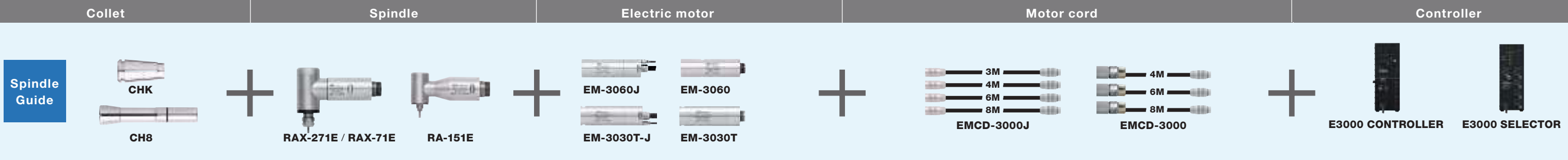
※ Collet is sold separately.

NR-3060

Code No. 7875 Model NR-3060

O.D.	Max. rpm	Spindle Accuracy	Collet	Weight
ø30mm	60,000min ⁻¹	Within 1μm	CHK Group (ø0.5 ~ ø6.35mm)	420g
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs. · (22×27) : 1pc.			
Options	Collet (CHK Group) : ø0.5~ø6.35mm p.51 Metal Saw Arbor (KCH-03) : ød (I.D.) × under ø30mm (O.D.) / Grindstone Arbor (AGM-03) : Grindstone I.D. ø5.0mm Grindstone Flange (EGF-19) : applicable grindstone I.D. ø19.05×O.D.ø40×7mm			

※ Collet is sold separately.



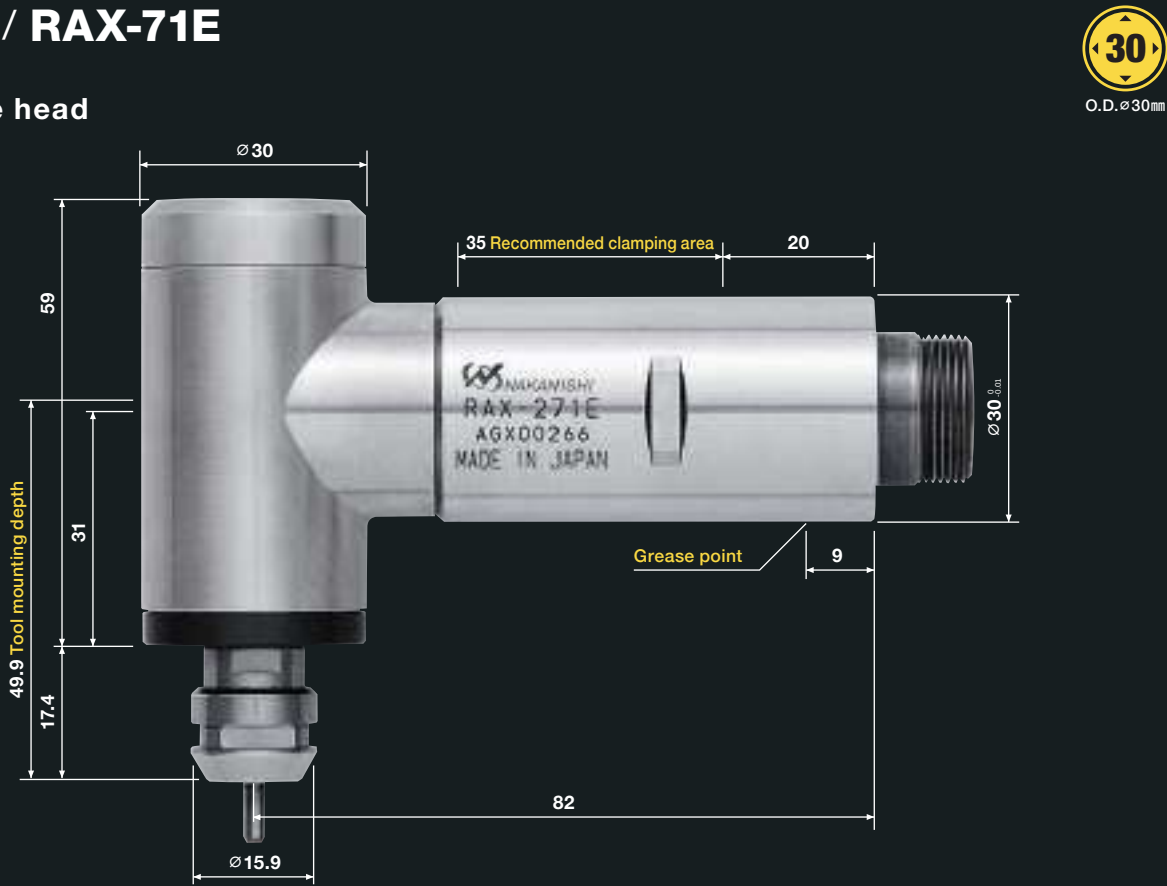
E3000 SERIES

Spindle (Modular type)

Shown In Actual Size

RAX-271E / RAX-71E

Angle spindle
Standard angle head



RA-151E

Angle spindle
With short head



Specifications

DXF data DXF files are available on our website

Order by Code No.

RAX-271E / RAX-71E



Code No.	7856	Model	RAX-271E
Code No.	7857	Model	RAX-71E

[Model] RAX-271E	O.D.	Max. speed at the cutting tool	Reduction ratio	Max. rpm
	Ø30mm	20,000min ⁻¹	$\frac{1}{1.5}$	30,000min ⁻¹
Spindle Accuracy	Collet	Weight		
Within 2μm	CHK Group (ø0.5 ~ ø6.35mm)	580g		
[Model] RAX-71E	O.D.	Max. speed at the cutting tool	Reduction ratio	Max. rpm
	Ø30mm	5,000min ⁻¹	$\frac{1}{6}$	30,000min ⁻¹
Spindle Accuracy	Collet	Weight		
Within 2μm	CHK Group (ø0.5 ~ ø6.35mm)	580g		
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs.・(22×27) : 1pc.			
	Grease for speed reducer (10mℓ) / Grease nipple : 1pc.			
Options	Collet (CHK Group) : ø0.5~ø6.35mm p.51			
	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.



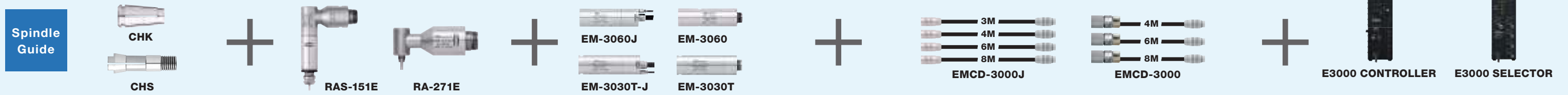
Put grease every 70 to 100 hours to extend the life of the speed reducer.
Grease-up prevents friction of the internal gears and degradation of the existing grease in the reducer.

RA-151E



Code No.	1505	Model	RA-151E
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O.D.	Max. speed at the cutting tool	Reduction ratio	Max. rpm	Collet	Weight
30mm	7,490min ⁻¹	1/2.67	20,000min ⁻¹	CH8 Group (0.8 ~ 3.175mm)	385g
Standard Accessories	Collet : 3.0mm (CH8-3.0) / Wrench (7×5.5) · (8×5) · (22×27) : 1pc. each				
Options	Collet (CH8 Group) : 0.8~3.175mm p.51 Metal Saw Arbor (KCH-02) : ød (I.D.) × under 30mm (O.D.)				



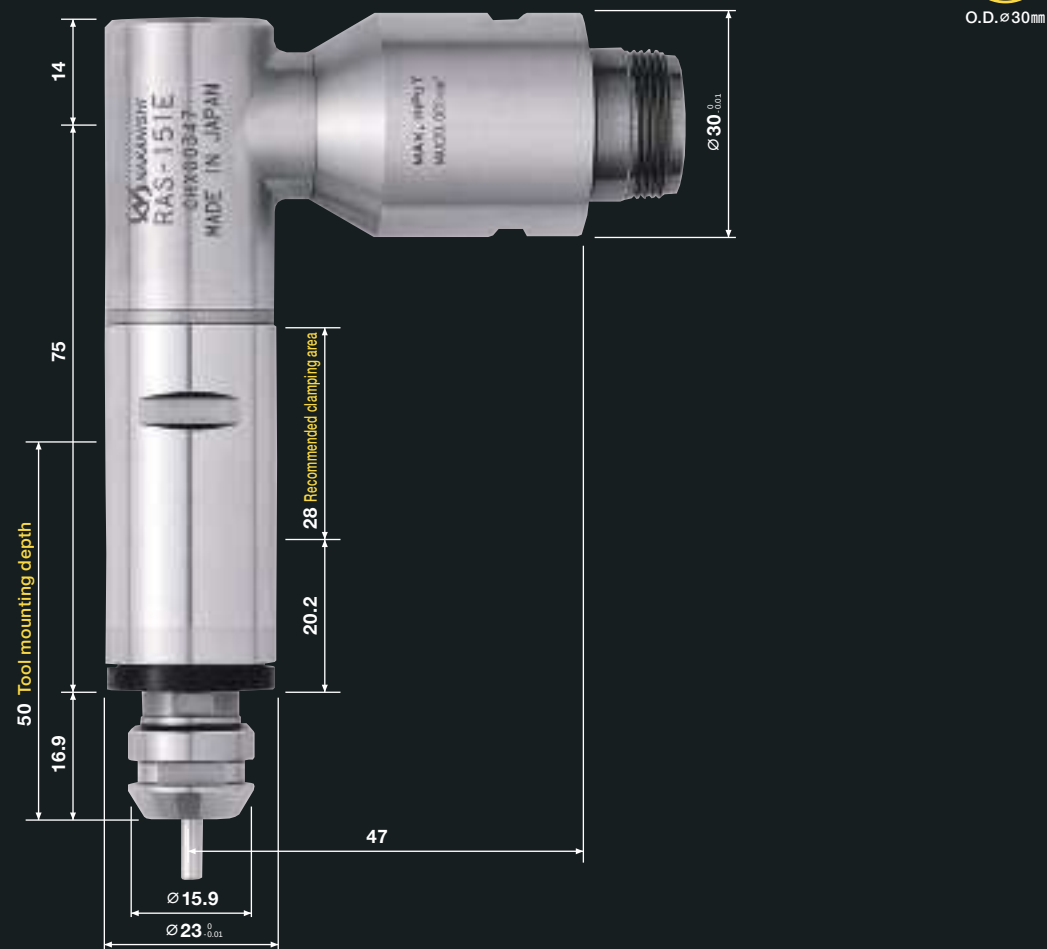
E3000 SERIES

Spindle (Modular type)

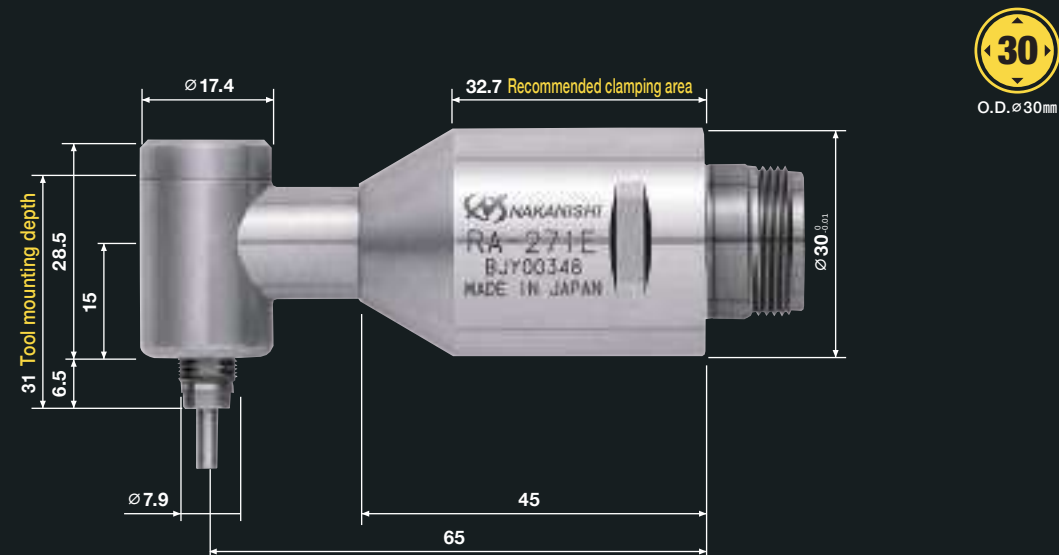
Shown In Actual Size

RAS-151E

Angle spindle With long head

**RA-271E**

Angle spindle With small head



Specifications

DXF
data

DXF files are available on our website

Order by Code No.

RAS-151E



Code No.	7840	Model	RAS-151E
----------	-------------	-------	-----------------

O.D.	Max. speed at the cutting tool	Reduction ratio	Max. rpm
Ø30mm	7,490min ⁻¹	$\frac{1}{2.67}$	20,000min ⁻¹
Spindle Accuracy	Collet	Weight	
Within 2μm	CHK Group (Ø0.5 ~ Ø6.35mm)	413g	
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs. · (22×27) : 1pc.		
Options	Collet (CHK Group) : Ø0.5~Ø6.35mm p.51		
	Metal Saw Arbor (KCH-03) : Ød (I.D.) × under Ø30mm (O.D.) / Grindstone Arbor (AGM-03) : Grindstone I.D. Ø5.0mm		

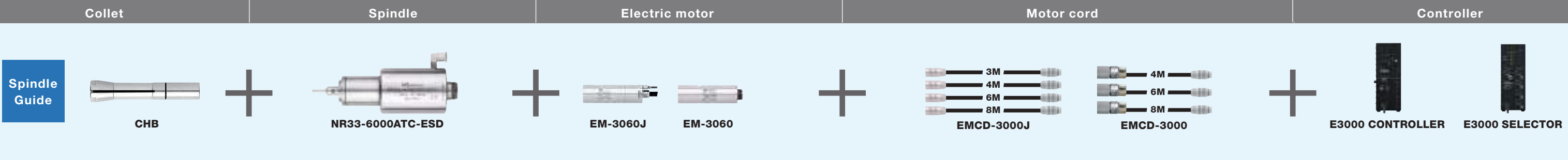
※ Collet is sold separately.

RA-271E



Code No.	1506	Model	RA-271E
----------	-------------	-------	----------------

O.D.	Max. speed at the cutting tool	Reduction ratio	Max. rpm	Collet	Weight
Ø30mm	13,330min ⁻¹	$\frac{1}{1.5}$	20,000min ⁻¹	CHS Group (Ø0.8 ~ Ø3.175mm)	240g
Standard Accessories	Collet : Ø3.0mm (CHS-3.0) / Wrench (7×5.1)・(8×5)・(22×27) : 1pc. each				
Options	Collet (CHS Group) : Ø0.8~Ø3.175mm p.51				



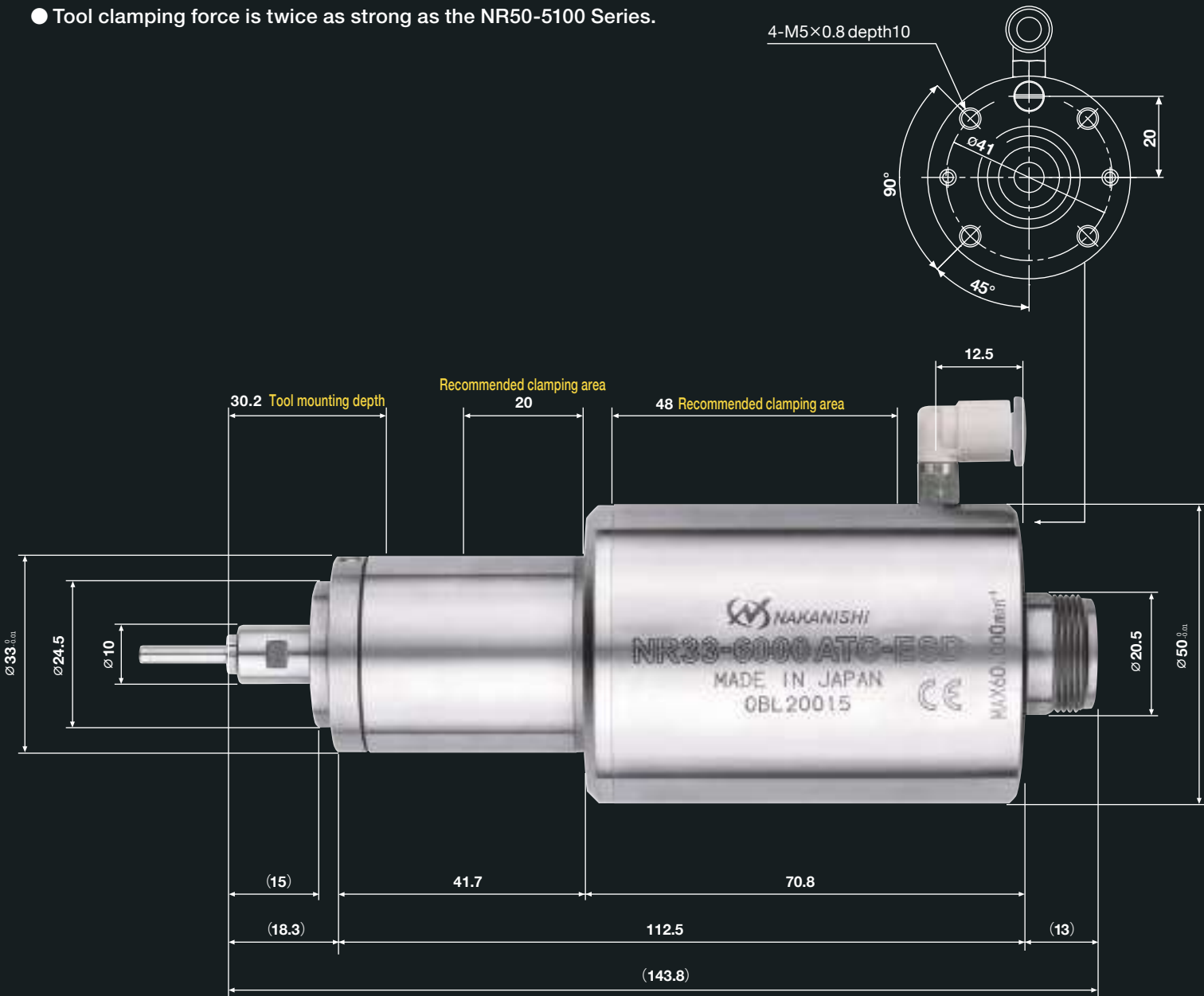
E3000 SERIES

Spindle (Modular type)

Shown In Actual Size

NR33-6000ATC-ESD
Antistatic spindle

- Prevents damage to electronic components on the PCB due to static electricity conducted during the machining process.
- The $\phi 10 \times 15\text{L}$ extended spindle nose length helps to avoid interference with components mounted on the PCB.
- Pneumatic tool clamp and unclamp system allows for quick and easy automatic tool change.
- Tool clamping force is twice as strong as the NR50-5100 Series.



Specifications

DXF data DXF files are available on our website

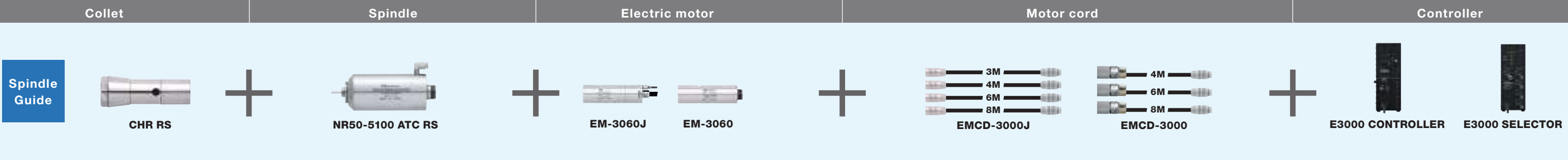
Order by Code No.

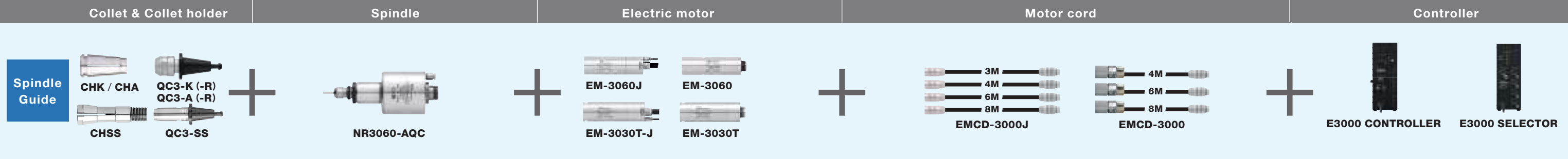
NR33-6000ATC-ESD



Code No.	7788	Model	NR33-6000ATC-ESD
----------	------	-------	------------------

O.D.	Allowable rotation speed	Air for collet opening	Spindle Accuracy	Collet	Weight
$\phi 33\text{mm} / \phi 50\text{mm}$	60,000min ⁻¹ (Motor rotation speed)	0.55~0.6MPa	Within 1 μm	CHB Group ($\phi 3.175\text{mm}$)	1,170g
Standard Accessories	Collet : $\phi 3.175\text{mm}$ (CHB-3.175) / Wrench (6.1 $\times$ 8) · (9 $\times$ 11) : 1pc. each / Bar wrench (K-236) : 1pc. Air hose with filter (K-251) : $\phi 6\text{mm} \times 2\text{m}$				
Options	Collet (CHB Group) : $\phi 2.0, \phi 3.0, \phi 3.175, \phi 3.5, \phi 4.0\text{mm}$ p.51				





E3000 SERIES

Spindle (Modular type)

Shown In Actual Size

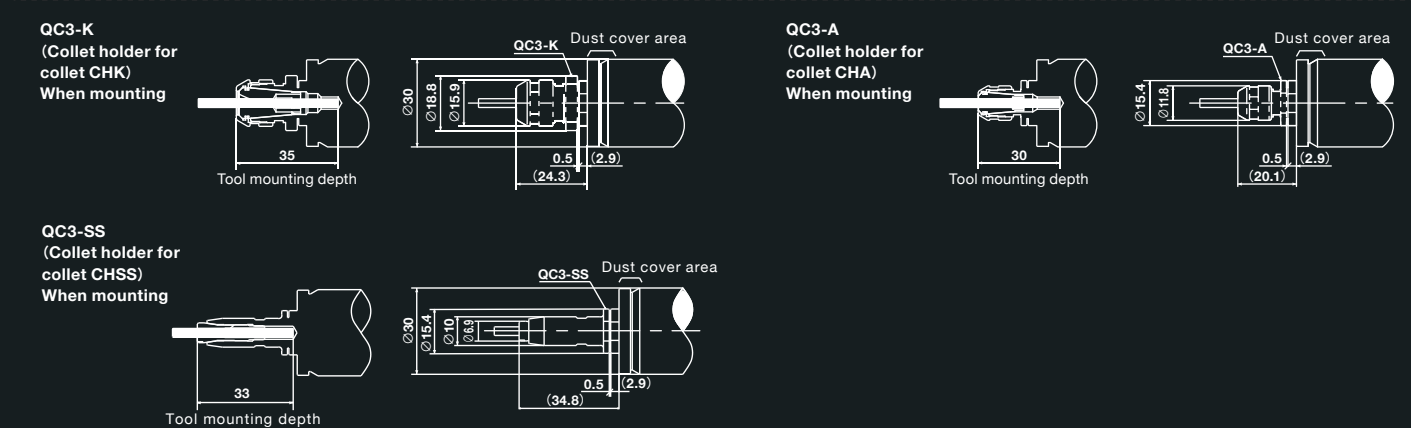
NR3060-AQC

Air quick change spindle

- Quick and easy collet holder change with air chucking mechanism.
- Enhancing productivity by enabling external tool set-up.
- 3 types of collet holders are available. (CHK ϕ 0.5 ~ 6.35mm, CHA ϕ 0.5 ~ 4.0mm, CHSS ϕ 1.0 ~ 3.175mm)



Outside view of the tip of the spindle



Specifications

DXF data DXF files are available on our website

Order by Code No.

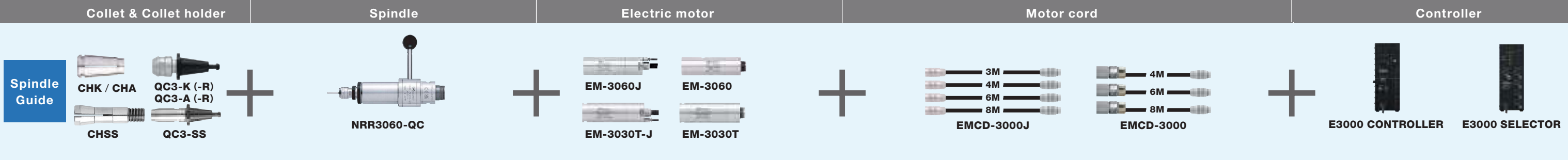
NR3060-AQC

Code No. 9220 Model NR3060-AQC

O.D.	Max. rpm	Air pressure of collet open/clese	Spindle Accuracy	Collet holders	Weight
ϕ 30mm	60,000min ⁻¹	0.6MPa	Within 1 μ m	QC3-K / QC3-K-R (for Collet CHK) QC3-A / QC3-A-R (for Collet CHA) QC3-SS (for Collet CHSS)	1,230g
Standard Accessories Wrench (22×27) : 1pc. / Air hose with filter (K-251) : ϕ 6mm × 2m 1pc.					

Parts (Optional)

Collet		Collet holder (Collet nut included)		Wrench	
You can choose the I.D. size (The following is an example of ϕ 3.0mm.)					
CHK	Code No.	915 3 0	9210	9223	2026
I.D. ϕ 0.5mm~6.35mm p.51	Model	CHK- 3 . 0 (I.D. ϕ 3.0mm)	QC3-K (for Collet CHK)	QC3-K-R (for Collet CHK)	Wrench 12 × 14 (2pcs.)
CHA	Code No.	914 3 0	9209	9222	2012
I.D. ϕ 0.5mm~4.0mm p.51	Model	CHA- 3 . 0 (I.D. ϕ 3.0mm)	QC3-A (for Collet CHA)	QC3-A-R (for Collet CHA)	Wrench 8 × 5 (1pc.)
CHSS	Code No.	930 3 0	7794	2069	2054
I.D. ϕ 1.0mm~3.175mm p.51	Model	CHSS- 3 . 0 (I.D. ϕ 3.0mm)	QC3-SS (for Collet CHSS)	Wrench 6.1 × 8 (1pc.)	Wrench 9 × 11 (1pc.)
Preset adapter (For QC3 Collet holders)		Code No.	9211	[Use below Wrenches when using Preset adapter] CHK collet : 12 × 14 Wrench (1pc.) CHA collet : 9 × 11 Wrench (1pc.) CHSS collet : 6.1 × 8 Wrench (1pc.) See p.53	
		Model	QC3-ADP		



E3000 SERIES

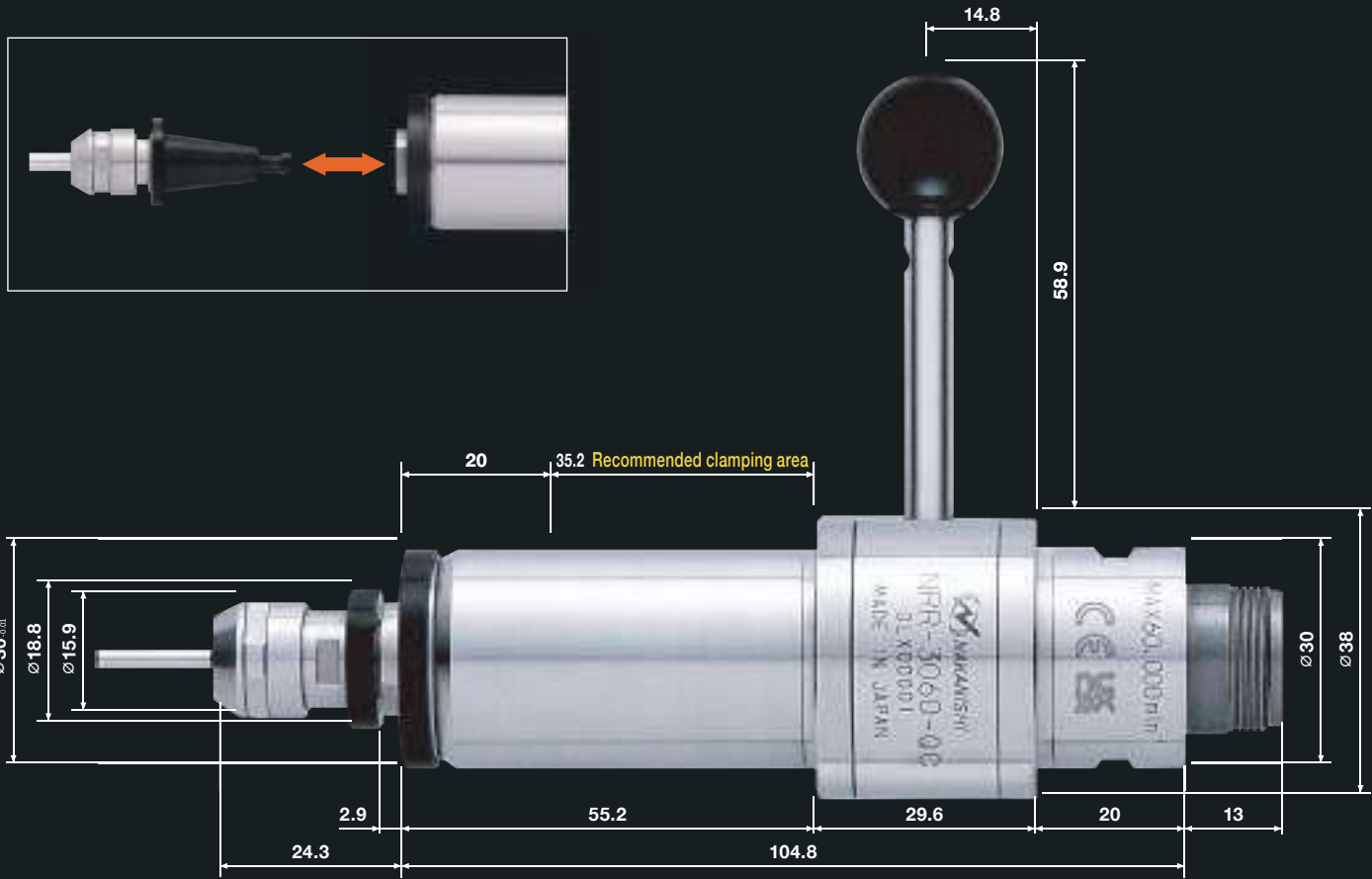
Spindle (Modular type)

Shown In Actual Size

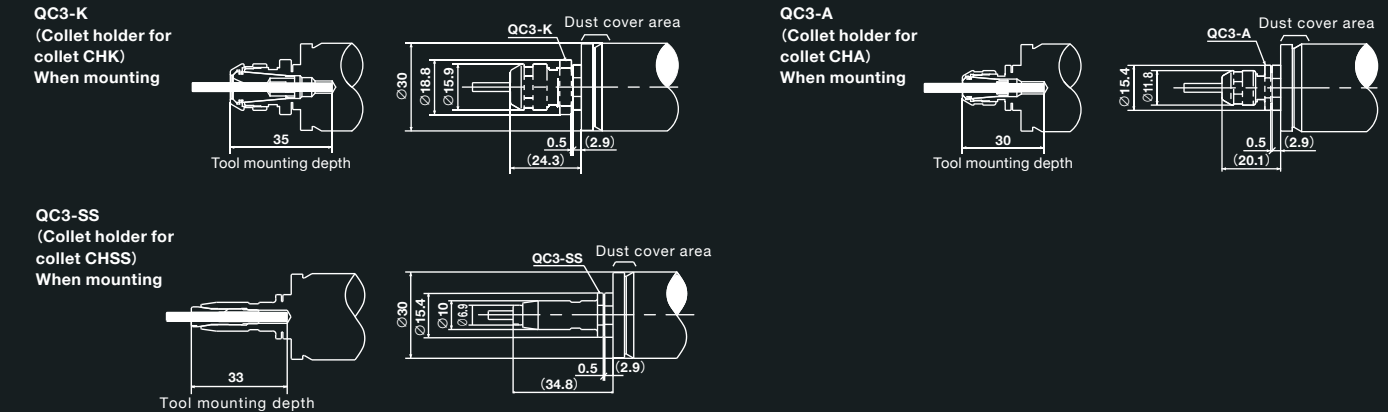
NRR3060-QC

Lever quick change spindle

- Quick and easy collet holder change with lever chucking mechanism.
- Enhancing productivity by enabling external tool set-up.
- 3 types of collet holders are available. (CHK $\phi 0.5 \sim 6.35\text{mm}$, CHA $\phi 0.5 \sim 4.0\text{mm}$, CHSS $\phi 1.0 \sim 3.175\text{mm}$)



Outside view of the tip of the spindle



Specifications

DXF data DXF files are available on our website

Order by Code No.

NRR3060-QC

Code No. 9208 Model NRR3060-QC

O.D.	Max. rpm	Lever operating angle	Spindle Accuracy	Collet holders	Weight
$\phi 30\text{mm}$ Recommended clamping area	60,000min ⁻¹	90°	Within 1 μm	QC3-K / QC3-K-R (for Collet CHK) QC3-A / QC3-A-R (for Collet CHA) QC3-SS (for Collet CHSS)	570g
Standard Accessories		Wrench (22×27) : 1pc.			

Parts (Optional)

Collet		Collet holder (Collet nut included)		Wrench	
		You can choose the I.D. size (The following is an example of $\phi 3.0\text{mm}$.)			
CHK		QC3-K / QC3-K-R		Wrench 12 × 14 (2pcs.)	
I.D. $\phi 0.5\text{mm} \sim 6.35\text{mm}$ p.51		Code No.	915 3 0	9210	9223
		Model	CHK- 3 . 0 (I.D. $\phi 3.0\text{mm}$)	QC3-K (for Collet CHK)	QC3-K-R (for Collet CHK)
CHA		QC3-A / QC3-A-R		2012	2054
I.D. $\phi 0.5\text{mm} \sim 4.0\text{mm}$ p.51		Code No.	914 3 0	9209	9222
		Model	CHA- 3 . 0 (I.D. $\phi 3.0\text{mm}$)	QC3-A (for Collet CHA)	QC3-A-R (for Collet CHA)
CHSS		QC3-SS		2069	2054
I.D. $\phi 1.0\text{mm} \sim 3.175\text{mm}$ p.51		Code No.	930 3 0	7794	
		Model	CHSS- 3 . 0 (I.D. $\phi 3.0\text{mm}$)	QC3-SS (for Collet CHSS)	Wrench 6.1 × 8 (1pc.)

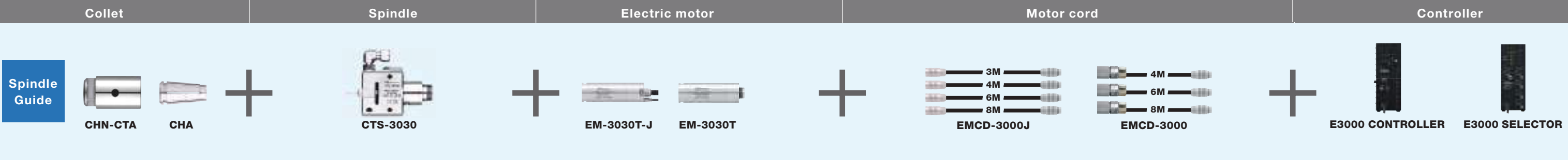
Preset adapter
(For QC3 Collet holders)

※ Holding section size is $\phi 20$.
※ QC3-K-R/QC3-A-R cannot be used to Preset adapter.

Code No.	9211
Model	QC3-ADP

[Use below Wrenches when using Preset adapter]

CHK collet : 12 × 14 Wrench (1pc.)
CHA collet : 9 × 11 Wrench (1pc.)
CHSS collet : 6.1 × 8 Wrench (1pc.)
See p.53

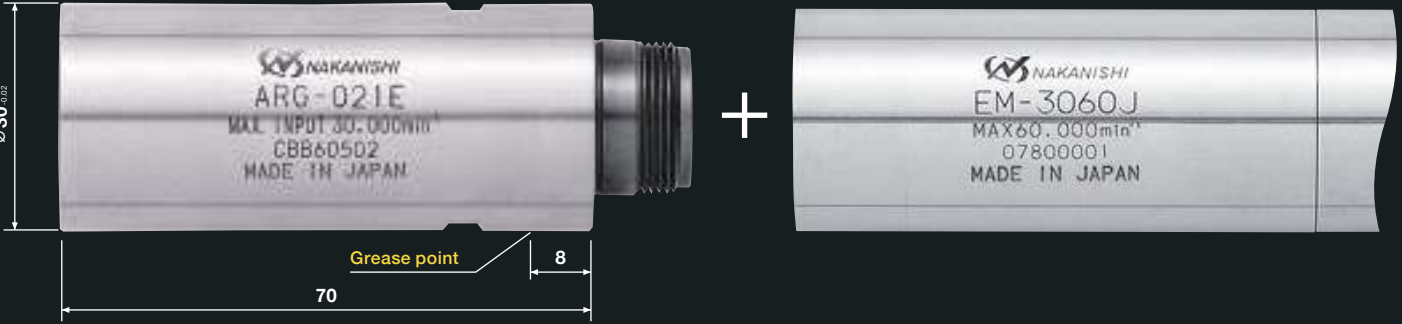


Speed Reducer (Modular type)

ARG-011E
Speed Reducer (1/4)



ARG-021E
Speed Reducer (1/16)



RG-3004M
Oil mist type Speed Reducer (1/4)

- Max. input speed 60,000min⁻¹ (standard type 30,000min⁻¹)
- Longer product life by oil mist lubrication
- No greasing is necessary
- Oil mist supply is necessary
- ※ Not recommended for dry machining.



Specifications

DXF data DXF files are available on our website

Order by Code No.

ARG-011E



Code No. 1507 Model ARG-011E

O.D.	Max. speed at the cutting tool	Reduction ratio	Max. rpm	Weight
Ø30mm	7,500min ⁻¹	$\frac{1}{4}$	30,000min ⁻¹	242g

Standard Accessories Grease for reduction gear (10mℓ) / Grease nipple : 1pc.

! Put grease every 70 to 100 hours to extend the life of the Speed reducer.
Grease-up prevents friction of the internal gears and degradation of the existing grease in the reducer.

ARG-021E



Code No. 1508 Model ARG-021E

O.D.	Max. speed at the cutting tool	Reduction ratio	Max. rpm	Weight
Ø30mm	1,870min ⁻¹	$\frac{1}{16}$	30,000min ⁻¹	325g

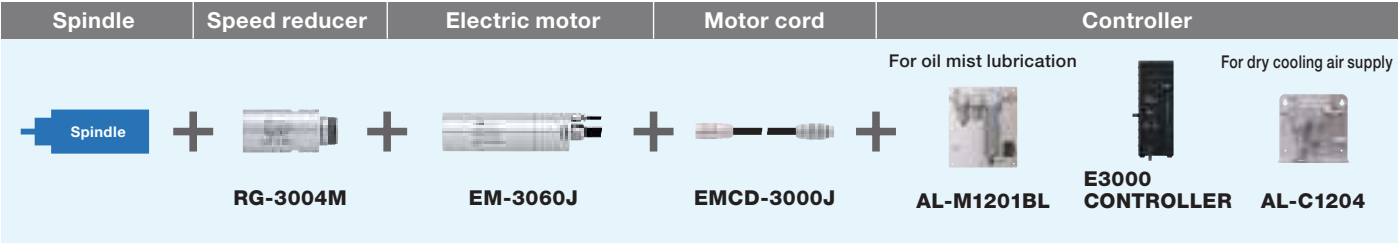
Standard Accessories Grease for reduction gear (10mℓ) / Grease nipple : 1pc.

! Put grease every 70 to 100 hours to extend the life of the Speed reducer.
Grease-up prevents friction of the internal gears and degradation of the existing grease in the reducer.

RG-3004M



Code No. 7348 Model RG-3004M



O.D.	Max. speed at the cutting tool	Reduction ratio	Max. rpm	Weight
Ø30mm	15,000min ⁻¹	$\frac{1}{4}$	60,000min ⁻¹	240g

Spindle
GuideCHN-A
K-265ACHA
CHK

NR-3080S

NRAF-5080



EM-3080J

EMCD-3000J
3M
4M
6M
8M

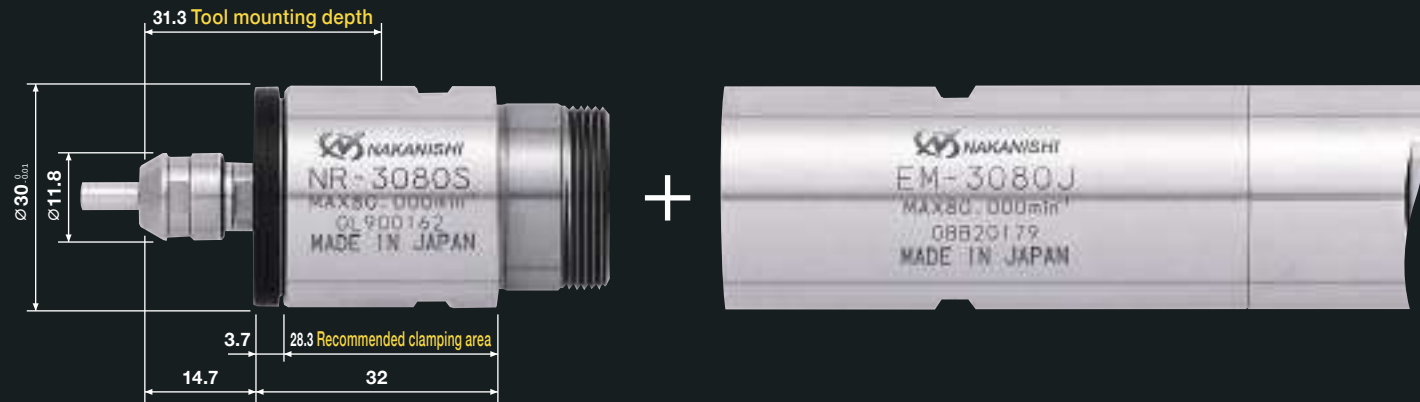
E3000 CONTROLLER

E3000 SELECTOR

E3000 SERIES

Shown In Actual Size

Spindle (Modular type)

NR-3080S
Short spindleO.D. ϕ 30mm

Specifications

DXF
dataDXF files are available
on our website

Order by Code No.

NR-3080S



Code No.

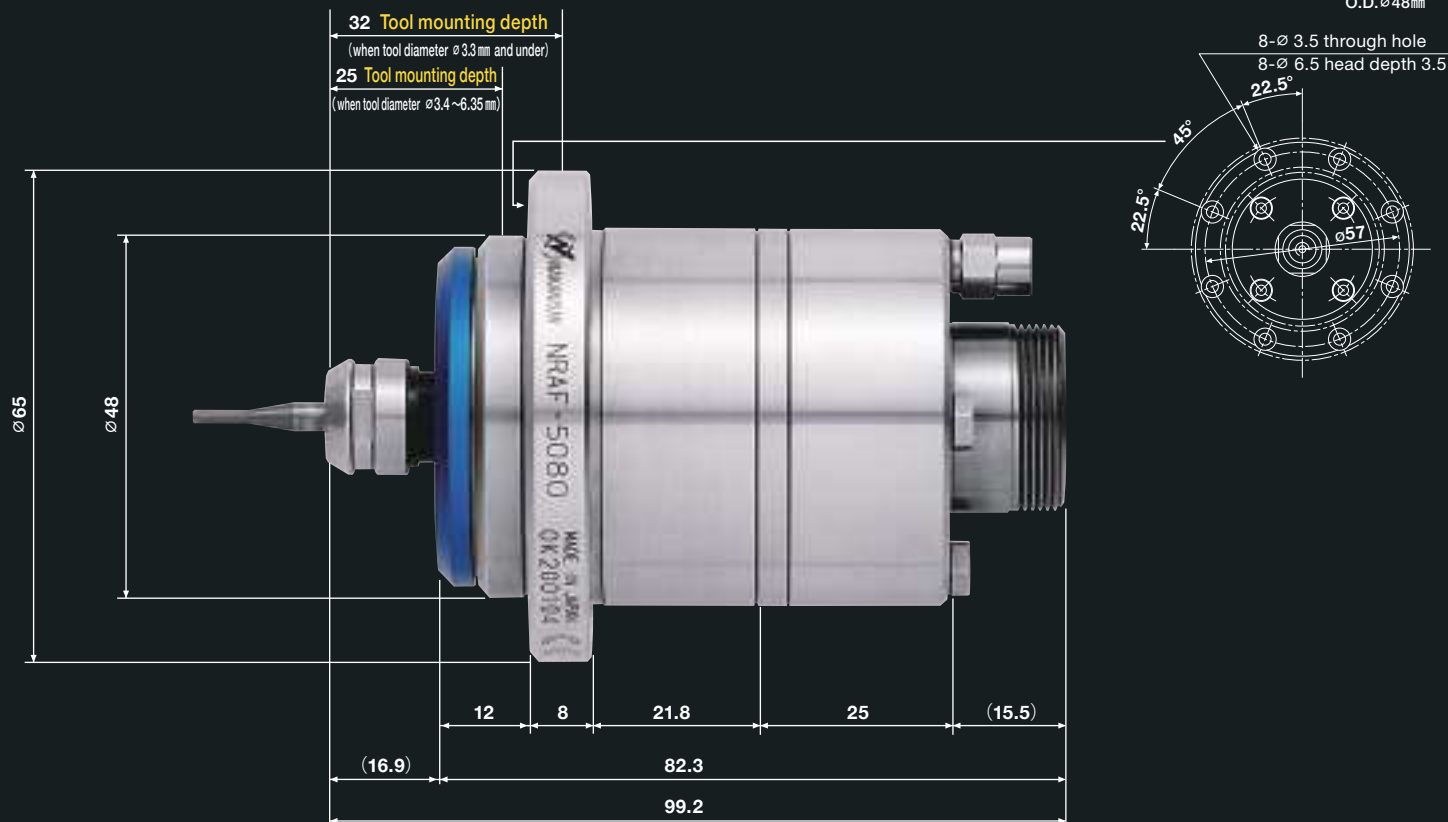
7876

Model

NR-3080S

O.D.	Max. rpm	Spindle Accuracy	Collet	Weight
ϕ 30mm	80,000min ⁻¹	Within 1 μ m	CHA Group (ϕ 0.5 ~ ϕ 4.0mm)	170g
Standard Accessories	Collet nut (CHN-A) / Wrench (22×27) · (8×5) · (9×11) : 1pc. each			
Options	Collet (CHA Group) : ϕ 0.5 ~ ϕ 4.0mm p.51			

※ Collet is sold separately.

NRAF-5080
Air bearing spindleO.D. ϕ 48mm

NRAF-5080



Code No.

1782

Model

NRAF-5080

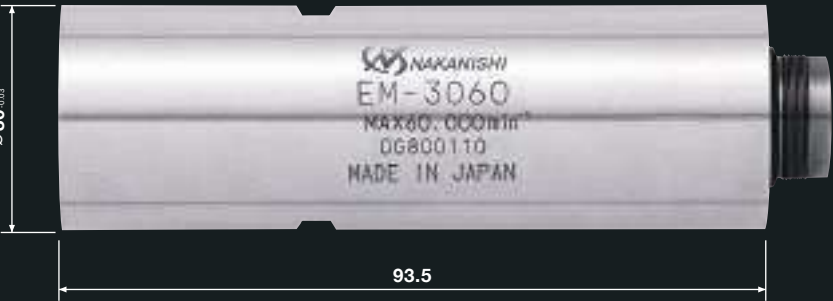
O.D.	Max. rpm	Appropriate bearing air pressure	Spindle Accuracy	Collet	Weight
ϕ 48mm	80,000min ⁻¹	35N ℓ /min (0.5MPa)	Within 1 μ m	CHK Group (ϕ 0.5 ~ ϕ 6.35mm)	810g
Specifications	Body mounting : flange mounting, M3 bolt (8 locations, equidistribution, 45° angle, PCD57) Bearing type : air static bearing / bearing load capacity : radial 18N, thrust 35N Useable Max. diameter of grindstone : ϕ 8.0mm and under on ϕ 6.0mm shank Hose diameter : ϕ 4mm , for bearing air inlet				
Standard Accessories	Collet : ϕ 3.0mm (CHK-3.0) / Collet nut (K-265A) / Wrench (12×14) : 2pcs. Reducer : 1pc. / Inlet air hose (ϕ 4mm×4m) : 1pc. / Bar wrench (K-236) : 1pc.				
Options	Collet (CHK Group) : ϕ 0.5 ~ ϕ 6.35mm p.51				

Motor

EM-3060
60,000min⁻¹ motor



O.D.φ30mm



EM-3060J
60,000min⁻¹ motor with joint type motor cord



O.D.φ30mm



Cord length L=0.3m / 2m

Specifications

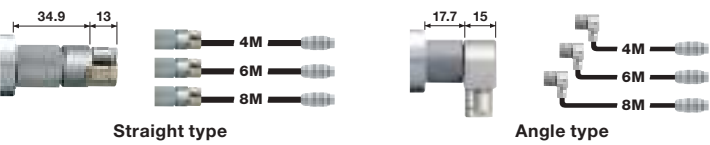
DXF data DXF files are available on our website

Order by Code No.

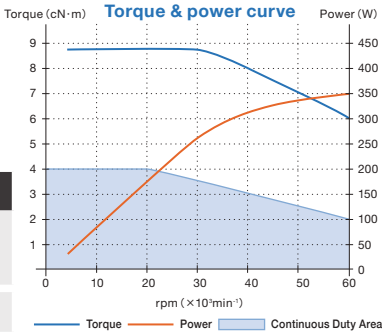
EM-3060



Code No.	1597	Model	EM-3060
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O.D.	Speed Range	Max. power	Weight
Ø30mm	1,000 ~ 60,000min ⁻¹	350w	325g
Standard Accessories	Wrench (22×27) : 1pc.		



EM-3060J

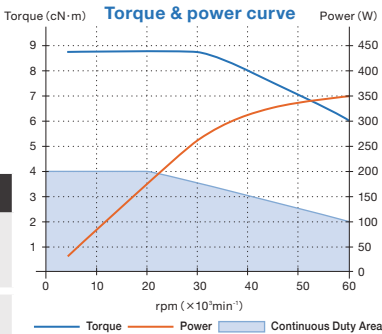


Length	0.3m	Code No.	1765	Model	EM-3060J
Length	2m	Code No.	1779	Model	EM-3060J-2M



※ Joint type motor cord is necessary.

O.D.	Speed Range	Max. power	Weight
Ø30mm	1,000 ~ 60,000min ⁻¹	350w	0.3m : 360g 2 m : 525g
Standard Accessories	Wrench (22×27) : 1pc.		



Motor

EM-3030T
30,000min⁻¹ torque motor

- EM-3030T torque is twice as big as EM-3060.



O.D. 30mm

EM-3030T-J
30,000min⁻¹ torque motor with joint type motor cord

- EM-3030T-J torque is twice as big as EM-3060J.



O.D. 30mm

Cord length L=0.3m / 2m

EM-3080J
80,000min⁻¹ motor with joint type motor cord



O.D. 30mm

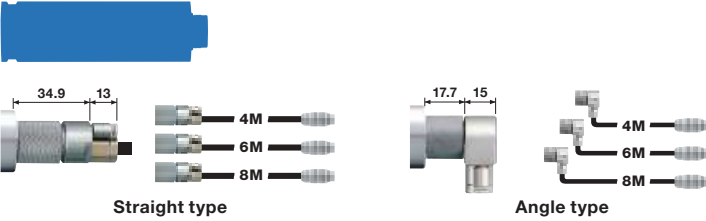
Cord length L=0.3m / 2m

Specifications

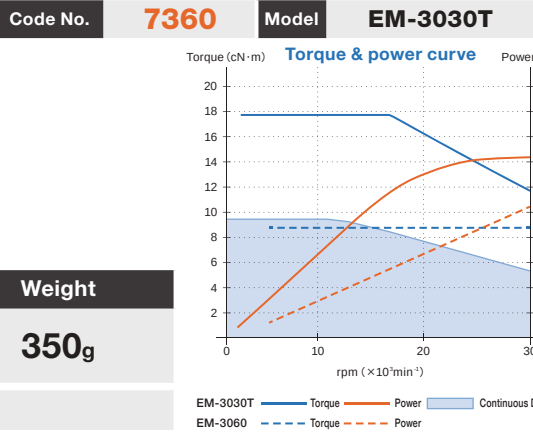
DXF data DXF files are available on our website

Order by Code No.

EM-3030T



O.D.	Speed Range	Max. power	Weight
Ø30mm	1,000 ~ 30,000min ⁻¹	350w	350g
Standard Accessories Wrench (22×27) : 1pc.			



Old type
(Color of air output joint is white)
Controller

New type
(Color of air output joint is blue)
Controller

If EM-3030T is connected to old type non applicable controller, it will not rotate.

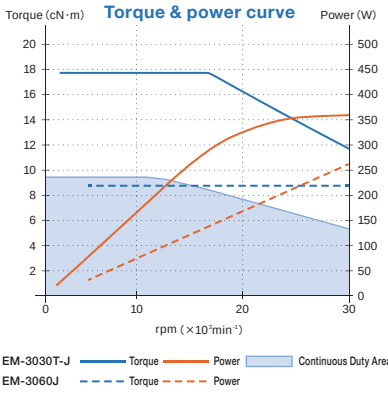
EM-3030T-J



Length	0.3m	Code No.	7358	Model	EM-3030T-J
Length	2m	Code No.	7359	Model	EM-3030T-J-2M



O.D.	Speed Range	Max. power	Weight
Ø30mm	1,000 ~ 30,000min ⁻¹	350w	0.3m : 425g 2 m : 600g
Standard Accessories Wrench (22×27) : 1pc.			



Old type
(Color of air output joint is white)
Controller

New type
(Color of air output joint is blue)
Controller

If EM-3030T-J is connected to old type non applicable controller, it will not rotate.

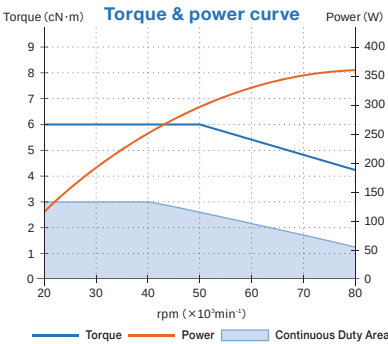
EM-3080J



Length	0.3m	Code No.	1781	Model	EM-3080J
Length	2m	Code No.	1788	Model	EM-3080J-2M



O.D.	Speed Range	Max. power	Weight
Ø30mm	20,000 ~ 80,000min ⁻¹	350w	0.3m : 375g 2 m : 550g
Standard Accessories Wrench (22×27) : 1pc.			



Spindle
Guide



CHK



NR-2551



EM25N-5000J



EMCD-2350J



E3000 CONTROLLER



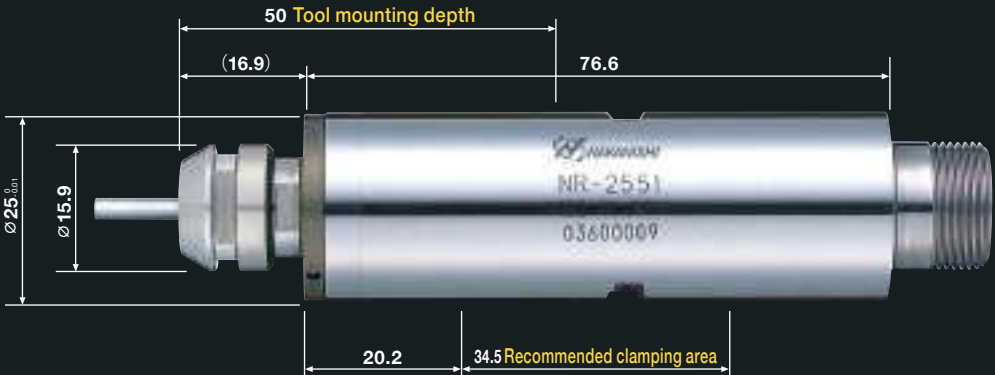
E3000 SELECTOR

E3000 SERIES

Spindle (Modular type)

Shown In Actual Size

NR-2551
Straight spindle



O.D. ø25mm

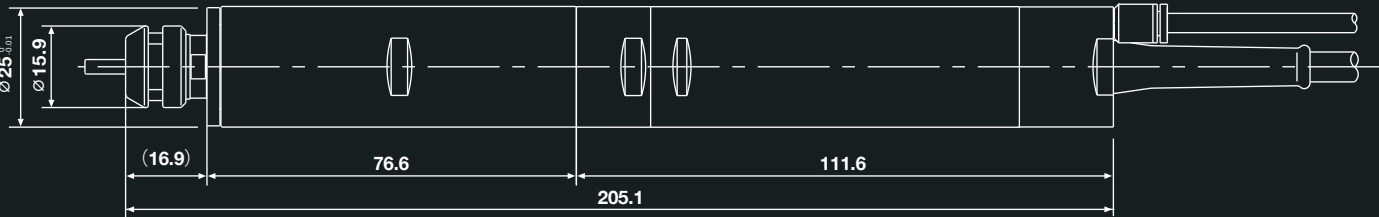
EM25N-5000J
50,000min⁻¹ motor



O.D. ø25mm

Cord length L=0.3m

Dimensions when connected



Specifications

DXF
data

DXF files are available
on our website

Order by Code No.

NR-2551



Code No.

7853

Model

NR-2551

O.D.	Max. rpm	Spindle Accuracy	Collet	Weight
Ø30mm	50,000min ⁻¹	Within 1μm	CHK Group (ø0.5 ~ ø6.35mm)	253g
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs. · (22×27) : 1pc.			
Options	Collet (CHK Group) : ø0.5 ~ ø6.35mm p.51			
	Metal Saw Arbor (KCH-03) : ød (I.D.) × under ø30mm (O.D.) /Grindstone Arbor (AGM-03) : Grindstone I.D. ø5.0mm			
	Grindstone Flange (EGF-19) : applicable grindstone I.D. ø19.05×O.D. ø40×7mm			

※ Outside diameter ø25.4mm type is also available.
※ Collet is sold separately.

EM25N-5000J



Code No.

7904

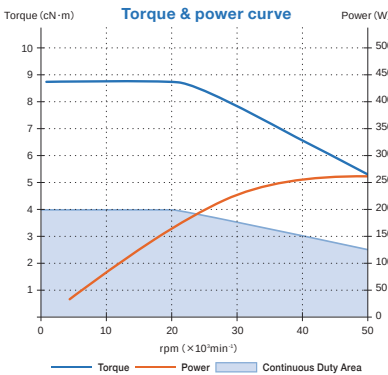
Model

EM25N-5000J



O.D.	Speed Range	Max. Power	Weight
Ø25mm	1,000 ~ 50,000min ⁻¹	250w	335g
Standard Accessories	Wrench (22×27) : 1pc.		

※ Use EMCD-2350J Series for Motor code.



Motor cord

Motor cord	Cord No.	Model	Model	Standard Accessories	Compatible model
	7722	EMCD-2350J-4M	3.7m	Air hose Connector cap (Included)	EM25N-5000J
	7723	EMCD-2350J-6M	5.7m		
	7724	EMCD-2350J-8M	7.7m		

Motor spindle (One-piece type)



30 EMS-3060K
p.39

30 EMR-3008K
p.39



30 EM30-S6000
p.43

25 EM25-S6000
p.43

20 EM20-S6000
p.43



30 EMA-3020K
p.41

30 EMA-3020S
p.41

30 EMSF-3060K
p.45



Spindle
Guide

CHK



EMS-3060K



EMR-3008K



EMCD-3000J



E3000 CONTROLLER



E3000 SELECTOR

E3000 SERIES

Shown In Actual Size

Motor spindle (One-piece type)

EMS-3060K

ø30 Motor spindle

CHK collet·30cm joint cord



O.D. ø30mm



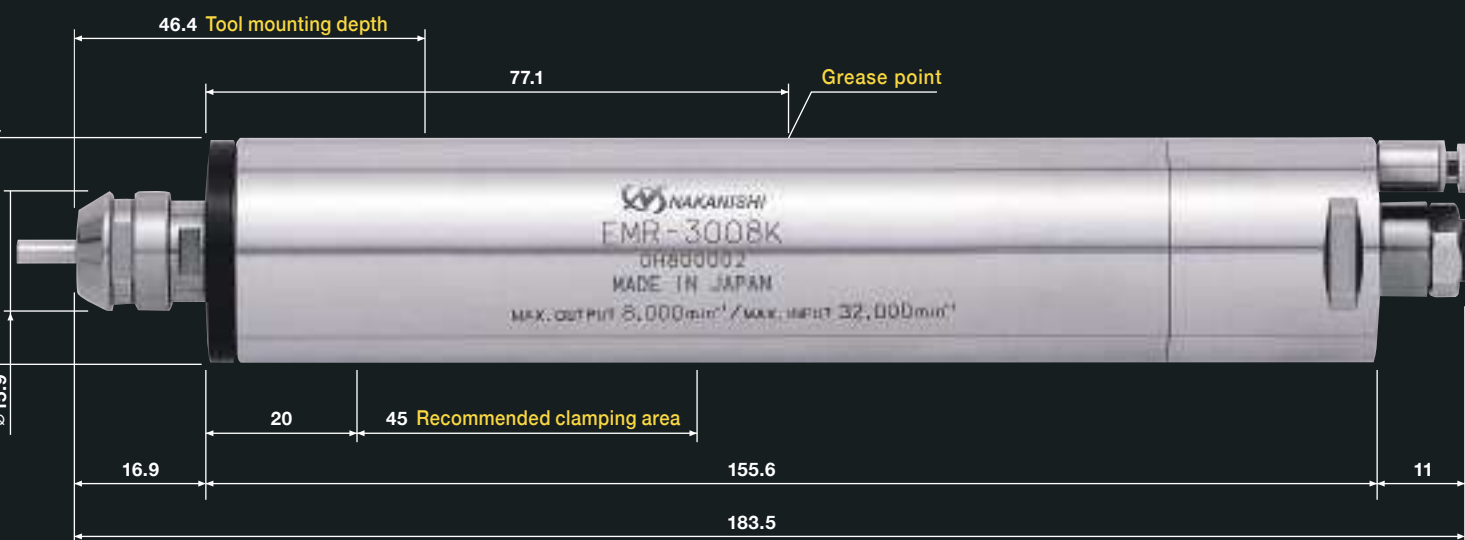
Cord length L=0.3m

EMR-3008K

Motor spindle with reduction gear



O.D. ø30mm



Cord length L=0.3m

Specifications

DXF
dataDXF files are available
on our website

Order by Code No.

EMS-3060K



Code No.

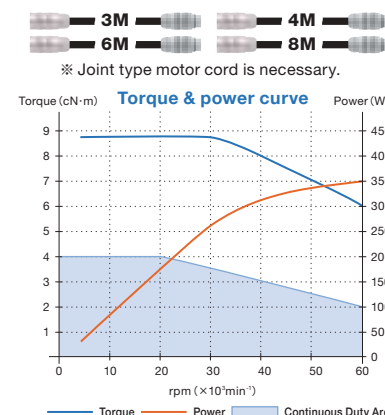
7862

Model

EMS-3060K

O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power	Weight
ø30mm	60,000min ⁻¹	Within 1μm	CHK Group (ø0.5 ~ ø6.35mm)	350w	565g
Standard Accessories		Collet nut (K-265) / Wrench (12×14) : 2pcs.			
Options		Collet (CHK Group) : ø0.5 ~ ø6.35mm p.51			
		Motor cord : Length 3m (1778), 4m (1768), 6m (1767), 8m (1766)			
		Metal Saw Arbor (KCH-03) : ød (I.D.) × under ø30mm (O.D.) /			
		Grindstone Arbor (AGM-03) : Grindstone I.D. ø5.0mm			
		Grindstone Flange (EGF-19) : for grindstone I.D. ø19.05×O.D. ø40×7mm			

※ Collet is sold separately.



EMR-3008K



Code No.

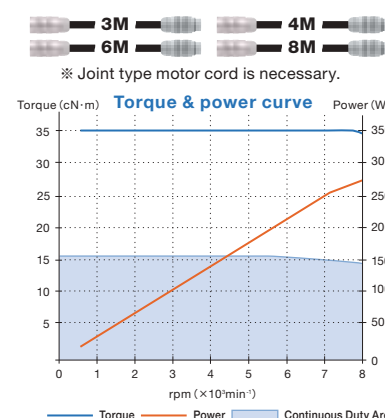
7869

Model

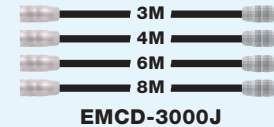
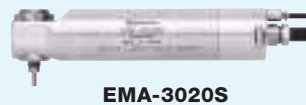
EMR-3008K

O.D.	Max. speed at the cutting tool	Reduction ratio	Max. rpm
ø30mm	8,000min ⁻¹	$\frac{1}{4}$	32,000min ⁻¹
Spindle Accuracy	Collet	Max. power	Weight
Within 1μm	CHK Group (ø0.5 ~ ø6.35mm)	350w	650g
Standard Accessories		Collet nut (K-265) / Wrench (12×14) : 2pcs.	
		Grease for reduction gear (10mℓ) / Grease nipple : 1pc.	
Options		Collet (CHK Group) : ø0.5 ~ ø6.35mm p.51	
		Motor cord : Length 3m (1778), 4m (1768), 6m (1767), 8m (1766)	
		Metal Saw Arbor (KCH-03) : ød (I.D.) × under ø30mm (O.D.) /	
		Grindstone Arbor (AGM-03) : Grindstone I.D. ø5.0mm	
		Grindstone Flange (EGF-19) : for grindstone I.D. ø19.05×O.D. ø40×7mm	

※ Collet is sold separately.



! Put grease every 70 to 100 hours to extend the life of the reduction gear. Grease-up prevents friction of the internal gears and degradation of the existing grease in the reducer.

Spindle
Guide

E3000 SERIES

Shown In Actual Size

Motor spindle (One-piece type)

EMA-3020K

Angle motor spindle
Standard angle head

O.D. ϕ 30mm

EMA-3020S

Angle motor spindle
Built-in angle head

O.D. ϕ 30mm

Specifications

DXF
dataDXF files are available
on our website

Order by Code No.

EMA-3020K



Code No.

7874

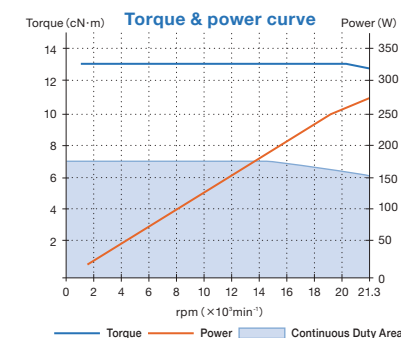
Model

EMA-3020K

O.D.	Max. speed at the cutting tool	Reduction ratio	Max. rpm
ϕ 30mm	21,300min ⁻¹	$\frac{1}{1.5}$	32,000min ⁻¹
Spindle Accuracy	Collet	Max. power	Weight
Within 2 μ m	CHK Group (ϕ 0.5 ~ ϕ 6.35mm)	280w	760g
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs. Grease for Speed reducer (10m ℓ) / Grease nipple : 1pc.		
Options	Collet (CHK Group) : ϕ 0.5 ~ ϕ 6.35mm p.51 Motor cord : Length 3m (1778), 4m (1768), 6m (1767), 8m (1766) Metal Saw Arbor (KCH-03) : ϕ d (I.D.) $\times$ under ϕ 30mm (O.D.) / Grindstone Arbor (AGM-03) : Grindstone I.D. ϕ 5.0mm		



※ Joint type motor cord is necessary.



※ Collet is sold separately.



Put grease every 70 to 100 hours to extend the life of the Speed reducer.
Grease-up prevents friction of the internal gears and degradation of the existing grease in the reducer.

EMA-3020S



Code No.

1758

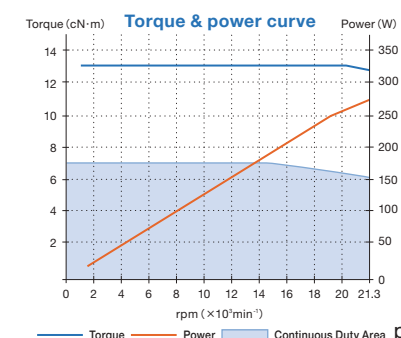
Model

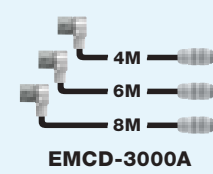
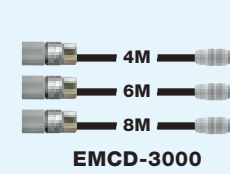
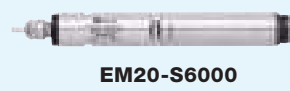
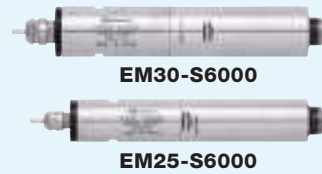
EMA-3020S

O.D.	Max. speed at the cutting tool	Reduction ratio	Max. rpm
ϕ 30mm	21,300min ⁻¹	$\frac{1}{1.5}$	32,000min ⁻¹
Spindle Accuracy	Collet	Max. power	Weight
Within 3 μ m	CHSS Group (ϕ 1.0 ~ ϕ 3.175mm)	275w	605g
Standard Accessories	Collet : ϕ 3.0mm (CHSS-3.0) / Wrench (7×5.1) · (8×6.1) : 1pc. each		
Options	Collet (CHSS Group) : ϕ 1.0 ~ ϕ 3.175mm p.51 Motor cord : Length 3m (1778), 4m (1768), 6m (1767), 8m (1766)		



※ Joint type motor cord is necessary.



Spindle
Guide

E3000 SERIES

Shown In Actual Size

Motor spindle (One-piece type)

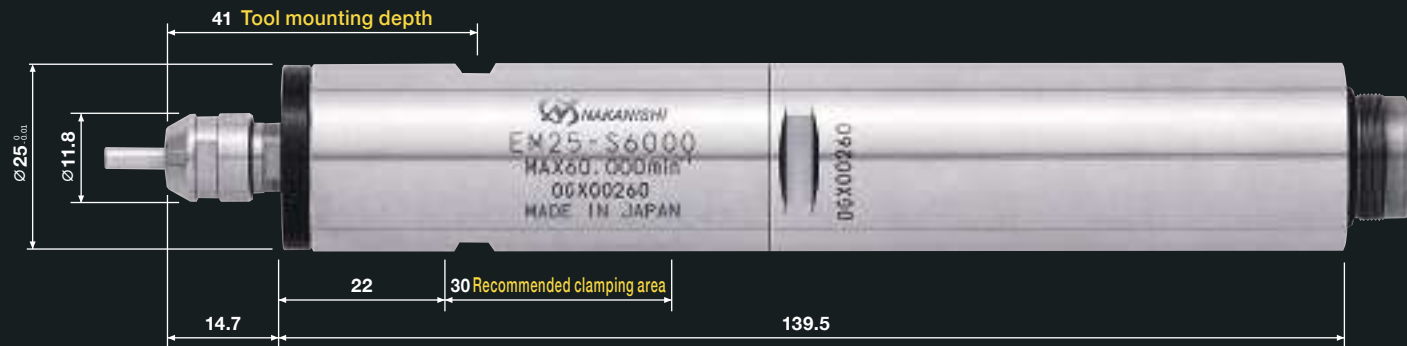
EM30-S6000

ø30 Motor spindle · CHK collet



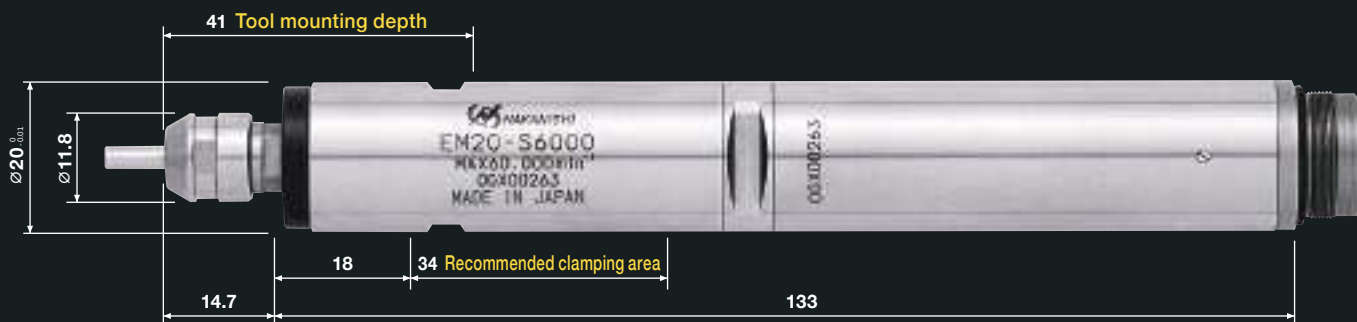
EM25-S6000

ø25 Motor spindle · CHA collet



EM20-S6000

ø20 Motor spindle · CHA collet



Specifications

DXF
dataDXF files are available
on our website

Order by Code No.

EM30-S6000



Code No.

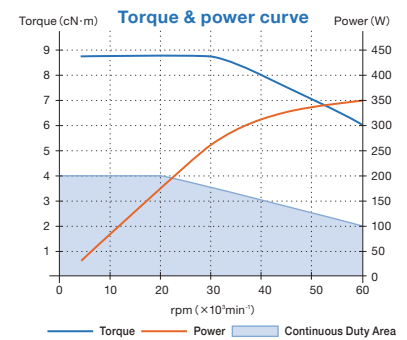
7903

Model

EM30-S6000

O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power	Weight
ø30mm	60,000min ⁻¹	Within 1μm	CHK Group (ø0.5 ~ ø6.35mm)	350w	575g
Standard Accessories		Collet nut (K-265) / Wrench (12×14) : 2pcs.			
Options		Collet (CHK Group) : ø0.5 ~ ø6.35mm p.51			
		Motor cord : Length 4m (1748), 6m (1749), 8m (1750) ※Angle type is also available			
		Metal Saw Arbor (KCH-03) : ød (I.D.) × under ø30mm (O.D.) /			
		Grindstone Arbor (AGM-03) : Grindstone I.D. ø5.0mm			
		Grindstone Flange (EGF-19) : for grindstone I.D. ø19.05×O.D. ø40×7mm			

※ Collet is sold separately.



EM25-S6000



Code No.

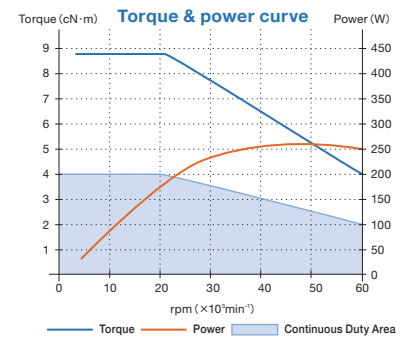
7858

Model

EM25-S6000

O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power	Weight
ø25mm	60,000min ⁻¹	Within 1μm	CHA Group (ø0.5 ~ ø4.0mm)	250w	375g
Standard Accessories		Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each			
Options		Collet (CHA Group) : ø0.5 ~ ø4.0mm p.51			
		Motor cord : Length 4m (1748), 6m (1749), 8m (1750) ※Angle type is also available			

※ Collet is sold separately.



EM20-S6000



Code No.

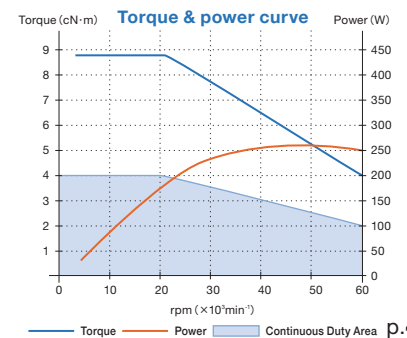
7860

Model

EM20-S6000

O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power	Weight
ø20mm	60,000min ⁻¹	Within 1μm	CHA Group (ø0.5 ~ ø4.0mm)	250w	230g
Standard Accessories		Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each			
Options		Collet (CHA Group) : ø0.5 ~ ø4.0mm p.51			
		Motor cord : Length 4m (1748), 6m (1749), 8m (1750) ※Angle type is also available			

※ Collet is sold separately.



Spindle
Guide

CHK



EMSF-3060K



EMCD-3000J



E3000 CONTROLLER



E3000 SELECTOR

E3000 SERIES

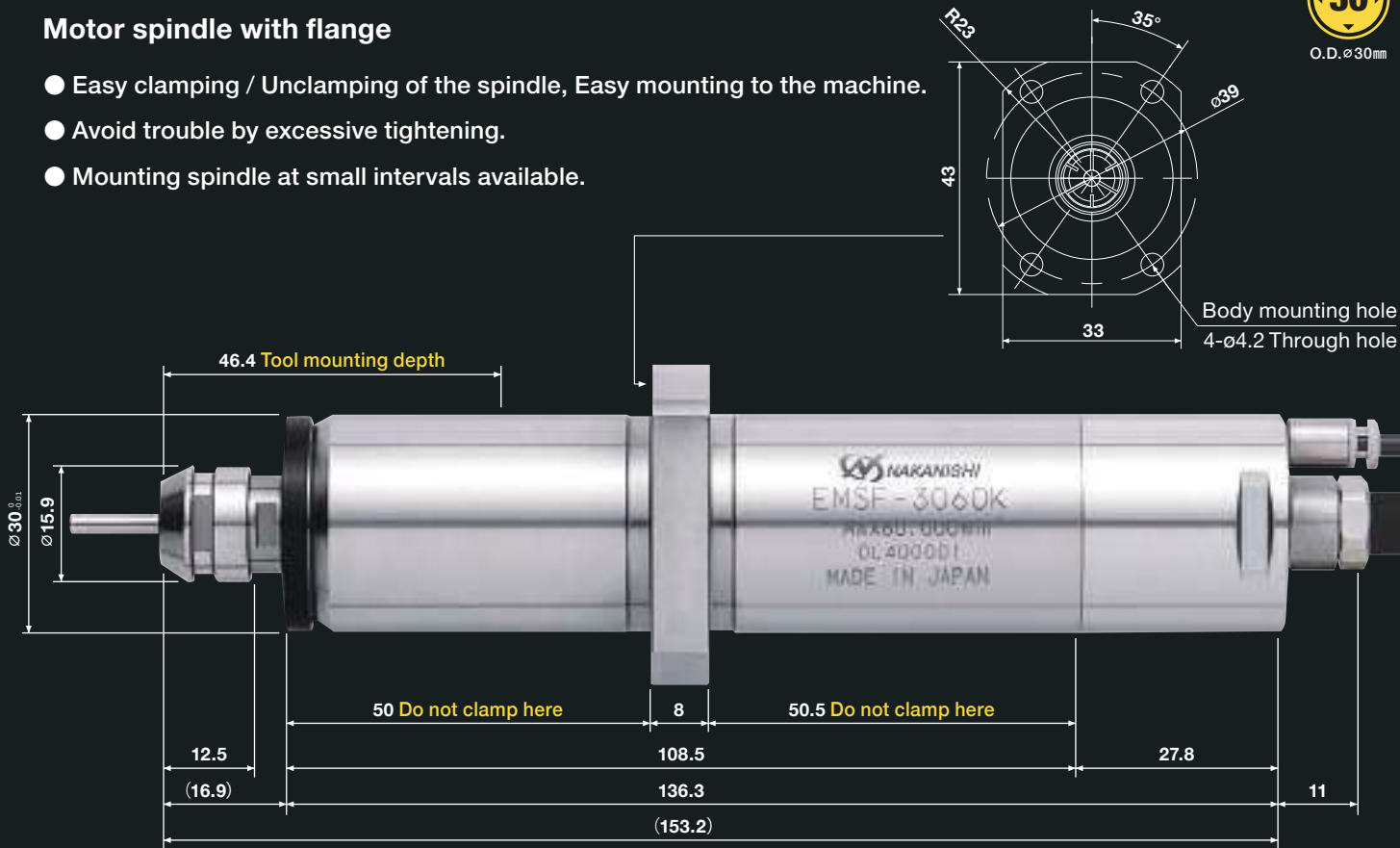
Shown In Actual Size

Motor spindle (One-piece type)

EMSF-3060K

Motor spindle with flange

- Easy clamping / Unclamping of the spindle, Easy mounting to the machine.
- Avoid trouble by excessive tightening.
- Mounting spindle at small intervals available.

O.D. ϕ 30mm

Cord length L=0.3m

Specifications

DXF
dataDXF files are available
on our website

Order by Code No.

EMSF-3060K



Code No.

7863

Model

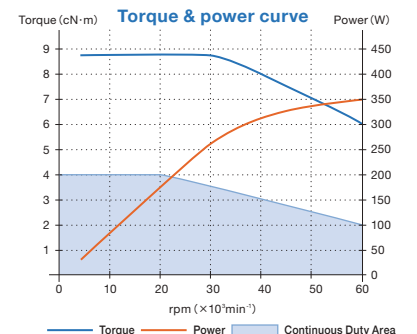
EMSF-3060K

O.D.	Max. rpm	Spindle Accuracy	Collet
Ø30mm	60,000min ⁻¹	Within 1μm	CHK Group (Ø0.5 ~ Ø6.35mm)
Max. power	Weight		
350w	620g		
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs.		
	Air hose 0.3m : 1pc. / Lock bolt (M4 hexagon socket head bolt) : 4pcs.		
Options	Collet (CHK Group) : Ø0.5 ~ Ø6.35mm p.51		
	Motor cord : Length 3m (1778), 4m (1768), 6m (1767), 8m (1766)		

※Collet is sold separately.



※ Joint type motor cord is necessary.



Various ways to mount

3 spindle types are available in E3000 series to meet customer' s demands



Straight type

Mounting devices have to be prepared by user



Straight type + Grip Ring

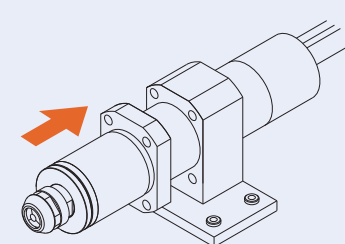
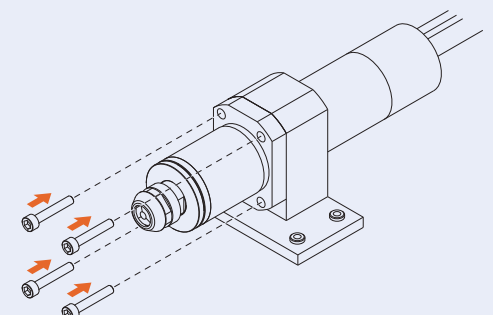
Type of usage for attachment to straight spindle
Grip Ring TS available

With flange

Type of spindle and mounting device
integrated

How to mount to a machine tool

In case of EMSF-3060K / NRF-3060S

1 Insert motor spindle body
into the holder2 Tighten the flange with
4 lock bolt (M4)

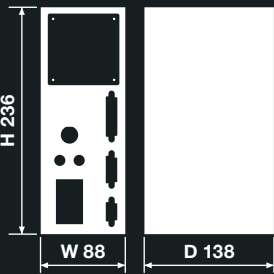
※Above figures show EMSF-3060K. NRF-3060S has 3 mounting holes (See p.9)

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

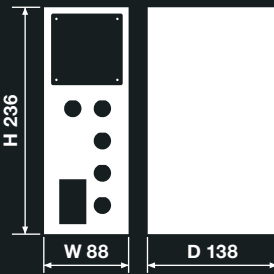
Speed Range	
1,000~80,000min ⁻¹	
Input Voltage	
AC100~240v Without plug Multiple output power	
Max. power	Power consumption
350w	AC1.8A
Air consumption	Weight
30Nℓ/min (at 0.25~0.3MPa)	2.8kg
Standard Accessories	
Power cord : 2m / Air hose with filter (K-251 : 2058)	
Reducer / Connector cap (Included)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

E3000 Selector



E3000 SELECTOR
Selector

Code No. **8426**



Number of motor		
4pcs. Up to 4 motors to control with connecting selector to controller ※not simultaneously		
Input Voltage		
AC100~240v Without plug Multiple output power		
Power consumption	Air consumption	Weight
AC0.15A	120ℓ/min (When connecting 4 motors)	1.9kg
Standard Accessories		
Power cord : 2m / Communication cable : 60cm		
Selector connecting cord : 60cm		
Connector cap (Included) / Plug to avoid air flow		
Bracket / Nylon Clip / Screw / Rubber pad		
Fuse (T1.6AL) 250V : 2pcs.		

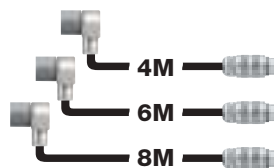
Straight type

Technical drawing of a cable connector. The drawing shows a cross-section of the connector with two dimensions indicated: 34.9 and 13. The dimension 34.9 is the length of the main body, and 13 is the length of the inner sleeve.



Angle type

Technical drawing of a shaft with dimensions 17.7 and 15.



Joint type



3M
4M
6M
8M

Accessories (Air line kit, etc.)

AL-C1204

※ 1



AL-M1201BL



AL-A1205

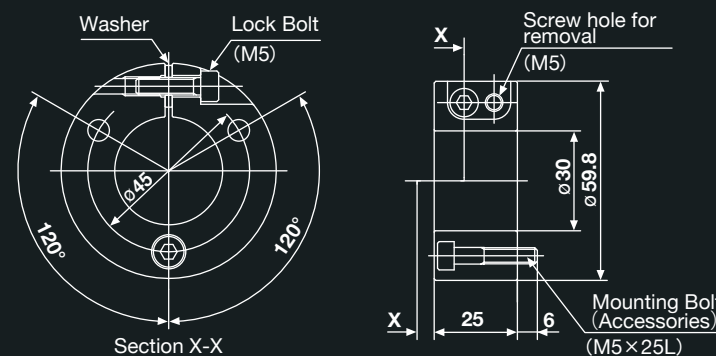
※1 ※2

**AL-A0611**

※ 1 Recommendation of nominal filtration rating : 0.3μm, Pressure range : 0.1-1.0MPa Recommendation of air filter : M2000-WS (CKD)
 ※ 2 Customers to provide their own micro-mist separator (filtration rating 0.01 μm)

GR-30

Grip Ring



Standard Accessories	Mounting Bolt (GR-30) M5×25 : 3pcs.
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3 Insert and position the spindle referring to the Recommended Clamping Area on the spindle

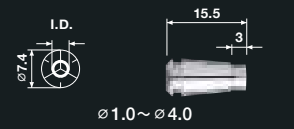
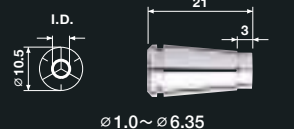
2 Tighten the Mounting Bolt to widen the inside diameter

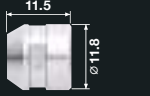
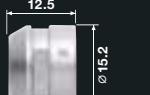
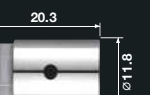
4 Remove the Mounting Bolt

5 Tighten the Lock Bolt (4N·m)

6 Affix them to the machine with Mounting Bolt (Recommended tightening torque: 4N·m)

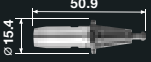
Accessories (Collet, etc.)

Collet	Code No.	Model	I.D.	Compatible model
 Collet CHA Group	91494	CHA-3.0AA	ø3.0AA※	CTS-3030 EM20-S6000・EM25-S6000 EMS-3060A・NR-3080S ※ High precision type AA (Run-out Accuracy within 2 μm)
	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	
	91440	CHA-4.0	ø4.0	
	—	CHA-□□	ø0.5,ø0.6,ø0.7,ø0.8,ø0.9 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 ø1.0,ø1.5,ø2.0,ø2.5,ø3.5 ø1.6	
 Collet CHB Group	92820	CHB-2.0	ø2.0	NR40-5100 ATC NRR-3060・NRR-2651 NR33-6000ATC-ESD
	92830	CHB-3.0	ø3.0	
	92893	CHB-3.175	ø3.175	
	92835	CHB-3.5	ø3.5	
	92840	CHB-4.0	ø4.0	
 Collet CHK Group	91597	CHK-3.0AA	ø3.0AA※	EM30-S6000・EMA-3020K EMS-3060K・EMR-3008K NR-151E・NR-3060S NRF-3060S・NR-3060 NR-403E・RAS-151E RAX-271E・RAX-71E NRAF-5080 ※ 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 CHR Group	91930	CHR-3.0	ø3.0	NR50-5100 ATC
	91993	CHR-3.175	ø3.175	
	91996	CHR-6.35	ø6.35	
	91920	CHR-2.0	ø2.0	
	91940	CHR-4.0	ø4.0	
	91960	CHR-6.0	ø6.0	
 Collet CHR RS Group	93201	CHR-3.0RS	ø3.0	NR50-5100 ATC RS ※Also available for NR50-5100 ATC
	93202	CHR-3.175RS	ø3.175	
	93203	CHR-4.0RS	ø4.0	
	93204	CHR-6.0RS	ø6.0	
	93205	CHR-6.35RS	ø6.35	
 Collet CHS Group	90592	CHS-2.35	ø2.35	RA-271E
	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 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 ø2.35	
 Collet CHSS Group	93092	CHSS-2.35	ø2.35	EMA-3020S
	93030	CHSS-3.0	ø3.0	
	93093	CHSS-3.175	ø3.175	
	—	CHSS-□□	ø1.0,ø1.5,ø2.0,ø2.5	
 Collet CH8 Group	91092	CH8-2.35	ø2.35	RA-151E
	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	

Collet nut	Code No.	Model	Description	Compatible model
	2102	CHN-A	Collet nut for CHA collet	EM20-S6000・EM25-S6000 EMS-3060A・NR-3080S
	2129	K-265	Collet nut for CHK collet	EM30-S6000・EMA-3020K EMS-3060K・EMR-3008K NR-151E・NR-3060S NRF-3060S・NR-3060 NR-403E・RAS-151E RAX-271E・RAX-71E
	2158	K-265A	Collet nut for NRAF-5080	NRAF-5080
	7798	CHN-CTA-3.0	Collet nut for CTS-3030	CTS-3030
	7799	CHN-CTA-3.175		
	7800	CHN-CTA-4.0		

Metal Saw Arbor · Grindstone Arbor	Code No.	Model	I.D. / Description / Specifications		Compatible model
	2146	KCH-02 (5.0)	ø5.0 (I.D.)	Metal Saw Arbor ød (I.D.) x under ø30mm (O.D.) Run-out Accuracy : within 0.02mm	RA-151E
	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.)	Metal Saw Arbor ød (I.D.) x under ø30mm (O.D.) Run-out Accuracy : within 0.02m	EMA-3020K · EMS-3060K EMR-3008K NR-3060S · NRF-3060S NR-3060 · RAS-151E RAX-71E · RAX-271E
	2130	KCH-03 (6.0)	ø6.0 (I.D.)		
	2149	KCH-03 (8.0)	ø8.0 (I.D.)		
	2131	AGM-03	Grindstone Arbor Run-out Accuracy : within 0.02mm for Grindstone I.D. ø5.0mm		EMA-3020K · EMS-3060K EMR-3008K NR-3060S · NRF-3060S NR-3060 · RAS-151E RAX-71E · RAX-271E
	2138	EGF-19	Grindstone Flange Available grindstone dimension ø19.05 (I.D.) x ø40 (O.D.) mm x 7 (width) mm		EMS-3060K · EMR-3008K NR-3060S · NRF-3060S NR-3060 · NR-403E

Grease for speed reducer	Code No.	Model	Description	Compatible model
	1547	—	Grease for speed reducer (2.5mℓ)	ARG-011E・ARG-021E EMA-3020K RAX-271E・RAX-71E
	1550	—	Grease for speed reducer (10mℓ)	
	1549	—	Grease for speed reducer (100mℓ)	

Collet holder	Code No.	Model	Description	Compatible model
	9210	QC3-K	Collet holder for CHK ※ With K-265 (Collet nut)	NR3060-AQC NRR3060-QC
	9223	QC3-K-R		
	9209	QC3-A	Collet holder for CHA ※ With CHN-A (Collet nut)	
	9222	QC3-A-R		
	7794	QC3-SS	Collet holder for CHSS	

Bush	Code No.	Model	Description × I.D. × O.D.	Compatible model
	1877	RB-20×22	ø22 Bush Dimensions : ø20×ø22×40mm	EM20-S6000
	1876	RB-20×22.8	ø22.8 Bush Dimensions : ø20×ø22.8×40mm	
	1875	RB-20×23	ø23 Bush Dimensions : ø20×ø23×40mm	
	1878	RB-20×25	ø25 Bush Dimensions : ø20×ø25×40mm	
	1879	RB-20×25.4	ø25.4 Bush Dimensions : ø20×ø25.4×40mm	
	1880	RB-30×32	ø32 Bush Dimensions : ø30×ø32×45mm	NR-3060S・NR-3060・NR-403E
	1881	RB-30×36	ø36 Bush Dimensions : ø30×ø36×45mm	

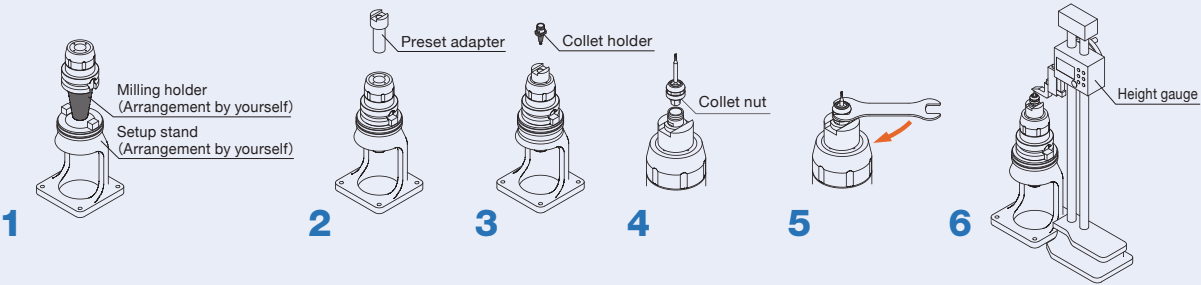
Accessories

Preset adapter	Cod e No.	Model	Description	Compatible model
	9211	QC3-ADP	Preset adapter	QC3-K·QC3-A QC3-SS

For QC3-K/A

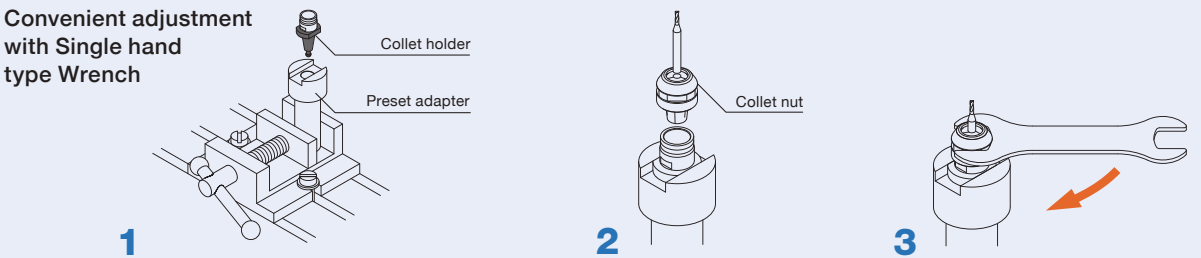
Set-up outside machines

In case using a milling holder



Set-up outside machines

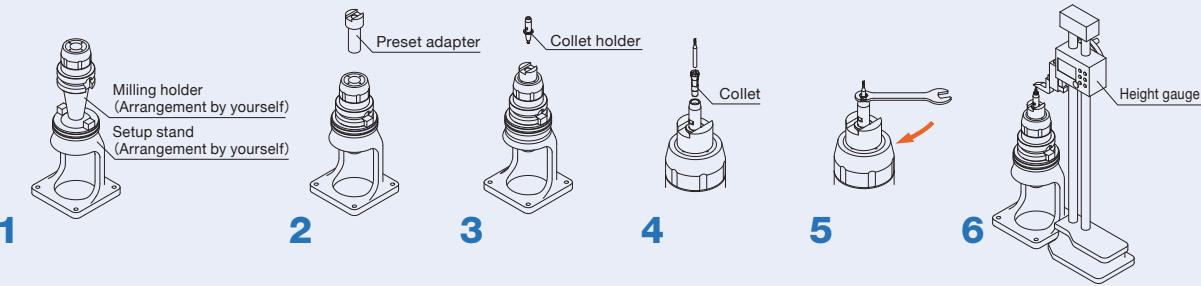
In case using a vice



For QC3-SS

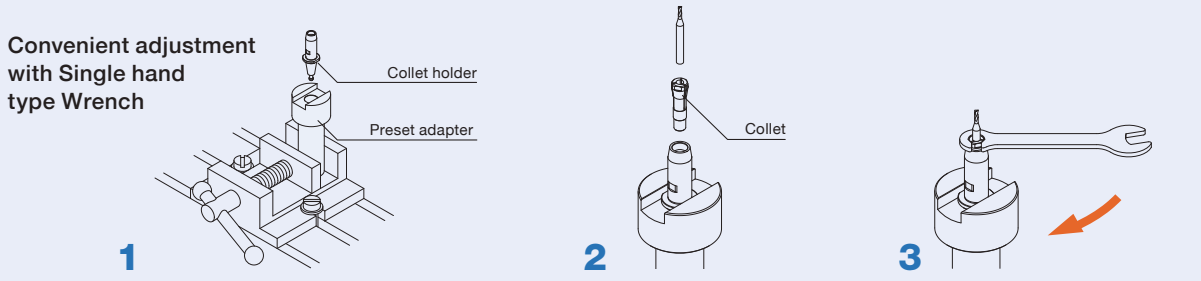
Set-up outside machines

In case using a milling holder



Set-up outside machines

In case using a vice



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

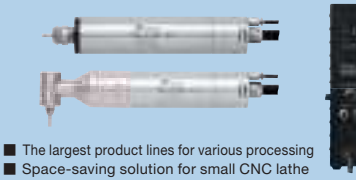
1,000~40,000min⁻¹ Max.1,200W
[$\phi 40\text{mm}$]



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

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

HES SERIES

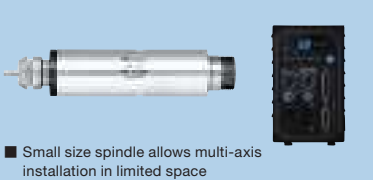
Max.80,000min⁻¹
[For small diameter endmills and drills only]



- [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

E2000 SERIES

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



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

iSpeed3 SERIES

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



- Super short motor spindle
- High efficiency brushless motor



- [HESS10]
- 50,000min⁻¹, 8.75cN·m
- BT, NT, CAT, IT, HSK A, ST shanks are available
- Driven by E3000 Controller

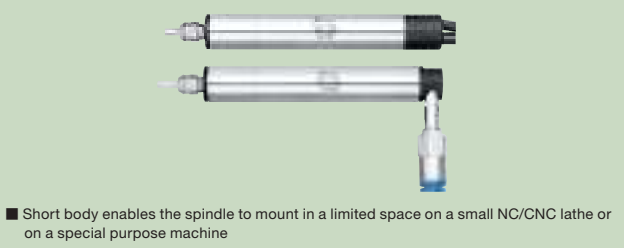
Air Motors & Spindles



Application for CNC lathes / Special purpose machines

Air-Speed SERIES One-piece type

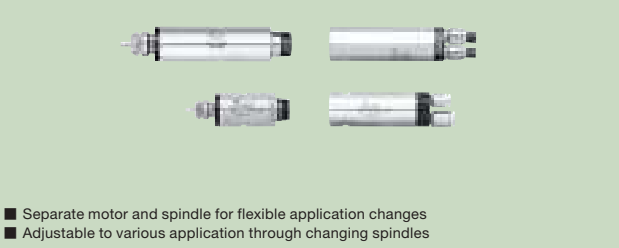
Max.30,000min⁻¹ Max.130W
[$\phi 25/23/20/19.05\text{mm}$]



- 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

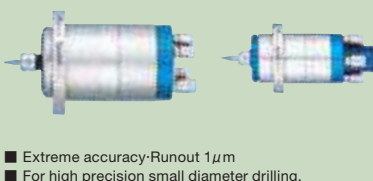


Application for CNC lathes / Special purpose machines

Application for machining centers and milling machines

Xpeed SERIES

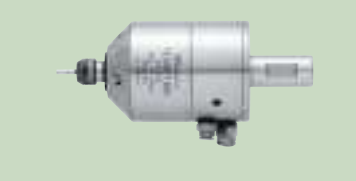
Max.160,000min⁻¹
[$\phi 65/40\text{mm}$]



- 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

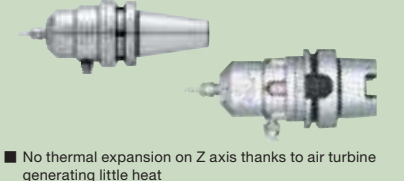
Max.65,000min⁻¹



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

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



NAKANISHI INC.

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TEL: +81-289-64-3520 / FAX: +81-289-62-1135

※Specifications and design are subject to change without notice.

www.nakanishi-inc.com
PR-K362E Ver.1 2022-02-24 02. ㊞ 650

E4000

NAKANISHI INC. 2022



SERIES **E4000**
ULTRA-HIGH-SPEED & SUPER-PRECISION

「Little Giant」

This little spindle brings you a giant profit

✓ The Strongest Spindle in its Ø40mm class

- Max power 1,200W
- E4000 torque is 10 times as big as E3000
BMS-4020 (100cN·m), EMS-3060K (10cN·m)

✓ Spindle accuracy within 1 μm

- Optimum for high-precision machining
- Longer tool life

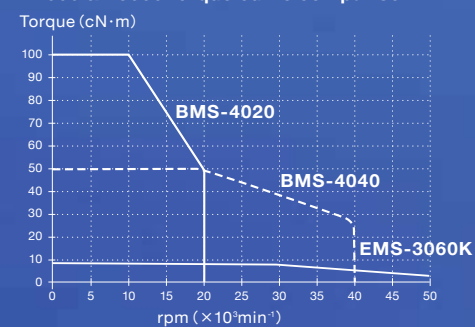
✓ Ceramic Bearing

- 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

E4000 & E3000 torque curve comparison

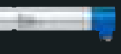


Index

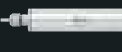
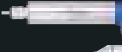
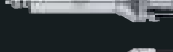
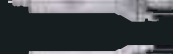
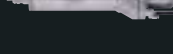
Spindle (Modular type)

NR4040-AQC Air quick change spindle Max.rpm 40,000min ⁻¹		p.7
NRR4040-QC Lever quick change spindle Max.rpm 40,000min ⁻¹		p.9
NR-4040 Straight type Max.rpm 40,000min ⁻¹		p.11

Motor (Modular type)

EM-4020 Straight cord type 1,000 ~ 20,000min ⁻¹		p.13
EM-4020A Angle cord type 1,000 ~ 20,000min ⁻¹		p.13
EM-4040 Straight cord type 1,000 ~ 40,000min ⁻¹		p.13
EM-4040A Angle cord type 1,000 ~ 40,000min ⁻¹		p.13

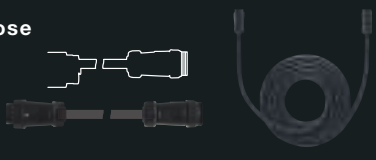
Motor Spindle (One-piece type)

BMS-4020 / BMS-4020 2M Straight cord type Max.rpm 20,000min ⁻¹		p.17
BMS-4020RA Angle cord type Max.rpm 20,000min ⁻¹		p.17
BMS-4040 / BMS-4040 2M Straight cord type Max.rpm 40,000min ⁻¹		p.19
BMS-4040RA Angle cord type Max.rpm 40,000min ⁻¹		p.19
BMS-4040-RGD-03M / BMS-4040-RGD-2M Straight cord type Max.rpm 40,000min ⁻¹		p.21
BMS-4040RA-RGD-03M / BMS-4040RA-RGD-2M Angle cord type Max.rpm 40,000min ⁻¹		p.21
BMS-4020-MQL / BMS-4020-MQL-2M Coolant through spindle Max.rpm 20,000min ⁻¹		p.23
BMS-4040-MQL / BMS-4040-MQL-2M Coolant through spindle Max.rpm 40,000min ⁻¹		p.23
BMS-4020-MQL-CHK / BMS-4020-MQL-CHK-2M Coolant through spindle Max.rpm 20,000min ⁻¹		p.25
BMS-4040-MQL-CHK / BMS-4040-MQL-CHK-2M Coolant through spindle Max.rpm 40,000min ⁻¹		p.25

Controller

E4000 CONTROLLER Controller		p.27
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Motor cord

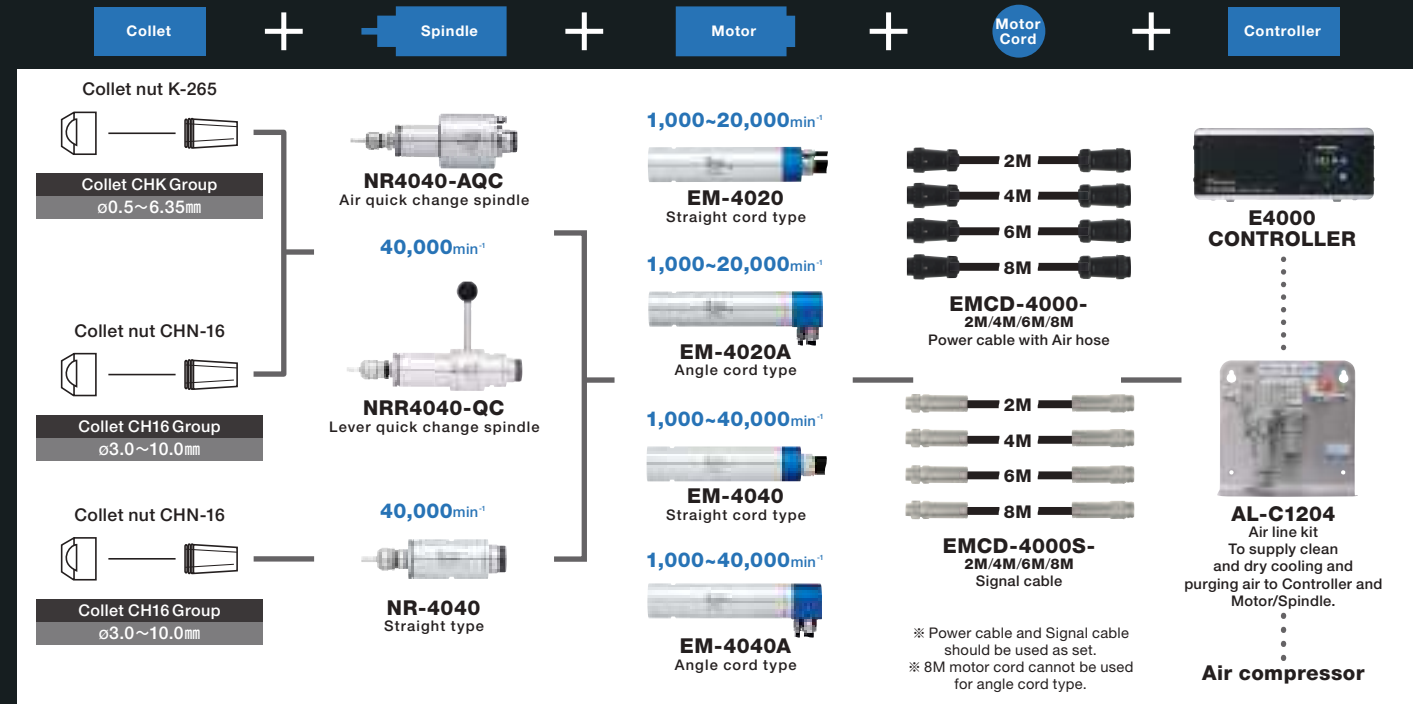
Power cable with Air hose [Length] 2m, 4m, 6m, 8m EMCD-4000 Joint type motor cord p.27	
Signal cable [Length] 2m, 4m, 6m, 8m EMCD-4000S Joint type motor cord p.27	

Accessories

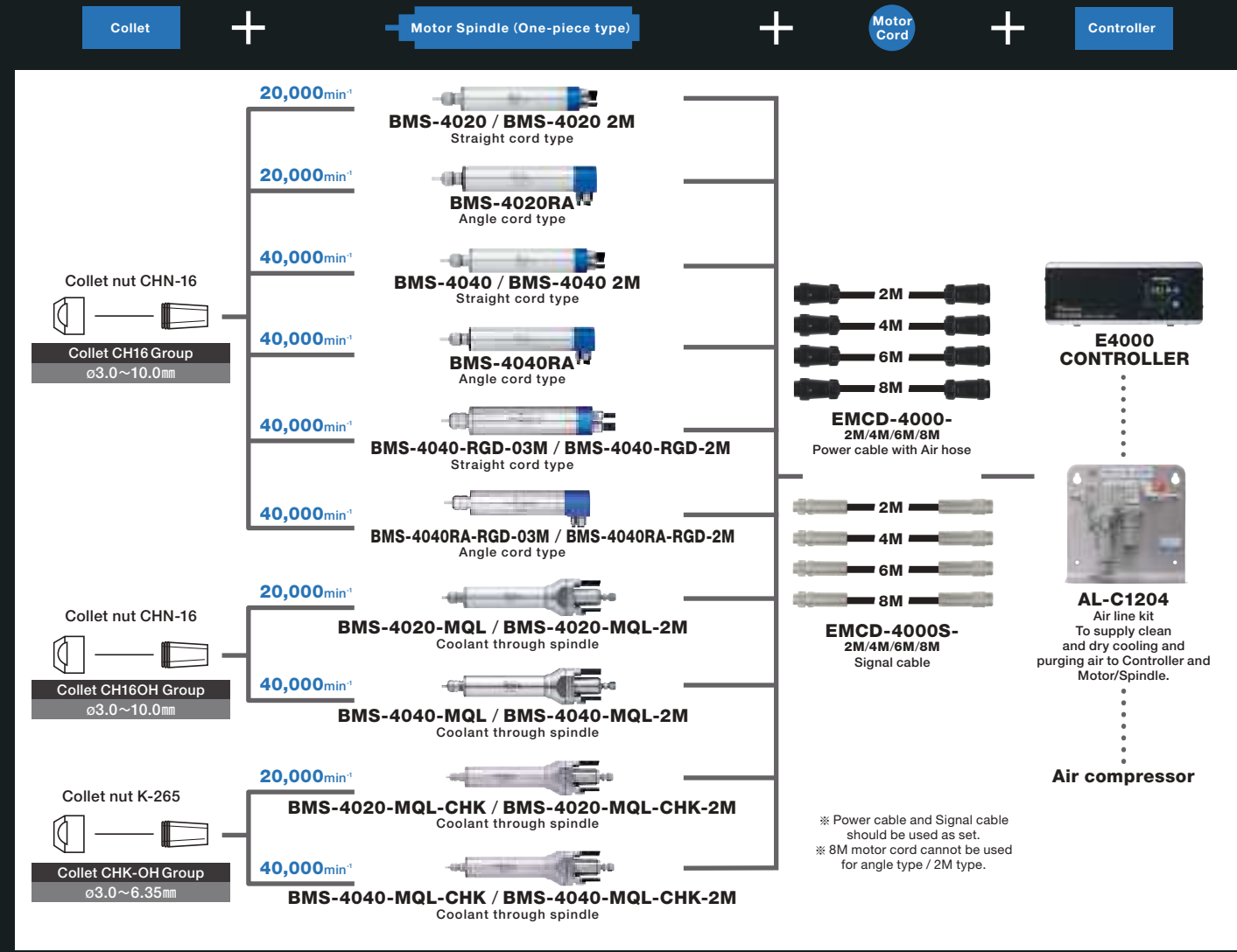
E4000-PB ... p.28 Box for control panel	E4000-SRB ... p.28 Safety relay box	GR-40 p.28 Grip ring	CH16 / CH160H / CHK / CHK-OH Collet p.29	QC5-16 / QC5-16-R / QC5-K / QC5-K-R Collet holder p.29
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System Chart

Modular type ø40mm



One-piece type ø40mm



Spindle (Modular type)

Shown In Actual Size



40 NRR4040-QC
p.9



40 NR-4040
p.11



40 NR4040-AQC
p.7



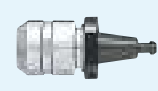
40 EM-4020
p.13

40 EM-4040
p.13



Spindle
Guide

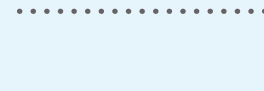
CH16 / CHK



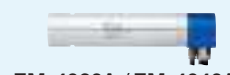
QC5-16/QC5-16-R/QC5-K/QC5-K-R



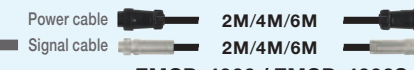
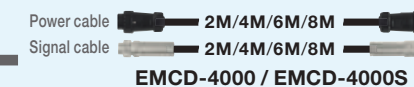
NR4040-AQC



EM-4020 / EM-4040



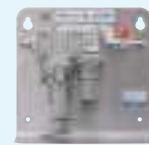
EM-4020A / EM-4040A



EMCD-4000 / EMCD-4000S



E4000 CONTROLLER



AL-C1204

E4000 SERIES

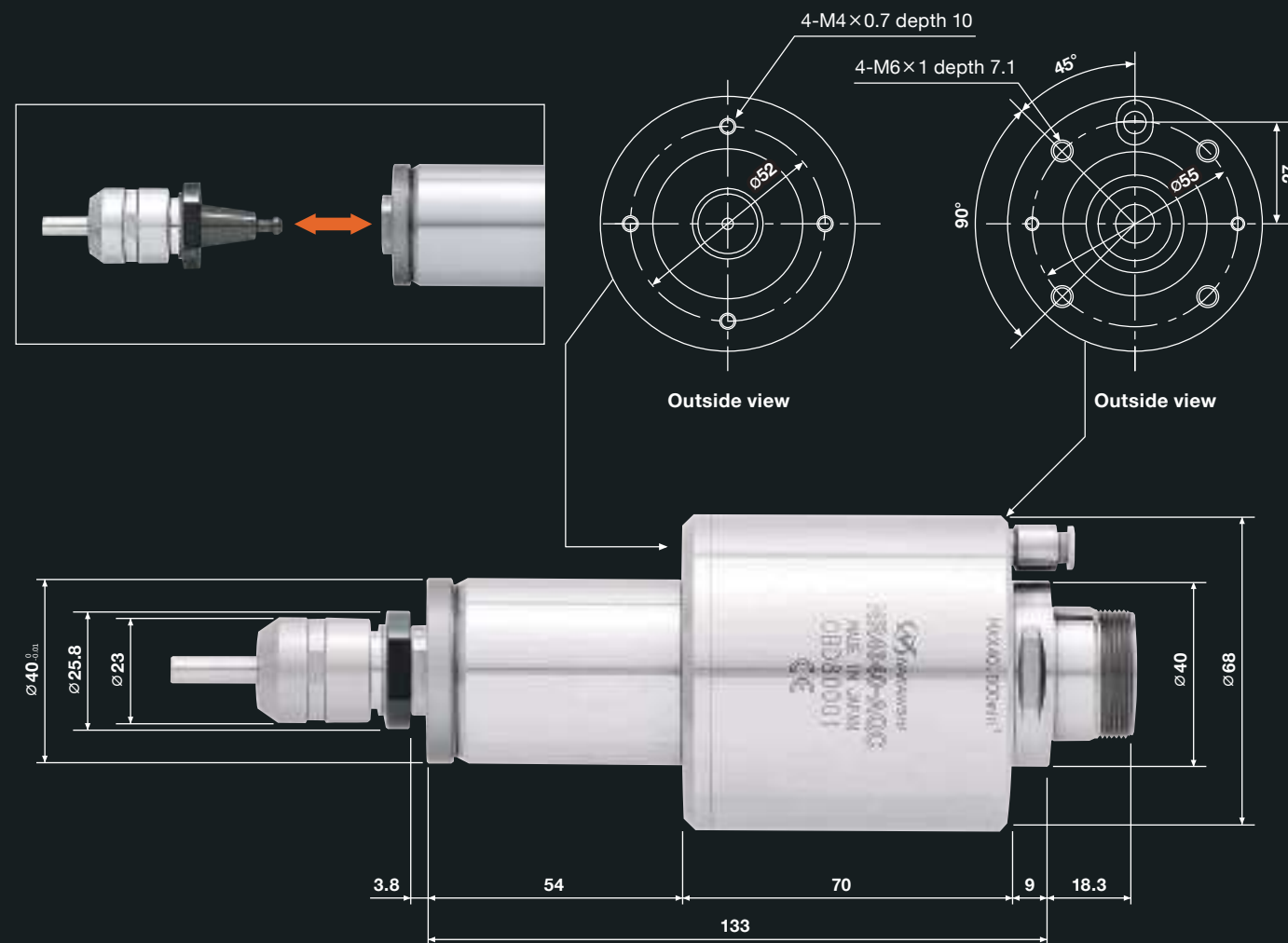
Spindle (Modular type)

NR4040-AQC

Air quick change spindle

O.D. ϕ 40mm

- Auto Tool Change with *BT5 collet holder. *Original
- Enhancing productivity by enabling external tool set-up.
- 2 types of collet holders are available. (CH16 and CHK)



Specifications

DXF data DXF files are available on our website

Order by Code No.

NR4040-AQC

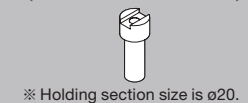
Code No. 9219 **Model** NR4040-AQC

O.D.	Spindle Accuracy	Max. rpm	Air for collet opening	Weight
ϕ 40mm	Within $1\mu\text{m}$	40,000min ⁻¹	0.55 ~ 0.6MPa	2,160g
Motors			Collet holders	
EM-4020 · EM-4020A · EM-4040 · EM-4040A			QC5-16 / QC5-16-R (For collet CH16)	QC5-K / QC5-K-R (For collet CHK)

Standard Accessories Wrench (36) : 1pc. / Air hose with filter (K-251) : ϕ 6mm × 2m

Parts (Optional)

Collet		Collet holder (With collet nut)		Wrench	
CH16		You can choose the I.D. size (The following is an example of ϕ 6.0mm.)			
I.D. ϕ 3.0mm~10.0mm p.29		QC5-16/K QC5-16/K-R			
Code No.		931 6 0		9216 9225	
Model		CH16- 6 . 0 (I.D. ϕ 6.0mm)		QC5-16 (For collet CH16) QC5-16-R (For collet CH16)	
Wrench 17 × 22 (2pcs.)					
CHK		915 6 0		9215 9224	
I.D. ϕ 0.5mm~6.35mm p.29		QC5-K (For collet CHK) QC5-K-R (For collet CHK)			
Code No.		915 6 0		9215 9224	
Model		CHK- 6 . 0 (I.D. ϕ 6.0mm)		QC5-K (For collet CHK) QC5-K-R (For collet CHK)	
Wrench 12 × 14 (2pcs.)					

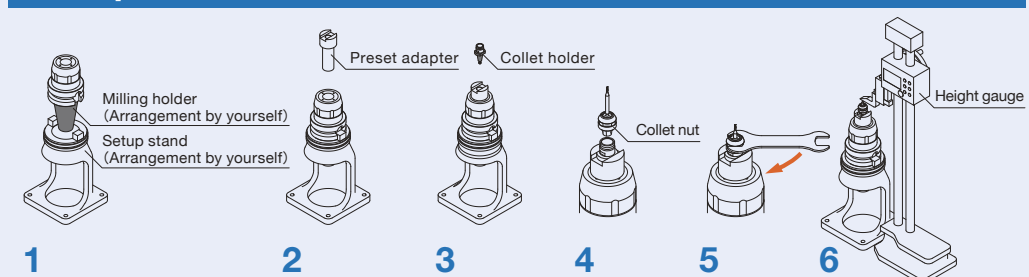
 In case using a Preset adapter, only 1pc. wrench is used.
 CH16 collet → 17 × 22 wrench (1pc.) / CHK collet → 12 × 14 wrench (1pc.) .
Preset adapter
(QC5-16/QC5-K)* Holding section size is ϕ 20.

Code No.	9218
Model	QC5-16 ADP (For collet QC5-16)

Code No.	9217
Model	QC5-K ADP (For collet QC5-K)

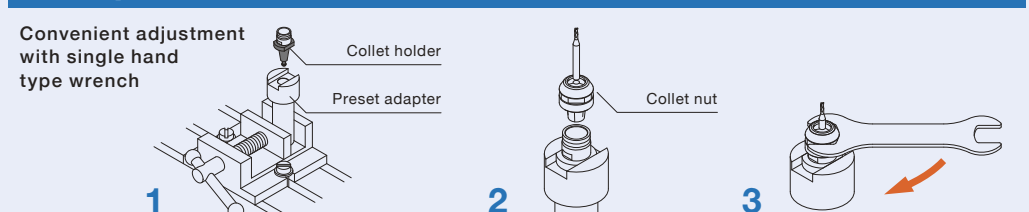
Set-up outside machines

In case using a milling holder



Set-up outside machines

In case using a vice





E4000 SERIES

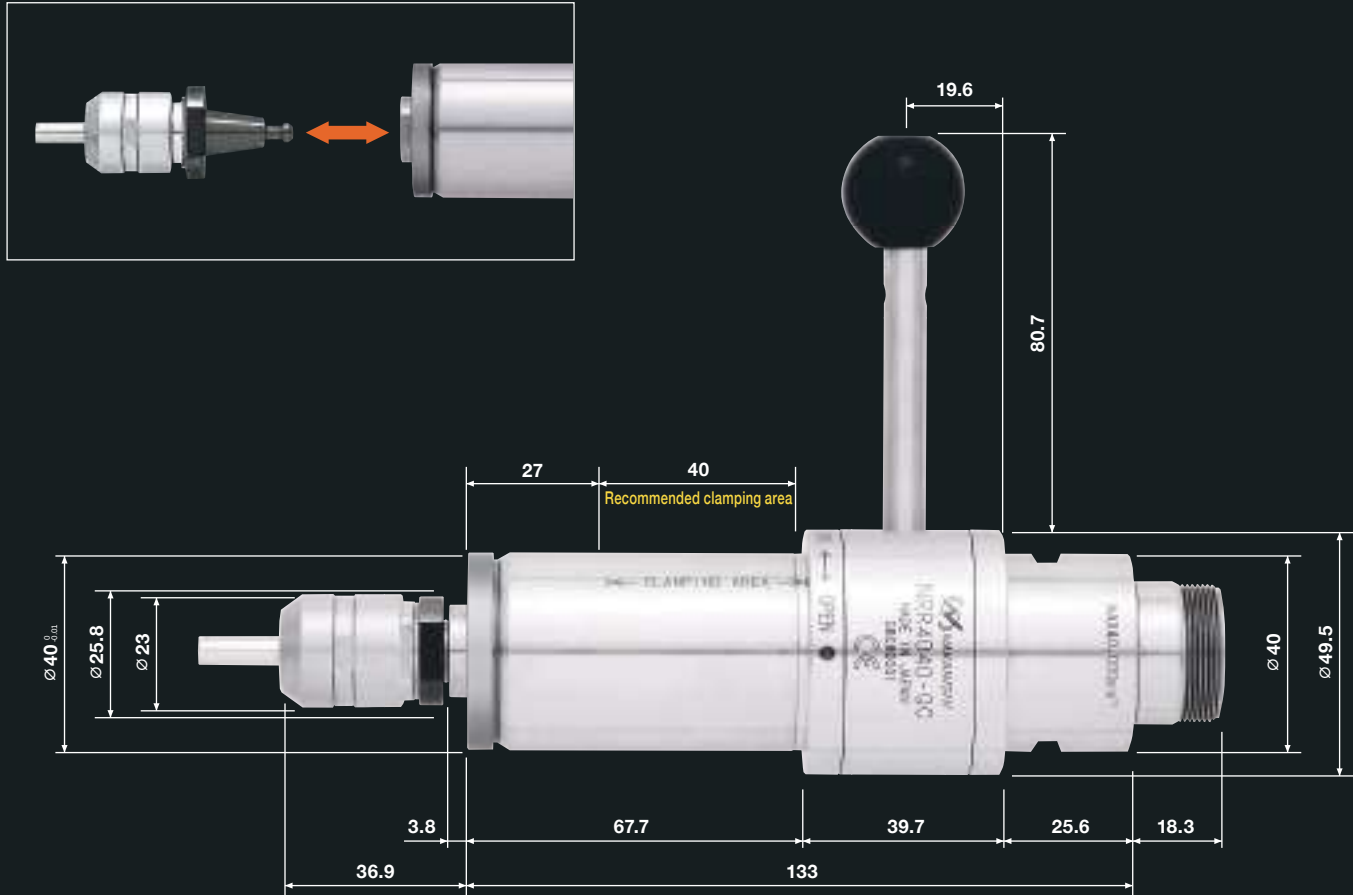
Spindle (Modular type)

NRR4040-QC

Lever quick change spindle

※Outside view : with QC5-16 collet holder

- Quick and easy tool change with ※BT5 collet holder by lever chucking system. ※Original
- Improvement of adjustment process by setting collet in advance.
- 2 types of collet holders are available. (CH16 and CHK)



Specifications

DXF data DXF files are available on our website

Order by Code No.

NRR4040-QC			Code No.	9214	Model	NRR4040-QC
O.D.	Spindle Accuracy	Max. rpm	Lever operating angle		Weight	
Ø40mm	Within1μm	40,000min ⁻¹	90°		1,300g	
Motors			Collet holders			
EM-4020・EM-4020A・EM-4040・EM-4040A			QC5-16 / QC5-16-R (For collet CH16)		QC5-K / QC5-K-R (For collet CHK)	
Standard Accessories Wrench (36) : 1pc.						

Parts (Optional)

Collet		You can choose the I.D. size (The following is an example of ø6.0mm.)		Collet holder (With collet nut)		Wrench	
CH16		I.D. ø3.0mm~10.0mm p.29		QC5-16 / K QC5-16 / K-R		In case using a Preset adapter, QC5-16 / K is needed.	
CH16	Code No.	931 6 0		9216	9225	2083	
	Model	CH16- 6 . 0 (I.D. ø6.0mm)		QC5-16 (For collet CH16)	QC5-16-R (For collet CH16)	Wrench 17 × 22 (2pcs.)	
CHK	Code No.	915 6 0		9215	9224	2026	
	Model	CHK- 6 . 0 (I.D. ø6.0mm)		QC5-K (For collet CHK)	QC5-K-R (For collet CHK)	Wrench 12 × 14 (2pcs.)	

In case using a Preset adapter, only 1pc. wrench is used.
CH16 collet → 17 × 22 wrench (1pc.) / CHK collet → 12 × 14 wrench (1pc.) .

Preset adapter (QC5-16/QC5-K)

※ Holding section size is ø20.

Code No.	9218
Model	QC5-16 ADP (For collet QC5-16)
Code No.	9217
Model	QC5-K ADP (For collet QC5-K)

Set-up outside machines

In case using a milling holder

1

2

3

4

5

6

Set-up outside machines

In case using a vice

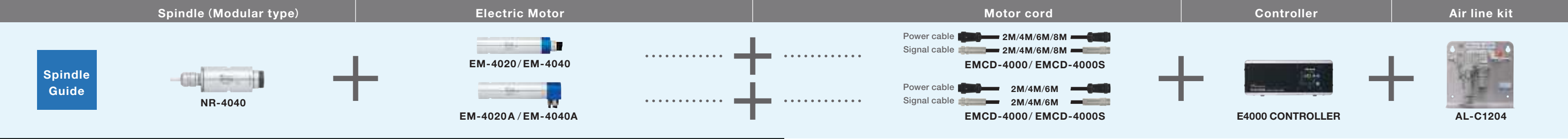
1

2

3

p.9

p.10



E4000 SERIES

Spindle (Modular type)

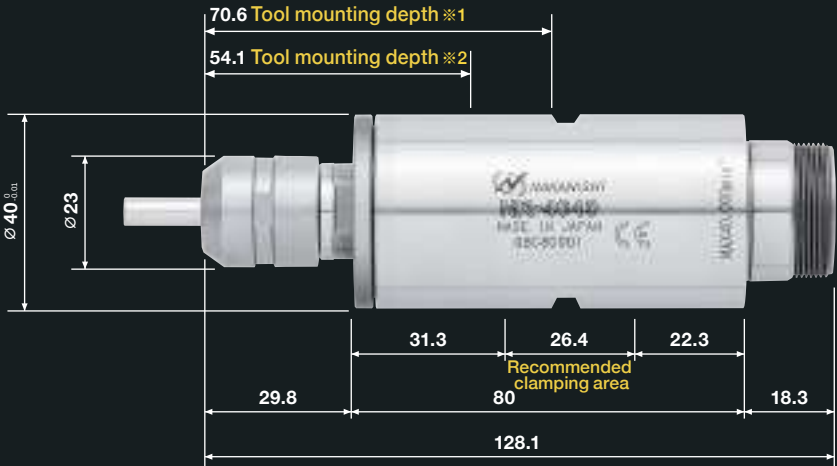
NR-4040

Straight type

※1:In case for the shank size less than ø6.9mm
※2:In case for the shank ø6.9mm or more



O.D. ø40mm



Specifications

DXF data DXF files are available on our website

Order by Code No.

NR-4040

Code No.	7902	Model	NR-4040
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O.D.	Spindle Accuracy	Collet	Max. rpm	Motors	Weight
Ø40 _{mm}	Within1 _{μm}	CH16 Group (ø3.0 ~ ø10.0mm)	40,000 _{min⁻¹}	EM-4020 · EM-4020A EM-4040 · EM-4040A	700 _g
Standard Accessories	Collet nut (CHN-16) / Wrench (17 × 22) : 2pcs. · (36) : 1pc.				
Options	Collet (CH16 Group) : ø3.0mm ~ ø10.0mm p.29				

※ Collet is sold separately.

E4000 SERIES

Motor (Modular type)

EM-4020 (20,000rpm)

Straight cord type



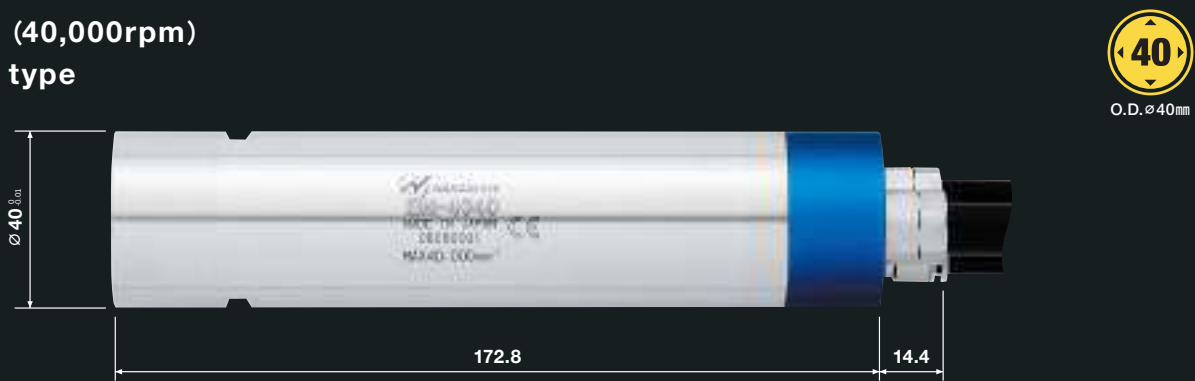
EM-4020A (20,000rpm)

Angle cord type



EM-4040 (40,000rpm)

Straight cord type



EM-4040A (40,000rpm)

Angle cord type



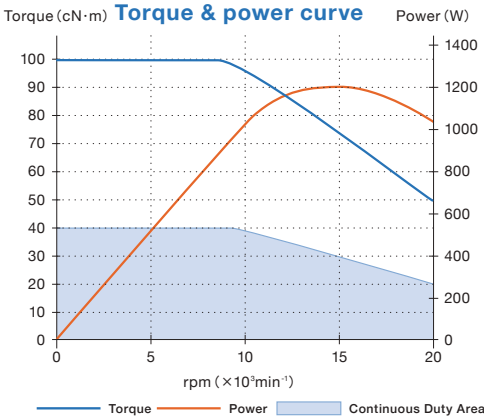
Specifications

DXF data DXF files are available on our website

Order by Code No.

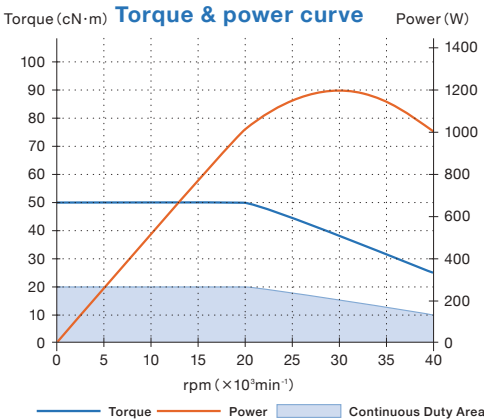
EM-4020		Code No.	8348	Model	EM-4020
O.D.	Rpm		Max. power		
Ø40 _{mm}	1,000~20,000 _{min⁻¹}		1,200 _w		
Cord length	Min. Bending Cord Radius	Max. torque		Weight	
0.3 _m	70 _{mm}	1.0 _{N·m}		1,300 _g	
Standard Accessories		Wrench (36) : 1pc.			
Specifications	Air pressure : 0.35MPa / Max. Air consumption : 100Nℓ / min				
	Power cable with Air hose : Connector Diameter : ø30mm / Air hose : ø6mm				
	Signal cable : Connector Diameter : ø16mm				
Options	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)				

EM-4020A		Code No.	8349	Model	EM-4020A
O.D.	Rpm		Max. power		
Ø40 _{mm}	1,000~20,000 _{min⁻¹}		1,200 _w		
Cord length	Min. Bending Cord Radius	Max. torque		Weight	
2.0 _m	70 _{mm}	1.0 _{N·m}		1,800 _g	
Standard Accessories		Wrench (36) : 1pc.			
Specifications		Air pressure : 0.35MPa / Max. Air consumption : 100Nℓ / min			
		Power cable with Air hose : Connector Diameter : ø30mm / Air hose : ø6mm			
		Signal cable : Connector Diameter : ø16mm			
Options		Power cable with Air hose : Length 2m (9253) , 4m (9254) , 6m (9255)			
		Signal cable : Length 2m (9257) , 4m (9258) , 6m (9259)			



EM-4040		Code No.	8346	Model	EM-4040
O.D.	Rpm		Max. power		
Ø40 _{mm}	1,000~40,000 _{min⁻¹}		1,200 _w		
Cord length	Min. Bending Cord Radius	Max. torque		Weight	
0.3 _m	70 _{mm}	0.5 _{N · m}		1,300 _g	
Standard Accessories		Wrench (36) : 1pc.			
Specifications		Air pressure : 0.35MPa / Max. Air consumption : 100Nℓ / min			
		Power cable with Air hose : Connector Diameter : ø30mm / Air hose : ø6mm			
		Signal cable : Connector Diameter : ø16mm			
Options		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)			

EM-4040A		Code No.	8347	Model	EM-4040A
O.D.	Rpm		Max. power		
Ø40 _{mm}	1,000~40,000 _{min⁻¹}		1,200 _w		
Cord length	Min. Bending Cord Radius	Max. torque		Weight	
2.0 _m	70 _{mm}	0.5N · m		1,800 _g	
Standard Accessories		Wrench (36) : 1pc.			
Specifications		Air pressure : 0.35MPa / Max. Air consumption : 100Nℓ / min			
		Power cable with Air hose : Connector Diameter : ø30mm / Air hose : ø6mm			
		Signal cable : Connector Diameter : ø16mm			
Options		Power cable with Air hose : Length 2m (9253) , 4m (9254) , 6m (9255)			
		Signal cable : Length 2m (9257) , 4m (9258) , 6m (9259)			



Motor Spindle (One-piece type)



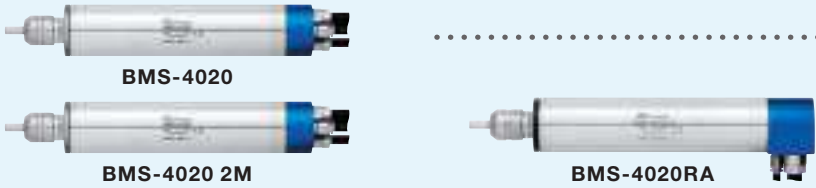
-  **BMS-4020RA**
p.17
-  **BMS-4040RA**
p.19
-  **BMS-4040RA-RGD-03M / BMS-4040RA-RGD-2M**
p.21



-  **BMS-4020 / BMS-4020 2M**
p.17
-  **BMS-4040 / BMS-4040 2M**
p.19
-  **BMS-4040-RGD-03M / BMS-4040-RGD-2M**
p.21



-  **BMS-4020-MQL / BMS-4020-MQL-2M**
p.23
-  **BMS-4040-MQL / BMS-4040-MQL-2M**
p.23
-  **BMS-4020-MQL-CHK / BMS-4020-MQL-CHK-2M**
p.25
-  **BMS-4040-MQL-CHK / BMS-4040-MQL-CHK-2M**
p.25



Power cable 2M/4M/6M/8M
Signal cable 2M/4M/6M/8M
EMCD-4000/ EMCD-4000S

Power cable 2M/4M/6M
Signal cable 2M/4M/6M
EMCD-4000/ EMCD-4000S

E4000 CONTROLLER

AL-C1204

E4000 SERIES

Motor Spindle (One-piece type)

BMS-4020 / BMS-4020 2M

Straight cord type

※1:In case for the shank size less than ø6.9mm ※ 2:In case for the shank ø6.9mm or more



O.D.ø40mm



BMS-4020RA

Angle cord type

※1:In case for the shank size less than ø6.9mm ※ 2:In case for the shank ø6.9mm or more



O.D.ø40mm



Specifications

DXF data DXF files are available on our website

Order by Code No.

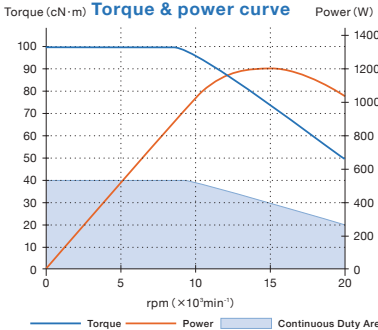
BMS-4020 / BMS-4020 2M



Code No.	7803	Model	BMS-4020
Code No.	7805	Model	BMS-4020 2M

O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power
ø40mm	20,000min ⁻¹	Within1μm	CH16Group (ø3.0 ~ ø10.0mm)	1,200w
Cord length	Min. Bending Cord Radius	Max. torque	Weight	
BMS-4020 : 0.3m BMS-4020 2M : 2.0m	70mm	1.0N·m	BMS-4020 : 1.5kg BMS-4020 2M : 2.0kg	
Standard Accessories	Collet nut (CHN-16) / Wrench (17 × 22) : 2pcs.			
Specifications	Air pressure : 0.35MPa / Max. Air consumption : 100Nℓ / min			
	Power cable with Air hose : Connector Diameter : ø30mm / Air hose : ø6mm			
	Signal cable : Connector Diameter : ø16mm			
Options	Collet (CH16 Group) : ø3.0 ~ ø10.0mm p.29			
	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)			

※ 8M motor cord cannot be used for BMS-4020 2M.
※ Collet is sold separately.



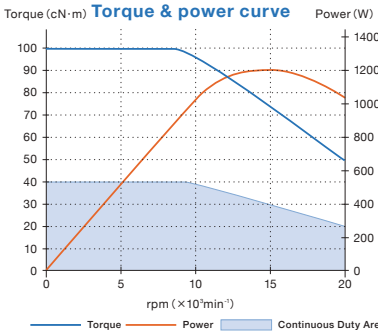
BMS-4020RA

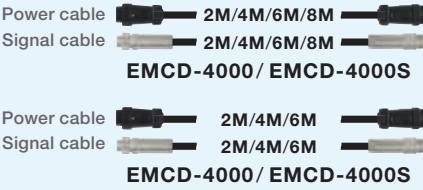
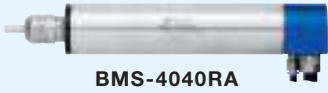
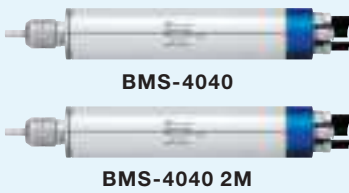


Code No.	7804	Model	BMS-4020RA
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O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power
ø40mm	20,000min ⁻¹	Within1μm	CH16Group (ø3.0 ~ ø10.0mm)	1,200w
Cord length	Min. Bending Cord Radius	Max. torque	Weight	
2.0m	70mm	1.0N·m	2.0kg	
Standard Accessories	Collet nut (CHN-16) / Wrench (17 × 22) : 2pcs.			
Specifications	Air pressure : 0.35MPa / Max. Air consumption : 100Nℓ / min			
	Power cable with Air hose : Connector Diameter : ø30mm / Air hose : ø6mm			
	Signal cable : Connector Diameter : ø16mm			
Options	Collet (CH16 Group) : ø3.0 ~ ø10.0mm p.29			
	Power cable with Air hose : Length 2m (9253), 4m (9254), 6m (9255)			
	Signal cable : Length 2m (9257), 4m (9258), 6m (9259)			

※ Collet is sold separately.





E4000 SERIES

Motor Spindle (One-piece type)

BMS-4040 / BMS-4040 2M

Straight cord type

※1:In case for the shank size less than ø6.9mm ※ 2:In case for the shank ø6.9mm or more



O.D. ø40mm



BMS-4040RA

Angle cord type

※1:In case for the shank size less than ø6.9mm ※ 2:In case for the shank ø6.9mm or more



O.D. ø40mm



Specifications

DXF data DXF files are available on our website

Order by Code No.

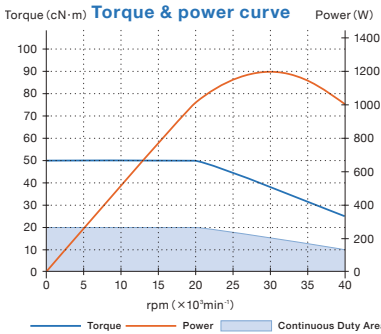
BMS-4040 / BMS-4040 2M



Code No.	7806	Model	BMS-4040
Code No.	7809	Model	BMS-4040 2M

O.D.	Max. rpm	Spindle Accuracy		Collet	Max. power
Ø40mm	40,000min ⁻¹	Within1μm		CH16Group (Ø3.0 ~ Ø10.0mm)	1,200w
Cord length		Min. Bending Cord Radius	Max. torque		Weight
BMS-4040: 0.3m BMS-4040 2M: 2.0m		70mm	0.5N·m		BMS-4040: 1.5kg BMS-4040 2M: 2.0kg
Standard Accessories		Collet nut (CHN-16) / Wrench (17 × 22) : 2pcs.			
Specifications		Air pressure : 0.35MPa / Max. Air consumption : 100Nℓ / min			
		Power cable with Air hose : Connector Diameter : Ø30mm / Air hose : Ø6mm			
		Signal cable : Connector Diameter : Ø16mm			
Options		Collet (CH16 Group) : Ø3.0 ~ Ø10.0mm p.29			
		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)			

※ 8M motor cord cannot be used for BMS-4040 2M.
※ Collet is sold separately.



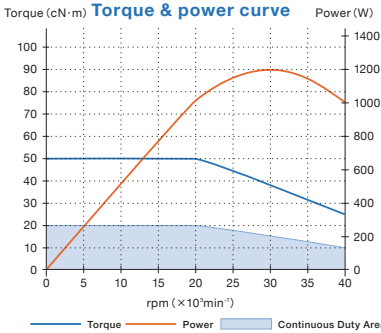
BMS-4040RA



Code No.	7807	Model	BMS-4040RA
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O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power
Ø40mm	40,000min ⁻¹	Within1μm	CH16Group (ø3.0 ~ ø10.0mm)	1,200w
Cord length	Min. Bending Cord Radius	Max. torque	Weight	
2.0m	70mm	0.5N·m	2.0kg	
Standard Accessories	Collet nut (CHN-16) / Wrench (17 × 22) : 2pcs.			
Specifications	Air pressure : 0.35MPa / Max. Air consumption : 100Nℓ / min			
	Power cable with Air hose : Connector Diameter : ø30mm / Air hose : ø6mm			
	Signal cable : Connector Diameter : ø16mm			
Options	Collet (CH16 Group) : ø3.0 ~ ø10.0mm p.29			
	Power cable with Air hose : Length 2m (9253), 4m (9254), 6m (9255)			
	Signal cable : Length 2m (9257), 4m (9258), 6m (9259)			

※ Collet is sold separately.



Spindle Guide

BMS-4040-RGD-03M/BMS-4040-RGD-2M

BMS-4040RA-RGD-03M/BMS-4040RA-RGD-2M

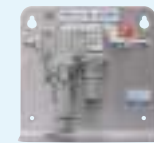


Power cable 2M/4M/6M/8M
Signal cable 2M/4M/6M/8M
EMCD-4000/ EMCD-4000S

Power cable 2M/4M/6M
Signal cable 2M/4M/6M
EMCD-4000/ EMCD-4000S



E4000 CONTROLLER



AL-C1204

E4000 SERIES

Motor Spindle (Rigidity type)

BMS-4040-RGD-03M / BMS-4040-RGD-2M

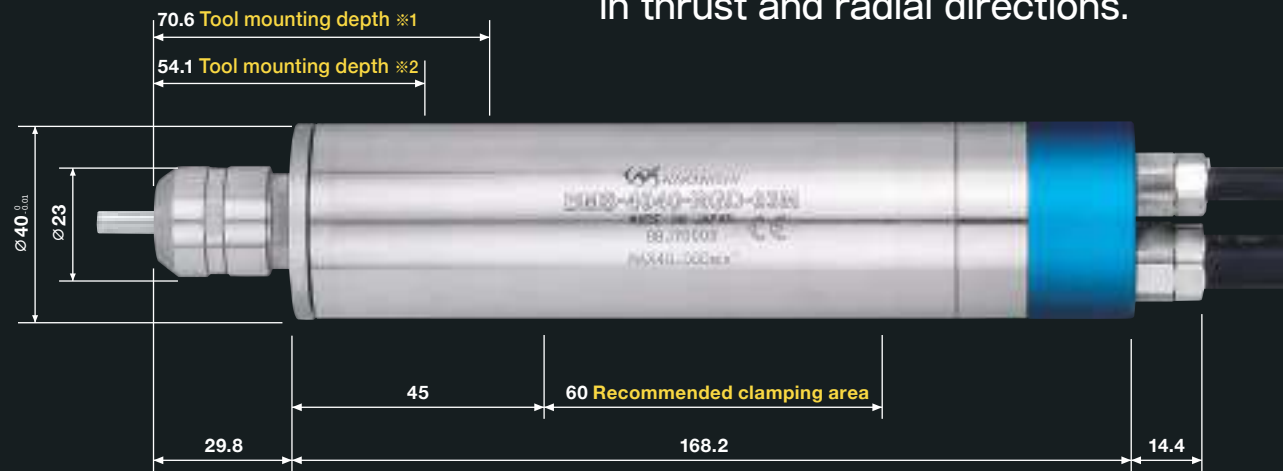
Straight cord type

※1:In case for the shank size less than ø6.9mm ※2:In case for the shank ø6.9mm or more



O.D. ø40mm

● Twice as high rigidity as BMS-4040 in thrust and radial directions.



BMS-4040RA-RGD-03M / BMS-4040RA-RGD-2M

Angle cord type

※1:In case for the shank size less than ø6.9mm ※2:In case for the shank ø6.9mm or more



O.D. ø40mm

● Twice as high rigidity as BMS-4040 in thrust and radial directions.



Specifications

DXF data DXF files are available on our website

Order by Code No.

BMS-4040-RGD-03M / BMS-4040-RGD-2M

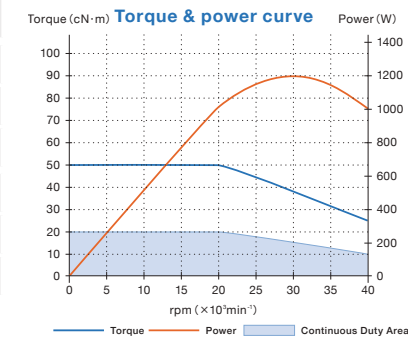
Code No.	7740	Model	BMS-4040-RGD-03M
Code No.	7769	Model	BMS-4040-RGD-2M



O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power
ø40mm	40,000min ⁻¹	Within1μm	CH16Group (ø3.0 ~ ø10.0mm)	1,200w
Cord length	Min. Bending Cord Radius	Max. torque	Weight	
BMS-4040-RGD-03M : 0.3m BMS-4040-RGD-2M : 2.0m	70mm	0.5N·m	BMS-4040-RGD-03M : 1.4kg BMS-4040-RGD-2M : 1.9kg	

Standard Accessories	Collet nut (CHN-16) / Wrench (17 × 22) : 2pcs.
Specifications	Air pressure : 0.35MPa / Max. Air consumption : 100Nℓ / min
	Power cable with Air hose : Connector Diameter : ø30mm / Air hose : ø6mm
	Signal cable : Connector Diameter : ø16mm
Options	Collet (CH16 Group) : ø3.0 ~ ø10.0mm p.29
	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)

※ 8M motor cord cannot be used for BMS-4040-RGD-2M.
※ Collet is sold separately.



BMS-4040RA-RGD-03M / BMS-4040RA-RGD-2M

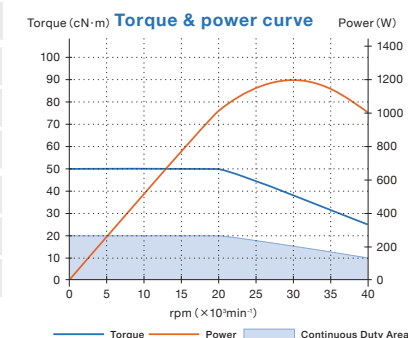
Code No.	7741	Model	BMS-4040RA-RGD-03M
Code No.	7770	Model	BMS-4040RA-RGD-2M

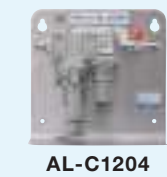


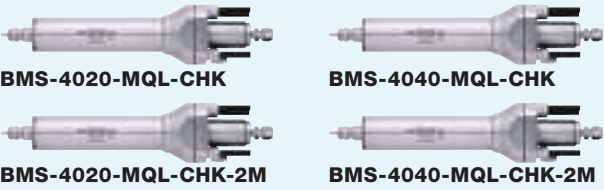
O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power
ø40mm	40,000min ⁻¹	Within1μm	CH16Group (ø3.0 ~ ø10.0mm)	1,200w
Cord length	Min. Bending Cord Radius	Max. torque	Weight	
BMS-4040RA-RGD-03M : 0.3m BMS-4040RA-RGD-2M : 2.0m	70mm	0.5N·m	BMS-4040RA-RGD-03M : 1.4kg BMS-4040RA-RGD-2M : 1.9kg	

Standard Accessories	Collet nut (CHN-16) / Wrench (17 × 22) : 2pcs.
Specifications	Air pressure : 0.35MPa / Max. Air consumption : 100Nℓ / min
	Power cable with Air hose : Connector Diameter : ø30mm / Air hose : ø6mm
	Signal cable : Connector Diameter : ø16mm
Options	Collet (CH16 Group) : ø3.0 ~ ø10.0mm p.29
	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)

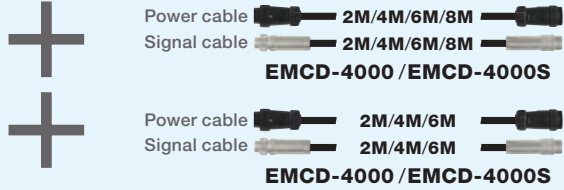
※ 8M motor cord cannot be used for BMS-4040RA-RGD-2M.
※ Collet is sold separately.







! "High pressure coolant device" or "oil mist supply device" to be arranged by the customer.



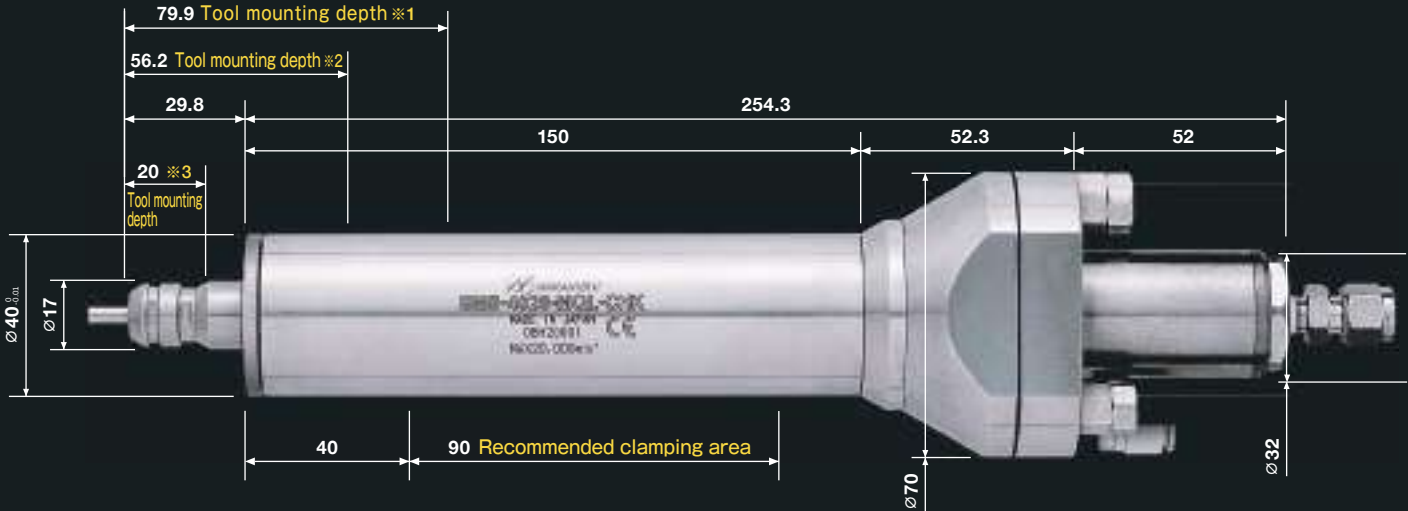
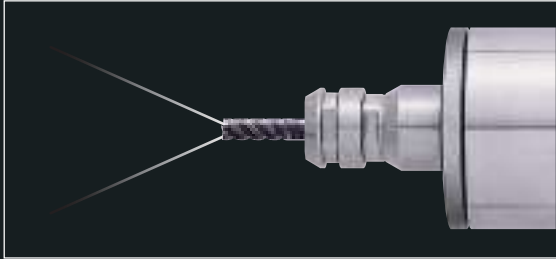
E4000 SERIES

Motor Spindle (One-piece type : $\phi 3.0 \sim \phi 6.35\text{mm}$)

BMS-4020-MQL-CHK / BMS-4020-MQL-CHK-2M
BMS-4040-MQL-CHK / BMS-4040-MQL-CHK-2M
Coolant through 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.



※ 1 : In case for the shank $\phi 4\text{mm}$ to less than $\phi 6.35\text{mm}$ (The shank size less than $\phi 4\text{mm}$ is through hole)
※ 2 : In case for the shank size $\phi 6.35\text{mm}$
※ 3 : The tool needs to be inserted more than 20mm, or the oil leaks

Specifications

DXF data DXF files are available on our website

Order by Code No.

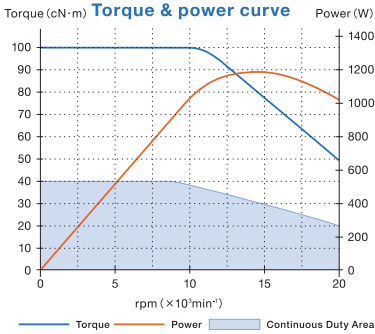
BMS-4020-MQL-CHK / BMS-4020-MQL-CHK-2M

Code No.	7735	Model	BMS-4020-MQL-CHK
Code No.	7736	Model	BMS-4020-MQL-CHK-2M



O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power
$\phi 40\text{mm}$	$20,000\text{min}^{-1}$	Within $1\mu\text{m}$	CHK-OH Group ($\phi 3.0 \sim \phi 6.35\text{mm}$)	1,200w
Cord length		Min. Bending Cord Radius	Max. torque	Weight
BMS-4020-MQL-CHK : 0.3m BMS-4020-MQL-CHK-2M : 2.0m		70mm	1.0N·m	BMS-4020-MQL-CHK : 2.3kg BMS-4020-MQL-CHK-2M : 2.8kg
Standard Accessories		Collet nut (K-265) / Insert / Ferrule Set Wrench (12 × 14) : 2pcs.		
Specifications		Coolant pressure : 0.2~3.0MPa / Oil Mist pressure : 0.2~1.0MPa Power cable with Air hose : Connector Diameter : $\phi 30\text{mm}$ / Air hose : $\phi 6\text{mm}$ Signal cable : Connector Diameter : $\phi 16\text{mm}$		
Options		Collet (CHK-OH Group) : $\phi 3.0 \sim \phi 6.35\text{mm}$ p.29 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) Adjuster Bolt (7739)		

※ 8M motor cord cannot be used for BMS-4020-MQL-CHK-2M.
※ Collet is sold separately.



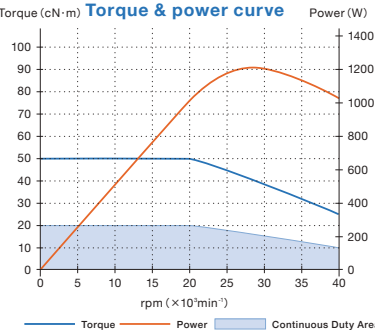
BMS-4040-MQL-CHK / BMS-4040-MQL-CHK-2M

Code No.	7737	Model	BMS-4040-MQL-CHK
Code No.	7738	Model	BMS-4040-MQL-CHK-2M



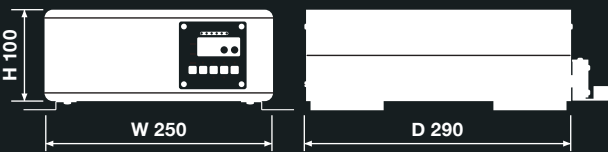
O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power
$\phi 40\text{mm}$	$40,000\text{min}^{-1}$	Within $1\mu\text{m}$	CHK-OH Group ($\phi 3.0 \sim \phi 6.35\text{mm}$)	1,200w
Cord length		Min. Bending Cord Radius	Max. torque	Weight
BMS-4040-MQL-CHK : 0.3m BMS-4040-MQL-CHK-2M : 2.0m		70mm	0.5N·m	BMS-4040-MQL-CHK : 2.3kg BMS-4040-MQL-CHK-2M : 2.8kg
Standard Accessories		Collet nut (K-265) / Insert / Ferrule Set Wrench (12×14) : 2pcs.		
Specifications		Coolant pressure : 0.2~3.0MPa / Oil Mist pressure : 0.2~1.0MPa Power cable with Air hose : Connector Diameter : $\phi 30\text{mm}$ / Air hose : $\phi 6\text{mm}$ Signal cable : Connector Diameter : $\phi 16\text{mm}$		
Options		Collet (CHK-OH Group) : $\phi 3.0 \sim \phi 6.35\text{mm}$ p.29 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) Adjuster Bolt (7739)		

※ 8M motor cord cannot be used for BMS-4040-MQL-CHK-2M.
※ Collet is sold separately.



E4000 Controller / Motor cord

E4000 CONTROLLER
Controller



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.



Max. power	Input Voltage	Speed Range	Power consumption	Air consumption	Weight
1,200w	AC200~240v Without plug Multiple output power	1,000~40,000min ⁻¹	3.2A	100Nℓ/min (0.2~0.35MPa)	6.7kg
Standard Accessories		Power cord : 4m / Air hose with filter(K-251:2058) : 2M / Motor connector cap(provided) Connector cover(provided) / Bracket : 4pcs. / Rubber pad : 4pcs.			

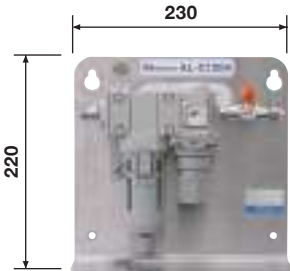
Motor cord		Code No.	Model	Length	Standard Accessories	Compatible model
Power cable with Air hose	2M	9253	EMCD-4000-2M	2m	Air hose	BMS-4020-BMS-4040-BMS-4020RA BMS-4040RA-BMS-4020 2M BMS-4040 2M-EM-4020-EM-4040 EM-4020A-EM-4040A BMS-4020-MQL-BMS-4020-MQL-2M BMS-4040-MQL-BMS-4040-MQL-2M BMS-4020-MQL-CHK-BMS-4020-MQL-CHK-2M BMS-4040-MQL-CHK-BMS-4040-MQL-CHK-2M BMS-4040-RGD-03M-BMS-4040-RGD-2M BMS-4040RA-RGD-03M-BMS-4040RA-RGD-2M
	4M	9254	EMCD-4000-4M	4m		
	6M	9255	EMCD-4000-6M	6m		
	8M	9256	EMCD-4000-8M	8m		
Signal cable	2M	9257	EMCD-4000S-2M	2m	-	BMS-4020-BMS-4040-EM-4020-EM-4040 BMS-4040RA-BMS-4020 2M BMS-4040 2M-EM-4020-EM-4040 EM-4020A-EM-4040A BMS-4020-MQL-BMS-4020-MQL-2M BMS-4040-MQL-BMS-4040-MQL-2M BMS-4020-MQL-CHK-BMS-4020-MQL-CHK-2M BMS-4040-MQL-CHK-BMS-4040-MQL-CHK-2M BMS-4040-RGD-03M-BMS-4040-RGD-2M BMS-4040RA-RGD-03M-BMS-4040RA-RGD-2M
	4M	9258	EMCD-4000S-4M	4m		
	6M	9259	EMCD-4000S-6M	6m		
	8M	9260	EMCD-4000S-8M	8m		BMS-4020-BMS-4040-EM-4020-EM-4040 BMS-4020-MQL-BMS-4040-MQL BMS-4020-MQL-CHK-BMS-4040-MQL-CHK BMS-4040-RGD-03M-BMS-4040RA-RGD-03M

※ Power cable and Signal cable should be used as set.
※ 8M motor cord cannot be used for angle cord type / 2M type.

Operation panel extension cord	Code No.	Model	Specifications	Compatible model
	8474	E4000-PEX4	Cord length : 4m Screw (M3) : 4pcs.	E4000 Controller

Accessories (Air line kit, etc.)

AL-C1204
Air line kit



Weight:1.9kg
※ Recommendation of normal 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	Air filter / Air regulator / Air pressure gauge		
	Air ON-OFF valve / Hose pipe (K-260) : 2m		

E4000-PB
Box for control panel

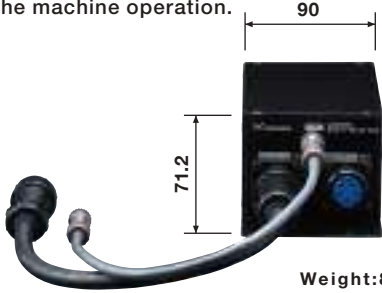


※ Control panel is sold separately.
Weight:216g

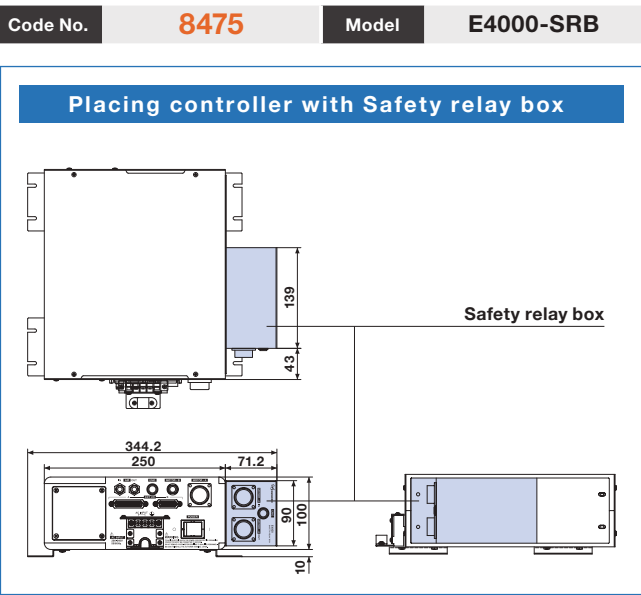
Code No.	8473	Model	E4000-PB
Standard Accessories	Case / Blind plate / Screw (M3) : 6pcs. / Screw (M4) : 2pcs.		
Compatible model	E4000 Controller		

E4000-SRB
Safety relay box

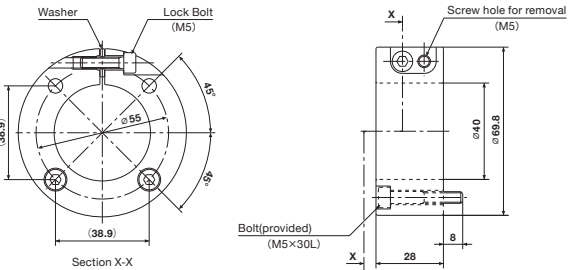
- Mounts directly on E4000 Controller
- Allows Emergency Stop Signal from the CNC to stop the E4000 Motor Spindle of the E4000 Controller to stop the machine operation.



Standard Accessories	Power cord : 400mm Emergency stop cord : 400mm
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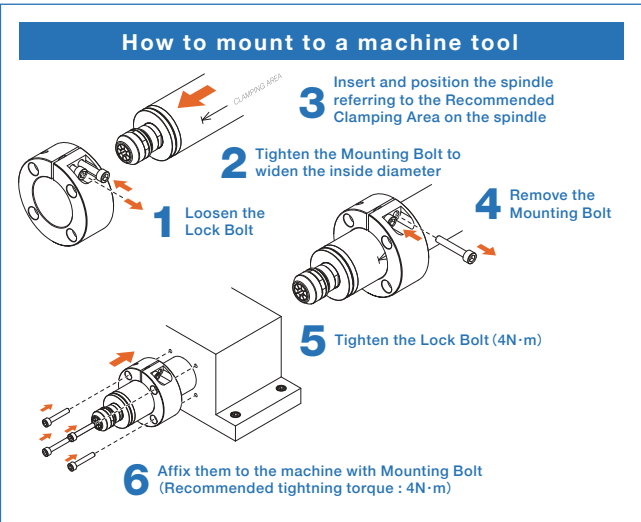


GR-40
Grip Ring

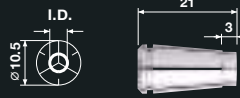
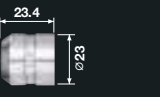
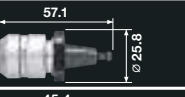
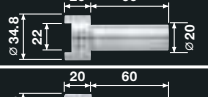
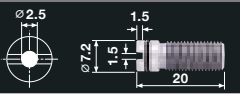
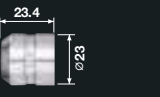
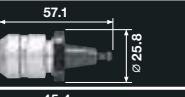
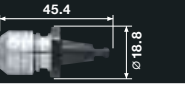
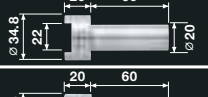
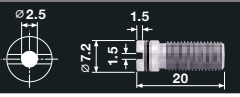


Standard Accessories	Mounting Bolt (GR-40) M5 × 30 : 4pcs.
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Code No.	1886	Model	GR-40
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Accessories (Collet, etc.)

Collet	Code No.	Model	I.D.	Compatible model
 ※CH16-10.0 Length 24.5 Collet CH16 Group	93130	CH16-3.0	ø3.0	BMS-4020・BMS-4040 BMS-4020 2M・BMS-4040 2M BMS-4020RA・BMS-4040RA・NR-4040 QC5-16 (NRR4040-QC) QC5-16 (NR4040-AQC) BMS-4040-RGD-03M BMS-4040-RGD-2M BMS-4040RA-RGD-03M BMS-4040RA-RGD-2M
	93193	CH16-3.175	ø3.175	
	93140	CH16-4.0	ø4.0	
	93160	CH16-6.0	ø6.0	
	93196	CH16-6.35	ø6.35	
 ※CH16OH-9.0, 10.0 Length 24.5 Collet CH16OH Group	93180	CH16-8.0	ø8.0	BMS-4020-MQL BMS-4040-MQL BMS-4020-MQL-2M BMS-4040-MQL-2M
	93100	CH16-10.0	ø10	
	93330	CH16OH-3.0	ø3.0	
	93331	CH16OH-3.175	ø3.175	
	93340	CH16OH-4.0	ø4.0	
 ø1.0 ~ ø6.35 Collet CHK Group	93350	CH16OH-5.0	ø5.0	QC5-K (NRR4040-QC) QC5-K (NR4040-AQC) ※ High precision type AA (Run-out Accuracy within 2 μm)
	93360	CH16OH-6.0	ø6.0	
	93363	CH16OH-6.35	ø6.35	
	93370	CH16OH-7.0	ø7.0	
	93380	CH16OH-8.0	ø8.0	
 ø0.5 ~ ø0.9 Collet CHK-OH Group	93390	CH16OH-9.0	ø9.0	BMS-4020-MQL-CHK BMS-4020-MQL-CHK-2M BMS-4040-MQL-CHK BMS-4040-MQL-CHK-2M
	93400	CH16OH-10.0	ø10.0	
	91597	CHK-3.0AA	ø3.0AA※	
	91598	CHK-3.175AA	ø3.175AA※	
	91599	CHK-4.0AA	ø4.0AA※	
 Collet CHK-OH Group	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	
 Collet nut	91540	CHK-4.0	ø4.0	
	91560	CHK-6.0	ø6.0	
	91596	CHK-6.35	ø6.35	
			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	
		CHK- □ □		
 Collet holder	93630	CHK-OH-3.0	ø3.0	
	93631	CHK-OH-3.175	ø3.175	
	93640	CHK-OH-4.0	ø4.0	
	93650	CHK-OH-5.0	ø5.0	
	93660	CHK-OH-6.0	ø6.0	
 Preset adapter	93663	CHK-OH-6.35	ø6.35	
 Adjuster Bolt				
Collet nut	Code No.	Model	Description	Compatible model
	2161	CHN-16	Collet nut for CH16 Collet	BMS-4020・BMS-4040・BMS-4020 2M BMS-4040 2M・BMS-4020RA・BMS-4040RA NR-4040・QC5-16 (NRR4040-QC) QC5-16 (NR4040-AQC) BMS-4020-MQL・BMS-4040-MQL BMS-4020-MQL-2M・BMS-4040-MQL-2M BMS-4040-RGD-03M・BMS-4040-RGD-2M BMS-4040RA-RGD-03M BMS-4040RA-RGD-2M
	2129	K-265	Collet nut for CHK Collet	QC5-K (NRR4040-QC)・QC5-K (NR4040-AQC) BMS-4020-MQL-CHK・BMS-4020-MQL-CHK-2M BMS-4040-MQL-CHK・BMS-4040-MQL-CHK-2M
Collet holder	Code No.	Model	Description	Compatible model
	9216	QC5-16	Collet holder for CH16 ※With CHN-16	NRR4040-QC NR4040-AQC
	9225	QC5-16-R		
	9215	QC5-K	Collet holder for CHK ※With K-265	NRR4040-QC NR4040-AQC
	9224	QC5-K-R		
Preset adapter	Code No.	Model	Description	Compatible model
	9218	QC5-16 ADP	Preset adapter	QC5-16
	9217	QC5-K ADP	Preset adapter	QC5-K
Adjuster Bolt	Code No.	Model	Description	Compatible model
	7739	ADJUSTER BOLT	Adjuster Bolt	BMS-4020-MQL-CHK BMS-4020-MQL-CHK-2M BMS-4040-MQL-CHK BMS-4040-MQL-CHK-2M

NAKANISHI Solutions LINE UP

Electric spindle

Electric Motors & Spindles

Brushless Motors & Spindles

Spindle

+

Motor

+

Controller

←

AC

Application for CNC lathes / Special purpose machines

E4000 SERIES

1,000~40,000min⁻¹ Max.1,200W
[ø40mm]



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

E2000 SERIES

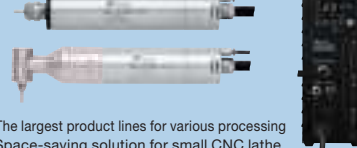
1,000~50,000min⁻¹ Max.200W
[ø22.8/25mm]



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

E3000 SERIES

1,000~80,000min⁻¹ Max.350W
[ø30/25/20mm]



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

iSpeed3 SERIES

1,000~80,000min⁻¹ Max.150W
[ø19.05/20/22mm]



■ Super short motor spindle
■ High efficiency brushless motor

Application for machining centers and milling machines

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



[HESS10]
■ 50,000min⁻¹, 8.75cN·m
■ BT, NT, CAT, IT, HSK A, ST shanks are available
■ Driven by E3000 Controller

Air spindle

Air Motors & Spindles

Spindle

+

Motor

+

Air line kit

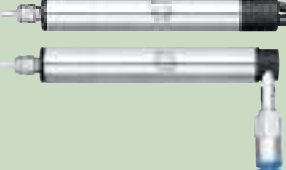
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Air compressor

Application for CNC lathes / Special purpose machines

Air-Speed SERIES One-piece type

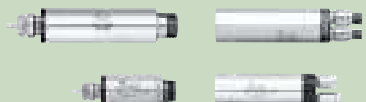
Max.30,000min⁻¹ Max.130W
[ø25/23/20/19.05mm]



■ 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⁻¹ Max.130W
[ø30/25/22.8mm]



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

Application for machining centers and milling machines

Air Turbine Spindles

Air Turbine Spindles

+

Air line kit

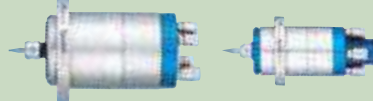
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Air compressor

Application for CNC lathes / Special purpose machines

Xpeed SERIES

Max.160,000min⁻¹
[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

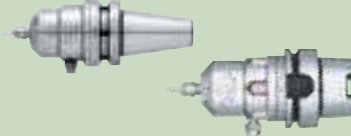
Max.65,000min⁻¹



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

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

p.29



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※Specifications and design are subject to change without notice.

www.nakanishi-inc.com
PR-K370E Ver.1 2022-02-28 03. ㊞ 410

HES

NAKANISHI INC. 2022



SERIES **HES**

ULTRA-HIGH-SPEED & SUPER-PRECISION

Transformer

Your machining center transforms to the high speed machining center

HES510 Max. rpm 50,000min⁻¹

HES810 Max. rpm 80,000min⁻¹

✓ 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.



Index

80,000min⁻¹ Motor Spindle

HES810-BT30 Max.rpm 80,000min ⁻¹		p.7
HES810-BT40 Max.rpm 80,000min ⁻¹		p.7
HES810-IT40 Max.rpm 80,000min ⁻¹		p.7
HES810-BT50 Max.rpm 80,000min ⁻¹		p.9
HES810-HSK A63 Max.rpm 80,000min ⁻¹		p.9
HES810-ST32 Max.rpm 80,000min ⁻¹		p.9

50,000min⁻¹ Motor Spindle

HES510-BT30 Max.rpm 50,000min ⁻¹		p.13
HES510-BT40 / NT40 (M) Max.rpm 50,000min ⁻¹		p.13
HES510-IT40 Max.rpm 50,000min ⁻¹		p.13
HES510-BT50 / NT50 Max.rpm 50,000min ⁻¹		p.15
HES510-ST32 Max.rpm 50,000min ⁻¹		p.15
HES510-HSK A63 Max.rpm 50,000min ⁻¹		p.17

Controller

Motor cord

E3000 CONTROLLER Controller		p.19	EMCD-810-4M / 6M / 8M Motor cord		p.20
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Accessories

	AL-C1204 Air line kit p.20		CHA / CHK Collet p.21		CHN-A / K-265 Collet nut p.21
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Combination Example

「HES810 SERIES」 HES810-BT40 + EMCD-810-4M + E3000 + AL-C1204 + CHA-4.0



1234

「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



1234

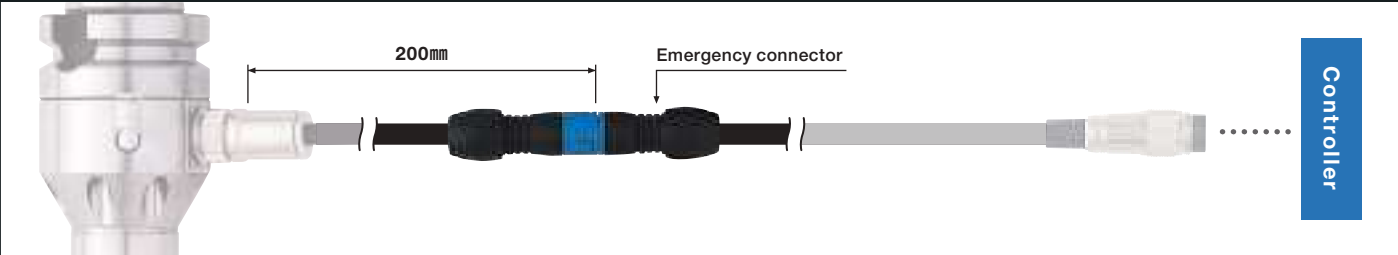
「HES510-BT40」

	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⁻¹ Motor Spindle



HES810-BT50
p.9

HES810-HSK A63
p.9

HES810-ST32
p.9

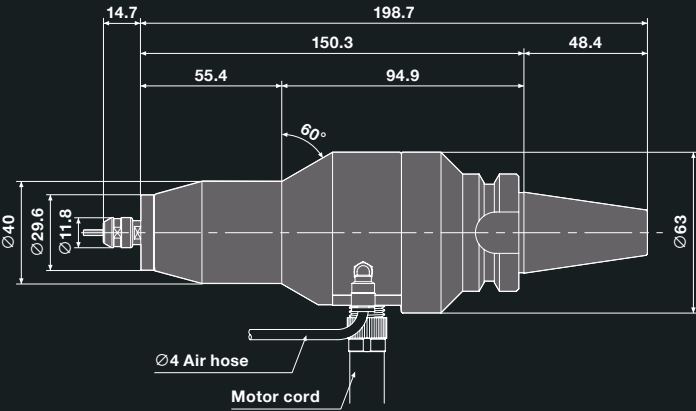
HES810-BT30
p.7

HES810-BT40 / IT40
p.7

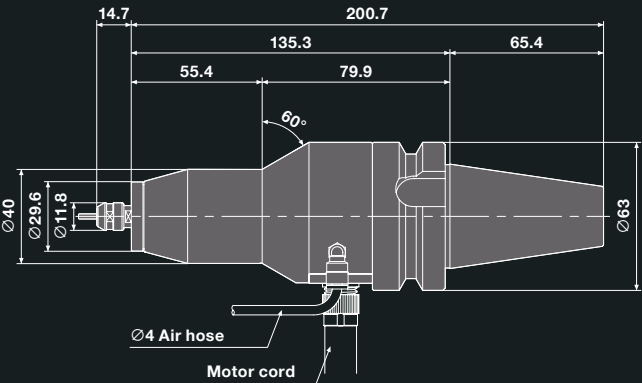


80,000min⁻¹ Motor Spindle

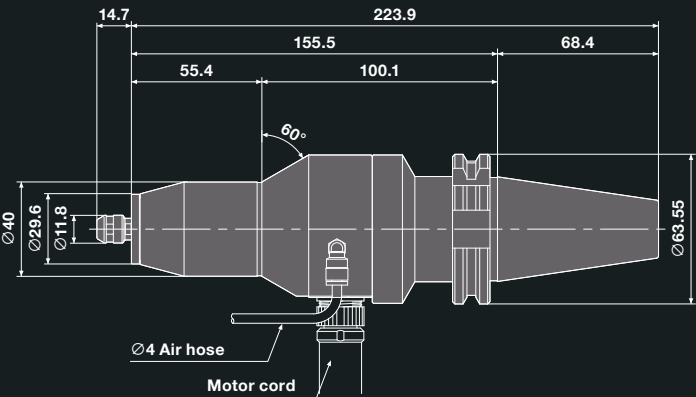
HES810-BT30



HES810-BT40



HES810-IT40



Specifications

DXF data DXF files are available on our website

Order by Code No.

HES810-BT30

Code No. 7878 Model HES810-BT30



Max. power	Speed Range	Spindle Accuracy	Weight
350w	20,000~80,000min ⁻¹ ※Recommended motor speed : 50,000~80,000min ⁻¹	Within 1μm	2.0kg
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each		
Options	Collet (CHA Group) : ø0.5 ~ ø4.0mm p.21		
	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
350w	20,000~80,000min ⁻¹ ※Recommended motor speed : 50,000~80,000min ⁻¹	Within 1μm	2.2kg
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each		
Options	Collet (CHA Group) : ø0.5 ~ ø4.0mm p.21		
	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

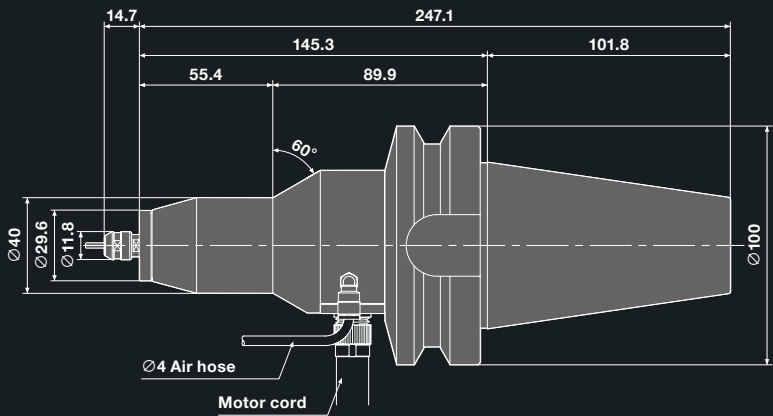


Max. power	Speed Range	Spindle Accuracy	Weight
350w	20,000~80,000min ⁻¹ ※Recommended motor speed : 50,000~80,000min ⁻¹	Within 1μm	2.4kg
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each		
Options	Collet (CHA Group) : ø0.5 ~ ø4.0mm p.21		
	Motor cord : Length 4m (9248), 6m (9249),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

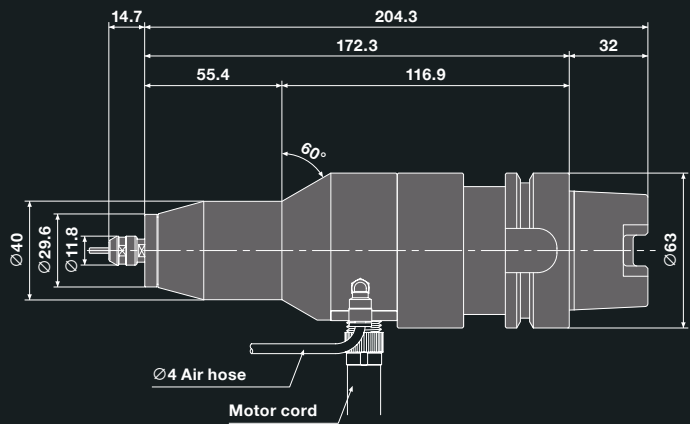
※Collet is sold separately.

80,000min⁻¹ Motor Spindle

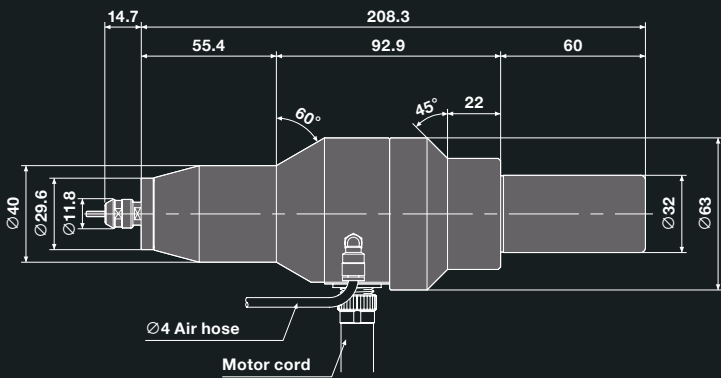
HES810-BT50



HES810-HSK A63



HES810-ST32



Specifications

DXF data DXF files are available on our website

Order by Code No.

HES810-BT50

Code No. 7880 Model HES810-BT50



Max. power	Speed Range	Spindle Accuracy	Weight
350w	20,000~80,000min ⁻¹ ※Recommended motor speed : 50,000~80,000min ⁻¹	Within 1μm	4.9kg
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each		
Options	Collet (CHA Group) : ø0.5 ~ ø4.0mm p.21		
	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
350w	20,000~80,000min ⁻¹ ※Recommended motor speed : 50,000~80,000min ⁻¹	Within 1μm	2.6kg
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each		
Options	Collet (CHA Group) : ø0.5 ~ ø4.0mm p.21		
	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
350w	20,000~80,000min ⁻¹ ※Recommended motor speed : 50,000~80,000min ⁻¹	Within 1μm	2.3kg
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each		
Options	Collet (CHA Group) : ø0.5 ~ ø4.0mm p.21		
	Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with ø4.0mm Air cooling hose		

※Collet is sold separately.

50,000min⁻¹ Motor Spindle



HES510-BT30
p.13

HES510-BT40 / NT40 / IT40
p.13

HES510-BT50 / NT50
p.15



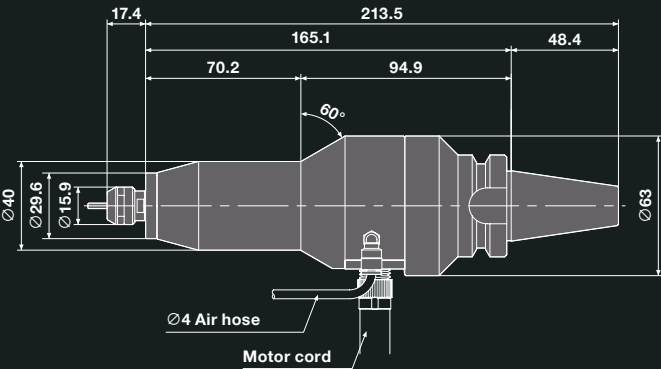
HES510-ST32
p.15

HES510-HSK A63
p.17



50,000min⁻¹ Motor Spindle

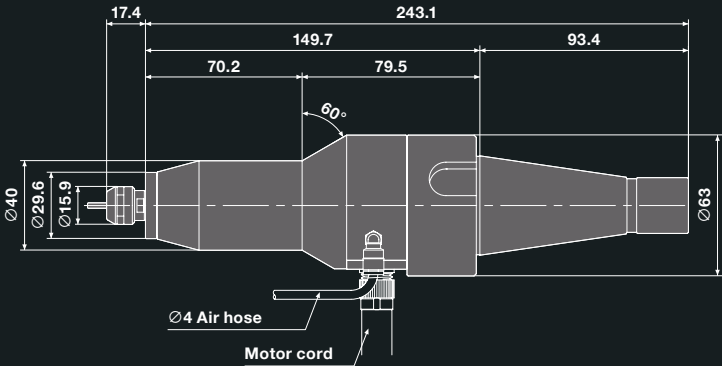
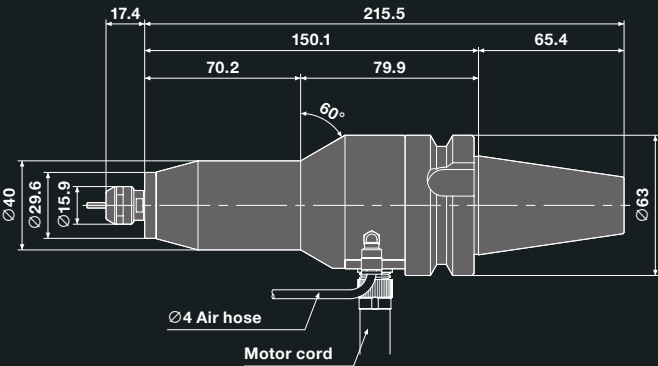
HES510-BT30



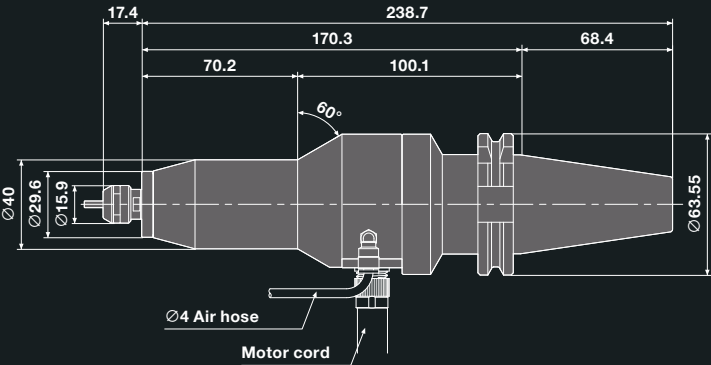
HES510-BT40 / NT40 (M)

[BT40]

[NT40]



HES510-IT40



Specifications

DXF data DXF files are available on our website

Order by Code No.

HES510-BT30

Code No.	7890	Model	HES510-BT30
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Max. power	Speed Range	Spindle Accuracy	Weight
340w	5,000~50,000min ⁻¹	Within 1μm	2.2kg
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs.		
Options	Collet (CHK Group) : ø0.5 ~ ø6.35mm p.21		
	Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with ø4.0mm Air cooling hose		

※Collet is sold separately.

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

※Collet is sold separately.

HES510-IT40

Code No.	7895	Model	HES510-IT40
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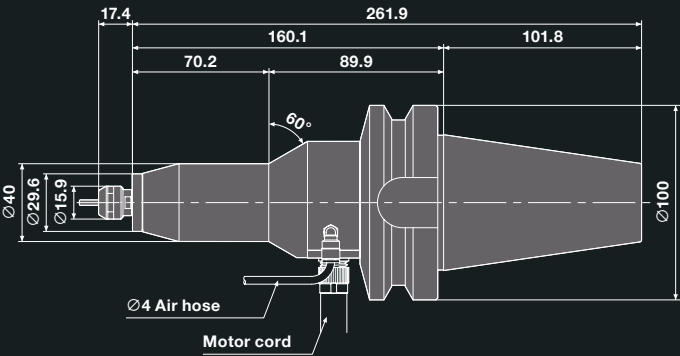
Max. power	Speed Range	Spindle Accuracy	Weight
340w	5,000~50,000min ⁻¹	Within 1μm	2.6kg
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs.		
Options	Collet (CHK Group) : ø0.5 ~ ø6.35mm p.21		
	Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with ø4.0mm Air cooling hose		

※Collet is sold separately.

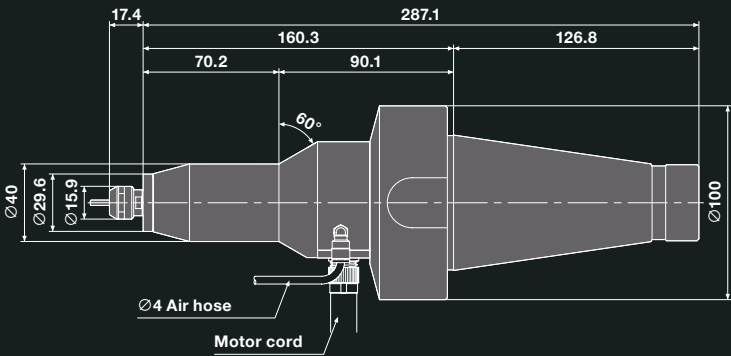
50,000min⁻¹ Motor Spindle

HES510-BT50 / NT50

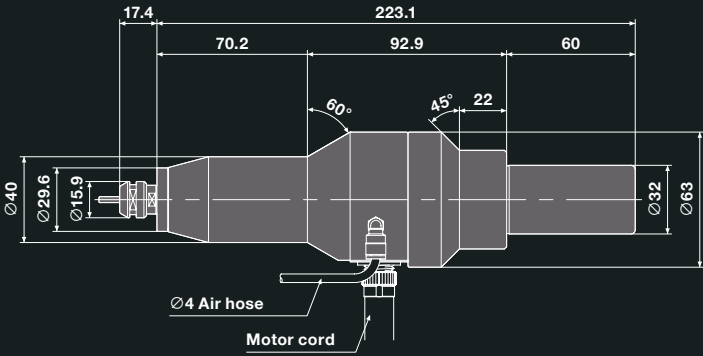
[BT50]



[NT50]



HES510-ST32



Specifications

DXF data DXF files are available on our website

Order by Code No.

HES510-BT50 / NT50



Code No.	7892	Model	HES510-BT50
Code No.	7889	Model	HES510-NT50

※NT50 is a discontinued product and limited in stock.

Max. power	Speed Range	Spindle Accuracy	Weight
340w	5,000~50,000min ⁻¹	Within 1μm	BT50 : 5.0kg NT50 : 5.4kg
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs.		
Options	Collet (CHK Group) : ø0.5 ~ ø6.35mm p.21		
	Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with ø4.0mm Air cooling hose		

※Collet is sold separately.

HES510-ST32

Code No.	7899	Model	HES510-ST32
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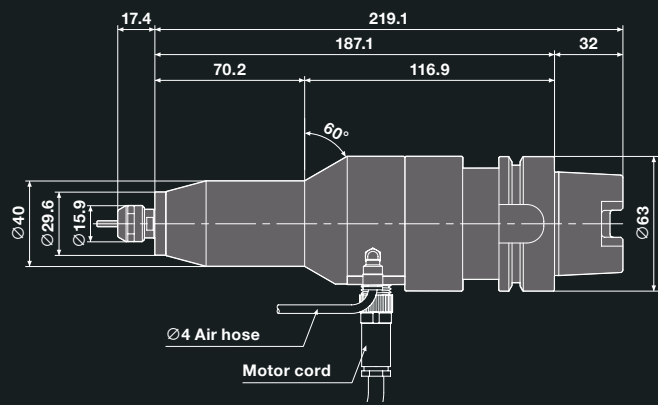


Max. power	Speed Range	Spindle Accuracy	Weight
340w	5,000~50,000min ⁻¹	Within 1μm	2.4kg
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs.		
Options	Collet (CHK Group) : ø0.5 ~ ø6.35mm p.21		
	Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with ø4.0mm Air cooling hose		

※Collet is sold separately.

50,000min⁻¹ Motor Spindle

HES510-HSK A63



Specifications

DXF data DXF files are available on our website

Order by Code No.

HES510-HSK A63

Code No. 7897 Model HES510-HSK A63



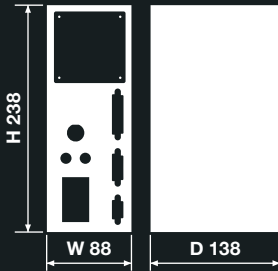
Max. power	Speed Range	Spindle Accuracy	Weight
340w	5,000~50,000min ⁻¹	Within 1μm	2.7kg
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs.		
Options	Collet (CHK Group) : ø0.5 ~ ø6.35mm p.21		
	Motor cord : Length 4m (9248), 6m (9249), 8m (9250) Provided with ø4.0mm Air cooling hose		

※ Collet is sold separately.

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 ⁻¹	
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

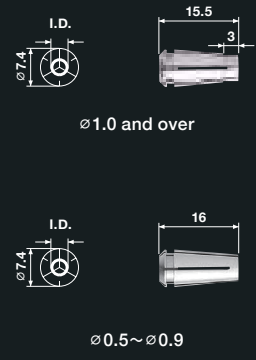
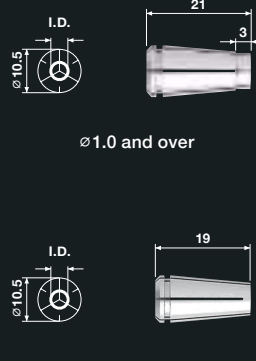
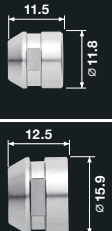
※Recommendation of nominal filtration rating : 0.3μm,
Pressure range : 0.1-1.0MPa Recommendation of air filter : M2000-WS (CKD)

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

Motor cord

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

Accessories (Collet, Collet nut)

Collet	Code No.	Model	I.D.	Compatible model
 Collet CHA Group	91494	CHA-3.0AA	ø3.0AA ※	HES810 ※ High precision type AA (Run-out Accuracy within 2 μm)
	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	
 Collet CHK Group	91440	CHA-4.0	ø4.0	HES510 ※ High precision type AA (Run-out Accuracy within 2 μm)
	—	CHA-□□	ø0.5,ø0.6,ø0.7,ø0.8,ø0.9 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 ø1.0,ø1.5,ø2.0,ø2.5,ø3.5 ø1.6	
	91597	CHK-3.0AA	ø3.0AA ※	
	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 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 spindle

Electric Motors & Spindles

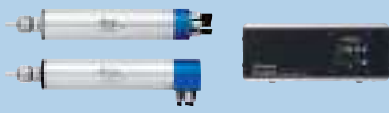
Brushless Motors & Spindles

Spindle + Motor + Controller ← AC

Application for CNC lathes / Special purpose machines

E4000 SERIES

1,000~40,000min⁻¹ Max.1,200W
[ø40mm]



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

E3000 SERIES

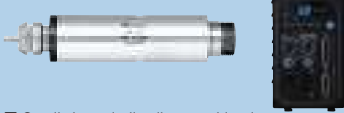
1,000~80,000min⁻¹ Max.350W
[ø30/25/20mm]



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

E2000 SERIES

1,000~50,000min⁻¹ Max.200W
[ø22.8/25mm]



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

iSpeed3 SERIES

1,000~80,000min⁻¹ Max.150W
[ø19.05/20/22mm]



- Super short motor spindle
- High efficiency brushless motor

Application for machining centers and milling machines

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 spindle

Air Motors & Spindles

Spindle + Motor + Air line kit ← Air compressor

Application for CNC lathes / Special purpose machines

Air-Speed SERIES One-piece type

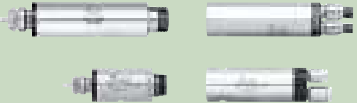
Max.30,000min⁻¹ Max.130W
[ø25/23/20/19.05mm]



- 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⁻¹ Max.130W
[ø30/25/22.8mm]



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

Application for machining centers and milling machines

Air Turbine Spindles

Air Turbine Spindles + Air line kit ← Air compressor

Application for CNC lathes / Special purpose machines

Xpeed SERIES

Max.160,000min⁻¹
[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

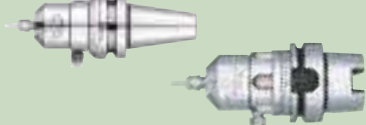
Max.65,000min⁻¹



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

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

p.21

E2000



E2000

NAKANISHI INC. 2022



NAKANISHI INC.

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TEL: +81-289-64-3520 / FAX: +81-289-62-1135

www.nakanishi-inc.com
PR-K366E Ver.1 2022-02-24 02. ㊞ 440

※Specifications and design are subject to change without notice.

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

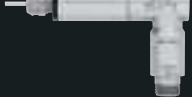


Index

Straight type spindle

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

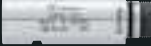
Angle type spindle

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



E2280 CONTROLLER p.15
Controller

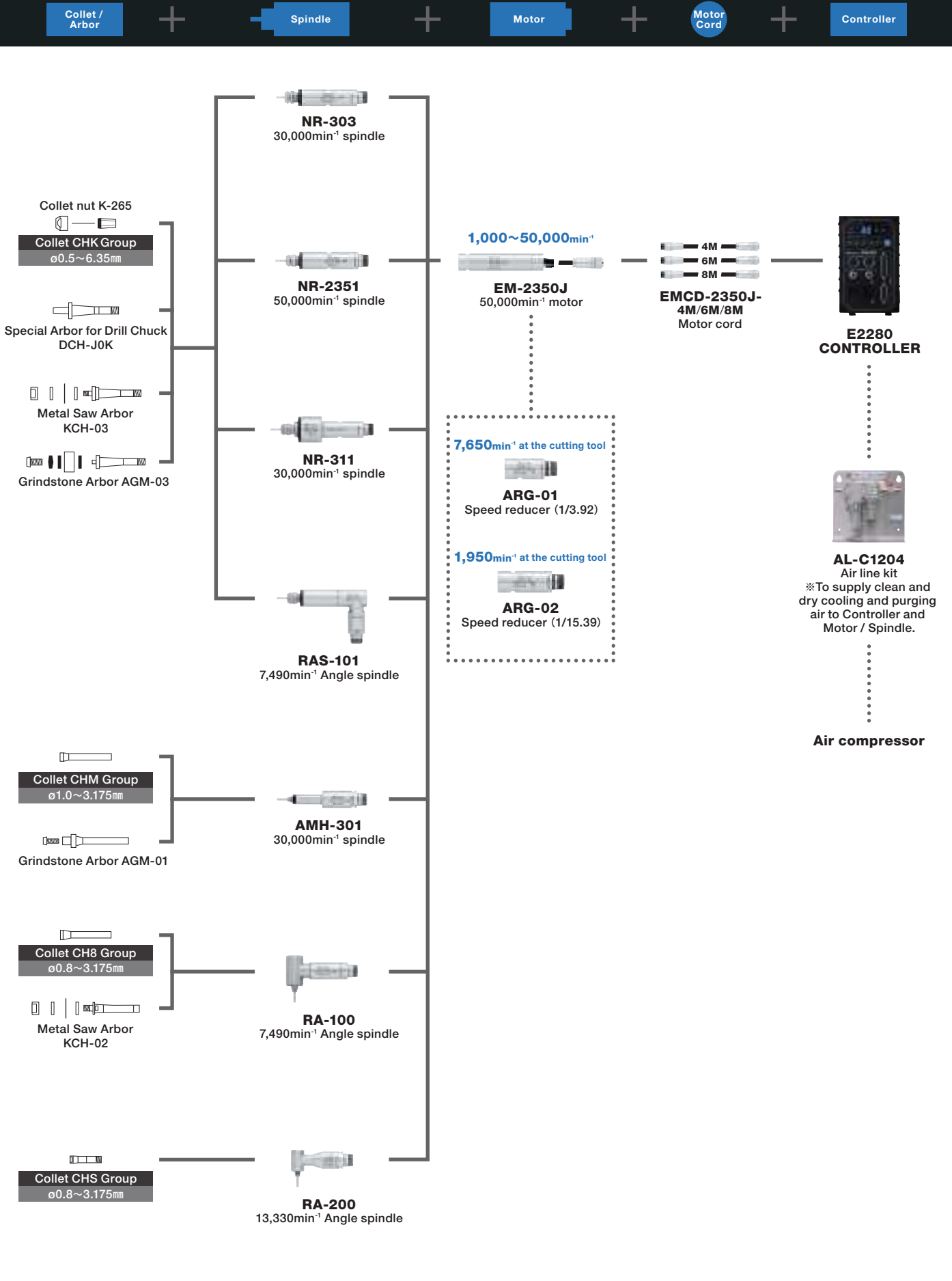
Accessories

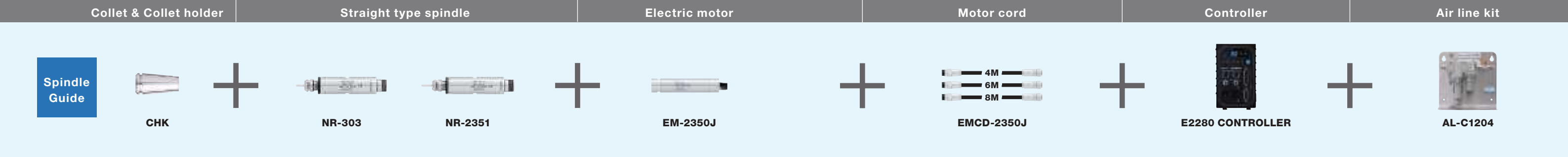


AL-C1204 p.16 Air line kit
GR-22.8 p.16 Grip ring
CHK / CHM
CHS / CH8 p.17 Collet

System Chart

[E2000]





E2000 SERIES

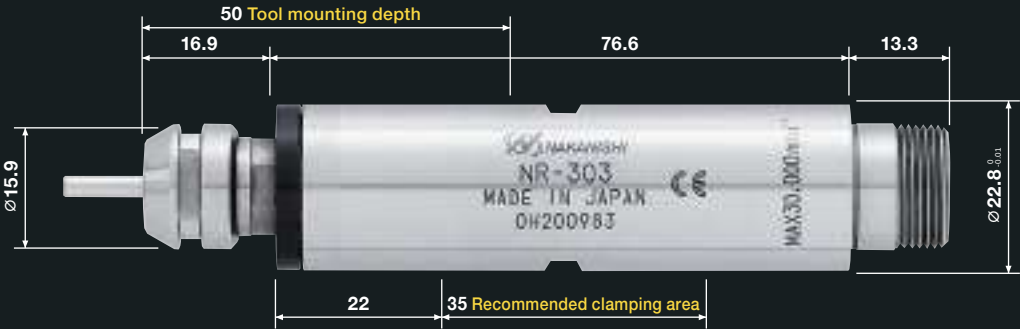
Shown In Actual Size

Straight type spindle

NR-303



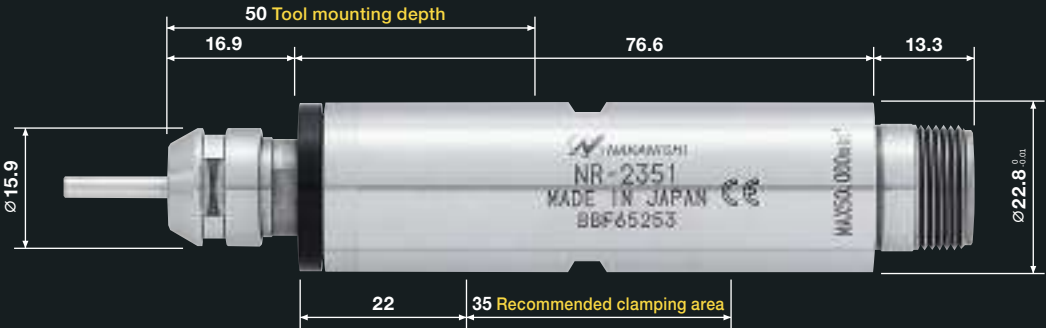
O.D. Ø22.8mm



NR-2351



O.D. Ø22.8mm



Specifications

DXF data

DXF files are available on our website

Order by Code No.

NR-303



Code No.	7861	Model	NR-303
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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

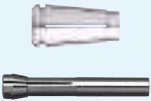


Code No.	7855	Model	NR-2351
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O.D.	Max. rpm	Spindle Accuracy	Collet	Weight
Ø22.8mm	50,000min ⁻¹	Within 1μm	CHK Group (Ø0.5 ~ Ø6.35mm)	215g
Standard Accessories	Collet nut (K-265) / Wrench (12×14) : 2pcs. · (20×24) : 1pc.			
Options	Collet (CHK Group) : 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



CHK / CHM



NR-311



AMH-301



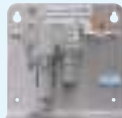
EM-2350J



EMCD-2350J



E2280 CONTROLLER



AL-C1204

E2000 SERIES

Shown In Actual Size

Straight type spindle

NR-311



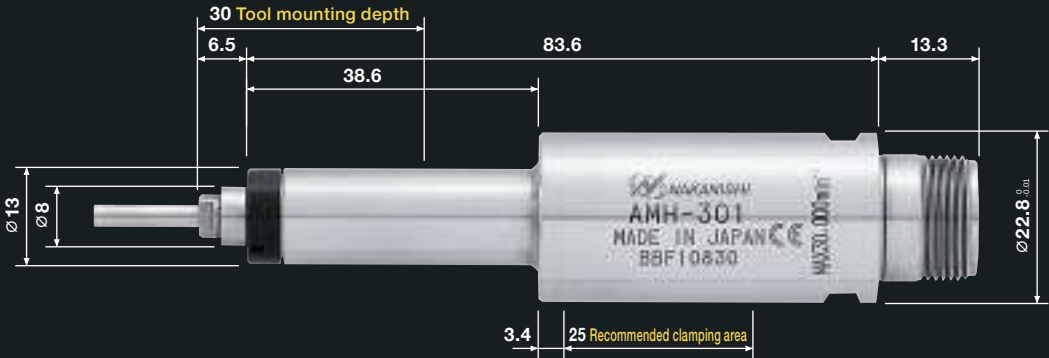
O.D. $\varnothing 22.8\text{mm}$



AMH-301



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



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
$\varnothing 22.8\text{mm}$	$30,000\text{min}^{-1}$	Within $2\mu\text{m}$	CHK Group ($\varnothing 0.5 \sim \varnothing 6.35\text{mm}$)	370g
Standard Accessories	Collet nut (K-265) / Wrench (12×14)・(20×24) : 1pc. each			
Options	Collet (CHK Group) : $\varnothing 0.5 \sim \varnothing 6.35\text{mm}$ p.17			
	Metal Saw Arbor (KCH-03) : $\varnothing d$ (I.D.) × under $\varnothing 30\text{mm}$ (O.D.)			
	Grindstone Flange (NGF2-19) : $\varnothing 19.05$ (I.D.) × $\varnothing 40$ (O.D.) × 7mm (W)			

※ Collet is sold separately.

AMH-301



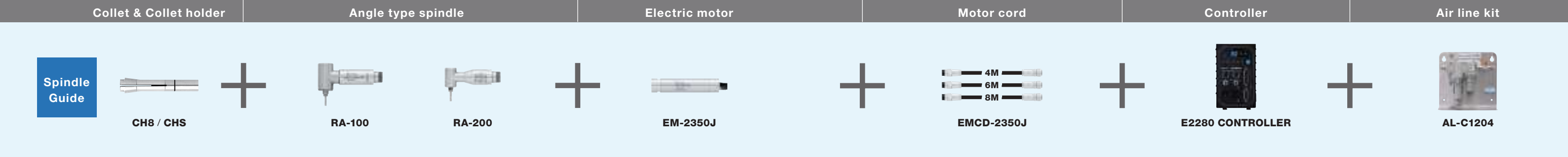
Code No.

1074

Model

AMH-301

O.D.	Max. rpm	Collet	Weight
$\varnothing 22.8\text{mm}$	$30,000\text{min}^{-1}$	CHM Group ($\varnothing 1.0 \sim \varnothing 3.175\text{mm}$)	171g
Standard Accessories	Collet : $\varnothing 3.0\text{mm}$ (CHM-3.0) / Wrench (7×5.1)・(6×4.5)・(20×24) : 1pc. each		
Options	Collet (CHM Group) : $\varnothing 1.0 \sim \varnothing 3.175\text{mm}$ p.17		
	Grindstone Arbor (AGM-01) : Grindstone I.D. $\varnothing 5.0\text{mm}$		

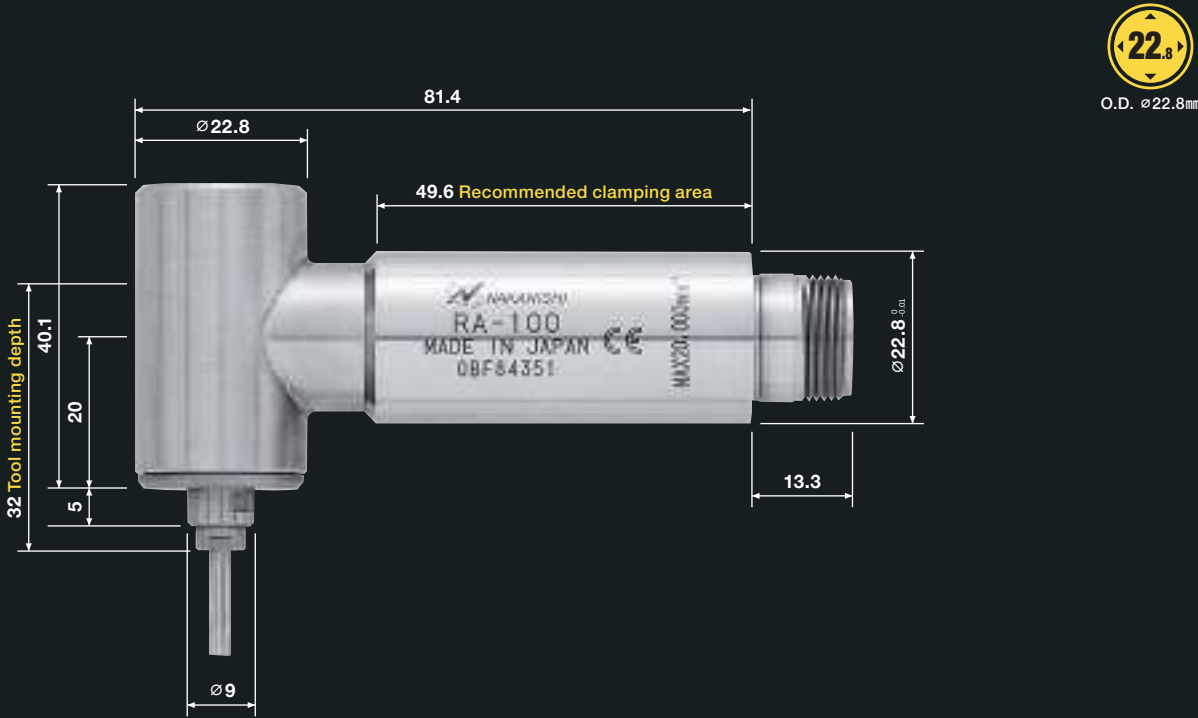


E2000 SERIES

Shown In Actual Size

Angle type spindle

RA-100



Specifications

DXF data DXF files are available on our website

Order by Code No.

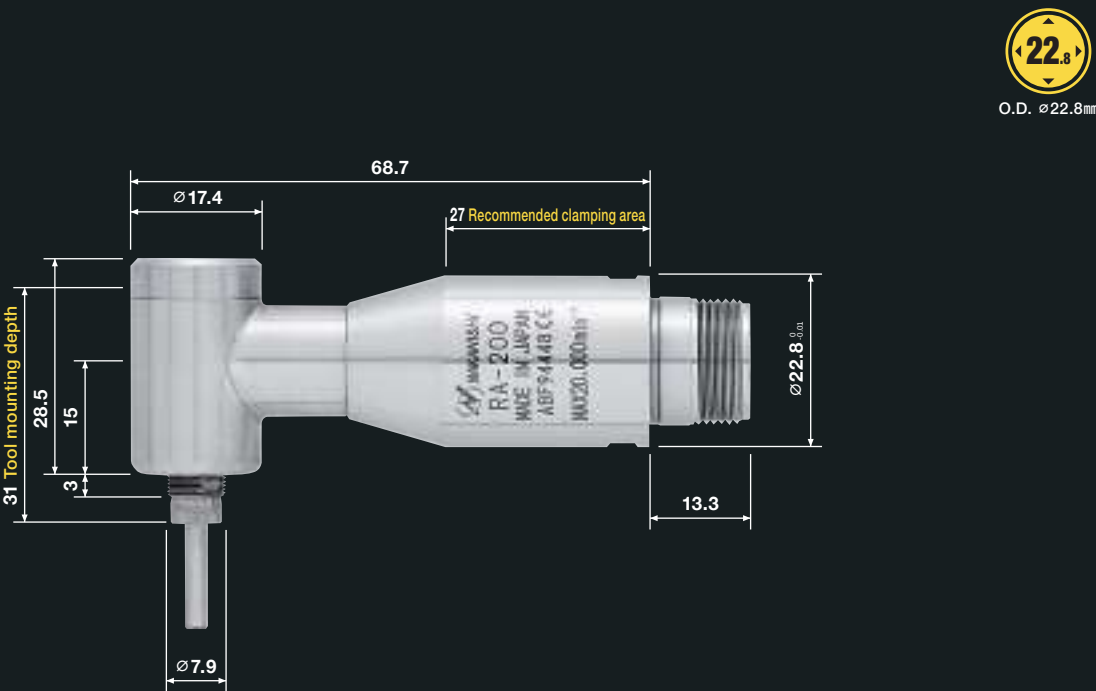
RA-100



Code No.	1024	Model	RA-100
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O.D.	Max. speed at the cutting tool	Reduction ratio	Max. Allowable Motor Speed for The Spindle	Collet	Weight
22.8mm	7,490min ⁻¹	$\frac{1}{2.67}$	20,000min ⁻¹	CH8 Group (0.8 ~ 3.175mm)	271g
Standard Accessories		Collet : 3.0mm (CH8-3.0) / Wrench (7×5.5) · (8×5) · (20×24) : 1pc. each			
Options		Collet (CH8 Group) : 0.8~3.175mm p.17 Metal Saw Arbor (KCH-02) : 2d (I.D.) × under 30mm (O.D.)			

RA-200



RA-200

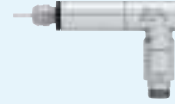


Code No.	1075	Model	RA-200
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O.D.	Max. speed at the cutting tool	Reduction ratio	Max. Allowable Motor Speed for The Spindle	Collet	Weight
22.8mm	13,330min ⁻¹	$\frac{1}{1.5}$	20,000min ⁻¹	CHS Group (0.8 ~ 3.175mm)	165g
Standard Accessories		Collet : 3.0mm (CHS-3.0) / Wrench (7×5.1) · (8×5) · (20×24) : 1pc. each			
Options		Collet (CHS Group) : 0.8~3.175mm p.17			



CHK

**RAS-101****EM-2350J**

EMCD-2350J



E2280 CONTROLLER



AL-C1204

E2000 SERIES

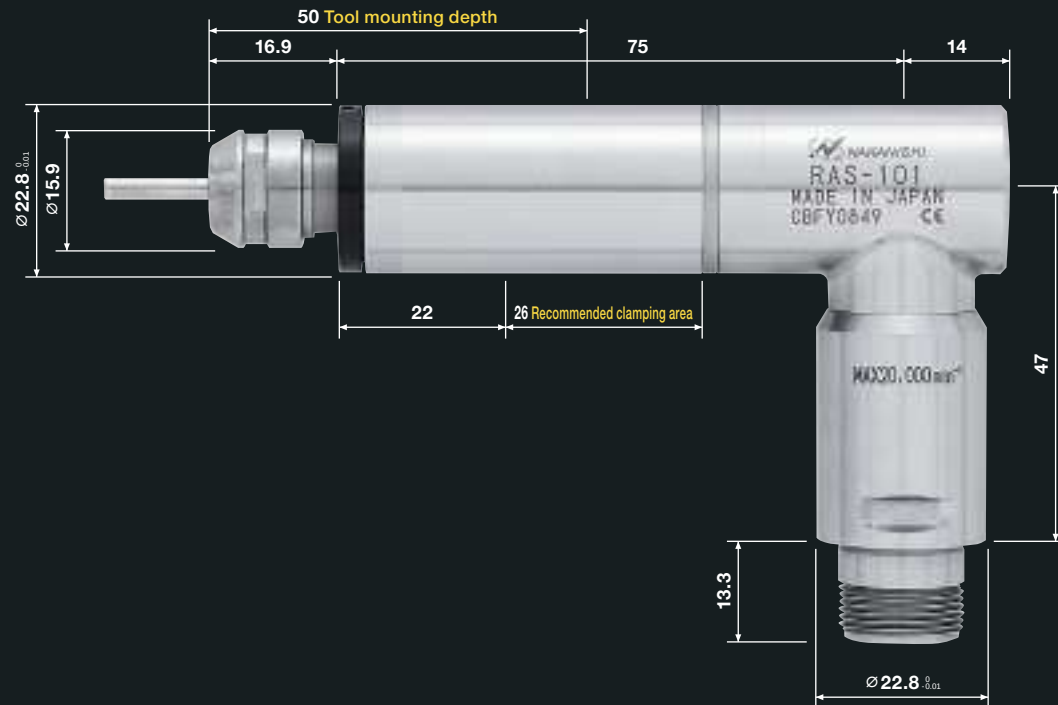
Shown In Actual Size

Angle type spindle

RAS-101



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

**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	7,490min ⁻¹	$\frac{1}{2.67}$	20,000min ⁻¹	Within 2μm	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

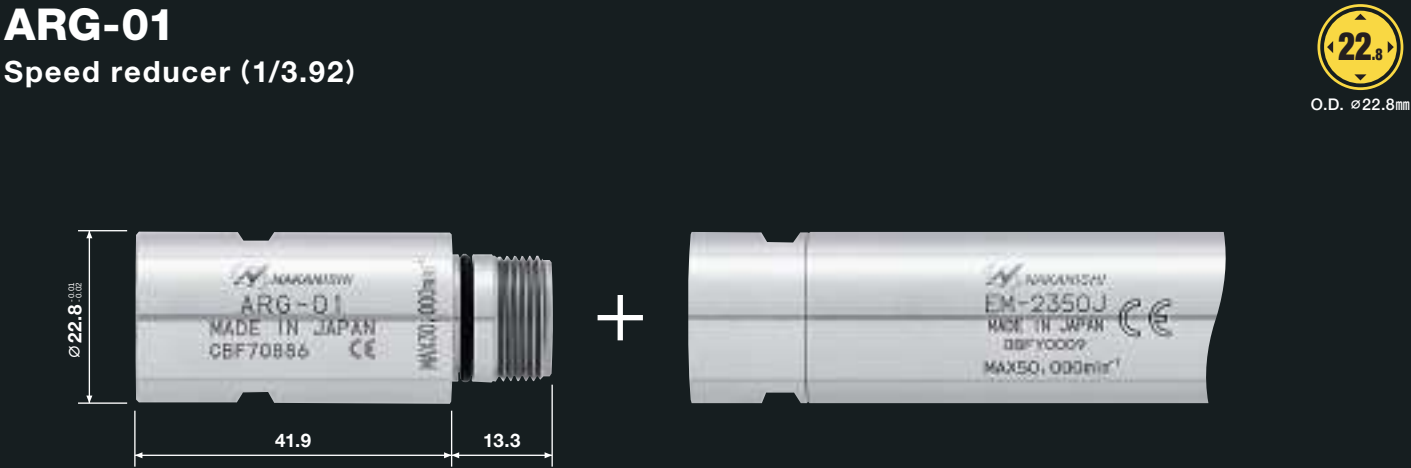
EM-2350J

Motor



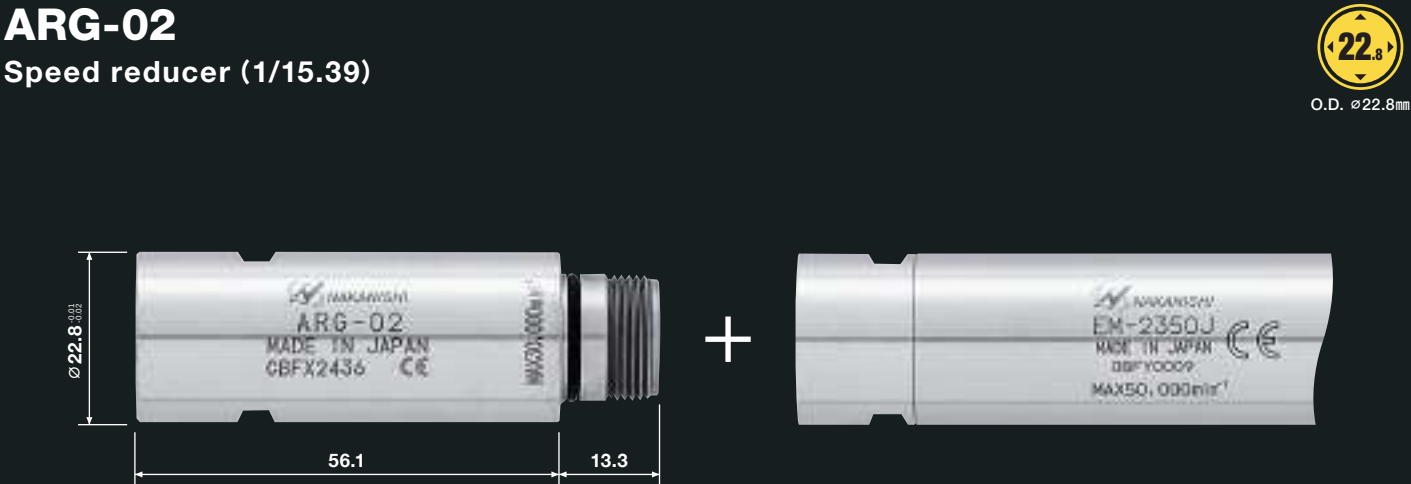
ARG-01

Speed reducer (1/3.92)



ARG-02

Speed reducer (1/15.39)



Specifications

DXF data DXF files are available on our website

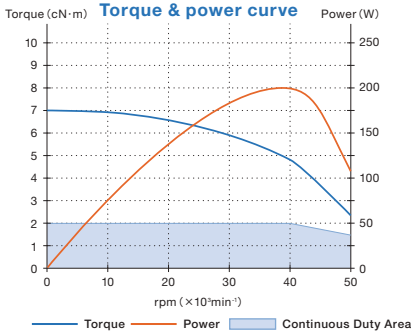
Order by Code No.

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

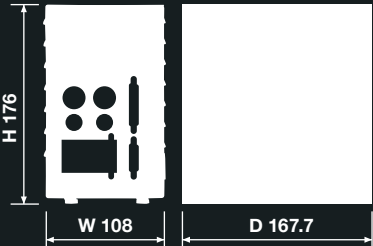
O.D.	Max. speed at the cutting tool	Reduction ratio	Max. rpm	Weight
Ø22.8mm	1,950min ⁻¹	$\frac{1}{15.39}$	30,000min ⁻¹	148g

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

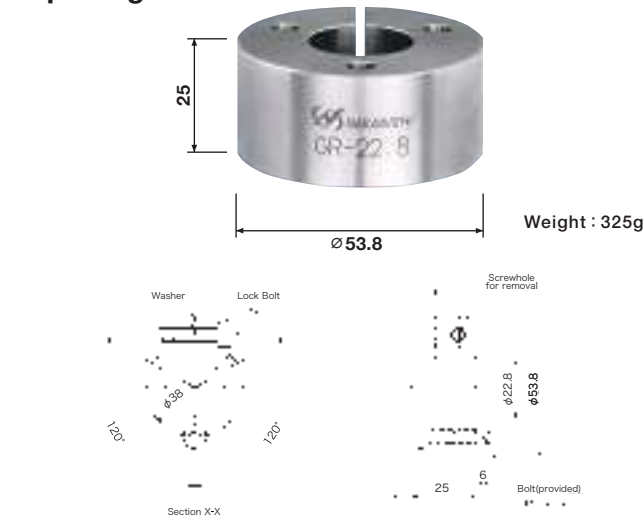
Code No.	4504	Model	AL-C1204
Standard Accessories		Hose pipe (K-260) : 2m	

Motor cord

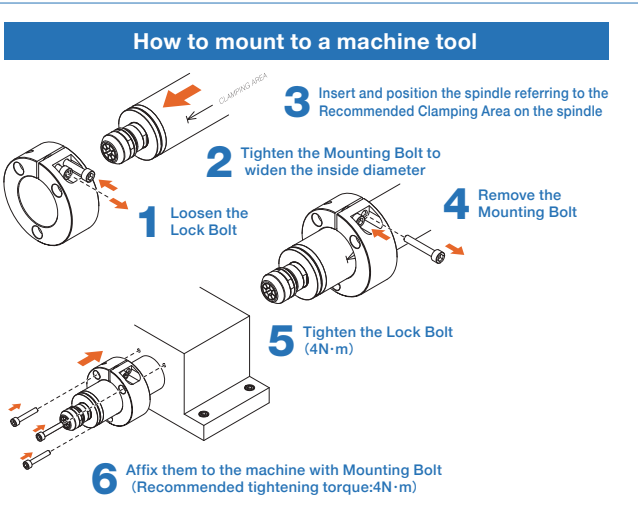
Motor cord	Code No.	Model	Length	Standard Accessories	Compatible model
4M 6M 8M Joint type	7722	EMCD-2350J-4M	3.7m	Air hose Connector cap (Included)	EM-2350J
	7723	EMCD-2350J-6M	5.7m		
	7724	EMCD-2350J-8M	7.7m		

GR-22.8
Grip Ring

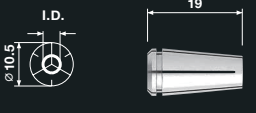
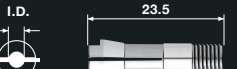
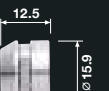
Code No. 1888 Model GR-22.8



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



Accessories (Collet, etc.)

Collet	Code No.	Model	I.D. / Description	Compatible model
 ø1.0~ø6.35  ø0.5~ø0.9 Collet CHK Group	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	
	90992	CHM-2.35	ø2.35	
	90930	CHM-3.0	ø3.0	
	90993	CHM-3.175	ø3.175	
 Collet CHM Group	90916	CHM-1.6	ø1.6	AMH-301
	—	CHM-□□	ø1.0,ø2.0	
	90592	CHS-2.35	ø2.35	
	90530	CHS-3.0	ø3.0	
 Collet CHS Group	90593	CHS-3.175	ø3.175	RA-200
	90516	CHS-1.6	ø1.6	
	—	CHS-□□	ø0.8,ø0.9 ø1.0,ø2.0,ø2.5	
	—	CHS-□□	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	
	—	CHS-□□	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	
 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 spindle

Electric Motors & Spindles

Brushless Motors & Spindles

Spindle

+

Motor

+

Controller

←

AC

Application for CNC lathes / Special purpose machines

E4000 SERIES

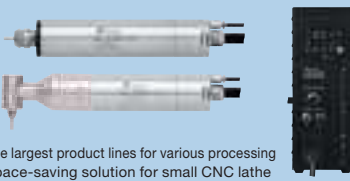
1,000~40,000min⁻¹ Max.1,200W
[ø40mm]



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

E3000 SERIES

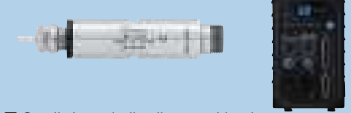
1,000~80,000min⁻¹ Max.350W
[ø30/25/20mm]



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

E2000 SERIES

1,000~50,000min⁻¹ Max.200W
[ø22.8/25mm]



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

iSpeed3 SERIES

1,000~80,000min⁻¹ Max.150W
[ø19.05/20/22mm]



■ 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



[HESS10]
■ 50,000min⁻¹, 8.75cN·m
■ BT, NT, CAT, IT, HSK A, ST shanks are available
■ Driven by E3000 Controller

Air spindle

Air Motors & Spindles

Spindle

+

Motor

+

Air line kit

←

Air compressor

Application for CNC lathes / Special purpose machines

Air-Speed SERIES One-piece type

Max.30,000min⁻¹ 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⁻¹ Max.130W
[ø30/25/22.8mm]



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

Air Turbine Spindles

Air Turbine Spindles

+

Air line kit

←

Air compressor

Application for CNC lathes / Special purpose machines

Xpeed SERIES

Max.160,000min⁻¹
[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

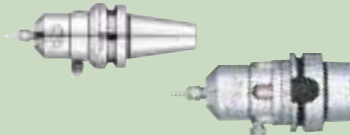
Max.65,000min⁻¹



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

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

p.17

AirSpeed

Air Motor Spindles



AirSpeed

NAKANISHI INC. 2022



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PR-K372E Ver.1 2022-03-02 015. 870

※Specifications and design are subject to change without notice.

One Piece Type Spindle

- Shorten total spindle length suitable for the compact sized NC or CNC Lathe, and special purpose machines.
- Hardened and precision ground for high rigidity & excellent durability.
- External housing is one-piece with the spindle & the motor for machine attachments.



Outside Diameter **ø25, ø23, ø20, ø19.05mm**

Max. **30,000min⁻¹**

Max. Power **130W**



Separate Type Spindle

- Free to connect the spindle to the motor for applications.
- Easy to exchange for repairs.

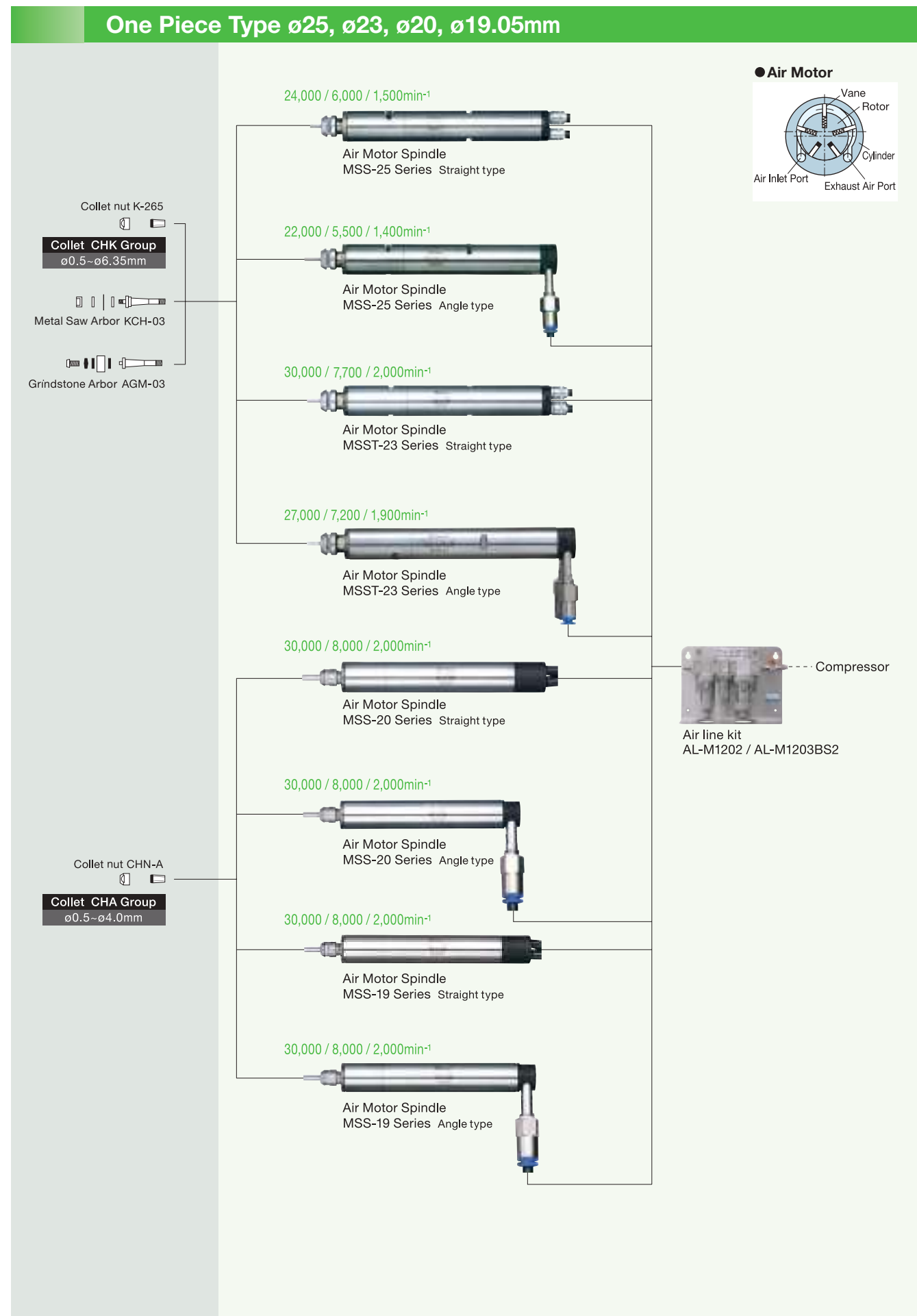


Outside Diameter **ø30, ø25, ø22.8mm**

Max. **30,000min⁻¹**

Max. Power **130W**





※ Please refer to the concerned product introduction page about the details.

▼ AIR MOTOR SPINDLE (One Piece Type)

Straight Spindle



Outside Diameter $\phi 25$, $\phi 23$,
 $\phi 20$, $\phi 19.05\text{mm}$

Max. 30,000min⁻¹

Max. Power 130W

Model Code Example

[1] SERIES CODE
[2] OUTSIDE DIAMETER
[3] SPEED
[4] R=FORWARD (Right)
[5] CODE FOR 90°ANGLE TYPE

•Straight Type

MSS 19 08 R

•90° Angle Type

MSS 19 08 R A

Spindle Accuracy :
Within 2 μm



● Outer Housing Material

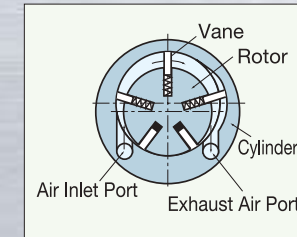
Made from stainless steel (SUS416)

● Configuration

2 Types available, Straight type & 90° Angle type.

● Highest output power in the class

● Air Motor



The rotor of the air motor rotates off center in the cylinder. The vanes are pushed by compressed air and this rotates the rotor. This small air motor produces high torque making it suitable for small diameter drilling, milling, slitting and grinding.

● Silencer

By utilizing a silencer on the exhaust air tubing the noise generated by the motor or turbine is greatly reduced.

● Speed Reduction System

A planetary gear speed reduction system is incorporated in some of the MSS Series motor spindles. The speed reduction ratio is either 1/4 or 1/16.



1/4 1/16 :
Planetary Gear System

Air line kit
AL-M1202

OPTION

Refer to P.29



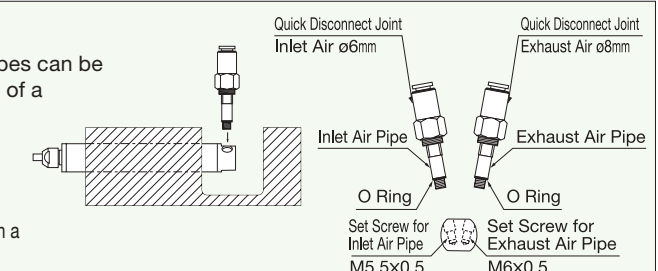
● Installation of the 90° Angle Type

● MSS · MSST series angle (RA) type drive air and exhaust air pipes can be removed enabling the motor spindle installed through the front of a holder with backside restriction as shown in the illustration.

Installation

- [1] Remove Inlet and Exhaust Air Pipes from motor spindle.
- [2] Insert the straight spindle from the front side of holder and fix it.
- [3] Mount the inlet and exhaust air pipes to the spindle fixed on the holder and attach a hose to the quick disconnect joint.

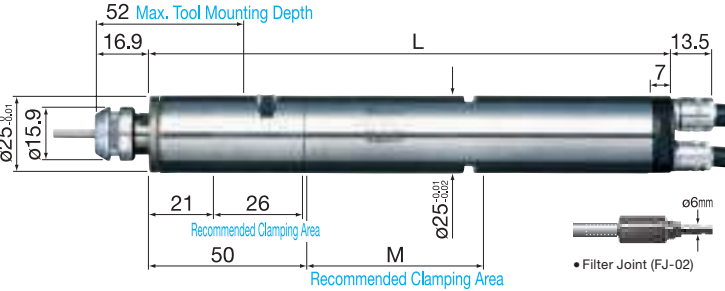
● Urethane hose of 6 x 4 for inlet air and 8 x 5 for exhaust air can be installed.



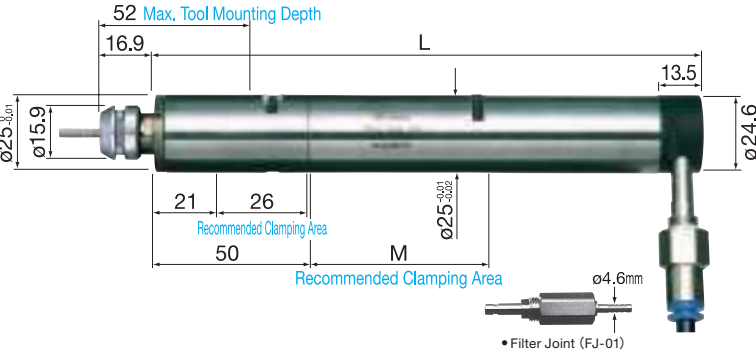
※ The motor speed of the 90° Angle type is 10% less than that of the straight type.

Air Motor Spindle		O.D.	Collet	Spindle Accuracy	Max. Power	Air Consumption
MSS-25 Series		ø25mm	ø0.5~ø6.35mm (CHK Group)	Within 2 μm	130W	205Nℓ/min (R) 170Nℓ/min (RA)

▼ MSS-25 Series STRAIGHT TYPE (R)



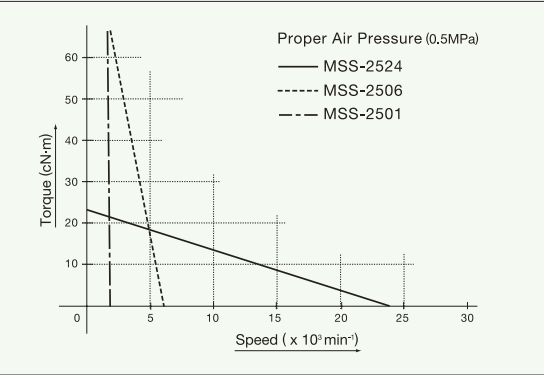
▼ MSS-25 Series 90° ANGLE TYPE (RA)



< Specifications >

Motor Hose (Diameter / Length)		
R-Type	Air Inlet	: ø6.7mm (O.D.) x 2m
	Exhaust Air	: ø7.5mm (O.D.) x 1m
RA-Type	Air Inlet	: ø6.0mm (O.D.) x 2m
	Exhaust Air	: ø8.0mm (O.D.) x 1m

● MSS-25 Series Torque-Speed Characteristics



⚠ Two recommended clamp areas are laser-marked on the spindle. Select one of them for clamping, and do not clamp both areas.

R 24,000min⁻¹ (0.5MPa) / RA 22,000min⁻¹ (0.5MPa)

Code No.	7841	Model	MSS-2524R	Shape	Straight	Max. Torque	22.5cN·m	Weight	395g	L	131.3mm	M	25mm	MSS-2524R DXF-data
Code No.	7842	Model	MSS-2524RA	Shape	90° Angle			Weight	436g	L	137.8mm			MSS-2524RA DXF-data

R 6,000min⁻¹ (0.5MPa) / RA 5,500min⁻¹ (0.5MPa) 1/4 Speed Reduction

Code No.	7843	Model	MSS-2506R	Shape	Straight	Max. Torque	85cN·m	Weight	485g	L	164.1mm	M	58mm	MSS-2506R DXF-data
Code No.	7844	Model	MSS-2506RA	Shape	90° Angle			Weight	526g	L	170.6mm			MSS-2506RA DXF-data

R 1,500min⁻¹ (0.5MPa) / RA 1,400min⁻¹ (0.5MPa) 1/16 Speed Reduction

Code No.	7845	Model	MSS-2501R	Shape	Straight	Max. Torque	332cN·m	Weight	475g	L	168.5mm	M	62mm	MSS-2501R DXF-data
Code No.	7846	Model	MSS-2501RA	Shape	90° Angle			Weight	516g	L	175.0mm			MSS-2501RA DXF-data

< Standard Accessories >

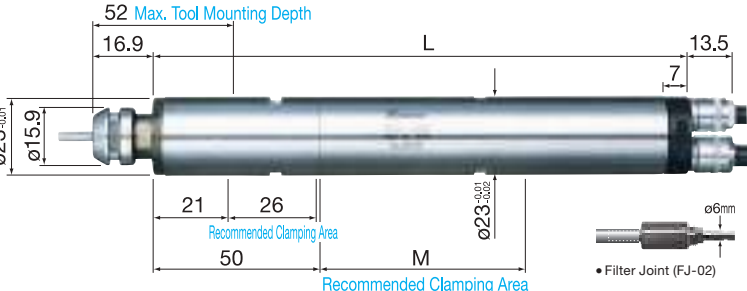
- Collet Nut (K-265) • Wrench (12 x 14) : 2pcs.
- Hose (K-204) (R-type) : 1pc.
- Hose (K-215) (RA-type) : 1pc.
- Hose (K-256) (RA-type) : 1pc.
- Filter Joint (FJ-02) (R-type) • Filter Joint (FJ-01) (RA-type)
- Silencer (K-208)

< Options >

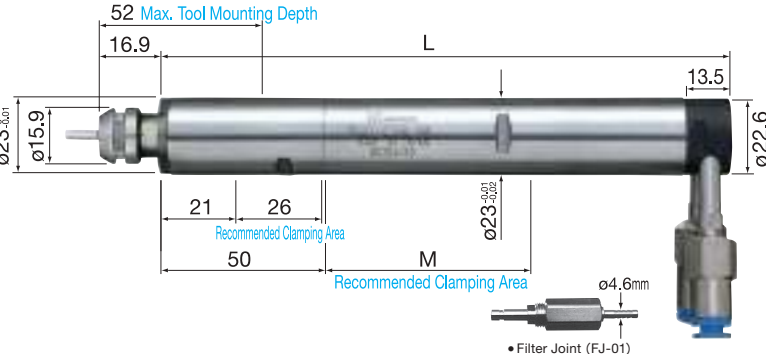
- Collet (CHK Group) : ø0.5~ø6.35mm See Page 30 for details
- Metal Saw Arbor (KCH-03) : ød (I.D.) x under ø30mm (O.D.)
- Grindstone Arbor (AGM-03) : Grindstone I.D. ø5.0mm
- ※ Refer to Page p.4 for mounting instructions for the 90° Angle Type.
- ※ Outside diameter ø25.4 mm type are also available.
- ※ Collet is sold separately.

Air Motor Spindle		O.D.	Collet	Spindle Accuracy	Max. Power	Air Consumption
MSST-23 Series		ø23mm	ø0.5~ø6.35mm (CHK Group)	Within 2 μm	108W	190Nℓ/min (R) 170Nℓ/min (RA)

▼ MSST-23 Series STRAIGHT TYPE (R)



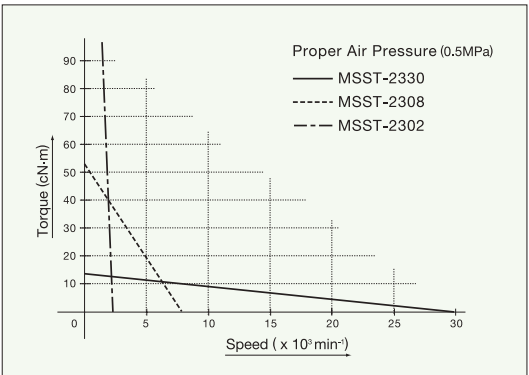
▼ MSST-23 Series 90° ANGLE TYPE (RA)



< Specifications >

Proper Air Pressure			: 0.3~0.5MPa
Motor Hose (Diameter / Length)			
R-Type	Air Inlet	: ø6.7mm (O.D.) x 2m	
	Exhaust Air	: ø7.5mm (O.D.) x 1m	
RA-Type	Air Inlet	: ø6.0mm (O.D.) x 2m	
	Exhaust Air	: ø8.0mm (O.D.) x 1m	

● MSST-23 Series Torque-Speed Characteristics



⚠ Two recommended clamp areas are laser-marked on the spindle. Select one of them for clamping, and do not clamp both areas.

R 30,000min⁻¹ (0.5MPa) / RA 27,000min⁻¹ (0.5MPa)

Code No.	7833	Model	MSST-2330R	Shape	Straight	Max. Torque	13.7cN·m	Weight	328g	L	127.3mm	M	25mm	MSST-2330R DXF-data
Code No.	7834	Model	MSST-2330RA	Shape	90° Angle			Weight	369g	L	133.8mm			MSST-2330RA DXF-data

R 7,700min⁻¹ (0.5MPa) / RA 7,200min⁻¹ (0.5MPa) 1/4 Speed Reduction

Code No.	7835	Model	MSST-2308R	Shape	Straight	Max. Torque	52cN·m	Weight	415g	L	160.1mm	M	58mm	MSST-2308R DXF-data
Code No.	7836	Model	MSST-2308RA	Shape	90° Angle			Weight	456g	L	166.6mm			MSST-2308RA DXF-data

R 2,000min⁻¹ (0.5MPa) / RA 1,900min⁻¹ (0.5MPa) 1/16 Speed Reduction

Code No.	7837	Model	MSST-2302R	Shape	Straight	Max. Torque	202cN·m	Weight	405g	L	164.4mm	M	62mm	MSST-2302R DXF-data
Code No.	7838	Model	MSST-2302RA	Shape	90° Angle			Weight	446g	L	170.9mm			MSST-2302RA DXF-data

< Standard Accessories >

- Collet Nut (K-265) • Wrench (12 x 14) : 2pcs.
- Hose (K-204) (R-type) : 1pc.
- Hose (K-215) (RA-type) : 1pc.
- Hose (K-216) (RA-type) : 1pc.
- Filter Joint (FJ-02) (R-type) • Filter Joint (FJ-01) (RA-type)
- Silencer (K-208)

< Options >

- Collet (CHK Group) : ø0.5~ø6.35mm See Page 30 for details
- Metal Saw Arbor (KCH-03) : ød (I.D.) x under ø30mm (O.D.)
- Grindstone Arbor (AGM-03) : Grindstone ø5.0mm
- ※ Refer to Page p.4 for mounting instructions for the 90° Angle Type.
- ※ Collet is sold separately.

MSS-20 Series

	O.D.	Collet	Spindle Accuracy	Max. Power	Air Consumption
	ø20mm	ø0.5~ø4.0mm (CHA Group)	Within 2 μm	72W	155Nℓ/min (R・RA)

Technical drawing of the Filter Joint (FJ-01) showing dimensions and clamping area. The main dimensions are:

- Max. Tool Mounting Depth: 41
- 14.7
- L
- 20
- 20_{±0.1}
- 11.8
- 15
- 12
- 28
- M
- 20_{±0.1}
- Recommended Clamping Area
- Recommended Clamping Area
- 4.6mm
- Filter Joint (FJ-01)

41 Max. Tool Mounting Depth

14.7

L

12.2

18.9

11.8

20.3

15

12 Recommended Clamping Area

28 M

Recommended Clamping Area

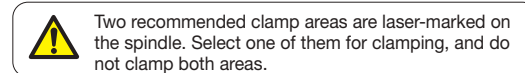
4.6mm

• Filter Joint (FJ-01)

Proper Air Pressure		: 0.3~0.5MPa
Motor Hose (Diameter / Length)		
R-Type	Air Inlet	: ø3.7mm (I.D.) x ø5.7mm (O.D.) x 2m
	Exhaust Air	: ø5.0mm (I.D.) x ø6.5mm (O.D.) x 1m
RA-Type	Air Inlet	: ø4.0mm (I.D.) x ø6.0mm (O.D.) x 2m
	Exhaust Air	: ø6.0mm (I.D.) x ø8.0mm (O.D.) x 1m

Figure 10 is a line graph comparing the torque-speed characteristics of three motor types: MSS-2030, MSS-2008, and MSS-2002. The y-axis represents Torque in N·m, ranging from 0 to 60. The x-axis represents Speed in $\times 10^3 \text{ min}^{-1}$, ranging from 0 to 30. The legend indicates that the solid line represents MSS-2030, the dashed line represents MSS-2008, and the dash-dot line represents MSS-2002. MSS-2030 shows a relatively constant torque of about 8 N·m up to 25 $\times 10^3 \text{ min}^{-1}$ before dropping to zero at 30 $\times 10^3 \text{ min}^{-1}$. MSS-2008 starts at a high torque of about 40 N·m at zero speed and decreases linearly to zero at approximately 8 $\times 10^3 \text{ min}^{-1}$. MSS-2002 starts at a torque of about 8 N·m at zero speed and decreases linearly to zero at approximately 25 $\times 10^3 \text{ min}^{-1}$.

Speed ($\times 10^3 \text{ min}^{-1}$)	MSS-2030 Torque (N·m)	MSS-2008 Torque (N·m)	MSS-2002 Torque (N·m)
0	8	40	8
5	8	16	6.4
10	8	0	4.8
15	8	0	3.2
20	8	0	1.6
25	8	0	0
30	0	0	0



Code No.	7851	Model	MSS-2030R	Shape	Straight	Max. Torque 9.2cN·m	Weight	190g	L	110.9mm	M	23mm	MSS-2030R DXF-data
Code No.	7852	Model	MSS-2030RA	Shape	90° Angle		Weight	239g	L	103.1mm			MSS-2030RA DXF-data

Code No.	7828	Model	MSS-2008R	Shape	Straight	Max. Torque	36cN·m	Weight	225g	L	126.8mm	M	39mm	MSS-2008R DXF-data
Code No.	7829	Model	MSS-2008RA	Shape	90° Angle			Weight	274g	L	119.0mm			MSS-2008RA DXF-data

Code No.	7830	Model	MSS-2002R	Shape	Straight	Max. Torque 141cN·m	Weight	241g	L	141.0mm	M	53mm	MSS-2002R DXF-data
Code No.	7831	Model	MSS-2002RA	Shape	90° Angle		Weight	290g	L	133.2mm			MSS-2002RA DXF-data

- Collet Nut (CHN-A) ● Wrench (8 x 5), (9 x 11) : 1pc. each
- Hose (K-221) (R-type) : 1pc.
- Hose (K-215) (RA-type) : 1pc.
- Hose (K-216) (RA-type) : 1pc.
- Filter Joint (FJ-01)
- Silencer (K-209) (R-type) ● Silencer (K-208) (RA-type)

Collet (CHA Group) : $\phi 0.5 \sim \phi 4.0 \text{ mm}$ See Page 30 for details

※ Refer to Page p.4 for mounting instructions for the 90° Angle Type.

※ Collet is sold separately.

MSS-19 Series

	O.D.	Collet	Spindle Accuracy	Max. Power	Air Consumption
	ø19.05mm	ø0.5~ø4.0mm (CHA Group)	Within 2 μm	72W	155Nℓ/min (R・RA)

Technical drawing of the Filter Joint (FJ-01) showing dimensions and clamping areas:

- Max. Tool Mounting Depth:** 41
- Clamping Area Dimensions:**
 - 14.7
 - 15
 - 12
 - 28
 - M
- Recommended Clamping Area:** Indicated by a double line and the text "Recommended Clamping Area".
- Dimensions:**
 - $\phi 19.05_{-0.01}^{+0.01}$
 - $\phi 11.8$
 - $\phi 19.05_{-0.02}^{+0.01}$
 - $\phi 4.6_{mm}$
- Other Labels:** L, 20, Filter Joint (FJ-01)

Technical drawing of the FJ-01 Filter Joint. The drawing shows the overall dimensions and the recommended clamping area. Key dimensions include:

- Max. Tool Mounting Depth: 41
- Clamping Area Length: 14.7
- Overall Length: L
- End Flange Thickness: 12.2
- Threaded Section Length: 15
- Clamping Area Length (Detailed): 12
- Overall Length (Detailed): M
- Threaded Section Diameter: $\phi 18.05_{-0.01}^{+0.02}$
- End Flange Diameter: $\phi 11.8$
- End Flange Thread: $\phi 19.05_{-0.01}^{+0.02}$
- Filter Joint (FJ-01) Diameter: $\phi 4.6\text{mm}$

The recommended clamping area is indicated by a blue shaded region.

Proper Air Pressure		: 0.3~0.5MPa
Motor Hose (Diameter / Length)		
R-Type	Air Inlet	: ø3.7mm (I.D.) x ø5.7mm (O.D.) x 2m
	Exhaust Air	: ø5.0mm (I.D.) x ø6.5mm (O.D.) x 1m
RA-Type	Air Inlet	: ø4.0mm (I.D.) x ø6.0mm (O.D.) x 2m
	Exhaust Air	: ø6.0mm (I.D.) x ø8.0mm (O.D.) x 1m

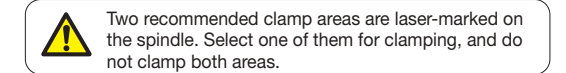
Proper Air Pressure (0.5MPa)

Legend:

- MSS-1930 (Solid line)
- MSS-1908 (Dashed line)
- MSS-1902 (Dash-dot line)

The graph shows torque decreasing as speed increases for all three models. MSS-1902 has the highest torque at low speeds, while MSS-1930 maintains the highest torque at high speeds.

Speed ($\times 10^3 \text{ min}^{-1}$)	MSS-1930 Torque (cN.m)	MSS-1908 Torque (cN.m)	MSS-1902 Torque (cN.m)
0	10	35	35
5	8	10	10
10	6	-	-
15	4	-	-
20	2	-	-
25	1	-	-
30	0	-	-



Code No.	7849	Model	MSS-1930R	Shape	Straight	Max. Torque	9.2cN·m	Weight	171g	L	110.9mm	M	23mm	MSS-1930R DXF-data
Code No.	7850	Model	MSS-1930RA	Shape	90° Angle			Weight	219g	L	103.1mm			MSS-1930RA DXF-data

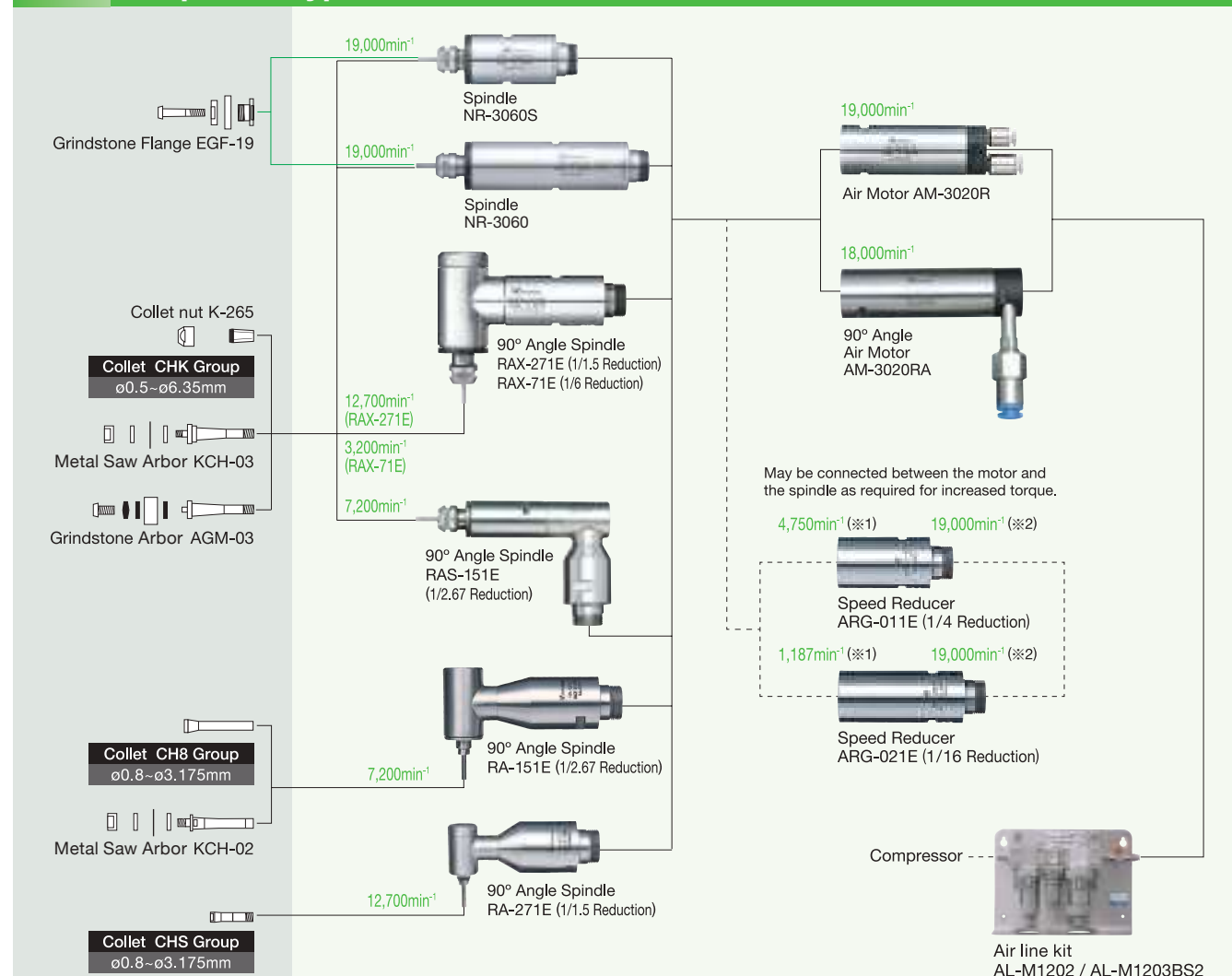
Code No.	7824	Model	MSS-1908R	Shape	Straight	Max. Torque	36cN·m	Weight	202g	L	126.8mm	M	39mm	MSS-1908R DXF-data
Code No.	7825	Model	MSS-1908RA	Shape	90° Angle			Weight	250g	L	119.0mm			MSS-1908RA DXF-data

Code No.	7826	Model	MSS-1902R	Shape	Straight	Max. Torque	141cN·m	Weight	216g	L	141.0mm	M	53mm	MSS-1902R DXF-data
Code No.	7827	Model	MSS-1902RA	Shape	90° Angle			Weight	264g	L	133.2mm			MSS-1902RA DXF-data

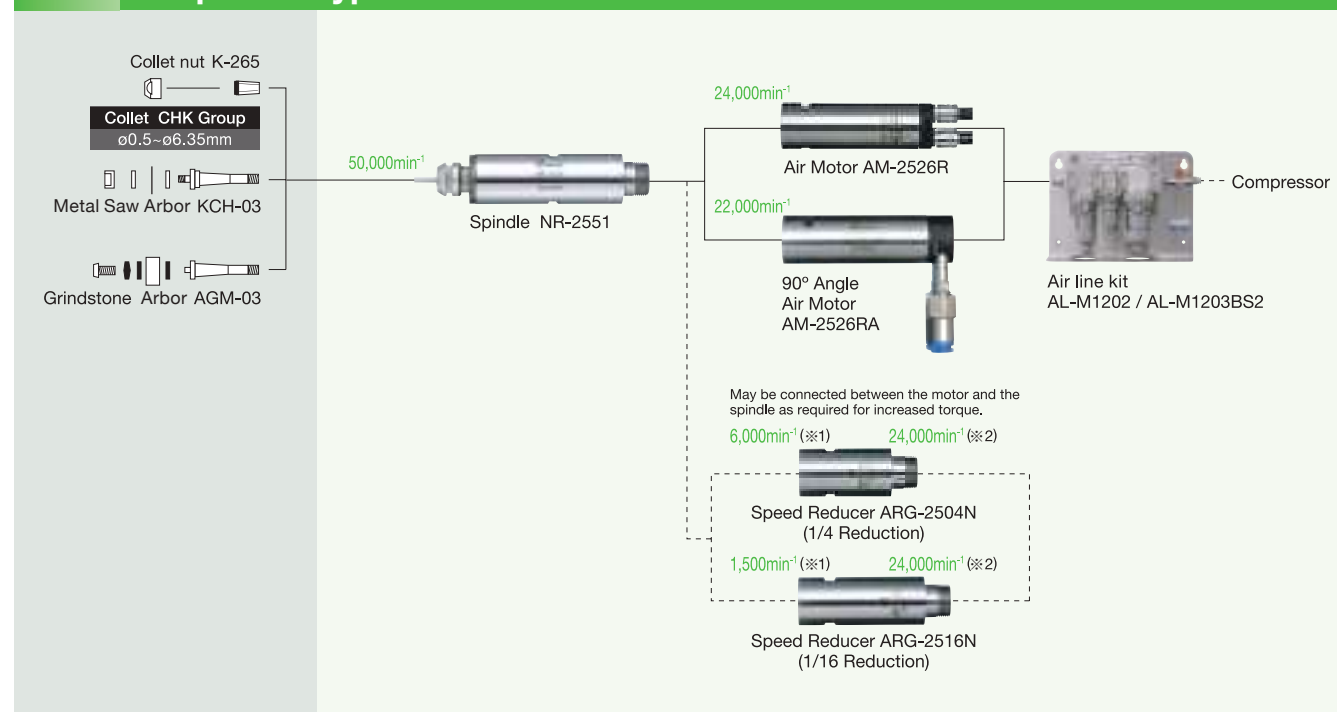
- Collet Nut (CHN-A) ● Wrench (8 x 5), (9 x 11) : 1pc. each
- Hose (K-221) (R-type) : 1pc.
- Hose (K-215) (RA-type) : 1pc.
- Hose (K-216) (RA-type) : 1pc.
- Filter Joint (FJ-01)
- Silencer (K-209) (R-type) ● Silencer (K-208) (RA-type)

※ Refer to Page p.4 for mounting instructions for the 90° Angle Type.
※ Collet is sold separately.

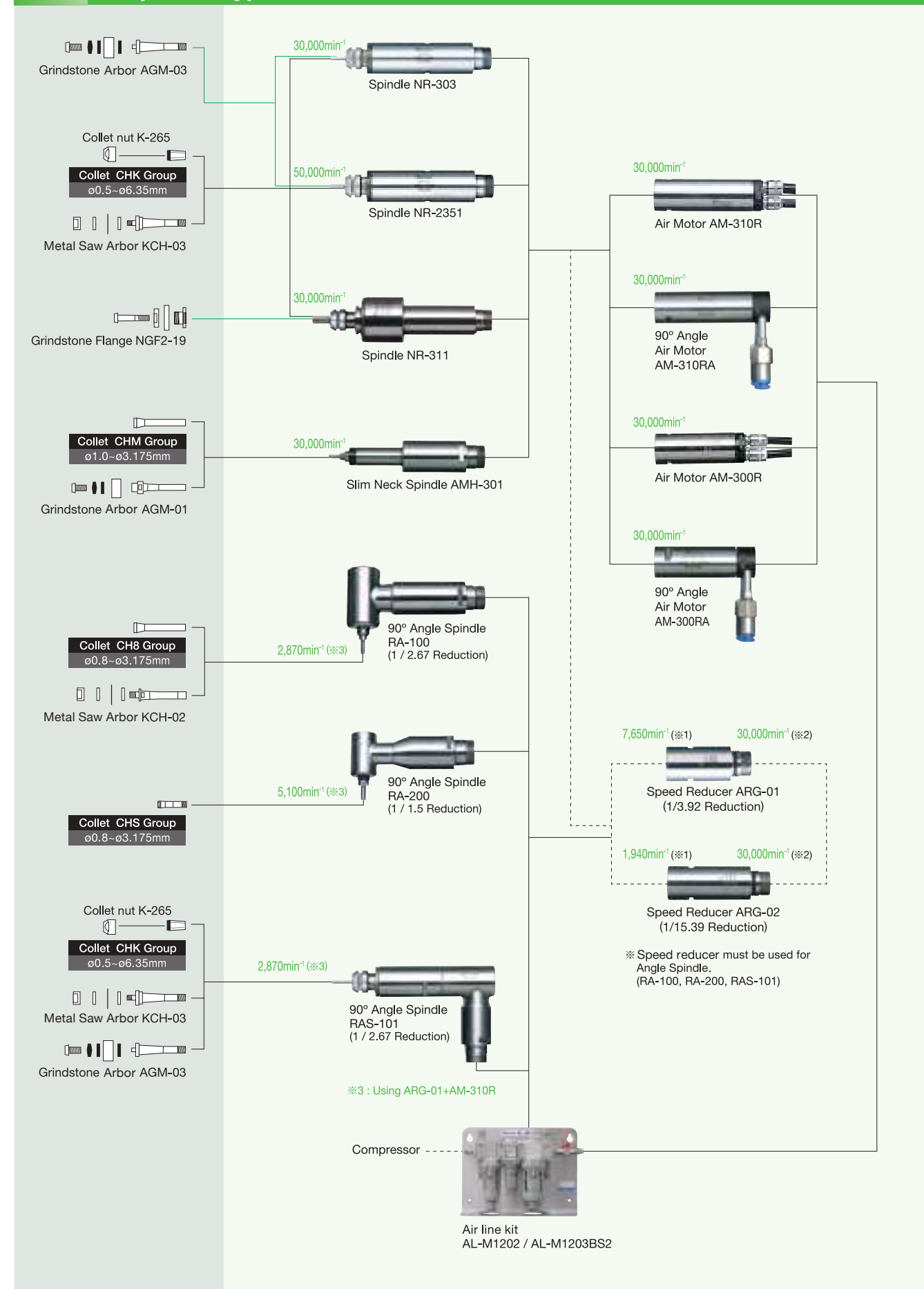
Separate Type ø30mm



Separate Type ø25mm



Separate Type ø22.8mm



※ Please maintain not to exceed speed limit. Excess speed will dramatically reduce bearing life.

※ 1 : Maximum rotating speed at the cutting tool. ※ 2 : Maximum allowable motor speed for the spindle.

※ Please refer to the concerned product introduction page about the details.

▼ AIR MOTOR & SPINDLE (Separate Type)

Straight Spindle

Outside Diameter

ø30mm

Max.

19,000min⁻¹ (Using 0.5MPa : AM-3020R)

Max. Power

130W

Spindle Accuracy :

Within 1 μm

Collet :

Max. ø6.35mm

OPTION

Refer to P.30

※ Other collet sizes are available.

COOLANT

90° Angle Type Air Motor is available

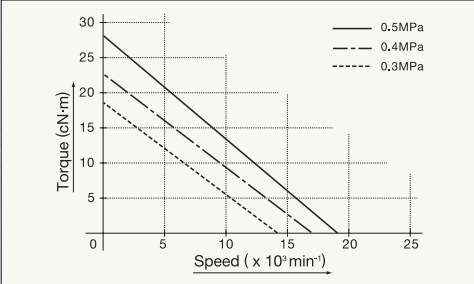
Air Motor AM-3020R

Refer to P.15

Air line kit AL-M1202

OPTION Refer to P.29

AM-3020R Torque-Speed Characteristics



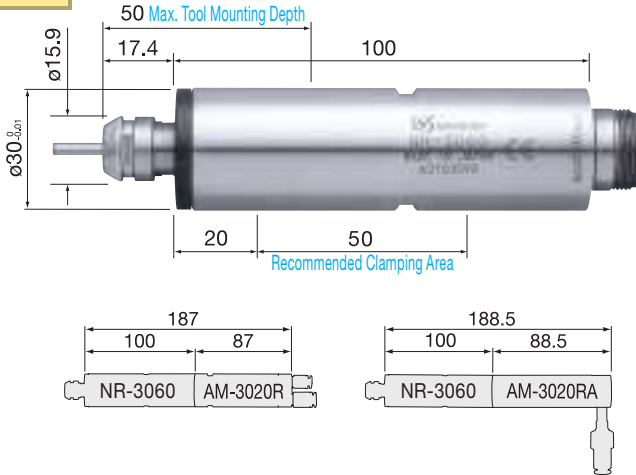
Straight Spindle NR-3060S

Spindle < Ceramic Bearings >

NR-3060

	O.D.	Speed	Spindle Accuracy	Collet	Weight
	ø30mm	19,000min ⁻¹ (Using AM-3020R)	Within 1 μm	ø0.5~ø6.35mm (CHK Group)	420g

DXF-data



Code No.

7875

Model

NR-3060

< Standard Accessories >

• Collet Nut (K-265)

• Wrench (12 x 14) : 2pcs., (22 x 27) : 1pc.

< Options >

Collet (CHK Group) : ø0.5~ø6.35mm See Page 30 for details

Metal Saw Arbor (KCH-03) : ød (I.D.) x under ø30mm (O.D.)

Grindstone Arbor (AGM-03) : Grindstone I.D. ø5.0mm

Grindstone Flange (EGF-19) : ø19.05 (I.D.) x ø40 (O.D.) x 7 (W) mm

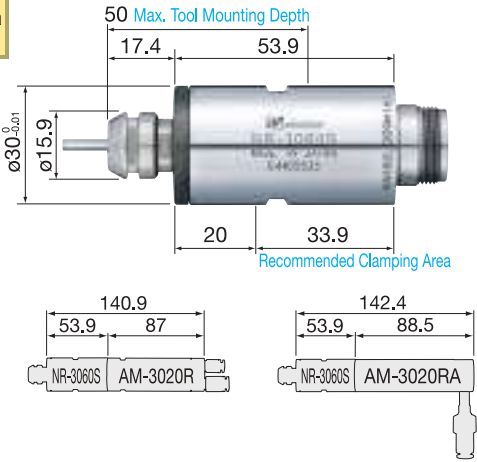
※ Collet is sold separately.

Spindle < Ceramic Bearings >

NR-3060S

	O.D.	Speed	Spindle Accuracy	Collet	Weight
	ø30mm	19,000min ⁻¹ (Using AM-3020R)	Within 1 μm	ø0.5~ø6.35mm (CHK Group)	260g

DXF-data



Code No.

7859

Model

NR-3060S

< Standard Accessories >

• Collet Nut (K-265)

• Wrench (12 x 14) : 2pcs., (22 x 27) : 1pc.

< Options >

Collet (CHK Group) : ø0.5~ø6.35mm See Page 30 for details

Metal Saw Arbor (KCH-03) : ød (I.D.) x under ø30mm (O.D.)

Grindstone Arbor (AGM-03) : Grindstone I.D. ø5.0mm

Grindstone Flange (EGF-19) : ø19.05 (I.D.) x ø40 (O.D.) x 7 (W) mm

※ Collet is sold separately.

P 11

Order by Code No.

P 12



Please maintain not to exceed speed limit.

▼ AIR MOTOR & SPINDLE (Separate Type)

Angle Spindle



Outside Diameter **ø30mm**

Max. **12,700min⁻¹** (Rotating speed at the cutting tool
(Using 0.5MPa : AM-3020R))

Max. Power **130W**



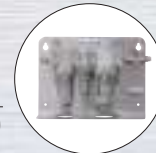
Air Motor
AM-3020R → Refer to P.15

90° Angle Spindle
RAX-271E

Air line kit
AL-M1202

OPTION

→ Refer to P.29



Collet :
Max. **ø6.35mm**

Collet
CHK-3.0

OPTION → Refer to P.30

※ Other collet sizes are available.

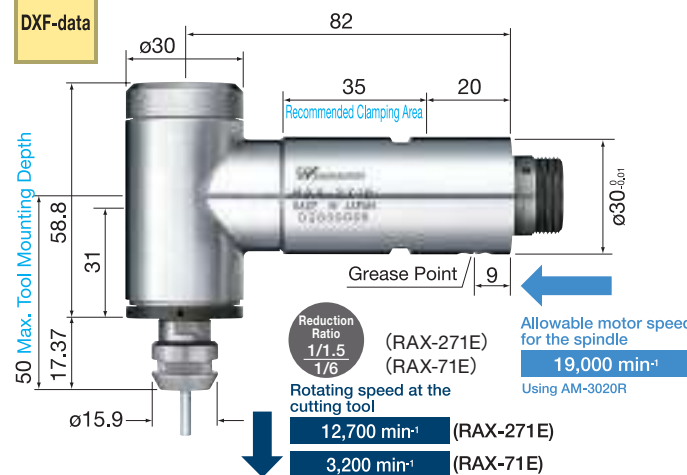
Angle Spindle Select Sheet

Model	RAX-271E	RAX-71E	RAS-151E	RA-151E	RA-271E
Angle Head Size O.D.	ø30mm	ø30mm	ø23mm	ø22.8mm	ø17.4mm
Rotating speed at the cutting tool ※1	12,700min ⁻¹	3,200min ⁻¹	7,200min ⁻¹	7,200min ⁻¹	12,700min ⁻¹
Using Tools	ø0.5~ø6.35mm		ø0.8~ø3.175mm		

※1 Using AM-3020R

90° Angle Spindle	O.D.	Rotating speed at the cutting tool	Reduction Ratio	Allowable motor speed for the spindle	Spindle Accuracy	Collet	Weight
RAX-271E	ø30mm	12,700min⁻¹ ※	1/1.5	19,000min⁻¹ (Using AM-3020R)	Within 2 μm	ø0.5~ø6.35mm (CHK Group)	580g
RAX-71E	ø30mm	3,200min⁻¹ ※	1/6	19,000min⁻¹ (Using AM-3020R)	Within 2 μm	ø0.5~ø6.35mm (CHK Group)	580g

※ Maximum rotating speed at the cutting tool for the reduction ratio.



Code No.	7856	Model	RAX-271E
Code No.	7857	Model	RAX-71E

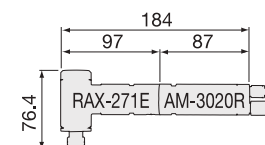
< Standard Accessories >

- Collet Nut (K-265) • Wrench (12 x 14) : 2pcs., (22 x 27) : 1pc.
- Grease for speed reducer (10mℓ) • Grease Nipple : 1pc.

< Options >

- Collet (CHK Group) : ø0.5~ø6.35mm See Page 30 for details
- Metal Saw Arbor (KCH-03) : ød (I.D.) x under ø30mm (O.D.)
- Grindstone Arbor (AGM-03) : Grindstone I.D. ø5.0mm

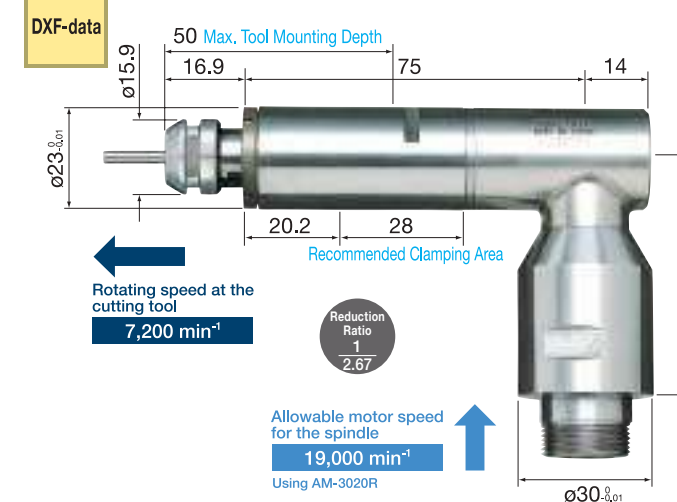
※ Collet is sold separately.



! 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.

90° Angle Spindle	O.D.	Rotating speed at the cutting tool	Reduction Ratio	Allowable motor speed for the spindle	Spindle Accuracy	Collet	Weight
RAS-151E	ø30mm	7,200min⁻¹ ※	1/2.67	19,000min⁻¹ (Using AM-3020R)	Within 2 μm	ø0.5~ø6.35mm (CHK Group)	413g

※ Maximum rotating speed at the cutting tool for the reduction ratio.



Code No.	7840	Model	RAS-151E
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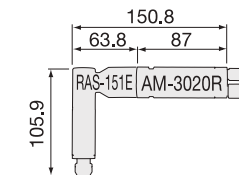
< Standard Accessories >

- Collet Nut (K-265)
- Wrench (12 x 14) : 2pcs., (22 x 27) : 1pc.

< Options >

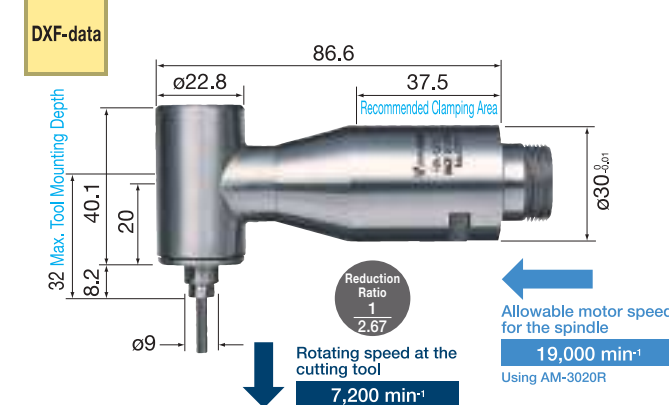
- Collet (CHK Group) : ø0.5~ø6.35mm See Page 30 for details

※ Collet is sold separately.



90° Angle Spindle	O.D.	Rotating speed at the cutting tool	Reduction Ratio	Allowable motor speed for the spindle	Collet	Weight
RA-151E	ø30mm	7,200min⁻¹ ※	1/2.67	19,000min⁻¹ (Using AM-3020R)	ø0.8~ø3.175mm (CH8 Group)	385g

※ Maximum rotating speed at the cutting tool for the reduction ratio.



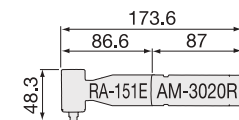
Code No.	1505	Model	RA-151E
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< Standard Accessories >

- Collet : ø3.0mm (CH8-3.0)
- Wrench (7 x 5.5), (8 x 5), (22 x 27) : 1pc. each

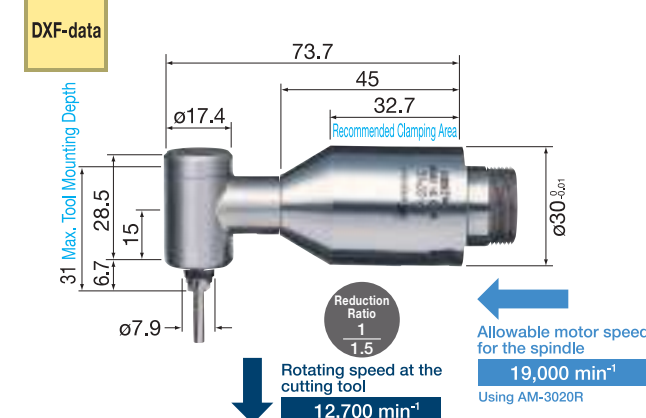
< Options >

- Collet (CH8 Group) : ø0.8~ø3.175mm See Page 30 for details



90° Angle Spindle	O.D.	Rotating speed at the cutting tool	Reduction Ratio	Allowable motor speed for the spindle	Collet	Weight
RA-271E	ø30mm	12,700min⁻¹ ※	1/1.5	19,000min⁻¹ (Using AM-3020R)	ø0.8~ø3.175mm (CHS Group)	240g

※ Maximum rotating speed at the cutting tool for the reduction ratio.



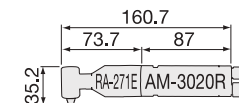
Code No.	1506	Model	RA-271E
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< Standard Accessories >

- Collet : ø3.0mm (CHS-3.0)
- Wrench (7 x 5.1), (8 x 5), (22 x 27) : 1pc. each

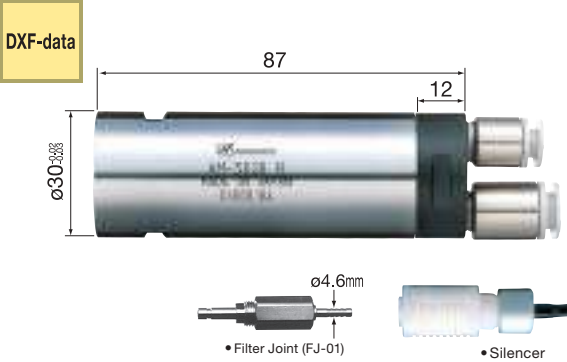
< Options >

- Collet (CHS Group) : ø0.8~ø3.175mm See Page 30 for details



 Please maintain not to exceed speed limit.

Air Motor (Forward Rotation)	O.D.	Motor Speed	Max. Power	Proper Air Pressure	Air Consumption	Weight
AM-3020R	ø30mm	19,000 min ⁻¹ (0.5MPa)	130 W	0.3~0.5 MPa	180 Nℓ/min	298 g (w/o hose)

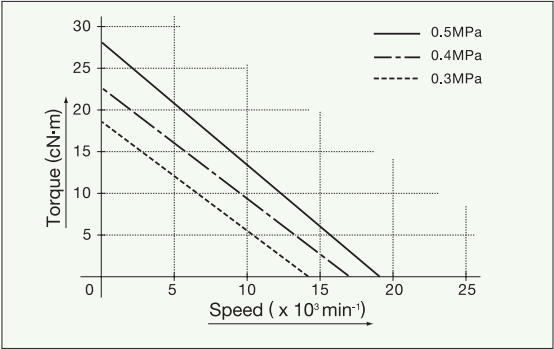


Code No. **1797** Model **AM-3020R**

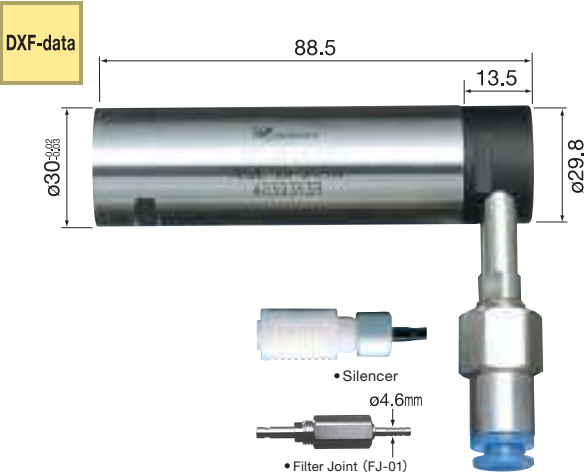
< Specifications >
Motor Hose (Diameter / Length)
Air Inlet : ø4.0mm (I.D.) x ø6.0mm (O.D.) x 2m
Exhaust Air : ø6.0mm (I.D.) x ø8.0mm (O.D.) x 1m

< Standard Accessories >
• Hose (K-215) : ø6.0mm x 2m • Hose (K-256) : ø8.0mm x 1m
• Filter Joint (FJ-01) • Silencer (K-208) • Wrench (22 x 27) : 1pc.

● AM-3020R Torque-Speed Characteristics



90° Angle Air Motor (Forward Rotation)	O.D.	Motor Speed	Max. Power	Proper Air Pressure	Air Consumption	Weight
AM-3020RA	ø30mm	18,000 min ⁻¹ (0.5MPa)	125 W	0.3~0.5 MPa	175 Nℓ/min	339 g (w/o hose)

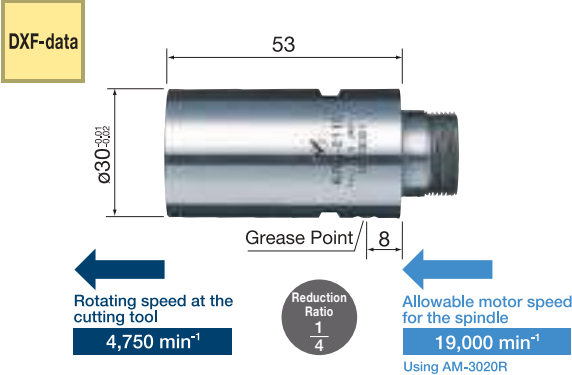


Code No. **1799** Model **AM-3020RA**

< Specifications >
Motor Hose (Diameter / Length)
Air Inlet : ø4.0mm (I.D.) x ø6.0mm (O.D.) x 2m
Exhaust Air : ø6.0mm (I.D.) x ø8.0mm (O.D.) x 1m

< Standard Accessories >
• Hose (K-215) : ø6.0mm x 2m • Hose (K-256) : ø8.0mm x 1m
• Filter Joint (FJ-01) • Silencer (K-208) • Wrench (22 x 27) : 1pc.

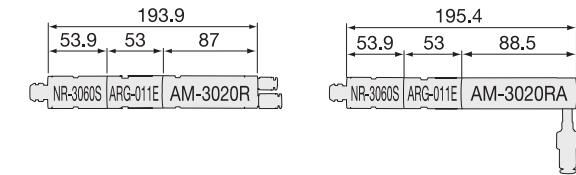
Speed Reducer (1/4)	O.D.	Rotating speed at the cutting tool	Reduction Ratio	Allowable motor speed for the spindle	Weight
ARG-011E	ø30mm	4,750 min ⁻¹ *	1/4	19,000 min ⁻¹ (Using AM-3020R)	242 g



※ Maximum rotating speed at the cutting tool for the reduction ratio.

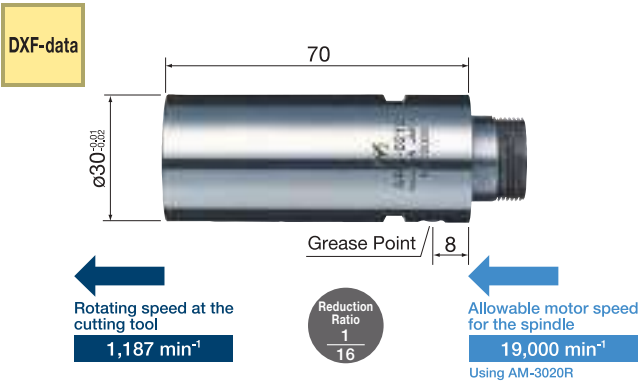
Code No. **1507** Model **ARG-011E**

< Standard Accessories >
• Grease for speed reducer (10mℓ) • Grease Nipple : 1pc.



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.

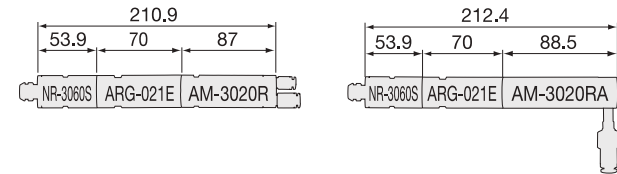
Speed Reducer (1/16)	O.D.	Rotating speed at the cutting tool	Reduction Ratio	Allowable motor speed for the spindle	Weight
ARG-021E	ø30mm	1,187 min ⁻¹ *	1/16	19,000 min ⁻¹ (Using AM-3020R)	325 g



※ Maximum rotating speed at the cutting tool for the reduction ratio.

Code No. **1508** Model **ARG-021E**

< Standard Accessories >
• Grease for speed reducer (10mℓ) • Grease Nipple : 1pc.



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.

▼ AIR MOTOR & SPINDLE (Separate Type)

Straight Spindle

Outside Diameter $\varnothing 25\text{mm}$

Max. $24,000\text{min}^{-1}$ (Using 0.5MPa : AM-2526R)

Max. Power **130W**

Spindle Accuracy : Within 1 μm

Collet : Max. $\varnothing 6.35\text{mm}$

Collet CHK-3.0 → Refer to P.30
OPTION ※ Other collet sizes are available.

Air line kit AL-M1202 → Refer to P.29

90° Angle Type Air Motor is available

Air Motor AM-2526R → Refer to P.18

Straight Spindle NR-2551

AM-2526R Torque-Speed Characteristics

Air Motor (Forward Rotation)	O.D.	Motor Speed	Max. Power	Proper Air Pressure	Air Consumption	Weight
AM-2526R	$\varnothing 25\text{mm}$	24,000 min^{-1} (0.5MPa)	130W	0.3~0.5MPa	205 Nl/min	200g (w/o hose)

DXF-data

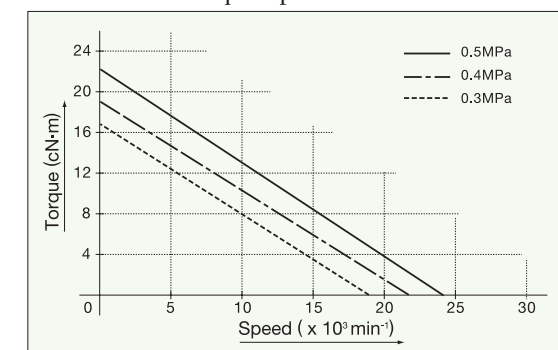
Code No. 1801 Model AM-2526R

< Specifications >
Motor Hose (Diameter / Length)
Air Inlet : $\varnothing 4.5\text{mm}$ (I.D.) x $\varnothing 6.7\text{mm}$ (O.D.) x 2m
Exhaust Air : $\varnothing 5.5\text{mm}$ (I.D.) x $\varnothing 7.5\text{mm}$ (O.D.) x 1m

< Standard Accessories >
• Hose (K-204) : 2m • Filter Joint (FJ-02) • Silencer (K-208)
• Wrench (22 x 27) : 1pc.

※ Outside diameter $\varnothing 25.4\text{mm}$ type is also available.

● AM-2526R Torque-Speed Characteristics



Spindle < Ceramic Bearings >	O.D.	Speed	Spindle Accuracy	Collet	Weight
NR-2551	$\varnothing 25\text{mm}$	50,000 min^{-1}	Within 1 μm	$\varnothing 0.5\sim\varnothing 6.35\text{mm}$ (CHK Group)	253g

DXF-data

Code No. 7853 Model NR-2551

< Standard Accessories >
• Collet Nut (K-265)
• Wrench (12 x 14) : 2pcs., (22 x 27) : 1pc.

< Options >
Collet (CHK Group) : $\varnothing 0.5\sim\varnothing 6.35\text{mm}$ See Page 30 for details
Metal Saw Arbor (KCH-03) : $\varnothing d$ (I.D.) x under $\varnothing 30\text{mm}$ (O.D.)
Grindstone Arbor (AGM-03) : Grindstone I.D. $\varnothing 5.0\text{mm}$

※ Outside diameter $\varnothing 25.4\text{mm}$ type is also available.
※ Collet is sold separately.

90° Angle Air Motor (Forward Rotation)	O.D.	Motor Speed	Max. Power	Proper Air Pressure	Air Consumption	Weight
AM-2526RA	$\varnothing 25\text{mm}$	22,000 min^{-1} (0.5MPa)	120W	0.3~0.5MPa	170 Nl/min	241g (w/o hose)

DXF-data

Code No. 1803 Model AM-2526RA

< Specifications >
Motor Hose (Diameter / Length)
Air Inlet : $\varnothing 4.0\text{mm}$ (I.D.) x $\varnothing 6.0\text{mm}$ (O.D.) x 2m
Exhaust Air : $\varnothing 5.5\text{mm}$ (I.D.) x $\varnothing 8.0\text{mm}$ (O.D.) x 1m

< Standard Accessories >
• Hose (K-215) : $\varnothing 6.0\text{mm}$ x 2m • Hose (K-256) : $\varnothing 8.0\text{mm}$ x 1m
• Filter Joint (FJ-01) • Silencer (K-208) • Wrench (22 x 27) : 1pc.

※ Outside diameter $\varnothing 25.4\text{mm}$ type is also available.



Please maintain not to exceed speed limit.

Speed Reducer (1/4)

	O.D.	Rotating speed at the cutting tool	Reduction Ratio	Allowable motor speed for the spindle	Weight
ARG-2504N	ø25mm	6,000 min ⁻¹ ※	1/4	24,000 min ⁻¹ (Using AM-2526R)	150 g

DXF-data

Rotating speed at the cutting tool

6,000 min⁻¹

Reduction Ratio
1/4

Allowable motor speed for the spindle

24,000 min⁻¹
Using AM-2526R

※ Maximum rotating speed at the cutting tool for the reduction ratio.

Code No.

1822

Model

ARG-2504N

※ Outside diameter ø25.4mm type is also available.

Speed Reducer (1/16)

	O.D.	Rotating speed at the cutting tool	Reduction Ratio	Allowable motor speed for the spindle	Weight
ARG-2516N	ø25mm	1,500 min ⁻¹ ※	1/16	24,000 min ⁻¹ (Using AM-2526R)	205 g

DXF-data

Rotating speed at the cutting tool

1,500 min⁻¹

Reduction Ratio
1/16

Allowable motor speed for the spindle

24,000 min⁻¹
Using AM-2526R

※ Maximum rotating speed at the cutting tool for the reduction ratio.

Code No.

1824

Model

ARG-2516N

※ Outside diameter ø25.4mm type is also available.

▼ AIR MOTOR & SPINDLE (Separate Type)

Straight Spindle

Outside Diameter $\phi 22.8\text{mm}$

Max. $30,000\text{min}^{-1}$ (0.5MPa)

Max. Power 108W

90° Angle Type Air Motor is available

Air Motor AM-310R → Refer to P.25

Straight Spindle NR-303

Collet :
Max. $\phi 6.35\text{mm}$

Collet
CHK-3.0

OPTION → Refer to P.30

※ Other collet sizes are available.
※ Please maintain not to exceed speed limit.

Air line kit
AL-M1202

OPTION → Refer to P.29

● AM-310R Torque-Speed Characteristics

Spindle

NR-303

O.D.	Speed	Spindle Accuracy	Collet	Weight
$\phi 22.8\text{mm}$	$30,000\text{min}^{-1}$ (Using AM-310R)	Within $2\text{ }\mu\text{m}$	$\phi 0.5\sim\phi 6.35\text{mm}$ (CHK Group)	215g

DXF-data

Code No. **7861** **Model** **NR-303**

< Standard Accessories >

- Collet Nut (K-265)
- Wrench (12 x 14) : 2pcs., (20 x 24) : 1pc.

< Options >

Collet (CHK Group) : $\phi 0.5\sim\phi 6.35\text{mm}$ See Page 30 for details

Metal Saw Arbor (KCH-03) : ϕd (I.D.) x under $\phi 30\text{mm}$ (O.D.)

Grindstone Arbor (AGM-03) : Grindstone I.D. $\phi 5.0\text{mm}$

※ Collet is sold separately.

Spindle

NR-2351

< Ceramic Bearings >

O.D.	Speed	Spindle Accuracy	Collet	Weight
$\phi 22.8\text{mm}$	$50,000\text{min}^{-1}$	Within $1\text{ }\mu\text{m}$	$\phi 0.5\sim\phi 6.35\text{mm}$ (CHK Group)	215g

DXF-data

Code No. **7855** **Model** **NR-2351**

< Standard Accessories >

- Collet Nut (K-265)
- Wrench (12 x 14) : 2pcs., (20 x 24) : 1pc.

< Options >

Collet (CHK Group) : $\phi 0.5\sim\phi 6.35\text{mm}$ See Page 30 for details

Metal Saw Arbor (KCH-03) : ϕd (I.D.) x under $\phi 30\text{mm}$ (O.D.)

Grindstone Arbor (AGM-03) : Grindstone I.D. $\phi 5.0\text{mm}$

※ Allowable Motor Speed : $50,000\text{min}^{-1}$

※ Collet is sold separately.

Spindle

NR-311

O.D.	Speed	Spindle Accuracy	Collet	Weight
$\phi 22.8\text{mm}$	$30,000\text{min}^{-1}$ (Using AM-310R)	Within $2\text{ }\mu\text{m}$	$\phi 0.5\sim\phi 6.35\text{mm}$ (CHK Group)	370g

DXF-data

Code No. **7832** **Model** **NR-311**

< Standard Accessories >

- Collet Nut (K-265)
- Wrench (12 x 14), (20 x 24) : 1pc. each

< Options >

Collet (CHK Group) : $\phi 0.5\sim\phi 6.35\text{mm}$ See Page 30 for details

Metal Saw Arbor (KCH-03) : ϕd (I.D.) x under $\phi 30\text{mm}$ (O.D.)

Grindstone Flange (NGF2-19) : $\phi 19.05$ (I.D.) x $\phi 40$ (O.D.) x 7 (W)mm

※ Collet is sold separately.

Spindle

AMH-301

O.D.	Speed	Collet	Weight
$\phi 22.8\text{mm}$	$30,000\text{min}^{-1}$ (Using AM-310R)	$\phi 1.0\sim\phi 3.175\text{mm}$ (CHM Group)	171g

DXF-data

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

< Standard Accessories >

- Collet : $\phi 3.0\text{mm}$ (CHM-3.0)
- Wrench (7 x 5.1), (6 x 4.5), (20 x 24) : 1pc. each

< Options >

Collet (CHM Group) : $\phi 1.0\sim\phi 3.175\text{mm}$ See Page 30 for details

Grindstone Arbor (AGM-01) : Grindstone I.D. $\phi 5.0\text{mm}$



Please maintain not to exceed speed limit.

▼ AIR MOTOR & SPINDLE (Separate Type)

Angle Spindle



Outside Diameter **ø22.8mm**

Max. **2,870min⁻¹** Rotating speed at the cutting tool
(Using 0.5MPa : ARG-01+AM-300R)

Max. Power **57W** (Using AM-300R)

Air Motor
AM-300R → Refer to P.26

**Reducer must be used
for Angle Spindle**

Speed Reducer
ARG-01
OPTION → Refer to P.27

Air line kit
AL-M1202
OPTION → Refer to P.29

Collet :
Max. ø3.175mm

Collet
CH8-3.0

OPTION → Refer to P.30

※ Other collet sizes are available.

Angle Spindle Select Sheet

Model	RA-100	RA-200	RAS-101
Angle Head Size O.D.	ø22.8mm	ø17.4mm	ø22.8mm
Rotating speed at the cutting tool ^{※1}	2,870min ⁻¹ ※1	5,100min ⁻¹ ※1	2,870min ⁻¹ ※2
Using Tools	ø0.8~ø3.175mm	ø0.5~ø6.35mm	

※ 1 Using ARG-01+AM-300R ※ 2 Using ARG-01+AM-310R

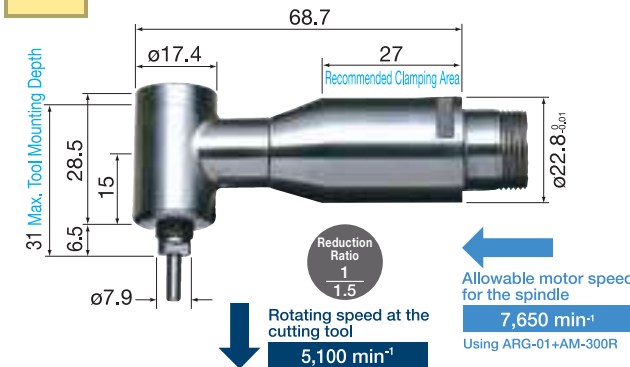
※ Please maintain not to exceed speed limit.

90° Angle Spindle RA-200

O.D.	Rotating speed at the cutting tool	Reduction Ratio	Allowable motor speed for the spindle	Collet	Weight
ø22.8mm	5,100min⁻¹※	1/1.5	7,650min⁻¹ (Using ARG-01+AM-300R)	ø0.8~ø3.175mm (CHS Group)	165g

※ Maximum rotating speed at the cutting tool for the reduction ratio.

DXF-data



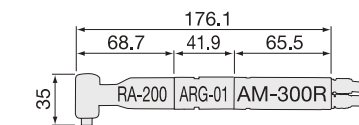
Code No. **1075** Model **RA-200**

< Standard Accessories >

- Collet : ø3.0mm (CHS-3.0)
- Wrench (7 x 5.1), (8 x 5), (20 x 24) : 1pc. each

< Options >

Collet (CHS Group) : ø0.8~ø3.175mm See Page 30 for details

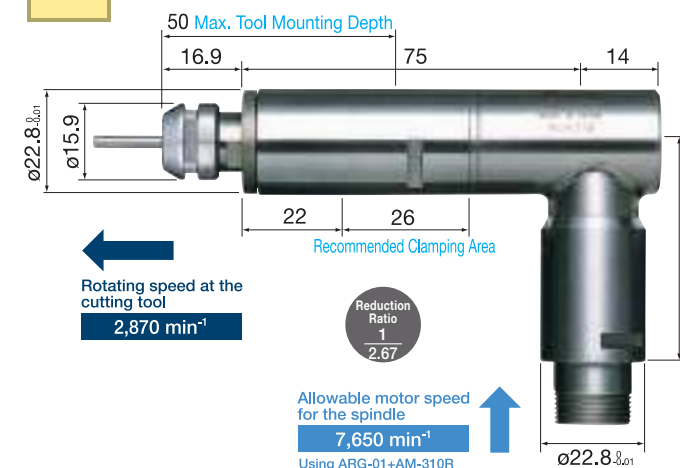


90° Angle Spindle RAS-101

O.D.	Rotating speed at the cutting tool	Reduction Ratio	Allowable motor speed for the spindle	Spindle Accuracy	Collet	Weight
ø22.8mm	2,870min⁻¹※	1/2.67	7,650min⁻¹ (Using ARG-01+AM-310R)	Within 2 μm	ø0.5~ø6.35mm (CHK Group)	325g

※ Maximum rotating speed at the cutting tool for the reduction ratio.

DXF-data



Code No. **7839** Model **RAS-101**

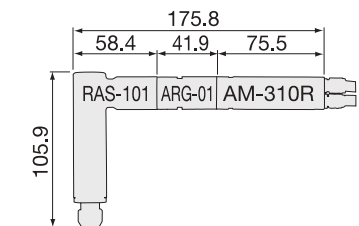
< Standard Accessories >

- Collet Nut (K-265)
- Wrench (12 x 14) : 2pcs., (20 x 24) : 1pc.

< Options >

Collet (CHK Group) : ø0.5~ø6.35mm See Page 30 for details

※ Collet is sold separately.

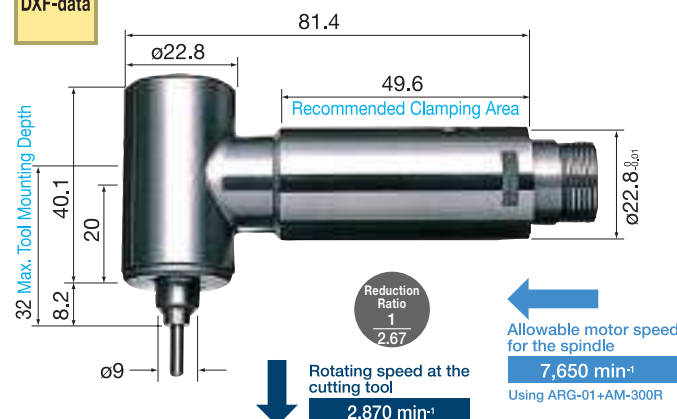


90° Angle Spindle RA-100

O.D.	Rotating speed at the cutting tool	Reduction Ratio	Allowable motor speed for the spindle	Collet	Weight
ø22.8mm	2,870min⁻¹※	1/2.67	7,650min⁻¹ (Using ARG-01+AM-300R)	ø0.8~ø3.175mm (CH8 Group)	271g

※ Maximum rotating speed at the cutting tool for the reduction ratio.

DXF-data



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

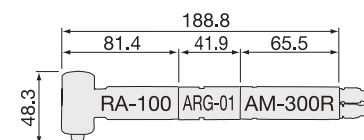
< Standard Accessories >

- Collet : ø3.0mm (CH8-3.0)
- Wrench (7 x 5.5), (8 x 5), (20 x 24) : 1pc. each

< Options >

Collet (CH8 Group) : ø0.8~ø3.175mm See Page 30 for details

Metal Saw Arbor (KCH-02) : ød (I.D.) x under ø30mm (O.D.)



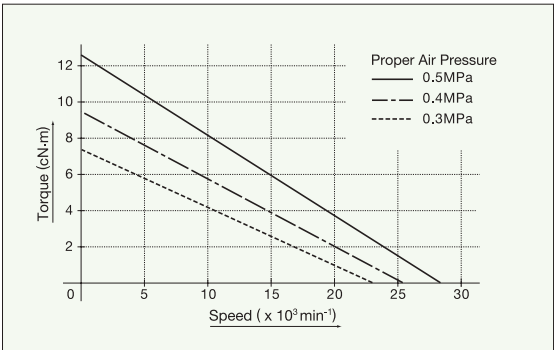
Air Motor (Forward Rotation)	O.D.	Motor Speed	Max. Power	Proper Air Pressure	Air Consumption	Weight
AM-310R	ø22.8mm	30,000min ⁻¹ (0.5MPa)	108W	0.3~0.5MPa	190Nℓ/min	203g (w/o hose)



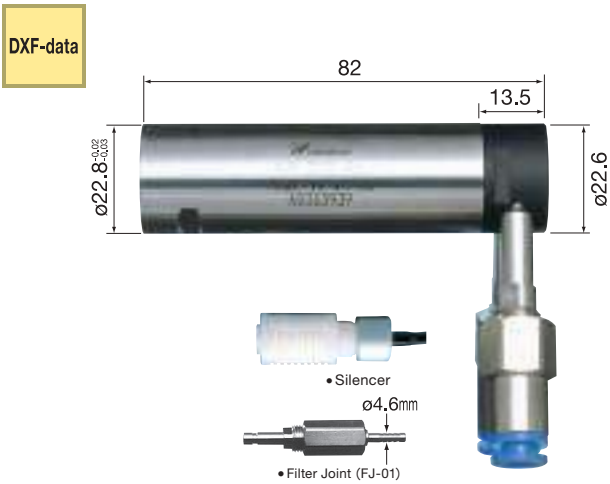
Code No.	1079	Model	AM-310R
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< Specifications >	
Motor Hose (Diameter / Length)	
Air Inlet	: ø4.5mm (I.D.) x ø6.7mm (O.D.) x 2m
Exhaust Air	: ø5.5mm (I.D.) x ø7.5mm (O.D.) x 1m
< Standard Accessories >	
• Hose (K-204) : 2m • Filter Joint (FJ-02) • Silencer (K-208)	
• Wrench (20 x 24) : 1pc.	

● AM-310R Torque-Speed Characteristics



90° Angle Air Motor (Forward Rotation)	O.D.	Motor Speed	Max. Power	Proper Air Pressure	Air Consumption	Weight
AM-310RA	ø22.8mm	30,000min ⁻¹ (0.5MPa)	108W	0.3~0.5MPa	170Nℓ/min	244g (w/o hose)



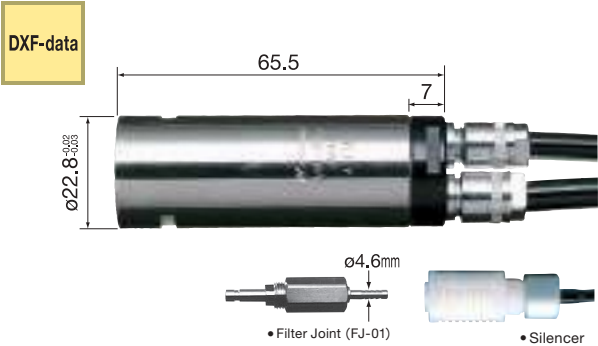
Code No.	1081	Model	AM-310RA
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< Specifications >	
Motor Hose (Diameter / Length)	
Air Inlet	: ø4.0mm (I.D.) x ø6.0mm (O.D.) x 2m
Exhaust Air	: ø5.5mm (I.D.) x ø8.0mm (O.D.) x 1m
< Standard Accessories >	
• Hose (K-215) : ø6.0mm x 2m • Hose (K-216) : ø8.0mm x 1m	
• Filter Joint (FJ-01) • Silencer (K-208) • Wrench (20 x 24) : 1pc.	

Air line kit
AL-M1202
OPTION → Refer to **P.29**



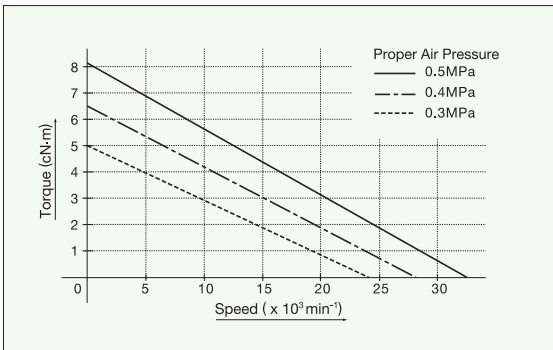
Air Motor (Forward Rotation)	O.D.	Motor Speed	Max. Power	Proper Air Pressure	Air Consumption	Weight
AM-300R	ø22.8mm	30,000min ⁻¹ (0.4MPa)	57W	0.3~0.5MPa	90Nℓ/min	135g (w/o hose)



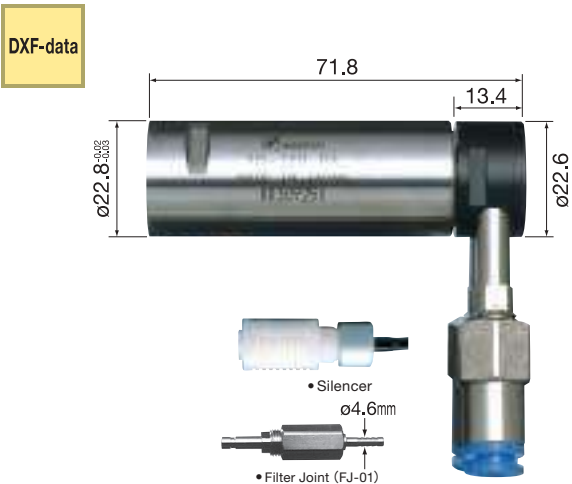
Code No.	1021	Model	AM-300R
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< Specifications >	
Motor Hose (Diameter / Length)	
Air Inlet	: ø3.7mm (I.D.) x ø5.7mm (O.D.) x 2m
Exhaust Air	: ø5.0mm (I.D.) x ø6.5mm (O.D.) x 1m
< Standard Accessories >	
• Hose (K-221) : 2m • Filter Joint (FJ-01) • Silencer (K-209)	
• Wrench (20 x 24) : 1pc.	

● AM-300R Torque-Speed Characteristics



90° Angle Air Motor (Forward Rotation)	O.D.	Motor Speed	Max. Power	Proper Air Pressure	Air Consumption	Weight
AM-300RA	ø22.8mm	30,000min ⁻¹ (0.4MPa)	57W	0.3~0.5MPa	90Nℓ/min	176g (w/o hose)



Code No.	1018	Model	AM-300RA
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< Specifications >	
Motor Hose (Diameter / Length)	
Air Inlet	: ø4.0mm (I.D.) x ø6.0mm (O.D.) x 2m
Exhaust Air	: ø5.5mm (I.D.) x ø8.0mm (O.D.) x 1m
< Standard Accessories >	
• Hose (K-215) : ø6.0mm x 2m • Hose (K-216) : ø8.0mm x 1m	
• Filter Joint (FJ-01) • Silencer (K-208) • Wrench (20 x 24) : 1pc.	

Air line kit
AL-M1202
OPTION → Refer to **P.29**



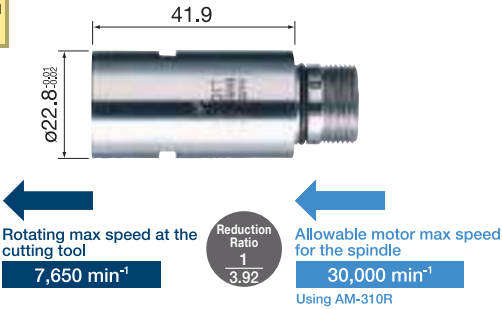


Please maintain not to exceed speed limit.

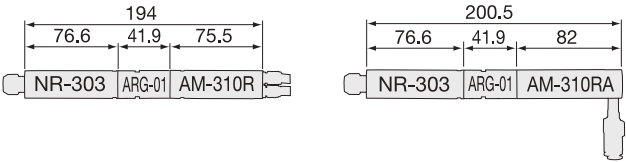
Speed Reducer (1/3.92)	O.D.	Rotating Max. speed at the cutting tool	Reduction Ratio	Allowable motor Max. speed for the spindle	Weight
ARG-01	ø22.8mm	7,650 min ⁻¹ ※ (0.5MPa)	1 3.92	30,000 min ⁻¹ (Using AM-310R)	108g

※ Maximum rotating speed at the cutting tool for the reduction ratio.

DXF-data



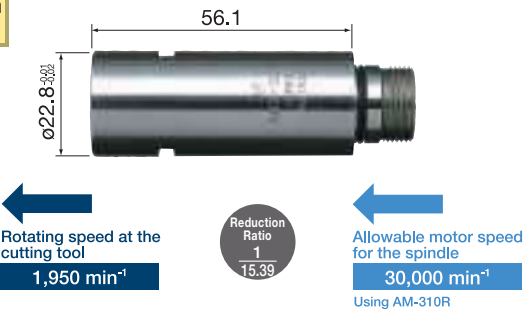
Code No.	1022	Model	ARG-01
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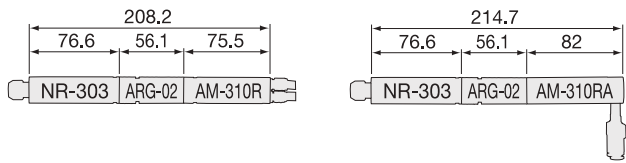
Speed Reducer (1/15.39)	O.D.	Rotating speed at the cutting tool	Reduction Ratio	Allowable motor speed for the spindle	Weight
ARG-02	ø22.8mm	1,950 min ⁻¹ ※ (0.5MPa)	1 15.39	30,000 min ⁻¹ (Using AM-310R)	148g

※ Maximum rotating speed at the cutting tool for the reduction ratio.

DXF-data



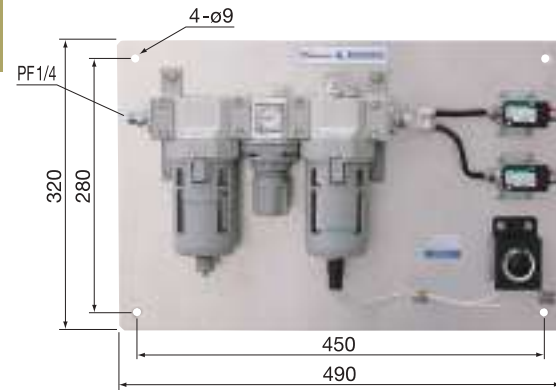
Code No.	1023	Model	ARG-02
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Air Line Kit

AL-M1203BS2 (For ø6mm Hose)

DXF-data



■ The AL-M1203BS2 is fitted with 2 (DC+24V) solenoid operated air valves a large capacity filter and lubricator a high flow regulator, and low oil warning system making this the ideal air line system for installation on NC and CNC machinery. This Air Line Kit allows for operation of 2 air motors.

Filter Mesh 0.3 μm

Code No. **4503** Model **AL-M1203BS2**

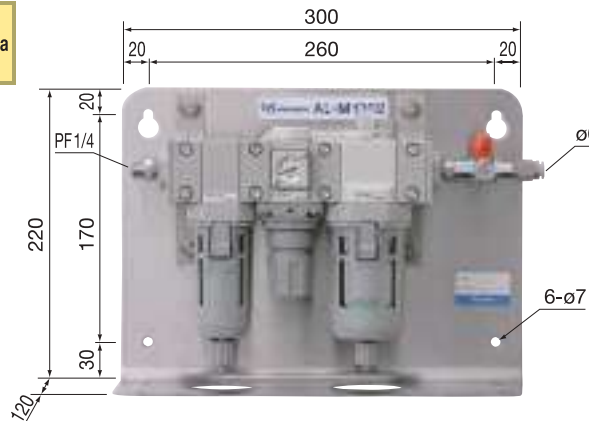
< Standard Accessories >

• Connection Hose (K-275) : 2m • Lubricating Oil (K-202) : 1pc.

Air Line Kit

AL-M1202 (ø6mm Air Output One-Touch Connector)

DXF-data



■ The AL-M1202 provides simple, automatic conditioning of the air supplied to NAKANISHI air motors. The filter removes water and impure substances from the input air supply. The regulator maintains to proper air pressure and the lubricator ensures proper oil flow to the motor and spindle. This Air Line Kit is wall mountable.

Filter Mesh 0.3 μm

Code No. **4502** Model **AL-M1202**

< Standard Accessories >

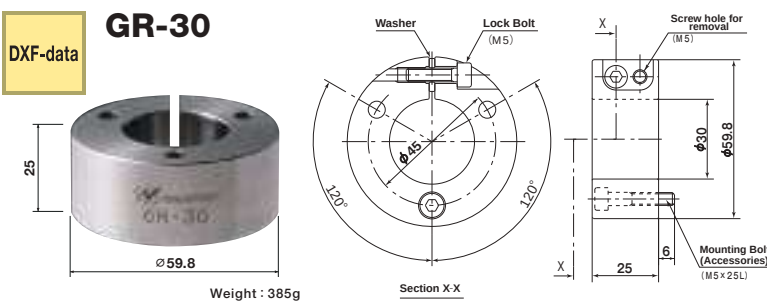
• Connection Hose (K-275) : 2m • Lubricating Oil (K-211) : 1pc.

Grip Ring

GR-30 / GR-22.8

DXF-data

GR-30



Weight : 385g

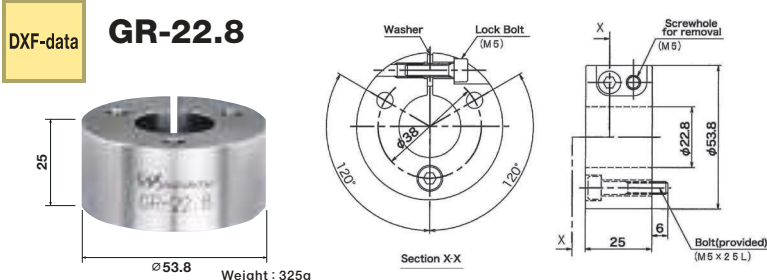
Section X-X

Standard Accessories

Mounting Bolt (GR-30) M5x25 : 3pcs.

DXF-data

GR-22.8



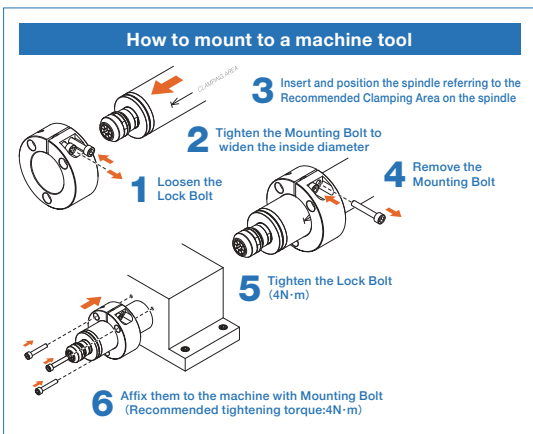
Weight : 325g

Section X-X

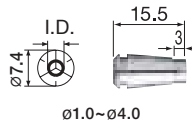
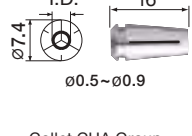
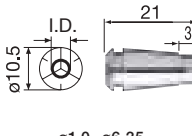
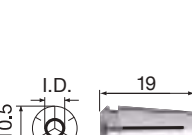
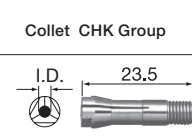
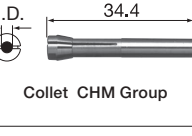
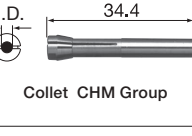
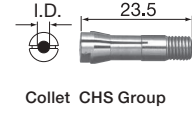
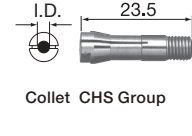
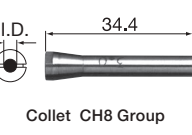
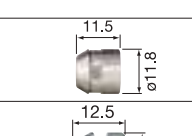
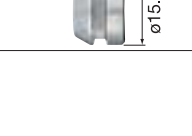
Standard Accessories

Mounting Bolt (GR-22.8) M5x25 : 3pcs.

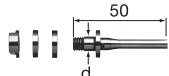
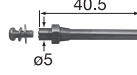
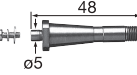
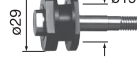
Code No.	1885	Model	GR-30
Code No.	1888	Model	GR-22.8



Collet • Collet Nut

Product	Code No.	Model	I.D.	Compatible model
 ø1.0~ø4.0  ø0.5~ø0.9 Collet CHA Group	91494	CHA-3.0AA	ø3.0AA ※	MSS-19, MSS-20, MSS-22 PMS-3020A ※ High precision type AA (Run-out Accuracy within 2 μm)
	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	
	91440	CHA-4.0	ø4.0	
	—	CHA-□□	ø0.5, ø0.6, ø0.7, ø0.8, ø0.9 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 ø1.0, ø1.5, ø2.0, ø2.5, ø3.5 ø1.6	
	—	CHA-□□	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	
	—	CHA-□□	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	
 ø1.0~ø6.35  ø0.5~ø0.9 Collet CHK Group	91597	CHK-3.0AA	ø3.0AA ※	MSS-25, MSST-23, NR-2351, NR-2551 NR-303, NR-311, NR-3060S, NR-3060 NR-403E, NR-453E, PMA-3013K PMS-3020K, PMR-3005K, RAS-101 RAS-151E, RAX-71E, RAX-271E ※ 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	
 ø1.0~ø6.35  ø0.5~ø0.9 Collet CHSS Group	93092	CHSS-2.35	ø2.35	PMA-3013S
	93030	CHSS-3.0	ø3.0	
	93093	CHSS-3.175	ø3.175	
	—	CHSS-□□	ø1.0, ø1.5, ø2.0, ø2.5	
	90992	CHM-2.35	ø2.35	
	90930	CHM-3.0	ø3.0	
	90993	CHM-3.175	ø3.175	
	90916	CHM-1.6	ø1.6	
	—	CHM-□□	ø1.0, ø2.0	
	—	CHM-□□	ø1.0, ø2.0	
 ø1.0~ø6.35  ø0.5~ø0.9 Collet CHS Group	90592	CHS-2.35	ø2.35	RA-200, RA-271E
	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	
	—	CHS-□□	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	
	—	CHS-□□	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	
	—	CHS-□□	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	
	—	CHS-□□	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	
	—	CHS-□□	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	
 ø1.0~ø6.35  ø0.5~ø0.9 Collet CH8 Group	91092	CH8-2.35	ø2.35	RA-100, RA-151E
	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	
	—	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	
	—	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	
	—	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	
	—	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	
	—	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	
	—	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	
 ø11.8  ø15.9	2102	CHN-A	Collet Nut for Collet (CHA)	MSS-19, MSS-20, MSS-22 PMS-3020A
	2129	K-265	Collet Nut for Collet (CHK)	MSS-25, MSST-23, NR-2351, NR-2551, NR-303 NR-311, NR-3060S, NR-3060, NR-403E NR-453E, PMA-3013K, PMS-3020K, PMR-3005K RAS-101, RAS-151E, RAX-71E, RAX-271E

■ Metal Saw Arbor・Grindstone Arbor

Product	Code No.	Model	I.D. / Description / Specification		Compatible model
	2146	KCH-02 (5.0)	ø5.0	Metal Saw Arbor Dimensions of Metal Saw ød (I.D.) x under ø30mm (O.D.) Run-out Accuracy : within 0.02 mm	RA-100, RA-151E
	1077	KCH-02 (6.0)	ø6.0		
	2147	KCH-02 (8.0)	ø8.0		
	2148	KCH-03 (5.0)	ø5.0	Metal Saw Arbor Dimensions of Metal Saw ød (I.D.) x under ø30mm (O.D.) Run-out Accuracy : within 0.02 mm	MSS-25, MSST-23, NR-2351, NR-2551, NR-303 NR-311, NR-3060S, NR-3060, NR-403E NR-453E, PMA-3013K, PMS-3020K, PMR-3005K RAS-101, RAS-151E, RAX-71E, RAX-271E
	2130	KCH-03 (6.0)	ø6.0		
	2149	KCH-03 (8.0)	ø8.0		
	1029	AGM-01	Grindstone Arbor Run-out Accuracy : within 0.02 mm Grindstone I.D. ø5.0mm		AMH-301, NR-601
	2131	AGM-03	Grindstone Arbor Run-out Accuracy : within 0.02 mm Grindstone I.D. ø5.0mm		MSS-25, MSST-23, NR-2351, NR-2551 NR-303, NR-3060S, NR-3060, NR-403E NR-453E, PMA-3013K, PMS-3020K RAS-101, RAS-151E, RAX-71E, RAX-271E
	2143	NGF2-19	Grindstone Flange Applicable Grindstone Dimensions ø19.05 (I.D.) x ø40 (O.D.) x 7 (W) mm		NR-311
	2138	EGF-19			NR-3060S, NR-3060 NR-403E, NR-453E, PMS-3020K

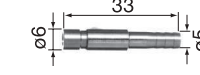
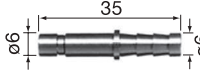
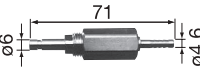
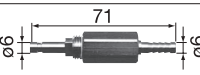
※ For right hand (cw) rotation only.

■ Bush

Bushes to allow smaller dia. spindles to be mounted in larger dia. holders.

Product	Code No.	Model	Description x I.D. x O.D.
	1887	RB-19.05 x 25.4 x 36L	ø25.4 Bush Dimensions: ø19.05 x ø25.4 x 36mm
	1877	RB-20 x 22	ø22 Bush Dimensions: ø20 x ø22 x 40mm
	1876	RB-20 x 22.8	ø22.8 Bush Dimensions: ø20 x ø22.8 x 40mm
	1875	RB-20 x 23	ø23 Bush Dimensions: ø20 x ø23 x 40mm
	1878	RB-20 x 25	ø25 Bush Dimensions: ø20 x ø25 x 40mm
	1879	RB-20 x 25.4	ø25.4 Bush Dimensions: ø20 x ø25.4 x 40mm
	1883	RB-22 x 25 x 34L	ø25 Bush Dimensions: ø22 x ø25 x 33.5mm
	1884	RB-22 x 25.4 x 34L	ø25.4 Bush Dimensions: ø22 x ø25.4 x 33.5mm
	1872	RBS-22.8 x 25	ø25 Bush Dimensions: ø22.8 x ø25 x 25mm
	1871	RB-22.8 x 25	ø25 Bush Dimensions: ø22.8 x ø25 x 44mm
	1874	RBS-22.8 x 25.4	ø25.4 Bush Dimensions: ø22.8 x ø25.4 x 25mm
	1873	RB-22.8 x 25.4	ø25.4 Bush Dimensions: ø22.8 x ø25.4 x 44mm

■ Metal Fitting & Filter Joint

Product	Description	Code No.	Model	Compatible model
	Metal Fitting (for ø6 Quick Disconnecting Joint)	2035	K-241	(For K-215 Hose)
	Metal Fitting (for ø6 Quick Disconnecting Joint)	2036	K-242	(For K-204 Hose)
	Filter Joint (for ø6 Quick Disconnecting Joint)	2038	FJ-01	(For K-215 Hose) (For K-221 Hose) (For K-247 Hose) (For K-254 Hose)
	Filter Joint (for ø6 Quick Disconnecting Joint)	2039	FJ-02	(For K-204 Hose)

■ Hose

Product	Description	Code No.	Model	Compatible model
	Hose ø6mm (O.D.) (INLET) 2m	2028	K-215	AM-2526 (RA・LA), AM-300 (RA・LA) AM-310 (RA・LA), AM-3020, AM-600RA PMA-3013K, PMA-3013S PMA-3020A, PMS-3020K MSS-19・20・22・25 (RA), MSST-23 (RA)
	Hose ø8mm (O.D.) (EXHAUST) 1m	2029	K-216	AM-300 (RA・LA), AM-310 (RA・LA) AM-600RA, MSS-19・20・22 (RA) MSST-23 (RA)
	Hose ø8mm (O.D.) (EXHAUST) 1m	2052	K-256	AM-3020, PMA-3013K, PMA-3013S PMR-3005K, PMS-3020A, PMS-3020K AM-2526 (RA・LA), MSS-25 (RA)
	Hose 2m	2030	K-204	AM-2526 (R・L), AM-310 (R・L) AM-600R, MSST-23 (R)
	Hose 2m	2049	K-221	AM-300 (R・L), MSS-19・20・22 (R)

■ Grease

Product	Description	Code No.	Model	Compatible model
	Grease for speed reducer (2.5mℓ)	1547	—	ARG-011E, ARG-021E PMR-3005K, PMA-3013K RAX-271E, RAX-71E
	Grease for speed reducer (10mℓ)	1550	—	
	Grease for speed reducer (100mℓ)	1549	—	

■ Oil

Product	Description	Code No.	Model	Compatible model
	Lubricating Oil (70cc)	1057	K-211	Air Line Kit (AL-M1202, AL-M1203BS2)
	Lubricating Oil (1ℓ)	1058	K-202	

