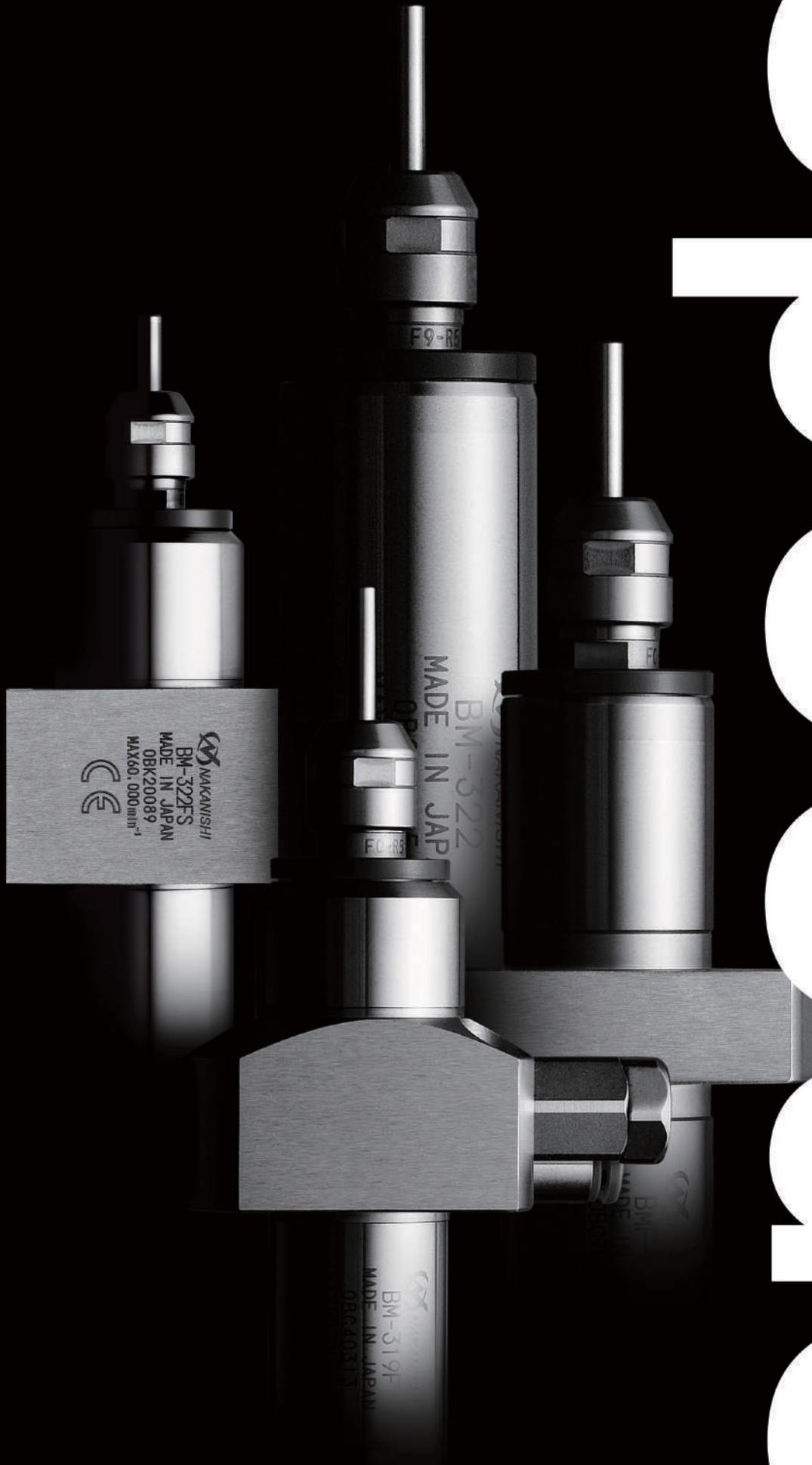




3rd place

SERIES **iSpeed3**
ULTRA-HIGH-SPEED & SUPER-PRECISION

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 μ m

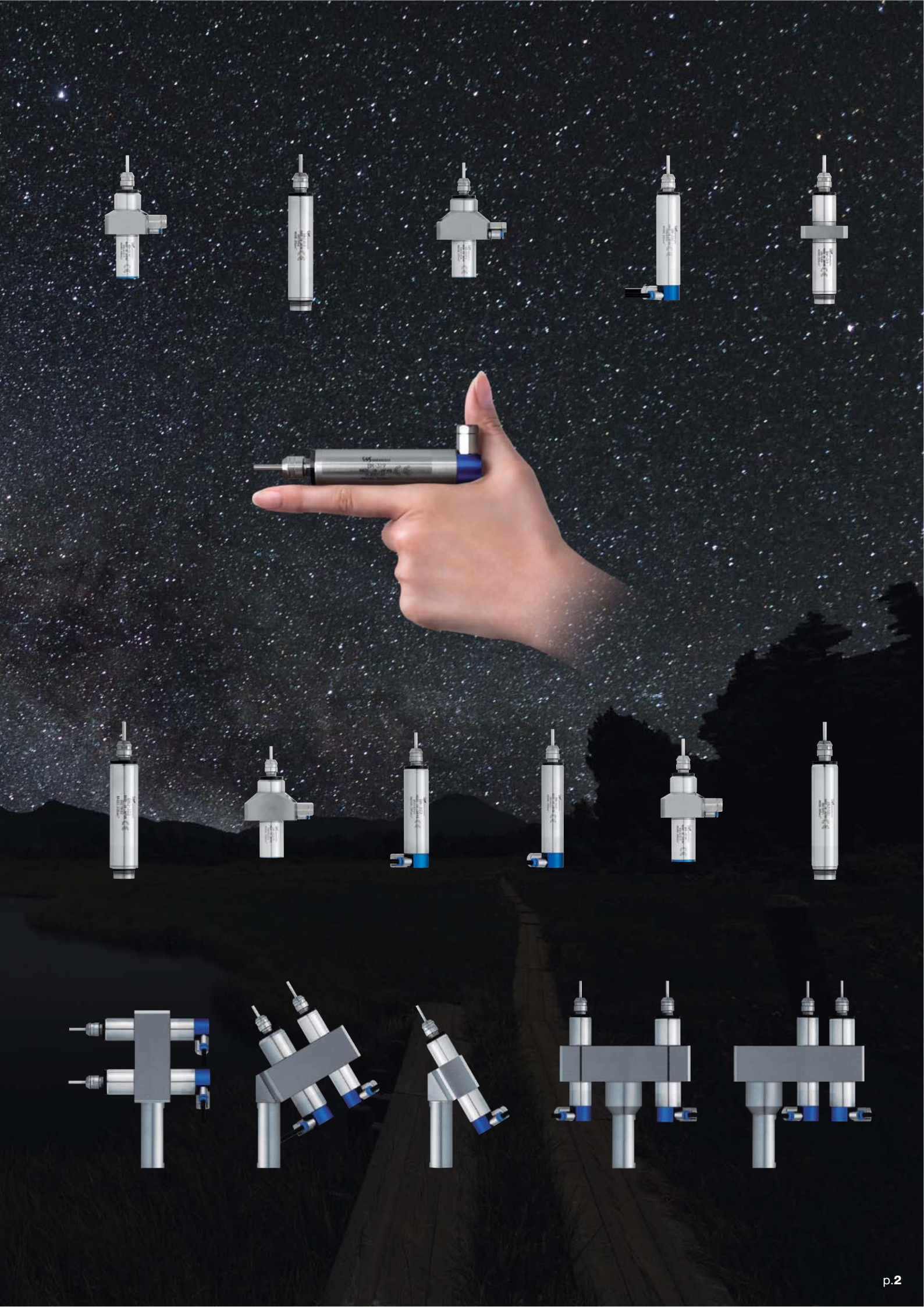
- Optimum for high-precision machining
- Longer tool life

✓ 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

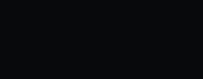


Index

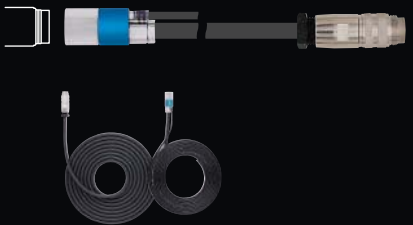
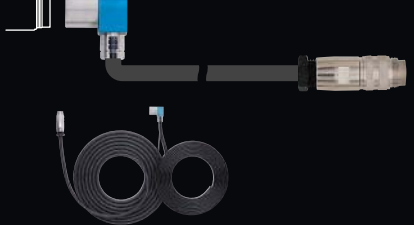
Flange type motor spindle

BM-319F With 50cm joint cord Max.rpm 80,000min ⁻¹		p.5
BM-320F With 50cm joint cord Max.rpm 80,000min ⁻¹		p.5
BM-322FL With 50cm joint cord Max.rpm 60,000min ⁻¹		p.7
BM-322FR With 50cm joint cord Max.rpm 60,000min ⁻¹		p.7
BM-322FS With 50cm joint cord Max.rpm 60,000min ⁻¹		p.9
BMF-319 Max.rpm 80,000min ⁻¹		p.11

Straight type motor spindle

BMJ-319 Max.rpm 80,000min ⁻¹		p.13
BMJ-320 Max.rpm 80,000min ⁻¹		p.13
BMJ-322 Max.rpm 60,000min ⁻¹		p.15
BM-319 With 50cm joint cord Max.rpm 80,000min ⁻¹		p.17
BM-320 With 50cm joint cord Max.rpm 80,000min ⁻¹		p.17
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 p.22 Joint type motor cord	EMCD-BM3S p.22 Straight type motor cord	EMCD-BM3A p.22 Angle type motor cord

Controller

	iSpeed3 CONTROLLER Controller p.21
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Accessories

	AL-C1204 Air line kit p.22
	CHA / CHN-A Collet / Collet nut p.23

System Chart

Flange type motor spindle

Collet



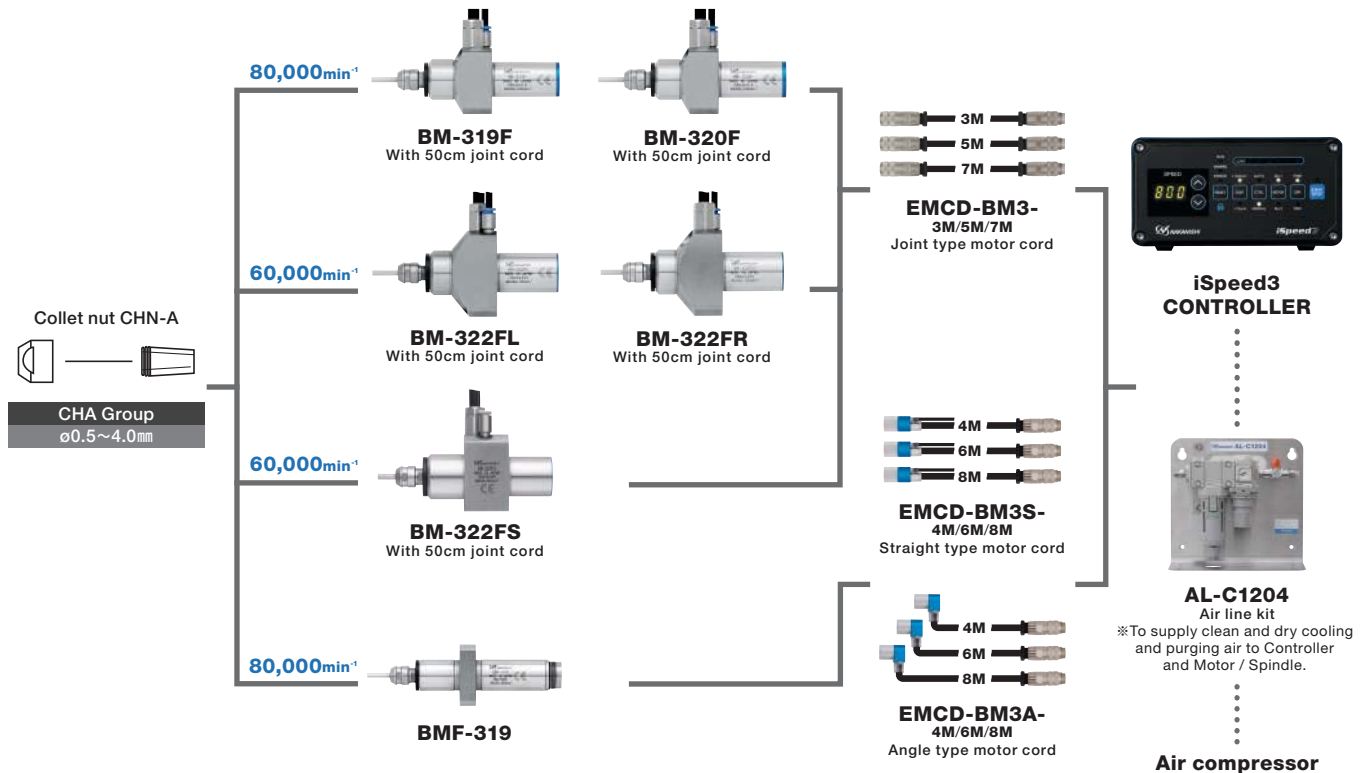
Motor Spindle



Motor Cord



Controller



Straight type motor spindle

Collet



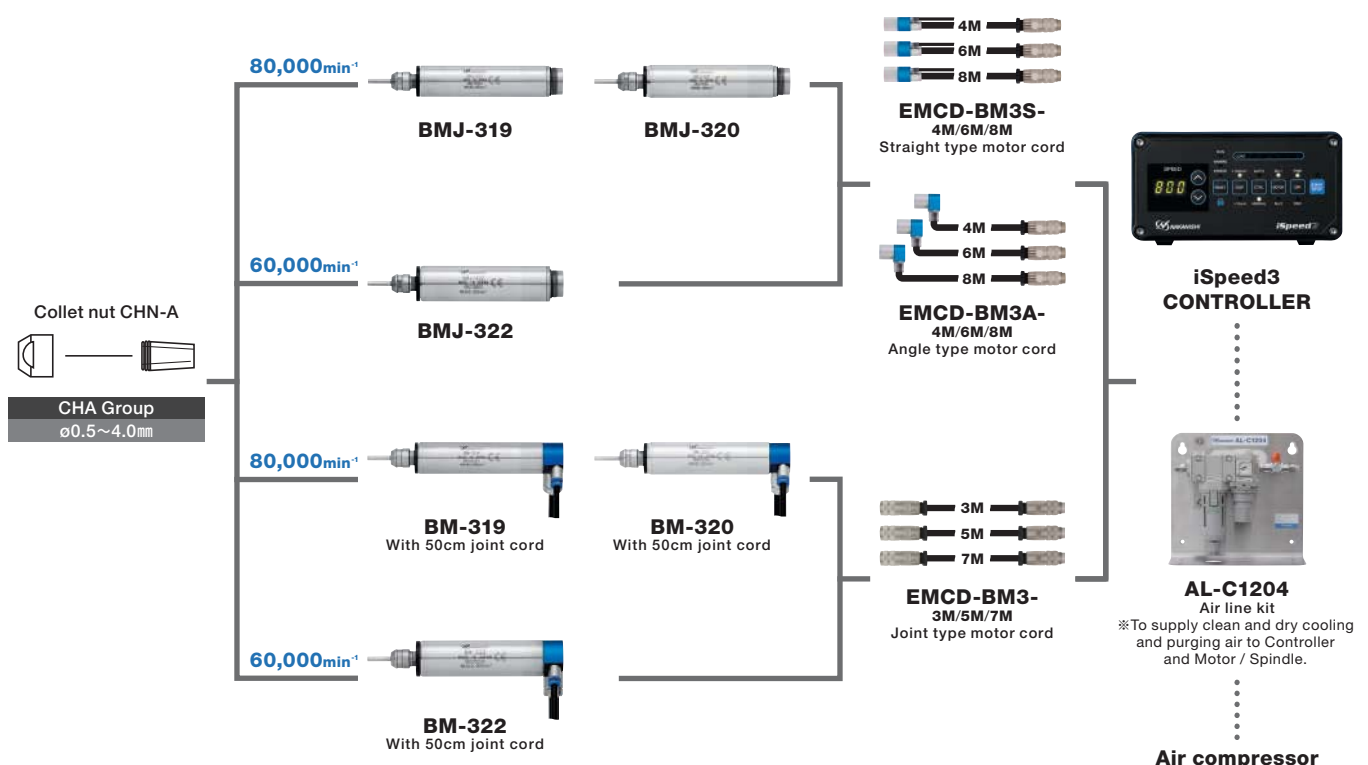
Motor Spindle



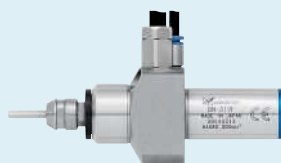
Motor Cord



Controller



Spindle
Guide



BM-319F



BM-320F

iSpeed3 SERIES

Shown In Actual Size

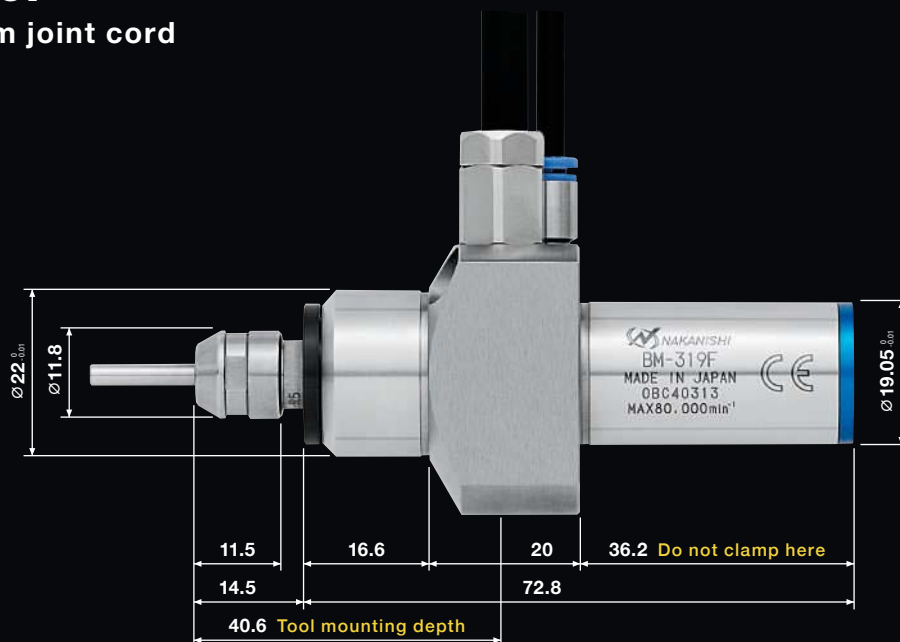
Flange type motor spindle

BM-319F

With 50cm joint cord



O.D. $\varnothing 19.05\text{mm}$

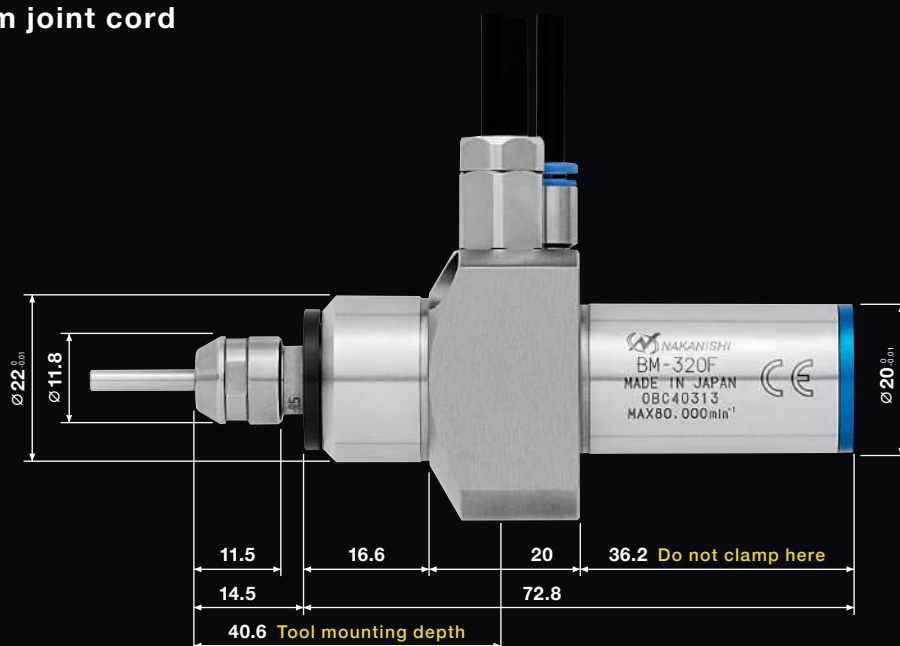


BM-320F

With 50cm joint cord



O.D. $\varnothing 20\text{mm}$





EMCD-BM3



iSpeed3 CONTROLLER



AL-C1204

Specifications

DXF
data

 DXF files are available
on our website

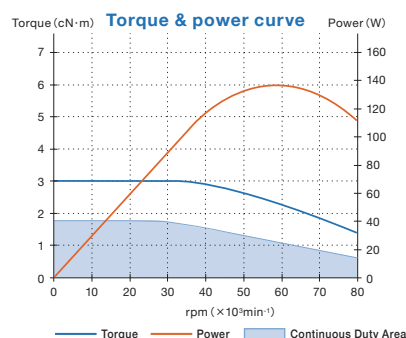
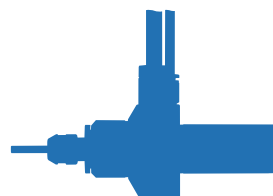
Order by Code No.

BM-319F

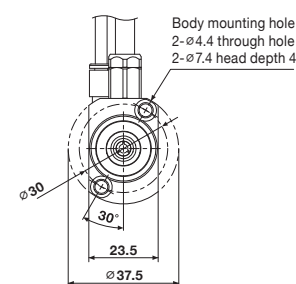
Code No.

7813

Model

BM-319F

Dimensions of the holes on the flange



O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
Ø19.05 _{mm}	80,000 _{min⁻¹}	140 _w	Within 1 _{μm}	260 _g
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each / Bolt : 2pcs. (M4×L25)			
Options	Collet (CHA Group) : Ø0.5~Ø4.0 _{mm} p.23 Motor cord : Length 3m (9261), 5m (9262), 7m (9263)			

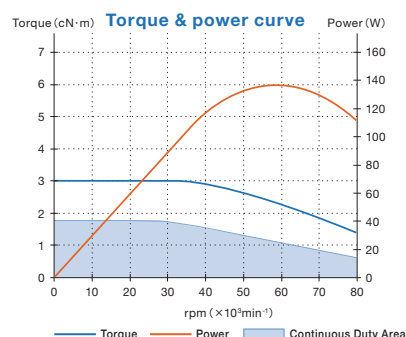
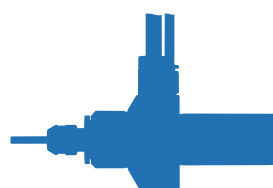
 ※ Cord length L=0.5m
 ※ Collet is sold separately.

BM-320F

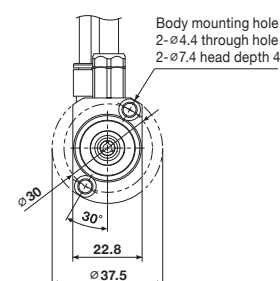
Code No.

7816

Model

BM-320F

Dimensions of the holes on the flange

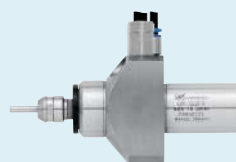


O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
Ø20 _{mm}	80,000 _{min⁻¹}	140 _w	Within 1 _{μm}	270 _g
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each / Bolt : 2pcs. (M4×L25)			
Options	Collet (CHA Group) : Ø0.5~Ø4.0 _{mm} p.23 Motor cord : Length 3m (9261), 5m (9262), 7m (9263)			

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



BM-322FL



BM-322FR

iSpeed3 SERIES

Shown In Actual Size

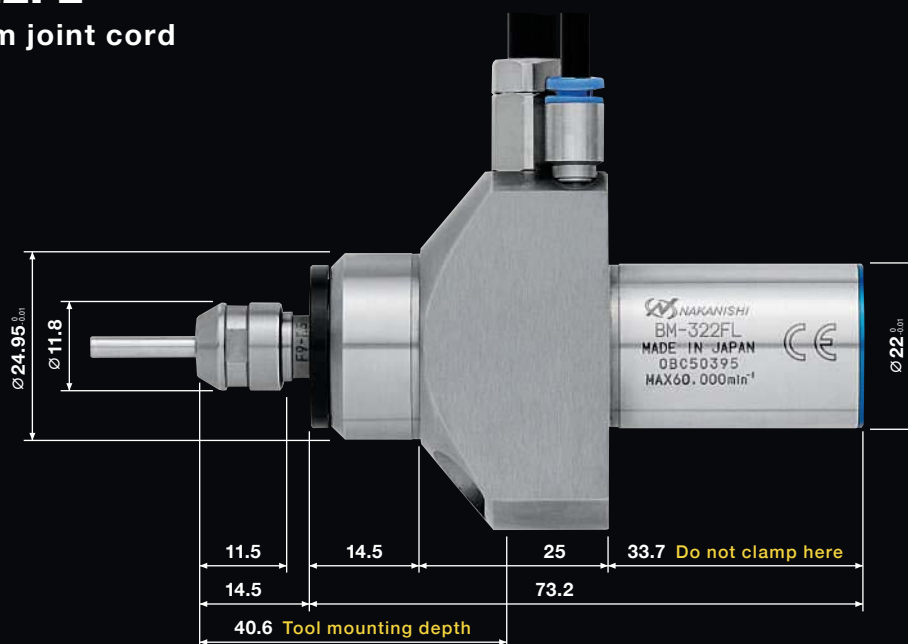
Flange type motor spindle

BM-322FL

With 50cm joint cord



O.D. $\varnothing 22\text{mm}$

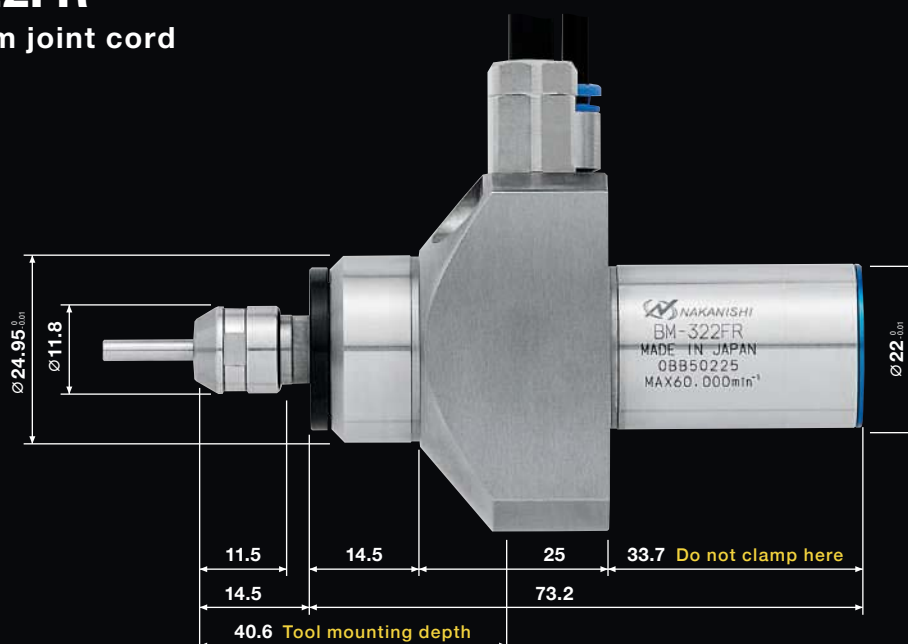


BM-322FR

With 50cm joint cord



O.D. $\varnothing 22\text{mm}$





EMCD-BM3



iSpeed3 CONTROLLER



AL-C1204

Specifications

DXF
data

 DXF files are available
on our website

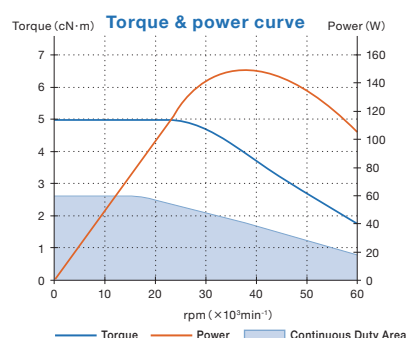
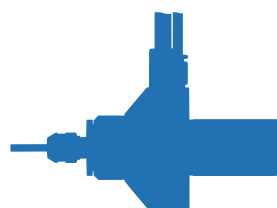
Order by Code No.

BM-322FL

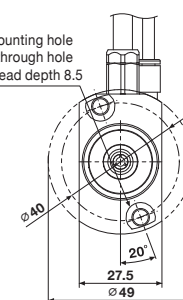
Code No.

7815

Model

BM-322FL

Dimensions of the holes on the flange

 Body mounting hole
2- ϕ 5.2 through hole
2- ϕ 10 head depth 8.5


O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
ϕ 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) : ϕ 0.5~ ϕ 4.0mm p.23 Motor cord : Length 3m (9261), 5m (9262), 7m (9263)			

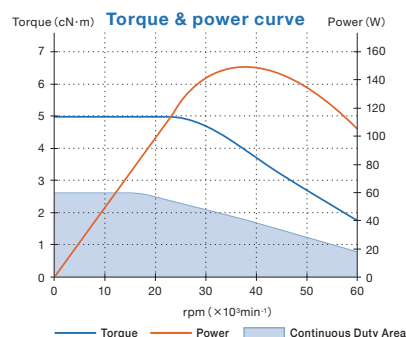
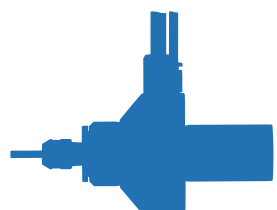
 ※ Cord length L=0.5m
 ※ Collet is sold separately.

BM-322FR

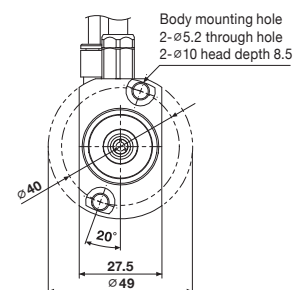
Code No.

7817

Model

BM-322FR

Dimensions of the holes on the flange



O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
ϕ 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) : 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-322FS

iSpeed3 SERIES

Shown In Actual Size

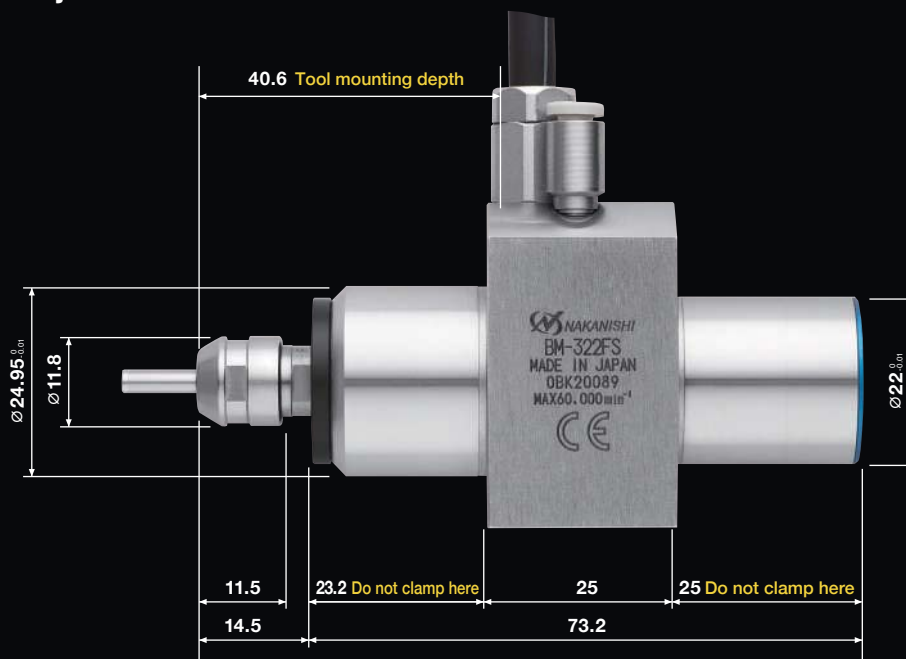
Flange type motor spindle

BM-322FS

With 50cm joint cord



O.D. $\varnothing 22\text{mm}$





EMCD-BM3



iSpeed3 CONTROLLER



AL-C1204

Specifications

DXF
data

 DXF files are available
on our website

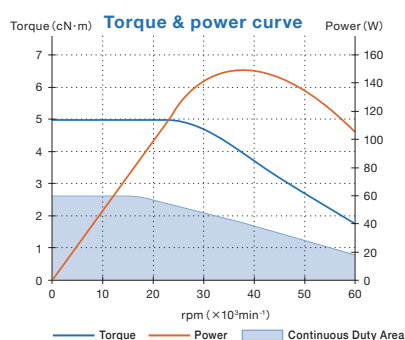
Order by Code No.

BM-322FS

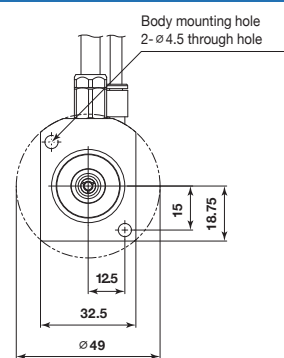
Code No.

7823

Model

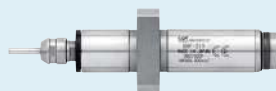
BM-322FS

Dimensions of the holes on the flange



O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
Ø22 _{mm}	60,000 _{min⁻¹}	150 _w	Within 1 _{μm}	430 _g
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.



BMF-319

iSpeed3 SERIES

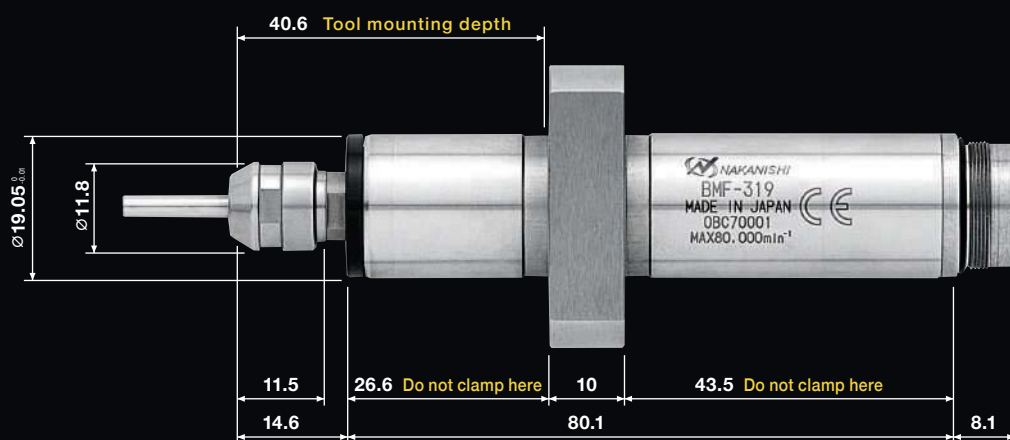
Shown In Actual Size

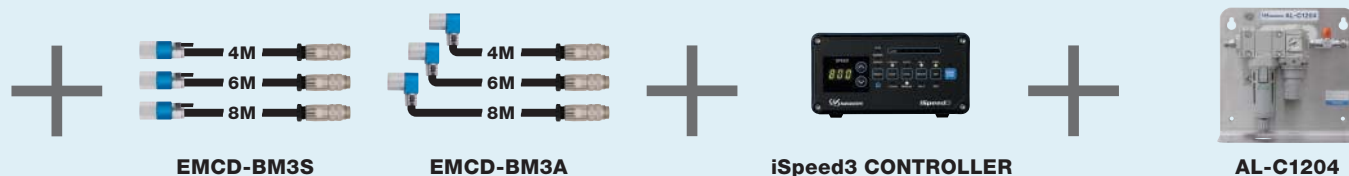
Flange type motor spindle

BMF-319



O.D. $\varnothing 19.05\text{mm}$





Specifications

DXF data

DXF files are available on our website

Order by Code No.

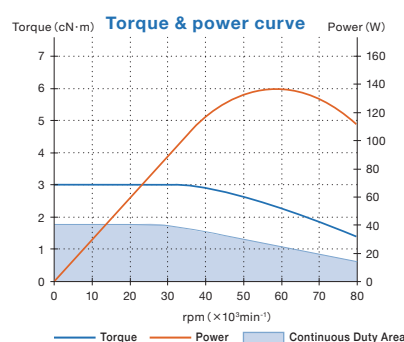
BMF-319

Code No.

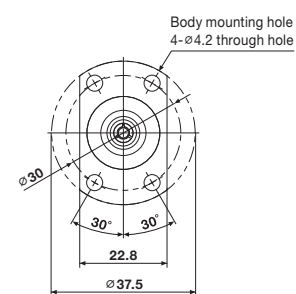
7822

Model

BMF-319



Dimensions of the holes on the flange



O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
$\phi 19.05 \text{ mm}$	80,000 min^{-1}	140w	Within 1 μm	180g
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each / Bolt : 2pcs. (M4×L16)			
Options	Collet (CHA Group) : $\phi 0.5 \sim \phi 4.0 \text{ mm}$ 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-319



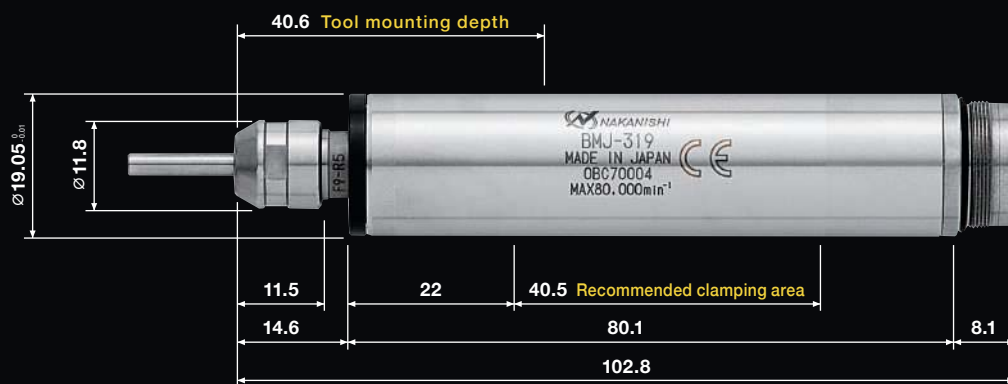
BMJ-320

iSpeed3 SERIES

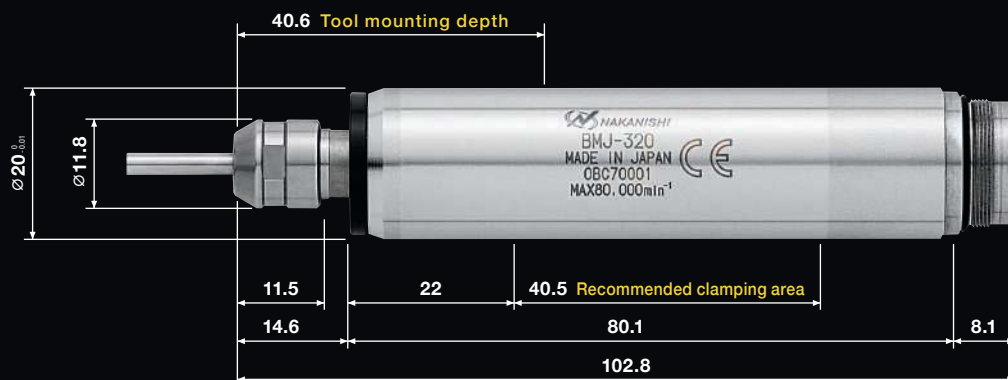
Shown In Actual Size

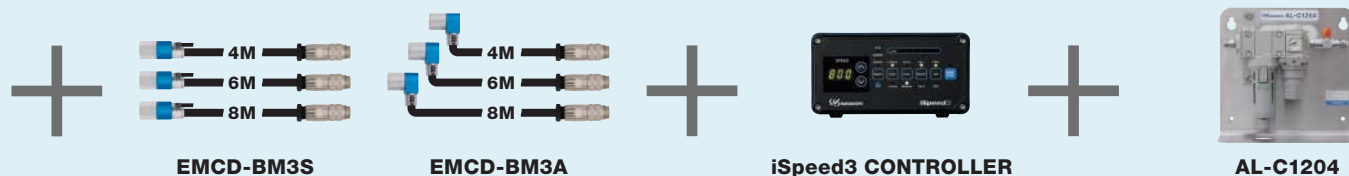
Straight type motor spindle

BMJ-319

O.D. $\varnothing 19.05\text{mm}$ 

BMJ-320

O.D. $\varnothing 20\text{mm}$ 



Specifications

DXF data

DXF files are available on our website

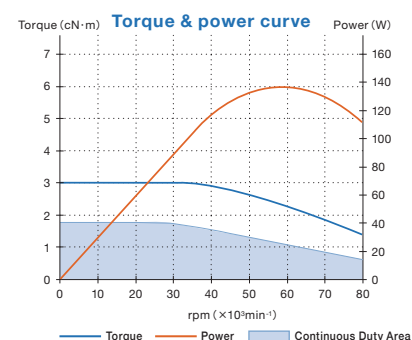
Order by Code No.

BMJ-319

Code No.

7819

Model

BMJ-319

O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
Ø19.05mm	80,000min ⁻¹	140w	Within1μm	145g
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)			

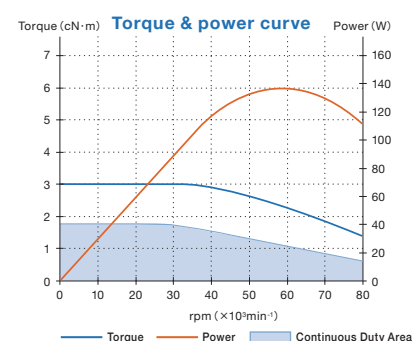
※ Collet is sold separately.

BMJ-320

Code No.

7820

Model

BMJ-320

O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
Ø20mm	80,000min ⁻¹	140w	Within1μm	160g
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.



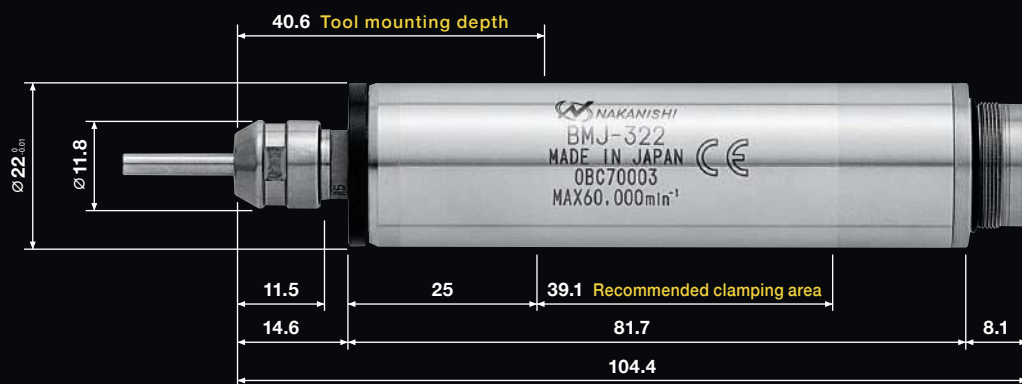
BMJ-322

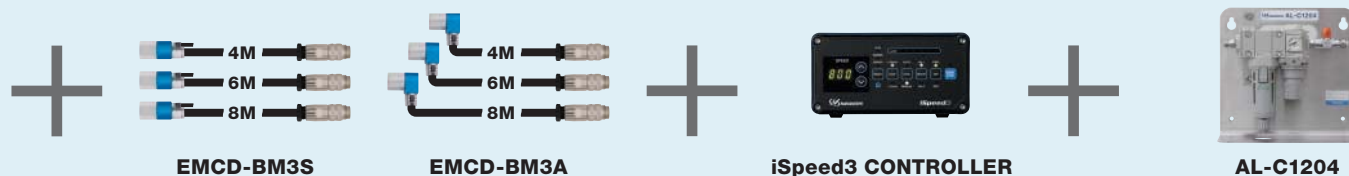
iSpeed3 SERIES

Shown In Actual Size

Straight type motor spindle

BMJ-322

O.D. $\varnothing 22\text{mm}$ 



Specifications

DXF
data

 DXF files are available
on our website

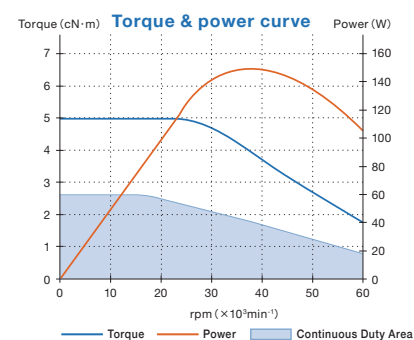
Order by Code No.

BMJ-322

Code No.

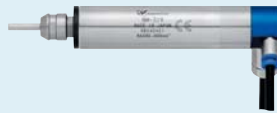
7821

Model

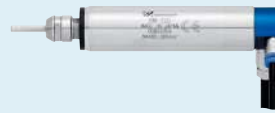
BMJ-322


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

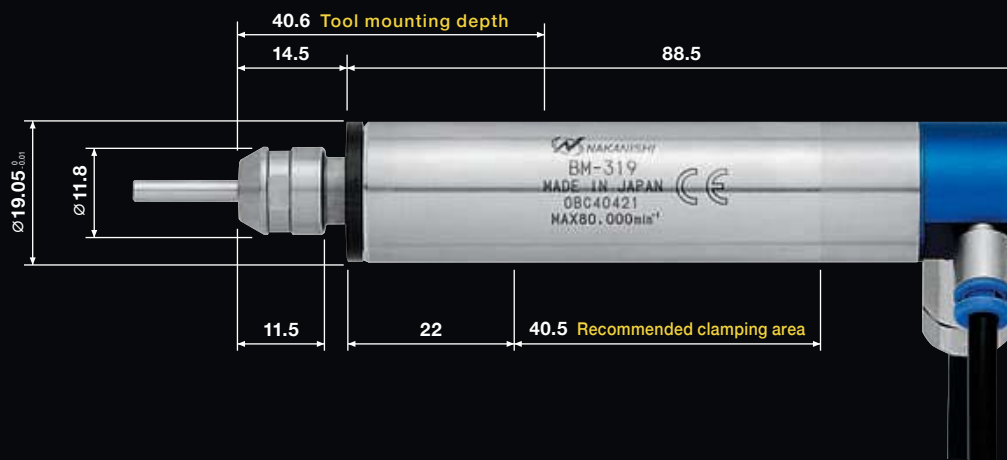
iSpeed3 SERIES

Shown In Actual Size

Straight type motor spindle

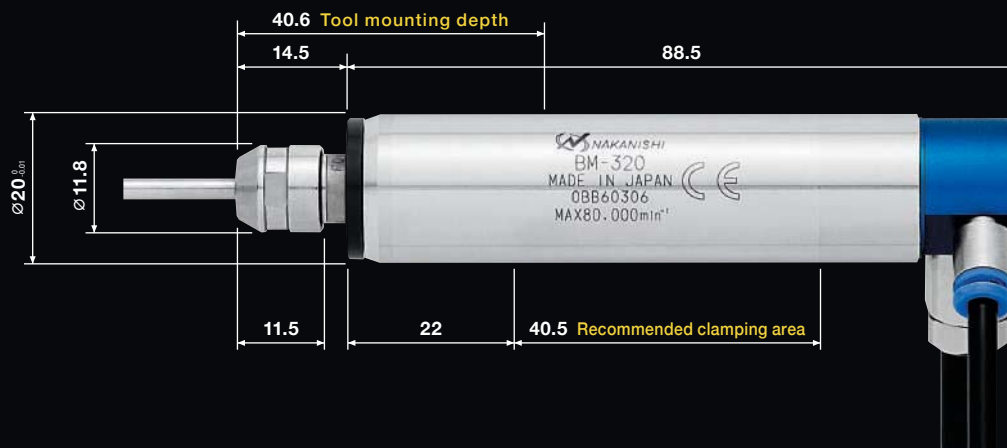
BM-319

With 50cm joint cord

O.D. $\varnothing 19.05\text{mm}$ 

BM-320

With 50cm joint cord

O.D. $\varnothing 20\text{mm}$ 



EMCD-BM3



iSpeed3 CONTROLLER



AL-C1204

Specifications

DXF
data

 DXF files are available
on our website

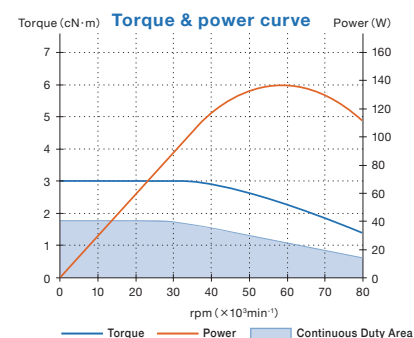
Order by Code No.

BM-319

Code No.

7810

Model

BM-319

O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
$\varnothing 19.05 \text{ mm}$	$80,000 \text{ min}^{-1}$	140w	Within $1 \mu\text{m}$	210g
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each			
Options	Collet (CHA Group) : $\varnothing 0.5 \sim \varnothing 4.0 \text{ mm}$ p.23			
	Motor cord : Length 3m (9261), 5m (9262), 7m (9263)			

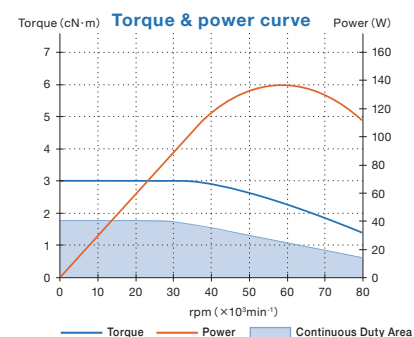
 ※ Cord length L=0.5m
 ※ Collet is sold separately.

BM-320

Code No.

7811

Model

BM-320

O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
$\varnothing 20 \text{ mm}$	$80,000 \text{ min}^{-1}$	140w	Within $1 \mu\text{m}$	230g
Standard Accessories	Collet nut (CHN-A) / Wrench (8×5) · (9×11) : 1pc. each			
Options	Collet (CHA Group) : $\varnothing 0.5 \sim \varnothing 4.0 \text{ mm}$ p.23			
	Motor cord : Length 3m (9261), 5m (9262), 7m (9263)			

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

Spindle
Guide

BM-322

iSpeed3 SERIES

Shown In Actual Size

Straight type motor spindle

BM-322

With 50cm joint cord

O.D. $\varnothing 22\text{mm}$ 



EMCD-BM3



iSpeed3 CONTROLLER



AL-C1204

Specifications

DXF
data

 DXF files are available
on our website

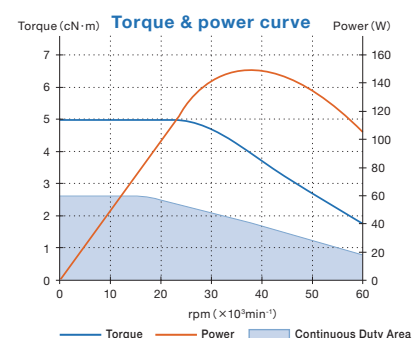
Order by Code No.

BM-322

Code No.

7814

Model

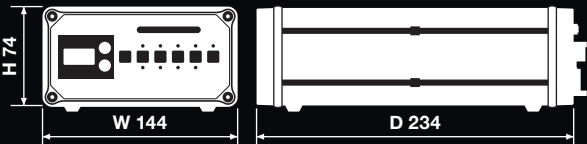
BM-322


O.D.	Max. rpm	Max. power	Spindle Accuracy	Weight
Ø22 _{mm}	60,000 _{min⁻¹}	150 _w	Within 1 _{μm}	250 _g
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.



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 (Air line kit, Motor cord)

AL-C1204

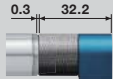
Air line kit



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

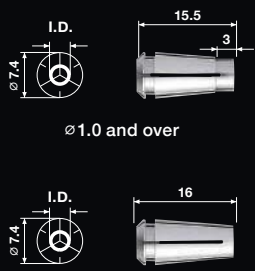
Code No.	4504	Model	AL-C1204
Standard Accessories	Hose pipe (K-260) : 2m		

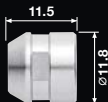
Motor cord

Motor cord	Code No.	Model	Length	Standard Accessories	Compatible model
  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		

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 ※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 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 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
[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



[HES510]

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

Air Motors & Spindles



Application for CNC lathes / Special purpose machines

Air-Speed SERIES One-piece type

Max.30,000min⁻¹ Max.130W
[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

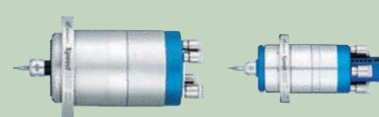


Application for CNC lathes / Special purpose machines

Application for machining centers and milling 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

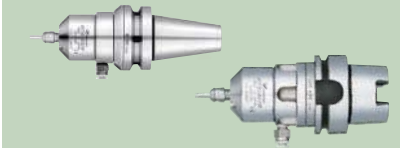
Max.65,000min⁻¹



- 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

Electric spindle

Air spindle



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※Specifications and design are subject to change without notice.