



**MAFRA**  
MAILE GMBH  
PRÄZISIONSMASCHINEN

# M40

E4000



**MAFRA**  
MAILE GMBH  
PRÄZISIONSMASCHINEN  
WWW.MAFRA.DE · INFO@MAFRA.DE

**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-K362E Ver.1 2022-02-24 02. 650

※Specifications and design are subject to change without notice.

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

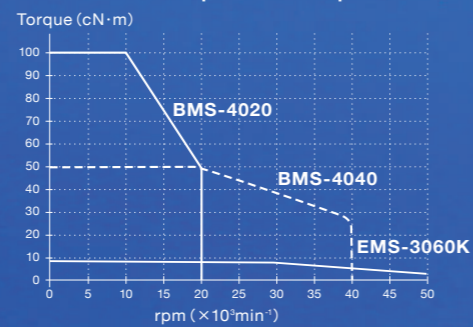
### ✓ Ceramic Bearing

- 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



YAMAKANISHI  
1000 CONTROL CENTER



# Index

## Spindle (Modular type)

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

## Motor (Modular type)

- EM-4020** Straight cord type ..... p.13  
1,000 ~ 20,000min<sup>-1</sup>
- EM-4020A** Angle cord type ..... p.13  
1,000 ~ 20,000min<sup>-1</sup>
- EM-4040** Straight cord type ..... p.13  
1,000 ~ 40,000min<sup>-1</sup>
- EM-4040A** Angle cord type ..... p.13  
1,000 ~ 40,000min<sup>-1</sup>

## Motor Spindle (One-piece type)

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

## Controller

- E4000 CONTROLLER** ..... p.27  
Controller

## Air line kit

- AL-C1204** ..... p.28  
Air line kit

## Motor cord

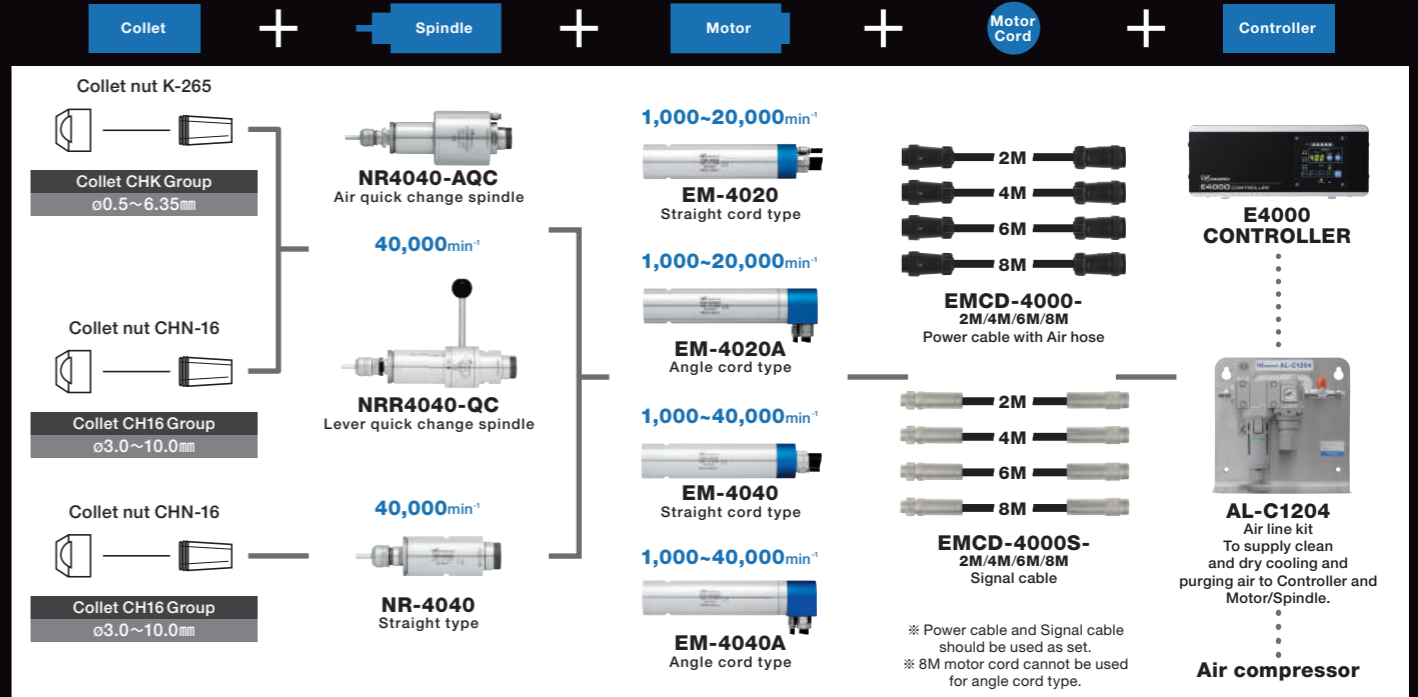
- Power cable with Air hose**  
[ Length ] 2m, 4m, 6m, 8m
- EMCD-4000** Joint type motor cord ..... p.27
- Signal cable**  
[ Length ] 2m, 4m, 6m, 8m
- EMCD-4000S** Joint type motor cord ..... p.27

## Accessories

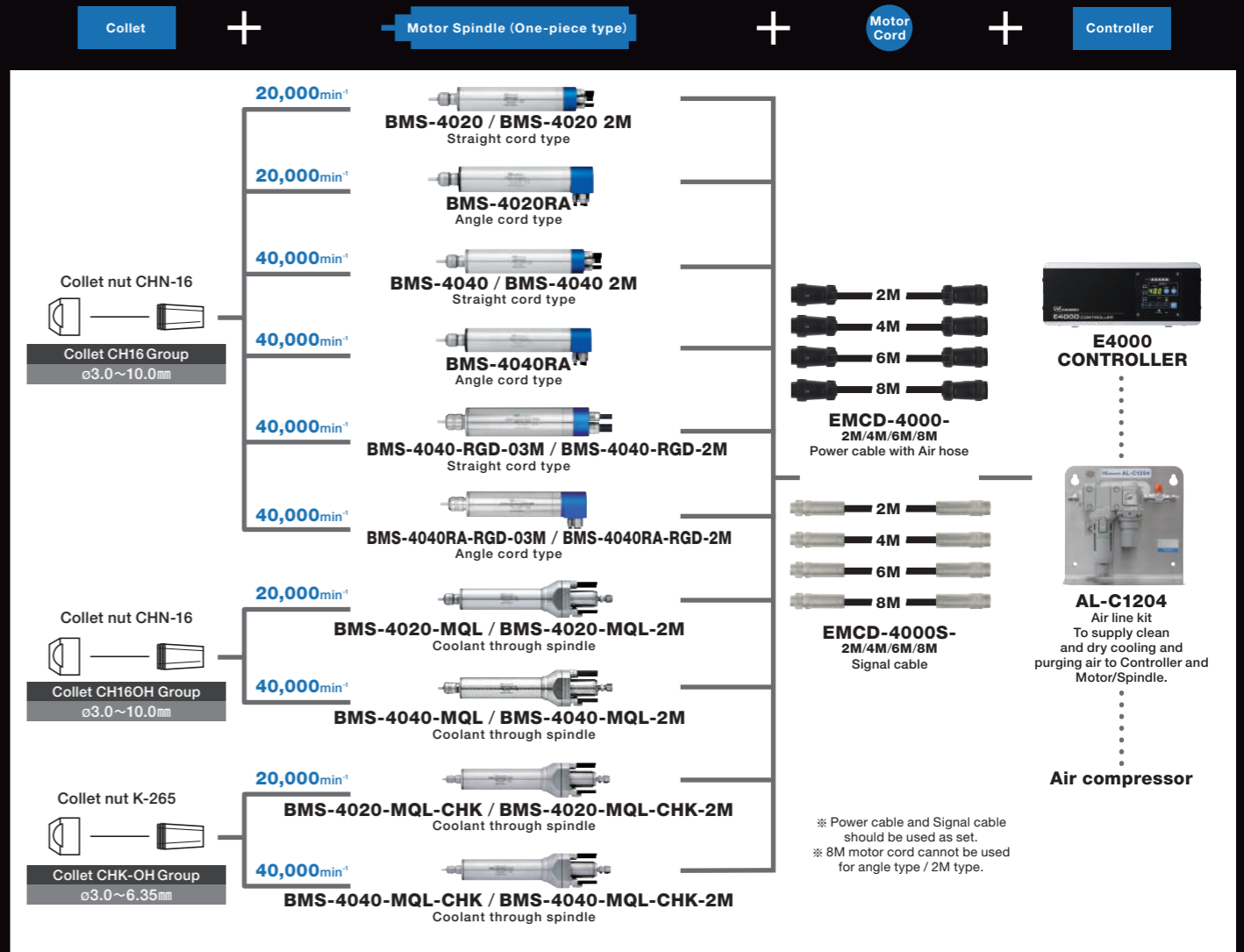
- E4000-PB** ..... p.28  
Box for control panel
- E4000-SRB** ..... p.28  
Safety relay box
- GR-40** ..... p.28  
Grip ring
- CH16 / CH160H / CHK / CHK-OH** ..... p.29  
Collet
- QC5-16-R / QC5-K / QC5-K-R** ..... p.29  
Collet holder

# System Chart

## Modular type ø40mm



## One-piece type ø40mm



# Spindle (Modular type)



**40** NRR4040-QC  
p.9



**40** NR-4040  
p.11



**40** NR4040-AQC  
p.7

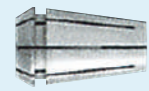


**40** EM-4020  
p.13

**40** EM-4040  
p.13



## Spindle Guide



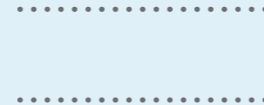
CH16 / CHK



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



NR4040-AQC



EM-4020 / EM-4040

EM-4020A / EM-4040A



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

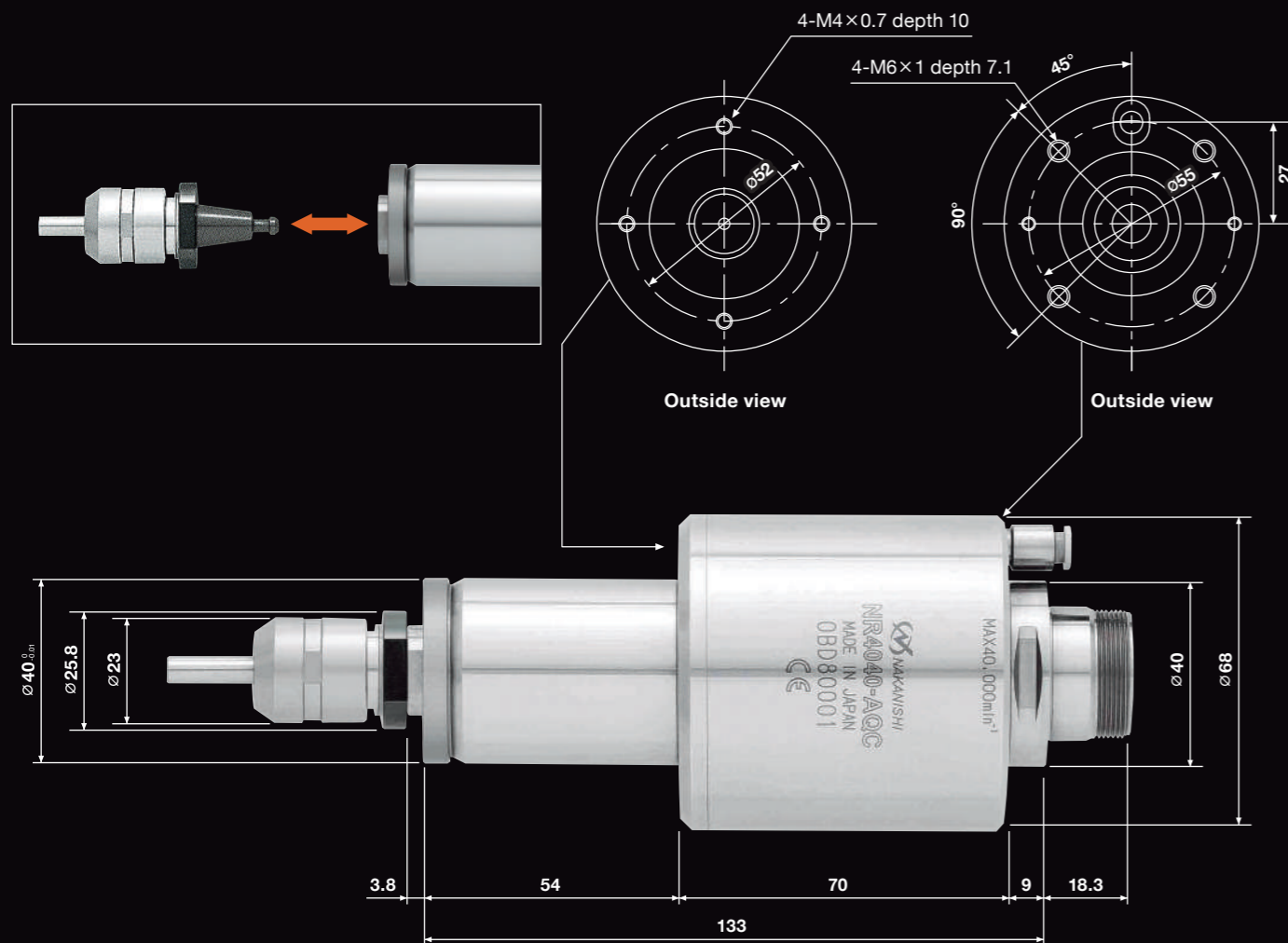
## Spindle (Modular type)

## NR4040-AQC

## Air quick change spindle

O.D.  $\phi$ 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
$\phi$ 40mm	Within 1 $\mu$ m	40,000min <sup>-1</sup>	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)

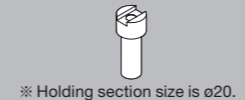
Standard Accessories Wrench (36) : 1pc. / Air hose with filter (K-251) :  $\phi$ 6mm  $\times$  2m

## Parts (Optional)

	Collet	You can choose the I.D. size (The following is an example of $\phi$ 6.0mm.)		Collet holder (With collet nut)		Wrench
		QC5-16/K	QC5-16/K-R	QC5-16/K	QC5-16/K-R	
<b>CH16</b>	Code No. 931 6 0 Model CH16- 6 . 0 (I.D. $\phi$ 6.0mm)	9216	9225	2083		
I.D. $\phi$ 3.0mm~10.0mm p.29		QC5-16 (For collet CH16)	QC5-16-R (For collet CH16)	Wrench 17 $\times$ 22 (2pcs.)		
<b>CHK</b>	Code No. 915 6 0 Model CHK- 6 . 0 (I.D. $\phi$ 6.0mm)	9215	9224	2026		
I.D. $\phi$ 0.5mm~6.35mm p.29		QC5-K (For collet CHK)	QC5-K-R (For collet CHK)	Wrench 12 $\times$ 14 (2pcs.)		

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

## Preset adapter (QC5-16/QC5-K)

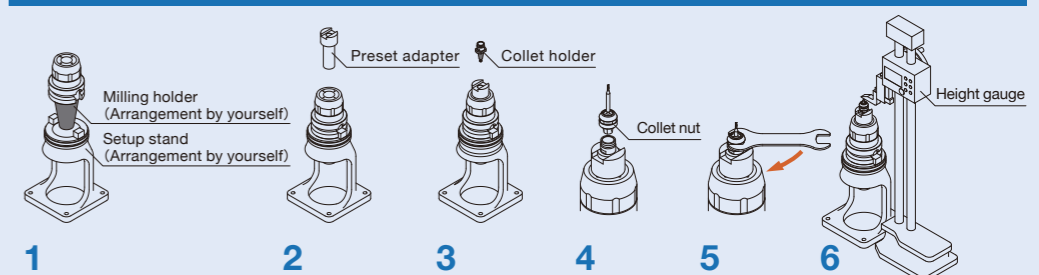
\* Holding section size is  $\phi$ 20.

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

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

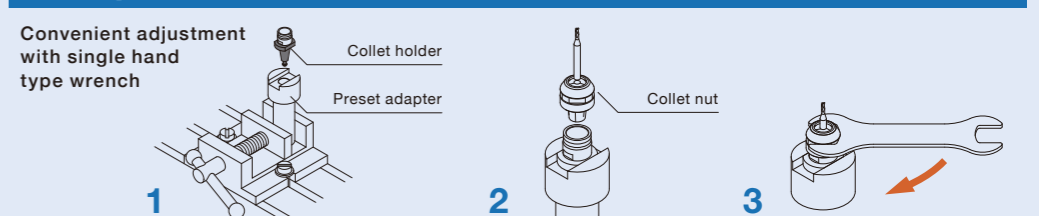
## Set-up outside machines

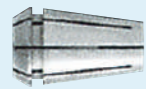
In case using a milling holder



## Set-up outside machines

In case using a vice

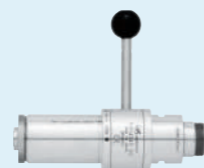


Spindle  
Guide

CH16 / CHK



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



NRR4040-QC



EM-4020 / EM-4040

EM-4020A / EM-4040A

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

## Spindle (Modular type)

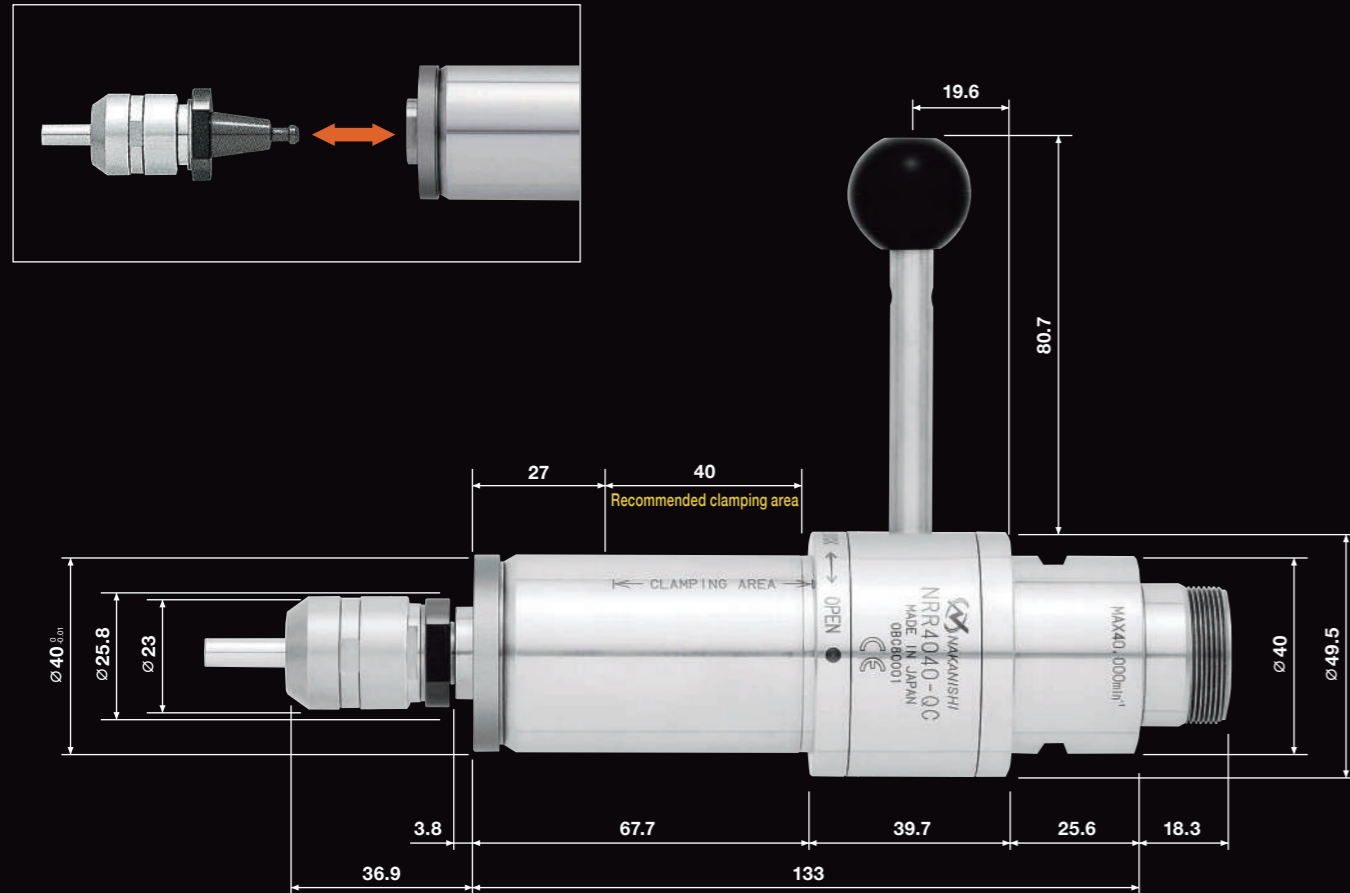
## NRR4040-QC

## Lever quick change spindle

※Outside view : with QC5-16 collet holder

O.D.  $\phi$ 40mm

- 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
$\phi$ 40mm	Within $1\mu\text{m}$	40,000min <sup>-1</sup>	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 $\phi$ 6.0mm.)		Collet holder (With collet nut)		Wrench
			QC5-16/K	QC5-16/K-R	
CH16	Code No.	931 6 0	9216	9225	2083
I.D. $\phi$ 3.0mm~10.0mm p.29	Model	CH16- 6 . 0 (I.D. $\phi$ 6.0mm)	QC5-16 (For collet CH16)	QC5-16-R (For collet CH16)	Wrench 17 × 22 (2pcs.)
CHK	Code No.	915 6 0	9215	9224	2026
I.D. $\phi$ 0.5mm~6.35mm p.29	Model	CHK- 6 . 0 (I.D. $\phi$ 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  $\phi$ 20.

Code No. 9218

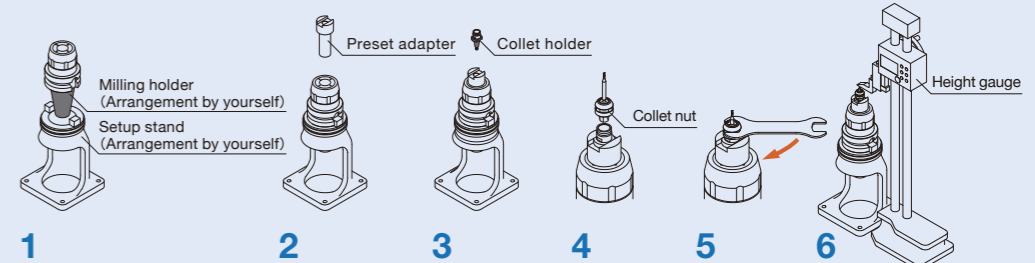
Model QC5-16 ADP  
(For collet QC5-16)

Code No. 9217

Model QC5-K ADP  
(For collet QC5-K)

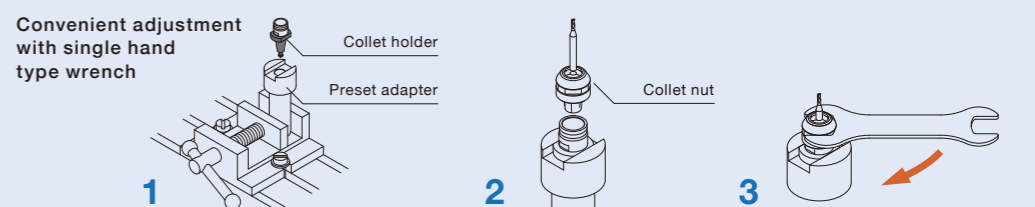
## Set-up outside machines

## In case using a milling holder



## Set-up outside machines

## In case using a vice

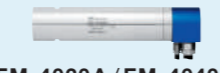


Spindle  
Guide

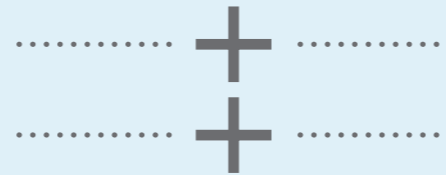
NR-4040



EM-4020/EM-4040



EM-4020A/EM-4040A



Power cable 2M/4M/6M/8M

Signal cable 2M/4M/6M/8M

EMCD-4000/EMCD-4000S



E4000 CONTROLLER



AL-C1204

E4000 SERIES

## Spindle (Modular type)

## NR-4040

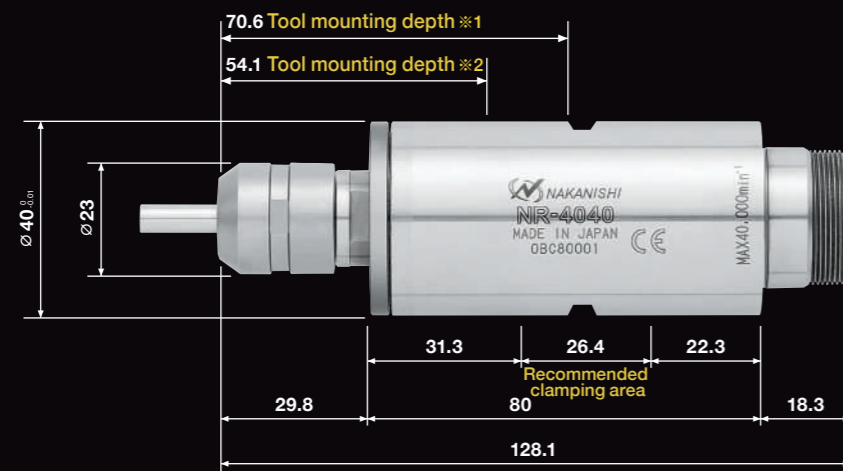
## Straight type

※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

O.D.	Spindle Accuracy	Collet	Max. rpm	Motors	Weight
Ø40mm	Within 1 μm	CH16 Group (ø3.0 ~ ø10.0mm)	40,000min <sup>-1</sup>	EM-4020 · EM-4020A EM-4040 · EM-4040A	700g
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.

# Motor (Modular type)

Order by Code No.

## 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

### EM-4020

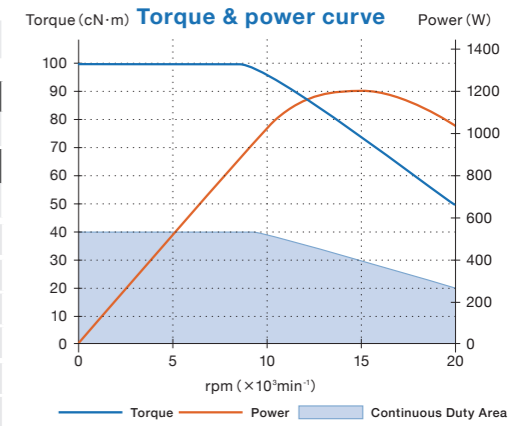
Code No. **8348** Model **EM-4020**

O.D.	Rpm	Max. power	
Ø40mm	1,000~20,000min <sup>-1</sup>	1,200w	
Cord length	Min. Bending Cord Radius	Max. torque	Weight
0.3m	70mm	1.0N·m	1,300g
<b>Standard Accessories</b> Wrench (36) : 1pc.			
<b>Specifications</b> 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			
<b>Options</b> 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	
Ø40mm	1,000~20,000min <sup>-1</sup>	1,200w	
Cord length	Min. Bending Cord Radius	Max. torque	Weight
2.0m	70mm	1.0N·m	1,800g
<b>Standard Accessories</b> Wrench (36) : 1pc.			
<b>Specifications</b> 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			
<b>Options</b> Power cable with Air hose : Length 2m (9253), 4m (9254), 6m (9255) Signal cable : Length 2m (9257), 4m (9258), 6m (9259)			



### EM-4040

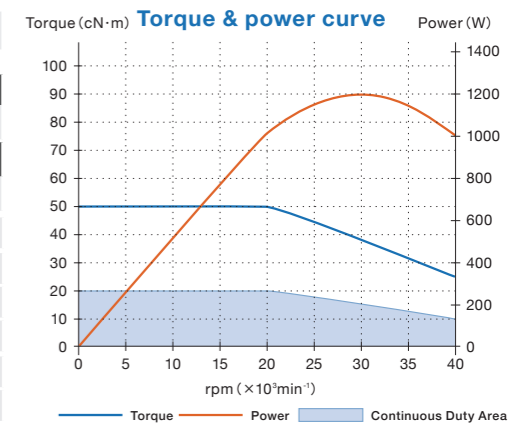
Code No. **8346** Model **EM-4040**

O.D.	Rpm	Max. power	
Ø40mm	1,000~40,000min <sup>-1</sup>	1,200w	
Cord length	Min. Bending Cord Radius	Max. torque	Weight
0.3m	70mm	0.5N·m	1,300g
<b>Standard Accessories</b> Wrench (36) : 1pc.			
<b>Specifications</b> 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			
<b>Options</b> 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	
Ø40mm	1,000~40,000min <sup>-1</sup>	1,200w	
Cord length	Min. Bending Cord Radius	Max. torque	Weight
2.0m	70mm	0.5N·m	1,800g
<b>Standard Accessories</b> Wrench (36) : 1pc.			
<b>Specifications</b> 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			
<b>Options</b> 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)



**40** BMS-4020RA  
p.17

**40** BMS-4040RA  
p.19

**40** BMS-4040RA-RGD-03M / BMS-4040RA-RGD-2M  
p.21



**40** BMS-4020 / BMS-4020 2M  
p.17

**40** BMS-4040 / BMS-4040 2M  
p.19

**40** BMS-4040-RGD-03M / BMS-4040-RGD-2M  
p.21



**40** BMS-4020-MQL / BMS-4020-MQL-2M  
p.23

**40** BMS-4040-MQL / BMS-4040-MQL-2M  
p.23

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

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

Spindle Guide



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 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



# Specifications

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

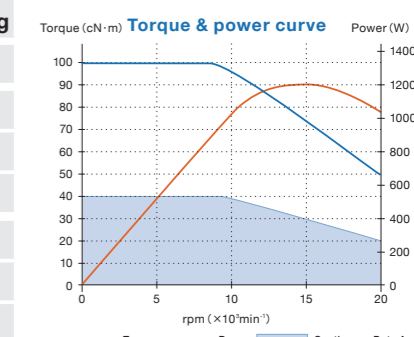
Order by Code No.

## BMS-4020 / BMS-4020 2M



Code No.	<b>7803</b>	Model	BMS-4020
Code No.	<b>7805</b>	Model	BMS-4020 2M

O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power
ø40mm	20,000min <sup>-1</sup>	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 <b>p.29</b> 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

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

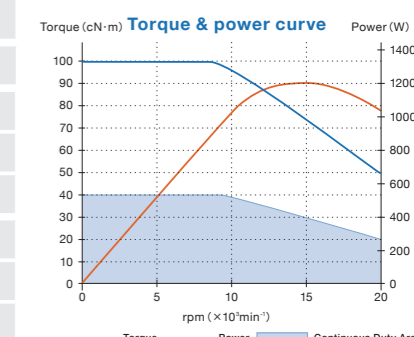


## BMS-4020RA



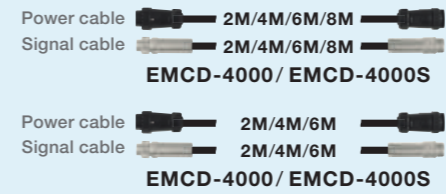
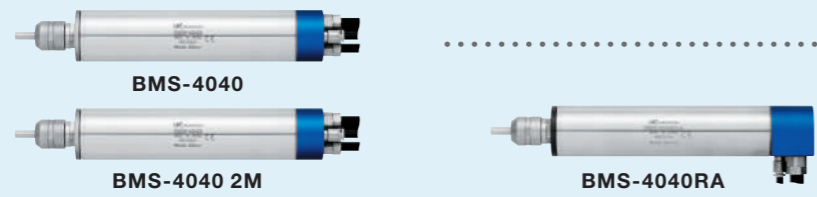
Code No.	<b>7804</b>	Model	BMS-4020RA
----------	-------------	-------	------------

O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power
ø40mm	20,000min <sup>-1</sup>	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 <b>p.29</b> 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



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



# Specifications

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

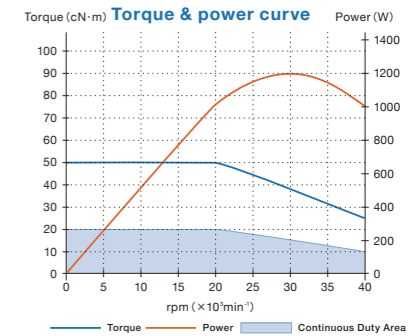
Order by Code No.

## BMS-4040 / BMS-4040 2M

Code No.	<b>7806</b>	Model	BMS-4040
Code No.	<b>7809</b>	Model	BMS-4040 2M



O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power
ø40mm	40,000min <sup>-1</sup>	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 <b>p.29</b> 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.

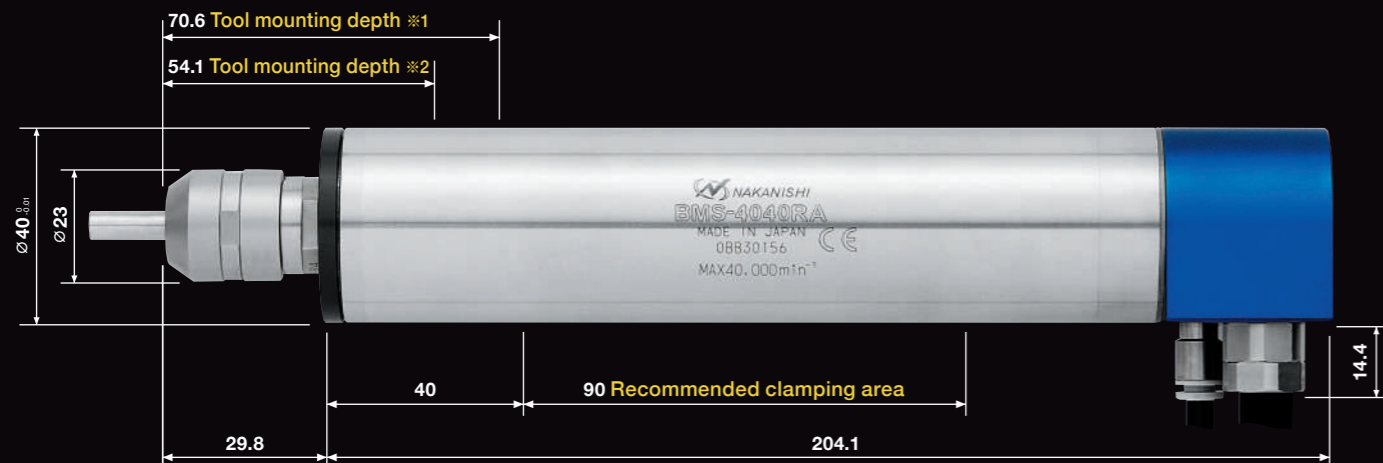
## BMS-4040RA

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

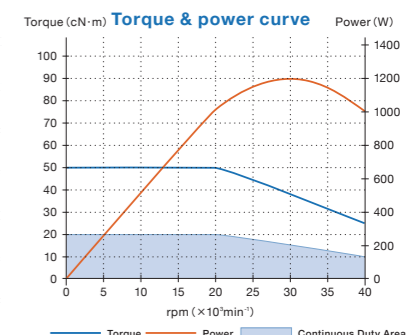


## BMS-4040RA

Code No.	<b>7807</b>	Model	BMS-4040RA
----------	-------------	-------	------------



O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power
ø40mm	40,000min <sup>-1</sup>	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 <b>p.29</b> 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



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 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

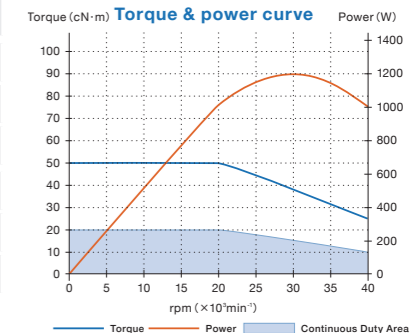
Code No.	7740	Model	BMS-4040-RGD-03M
Code No.	7769	Model	BMS-4040-RGD-2M



O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power
ø40mm	40,000min <sup>-1</sup>	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	

<b>Standard Accessories</b>	Collet nut (CHN-16) / Wrench (17 × 22) : 2pcs.
<b>Specifications</b>	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
<b>Options</b>	Collet (CH16 Group) : ø3.0 ~ ø10.0mm <b>p.29</b> 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

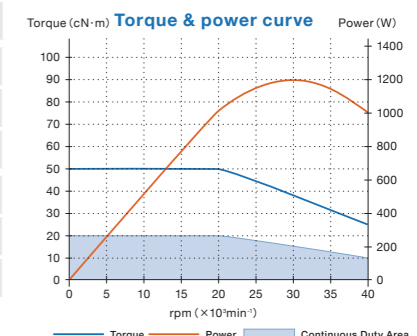
Code No.	7741	Model	BMS-4040RA-RGD-03M
Code No.	7770	Model	BMS-4040RA-RGD-2M

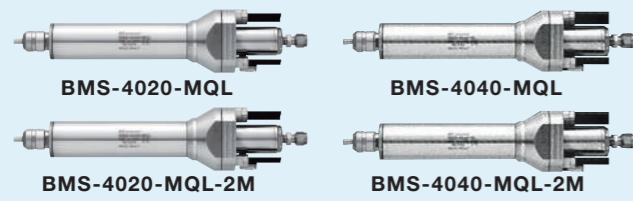


O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power
ø40mm	40,000min <sup>-1</sup>	Within1μm	CH16Group (ø3.0 ~ ø10.0mm)	1,200w
Cord length	Min. Bending Cord Radius	Max. torque	Weight	
BMS-4040RA-RGD-03M : 0.3m BMS-4040RA-RGD-2M : 2.0m	70mm	0.5N·m	BMS-4040RA-RGD-03M : 1.4kg BMS-4040RA-RGD-2M : 1.9kg	

<b>Standard Accessories</b>	Collet nut (CHN-16) / Wrench (17 × 22) : 2pcs.
<b>Specifications</b>	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
<b>Options</b>	Collet (CH16 Group) : ø3.0 ~ ø10.0mm <b>p.29</b> 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.



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

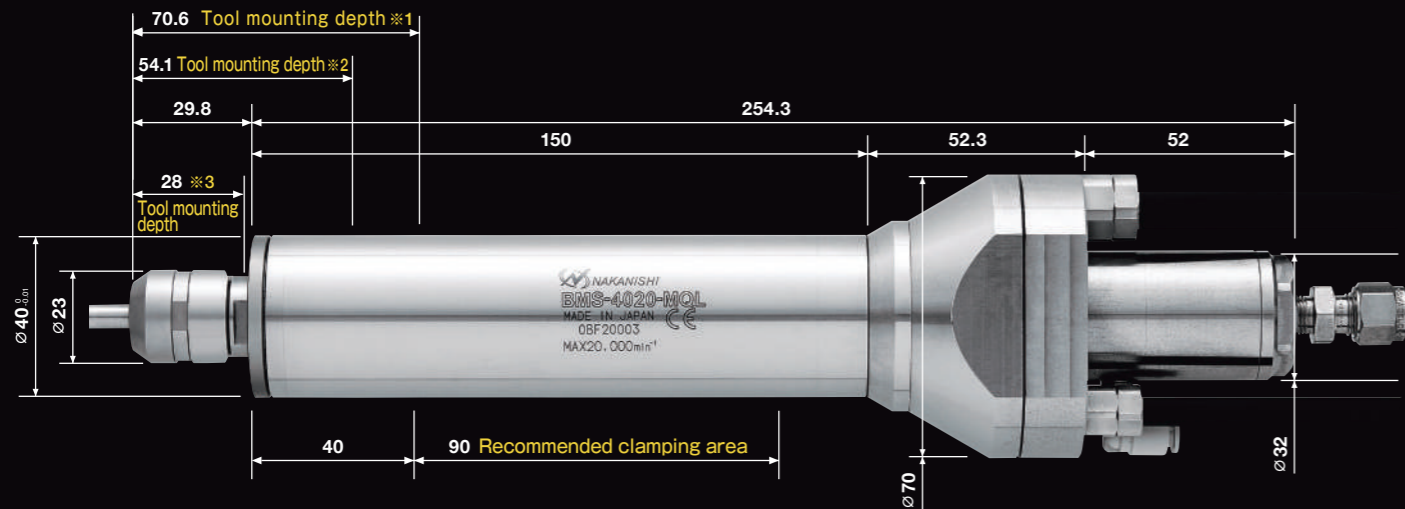
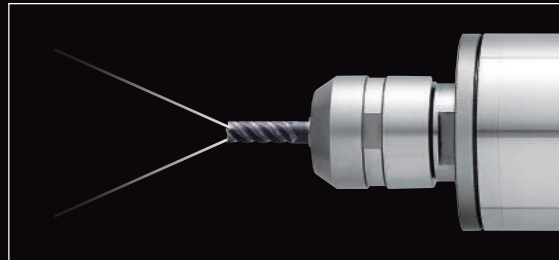
Motor Spindle (One-piece type :  $\phi 3.0 \sim \phi 10.0\text{mm}$ )

**BMS-4020-MQL / BMS-4020-MQL-2M**  
**BMS-4040-MQL / BMS-4040-MQL-2M**  
Coolant through spindle



O.D.  $\phi 40\text{mm}$

- 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  $\phi 6.9\text{mm}$  (The shank size less than  $\phi 4\text{mm}$  is through hole)
- ※ 2 : In case for the shank size  $\phi 6.9\text{mm}$  or more
- ※ 3 : The tool needs to be inserted more than 28mm, or the oil leaks

Specifications

DXF data DXF files are available on our website

Order by Code No.

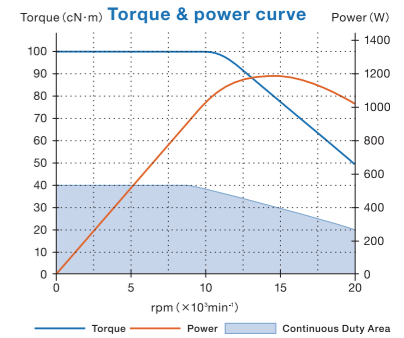
BMS-4020-MQL / BMS-4020-MQL-2M

Code No.	7716	Model	BMS-4020-MQL
Code No.	7717	Model	BMS-4020-MQL-2M



O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power
$\phi 40\text{mm}$	20,000min <sup>-1</sup>	Within 1 $\mu\text{m}$	CH16OH Group ( $\phi 3.0 \sim \phi 10.0\text{mm}$ )	1,200w
Cord length		Min. Bending Cord Radius	Max. torque	Weight
BMS-4020-MQL: 0.3m BMS-4020-MQL-2M: 2.0m		70mm	1.0N·m	BMS-4020-MQL: 2.3kg BMS-4020-MQL-2M: 2.8kg
Standard Accessories		Collet nut (CHN-16) / Insert / Ferrule Set Wrench (17 × 22) : 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 (CH16OH Group) : $\phi 3.0 \sim \phi 10.0\text{mm}$ 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)		

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



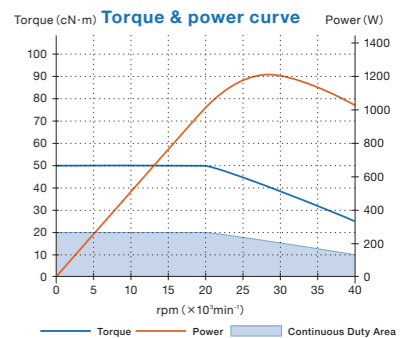
BMS-4040-MQL / BMS-4040-MQL-2M

Code No.	7714	Model	BMS-4040-MQL
Code No.	7715	Model	BMS-4040-MQL-2M

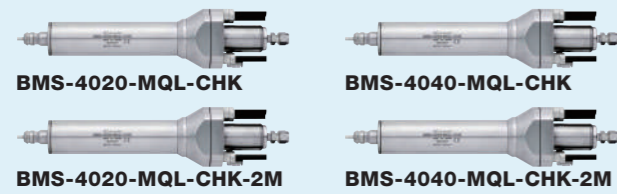


O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power
$\phi 40\text{mm}$	40,000min <sup>-1</sup>	Within 1 $\mu\text{m}$	CH16OH Group ( $\phi 3.0 \sim \phi 10.0\text{mm}$ )	1,200w
Cord length		Min. Bending Cord Radius	Max. torque	Weight
BMS-4040-MQL: 0.3m BMS-4040-MQL-2M: 2.0m		70mm	0.5N·m	BMS-4040-MQL: 2.3kg BMS-4040-MQL-2M: 2.8kg
Standard Accessories		Collet nut (CHN-16) / Insert / Ferrule Set Wrench (17 × 22) : 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 (CH16OH Group) : $\phi 3.0 \sim \phi 10.0\text{mm}$ 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)		

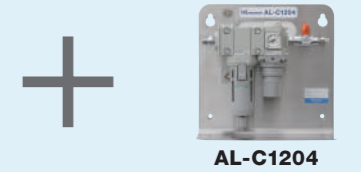
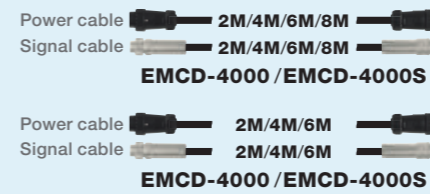
※ 8M motor cord cannot be used for BMS-4040-MQL-2M.  
※ Collet is sold separately.



Spindle Guide



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



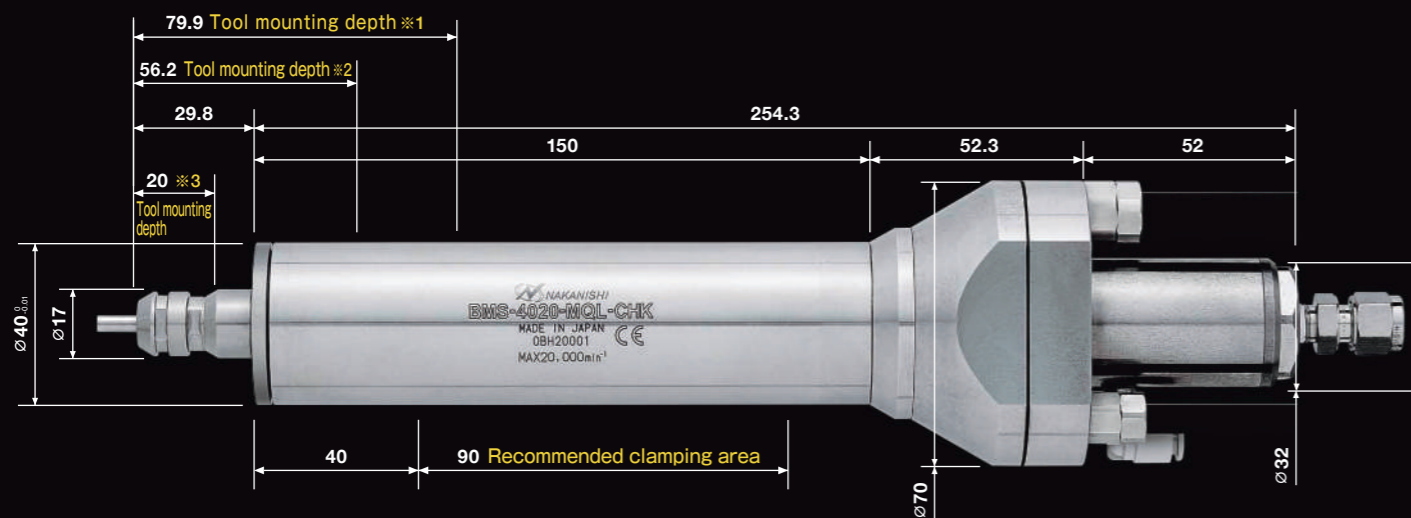
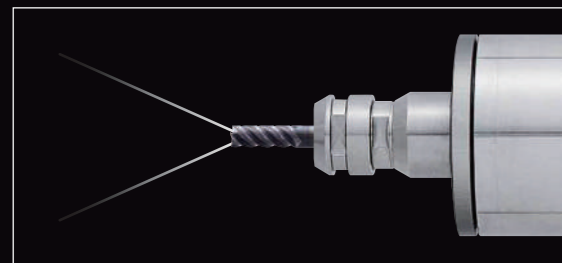
E4000 SERIES

# 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.

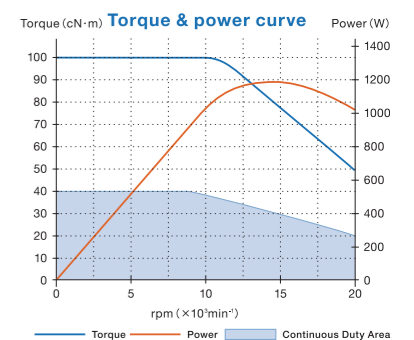
BMS-4020-MQL-CHK / BMS-4020-MQL-CHK-2M

Code No.	<b>7735</b>	Model	BMS-4020-MQL-CHK
Code No.	<b>7736</b>	Model	BMS-4020-MQL-CHK-2M



O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power
$\phi 40\text{mm}$	20,000min <sup>-1</sup>	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.



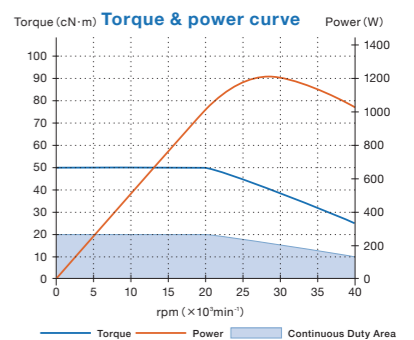
BMS-4040-MQL-CHK / BMS-4040-MQL-CHK-2M

Code No.	<b>7737</b>	Model	BMS-4040-MQL-CHK
Code No.	<b>7738</b>	Model	BMS-4040-MQL-CHK-2M



O.D.	Max. rpm	Spindle Accuracy	Collet	Max. power
$\phi 40\text{mm}$	40,000min <sup>-1</sup>	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.

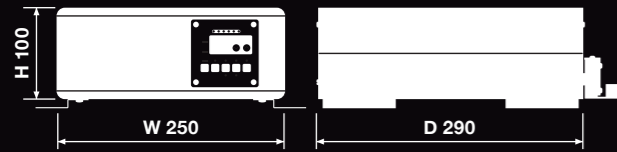


# E4000 Controller / Motor cord

## E4000 CONTROLLER

Controller

Code No. **8472**



### 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 <sup>-1</sup>	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 Connector Diameter : ø30mm	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
	9254	EMCD-4000-4M	4m		
	9255	EMCD-4000-6M	6m		
	9256	EMCD-4000-8M	8m		
Signal cable Connector Diameter : ø16mm	9257	EMCD-4000S-2M	2m	-	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
	9258	EMCD-4000S-4M	4m		
	9259	EMCD-4000S-6M	6m		
	9260	EMCD-4000S-8M	8m		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
					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

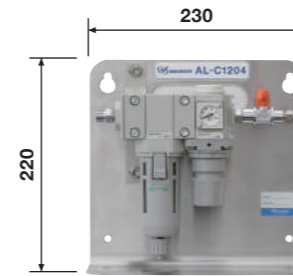
※ Power cable and Signal cable should be used as set.  
※ 8M motor cord cannot be used for angle cord type / 2M type.

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		
Compatible model	Air ON-OFF valve / Hose pipe (K-260) : 2m		

## E4000-PB

Box for control panel

※ Control panel is sold separately.



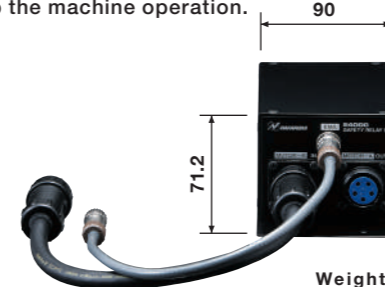
Weight:216g

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

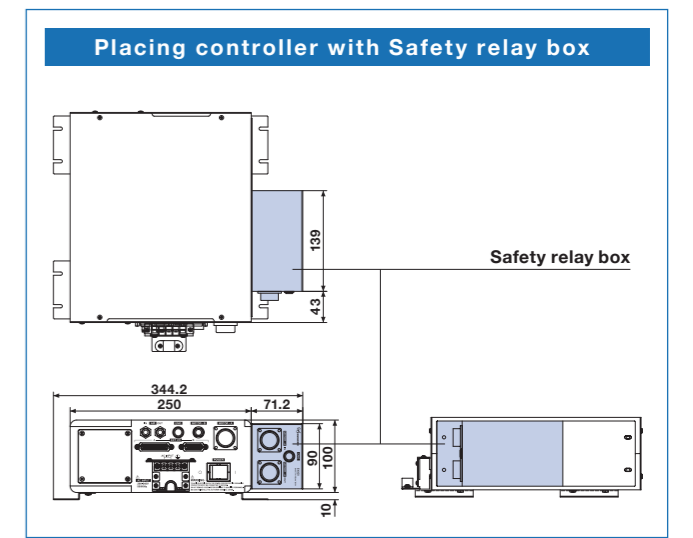
- Mounts directly on E4000 Controller
- Allows Emergency Stop Signal from the CNC to stop the E4000 Motor Spindle of the E4000 Controller to stop the machine operation.



Weight:850g

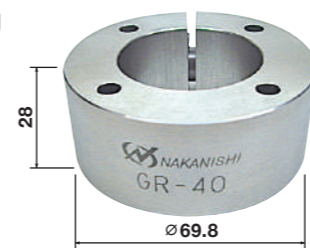
Standard Accessories	Power cord : 400mm Emergency stop cord : 400mm
----------------------	---

Code No.	8475	Model	E4000-SRB
----------	------	-------	-----------

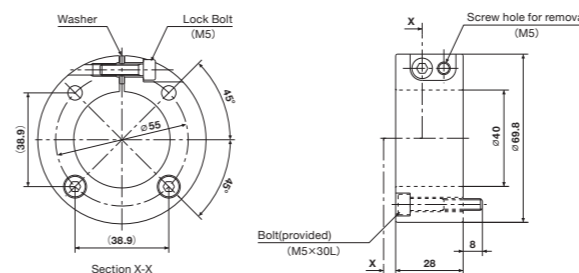


## GR-40

Grip Ring

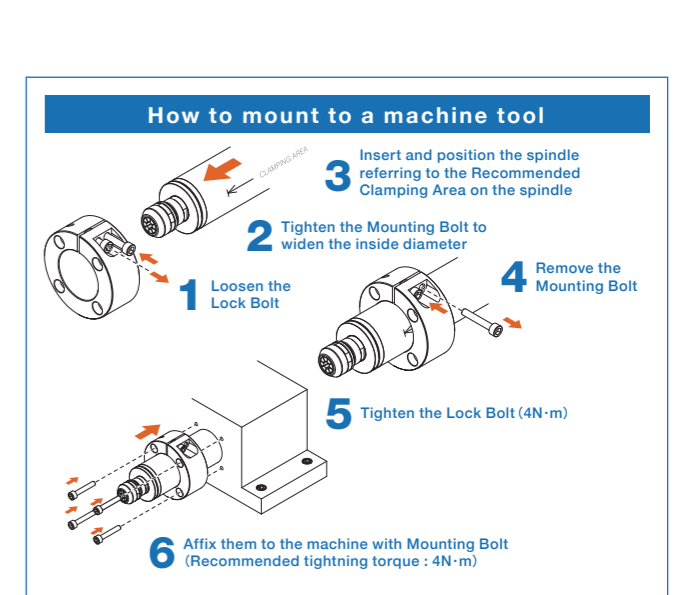


Weight:535g



Standard Accessories	Mounting Bolt (GR-40) M5 × 30 : 4pcs.
----------------------	---------------------------------------

Code No.	1886	Model	GR-40
----------	------	-------	-------



# Accessories (Collet, etc.)

Collet	Code No.	Model	I.D.	Compatible model	
<p>※CH16-10.0 Length 24.5 Collet CH16 Group</p>	<b>93130</b>	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	
	<b>93193</b>	CH16-3.175	ø3.175		
	<b>93140</b>	CH16-4.0	ø4.0		
	<b>93160</b>	CH16-6.0	ø6.0		
	<b>93196</b>	CH16-6.35	ø6.35		
	<b>93180</b>	CH16-8.0	ø8.0		
	<b>93100</b>	CH16-10.0	ø10		
	<b>93330</b>	CH16OH-3.0	ø3.0		
	<b>93331</b>	CH16OH-3.175	ø3.175		
	<b>93340</b>	CH16OH-4.0	ø4.0		
<p>※CH16OH-9.0, 10.0 Length 24.5 Collet CH16OH Group</p>	<b>93350</b>	CH16OH-5.0	ø5.0	BMS-4020-MQL BMS-4040-MQL BMS-4020-MQL-2M BMS-4040-MQL-2M	
	<b>93360</b>	CH16OH-6.0	ø6.0		
	<b>93363</b>	CH16OH-6.35	ø6.35		
	<b>93370</b>	CH16OH-7.0	ø7.0		
	<b>93380</b>	CH16OH-8.0	ø8.0		
	<b>93390</b>	CH16OH-9.0	ø9.0		
	<b>93400</b>	CH16OH-10.0	ø10.0		
	<b>91597</b>	CHK-3.0AA	ø3.0AA※		QC5-K (NRR4040-QC) QC5-K (NR4040-AQC)  ※ High precision type AA (Run-out Accuracy within 2 μm)
	<b>91598</b>	CHK-3.175AA	ø3.175AA※		
	<b>91599</b>	CHK-4.0AA	ø4.0AA※		
<b>91600</b>	CHK-6.0AA	ø6.0AA※			
<b>91601</b>	CHK-6.35AA	ø6.35AA※			
<b>91592</b>	CHK-2.35	ø2.35			
<b>91530</b>	CHK-3.0	ø3.0			
<b>91593</b>	CHK-3.175	ø3.175			
<b>91540</b>	CHK-4.0	ø4.0			
<b>91560</b>	CHK-6.0	ø6.0			
<p>ø1.0~ø6.35 Collet CHK Group</p>	<b>91596</b>	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		
	<b>93630</b>	CHK-OH-3.0	ø3.0		
	<b>93631</b>	CHK-OH-3.175	ø3.175		
	<b>93640</b>	CHK-OH-4.0	ø4.0		
	<b>93650</b>	CHK-OH-5.0	ø5.0		
<p>Collet CHK-OH Group</p>	<b>93660</b>	CHK-OH-6.0	ø6.0		
	<b>93663</b>	CHK-OH-6.35	ø6.35		
	<b>93640</b>	CHK-OH-4.0	ø4.0		
	<b>93650</b>	CHK-OH-5.0	ø5.0		

Collet nut	Code No.	Model	Description	Compatible model
	<b>2161</b>	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
	<b>2129</b>	K-265	Collet nut for CHK Collet	

Collet holder	Code No.	Model	Description	Compatible model
	<b>9216</b>	QC5-16	Collet holder for CH16 ※With CHN-16	NRR4040-QC NRR4040-AQC
	<b>9225</b>	QC5-16-R		
	<b>9215</b>	QC5-K	Collet holder for CHK ※With K-265	NRR4040-QC NRR4040-AQC
	<b>9224</b>	QC5-K-R		

Preset adapter	Code No.	Model	Description	Compatible model
	<b>9218</b>	QC5-16 ADP	Preset adapter	QC5-16
	<b>9217</b>	QC5-K ADP	Preset adapter	QC5-K

Adjuster Bolt	Code No.	Model	Description	Compatible model
	<b>7739</b>	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 Motors & Spindles



Application for CNC lathes / Special purpose machines

Application for machining centers and milling machines

### E4000 SERIES

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

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

### E3000 SERIES

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

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

### HES SERIES

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

### E2000 SERIES

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

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

### iSpeed3 SERIES

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

- Super short motor spindle
- High efficiency brushless motor

### [ HES810 ]

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

### [ HES510 ]

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

## Air Motors & Spindles



Application for CNC lathes / Special purpose machines

### Air-Speed SERIES One-piece type

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

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

### Air-Speed SERIES Modular type

Max.30,000min<sup>-1</sup> Max.130W  
[ ø30/25/22.8mm ]

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

## Air Turbine Spindles



Application for CNC lathes / Special purpose machines

Application for machining centers and milling machines

### Xpeed SERIES

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

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

### PLANET SERIES

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

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

### HTS SERIES

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

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