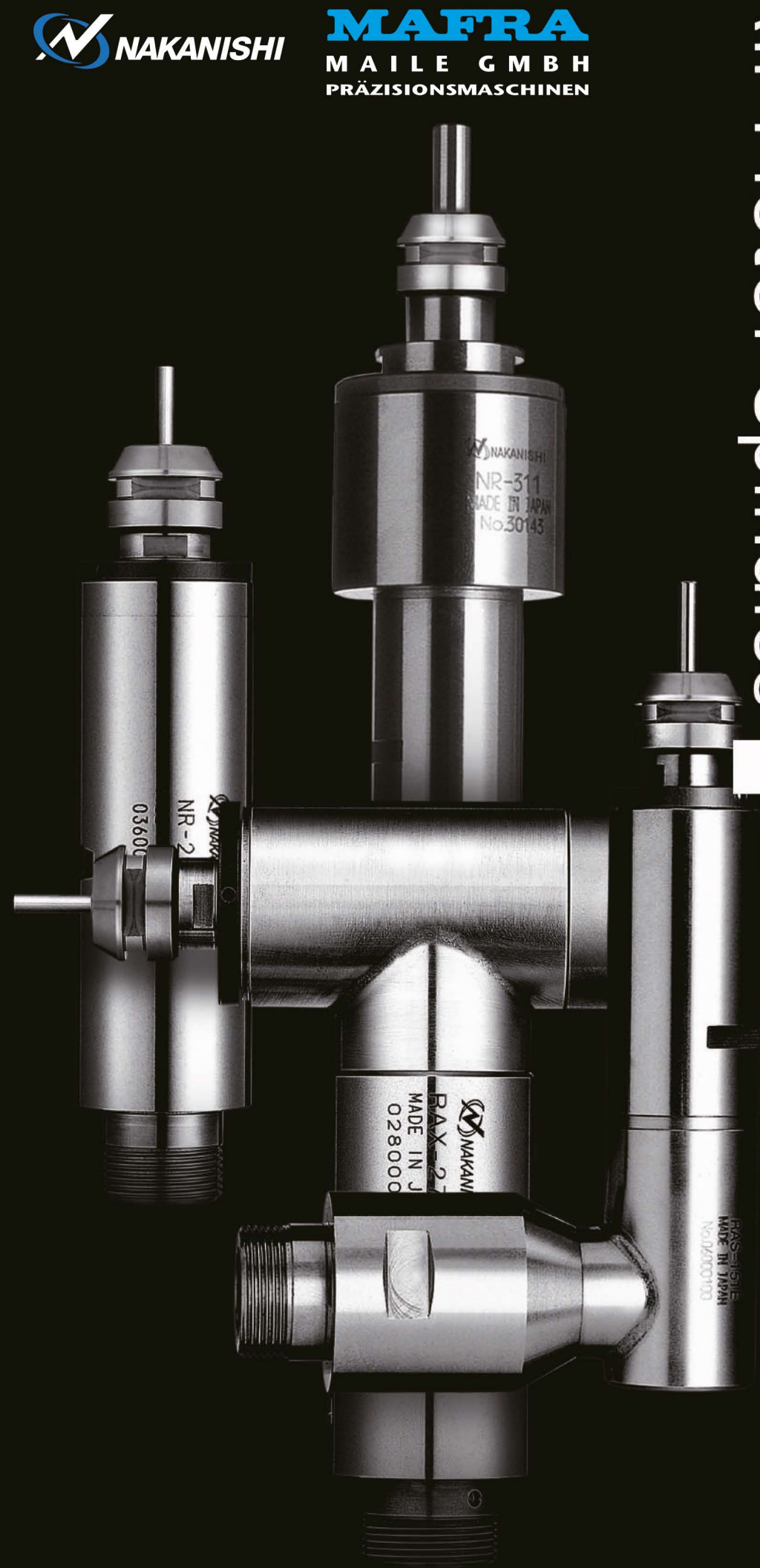


# Air Speed Air Motor Spindles



**MAFRA**  
MAILE GMBH  
PRÄZISIONSMASCHINEN

AirSpeed

NAKANISHI INC. 2022



**MAFRA**  
MAILE GMBH  
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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**  $\varnothing 25, \varnothing 23, \varnothing 20, \varnothing 19.05\text{mm}$

**Max.**  $30,000\text{min}^{-1}$

**Max. Power** **130W**



### Separate Type Spindle

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



**Outside Diameter**  $\varnothing 30, \varnothing 25, \varnothing 22.8\text{mm}$

**Max.**  $30,000\text{min}^{-1}$

**Max. Power** **130W**



**One Piece Type  $\phi 25, \phi 23, \phi 20, \phi 19.05\text{mm}$**

**● Air Motor**

Vane  
Rotor  
Cylinder  
Air Inlet Port  
Exhaust Air Port

24,000 / 6,000 / 1,500min<sup>-1</sup>  
Air Motor Spindle  
MSS-25 Series Straight type

22,000 / 5,500 / 1,400min<sup>-1</sup>  
Air Motor Spindle  
MSS-25 Series Angle type

30,000 / 7,700 / 2,000min<sup>-1</sup>  
Air Motor Spindle  
MSST-23 Series Straight type

27,000 / 7,200 / 1,900min<sup>-1</sup>  
Air Motor Spindle  
MSST-23 Series Angle type

30,000 / 8,000 / 2,000min<sup>-1</sup>  
Air Motor Spindle  
MSS-20 Series Straight type

30,000 / 8,000 / 2,000min<sup>-1</sup>  
Air Motor Spindle  
MSS-20 Series Angle type

30,000 / 8,000 / 2,000min<sup>-1</sup>  
Air Motor Spindle  
MSS-19 Series Straight type

30,000 / 8,000 / 2,000min<sup>-1</sup>  
Air Motor Spindle  
MSS-19 Series Angle type

Compressor

Air line kit  
AL-M1202 / AL-M1203BS2

Collet nut K-265  
Collet CHK Group  
 $\phi 0.5 - \phi 6.35\text{mm}$

Metal Saw Arbor KCH-03

Grindstone Arbor AGM-03

Collet nut CHN-A  
Collet CHA Group  
 $\phi 0.5 - \phi 4.0\text{mm}$

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

▼ AIR MOTOR SPINDLE (One Piece Type)

# Straight Spindle

COOLANT

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

**Max.** 30,000min<sup>-1</sup>

**Max. Power** 130W

**Spindle Accuracy : Within 2  $\mu\text{m}$**

**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

**● Outer Housing Material**  
Made from stainless steel (SUS416)

**● Configuration**  
2 Types available, Straight type & 90° Angle type.

**● Highest output power in the class**

**● 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.

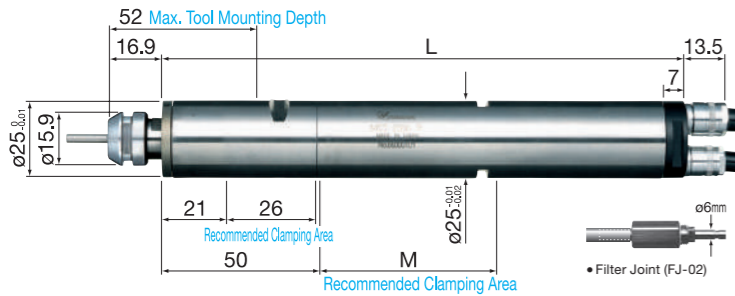
● Urethane hose of 6 x 4 for inlet air and 8 x 5 for exhaust air can be installed.

Quick Disconnect Joint Inlet Air  $\phi 6\text{mm}$   
Quick Disconnect Joint Exhaust Air  $\phi 8\text{mm}$   
Inlet Air Pipe Exhaust Air Pipe  
O Ring O Ring  
Set Screw for Inlet Air Pipe M5.5x0.5  
Set Screw for Exhaust Air Pipe M6x0.5

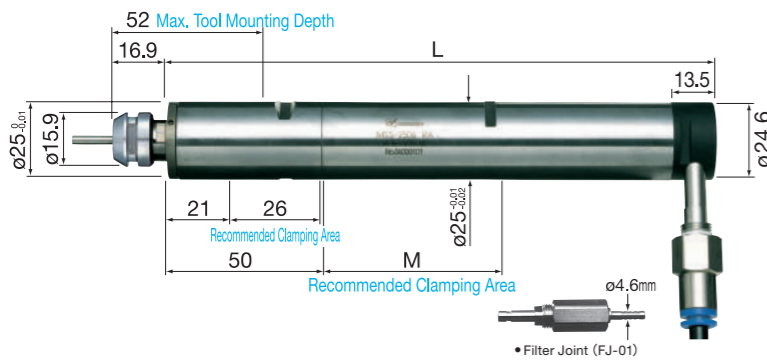
※ The motor speed of the 90° Angle type is 10% less than that of the straight type.

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

▼ MSS-25 Series STRAIGHT TYPE (R)



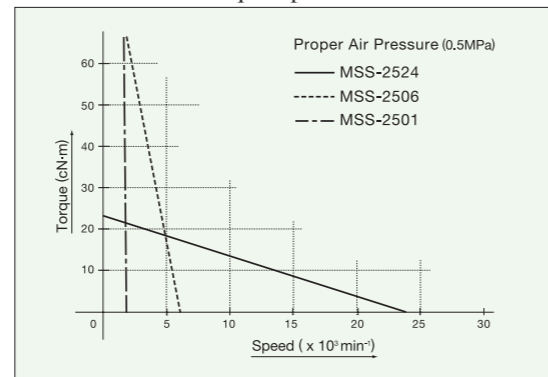
▼ MSS-25 Series 90° ANGLE TYPE (RA)



< 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<sup>-1</sup> (0.5MPa) / RA 22,000min<sup>-1</sup> (0.5MPa)

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

R 6,000min<sup>-1</sup> (0.5MPa) / RA 5,500min<sup>-1</sup> (0.5MPa) 1/4 Speed Reduction

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

R 1,500min<sup>-1</sup> (0.5MPa) / RA 1,400min<sup>-1</sup> (0.5MPa) 1/16 Speed Reduction

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

< 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 >

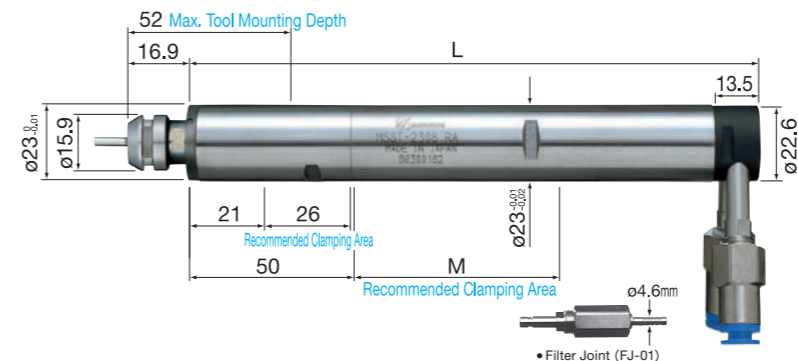
- Collet (CHK Group) : ø0.5~ø6.35mm See Page 30 for details
- Metal Saw Arbor (KCH-03) : ød (I.D.) x under ø30mm (O.D.)
- Grindstone Arbor (AGM-03) : Grindstone I.D. ø5.0mm
- ※ Refer to Page p.4 for mounting instructions for the 90° Angle Type.
- ※ Outside diameter ø25.4 mm type are also available.
-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

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

▼ MSST-23 Series STRAIGHT TYPE (R)



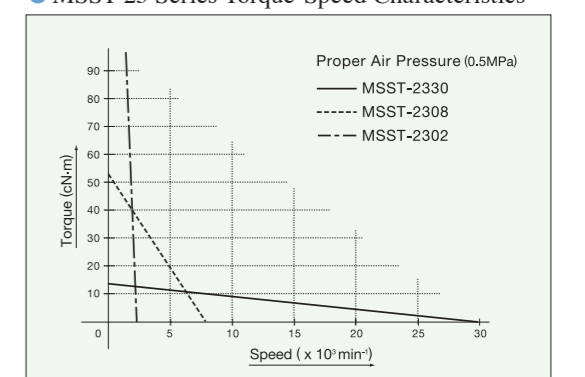
▼ MSST-23 Series 90° ANGLE TYPE (RA)



< 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<sup>-1</sup> (0.5MPa) / RA 27,000min<sup>-1</sup> (0.5MPa)

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

R 7,700min<sup>-1</sup> (0.5MPa) / RA 7,200min<sup>-1</sup> (0.5MPa) 1/4 Speed Reduction

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

R 2,000min<sup>-1</sup> (0.5MPa) / RA 1,900min<sup>-1</sup> (0.5MPa) 1/16 Speed Reduction

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

< 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)

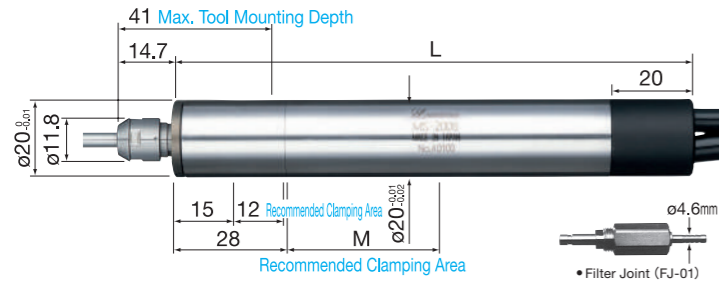
< Options >

- 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.

Air Motor Spindle  
**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)

▼ MSS-20 Series STRAIGHT TYPE (R)



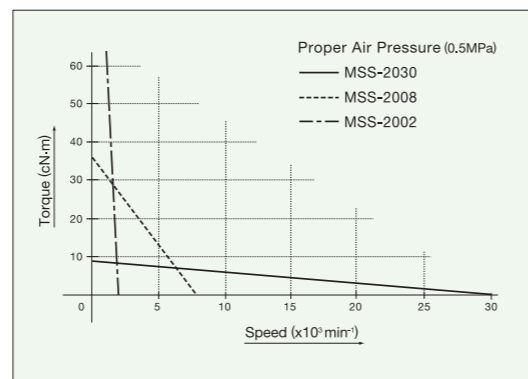
< Specifications >

Proper Air Pressure : 0.3~0.5MPa

Motor Hose (Diameter / Length)

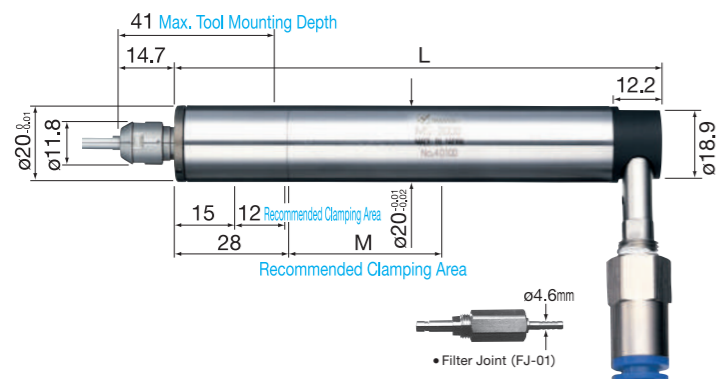
R-Type	Air Inlet	: ø3.7mm (I.D.) x ø5.7mm (O.D.) x 2m
	Exhaust Air	: ø5.0mm (I.D.) x ø6.5mm (O.D.) x 1m
RA-Type	Air Inlet	: ø4.0mm (I.D.) x ø6.0mm (O.D.) x 2m
	Exhaust Air	: ø6.0mm (I.D.) x ø8.0mm (O.D.) x 1m

● MSS-20 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.

▼ MSS-20 Series 90° ANGLE TYPE (RA)



30,000 min<sup>-1</sup> (0.5MPa)

Code No.	Model	Shape	Max. Torque	Weight	L	M	DXF-data
<b>7851</b>	MSS-2030R	Straight	9.2cN·m	190g	110.9mm	23mm	<a href="#">MSS-2030R DXF-data</a>
<b>7852</b>	MSS-2030RA	90° Angle		239g	103.1mm		<a href="#">MSS-2030RA DXF-data</a>

8,000 min<sup>-1</sup> (0.5MPa) 1/4 Speed Reduction

Code No.	Model	Shape	Max. Torque	Weight	L	M	DXF-data
<b>7828</b>	MSS-2008R	Straight	36cN·m	225g	126.8mm	39mm	<a href="#">MSS-2008R DXF-data</a>
<b>7829</b>	MSS-2008RA	90° Angle		274g	119.0mm		<a href="#">MSS-2008RA DXF-data</a>

2,000 min<sup>-1</sup> (0.5MPa) 1/16 Speed Reduction

Code No.	Model	Shape	Max. Torque	Weight	L	M	DXF-data
<b>7830</b>	MSS-2002R	Straight	141cN·m	241g	141.0mm	53mm	<a href="#">MSS-2002R DXF-data</a>
<b>7831</b>	MSS-2002RA	90° Angle		290g	133.2mm		<a href="#">MSS-2002RA DXF-data</a>

< Standard Accessories >

- 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)

< Options >

- Collet (CHA Group) : ø0.5~ø4.0mm [See Page 30 for details](#)
- ※ Refer to Page p.4 for mounting instructions for the 90° Angle Type.
- ※ Collet is sold separately.

Air Motor Spindle  
**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)

▼ MSS-19 Series STRAIGHT TYPE (R)



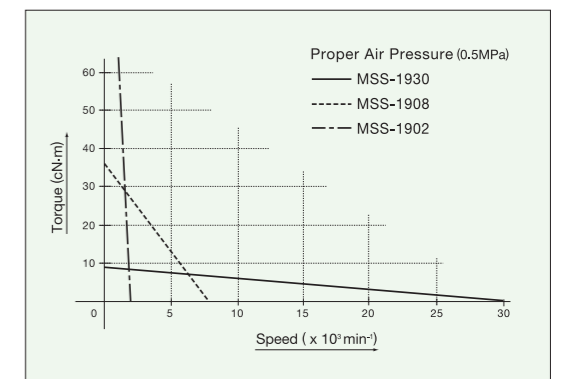
< Specifications >

Proper Air Pressure : 0.3~0.5MPa

Motor Hose (Diameter / Length)

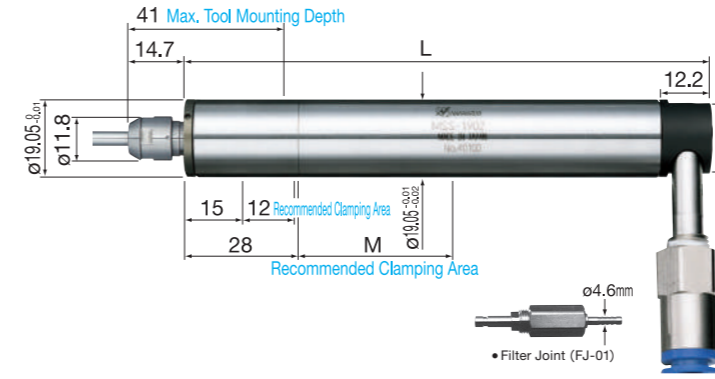
R-Type	Air Inlet	: ø3.7mm (I.D.) x ø5.7mm (O.D.) x 2m
	Exhaust Air	: ø5.0mm (I.D.) x ø6.5mm (O.D.) x 1m
RA-Type	Air Inlet	: ø4.0mm (I.D.) x ø6.0mm (O.D.) x 2m
	Exhaust Air	: ø6.0mm (I.D.) x ø8.0mm (O.D.) x 1m

● MSS-19 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.

▼ MSS-19 Series 90° ANGLE TYPE (RA)



30,000 min<sup>-1</sup> (0.5MPa)

Code No.	Model	Shape	Max. Torque	Weight	L	M	DXF-data
<b>7849</b>	MSS-1930R	Straight	9.2cN·m	171g	110.9mm	23mm	<a href="#">MSS-1930R DXF-data</a>
<b>7850</b>	MSS-1930RA	90° Angle		219g	103.1mm		<a href="#">MSS-1930RA DXF-data</a>

8,000 min<sup>-1</sup> (0.5MPa) 1/4 Speed Reduction

Code No.	Model	Shape	Max. Torque	Weight	L	M	DXF-data
<b>7824</b>	MSS-1908R	Straight	36cN·m	202g	126.8mm	39mm	<a href="#">MSS-1908R DXF-data</a>
<b>7825</b>	MSS-1908RA	90° Angle		250g	119.0mm		<a href="#">MSS-1908RA DXF-data</a>

2,000 min<sup>-1</sup> (0.5MPa) 1/16 Speed Reduction

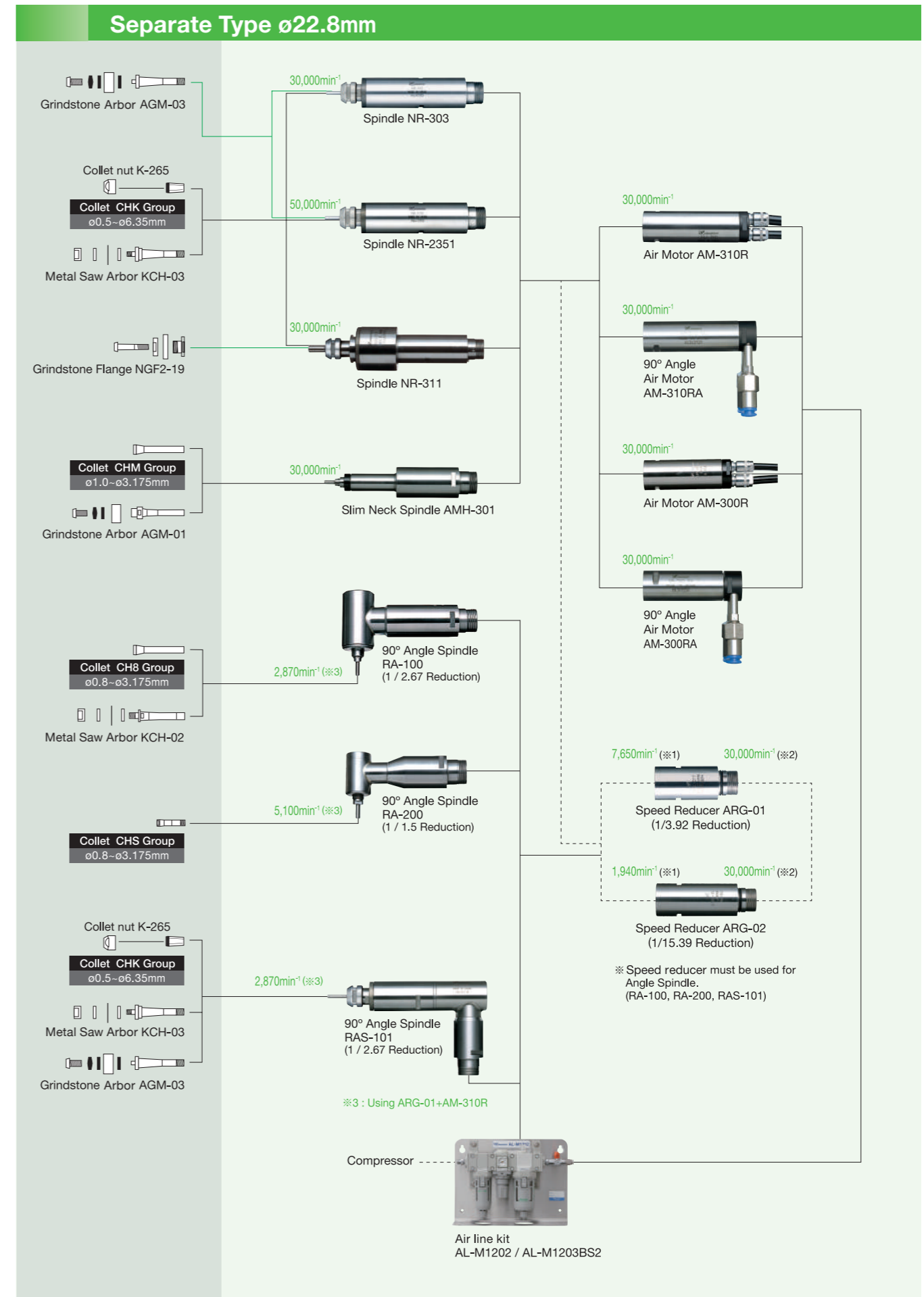
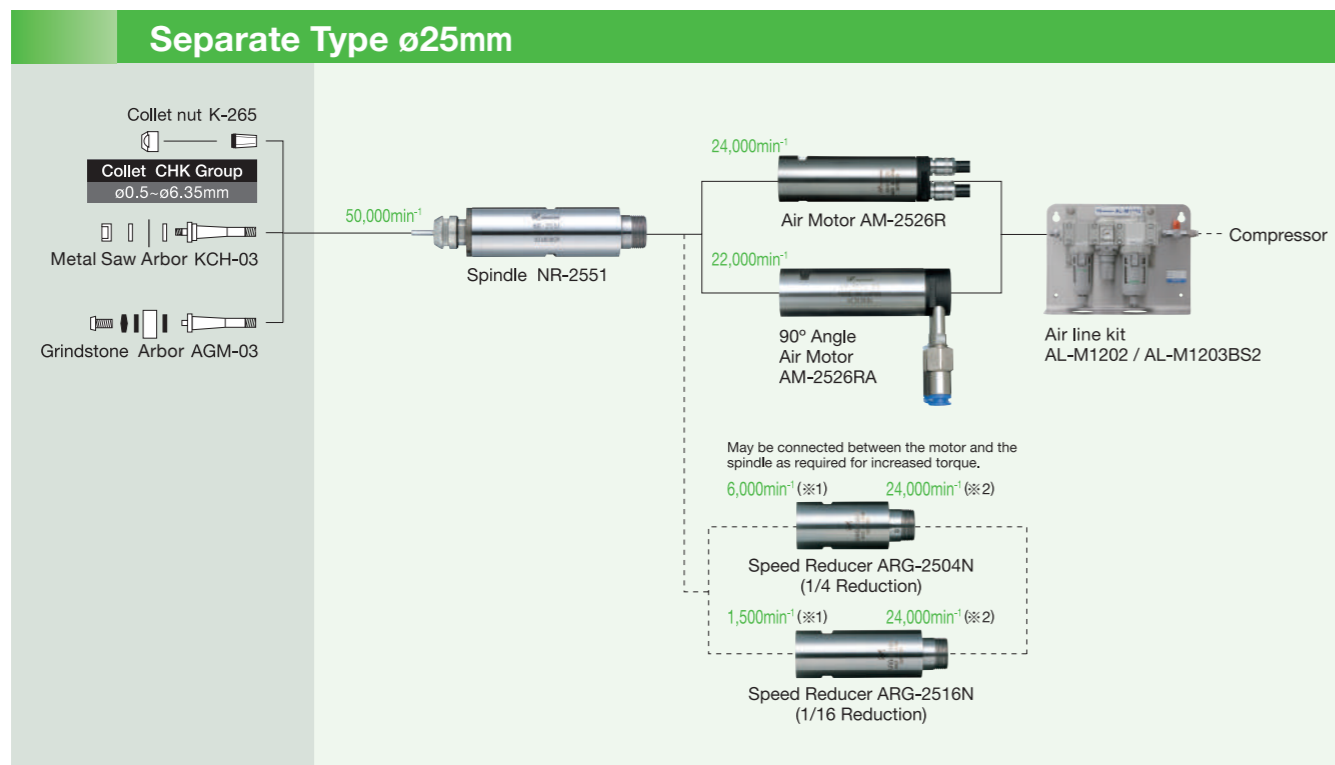
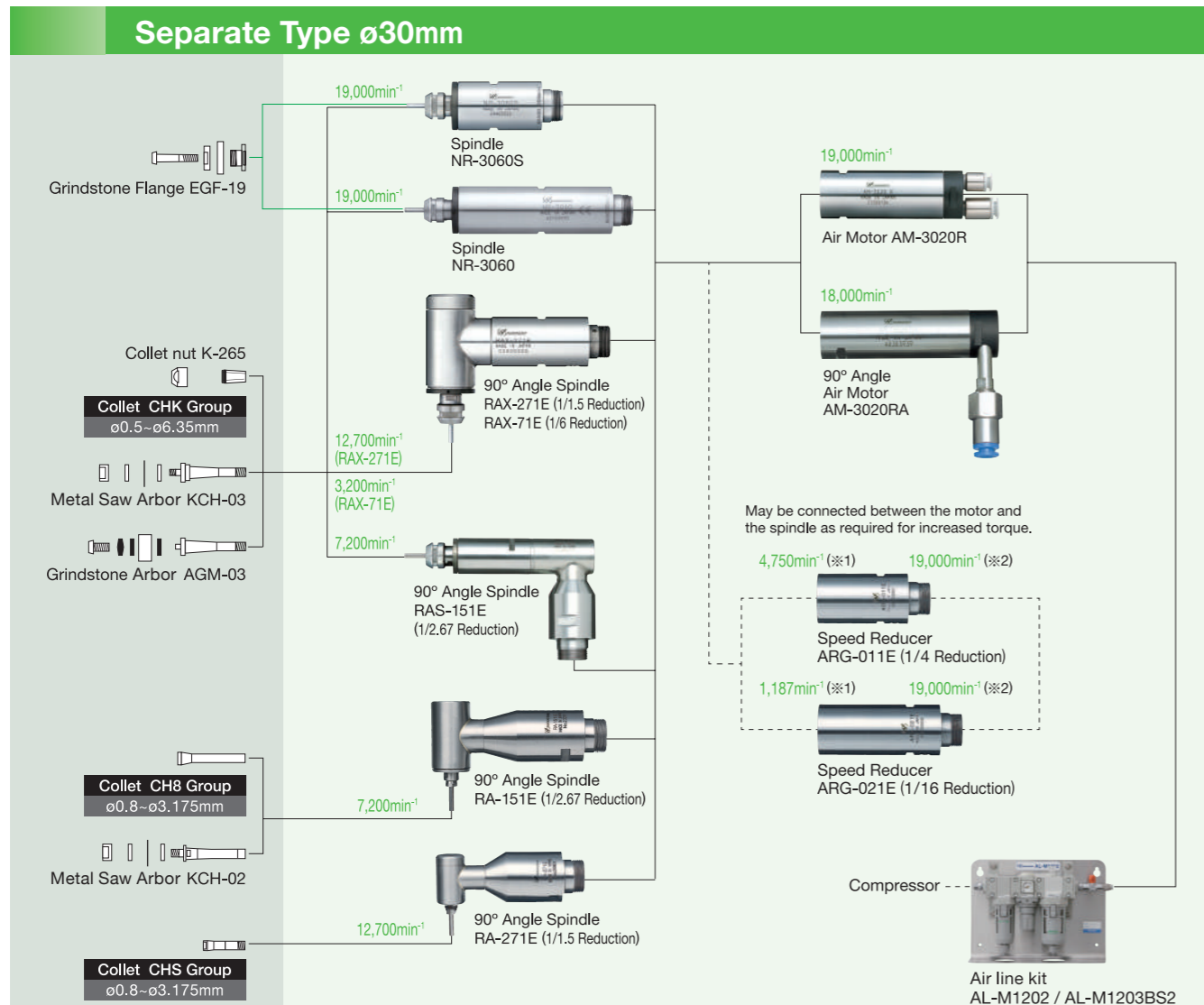
Code No.	Model	Shape	Max. Torque	Weight	L	M	DXF-data
<b>7826</b>	MSS-1902R	Straight	141cN·m	216g	141.0mm	53mm	<a href="#">MSS-1902R DXF-data</a>
<b>7827</b>	MSS-1902RA	90° Angle		264g	133.2mm		<a href="#">MSS-1902RA DXF-data</a>

< Standard Accessories >

- 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)

< Options >

- Collet (CHA Group) : ø0.5~ø4.0mm [See Page 30 for details](#)
- ※ Refer to Page p.4 for mounting instructions for the 90° Angle Type.
- ※ Collet is sold separately.



※ 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**  $\varnothing 30\text{mm}$

**Max.**  $19,000\text{min}^{-1}$  (Using 0.5MPa : AM-3020R)

**Max. Power** 130W

**Spindle Accuracy : Within 1  $\mu\text{m}$**

**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

**Straight Spindle NR-3060S**

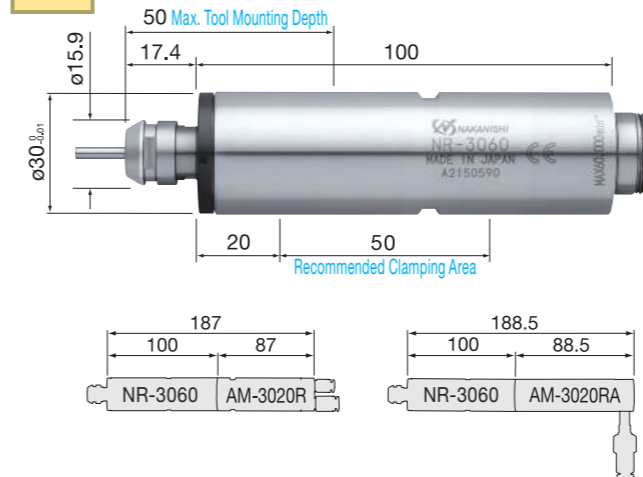
**Collet : Max.  $\varnothing 6.35\text{mm}$**   
Collet CHK-3.0  
OPTION → Refer to P.30  
※ Other collet sizes are available.

**AM-3020R Torque-Speed Characteristics**



Spindle < Ceramic Bearings > <b>NR-3060</b>	O.D.	Speed	Spindle Accuracy	Collet	Weight
	$\varnothing 30\text{mm}$	<b>19,000</b> $\text{min}^{-1}$ (Using AM-3020R)	Within <b>1 <math>\mu\text{m}</math></b>	<b><math>\varnothing 0.5 \sim \varnothing 6.35\text{mm}</math></b> (CHK Group)	<b>420g</b>

DXF-data



Code No. **7875** Model **NR-3060**

< Standard Accessories >

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

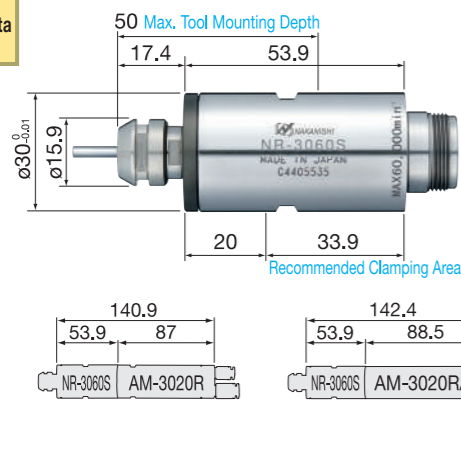
< Options >

- Collet (CHK Group) :  $\varnothing 0.5 \sim \varnothing 6.35\text{mm}$  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.  $\varnothing 5.0\text{mm}$
- Grindstone Flange (EGF-19) :  $\varnothing 19.05$  (I.D.) x  $\varnothing 40$  (O.D.) x 7 (W) mm

※ Collet is sold separately.

Spindle < Ceramic Bearings > <b>NR-3060S</b>	O.D.	Speed	Spindle Accuracy	Collet	Weight
	$\varnothing 30\text{mm}$	<b>19,000</b> $\text{min}^{-1}$ (Using AM-3020R)	Within <b>1 <math>\mu\text{m}</math></b>	<b><math>\varnothing 0.5 \sim \varnothing 6.35\text{mm}</math></b> (CHK Group)	<b>260g</b>

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) :  $\varnothing 0.5 \sim \varnothing 6.35\text{mm}$  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.  $\varnothing 5.0\text{mm}$
- Grindstone Flange (EGF-19) :  $\varnothing 19.05$  (I.D.) x  $\varnothing 40$  (O.D.) x 7 (W) mm

※ Collet is sold separately.

Please maintain not to exceed speed limit.

▼ AIR MOTOR & SPINDLE (Separate Type)

# Angle Spindle

**Outside Diameter**  $\phi 30\text{mm}$

**Max.**  $12,700\text{min}^{-1}$  (Rotating speed at the cutting tool) (Using 0.5MPa : AM-3020R)

**Max. Power**  $130\text{W}$

**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.  $\phi 6.35\text{mm}$

Collet CHK-3.0

**OPTION** → Refer to P.30

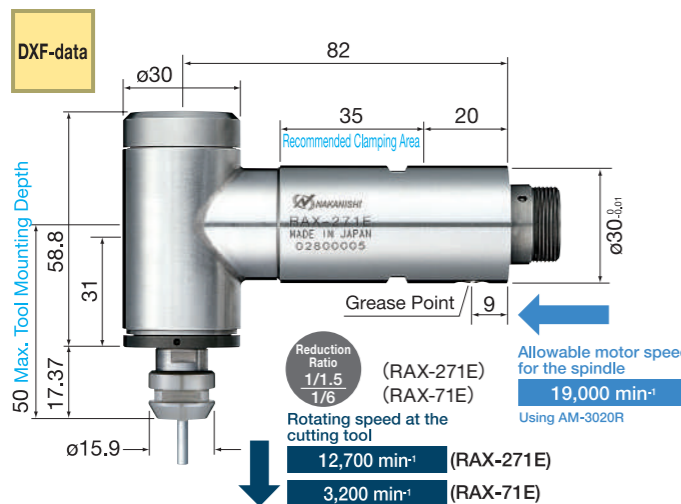
※ Other collet sizes are available.

**Angle Spindle Select Sheet**

Model	RAX-271E	RAX-71E	RAS-151E	RA-151E	RA-271E
Angle Head Size O.D.	$\phi 30\text{mm}$	$\phi 30\text{mm}$	$\phi 23\text{mm}$	$\phi 22.8\text{mm}$	$\phi 17.4\text{mm}$
Rotating speed at the cutting tool <sup>※1</sup>	$12,700\text{min}^{-1}$	$3,200\text{min}^{-1}$	$7,200\text{min}^{-1}$	$7,200\text{min}^{-1}$	$12,700\text{min}^{-1}$
Using Tools	$\phi 0.5\sim\phi 6.35\text{mm}$		$\phi 0.8\sim\phi 3.175\text{mm}$		

※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
<b>RAX-271E</b>	$\phi 30\text{mm}$	$12,700\text{min}^{-1}$ ※	$\frac{1}{1.5}$	$19,000\text{min}^{-1}$ (Using AM-3020R)	Within $2\mu\text{m}$	$\phi 0.5\sim\phi 6.35\text{mm}$ (CHK Group)	<b>580g</b>
<b>RAX-71E</b>	$\phi 30\text{mm}$	$3,200\text{min}^{-1}$ ※	$\frac{1}{6}$	$19,000\text{min}^{-1}$ (Using AM-3020R)	Within $2\mu\text{m}$	$\phi 0.5\sim\phi 6.35\text{mm}$ (CHK Group)	<b>580g</b>



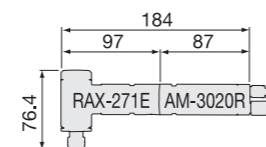
※ Maximum rotating speed at the cutting tool for the reduction ratio.

Code No.	<b>7856</b>	Model	<b>RAX-271E</b>
Code No.	<b>7857</b>	Model	<b>RAX-71E</b>

- < Standard Accessories >
- Collet Nut (K-265) • Wrench (12 x 14) : 2pcs., (22 x 27) : 1pc.
  - Grease for speed reducer (10m $\ell$ ) • Grease Nipple : 1pc.

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

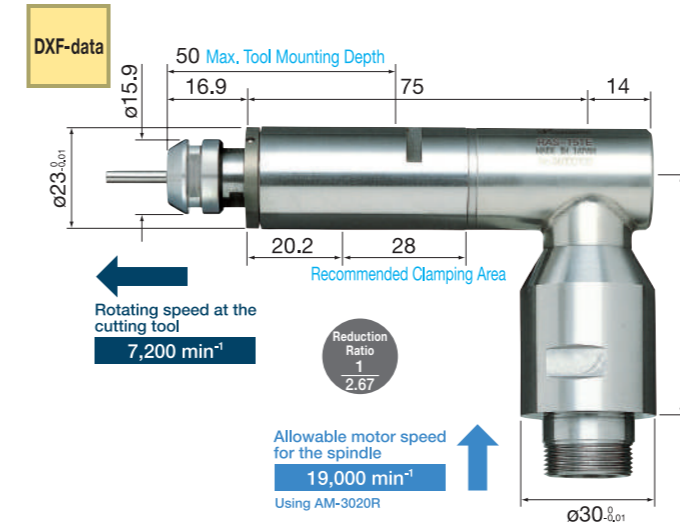
※ Collet is sold separately.



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
<b>RAS-151E</b>	$\phi 30\text{mm}$	$7,200\text{min}^{-1}$ ※	$\frac{1}{2.67}$	$19,000\text{min}^{-1}$ (Using AM-3020R)	Within $2\mu\text{m}$	$\phi 0.5\sim\phi 6.35\text{mm}$ (CHK Group)	<b>413g</b>

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



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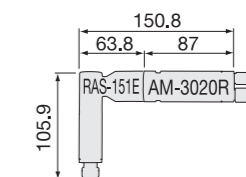
< Standard Accessories >

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

< Options >

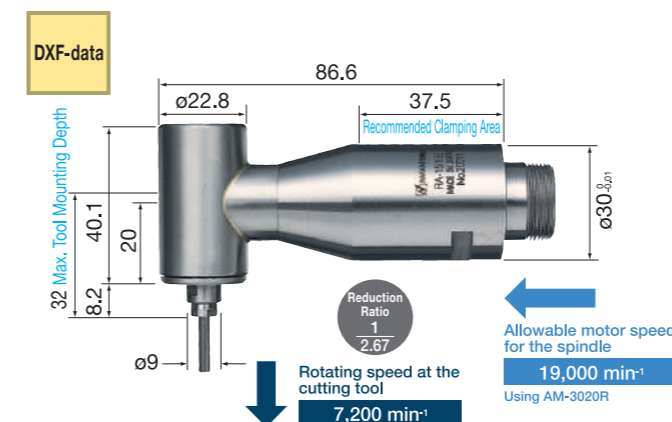
Collet (CHK Group) :  $\phi 0.5\sim\phi 6.35\text{mm}$  See Page 30 for details

※ 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
<b>RA-151E</b>	$\phi 30\text{mm}$	$7,200\text{min}^{-1}$ ※	$\frac{1}{2.67}$	$19,000\text{min}^{-1}$ (Using AM-3020R)	$\phi 0.8\sim\phi 3.175\text{mm}$ (CH8 Group)	<b>385g</b>

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



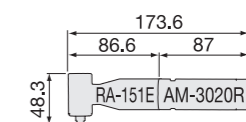
Code No.	<b>1505</b>	Model	<b>RA-151E</b>
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< Standard Accessories >

- Collet :  $\phi 3.0\text{mm}$  (CH8-3.0)
- Wrench (7 x 5.5), (8 x 5), (22 x 27) : 1pc. each

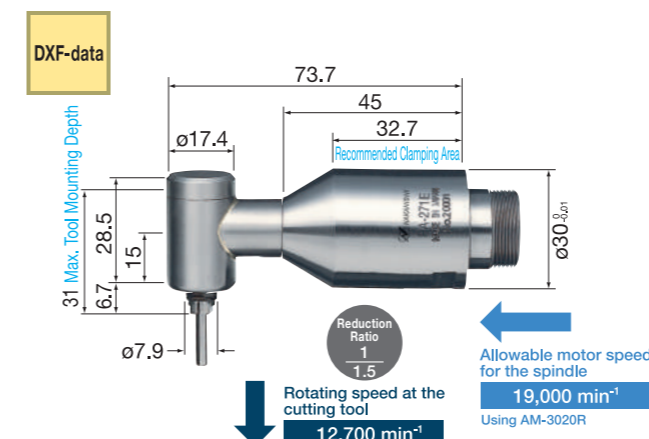
< Options >

Collet (CH8 Group) :  $\phi 0.8\sim\phi 3.175\text{mm}$  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
<b>RA-271E</b>	$\phi 30\text{mm}$	$12,700\text{min}^{-1}$ ※	$\frac{1}{1.5}$	$19,000\text{min}^{-1}$ (Using AM-3020R)	$\phi 0.8\sim\phi 3.175\text{mm}$ (CHS Group)	<b>240g</b>

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



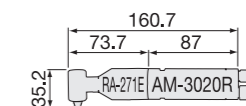
Code No.	<b>1506</b>	Model	<b>RA-271E</b>
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< Standard Accessories >


- Collet :  $\phi 3.0\text{mm}$  (CHS-3.0)
- Wrench (7 x 5.1), (8 x 5), (22 x 27) : 1pc. each

< Options >

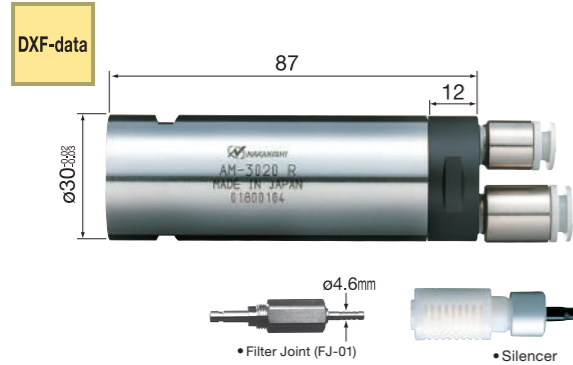
Collet (CHS Group) :  $\phi 0.8\sim\phi 3.175\text{mm}$  See Page 30 for details





 Please maintain not to exceed speed limit.

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



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

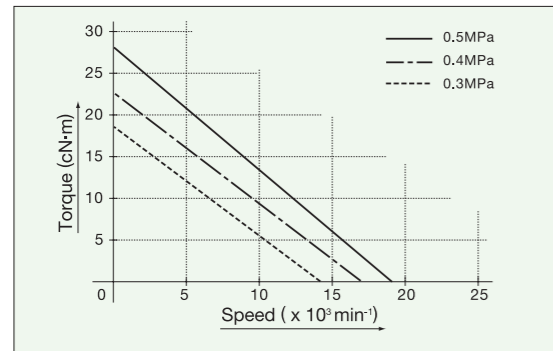
< Specifications >

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

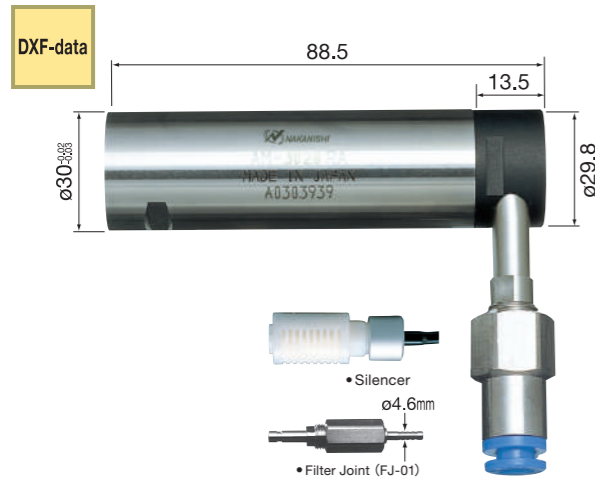
< Standard Accessories >

• 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
<b>AM-3020RA</b>	ø30mm	<b>18,000</b> min <sup>-1</sup> (0.5MPa)	<b>125</b> W	<b>0.3~0.5</b> MPa	<b>175</b> Nℓ/min	<b>339</b> g (w/o hose)



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

< Specifications >

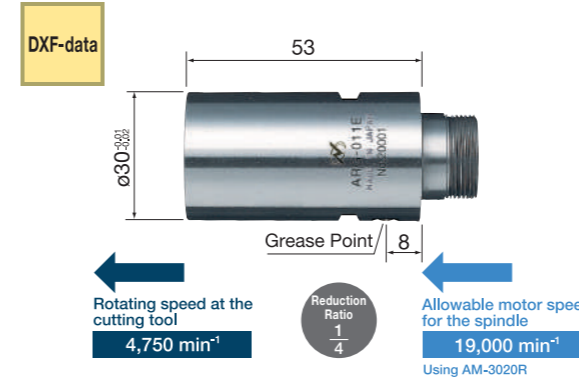
Motor Hose (Diameter / Length)  
Air Inlet : ø4.0mm (I.D.) x ø6.0mm (O.D.) x 2m  
Exhaust Air : ø6.0mm (I.D.) x ø8.0mm (O.D.) x 1m

< 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
<b>ARG-011E</b>	ø30mm	<b>4,750</b> min <sup>-1</sup> *	<b>1/4</b>	<b>19,000</b> min <sup>-1</sup> (Using AM-3020R)	<b>242</b> g

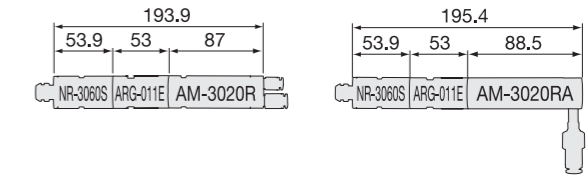
※ Maximum rotating speed at the cutting tool for the reduction ratio.



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

< Standard Accessories >

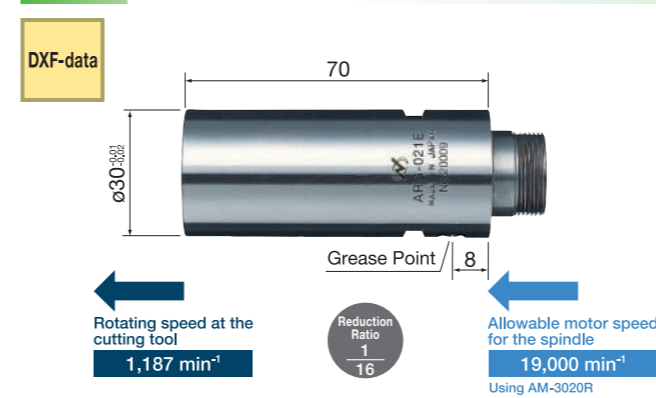
• Grease for speed reducer (10mℓ) • Grease Nipple : 1pc.



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
<b>ARG-021E</b>	ø30mm	<b>1,187</b> min <sup>-1</sup> *	<b>1/16</b>	<b>19,000</b> min <sup>-1</sup> (Using AM-3020R)	<b>325</b> g

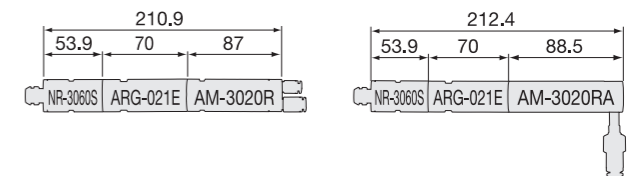
※ Maximum rotating speed at the cutting tool for the reduction ratio.



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  $\mu\text{m}$**

**90° Angle Type Air Motor is available**

**Air Motor AM-2526R** → Refer to P.18

**Straight Spindle NR-2551**

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

Collet CHK-3.0 → Refer to P.30

Air line kit AL-M1202 → Refer to P.29

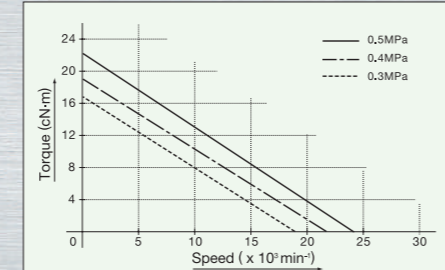
OPTION → Refer to P.30

OPTION → Refer to P.29

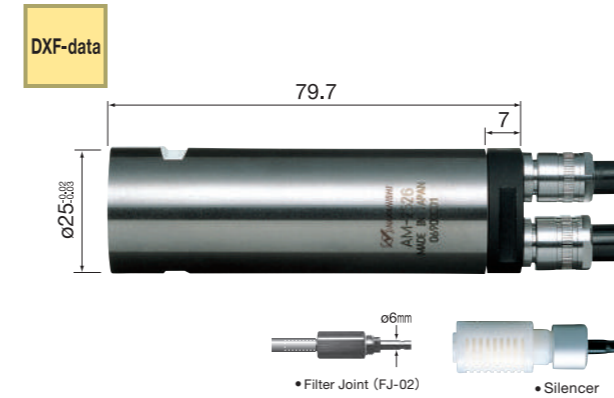
※ Other collet sizes are available.

COOLANT

AM-2526R Torque-Speed Characteristics



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



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

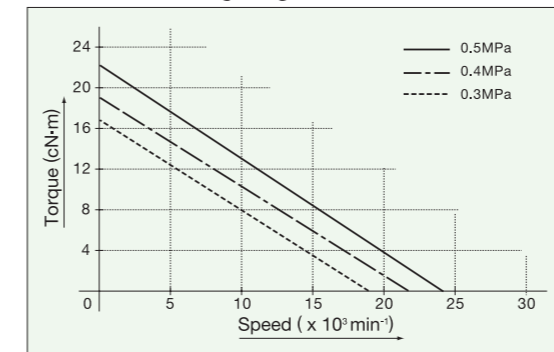
Exhaust Air :  $\varnothing 5.5\text{mm}$  (I.D.) x  $\varnothing 7.5\text{mm}$  (O.D.) x 1m

< Standard Accessories >

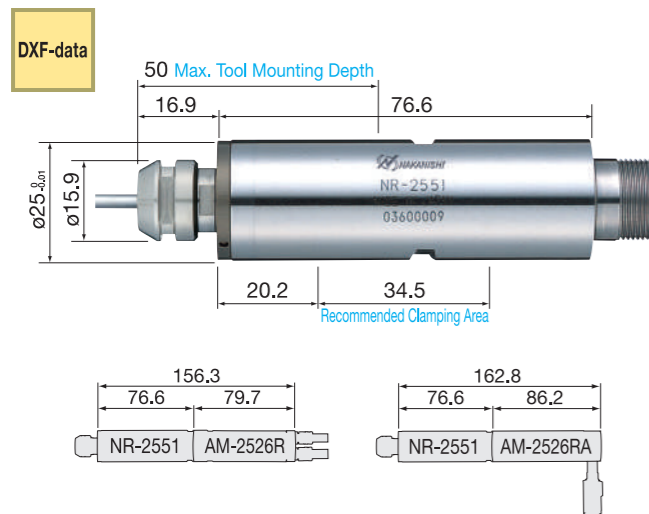
- Hose (K-204) : 2m • Filter Joint (FJ-02) • Silencer (K-208)
- Wrench (22 x 27) : 1pc.

※ 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
<b>NR-2551</b>	$\varnothing 25\text{mm}$	<b>50,000</b> $\text{min}^{-1}$	Within <b>1 <math>\mu\text{m}</math></b>	<b><math>\varnothing 0.5\sim\varnothing 6.35\text{mm}</math></b> (CHK Group)	<b>253g</b>



Code No. **7853** Model **NR-2551**

< Standard Accessories >

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

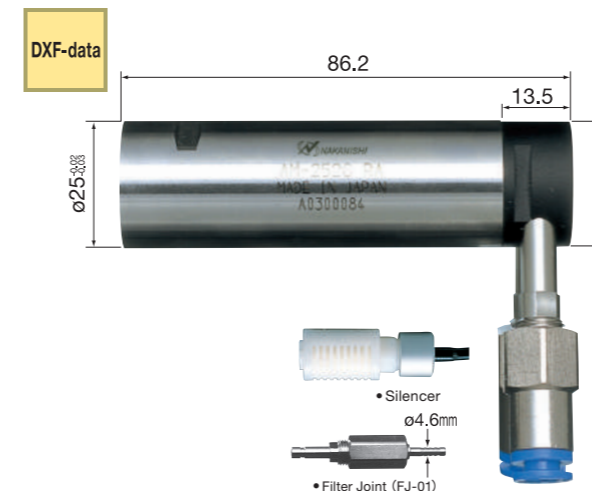
< Options >

- Collet (CHK Group) :  $\varnothing 0.5\sim\varnothing 6.35\text{mm}$  See Page 30 for details
- Metal Saw Arbor (KCH-03) :  $\varnothing$  (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
<b>AM-2526RA</b>	$\varnothing 25\text{mm}$	<b>22,000</b> $\text{min}^{-1}$ (0.5MPa)	<b>120W</b>	<b>0.3~0.5MPa</b>	<b>170</b> $\text{N}\ell/\text{min}$	<b>241g</b> (w/o hose)



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
<b>ARG-2504N</b>	ø25mm	<b>6,000</b> min <sup>-1</sup> *	<b>1/4</b>	<b>24,000</b> min <sup>-1</sup> (Using AM-2526R)	<b>150</b> g

\* Maximum rotating speed at the cutting tool for the reduction ratio.

**DXF-data**



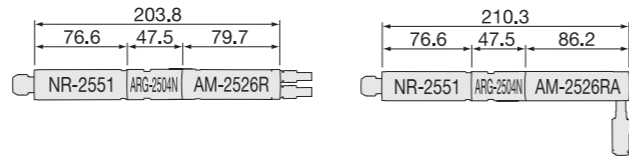
Rotating speed at the cutting tool  
**6,000** min<sup>-1</sup>

Reduction Ratio  
**1/4**

Allowable motor speed for the spindle  
**24,000** min<sup>-1</sup>  
Using AM-2526R

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
<b>ARG-2516N</b>	ø25mm	<b>1,500</b> min <sup>-1</sup> *	<b>1/16</b>	<b>24,000</b> min <sup>-1</sup> (Using AM-2526R)	<b>205</b> g

\* Maximum rotating speed at the cutting tool for the reduction ratio.

**DXF-data**



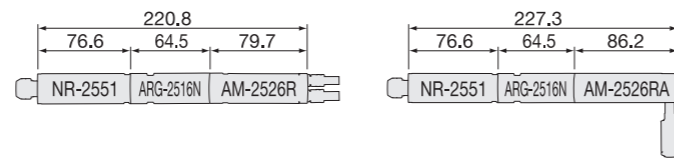
Rotating speed at the cutting tool  
**1,500** min<sup>-1</sup>

Reduction Ratio  
**1/16**

Allowable motor speed for the spindle  
**24,000** min<sup>-1</sup>  
Using AM-2526R

Code No. **1824** Model **ARG-2516N**

\* Outside diameter ø25.4mm type is also available.



▼ AIR MOTOR & SPINDLE (Separate Type)

# Straight Spindle

**Outside Diameter**  $\varnothing 22.8\text{mm}$

**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**

**OPTION** → Refer to P.29

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

Collet CHK-3.0  
**OPTION** → Refer to P.30

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

**AM-310R Torque-Speed Characteristics**

Proper Air Pressure  
— 0.5MPa  
- - - 0.4MPa  
... 0.3MPa

Spindle **NR-303**

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

**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) :  $\varnothing 0.5\sim\varnothing 6.35\text{mm}$  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.  $\varnothing 5.0\text{mm}$

※ Collet is sold separately.

Spindle < Ceramic Bearings > **NR-2351**

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

**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) :  $\varnothing 0.5\sim\varnothing 6.35\text{mm}$  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.  $\varnothing 5.0\text{mm}$

※ Allowable Motor Speed :  $50,000\text{min}^{-1}$   
※ Collet is sold separately.

Spindle **NR-311**

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

**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) :  $\varnothing 0.5\sim\varnothing 6.35\text{mm}$  See Page 30 for details
- Metal Saw Arbor (KCH-03) :  $\varnothing d$  (I.D.) x under  $\varnothing 30\text{mm}$  (O.D.)
- Grindstone Flange (NGF2-19) :  $\varnothing 19.05$  (I.D.) x  $\varnothing 40$  (O.D.) x 7 (W)mm

※ Collet is sold separately.

Spindle **AMH-301**

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

**DXF-data**

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

< Standard Accessories >

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

< Options >

- Collet (CHM Group) :  $\varnothing 1.0\sim\varnothing 3.175\text{mm}$  See Page 30 for details
- Grindstone Arbor (AGM-01) : Grindstone I.D.  $\varnothing 5.0\text{mm}$

Please maintain not to exceed speed limit.

▼ AIR MOTOR & SPINDLE (Separate Type)

# Angle Spindle

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

**Max.**  $2,870\text{min}^{-1}$  Rotating speed at the cutting tool (Using 0.5MPa : ARG-01+AM-300R)

**Max. Power**  $57\text{W}$  (Using AM-300R)

**Air Motor** AM-300R → Refer to P.26

**90° Angle Spindle** RA-100

**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.  $\phi 3.175\text{mm}$**

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.	$\phi 22.8\text{mm}$	$\phi 17.4\text{mm}$	$\phi 22.8\text{mm}$
Rotating speed at the cutting tool <sup>※1</sup>	$2,870\text{min}^{-1}$	$5,100\text{min}^{-1}$	$2,870\text{min}^{-1}$
Using Tools	$\phi 0.8\sim\phi 3.175\text{mm}$	$\phi 0.5\sim\phi 6.35\text{mm}$	

※ 1 Using ARG-01+AM-300R ※ 2 Using ARG-01+AM-310R  
※ Please maintain not to exceed speed limit.

90° Angle Spindle

RA-100	O.D.	Rotating speed at the cutting tool	Reduction Ratio	Allowable motor speed for the spindle	Collet	Weight
$\phi 22.8\text{mm}$	$2,870\text{min}^{-1}$	$\frac{1}{2.67}$	$7,650\text{min}^{-1}$	$\phi 0.8\sim\phi 3.175\text{mm}$	271g	

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

**DXF-data**

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

< Standard Accessories >

- Collet :  $\phi 3.0\text{mm}$  (CH8-3.0)
- Wrench (7 x 5.5), (8 x 5), (20 x 24) : 1pc. each

< Options >

- Collet (CH8 Group) :  $\phi 0.8\sim\phi 3.175\text{mm}$  See Page 30 for details
- Metal Saw Arbor (KCH-02) :  $\phi d$  (I.D.) x under  $\phi 30\text{mm}$  (O.D.)

90° Angle Spindle

RA-200	O.D.	Rotating speed at the cutting tool	Reduction Ratio	Allowable motor speed for the spindle	Collet	Weight
$\phi 22.8\text{mm}$	$5,100\text{min}^{-1}$	$\frac{1}{1.5}$	$7,650\text{min}^{-1}$	$\phi 0.8\sim\phi 3.175\text{mm}$	165g	

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

**DXF-data**

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

< Standard Accessories >

- Collet :  $\phi 3.0\text{mm}$  (CHS-3.0)
- Wrench (7 x 5.1), (8 x 5), (20 x 24) : 1pc. each

< Options >

- Collet (CHS Group) :  $\phi 0.8\sim\phi 3.175\text{mm}$  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
$\phi 22.8\text{mm}$	$2,870\text{min}^{-1}$	$\frac{1}{2.67}$	$7,650\text{min}^{-1}$	Within $2\mu\text{m}$	$\phi 0.5\sim\phi 6.35\text{mm}$	325g	

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

**DXF-data**

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

< Standard Accessories >

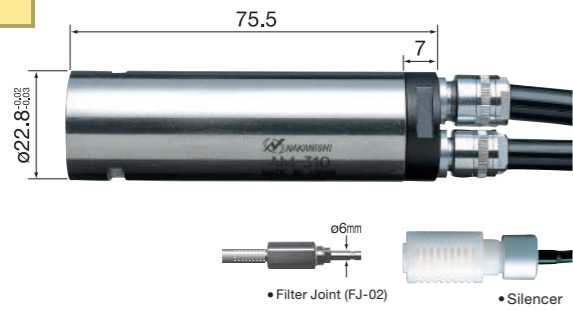
- Collet Nut (K-265)
- Wrench (12 x 14) : 2pcs., (20 x 24) : 1pc.

< Options >

- Collet (CHK Group) :  $\phi 0.5\sim\phi 6.35\text{mm}$  See Page 30 for details
- ※ Collet is sold separately.

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

DXF-data



Code No. **1079** Model **AM-310R**

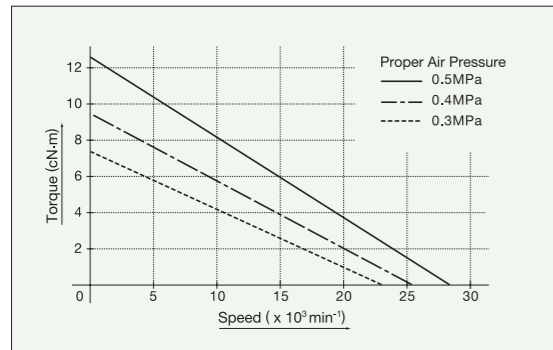
< Specifications >

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 >

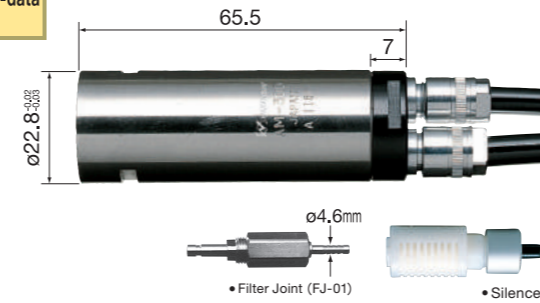
- Hose (K-204) : 2m • Filter Joint (FJ-02) • Silencer (K-208)
- Wrench (20 x 24) : 1pc.

● AM-310R Torque-Speed Characteristics



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

DXF-data



Code No. **1021** Model **AM-300R**

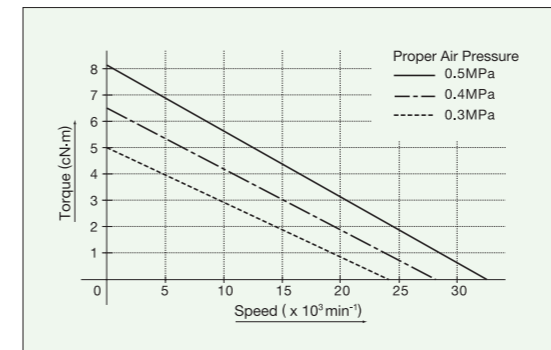
< Specifications >

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
<b>AM-310RA</b>	ø22.8mm	30,000min <sup>-1</sup> (0.5MPa)	108W	0.3~0.5MPa	170Nℓ/min	244g (w/o hose)

DXF-data



Code No. **1081** Model **AM-310RA**

< 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.

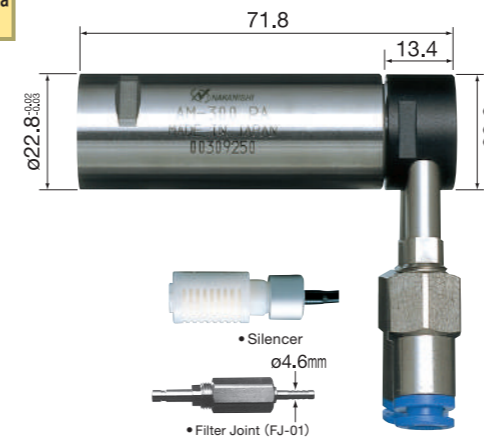
Air line kit  
AL-M1202

OPTION → Refer to P.29



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

DXF-data



Code No. **1018** Model **AM-300RA**

< 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

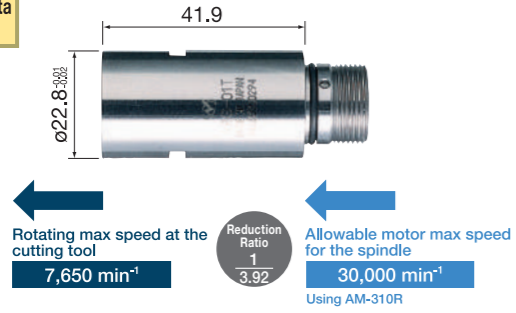


 Please maintain not to exceed speed limit.

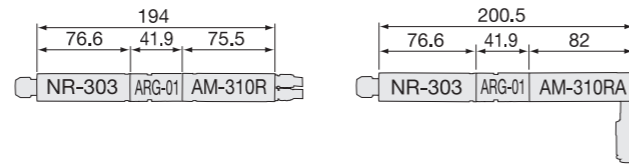
Speed Reducer (1/3.92)	O.D.	Rotating Max. speed at the cutting tool	Reduction Ratio	Allowable motor Max. speed for the spindle	Weight
<b>ARG-01</b>	ø22.8mm	<b>7,650</b> min <sup>-1</sup> * (0.5MPa)	$\frac{1}{3.92}$	<b>30,000</b> min <sup>-1</sup> (Using AM-310R)	<b>108g</b>

\* Maximum rotating speed at the cutting tool for the reduction ratio.

DXF-data



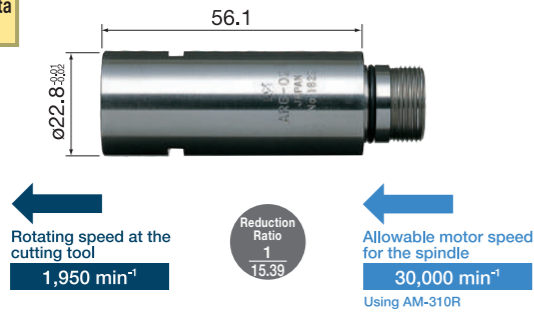
Code No. **1022** Model **ARG-01**



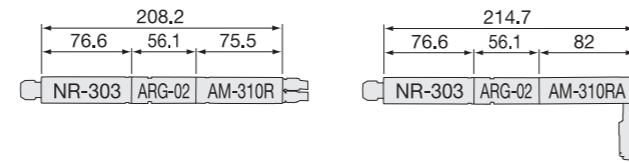
Speed Reducer (1/15.39)	O.D.	Rotating speed at the cutting tool	Reduction Ratio	Allowable motor speed for the spindle	Weight
<b>ARG-02</b>	ø22.8mm	<b>1,950</b> min <sup>-1</sup> * (0.5MPa)	$\frac{1}{15.39}$	<b>30,000</b> min <sup>-1</sup> (Using AM-310R)	<b>148g</b>

\* Maximum rotating speed at the cutting tool for the reduction ratio.

DXF-data



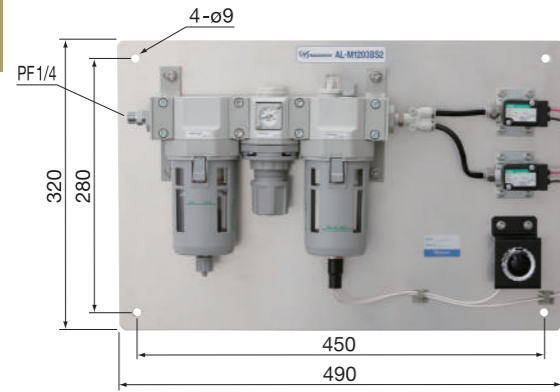
Code No. **1023** Model **ARG-02**



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**

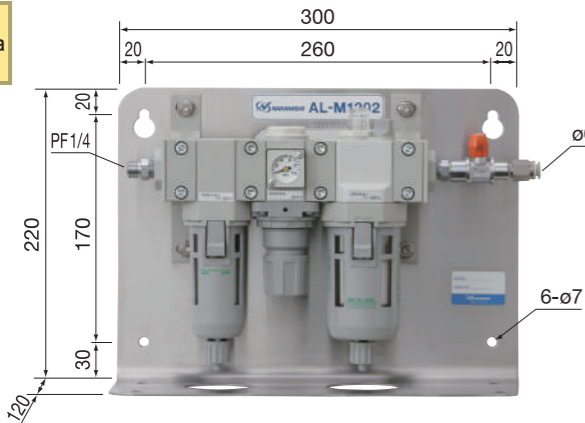
< Standard Accessories >

• 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 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**

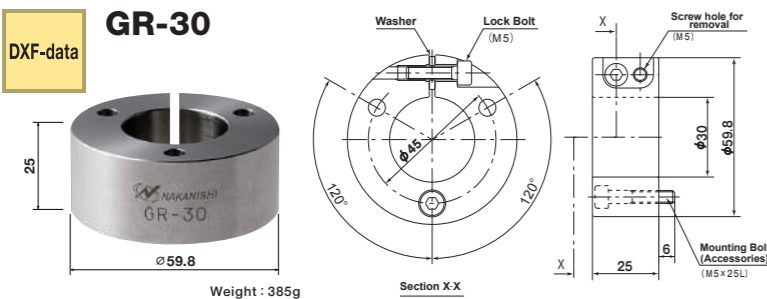
< Standard Accessories >

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

Grip Ring

### GR-30 / GR-22.8

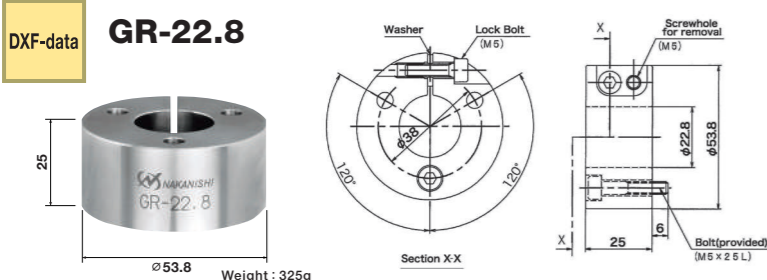
DXF-data



Weight : 385g

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

DXF-data

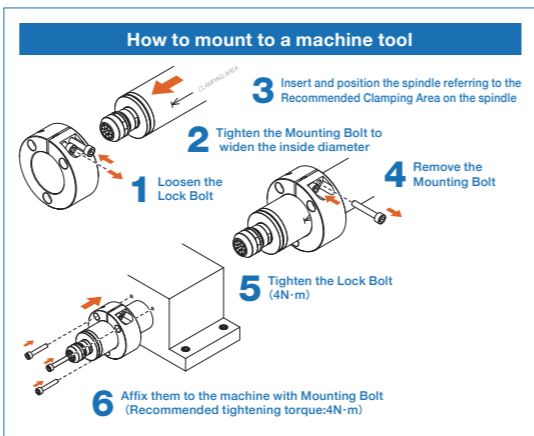


Weight : 325g

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
 Collet CHA Group	<b>91494</b>	CHA-3.0AA	ø3.0AA ※	MSS-19, MSS-20, MSS-22 PMS-3020A ※ High precision type AA (Run-out Accuracy within 2 μm)
	<b>91496</b>	CHA-3.175AA	ø3.175AA ※	
	<b>91495</b>	CHA-4.0AA	ø4.0AA ※	
	<b>91492</b>	CHA-2.35	ø2.35	
	<b>91430</b>	CHA-3.0	ø3.0	
	<b>91493</b>	CHA-3.175	ø3.175	
 Collet CHA Group	<b>91440</b>	CHA-4.0	ø4.0	
	—	CHA-□□	ø0.5, ø0.6, ø0.7, ø0.8, ø0.9	
	—	CHA-□□	ø1.1, ø1.2, ø1.3, ø1.4, ø1.7, ø1.8, ø1.9 ø2.1, ø2.2, ø2.3, ø2.4, ø2.6, ø2.7, ø2.8, ø2.9 ø3.1, ø3.2, ø3.3, ø3.4, ø3.6, ø3.7, ø3.8, ø3.9	
	—	CHA-□□	ø1.0, ø1.5, ø2.0, ø2.5, ø3.5	
	—	CHA-□□	ø1.6	
	—	CHA-□□	ø0.5, ø0.6, ø0.7, ø0.8, ø0.9	
 Collet CHK Group	<b>91597</b>	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)
	<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	
 Collet CHK Group	<b>91596</b>	CHK-6.35	ø6.35	
	—	CHK-□□	ø0.5, ø0.6, ø0.7, ø0.8, ø0.9	
	—	CHK-□□	ø1.0, ø1.5, ø2.0, ø2.5, ø3.5, ø4.5, ø4.76, ø5.5	
	—	CHK-□□	ø1.1, ø1.2, ø1.3, ø1.4, ø1.7, ø1.8, ø1.9 ø2.1, ø2.2, ø2.3, ø2.4, ø2.6, ø2.7, ø2.8, ø2.9 ø3.1, ø3.2, ø3.3, ø3.4, ø3.6, ø3.7, ø3.8, ø3.9 ø4.1, ø4.2, ø4.3, ø4.4, ø4.6, ø4.7, ø4.8, ø4.9 ø5.1, ø5.2, ø5.3, ø5.4, ø5.6, ø5.7, ø5.8, ø5.9	
	—	CHK-□□	ø1.6, ø5.0	
	—	CHK-□□	ø0.5, ø0.6, ø0.7, ø0.8, ø0.9	
 Collet CHSS Group	<b>93092</b>	CHSS-2.35	ø2.35	PMA-3013S
	<b>93030</b>	CHSS-3.0	ø3.0	
	<b>93093</b>	CHSS-3.175	ø3.175	
 Collet CHM Group	—	CHSS-□□	ø1.0, ø1.5, ø2.0, ø2.5	
	<b>90992</b>	CHM-2.35	ø2.35	AMH-301, NR-601
	<b>90930</b>	CHM-3.0	ø3.0	
	<b>90993</b>	CHM-3.175	ø3.175	
	<b>90916</b>	CHM-1.6	ø1.6	
—	CHM-□□	ø1.0, ø2.0		
 Collet CHS Group	<b>90592</b>	CHS-2.35	ø2.35	RA-200, RA-271E
	<b>90530</b>	CHS-3.0	ø3.0	
	<b>90593</b>	CHS-3.175	ø3.175	
	<b>90516</b>	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	
 Collet CH8 Group	<b>91092</b>	CH8-2.35	ø2.35	RA-100, RA-151E
	<b>91030</b>	CH8-3.0	ø3.0	
	<b>91093</b>	CH8-3.175	ø3.175	
 Collet Nut for Collet (CHA)	<b>2102</b>	CHN-A	Collet Nut for Collet (CHA)	MSS-19, MSS-20, MSS-22 PMS-3020A
	<b>2129</b>	K-265	Collet Nut for Collet (CHK)	
 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)	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)		
	2147	KCH-02 (8.0)		
	2148	KCH-03 (5.0)	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)		
	2149	KCH-03 (8.0)		
	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	