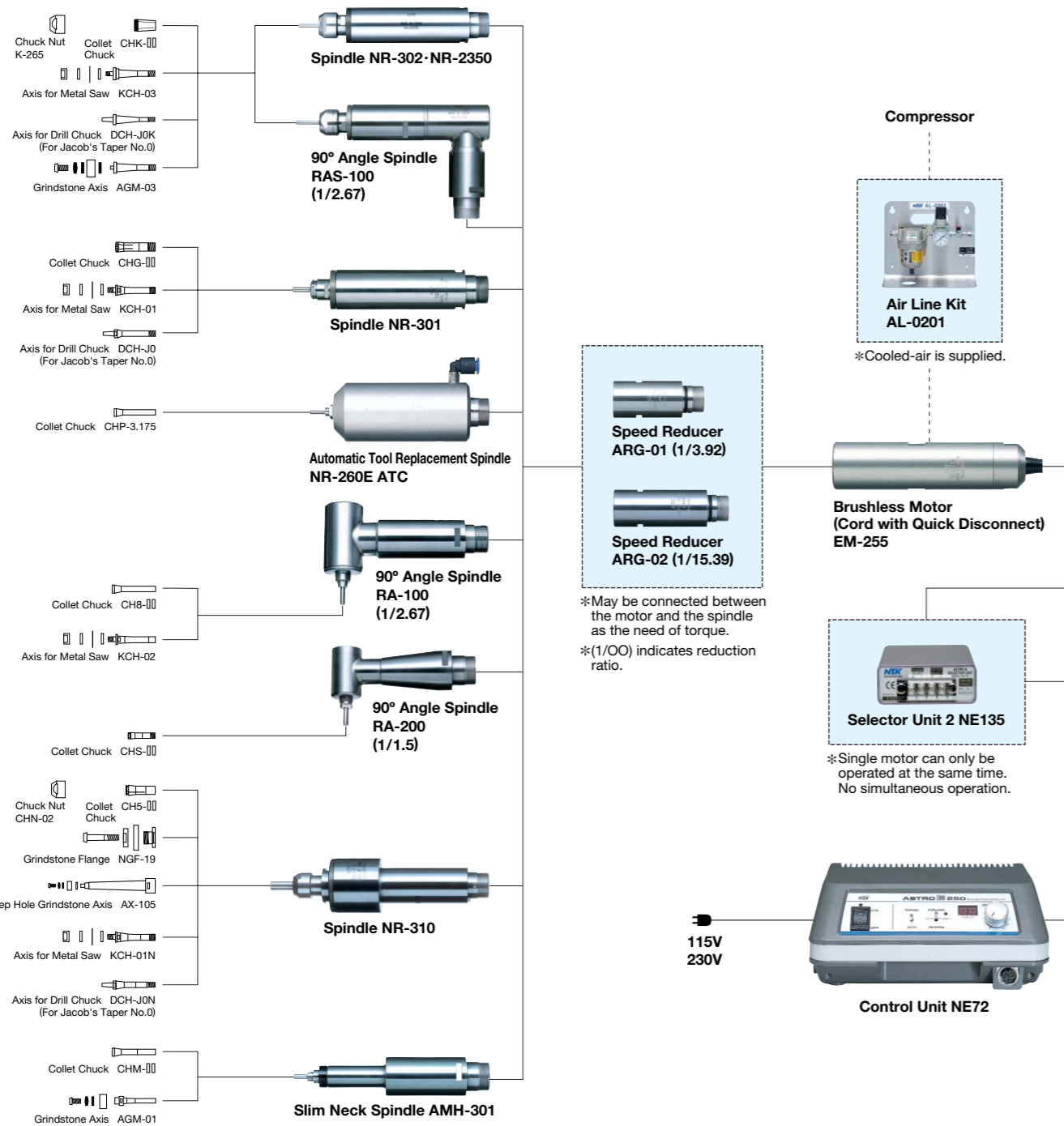


HIGH-PRECISION BRUSHLESS MOTOR & SPINDLE "ASTRO-E 250"

- High-performance brushless motor which provides compact size, light weight, output (Max. 105W), and excellent durability (motor endurance to 5,000 hours of continuous use by NSK's internal standard load test). By the combination with high-performance spindles, it can be installed on a NC lathe, special purpose machine, robot, etc.

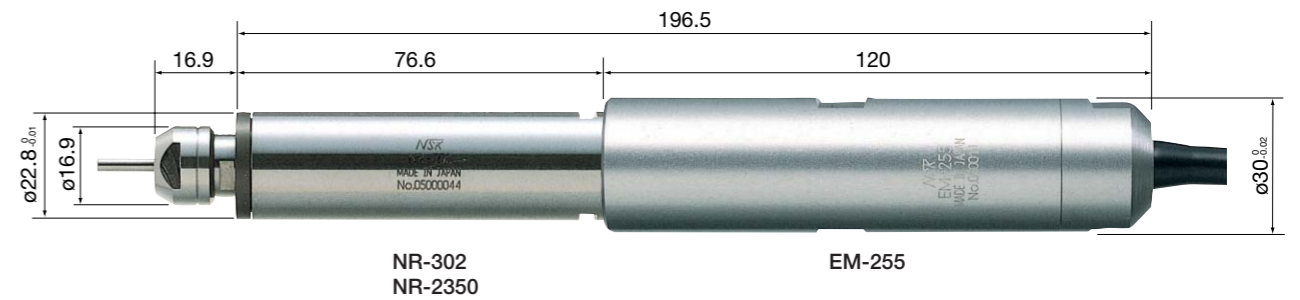
ASTRO-E 250 System Chart

- Changeable with a variety of attachments depending on the purpose of use.

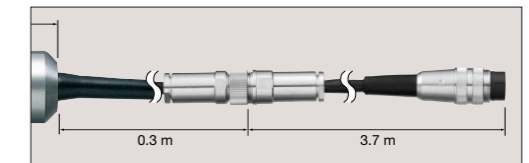
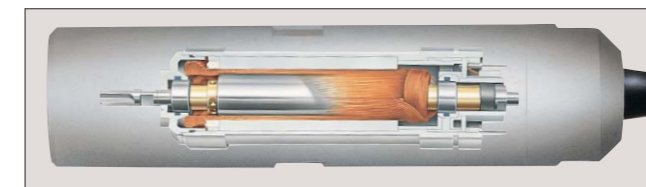


*Do not exceed the maximum motor speed recommendation for the spindles. Excess speed will dramatically reduce bearing life.

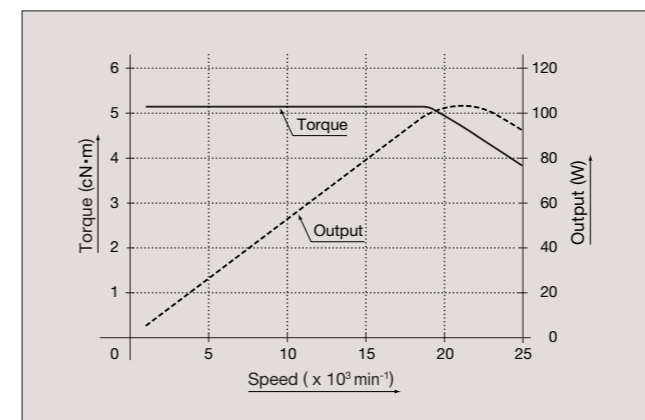
Features of ASTRO-E 250



- **Motor Speed**
2,000~25,000 min⁻¹ steplessly adjustable
- **Maximum Output 105W**
Compact size, lightweight and maximum output (105W)
- **Easily readable motor speed display**
Motor speed is displayed accurately on the front panel.
- **Protection Circuit**
The control unit is compact and lightweight. It features a protection circuit to stop the motor automatically in case of overload ensuring safe and smooth operation.
- **Sequence Control**
Automatic is realized by sequence control.
- **Brushless Motor**
Brushless motor is highly reliable and has excellent durability.
- **Smooth Rotation**
The absence of a commutator and the use of a photo coupler sending a feedback signal of 48 pulses per revolution result in very smooth rotation with little vibration throughout the speed range.
- **Motor Control Circuit**
High-quality circuitry is incorporated to ensure gentle start and stop the motor if trouble occurs.
- **Air Inlet for spindle protection**
Air can be supplied to the spindle to prevent contamination from coolants or other contaminants. (Use Air Line Kit AL-0201)
- **Wide variety of spindles**
Many different types of spindles are available making this system perfect for many different applications.
- **Withstands 5,000 hours of continuous use (By NSK's Internal Standard load tests)**
Brushless motor has no carbon brushes or commutator, minimizing wear and resulting in a long service life. Due to the brushless construction electrical interference and other noises are minimized.
- **Cord with Quick Disconnect for easy motor disconnection.**



Torque Characteristics of ASTRO-E 250



ASTRO-E 250 Combination Example

25,000 min⁻¹



Unit Specifications

Model	NE72
Power Source	AC 115V/230V, 50-60 Hz
Power Consumption	75W
Weight	3.2 kg
Dimensions	W225 x D195 x H97 mm

Motor & Spindle

Motor	EM-255
Spindle	NR-2350
Speed	2,000~25,000 min ⁻¹
Weight	695 g (w/cord)
Dimensions	ø30 x 196.5 mm

ASTRO-E 250, EM-255, NR-2350 Combination Example

CAT. No.	Model	Product
9947 (115V)	NE72	Control Unit
9028	EM-255	Brushless Motor
8220	NR-2350	Spindle

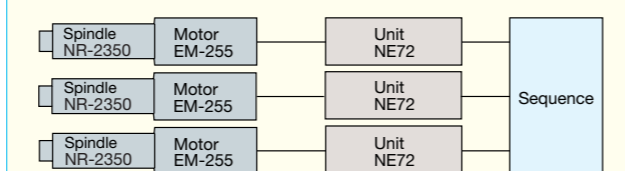
CAT. No. 1572 ASTRO-E 250 CONTROL UNIT NE72

25,000 min⁻¹

High Quality · Advanced Function

- High quality electronic circuitry provides stable motor speed even under high loads, soft start, emergency stop function and motor feedback monitoring.
- Safety mechanism stops the motor if the system over loaded.
- Auto motor start/stop function is available.
- Multiple motors can be controlled by a single control unit by incorporating the selector unit.
- Motor speed is displayed to 2 digit accuracy by the digital display.

System Chart for Automatic Control of Multiple Motors



Power Switch

Manual / Auto Selector Switch

Forward / Reverse Select Switch & Breaker Releasing Switch

Digital Speed Display

Speed Control Knob

Connector for Motor Cord

Sequence Control

Inlet with Power Fuse

Specifications

Model	: NE72
Power Source	: AC 115V/230V, 50-60 Hz
Power Consumption	: 75W
Weight	: 3.2 kg
Dimensions	: W225 x D195 x H97 mm

ASTRO-E 250 Control Unit

CAT. No.	Model	Standard Equipment · Accessories
9947 (115V)	NE72	● Power Cord ● Sequence Control Cord (2 m)
9948 (230V)		

CAT. No. 8219 ASTRO-E SELECTOR UNIT 2 NE135

for 25,000 · 40,000 · 50,000 · 80,000 min⁻¹

By connecting Selector Unit 2 NE135 to the control unit, 2 motors are able to control individually. (Two motors can not be operated simultaneously.)

Power Source Terminal (DC 24V)

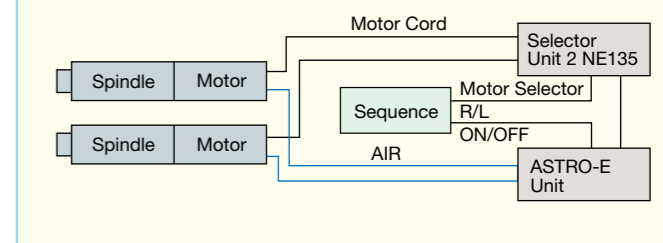
Control Terminal

Motor Connector (to the Control Unit)

Motor Output Connector



Automatic Control System Chart with 2 Motors



Specifications---Model : NE135 / Power Source : DC24V / Power Consumption : 7W / Weight : 265 g / Dimensions : W75 x D111 x H30 mm

ASTRO-E Selector Unit 2

CAT. No.	Model	Standard Equipment · Accessories
8219	NE135	● Cord with 8 pin plug ● Air 'y' Adaptor

CAT. No. 9028 BRUSHLESS MOTOR EM-255 (Cord with Quick Disconnect)

25,000 min⁻¹



- This brushless DC motor incorporates a rare earth magnet rotor it offers a long service life, reduced electrical interference, high power and torque. The lightweight motor core provides very fast motor startup.
- * External housing of EM-255 is made of aluminum to reduce the total weight. (Aluminum hardening treatment is made)

Brushless Motor

CAT. No.	Model	Standard Equipment · Accessories
9028	EM-255	● Cord with Quick Disconnect ● Air Connector for ø4 Hose

*Each motor cord 5, 6, 8 m is available.

- Motor Speed 2,000~25,000 min⁻¹
- Max. Output Power 105W
- Weight 480 g
- Cord with Quick Disconnect Length 4 m
- < Optional >
- Air Line Kit (AL-0201) For Air Coolant

"ASTRO-E 250" SPINDLE

ASTRO-E 250 can be used in conjunction with water or oil based coolants.

CAT. No. 1086 SPINDLE NR-302 30,000 min⁻¹

*Do not exceed the allowable motor speed for the spindle.

Production to be discontinued in 2006

*The NR-2350 is the replacement product.



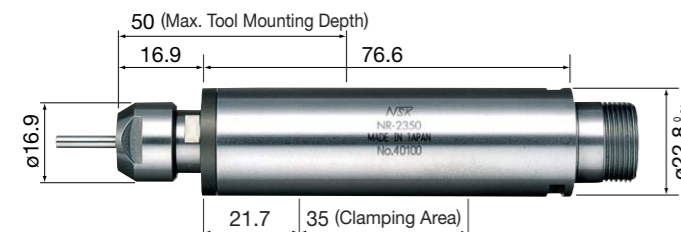
● A pair of precision ball bearings are assembled on both the front and rear sides of the spindle. It is designed to minimize radial and thrust play.

- Allowable Motor Speed 30,000 min⁻¹
 - Spindle Accuracy Within 1 μm
 - Standard Size Collet Chuck (CHK-3.0) ø3.0 mm
 - Weight 215 g
- < Optional >
- Collet Chuck (CHK-□□) ø0.5 mm-ø6.0 mm in 0.1 mm increments and ø2.35, ø3.175, ø6.35 mm
 - Chuck Nut (K-265) For Collet Chuck (CHK)
 - Metal Saw Axis (KCH-03) For ø6 (I.D.) x ø30 mm (O.D.)
 - Drill Chuck Axis (DCH-J0K) For Jacob's Taper No. 0
 - Grindstone Axis (AGM-03) For grinding wheel with I.D. of ø5 mm

Spindle

CAT. No.	Model	Standard Equipment - Accessories
1086	NR-302	<ul style="list-style-type: none"> • Collet Chuck ø3.0 mm (CHK-3.0) : 1 pc. • Chuck Nut (K-265) : 1 pc. • Spanner (12 x 14) : 2 pcs., (20 x 24) : 1 pc.

CAT. No. 8220 SPINDLE NR-2350 (Ceramic Bearings) 50,000 min⁻¹



● Designed to minimize vibration and radial and thrust play it utilizes 2 high-precision ceramic bearings in the front and rear. This spindle is ideal for small diameter drilling, milling, slitting (with ø30 mm metal saw) and grinding. Wide selection of collet chucks is available.

- Allowable Motor Speed 50,000 min⁻¹
 - Spindle Accuracy Within 1 μm
 - Standard Size Collet Chuck (CHK-3.0) ø3.0 mm
 - Weight 215 g
- < Optional >
- Collet Chuck (CHK-□□) ø0.5 mm-ø6.0 mm in 0.1 mm increments and ø2.35, ø3.175, ø6.35 mm
 - Chuck Nut (K-265) For Collet Chuck (CHK)
 - Metal Saw Axis (KCH-03) For ø6 (I.D.) x ø30 mm (O.D.)
 - Drill Chuck Axis (DCH-J0K) For Jacob's Taper No. 0
 - Grindstone Axis (AGM-03) For grinding wheel with I.D. of ø5 mm

Spindle

CAT. No.	Model	Standard Equipment - Accessories
8220	NR-2350	<ul style="list-style-type: none"> • Collet Chuck ø3.0 mm (CHK-3.0) : 1 pc. • Chuck Nut (K-265) : 1 pc. • Spanner (12 x 14) : 2 pcs., (20 x 24) : 1 pc.

CAT. No. 1564 AUTOMATIC TOOL REPLACEMENT SPINDLE NR-260E ATC 30,000 min⁻¹

For light duty Grinding



● This spindle is designed for printed circuit board drilling, etc. It is perfect for use on special purpose machines and enables the replacement of tools automatically simply by turning the air ON-OFF. It is a high-accuracy spindle assembled with precision ball bearings.
* To reduce the weight, the outer housing is made of aluminum (Hard anodized aluminum)

- Allowable Motor Speed 30,000 min⁻¹
 - Spindle Accuracy Within 3 μm
 - Standard Size Collet Chuck (CHP-3.175) ø3.175 mm
 - Weight 300 g
- < Optional >
- Collet Chuck (CHP-□□) ø2.0, ø3.0, ø3.175 mm

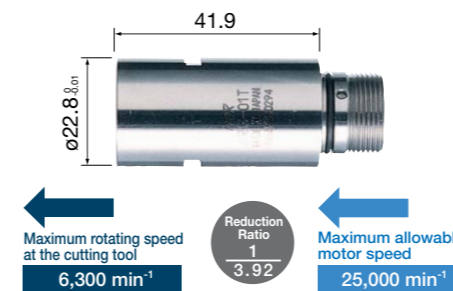
Spindle

CAT. No.	Model	Standard Equipment - Accessories
1564	NR-260E ATC	<ul style="list-style-type: none"> • Collet Chuck ø3.175 mm (CHP-3.175) : 1 pc. • Spanner (7 x 5), (8 x 5) : 1 pc. each • Bar Wrench (K-236) : 1 pc.

"ASTRO-E 250" SPEED REDUCER, AIR LINE KIT & REDUCER

Caution : Use the motor at motor speed less than maximum allowable speed or use the speed reducer. DO NOT exceed the allowable motor speed for the spindle and the reducer.

CAT. No. 1022 SPEED REDUCER 1/3.92 ARG-01



*ASTRO-E 250 motor's maximum speed used for reduction ratio examples.

● If the speed reducer is connected between the motor and the spindle, it reduces the rotating speed and increases the torque while keeping the motor speed unchanged.

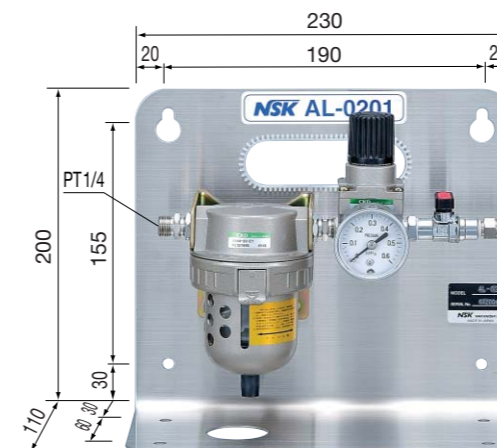
Maximum allowable motor speed **30,000 min⁻¹**
Maximum rotating speed at the cutting tool <Reduction Ratio : 1/3.92> **7,650 min⁻¹**

- Speed Reducing Mechanism By planetary gear system
- Weight 108 g

Speed Reducer 1/3.92

CAT. No.	Model	Speed Reduction Ratio
1022	ARG-01	Speed Reduction Ratio 1/3.92

CAT. No. 1541 AIR LINE KIT AL-0201



● The AL-0201 is **Clean air** supply unit for the ASTRO-E 250 control unit. The dust and moisture in the compressed air are eliminated by the filter in the first stage and regulator provides accurate and stable air to the control unit.

Air Line Kit (For ø6 mm Hose · Filter Mesh 0.3 μm)

CAT. No.	Model	Standard Equipment - Accessories
1541	AL-0201	<ul style="list-style-type: none"> • Air Filter • Air Regulator • Air Pressure Gauge • Air ON-OFF Valve • Hose for Piping (K-260) : 2 m

CAT. No. 1544 REDUCER (ø6 - ø4 Adaptor)



Reducer

CAT. No.	Model	Specifications
1544	Reducer	• ø6 - ø4 Adaptor