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SERVO

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φ89 AC/DC Fan Specifications And Performance Comparison

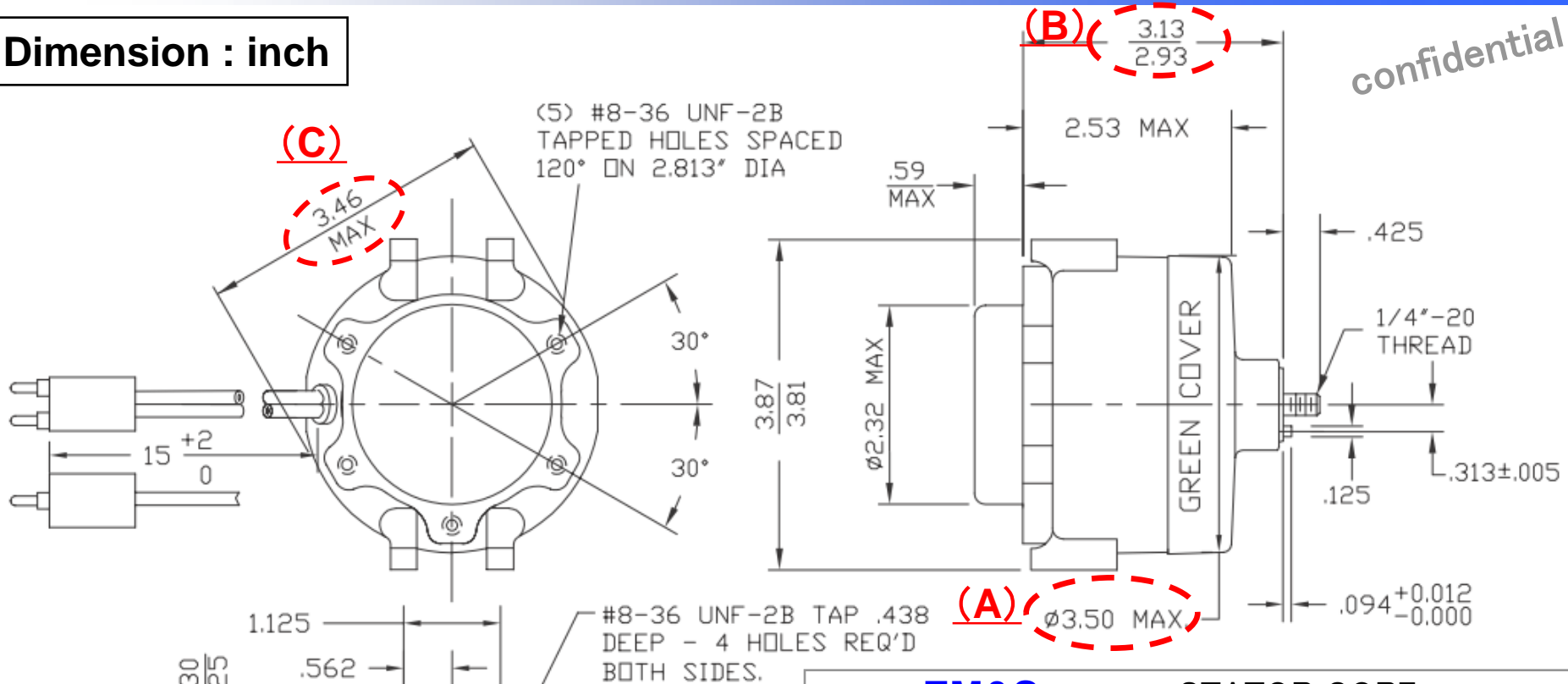
Nov 12, 2012

R&D/Engineering Headquarters

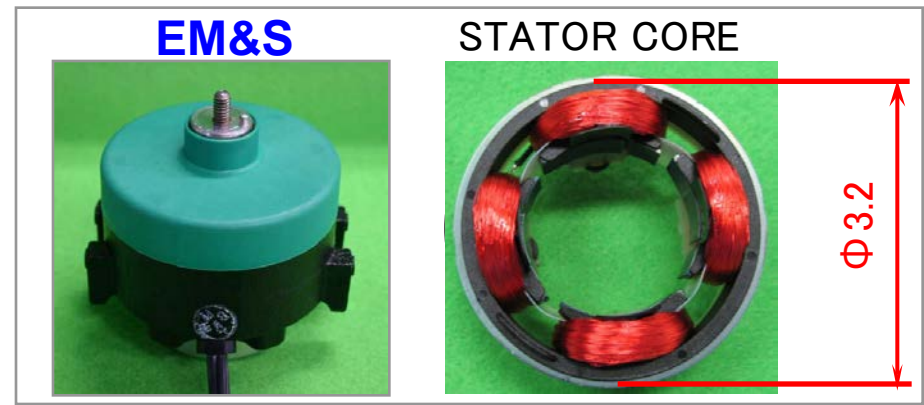
NIDEC SERVO CORPORATION

Outline drawing: Competitor (EM&S)

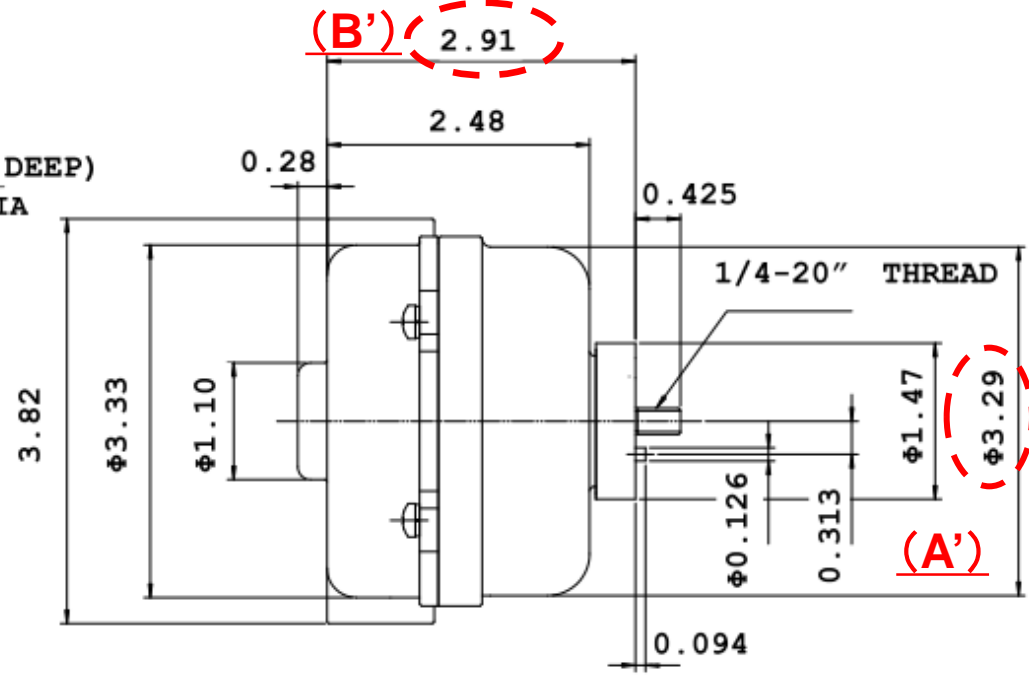
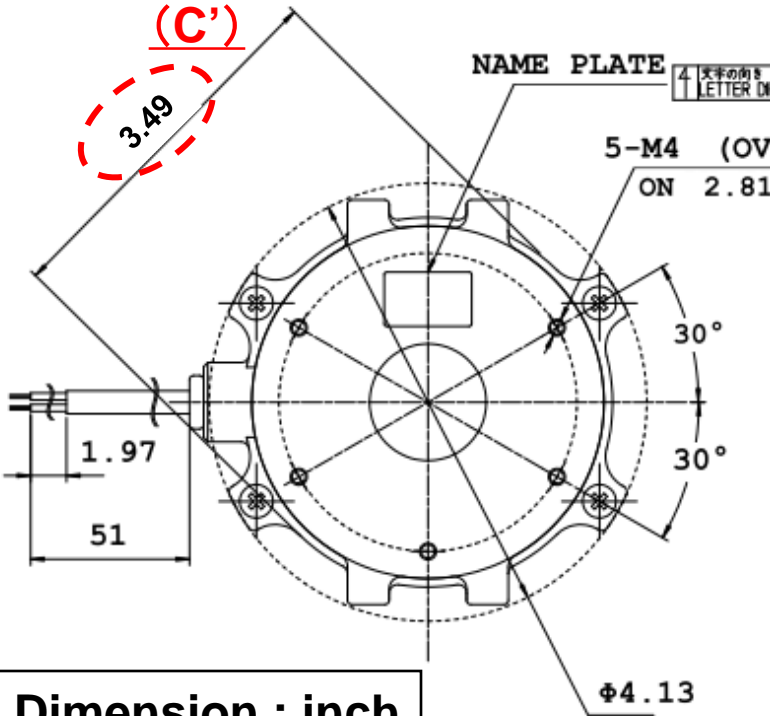
Dimension : inch



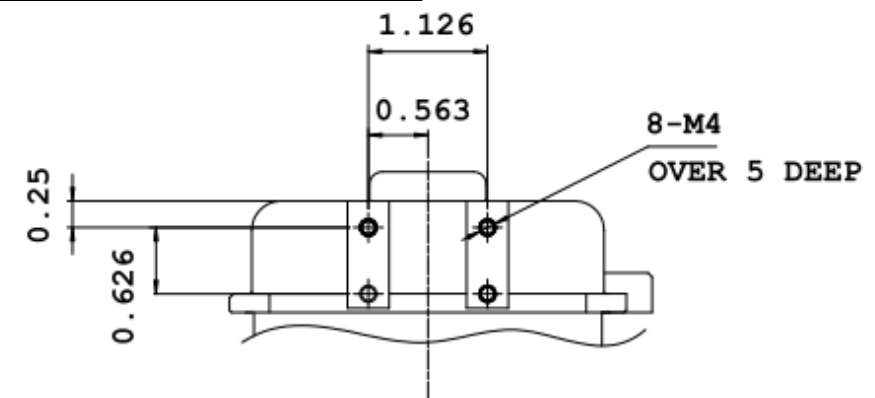
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Outline drawing: NIDEC SERVO



Dimension : inch



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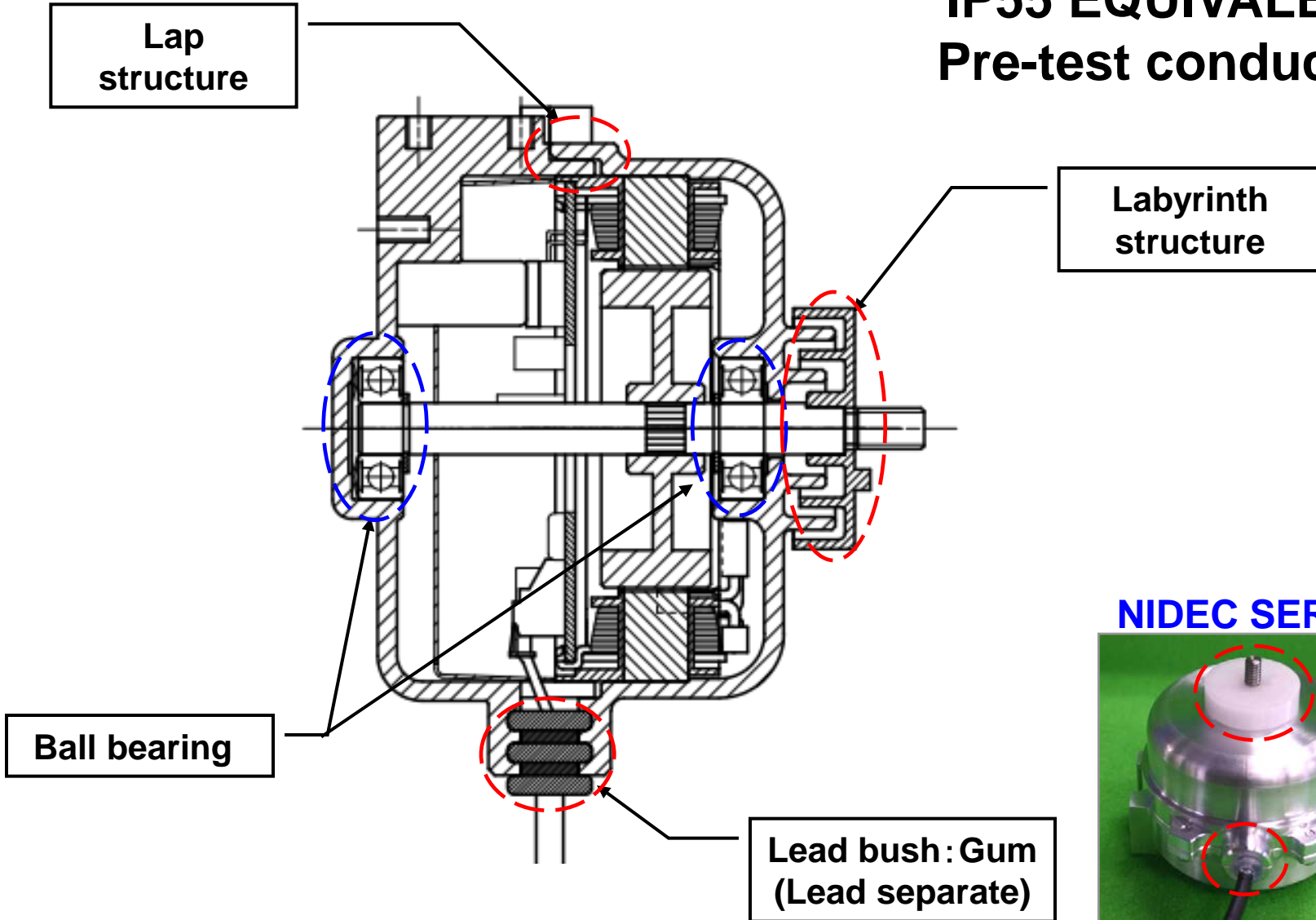
STATOR CORE



Dimensions of NIDEC SERVO Motor is the same as the AO Smith.

Cutaway model: NIDEC SERVO

IP55 EQUIVALENT
Pre-test conducted



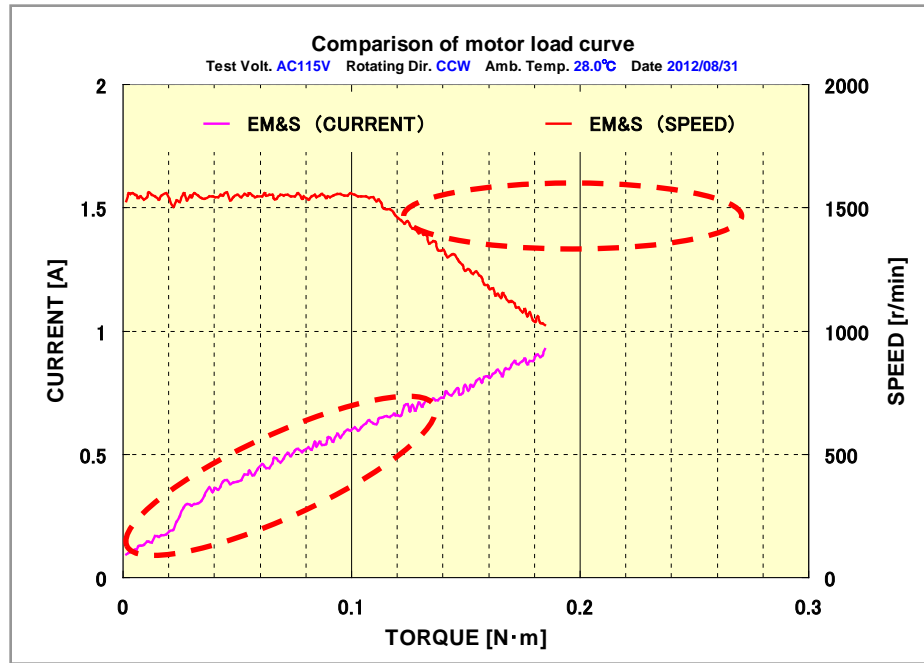
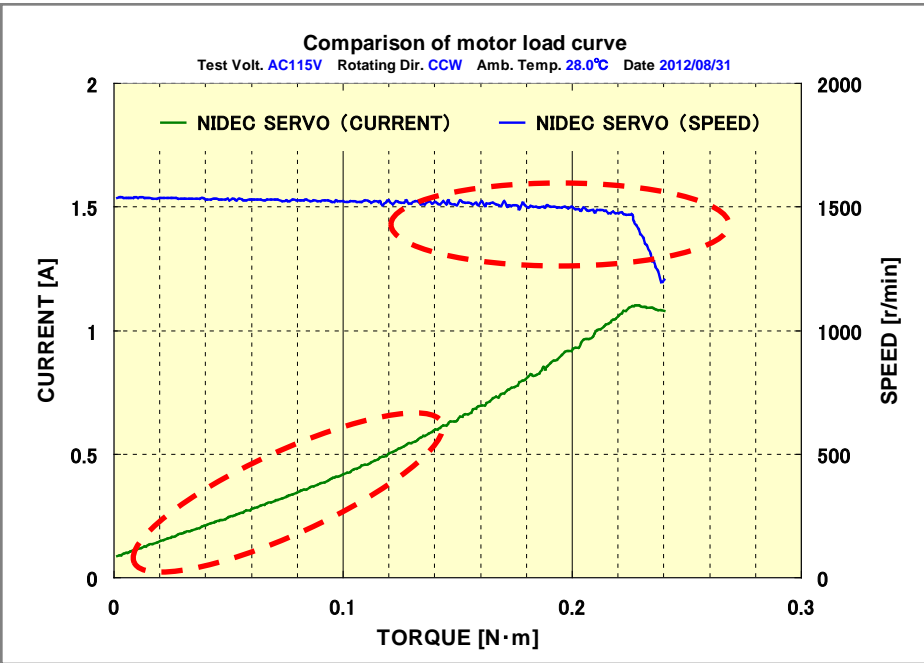
NIDEC SERVO



Comparison of Motor Load Curve

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(1) NIDEC SERVO Motor load curve is better than EM&S.
(2) NIDEC SERVO Motor performance in high torque region is better.



NIDEC SERVO



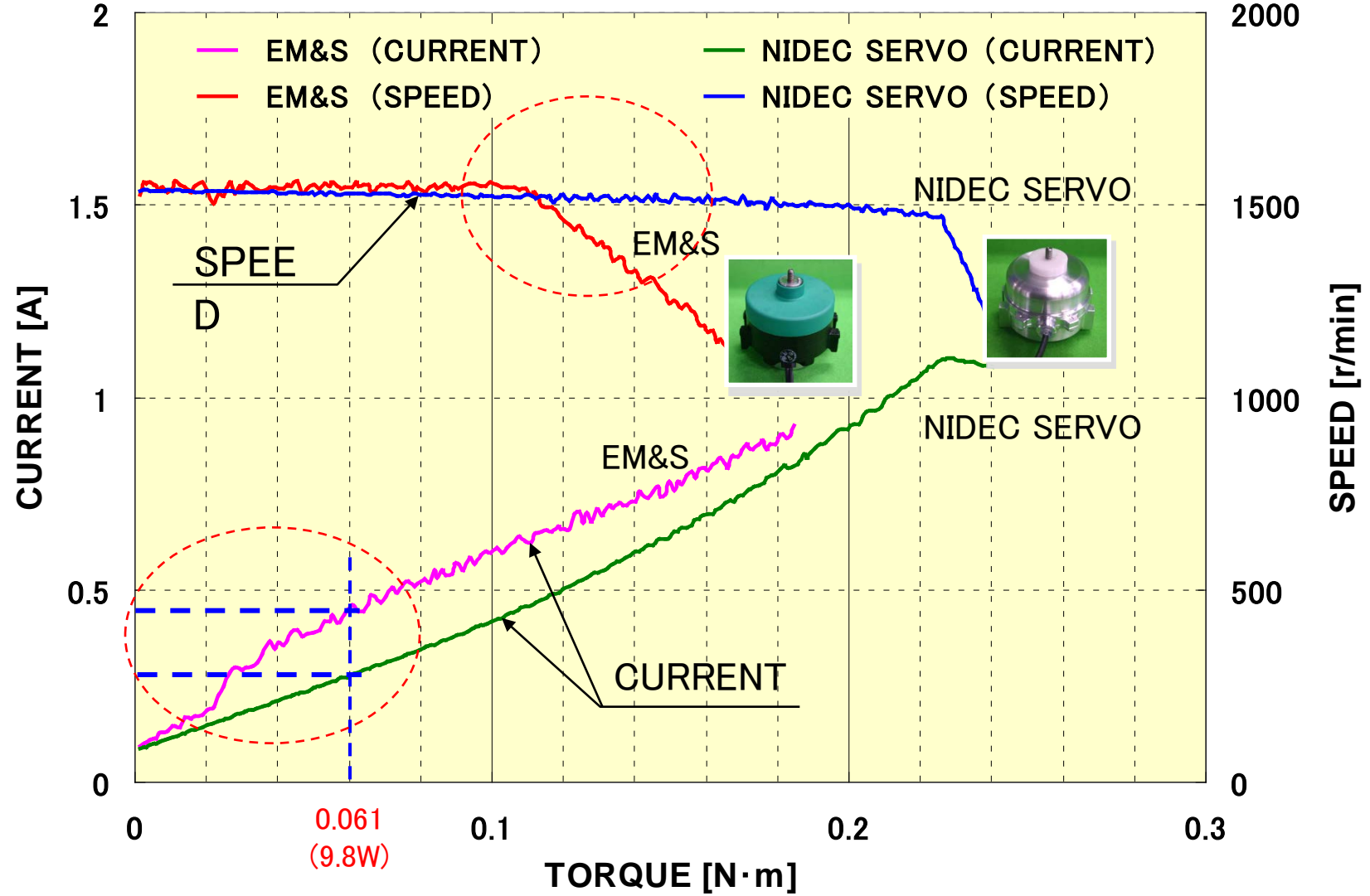
EM&S



Comparison of Motor Load Curve

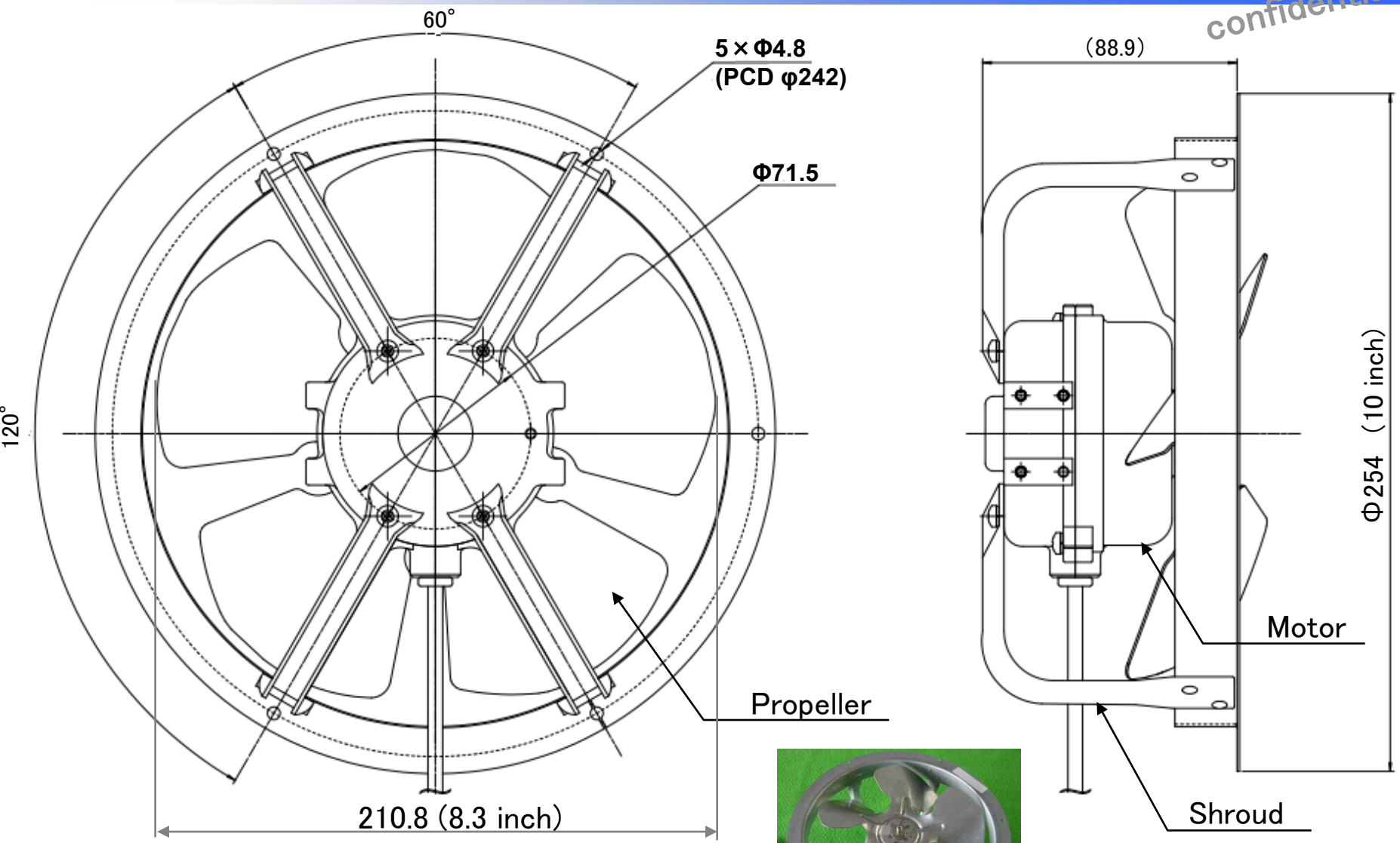
Comparison of motor load curve

Test Volt. AC115V Rotating Dir. CCW Amb. Temp. 28.0°C Date 2012/08/31



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Outline drawing : 8.3 inch (propeller size)

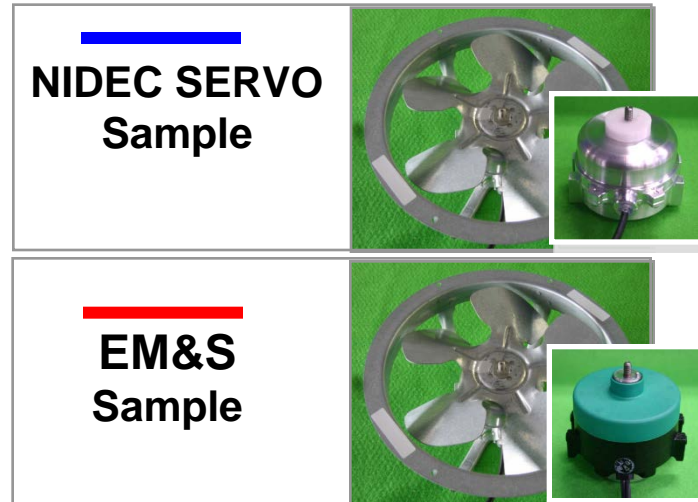
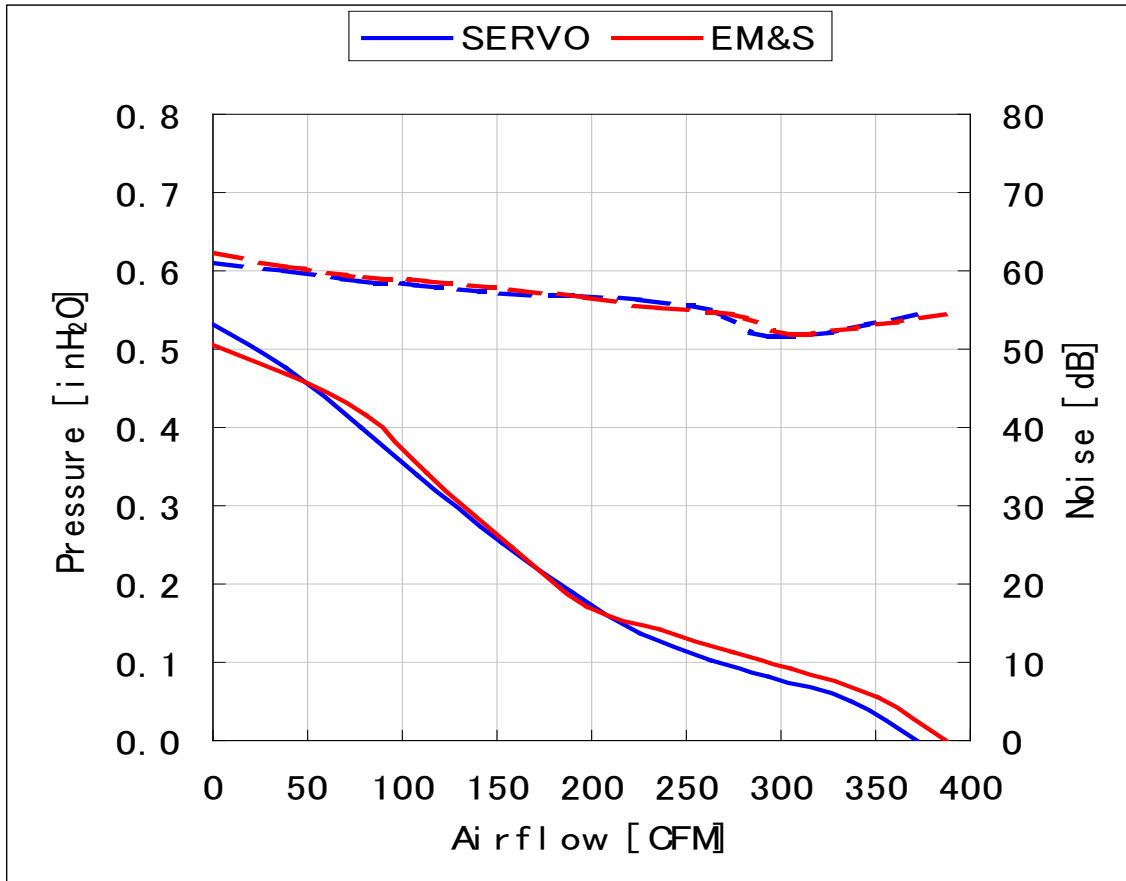


Dimension : mm

Comparison of Fan Noise

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Nidec Servo fan noise is the same as the EM&S.



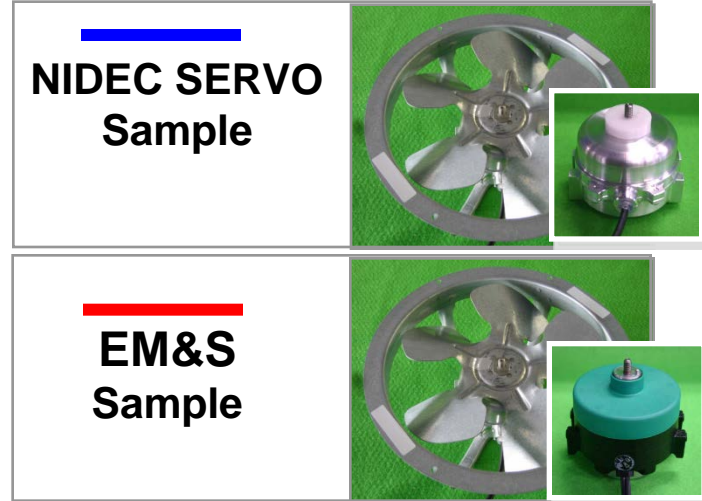
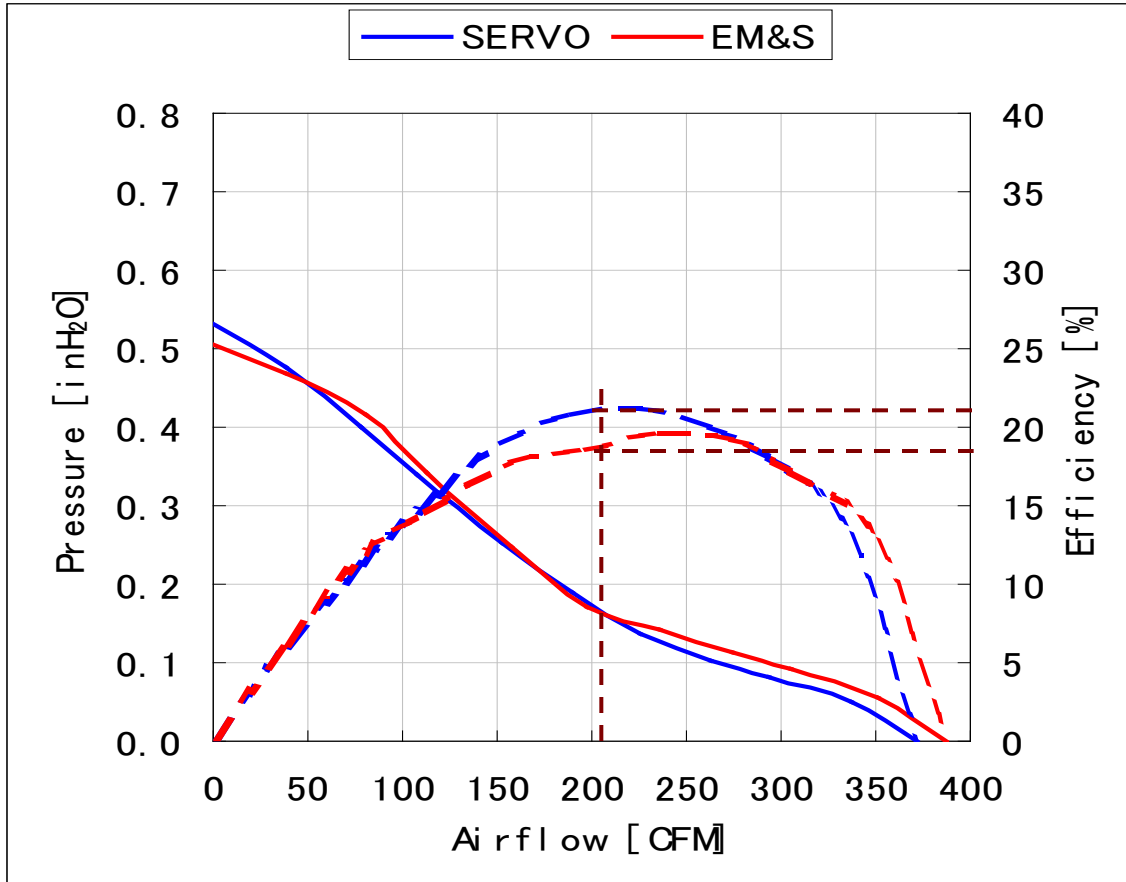
Speed in free air
 • NIDEC SERVO : 1530min⁻¹
 • EM&S : 1550min⁻¹

- ⊗ Use the same propeller & shroud
- ⊗ Noise measurement taken at 1m

Comparison of Fan Efficiency

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Nidec Servo fan efficiency is better than the EM&S.



Speed in free air
 • Nidec SERVO : 1530 min⁻¹
 • EM&S : 1550 min⁻¹

※ Use the same propeller & shroud

Target specifications (φ89 AC/DC Motor)

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Motor specifications

Application	Fan Motor
Rated voltage	115VAC, 50/60Hz
Voltage range	115VAC \pm 10%
Rated Torque	Less than 0.061 N·m
Rated current	0.35A max
Rated speed	1550 \pm 20% rpm
Rotating Dir.	CCW
Bearing System	Ball Bearing
Efficiency	More than 65%
IP Rating	IP55

Operating conditions

Ambient temperature	-30~+55 °C
Storage temp.	-40~+58 °C
Design Life	80000 hrs (at 20°C) (Tentative)
Mounting	Any
Duty cycle	Continuous

Protection

Over current	Approx 1A(at DC)
Stall protection	0.4 sec Limit - OFF 6 seconds

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