

Test Report EN 60034-1 Rotating electrical machines – Part 1: Rating and performance	
Report reference No.....	HT17DR-0812211
Tested by (name+ signature).....	Brian Wong  <i>Brian Wong</i>
Approved by (name+ signature).....	Tony Yang <i>Tony Yang</i>
Date of issue.....	Aug. 22, 2017
Testing Laboratory Name.....	Honton Compliance Laboratories (Shenzhen) Co., Ltd.
Address.....	5/F, Building C, No. 73, Huahui Road, Dalang Street, Longhua District, Shenzhen 518109, China
Testing location	Same as above
Applicant's Name.....	OEMOTOR ELECTRIC CO., LIMITED
Address.....	Building B1, Hutang Industrial zone, Lingdao Rd, Wujin District, Changzhou, China.
Standard.....	EN 60034-1:2010
Test procedure.....	Type test
Procedure deviation.....	N/A.
Non-standard test method.....	N/A.
Test item description.....	STEPPER MOTOR
Manufacturer.....	Same as applicant
Trademark.....	 oemotor
Model / Type reference	OE57, OE20, OE28, OE35, OE36, OE39, OE42, OE57, OE60, OE86, OE57HSE, OE60HSE, OE86HSE, OE110HSE
Rating(s).....	Input: AC3.08V, 2.8A, 100nHz(n=1, 2, 3, ...,30)

Summary of testing:

Tests performed (name of test and test clause):

- EN 60034-1:2010

The products were found to compliance with the requirement of EN 60034-1:2010- Rotating electrical machines – Part 1: Rating and performance

Test item particulars.....:

Equipment mobility.....: Fixed

Possible test case verdicts:

- test case does not apply to the test object: N (N/A)
- test object does meet the requirement: P (Pass)
- test object does not meet the requirement: F (Fail)

Testing:

Date of receipt of test item: Aug. 04, 2017

Date(s) of performance of test: Aug. 04, 2017 to Aug. 10, 2017

Attachment No. 1: Photo documentation

Copy of label:

STEPPER MOTOR
Model: OE57
Input: AC3.08V, 2.8A, 100nHz(n=1, 2, 3, ...,30)



OEMOTOR ELECTRIC CO., LIMITED
Made in China

Note: 1. All models are similar except for the model name and rating.
2. Height of WEEE mark at least 7mm, CE mark at least 5mm.

General remarks:

Version 2.0 (2016-08-30)

Tel: +86 (0) 755 61120301

Horton Compliance Laboratories (Shenzhen) Co., Ltd.

E-mail: cs@htl-corp.com www.htl-corp.com

"(see remark #)" refers to a remark appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the issuing testing laboratory.

Unless otherwise specified, test are made under normal conditions at an ambient temperature within the range of 15°C to 35°C, RH45% to 75% and an air pressure of 860mbar of 1060mbar.

General product information:

STEPPER MOTOR, Model OE57, OE20, OE28, OE35, OE36, OE39, OE42, OE57, OE60, OE86, OE57HSE, OE60HSE, OE86HSE, OE110HSE. All tests were carried out on model OE57.

EN 60034-1			
Cl.	Requirement – Test	Result + remark	Verdict
4	Duty		P
4.1	Declaration of duty		P
	a) numerically, where the load does not vary or where it varies in a known manner;		N
	b) as a time sequence graph of the variable quantities;		N
	c) by selecting one of the duty types S1 to S10 that is no less onerous than the expected duty.		P
4.2	Duty types		N
4.2.1	Duty type S1 – Continuous running duty		P
4.2.2	Duty type S2 – Short-time duty		N
4.2.3	Duty type S3 – Intermittent periodic duty		N
4.2.4	Duty type S4 – Intermittent periodic duty with starting		N
4.2.5	Duty type S5 – Intermittent periodic duty with electric braking		N
4.2.6	Duty type S6 – Continuous-operation periodic duty		N
4.2.7	Duty type S7 – Continuous-operation periodic duty with electric braking		N
4.2.8	Duty type S8 – Continuous-operation periodic duty with related load/speed changes		N
4.2.9	Duty type S9 – Duty with non-periodic load and speed variations		N
4.2.10	Duty type S10 – Duty with discrete constant loads and speeds		N
5	Rating		P
5.1	Assignment of rating		P
5.2	Classes of rating		P
5.2.1	Rating for continuous running duty		P
5.2.2	Rating for short-time duty		N
5.2.3	Rating for periodic duty		N
5.2.4	Rating for non-periodic duty		N
5.2.5	Rating for duty with discrete constant loads and speeds		N
5.2.6	Rating for equivalent loading		N
5.3	Selection of a class of rating		P
5.4	Allocation of outputs to class of rating		P
5.5	Rated output		N
5.5.1	DC generators		N
5.5.2	AC generators		N
5.5.3	Motors		P

EN 60034-1			
Cl.	Requirement – Test	Result + remark	Verdict
5.5.4	Synchronous condensers		N
5.6	Rated voltage	AC3.08V	P
5.6.1	DC generators		N
5.6.2	AC generators		N
5.7	Co-ordination of voltages and outputs		P
5.8	Machines with more than one rating		N
6	Site operating conditions		P
6.1	General		P
6.2	Altitude	<1000m	P
6.3	Maximum ambient air temperature	< 40 °C.	P
6.4	Minimum ambient air temperature	>-15°C	P
6.5	Water coolant temperature	>5°C,<25°C	P
6.6	Storage and transport		P
6.7	Purity of hydrogen coolant		N
7	Electrical operating conditions		P
7.1	Electrical supply		P
7.2	Form and symmetry of voltages and currents		P
7.2.1	AC motors		P
7.2.1.1	AC motors rated for use on a power supply of fixed frequency, supplied from an a.c.		P
7.2.1.2	AC motors supplied from static converters have to tolerate higher harmonic contents of the supply voltage,		P
7.2.2	AC generators		N
7.2.3	Synchronous machines		N
7.2.4	DC motors supplied from static power converters		N
7.3	Voltage and frequency variations during operation		N
7.4	Three-phase a.c. machines operating on unearthed systems		N
7.5	Voltage (peak and gradient) withstand levels		N
8	Thermal performance and tests		P
8.1	Thermal class		P
8.2	Reference coolant	Air	P
8.3	Conditions for thermal tests		P
8.3.1	Electrical supply		P
8.3.2	Temperature of machine before test		P

EN 60034-1			
Cl.	Requirement – Test	Result + remark	Verdict
8.3.3	Temperature of coolant		P
8.3.4	Measurement of coolant temperature during test		P
8.3.4.1	Open machines or closed machines without heat exchangers (cooled by surrounding ambient air or gas)		P
8.3.4.2	Machines cooled by air or gas from a remote source through ventilation ducts and machines with separately mounted heat exchangers		P
8.3.4.3	Closed machines with machine-mounted or internal heat exchangers		P
8.4	Temperature rise of a part of a machine		P
8.5	Methods of measurement of temperature		P
8.5.1	General		P
8.5.2	Resistance method		P
8.5.3	Embedded temperature detector (ETD) method		N
8.5.4	Thermometer method		P
8.6	Determination of winding temperature		P
8.6.1	Choice of method		P
8.6.2	Determination by resistance method		P
8.6.2.1	Measurement		P
8.6.2.2	Calculation		P
8.6.2.3	Correction for stopping time		P
8.6.2.3.1	General		P
8.6.2.3.2	Short stopping time	60s	P
8.6.2.3.3	Extended stopping time		P
8.6.2.3.4	Windings with one coil-side per slot		P
8.6.3	Determination by ETD method		N
8.6.3.1	General		N
8.6.3.2	Two or more coil-sides per slot		N
8.6.3.3	One coil-side per slot		N
8.6.3.4	End windings		N
8.6.4	Determination by thermometer method		P
8.7	Duration of thermal tests		P
8.7.1	Rating for continuous running duty		P
8.7.2	Rating for short-time duty		N
8.7.3	Rating for periodic duty		N
8.7.4	Ratings for non-periodic duty and for duty with discrete constant loads		N
8.8	Determination of the thermal equivalent time constant for machines of duty type S9		N

EN 60034-1			
Cl.	Requirement – Test	Result + remark	Verdict
8.9	Measurement of bearing temperature		P
8.10	Limits of temperature and of temperature rise		P
8.10.1	Indirect cooled windings		N
8.10.2	Direct cooled windings	The temperature of the windings did not exceed the limit	P
8.10.3	Adjustments to take account of hydrogen purity on test		P
8.10.4	Permanently short-circuited windings, magnetic cores and all structural components (other than bearings) whether or not in contact with insulation		P
8.10.5	Commutators and sliprings, open or enclosed and their brushes and brushgear		P
9	Other performance and tests		P
9.1	Routine tests		N
9.2	Withstand voltage test	(See appended table 9.2)	P
9.3	Occasional excess current		P
9.3.1	General		P
9.3.2	Generators		N
9.3.3	Motors (except commutator motors and permanent magnet motors)	(See appended table 9.3.3)	P
9.3.4	Commutator machines		N
9.4	Momentary excess torque for motors		P
9.4.1	Polyphase induction motors and d.c. motors		N
9.4.2	Polyphase synchronous motors		P
9.4.3	Other motors		N
9.5	Pull-up torque		P
9.6	Safe operating speed of cage induction motor		P
9.7	Overspeed	(See appended table 9.7)	P
9.8	Short-circuit current for synchronous machines		P
9.9	Short-circuit withstand test for synchronous machines		P
9.10	Commutation test for commutator machines		P
9.11	Total Harmonic Distortion (THD) for synchronous machines		P
10	Rating plates		P
10.1	General		P
10.2	Marking	See marking label	P

EN 60034-1			
Cl.	Requirement – Test	Result + remark	Verdict
11	Miscellaneous requirements		P
11.1	Protective earthing of machines		N
11.2	Shaft-end key(s)		N
12	Tolerances		P
12.1	General		P
13	Electromagnetic compatibility (EMC)		P
13.1	General		P
13.2	Immunity		P
13.2.1	Machines not incorporating electronic circuits		P
13.2.2	Machines incorporating electronic circuits		N
13.3	Emission		P
13.3.1	Machines without brushes		P
13.3.2	Machines with brushes		N
13.4	Immunity tests		P
13.5	Emission tests		P
13.5.1	Machines without brushes		P
13.5.2	Machines with brushes		N
14	Safety		P
	Rotating machines	Comply with the requirements of IEC 60204-1 or IEC 60204-11	P

8.10	TABLE:THERMAL TEST				P	
VOLTAGE (V)	3.08X1.06=3.27V AC					
DURATION						
test until steady condition – temperature change not more than +/-1K/hour						
Supply voltage within ±1% of the test voltage.						
OPERATION MODE / TEST CONDITION:						
1. It shall not vary by more than ±1 °C during measurements and during a preceding period long enough to affect the results.						
2. Measurements shall not be taken until the luminaire has stabilized thermally, i.e. temperatures are changing at a rate less than 1 °C per hour.						
3. The test voltage is 1.06 times the maximum of the rated voltage range.						
AMB. TEMP.		t1 = 25.0°C(before test)	t2 = 24.9°C(after test)			
No.	Location / Part (by thermocouple)		Temp. (°C)	Limit(°C)	Pass	Fail
01	Windings (1)		83.3	110	P	--
02	Windings (2)		81.4	110	P	--
03	Input wire		52.1	80	P	--
04	Enclosure		46.0	Ref	P	--

9.2	TABLE: Withstand voltage test			P
Test voltage applied between: From/To		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Live parts to enclosure		AC	510	No

9.3.3	TABLE: Motors (except commutator motors and permanent magnet motors)		P
1,5 times the rated current	Time	Verdict	
4.2A	2min	P	

9.7	TABLE: Overspeed		P
1,2 times the highest rated speed	Time	Verdict	
1000r/min	2min	P	

Attachment No. 1: Photo documentation

Photo 1: Over view of sample

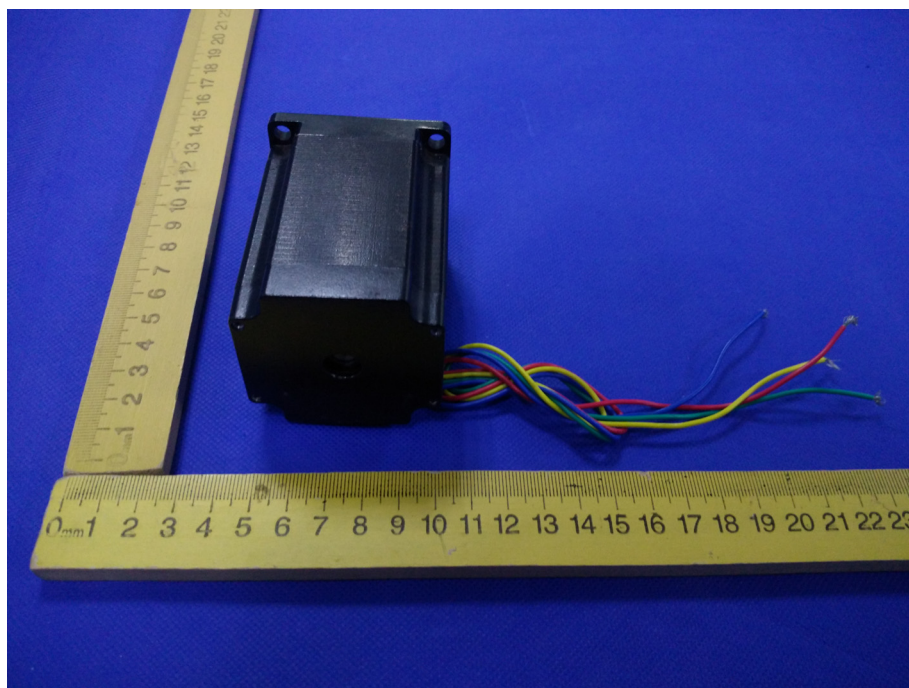


Photo 2: Over view of sample

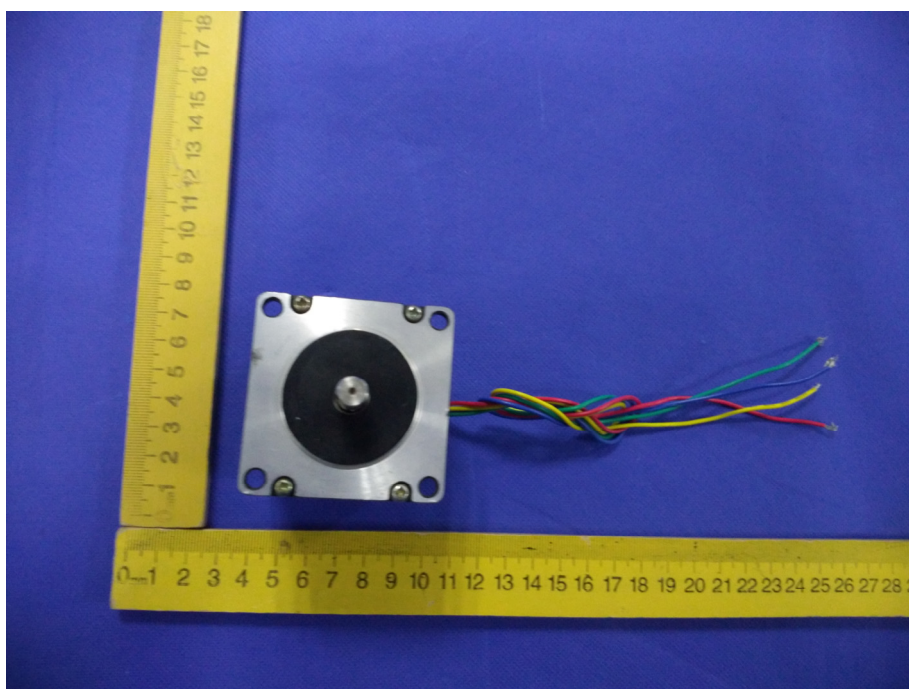


Photo 3: Internal view of sample

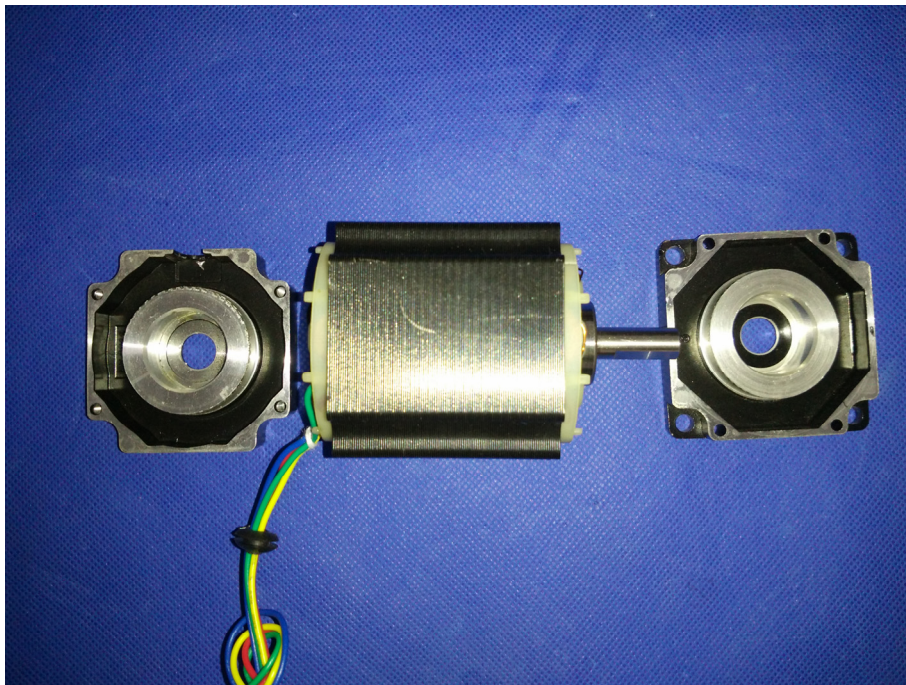


Photo 4: Internal view of sample

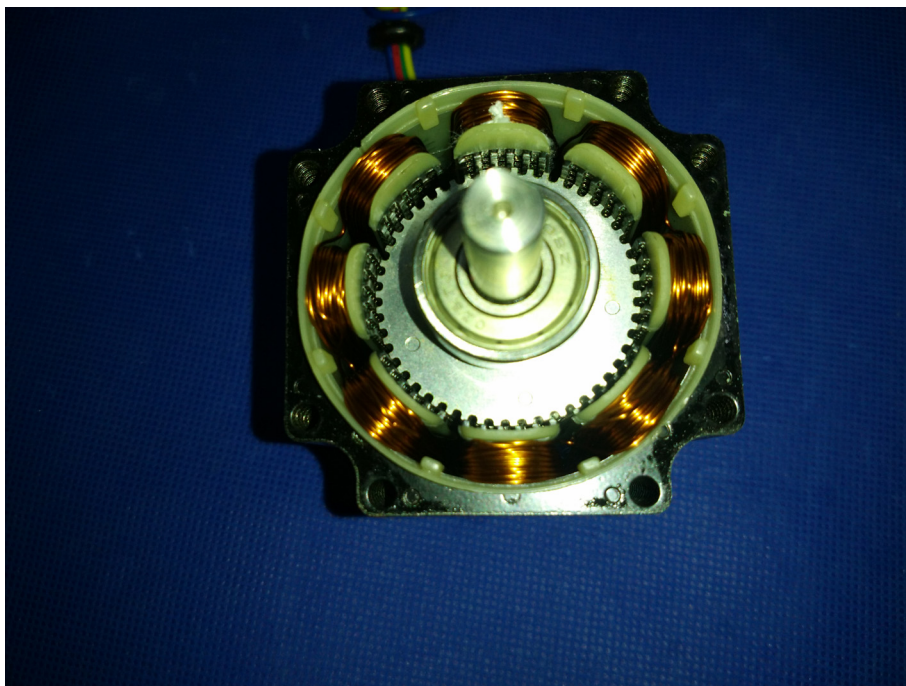
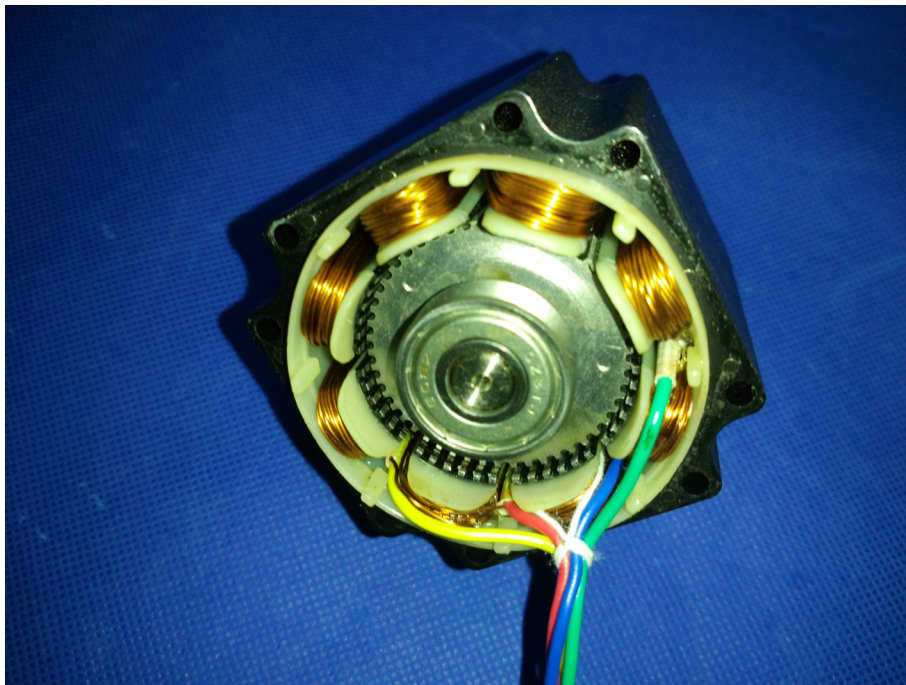


Photo 5: Internal view of sample



End of report