



No. XMT0201901301S/LVD

TEST REPORT

Report Reference No. XMT0201901301S/LVD

Applicant: DORNA Technology Co., Ltd

Address: No .99 Zhuangchi Middle Road, Ganyao Industrial Park,
Jiashan,Zhejiang China

Sample Name: AC Servo Motor

Model: See Annex

Test Type: DM1M-A5A40L8S

Standard: EN 60034-1:2010; EN 60034-5:2001;
EN 60034-11:2004;

Test Period: Aug.28,2019 to Sep.04,2019

Test Result: Please refer to next pages

Conclusion: Based on the performed tests on submitted samples, the results comply with the Low Voltage Directive 2014/35/EU and its subsequent amendments

Tested By:

Reviewed By:

John Chen - Engineer

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Applicant	DORNA Technology Co.,Ltd	
Address	No .99 Zhuangchi Middle Road,Ganyao Industrial Park,Jiashan,Zhejiang China	
Test Item Description		
Product Name :	AC Servo Motor	
Standard :	EN 60034-1:2010; EN 60034-5:2001; EN 60034-11:2004;	
Trade Mark :	/	
Rating:	220V/380V,60/50Hz	
Test Case Verdicts		
Test case does not apply to the test object :	N(.A .)	
Test item does meet the requirement :	P(ass)	
Test item does not meet the requirement :	F(ail)	
General Remarks		
◆ This report shall not be reproduced except in full without the written approval of the testing laboratory. ◆ The test results presented in this report relate only to the item tested. ◆ Clause numbers between brackets refer to clauses in EN 60034-1:2010;EN 60034-5:2001;EN 60034-11:2004. ◆ “(see remark #)”refers to a remark appended to the report. ◆ “(see Annex #)”refers to an annex appended to the report. ◆ Throughout this report a point is used as the decimal separator.		

Copy of Marking Plate

Product Name :



AC Servo Motor

Model :DM1M-A5A40L8S

DORNA Technology Co.,Ltd
No .99 Zhuangchi Middle Road,Ganyao Industrial
Park, Jiashan,Zhejiang China

Clause	Requirement-Test	Result-Remark	Verdict
EN 60034-1:2010			
Rotating electrical machines - Part 1: Rating and performance			
1	Scope		P
2	Normative references	N/A	N/A
3	Terms and definitions	N/A	N/A
4	Duty		P
4.1	Declaration of duty		P
	It is the responsibility of the purchaser to declare the duty. Where the purchaser does not declare a duty, the manufacturer shall assume that duty type S1 (continuous running duty) applies.		P
4.2	Duty types		P
4.2.1	Duty type S1 – Continuous running duty	See figure 1	P
4.2.2	Duty type S2 – Short-time duty		N/A
4.2.3	Duty type S3 – Intermittent periodic duty		N/A
4.2.4	Duty type S4 – Intermittent periodic duty with starting		N/A
4.2.5	Duty type S5 – Intermittent periodic duty with electric braking		N/A
4.2.6	Duty type S6 – Continuous operation periodic duty		N/A
4.2.7	Duty type S7 – Continuous operation periodic duty with electric braking		N/A
4.2.8	Duty type S8 – Continuous operation periodic duty with related load/speed changes		N/A
4.2.9	Duty type S9 – Duty with non-periodic load and speed variations		N/A
4.2.10	Duty type S10 – Duty with discrete constant loads and speeds		N/A
5	Rating		P
5.1	Assignment of rating		P
5.2	Classes of rating		P
5.3	Selection of a class of rating		P
5.4	Allocation of outputs to class of rating		P
5.5	Rated output		P
5.5.1	DC generators		-
	The rated output is the output at the terminals and shall be expressed in watts (W).	N/A	N/A
5.5.2	AC generators		-
	The rated output is the apparent power at the terminals and shall be expressed in volt-amperes (VA) together with the power factor.		P

	The rated output is the mechanical power available at the shaft and shall be expressed in watts (W).	N/A	N/A
5.5.4	Synchronous condensers		-
	The rated output is the reactive power at the terminals and shall be expressed in volt-amperes reactive (var) in leading (under-excited) and lagging (over-excited) conditions.	N/A	N/A
5.6	Rated voltage		-
5.6.1	DC generators		-
	For d.c. generators intended to operate over a relatively small range of voltage, the rated output and current shall apply at the highest voltage of the range, unless otherwise specified.	N/A	N/A
5.6.2	AC generators		-
	For a.c. generators intended to operate over a relatively small range of voltage, the rated output and power factor shall apply at any voltage within the range, unless otherwise specified.		P
5.7	Co-ordination of voltages and outputs	N/A	N/A
5.8	Machines with more than one rating	N/A	N/A
6	Site operating conditions		P
6.1	General	N/A	N/A
6.2	Altitude The altitude shall not exceed 1 000 m above sea-level.		P
6.3	Maximum ambient air temperature The ambient air temperature shall not exceed 40 °C.		P
6.4	Minimum ambient air temperature The ambient air temperature shall not be less than -15 °C for any machine. The ambient air temperature shall be not less than 0 °C for a machine with any of the following: a) rated output greater than 3 300 kW (or kVA) per 1 000 b) min-1; b) rated output less than 600 W (or VA); c) a commutator; d) a sleeve bearing; e) water as a primary or secondary coolant.		P
6.5	Water coolant temperature For the reference water coolant temperature see Table 4 . For other water coolant temperatures see Table 9. The water coolant temperature shall not be less than +5 °C.	N/A	N/A

6.6	Storage and transport When temperatures lower than specified in 6.4 are expected during transportation, storage, or after installation, the purchaser shall inform the manufacturer and specify the expected minimum temperature.	N/A	N/A
6.7	Purity of hydrogen coolant Hydrogen cooled machines shall be capable of operating at rated output under rated conditions with a coolant containing not less than 95 % hydrogen by volume.	N/A	N/A
7	Electrical operating conditions		P
8	Thermal performance and tests		P
8.1	Thermal class A thermal class in accordance with IEC 60085 shall be assigned to the insulation systems used in machines.		P
8.2	Reference coolant		P
8.3	Conditions for thermal tests		P
8.3.1	Electrical supply		P
8.3.2	Temperature of machine before test		P
8.3.3	Temperature of coolant		P
8.3.4	Measurement of coolant temperature during test		P
8.4	Temperature rise of a part of a machine		P
	The temperature rise, $\Delta\theta$, of a part of a machine is the difference between the temperature of that part measured by the appropriate method in accordance with 8.5, and the temperature of the coolant measured in accordance with 8.3.4. For comparison with the limits of temperature rise (see Table 7 or 8) or of temperature (see Table 12), when possible, the temperature shall be measured immediately before the machine is shut down at the end of the thermal test, as described in 8.7.	the temperature shall be measured immediately before the machine is shut down	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/A	N/A
8.5.4	Thermometer method		P
8.6	Determination of winding temperature		P
8.6.1	Choice of method		P
	For a.c. stator windings of machines having a rated output of 5 000 kW (or kVA) or more the ETD method shall be used.	N/A	N/A
	For a.c. stator windings of machines having a rated output	N/A	N/A

	of 5 000 kW (or kVA) or more the ETD method shall be used.		
	For a.c. stator windings of machines having a rated output of 5 000 kW (or kVA) or more the ETD method shall be used.		P

	For machines having a rated output less than or equal to 600 W (or VA), when the windings are non-uniform or severe complications are involved in making the necessary connections, the temperature may be determined by means of thermometers. Temperature rise limits in accordance with Table 7, item 1d for resistance method shall apply.	N/A	N/A
	The thermometer method is recognized in the following cases: a) when it is not practicable to determine the temperature b) rise by the resistance method as, for example, with low-resistance commutating coils and compensating windings and, in general, in the case of low-resistance windings, especially when the resistance of joints and connections forms a considerable proportion of the total resistance; b) single layer windings, rotating or stationary; c) during routine tests on machines manufactured in large numbers.	N/A	N/A
8.6.2	Determination by resistance method		-
8.6.2.1	Measurement		-
	One of the following methods shall be used:		-
	• direct measurement at the beginning and the end of the test, using an instrument having a suitable range;		P
	• measurement by d.c. current/voltage in d.c. windings, by measuring the current in and the voltage across the winding, using instruments having suitable ranges;		P
	• measurement by d.c. current/voltage in a.c. windings, by injecting direct current into the winding when de-energized.		P
8.6.2.2	Calculation		-
	θ_1 is the temperature (°C) of the winding (cold) at the moment of the initial resistance measurement;		P
	θ_2 is the temperature (°C) of the winding at the end of		P

	the thermal test;		
	θ_a is the temperature (°C) of the coolant at the end of the thermal test;		P
	R1 is the resistance of the winding at temperature θ_1 (cold);		P
	R2 is the resistance of the winding at the end of the thermal test;		P
	k is the reciprocal of the temperature coefficient of resistance at 0 °C of the conductor material. For copper k = 235 For aluminium k = 225 unless specified otherwise.		P
8.6.2.3	Correction for stopping time		-
8.6.2.3.1	General		-
8.6.2.3.2	Short stopping time If the initial resistance reading is obtained within the time interval specified in Table 5, that reading shall be accepted for the temperature measurement.		P
8.6.2.3.3	Extended stopping time		-
	If a resistance reading cannot be made in the time interval specified in Table 5, it shall be made as soon as possible but not after more than twice the interval specified in Table 5, and additional readings shall be taken at intervals of approximately 1 min until these readings have begun a distinct decline from their maximum value.		P
8.6.2.3.4	Windings with one coil-side per slot		-
	For machines with one coil-side per slot, the resistance method by direct measurement may be used if the machine comes to rest within the time interval specified in Table 5.		P
8.6.3	Determination by ETD method		-
8.6.3.1	General		-
8.6.3.2	Two or more coil-sides per slot The detectors shall be located between the insulated coil-sides within the slot in positions at which the highest temperatures are likely to occur.		P
8.6.3.3	One coil-side per slot The detectors shall be located between the wedge and the outside of the winding insulation in positions at which the highest temperatures are likely to occur, but see also 8.6.1.		P
8.6.3.4	End windings The temperature detectors shall be located between two adjacent coil-sides within the end windings in positions where the highest temperatures are likely to occur. The		P

	sensing point of each detector shall be in close contact with the surface of a coil-side and be adequately protected against the influence of the coolant, but see also 8.6.1.		
8.6.4	Determination by thermometer method All reasonable efforts, consistent with safety, shall be made to place thermometers at the point		P
8.7	Duration of thermal tests		P
8.7.1	Rating for continuous running duty The test shall be continued until thermal equilibrium has been reached.		P
8.7.2	Rating for short-time duty The duration of the test shall be the time given in the rating.		P
8.7.3	Rating for periodic duty		-
8.7.4	Ratings for non-periodic duty and for duty with discrete constant loads		P
8.8	Determination of the thermal equivalent time constant for machines of duty type S9 The thermal equivalent time constant with ventilation as in normal operating conditions, suitable for approximate determination of the temperature course, can be determined from the cooling curve plotted in the same manner as in 8.6.2.3. The value of the time constant is 1,44 times (that is to say, $1/\ln(2)$ times) the time taken by the machine to cool to one-half of the full load temperature rise, after its disconnection from the supply.		P
8.9	Measurement of bearing temperature		-
	Either the thermometer method or the ETD method may be used. The measuring point shall be as near as possible to one of the two locations specified in Table 6.	specified in Table 6	P
8.10	Limits of temperature and of temperature rise		-
8.10.1	Indirect cooled windings		-
	Temperature rises under reference conditions shall not exceed the limits given in Table 7 (air coolant) or Table 8 (hydrogen coolant) as appropriate.		P
	For other operating site conditions, for ratings other than continuous running duty, and for rated voltages greater than 12 000 V, the limits shall be adjusted according to Table 9 . (See also Table 10 for limit on coolant temperature which is assumed in Table 9.)		P
	In the case of thermometer readings made in accordance with 8.6.1, the limit of temperature rise shall be according to Table 7.		P
	If, for windings indirectly cooled by air, conditions at the test site differ from those at the operating site, the adjusted		P

	limits given in Table 11 shall apply at the test site.		
	If the adjusted limits given in Table 11 lead to permissible temperatures at the test site which the manufacturer considers to be excessive, the testing procedure and the limits shall be agreed.		P
	No adjustments at the test site are given for windings indirectly cooled by hydrogen, because it is very unlikely that they will be tested at rated load anywhere other than at the operating site.		P
8.10.2	Direct cooled windings		-
	Temperatures under reference conditions shall not exceed the limits given in Table 12.		P
	For other operating site conditions the limits shall be adjusted according to Table 13.		P
	If conditions at the test site differ from those at the operating site, the adjusted limits given in Table 14 shall apply at the test site.		P
	If the adjusted limits given in Table 14 lead to temperatures at the test site which the manufacturer considers to be excessive, the testing procedure and the limits shall be agreed.		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
	The temperature rise or temperature of any commutator, slipring, brush or brushgear shall not be detrimental to the insulation of that part or any adjacent part.		P
	The temperature rise or temperature of a commutator or slipring shall not exceed that at which the combination of brush grade and commutator or slipring material can handle the current over the full operating range.		P
9	Other performance and tests		-
9.1	Routine tests		-
	Routine tests are always factory tests. They can only be performed on machines which are assembled at the works of the manufacturer. The machine need not be completely assembled. It can lack components which are not significant for the testing. Routine tests do not need the machine to be coupled except for the open-circuit test on synchronous machines		P
9.2	Withstand voltage test		-

	A test voltage, as specified below, shall be applied between the windings under test and the frame of the machine, with the core and the windings not under test connected to the frame. Except as stated below, the test voltage shall be of power frequency and as near as possible to a sine wave form.		P
9.3	Occasional excess current		-
9.3.1	General		-
9.3.2	Generators		-
9.3.3	Motors (except commutator motors and permanent magnet motors)		-
9.3.4	Commutator machines		-
9.4	Momentary excess torque for motors		-
9.4.1	Polyphase induction motors and d.c. motors		-
	Motors, whatever their duty and construction, shall be capable of withstanding an excess torque of at least 60 % of their rated torque for 15 s without either stalling or exhibiting an abrupt change of speed (under gradual increase of torque). The voltage and frequency (for induction motors) shall be maintained at their rated values.		P
9.4.2	Polyphase synchronous motors		-
9.4.3	Other motors		-
9.5	Pull-up torque		-
9.6	Safe operating speed of cage induction motors		-
9.7	Overspeed Machines shall be designed to withstand the speeds specified in Table 18. An overspeed test is not normally considered necessary but can be performed when this is specified and has been agreed. (For turbine-type a.c. generators, see also IEC 60034-3.) An overspeed test shall be considered as satisfactory if no permanent abnormal deformation is apparent subsequently, and no other weakness is detected which would prevent the machine from operating normally, and provided the rotor windings after the test comply with the required dielectric tests. The duration of any overspeed test shall be 2 min.		P
9.8	Short-circuit current for synchronous machines		-
9.9	Short-circuit withstand test for synchronous machines		-
9.10	Commutation test for commutator machines		-
9.11	Total harmonic distortion (THD) for synchronous machines		-
10	Rating plates		-
10.1	General		-
10.2	Marking		-
	Machines with rated outputs up to and including 750 W (or		-

	VA) and dimensions not covered by IEC 60072 shall be marked with the information given in items a, b, k, l and z below as a minimum. For special-purpose and built-in machines with rated outputs up to and including 3 kW (or kVA) items a, b, k and l shall be marked as a minimum and item z may be provided in another form.		
	In all other cases, rating plate(s) shall be durably marked with the items in the following list, as far as they apply		-
	a) The manufacturer's name or mark.	DORNA Technology Co.,Ltd	P
	b) The manufacturer's serial number, or identification mark.		P
	c) Information to identify the year of manufacture. This shall be marked on the rating plate or be given on a separate data sheet to be provided with the machine.		P
	d) The manufacturer's machine code.		P
	e) For a.c. machines, the number of phases.		P
	f) The number(s) of the rating and performance standard (s) which are applicable (IEC 60034-X and/or equivalent national standard(s)). If IEC 60034 is marked, this implies compliance with all the other relevant standards of the IEC 60034 series.		P
	g) The degree of protection provided by the integral design of the rotating electrical machine (IP code) in accordance with IEC 60034-5.		P
	h) For motors within the scope of IEC 60034-30, the efficiency class (IE code) and the rated efficiency as specified in IEC 60034-30.		P
	i) The thermal class and the limit of temperature or of temperature rise (when lower than that of the thermal class) and, if necessary, the method of measurement, followed in the case of a machine with a water-cooled heat exchanger by 'P' or 'S', depending on whether the temperature rise is measured above the primary or secondary coolant respectively (see 8.2). This information shall be given for both stator and rotor (separated by a slash) when their thermal class differ.	see 8.2	P
	j) The class(es) of rating of the machine if designed for other than rating for continuous running duty S1, see 5.2.		P
	k) The rated output(s) or range of rated output.		P
	l) The rated voltage(s) or range of rated voltage.		P
	m) For a.c. machines the rated frequency or range of rated frequency.		P

	n) For synchronous machines excited by permanent magnets the open circuit voltage at rated speed		P
	o) The rated current(s) or range of rated current.		P
	p) The rated speed(s) or range of rated speed.		P
	q) The permissible overspeed if other than specified in 9.7.		P
	r) For d.c. machines with separate excitation or with shunt excitation and for synchronous machines, the rated field voltage and the rated field current.		P
	s) For a.c. machines, the rated power factor(s).		P
	t) For wound-rotor induction machines, the rated open-circuit voltage between slip-rings and the rated slip-ring current		P
	u) For d.c. motors with armatures intended to be supplied by static power converters, the identification code of the static power converter in accordance with IEC 60971. Alternatively, for motors not exceeding 5 kW, the rated form factor and the rated alternating voltage at the input terminals of the static power converter, when this exceeds the rated direct voltage of the motor armature circuit.		P
	v) The maximum ambient air temperature, if other than 40 °C.	40 °C	P
	w) The minimum ambient air temperature if other than specified in 6.4.	specified in 6.4	P
	x) The altitude for which the machine is designed (if exceeding 1 000 m above sea-level).		P
	y) For hydrogen-cooled machines, the hydrogen pressure at rated output.		P
	z) When specified, the approximate total mass of the machine, if exceeding 30 kg.		P
11	Miscellaneous requirements		-
11.1	Protective earthing of machines		-
	Machines shall be provided with an earthing terminal or another device to permit the connection of a protective conductor or an earthing conductor.		P
11.2	Shaft-end key(s)		-
	When a machine shaft end is provided with one or more keyways, each shall be provided with a full key of normal shape and length.		P
12	Tolerances		-
13	Electromagnetic compatibility (EMC)		-
14	Safety	Rotating machines in accordance with this standard	P

EN 60034-5:2001
Rotating electrical machines – Part 5: Degrees of protection provided by the integral
design of rotating electrical machines (IP code) – Classification

6	Marking		P
	It is recommended that the characteristic letters and numerals be marked on the machine		P
	- preferably on the rating plate	IP54 marked	P
	- on the enclosure		N/A
	The lower degree of protection of: guards for external fans (as allowed in 4.3); drain holes (as allowed in 4.4); need not be specified on the rating plate or in the documentation.		N/A
	Where the mounting of the machine has an influence on the degree of protection		N/A
7	General requirements for tests		P
7.1.1	Low-voltage machines (rated voltages not exceeding 1 000 V a.c. and 1 500 V d.c.)		P
	The test device (sphere, finger, wire, etc.) does not touch the live parts or moving parts other than non-dangerous parts such as smooth rotating shafts.		P
7.1.2	High-voltage machines (rated voltages exceeding 1 000 V a.c. and 1 500 V d.c.)		N/A
	When the test device is placed in the most unfavourable position, the machine shall be capable of withstanding the dielectric test applicable to the machine		N/A
	This dielectric test requirement may be replaced by a specified clearance dimension in air which would ensure that this test would be satisfactory under the most unfavourable electrical field configuration		N/A
8	Tests for first characteristic numeral		P
	The dust test for numerals 5 and 6 shall be performed		P
	- with the shaft stationary, provided that the difference in pressure between running and stationary (caused by fan effects) is lower than 2 kPa		P
	- If the pressure difference is greater than 2 kPa, the internal machine pressure during the dust test shall be depressed accordingly.		N/A
	- Alternatively, the machine may be tested with the shaft rotating at rated speed.		N/A

	Test and acceptance conditions for the first characteristic numeral are given in table 4.		P
	- 0: No test is required.		N/A
	- 1: The test is made with a rigid sphere of 50 mm diameter applied against the opening(s) in the enclosure with a force of 45 N to 55 N		N/A
	The protection is satisfactory if the sphere does not pass through any opening and adequate clearance is maintained to parts which are normally live in service or moving parts inside the machine.		N/A
	- 2:a) Finger test; b) Sphere test		N/A
	The protection is satisfactory if the sphere does not pass through any opening and adequate clearance is maintained to live or moving parts inside the machine.		N/A
	- 3: The test is made with a straight rigid steel wire or rod of 2,5 mm diameter applied with a force of 2,7 N to 3,3 N. The end of the wire or rod shall be free from burrs and at right angles to its length.		N/A
	The protection is satisfactory if the wire or rod cannot enter the enclosure.		N/A
	- 4: The test is made with a straight rigid steel wire of 1 mm diameter applied with a force of 0,9 N to 1,1 N. The end of the wire shall be free from burrs and at right angles to its length.		N/A
	The protection is satisfactory if the wire or rod cannot enter the enclosure.		N/A
	- 5: a) Dust test; b) Wire test		P
	If the machine is intended to be run with open drain hole(s), these shall be tested in the same manner as the first characteristic numeral 4, that is, using a 1 mm diameter wire.		N/A
	- 6: Test in accordance with 5 a). The protection is satisfactory if, on inspection, there is no ingress of talcum powder.		N/A
	The protection is satisfactory if, on inspection, there is no ingress of talcum powder.		P
9	Tests for second characteristic numeral		P
	Test conditions for the second characteristic numeral are given in table 5.		P
	- 0: No test is required.		N/A
	- 1: The test is made by means of an equipment, the principle of which is shown in figure 3.		N/A

	- 2: The dripping equipment is the same as that specified for the second characteristic numeral 1 and is adjusted to give the same rate of discharge. The machine is tested for 2,5 mm in each of four fixed positions of tilt. These positions are 15° either side of the vertical in two mutually perpendicular planes. The total duration of the test shall be 10 mm.		N/A
	- 3: The test shall be made using equipment such as is shown in figure 4, provided that the dimensions and shape of the machine to be tested are such that the radius of the oscillating tube does not exceed 1 m. Where this condition cannot be fulfilled, a hand-held spray device, as shown in figure 5, shall be used.		N/A
	a) Conditions when using test equipment as shown in figure 4. The total flow rate shall be adjusted to an average rate of (0,067 to 0,074) 1/mm per hole multiplied by the number of holes. The total flow rate shall be measured with a flowmeter. The tube is provided with spray holes over an arc of 60° either side of the centre point and shall be fixed in a vertical position. The test machine is mounted on a turntable with a vertical axis and is located at approximately the centre point of the semicircle. The minimum duration of the test shall be 10		N/A
	b) Conditions when using test equipment as shown in figure 5. The moving shield shall be in place for this test. The water pressure is adjusted to give a delivery rate of (10 ± 0,5) 1/mm (pressure approximately 80 kPa to 100 kPa (0,8 bar to 1,0 bar) The test duration shall be 1 min/m ² of calculated surface area of the machine (excluding any mounting surface and cooling fin) with a minimum duration of 5 mm.		N/A
	- 4: The conditions for deciding whether the apparatus of figure 4 or that of figure 5 should be used are the same as stated for the second characteristic numeral 3.		P
	a) Using the equipment as shown in figure 4. The oscillating tube has holes drilled over the whole 180° of the semicircle. The test duration and the total water flow rate are the same as for degree 3. The support for the machine under test shall be perforated so as to avoid acting as a baffle and the enclosure shall be sprayed from every direction by oscillating the tube at a rate of 60° s ⁻¹ to the limit of its travel in each direction.		P
	b) Using the equipment as shown in figure 5. The moving shield is removed from the spray nozzle and the machine		N/A

	is sprayed from all practicable directions. The rate of water delivery and the spraying time per unit area are the same as for degree 3.		
	- 5: The test is made by spraying the machine from all practicable directions with a stream of water from a standard test nozzle as shown in figure 6. The conditions to be observed are as follows: - nozzle internal diameter: 6,3 mm; - delivery rate: 11,9 — 13,2 l/mm; - water pressure at the nozzle: approximately 30 kPa (0.3 bar) (see NOTE 1); - test duration per m² of surface area of the machine: 1 mm; - minimum test duration: 3 mm; - distance from nozzle to machine surface: approximately 3 m (see NOTE 2). (This distance may be reduced, if necessary to ensure proper wetting when spraying upwards).		N/A
	- 6: The test is made by spraying the machine from all practicable directions with a stream of water from a standard test nozzle as shown in figure 6. The conditions to be observed are as follows: - nozzle internal diameter: 12.5 mm; - delivery rate: 95 — 105 l/mm - water pressure at the nozzle: approximately 100 kPa (1 bar) (see NOTE 1); - test duration per m² of surface area of the machine: 1 mm; - minimum test duration: 3 mm; - distance from nozzle to machine surface: approximately 3 m (see NOTE 2).		N/A
	- 7: The test is made by completely immersing the machine in water so that the following conditions are satisfied: a) the surface of the water shall be at least 150 mm above the highest point of the machine; b) the lowest portion of the machine shall be at least 1 m below the surface of the water; c) the duration of the test shall be at least 30 mm; d) the water temperature shall not differ from that of the machine by more than 5 °C. By agreement between manufacturer and user, this test may be replaced by the following procedure: The machine should be tested with an inside air pressure of about 10 kPa (0,1 bar). The duration of the test is 1 mm. The test is deemed satisfactory if no air leaks out during the test. Air leakage may be detected either by		N/A

	submersion, the water just covering the machine, or by the application onto it of a solution of soap in water.		
	-8: The test conditions are subject to agreement between manufacturer and user, but they shall not be less severe than those prescribed for degree 7.		N/A
9.2	Acceptance conditions		P
	After the test in accordance with table 5 has been carried out, the machine shall be inspected for ingress of water and subjected to the following verification and tests		P
9.2.1	The amount of water which has entered the machine shall not be capable of interfering with its satisfactory operation. The windings and live parts not designed to operate when wet shall not be wet and no accumulation of water which could reach them shall occur inside the machine. It is, however, permissible for the blades of fans inside rotating machines to be wet and leakage along the shaft is allowable if provision is made for drainage of this water.		P
9.2.2	2 In the case of a test on a machine not running, the machine shall be operated under no-load conditions at rated voltage for 15 min, then conditions at rated voltage for 15 min, then being 50 % of the test voltage for a new machine (but not less than 125 % of the rated voltage). In the case of a test on a running machine, only the high-voltage test is made, in accordance with item a) above.		P
	The test is deemed satisfactory if these checks show no damage according to IEC 60034-1.		P

EN 60034-11:2004

Rotating electrical machines – Part 11: Thermal protection

8	Type tests		P
	General: Type tests are to verify compliance of a thermal protection system with the requirements of this standard. Tests shall be made on a machine which is representative of the machine type. The proposed thermal protection system shall be installed. Temperature sensors used for testing shall be located in positions representative of the location of the thermal detectors used by the thermal protection system.		P
	Verification of temperature due to the thermal over loads with slow variation: Starting with the machine at operating temperature, the load shall be slowly increased so that the the temperature of the winding increases at a rate of less than 1 K per 5 min. Temperatures shall be recorded at a minimum of 10 min intervals. When the thermal protection system trips, the supply to the machine shall be switched off if it is not directly interrupted by the thermal protection device. The winding temperature shall be determined immediately after tripping in accordance with the requirements of 8.6.2 of IEC 60034-1. The winding temperature specified in Table 1 shall not be exceeded.	Resistance method used. The temperature at the time of tripping is: Total winding: 129.5°C (460V, 60Hz) 135.3°C (460V, 50Hz) 110.9°C (380V, 60Hz) 128.7°C (380V, 50Hz) The value specified in table 1 is $170 - (50 - 25) = 145^{\circ}\text{C}$ (155(F)).	P
	Verification of temperature due to thermal overloads with rapid variation: Starting with the machine at ambient temperature, with the rotor locked to prevent rotation, apply rated voltage to the windings. Protection systems shall be operated for a minimum of 10 cycles. At the end of the energized period, the maximum temperature of the winding shall be recorded. For manual re-set systems, the protector shall be re-closed as quickly as possible and power restored. The highest temperature attained shall not exceed the values in Table 2.	Resistance method used. The highest temperature at the time of tripping is: Total winding: 112.6°C (460V, 60Hz) 111.8°C (460V, 50Hz) 155.1°C (380V, 60Hz) 157.1°C (380V, 50Hz) The value specified in table 2 is $240 - (50 - 25) = 215^{\circ}\text{C}$ (155(F)).	P

Photo of Sample



LIST OF INSTRUMENTS				
NO	Equipment name	Type	Serial NO	period of validity
1	Digital AC Power Source	6200 series	Angui-004	2019.11.15
2	Radiation Tester	440RF/D	Angui-006	2019.12.9
3	Line Leakage Tester	7620	Angui-008	2019.11.14
4	Electrical Safety Compliance analyzer	7452	Angui-011	2019.11.14
5	Safely-testing instrument	ST-1001	Angui-012	2019.11.22
6	Digital display caliper	0.01 mm	Angui-014	2019.11.23
7	Dual display LCR instrument	ELC-131D	Angui-161	2019.11.22
8	Impact testing hammer	ST-1002	Angui-017	2019.11.29
9	Surge-insulation tester	NF2675	Angui-019	2019.9.19
10	Lecroy Storage Oscilloscope	9304A	Angui-020	2019.11.7
11	Trillion-Ohm Instrument	ZC25B-3	Angui-022	2019.10.15
12	Digital temperature tester	DR030	Angui-024	2019.11.7
13	Program control combustion Instrument	CS-1	Angui-032	2019.11.29
14	Torque driver	RTD60CN	Angui-036	2019.11.23
15	Digital micrometer		Angui-013	2019.11.14
16	Pushing Tube-shaped ergometer	KL-10	Angui-038	2019.11.14
17	Noncontact thermometer	ST60	Angui-156	2019.11.14

18	Dynamometer	KL-2	Angui-040	2019.11.23
19	Dynamometer	TK-30	Angui-044	2019.11.23
20	Alternating Moisture testing instrument	SDJ020	Angui-050	2019.11.23
21	Measuring instrument for temperature raise of live windings	RC-3	Angui-150	2019.11.23
22	Audio analyzer	VP-7720A	YPL03-01	2019.11.14
23	FM/AM signal generator	VP-8179B10	YXH01-01	2019.11.14
24	FM/AM signal generator	VP-8179B10	YXH01-02	2019.11.14
25	Frequency counter	500A	YPL-05-01	2019.11.23
26	Multiplex srereo modulator	VP-7633A	YQT23-01	2019.11.23
27	WOW flutter meter	MK-668E	YDBW03-01	2019.11.23

EC Declaration of conformity

Council Directive 2014/35/EU on Low Voltage Directive

DORNA Technology Co., Ltd

**No .99 Zhuangchi Middle Road, Ganyao Industrial Park,
Jiashan,Zhejiang China**

Certify that the product described is in conformity with the Directive
2014/35/EU as mended

Product Name:

AC Servo Motor

Item No:

See Annex

The product has been assessed by the application of the following standards:

EN 60034-1:2010;EN 60034-5:2001;EN 60034-11:2004;

Issue place and date

Company stamp and Signature of authorized personnel

Annex

Model:

DM1M-A5A40L8S	DM1S-04A60I8S-M	DM1S-10A100I8E
DM1M-A5A40L8E	DM1M-08A80I8S	DM1S-10A100L8S
DM1M-A5A40L81	DM1M-08A80I8E	DM1S-10A100L8E
DM1M-A5A40L8B	DM1M-08A80L8S	DM1S-15A100I8S
DM1M-A5A40L8S-P	DM1M-08A80K8S	DM1S-15A100I8E
DM1M-A5A40L8E-P	DM1M-08A80I8S-W500	DM1S-15A100L8S
DM1M-01A40L81	DM1M-08A80L8E	DM1S-15A100L8E
DM1M-01A40L8B	DM1H-08A80I8S	DM1S-25A100I8S
DM1M-01A40L8S	DM1H-08A80I8E	DM1S-25A100I8E
DM1M-01A40L8E	DM1H-08A80L8S	DM1S-25A100L8S
DM1M-01A40L8S-P	DM1H-08A80L8E	DM1S-25A100L8E
DM1M-01A40L8E-P	DM1M-08A80I8S-P	DM1S-09A130L8S
DM1M-02A60I8S	DM1M-08A80I8S-P	DM1S-09A130L8E
DM1M-02A60I8E	DM1M-08A80I8E-P	DM1S-10A130I8S
DM1M-02A60L8S	DM1M-08A80L8S-P	DM1S-10A130I8E
DM1M-02A60L8E	DM1M-08A80L8E-P	DM1S-10A130L8E
DM1M-02A60I8S-P	DM1H-08A80I8S-P	DM1S-10A130L8S
DM1M-02A60I8E-P	DM1H-08A80I8E-P	DM1S-15A130I8E
DM1M-02A60L8S-P	DM1H-08A80L8S-P	DM1S-15A130L8E
DM1M-02A60L8E-P	DM1H-08A80L8E-P	DM1S-15A130I8S
DM2M-02A60I8S	DM2M-08A80I8S	DM1S-15A130L8S
DM2M-02A60I8E	DM2M-08A80I8E	DM1S-15A130I8S-MR5000
DM2M-02A60L8S	DM2M-08A80L8S	DM1S-15A130L8S-MR5000
DM2M-02A60L8E	DM2M-08A80L8E	DM1S-15A130I8S-K01
DM2M-02A60I8S-P	DM2H-08A80I8S	DM1S-15A130I8E-K01
DM2M-02A60I8E-P	DM2H-08A80I8E	DM1M-18A130I8S
DM2M-02A60L8S-P	DM2H-08A80L8S	DM1S-20A130I8S
DM2M-02A60L8E-P	DM2H-08A80L8E	DM1S-20A130I8E
DM1M-04A60I8S	DM2M-08A80I8S-P	DM1S-20A130L8E
DM1M-04A60I8E	DM2M-08A80I8E-P	DM1S-20A130I8S-MR5000
DM1M-04A60L8S	DM2M-08A80L8S-P	DM1S-20A130L8S
DM1G-04A60I8S	DM2M-08A80L8E-P	DM1S-30A130I8S
DM1M-04A60L8E	DM2H-08A80I8S-P	DM1S-30A130I8E
DM1M-04A60I8S-P	DM2H-08A80I8E-P	DM1S-30A130L8S-MR5000
DM1G-04A60L8S	DM2H-08A80L8S-P	DM1S-30A130L8S
DM1M-04A60I8E-P	DM2H-08A80L8E-P	DM1S-30A130L8E
DM1M-04A60L8S-P	DM1M-10A80I8S	DM1S-30A130I8S-K01
DM1G-04A60I8S-P	DM1M-10A80L8S	DM1M-09A130I8S

DM1M-04A60L8E-P	DM1M-10A80I8E	DM1M-09A130I8E
DM1G-04A60L8S-P	DM1M-10A80L8E	DM1M-09A130L8S
DM2M-04A60I8S	DM1M-10A80I8S-P	DM1M-09A130L8E
DM2M-04A60I8E	DM1M-10A80L8S-P	DM1M-13A130I8S
DM2M-04A60L8S	DM1M-10A80I8E-P	DM1M-13A130I8E
DM2G-04A60I8S	DM1M-10A80L8E-P	DM1M-13A130L8S
DM2M-04A60L8E	DM2M-10A80I8S	DM1M-13A130L8E
DM2G-04A60L8S	DM2M-10A80L8S	DM1M-18A130I8E
DM2M-04A60I8S	DM2M-10A80I8E	DM1M-18A130L8S
DM2M-04A60I8E	DM2M-10A80L8E	DM1M-18A130L8E
DM2M-04A60L8S	DM2M-10A80I8S-P	DM1M-75B180I8E
DM2G-04A60I8S	DM2M-10A80L8S-P	DM1M-75B180I8S
DM2M-04A60L8E	DM2M-10A80I8E-P	DM1M-55B180I8E
DM2G-04A60L8S	DM2M-10A80L8E-P	DM1M-55B180I8S
DM1M-04A60L8B	DM1S-20A100I8S	DM1M-44B180I8E
DM1M-04A60I8S-K01	DM1S-20A100I8E	DM1M-44B180I8S
DM1M-04A60I8E-M	DM1S-20A100L8S	DM1M-29B180I8E
DM1M-04A60L8E-M	DM1S-20A100L8E	DM1M-29B180I8S
DM1M-04A60L8S-M	DM1S-10A100I8S	

Notice

1. This test report shall be invalidation without the cachet of the testing laboratory.
2. This copied report shall be invalidation without sealed the cachet of the testing laboratory.
3. This report shall be invalidation without tester signature.
4. This altered report shall be invalidation.
5. Client shall put forward demurrer within 15 days after received report. The testing laboratory shall refuse disposal if exceeded the time limit.
6. The test results presented in this report relate only to the object tested.
7. This report is only applicable to CE certificate application.