TEST REPORT

LAB NO. : (9125)164-0492 REVISED
DATE : JUL.07,2025
REVISED DATE : JUL.16,2025

Applicant :

A.T.F POWER TECHNOLOGY FZE
JAFZA ONE BUILDING-TOWER A2204-P.O.BOX 261513
JABEL ALI FREE ZONE-DUBAI-UNITED ARAB EMIRATES

Date of Submission: 2025-06-13
Date of Revised: 2025-07-16
Test Period: 2025-06-13 to 2025-07-07
Sample Mode: Sample Presentation
BV EE Ref. No. BV: /

Sample Description :	Sample(s) received is(are) stated to be: DIESEL GENSET		
Model:	/	Buyer:	/
Manufacturer Name:	FUZHOU ATF POWER TECHNOLOGY CO., LTD	PO No. :	/
Country of Origin:	CHINA	Country of Export:	UAE
Reference/Type:	AG16.5,AG22,AG33,AG35,AG44,AG45,AG55,AG66, AG88,AG110,AG125,AG138,AG165,AG200,AG220, AG250,AG275,AG313,AG330,AG350,AG388,AG400, AG413,AG440,AG450,AG500,AG550,AG625,AG650, AG688,AG700,AG713,AG750,AG825,AG880,AG1000, AG1100,AG1250,AG1375,AG1675,AG1875,AG2063, AG2250,AG2375,AG2500,AG2750,AG3250,P22D5, P33D5,P88D5,P220D5,P275E5,SD16.5D5,SD22D5, SD55D5,SD550E5,SD275D5,C44D5,C66D5,C275D5, C330E5G,C550E5	Brand Name/Trade Mark:	/
Manufacturer Address	/		

Test Item(s) : Details see page 2

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SUMMARY OF TEST RESULTS

As the applicant required, to carry the test items as below:

	Test Items	Verdict
1.	Product compliance test in acc. to IEC 60034-1:2022 & ISO 8528-13:2016	PASS

BVCPS (Shanghai) Nanjing branch contact information for this report

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BUREAU VERITAS NANJING CO.,LTD 报告专用章

BUREAU VERITAS
CONSUMER PRODUCTS SERVICES
(SHANGHAI)
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Rita Zhang

RITA ZHANG
PROGRAM MANAGER (TOYS DIVISION)

REMARK:
With the client's prior consent,all tests are subcontracted to other lab.

TEST RESULTS

1. Product compliance test

Test method: with reference to IEC 60034-1:2022& ISO 8528-13:2016

Clause	Title	Results	Verdict
IEC 60034-1:2022 Rotating electrical machines part 1 rating and performance			
4	Duty		P
4.1	Declaration of duty		P
	Purchasers declaration of duty		N
	If duty not declared, S1	Yes	P
4.2	Duty types		P
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 d uty 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		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
	Rating assignment by manufacturer. if no designation is stated, rating for continuous running duty applies	Yes	P
5.2	Classes of rating		P
	Rating for continuous running duty, short time duty, periodic duty, non-periodic duty, duty with discrete constant load s and speeds, equivalent loading continuous running duty		P
5.3	Selection of a class of rating		P
	General purpose shall have a rating for continuous running duty and be capable of performing duty type S1	Yes	P
	if duty not specified by purchaser S1 applies	Yes	P
	Short time duty S2 applies		N
	Varying loads and no load, S3 to S8 applies		N
	Non periodical variable loads at variable speeds, S9 applies		N
	Discrete constant loads, S10 applies		N
5.4	Allocation of outputs to class of rating		P
	For duty S1 to S8, specified value(s) of constant load(s) is rated output(s)	Yes	P
	For duty S9 and S10, reference value of the load		N

Clause	Title	Results	Verdict
	based on S1 taken as the rated output		
5.5	Rated output		P
5.5.1	DC generators		N
	Output at terminals(W)……..:		N
5.5.2	AC generators		P
	Apparent power at terminals(VA)…….	80kW	P
	Power factor……..	0.8	P
	Rated power factor for synchronous generators 0.8 lagging (over excited)		P
5.5.3	Motors		N
	Mechanical power at shaft(kW)……		N
5.5.4	Synchronous condensers		N
	Reactive power at terminals(var)…….		N
5.6	Rated voltage		P
5.6.1	DC generators		N
	For small range of voltage, rated output and current apply at the highest voltage of the range		N
5.6.2	AC generators		P
	Small range of voltage, the rated output and power factor apply at any voltage within range	400V	P
5.7	Coordination of voltages and outputs		N
	For machines with rated voltages above 1 kV, preferred rated voltage are selected according to rated output as stated table		N
5.8	Machines with more than one rating		N
	Comply with standard in all respects at each rating		N
	For multi speed motors, a rating be assigned for each speed		N
	When a rated quantity (output, voltage, speed, etc.) assume several values or vary continuously within two limits, the rating be stated at these values or limits.		P
6	Site operating conditions		P
6.1	General		P
	Machines shall be suitable for the following site operating conditions	Yes	P
6.2	Altitude		P
	The altitude shall not exceed 1000m above sea level.	Yes	P
6.3	Maximum ambient air temperature		P
	Not exceed 40℃	22.0℃	P
6.4	Minimum ambient air temperature		P
	Not less than −15℃	22.0℃	P
	Not less than 0℃ if one of more exceptions apply		N
6.5	Water coolant temperature		N
	For the reference water coolant temperature see Table 4. For other water coolant temperatures see		N

Clause	Title	Results	Verdict
	Table 9. The water coolant temperature shall not be less than +5℃		
6.6	Storage and transport		N
	Minimum specified temperature if different form that in 5.4(℃)		N
6.7	Purity of hydrogen coolant		N
	Operating at hydrogen content ≥95%		N
7	Electrical operating conditions		P
7.1	Electrical supply		N
	For three phase a.c. machines, 50 Hz or 60 Hz, intended to be directly connected to distribution or utilization systems, the rated voltages shall be derived from the nominal voltages given in IEC 60038.		N
7.2	Form and symmetry of voltage and currents		N
7.2.1	AC motors		N
7.2.1.1	AC motors rated for use on a power supply of fixed frequency, supplied from an a.c generator shall be suitable for operation on a supply voltage having a harmonic voltage factor (HVF) NOT exceeding:		N
	0.02 for single phase motors and three phase motors		N
	0.03 for design N motors		N
7.2.1.2	AC motors supplied from static converters		N
7.2.2	AC generators		N
	Complying with requirements		N
7.2.3	Synchronous machines		N
	Be capable of operating continuously on an unbalanced system in such a way that, with none of the phase currents exceeding the rated current, the ratio of the negative sequence component of current (I2) to the rated current (IN) does not exceed the values in Table 2:		N
	Under fault conditions shall be capable of operation with the product of (I2/IN)2 and time (t) not exceeding the values in Table 2:		N
7.2.4	DC motors supplied from static power converters		N
	Complying with requirements		N
7.3	Voltage and frequency variations during operation		N
	Figure11 used for generators and synchronous condensers		N
	Figure12 used for motors		N
	Machine capable of performing its primary function continuously within zone A, but need not comply fully with its performance at rated voltage and frequency		N
	machine capable of performing its primary function within zone B, but may exhibit greater deviations from its performance at rated voltage and frequency than in zone A		N
7.4	Three phase a.c. machines operating on unearthed systems		N
	Three phase a.c. machines shall be suitable for continuous operation with the neutral at or near earth potential;		N

Clause	Title	Results	Verdict
	Machine able to operation on unearthed systems with one line at earth potential for infrequent periods of short duration		N
7.5	Voltage (peak and gradient) withstand levels		N
	Limiting value for peak voltage(V)……..:		N
	Limiting value for voltage gradient(°) …… ….		N
	Creepage and clearance distances of bare live copper:		N
8	Thermal performance and tests Test voltage 220V/60Hz		P
8.1	Thermal class		P
	A thermal class in accordance with IEC 60085 shall be assigned to the insulation systems used in machines	Class H	P
8.2	Reference coolant		P
	The reference coolant for a given method of cooling the machine is specified in Table 4	Coolant: air, method of cooling: indirect	P
8.3	Conditions for thermal tests		P
8.3.1	Electrical supply the supply		N
	During thermal testing of an a.c. motor, the supply Complying with Requirements		N
8.3.2	Temperature of machine before test		N
	If the temperature of a winding is to be determined from the increase of resistance, the initial winding temperature shall not differ from the coolant by more than 2K		P
	For short time rating (S2) temperature of winding before the thermal test within 5K of coolant temperature		N
8.3.3	Temperature of coolant		P
	be tested at any convenient value of coolant temperature		P
8.3.4	Measurement of coolant temperature during test		P
	The value for the temperature of a coolant during a test shall be the mean of the readings of the temperature detectors taken at equal intervals of time during the last quarter of the duration of the test. all reasonable precautions shall be taken to minimize such variations.	Yes	P
8.3.4.1	Open machines or closed machines without heat exchangers (cooled by surrounding ambient air or gas)		P
	by means of several detectors placed at different points around and halfway up the machine at 1 m to 2 m from it. detector be protected from radiant heat and draughts.	Yes	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		N
	The temperature of the primary coolant shall be measured where it enters the machine.		N
8.3.4.3	Closed machines with machine mounted or internal heat exchangers		N
	The temperature of the primary coolant shall be measured where it enters the machine. the temperature of the secondary coolant shall be measured where it enters the heat exchanger		N

Clause	Title	Results	Verdict
8.4	Temperature rise of a part of a machine		P
	Temperature measured at the end of the test	Yes	P
8.5	Methods of measurement of temperature		P
	Three methods of measuring the temperature of windings and other parts are recognized Resistance method, Embedded temperature detector ETD, method Thermometer method	Resistance Method	P
8.6	Determination of winding temperature		P
8.6.1	Choice of method		P
	Rated output……	80kW	P
	Method for measuring winding temperature……	Resistance method	P
	Thermometer method is recognized in the following cases		N
	a) when not practicable to determine the temperature rise by the resistance method;		N
	b) Single layer windings, rotating or stationary;		N
	c) During routine tests on machines manufactured in large numbers.		N
8.6.2	Determination by resistance method		P
8.6.2.1	Measurement		P
	One of the following methods used:		P
	Direct measurement	Yes	P
	Measurement by d.c. current/voltage		N
	Superposition method		N
8.6.2.2	Calculation		P
	Temperature rise(θ2/θa)(K)(amend)……	71.5K	P
8.6.2.3	Correction for stopping time		P
8.6.2.3.1	General		P
	The measurement of temperatures at the end of the thermal test by the direct measurement resistance method requires a quick shutdown.	Yes	P
8.6.2.3.2	Short stopping time		P
	Interval reading obtained within time interval specified in table 5	Yes	P
8.6.2.3.3	Extended stopping time		N
	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		N
	A curve of these readings shall be plotted as a function of time and extrapolated to the appropriate time interval of Table 5 for the rated output of the machine. the value of temperature obtained be considered as the temperature at shutdown.		N
	If successive measurements show increasing temperatures after shutdown the highest value shall be taken		N
8.6.2.3.4	Windings with one coil side per slot		N
	The resistance method by direct measurement be used if the machine comes to rest within the time		N

Clause	Title	Results	Verdict
	interval specified in table 5.		
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
	Detectors located between the insulated coil sides within slot in positions which the highest temperatures are likely to occur.		N
8.6.3.3	One coil side per slot		N
	Detectors located between wedge and outside of the winding insulation in positions which highest temperatures are likely to occur.		N
8.6.3.4	End windings		N
	Detectors located between two adjacent coil sides within end windings in positions where highest temperatures are likely to occur. sensing point in close contact with the surface of a coil side and adequately protected against influence of coolant		N
8.6.4	Determination by thermometer method		N
	Thermometer placed at hottest accesslble spot.		N
8.7	Duration of thermal tests		P
8.7.1	Rating for continuous running duty		P
	Test continued until thermal equilibrium has been reached.		P
8.7.2	Rating for short time duty		N
	The duration be the time given in rating.		N
8.7.3	Rating for periodic duty		N
	Rating for equivalent loading assigned be applied until thermal equilibrium has been reached.		N
	Test on actual duty load cycle and continued until practically identical temperature cycles are obtained.		N
8.7.4	Ratings for non-periodic duty and for duty with discrete constant loads		N
	Rated for equivalent loading assigned be applied until thermal equilibrium has been reached.		N
8.8	Determination of the thermal equivalent time constant for machines of duty type S9		N
	Thermal equivalent time constant determined from plotted cooling curve		N
8.9	Measurement of bearing temperature		P
	Thermometer method or ETD method used.	Thermometer method	P
	Measuring point be as near as possible to one of the two locations specified in table 6.		P
	Thermal resistance between temperature detector and the object minimized	Yes	P
8.10	Limits of temperature and of temperature rise		P
	Indirect cooled windings		P
	Temperature rises not exceeding limits table 7 (air coolant) or table 8(hydrogen coolant)	Air coolant	P
	Temperature rise limit according to table 7 or table 8.....:	Class H: 71.5K	P

Clause	Title	Results	Verdict
	For other operating site conditions, ratings other than conditions running duty, rated voltages greater than 12 000V, limits shall be adjusted according to table 9 and 10		N
	If the test site differ form the operating site, limits be adjusted according to table 11		N
8.10.2	Direct cooled windings		N
	Temperatures not exceed limits table 12		N
	For other operating site conditions limits adjusted according to table 13		N
	If the test site differ from operating site, limits be adjusted according to table 14		N
8.10.3	Adjustments to take account of hydrogen purity on test		P
	hydrogen content between 95 and 100 %		N
8.10.4	Permanently short circuited windings, magnetic cores and all structural components (other than bearings) whether or not in contact with insulation		N
	Temperature rise/temperature not detrimental to insulation of that part		N
8.10.5	Commutators and sliprings, open or enclosed and their brushes and brushgear		N
	Temperature rise/temperature not detrimental to insulation of that part		N
	Temperature rise/temperature not exceed that at which combination of brush grade and commutator or slipring material can handle the current over the full operating range.		N
9	Other performance and tests		P
9.1	Routine tests		P
	Routine tests are always factory tests.		N
9.2	Withstand voltage test		
	High voltage test applied between windings under test and frame of machine	Yes	P
	Withstand voltage test carried out immediately after that thermal test	Yes	P
	Polyphase machines with rated voltage above 1 kV having both ends of each phase individually accessible, test carried out for each phase		N
	Test voltage applied for 1 min	Yes	P
	Test voltage(V)(1 000 V + twice the rated voltage with a minimum of 1500V):	1800V, no failure	P
9.3	Occasional excess current		N
9.3.1	General		
	The excess current capability of rotating machines is given for the purpose of coordinating these machines with control and protective devices. Tests to demonstrate these capabilities are not a requirement of this standard.		N
9.3.2	Generators		N
	AC generators having rated outputs not exceeding 1 200 MVA shall be capable of withstanding a current equal to 1,5 times the rated current for not less than 30 s.		N
	AC generators having rated outputs above 1 200 MVA shall be capable of withstanding a current equal to 1,5 times the rated current for a period which shall be		N

Clause	Title	Results	Verdict
	agreed, but this period shall be not less than 15 s.		
9.3.3	Motors (except commutator motors and permanent magnet motors)		N
	Polyphase motors having rated outputs not exceeding 315 kW and rated voltages not exceeding 1 kV withstand a current equal to 1,5 times the rated current for not less than 2 min.		N
9.3.4	Commutator machines		N
	Withstanding, for 60 s, 1,5 times rated current under the appropriate combination		N
9.4	Momentary excess torque for motors		N
9.4.1	Polyphase induction motors and d.c. motors		N
	Withstand an excess torque of at least 60 % of rated torque for 15s without either stalling or exhibiting an abrupt change of speed; Motors for duty type S9 withstand momentarily excess torque determined according to duty specified.		N
	Rated torque(Nm)…… ……		N
	Excess torque(Nm)……..…….		N
9.4.2	Polyphase synchronous motors		N
	Unless otherwise agreed, withstand an excess torque as specified below for 15 s without falling out of synchronism		N
	Rated torque(Nm)……..		N
	Excess torque(Nm)…….…….		N
9.4.3	Other motors		N
	The momentary excess torque shall be the subject of agreement.		N
	Rated torque(Nm)……..		N
	Excess torque(Nm)……..……		N
9.5	Pull up torque		N
	Unless otherwise specified, the pull up torque of cage induction motors under full voltage be not less than 0 ,3 times the rated torque		N
	Rated torque(Nm)…….		N
	Excess torque(Nm)……..……..		N
9.6	Safe operating speed of cage induction motors		N
	All three phase single speed cage induction motors of frame number up to and including 3 15 and for voltages up to and including 1 000 V shall be capable of safe continuous operation at speeds up to the appropriate speed given in Table 17 unless otherwise stated on the rating plate		N
9.7	Overspeed		N
	An overspeed test is not normally considered necessary but can be performed when this is specified and has been agreed.		N
	Withstanding 1.2 times the maximum rated speed. after the test no permanent abnormal deformation shall be apparent subsequently, and no other weakness is detected, the roto r windings comply with the required dielectric tests. The duration of any		N

Clause	Title	Results	Verdict
	overspeed test shall be 2min.		
9.8	Short circuit current for synchronous machines		N
	Unless otherwise specified, the peak value of the short circuit current for synchronous machi nes, in the case of short circuit on all phases during operation at rated voltage, shall not exceed 15 times the peak value or 21 times the r.m.s. value of the rated current.		N
	Rated current(peak/ r.m.s)(A)……		N
	Measure/calculated short circuit current(A)……		N
9.9	Short circuit withstand test for synchronous machines		N
	be carried out only at the request of the purchaser		N
	be carried out on the machine running on no load with an excitation corresponding to the rated voltage unless otherwise agreed. short circuit maintained for 3 s		N
9.10	Commutation test for commutator machines		N
	Capable of operating from no load to operation with the excess current or excess torque, specified in 9.3 and 9.4 without permanent damage to the surf ace of the commutator or brushes, no without injurious sparking, the brushes remaining in the same set position.		N
9.11	Total harmonic distortion (THD) for synchronous machines		N
9.11.1	General		N
	Apply only to synchronous machines having rated outputs of 300 kW (or kVA) or more, intended for connection to power networks operating at nominal frequencies of 16 2/3 Hz to 100 Hz inclusive, with a view to minimizing interference caused by the machines.		N
9.11.2	Limits		N
	Tested on open circuit and at rat ed speed and voltage, (THD) of the line to line terminal voltage shall not exceed 5 %.		N
9.11.3	Tests		N
	The range of frequencies measured shall cover all harmonics from rated frequency up to the 100th harmonic.		N
	Measured directly value or calculated value of THD		N
10	Rating plates		P
10.1	General		P
	Every electrical machine shall be provided with a rating plate(s). The plates shall be made of durable material and be securely mounted.	Yes	P
	Rating plate(s) be mounted on the frame of the machine and be located so as to be easily legible in the position	Yes	P
	If the electrical machine is so enclosed or incorporated in the equipment that rating plate is not easily legible, the manufacturer shall supply a second plate to be mounted on the equipment		N
10.2	Marking		P
	Machines with rated outputs up to and including 750 W (or VA) and dimensions not covered by IEC 60072		N

Clause	Title	Results	Verdict
	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 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 the y apply. Letter symbols for units and quantities shall be in accordance with IEC 60027-1 and IEC 60027-4.	Yes	P
	If the manufacturer gives more information, this need not necessarily be marked on the rating plate(s).		N
	a) Manufacturer's name or mark:	ATF	P
	b) Manufacturer's serial number, or identification mark.	25060058	P
	c) Year of manufacture. Be marked on the rating plate or be given on a separate data sheet:	2025	P
	d)Manufacturer's machine code:	AG110	P
	e) For a.c. machines, the number of phases:	THREE PHASE	P
	f) Number(s) of the rating and performance standard(s) which are applicable (IEC 60034 X and/or equivalent national standard(s)):	S1	P
	g) Degree of protection provided by the integral design of the rotating electrical machine (IP code) in accordance with IEC 60034 5:	IP23	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:		N
	The thermal class and the limit of temperature or of temperature rise and, if necessary, the method of measurement, followed in the case of a machine with a water cooled heat exchanger by 'P' or 'S', This information shall be given for both stator and rotor (separated by a slash)when their thermal class differ:	CLASS H	P
	j) The class(es) of rating of the machine if designed for other than rating for continuous running duty S1:	S1	P
	Rated output(s) or range of rated output:	80kW	P
	Rated voltage(s) or range of rated voltage:	400V	P
	m) For a.c. machines the rated frequency or range of rated frequency. For universal motors, rated frequency shall be followed by the appropriate symbol:	50Hz	P
	n) For synchronous machines excited by permanent magnets the open circuit voltage at rated speed		N
	o) Rated current(s) or range of rated	144.3A	P
	p) Rated speed(s) or range of rated speed:	1500rpm	P
	q) Permissible overspeed if other than specified in 9.7.or the maximum safe operating speed if less than in 9.6:		N
	r) For d.c. machines with separate excitation or with shunt excitation and for synchronous machines, rated field voltage and the rated field current:		N
	s) For a.c. machines, the rated power factor(s):	0.8	P
	t) For wound rotor induction machines, rated open circuit voltage between slip rings and rated slip ring current:		N
	u) For d.c. motors with armatures intended to be supplied by static power converters, the identification		N

Clause	Title	Results	Verdict
	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.		
	v) Maximum ambient air temperature, if other than 40℃. Maximum water co olant temperature, if other than 25℃:		P
	w) Minimum ambient air temperature if other than specified in 6.4:		N
	x) 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:		N
	z) When specified, the approximate total mass of the machine, if exceeding 30 kg:		N
	bb) The connecting instructions in accordance with IEC 60034-8 by means of a diagram or text located near the terminals.	Yes	P
	Two different rated values shall be indicated by X/Y and a range of rated values shall be indicated by X Y (see IEC 61293)	Yes	P
11	Miscellaneous requirements		P
11.1	Protective earthing of machines		P
	Machines shall be provided with an earthing terminal or another device to permit the connection of a protective conductor or an earthing conductor.	Yes	P
	The symbol or legend shall identify this device.	Yes	P
	However, machines shall neither be earthed nor be provided with an earthing terminal when:		N
	a) they are fitted with supplementary insulation;		N
	b) they are intended for assembly in apparatus having supplementary insulation, or;		N
	c) they have rated voltages up to 50 V a.c. or 120 V d.c. and are intended for use on SELV circuits.		N
	Machines for rated voltages greater than 50 V a.c. or 120 V d.c., but not exceeding 1 000 V a.c. or 1 500 V d.c., terminal for earth conductor situated in vicinity of terminals for line conductors,	Yes	P
	Terminal being paced in termina box (if provided)	Yes	P
	Machines having rated outputs in excess of 100 kW (or kVA) have in addition an earthing terminal fitted on the frame		N
	Machines for rated voltages greater than 1 000 V a.c. or 1 500 V d.c. shall have an earthing terminal on the fr ame, and in addition, means inside terminal box for connecting conducting cable sheath (if any)		N
	Accessible conducting parts which are not part of the operating circuit shall have good electrical contact with each other and with the earthing terminal. When all bearings and the rotor winding of a machine are insulated, the shaft shall be electrically connected to the earthing terminal, unless the manufacturer and the purchaser agree to alternative means of protection	Yes	P
	If an earthing terminal provided in the terminal box, earthing conductor is made of the same metal as the lead conductors		N
	If an earthing terminal provided on frame, earthing conductor made of another metal, proper		N

Clause	Title	Results	Verdict
	consideration given to conductivity of conductor		
	Earth terminal designed to accommodate earth conductor of cross sectional area in accordance with table 19		N
11.2	Shaft end key(s)		N
	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.		N
12	Tolerances		N
12.1	General		N
	Tolerance is the maximum allowed deviation between the test result of a quantity from table 20 and the declared value on the rating plate or in the catalogue. the test result shall not exceed the allowed deviation independent of test laboratory or equipment.		N
12.2	Tolerances on values of quantities		N
	Unless stated otherwise, tolerances on declared values shall be as specified in table 20.		N
14	Safety		P
	Rotating machines in accordance with this standard shall comply with the requirements of IEC 60204-1 or IEC 60204-11 or, in the case of rotating machines incorporated in household and similar electrical appliances, IEC 60335-1.	Insulation resistance, 500M Ω	P
ISO 8528-13:2016 Reciprocating internal combustion engine driven alternating current generating sets -Part 13: Safety			
6	Safety Requirement		P
6.1	General		---
	Machinery shall comply with the safety requirements and/or protective measures of this clause. In addition, the machine shall be designed according to the principles of ISO 12100 for relevant but not significant hazards, which are not dealt with by this part of ISO 8528		P
6.2	Starting system		
6.2.1	Requirements		P
	Starting systems can be triggered manually or automatically	Manually	P
6.2.2	Verification		
	Compliance with the requirements shall be verified by inspection and testing of the starting systems.	Inspection	P
6.3	Stopping		
6.3.1	Requirements		P
6.3.1.1	Normal stopping		P
	All generating sets shall have a normal stopping device which can be manually or automatically actuated. Stopping controls shall remain in the stop position when operated. This shall operate by a device ensuring the cutting off of the fuel or the ignition (for spark ignition engines) supply. This device may include an air supply cut off.		P
6.3.1.2	Stopping in case of failure		P
	Generating sets except low power generating sets shall be provided with an automatically actuated		P

Clause	Title	Results	Verdict
	stopping device in case of failure.		
	This device shall monitor one or more signals of the generating set and if these signals are out of the allowable range it triggers the automatic stop.		P
	The main signals used to actuate automatic stopping may include, but not be limited to, the following:		P
	a) for the RIC engine:		
	1) overspeed;		P
	2) low lubricating oil pressure;		P
	3) high coolant temperature, and		P
	4) low coolant level;		P
	b) for the generator:		
	1) excessive overvoltage, and		P
	2) overload.		P
	These signals or other measures used to actuate automatic stopping shall be specified depending on the application		P
6.3.2	Verification		P
	Normal stopping shall be verified by inspection and testing of the stopping device in manual and in automatic modes (if provided in the application).	Tested the stopping device in manual.	P
	Automatic stopping in case of failure shall be verified by testing the action of typical failure modes in operating conditions (an appropriate method shall be used to create typical failure conditions, e.g. manual triggering, short circuiting of contacts		P
6.4	Emergency stopping		P
6.4.1	Requirement		
	Emergency stopping devices are required for remote controlled generating sets and generating sets with an enclosure or container accessible by persons. In accordance with the risk assessment in ISO 12100:2010, 6.3.5.2, an emergency stopping device is not required for low power generating sets.as it shall not lesson the risk by reducing the stopping time.	Not remote controlled	N
	Emergency stopping devices shall be actuated manually. As for normal stopping, emergency stopping shall operate by a device ensuring the cutting off of the fuel supply or ignition (for spark ignition engines). This device may include an air supply cut off.	Manually	P
	Emergency stopping devices shall also meet the requirements of ISO 13850, category 0, and the reset shall not initiate a restart or any hazardous conditions.		P
	Manually actuated emergency stopping devices shall be located inside and outside the enclosure or container in which a generating set is located and which is accessible for personnel to carry out maintenance or control operations when generating sets are in operation.		P
6.4.2	Verification		P
	Emergency stopping devices shall be verified by inspection and testing in operating conditions.	Inspection	P
6.5	Control devices		P

Clause	Title	Results	Verdict
6.5.1	Design, safety and mechanical strength		
	Control devices for the RIC engine of the generating set shall meet the following requirements:		
	- hand controls shall be designed to withstand 1,2 times the maximum actuating forces given in Table 1;		P
	- for handles, knobs, grips, levers and similar devices, requirements and tests shall be in accordance with IEC 60335-1:2013, 22.12;		P
	- controls shall act positively and smoothly and without delay or unexpected action and be in accordance with ISO 2261;		P
	- the surface temperature of the controls that shall be manually actuated while the engine is running shall be within the following limits in accordance with ISO 13732-1 for a contact time of 10 s,		P
	- 55℃ for metallic surfaces, and		P
	- 70℃ for non-metallic surfaces;		P
	- sharp edges or corners on, or adjacent to manual controls shall be removed; edges shall have a chamfer of at least 0, 5 mm	No sharp edges or corners on, or adjacent to the manual controls.	P
6.5.1.2	Verification		P
	Control devices of the RIC engine shall be verified by inspection and testing.	Inspection	P
	Control devices of the generating sets shall be verified in accordance with IEC 60204 1:2009, 10.1 and 10.2.		P
	For surface temperat ure measurement of the control devices (RIC engines and generating sets), the following method shall be conducted:		P
	a) the generating set shall be operated at its rated power until the surface temperatures stabilize;		P
	b) the test shall be conducted in well ventilated place not directly exposed to sunshine;		P
	c) if the test is conducted at an ambient temperature outside of the nominal (20±3) the reported temperatures shall be corrected by the following formula: Corrected temperature ((℃℃) = observ ed temperature ((℃℃) ambient temperature ((℃℃) 20	ambient temperature 22 0	P
6.5.2	Identification		P
6.5.2.1	Requirements		P
	The control devices of RIC engines shall be identified according to the function they perform or their function shall be expl ained in the operating manual. They shall be identified according to IEC 61310 2. Colour coding shall be according IEC 60073	All controls identified according to the function and identified by description word.	P
	The marking on the engine controls shall be legible throughout the engine life.		P
	Identification should preferably be by symbols according to ISO 7000 or ISO 8999,if there are no suitable symbols,by words placed on the control		P

Clause	Title	Results	Verdict
	or adjacent to it..Design,location and marking principles shall be in accordance with IEC 61310 1.		
	Emergency shut off control handles or buttons shall beprominently located and shaped as well as being coloured red,in order to be identified among the other controls.		P
	The control devices on electrical equipment sha ll comply with the requirements of IEC 60204 1:2009, 10.1 and 10.2 with the exception as given in Table B.1		P
6.5.2.2	Verification		P
	Compliance with the requirements shall be verified by inspection.	Inspection	P
6.5.3	Accessibility		P
6.5.3.1	Requirements		
	Controls should preferably be grouped.		P
	The requirements of EN 1679 1:1998, 6.4.3 shall apply.	Controls are grouped together and easily accessible. All controls are operated by finger tip or finger grasp.	P
6.5.3.2	Verification		P
	Compliance with the requirements shall be verified by inspection and measurement.	inspection	P
6.6	Monitoring devices		P
6.6.1	Requirements		
6.6.1.1	Instrument identification		P
	Monitoring instruments shall be identified on or adjacent to them, preferably by a symbol according to ISO 8999 or a descriptive wording for the system being monitored		P
6.6.1.2	Instrument visibility		P
	Monitoring instruments should be visible to the operator. They shall be illuminated for night time or indoor operation so that they are legible from the operator’s position where the application requires it.	visible	P
6.6.1.3	Instrument colour code		P
	Monitoring instruments and monitoring systems should preferably be colour coded according to IEC 60073. Red is recommended for m alfunction or unsafe situation; green for a satisfactory situation or to indicate a system is operating.		P
	The instruments for the monitoring of the electrical equipment shall comply with IEC60204 1:2009, 10.3.		P
6.6.2	Verification		P
	Compliance with the requirements shall be verified by inspection.	inspection	P

Clause	Title	Results	Verdict
6.7	Warning devices		P
6.7.1	Requirements		
	Warning devices, signs, markings and colours shall meet the requirements of ISO 11429.		P
6.7.2	Verification		P
	Compliance with the requirements shall be verified by inspection.	inspection.	P
6.8	Guarding		P
6.8.1	General		
6.8.1.1	Requirements		
	The following clauses give the requirements for the common hazards related to guarding and any generating set or installation shall comply with th ese requirements.		P
	Guards shall be designed in accordance with ISO 14120.		P
	Fixing systems of fixed guards shall remain attached to the guards or to the generating set when the guards are removed. This requirement is limited to fixed guards that nee d to be removed during normal maintenance operations as described in instructions of use.		P
	For fixed installed generating sets the need of guarding shall be agreed between generating set manufacturer and installer considering that persons shall be prot ected during operating and routine servicing.		P
	Because it is not possible to envisage the layout of fixed installation, the overall requirements for this situation are not dealt with in this part of ISO 8528. Therefore, for fixed installations, the nee d for additional guarding to protect persons during operation and routine servicing shall be established after discussion between the generating set manufacturer, user and installer.		P
6.8.1.2	Verification		P
	Compliance with the requirements shall be verified by inspection.	inspection	P
6.8.2	Guarding against mechanical hazards		P
6.8.2.1	Requirements		
	Moving parts of generating sets, e.g. fan, belt, chains, etc. shall be so arranged or enclosed as to prevent direct involuntary access during normal use, i.e. during maintenance, monitoring or control operations described in the manual of use.	Enclosed	P
	If the guard is constructed of open mesh material the openings shall be sized as follows:		P

Clause	Title	Results	Verdict
	a) Guards that are less than 100 mm from a hazard sha ll meet the requirements of IEC 60034 5:2006,Clause 8, with the 12 mm test probe.		P
	b) Guards that are 100 mm or more from a hazard shall meet the opening requirements of ISO 13857:2008		N
6.8.2.2	Verification		P
	Compliance with the requirements shall be verified by measurement and if necessary by using a 12 mm test probe.		P
6.8.3	Guarding against hot surfaces		P
6.8.3.1	General		
	The necessity to guard hot surfaces depends on its surface temperature, its location and if a person is likely to touc h it. P The temperature of the guards shall not exceed the threshold temperature. If this cannot be avoided,then display a warning.		P
6.8.3.2	Requirements for generating sets except low power generating sets		P
	risk assessment shall be carried out b y the generating sets manufacturer to determine the surfaces with a burn hazard and identify appropriate protective measures in order to prevent accidental contact in normal conditions of use, i.e. during control, monitoring and maintenance operations desc ribed in the manual of use.		P
6.8.3.3	Verification for generating sets except low power generating sets		P
	a) The accessibility of the identified hot surfaces during control and monitoring operations shall be verified by applying the test cones in acco rdance with Figure 1 and Figure 2:		N
	b) For maintenance operations, the hot surfaces to be considered are those more than 10 cm 2 located at less than 300 mm of a maintenance or control point and/or of access path for operators.		P
	c) The gene rating set shall be operated at its rated power until the surface temperatures stabilize.		P
	d) The test shall be conducted in a well ventilated location not directly exposed to sunshine.		P
	e) If the test is conducted at an ambient temperature outside of the nominal (20 ± 3) °C the reported temperatures shall be corrected.	ambient temperature 20.0	P
6.8.3.4	Requirements for low power generating sets		P
	a) The accessible surfaces in the close proximity of controls shall not have a temperature highe r		P

Clause	Title	Results	Verdict
	b) The carrying handles of generating sets and the accessible surfaces in their close proximity shall not have a temperature higher	No carrying Handles	N
	c) The engine exhaust, with potential burn hazards during the operating, but also during co oling period following a generating sets stopping, shall be equipped with a guard to limit the most severe burn risks by accidental contact. The dimension of guard clearance shall ensure that such exhaust surface cannot be reached when being probed by test cones in accordance with Figure 1 and Figure 2. Any exhaust surface less than 10 cm 2 does not need to be equipped with protection.	equipped	P
	d) Accessible hot surface parts more than 10 cm 2 except for these services described in a), b) or c) with a tem perature higher than 94°C for non metallic surfaces or 80 °C for metallic surfaces, shall be located inside the frame contour and a warning marking shall be fixed, in addition, on or near the parts to warn the low power generating sets user of the presence of a burn danger.		P
	e) An enclosure with access doors for maintenance or control operations shall not be considered as protection against contact with an engine exhaust.		P
6.8.3.5	Verification for low power generating sets	Not low power generating s ets	N
	a) The accessibility of the identified hot surfaces during control and monitoring operations shall be verified by applying the test cones in accordance with Figure 1 and Figure 2	Not low power generating sets	N
	b) When the accessible hot surfaces are less than 10 cm 2 they shall be verified in accordance with 6.8.3.1.	Not low power generating sets	N
6.9	Stability for low power generating sets		N
6.9.1	Not in operation		N
6.9.1.1	Requirements	Not low power generating sets	N
	Generating sets shall exhibit proof of suitable stability when not in operation.		N
	Test shall be conducted with fuel filled to the maximum capacity specified in the manufacturer’s instructions.		N
6.9.1.2	Verification		N
	Compliance shall be checked by placing the unit on a surface which is tilted 15° in all directions. The unit shall neither overturn nor spill fuel.		N
	Units with flaps or doors are tested both with the flaps and doors closed and then with them open. The unit shall satisfy		N

Clause	Title	Results	Verdict
	requirements under the worst of conditions.		
6.9.2	In operation		N
6.9.2.1	Requirements		N
	Generating sets shall be suitable for operation on mounting surfaces inclined up to 4°.		N
6.9.2.2	Verification		N
	Compliance is checked by operating the unit in four positions set at 90° i ntervals around the vertical axis on a rough concrete surface inclined up to 4°. The unit shall not change its position by more than 10 mm even after 30 min of operation at no load and at rated power.		N
6.10	Lighting		N
6.10.1	Requirements		N
	Except for low generating sets and if installed, the lighting of a generating set shall illuminate the control levers, monitoring devices and corresponding walkways with an intensity of at least 20 lux.		N
6.10.2	Verification		N
	Compliance with the requirements shall be verified by measurement or technical documentation.		N
6.11	Handling		P
6.11.1	Requirements		
	Generating sets above 140 kg shall have provisions for lifting attachments to attach lifting devices to lift the generating set or parts of it accordi ng to the manufacturers' instructions.		P
	The lifting attachments shall be designed to withstand at least 1,5 times the mass lifted by lifting attachments. The lifting attachments shall be located to allow at least 20 mm clearance between lifting rope or chain or belt and any generating set components, unless the components are designed to withstand the contact during a lifting operation without permanent deformation or damage to the rope, chain or belt.		P
	The access to the lifting attachments shall al low an easy attachment of the lifting hook or shackle.		P
	Lifting attachments shall be so located that lifting ropes, chains or belts converge over the centre of gravity (if no cross beam is used) when the generating set or its lifted component is in the normal position specified by the manufacturer.Generating sets below 140 kg intended for transportation by persons shall have carrying handles		P

Clause	Title	Results	Verdict
	or an adequate frame design to transport it according to the manufacturers' manual.		
	The handles shall be des igned to withstand at least 2,5 times the mass lifted divided by the number of carrying handles.		P
6.11.2	Verification		P
	Compliance with the requirements of 6.11.1 regarding the number and the location of the lifting attachments shall be verified by i nspection.	inspection	P
	The strength of the lifting attachments to withstand the mass to be lifted shall be verified by testing or calculation.	verified	P
6.12	Mechanical strength		N
6.12.1	Requirements	Not low power generating sets	N
	Low power genera ting sets shall be designed in such a way as to be able to withstand robust handling within the framework of normal operation. All parts, damage to which may impair safety, shall have sufficient mechanical strength.		N
	The generating set shall satisfy th e tests defined below.		N
	a) Subjected to impact using an impact tester.		N
	b) Free fall test.		N
6.12.2	Verification		N
	After completing both tests, the sample shall exhibit no damage which would impair mechanical or electric safety.		N
6.13	Fire protection		P
6.13.1	General		
	The design shall consider hazards from flammable liquids or gases with regard to routing of pipes,location of reservoir, leakage, filling and draining. The possibility of contact with energy sources that could result in a h azard should be minimized.		P
6.13.2	Requirements		P
	For the RIC engine, the basic requirements of ISO 6826 shall be met.		P
	The orifices and the filling devices of the generating set shall meet the requirements of ISO 6826:1997, 6.2.The piping for fl ammable liquids shall meet the requirements of ISO 6826:1997, 7.3 and the draining valves the requirements of ISO 6826:1997, 7.6.		P
	For fuel tanks, the following additional requirements apply. Design requirements: — fuel tanks shall be designed as t o ensure that no leaks develop under	no leaks	P

Clause	Title	Results	Verdict
	normal operating conditions;		
	— filler necks in fuel tanks shall be arranged and designed in such a way as to ensure that fuel cans or other devices with spouts can be directly inserted and no fuel can come into contact with hot parts.		P
	Strength requirements: — the tank shall be secured to withstand normal handling; secured		P
	— the tank shall be strong enough to withstand impact during normal handling or be protected from impact.		P
	For low power generating sets, the following additional temperature requirement applies.		N
	— Any parts of the generating set which are in direct contact with its supporting surface shall not exceed a temperature of 90 °C.		N
6.13.3	Verification		P
	Compliance with the requirements shall be verified by inspection and examination of the engine manufacturer documentation.	verified	P
	For low power generating sets, compliance with the fuel tank strength requirements shall be satisfied by testing in accordance with 6.12 .1		N
	For low power generating sets, the temperature measurement shall be done in the same operating conditions as specified in 6.8.3.5.		N
6.14	Hoses, pipes and electrical harnesses of the RIC engine		P
6.14.1	Requirements	v	
	Hoses, pipes and elec tric harnesses, as well as fittings and connectors, shall be designed and made of material to withstand expected pressure, voltage, temperature, abrasion, corrosion, etc. Excessive hose and electric cable length shall be avoided to prevent misuse and obstr uction.		P
	Hoses and electric harnesses shall be routed and retained so that it is unlikely they will be used as hand holds or footsteps.	retained	P
	Hoses and electric harnesses shall not interfere with the accessibility of service points.	not interfer e	P
	Hoses and electric harnesses shall not interfere with the accessibility of service points.Hoses and pipe assemblies that can leak flammable liquids or gases onto hot surfaces, shall either be guarded to prevent the liquid going onto the hot surface o r be dimensioned to be able to contain twice the operating pressure. In case of fuel pipes, 1,2		P

Clause	Title	Results	Verdict
	times the maximum operating pressure is sufficient.		
6.14.2	Verification		P
	Compliance with requirements shall be verified by inspection and examination of the documentation provided by component manufacturers.	verified	P
6.15	Electrical equipment		P
6.15.1	Generating sets		
6.15.1.1	Degree of protection		P
	These requirements do not apply to the safety extra low voltage circuits.	Not low voltage circuits	N
6.15.1.1.1	Protection against solid foreign objects and protection of persons against access to hazardous parts inside the enclosure		P
1)	Requirements (minimum degree of protection)		
	a) For generating sets except low power generating sets — generat ing set : IP2X, — operator interface : IP3X, — live parts on the inside of doors : IP1X, and — switching and control devices : IP4X.		P
	b) For low power generating sets — generating set : IP2X, and — operator interface : IP3X.		N
2)	Verification		P
	The degree of protection shall be verified on the generating set in accordance with the test method and acceptance criteria of IEC 60529.	verified	P
6.15.1.1.2	Protection of the equipment inside the enclosure against harmful effects due to the ingress of wat er		P
1)	Requirements (minimum degree of protection)		P
	a) For generating sets except low power generating sets — generating set : IPX1M, and — operator interface : IPX3M.	IPX3	P
	b) For low power generating sets — generating set and operator interface : IPX3M.		N
2)	Verification		P
	The test method for each degree of protection shall be in accordance with IEC 60529 in operation condition with no load.		P
	The test sample for the test shall be in a clean and new condition with all parts in place and mou nted in the manner stated by	verified	P

Clause	Title	Results	Verdict
	the manufacturer. The degree of protection shall be verified in accordance with the acceptance criteria following a) or b).		
	a) Generating sets except low power generating sets shall comply with the acceptance crite ria of IEC 60529.		P
	b) For the lower power generating sets. After the test against ingress of water, — a dielectric test shall be performed in accordance with IEC 60335 1: 2013, 16.3, Table 7, and — the creepage distance shall comply with IEC 60335 1:20 13, 29.2, Table 17.		P
6.15.1.2	Insulation		P
1)	Requirements		P
	The insulation of output circuit shall comply with IEC 60204-1		P
2)	Verification		P
	Insulation of output circuit shall be verified according to IEC 60204 1:2009, 18.3, 18.4.In addition, for generators equipped with safety extra low voltage circuits for the output that may be in direct contact of persons with its live parts during the operation, such as the output for battery charging outside the generating sets, or extra low voltage cir cuits for control circuits inside generating sets, the generating set windings for these circuits shall be electrically isolated from other windings.	verified	P
	The voltage test according to IEC 60034-1:2010, 9.2 shall be performed between the main and/o rexcitation windings at: 2UN + 2000 V for generating set windings of safety extra low voltage circuit 2 UN + 1000 V for generating set windings of extra low voltage circuitwhere, UN is the rated output voltage of the generating set.	1500V	P
6.15.1.3	Protective bonding circuit		P
1)	Requirements		P
	The protective bonding circuit shall comply with IEC 60204-1.		P
2)	Verification		P
	The function of the protective bonding circuit shall be verified according to IEC 60204-1:2009, 18.2.	verified	P
6.15.1.4	Clearances, creepage distances and solid insulation		P
1)	Requirements		P
	Creepage distances and clearances shall not be less than the values, in mm, in IEC 60335-1:2013, Clause 29.		P
2)	Verification		P

Clause	Title	Results	Verdict
	Compliance shall be checked by measurement of the clearances and verification on the basis of manufacturing documents.	checked	P
6.16	Noise		P
6.16.1	Requirements		
	When designing the generating set, the available information and technical measures to control noise at source shall be taken into account, see for example, ISO/TR 11688 1. The main sources of airborne noise on generating sets include the following: — the engine; — the cooling system fan if provided; — the exhaust system.		P
6.16.2	Verification		
	Airborne noise shall be measured as specified in ISO 8528-10:1998, Clause 9 at 75 % of rated power (PRP), except for low power generating sets to ISO 8528-8:2016, 3.3 (COP) and determined according to ISO 8528-10:1998, Clause 13 for the sound power level and according to ISO 8528-10:1998, Clause 14 for the emission sound pressure level.		N
6.17	Access systems		P
6.17.1	Requirements		
	Surfaces of all access system (e.g. walkways and platforms, etc.), if required, shall be slip resistant under the expected use to minimize the possibility of foot slippage.		P
	Access systems shall be level and free from obstructions and protrusions to prevent injury.		P
	The structure shall be sufficiently sturdy and stable to support any expected load without undue deformation or loss of integrity.		P
	Access systems shall be designed according to ISO 14122-2:2001 and ISO 14122-2:2001/Amd1:2010.		P
6.17.2	Verification		P
	Compliance with the requirements shall be verified by test or calculation.	verified	P
6.18	Access to service points		P
6.18.1	Requirements		
	Openings intended for maintenance purposes shall comply with ISO 15534-2.		P
6.18.2	Verification		P
	Compliance with the requirements shall be verified by inspection and measurement.	verified	P
6.19	Gaseous and particulate exhaust emissions		P
6.19.1	Requirements		
	The exhaust shall be directed away from the generating set control panel.		P
	For generating sets intended to be used indoors, the exhaust shall be directed outside.	Outdoor	N
6.19.2	Verification		P
	Compliance with the requirement shall be verified by inspection.	verified	P
6.20	Drainage		P

Clause	Title	Results	Verdict
6.20.1	Requirements		
	Provisions shall be made to allow drainage of fuel, coolant and lubrication oil without any spillage. This can be achieved by — permanently installed pipework to a collection point, or — providing access for collection containers to allow direct drainage, or — access to drain plugs without the need to remove guards.		P
6.20.2	Verification		P
	Compliance with the requirements shall be verified by inspection.	verified	P
7	Operating and maintenance instructions		P
7.1	Requirements		
	Operating and maintenance instruction shall comply with ISO 12100:2010, 6.4.5 and shall provide adequate information to enable the generating set to be operated safely and give clear advice concerning its installation, use and maintenance.		P
	Extensive use should be made of photographs and/or diagrams.	diagrams.	P
	The operating and maintenance instructions shall include, but not be limited, to the following: a) general description, in particular description of the generating set nameplate, and explanation of the adjustment points that shall not be modified;		P
	b) general information concerning the toxicity of exhaust gases, fuel and oil;		P
	c) information concerning the limitation of use at locations where the risk of fire may be high;		P
	d) filling with fuel and oil;		P
	e) star ting and stopping;		P
	f) correct use of batteries;		P
	g) indications about the hot surfaces and their guards when provided;		P
	h) routine maintenance instructions;		P
	i) correct disposal of residual fluids;		P
	j) indication that the installation and major repair work shall be carried out only by specifically trained personnel;		P
	k) information on installation precautions, e.g. exhaust system, intake system, cooling system, drainage, fuelling, electrical connection, noise and access;		P
	l) if necessary advice on the need of personal protection equipment;		P
	m) in the case of generating sets provided for use by laymen the supplied instructions shall meet the requirements as defined in Annex C;		P
	n) the operation manual shall contain information on sound power level from the generating set and the emission sound pressure level at the operator’s position(s) as follows		P
7.2	Verification		P
	Compliance with the requirements shall be verified by examination of the operating and maintenance instructions and then by inspection of the generating set.	Verified	P

Clause	Title	Results	Verdict
8	Safety labels		P
8.1	Requirements		
	The labels shall be clearly visible, legible and indelible.	clearly visible	P
	The symbols shall be labelled according to ISO or IEC relevant standards.		P
	Safety labels shall be present on a generating set to inform the user of potential danger if these risks have been identified by the manufacturer.		P
	Low power generating sets shall be labelled with at least the following safety labels: a) read the operator's instruction manual; b) exhaust gas is poisonous; do not operate in an unventilated area [Carbon monoxide (CO) c) not to refuel when operating.	Not low power generating sets	N
8.2	Verification		P
	The conformity of the safety labels shall be verified by inspection.	verified	P
9	Marking		P
9.1	Requirements		
	Generating sets shall be marked legibly and indelibly with the following minimum information:		
	— the name and address and trademark of the manufacturer and where applicable h is authorized representative;		P
	— the designation of the machinery "Generating set" or " Low power generating set "		P
	— the designation of series or type	AG110	P
	— the serial number;	25060058	P
	— the year of construction, that is the year in which the manufacturing process is completed;	2025.06	P
	— mass in kilograms;	1710 kg	P
	— the rated power, in kilowatts, with the prefixes COP, PRP, LTP or ESP in accordance with ISO 8528 1:2005, Clause 13;	80kW	P
	— the performance class in accordance with ISO 8528-1:2005;	G1	P
	— the rated power factor;	0.8	P
	— the rated frequency, in hertz;	50Hz	P
	— the rated voltage, in volts;	AC400/230V	P
	— the rated current, in amperes;	144.3A	P
	— for low power generating sets: — the quality class in accordance with ISO 8528 8:2016, 7.3.2; — the maximum power, in kilowatts, with the prefix MAX in accordance with ISO 8528 8:2016, 3.4; — the degree of protection provided by the generating set (at least IP23M).	Not low power generating sets	N
9.2	Verification		P
	The conformity of the markings shall be verified by inspection.	Verified	P

Possible test case verdicts:

N: test item does not apply to the test object not be tested.

P: test item does meet the requirement F test item does not meet the requirement

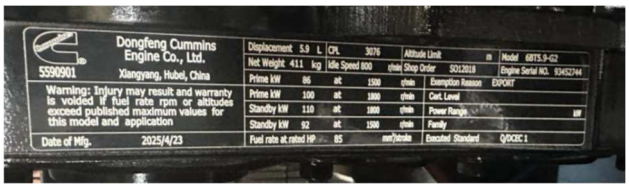
TESTED SPECIMEN DESCRIPTION:

1#. DIESEL GENSET

**********to be continued**********

SAMPLE IMAGE

Tested sample



Tested sample

Tested sample

Tested sample

**********END OF REPORT**********