TEST REPORT
EN ISO 11806-1:2022
TUV SUD Test Report for portable, hand-held, powered brush-cutters and grass-trimmers - Part 1: Machines fitted with an integral combustion engine

Report No.:	704031707805-02
Date of issue:	2023-11-13
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Client:	Zhejiang Titan Machinery Co., Ltd.
Address:	No.87, Yingxiang Road, Hushan District,321202 Wuyi, Zhejiang PEOPLE'S REPUBLIC OF CHINA
Contact person:	Mr. TANG
Standard:	This TUV SUD test report form is based on the following requirements: EN ISO 11806-1:2022
TRF number and revision*:*	TRF EN ISO 11806-1:2022 rev.0: 2022
eDoc_ID:	N/A
TRF originated by:	TUV SUD Product Service, Mr. Zhenyu MEI
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Scheme:	☐ TUV Mark ☐ without certification ☒ AoC/CoC for EU-Directive / EU-Regulation: ☐ GS Mark ~~☐ NRTL Mark~~ ☐ other:
Non-standard test method:	☒ No ☐ Yes, see details under *Summary of testing*
National deviations:	N/A
Number of pages *(Report)*:	26
Number of pages *(Attachments)*:	N/A

Compiled by:	Juan YANG	Approved by:	Vincent HE
(+ signature)	Project Handler	(+ signature)	Designated Reviewer

Test sample: Type of test object: Trademark: Model and/ or type reference:	Brush cutter Gasoline brush cutter and grass trimmer N/A TT-BC620,TT-BC620-2,TT-BC620A,TT-BC620A-2, TT-BC620B,TT-BC620B-2,TT-BC620C,TT-BC620C-2, TT-BC620D,TT-BC620D-2,TT-BC620E,TT-BC620E-2, TT-BC620F,TT-BC620F-2,TT-BC620G,TT-BC620G-2, TT-BC620H,TT-BC620H-2,TT-BC620I,TT-BC620I-2, TT-BC620K,TT-BC620K-2,TT-BC620L,TT-BC620L-2, TT-BC620T,TT-BC620T-2,TT-BC630,TT-BC630-2
Rating(s):	Engine displacement: 62cm^3 Max. Engine Power: 2,6kW/7500/min Max. Engine Speed: 9000/min
Manufacturer: Address:	Zhejiang Titan Machinery Co., Ltd No.87, Yingxiang Road, Hushan District,321202 Wuyi, Zhejiang PEOPLE'S REPUBLIC OF CHINA
Name and address of factory(ies) Zhejiang Titan Machinery Co., Ltd No.87, Yingxiang Road, Hushan District,321202 Wuyi, Zhejiang PEOPLE'S REPUBLIC OF CHINA	
Order description:	☒ Complete test according to TRF
	☐ Partial test according to manufacturer's specifications
	☐ Preliminary test
	☐ Spot check
	☐ Others:
Date of order: Date of receipt of test item: Date(s) of performance of test:	2020-05-27;2023-11-09 2020-05-27;2023-11-09 2020-05-27 to 2020-07-03;2023-11-09 to 2023-11-13
Test item particulars: N/A	
Purpose of the product (description of intended use): Gasoline brush cutter and grass trimmer for common use.	

Characteristic data (not shown on the marking plate):   N/A
Attachments: N/A
If additional information is necessary, please provide   N/A
Copy of marking plate: See Data form for critical components and material information   Remark: name and address of EU-based manufacturer, or authorized representative or importer must be affixed to the product when the product place on the EU market.
Pictures of the product: See appendix photograph

General product information:

- All models are with same engine displacement, only different in visual.

Summary of testing:

--All tools are complied with the requirements of the standard.
--Complete test on TT-BC620 and construction check on each models.

Additional information on non-standard test method(s)

N/A

Possible test case verdicts:

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

General remarks:

"(see remark #)" refers to a remark appended to the report.
"(see appended table)" refers to a table appended to the report.
Throughout this report ***a comma*** *is used as the decimal separator.*
The test results presented in this report relate only to the object tested.
This report shall not be reproduced except in full without the written approval of the testing laboratory.

Remark 1:

This report is based on and replaced the previous reports 704031707805-01 dated on 2020-07-03 as
--Standards update and add models

Remark 2:

This report should be used in conjunction with the following :
--Test report EN ISO 11806-1:2022 (26 pages)
--Appendix Photograph Documentation
--Data form for the machinery equipment

Clause	Requirement + Test	Result – Remark	Verdict
4	**Safety requirements and/or protective measures**		/
4.1	General		/
	Machines comply with the safety requirements and/or protective measures of this clause.		P
	The machine is designed according to the principles of ISO 12100:2010 for relevant but not significant hazards which are not dealt with by this document.	Considered	P
	The machine is also marked according to 5.2 and carry warnings according to 5.3.		P
	The safe operation of a brush-cutter and a grass-trimmer depends on the safety requirements given in this clause		P
	The safe operation of a brush-cutter and a grass-trimmer depends on the safe working conditions associated with the use of adequate personal protection equipment (PPE), such as gloves, slip-resistant footwear, and leg, eye and hearing protection equipment, as well as safe working procedures (see 5.1).		P
	The instructions to be provided with the machine conform with 5.1.		P
	If a grass-trimmer can be converted to a brush-cutter, then the converted machine conforms with the requirements for a brush-cutter and vice versa.		P
	The overall safety of the separate cutting attachment is verified as a part of the complete machine.		P
	Except where otherwise specified in this document, the safety distances specified in ISO 13857:2019, 4.2.4.1 and 4.2.4.3 are met.	(See appended table) Complied with ISO 13857 Slot Opening: 6,27mm Sr=32,48mm	P
	If a special tool is required to replace a cutting attachment, it is supplied with the machine.		P
4.2	Handles		/
4.2.1	Requirements		/
	The machine has a handle for each hand.	Two handls are provided for all models	P
	These handles are designed such that:		/

Clause	Requirement + Test	Result – Remark	Verdict
	— they can be fully gripped by an operator when wearing gloves;		P
	— they provide the necessary sureness of grip by their shaping and surface;		P
	— they have a length of at least 100 mm……..:	125mm>100mm	P
	— the distance l (see Figure 3) between the centre of the handles is at least 500 mm for those machines which can be equipped with metal saw blades, and at least 250 mm for all others……..:	Measured:670mm	P
	— they are adjustable so that a suitable ergonomic working position can be achieved.		P
	An adjustment below the minimum distance l is prevented by design.		P
4.3	Barrier and distance to cutting attachment for brush-cutters		/
4.3.1	Requirements		/
	Brush-cutters are equipped with a barrier to prevent an unintentional contact with the cutting attachment during operation.		P
	The barrier projects at least 200 mm horizontally and perpendicularly from the centre-line of the drive shaft tube..:	320mm for all models	P
	This function is performed by the handle assembly.		P
	The minimum straight line distance from the rear of the barrier (2) at a width of 200 mm (2) to the nearest unguarded point of the cutting attachment (1) is at least 830 mm, where the unguarded point of the cutting attachment is the intersection between the plane perpendicular to the cutting path and the side-edge of the cutting attachment guard.	Measure 860mm>830mm	P
	Barriers that are to be removed as a part of maintenance procedures or assembled by the operator, described in the instructions, are fixed by systems that can be opened or removed only with tools.		P
	The fixing system for barriers which are independent from the handle assembly is permanently attached to the barrier and/or the machine when the barrier is removed.		P

Clause	Requirement + Test	Result – Remark	Verdict
4.4	Harness		/
4.4.1	Requirements		/
	A double shoulder harness is provided for all machines exceeding a dry weight of 7,5 kg and for all brush saws……..:	Max. 7,65kg	P
	The double shoulder harness is supplied with a hip pad.		P
	Brush-cutters other than brush saws having a dry weight of 7,5 kg or less and grass-trimmers having a dry weight of 6 kg to 7,5 kg is at least provided with a single shoulder harness.		N/A
	For a grass-trimmer with a dry weight below 6 kg, no harness is required.		N/A
	The harness is adjustable to the size of the operator.		P
	Shoulder harnesses is:		/
	— designed in a way for easy removal; or		P
	— equipped with a quick release mechanism that ensures that the machine can be removed or released quickly from the operator.		N/A
	A single shoulder harness is considered to be designed in a way for easy removal.		N/A
	A double shoulder harness is considered to be designed in a way for easy removal, if the left and right shoulder straps are not connected to each other in front of the operator's body.		P
	If straps to connect the left and right shoulder straps are provided, the double shoulder harness is also considered to be designed in a way for easy removal when the straps connecting the left and right shoulder straps can be released under the load of the machine by using one hand and have no more than two release points.		N/A
	A quick-release mechanism, if provided, is positioned either at the connection between the machine and the harness or between the harness and the operator.		N/A

Clause	Requirement + Test	Result – Remark	Verdict
	The quick-release mechanism only functions by deliberate action of the operator.		N/A
	It is possible to open the quick-release mechanism while under load using only one hand and it has no more than two release points.		N/A
4.5	Balance		/
4.5.1	Requirements		/
4.5.1.1	All machines requiring a harness, except those described in 4.5.1.2, have the suspension point (see Figure 1, No. 3) adjustable so that the machine is balanced when it is suspended on this point.	The suspension point can be adjusted to get the machine balance.	P
	Such a balanced machine, with the suspension point at a vertical distance of (775 ± 25) mm above the ground, has:		/
	— for brush-cutters: a distance from the ground to the nearest point of the blade of (200 ± 100) mm;	For brush cutter the distance is 190mm.	P
	— for grass-trimmers: a distance from the ground to the nearest point of the cutting attachment of (150 ± 150) mm.	For grass trimmer, the distance from the ground to the nearest point of the cutting attachment is 80 mm	P
	The requirements are met with tanks that are half filled and with all configurations of the machine according to the manufacturer's instructions.		P
4.5.1.2	Machines suspended with a harness, and designed to be supported by the ground have the suspension point adjustable so that the ground contact force is not greater than 20 N, with tanks that are half filled and with all configurations of the machine according to the manufacturer's instructions.	Not supported by the ground.	N/A
4.6	Cutting attachment strength		/
4.6.1	Requirements		/
	The cutting attachment, excluding flexible cutting lines, did not break or crack when impacted once against a steel rod of diameter (25 ± 1) mm.		P
	The same cutting attachment then does not break or crack when operated at an over-speed.		P

Clause	Requirement + Test	Result – Remark	Verdict
	An exception from this second requirement is made for a single-piece metal blade.		P
	Such blades instead meet the material requirements in ISO 7113:1999, Clause 5.		P
4.7	Cutting attachment retention		/
4.7.1	Requirements		/
	Metallic cutting attachments are secured to prevent relative motion between the cutting attachment and the retainer, or between the metallic cutting attachment and the shaft on which it is mounted.		P
	The method for securing the metallic cutting attachment is also prevent loosening of the cutting attachment during use.		P
	These requirements are applicable to all metallic cutting attachments recommended in the instructions.		P
4.7.2	Verification		/
	The method of attachment is verified by inspection and by using the following test procedure.		/
	a) Install the cutting attachment in accordance with the instructions.		P
	b) Lock the power transmission shaft.		P
	c) Apply to the cutting attachment a rotational torque, M, in newton metres (N·m). See Formula (1): $M = 0,4 \times V \times k$	M=0,4x62 x 1,33 =33,0Nm	P
	V is the engine displacement, in cubic centimetres (cm^3)	See above	P
	k is the gear ratio (engine/cutting attachment rotational frequency)	See above	P
	Conduct the test five times in the direction opposite to normal rotation, then five times in the direction of normal operation.		P
4.8	Cutting attachment guards		/
4.8.1	Requirements		/
	The guard dimensions are in accordance with ISO 7918:1995.	Comply with ISO 7918 Grass trimmer: left:162mm>76mm right: 203mm>76mm	P

Clause	Requirement + Test	Result – Remark	Verdict
		line to guard edge: 2mm>0mm Brush cutter: Measured: 53° >45° ;43° >35° blade to guard edge: 5mm>3mm	
	The guard location is in accordance with ISO 7918:1995, for all possible adjustments.		P
	The guard strength is in accordance with ISO 8380:1993 for all guards, except for the test at -25 °C which does not apply to the guard of grass-trimmers	Test on both -25°C and 40°C, brush cutter and grass trimmer used the same guard, no break and crack after the test.	P
	Guard dimensions are in accordance with the specifications in ISO 7918:1995 before and after the tests specified in 4.8.2.		P
	In a thrown objects test in accordance with Annex B, no more than three penetrations in the target zone are allowed.	3 penetrations	P
	If more than three penetrations occur, the test is repeated five times with no more than three penetrations in each of these tests.		N/A
	No cracks or breakages of the guards are allowed.		P
	Guards that are to be removed in connection with a change of cutting attachment or as part of maintenance procedures, described in the instructions, are fixed by systems that can be opened or removed only with tools.		P
	These guards-fixing systems remain attached to the guards or to the machinery when the guards are removed.		P
4.9	Transport cover		/
4.9.1	Requirements		/
	Machines with a metallic cutting attachment are provided with a transport cover, which is so designed that it remains attached to the cutting attachment during transport and storage.		P
4.10	Length of flexible cutting lines		/

Clause	Requirement + Test	Result – Remark	Verdict
4.10.1	Requirements		/
	Grass-trimmers with flexible cutting lines have a line-limiting device or other means of line-length control.		P
	The limiting device cuts the flexible cutting lines to lengths compatible with the cutting attachment guard.		P
4.11	Engine starting device		/
4.11.1	Requirements		/
	The engine starting device is a self-contained, battery-operated electric starter and/or a manual starter where the actuator is permanently attached to the machine.		P
	Machines with a manual starter have a recoil device for the rope.		P
	Two or more separate and dissimilar actions are required to activate the electrical starting device.		N/A
4.12	Engine stopping device		/
4.12.1	Requirements		/
	The machine is fitted with an engine stopping device by means of which the engine can be brought to a final stop and which does not depend on sustained manual effort for its operation.		P
	The control for this device is so positioned that it can be operated while the machine is held with both hands by an operator wearing gloves.		P
	The colour of the control clearly contrasts with the background.		P
4.13	Throttle control		/
4.13.1	Position		/
4.13.1.1	Requirements		/
	The throttle trigger is positioned so that it can be pressed and released with a gloved hand while holding the handle to which the throttle trigger is mounted.		P
4.13.2	Operation		/
4.13.2.1	Requirements		/

Clause	Requirement + Test	Result – Remark	Verdict
	The machine is provided with a throttle trigger that, when released, automatically reverts to the idling position.	Provided with a throttle trigger that, when released, automatically reverts to the idling position. Without throttle lock	P
	The throttle trigger, except for grass-trimmers with a cutting attachment where each filament or pivoting non-metallic blade has a kinetic energy of less than 10 J, is retained in the idling position by the automatic engagement of a throttle trigger lock-out.	Less than 10J	N/A
	For brush-cutters and grass-trimmers with a cutting attachment where each filament or pivoting non-metallic blade has a kinetic energy of 10 J or more, after the starting procedure has been finished, activation of the throttle trigger to increase the engine speed to a point where the cutting attachment starts to move, is only possible after the throttle trigger lock-out has been disengaged.		N/A
	The starting procedure is finished when the operator disengages the throttle control latch and the engine returns to idling speed.		N/A
	Except for grass-trimmers with a cutting attachment, where each filament or pivoting non-metallic blade has a kinetic energy of less than 10 J, unintentional movement of the cutting attachment is minimized by a throttle control linkage so designed that a force applied to the handle, with the throttle trigger lock-out engaged, does not increase the engine speed to a point where the clutch engages and cutting attachment movement begins.		N/A
	When a force is applied to the throttle trigger, while the throttle trigger lockout is engaged, engine speed does not increase to a point where the clutch engages and cutting attachment movement begins.		N/A
4.13.2.2	Calculation of kinetic energy of filament and pivoting non-metallic blade		/
	For the purposes of this document, the kinetic energy (E_k), in joules, of filament and pivoting non-metallic blades is calculated according to Formula (2):		P

Clause	Requirement + Test	Result – Remark	Verdict
	$E_k = 0{,}5m\left[\frac{\pi}{30}n\left(r-\frac{L}{2}\right)\right]^2$		
	L is the maximum free length of a filament or the length from the pivoting point to the outer tip for the pivoting non-metallic blade, in metres;		P
	m is the mass of length L, in kilograms;		P
	n is the maximum rotational speed with a cutting element (blade or filament) with length L, in revolutions per minute;		P
	r is the distance from the axis of rotation of the cutting head to the outer tip of the cutting element, in metres.		P
4.13.2.3	Verification		/
	The throttle-control linkage design is verified by applying a force in the most unfavourable direction on the handle with the throttle control, equal to three times the dry weight of the machine.	225N applied in any direction (7,65kg)	P
	The throttle trigger lock-out function is verified by applying a force (F) equal to (50 ± 2) N or the dry weight of the machine, whichever is higher, on the throttle trigger with the throttle trigger lock-out engaged.		N/A
	During the test, the handle is fixed, without contacting the throttle trigger lock-out.		N/A
	The force (F) is applied gradually to the throttle trigger in the direction of travel and held for (5 ± 1) s.		N/A
	For pivoting throttle triggers, the force is applied at the point furthest from the pivot, and for linear operating throttle triggers, the force is applied at the midpoint of the throttle trigger.		N/A
4.13.3	Throttle control latch		/
4.13.3.1	Requirements		/
	If a throttle control latch is provided to aid starting and its engagement will result in a movement of the cutting attachment during starting, it is such that the throttle control latch has to be engaged manually and is automatically released when the throttle trigger is operated.		P

Clause	Requirement + Test	Result – Remark	Verdict
	In these cases, the activation device for setting the throttle control latch is located outside the gripping area of the handle and require at least two independent motions to engage the throttle control latch.		P
	For finger-type throttle control, the gripping area is defined as extending from 25 mm in front of the rear part of the throttle trigger to 75 mm behind the rear part of the throttle trigger.		P
	For thumb-type throttle control, the gripping area is defined as the distance from the rear part of the throttle trigger to the rearmost part of the handle.		P
	The operational force on the throttle trigger for releasing the throttle control latch do not exceed 25 N.	Measured 13,5N<25N	P
4.14	Clutch		/
4.14.1	Requirements		/
	All machines to which a blade can be attached have a clutch so designed that the cutting attachment does not move when the engine rotates at any speed less than 1,25 times the idling speed.	Recommend idling speed: 3000min^{-1} Measured idling speed: 3000min^{-1} Clutch engaged speed: 4500min^{-1}	P
4.15	Tanks		/
4.15.1	General		/
4.15.1.1	Requirements		/
	Fuel tank caps have a retainer.		P
	The fuel tank opening is at least 20 mm in diameter	Fuel tank opening:25mm No obstruction while filling the fuel tank with a suitable funnel.	P
	The oil tank opening, if existent, at least 15 mm in diameter		N/A
	Each opening or cap is clearly marked to indicate the function of the tank, and if only the caps are marked, they are not interchangeable between tanks.		P
	The design of the fuel tank assembly is such that no leakage occurs while the machine is at its normal stable operating temperature, in all working positions and while being transported.		P

Clause	Requirement + Test	Result – Remark	Verdict
	The filler openings are located so that the action of filling the tanks is not obstructed by other components.		P
	It is possible to use a funnel.		P
4.15.1.2	Verification		/
	Conduct the test without the influence of sunlight, with an ambient air speed of max. 3 m/s and at (20 ± 3) °C ambient temperature.		P
	Fill the tank to the manufacturer's recommended fill level.		P
	Secure cap per the manufacturer's recommendations.		P
	Prepare the machine for testing by cycling the engine for 5 s at idling speed and 5 s at racing speed, until the surface temperature stabilizes within 5 °C.		P
	Once the surface temperature has stabilized, shutdown the machine.		P
	Immediately following the shutdown, inspect the caps and fuel tank ventilation system for leakage while holding the machine for 30 s in each of the six orthogonal directions.		P
4.15.2	Fuel tank structural integrity		/
4.15.2.1	Requirements		/
	No visible tank leakage occurs after testing the machine according to Annex D.		P
	Seepage from the fuel tank ventilation system is not regarded as leakage.		P
4.15.2.2	Verification		/
	Inspect the machine for leakage while holding the machine for 30 s in each of the six orthogonal directions after testing the machine according to Annex D.		P
4.15.3	Fuel feed line strength and accessibility		/
4.15.3.1	Requirements		/
	No fuel feed lines become damaged, detached or leak after testing the machine according to Annex E.		P
4.16	Protection against contact with parts of the machine under high voltage		/

Clause	Requirement + Test	Result – Remark	Verdict
4.16.1	Requirements		/
	All high-voltage parts of the circuit, including spark-plug terminals, are located, insulated or guarded so that the operator cannot make accidental contact with them.		P
	Ignition interruption or short-circuiting is provided and is fitted on the low-voltage side.		P
4.16.2	Verification		/
	The location and insulation of the parts under high voltage is verified by inspection, using test probe B of IEC 61032:1997.		P
4.17	Protection against contact with hot parts		/
4.17.1	Requirements		/
	The cylinder and parts in direct contact with the cylinder or the muffler are protected against unintentional contact during normal operation of the machine.		P
	Such hot surfaces are considered accessible if the contactable area exceeds 10 cm^2 when probed by the test cone as shown in Figure 6.		P
	The temperature for the accessible parts of the machine defined above, including guards or shields provided to prevent access to such hot surfaces, are not more than 80 °C for metallic surfaces or 94 °C for plastic surfaces.	Measured maximum temperature : Plastic enclosure: max.74,7°C; Metal enclosure: max.61,7°C Ambient temperature adjust to : 20°C	P
4.17.2	Verification		/
	Neither tip nor conical surface comes into contact with any hot surface area greater than 10 cm^2.		P
4.18	Exhaust gases		/
4.18.1	Requirements		/
	The exhaust outlet is located such that it directs exhaust emissions away from the operator in normal working positions as described in the manufacturer's instructions.		P
4.19	Vibration		/

Clause	Requirement + Test	Result – Remark	Verdict
4.19.1	Reduction by design at source and by protective measures		/
	Vibration reduction is an integral part of the design process thus specifically taking into account measures at source.		P
	The success of the applied vibration reduction measures is assessed on the basis of the actual vibration total values for each handle.		P
	The main sources causing and influencing vibration are generally the dynamic forces from engine, cutting means, unbalanced moving parts, impact in gear sprockets, bearings and other mechanisms, and the interaction between operator, machine and material being worked.		P
4.19.2	Vibration measurement		/
	The vibration is measured, and the equivalent vibration total value is calculated for each handle in accordance with ISO 22867:2021.	For brush cutters Left handle idling:3,184m/s^2 racing: 7,280m/s^2 K=1,5m/s^2 Right handle idling:3,620m/s^2 racing: 8,124m/s^2 K=1,5m/s^2	P
4.20	Noise		/
4.20.1	Reduction by design at source and by protective measures		/
	Noise reduction is an integral part of the design process thus specifically taking into account measures at source.		P
	The success of the applied noise reduction measures is assessed on the basis of the actual noise emission values.		P
	The main sources causing and influencing noise are the air intake system, engine cooling system, engine exhaust system, cutting system and vibrating surfaces.		P
4.20.2	Noise measurement		/
	The equivalent A-weighted emission sound pressure level at the operator's position and the A-weighted sound power level are measured and calculated in accordance with ISO 22868:2021.	sound pressure level: idling: 79,6dB K=3dB racing: 101,0dB	P

Clause	Requirement + Test	Result – Remark	Verdict
		K=3dB sound power level: 106,9dB K=3dB Guaranteed sound pressure level and sound power level: LpA:104dB LWA:113dB	
4.21	Electromagnetic immunity		/
4.21.1	Requirements		/
	All electronic components of the systems used to control the machine meet the acceptance criteria given in ISO 14982:1998, 6.3 and 6.6, concerning the electromagnetic immunity of the machine.		P
5	**Information for use**		/
5.1	Instructions		/
5.1.1	General		/
	For the information to be provided to the user, the following applies, together with ISO 12100:2010, 6.4.		P
5.1.2	Technical data		/
	The instructions give at least the following information for each model and/or mark where significant differences occur:		P
	— machine mass (with empty tanks, without cutting attachment, cutting attachment guard and harness), in kg.:	See instruction manual	P
	— cutting attachments (type, diameter for blades), in mm……...:		P
	— maximum rotational frequency of the spindle, in min^{-1}……:	See instruction manual	P
	— engine idling speed range, in min^{-1}.:	See instruction manual	P
	— values for equivalent vibration total value (for each handle), determined in accordance with ISO 22867:2021, together with uncertainty of stated values, both in m/s^2……:	See above	P
	— values for the equivalent A-weighted emission sound pressure level at the operator position, determined in	See above	P

Clause	Requirement + Test	Result – Remark	Verdict
	accordance with ISO 22868:2021, together with the uncertainty of the stated values, both in dB……..:		
	— values for the equivalent A-weighted sound power level, determined in accordance with ISO 22868:2021 (if required), together with the uncertainty of the stated values, both in dB……..:	See above	P
5.1.3	Other information		/
	The instructions contain, in accordance with ISO 12100:2010, 6.4.5, comprehensive instructions and information on all aspects of operator/user maintenance, safe use of the machine, including type and use of PPE and the need for training in all operations.		P
	The instructions take into account the use of the machine by a first-time and/or inexperienced operator.		P
	Extensive use is made of pictograms and/or diagrams.		P
	The importance of reading the instructions thoroughly before using the machine is stressed on the front page of the instructions.		P
	The terms used in all documentation is in accordance with ISO 7112:2018.		P
	The instructions at least cover information relating to the following:		/
	a) transport, handling and storage of the machine, including:		/
	— instructions for securing the machine during transport to prevent loss of fuel, damage or injury;		P
	— cleaning and maintenance before storage, including the use of guards on cutting attachments with metal blades;		P
	— use of a transport cover for metal blades during transport and storage;		P
	b) commissioning of the machine, including:		/
	— assembling instructions, initial adjustments and checks, including a description of the method to install or remove the cutting attachment including, for brush-cutters, a warning of sharp		P

Clause	Requirement + Test	Result – Remark	Verdict
	edges and need to wear gloves, also including the initial assembly of the machine including the handle position and other attachments;		
	— for machines with a clutch, routines for checking that the cutting attachment stops turning when the engine idles;		P
	— a list of recommended cutting attachments and appropriate guards and their location, including a warning of possible safety consequences from using other cutting attachments, such as metal multi-piece pivoting chains and flail blades;		P
	— information regarding regular maintenance, pre-operating procedures and daily maintenance routines, as well as the consequences of improper maintenance;		P
	— filling of fuel and oil, especially concerning fire precautions;		P
	c) the machine itself, including:		/
	— a description, identification and the nomenclature of principal parts including the safety devices and harness and the use of the quick-release mechanism (when provided), explanations of their functions and necessary PPE to be used, including correct clothing;		P
	— an explanation of symbols and safety signs;		P
	— regular maintenance tasks, pre-operational measures and daily maintenance techniques, including checking for loose fasteners, fuel leaks and damaged parts, such as cracks in the cutting attachment;		P
	— application of the machine and how it is intended to be used, including prohibited uses; for brush-cutters, information shall also be given about the risks of kick-back and blade-thrust;		P
	— declared values of the A-weighed emission sound pressure level at the operator's position and of the A-weighted sound power level, including a warning		P

Clause	Requirement + Test	Result – Remark	Verdict
	about the risks and measures to be taken to minimize those risks;		
	— equivalent vibration, including warning about the risks and measures to be taken to minimize those risks (including an explanation of white-finger risks and the means for the users to protect themselves);		P
	d) the use of the machine, including:		/
	— a note alerting the user to the fact that national regulation can restrict the use of the machine;		P
	— the need for daily inspection before use and after dropping or other impacts to identify any significant defects;		P
	— instructions on general operation and common cutting tasks including warnings against unintended use;		P
	— instructions on the use of PPE including recommendations for the appropriate type of hearing protection, eye protection and clothing;		P
	— for brush-cutters, the clothing instructions include information to use slip-resistant foot protection, as well as protective clothing;		P
	— a warning against the use of the machine when the operator is tired, ill or under the influence of alcohol or other drugs;		P
	— hazards which could be encountered while using the machine and how to avoid them while performing typical tasks (e.g. removal of blockage);		P
	— warning of risks for bystanders and the need to keep them at least 15 m away from the machine during its operation;		P
	— starting and stopping techniques, with particular reference to safety;		P
	— a warning about the emission of exhaust gases;		P
	— information on correct working posture, the need for rest periods and changing working positions;		P

Clause	Requirement + Test	Result – Remark	Verdict
	— advice to keep firm footing and balance during operation, including the need to use the harness provided;		P
	e) maintenance instructions, including:		/
	— a description of servicing and replacement tasks for the user, including the need to keep the machine in good working condition;		P
	— specifications of the spare parts to be used, when these affect the health and safety of operators, for these machines the cutting attachment and the cutting attachment guard;		P
	— drawings or diagrams to allow user maintenance and fault-finding;		P
	— the provision of sufficient information to enable the user to maintain the safety system throughout the life of the product and an evaluation of the consequences of improper maintenance, use of non-conformant replacement components, or the removal or modification of safety components.		P
5.2	Marking		/
	All machines are marked with the following minimum information:		P
	— business name and full address of the manufacturer or, where applicable, the authorized representative……:	See copy of marking plate	P
	— designation of series or type……:	See copy of marking plate	P
	— designation of machinery……:	See copy of marking plate	P
	— year of construction, i.e. the year in which the manufacturing process was completed……:	See copy of marking plate	P
	— serial number, if any……..:		N/A
	— the maximum rotational frequency of the spindle, in min^{-1}……..:	See copy of marking plate	P
	— the rotational direction for the cutting attachment on a component near the cutting attachment, when applicable.	See copy of marking plate	P
	In addition, the cutting attachment or its retainer for grass trimmers is marked with the following information:	See copy of marking plate	P

Clause	Requirement + Test	Result – Remark	Verdict
	— maximum rated rotational frequency, in min^{-1}……..:	See copy of marking plate	P
	— rotational direction, when applicable;		P
	— name or trademark of the manufacturer……..:	See copy of marking plate	P
	The machine also bears the following information:		P
	— identification and method of operation, preferably according to ISO 3767-1:2016 and ISO 3767-5:2016, of the controls for engine starting and stopping devices, choke control, primer and heated handle switch (if provided);		P
	— identification of carburettor and oil adjustments (if provided);		P
	— identification of fuel and oil tank (if provided) openings and/or caps.		P
	If symbols or pictorials are used, they are explained in the instructions, and, except if cast, embossed or stamped, are in contrast to their background.		P
	Embossed features are at least 0,3 mm in height above the surrounding surface.		P
	The information and/or instructions provided by the symbols are clearly legible when viewed from a distance of not less than 500 mm.		P
	The markings are located in a readily visible position and resist the anticipated service conditions, such as the effects of temperature, moisture, petrol, oil, abrasion and weathering exposure.		P
	If labels are used, they are tested in accordance with 5.4.2, after which they undergo a visual inspection and be compared against an untested, new control specimen.		P
	No significant indications of indentation, separation, splitting, chalking, swelling, peeling, blistering, flaking, large scratches or cracking of the material, and/or no significant deterioration of print, are detected.		P
	The labels are also tested in accordance with 5.4.3, after which the non-adhesion distance is a maximum of 1 mm from the		P

Clause	Requirement + Test	Result – Remark	Verdict
	specimen edge and the adhesive properties are at least 0,09 w, in newtons, where w is the test specimen width, in millimetres.		
5.3	Warning		/
	All machines are marked with the following warnings using text or pictograms.		P
	— Read the instructions and follow all warnings and safety instructions.		P
	— Wear eye and hearing protection.		P
	— Wear head protection, where there is a risk of falling objects.		P
	— For brush-cutters, wear slip-resistant footwear and gloves.		P
	— The distance between the machine and bystanders shall be at least 15 m.		P
	— Do not use metal blades (if applicable).		P
	— Beware of thrown objects.		P
	— Beware of blade thrust (on brush-cutters).		P
	If pictorials are used, they are explained in the instructions.		P
	When pictorials are used, they, except if they are cast, embossed or stamped, are contrast to their background.		P
	Embossed features are at least 0,3 mm in height above the surrounding surface.		P
	The information and/or instructions provided by the symbols are clearly legible when viewed from a distance of not less than 500 mm.		P
	The warnings are located in a readily visible position on the machine and resist the anticipated service conditions, such as the effects of temperature, moisture, fuel, oil, abrasion and weathering exposure.		P
	If labels are used, they are tested in accordance with 5.4.2, after which they undergo a visual inspection and be compared against an untested, new, control specimen.		P
	No significant indications of indentation, separation, splitting, chalking, swelling,		P

Clause	Requirement + Test	Result – Remark	Verdict
	peeling, blistering, flaking, large scratches or cracking of the material, and/or no significant deterioration of print are detected.		
	The labels are also tested in accordance with 5.4.3, after which the non-adhesion distance is a maximum of 1 mm from the specimen edge and the adhesive properties are at least 0,09 w, in newtons, where w is the test specimen width, in millimetres.		P

Clause	Requirement + Test	Result – Remark	Verdict

4.1	**Table: Reaching through regular openings – Persons of 14 years of age and above**			P
Safety distances between:	**Opening, measured e (mm)**	**Safety distance to hazard zone, measured S_r (mm)**		
		Slot	**Square**	**Round**
Shaft - Engine guard	Opening: 6,27mm	Sr=32,48mm	-	-
Supplementary information:NONE EN ISO 13857:2019 Table 4				