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Test Report

Report Number	191128089GZU-001	Original Issued: 28/Feb/2020	Revised: None
Regulation	Council Regulation (EU) 2016/426 of 9th March 2016 relating to appliances burning gaseous fuels		
Standard(s)	BS EN521:2019		
Product Tested	Outdoor gas camping stove		
Model No(s)	FMS-133, FMS-135, Polaris Pressure-regulator Gas Stove.		

Applicant	Zhejiang Deermale outdoor Products co., Ltd.	Manufacturer	Zhejiang Deermale outdoor Products co., Ltd.
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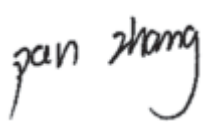

Total 22 pages.

Compliance Tests Performed

EU Type Examination of the above appliances to the requirements and test methods of above standard(s) to demonstrate compliance, as categories butane-propane mix with the Gas Appliance Regulation (GAR) 2016/426 (ex-2009/142/EC).

Conclusion

The samples examined, were found to comply with the above document as detailed within this report. The results only refer to those products tested, the details of which are contained within the main body of this report.

Examined by:	Pan Zhang	Reviewed by:	Kevin Yi
Title:	Engineer	Title:	Technical Supervisor
Signature:		Signature:	

In order to demonstrate full compliance with the GAR (affix the CE Mark), an EU Surveillance Certificate (EU Declaration of Conformity to Type) is required. For surveillance assessment, details of information required to be provided by the licence holder/manufacture are listed on the last page of this test report.


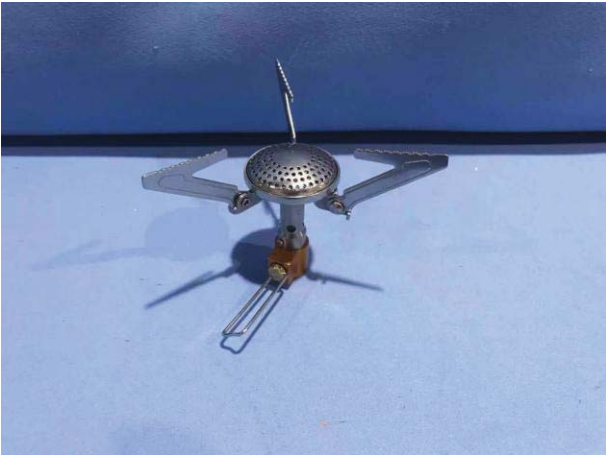

Revision summary

DD/Month/YYYY	Project Engineer/ Reviewer	Page #	Project #	Reason and Summary for revision
				First issue - None

Product	Outdoor camping stove
Brand name	NA
Description	The products covered by this report are camping stoves for outdoor use only. The stoves are designed for use with content 230g, type butane-Propane mixture gas screw type cartridges from Fire Maple only and which are purchased separately. The circumgrate pin with rubber seal at the gas inlet is designed to prevent any gas leakage.
Models	FMS-133, FMS-135, Polaris Pressure-regulator Gas Stove.
Model Similarity	FMS-133 and FMS-135 share the same construction except for FMS-135 with ignition device while FMS-133 without.
Category	Countries
butane-propane mixture	All applicable countries in Europe. This stove shall only be used with butane-propane mixture cartridge (FIRE-MAPLE FMS-G2 230G) complying with EN417.

TECHNICAL DATA	Polaris Pressure-regulator Gas Stove	FMS-133	FMS-135
Category	Butane-propane mixture		
Declared heat input	2.5kW	3.2kW	3.2kW
Inlet pressure	Direct pressure - butane-propane mixture		
Setting pressure	Direct pressure - butane-propane mixture		
Burner type	Refer to the drawing number.		
	1001 107 203	1001 109 203	1001 111 203
No. of burners	1		
No. of injectors	1		
Injector size	0.30 mm (Marked 0.3)	0.29mm (Marked 0.29)	0.29mm (Marked 0.29)
Aeration setting	4*φ7.2mm	4*φ4mm	4*φ4mm
Inlet connection	thread Ø7/16 in – 28 unified form special 41/2 full threads		

Critical Controls Fitted to the Appliance				
Component Name	Manufacturer / Trademark	Type / Model	Technical data	EU Type Examination Certificate No or PIN No.
Rubber	Zhejiang Deermale Outdoor Products co., Ltd	--	D2/H3 -20°C~125°C	Refer to report: 191128092GZU-001

Product Photographs	
Polaris Pressure-regulator Gas Stove	FMS-133
	
FMS-135	None
	

Findings of examination to BS EN 521: 2019 Specification for dedicated liquefied petroleum gas appliances – Portable vapour pressure liquefied petroleum gas appliances

Clause	Comments and results	Conclusion
1	Scope	
2	Normative references	
3	Definitions	
4	Classification	
4.1	Classification of gases	
	Appliances are classified in three categories according to the gases likely to be used: — category direct pressure - butane-propane mixture;	Complies
4.2	Categories of appliance	
	The appliance is designed as a Category direct pressure – Butane.	Not applicable
	The appliance is not designed as a category direct pressure - Butane-propane mixture.	Complies
	The appliance is not designed as a category direct pressure – Propane.	Not applicable
5	Safety requirements	
5.1	General	
	The appliance test methods and means of verification were tested according to those indicated in Clause 6.	Complies
	The design shall make it impossible to incorrectly fit or refit any user-removable or replaceable part(s) or component(s) that can have an adverse effect on combustion or cause CO emissions to exceed limits in Clause 5.26.	Complies
5.2	Adjustment of the burner	
	For appliances of types a), b) and c) of the scope of this European Standard, not any adjustment of the burner shall be possible.	Complies
5.3	Materials	
	Non-metallic materials used as radiant elements in appliances (for example volcanic rocks, refractory blocks) shall be of a quality suitable to their use.	Not applicable
	The quality and thickness of materials used in the construction of appliances shall be such that the constructional and performance characteristics are not altered in use. In particular all the parts of the appliance shall withstand mechanical, chemical and thermal actions to which they may be submitted during use. In normal conditions of operation, of cleaning or of adjustment, they shall not be liable to any alterations which might impair their safety.	Complies
	Sheet-metal parts, not made of corrosion-resistant material, shall be effectively protected against corrosion. This requirement does not apply to grilles supporting lava rocks nor to cooking devices.	Complies
	Seals and joining compounds shall have characteristics suited to their use.	Complies
	Rubber based materials shall comply with EN 549:1994 class A2 minimum, and LPG resistant	Complies
	Hoses being part of the appliance shall be LPG resistant.	Not applicable
	Copper tube was used on the appliance and the temperature was not exceeding 100°C	Not applicable
	Asbestos or asbestos based materials shall not be used.	Complies
5.4	Assembly, cleaning and maintenance	
5.4.1	Assembly	

Clause	Comments and results	Conclusion
	The entire appliance gas circuit, including the injector and flexible hoses if any, shall be factory assembled. If clamps are used, they shall be of the machine formed type. Removable clamps are not permitted.	Complies
	Parts, whose assembly is carried out by the user, shall be able to be assembled correctly by following the instructions given in the instructions.	Complies
	It shall not be possible to dismantle parts which are adjusted at the factory, which are not intended to be dismantled by the user and whose dismantling would affect safety, without using tools. If dismantling is possible using an open ended spanner or a screwdriver, direct access to such nuts and screw heads shall not be possible, unless they are sealed.	Complies
	If a pressure reducing device is integrated in the gas circuit, it shall not be removable nor replaceable by the user.	Complies
	Connections shall allow the flexible hose to move freely without risk of coming into contact with a part of the appliance whose temperature rise exceeds 70 K during the test defined in 6.21 when fitted in accordance with the instructions.	Not applicable
5.4.2	Cleaning and maintenance	
	All parts of the appliance requiring frequent cleaning by the user shall be easily accessible. It shall be possible to put these parts back correctly.	Complies
	There shall be no sharp corners and edges on the accessible parts of an appliance which could give rise to injury, for example during cleaning.	Complies
5.5	Strength and stability	
5.5.1	Strength	
5.5.1.1	General	
	The construction of an appliance shall be such that, during normal conditions of use: — any displacement of parts; — any distortion; — any deterioration likely to impair safe operation will not occur.	Complies
5.5.1.2	Stove pan supports The application of a mass as described in 6.5.1.2 on the pan support shall not cause any breakage or permanent distortion of the pan support exceeding 1 mm.	Complies
5.5.1.3	Glass components The accessible edges of glass components shall not be sharp. They shall withstand the various stresses to which they are subjected during the tests described in this European Standard without damage. In particular they shall withstand the tests described in 6.5.1.3.1 (when they are a part of the appliance) and in 6.5.1.3.2.	Not applicable

Clause	Comments and results	Conclusion
5.5.2	<p>Stability</p> <p>If the appliance is fitted with a foldable support, it shall be possible to lock this in the position of use (for example: stop, locking device). If the radiant device of a barbecue or a grill can have several positions, a stop shall be provided for each of them.</p> <p>The stability of an appliance designed to rest on a table or on the ground shall allow safe use on level ground. In addition, the appliance shall not tilt or fall over when it is placed on a slope of 10° and any lid shall not close.</p> <p>This requirement shall also be met when the appliance is fitted with optional parts (for example: lamp extension posts).</p> <p>These requirements shall be met under the test conditions described in 6.5.2.</p>	<p>Complies</p> <p>Complies</p> <p>Complies</p> <p>Complies</p>
5.6	Soundness of the gas circuit assembly	
	Holes for screws, pins, etc, intended for the assembly of components shall not open into the space reserved for the gas ways leading to the injector.	Complies
	The soundness of parts and assemblies connected to the gas circuit shall be ensured by means of metal to metal joints or joints with seals (for example, flat-faced joints, O-rings or gaskets), i.e. excluding the use of any product which ensures soundness in the threads. For parts that do not require to be dismantled during normal maintenance, for example taps, the use of thread sealing compounds is permitted.	Complies
	Removable components or the threaded parts of the gas pipework which may be dismantled during maintenance described in the instructions shall remain sound after five disconnections and reconnections in accordance with the instructions, if necessary after changing a gasket.	Complies
	Soft solder (see definition in 3.30) shall not be used to ensure the soundness of the gas circuit. However it is permitted for internal connections within the gas circuit when they do not involve soundness.	Not applicable
	Under the test conditions defined in 6.6.1, during each of the tests no. One and 2, the leak shall not exceed 0,07 l/h (1 013 mbar, 20 °C). This requirement shall also be met after all the tests on the appliance have been carried out, but before any dismantling of parts subjected to the soundness tests.	Complies
	After the application of a load to the flexible hose under the conditions defined in 6.6.2, no leak greater than 0,07 l/h (1 013 mbar, 20 °C) shall be recorded.	Not applicable
5.7	Connections	
5.7.1	General	
	Whatever the type of gas cartridge or gas cylinder, when following the instructions, connection of the appliance to the gas cartridge or gas cylinder shall be easy without gas leakage during more than 2 s.	Complies
5.7.2	Appliances intended to be directly fitted to the gas cartridge or gas cylinder	
5.7.2.1	Appliances fitted to piercable cartridges	
a	design/construction of the appliance shall be such that there is no foreseeable replacement procedure sequence possible which can lead to an unsafe and/or unintended piercing of the cartridge by the user.	Not applicable
b	The cartridge holder and the piercing device shall be such that:	

Clause	Comments and results	Conclusion
1)	The piercing is centred in the position provided	Not applicable
2)	Sundness is ensured before piercing	Not applicable
3)	after placing the cartridge, it shall not be possible to remove it, instantaneously and unintentionally, without first having to remove the piercing device. Diagrams showing the correct sequence for the fitting of the cartridge to the appliance shall be marked on the appliance.	Not applicable
c	Concerning the compatibility between ILL (internal leakage limiter as defined in 3.15 of EN 417:2012) and piercing device:	
	- Piercing device should open and not damage ILL inside the cartridges.	Not applicable
	- Piercing device should be such as the needle length penetrates cartridge for a distance between 7 and 9 mm	Not applicable
5.7.2.2	Appliances fixed onto cartridges with a female valve and threaded centre boss as defined in EN 417	Complies
5.7.2.2.1	The female thread of the adaptor designed to be fixed onto the thread of the centre boss valve is defined as follows:	
	- 7/16 in - 28 threads Unified Form Special;	Complies
	- major diameter: 10.96 mm minimum;	Complies
	- effective diameter: 10.66 mm – 10.75 mm ;	Complies
	- minor diameter: 10.20 mm – 10.27 mm.	Complies
5.7.2.2.2	The part of the adaptor ,with a full thread, shall be 3.10mm±0.1mm long.	Complies
5.7.2.2.3	The thread shall penetrate fully into the seal groove without reduction in form.	Complies
5.7.2.2.4	A valve actuator shall be fixed on the axis of the adaptor in such a way that it allows the drawing off of gas from a full cartridge . the valve actuator shall allow the release of gas from the cartridge when the appliance is screwed onto the valve with a minimum torque of 3Nm.	Complies
5.7.2.2.5	The diameter of the valve actuator shall not exceed 2.20mm if it is solid and shall be between 3.10mm and 3.15mm if it includes a gas way . the valve actuator shall be concentric with the “7/16 in – 28 unified form thread” subject to a tolerance of 0.15mm. (M11 X1)	Complies
5.7.2.2.6	At the point where the valve actuator comes into contact with the valve seat, the valve actuator diameter shall be at least 1.70mm.	Complies
5.7.2.2.7	A seal groove shall be machined at the bottom of the threaded part so as to centre and secure a seal. This seal shall come into contact with the valve centre boss. The seal and the seal groove shall be such that there is no visible and permanent distortion of the threaded centre boss when the appliance is screwed onto the valve with a torque of 12 Nm.	Complies
5.7.2.2.8	The length of the valve actuator shall be such that it does not penetrate into the valve for a distance exceeding 4.15 mm below the plane of the upper side of the centre boss when the appliance is screwed onto the valve with a torque of 12 Nm.	Complies
5.7.2.2.9	The inlet of the adaptor prior to the thread shall be a maximum of 2.00 mm deep and have a diameter of between 11.0mm and 12.0mm. in addition, the inlet of the adaptor shall begin with a 1.0mm x45° chamfer.	Complies
5.7.2.2.10	The diameter of the adaptor which penetrates the valve seal groove shall not exceed 22.90 mm. this part shall not extend more than 3.5 mm from the start of the adaptor thread.	Complies

Clause	Comments and results	Conclusion
5.7.2.2.11	The diameter of the adaptor beyond the 3,5 mm distance as defined in 5.7.2.2.10 shall be at least 30,0 mm. It shall be designed so as to rest on the rolled edge of the outer rim when fixing the appliance onto its cartridge, and after the seal ensuring soundness has come in contact with the cartridge valve. If the appliance incorporates other parts at this point (for example: blowtorch handles, plastic mouldings), the requirements of 5.7.2.2.10 and 5.7.2.2.11 shall be met, when these parts are in position.	Complies
5.7.2.2.12	The requirements of 5.7.2.2 shall be verified under the test conditions given in 6.7.2.2.	Complies
5.8	Transport, fixing and mobility devices	
	The appliance does not have any transport, fixing or mobility devices.	Complies
	Wheels allowing the movement of the appliance shall be sufficiently strong to support the appliance and, if necessary, its full gas cartridge or gas cylinder, if this is specified in the instructions.	Not applicable
	If the appliance has wheels, means shall be provided to prevent accidental movement during use.	Not applicable
5.9	Taps	
5.9.1	General	
	Each burner shall be controlled by a tap or device allowing the opening and closing of its supply. For appliances incorporating only one burner, this closing device may be that of the gas container	Complies
	Taps shall incorporate two stops, one on the closed position and one at the end of travel	Complies
	Taps shall be so placed in such a way that their strength, their operation, their manipulation and their accessibility undergo no change from actions to which they are subjected in normal use.	Complies
	Taps shall be mounted in such a way that no accidental movement relative to fixed gas supply pipework is possible.	Complies
5.9.2	Needle valves	
	It is not possible to unscrew the needle valve from its housing when opening the valve. When closing the gas supply its seat constitutes the stop.	Complies
	Needle valves shall comply with the requirements given in Annex B.	Complies
5.10	Control handles	
5.10.1	Construction	
	It shall be obvious which burner is controlled by each control handle.	Complies
	They shall be so arranged relative to one another that the movement of one handle does not cause inadvertent movement of an adjacent one.	Complies
	Control handles shall be so designed that they neither be fitted in the wrong position nor move by themselves.	Complies
	If control handles operate by turning, the closing direction shall be clockwise.	Complies
5.10.2	Marking	
5.10.2.1	Taps with marked positions. (For example plug type taps).	

Clause	Comments and results	Conclusion
	The closed, open and, if applicable, reduced rate positions shall be marked in a visible, legible and durable fashion.	Complies
	The closed position shall be marked by a full disc or a circle at least 3 mm in diameter. It shall be the same for all the taps.	Complies
	The identification of the closed position of each tap shall not give rise to any possibility of confusion with the identification of an open position.	Complies
	For other positions, the following symbols may be used:	
	- Full rate position: Large flame	
	- Reduced rate position: Small flame	
	- Rate range: Triangle	
	Other symbols, other than letters, are permitted provided that they give similar information clearly.	Not applicable
	Additional markings are permitted provided that they do not create confusion for the appliance user.	Not applicable
	The meaning of the symbols used shall be given in the instructions.	Not applicable
5.10.2.2	Taps with variable positions. (For example needle valves).	
	Markings placed either on the appliance or on the control handles shall be visible, legible and durable and comply with the following requirements:	Complies
	a) the closing direction shall be marked by an arrow (possibly stylized) whose tip points to a full disc or circle at least 3 mm in diameter or the mark “-” symbolizing the closing position,	Complies
	b) marking of the reduced rate is not required.	
	Additional markings are permitted provided that they do not create confusion for the appliances user;	Complies
	c) the meaning of the symbols used shall be given in the instructions.	Complies
5.11	Injectors	
	The gas rate shall be controlled by an injector of which the outlet orifice is fixed.	Complies
	Removable injectors shall carry an indelible marking allowing their identification, which shall be given in the instructions.	Complies
5.12	Ignition devices	
	When an ignition device is fitted, it shall be designed and constructed in such a way that it provides rapid and safe ignition.	Complies
	The components of the ignition device shall be designed to avoid damage and displacement during use.	Complies
	The relative positions of the ignition device and the burner shall be sufficiently well defined to ensure safe operation of the assembly.	Complies
5.13	Flame supervision device	
	No flame supervision device was fitted.	Not applicable
	Any flame supervision device when exist shall comply with EN 125.	Not applicable
	When flame supervision devices are fitted, they shall be designed in such a way that, in the case of the failure of any of the components indispensable to their performance, the supply of the gas to the burner and to the pilot controlled by the device is cut off automatically and can only be restored by manual operation. They shall be so mounted as to ensure satisfactory performance.	Not applicable
	The appliance shall not incorporate any device that allows the flame supervision device to be overridden. During the ignition period, a brief passage of unlit gas is permitted under the conditions given in 6.13.	Not applicable

Clause	Comments and results	Conclusion
	Heating appliances, other than those supplied by cartridges (having a maximum capacity of 1 l), shall be fitted with a flame supervision device.	Not applicable
	Under the test conditions described in 6.13, the ignition delay time shall not exceed 20 s and the extinction delay time shall be less than 60 s.	Not applicable
5.14	Burners and radiant elements	
	Burners and radiant elements shall be designed in such a way that they cannot move inadvertently during use or movement of the appliance.	Complies
	The parts of a burner or a radiant element which require cleaning shall be removable and their cleaning shall be easy unless this is possible without dismantling.	Complies
	It shall not be possible to reassemble removable burner parts incorrectly and they shall not be interchangeable if, by design, they are not identical. This shall be carried out in accordance with the information given in the instructions.	Complies
	It shall be possible to the user to check that the burners are alight.	Complies
	Crosslighting devices shall have a fixed position relative to the burners that they control and shall not distort in normal use.	Not applicable
	Under the test conditions defined in 6.6.3, there shall be no leak of gas in a flammable quantity at the joints of the assembly: — of burners made up of several parts; — of burners on the body of the appliance.	Complies
5.15	Grids	
5.15.1	General	
	Grids shall be detachable. When their height can be adjusted in accordance with the instructions while the burner is alight, they shall be provided with a fixed, moveable or detachable handle.	Not applicable
5.15.2	Grid with a rigid useful area	
	In the useful area of the grid, the bars, if any, shall not be more than 2 cm apart.	Not applicable
	The grid shall be capable of withstanding, without deterioration likely to impair its use, the load described in 6.15. Under this load, it shall remain stable on its supports.	Not applicable
5.16	Turnspit	
	Any turnspit shall be fitted with a fixed or detachable handle. This requirement is considered to be satisfied if a motor forming a handle is used. The useful length of the handle shall be at least 80 mm.	Not applicable
	When the distance between the support points of the turnspit is greater than 800 mm, there shall be a second handle, unless the motor can be used as a second handle.	Not applicable
	In order to hold the food to be grilled, the turnspit shall be fitted with one or several adjustable, lockable devices.	Not applicable
	When the turnspit is loaded as described in 6.16, it shall be stable on its supports.	Not applicable
5.17	Fireguards for heating appliances	
	Heating appliances shall be fitted with a guard meeting the strength and dimensional requirements indicated in a) and b):	Not applicable
	a. Strength of fireguards	
	1) Probe test.	

Clause	Comments and results	Conclusion
	It shall not be possible to touch any burner radiant, catalytic panel or a flame with any part of the test probe cone illustrated in Figure 11, even after the application of the test weight described in 6.17.1.1;	Not applicable
	2) Pull test	
	The guard shall not be removed, displaced or permanently distorted when tested as described in 6.17.1.2;	Not applicable
	3) Glass fronted appliances	
	When the design of the guard includes glass or similar material this material shall not be damaged by the impact test described in 6.17.1.3;	Not applicable
	b. Dimensions	
	No opening in the guard or between the guard and the aperture to be protected, shall have dimensions exceeding:	Not applicable
	Where a part of the fireguard comes within 3 mm of the aperture to be protected it shall be considered that the part reaches the edge of the aperture to be protected.	Not applicable
	These dimensions are subject to the following exceptions: 1) where it is not possible to pass a 12 mm diameter probe having a hemispherical end through any opening between the guard and the aperture to be protected. The probe shall be applied with a force of 5 N to the guard, the weight of the probe being taken into account; 2) where the gap between any vertical rods does not exceed 5 mm.	Not applicable
5.18	Locations and compartments for gas cartridge or gas cylinder	
5.18.1	Compartments for gas cylinder	
	When the appliance has an area designed to support a gas cylinder, it shall incorporate a device allowing the safe fixing of the cylinder onto the appliance.	Not applicable
	This compartment shall be designed in such a way that: a) effective ventilation is provided by openings in its base and upper section. The total area of the openings in the upper section shall be at least equal to 1 % of the base area of the compartment and the total area of the openings at the base at least equal to 2 % of the base area of the compartment, each opening being at least 3 mm ² . The openings shall not be blocked (for example by labels).	Not applicable
	b) the support for the gas cylinder has sufficient mechanical strength to resist permanent distortion under the load of a full gas cylinder;	Not applicable
	c) when it is in place it shall be vertical;	Not applicable
	d) the gas cylinder valve, if any, is readily accessible and remains easy to manipulate when the gas cylinder is in place;	Not applicable
	e) when the appliance may be connected by a flexible hose, of the length indicated in the instructions, the hose shall not come into contact with sharp edges.	Not applicable
5.18.2	Compartment for gas cartridge	
	This compartment shall be designed in such a way that effective ventilation is provided by openings in its base. The total area of the openings at the base at least equal to 3 % of the base area of the compartment, each opening being at least 3 mm ² . The openings shall not be blocked (for example by labels).	Not applicable
5.19	Heat input	

Clause	Comments and results	Conclusion
	Under the test conditions defined in 6.19, each of the burners, supplied separately, shall be capable of giving the nominal heat input stated in the instructions with a tolerance as illustrated in Figure 8.	Complies
5.20	Resistance to overheating	
	No deterioration which could impair the safety of the appliance shall be evident after the test described in 6.20.	Complies
5.21	Temperature of various parts of the appliance	
5.21.1	Floor standing or table standing appliances	
	a) the surface temperature of the parts likely to be touched during normal use measured only in the gripping area, shall not exceed the ambient temperature by more than: - 35 K for metals or equivalent materials. - 45 K for porcelain or equivalent materials. - 60 K for plastics, wood or equivalent materials.	Complies
	b) the surface temperature of any gas container valve handle shall not exceed the ambient temperature by more than 35K;	Complies
	c) the surface temperature of connection in contract with flexible hose shall not exceed the ambient temperature by more than 30 K;	Not applicable
	d) the surface temperature of an auxiliary equipment shall not exceed the temperature stated by manufacture	Not applicable
	e) temperatures measured on accessible surfaces of the front and side panels of the appliance shall not exceed the ambient temperature by more than: — metal and painted metal: 60 K; — enamelled metal: 65 K; — glass and porcelain: 80 K; — plastics and wood: 100 K. This last requirement (e)) does not apply to barbecues or heating appliances.	Complies
5.21.2	Appliances designed to be held during use	
	Under the test conditions defined in 6.21.2.2, the surface temperatures of the various parts of the appliance shall not exceed the following limits: — those indicated in 5.21.1; — 25 K for handles intended to be held during use.	Not applicable
5.22	Temperature of panels (Floor, walls or ceilings)	
5.22.1	Floor and table standing appliances	
	The surface temperature of the appliance support shall not exceed the ambient temperature by more than 70 K and 50 K for walls. If the temperature rise of the support exceeds 50 K, the instructions shall indicate the conditions of use of the appliance, more particularly he shall specify the type of surface protection to be used.	Complies
5.22.2	Appliances intended for suspension	
	If the instructions allow the use of the appliance when it is suspended from a ceiling or wall (for example: a lamp), the rise in temperature of the panel used as the ceiling or wall, as appropriate, shall not exceed the ambient temperature by more than 50 K.	Not applicable
5.23	Ignition, crosslighting and flame stability	
	Under the test conditions defined in 6.23:	Complies
	- Ignition, crosslighting and re-ignition occurred smoothly within 5 s.	Complies

Clause	Comments and results	Conclusion
	- 60 s after ignition, flames were stable and did not lift at maximum test pressures.	Complies
	- there shall be no extinction or light back;	Complies
	- the gas supplying burners which are not protected by a flame supervision device shall light automatically and smoothly if a burner is already operating within the same enclosure	Complies
5.24	Resistance to draught	
	Under the conditions defined in 6.24, neither burners nor pilots shall be extinguished unless the appliance is fitted with a flame supervision device.	Complies
5.25	Resistance to liquid spillage	
	Under the conditions defined in 6.25, neither burners nor pilots shall be extinguished, unless this is caused by the action of a flame supervision device.	Complies
5.26	Combustion	
	Under the conditions defined in 6.26, the quantity of CO in the air and water vapour free products of combustion shall not exceed 0,2 %.	Complies
5.27	Accumulation of un-burnt gas	
	Any enclosure containing at least one burner shall have one or several openings in its lower part allowing the discharge of un-burnt gas which might be released by the burners.	Complies
	These openings shall not be obstructed when the appliance is in the position of normal use (for example, appliances operating when they are placed on a surface).	Complies
5.28	Safety at high temperature	
	During the test described in 6.28, the pressure inside the gas cartridge or gas cylinder shall not exceed the pressure of the gas contained at 50 °C. After this test: — there shall be no deterioration which could impair safe operation of the appliance; — the appliance shall meet the requirements of 5.6; — the ease of changing the gas cartridge or gas cylinder and of manipulating the controls shall not have changed.	Complies
5.29	Sooting - condensation	
	At the end of all the tests in this European Standard, no deposit of soot likely to impair safe operation of the appliance shall be observed. During all the tests of this standard, condensation shall not create phenomena likely to impair safe operation of the appliance.	Complies
5.30	Rational use of energy	
5.30.1	Efficiency of stove burners	
5.30.1.1	General	
	The requirements given in 5.30.1.2 and 5.30.1.3 do not apply to stove burners whose nominal heat input is less than 1,16 kW.	Complies
5.30.1.2	Uncovered burners	
	The efficiency determined under the conditions defined in 6.30.1 shall not be less than 50 %. This value is reduced to 45 % for stoves for use with special pans having a pan diameter less than 150 mm.	Complies
5.30.1.3	Covered burners	

Clause	Comments and results	Conclusion
	The efficiency determined under the conditions defined in 6.30.2 shall not be less than: — 25 % (from the cold condition); — 35 % (from the hot condition).	Not applicable
5.31	Durability of markings	
	The durability of markings is considered satisfactory if, at the end of the tests in this European Standard, markings are still visible and legible after the test described in 6.31.	Complies
5.32	Strength and endurance requirements	
	After the components linked to the safety of the appliance having being submitted to the tests given in 6.32 the appliance shall fulfil, without any deformation affecting safety, the requirements of: a) 5.6 Soundness of the gas circuit assembly b) 5.26 Combustion Component complying with a dedicated EN standard is not subjected to this requirement.	Not applicable
6	Test methods	
7	Marking	
7.1	Appliance marking	
	Any label shall not block the ventilation openings of the cylinder or cartridge compartment.	Complies
	The appliance shall carry the following information, in a visible (see 8.1 for readability) and durable fashion, in the official language(s) of the country in which the appliance is to be sold:	
	a) name of the manufacturer or his identifying symbol;	Complies
	b) postal address of the manufacturer. If not possible, on the packaging or in a document accompanying the appliance;	Complies
	c) appliance name;	Complies
	d) type of gas: (butane; butane-propane mixture; propane);	Complies
	e) "Category: direct pressure";	Complies
	f) brand and type of the gas cartridge or gas cylinder (s) intended to be used with the appliance, in the form: "This appliance shall only be used with the XYZ butane (cartridge)"; Alternatively, for appliance category direct pressure butane using type 200 cartridges marked "Butane" the marking may be: "This appliance may be used with any type 200 cartridges marked "Butane" complying with EN 417"	Complies
	g) text "Use outdoors only" for heating appliances and barbecues or "Only use in well ventilated areas" for other types of appliances. For heating appliances, the text "Use outdoors only" shall be shown on the appliance using letters at least 3 mm high;	Not applicable
	h) text "Read the instructions before using the appliance";	Complies
	i) for heating appliances and barbecues, the text "CAUTION: accessible parts may be very hot. Keep young children away from the appliance";	Not applicable
	j) for appliances designed for use with pierceable cartridges, diagrams showing the correct sequence for the placing of the cartridge.	Not applicable
	This information may be given on durable labels fixed onto the appliance.	Complies
7.2	Packaging marking	

Clause	Comments and results	Conclusion
	The packaging of the appliance shall carry the information in 7.1 c) to g) in the official language(s) of the country in which the appliance is to be sold.	Complies
8	Instructions for use, maintenance and assembly	
8.1	General	
	Instructions for use, maintenance (storage, cleaning, checking's before use...) and assembly intended for the user shall be supplied with each appliance and shall give all necessary information to use the appliance safely and sensibly. The use of drawings is especially recommended.	Complies
	Readability is determined by the combination of font size (the minimum letter size of 1.2 mm height can be used as a reference), letter spacing, spacing between lines, colour, width-height ratio of the letters and significant contrast between the print and the background.	Complies
	The instructions shall give at least the information listed in 8.2, in the language(s) required by the Member States in which the appliance is to be sold.	Complies
8.2	Instruction contents	
8.2.1	"Important: Read these instructions for use carefully so as to familiarize yourself with the appliance before connecting it to its gas cartridge or gas cylinder. Keep these instructions for future reference".	Complies
8.2.2	An introduction containing the following information:	
	a) name of the manufacturer (or importer) and his identifying symbol;	Complies
	b) appliance name.	Complies
	c) type of gas, the appliance category and the type of gas cartridge(s) or gas cylinder(s) to be used stating: "This appliance shall only be used with the XYZ butane (cartridge); Alternatively, for appliance category direct pressure butane using type 200 cartridges marked "Butane" the marking may be: "This appliance may be used with any type 200 cartridges marked "Butane" complying with EN 417". This sentence shall be followed by "It may be hazardous to attempt to fit other types of gas cartridges or gas cylinders";	Complies
	d) injector marking (if it is removable);	Complies
	e) nominal rate in g/h and in kW (Hs);	Complies
	f) statement: "Use outdoors only" or "Use only in a well ventilated area", depending on the use (see 7.1 f).	Complies
8.2.3	The following safety information	
	a) where applicable the statement: "Check that seals (between the appliance and the gas cartridge or gas cylinder) are in place and in good condition before connecting to the gas cartridge or gas cylinder";	Complies
	b) drawing showing the position of these seals (if applicable);	Complies
	c) statements: "Do not use the appliance if it has damaged or worn seals"; "Do not use an appliance which is leaking, damaged or which does not operate properly";	Complies

Clause	Comments and results	Conclusion
	d) statement requiring that appliances, other than those solely for outdoor use, be used in a well ventilated location in accordance with national requirements: — for the supply of combustion air; — and to avoid the dangerous building up of un-burnt gases for appliances not fitted with a flame supervision device;	Complies
	e) statement that the appliance shall be operated on a horizontal surface, unless it is not intended to operate resting on a surface;	Complies
	f) statement that the appliance shall be used away from flammable materials and information on minimum distances from adjacent surfaces (wall, ceiling);	Complies
	g) statement that gas cartridge or gas cylinder shall be changed in a well ventilated location, preferably outside, away from any sources of ignition, such as naked flames, pilots, electric fires and away from other people;	Complies
	h) statement: that “If there is a leak on your appliance (smell of gas), take it outside immediately into a well ventilated flame free location where the leak may be detected and stopped. If you wish to check for leaks on your appliance, do it outside. Do not try to detect leaks using a flame, use soapy water”.	Complies
8.2.4	The following information for use	
	a) advice on how to use the appliance when it is hot (for example, the use of gloves for barbecues) and for heating appliances and barbecues, the statement: “CAUTION: accessible parts may become very hot. Keep young children away from the appliance”;	Not applicable
	b) advice on how to store the appliance when it is not in use;	Complies
	c) how to light the appliance;	Complies
	d) how to adjust the rate and the meaning of the symbols used for the various adjustment positions (see 5.10.2);	Not applicable
	e) information on the phenomenon of flaring which may occur during the warm up period or if the appliance is moved. The indication on the duration of any warm up period shall be specified; - for appliances incorporating a flexible hose, the text: “Avoid twisting the flexible hose”.	Not applicable
8.2.5	The following information for assembly	
	a) if the appliance is not fully factory assembled, assembly by the user shall be precisely described (with drawings) so as to avoid any dangerous assembly by the user;	Not applicable
	b) correct way of connecting the appliance to a gas cartridge or gas cylinder;	Complies
	c) how to check that the appliance is connected to the gas cartridge or gas cylinder in a sound fashion;	Complies
	d) how to detect leaks (see 8.3 h);	Complies
	e) how to fix any stabilizer supplied with the appliance.	Complies
8.2.6	The following information for changing the gas cartridge or gas cylinder:	
	a) for appliances with pierceable cartridges, “check that the cartridge is empty before changing it (shake to hear the noise made by the liquid)”;	Not applicable
	b) “check that burners are extinguished before disconnecting the gas cartridge or gas cylinder”;	Complies
	c) full details on how to disconnect the gas cartridge or gas cylinder;	Complies

Clause	Comments and results	Conclusion
	d) "check the seals before connecting a new gas cartridge or gas cylinder to the appliance";	Complies
	e) "change the gas cartridge or gas cylinder outside and away from people";	Complies
	f) information for the safe connection of the gas cartridge or gas cylinder.	Complies
8.2.7	The following information on routine maintenance of the appliance	
	a) cleaning the injector (if necessary);	Complies
	b) identification of seals replaceable by the user and how to replace them, and identification of non-metallic radiant elements (see 5.3).	Complies
8.2.8	Information for general maintenance and repairs:	
	a) text: "Do not modify the appliance";	Complies
	b) how to send the appliance back to a repair centre.	Complies
Annex B	Tests on needle valves	
B.1	Resistance to temperature	
	The soundness of 3 valves was checked with air at the following pressures.	Complies
	- appliances burning butane : 0,5 bar and 8 bar;	Complies
	- appliances burning a butane-propane mix : 0,5 bar and 12 bar;	Complies
	- appliances burning propane : 0,5 bar and 18 bar.	Complies
	Soundness is checked under the following conditions:	Complies
	a) on delivery at ambient temperature;	Complies
	b) at ambient temperature after maintaining the valve for 120 h at $(40 \pm 5) ^\circ\text{C}$;	Complies
	c) after cooling to $(-20 \pm 5) ^\circ\text{C}$ for 24 h, in turn, at the following temperatures: - $(0_0^{+5}) ^\circ\text{C}$; - ambient temperature; - $(70_0^{+5}) ^\circ\text{C}$; - ambient temperature.	Complies
	For each test, the leak shall be less than 0,05 l/h, valve closed and valve open (injector sealed), calculated under reference conditions: 15 °C and 1 013 mbar.	Complies
B.2	Endurance The soundness of 2 valves is checked using air at ambient temperature after an endurance test of 2 000 cycles at the pressures given in B.1. The leak shall be less than 0,05 l/h.	Complies

Test Summary				
Evaluation Period	28/November/2019 to 3/January/2020		Project No.	191128089GZU
Sample Rec. Date	28/November/2019	Condition	Prototype	Sample ID. S191128089GZU.002~014
Test Location	Address: Room 4103 & 4203, No. 63, Punan Road, Huangpu District, Guangzhou, Guangdong Province, China. 510760.			
Test Procedure	Testing Lab			

Test program:

FMS-133 and FMS-135 share the same construction except for FMS-135 with ignition device while FMS-133 without. FMS-135 was selected for full testing.

Full test to model Polaris Pressure-regulator Gas Stove.

Test Data Results:

Clause 5.19 Verification of heat inputs

Model No	FMS-135	Polaris Pressure-regulator Gas Stove
Declared heat input, kW (Q _n)	3.20	2.50
Measured heat input, kW	3.22	2.49
Deviation %	0.70%	-0.36%
Limit %	±15%	±15%
Test result	Pass	Pass

Clause 5.21 & 5.22 Temperatures rise

Model: FMS-135

Component	Measured Temp. °C	Temp. rise °C	Permitted Temp. rise, K or °C	Result
Ignition knob(metal)	42.3	21.3	35	Pass
cartridge (metal)	37.4	16.4	35	Pass
Tap (metal)	48.9	-	70	Pass
Knob (metal)	34.2	13.2	35	Pass
floor	21.3	0.3	70°C	Pass
side wall (1000mm)	24.4	3.4	50	Pass
back wall (1000mm)	23.1	2.1	50	Pass

Ambient Temperature: 21.0° C

Model: Polaris Pressure-regulator Gas Stove

Component	Measured Temp. °C	Temp. rise °C	Permitted Temp. rise, K or °C	Result
cartridge(metal)	27.8	5.9	35	Pass
Knob(metal)	31.2	9.3	35	Pass
Tap(metal)	35.7	-	70°C	Pass
floor	25.6	3.7	70	Pass
side wall (1000mm)	23.1	1.2	50	Pass
back wall (1000mm)	22.6	0.7	50	Pass

Ambient temperature: 21.9°CClause 5.26 CombustionModel: FMS-135

Condition	(CO) _M ppm	(CO ₂) _M %	(CO ₂) _N %	(CO) _N % (0.2%)	Result
Gas A, 0.5bar	231	2.5	14	0.129	Pass
Gas B, 5bar	157	3.08	13.7	0.070	Pass

Model: Polaris Pressure-regulator Gas Stove

Condition	(CO) _M ppm	(CO ₂) _M %	(CO ₂) _N %	(CO) _N % (0.2%)	Result
Gas A, 0.5bar	180	2.62	14	0.096	Pass
Gas B, 5bar	145	2.09	13.7	0.095	Pass

Clause 5.30 Rational use of energy

Model No	Efficiency Measured	Limit %	Result
FMS-135	76.6%	≥50 %	Pass
Polaris Pressure-regulator Gas Stove	57.9%	≥50 %	Pass

Actions arising during examination

BSEN 521: 2019

<u>Clause</u>	<u>Comment</u>
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NIL	
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Surveillance

In order to affix the CE mark, an EU Surveillance Certificate (EU Declaration of Conformity to Type) is required. The following information should be provided to the Notified Body conducting the surveillance:

The full Certification (technical file) issued containing the following information:

- Type Examination Certificate
- Type Examination report
- Type examination application form
- Declarations of Conformity
- Safety related control certificates
- Appliance marking
- Packaging marking
- Instruction manual (user and installation where applicable)
- BOM (bill of materials list)
- Full set of drawings

Note: The above information is required for production and QA surveillance assessments.

*****end of the report*****