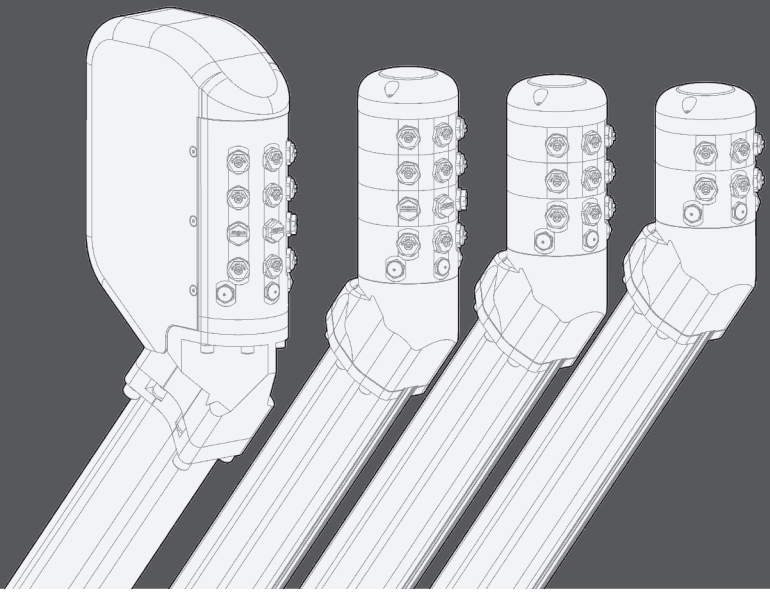
SUPERSNOW

OPERATING MANUAL LANCE VIRGA



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OPERATING MANUAL
LANCE VIRGA

SUPERSNOW

2025-08-14

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CONTENTS

1. PRELIMINARY INFORMATION

1.1. GENERAL INFORMATION

The user manual is an integral part of the machine, although it can be supplied separately. Before operating the equipment, read the entire user manual carefully. The tips contained in it will help you avoid the risk of personal injury and damage to the machine.

WARNING!

TO OPERATE, TRANSPORT AND MAINTAIN THE SNOW LANCE, KNOWLEDGE AND FULL UNDERSTANDING OF THIS MANUAL IS REQUIRED

The operating instructions should be located near the machine so that they can be used by the machine operator at any time. The user manual must be protected against possible damage due to flooding, dirt, mechanical and thermal damage.

The range of SUPERSNOW products is extensive and diverse. Parts and accessories delivered to the customer may vary due to the order placed and the country of installation. The illustrations in the user manual are for illustrative purposes only and may differ from the actual state.

This user manual is for SUPERSNOW snow lances with Virga markings.

1. PRELIMINARY INFORMATION

1.2. SYMBOL EXPLANATIONS

The symbols used in the manual are designed to simplify the message and draw the reader's attention to important issues that require special attention.

	A symbol that notifies you when you need to find out more from the user manual.
	Symbol indicating the appearance of key information necessary for the proper operation of the machine.
	A sign signalling the possibility of danger also informs about the obligation to exercise special caution when performing works marked with this sign.
	Warning symbol of the danger of electric shock.
	Symbol that warns of the risk of injury due to moving parts on the machine.

	Symbol warning of the danger associated with high pressure occurring in hydraulic and pneumatic systems.
	Warning symbol of the danger of burns due to the heating of certain parts of the machine.
	A symbol warning of the danger of suction, loose clothing or long hair getting entangled in the spinning parts of the machine.
	Symbol warning of the possibility of automatic start and operation of the machine.
	The presence of these symbols requires the use of the indicated personal protective equipment.

1. PRELIMINARY INFORMATION

1.3. SAFETY RULES

The snow lance is powered by electricity. Before performing any operations inside the equipment, disconnect it from the electrical supply.

All servicing work should be carried out with the machine switched off and protected.

Damaged electrical cables must not be used! This poses a risk of electrocution.

During operation, do not reach the turntable mechanism.

Damaged or bent hoses must not be used, as this may cause them to burst. This is very dangerous for skiers and for the machine itself.

Do not exceed the maximum water pressure of 50 bar. There is a risk of damage to the device.

In an emergency, immediately shut down the power supply (main power switch).

Be particularly careful near areas marked with a hot surface warning and wear protective gloves when working.

1. PRELIMINARY INFORMATION

The snow lance can be operated in automatic mode. It can be activated automatically. Be especially careful when near it.

Before each time you start the machine, make sure:

- Are the guards installed correctly
- Are any transport locks removed

After connecting the components of systems with high pressure of the working medium, it is necessary to make sure that the connection is properly secured and tight.
Running the snow gun without filters is not allowed and can damage the machine.
The guarantee of correct and safe operation of the machine is the performance of maintenance work within a specified period, the use of consumables and spare parts recommended by the manufacturer.
It is forbidden to be near the machine by unauthorized persons.

Snow lance operators should wear personal protective equipment when working with the machine. It is recommended to use protective footwear and gloves, winter clothing, protective goggles and earmuffs, and headgear.

Do not block access to the places on the machine that are used during an emergency shutdown of the machine. Repair and maintenance work should be carried out with adequate lighting and space for work.

It is unacceptable to place an unprotected device on open routes without their proper preparation. The lance should be visibly marked, separated from the slope with a barrier net and anti-impact mattresses should be installed.

After any removal of guards, housings and other parts of the machine, they must be reinstalled.

Indicate and notify of the commencement of any work related to the switching on or disconnection of utilities (electricity, water, compressed air) during service work.

When closing or opening a manual hydrant, stand a safe distance from water hoses. A sudden increase in pressure in the hose can lead to a whiplash effect.

Electrical, hydraulic, pneumatic installations powering snow lances and other snowmaking system equipment should be designed and constructed in accordance with the applicable regulations in a given country.

Connecting snowmaking machines to a pre-existing installation (electrical, hydraulic, pneumatic) should be carried out in accordance with the regulations applicable in a given country and the requirements included in the technical documentation of the installation.

Do not obstruct the ventilation openings on the lance housings, as this may cause the machine to overheat.

The power cables of snow lances should be arranged in such a way that there is no possibility of accidental mechanical damage.

Any tampering with the product and failure to comply with the instructions in the operating instructions will adversely affect the safety and reliability of the machine. This results in the invalidation of the CE declaration and the loss of the warranty.

1.4. DESCRIPTION OF RESIDUAL RISK

The manufacturer of snow lances, SUPERSNOW, has made every effort to eliminate the risk of accidents when working with machines. Despite our efforts, there is a residual risk that can be caused by:

- Failure to follow the instructions in the instructions
- Operation of the machine by unauthorized and intoxicated persons
- User modifications
- Use of the machine for other than its intended purpose
- Putting limbs between moving parts
- Removing protective covers

The residual risk can be minimized by following the recommendations:

- Carefully and understandably read this user manual
- Use of the machine according to the recommendations in this manual
- Calm and prudent work with the machine
- Working only on the completed machine
- Ongoing removal of any defects
- Carrying out service work by qualified technician

1.5. GLOSSARY

SNOW LANCE (Also known as a snow machine) is an energy machine used to produce artificial snow, most often used on ski slopes. Snow production with a snow gun requires the supply of water, electricity and sometimes compressed air. A standard snow gun consists of several basic elements such as: head, profile, water assembly, base, compressor, control box, weather station, actuator, operator panel.

MANUAL SNOW LANCE A type of lance in which the machine operator is responsible for control. It activates and manually adjusts the appropriate components of the lance to achieve the respective snow output and quality.

AUTOMATIC SNOW LANCE A type of lance in which the operator sets the appropriate parameters of the machine, and the controller is responsible for the rest. For the set snow quality and weather conditions, it activates and sets the appropriate components of the machine. Working with the hydrant drive, it reduces the need for additional activities related to the operation of the machine to a minimum. The automatic snow lance can be controlled from the machine (local control) and via the Snowmatic system or the mobile app (remote control). It can also be operated in manual mode.

HEAD The end part of the machine in which the water and nucleation nozzles are mounted. The element is used to spray water to form crystallization seeds.

PROFILE An element that performs a load-bearing function for the head and transports water and compressed air to it. Its shape resembles a long pipe, with the difference that instead of one large duct, it has several smaller ones inside.

WATER TEAM Hydraulically or mechanically controlled valve block regulating the water flow capacity, equipped with a filter. Thanks to it, it is possible to control the quality and efficiency of the snow obtained.

BASE A structural element that acts as the skeleton of the entire lance.

COMPRESSOR (also known as a compressor) is an externally driven mechanical equipment used to pressurize air through nuclear nozzles.

CONTROL BOX An element of the electrical installation of a snow gun used to control, protect, measure and regulate the devices and circuits included in it.

METEO STATION A component used to measure weather conditions necessary for the autonomous operation of the machine.

ACTUATOR Lance element that allows its profile to be raised and lowered.

HYDRANT DRIVE A device used to open, close and regulate the flow of water in a hydrant. Thanks to it, it is possible to start the machine automatically, adjust the maximum water flow and drain the snow gun after work. In the event of a power outage, it shuts off the water supply automatically, preventing the lance and water hoses from icing up.

FOOT-WHEEL LANDING GEAR A snow gun unit that stabilizes and levels the machine in relation to the ground. To transport it, you should use a snow groomer or other self-propelled machine equipped with an appropriate hitch. This allows the meadow to be towed up on the slope.

SNOW LANCE OPERATOR

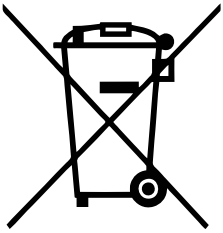
The person responsible for the correct connection, settings and operation of the snow gun. He cares about his own safety and the safety of people in the machine's working area. He maintains and eliminates defects that do not exceed his competence on an ad hoc basis. In the event of more serious defects or unusual operation of the machine, it shuts down the machine in an emergency and notifies the snowmaking system manager about the problem. In order to maintain the safety and proper operation of the snow gun, the operator should be trained by a SUPERSNOW employee and know and fully understand the information contained in the user manual, to which he should have unlimited access.

SNOWMAKING SYSTEM MANAGER

A person who takes care of the snow gun set and the infrastructure used in their work. It is responsible for the correct connection, positioning and operation of the snowmaking system components. He takes care of his own safety and the safety of people in the field of operation of snow guns. It is responsible for properly marking, separating and securing snow guns from the slope. It also takes care of carrying out planned conservation works. In the event of a defect exceeding his competence, he notifies the SUPERSNOW service department about the problem, which determines the course of action. For convenience and to shorten the repair time, the manufacturer of snow guns allows the customer to carry out the repair on their own, provided that the scope of work is agreed in advance and an appropriate specialist (Mechanic, Plumber, Electrician) is appointed for this task. In order to maintain the safety and proper operation of the snow gun, the snowmaking system manager should be trained by a SUPERSNOW employee and know and fully understand the information contained in the user manual, to which he should have unlimited access.

SNOWMATIC A centralized snowmaking control system, specially prepared according to the needs of each customer. The system is designed to operate snowmaking equipment and pumping stations. The software streamlines the operation of the entire automatic snowmaking system, allows you to view and control the equipment, and facilitates the implementation of the snowmaking strategy on the slope. The user can use the program to switch on, off and set all the parameters of each snow gun and control its operation during snowmaking.

1.6. RECYCLING



If you decide to scrap your machine, you must comply with the regulations in force in your country regarding the scrapping and recycling of end-of-life machines. Before disassembling the machine, remove the oil from the hydraulic system completely. In the case of replacement of parts, worn or damaged elements should be handed over to the recycling yard. Used oil, as well as rubber or plastic elements, should be handed over to waste disposal facilities.

WARNING!

DURING DISASSEMBLY, USE APPROPRIATE TOOLS AND PERSONAL PROTECTIVE EQUIPMENT. AVOID CONTACT OF THE OIL WITH THE SKIN. DO NOT ALLOW USED OIL TO SPILL.

2. TECHNICAL DATA AND CONSTRUCTION DESCRIPTION

2.1.PURPOSE OF THE MACHINE

The purpose of the snow gun is artificial snowmaking on ski slopes.

WARNING!

THE SNOW LANCE CAN ONLY BE USED FOR THE PRODUCTION OF ARTIFICIAL SNOW. USING IT FOR ANY OTHER PURPOSE IS INCOMPATIBLE WITH ITS INTENDED PURPOSE.

2.2.WARNING LABELS

Warning labels play a very important role in the machine. They warn of the dangers associated with a particular component of the snow gun. The information contained therein must be strictly adhered to.

WARNING!

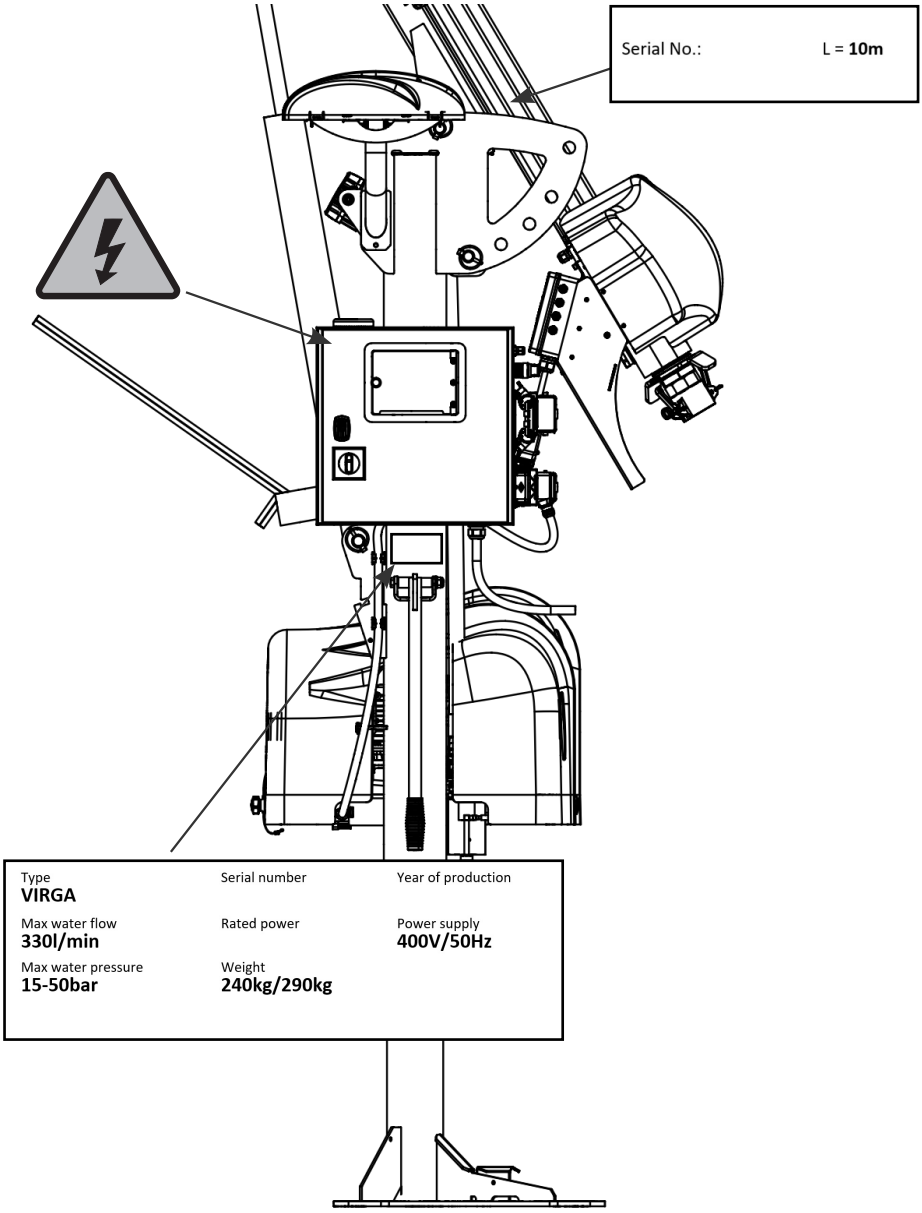
IN THE EVENT OF DAMAGE, LOSS OR ILLEGIBILITY OF WARNING LABELS, THEY MUST BE REPLACED WITH NEW ONES.

The nameplate with identification data is located on the rotating base - under the electrical box and on the forward profile. The rating plate contains the following information:

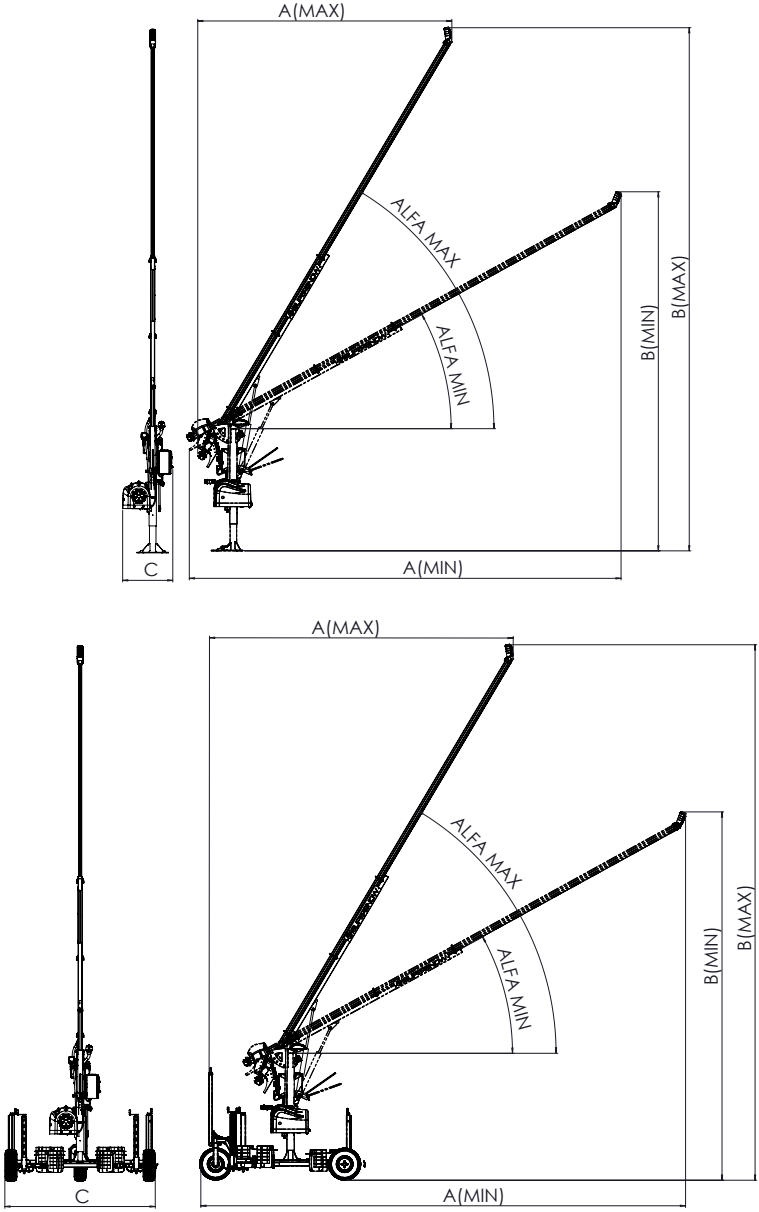
1) Type
2) Serial Number
3) Year of manufacture
4) Max water flow
5) Power
6) Power
7) Maximum Water Pressure
8) Scales

The location of the nameplate is shown in the drawings later in the chapter.

2. TECHNICAL DATA AND CONSTRUCTION DESCRIPTION



2.3. TECHNICAL DATA



Overall dimensions of the Virga snow lance

2. TECHNICAL DATA AND CONSTRUCTION DESCRIPTION

Parameter	Unit	Virga 8M	Virga 10M
Number of water sections	-	4	4
Number of nucleation sections	-	1	1
Number of water jets	-	12	12
Number of nucleation nozzles	-	3	3
Permissible water pressure	bar	15 - 50	15 - 50
Maximum water intake	l/min	330	330
Maximum snow production	m^3/h	56	56
Compressor Type (Standard Version)	-	oilless	oilless
Operating Temperature (WB)	°C	-25~-1,5	-25~-1,5
Filtration accuracy	µm	250	250
Nominal Voltage (Standard)	V	400	400
Nominal Frequency (Standard)	Hz	50	50
Connection plug	A	5x16	5x16
Nominal Intensity	A	16A	16A
Nominal power (central compressor)	kW	0,35	0,35
Nominal power (compressor at lance)	kW	2,2	2,2

Technical parameters of the snow gun

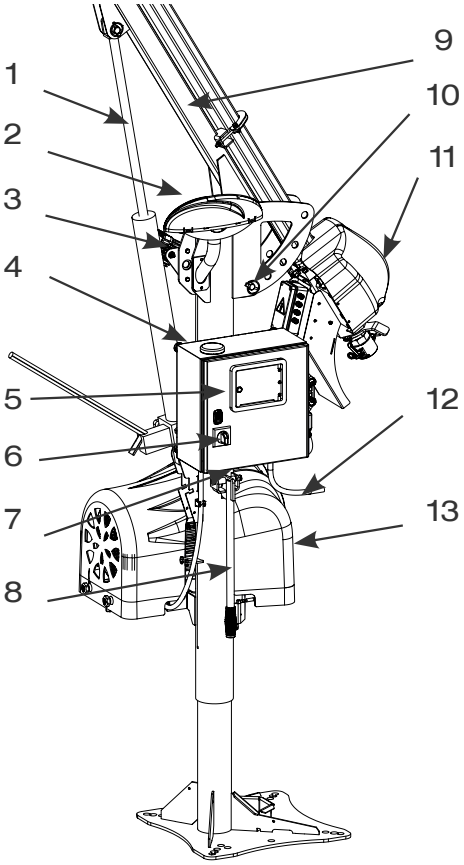
2. TECHNICAL DATA AND CONSTRUCTION DESCRIPTION

Parameter	Unit	Virga 8M	Virga 10M
Length of snow lance on well [A(MIN) | A(MAX)]	m	6,75 | 3,8	8,45 | 4,7
Height of snow lance on well [B(MIN) | B(MAX)]	m	6,45 | 9,3	7,45 | 11
Width of snow lance on well (C)	m	0,85	0,85
Length of snow lance on chassis [A(MIN) | A(MAX)]	m	8,3 | 5,4	-
Height of the snow lance on the chassis [B(MIN) | B(MAX)]	m	6,4 | 9,3	-
Width of snow lance on unfolded chassis (C)	m	2,6	-
Weight of a snow lance on a foundation well	kg	230-280*	240-290*
Weight of a snow lance on a wheeled chassis	kg	795-845*	805-855*

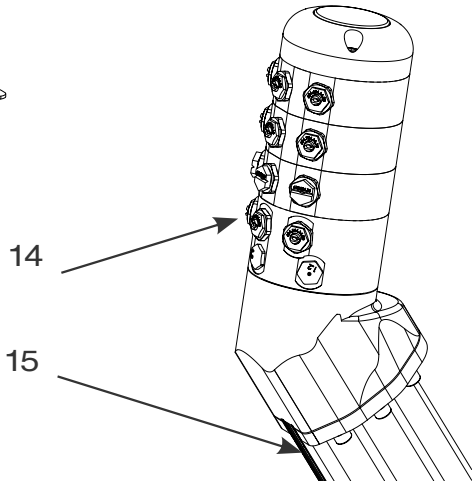
**The weight of the lance varies, depending on whether it is equipped with a compressor or works with a central compressor system.*

Technical parameters of the snow gun

2.4 CONSTRUCTION DESCRIPTION



1	Actuator
2	Meteo Station
3	Lamp
4	Electrical box
5	Control panel
6	Main switch
7	Rotation lock
8	Rotation lever
9	Support profile
10	Vertical position lock
11	Water Assembly
12	Power Cable
13	Compressor



14	Head
15	Forward profile

Description of the construction of a snow lance

3. TRANSPORT AND INSTALLATION

3.1 TRANSPORT

Before starting the transport activities, carefully read the operating instructions supplied with the machine, in particular pay attention to the overall dimensions and weight of the snow gun.

The weight of the snow gun components is included in the table of technical parameters.

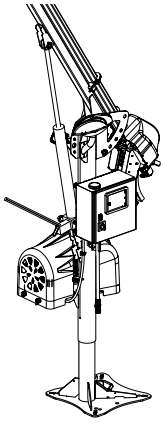
There may be a risk of injury when transporting the machine. Personal protective equipment is recommended.

In order to maintain the safety of persons and property, slings, shackles, hooks, etc. should always be used. adapted to the given load capacity and other requirements included in the applicable regulations. It should also be remembered that the length of the slings should be as short as possible, this will limit the loss of stability.

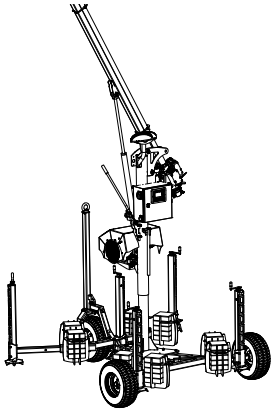
When moving the snow gun, a safe distance must be maintained, and in particular no body parts should be placed between the machine and the sling.

3. TRANSPORT AND INSTALLATION

The snow lance can be supplied to the customer in a variety of base configurations depending on requirements. The available options are: a base for the manhole and a wheel and foot landing gear.

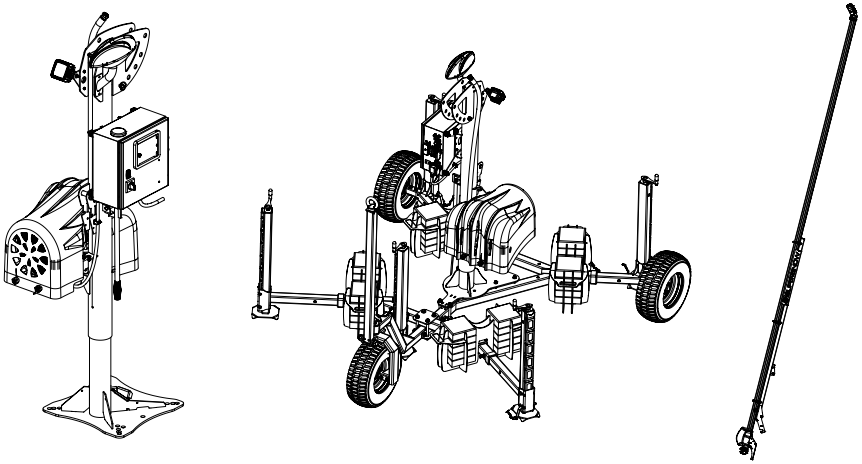


Snow lance - the base for a well



Snow lance on a wheel and foot chassis

The standard delivery method is to separate the lance bases from the profiles. The bases are placed on a transport pallet together with additional elements (hoses, actuator, etc.). Profiles with an attached water assembly are stored separately in a way that allows ergonomic unloading. In the case of lances with a water assembly installed in a well, the profiles are also stored separately and the water assembly is loaded on a pallet together with other accessories.



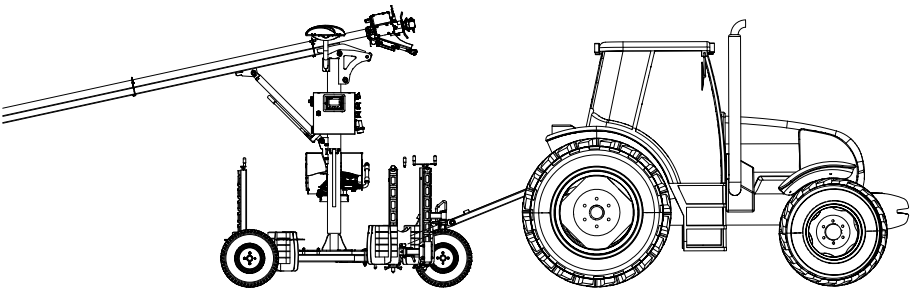
Transport options: Lance base for manholes or base on a foot-and-wheel chassis and forward profile

WARNING!

WHEN LIFTING AND TRANSPORTING THE SNOW LANCE, PROCEED SLOWLY AND CAREFULLY AND PAY ATTENTION TO THE LOCATION OF THE CENTER OF GRAVITY

3.2. MOVING ON THE SLOPE

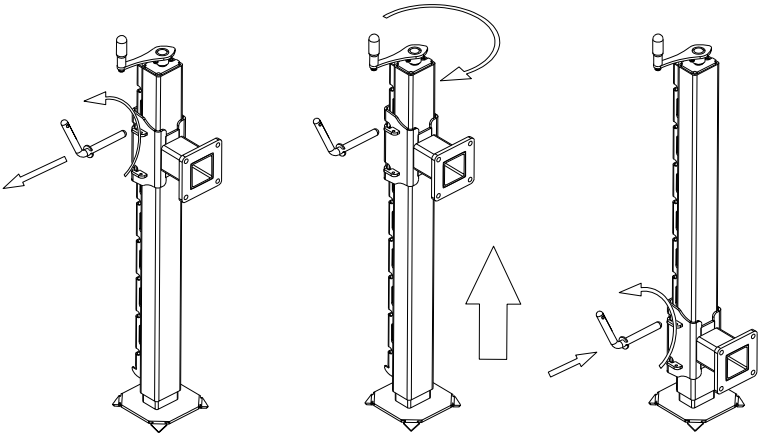
A snow lance equipped with a wheel and foot landing gear can be moved by pulling it by the drawbar. For this purpose, use a vehicle equipped with an agricultural hitch. It is recommended that before transporting the lance, the hose and power cord should be unfastened from the lance, which should be hung on the handle. Remember to maintain an appropriate distance between the head and the ground and to block the rotation of the profile.



Method of transporting the lance by towing

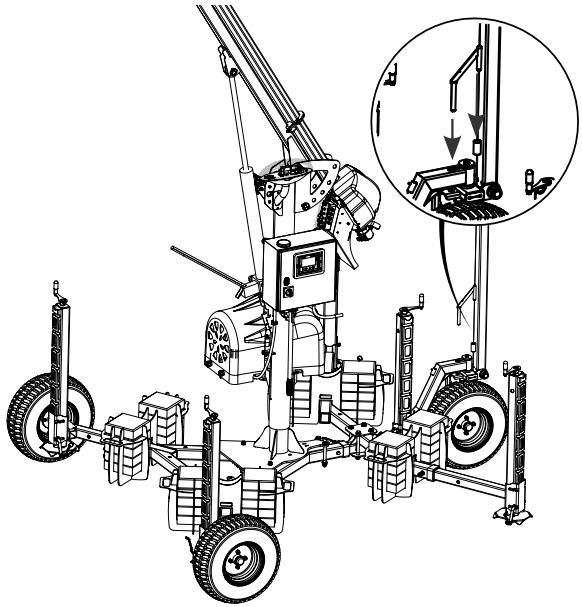
WARNING!

BEFORE STARTING TOWING, REMEMBER THAT THE PAWS SHOULD BE RAISED AS MUCH AS POSSIBLE



Foot lift scheme

When stationary or storing the machine after work (e.g. garage), the drawbar can be placed in an upright position, remembering to secure it with a pin.



How to secure the drawbar after towing

3. TRANSPORT AND INSTALLATION

INFORMATION!

THE SPEED AT WHICH THE SNOW LANCE SHOULD BE TOWED MUST NOT EXCEED 5 KM/H

WARNING!

TOWING A LANCE EQUIPPED WITH A WHEEL AND FOOT CHASSIS ON PUBLIC ROADS IS NOT ALLOWED

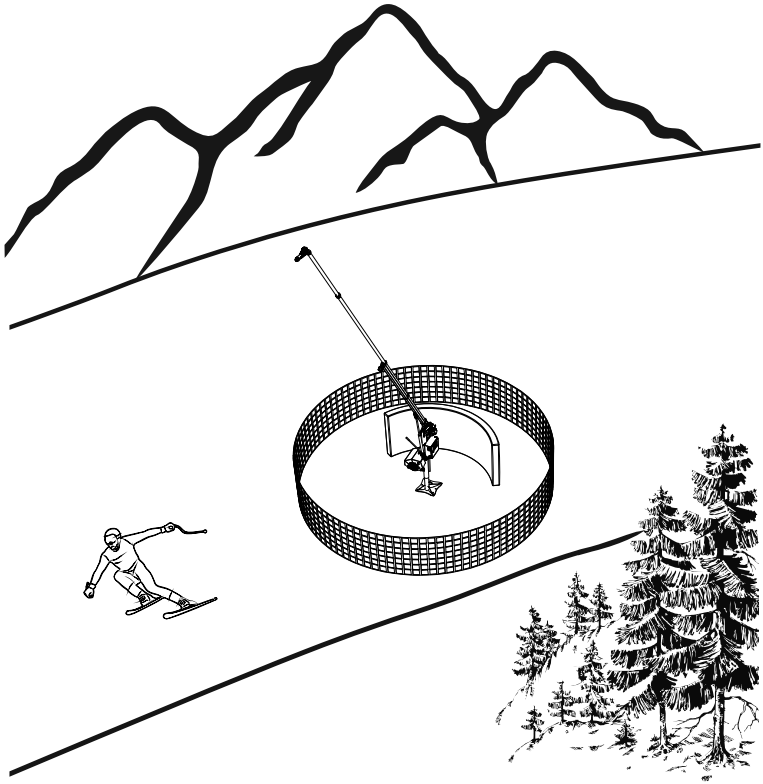
3.3. INSTALLATION ON SLOPES

Before starting to work with the snow lance, it is necessary to check the completeness of the elements of the set, which, depending on the configuration of the lance, includes:

	Lance on a wheel and foot chassis	Lance for wells / foundation
Snow Lance Profile	✓	✓
Well base/foundation		✓
Foot-wheel chassis with lance base	✓	
Power cord 4.5m/20m	✓	✓
Hydrant drive cable 4.5m/20m	✓	✓
Rubber water hose 1.9m/4m	✓	✓

3. TRANSPORT AND INSTALLATION

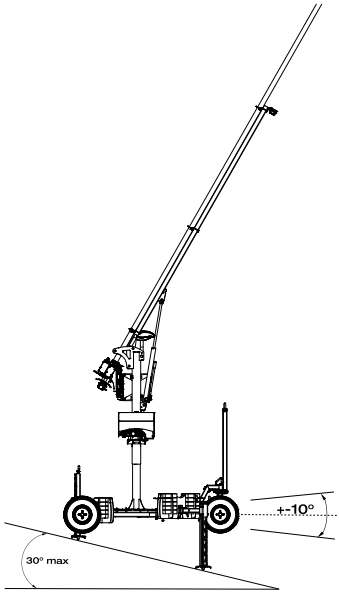
The lance must be positioned in a position that does not endanger the safety of personnel, skiers and the machine itself, taking into account the extreme working conditions. It is unacceptable to place an unsecured device on open routes without preparing them properly. The lance should be visibly marked, separated from the slope with a barrier net and anti-impact mattresses should be fitted. It is absolutely necessary to observe the principle of not allowing skiers to enter the traffic in the place where the cables and power hoses are laid. Failure to do so may result in, among other things, cutting the wires. It is also forbidden to snow the slopes currently open to the slope users.



How to secure a snow lance on the slope

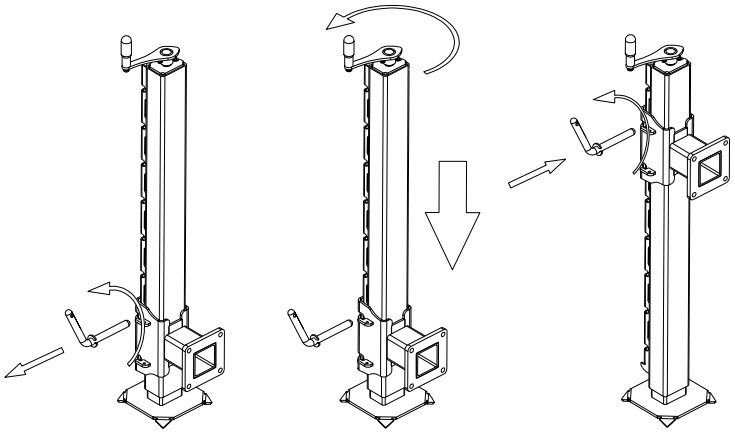
3. TRANSPORT AND INSTALLATION

The place where the machine is placed should be on a stable, as flat surface as possible, which can withstand the weight of the machine. To ensure proper operation of the lance and compressor, the tilt of the lance from the horizontal must not exceed 10 degrees.



Permissible slope and snow gun gradients

Leveling paws are used to compensate for the slope of the terrain. Their maximum stroke is 624 mm. In the case of a wheeled chassis, once adjusted, it is absolutely necessary to immobilize the lance with at least two leveling feet.

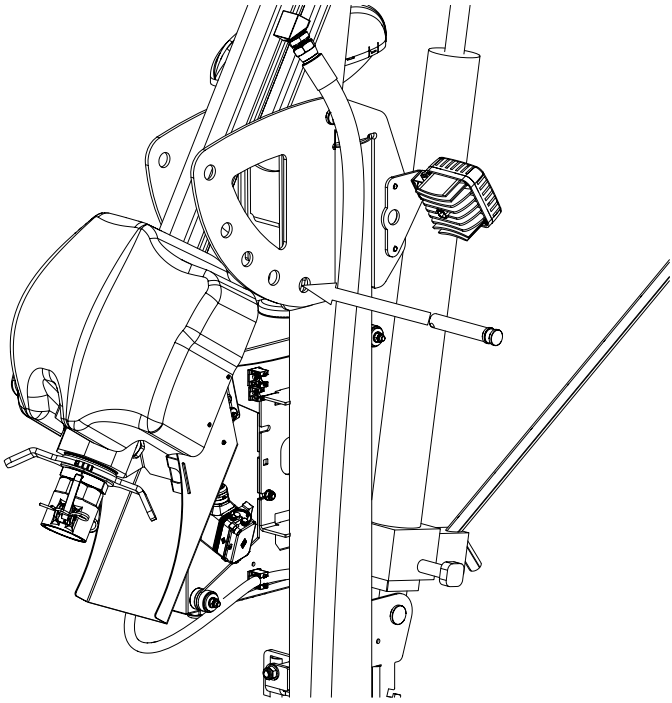


Pattern of lowering paws

WARNING!

WHEN LOWERING THE LEVELING PAWS, THERE IS A RISK OF CRUSHING THE FOOT. TO AVOID THIS, YOU SHOULD KEEP A SAFE DISTANCE

Before raising and lowering the lance profile, the locking pin must be removed. After the operation, you should secure the current position, not forgetting about the pin. This will allow you to disassemble the cylinder and use it, for example, in another lance.



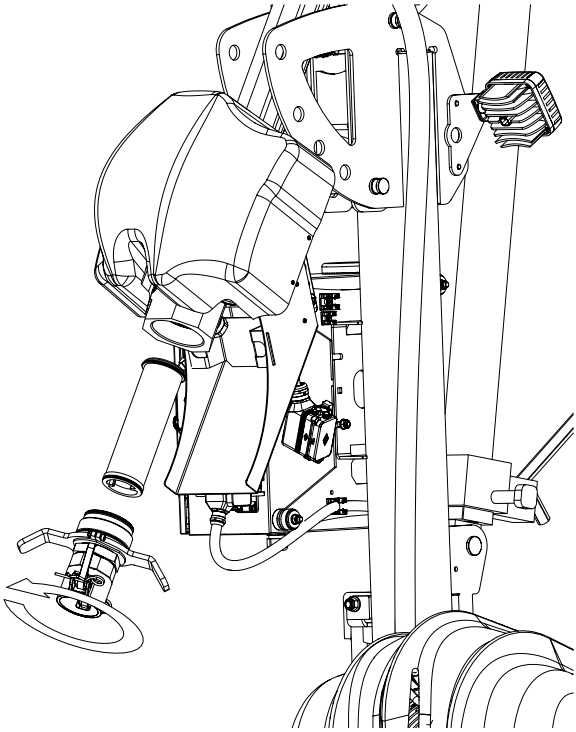
Attaching/removing the lance profile lock

WARNING!

LIFTING THE LANCE PROFILE WITHOUT REMOVING THE LOCKING PIN WILL DAMAGE THE MACHINE DUE TO THE OPERATOR'S FAULT.

3. TRANSPORT AND INSTALLATION

Before each lance operation, check that the water filter is not dirty. Clean the cartridge if necessary. During operation, the frequency of checking the cleanliness of the filter cartridge should depend on the efficiency of the equipment. However, it is recommended to check the cartridge at least every 24 hours of operation. A dirty filter results in a drop in water pressure.



How to remove the filter for cleaning

WARNING!

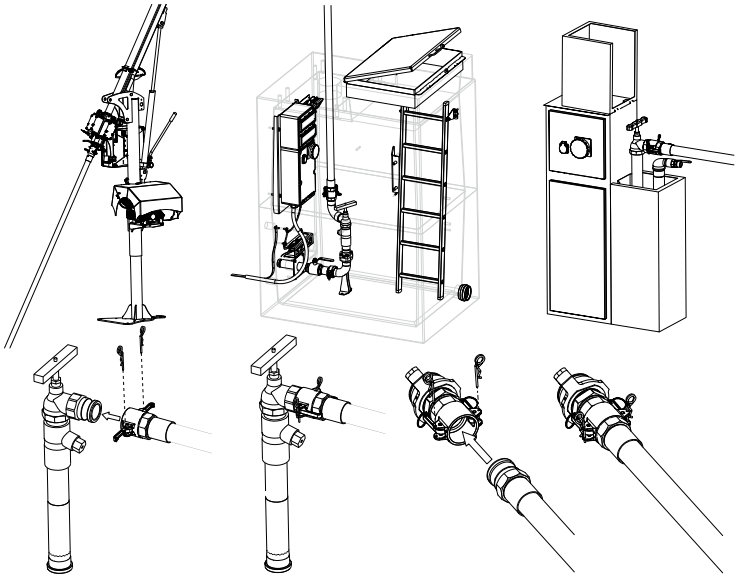
BEFORE UNSCREWING THE FILTER CAP, TURN OFF THE WATER SUPPLY, TURN OFF THE MACHINE AND UNPLUG THE HOSE.

Water for snowmaking purposes should not contain impurities larger than 300 µm. Larger bodies cause the lance filter to foulate quickly. For the lance to work properly, a pressure in the range of 15 to 50 bar is required.

3. TRANSPORT AND INSTALLATION

Attention should also be paid to the presence and correct installation of all covers/enclosures. Any damage to cables and water or plumbing lines should be repaired before connecting the machine.

To connect the lance, use a rubber hose with 2" Camlock fittings and a flexible hose with a permissible pressure of at least 50 bar (burst pressure minimum 150 bar) with 2" Camlock ends. Water hoses should be arranged so that they do not obstruct the safe operation of the machine, turn in gentle curves and are not twisted.



Connection diagram of the water supply hose

WARNING!

THE MAXIMUM PERMISSIBLE OPERATING PRESSURE IS 50 BAR, EXCEEDING IT MAY DAMAGE THE MACHINE AND VOID THE WARRANTY!

WARNING!

ALWAYS SECURE THE CAMLOCK FASTENERS WITH COTTER PINS!

3. TRANSPORT AND INSTALLATION

Before connecting the snow gun, make sure that the mains voltage is 3 x 400 VAC with a permissible deviation of +5/-10% and a frequency of 50 Hz, and that the unevenness of the phase voltage must not exceed 5%. The power rating of the machine refers to standard products and may vary depending on the region and country in which the machine will be operated. To connect the lance, use the integrated power cord, which is equipped with a 16A plug as standard. Before starting the snow gun, check the correct direction of rotation of the compressor motor. Factory settings guarantee the correct direction of rotation of the device.

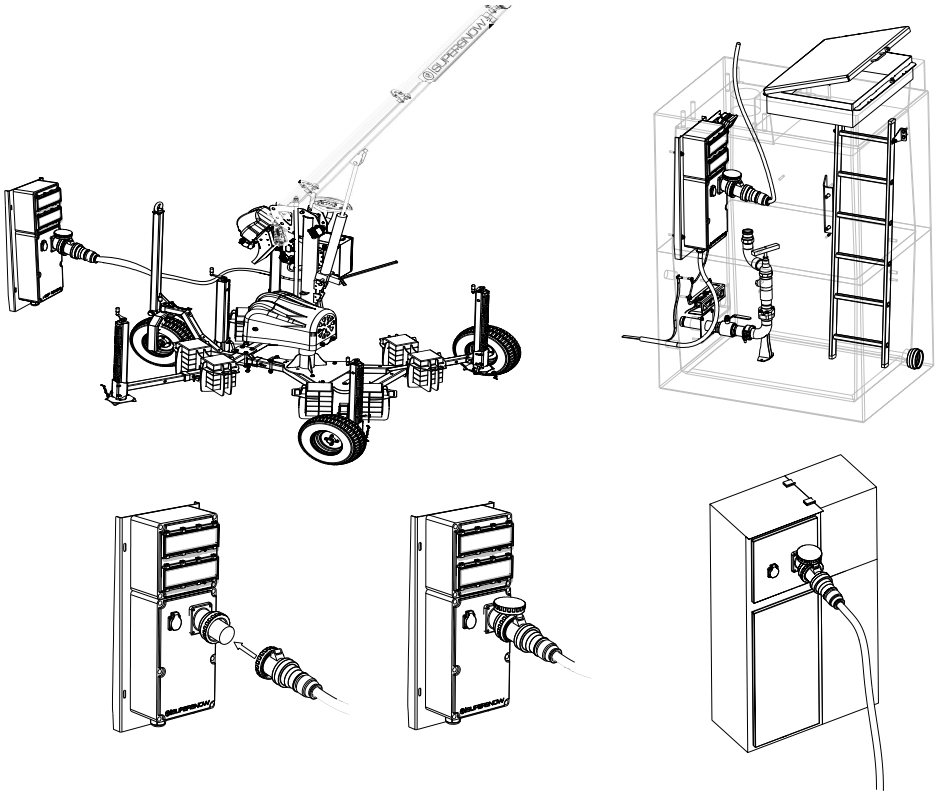
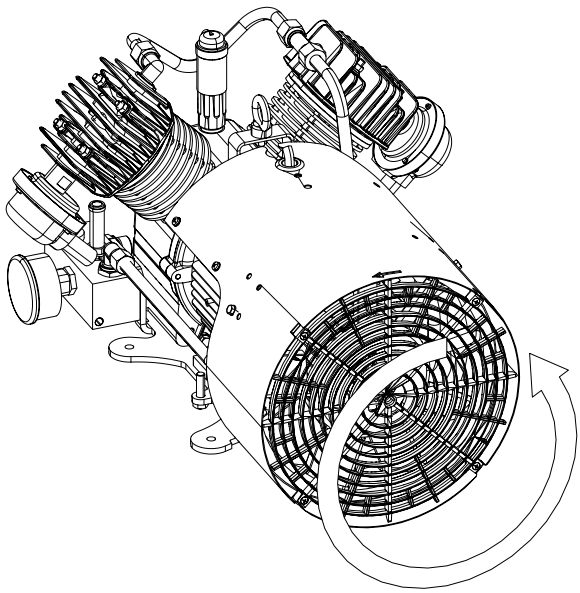


Diagram of the electrical supply connection (CEE 63 A connector) of the snow gun to the slope box and the installation in the well

After a long downtime at temperatures below -10°C, the head should be annealed twice before the machine is started for the first time.

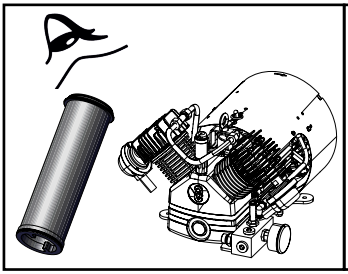
When starting a snow gun equipped with a compressor for the first time, pay attention to the sequence of the supply phases. The control consists of turning on the power in the lance and then manually starting the compressor. The compressor fan should spin counterclockwise (when viewed from the fan shroud side), drawing air towards the compressor. If the phase sequence is reversed, the compressor should not start due to the phase sequence control module installed. In machines with a control panel, the message "POWER FAILURE" will occur, in lances without a panel, the message will appear in the SNOWMATIC system. The defect must be removed by a qualified electrician, changing the order in which the phases are connected at the point where the lance is connected to the electrical network.



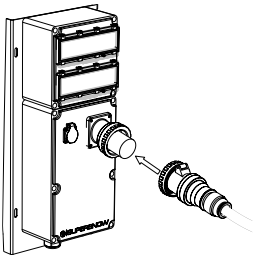
Correct direction of compressor fan rotation

4. CONTROL

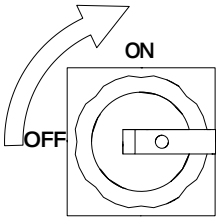
4.1. STARTING AND MANUAL CONTROL OF THE SNOW GUN:

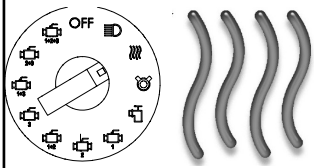


1) Check the status of the set device (compressor, filter cartridge).

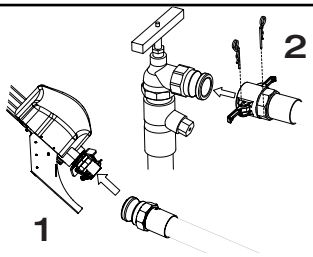


2) Connect the lance to the power supply with the appropriate cord.

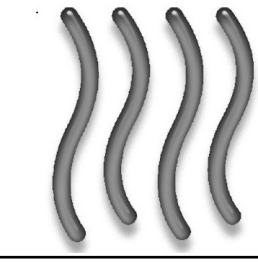




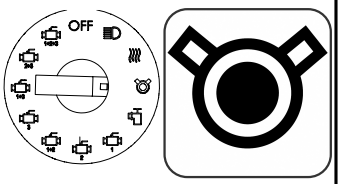
4) Turn on the head heating.



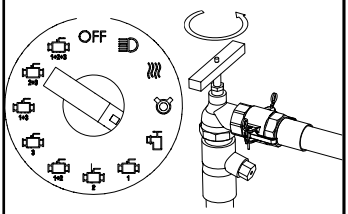
5) Connect the lance to the hydrant with a high-pressure hose.



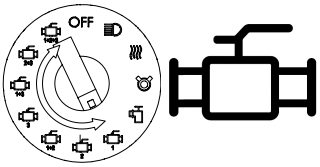
6) Make sure that the cable and hose are mounted in a way that will not damage them during operation. After warming up the head to the appropriate temperature (approx. 4 minutes), the heaters will shut down automatically, this is signaled by the extinguishing of the heater indicator light on the control panel. At frosts below -10°C, it may take up to 10 - 15 minutes to warm up. At such temperatures, repeat the burn-in.



7) Turn on the compressor, then wait for about 1 minute before moving on to the next step.



8) Open the main hydrant slowly, adjust the maximum water pressure if necessary.



9) Open the valves supplying water to the required sections of the head (depending on the weather conditions and the adopted snow quality, the given valve configuration, included in the table at the end of chapter 4, should be opened).

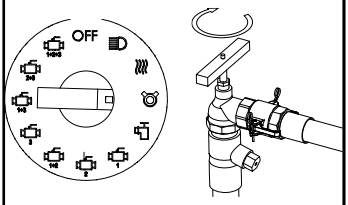
WARNING!

DO NOT EXCEED THE MAXIMUM WATER PRESSURE OF 50 BAR!

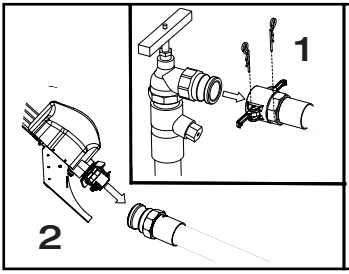
WARNING!

MAKE SURE THAT THE CABLE AND HOSE ARE MOUNTED IN A WAY THAT WILL NOT CAUSE DAMAGE DURING OPERATION.

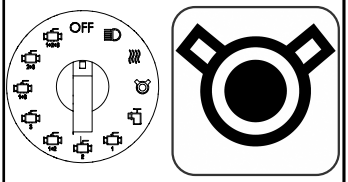
4.2. MANUAL STOPPING OF SNOW LANCES:



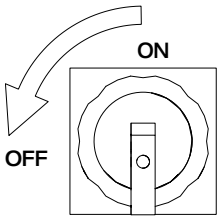
1) Close the hydrant.



2) After the pressure drops to a value close to zero (water from the steam traps in the water unit will stop leaking), disconnect the hose from the hydrant and snow gun. After finishing work, remember to drain the hoses.

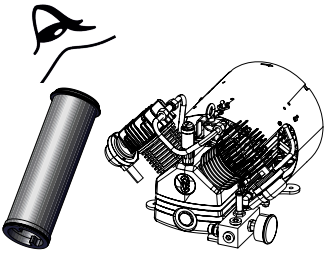


3) Turn off the compressor.

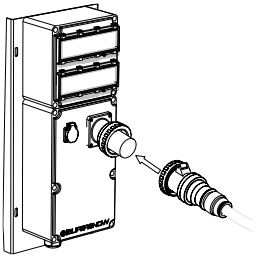


4) Turn the main switch to the OFF position.

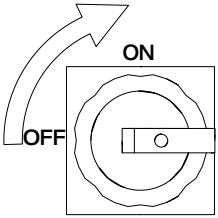
4.3. STARTING AND CONTROLLING THE SNOW LANCES IN AUTOMATIC MODE:

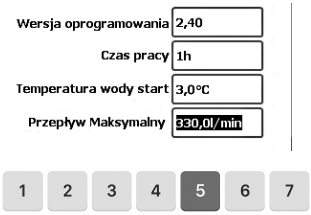


1) Check the status of the set device (compressor, filter cartridge).

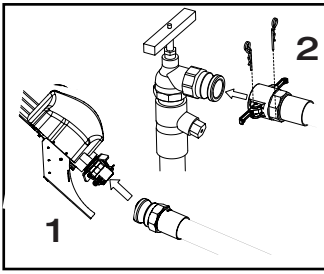


2) Connect the lance to the power supply with the appropriate cord.





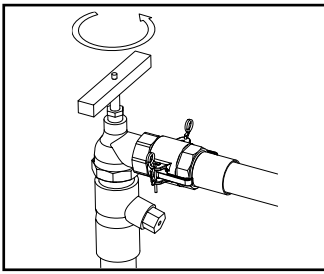
4) Check the machine settings in the operator panel (snow quality, maximum capacity, etc.)



5) Connect the lance to the hydrant with a high-pressure hose.

START AUTO

6) Start the equipment using the "START AUTO" button on the panel.



7) Snow lance with hydrant drive connected will open the water supply automatically while adjusting the maximum flow. If the hydrant is not driven, manually unscrew the hydrant slowly and adjust the maximum water pressure if necessary.

WARNING!

DO NOT EXCEED THE MAXIMUM WATER PRESSURE OF 50 BAR!

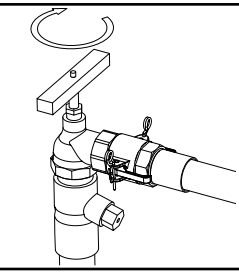
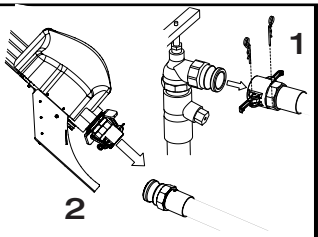
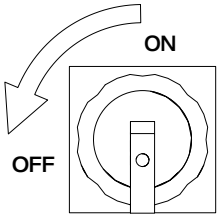
WARNING!

MAKE SURE THAT THE CABLE AND HOSE ARE MOUNTED IN A WAY THAT WILL NOT CAUSE DAMAGE DURING OPERATION.

WARNING!

THE DEVICE EQUIPPED WITH AN AUTOMATIC HYDRANT DRIVE WILL START AUTOMATICALLY AFTER PRESSING START AUTO!

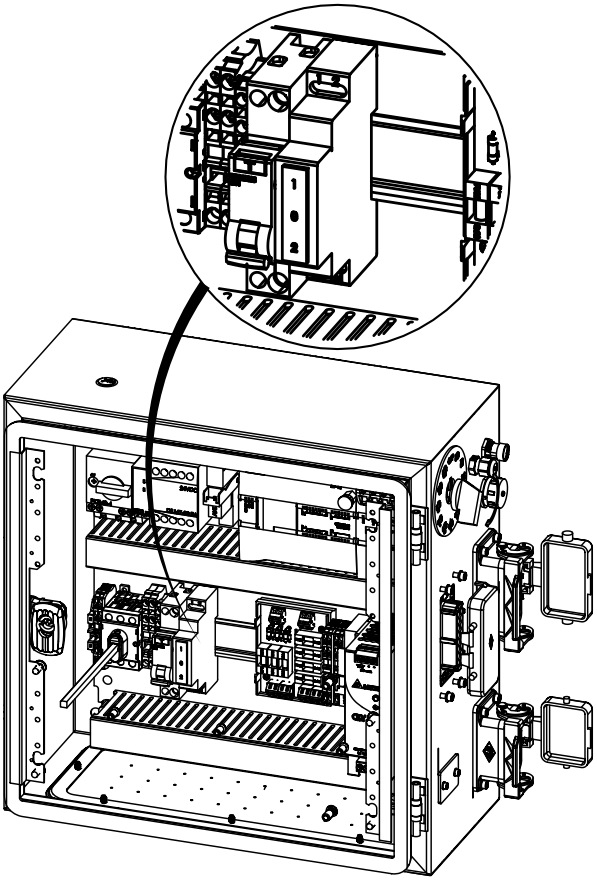
4.4. STOPPING SNOW LANCES IN AUTOMATIC MODE:

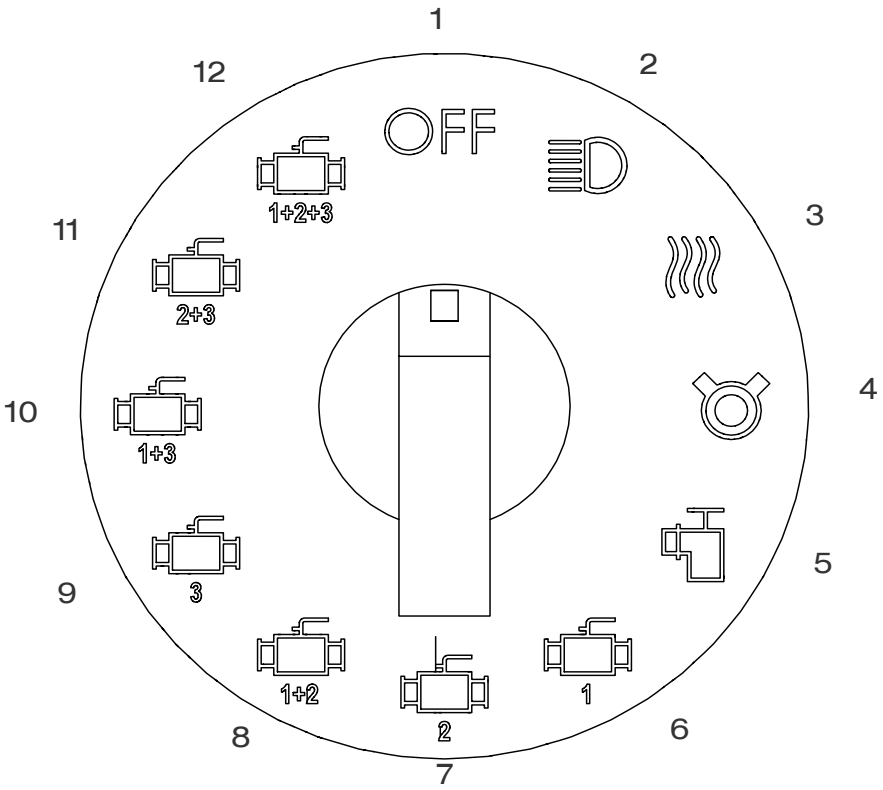
	Stop the equipment using the "STOP AUTO" button – the equipment will stop automatically (only if connected to a hydrant drive).
	A snow lance with a connected hydrant drive will shut off the water supply automatically. If the hydrant drive is missing, the hydrant must be manually turned off. The snow lance will continue to operate at minimum capacity until the water pressure drops to zero.
	After the pressure drops to a value close to zero (water will stop leaking from the steam traps on the water unit), disconnect the hose from the hydrant and snow gun (if the lance is mounted on a well, there is no need for this)
	Turn off the main switch.

4. CONTROL

4.5. STARTING AND CONTROLLING SYSTEM SNOW LANCES

The system lance is a version of the autonomous lance, without an operator panel, the operation of which is managed by the central SNOWMATIC system. The system lance is equipped with a multi-position switch that allows the lance to be controlled in service mode. Switching to service mode is possible after changing the position of the S1 switch to position 1. This switch is located inside the electrical box. NOTE: THE LANCE IN SERVICE MODE MUST ONLY BE OPERATED BY QUALIFIED PERSONNEL





Switch for manual control

1	Power OFF
2	Lighting start-up

3	Starting the heaters
4	Compressor commissioning
5	Opening the hydrant (provided the lance is equipped with a hydrant drive)
6-12	Opening individual valve section combinations.

Switching off the System Lance in manual mode is analogous to turning the multi-position switch in the opposite direction than during start-up.

4.6 STARTING SYSTEM LANCES FROM SNOWMATIC

A description of commissioning system lances from the Snowmatic level can be found in the manual for the Snowmatic system.

4.7. STARTING AND CONTROLLING SNOW LANCES IN MASTER/SLAVE SYSTEM

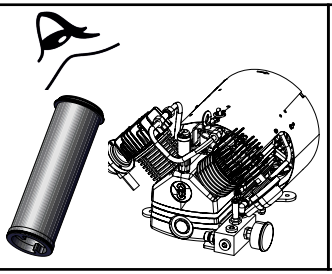
The Master/Slave system consists of a Master Lance that allows you to control up to 5 subordinate devices (Slave Lance). The master of the system is equipped with a control panel that allows access to the necessary functions of both the master and its subordinate devices and informs the user about the current status of these devices.

The operator can control any Slave lance from a dedicated panel on the Master lance. It is not required to use all 5 slaves.

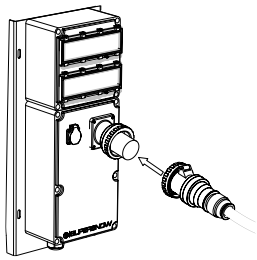
The master is also equipped with a weather station that transmits current conditions to all slaves.

The Master/Slave system is compatible with the Supersnow SnowMatic system.

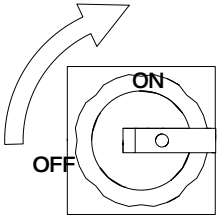
4.7. STARTING SNOW LANCES IN MASTER/SLAVE

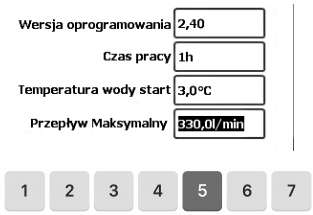


1) Check the status of the set device (compressor, filter cartridge).



2) Connect the lance to the power supply with the appropriate cord.

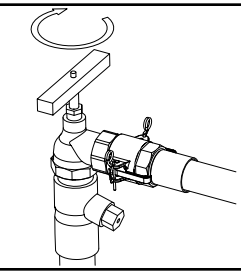




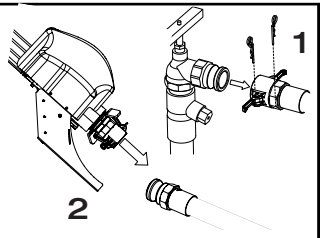
4) Check the machine settings in the Master lance operator panel (snow quality, maximum output, etc.)

4.8. STOPPING SNOW LANCES IN MASTER/SLAVE MODE

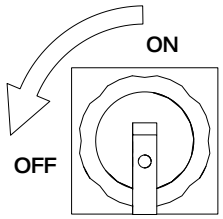
1) Stop the equipment using the "STOP AUTO" button – the Master lance will stop the entire lance system automatically (only when connected to the hydrant drive).



2) The snow lance with hydrant drive connected will shut off the water supply automatically. If the hydrant drive is missing, the hydrant must be manually turned off. The snow lance will continue to operate at minimum capacity until the water pressure drops to zero.

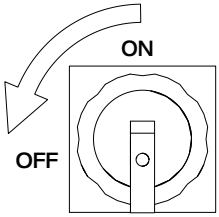


3) After the pressure drops to a value close to zero (water will stop leaking from the steam traps on the water unit), disconnect the hose from the hydrant and snow gun.

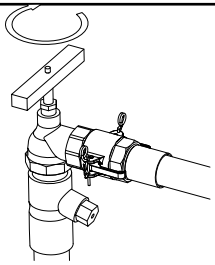


6) Turn off the main switch.

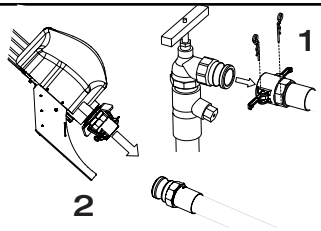
4.9. EMERGENCY STOP/NO POWER:



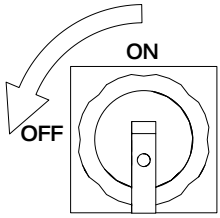
In case of emergency, use the safety switch. In snow lances, the main switch on the electrical box acts as an emergency stop.



1) Close the hydrant (if the hydrant drive is installed, wait for the hydrant valve to close completely).



2) After the pressure drops to a value close to zero (water will stop leaking from the steam traps on the water unit), disconnect the hose from the hydrant and snow gun.



3) Turn the main switch to the OFF position (*only if this operation has not been performed before).

INFORMATION!

WARNING!

THE SNOW LANCE, IF IT IS LEVELED, WILL BE DEHYDRATED BY GRAVITY, IF THIS IS NOT THE CASE, IT SHOULD BE LEVELED CORRECTLY!

WARNING!

WATER HOSES MUST NOT BE ARRANGED IN SUCH A WAY THAT THEY FORM A SIPHON. THEY SHOULD ALWAYS BE DRAINED AFTER WORK.

4.10. ADJUSTMENT OF SNOW QUALITY AND QUANTITY.

The quantity and quality of snow produced is influenced by many factors. Mainly wet bulb temperature (WB) and water temperature. The wet bulb temperature (WB) is a value that takes into account the temperature of the air and its humidity. The higher the air temperature (WB) and the water temperature, the more difficult it is to produce snow. The quantity and quality of snow produced is controlled by opening and closing individual sections of water nozzles and the water pressure setting, regulated by the hydrant valve. In the automatic snow lance, the opening and closing of individual sections of the head takes place automatically after setting the appropriate snow quality and maximum water flow on the main screen of the control panel. The quality of the snow varies from a value of 1, which is dry snow, to a value of 7, when wet snow is produced. The water valves in the automatic machine can also be opened manually using the touch buttons located on the manual settings screen of the lance control panel. In manual mode, the adjustment is carried out by manually opening/closing the valves of the respective sections.

		Relative Humidity (%)												
		40	45	50	55	60	65	70	75	80	85	90	95	100
Air temperature	0	-3,4	-3,1	-2,8	-2,5	-2,3	-2,0	-1,7	-1,4	-1,1	-0,8	-0,5	-0,3	0,0
	-1	-4,3	-4,0	-3,7	-3,4	-3,2	-2,9	-2,6	-2,3	-2,1	-1,8	-1,5	-1,3	-1,0
	-2	-5,1	-4,8	-4,6	-4,3	-4,0	-3,8	-3,5	-3,3	-3,0	-2,8	-2,5	-2,2	-2,0
	-3	-6,0	-5,7	-5,5	-5,2	-5,0	-4,7	-4,5	-4,2	-4,0	-3,7	-3,5	-3,2	-3,0
	-4	-6,8	-6,6	-6,3	-6,1	-5,9	-5,6	-5,4	-5,1	-4,9	-4,7	-4,5	-4,2	-4,0
	-5	-7,7	-7,4	-7,2	-7,0	-6,8	-6,5	-6,3	-6,1	-5,9	-5,7	-5,4	-5,2	-5,0
	-6	-8,5	-8,3	-8,1	-7,9	-7,7	-7,5	-7,2	-7,0	-6,8	-6,6	-6,4	-6,2	-6,0
	-7	-9,4	-9,2	-9,0	-8,8	-8,6	-8,4	-8,2	-8,0	-7,8	-7,6	-7,4	-7,2	-7,0
	-8	-10,3	-10,1	-9,9	-9,7	-9,5	-9,3	-9,1	-8,9	-8,7	-8,6	-8,4	-8,2	-8,0
	-9	-11,1	-10,9	-10,8	-10,6	-10,4	-10,2	-10,1	-9,9	-9,7	-9,5	-9,3	-9,2	-9,0
	-10	-12,0	-11,8	-11,7	-11,5	-11,3	-11,2	-11,0	-10,8	-10,7	-10,5	-10,3	-10,2	-10,0
	-11	-12,9	-12,7	-12,6	-12,4	-12,3	-12,1	-11,9	-11,8	-11,6	-11,5	-11,3	-11,2	-11,0
	-12	-13,8	-13,6	-13,5	-13,3	-13,2	-13,0	-12,9	-12,7	-12,6	-12,4	-12,3	-12,1	-12,0
	-13	-14,7	-14,5	-14,4	-14,2	-14,1	-14,0	-13,8	-13,7	-13,6	-13,4	-13,3	-13,1	-13,0
	-14	-15,5	-15,4	-15,3	-15,2	-15,0	-14,9	-14,8	-14,6	-14,5	-14,4	-14,3	-14,1	-14,0
	-15	-16,4	-16,3	-16,2	-16,1	-16,0	-15,8	-15,7	-15,6	-15,5	-15,4	-15,2	-15,1	-15,0

Table that determines the temperature of the WetBulb depending on humidity and temperature.

T (°C)	Water pressure (bar)												
T(°C)	16	18	20	22	24	26	28	30	32	34	36	38	40
-1	0	0	0	0	0	0	-	-	-	-	-	-	-
-2	0+1	0	0	0	0	0	0	0	0	0	0	0	0
-3	0+1	0+1	0+1	0+1	0+1	0+1	0+1	0+1	0+1	0	0	0	0
-4	0+2	0+2	0+2	0+2	0+1	0+1	0+1	0+1	0+1	0+1	0+1	0+1	0+1
-5	0+3	0+1+2	0+2	0+2	0+2	0+2	0+2	0+2	0+2	0+2	0+1	0+1	0+1
-6	0+3	0+3	0+3	0+3	0+3	0+1+2	0+2	0+2	0+2	0+2	0+2	0+2	0+2
-7	0+1+3	0+1+3	0+1+3	0+3	0+3	0+3	0+3	0+3	0+3	0+1+2	0+1+2	0+2	0+2
-8	0+2+3	0+2+3	0+1+3	0+1+3	0+1+3	0+1+3	0+3	0+3	0+3	0+3	0+3	0+3	0+3
-9	0+1+2+3	0+2+3	0+2+3	0+2+3	0+2+3	0+1+3	0+1+3	0+1+3	0+1+3	0+1+3	0+3	0+3	0+3
-10	0+1+2+3	0+1+2+3	0+1+2+3	0+2+3	0+2+3	0+2+3	0+2+3	0+1+3	0+1+3	0+1+3	0+1+3	0+1+3	0+1+3
-11	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+2+3	0+2+3	0+2+3	0+2+3	0+1+3	0+1+3	0+1+3
-12	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+2+3	0+2+3	0+2+3	0+2+3	0+2+3
-13	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+2+3	0+2+3
-14	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3
-15	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3
-16	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3	0+1+2+3

Table of valve configurations depending on water temperature and pressure (snow density ~500 kg/m^3, water temperature = 2°C)

5. OPERATION OF THE SNOW LANCE

Before starting operations related to the operation of the snow gun, carefully read the operating instructions supplied with the machine. This will protect the snow gun from defects caused by improper use, and the operator from damage to health.

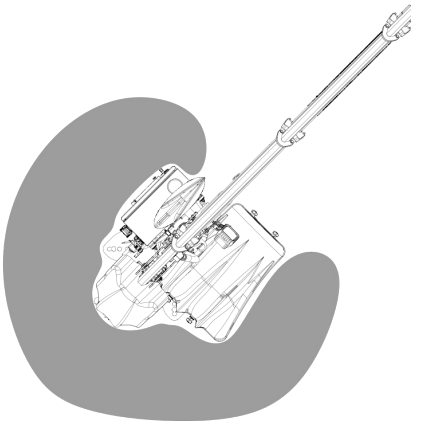
The snow lance is powered by electricity. Before performing any operations inside the device, disconnect it from the power supply.

There may be a risk of injury when working with the machine. Personal protective equipment is recommended.

5. OPERATION OF THE SNOW LANCE

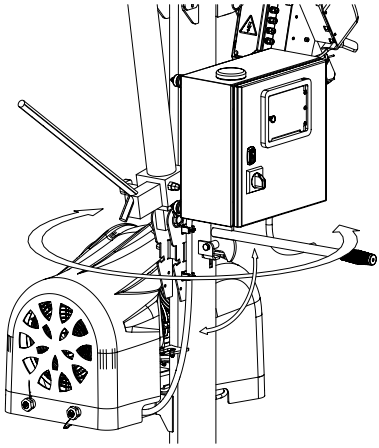
5.1. WORKSPACE

The lance can be rotated horizontally by 360° (*approximate value), while the profile lift angle is adjustable in the range from about 30° to 60° (*approximate value). The operation of the machine should be controlled so that the snow produced does not fall on the base of the machine (compressor, water unit, electrical box). The snow gun can only be inspected in the designated working area, the location of which is shown in the figure below.



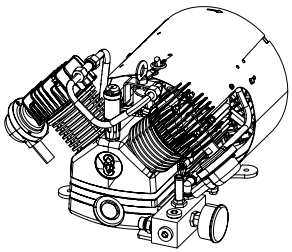
Permissible area occupied by the operator when working with the lance

It is possible to manually rotate the equipment when the power is off. To do this, release the rotation lock by pulling the release lever as shown in the figure below. During rotation, pay attention to the arrangement of the cables and supply hoses.



Lever Unlocking Method for Manual Machine Rotation

5.2. OIL-FREE COMPRESSOR 1.5KW



Before starting work, check the compressor for visible signs of damage and verify the tightness of the air hoses and pressure gauge. In order to extend the life of vibro-isolators, it is recommended to level the lance before starting (applies to the lance on a mobile chassis). The compressor does not require the condensate to be drained after operation as it has an automatic condensate drain valve.

Maintenance activities related to an oil-free compressor come down only to replacing the filter and checking the condition of the vibration isolators.

WARNING!

NEVER RUN A COMPRESSOR WITHOUT A SUCTION FILTER!

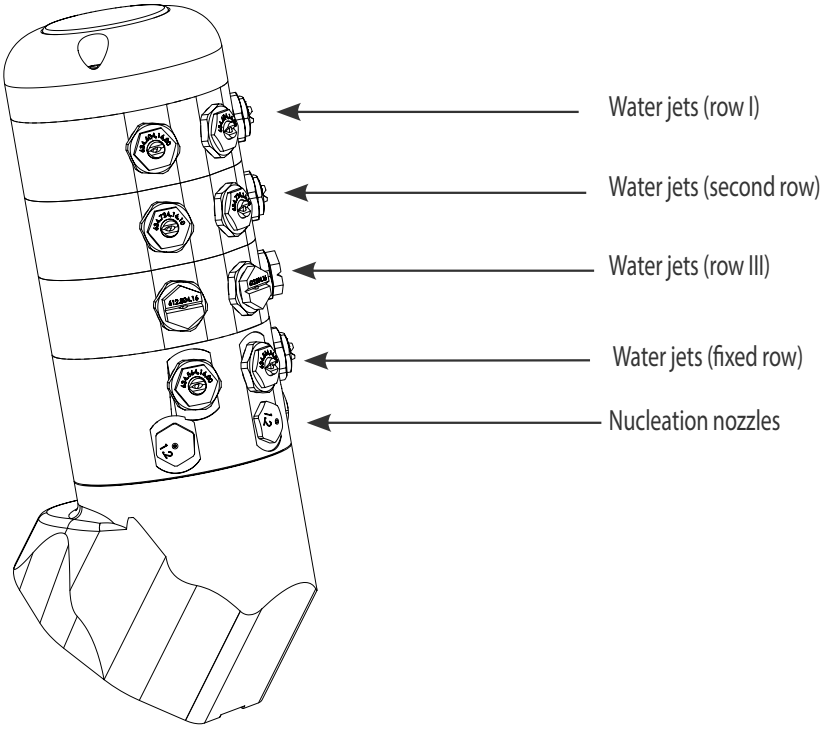
WARNING!

DURING OPERATION, THE SURFACE OF THE COMPRESSOR HEATS UP, CREATING A RISK OF BURNS

5. OPERATION OF THE SNOW LANCE

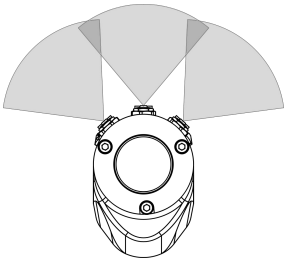
5.3. SNOW LANCE HEAD

The head of the snow gun consists of three controlled water sections, with water jets of different diameters, and a fixed row with nucleation, which is always active when the machine is running with water. This configuration allows for eight-stage regulation of the water flow. When cleaning or replacing nozzles, you need to pay special attention to their markings to place them in the correct row.

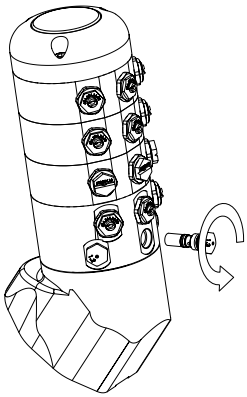


Description of the construction of the lance head

In addition, the head of the snow gun is equipped with a heater that allows you to defrost the head and start the machine without any problems. Heating during operation prevents icing.



During the operation of the Lance, it is necessary to check the correct spraying of water through the nozzles (picture opposite). If the spray pattern is inconsistent, the nozzle needs to be cleaned. Maintain a clean water filter and check the condition of the sealing o-rings to prevent debris from entering and clogging the nozzles.



Water/nucleation nozzle - cleaning method:

1) To unscrew both the nucleation and water nozzles from the warhead, you will need a 17mm wrench.
2) After disassembling the water nozzle, wash the elements under running water, then remove the remaining dirt with a stream of compressed air or a wooden stick in the case of more difficult dirt. The nozzle is a very precise element and you must not use sharp metal tools to clean it, which can cause it to become uncalibrated.
3) If the O-rings are damaged or the nozzle leaks, replace the sealing O-rings with new ones.

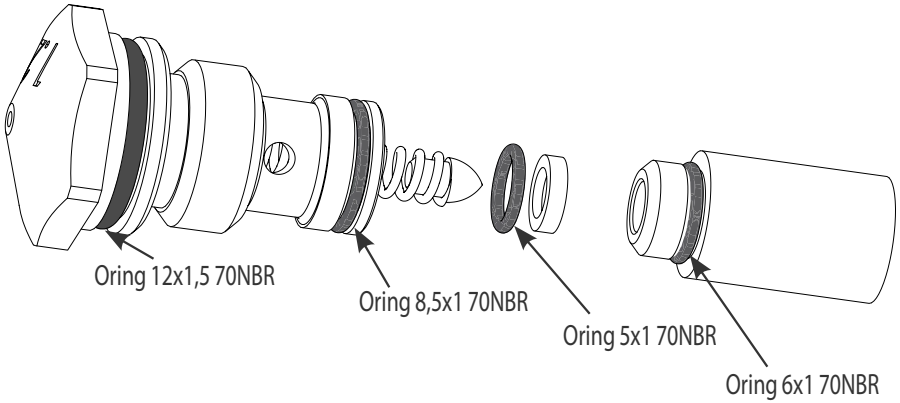
The method of cleaning nucleation nozzle filters is described in section 5.11.

INFORMATION!

WHEN REPLACING OR DISASSEMBLING O-RINGS, ALWAYS APPLY TECHNICAL PETROLEUM JELLY

5.4. AIR NUCLEATION

The nucleation system in the Virga Lance consists of three nucleation nozzles, with a stainless steel mesh filter, equipped with an internal ceramic nozzle. During operation, the readings of the pressure gauge on the compressor should be in the range of 5 to 6 bar. To take a correct reading, the lance must have pressurized water supply and the compressor must be running. If the air pressure has changed and is outside the permissible range, the operation of the nucleation nozzles should be verified, the atomization of the nuclear nozzles should be homogeneous, and the outgoing stream should form a fine mist. Signs of malfunctioning nuclear nozzles are visible large drops of water in the outlet stream, and incorrect air pressure. The correct operation of the nuclear nozzles guarantees high quality snow.



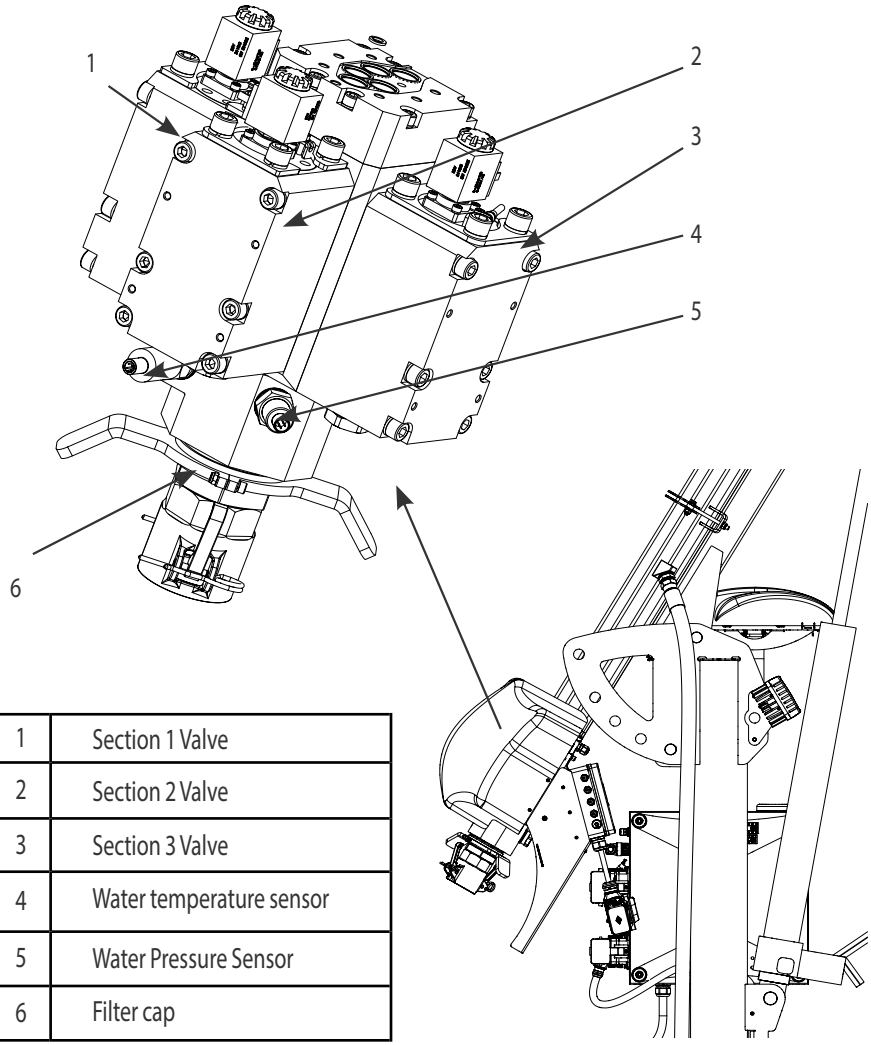
Components of a nucleation nozzle

INFORMATION!

IN WATER AND NUCLEATION NOZZLES, ONLY O-RINGS WITH THE APPROPRIATE RUBBER HARDNESS SHOULD BE USED. THE USE OF THIS TYPE OF SEALS GUARANTEES PROPER OPERATION!

5.5. WATER UNIT INTEGRATED WITH LANCE PROFILE

The water unit located on the lance profile consists of three controlled valves and one permanently open valve, supplying a fixed row and a nucleation section. It is equipped with valve block heaters and a water pressure sensor and a water temperature sensor.

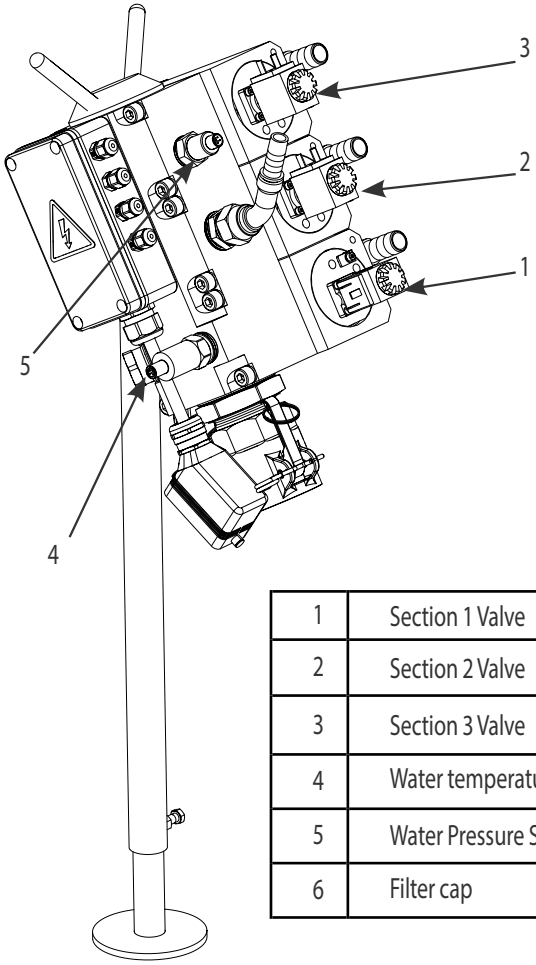


1	Section 1 Valve
2	Section 2 Valve
3	Section 3 Valve
4	Water temperature sensor
5	Water Pressure Sensor
6	Filter cap

Description of the structure of the water complex

5.6. IN THE WELL WATER BAND

A water assembly located in a well, like a standard water assembly, consists of three controlled valves and one permanently open valve, supplying a fixed row and a nucleation section. It is equipped with valve block heaters and an air pressure sensor and a water temperature sensor.

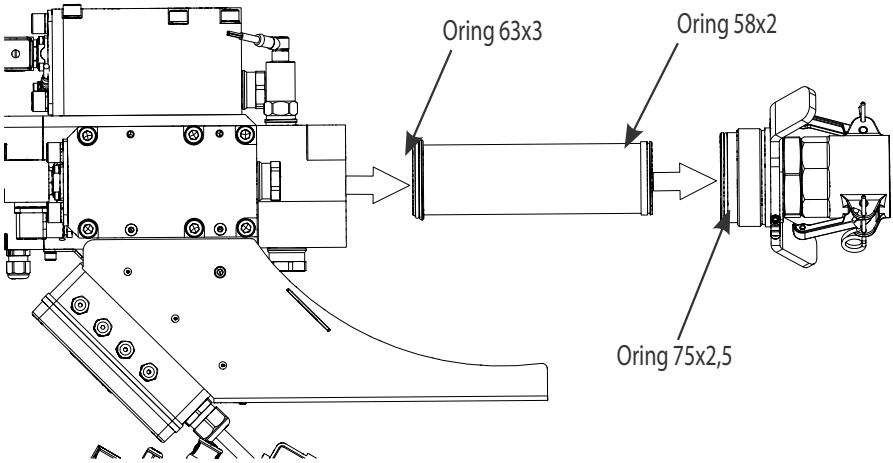


1	Section 1 Valve
2	Section 2 Valve
3	Section 3 Valve
4	Water temperature sensor
5	Water Pressure Sensor
6	Filter cap

Description of the construction of the water unit in the well

5.7. WATER FILTER

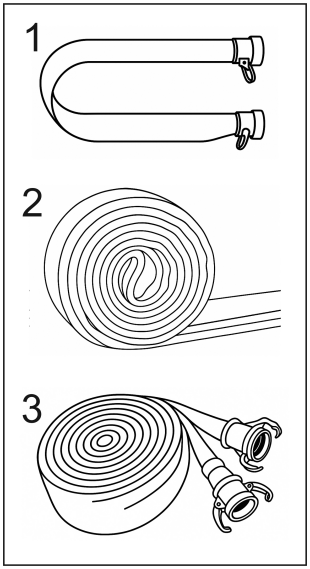
The lance is equipped with a mesh filter with a mesh size of 250um, located in the water unit. Before each start-up, check the presence and cleanliness of the filter cartridge! To remove it, unfasten the water hose and unscrew the lid. When cleaning the filter, check the condition of the sealing o-rings and the cartridge itself. To clean the filter, use a brush with plastic bristles and a stream of running water. The cartridge should be removed and inserted carefully so as not to damage or dirty the surface and seals. Care must be taken to ensure that no contaminants enter the water flow system.



WARNING!
NEVER RUN THE LANCE WITHOUT A WATER FILTER!

INFORMATION!
WHEN REPLACING OR DISASSEMBLING O-RINGS, ALWAYS APPLY TECHNICAL PETROLEUM JELLY

5.8. WATER HOSES



During use, webbing water hoses should be laid in accordance with the natural bending radii for a given hose. Do not allow the hose to bend or become entangled. The webbing water hose should be rolled up properly during storage

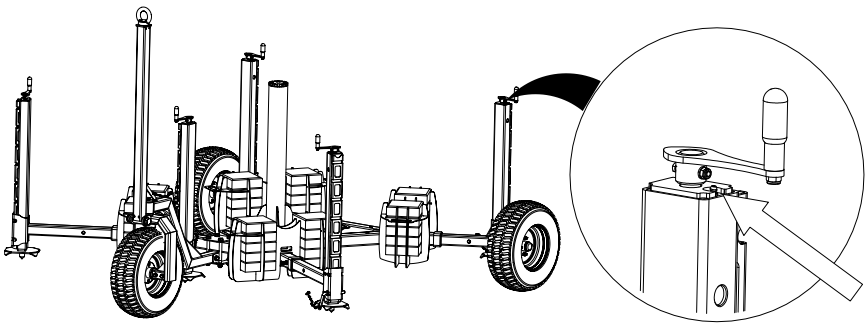
1. Fold the hose in half.
2. Start rolling the hose from the place where it was folded (middle).
3. Roll the hose all the way up, leaving the loose ends uncoiled, untensioned.

All hoses should be checked regularly. If damage or cracks are found, the hoses are replaced with new ones. Working with defective hoses is dangerous for people and the device itself.

5.9. LUBRICATION

Lubrication is necessary to prevent excessive wear of the mating components. Before lubrication, the machine should be cleaned of any dirt. Lubricate with the machine switched off according to the maintenance chart.

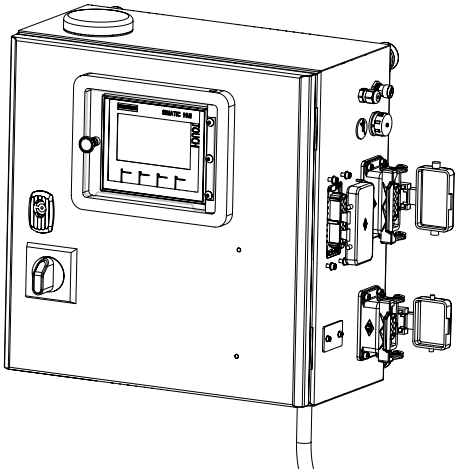
In the lance, the only element that needs to be regularly lubricated is the leveling foot bearing. They should be lubricated with a solid grease designed to work at temperatures of -30ºC. Use a manual or foot lubricator equipped with a tip for straight grease nipples with a tapered head.



5.10. CONTROL BOX

Do not open the control box while the device is operating. A closed box protects the equipment from water ingress.

All cables should be checked regularly. Perform the inspection with the power off. If damage or cracks in the insulation are found, the cables should be replaced with new ones. Before each start-up, it is recommended to check the correct operation of the emergency button. All maintenance and repairs can be carried out by the manufacturer's service or persons with appropriate qualifications.



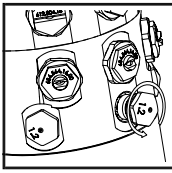
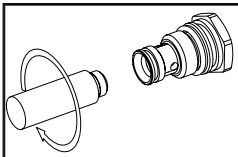
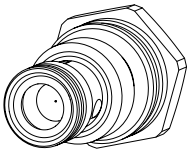
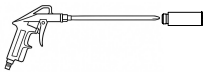
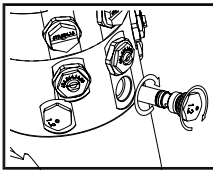
Control box maintenance consists of: 1) Checking the tightening of all contacts inside 2) Checking whether all components are functioning properly and are not damaged (if necessary, they should be replaced with new ones) 3) Causing an alarm condition and checking the operation of the alarm siren 4) Turning on the heating system and other electrical systems in order to check their correct operation.

WARNING!

THE SNOW GUN IS POWERED BY ELECTRICITY. BEFORE PERFORMING ANY OPERATIONS INSIDE THE DEVICE, DISCONNECT IT FROM THE POWER SUPPLY.

5.11. NUCLEATION NOZZLE FILTERS - CLEANING

The nucleation nozzle filter is cleaned as follows:

	1. Unscrew the nucleation nozzle from the water ring - right thread.
	2. Unscrew the nozzle filter from the body of the nucleation nozzle - left thread.
	3. Check whether the ceramic nozzle inside the body is clogged, clean it if necessary.
	4. Clean the filter using an ultrasonic cleaner. (20min/55°C/SONIC 77)
	5. After the washing stage, blow out the filter with a compressed Air. Air gun tip placed inside the filter.
	6. Mount the filter in the nozzle - left thread, then mount the nozzle in the ring - right thread.

5.12. INTERFERENCE TABLE

DISRUPTION	PROCEDURE
Snow lance not being able to start	Check that the main switch is not switched off, check that the machine is connected to the mains
Ice forms on the lance head	Check that the water and nucleation nozzles are not clogged, check that the head heater is working properly, check that the lance is not snowing against the wind, check that the lance is not within the range of another machine's snow ejection
Lack of water in the snow gun	Check how the water hose is connected to the hydrant and lance, check that the hydrant is open (if there is no hydrant drive), check that the hydrant drive control function is activated and the cable connecting the hydrant drive and the lance is properly connected (if the hydrant drive is installed), check that the water hose is not clogged
The snow lance does not dehydrate	Check the leveling of the snow gun, check the arrangement of water hoses, check the condition of steam traps in the valve assembly.
Snow lance produces snow that is too wet/too dry	Check the valve configuration (manual mode), check the set snow quality (automatic machines), check the cleanliness of the water and nucleation nozzles, check whether the weather conditions allow snow to be produced
Failure indicator is on	Occurrence of a failure about which information is displayed on the control panel (automatic lances only)
Too little water flow	Check the cleanliness of the filter

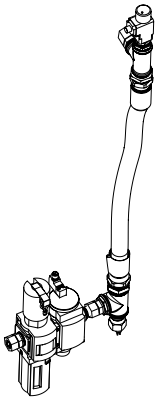
5. OPERATION OF THE SNOW LANCE

5.13. MAINTENANCE TABLE

	Pre-season	Every 24 hours/ before each start	Every 100 hours	Every 500 hours	Every 1000 hours	Every 2000 hours
Checking the cleanliness of the water filter	✓	✓				
Compressor filter replacement						✓
Checking the condition of the compressor suspension shock absorbers	✓			✓		
Lubrication of the undercarriage foot	✓			✓		
Control box overview	✓					✓
Check the condition of the nucleation nozzle filters			✓			
Checking the condition of the rubber hoses in the lance	✓					

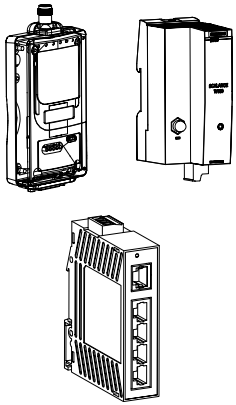
6. OPTIONAL EQUIPMENT

6.1. CENTRAL COMPRESSOR CONNECTION



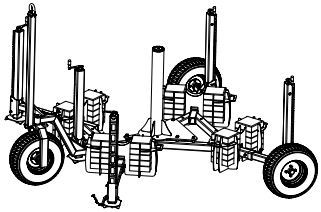
As standard, each snow gun has its own compressor. It is possible to replace the compressors in several lances, one central one located in the control room of the snowmaking system. This solution forces the installation of a central compressor connection in the machines.

6.2. COMMUNICATION



If you want to be able to control the lance remotely, you need to install a communication module in it. This module can be adapted for wired or wireless communication. Wireless communication allows you to control the lance using a mobile application, while wired communication allows you to integrate the lance with the Snowmatic system. As standard, the snow gun does not have a communication module.

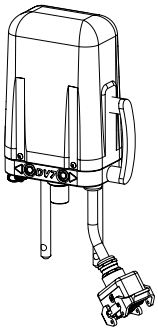
6.3. FOOT-WHEEL LANDING GEAR



In the basic version, the snow lance is available in a configuration for mounting on a well or foundation. In addition, it can be equipped with a wheel and foot landing gear. This increases the transport capacity of the snow lance. A lance with a maximum profile length of 8 meters can be equipped with a wheel and foot landing gear.

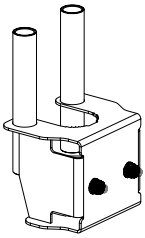
6. OPTIONAL EQUIPMENT

6.4. HYDRANT DRIVE



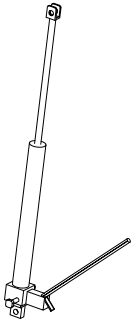
The drive of the DV7 hydrant allows the snow lance to be automatically started and stopped by opening or closing the water supply valve. With the help of the DV7 hydrant drive, the lance controls the maximum water pressure. In the event of a power outage, the hydrant drive automatically shuts off the water supply, preventing the lance and water hoses from icing up.

6.5. DV7 HYDRANT DRIVE HOLDER



Allows the DV7 drive to be mounted on a surface hydrant.

6.6. ACTUATOR



It allows the lance head to be raised to the working height and the lance head to be lowered to the service position.

6.7. SNOWMATIC

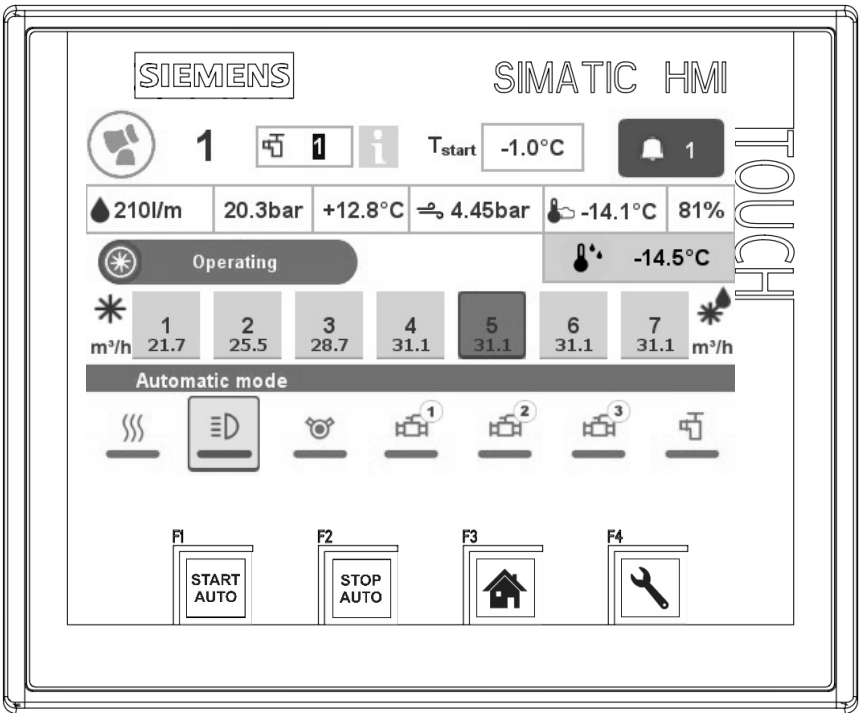
See section 1.5.

7. CONTROL PANEL

7.1. CONTROL PANEL OF THE AUTONOMOUS SNOW GUN

Each autonomous snow gun manufactured by SUPERSNOW has a control panel located on an electrical box, consisting of a touch screen and four function buttons.

In the Master/Slave system, the control panel is only available in the "Master" machine.



Control panel of the autonomous lance

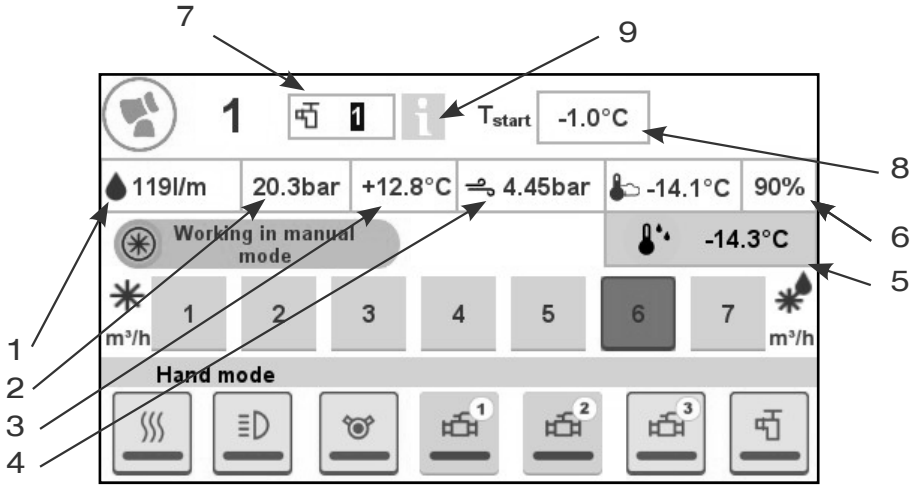
7. CONTROL PANEL

7.1.1. GENERAL VIEW OF THE SNOW GUN PANEL

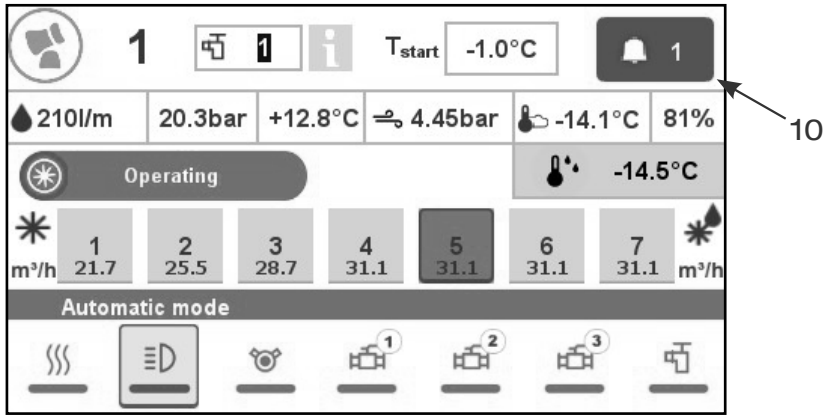
START AUTO	Starting the automatic operating mode
STOP AUTO	Starting the manual mode of operation
	Press to go to Start
	Pressing the button displays a window to enter the password to enter the service mode (service mode password: 9876), the login status is maintained for a period of 5 minutes, pressing again takes you to the service screen

7. CONTROL PANEL

7.1.2. DESCRIPTION OF LANCE PANEL BUTTONS IN MANUAL AND AUTONOMOUS MODE



Snow lance manual mode



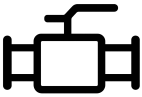
Automatic snow gun mode

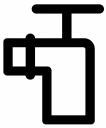
7.1.2. DESCRIPTION OF LANCE PANEL BUTTONS IN MANUAL AND AUTONOMOUS MODE

	Heating	0 (gray)	Heating off
		1 with backlight	Heating on, head warming up
		1 without backlight	Heating on, correct temperature

	Compressor	0 (gray)	Compressor off
		1 (green)	Compressor On

	Lamp	0 (gray)	Lamp off
		1 (green)	Lamp on

	Valve	0 (gray)	Valve closure
		1 (green)	Valve opening

	Hydrant drive	0 (gray)	Hydrant closure
		1 (green)	Opening the hydrant

	Snow quality selection bar

1	Current flow display window

7. CONTROL PANEL

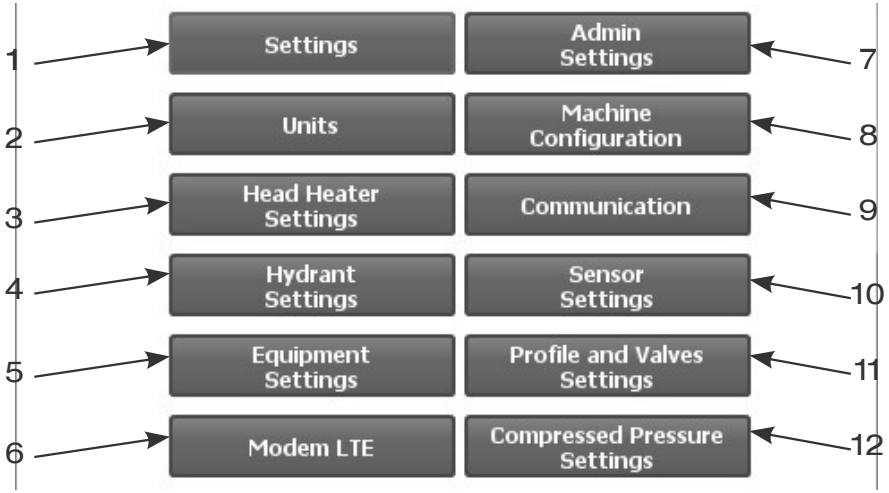
2	Current water pressure display window
3	Current water temperature display window
4	Window for displaying the current air pressure in the nucleation system
5	Window to display the current wet bulb temperature
6	Display window for the current humidity
7	Hydrant Number Display Window
8	Automatic mode start temperature display window

9	Basic information display window - access to the language selection menu

10	Error and Alarm Display Window

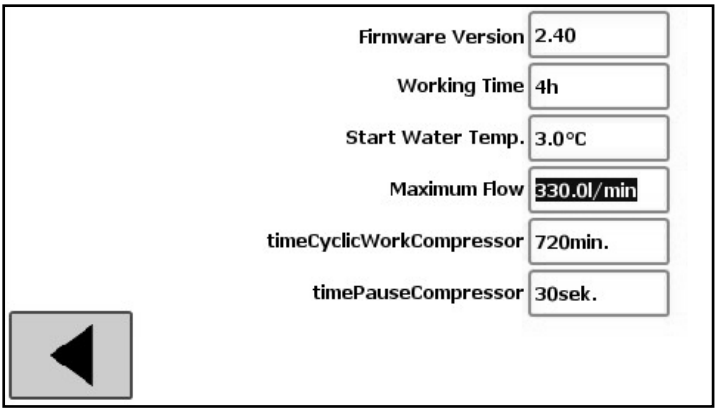
7.2 SERVICE MENU

Pressing the button representing the flat key (7.1) allows access to the service mode after entering the password (service mode password: 9876). The login state is maintained for a period of 5 minutes.



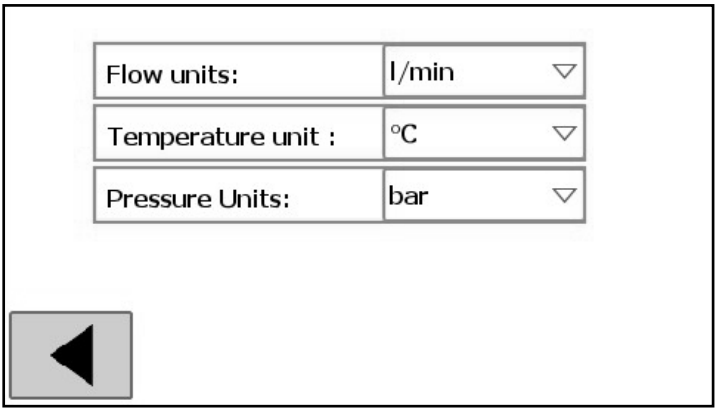
Service menu appearance - home screen

1	Basic settings screen - contains information to read: software version and operating time. From this level of the panel, we can also edit the parameter of the required water temperature to start the snowmaking process and the maximum flow task (range 0 - 330 l/min).



Appearance of the service menu - "Settings"

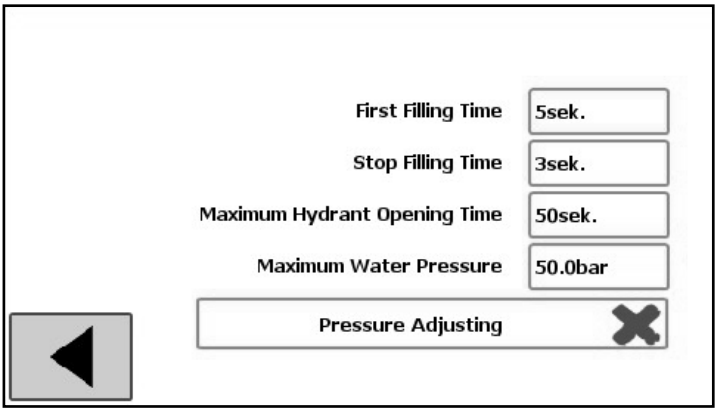
2	Screen for selecting flow, temperature and pressure units.



Appearance of the service menu - "Units"

3	Not available to operator.

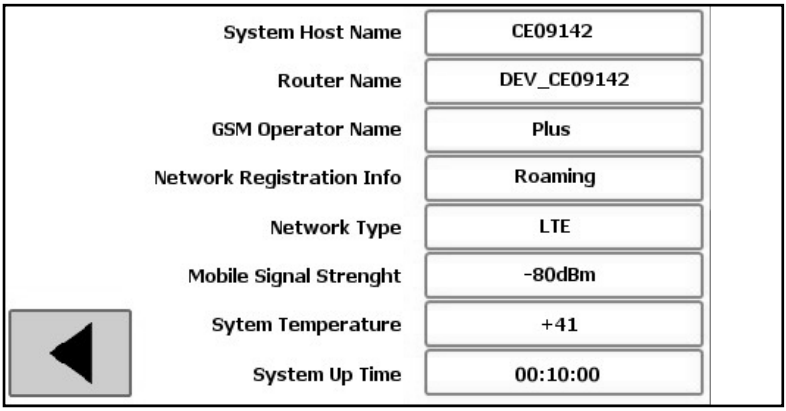
4	The option to edit the operating time and downtime of the hydrant drive is used to eliminate the effect of water hammer. If there is a high pressure (more than 30 bar) in the system supplying the snow gun with water, it is possible to reduce unfavourable operating conditions by gradually opening the hydrant valve. Appropriate programming of the first opening time, working time and break time allows the snow gun to gradually achieve the set maximum water flow.



Appearance of the service menu - "Hydrant settings"

5	Not available to operator.

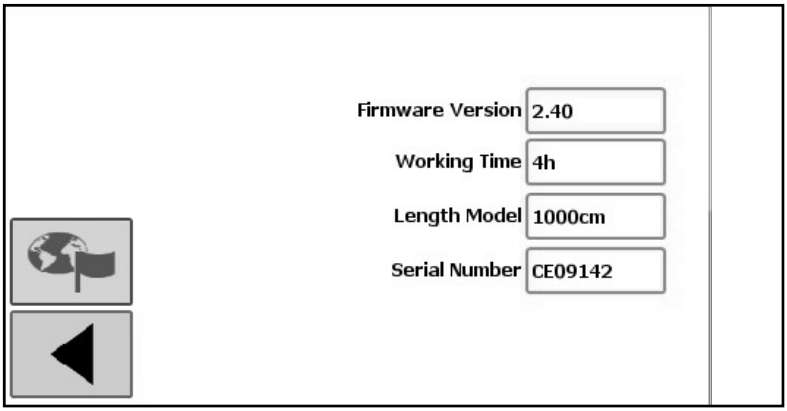
6	The LTE modem parameters screen is used for the user to check whether communication using the cellular network is working. Missing or incorrect data in the table makes it easier to verify and troubleshoot network issues on the client and the communication installer side.



Appearance of the service menu - "LTE modem"

7 - 12	Not available to operator.

From the main screen, we have access to two more screens - the information menu (7.1.1 - 9) with the option to select the language, and the error list screen (7.1.1 - 10).

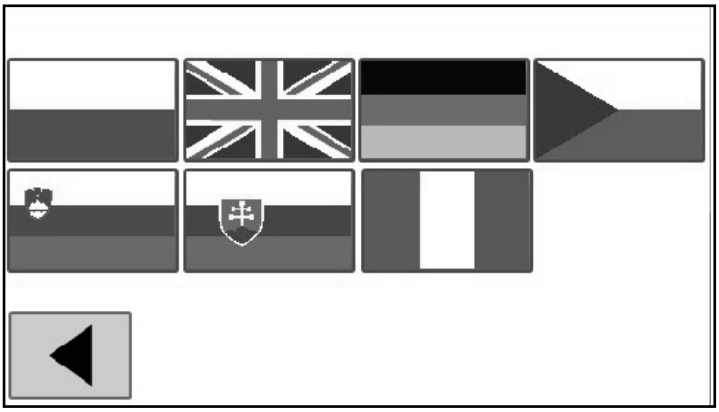


Menu appearance - "Information"

	Language selection button

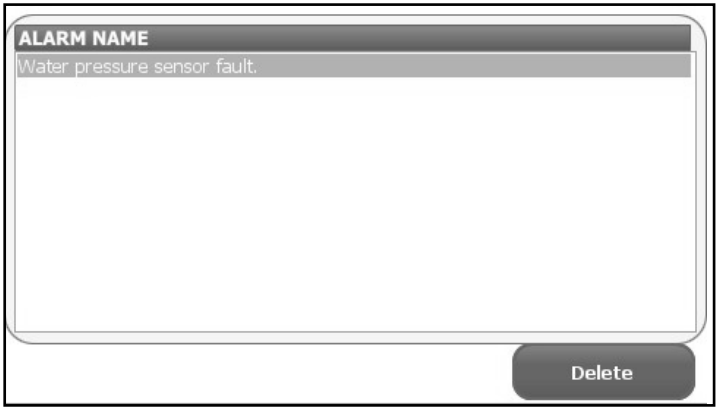
	Back button

When the globe symbol is pressed, the user is redirected to the language selection screen. This screen allows the operator to select the appropriate language by pressing the button of the flag.



Language Selection Menu Appearance

After pressing the notification symbol, the user is redirected to the alarm screen. This screen informs the operator of the type of problem and allows the alarm to be cleared if the fault is eliminated early. If the cause of the problem is not eliminated, the alarm cannot be removed permanently. Alarms are divided into two categories: Warnings - inform about the problem, but do not block the operation of the machine (Water temperature sensor failure), Failures - inform about the problem and block the operation of the machine (Water pressure sensor failure).



Appearance of the Alarms Screen

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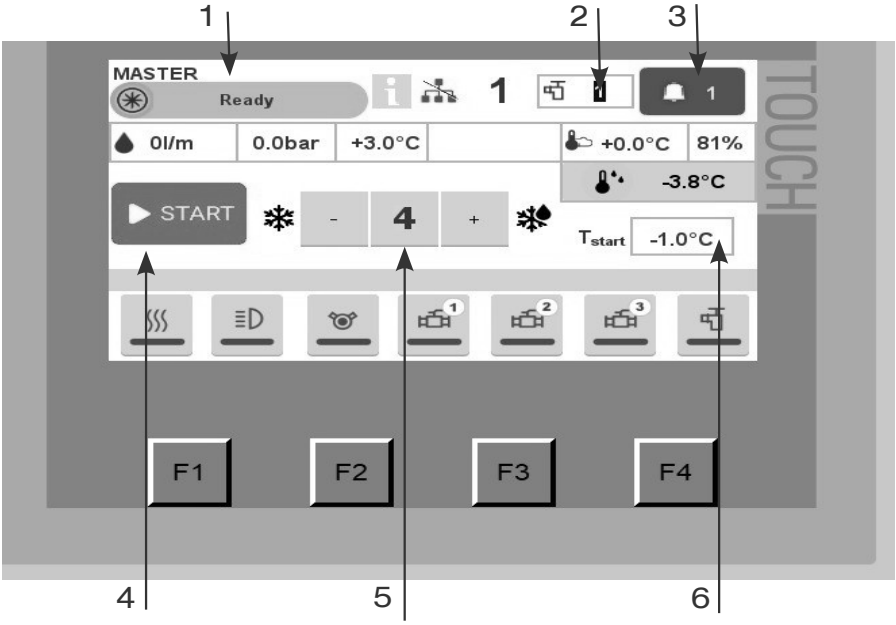
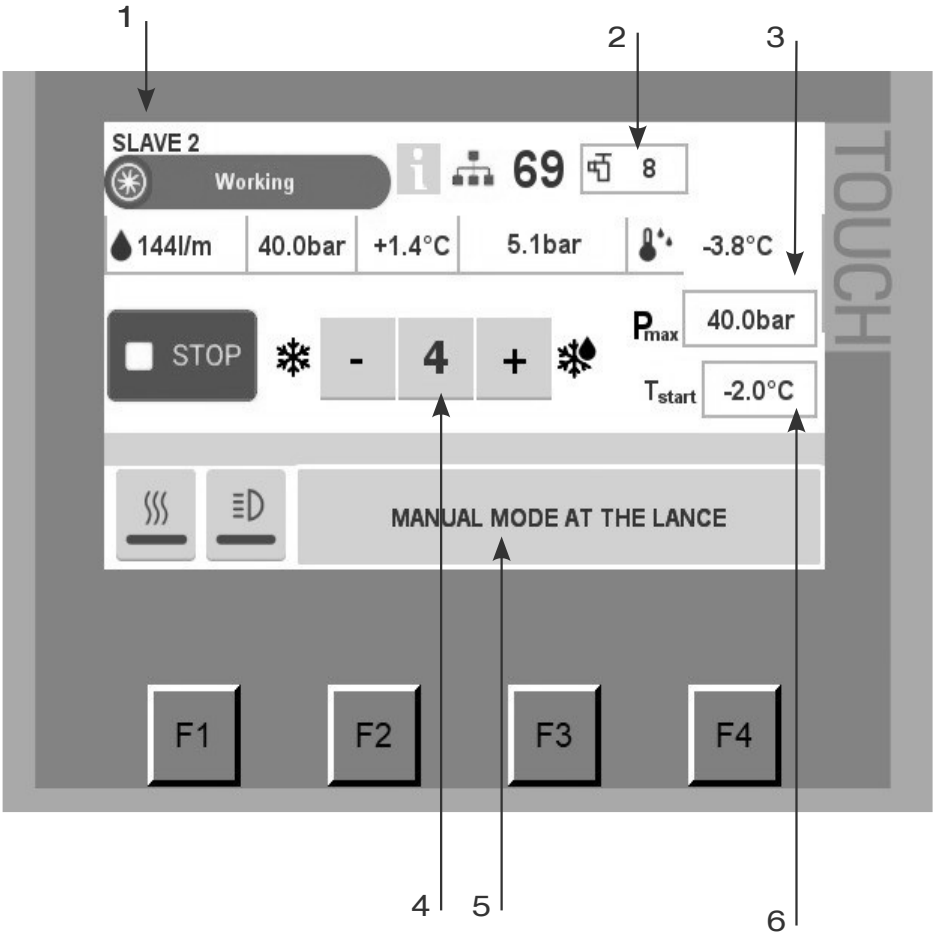


F1	Attach all
F2	Disable all
F3	Screen
F4	Settings

7. CONTROL PANEL

The user is able to perform the following mass operations (for all devices)

1	Lanca Master operating status
2	Hydrant number
3	Failure notification
4	Start auto
5	Choosing the quality of snow
6	Starting temperature



Slave lance screen

1	Slave lance number

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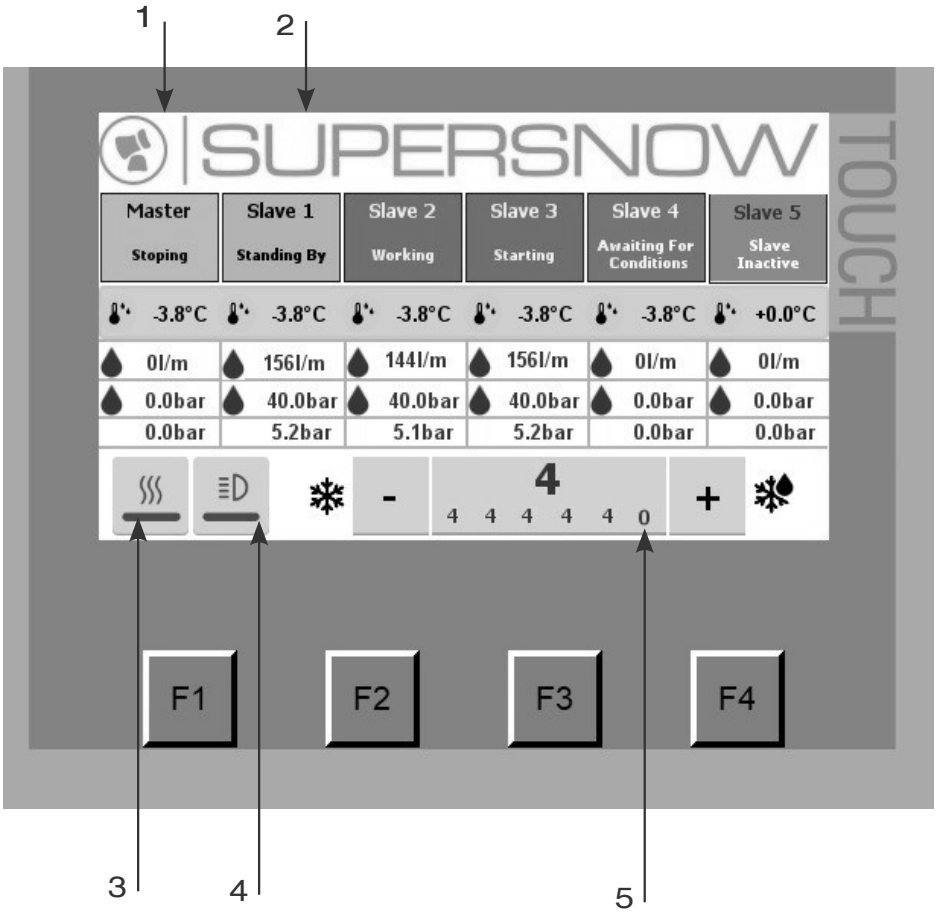
2	Hydrant number
3	Maximum pressure
4	Choosing snow quality
5	Operating Mode Information
6	Starting temperature

7. CONTROL PANEL



Master lance screen

1	Parameters and operating status of the Master Lance
2	Parameters and operating status of the Slave Lance
3	Information about the operating status of heaters
4	Lamp operating status information
5	Choosing the quality of snow

7.3 FAILURE TABLE

MESSAGE	PROBABLE CAUSE	POSSIBLE SOLUTION
Power failure/Incorrect phase sequence	Incorrect phase sequence	Call qualified technician to remove the cause of the failure - change the phase order
Compressor failure	No power supply to the compressor	Check the motor circuit breaker in the electrical box, check the compressor power cable
Water pressure too low/sensor failure	Faulty water pressure sensor	Replace a faulty water pressure sensor
	Low feed water pressure	Check the operation of pumps in the pumping station or check that the hydrant has been turned on properly
Air temperature sensor failure	Damaged weather station probe	Replacement of a defective component
	Sensor power circuit interruption	Power supply to the temperature sensor according to the wiring diagram

Message	Probable cause	Possible solution
Humidity sensor failure	Damaged weather station probe	Replacement of a defective component
	Sensor power circuit interruption	Power supply to the temperature sensor according to the wiring diagram
Water temperature sensor failure	Defective water temperature sensor	Replacement of a defective component
	Damaged electrical cable	Check the condition of the cable with the machine switched off, repair any damage
Remark! Low Water Pressure/Sensor Failure	Low feed water pressure	Check the operation of pumps in the pumping station or check that the hydrant has been turned on properly
No hydrant drive	No optional electrical hydrant drive connected	Connect the hydrant drive

MESSAGE	PROBABLE CAUSE	POSSIBLE SOLUTION
Unclosed main valve	Hydrant drive damaged/No hydrant drive/Main valve not closed	Check the correct operation of the hydrant drive, check the main valve
Air pressure too low	Air pressure below 3 bar.	Check the correct operation of the compressor, check the compressed air hose for possible leaks.
Air pressure too high	Air pressure above 9 bar.	Check the operation of the nucleation nozzles, a clogged or frozen nozzle can cause pressure build-up in the system
Water pressure sensor failure	Faulty sensor	Replace the damaged component
Compressed air sensor failure	Faulty sensor	Check the operation of the compressor and the presence of pressure in the system, check the operation of the defective component, possibly replace, check the condition of the hose with the machine switched off, repair any damage
Remark! High water pressure	High feed water pressure of over 50 bar.	Check the operation of pumps in the pumping station or check that the hydrant has been correctly adjusted

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Type	Serial number	Year of production
Fan speed	Rated power	Power supply
Max water pressure	Max water flow	Weight

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Bartłomiej Sięka

SUPERSNOW SA

Ks. A. Siudy 11,
34-436 Maniowy
POLSKA
+48 18 265 35 55

office@supersnow.com
supersnow.com
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