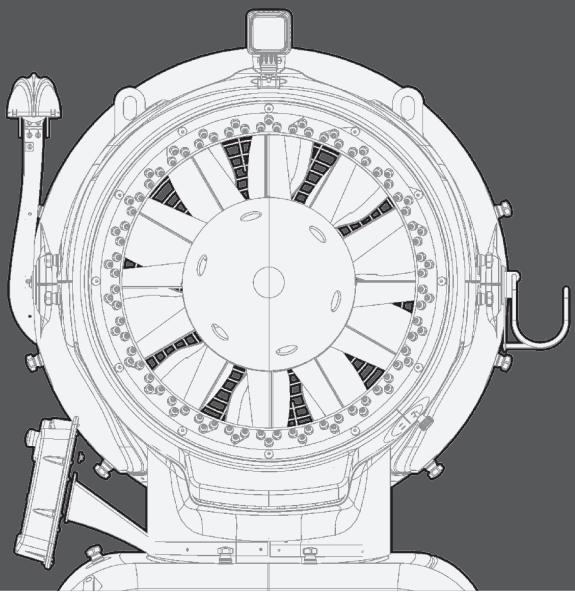
SUPERSNOW

SNOW GUN OPERATING MANUAL

900A, 700ASE, 700H, 700S, 600M, 900MN



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SNOW CANNON OPERATION MANUAL

VERSION - EN

SUPERSNOW

2025-07-10

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1. INTRODUCTION

1.1. GENERAL INFORMATION

The instruction manual is an integral part of the machine, although it can be supplied separately. Before using the device, carefully read the entire manual. The information contained will help you avoid the risk of injury and damage to the machine.

WARNING!

TO OPERATE, TRANSPORT AND MAINTAIN THE SNOW GUN, THE KNOWLENDGE AND FULL UNDERSTANDING OF THIS MANUAL IS REQUIRED

The manual should be located close to the device so that the machine operator can use it at any time. The instruction manual should be protected against possible damage due to water, dirt, mechanical and thermal damage.

The range of SUPERSNOW products is extensive and diverse. Parts and accessories delivered to the customer may differ due to the order placed and the country of installation. Illustrations in the instruction manual are for reference only and they may differ from the actual state.

This instruction manual is intended for SUPERSNOW snow guns with the designations 600M, 900MN, 700A SE, 700H, 700S, 900A. Technical parameters apply to standard products.

1. INTRODUCTION

1.2. SYMBOL EXPLANATION

Symbols used in the manual are meant to simplify the message and draw the attention of the reader to important issues that require special attention.

	Symbol informs to take additional information from the manual.
	Symbol informing about the occurrence of key information necessary for the proper use of the machine.
	A sign indicating the possibility of danger, also notifies a particular caution when performing works marked with this sign.
	Symbol warning against the danger of electrical shock.
	Symbol indicating the danger of injury due to the moving parts in the machine.

	Symbol warning against the danger of high pressure occurring in hydraulic and pneumatic systems.
	Symbol for danger of burn due to heating of some machine parts.
	Symbol warning about the danger of sucking into, getting caught loose clothing or long hair in the rotating part of the machine.
	Symbol warning about the possibility of automatic start and operation of the machine.
	The presence of these symbols requires the use of personal protective equipment.

1.3. SAFETY RULES

The snow gun is powered by electricity. Before performing works inside the device, disconnect it from the power supply.

All service works must be carried out with the machine switched off and secured.

do not use damaged electrical cables! It may cause electric shock.

While operation do not touch the turntable mechanism

Before switching on the machine make sure that the protective grate securing the air inlet is mounted correctly. It is forbidden to open it with the power turned on.

While working with the machine do not wear loose clothing and jewellery. Long hair should be hidden under the headwear. Failure to follow the instructions may cause sucking in by the fan impeller.

Do not use damaged or bent hoses, this may cause them to break. It is dangerous for the skiers as well as for the snow gun itself.

Do not exceed the maximum water pressure of 40 bar. There is a risk of damage to the device.

In an emergency, the power must be turned off immediately (emergency button, main power switch).

Be particularly careful when you are around the areas marked with a hot surface warning and use protective gloves during work.

The snow gun works in automatic mode. It can start automatically. Be especially careful being near the machine.

Before switching on the machine, make sure that:
- there are no foreign objects (loose objects, ice) inside the tube
- the air intake grate and other protective covers are correctly installed
- all transport blockages are removed

After connecting the elements of the circuits, where the high pressure of the working substance occurs, make sure that the connection is properly secured and tight.

Turning on the snow gun without the filters is unacceptable and can damage the machine.

The guarantee of the proper and safe operation of the machine is the performance of maintenance work in a specified period and use of consumables and spare parts recommended by the manufacturer.

Keep unauthorized persons away from the machine.

Operators of snow guns should use personal protective equipment while working with the machine. It is recommended to use protective shoes and gloves, winter clothing, protective goggles and earmuffs, headgear and protective mask.

Do not block access to places on the device used during emergency shutdown. Repair and maintenance work should be performed with proper lighting and space to work.

It is unacceptable to place an unprotected machine on the open routes without correct preparation. Visibly mark the snow gun, separate it from the slope with a separating net and put on anti-impact mattresses.

After performing any activities related to the dismantling of covers, tubes and other parts of the machine, they should be assembled again.

Mark and report of any work related to switching on or switching off the utilities (power supply, water, compressed air) during service work.

Manual closing or opening of hydrant should be done keeping the required safety distance from water hoses. A sudden pressure increase in the hose can lead to a bullwhip effect.

Electrical, hydraulic and pneumatic installations supplying snow guns and other snowmaking equipment should be designed and made in accordance with the applicable regulations in a given country.

Connecting snowmaking machines to an existing installation (electrical, hydraulic, pneumatic) should be carried out with the compliance of the regulations in a given country and the requirements set out in the technical documentation of the installation.

Do not cover the ventilation openings on the tube of the snow gun, this may cause the machine overheating.

Electrical cables supplying snow guns should be placed in a way to avoid the possibility of their accidental mechanical damage.

Any interference in the product and non-compliance with the recommendations included in the instruction manual have a negative impact on the safety and reliability of the machine. This results in cancellation of the CE declaration and the loss of the guarantee

1.4. RESIDUAL RISK

The manufacturer of snowmaking equipment SUPERSNOW has done its utmost to eliminate any potential risk of an accident while installing and working with the machine. However, there is a risk referred to as residual, that can be caused by such a situations:

- Not complying to the instructions given in the manual
- The machine is operated by unauthorized persons and intoxicated
- Modifications made by the user
- Using the machine against its destination
- Inserting the limbs between movable elements
- Disassembly of safety covers

Residual risk can be minimized by the following recommendation:

- Careful and understandable reading of this instruction manual
- Using the machine in compliance with the instructions in this manual
- Calm and prudent work with the machine
- Working only with the completed machine
- Ongoing removal of any defects
- Performing service work by qualified personnel

1.5. GLOSSARY

SNOW GUN (Also called as snow maker or snowmaking machine) it is an energy machine, that is used for the production of technical snow, most often used on ski slopes. The production of snow requires the supply of water, electricity and compressed air. The standard snowmaking machine consists of several basic elements such as: tube, fan, ring, frame, compressor, control box, water unit.

MANUAL SNOW GUN A type of snow gun that is controlled by the operator. He starts and adjusts the appropriate parts of the snow gun manually, thus obtaining the given performance and quality of snow (600 M).

AUTOMATIC SNOW GUN A type of snow gun in which the operator sets the appropriate parameters of the machine, but the controller is responsible for the rest. It starts and sets the appropriate machine components for the given snow quality and atmospheric conditions. Working with the hydrant drive, it minimizes the need to control it manually. The automatic snow gun can be controlled by the machine (local control) and via the Snowmatic system or a mobile application (remote control). It can also be operated in manual mode. (*700A SE, 700H, 700S, 900A)

SEMI-AUTOMATIC SNOW GUN A type of snow gun that has both the characteristics of automatic and manual snow gun. It is controlled locally, and the operator of the snow gun is responsible for starting and setting sequences. However, in contrast to manual snow guns, the appropriate snow quality is obtained by selecting the appropriate valve configuration on the control panel (900MN).

TUBE	The part of the machine resembles the shape of a roller, that functions as a fan funnel. A ring is mounted at its end.
FAN	It is used for water transportation and air compression inside the tube. Fan is powered by an electric engine.
RING	An element made of aluminium with installed water and nucleation nozzles. It sprays the water and creates crystal nucleus.
FRAME	A structural element that functions as the skeleton of the entire snow gun.
COMPRESSOR	a mechanical device powered externally, used for pressure transfer of air through nucleation nozzles.
CONTROL BOX	An electrical installation element in the snow gun used for controlling, protecting, measuring and adjusting devices and circuits included in the control box.
HYDRAULIC SYSTEM	Hydraulically or mechanically controlled valve block that regulates water flow efficiency, equipped with a slit filter. Thanks to it, it is possible to control the quality and efficiency of the snow production.
HYDRANT DRIVE	A device used for opening, closing and regulating water flow in a hydrant. Thanks to it, it is possible to automatically start the machine, adjust the maximum water flow and drain the snow gun after work is finished. In the event of a power outage, it closes the water supply automatically, preventing the snow gun and water hoses from freezing. (* An option available in a set with automatic snow guns).

FEET CHASSIS A snow gun assembly that stabilizes and levels the machine relative to the ground. For transport, use a snow groomer or other self-propelled vehicle equipped with a suitable lift.

WHEEL CHASSIS A snow gun assembly that has the same characteristics as the feet chassis. Additional wheel chassis allows the machine to be transported also by towing.

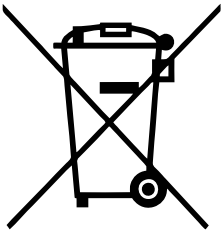
SNOW GUN OPERATOR A person responsible for the proper assembly, settings and operation of the snowmaking machine. He cares about his own safety and people in the working area. He eliminates defects that fall within his competences. In the case of major defects or improper work of the machine, he turns off the machine and reports the problem to the snowmaking system manager. In order to maintain the safety and proper operation of the snow gun, the operator should be trained by a SUPERSNOW employee and fully understand the information includedin the user manua,l to which he should have unlimited access.

SNOWMAKING SYSTEM MANAGER A person who is responsible for the snow guns and the infrastructure used during their work. He is responsible for proper assembly, setting and operation of the snowmaking system components. He cares about his own safety and people in the working area. He is responsible for the proper marking, separation and securing of snow guns on the slope. He also takes care of carrying out planned service works. In the event of a defect exceeding its competence, he informs the SUPERSNOW service department about the problem, and then Supersnow determines the course of the proceedings. For convenience and shortening the repair time, the manufacturer allows the customer to carry out repairs on his own, subject to prior agreement of the work range and appointment of an appropriate specialist for this task (Mechanic, Plumber, Electrician). In order to maintain the safety and proper operation

of the snow gun, the manager of the snowmaking system should be trained by a SUPERSNOW service technician and be familiar with and fully understand the information contained in the user manual, to which he should have unlimited access.

SNOWMATIC Centralized snow management system, prepared specially to the needs of each customer. The system is intended for operating automatic snow guns and pumping stations. The software streamlines the operation of the entire automatic snowmaking system and enables to preview and control the devices. It also facilitates the implementation of snowmaking strategies. The user can activate, deactivate and set all parameters of each snow gun with the help of the program and control its operation during snowmaking. (* An option available in a set with automatic snow guns).

1.6.RECYCLING



If the user decides to withdraw the machine, he should comply with the regulations in force in the given country regarding the cassation and recycling of machines withdrawn from use. Before dismantling the machine, completely remove the oil from the hydraulic system. In the case of replacement of parts, worn or damaged elements should be transferred to the secondary material market. Used oil as well as rubber or plastic elements should be transferred to plants dealing with the utilization of that kind of waste.

WARNING!

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

2. TECHNICAL SPECIFICATION AND CONSTRUCTION

2.1. INTENDED USE

The snow gun intended use is technical snowing of the ski slopes.

WARNING!

THE SNOW GUN CAN ONLY BE USED TO PRODUCE ARTIFICIAL SNOW. USING IT FOR OTHER PURPOSES IS AGAINST ITS INTENDED USE.

2.2. WARNING LABELS

Warning labels have a very important function in the machine. They warn of the dangers related to the snow gun components. The information on them should be strictly adhered to.

WARNING!

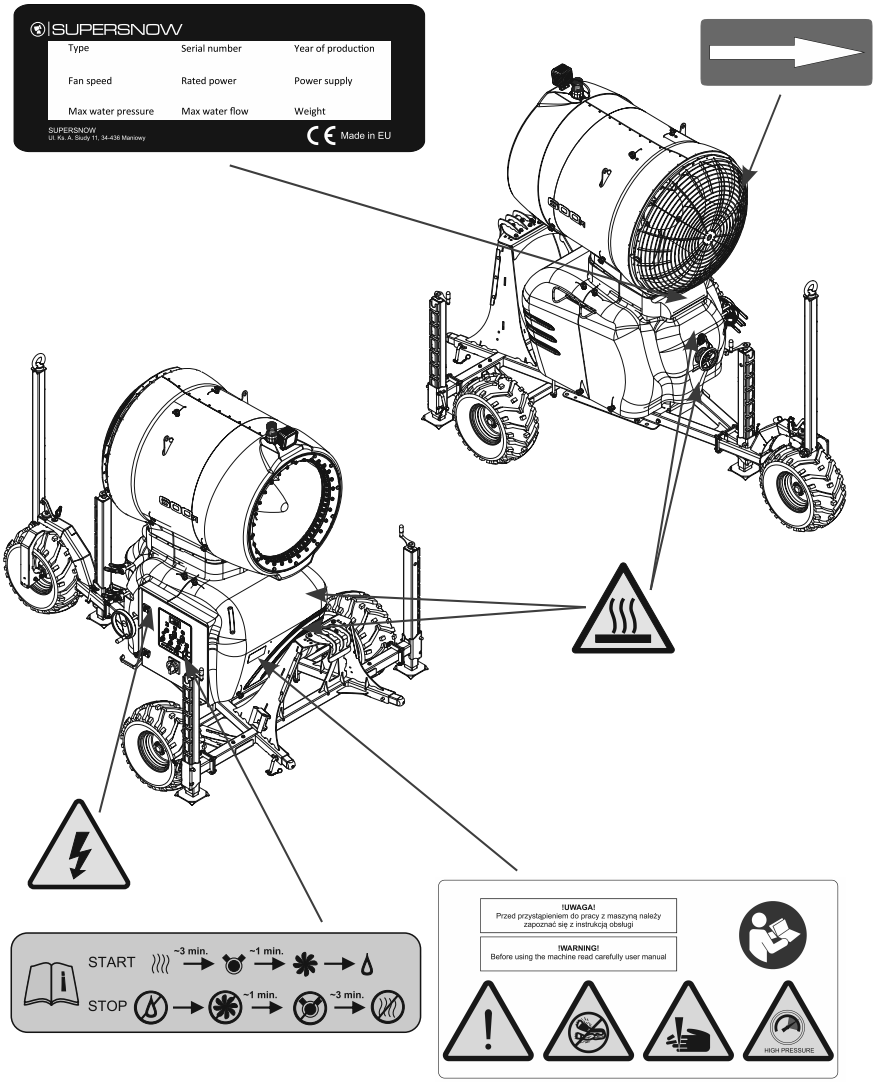
IN CASE OF DESTRUCTION, LOSS OR ILLEGIBILITY OF WARNING LABELS, THEY SHOULD BE ABSOLUTELY REPLACED WITH NEW ONES.

The data plate is located on the frame or tube. To see it, slightly tilt the protective sleeve part or remove the cover. The nameplate has the following information:

1) Type
2) Serial number
3) Year of production
4) Fan speed
5) Rated power
6) Power supply
7) Max. water pressure
8) Max. water flow
9) Weight

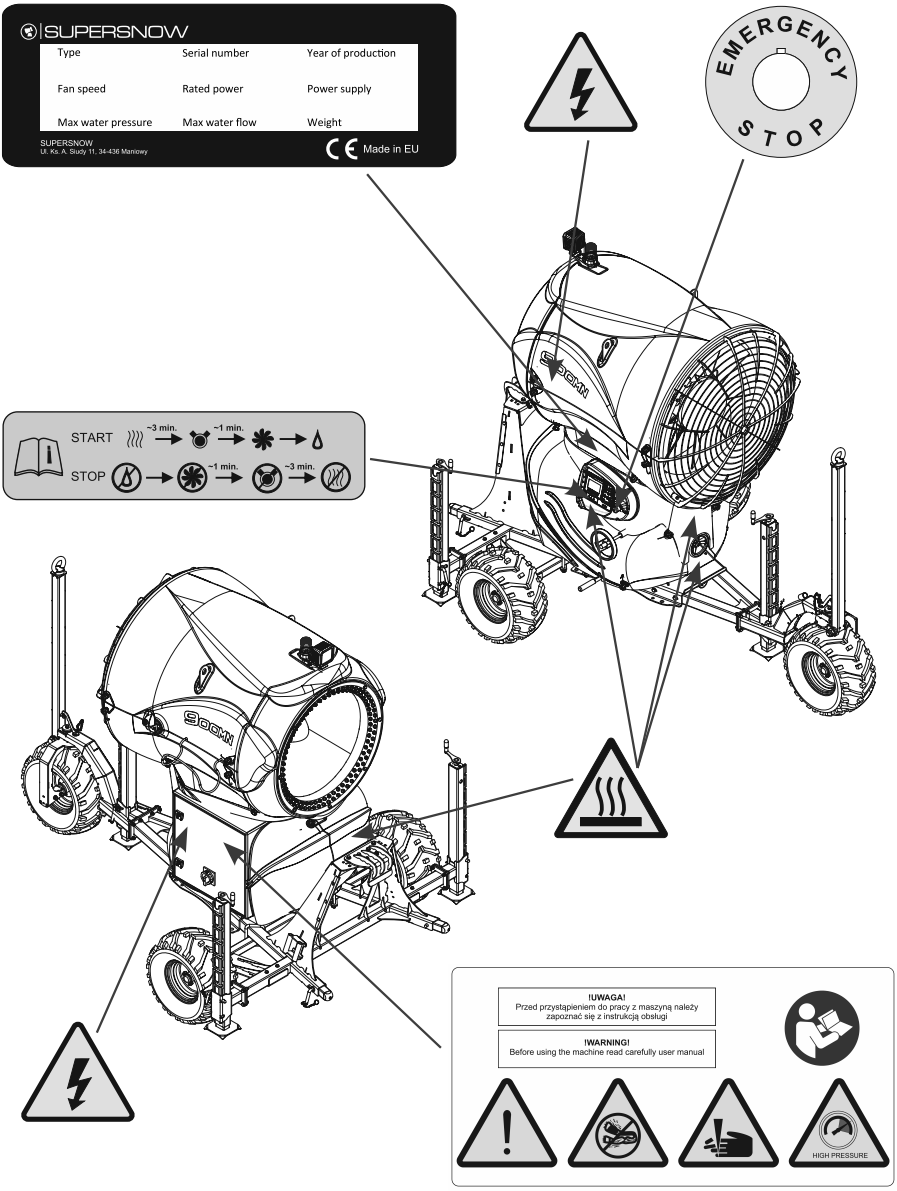
The exact location of the data plate in each machine is shown in the drawings later in this chapter.

2. TECHNICAL SPECIFICATION AND CONSTRUCTION



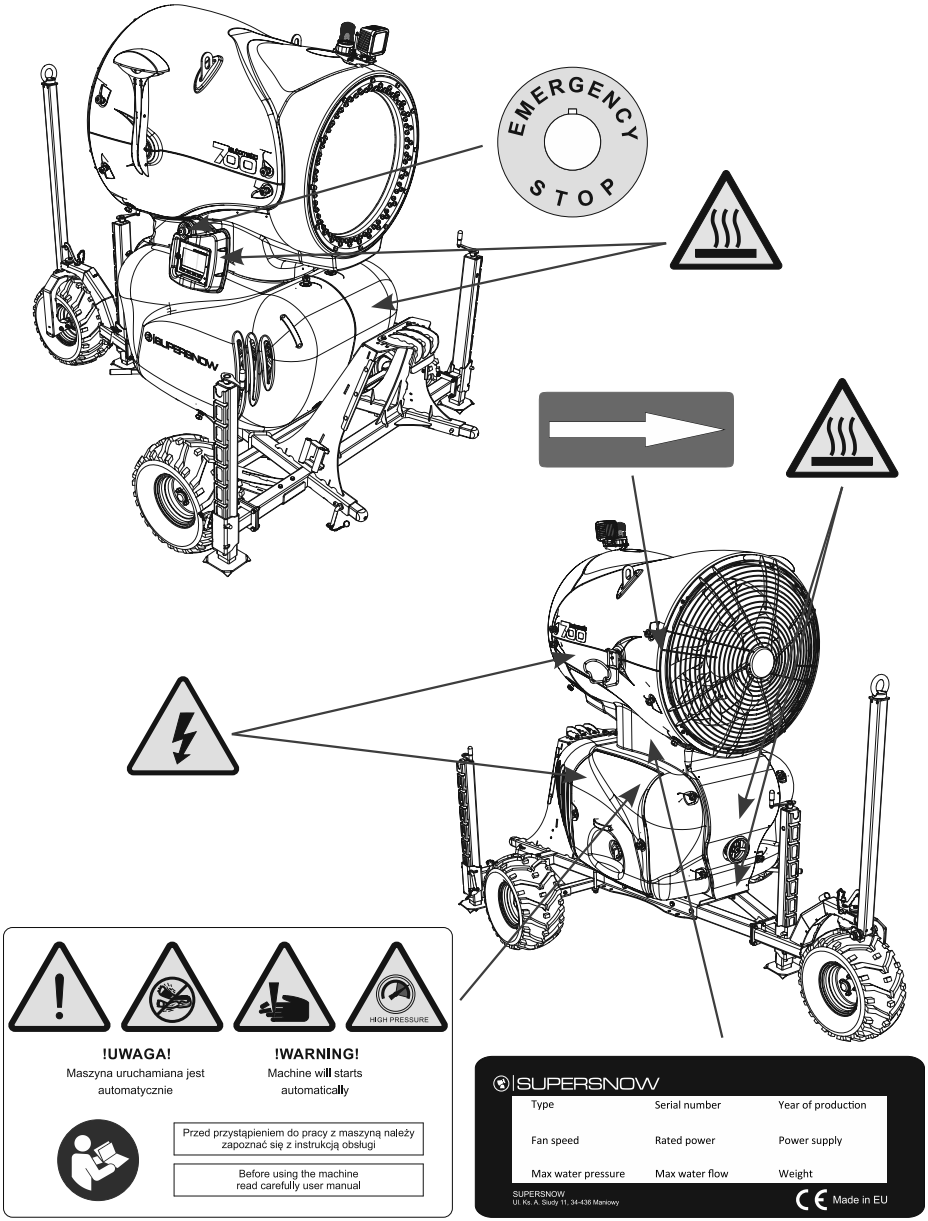
Location of warning and information labels in the 600M snow gun

2. TECHNICAL SPECIFICATION AND CONSTRUCTION



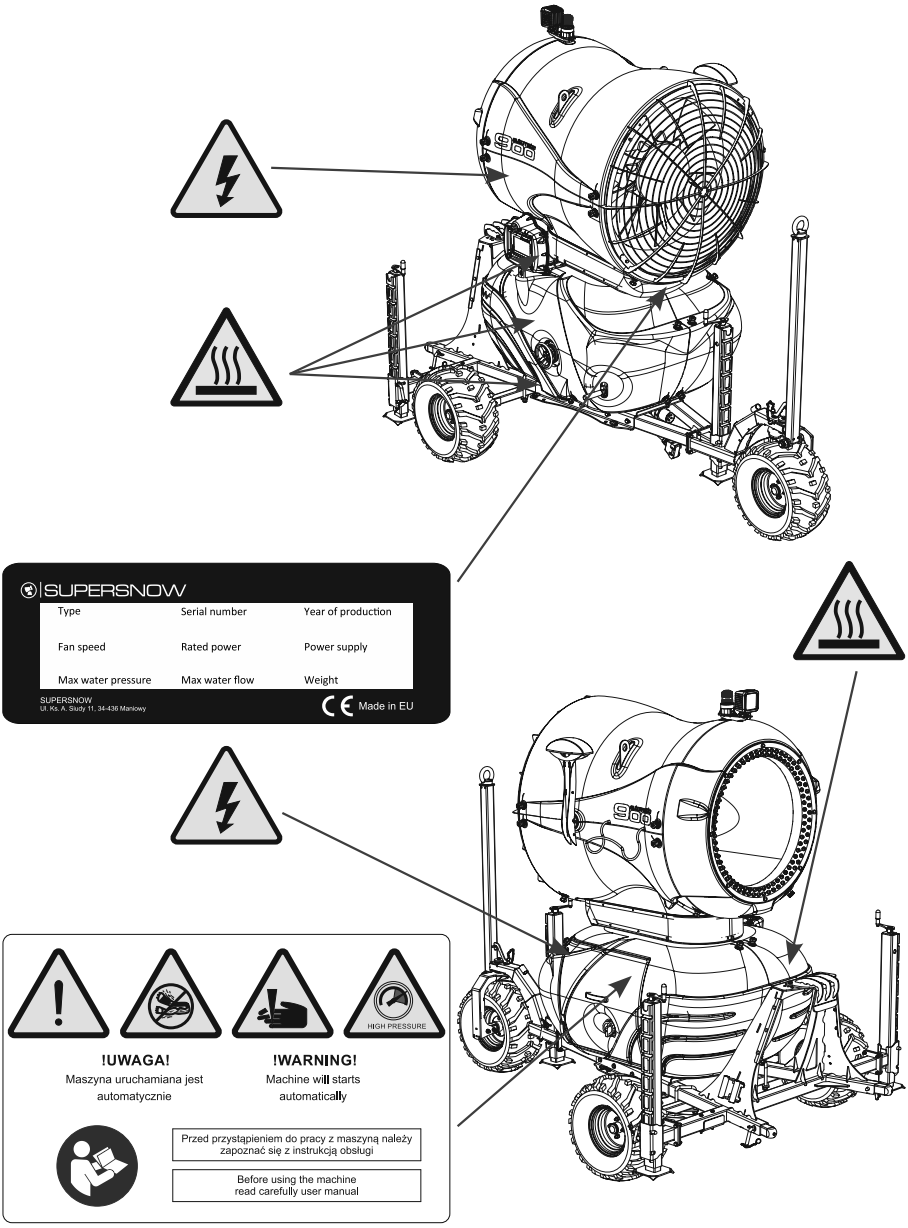
Location of warning and information labels in the 900MN snow gun

2. TECHNICAL SPECIFICATION AND CONSTRUCTION



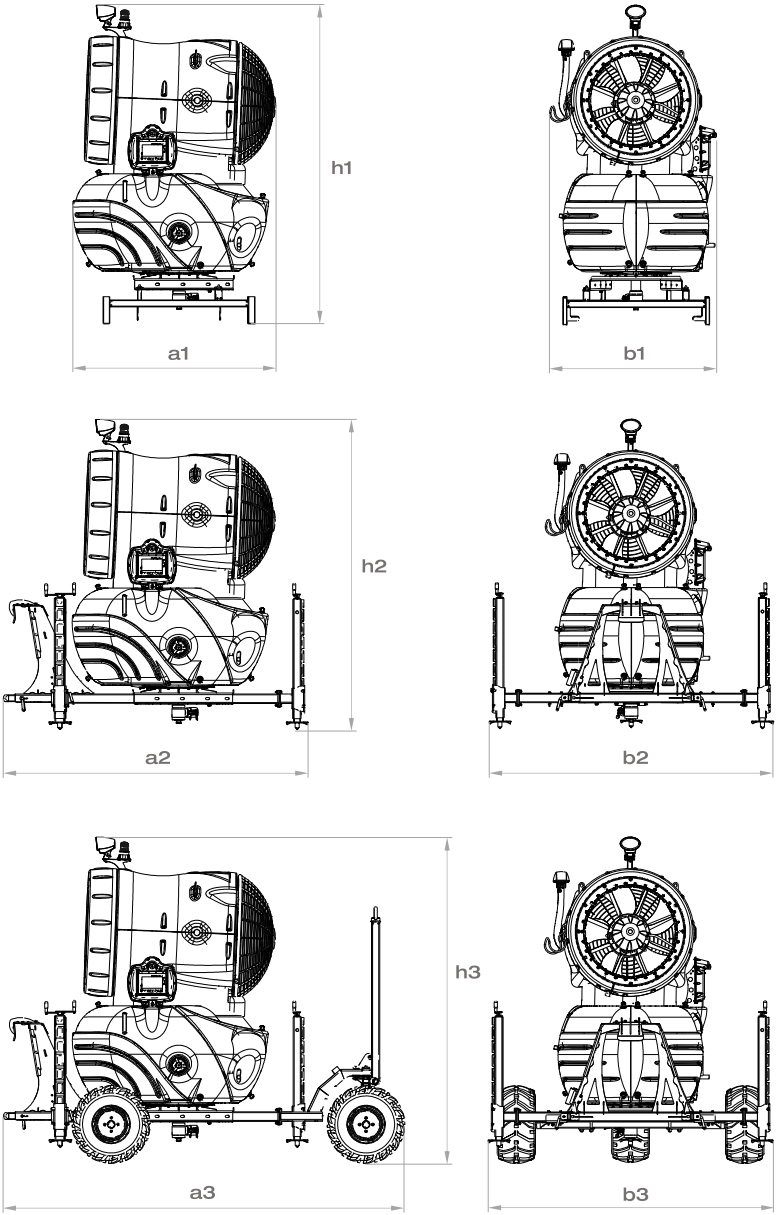
Location of warning and information labels in the 700A SE snow gun

2. TECHNICAL SPECIFICATION AND CONSTRUCTION



Location of warning and information labels in the 900A snow gun

2.3. TECHNICAL SPECIFICATIONS



Dimensions of snow guns on various chassis

2. TECHNICAL SPECIFICATION AND CONSTRUCTION

PARAMETER	UNIT	600M	900MN	900A
Number of water section	n	4	4	4
Number of nucleation section	n	1	1	1
Number of water nozzles	n	90	120	120
Number of nucleation nozzles	n	12	8	8
permissible water pressure	bar	8 ~ 40	8 ~ 40	8 ~ 40
Max. water supply	l/min	480	645	645
Max. snow production	m3/h	78	105	105
Operation temperature (WB)	°C	-25 ~ -2	-25 ~ -2	-25 ~ -2
Filtration accuracy	μm	350 (Slit)	350 (Slit)	350 (Slit)
Nominal voltage (standard)	V	400	400	400
Nominal frequency (standard)	Hz	50	50	50
Connection plug	A	5x63	5x63	5x63
Rated flow	A	33	39	39
Rated power	kW	18,5	22	22
Rated power of fan engine	kW	11	15	15
Fan speed	rpm	1450	1450	1450
Nominal power and compressor type	kW	4(NO OIL)	4(NO OIL)	4(NO OIL)
Snow gun length with transport basis a1	mm	1431	1539	1573
Snow gun width with transport basis b1	mm	1170	1382	1350
Snow gun height the transport basis h1	mm	2380	2304	2596
Snow gun length with feet chassis a2	mm	2289	2289	2289
Snow gun width the feet chassis b2	mm	2139	2139	2139
Snow gun height with feet chassis h2	mm	2314	2237	2527
Snow gun length with wheel chassis a3	mm	3016	3016	3016
Snow gun width with wheel chassis b3	mm	2139	2139	2139
Snow gun height with wheel chassis h3	mm	2433	2356	2646
Snow gun weight (without transport basis)	kg	545	650	695
Snow gun weight with feet chassis	kg	705 (545+160)	810 (650+160)	855 (695+160)
Snow gun weight with wheel chassis	kg	815 (545+270)	920 (650+270)	965 (695+270)

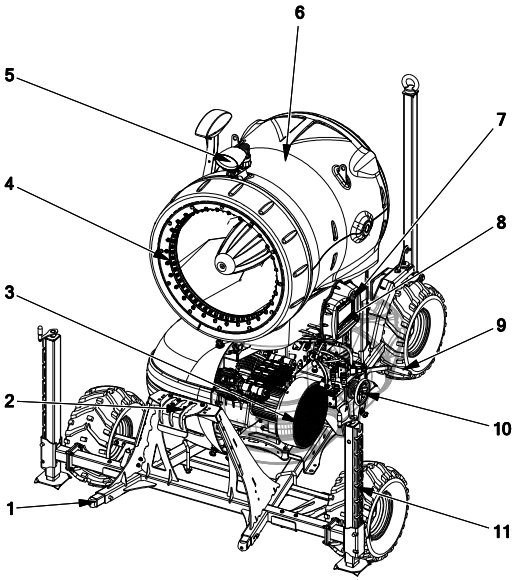
Snow gun technical parameters

2. TECHNICAL SPECIFICATION AND CONSTRUCTION

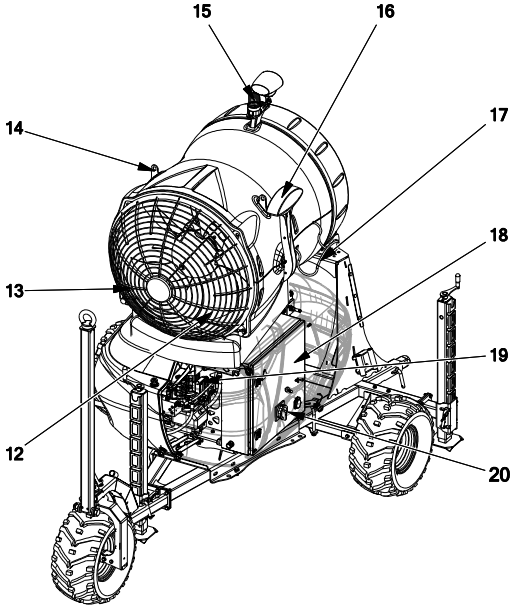
PARAMETER	UNIT	700A SE	700H	700S
Number of water section	n	4	5	5
Number of nucleation section	n	1	1	1
Number of water nozzles	n	90	96	96
Number of nucleation nozzles	n	12	6	6
permissible water pressure	bar	8 ~ 40	12 ~ 40	12 ~ 40
Max. water supply	l/min	480	510	510
Max. snow production	m3/h	83	85	85
Operation temperature (WB)	°C	-25 ~ -2	-25 ~ -1,5	-25 ~ -1,5
Filtration accuracy	µm	350 (Slit)	250 (Mesh)	250 (Mesh)
Nominal voltage (standard)	V	400	400	400
Nominal frequency (standard)	Hz	50	50	50
Connection plug	A	5x63	5x63	5x63
Rated flow	A	31	26	19/26
Rated power	kW	17	14,3	10,5/14,3
Rated power of fan engine	kW	11	11	11
Fan speed	rpm	1450	1450	1150/1450
Nominal power and compressor type	kW	4(NO OIL)	1,5(NO OIL)	1,5(NO OIL)
Snow gun length with transport basis a1	mm	1530	1530	1530
Snow gun width with transport basis b1	mm	1270	1270	1270
Snow gun height the transport basis h1	mm	2395	2395	2395
Snow gun length with feet chassis a2	mm	2289	2289	2289
Snow gun width the feet chassis b2	mm	2139	2139	2139
Snow gun height with feet chassis h2	mm	2330	2330	2330
Snow gun length with wheel chassis a3	mm	3016	3016	3016
Snow gun width with wheel chassis b3	mm	2139	2139	2139
Snow gun height with wheel chassis h3	mm	2449	2449	2449
Snow gun weight (without transport basis)	kg	630	600	610
Snow gun weight with feet chassis	kg	790 (630+160)	760 (600+160)	770 (610+160)
Snow gun weight with wheel chassis	kg	900 (630+270)	870(600+270)	880 (610+270)

Snow gun technical parameters

2.4. CONSTRUCTION



1	Buffer
2	Snow groomer handle
3	Compressor
4	Ring
5	Lamp
6	Tube
7	Emergency button
8	Control panel
9	Clutch lever
10	Water system
11	Wheel chassis



12	Fan
13	Fan body
14	Transport handles
15	Alarm indicator
16	Weather station
17	Handle for the cable
18	Control box
19	Frame
20	Main power switch

Construction of the snow gun

3. TRANSPORT AND INSTALLATION

3.1. TRANSPORT

Before starting any activities related to transport, carefully read the instruction manual that is supplied with the machine. In particular pay attention to the dimensions and the weight of the snow gun.

The weight of the snow gun with the appropriate chassis is included in the technical parameters table.

When transporting the machine, the risk of injury may appear. Individual protection measures are recommended.

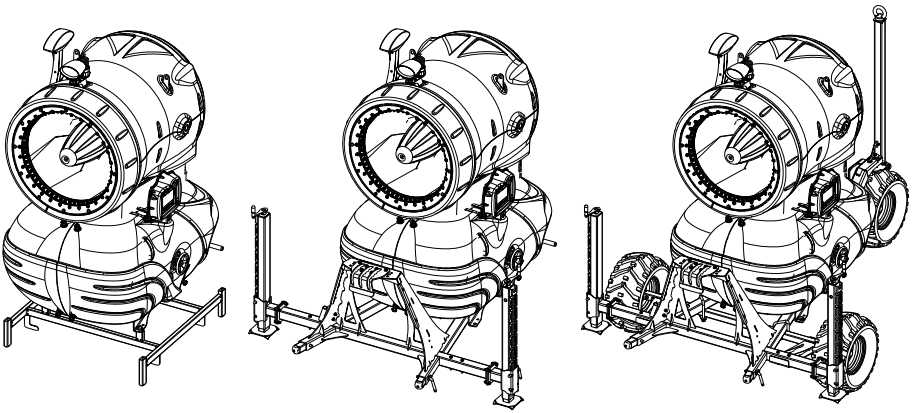
In order to maintain the safety of persons and property, always use slings, shackles, hooks, etc. adjusted to the given load capacity and other requirements included in the applicable regulations. Remember that the length of the sling should be as short as possible, this will limit the loss of stability.

When transporting the snow gun, keep a safe distance. Do not place any part of the body between the machine and the sling.

The weight of the transport base and chassis is not included in the weight stated on the snow gun's data plate.

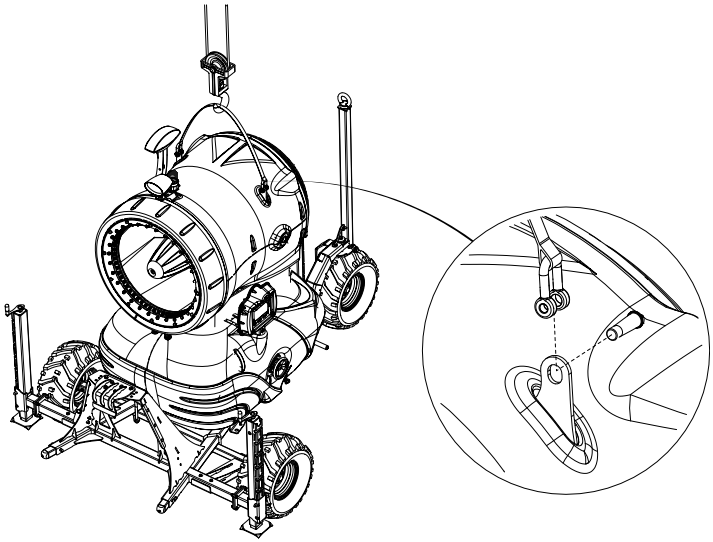
3. TRANSPORT AND INSTALLATION

The snow gun can be delivered to the customer in various chassis configurations. Transport basis are used, as well as feet and wheel chassis. The feet chassis and wheel chassis are equipped with a single snow groomer handle. There is also a possibility of mounting a double snow groomer handle.



Snow gun (on the left) on the technological basis, on the feet chassis, on the wheel chassis

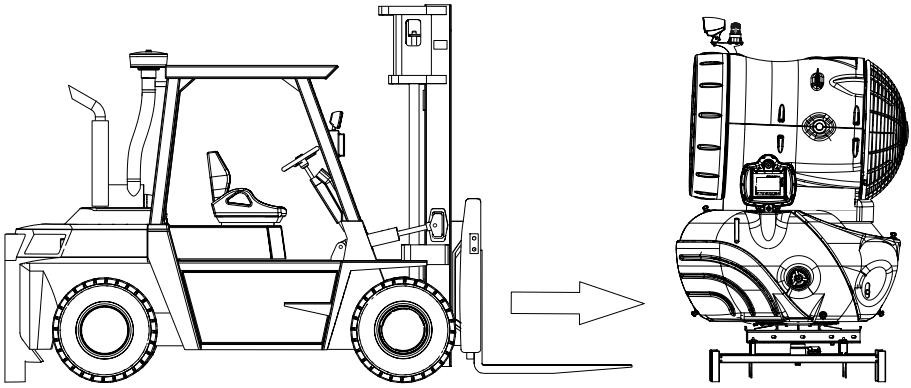
For the transport of the snow gun, it is best to use transport handles placed in each machine on the upper part of the tube. The place and method of assembly of transport slings are presented in the drawing below.



Location of the snow gun transport handles

3. TRANSPORT AND INSTALLATION

A snow gun with an installed feet chassis, or a wheel chassis, in special cases can be transported with a forklift, but with the use of additional transport elements (eg a beam, belts) and with all precautions. The manufacturer does not recommend such a method of transport due to problematic lifting. Only a snow gun placed on the transport basis can be safely transported using a forklift. The scheme for carrying out such transport is presented in the illustration below.



The method of transporting the snow gun with a forklift

CAUTION!

WHEN TRANSPORTING THE MACHINE ON A FORKLIFT, THE SNOW GUN SHOULD BE TURNED TOWARDS THE FORKLIFT SO THAT THE LAMP IS DIRECTED TO THE DRIVER OF THE FORKLIFT.

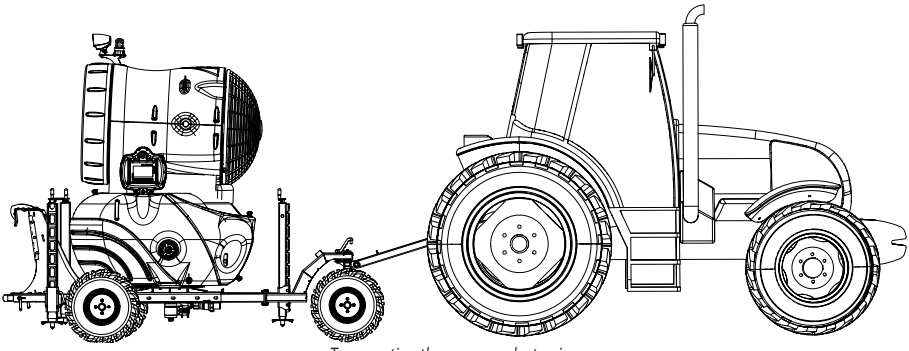
WARNING!

PROCEED SLOWLY AND CAREFULLY WHEN LIFTING AND TRANSPORTING THE SNOW GUN. PAY ATTENTION TO THE GRAVITY CENTRE PLACEMENT.

3. TRANSPORT AND INSTALLATION

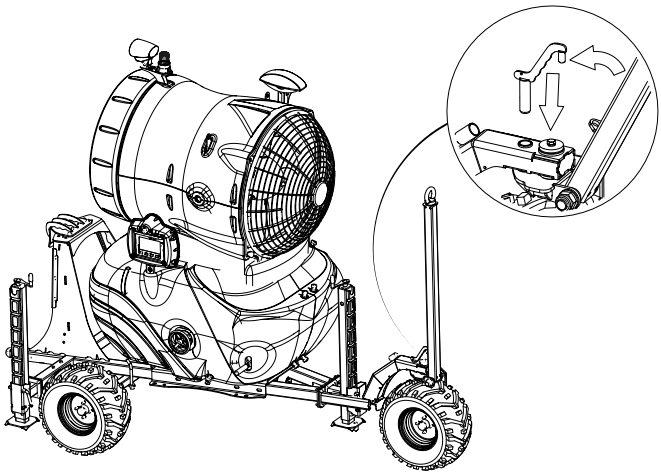
3.2. RELOCATION OF THE SNOW GUN

Snow gun equipped with the wheel chassis can be moved by pulling the tow bar. For this purpose, use a vehicle equipped with tractor catch. It is recommended to disconnect the hose and the power cable from the snow gun before the transport.



Transporting the snow gun by towing

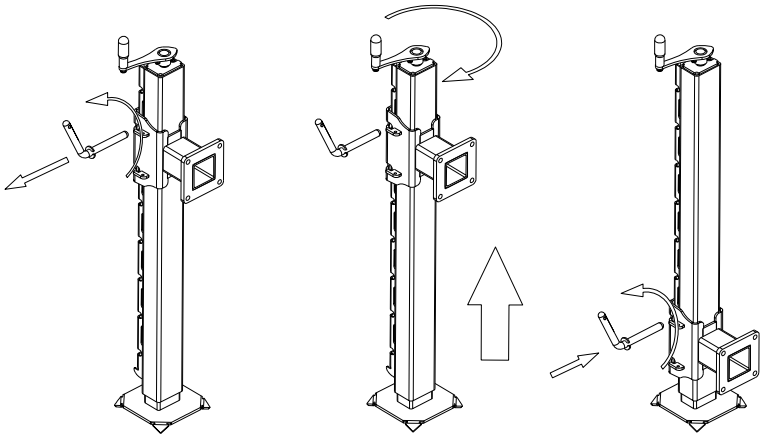
Before starting the snowmaking process, the drawbar should be pointed down. It must not cover the fan inlet. When storing the machine after finished work, the drawbar can be placed in an upright position, remembering to secure it with a bolt.



Method of securing the drawbar after towing

WARNING!

BEFORE TOWING, REMEMBER THAT THE "FEET" ARE RAISED AS MUCH AS POSSIBLE



"feet" lift scheme

CAUTION!

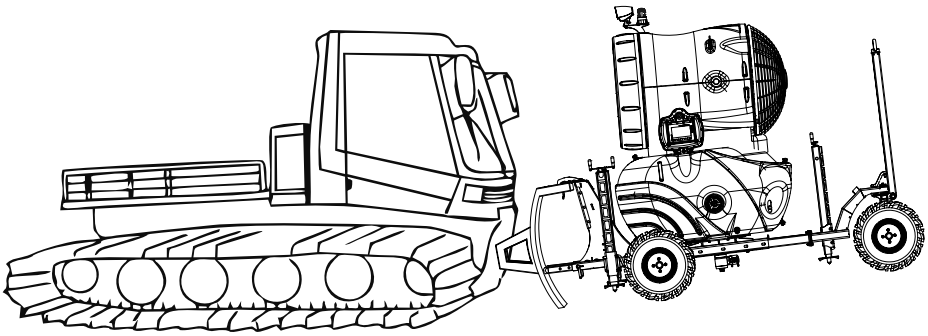
THE SPEED OF TOWING THE SNOW CAN NOT EXCEED 5 KM /H

WARNING!

TOWING A SNOW GUN EQUIPPED WITH A WHEEL CHASSIS IS NOT ALLOWED ON A PUBLIC ROADS

3. TRANSPORT AND INSTALLATION

Snow gun can be relocated along the slope by moving it on the snow groomer's blade. Before the machine is lifted, make sure that it is not covered with snow and that the leveling feet or wheels are not frozen to the ground. In the case of a frozen machine, the machine should be cleared of snow to be lifted up freely by the snow groomer. Failure to do this may result in damage to the machine's chassis components and the snow groomer's working elements. Two persons, a snow groomer operator and a pilot should be present to carry out this operation safely. The pilot first moves the snow groomer bumpers to the required distance and secures them with split cotters. Then the driver approaches the machine from the snow groomer handle at a distance of approx. 1.5 m, still approaching the snow gun at the lowest possible speed to engage the blade with the handle. At the same time, he gets navigation directions from the pilot. The next step is to raise the whole machine by the driver and the "feet" by the pilot. The snow gun should be transported carefully so that it does not fall from the blade. Before setting up the machine, prepare a flat place that is as flat as possible. The leveling feet must be extended before the snow gun is placed.



Method of transporting a snow gun on the snow groomer's blade

3. TRANSPORT AND INSTALLATION

3.3. INSTALLATION OF THE SNOW GUN

Before starting work with a snow gun, check the completeness of the components of the set, including:

- Snow gun
- Water hose - 1,9 m
- Briefcase with documents
- Service toolkit

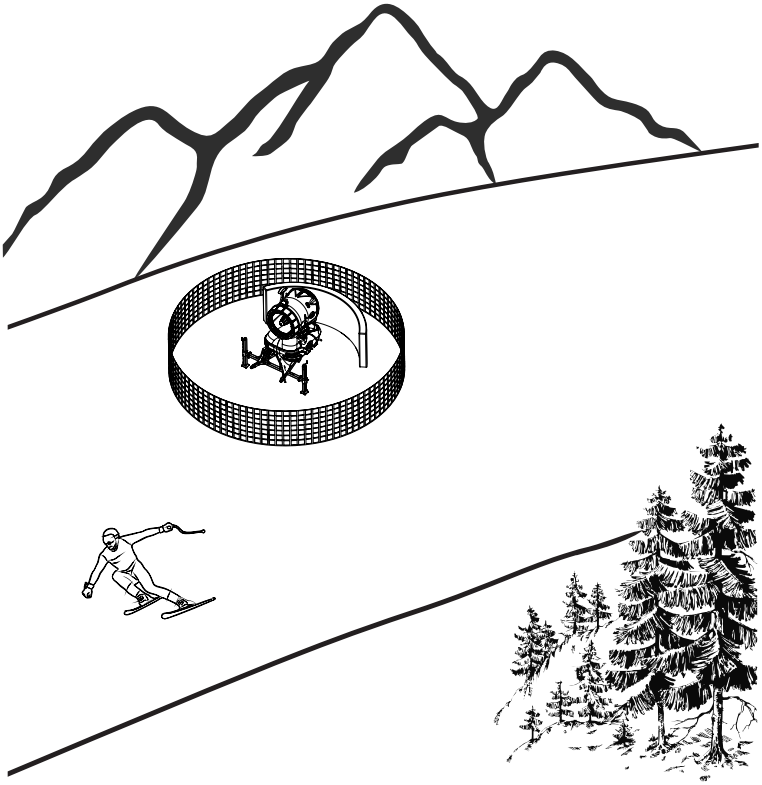
SERVICE TOOLKIT (DELIVERED WITH THE SNOW GUN) INCLUDES:		
600M	SWIRLER, NUCLEATION NOZZLE, CERAMIC NOZZLE WITH INSERT AND RING, NUCLEATION NOZZLE NUT, SPANNER FOR RING NUT	CYLINDRICAL SLOW-BOW FUSE : 2A; 3,15A; 1A; 0,5A
900MN		CYLINDRICAL SLOW-BOW FUSE : 0,8A 1A; 1,6A; 2A; 2,5A; 6,3A
700A SE		CYLINDRICAL SLOW-BOW FUSE : 0,8A; 1,6A; 2,5A; 3,15A; 6,3A
700H		CYLINDRICAL SLOW-BOW FUSE : 0,8A; 1,6A; 2,5A; 3,15A; 6,3A
700S		CYLINDRICAL SLOW-BOW FUSE : : 0,8A; 1,6A; 2,5A; 3,15A; 6,3A
900A		CYLINDRICAL SLOW-BOW FUSE : 0,5A; 1A; 2A; 3,15A; 4A

In order to meet the requirements of all customers, SUPERSNOW has prepared numerous additional components options, such as:

- Hydrant Drive
- Water Hose SNOWFLEX 2" – 20m/15m/5m
- Power Extension Cable 5x10 - 20 m
- Extension Cable for Hydrant Drive - 20 m
- Communication Cable Extension Cord
- Safety Mattresses

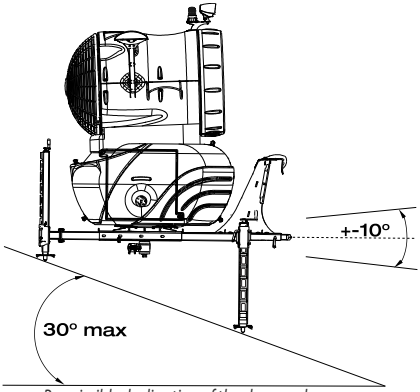
3. TRANSPORT AND INSTALLATION

The snow gun must be positioned in a place that does not endanger the safety of personnel, skiers and the machine itself, taking into account extreme working conditions, it is unacceptable to set up an unprotected machine on open routes without previous safety preparation. Visibly mark the snow gun, separate it from the slope with a separating safety net and put on safety mattresses. Skiers are not allowed to move in the place where the cables and hoses are placed to not break them. It is also forbidden to snow the open ski routes for skiers.



Method of securing the snow gun on the slope

The place of installation should be on a stable, possibly flat surface that will withstand the weight of the machine. To ensure proper operation of the hydraulic system and the compressor, deviation of the snow gun from the level can not exceed 10 degrees.



Permissible declination of the slope and snow gun

Leveling feet are used to level the slope. Their maximum stroke is 624 mm. In the case of a wheel chassis, after placing, it is required to immobilize the snow gun with at least two leveling feet.

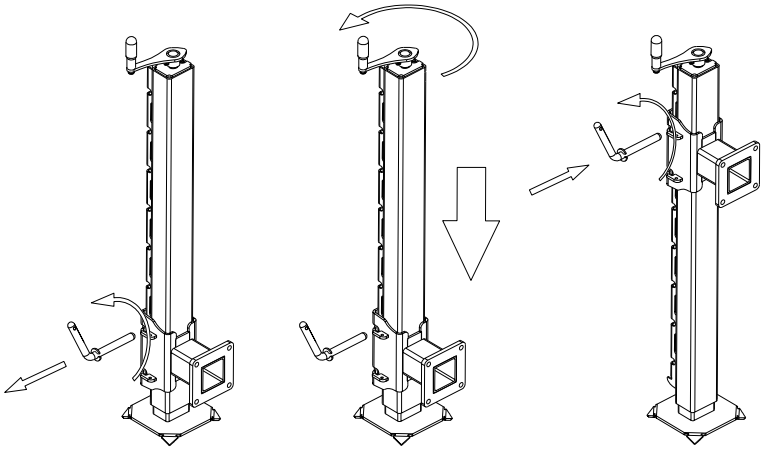


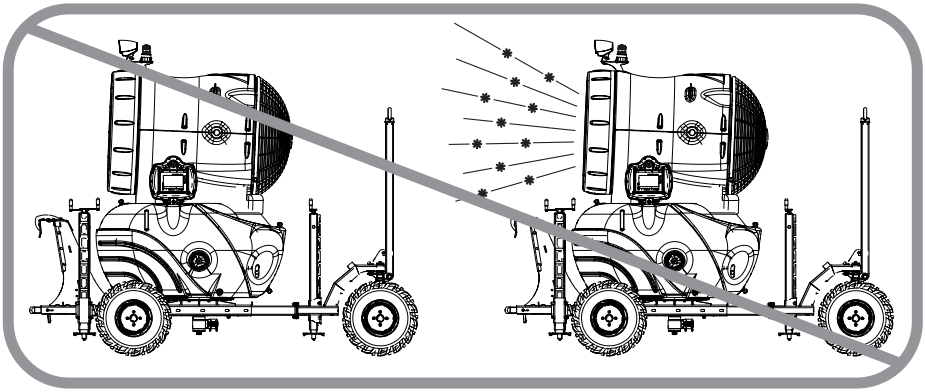
Diagram of lowering feet

WARNING!

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

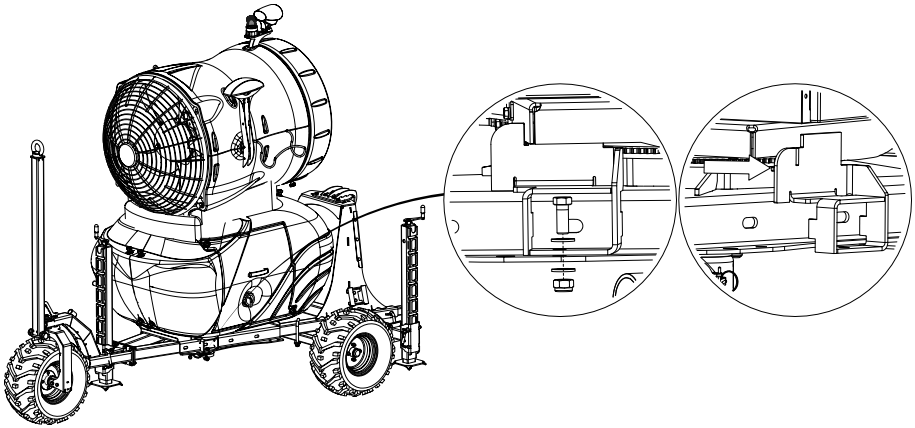
3. TRANSPORT AND INSTALLATION

The distance between the snow guns on the ski slope should be at least 60 m. Each snow gun should not be placed within the reach of different machine. You should also take into account the strength and direction of the wind so that it does not snow on the neighboring snow gun. It may lead to the fan freezing and as consequence machine failure.



It is forbidden to operate a snow gun when there is another snow gun within its range

Before starting the machine for the first time, remove the transport locks. They should be retained and reassembled when the snow gun is transported.



Assembly / disassembly of oscillation transport blockade

WARNING!

STARTING THE SNOW GUN WITHOUT DISASSEMBLING THE TRANSPORT BLOCKADE OF THE OSCILLATION MAY CAUSE THE MACHINE BREAK DOWN DUE TO THE FAULT OF THE SNOW GUN OPERATOR

Before snow gun operation, check that the water filter is not contaminated. If necessary, clean the cartridge. During operation, the frequency of checking the cleannes of the filter cartridge should depend on the efficiency the device works. However, it is recommended to control the filter cartridge at least every 24 hours.

Before turning on the machine, check that the fan and the tube are not covered with ice! If they are, a warm air stream should be used for thawing. The air must not be too hot, as it may damage the plastic components. All covers/housings have to be present and properly mounted. Any foreign objects (tools, loose parts) inside the tube or elsewhere in the machine must be removed. Any damage to water and hydraulic cables and pipes should be removed before switching on the machine.

3. TRANSPORT AND INSTALLATION

WARNING!

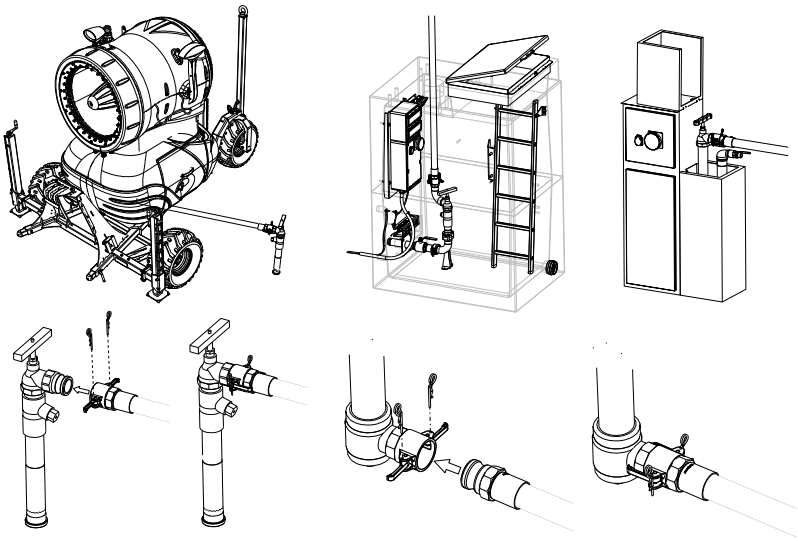
BEFORE OPENING THE FAN PROTECTION GRID, ALWAYS DISCONNECT THE POWER SUPPLY OF THE SNOW GUN!

WARNING!

AFTER THE SNOW GUN WORK FINISHED, MAKE SURE THAT THE GRID SECURING THE AIR INLET IS CORRECTLY MOUNTED!

Water for snowing purposes should not contain more than 200 µm of impurities. Larger bodies cause rapid fouling of the snow gun filter. For proper operation of the machine, pressure in the range of 8 to 40 bar is required.

To start the snow gun, use a rubber hose with Camlock 2 " and a flexible hose with a minimum pressure of 50 bar (burst pressure minimum 150 bar) with Camlock 2". Water hoses should be laid so that they do not hinder the safe operation of the machine, they are not twisted and turn with gentle arcs.



The diagram for a water feeding hose installation

3. TRANSPORT AND INSTALLATION

WARNING!

THE MAXIMUM PERMISSIBLE OPERATING PRESSURE IS 40 BAR, EXCEEDING MAY CAUSE DAMAGE TO THE MACHINE AND VOID THE WARRANTY!

WARNING!

ALWAYS SECURE THE CAMLOCK FASTENINGS WITH SAFETY PINS!

Before turning on the snow gun, make sure that the voltage is 3 x 400 VAC with an acceptable deviation of + 5 / -10% and frequency 50 Hz, and the irregularity of the phase voltage must not exceed 5%. Machine power parameters refer to standard products and may vary depending on the region and country in which the machine will be operated. To connect the snow gun, use the power cord integrated. Before starting the snow gun, the correct direction of rotation of the fan and the compressor must be checked. The factory settings guarantee the correct direction of rotation of both devices.

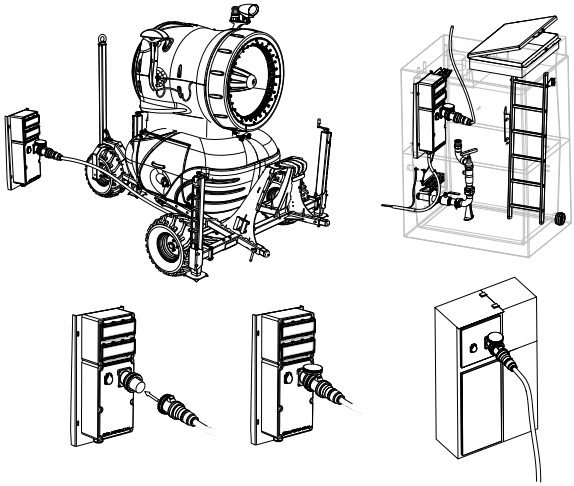
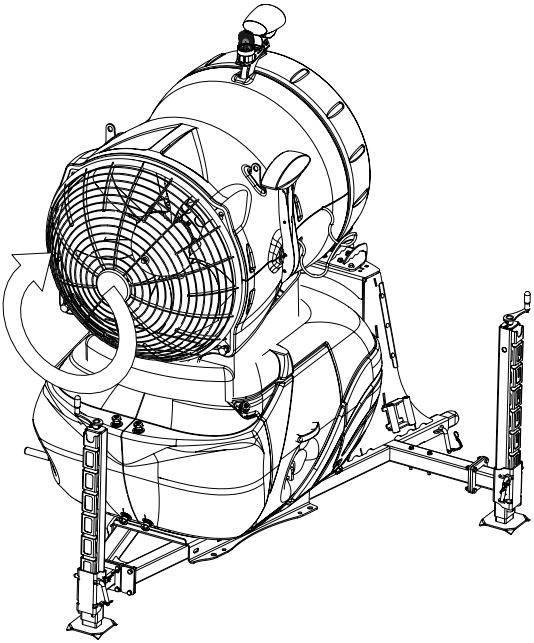


Diagram of connecting the electrical supply (CEE 63A connector) of the snow gun to the electric box on the slope and installation in the well

After a longer standstill at temperatures below -10 ° C, before the first start-up of the machine, the ring should be heated 10 - 15 minutes, although the heater indicator may suggest their appropriate temperature.

3. TRANSPORT AND INSTALLATION

When first starting the snow gun, pay attention to the order of the power phases. Turn on the power in the snow gun and then manually start the fan. The machine fan should rotate clockwise (from the fan grate side). If the phase order is reversed, the impeller should not rotate due to the phase sequence control module installed. Machines with a control panel will display the message "POWER FAILURE", and in the 600 M the failure indicator will light up. The removal of the defect must be performed by a qualified electrician. He changes the sequence of the phases, in the place where the snow gun is connected to the mains electricity.

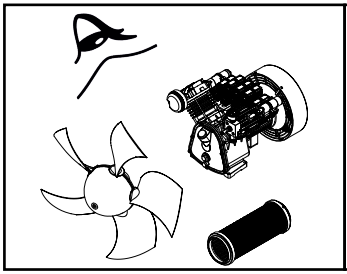


The correct direction of the fan rotation

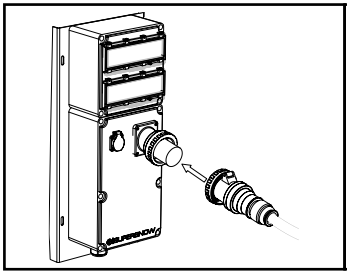
* In automatic snow guns, before starting the operation, you must set the parameters at which the machine starts the work automatically. The description and a detailed explanation of parameter settings can be found in Chapter 7. Control panel.

4. SNOW GUN CONTROL

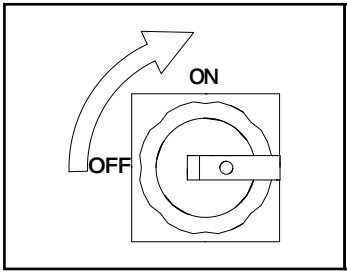
4.1. MANUAL TURNING ON AND CONTROL



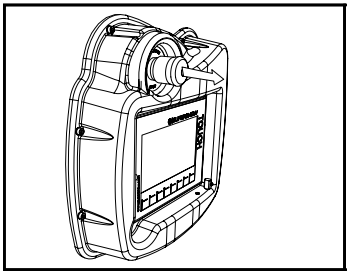
1) Check the status of the machine (fan, compressor, filter cartridge).



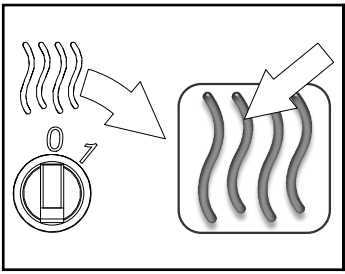
2) Connect the snow gun to the appropriate power supply.



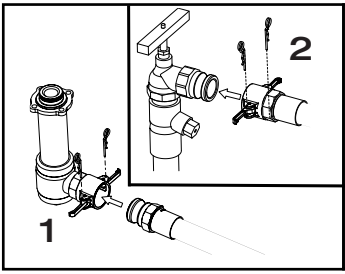
3) Turn the main switch to the ON position



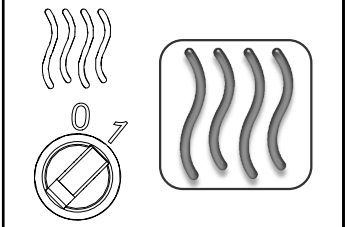
4) Make sure that the emergency button is on (in the extended position) (* only machines 900MN, 700A SE, 700H, 700S, 900A).



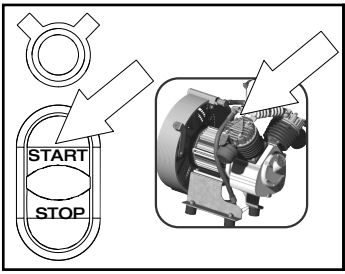
5) Turn on the ring heating.



6) Connect the snow gun to the hydrant with a high pressure hose.

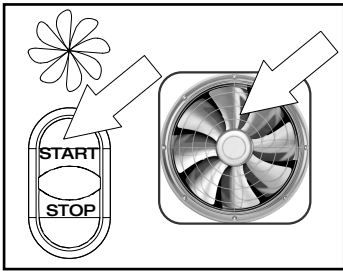


7) Make sure that the cable and hose are installed in a way that will not damage them during operation. After warming up the ring to the appropriate temperature (about 3 minutes), the heaters turn off automatically, which is signaled by the heater indicator (switch off) on the control panel. During freezing temperatures below -10ºC, heating can take up to 10-15 minutes.

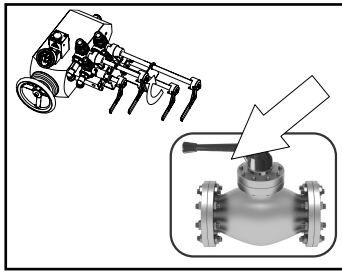


8) Turn on the compressor and check if the air escapes through the nucleation nozzles.

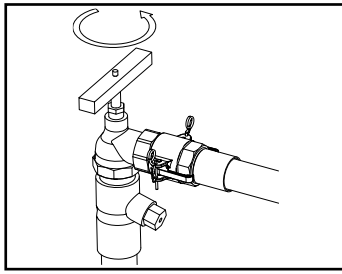
4. SNOW GUN CONTROL



9) Turn on the fan



10) Open the water supply valves to the required sections of the ring (depending on weather conditions and the snow quality adopted, open the respective valve configurations listed in the table at the end of Chapter 4.



11) Slowly open the main hydrant, if necessary, adjust the maximum water pressure.

WARNING!

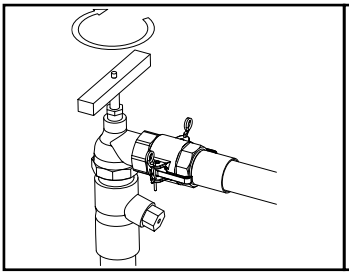
DO NOT EXCEED THE MAXIMUM WATER PRESSURE OF 40 BAR!

WARNING!

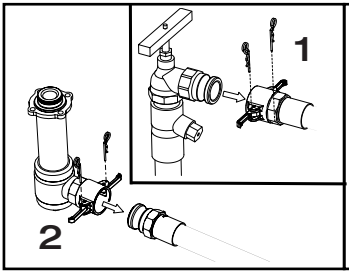
MAKE SURE THAT THE CABLE AND HOSE ARE INSTALLED PROPERLY TO NOT DAMAGE THEM DURING OPERATION.

4. SNOW GUN CONTROL

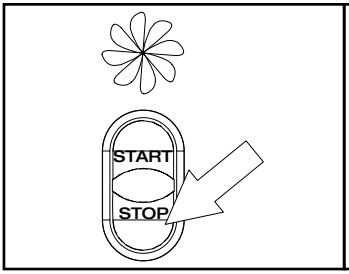
4.2. MANUAL TURNING OFF:



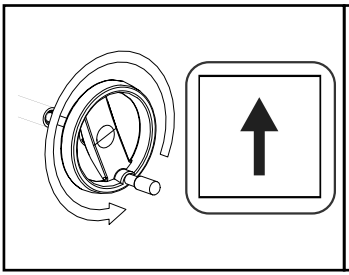
1) Close the hydrant



2) After the pressure has dropped to zero value (no water will run out of the water trap on the rotary valve and water unit), disconnect the hose from the hydrant and the snow gun.

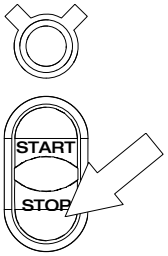
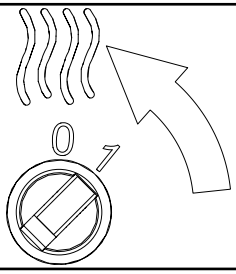
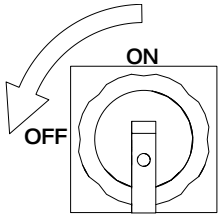


3) Turn off the fan

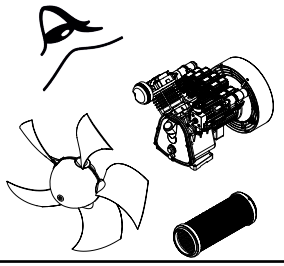
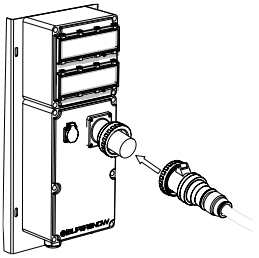
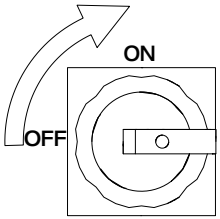
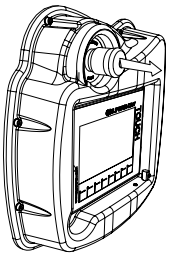


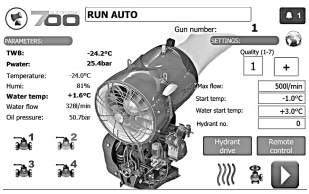
4) Lift the snow gun tube slightly up.

4. SNOW GUN CONTROL

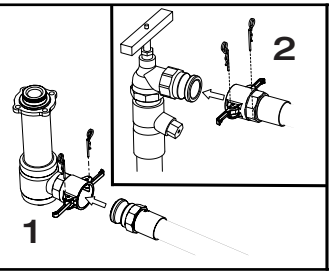
	5) Turn off the compressor
	6) Wait (about 3 minutes) after turning off the compressor, and then turn off the heaters (the heater indicator will go off).
	7) Turn the main switch to the OFF position.

4.3. AUTOMATIC TURNING ON AND CONTROL

	1) Check the status of the machine (fan, compressor, filter cartridge).
	2) Connect the snow gun to the appropriate power supply.
	3) Turn the main switch to the ON position
	4) Make sure that the emergency button is on (in the extended position) (* only machines 900MN, 700A SE, 700H, 700S, 900A).

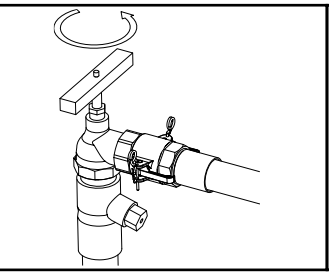


5) Check the machine settings in the operator panel (snow quality, maximum efficiency, etc.)



6) Connect the snow gun to the hydrant with a high pressure hose.

7) Start the snow gun using the "START AUTO" button on the panel.



8) The snow gun with connected hydrant drive will open the water supply automatically, at the same time regulating the maximum flow. In the absence of hydrant drive, manually unscrew the hydrant and adjust the maximum water pressure if necessary.

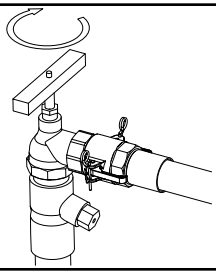
WARNING!
DO NOT EXCEED THE MAXIMUM WATER PRESSURE OF 40 BAR!

WARNING!
MAKE SURE THAT THE CABLE AND HOSE ARE INSTALLED PROPERLY TO NOT DAMAGE THEM DURING OPERATION.

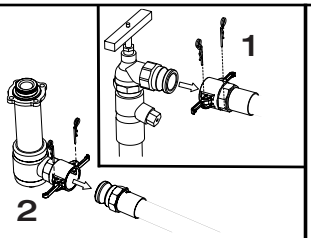
WARNING!
THE MACHINE EQUIPPED WITH AUTOMATIC HYDRANT DRIVE WILL START AUTOMATICALLY AFTER REACHING THE CORRECT RING TEMPERATURE!

4.4. AUTOMATIC TURNING OFF

1) Turn off the snow gun with the "STOP AUTO" button - the machine will stop automatically (only if connected to the hydrant drive).



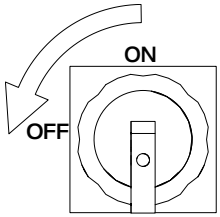
2) The snow gun with the attached hydrant drive will close the water supply automatically. In the absence of hydrant drive, the hydrant must be manually turned off. The snow gun will continue to work with minimal efficiency until the water pressure drops to zero.



3) After the pressure has dropped to zero value (no water will run out of the water trap on the rotary valve and water unit), disconnect the hose from the hydrant and the snow gun.

4) Lift the snow gun tube slightly up.

5) Wait for the ring to reach the right temperature (the heater indicator will go off).



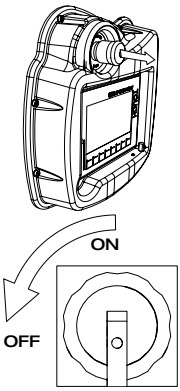
6) Turn off the main switch.

CAUTION!

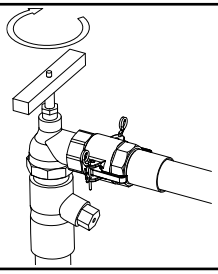
THE MACHINE WILL NOT STOP IF THE PRESSURE SENSOR ON THE FILTER DOES NOT DETECT THE LACK OF PRESSURE!

4. SNOW GUN CONTROL

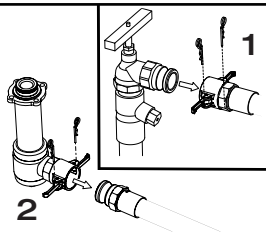
4.5. EMERGENCY STOP / POWER LOSS:



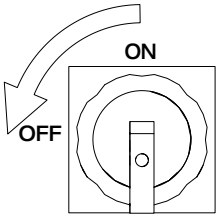
In an emergency situation, press the emergency button located on the control panel housing (900MN, 700A SE, 700H, 700S, 900A) - it cuts off the power supply of all the components, except for the lighting lamps and fault indicator. For machines without an emergency stop, its function is the main switch, located on the electrical box. In the event of a power loss and pressing the emergency switch, do the following:



1) Close the hydrant (* in the case of installed hydrant drive, wait for the hydrant valve to close completely).



2) After the pressure has dropped to zero value (no water will run out of the water trap on the rotary valve and water unit), disconnect the hose from the hydrant and the snow gun.



3) Turn the main switch to the OFF position (* only if this operation has not been carried out previously).

WARNING!

IF THE SNOW GUN IS LEVELED, DEHYDRATES ITSELF BY GRAVITY. IF IT IS NOT, IT SHOULD BE PROPERLY LEVELED!

WARNING!

WATER HOSES CAN NOT BE ARRANGED IN SUCH A WAY THAT THEY FORM A SIPHON. AFTER WORK, THEY SHOULD ALWAYS BE DEHYDRATED.

4.6. REGULATION OF THE QUALITY AND QUANTITY OF SNOW.

Many factors affect the quantity and quality of the snow produced. Mainly the temperature of the wet thermometer (WB) and the temperature of the water. The temperature of the so-called wet thermometer WetBulb (WB) is a parameter that takes into account air temperature and humidity. The higher the air temperature (WB) and the water temperature, the harder it is to produce snow. Controlling the quantity and quality of snow produced is carried out by opening and closing individual sections of water nozzles and setting the water pressure, regulated by the hydrant valve. In the automatic snow gun, opening and closing of individual water ring sections takes place automatically after setting the appropriate quality of snow and maximum water flow on the main screen of the control panel. The quality of snow varies from 1, meaning dry snow, to 7 wet snow. The water valves in the automatic machine can also be opened manually using the touch buttons on the manual settings screen of the control panel. In manual snow guns, the adjustment is made by manual opening / closing of the valves of the respective sections. In a semi-automatic machine, the regulation consists in setting the valve configuration level (1 - minimum number of working nozzles, 14 - all nozzles work).

Temperature of the wet thermometer (WB)	Water pressure (bar)															
	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
-1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-2	3	1+2	1+2	1+2	1+2	2	2	2	2	2	2	2	2	2	2	2
-3	1+3	1+3	3	3	3	3	1+2	1+2	1+2	1+2	1+2	1+2	1+2	1+2	2	2
-4	1+2+3	2+3	2+3	2+3	1+3	1+3	1+3	3	3	3	3	3	3	3	1+2	1+2
-5	1+4	4	1+2+3	1+2+3	2+3	2+3	2+3	2+3	1+3	1+3	1+3	1+3	1+3	3	3	3
-6	1+2+4	2+4	1+4	4	4	1+2+3	1+2+3	1+2+3	2+3	2+3	2+3	2+3	2+3	1+3	1+3	1+3
-7	3+4	1+2+4	2+4	2+4	1+4	1+4	4	4	1+2+3	1+2+3	1+2+3	1+2+3	2+3	2+3	2+3	2+3
-8	2+3+4	1+3+4	3+4	1+2+4	2+4	2+4	1+4	1+4	1+4	4	4	4	1+2+3	1+2+3	1+2+3	1+2+3
-9	1+2+3+4	2+3+4	1+3+4	3+4	3+4	1+2+4	1+2+4	2+4	2+4	1+4	1+4	1+4	4	4	4	4
-10	1+2+3+4	1+2+3+4	1+2+3+4	2+3+4	1+3+4	3+4	3+4	1+2+4	1+2+4	2+4	2+4	2+4	1+4	1+4	1+4	1+4
-11	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	2+3+4	2+3+4	1+3+4	3+4	3+4	1+2+4	1+2+4	1+2+4	2+4	2+4	2+4	1+4
-12	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	2+3+4	1+3+4	1+3+4	3+4	3+4	3+4	1+2+4	1+2+4	1+2+4	2+4
-13	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	2+3+4	2+3+4	1+3+4	1+3+4	3+4	3+4	3+4	1+2+4
-14	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	2+3+4	2+3+4	1+3+4	1+3+4	3+4	3+4
-15	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	2+3+4	2+3+4	1+3+4	1+3+4
-16	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	2+3+4	2+3+4
-17	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4	1+2+3+4

Water valve configuration table that depends on the temperature of the wet thermometer and the water pressure in the system for 600 M snow guns

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

Table presenting the temperature of WetBulb depending on humidity and temperature.

OPEN VALVE NUMBER	NUMBER OF WORKING NOZZLES	
	600M, 700A SE, 700H, 700S	900MN, 900A
Valve 1	6 Nozzles (7%)	9 Nozzles (7%)
Valve 2	12 Nozzles (13%)	18 Nozzles (15%)
Valve 3	24 Nozzles (27%)	33 Nozzles (28%)
Valve 4	48 Nozzles (53%)	60 Nozzles (50%)

Table that specifies the number of operating nozzles depending on the opening of the respective valve.

5. OPERATION OF THE SNOW GUN

Before starting operations related to the operation of the snow gun, carefully read the instruction manual supplied with the machine. This will protect the snow gun against defects caused by improper use and against detriment to the health of an operator.

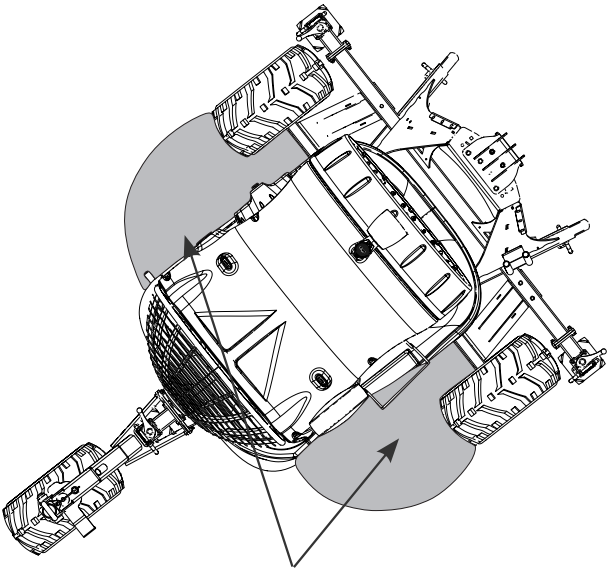
The snow gun is powered by electricity. Before doing anything inside the machine, disconnect it from the electrical supply

When working with the machine, a risk of injury may appear. To protect from this the individual protection measures are recommended.

5. OPERATION OF THE SNOW GUN

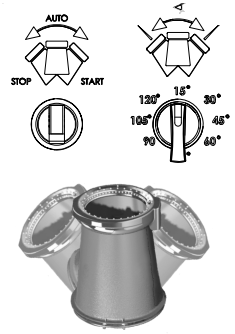
5.1. WORKING AREA

The snow gun can be rotated horizontally by 360 ° (* approximate value) while the lift of the tube is adjustable from about 0 ° to 45 ° (* approximate value). The machine should be controlled so that the snow produced does not get into the fan. Snow gun can only be inspected in the designated working area, the location of which is shown in the figure below.

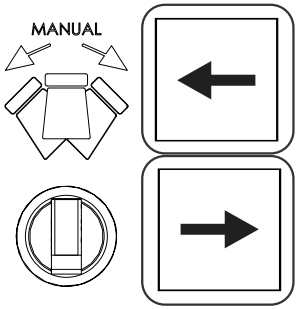


Permissible area occupied by the operator when working with a machine

5.2. TURNTABLE - OSCILLATION

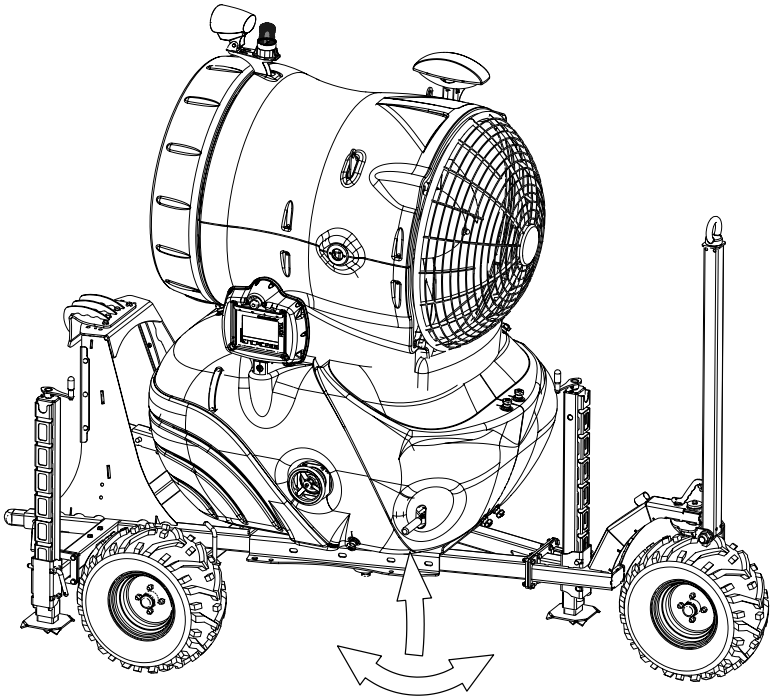


Snow gun is equipped with an auto oscillator to spread the snow evenly over the slope. It helps with the reduction of costs related to the maintenance of routes. The width of the snowing angle is set by the oscillation angle switch located on the electrical box door or by the settings on the control panel. Adjustable angles of oscillation: 15 °, 30 °, 45 °, 60 °, 75 °, 90 °, 105 °,120 °.



Turning the machine to the left or to the right can be additionally controlled manually using buttons or switches with arrow icons. When turning, pay attention to the cables and hoses.

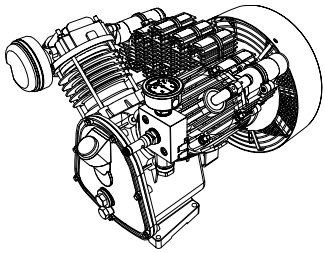
It is also possible to manually turn the machine with the power off. To do this, unlock the drive by pulling the lever as shown in the figure below.



The method of release the oscillation drive for the purpose of manual rotation of the machine

5. OPERATION OF THE SNOW GUN

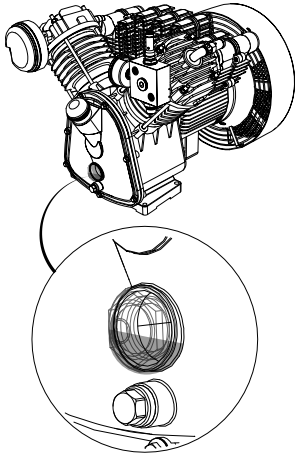
5.3. OIL-FREE COMPRESSOR



Before starting work, check the compressor for damages and verify the tightness of the air hoses and manometer. In order to extend the lifetime of the vibro-isolators, it is recommended to level the snow gun before starting. The compressor does not require condensate drainage after operation because it has an automatic condensate drain valve.

The oil-free compressor is almost maintenance-free. Maintenance activities are limited to replacing the filter and checking the condition of the vibro-isolators.

5.4. OIL COMPRESSOR



Before starting work, the compressor should be checked for visible signs of damage and verify the tightness of the air hoses and manometer. In order to extend the lifetime of the vibro-isolators, it is recommended to level the snow gun before starting. The compressor does not require condensate drainage after operation, it has an automatic condensate drain valve. The oil level should be checked before each start-up with the compressor switched off via a transparent inspection glass, which is located at the bottom of the compressor body. The oil level should be between the upper and lower edge of the red eye. If the oil level is below the minimum, it must be topped up. Exceeding the maximum level will cause the oil to be ejected through the nucleation nozzles and may damage the compressor. The compressor is filled with oil for low temperature operation. For this reason, too long operating time in the summer can damage the compressor. It is allowed to start the compressor for a short time at a temperature above 5 ° C, however, the maximum working time must not exceed 5 minutes. Replace the oil in the compressor according to the instructions in the maintenance table at the end of chapter 5. It is recommended to use Shell Corena S46 oil or another producer's oil with properties corresponding to the above mentioned one.

5. OPERATION OF THE SNOW GUN

Compressor - oil change

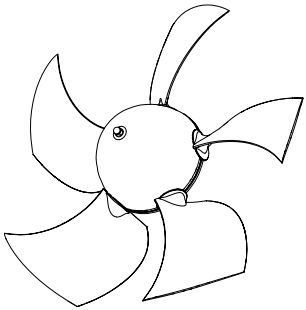
1) Turn on the compressor and heat the oil for 5 minutes
2) Tilt the device so that the oil can drain completely
3) Unscrew the oil drain screw in the compressor and drain all the oil into the vessel
4) Close the oil drain screw
5) Level the device
6) Pour oil recommended by the manufacturer of the snow gun, the oil level should cut in half the red frame of the inspection eye
7) Close the oil filling plug

The oil in the compressor should be changed according to the maintenance table.

WARNING!
NEVER START THE COMPRESSOR WITHOUT SUCTION FILTER!

WARNING!
DURING OPERATION, THE SURFACE OF THE COMPRESSOR HEATS UP, SO THE RISK OF BURNS APPEARS

5.5. FAN

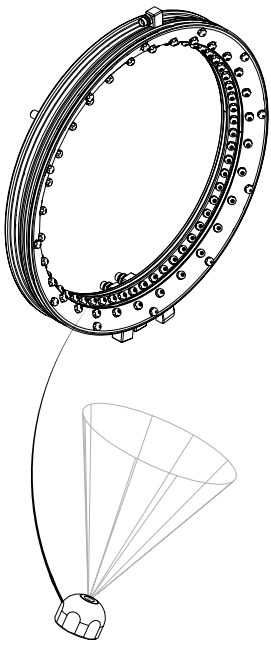


Before turning on the snow gun, make sure that the fan impeller and housing are not covered with ice. If they are icy, use a stream of warm air to defrost. If the vibration or fan noise changes during operation, stop the device and check the condition of the rotor. Working with an icy fan results in accelerated wear of the motor bearings, and in extreme cases leads to damage to the fan itself. The 900MN, 700A SE, 700H and 900A snow guns are equipped with the Soft Start system, which allows the rotor to run safely without overloading. If the fan is started with the frozen blades, the Soft Start system will not allow it to rotate.

The 600M and 700S cannons do not have a Soft Launch. The 600M gun has direct start. In the 700S cannon, the Soft Start function is performed by a frequency converter, which also protects the system against overload.

WARNING!
BEFORE OPENING THE FAN PROTECTION GRID, DISCONNECT THE POWER SUPPLY!

5.6. WATER RING

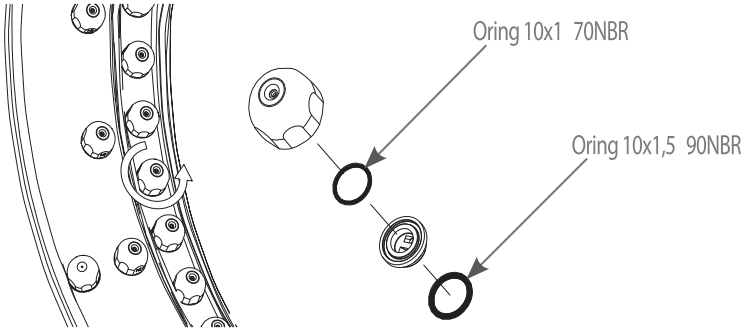


During the operation of the snowgun, it is necessary to check the correctness of spraying water through the nozzles (the figure opposite). If the flow is inhomogeneous, the nozzle needs to be cleaned. It is necessary to take care of the clean water filter and control its o-rings to prevent the entry of impurities and, as a result, clogging of the nozzles. After finishing work, it is absolutely necessary to lift the tube up several degrees from the level to ensure proper drainage of the ring.

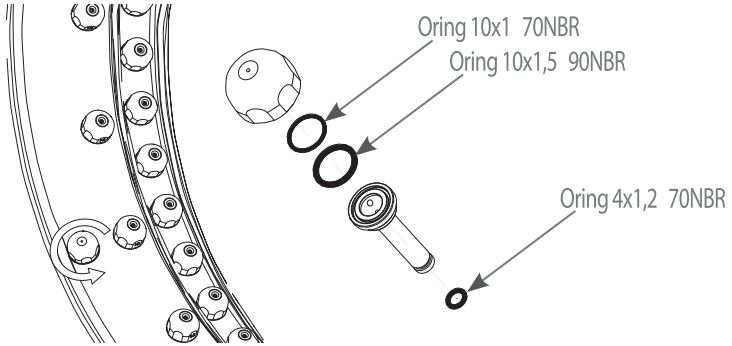
Water / nucleation nozzle cleaning:

1) To clean the nozzle, unscrew it from the ring (with the nut wrench added to the service kit or a flat wrench or socket wrench 19mm) and remove the inner element from the nozzle body.
2) Wash the elements under running water, then remove residual impurities with a compressed air jet, or a wooden stick (toothstick) in the case of harder dirt. The nozzle is a very precise element and its cleaning must not be done with sharp metal tools that may cause it to be decalibrated.
3) In the event of damage to the O-rings or leakage of the nozzle, replace the O-rings with new ones.
4) Mount the insert in the ring and fasten it with the nut.

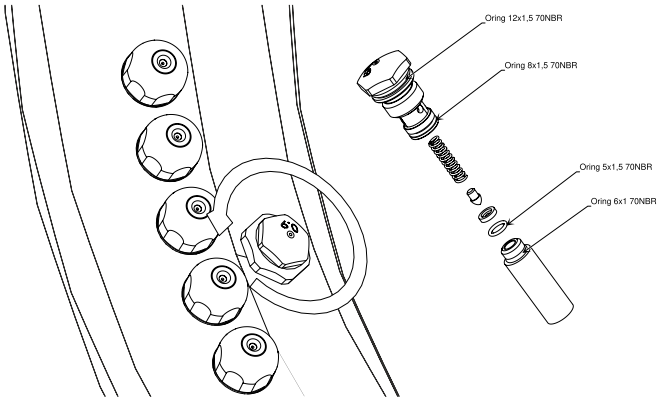
CAUTION!
IN CASE OF REPLACING OR DISASSEMBLING THE O-RINGS, THEY SHOULD ALWAYS BE SMEARED WITH VASELINE



Components of the water nozzle



*Components of the nucleation nozzle (*600M, 700A SE, 900MN, 900A)*



*Components of the nucleation nozzle (*700H, 700S)*

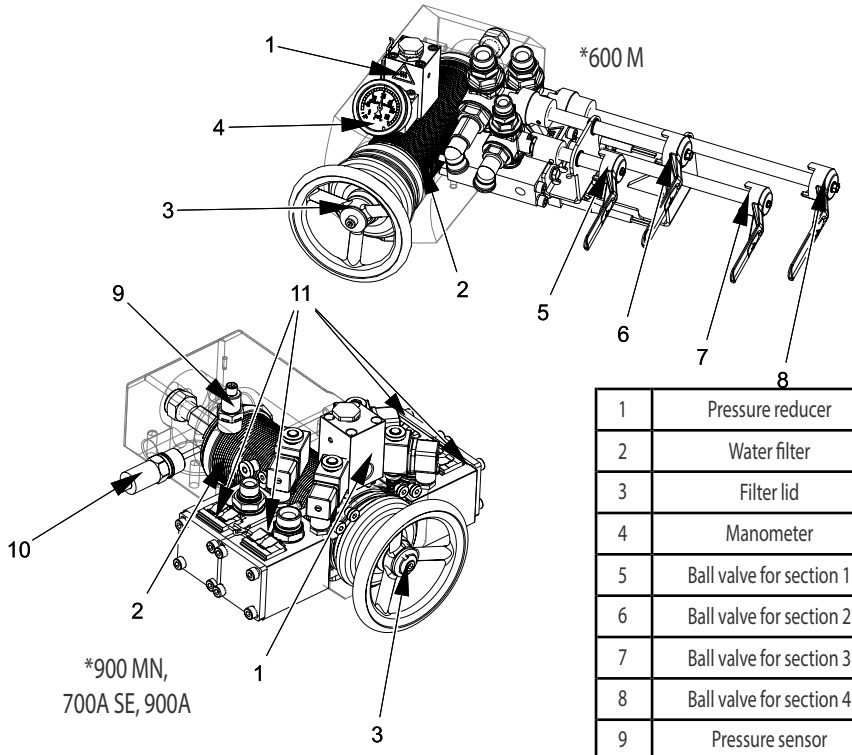
CAUTION!

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

WARNING!

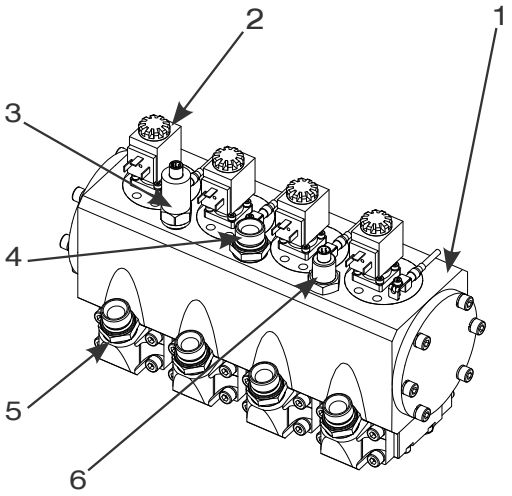
THE NOZZLE SHOULD BE TIGHTENED WITH A TORQUE WRENCH WITH A SET TORQUE OF 5 NM

5.7. WATER SYSTEM

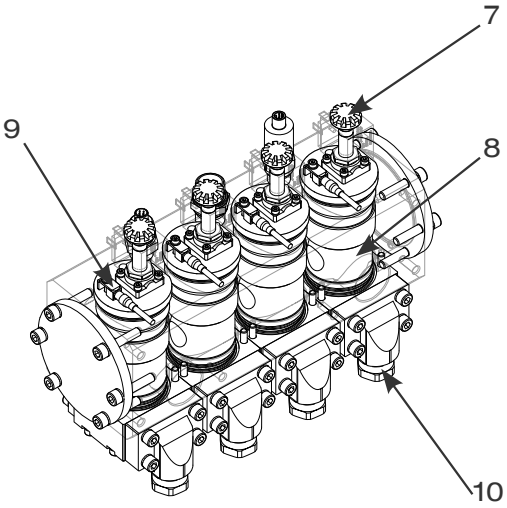


Description of the construction of water system

1	Pressure reducer
2	Water filter
3	Filter lid
4	Manometer
5	Ball valve for section 1
6	Ball valve for section 2
7	Ball valve for section 3
8	Ball valve for section 4
9	Pressure sensor
10	Temperature sensor
11	Hydraulic valve



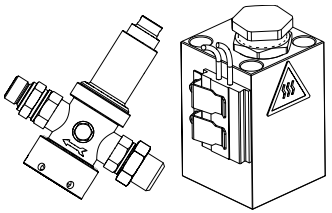
1	Water supply unit body
2	Coil of electromagnetic valve
3	Temperature sensor
4	Nucleation connector pipe
5	Water connector pipe
6	Pressure sensor



7	Electromagnetic valve
8	Water-controlled valve
9	Cartridge heater
10	Dewaterer

Hybrid water supply unit design description

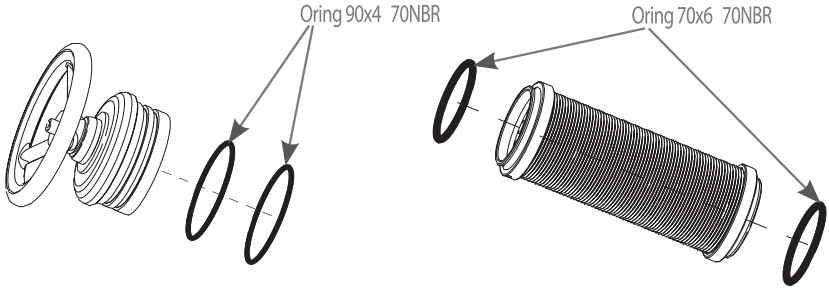
5.7.1. PRESSURE REDUCER



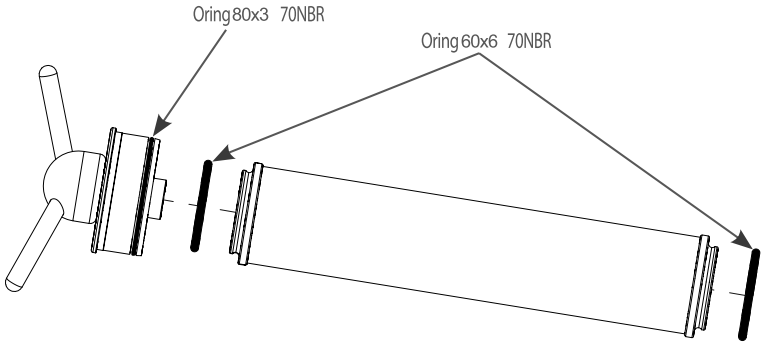
The water pressure reducer for nucleation is set at the factory. It does not require additional adjustment at the first start-up if the machine is operating at altitudes up to 2000 m. For higher heights, contact snow gun dealer or manufacturer. (*600M, 900MN, 700A SE, 900A)

5.7.2. WATER FILTER

A snow gun is equipped with a filter located in the water unit. Before each start-up, check the presence and cleanliness of the filter cartridge! To remove it, unscrew the lid. When cleaning the filter, check the condition of the 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 the surface and seals. Be careful not to get any dirt into the water flow system.



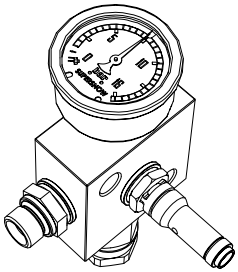
*O-rings that require checking when cleaning the water filter (*600M, 900MN, 700A SE, 900A)*



*O-rings that require checking when cleaning the water filter (*700H, 700S)*

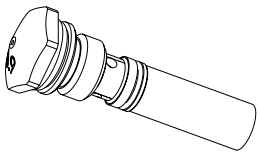
WARNING!
NEVER START A SNOW GUN WITHOUT A WATER FILTER!

5.8. AIR NUCLEATION



After about 500 hours of operation, in machines equipped with an air pressure reducer, its condition should be checked. The pressure manometer on the pressure reducer should be between 6 and 8 bar. The checking should be done with the compressor switched on. If the air pressure has changed and is out of the acceptable range, it should be adjusted to ensure that the nucleation nozzle spraying is homogeneous and the outgoing stream creates a fine mist. A sign of the improper operation of the nucleation nozzles shows large drops of water in the outlet stream. The correct operation of the nucleation nozzles guarantees high quality of snow. (*600M, 900MN, 700A SE, 900A)

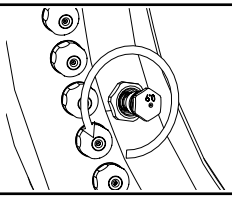
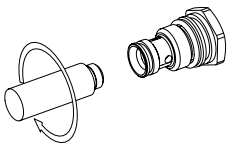
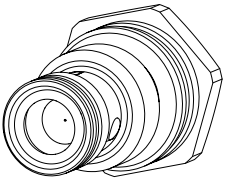
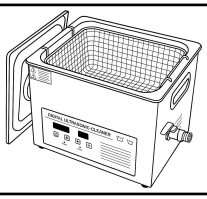
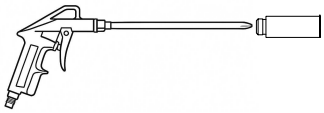
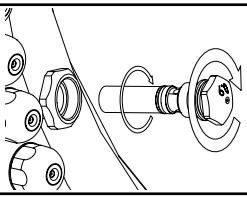
WARNING!
DURING OPERATION, THE SURFACE OF THE COMPRESSOR BODY HEATS UP, SO THE RISK OF BURNS MAY OCCUR.



The 700H and 700S cannons feature dual-media nucleation nozzles equipped with an individual water filtration system. These machines do not need a water or air pressure reducer. This allows the required air pressure in the system to be reduced to between 4 and 6 bar. A sign of dirty nozzle filter is a lack of water in the outlet stream and a drop in air pressure (less than 4 bar.)

5. OPERATION OF THE SNOW GUN

The nozzle filter is cleaned as follows:

	1. Unscrew the nozzle with the nucleation from the water ring - right thread.
	2. Unscrew the nozzle filter from the body of the nucleation nozzle - left thread.
	3. Check that the ceramic nozzle inside the body is not 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 compressed air. Place the tip of the air gun inside the filter.
	6. Mount the filter in the nozzle - left thread, then mount the nozzle in the ring - right thread.

5. OPERATION OF THE SNOW GUN

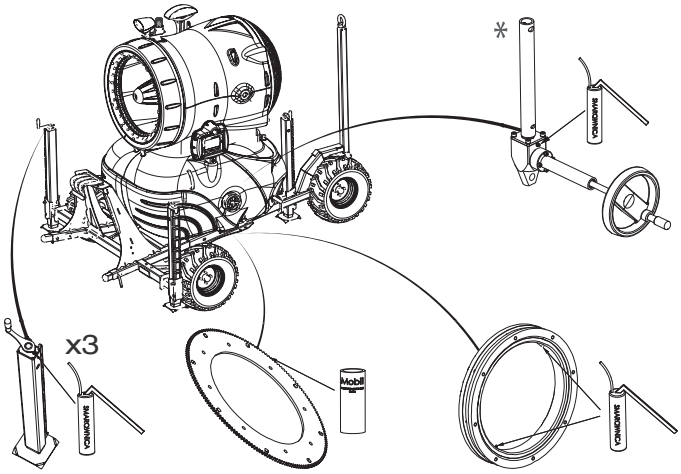
5.10. LUBRICATION

Lubrication is necessary to prevent excessive wear of elements. The machine must be cleaned of any dirt before lubricating. Lubrication must be carried out with the machine switched off and in accordance with the maintenance table.

1) Lubricate the toothed-wheel rim turntable with the grease for open gearing (eg NILS Atomic) with NLGI 2 level.
2) Lubricate the turntable bearing with grease for rolling element bearing (eg NILS Atomic RH) with the NLGI level 2. Use a manual or foot-operated grease gun equipped with a tip for plain grease nipple with a conical head.
3) The bearing of the leveling foot should be lubricated with grease intended for work at temperatures of -30 °C. Use for this purpose a manual or foot-operated lubricator equipped with a tip for grease nipples with a conical head.
4) The bearing of the lifting mechanism of the tube should be lubricated with a grease intended for operation at temperatures of -30 °C. For this purpose use a manual or foot-operated grease gun equipped with a tip for grease nipples with a conical head (* only in 600M, 900MN snow guns).

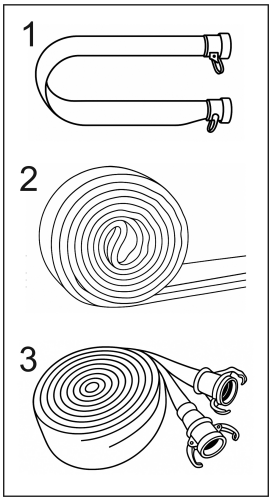
WARNING!

DO NOT REACH INTO THE MECHANISMS IF YOU ARE NOT SURE THAT THE POWER HAS BEEN DISCONNECTED AND THE DEVICE IS PROPERLY SECURED!



Points for periodic lubrication of the snow gun

5.8. WATER HOSES

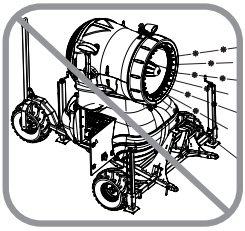


During use, webbing water hoses should be laid in accordance with the natural bending radii for a given hose. Do not allow the hose to bend or become entangled. The webbing water hose should be rolled up in the appropriate way during storage:

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.

Regularly check all hoses. In case of damage or cracks in the hoses, they should be replaced with new ones. Work with damaged hoses is dangerous for people and the machine itself.

5.11. CONTROL BOX



Do not open the control box while the device is operating. The closed box protects the equipment against water. The control box has also been equipped with a heater that protects its interior from adverse effects of condensation of water vapor. The heating starts by turning the main switch to the ON position.

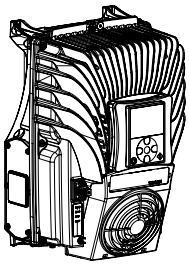
Regularly check all cables. The inspection should be carried out with the power off. If damage or cracks in the insulation are found, the cables must be replaced. Before each start-up, it is recommended to check the correct operation of the emergency button. All maintenance and repairs may be carried out by the manufacturer's service department or by persons with appropriate authorizations. Maintenance of the control box consists of:

1) Checking the tightness of all contactors inside the control box
2) Checking that all components are functioning correctly and are not damaged (if necessary, replace them with new ones)
3) Causing an emergency situation and checking the operation of the alarm signal
4) Checking the correct operation of the emergency button
5) Turning on the heating system and other electrical systems to test the correctness of their operation.

WARNING!

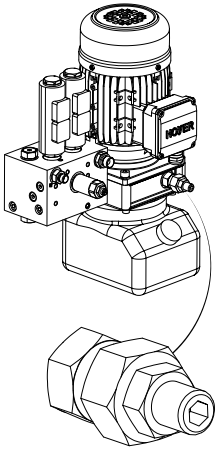
THE SNOW GUN IS POWERED BY ELECTRICITY. BEFORE DOING ANYTHING INSIDE THE DEVICE, DISCONNECT IT FROM THE ELECTRICAL SUPPLY

5.12. FREQUENCY INVERTER

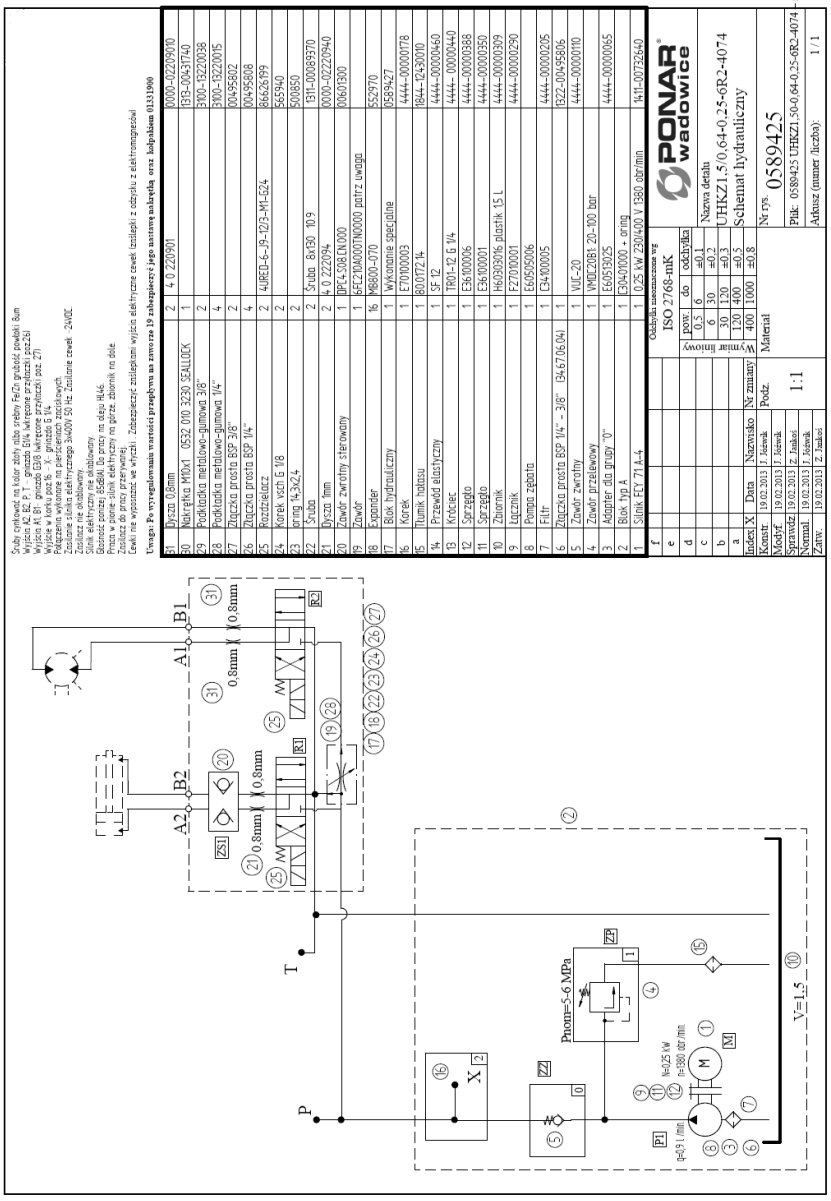


A frequency converter is installed in the 700S cannon. It enables a soft start and stable operation of the fan, in accordance with the setpoint regardless of the load. It also allows the rotor speed to be lowered, resulting in reduced noise levels. To achieve this effect, the SUPERSILENT mode on the cannon panel must be activated.

5.13. HYDRAULIC SYSTEM



In snow guns with hydraulic systems (900MN, 700A SE, 900A), the oil level in the system should be checked regularly as well as the condition of rubber hoses transporting the oil. Any irregularities found should be removed on a regular basis to ensure uninterrupted operation of the machine. The hydraulic system is filled with biodegradable oil PANOLIN HLP SYNTH ISO 32, in an amount of 2 liters. In the event of any leakage, the oil is completely decomposed under the influence of sunlight and water. The pressure in the system is from 30 to 60 bar. It is regulated by a valve located on the distribution board of the hydraulic unit.

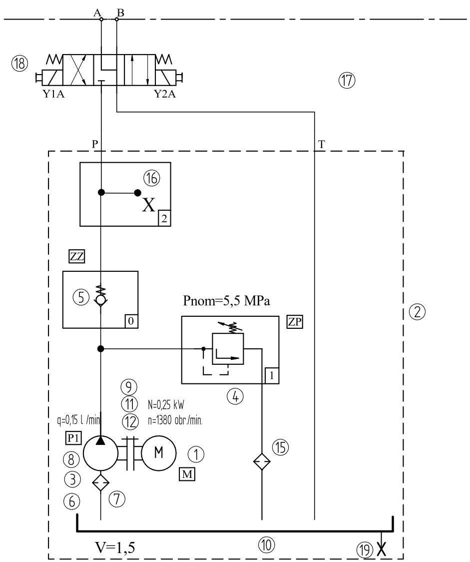


Poz.	Nazwa	Ilość	Numer katalogowy
31	Dysza 0,8mm	2	4 0 220901
30	Nakrętka M16x1 0532 010 3230 SEALLOCK	1	
29	Podkładka metalowo-gumowa 3/8"	2	
28	Podkładka metalowo-gumowa 1/4"	4	
27	Złączka prosta BSP 3/8"	2	
26	Złączka prosta BSP 1/4"	4	
25	Rozdzielacz	2	4JRED-6-JB-12/2-M1-G24
24	Korek koch G 1/8	2	
23	oring 15,3x2,4	2	
22	Śruba	2	Śruba 6x130 10.9
21	Dysza 1mm	2	4 0 222094
20	Zawór zwrotny sterowany	1	DPC4-508.CN.000
19	Zawór	1	6FEZ10A000TN0000 patrz uwaga
18	Expander	¾	M6800-070
17	Blok hydrauliczny	1	wykonanie specjalne
16	Korek	1	E70100003
15	Tłumik hałasu	1	80107214
14	Przewód elastyczny	1	SF F2
13	Kröciec	1	TR01-12 G 1/4
12	Sprzęgło	1	E36100006
11	Sprzęgło	1	E36100001
10	Zbiornik	1	H60303016 plastik 15 L
9	Łącznik	1	F27010001
8	Pompa zębata	1	E60505006
7	Filtr	1	C34100005
6	Złączka prosta BSP 1/4" – 3/8" 0346706.041	1	
5	Zawór zwrotny	1	VUC-20
4	Zawór przelewowy	1	VMDL20B1 20-100 bar
3	Adapter dla grupy "0"	1	E60519025
2	Blok typ A	1	C30401000 - oring
1	Silnik FCV 71 A-4	1	0,25 kW 230/400 V 1380 obr/min

Index:	X	Data	Nazwisko	Nr zmiany	Podp.
Konstr.		19.02.2013	J. Ściężek		
Modyf.		19.02.2013	J. Ściężek		
Sprawdz.		19.02.2013	Z. Jaskot		
Normal.		19.02.2013	J. Ściężek		
Zatw.		19.02.2013	Z. Jaskot		

Wymiar liniowy	dop.	do	odchyłka
	0,5	6	±0,1
	6	30	±0,2
	30	120	±0,3
	120	400	±0,5
	400	1000	±0,8

Diagram of the hydraulic system of the snowgun 700A SE i 900A



Śruby cynkować na kolor złoty albo srebny Fe/Zn grubość powłoki 8um

Wyjście w korku poz.16 – X– gniazdo G 1/4
Połączenia wykonane na pierścieniach zaciskowych.
Zasilanie silnika elektrycznego 3x400V 50 Hz. Zasilanie cewek –24VDC.
Zasilacz nie okablowany.
Silnik elektryczny nie okablowany.
Głośność poniżej 85dB(A). Do pracy na oleju HL46.
Praca w pionie–silnik elektryczny na górze, zbiornik na dole.
Zasilacz do pracy przerywanej.
Cewki nie wyposażać we wtyczki . Zabezpieczyć zaślepkami wyjścia elektryczne cewek (zaślepki z odzysku z elektromagnesów)
Wkręt dociskowy M6x8 do montażu sprzęgła wkręcać na kleju roztącznym.

30	O-ring	2	Φ12x2	
29	Korek	1	VSCH-R 1/8"/WD	
28	Podkładka metalowo – gumowa 1/4"	2		3100-13220015
27	Podkładka metalowo – gumowa 3/8"	2		
26	Złączka prosta BSP 1/4"	2		00495808
25	Złączka prosta BSP 3/8"	2		
24				
23				
22				
21				
20				
19	Korek spust.	1	E60513005	
18	Rozdzielacz	1	4WE6-J-32/G24NZ	B08 w kan. A i B
17	Kość	1	HM0108	
16	Korek	1	E70100003	4444-00000178
15	Tłumik hałasu	1	SFEP01D	
14	Przewód elastyczny	1	SF 12	4444-00000460
13	Króciec	1	TR01-12 G 1/4	4444- 00000440
12	Część II sprzęgła	1	0590570	
11	Część I sprzęgła	1	0590569	
10	Zbiornik	1	0591693 – (wg H60303016)	
9	Łącznik	1	F27010001	4444-00000290
8	Pompa zębata	1	E60505001	
7	Filtr	1	C34100005	4444-00000205
6	Złączka prosta BSP 1/4" – 3/8" (34.67.06.04)	1		1322-00495806
5	Zawór zwrotny	1	VUC-20	4444-00000110
4	Zawór przelewowy	1	VMDC20B1: 20-100 bar	
3	Adapter dla grupy "0"	1	E60513025	4444-00000065
2	Blok typ A	1	C30401000 + oring	
1	Silnik FCY 71 A-4 (z daszkiem)	1	0,25 kW 230/400 V 1380 obr/min	1411-00732640

Index	X	Data	Nazwisko	Nr zmiany
f				
e				
d				
c				
b				
a				
Konstr.		19.02.2013	J. Jóźwik	
Modyf.		19.02.2013	J. Jóźwik	
Sprawdz.		19.02.2013	Z. Jankoś	
Normal.		19.02.2013	J. Jóźwik	
Zatw.		19.02.2013	Z. Jankoś	

Podz. 1:1

Odchyłki nieoznaczone wg ISO 2768-mK

Wymiar liniowy pow.	do	odchyłka
0,5	6	±0,1
6	30	±0,2
30	120	±0,3
120	400	±0,5
400	1000	±0,8

Materiał

PONAR® wadowice

Nazwa detalu
UHKZ1,5/0,2-0,25-4620
Schemat hydrauliczny

Nr rys. 0591672

Plik: 0591672 UHKZ1,5-0,2-0,25-4620 - schemat hyd

Arkusz (numer /liczba): 1 / 1

Diagram of the hydraulic system of the snowgun 900MN

5. OPERATION OF THE SNOW GUN

5.14. FAILURE TABLE

FAILURE	THE COURSE OF PROCEEDINGS
Snow gun does not start	Check if the emergency button is not pressed, check that the main switch is not turned off, check the machine's connection to the elericity
There is an Ice on the water ring	Check that the water and nucleation nozzles are not clogged, check the correct operation of the ring heaters, check whether the snow gun is not snowing against the wind, check that the machine is not in the range of another snow gun
No water in the snow gun	Check water hose connection to the hydrant and the snow gun, check whether the hydrant is open (no hydrant drive), check that the hydrant drive control function is on and the hydrant drive connecting cable and the machine are properly connected (in the case of installed hydrant drive), check that the water hose is not blocked
The snow gun does not drain	Check the leveling of the snow gun and raise the tube, check the arrangement of water hoses, in the absence of an automatic dewaterer, dehydrate them by hand
The snow gun produces water, the snow is too wet / too dry	Check the configuration of valves (manual machines, semi-automatic), check the set quality of snow (automatic machines), check the purity of water and nucleation nozzles, check if the weather conditions conduce to the production of snow
The snow gun vibrates during operation	Check whether the fan is not frozen or damaged, check the condition of the compressor's vibration isolators
The fault indicator is ON	Snow gun is connected to a mobile application, a failure occurs, information about which is displayed on the control panel (automatic cmachines only)
Water flow too low	Check the condition of the filter

5. OPERATION OF THE SNOW GUN

5.15. MAINTENANCE TABLE

	Before the season	Every 24 hours / before each start	Every 100 hours	Every 500 hours	Every 1000 hours	Every 2,000 hours
Checking the oil level in the hydraulic system *	✓			✓		
Checking the purity of the water filter	✓	✓				
Checking the purity of nuclear nozzle filters	✓		✓			
Filter replacement in the compressor						✓
Checking the condition of the compressor suspension shock absorbers	✓			✓		
Lubrication of the gear ring and turntable bearings	✓			✓		
Control box overview	✓					✓
Checking the oil level in the compressor **	✓	✓				
Oil change in the compressor **	✓				✓	
Checking the condition of hoses in the snow gun	✓					

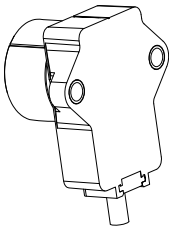
** action only for machines equipped with a hydraulic system*

***700H, 700S*

*** activities only for the oil compressor*

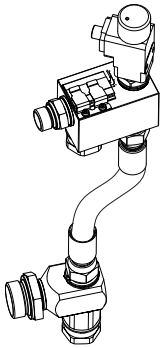
6. ADDITIONAL EQUIPMENT

6.1. POSITION SENSORS - ENCODERS



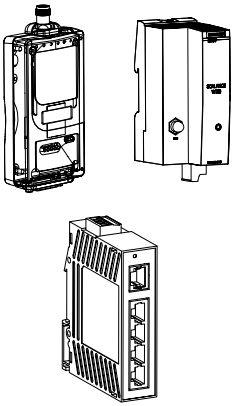
The standard mounted sensors of the snow gun rotation angle and the angle of the tube lift are inductive sensors. For automatic snow guns, it is possible to replace these sensors with encoders. The encoders give the angle of rotation in relation to a single set position and keep the setting even if the transmitter is rotated in the event of a power failure. It is recommended to mount them when the machine is integrated with the Snowmatic system.

6.2. CONNECTION OF THE CENTRAL COMPRESSOR



As standard, each snow gun has its own compressor. It is possible to replace the compressors found in several snow guns by one central located in the control room of the snowmaking system. This solution makes it necessary to mount the central compressor connection in the machines.

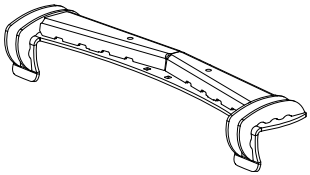
6.3. COMMUNICATION



If you want to connect the machine to the Snowmatic system, there should be a communication module in the snow gun installed. This module can be adapted for wired or wireless communication. As standard, a snow gun does not have a communication module.

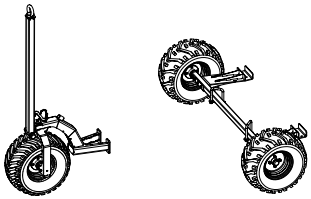
6. ADDITIONAL EQUIPMENT

6.4. DOUBLE SNOW GROOMER HANDLE



A single snow groomer handle is fitted as standard to the feet chassis and the wheel chassis. It is possible to install a double version. A double handle in combination with some snow groomer blades, stabilizes the snow gun better during transport.

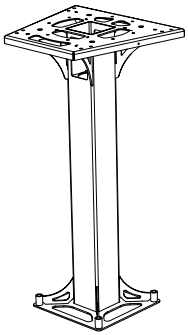
6.5. WHEEL CHASSIS



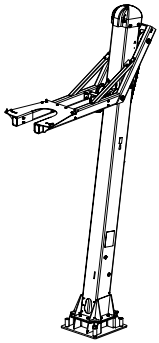
In the basic version, the snow gun has a feet chassis installed. The wheel chassis is constructed by fitting the mobile parts to the feet chassis. This increases the mobility of the snow gun.

6.6. ST170 POLE, T400 BOOM, T600 BOOM, H800 EXTENSION ARM

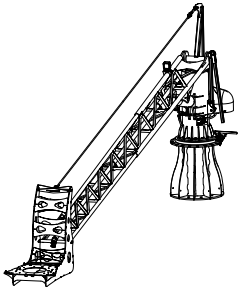
As a standard, the snow gun is equipped with a feet chassis. It is possible to increase its snowmaking efficiency through stationary installations, such as poles and booms. They increase the position of the snow gun relative to the slope. This allows you to increase the range of snow. The boom allows you to control the height of the snow gun



ST170 pole



T400/T600 boom



H800 extension arm

6.7. HYDRANT DRIVE

See the chapter 1.5.

6.8. SNOWMATIC

See the chapter 1.5.

7. CONTROL PANEL

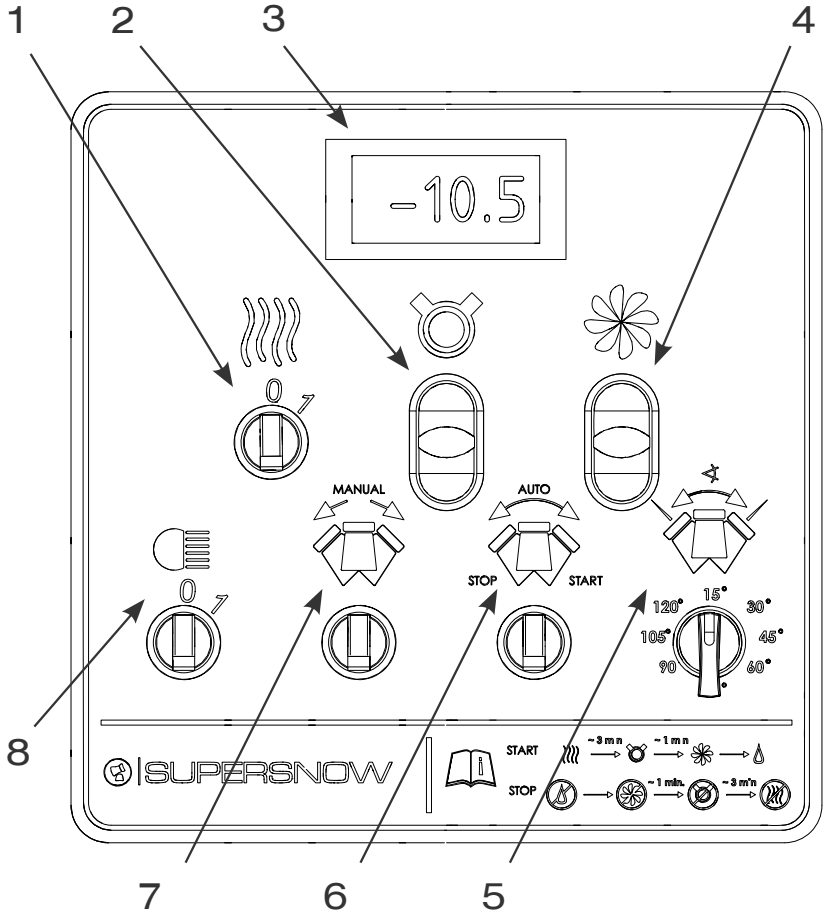
Each snow gun manufactured by the SUPERSNOW has a simple and clear interface, called the control panel. It occurs in two forms.

1. For the 600M snow guns, the control panel has the form of a switch and indicator board, located on the control box door.
2. For the snow guns 900MN, 700A SE, 700H, 700S and 900A, the control panel plays the role of the interface.

7. CONTROL PANEL

7.1. 600M CONTROL PANEL

7.1.1. 600 M CONTROL PANEL DISPLAY



Control panel of the 600M snow gun - version with oscillation + temperature display

7. CONTROL PANEL

7.1.2 600M CONTROL PANEL ICONS

Explanation of the 600M snow gun control panel icons

1	Ring heating	0	Heating off
		1 with backlight	Turn on the heating, the ring is warming up
		1 without backlight	Heating on, correct ring temperature
2	Compressor	0 (red)	Compressor stop
		I (green)	Compressor start
3	Temperature display	-	The current air temperature
4	Fan	0 (red)	Fan stop
		I (green)	Fan start
5	The angle of oscillation	15°, 30°, 45°, 60°,75°, 90°, 105°, 120°	The required oscillation angle
6	Oscillation	STOP	Stop of the oscillator
		START	Start of the oscillator (backlight signals operation)
7	Turntable	←	Snow gun rotation to the left
		→	Snow gun rotation to the right
8	Lamp	0	Lamp OFF
		1	Lamp ON

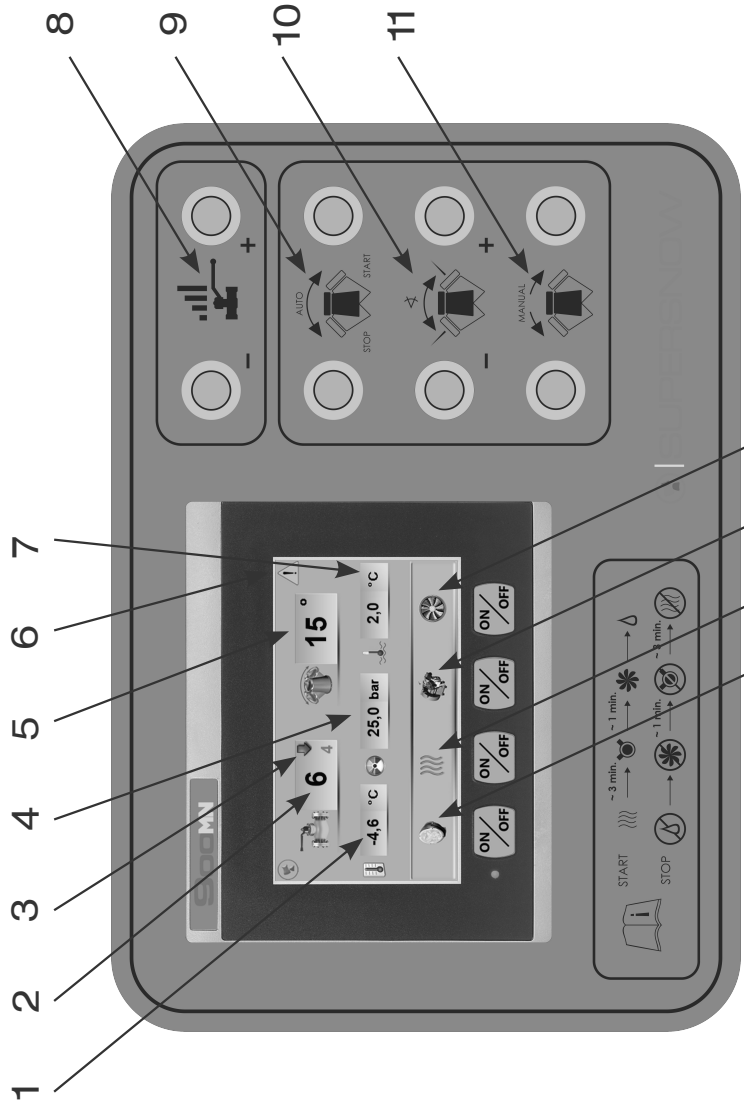
7. CONTROL PANEL

7.2. 900MN CONTROL PANEL

7.2.1. 900MN CONTROL PANEL DISPLAY

Description of the construction of the 900MN control panel

1	Case of the control panel
2	Emergency button
3	Operator Panel
4	Cover of the control panel
5	Lock on the cover of the control panel



Appearance of the 900MN snow gun operator panel

7. CONTROL PANEL

7.2.2. 900MN CONTROL PANEL ICONS

Explanation of the 900MN control panel icons

1	The window for displaying the current ambient temperature		
2	The window for displaying the current valve configuration		
3	The window displaying the suggested valve configuration, informs the user what valve configuration is best for optimal snow quality (4), taking into account external conditions		
4	Current water pressure display window, after clicking on hydraulic oil pressure		
5	The window displaying the current angle of oscillation		
6	The appearance of a flashing icon indicates a failure.		
7	The window for displaying the current water temperature		
8	Valve configuration	–	Required valve configuration (1 - minimum performance, 14 - maximum performance)
		+	
9	Oscillation	STOP	Stop the oscillator
		START	Start the oscillator (backlight signals operation)
10	The angle of oscillation	–	The requested oscillation angle 15°, 30°, 45°, 60°,75°, 90°, 105°, 120°
		+	
11	Turntable	←	Rotation of the snow gun to the left
		→	Rotation of the snow gun to the right

7. CONTROL PANEL

12	Fan	OFF (gray icon)	Fan stop
		ON (green icon)	Fan start

13	Compressor	OFF (gray icon)	Compressor stop
		ON (green icon)	Compressor start

14	Ring heating	OFF (gray icon)	Heating off
		ON (orange icon)	Heating is on, the ring is warming up
		ON (orange -gray icon)	Heating is on, correct ring temperature

15	Lamp	OFF (gray icon)	Turning off the lamp
		ON (green icon)	Turning on the lamp

The occurrence of a failure is indicated by a flashing icon in the upper right corner. This icon appears when:

1) A fan failure has occurred (the Q3 motor-protective circuit breaker is activated).
2) Compressor failure (the Q5 motor-protective circuit breaker is activated).
3) Hydraulic pump failure occurred (Q6 motor-protective circuit breaker is activated).
4) Heater failure occurred (F1 protection will work).
5) The emergency button will be pressed.
6) In case of wrong phase sequence.

7. CONTROL PANEL

7.4. 700A SE, 700H, 700S, 900A CONTROL PANEL

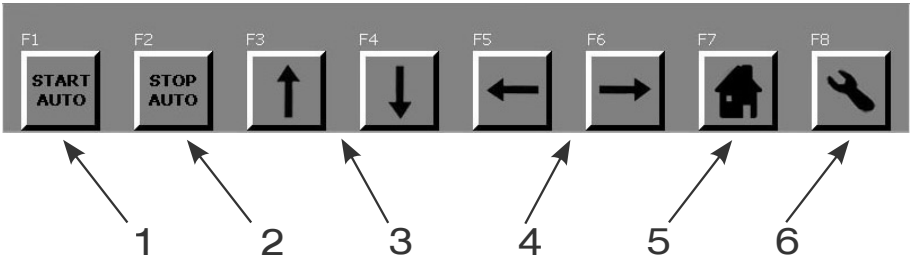
7.4.1. 700A SE CONTROL PANEL DISPLAY

Description of the construction of the 700A SE, 700H, 700S, 900A snow gun control panel

1	Case of the control panel
2	Emergency button
3	Operator Panel
4	Cover of the control panel
5	Lock on the cover of the control panel

7. CONTROL PANEL

7.4.2. 700A SE, 700H, 700S, 900A CONTROL PANEL ICONS



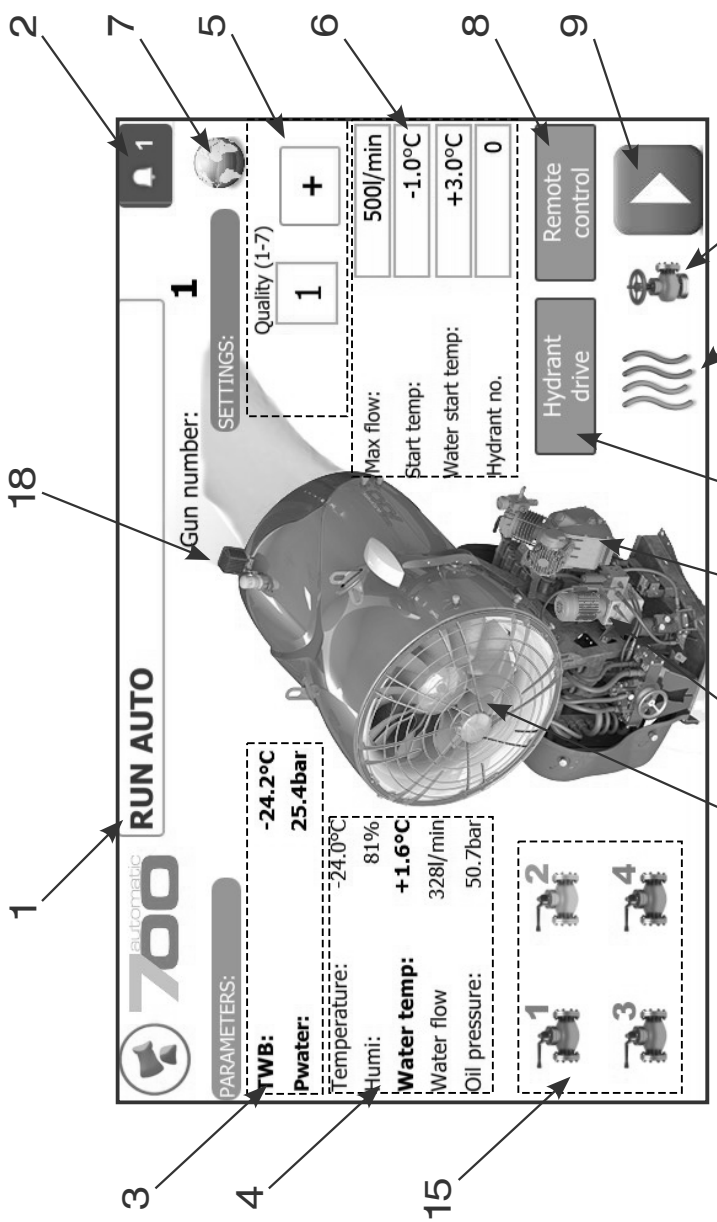
7.4.2. 700A SE, 700H, 700S, 900A control panel icons

1	Starting the automatic work mode
2	Automatic operation mode STOP, longer holding down the button (about 3 seconds) starts the manual mode with the set parameters
3	Pressing the appropriate button allows you to raise or lower the tube
4	Pressing the appropriate button allows you to turn the snow gun to the left or to the right
5	Pressing causes you to go to the start screen
6	Pressing the button displays the window for entering the password to enter the service mode (service mode password: 9876), the log-in state is maintained for 5 minutes, press again to go to the service screen

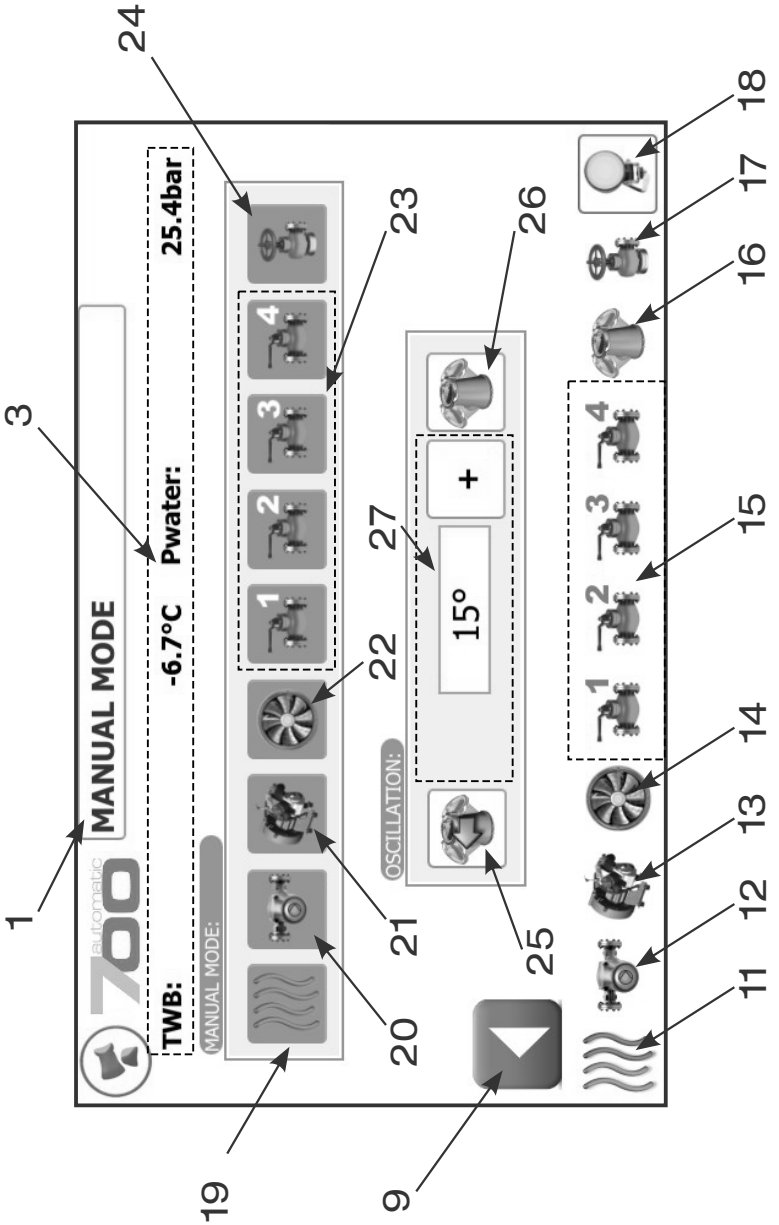
CAUTION!

THE HYDRAULIC PUMP MUST BE USED TO CONTROL THE TUBE LIFT, OSCILLATION AND VALVES

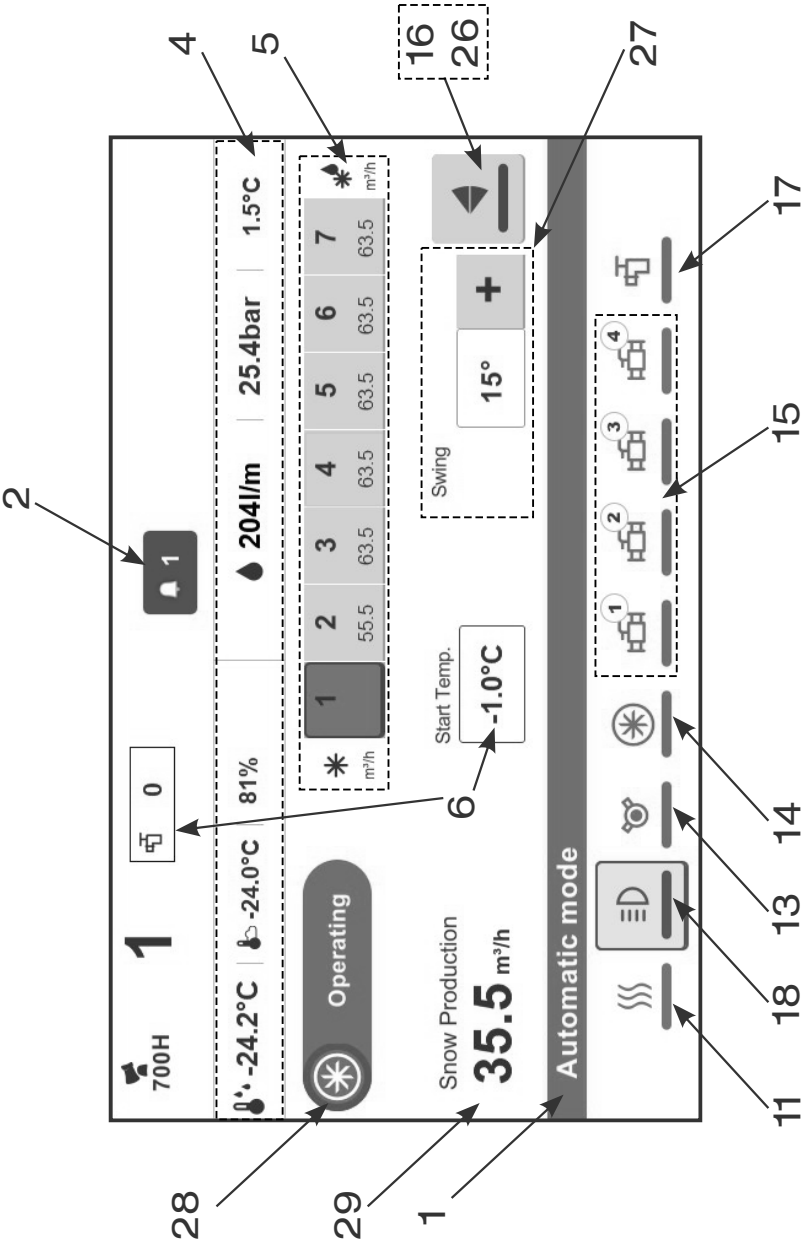
7.4.3. 700A SE, 700H, 700S, 900A AUTOMATIC MODE SCREEN DESCRIPTION



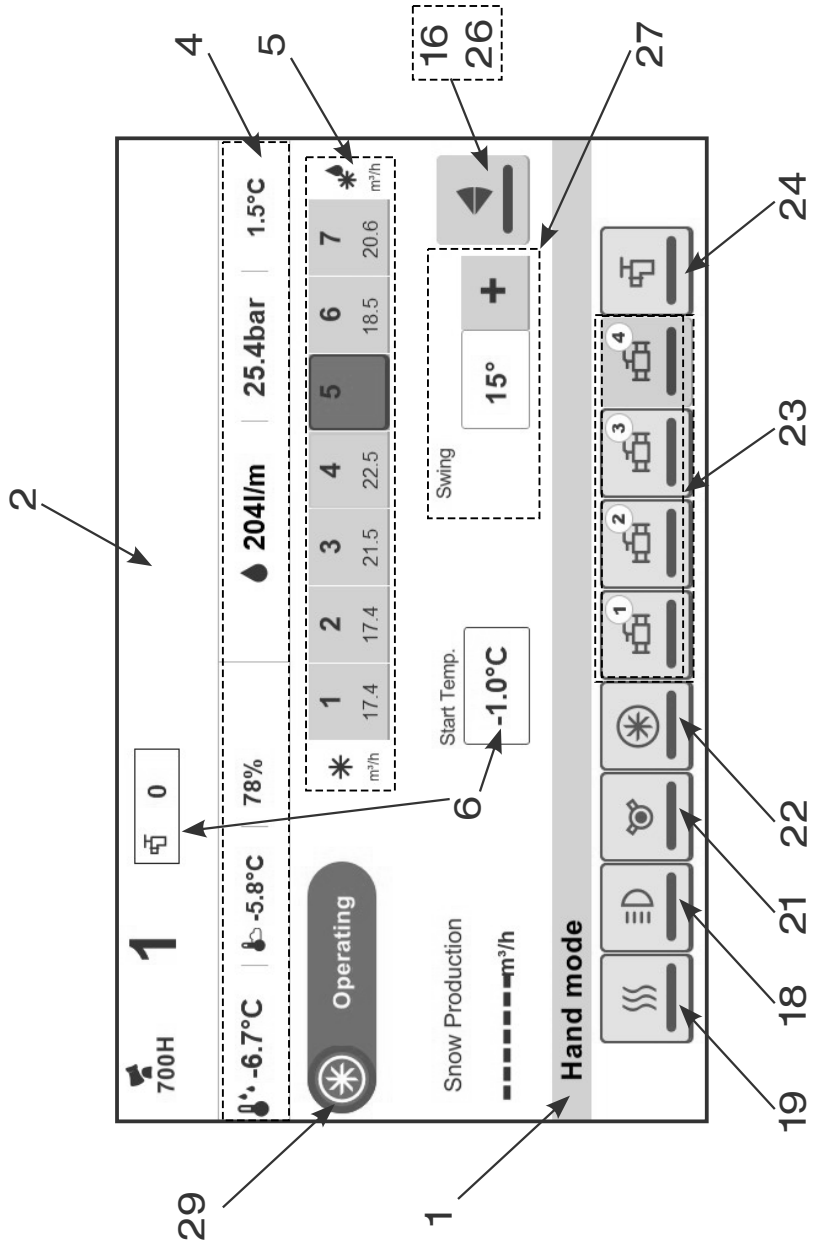
Appearance of the snow gun operator panel 700A SE - automatic mode screen (start screen) - 700A SE



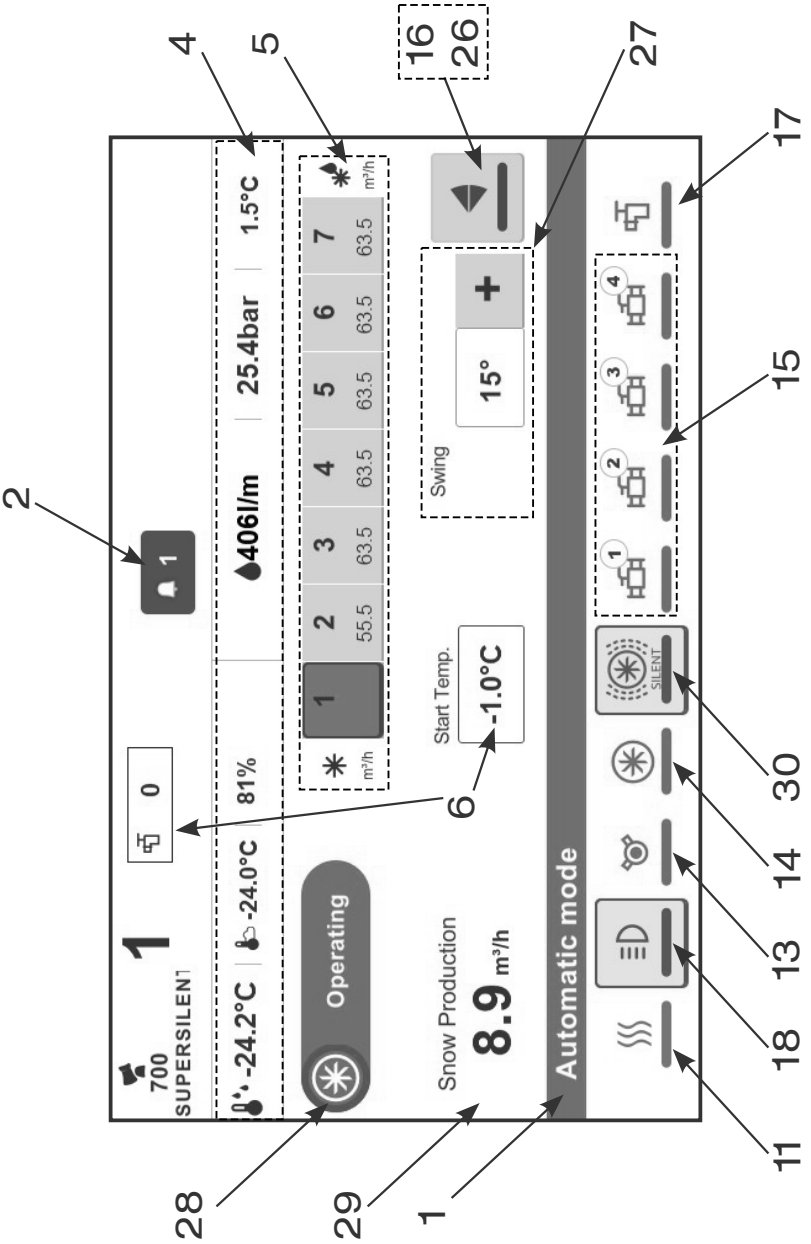
Appearance of the 700A SE snow gun operator panel - manual mode screen - 700A SE



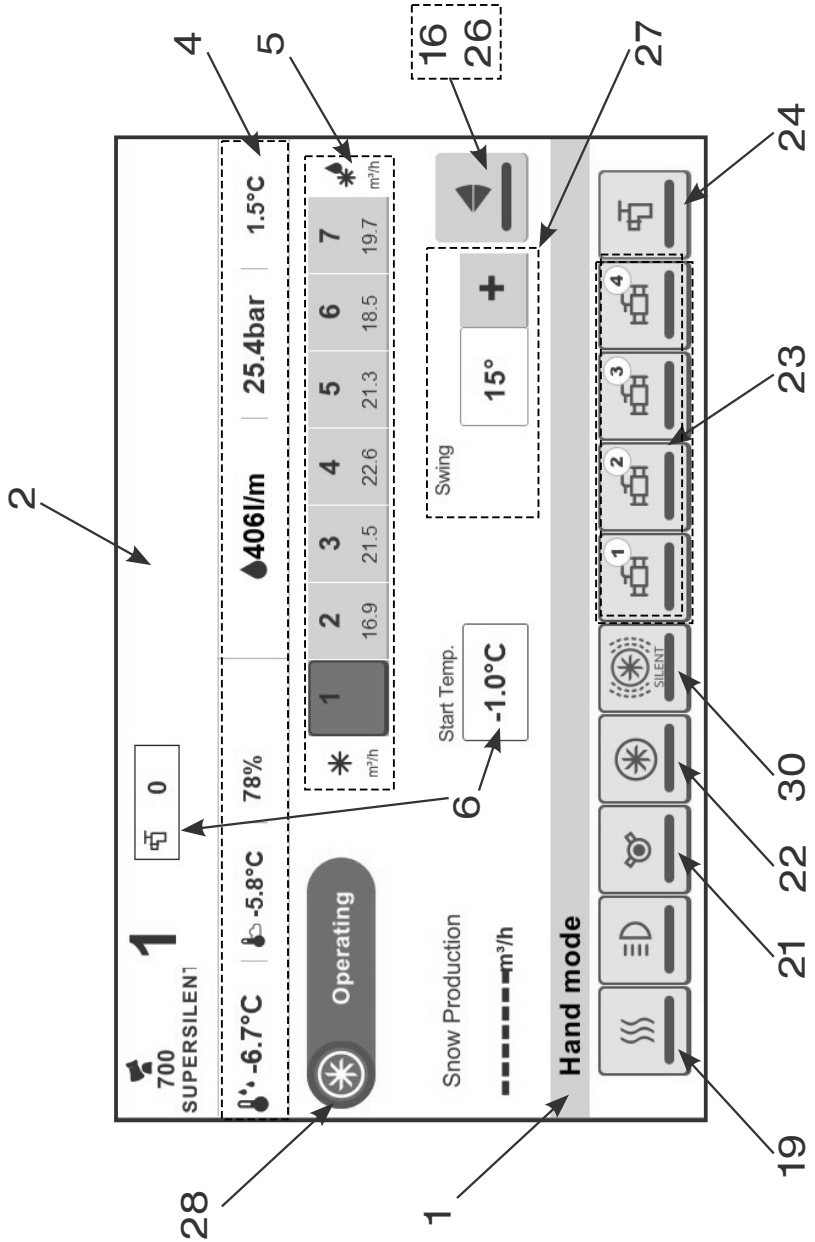
Appearance of the snow gun operator panel 700A SE - automatic mode screen (start screen) - 700H



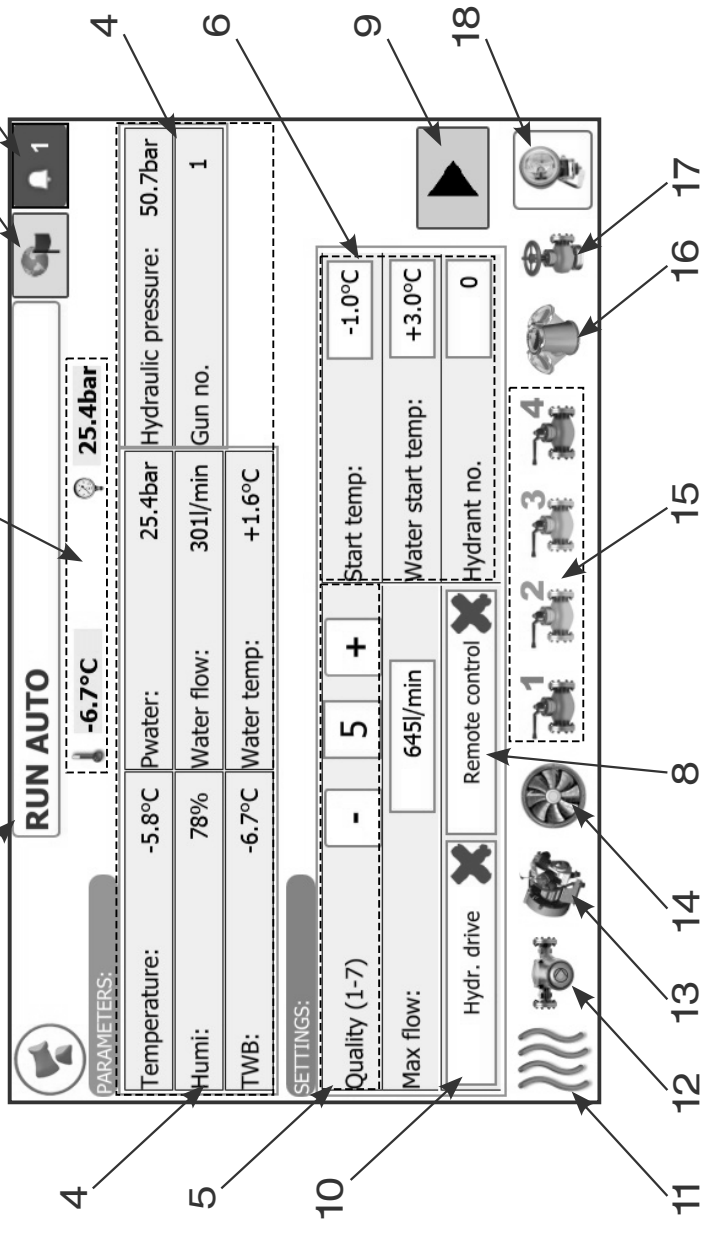
Appearance of the 700A SE snow gun operator panel - manual mode screen - 700H



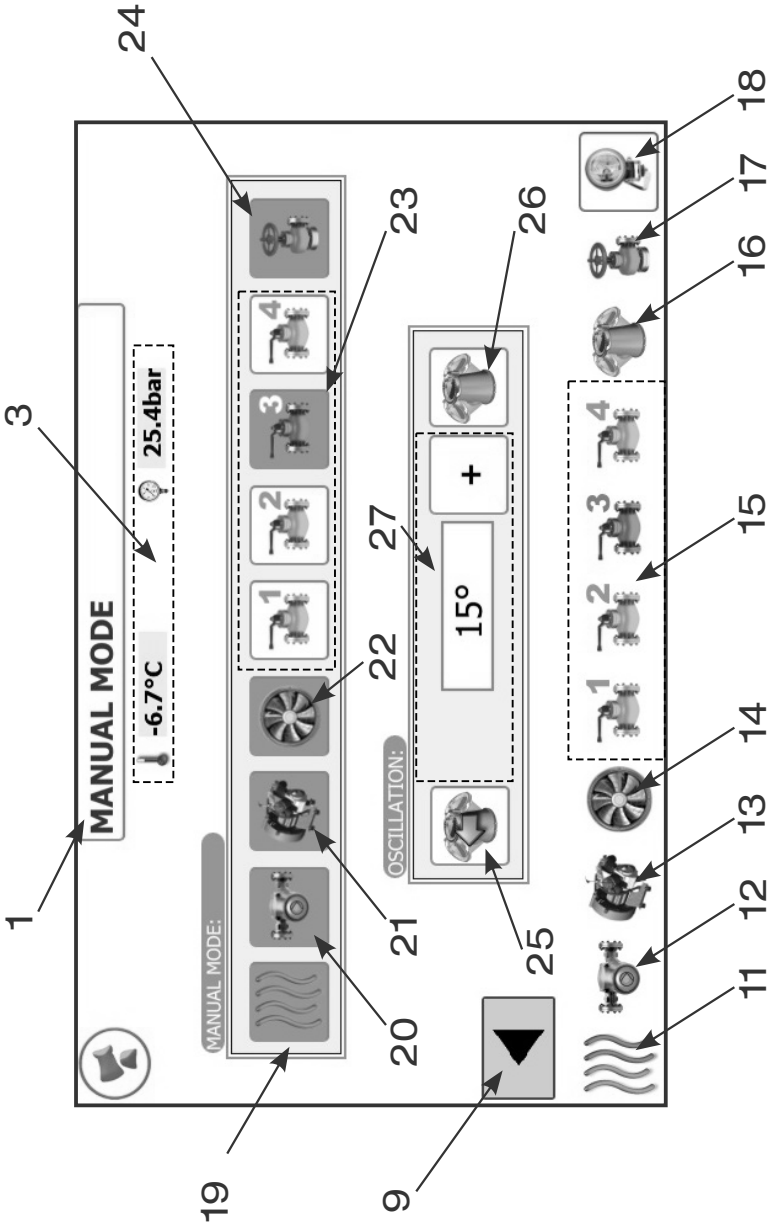
Appearance of the snow gun operator panel 700A SE - automatic mode screen (start screen) - 700S



Appearance of the 700A SE snow gun operator panel - manual mode screen - 700S



Appearance of the snow gun operator panel 700A SE - automatic mode screen (start screen) - 900A



Appearance of the 700A SE snow gun operator panel - manual mode screen - 900A

7. CONTROL PANEL

1	The window for displaying the current operating mode of the machine: automatic mode, manual mode, waiting for conditions, remote control, start, stop	
2	The appearance of the bell symbol indicates the occurrence of a malfunction, when pressed it displays a message about the problem	
3	Window for displaying the current air temperature (WB) and water pressure	
4	The window displaying the current weather conditions and parameters of the snow gun operation	
5	Window for selection the quality of snow (1 - dry snow, 7 - wet snow)	
6	Window for displaying machine operation parameter settings	
7	Language selection	
8	The window for selecting the snow gun control method	Local control - operating the snow gun using the control panel
		Remote control - operating the snow gun using the Snowmatic system (* only available with the SUPERSNOW snowmaking system)
9	Screen switch. Allows you to change the automatic settings screen to the manual settings screen	
10	Window for switching on / off the function of automatic hydrant drive control (* only available with SUPERSNOW hydrant drive)	Gray backlight - hydrant drive function turned off
		Green backlight - hydrant drive function turned on
11	An indicator informing about the heating status of the ring	Gray backlight - ring heating turned off, no heater operation
		Illumination of the entire icon in green or orange - ring heating on, ring warming up
		Half of the icon is illuminated in green or orange - ring heating on, correct ring temperature

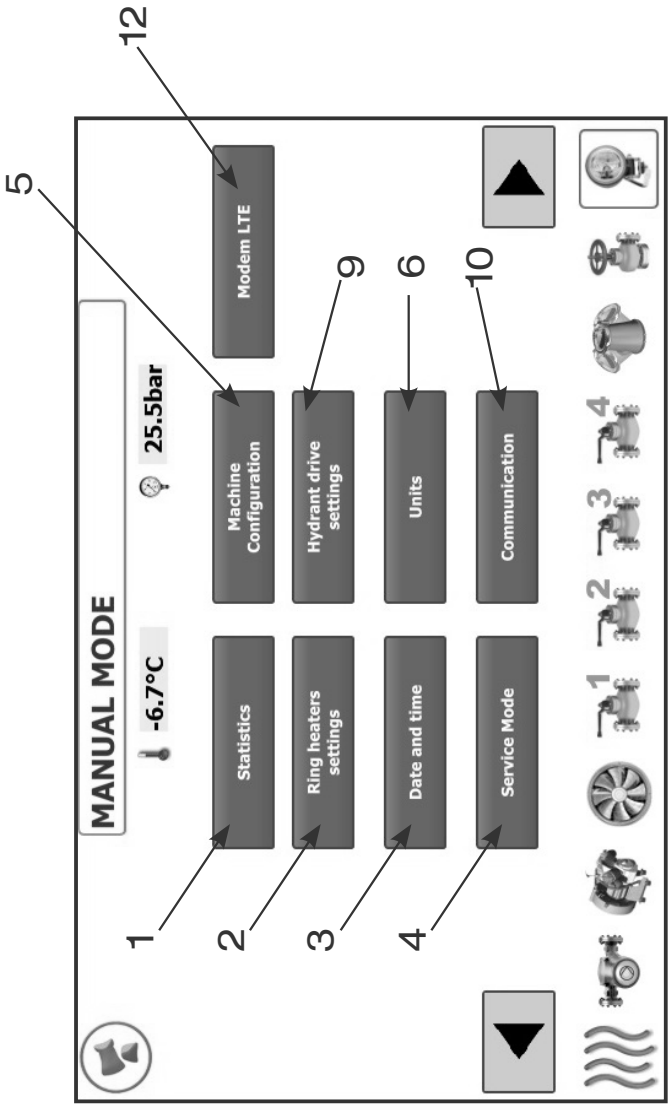
7. CONTROL PANEL

12	Indicator informing about the operating status of the hydraulic pump	Gray backlight - the hydraulic pump does not work
		Green backlight - the hydraulic pump works
13	An indicator informing about the compressor's operating status	Gray backlight- the compressor does not work
		Green backlight - the compressor works
14	An indicator informing about the operation status of the fan	Gray backlight - the fan does not work
		Green backlight - the fan works
15	Indicator informing about the status of the water ring section valve	Gray backlight - valve closed
		Green backlight - open valve
16	Indicator informing about the status of the oscillation	Gray backlight- oscillation off
		Green backlight - oscillation on
17	Indicator informing about the status of the hydrant valve	Gray backlight- hydrant valve closed
		Green backlight- hydrant valve open
18	Button for changing the lamp operating status / indicator informing about the lamp operating status	Gray backlight - lamp off
		Backlight - lamp on
		Backlight with the letter A - the lamp is switched on when the START AUTO is on
19	Pressing the button in manual mode turns on/off the heaters	
20	Pressing the button in manual mode turns the hydraulic pump on/off	
21	Pressing the button in manual mode turns the compressor on/off	
22	Pressing the button in manual mode turns the fan on/off	
23	Pressing the corresponding button in manual mode opens/closes the corresponding valve of the water ring section	

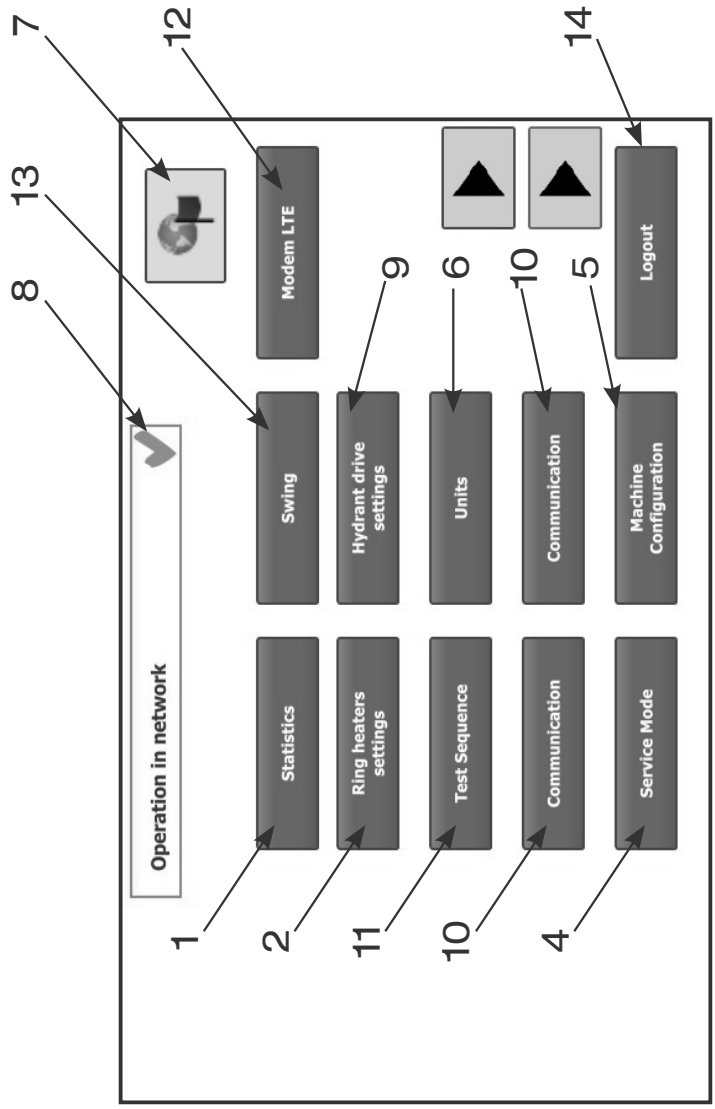
24	Pressing the button opens / closes the hydrant valve (* only in the option with hydrant drive)	
25	Pressing the button changes the direction of the oscillation start	
26	Pressing the button switches on / off the oscillation	
27	Window for selecting the angle of oscillation (available angles 15 °, 30 °, 45 °, 60 °, 75 °, 90 °, 105 °, 120 °)	
28	Indicator light informing about the status of the snow cannon's operation. It is in accordance with the operating status of the machine in the SNOWMATIC system. We distinguish the following states of snow cannon operation: Standby, Preparation, Ready, Stopping, Waiting for conditions, Falling asleep, Starting, Working and Failure	
29	Window to display the current snow production. This is an estimated value, taking into account the current weather conditions, machine operating parameters and its characteristics	
30	SUPERSILENT mode change button/SUPERSILENT status indicator light	Backlight in gray - SUPERSILENT mode off. The snow cannon runs at full fan speed and full capacity
		Green backlight - SUPERSILENT mode on. The snow cannon operates at a reduced fan speed and reduced efficiency, resulting in a reduced noise level

7.3.4. SERVICE MODE OF THE SNOW GUNS 700A SE, 700H, 700S, 900A

The open-end wrench symbol (7.3.2 - 6) allows the operator to access service mode. Pressing the button displays the window for entering the password to enter the service mode (service mode password: 9876), the log-in state is maintained for 5 minutes, press again to go to the service screen

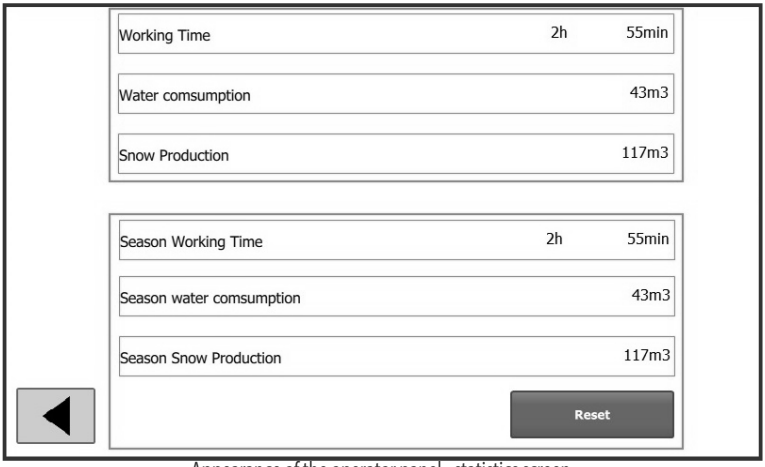


Operator panel display - the service settings screen - 700A SEi 900A



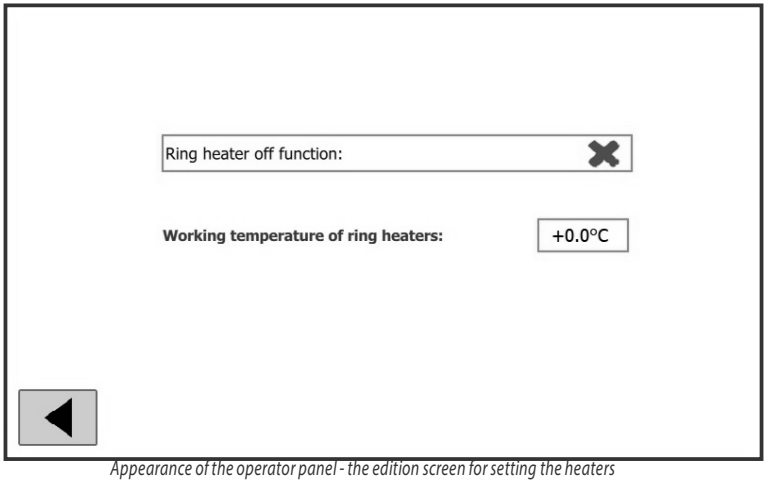
Operator panel display - the service settings screen - 700Hi 700s

1	The statistics screen allows the operator to get information about the long-term evaluation of the machine's performance. The available data is the number of operating hours, water consumption and snow production. These figures are calculated from the beginning of the operation of the machine and from the start of the snowmaking season. The user determines the beginning of the snowmaking season by resetting the counter with the appropriate button at the bottom of the screen



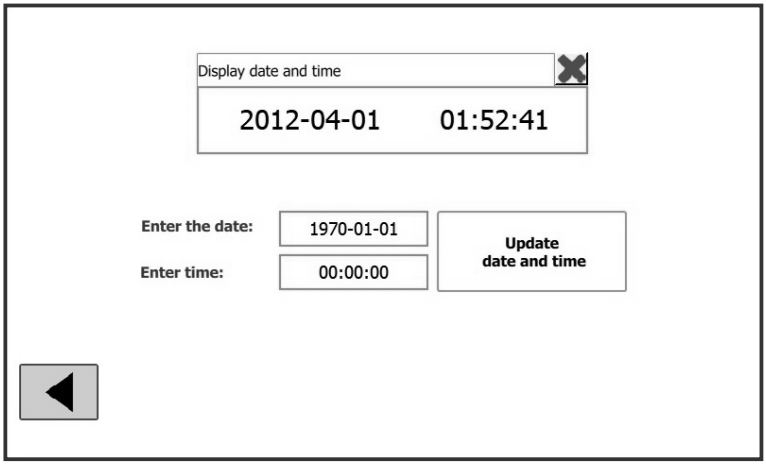
Appearance of the operator panel - statistics screen

2	The function of switching off ring heaters is used to turn off the heaters in the ring. The activation of the heaters depends on the outside temperature. The start of heater operation can be set in the temperature range from 0°C to -5°C. This option works independently with the thermostat installed on the ring.



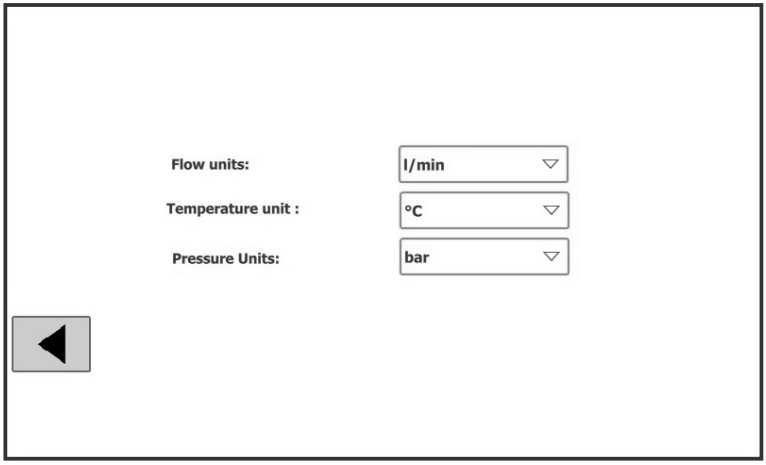
Appearance of the operator panel - the edition screen for setting the heaters

3	A button that allows you to enter the date and time edition screen



*Operator panel display - date and time editing screen(*700A SE, 900A)*

4	Not available to the operator
5	Not available to the operator
6	A button that allows you to enter the unit edition screen

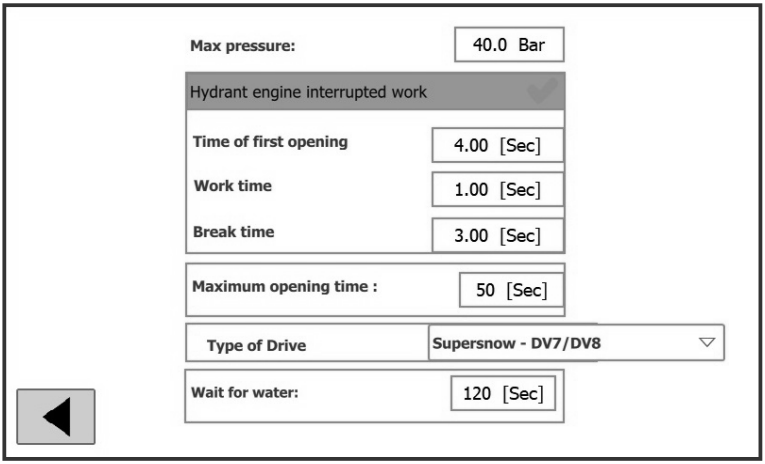


Operator panel display - unit edit screen

7	Language selection

8	The window for selecting the snow gun control method	Local control - operating the snow gun using the control panel
		Remote control - operating the snow gun using the Snowmatic system (* only available with the SUPERSNOW snowmaking system)

9	The option of editing the working time and downtime of the hydrant drive is used to level the impact of hydraulic hit. If there is high pressure in the snow gun supply system (more than 30 bar), unfavorable operating conditions can be limited by gradually opening the hydrant valve. Appropriate programming of the first opening time, working time and break time enables the snow gun to gradually obtain the set maximum water flow.

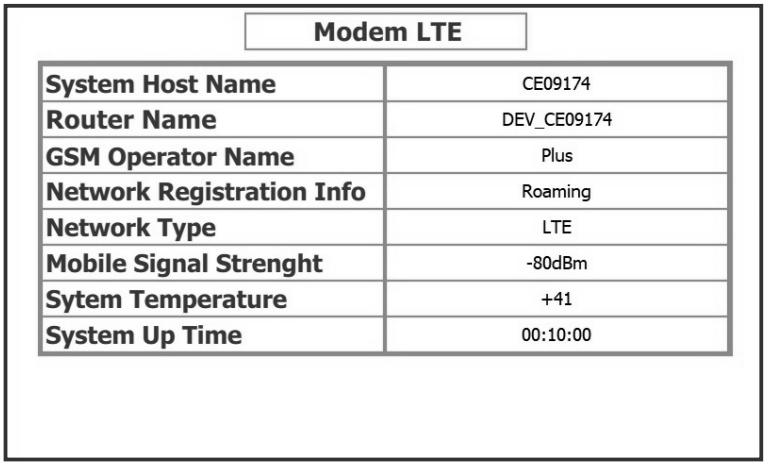


Operator panel display - the screen for editing the working time and downtime of the hydrant drive

10	Not available to the operator

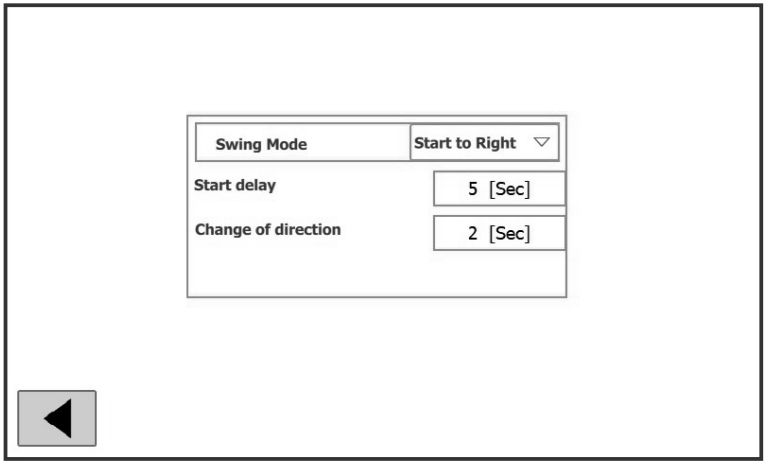
11	Not available to the operator

12	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 solve network problems both on the client and the communication installer side



Appearance of the operator panel - LTE modem parameters screen

13	The oscillation settings screen is used to personalize the oscillation settings according to the operator's needs. Allows you to select the oscillation start (from the right, from the left, from the center) and set the delay during the start and change of direction

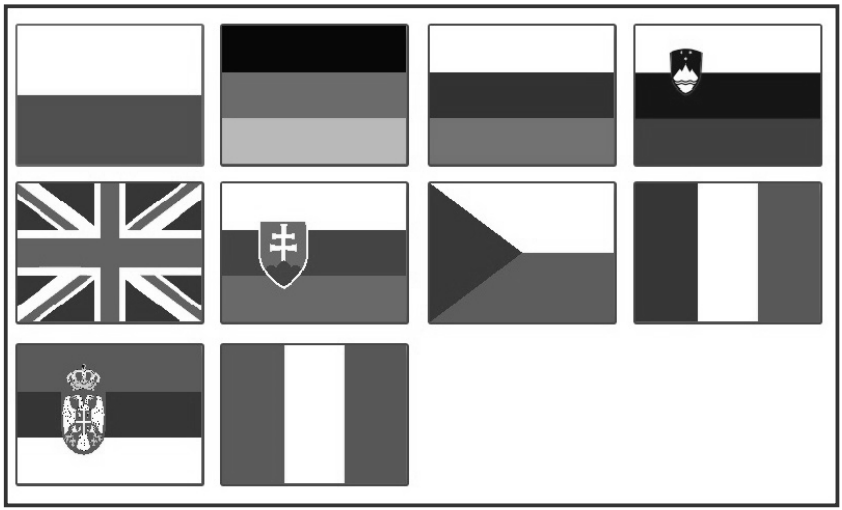


*Operator Panel Appearance - Oscillation Settings Edit Screen(*700H, 700S)*

14	Button to immediately log out of service mode

7.3.5 LANGUAGE SELECTION SCREEN 700A SE, 700H, 700S, 900A

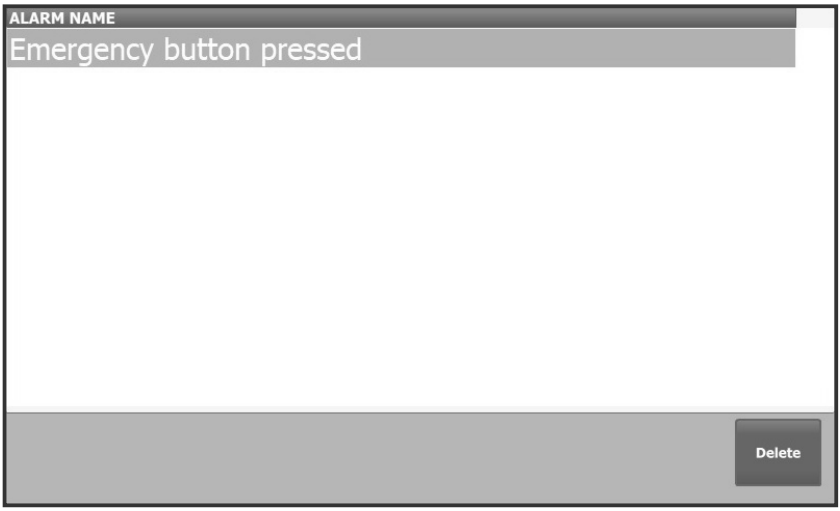
When the globe symbol (7.3.3 - 7 or 7.3.4-7) is pressed, the user is redirected to the language selection screen. This screen allows the operator to select the appropriate language by pressing the button of the flag.



Appearance of the Snow Cannon Operator Panel - Language Selection Screen

7.3.6 700A SE, 700H, 700S, 900A CRASH SCREEN

After pressing the warning triangle symbol (7.3.3 - 2), 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 snow cannon operator panel - failure screen

7. CONTROL PANEL

Prompt	Possible cause	Possible solution
Power supply error	Poor phase connection order	When the power supply is switched off, change between two phases, perform the operation in the presence of an electrician
	Phase loss in the power supply	Check the presence of three phases in the socket, carry out the operation in the presence of an electrician
Fan failure	Disconnecting the motor protection switch	Switch on the circuit breaker according to the wiring diagram
	Overheating of the Soft Start system	Check that the fan is not iced, if yes, defrost the fan and wait until the Soft-Start system cools down
Compressor failure	Switching off the motor switch in the box	Switch on the circuit breaker according to the wiring diagram
Hydraulic system failure	Switching off the motor switch in the box	Switch on the circuit breaker according to the wiring diagram
Heaters failure	Disconnection of the heater's overcurrent switch	Turn on the overcurrent breaker
		Check the heaters for breakdowns / shortings

PROMPT	POSSIBLE CAUSE	POSSIBLE SOLUTION
Valves failure	Blown fuse	Replace blown fuse
Swing failure	One of the sensors is damaged	Replacement of a defective item
	Damaged electrical wire	Check the condition of the cable with the machine switched off, repair it if necessary
	Blocked rotation of the machine by freezing or foreign element	Unlock the machine
Pressure too low / sensor failure	Water sensor fault	Replace faulty water sensor
	Low pressure of feed water	Check the operation of pumps in the pumping station or check that the hydrant has been unscrewed properly
Failure of the air temperature sensor	Damaged meteo station sonde	Replacement of a defective item
	Break in sensor supply circuit	Supplying power to the temperature sensor according to the wiring diagram

7. CONTROL PANEL

PROMPT	POSSIBLE CAUSE	POSSIBLE SOLUTION
Failure of the air humidity sensor	Damaged meteo station sonde	Replacement of a defective item
	Break in sensor supply circuit	Supplying power to the temperature sensor according to the wiring diagram
Water temperature sensor fault	Damaged water temperature sensor	Replacement of a defective item
	Damaged electrical wire	Check the condition of the cable with the machine switched off, repair it if necessary
Emergency button pressed	Emergency stop button pressed	Unlock the button
Warning! Low water pressure	Low water pressure	Check the operation of pumps in the pumping station or check that the hydrant has been unscrewed properly
No hydrant drive	No additional electrical hydrant drive	Connect the drive to start the machine in automatic mode

PROMPT	POSSIBLE CAUSE	POSSIBLE SOLUTION
Failure of positioning	Damaged one of the sensors (machine rotation, tube, H800 boom), damaged electric wire of one of the sensors, faulty fuse, blocked mechanism by freezing or foreign element	Replacement of a defective item, check the condition of the cable with the machine switched off, possible damage repair if necessary, unblock the machine
Failure of Compressed Air	No air pressure in the system, damaged sensor - air pressure switch	Check the operation of the compressor and the presence of pressure in the system, check the operation of the defective item, replace it if necessary, check the condition of the cable with the machine switched off, damage repair if necessary
Hydrant drive power failure	Disconnected or incorrectly connected hydrant drive with the option selected on the control panel, hydrant drive wire broken	Check the settings for the hydrant drive on the control panel and adapt them to the machine equipment - whether it is a drive or not, check the condition of the hydrant's power supply cable and the connection of the plugs on the wires
Attention: pressure too high	High pressure of feed water	Check pump operation in the pumping station or make sure that the hydrant is adjusted correctly

Deklaracja zgodności
Declaration of conformity
Konformitätserklärung
Déclaration de conformité
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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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