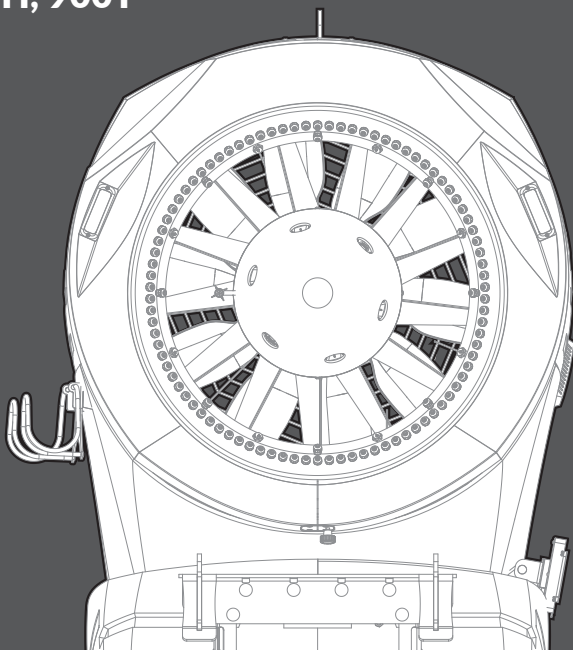




SNOW GUN OPERATING MANUAL

900H, 900T



SNOW CANNONS OPERATING MANUAL 900H 900T

VERSION - EN



2025-12-13



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1. PRELIMINARY INFORMATION

1.1. GENERAL INFORMATION



This instruction manual is an integral part of the machine, although it may be supplied separately. Before starting to use the device, carefully read the entire instruction manual. The recommendations contained therein will help you avoid the risk of personal injury and damage to the machine.



WARNING!

KNOWLEDGE AND COMPLETE UNDERSTANDING OF THIS MANUAL IS REQUIRED FOR THE OPERATION, TRANSPORT, AND MAINTENANCE OF THE SNOW CANNON.

The instruction manual should be located in close proximity to the device so that the machine operator can always consult it. The instruction manual must be protected against possible damage caused by water spillage, dirt, mechanical damage, and thermal damage.

SUPERSNOW offers an extensive and diverse range of products. The parts and accessories delivered to the customer may vary depending on the specific order and the country of installation. The illustrations in the instruction manual are for illustrative purposes only and may differ from the actual state.

This instruction manual is intended for SUPERSNOW snow cannons designated 900H and 900T. Technical specifications refer to standard products.

1. PRELIMINARY INFORMATION

1.2. SYMBOL EXPLANATIONS

The symbols used in this manual are designed to simplify the message and draw the reader's attention to important issues requiring particular attention.

	A symbol indicating the need to consult additional information from the instruction manual.
	A symbol indicating important information necessary for the correct operation of the machine.
	A symbol signaling the possibility of danger and indicating the requirement to exercise special caution when performing work marked with this sign.
	A symbol warning of the danger of electrical shock.
	A symbol warning of the risk of injury resulting from moving parts in the machine.

1. PRELIMINARY INFORMATION

	A symbol warning of the danger associated with high pressure in hydraulic and pneumatic systems.
	A symbol warning of the risk of burns resulting from the heating of certain machine components.
	A symbol warning of the danger of being sucked in, with loose clothing or long hair becoming entangled in the rotating parts of the machine.
	A symbol warning that the machine can start and operate automatically.
	The presence of these symbols requires the use of the indicated personal protective equipment.

1. PRELIMINARY INFORMATION

1.3. SAFETY RULES

The snow cannon is powered by electricity. Before performing any actions inside the device and before removing covers, disconnect it from the electrical supply.

In case of emergency, immediately switch off the power supply (emergency button, main power switch).



All service work must be performed with the machine switched off and secured.

Do not use damaged electrical cables! This poses a risk of electric shock.

The power cables of the snow cannon should be arranged such that they cannot be accidentally damaged mechanically.



During operation, it is not permitted to reach into the turntable mechanism.

After removing any covers, housings, or other machine parts, they must be reassembled.



Before each time you switch on the machine, make sure that the air inlet protection grille is properly installed, and it is forbidden to open it while power is applied.

When working with the cannon, loose clothing and jewelry must not be worn, and long hair must be hidden under a head covering. Failure to follow these recommendations may result in suction into the fan impeller.

1. PRELIMINARY INFORMATION

After connecting system components where high pressure of the working medium is present, make sure that the connection is properly secured and sealed.

Do not use damaged or kinked hoses, as this may cause them to rupture. This is very dangerous for skiers and for the cannon itself.



The maximum water pressure must not exceed 45 bar. There is a risk of equipment damage.

When closing or opening the manual main water valve, stand at a safe distance from the water hoses. A sudden increase in pressure in the hose can cause a whip-like effect.

Operating the snow cannon without filters is unacceptable and may damage the machine.



Snow cannon operators should wear personal protective equipment when working with the machine. It is recommended to wear protective footwear and gloves, winter clothing, safety glasses and earmuffs, a hat and a face mask.



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

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

1. PRELIMINARY INFORMATION



The snow cannon can work in automatic mode. It is possible to start it automatically. Be especially careful when being near it.

Before each time you start the machine, make sure:

- Are there no foreign objects (loose objects, ice) inside the tube
- Whether the air intake grille and other covers are installed correctly
- Are any transport blockages removed

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



Electrical, plumbing, pneumatic systems supplying snow cannons and other snowmaking system equipment should be designed and manufactured in accordance with the applicable regulations in a given country.

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

Before starting to work with the machine, it is necessary to familiarize yourself with the work environment, i.e. the presence of people, obstacles within the operation of the machine.

Each time the machine is started, its general technical condition should be checked and any defects should be removed on an ongoing basis to ensure safe operation.

1. PRELIMINARY INFORMATION

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

Mark and notify the start of any work related to switching on or off utilities (electricity, water, compressed air) during service work.

Unauthorized persons are prohibited from being near the machine.



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

It is forbidden to raise or lower the arm of the 900T cannon during the operation of the machine and when the machine is not in operation but there is water in the cannon installation.

When raising and lowering the 900T gun, it must not be within the range of movement of the arm, under the structure that falls.

The 900T cannon must not be climbed on or used to lift people or other things.

Do not remove the static protection pin when a dedicated hydraulic cylinder assembly is not installed.

1. PRELIMINARY INFORMATION

It is forbidden to stand in front of the machine, in front of the ring, while the machine is running.

Any maintenance work related to the hydraulic system used to lift the 900T gun should be performed after lowering it, in the lower (service) position.

Due to the possibility of water at the bottom of the well during its use, special attention should be paid to safety related to the operation of electrical equipment and the possibility of slipping on the ladder rungs.



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

When moving machinery and equipment, keep a safe distance and, in particular, do not place any parts of the body between the machine and the sling.

Any interference with the product and failure to follow the recommendations included in the user manual negatively affects the safety and reliability of the machine, resulting in the invalidation of the CE declaration and the loss of the warranty.

1. PRELIMINARY INFORMATION

1.4. RESIDUAL RISK DESCRIPTION



Snow cannon manufacturer SUPERSNOW has made every effort to eliminate the risk of accidents when working with machinery. Despite your efforts, there is a residual risk that can be caused by:

- Failure to comply with the recommendations in the manual
- Operation of the machine by unauthorized and intoxicated persons
- Modifications made by the user
- Using the machine contrary to its intended purpose
- Inserting limbs between moving parts
- Removing the safety covers



Residual risk can be minimized by following the recommendations:

- Carefully and clearly read this user manual
- Use the machine according to the recommendations in this manual
- Calm and Thoughtful Machine Operation
- Work only on the assembled machine
- Ongoing troubleshooting of any defects
- Service by qualified personnel

1. PRELIMINARY INFORMATION

1.5. GLOSSARY

SNOW CANNON (otherwise known as a snow machine, snowmaking machine) is an energy machine, used for the production of artificial snow, most often used on ski slopes. Making snow with a snowmaking machine requires the supply of water, electricity and sometimes compressed air. A standard snow blower consists of several basic elements such as: tube, fan, ring, frame, compressor, control box, water unit.

AUTOMATIC SNOW CANNON A type of cannon in which the operator sets the appropriate parameters of the machine, and the controller is responsible for everything else. For the desired snow quality and weather conditions, it starts and sets up the appropriate machine components. Working together with the main water valve drive, it reduces the need for additional activities related to the operation of the machine to a minimum. The automatic snow gun can be controlled from the machine (local control) and via the Snowmatic system or the mobile app (remote control). It can also be operated in manual mode.

TUBA A part of the machine resembling a cylinder in shape, acting as a fan channel. A ring with nozzles is mounted at its end.

VENTILATOR It is used to transport the water jet and compress the air inside the tube. The element that drives the fan is an electric motor.

RING Made of aluminum element with mounted water and nucleation nozzles. It is responsible for spraying water and forming crystallization germs.

1. PRELIMINARY INFORMATION

FRAME	A structural element that acts as the skeleton of the entire cannon.
COMPRESSOR	(otherwise called a compressor) is a mechanical device driven externally, used for pressurized air transfer through nucleation nozzles.
CONTROL BOX	An element of the electric snow cannon installation used to control, protect, measure and regulate the devices and circuits included in it.
CONTROL VALVE	A device connected to the water supply network of the slope, allowing water to be taken for the cannon. It has the functions of regulating the water pressure and completely shutting off its flow. It can be controlled manually or automatically using a drive.
WATER MAIN VALVE ACTUATOR	A device used to open, close and regulate the flow of water through the main water valve. Thanks to it, it is possible to start the machine automatically, regulate the water flow and drain the snow cannon after work. In the event of a power outage, it automatically shuts off the water supply, preventing the cannon and water hoses from icing up. (*Available as an option)
WATER TEAM	Pneumatically controlled valve block regulating the flow of water through the nozzles. Thanks to it, it is possible to control the quality and performance of the received snow.
WATER FILTER	A component used to retain a certain amount of contaminants in water. It is located in the water system between the control valve and the water unit.

1. PRELIMINARY INFORMATION

UPRIGHT MECHANISM

A design that allows you to change the height of the snow cannon elements in relation to the slope. In the upper position, this results in a greater snow production range, and in the lower position, easier access to service and maintenance. It consists of a pole base, arms, cradle and hydraulic system. (*900T)

FOOT LANDING GEAR

A snow cannon unit that stabilizes and levels the machine to the ground. To transport it, you should use a snow groomer or other self-propelled machine equipped with a suitable lift. (*900H)

WHEELED FOOTBRIDGE CHASSIS

It is a snow cannon assembly with the same features as the paw landing gear. Retrofitting the landing gear with a chassis allows the machine to be transported also by towing. (*900H)

SUPERSNOW MOBILE APP

Software designed for mobile devices that enable simplified control of snowmaking machines. The user can use the application to turn the device on and off in automatic mode, view the machine's operating parameters and weather conditions, and set the operating parameters of the snow cannon.

SNOWMATIC

Centralized snowmaking control system, prepared specifically according to the needs of each customer. The system is designed to operate automatic cannons and pumping stations. The software improves the operation of the entire automatic snowmaking system, allows you to view and control the devices, and makes it easier to implement your slope snowmaking strategy. The user can use the program to turn on, off and set the parameters of each cannon and control its operation during snowmaking. (*Available as an option with the automatic snow cannon).

1. PRELIMINARY INFORMATION

SNOW CANNON OPERATOR

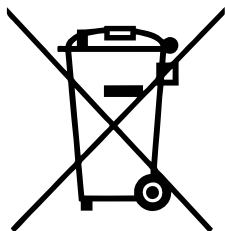
A person responsible for the correct connection, settings and operation of the snowmaking machine. He cares about his own safety and that of people in the machine's field of work. Maintains and eliminates defects that do not exceed its competence on an ad hoc basis. In the event of more serious defects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

SNOWMAKING SYSTEM MANAGER

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

1. PRELIMINARY INFORMATION

1.6. RECYCLING



If the user decides to scrap the machine, it is necessary to comply with the regulations in force in the respective country regarding the scrapping and recycling of end-of-life machines. Before dismantling the machine, the oil must be completely removed from the hydraulic system. In the case of replacing parts, worn or damaged elements should be handed over to the purchase of secondary raw materials. Used oil, as well as rubber or plastic elements, should be handed over to plants dealing with the disposal of this type of waste.



WARNING!

DURING DISASSEMBLY, APPROPRIATE TOOLS SHOULD BE USED, AS WELL AS PERSONAL PROTECTIVE EQUIPMENT. AVOID CONTACT OF OIL WITH SKIN. DO NOT ALLOW USED OIL TO SPILL OUT.

2. TECHNICAL DATA AND DESCRIPTION OF THE CONSTRUCTION

2.1. PURPOSE OF THE MACHINES

The purpose of the snow cannon is artificial snowmaking of ski slopes.



WARNING!

THE SNOW CANNON CAN ONLY BE USED FOR THE PRODUCTION OF ARTIFICIAL SNOW. ITS USE FOR ANY OTHER PURPOSE IS INCONSISTENT WITH ITS INTENDED PURPOSE.

2.2. WARNING LABELS

Warning labels play a very important role in a machine. They warn of the dangers associated with a given snow cannon component. It is imperative to follow the information contained therein.



WARNING!

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

2. TECHNICAL DATA AND DESCRIPTION OF THE CONSTRUCTION

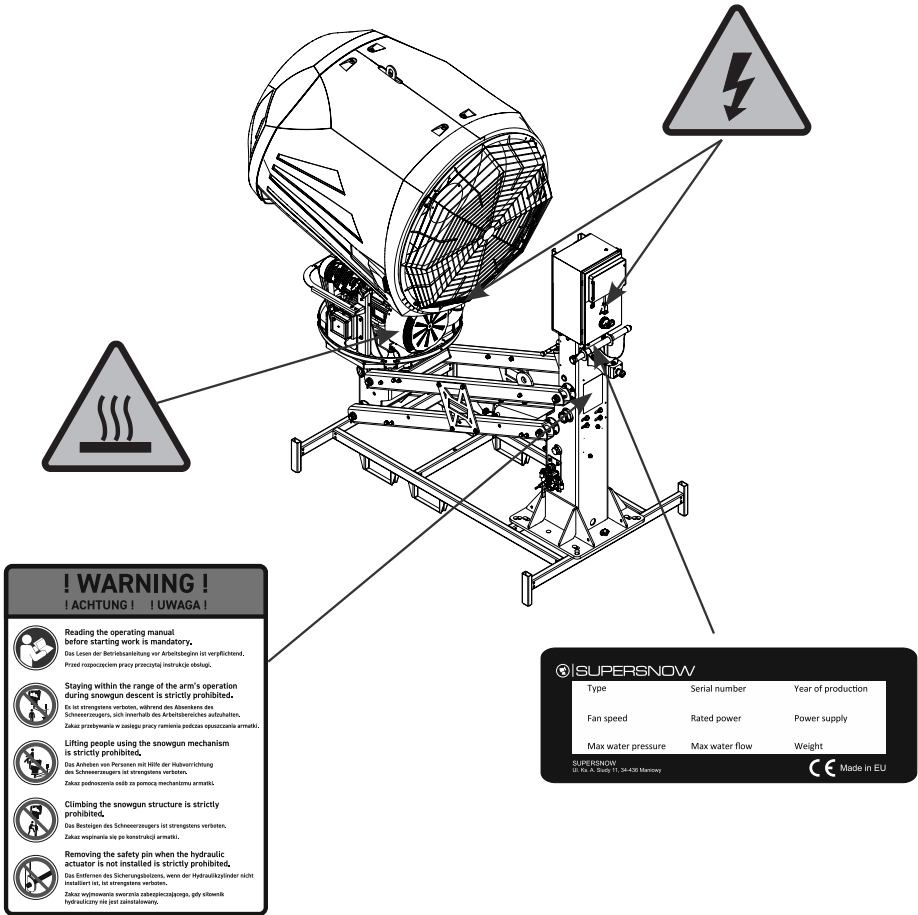
A nameplate with identification data is located on a frame or pole. To see it, you should gently tilt part of the protective sleeve or open the mattress flap. The nameplate contains the following information:

- 1) Type
- 2) Serial number
- 3) Year of manufacture
- 4) Fan speed
- 5) Power
- 6) Power
- 7) Max Water Pressure
- 8) Max water flow
- 9) Scales

The exact location of the nameplate in each machine is shown in the figures later in the chapter.



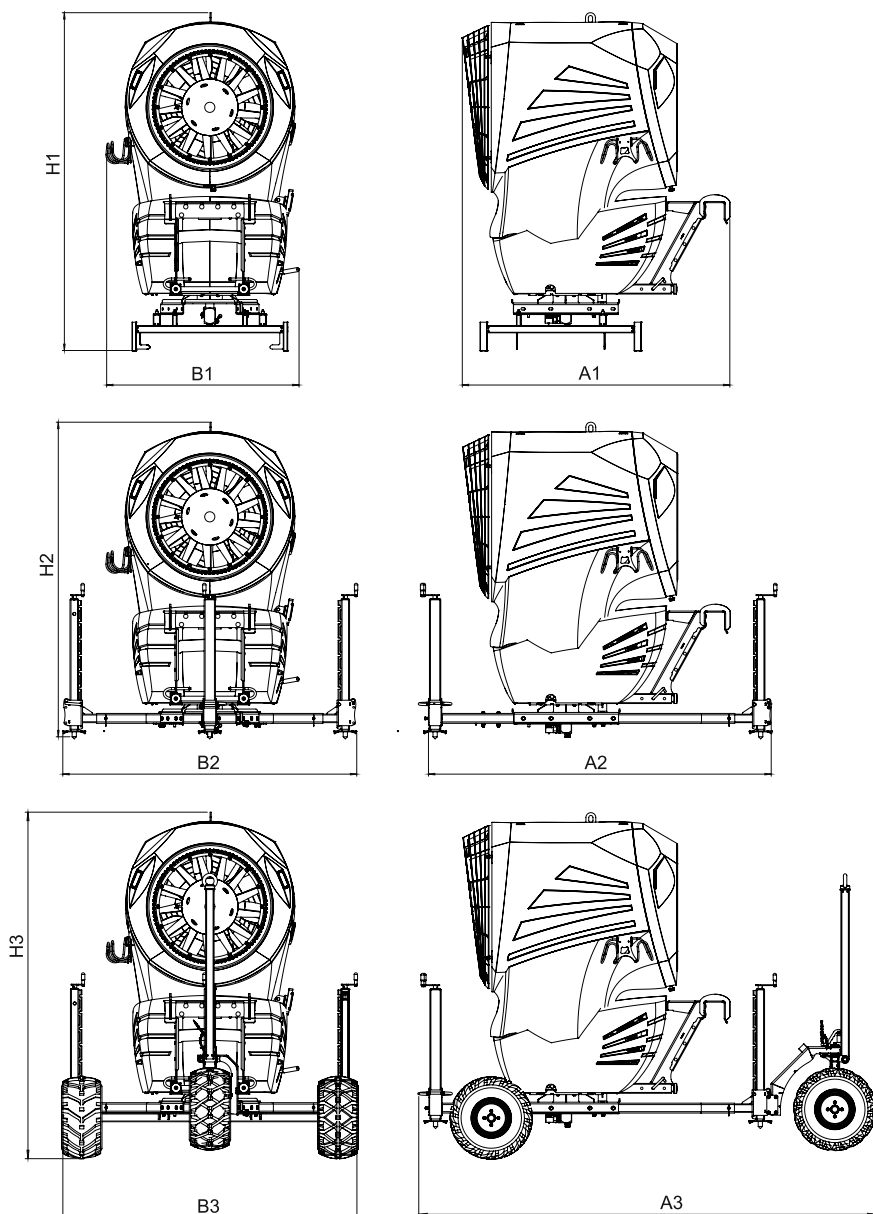
2. TECHNICAL DATA AND DESCRIPTION OF THE CONSTRUCTION



Placement of warning and information labels in the snow cannon 900T

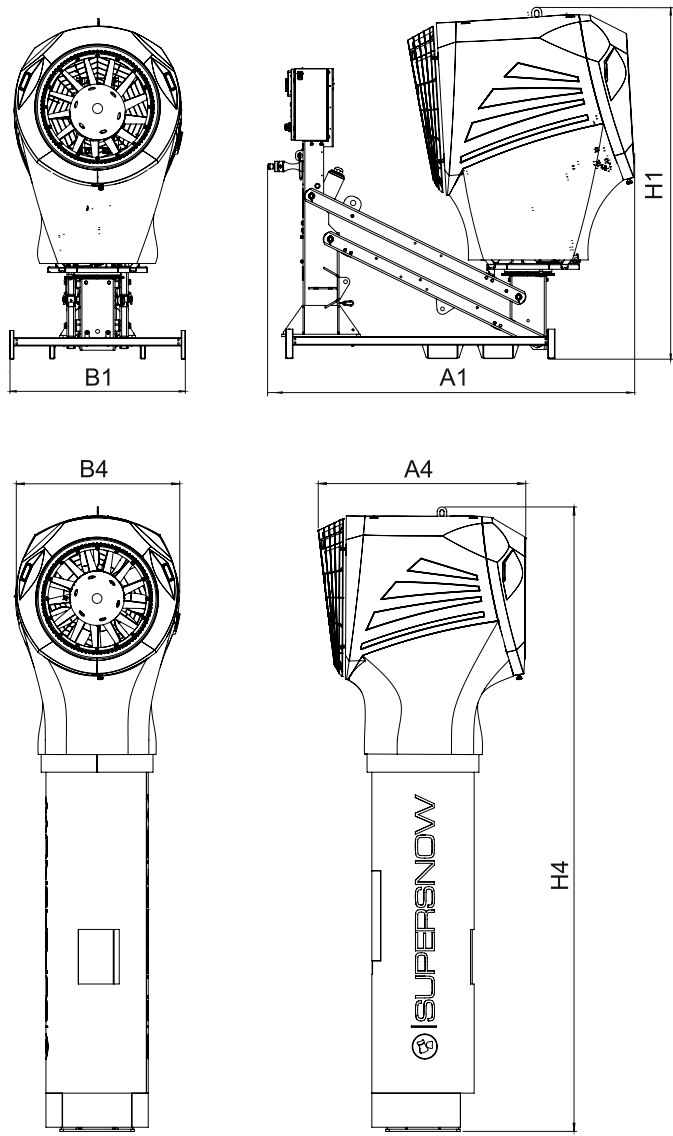
2. TECHNICAL DATA AND DESCRIPTION OF THE CONSTRUCTION

2.3 SPECIFICATIONS



Overall dimensions of the cannon 900H

2. TECHNICAL DATA AND DESCRIPTION OF THE CONSTRUCTION



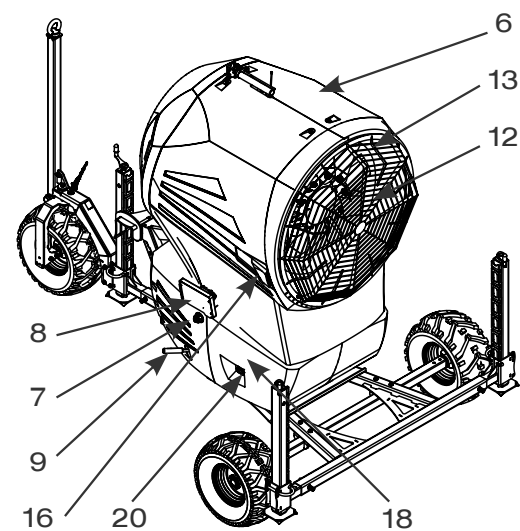
Overall dimensions of the cannon 900T

2. TECHNICAL DATA AND DESCRIPTION OF THE CONSTRUCTION

PARAMETER	UNIT	900H	900T
Number of water sections	n	5	
Number of nucleation sections	n	1	
Number of water jets	n	98	
Number of nucleation nozzles	n	8	
Permissible water pressure	Bar	45	
Maximum water intake	l/min	660	
Maximum snow production	m ³ /h	115	
TOperating Temperature (WB)	oC	-25 ~ -1,5	
Filtration accuracy	μm	250 (Mesh)	
Nominal Voltage (Standard)	V	400	
Nominal Frequency (Standard)	Hz	50	
Connection plug	A	5x63	
Nominal Intensity	A	42	
Power	kW	22,4	
Nominal power of fan motor	kW	15	
Fan speed	Rpm	1450	
Nominal power and compressor type	kW	4 (Oil-free)	
Length of the cannon on the transport base A1	mm	1890	2620
Width of the cannon on the transport base B1	mm	1100	1280
Height of the cannon on the transport base H1	mm	2390	2540
Length of the cannon on the paw chassis A2	mm	2485	1540
Width of the cannon on the paw landing gear B2	mm	2120	1220
Height of the cannon on the paw landing gear H2	mm	2300	4600
Length of the cannon on a foot-wheeled chassis A3	mm	3200	-
Width of the cannon on a foot-wheeled chassis B3	mm	2120	-
Height of the cannon on the foot-wheel chassis H3	mm	2455	-
Length of the cannon in the working position A4	mm	-	1540
Width of the cannon in the working position B4	mm	-	1220
Height in working position H4	mm	-	4600
Snow Cannon Weight (without Transport Base)	kg	640	850
Weight of the snow cannon on the foot chassis	kg	776=(640+136)	-
Weight of the snow cannon on the foot-wheel chassis	kg	878=(640+238)	-
Weight of snow cannon with mattresses	kg	-	878=(850+46)

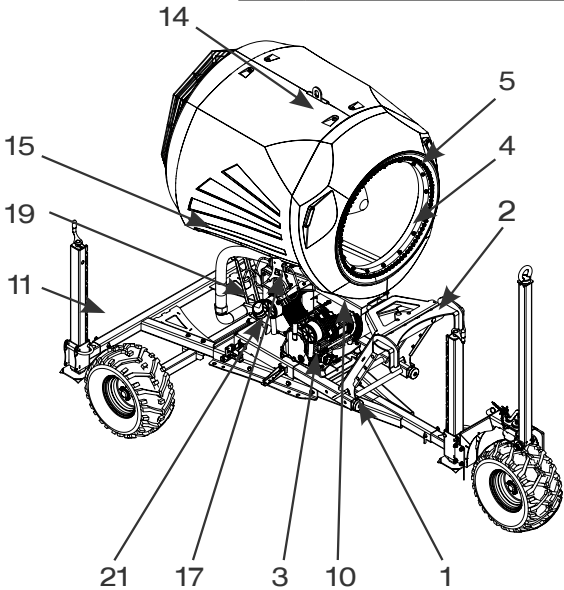
2. TECHNICAL DATA AND DESCRIPTION OF THE CONSTRUCTION

2.4 CONSTRUCTION DESCRIPTION



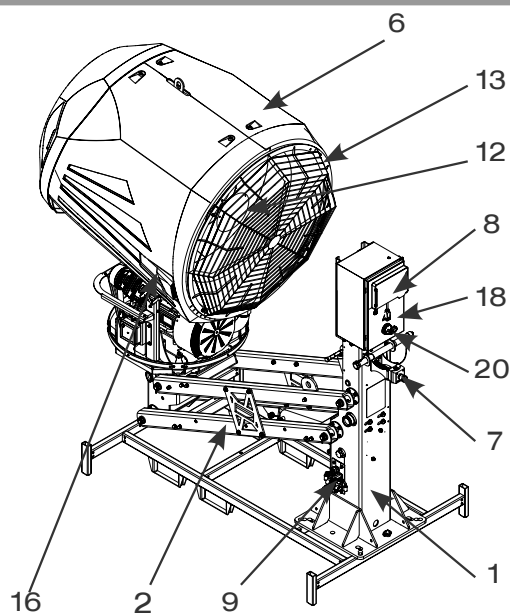
1	Bumper
2	Snow groomer holder
3	Compressor
4	Ring
5	Lamp
6	Tuba
7	Emergency button
8	Control panel
9	Release lever
10	Water Ensemble
11	Foot-wheel chassis

12	Ventilator
13	Fan Cover
14	Transport handle
15	Cannon status indicator
16	Weather station
17	Cable holder
18	Control box
19	Frame
20	Power main switch
21	Water filter



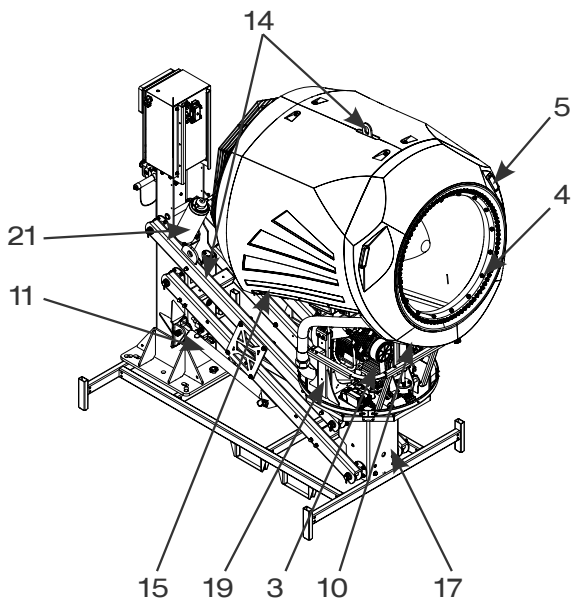
Description of the construction of the cannon 900H

2. TECHNICAL DATA AND DESCRIPTION OF THE CONSTRUCTION



1	Pole
2	Frame
3	Compressor
4	Ring
5	Lamp
6	Tuba
7	Emergency button
8	Control panel
9	Hydraulic power unit
10	Water Ensemble
11	Hydraulic cylinder

12	Ventilator
13	Fan Cover
14	Transport handle
15	Cannon status indicator
16	Weather station
17	Cradle
18	Control box
19	Frame
20	Power main switch
21	Water filter



Description of the construction of the cannon 900T

3. TRANSPORT AND INSTALLATION

3.1. TRANSPORT



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



The weight of a snow cannon equipped with an appropriate chassis is included in the table of technical parameters.



There may be a risk of injury when transporting the machine. It is recommended to use personal protective equipment.



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



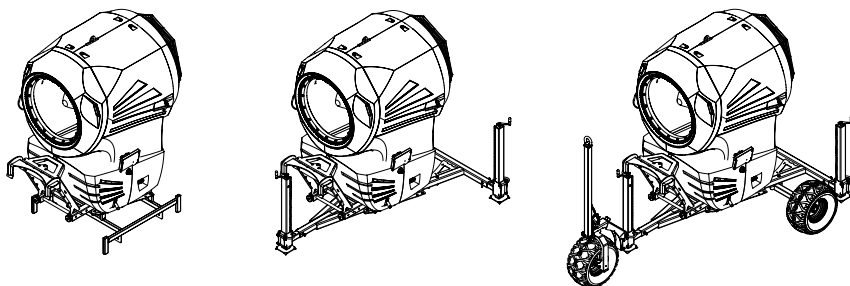
When moving the snow cannon, keep a safe distance and in particular do not place any parts of the body between the machine and the sling.



The weight indicated on the snow cannon rating plate does not include the weight of the transport base, chassis or protective mattresses.

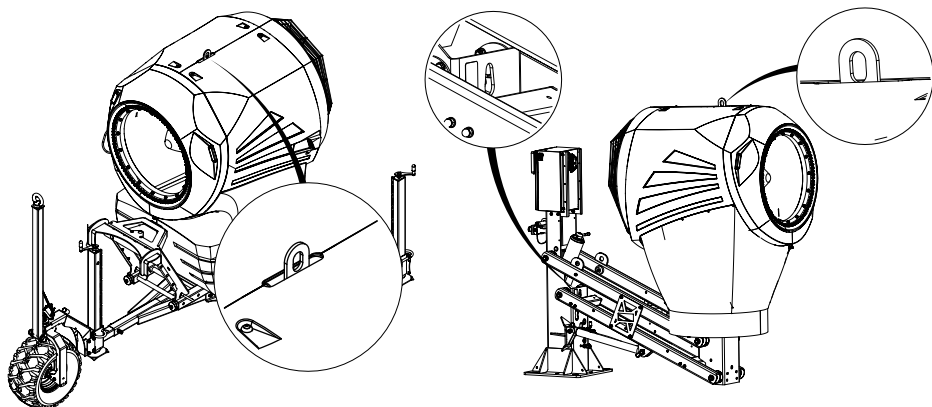
3. TRANSPORT AND INSTALLATION

The cannon can be delivered to the customer in various chassis configurations. Transport bases, paw and paw and wheel chassis are used. The paw and paw and paw wheel chassis are equipped with a double snow groom handle as standard.



Snow cannon 900H (from left) on technological basis, on a paw chassis, on a wheeled and leg chassis

To transport the snow cannon, it is best to use transport ears located on the upper part of the tube (900H and 900T) and on the pole (900T). The location and method of installation of transport slings is shown in the figure below.



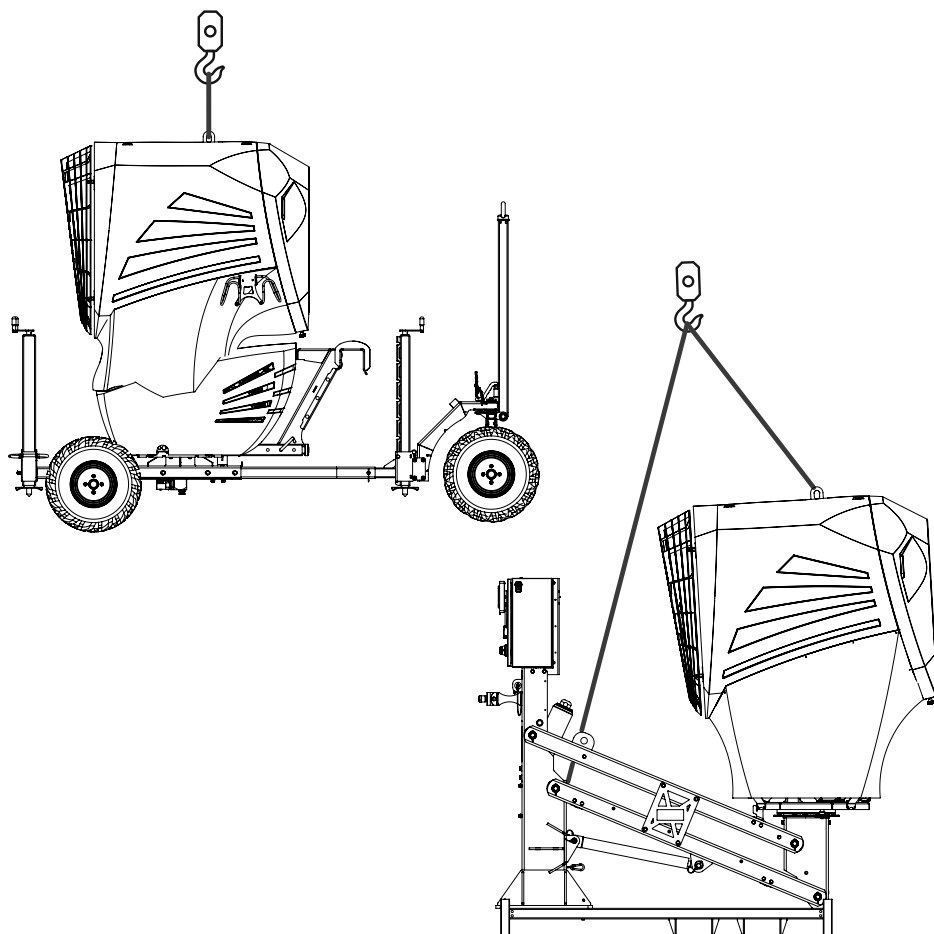
Location of the snow cannon carrying handles

3. TRANSPORT AND INSTALLATION



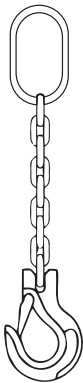
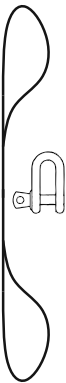
WARNING!

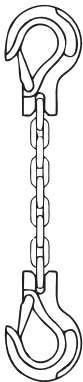
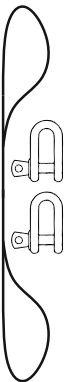
BEFORE TRANSPORTING AND LIFTING THE SNOW CANNON, MAKE SURE THAT ALL TRANSPORT LOCKS ARE INSTALLED



How to attach the sling to the cannon 900H, 900T

3. TRANSPORT AND INSTALLATION

900H	Chain		Belt	
SLING TYPE	1 Link, Link-Hook End		1 string, loop end -loop + shackle	
LENGTH	1m		1m	
PERMISSIBLE WORKING LOAD	2T		2T	

900T	Chain		Belt	
SLING TYPE	1 String, Hook-Hook End		1 String, Loop-Loop End + 2 x Shackle	
LENGTH	4m		4m	
PERMISSIBLE WORKING LOAD	2T		2T	

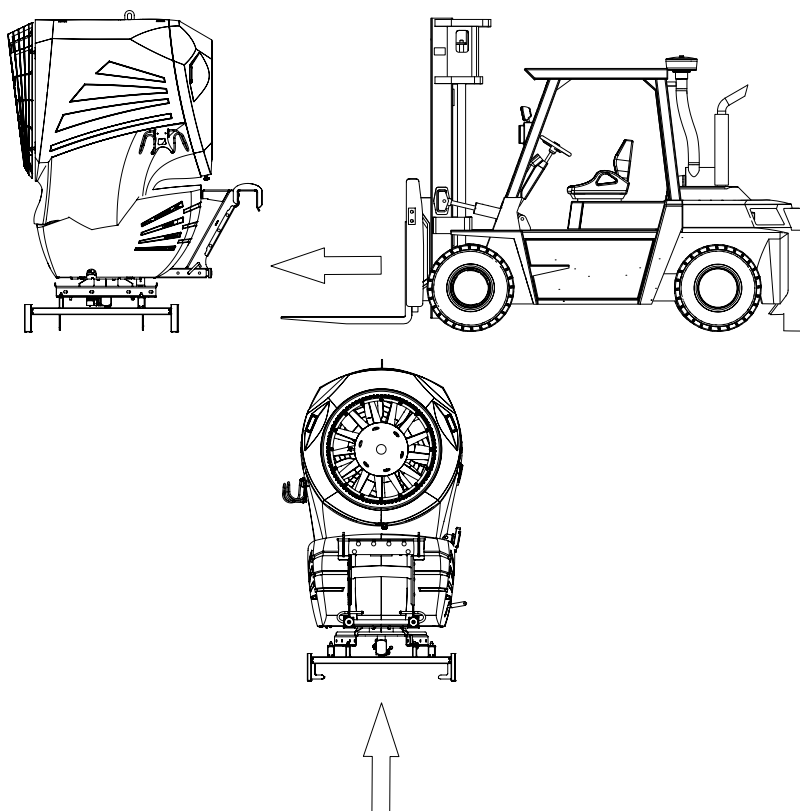


WARNING!

THE USE OF SHORTER SLINGS FOR THE 900T CANNON MAY LEAD TO DAMAGE TO THE FAN GRILLE OR THE ENTIRE TUBE!

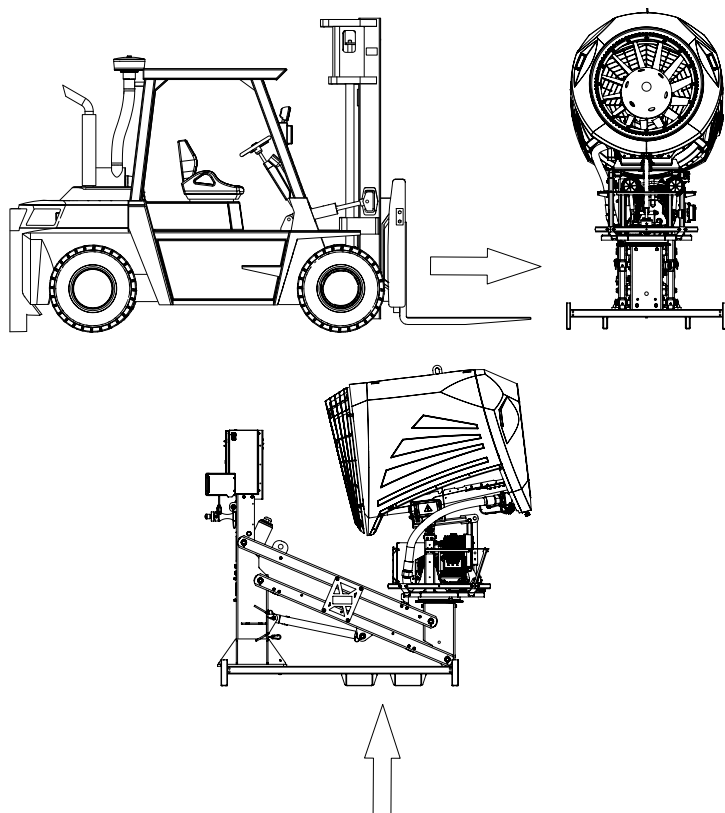
3. TRANSPORT AND INSTALLATION

A cannon with an installed paw or paw and wheel chassis can be transported with the help of a forklift in special cases, but with the use of additional transport elements (e.g. beam, belts) and with all precautions. The manufacturer does not recommend this method of transport due to problematic lifting. Only a cannon placed on a transport base can be safely transported using a forklift. A diagram of such transport is presented in the illustration below.



How to transport the cannon with a forklift 900H

3. TRANSPORT AND INSTALLATION



How to transport the cannon with a forklift 900T



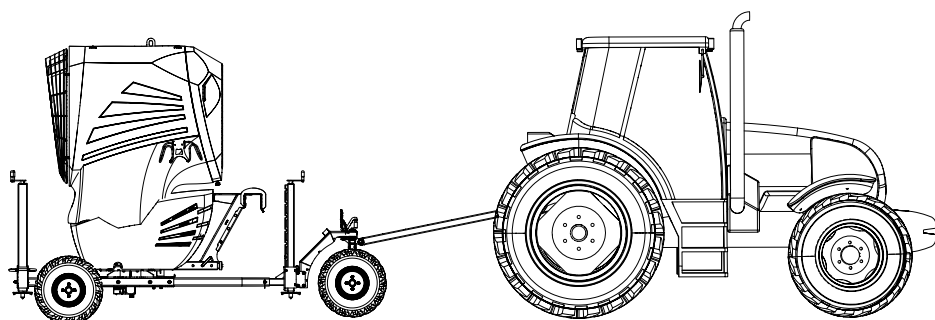
WARNING!

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

3. TRANSPORT AND INSTALLATION

3.2. MOVING ON THE SLOPE

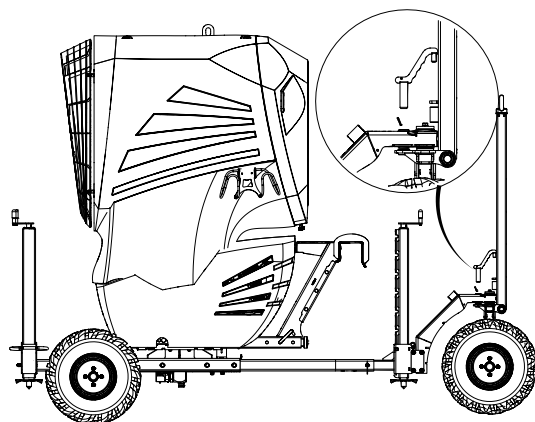
The snow cannon equipped with a paw and wheel chassis can be moved by pulling it by the drawbar. To do this, use a vehicle equipped with an agricultural hitch. It is recommended that you remove the hose and power cable from the cannon before proceeding with transport.



How to transport the 900H cannon by towing

Before starting the snowmaking process, the drawbar should be directed downwards. It must not obscure the fan inlet. When storing the machine after work (e.g. garage), the drawbar can be placed in an upright position, remembering to secure it with a pin.

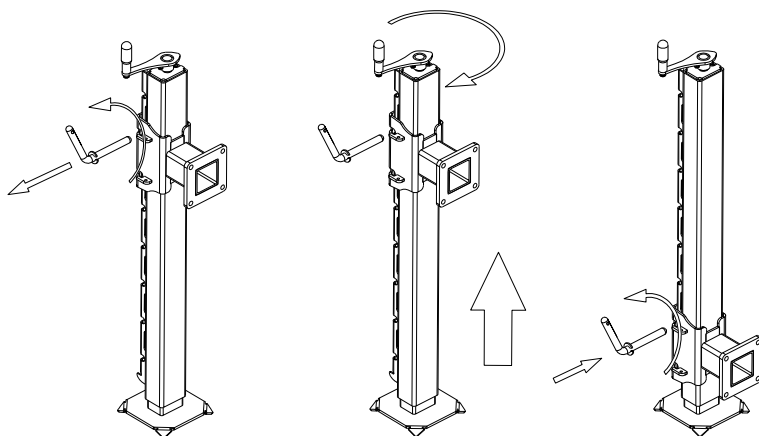
3. TRANSPORT AND INSTALLATION



How to secure the drawbar after towing



WARNING!
BEFORE TOWING, REMEMBER TO KEEP YOUR PAWS AS
RAISED AS POSSIBLE



Paw Lift Scheme

3. TRANSPORT AND INSTALLATION



INFORMATION!

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

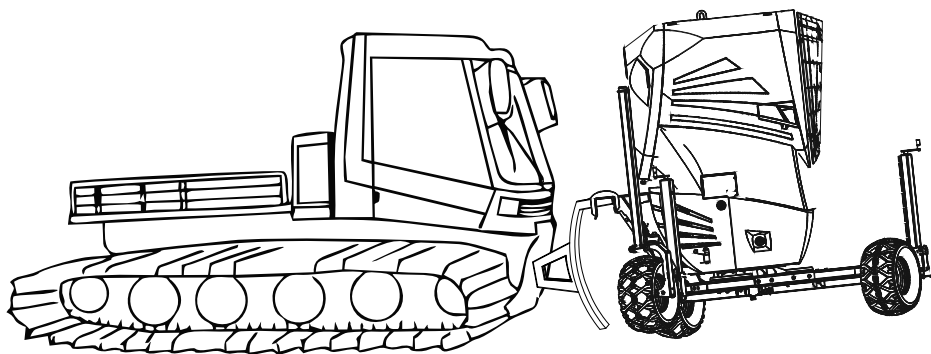


WARNING!

TOWING A CANNON, EQUIPPED WITH A WHEELED AND PAW
CHASSIS, ON PUBLIC ROADS IS NOT ALLOWED

The 900H snow cannon can be moved on the slope by carrying it on the blade of a snowcat. Before the machine is lifted by the snowgroomer, 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 dug up until the snow groomer can lift the machine freely. Failure to do so may result in damage to the machine's chassis and snow groomer working elements. To carry out this operation, it is best to use two people, a snow groomer operator and a pilot. The pilot, in the first place, extends the snow groomer bumpers to the required distance and secures them with cotter pins. Then the snowcat driver approaches the machine from the side of the snow groomer handle at a distance of approx. 1.5 m, continues to approach the cannon at the lowest possible speed in order to hook the blade to the handle. At the same time, he gets navigation directions from the pilot. The next step is to lift the entire machine by the driver, and then the paws by the pilot. The cannon should be transported carefully so that it does not fall off the blade. Before setting up the machine, prepare a place that is as flat as possible. Before the cannon is placed, the leveling paws must be extended.

3. TRANSPORT AND INSTALLATION



How to transport a cannon on a snow groomer blade

The 900T snow gun can be moved around the slope for installation. This can be done by lifting the cannon with the transport ears of the machine or by using the prepared fork space in the transport frame. Before the machine is lifted, make sure that it is not covered with snow and that all transport blockages are still in place. The 900T snow cannon together with the transport base must be transported to a place near the well on which the cannon will be installed.



WARNING!

TO TRANSPORT AND LIFT THE SNOW CANNON, YOU SHOULD USE A MACHINE AND SLINGS WITH AN APPROPRIATE LOAD CAPACITY. (*SEE MACHINE WEIGHT - 2.3 TECHNICAL DATA AND CONSTRUCTION DESCRIPTION)

3. TRANSPORT AND INSTALLATION

3.3. INSTALLATION ON THE SLOPE

Before starting to work with the snow cannon, you should check the completeness of the elements of the set, which includes:

900H

- Snow Cannon
- Rubber Water Hose
- Document Folder
- Service Kit

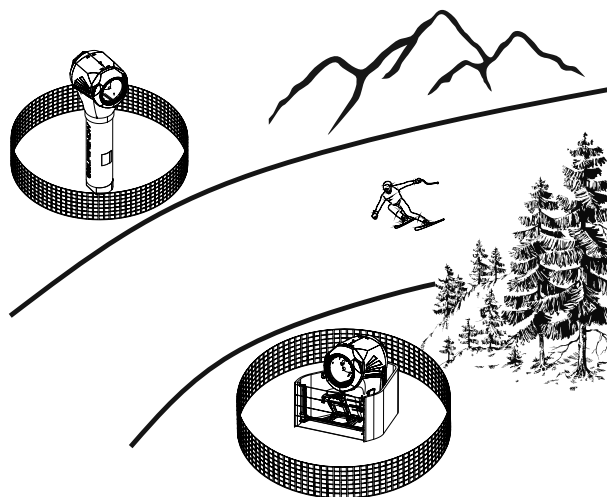
900T

- Snow Cannon
- Middle and lower mattress
- Mounting kit
- Document Folder
- Service Kit

COMPOSITION OF SERVICE KITS (SUPPLIED WITH THE MACHINE INSIDE THE ELECTRICAL BOX)	
1	NUCLEATION NOZZLE
2	CERAMIC NOZZLE 1,5
3	CERAMIC NOZZLE 1,7
4	RING NUT WRENCH
5	CYLINDRICAL DELAY FUSE (5x20mm) - 1,6A
6	UNI FUSE (19MM) - 5A
7	UNI FUSE (19MM) - 7,5A
8	UNI FUSE (19MM) - 15A
9	SCREW M8X12
10	SEALING WASHER M8

3. TRANSPORT AND INSTALLATION

The cannon should be placed in a place that does not endanger the safety of personnel, skiers and the cannon itself, taking into account extreme working conditions. It is unacceptable to place an unsecured device on open routes without their proper preparation. The cannon should be visibly marked, separated from the slope with a barrier net and anti-impact mattresses should be fitted. It is imperative to observe the rule of not allowing skiers to move in the place where the cables and power hoses are laid. The result of not doing so may be, among other things, cutting the wires. It is also forbidden to snow the slopes currently open to slope users.



How to secure a snow cannon on a slope

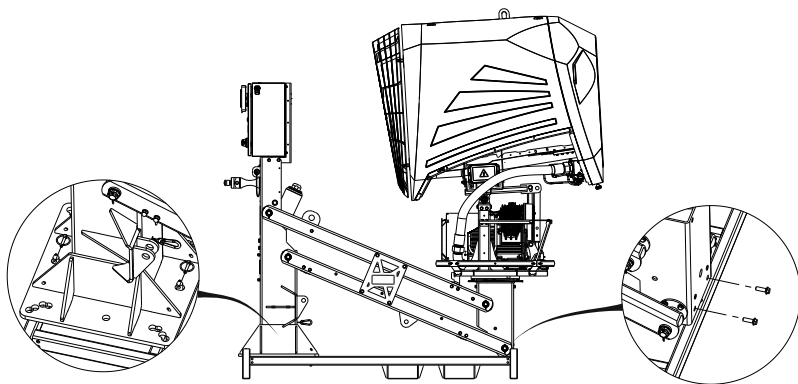
The 900H should be placed on a stable, as flat ground as possible that can support the weight of the machine.

The installation site of the 900T machine should be a foundation well with the required load capacity for this type of equipment. This well should have appropriate hydraulic fittings and electrical wiring installed inside. It is recommended that the installation of the 900T cannon on the slope be carried out by qualified personnel of the manufacturer. SUPERSNOW allows the installation of devices within its scope by the customer, provided that it is done in the right way in accordance with the instructions and in compliance with all safety standards. This is to eliminate assembly errors and ensure that the cannon works properly.

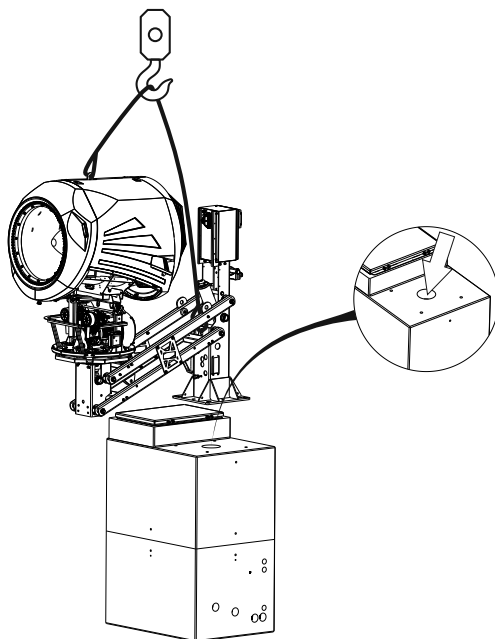
3. TRANSPORT AND INSTALLATION

The installation of the 900T snow gun on the well is done as follows:

1. Remove the cotter pins and remove the screws (HEX19) securing the cannon to the transport frame.

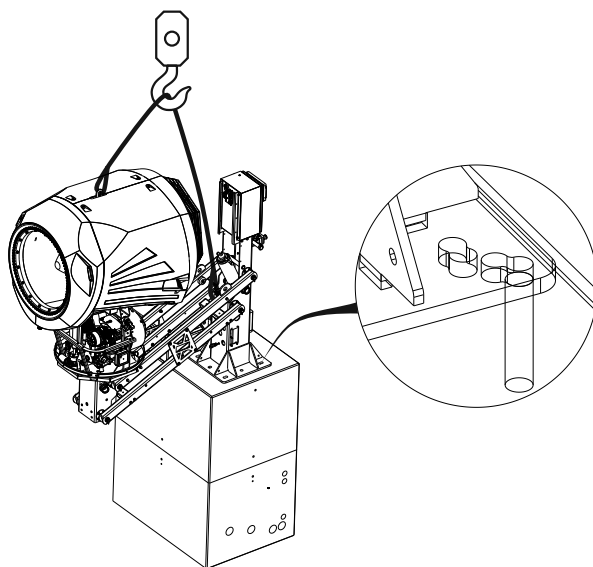


2. Lift the cannon and move it to the final installation site, above the wells. Place water and pneumatic hoses as well as power and communication cables in the well opening.

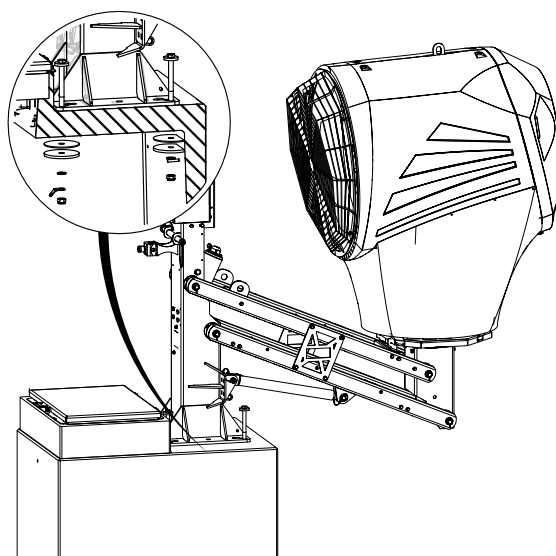


3. TRANSPORT AND INSTALLATION

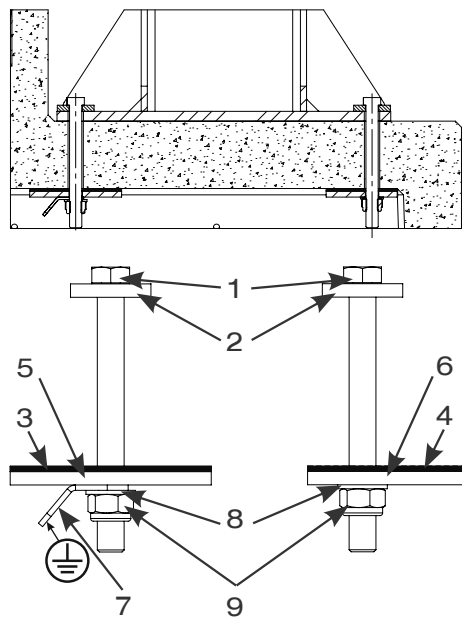
3. Place the cannon on the ceiling of the well in such a way that it encounters the correct mounting holes.



4. Attach the cannon to the well using the elements from the mounting kit. Connect the ground wire to the pole structure.

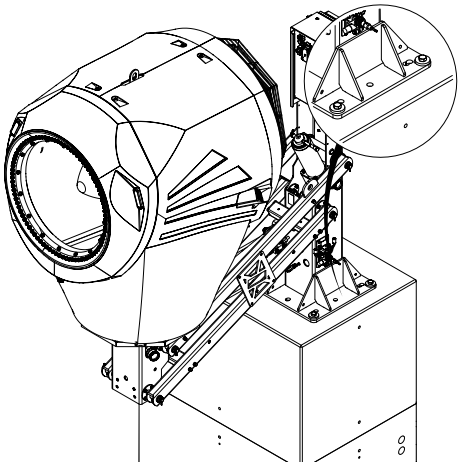


3. TRANSPORT AND INSTALLATION



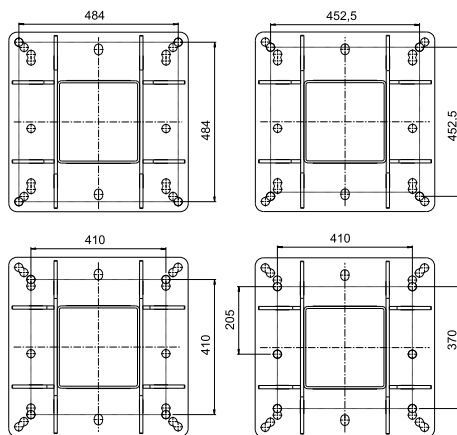
1	Screw M20x200-280	4
2	Thickened Washer M20	4
3	Round rubber washer	2
4	Beveled rubber washer	2
5	Enlarged Round Washer	2
6	Enlarged chamfer washer	2
7	Grounding Bracket	2
8	Regular Washer M20	4
9	M20 Self-Locking Nut	4

5. Once the cannon is fully attached, the slings can be loosened and then detached.

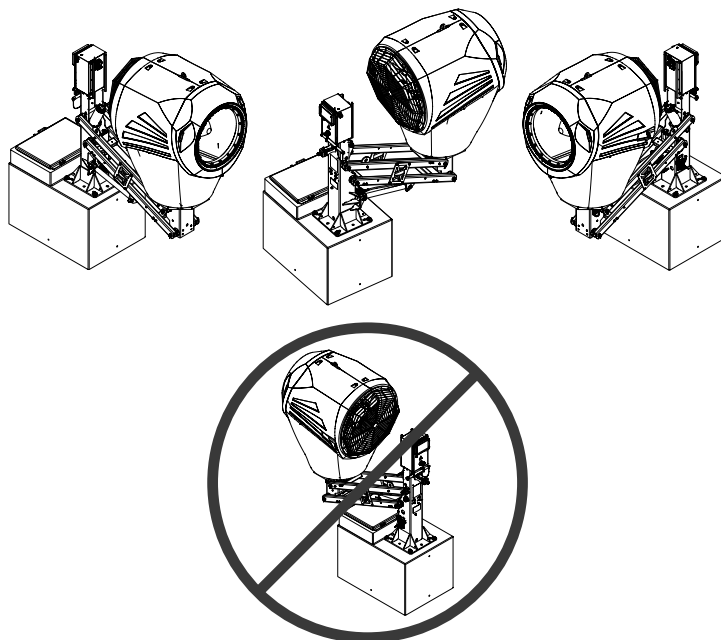


3. TRANSPORT AND INSTALLATION

SUPERSNOW



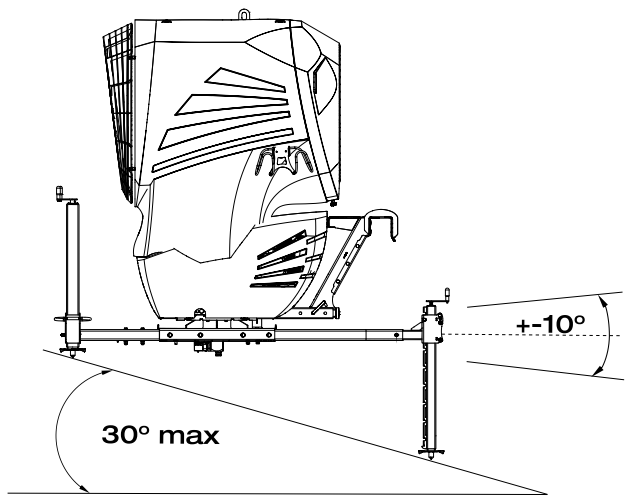
Below in the figure is shown the possible location of the 900T Cannon on the well (straight ahead, on the left, on the right). An unacceptable position of the machine is when the machine in the lower position blocks the possibility of opening the manhole of the well.



Acceptable and unacceptable positioning of the 900T cannon on the well

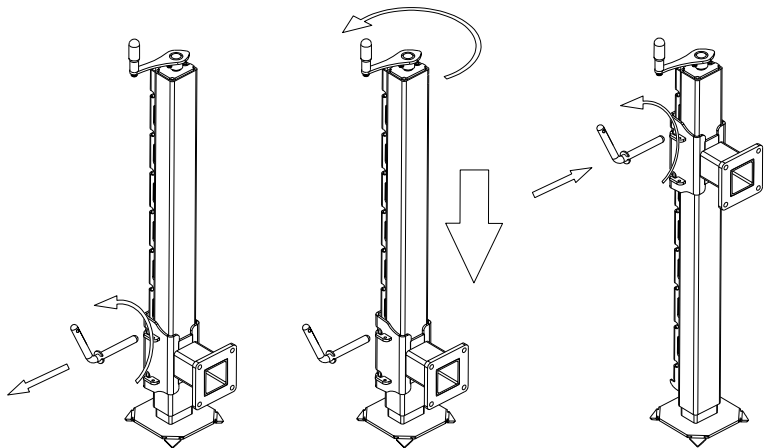
3. TRANSPORT AND INSTALLATION

The cannon deviation from the level must not exceed 10 degrees to ensure proper compressor operating conditions.



Permissible slopes and snow cannon slopes

Leveling paws are used to level the slope. Their maximum stroke is 624 mm. In the case of a wheeled chassis, after setting, it is imperative to immobilize the cannon with at least two leveling paws.



Paw Lowering Scheme

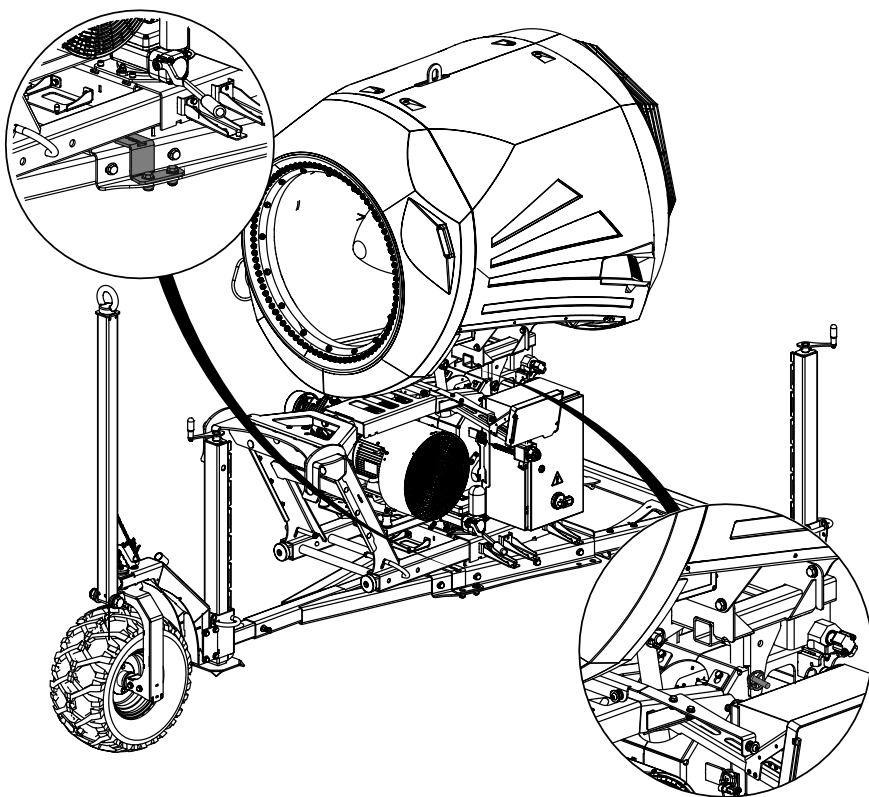
3. TRANSPORT AND INSTALLATION



WARNING!

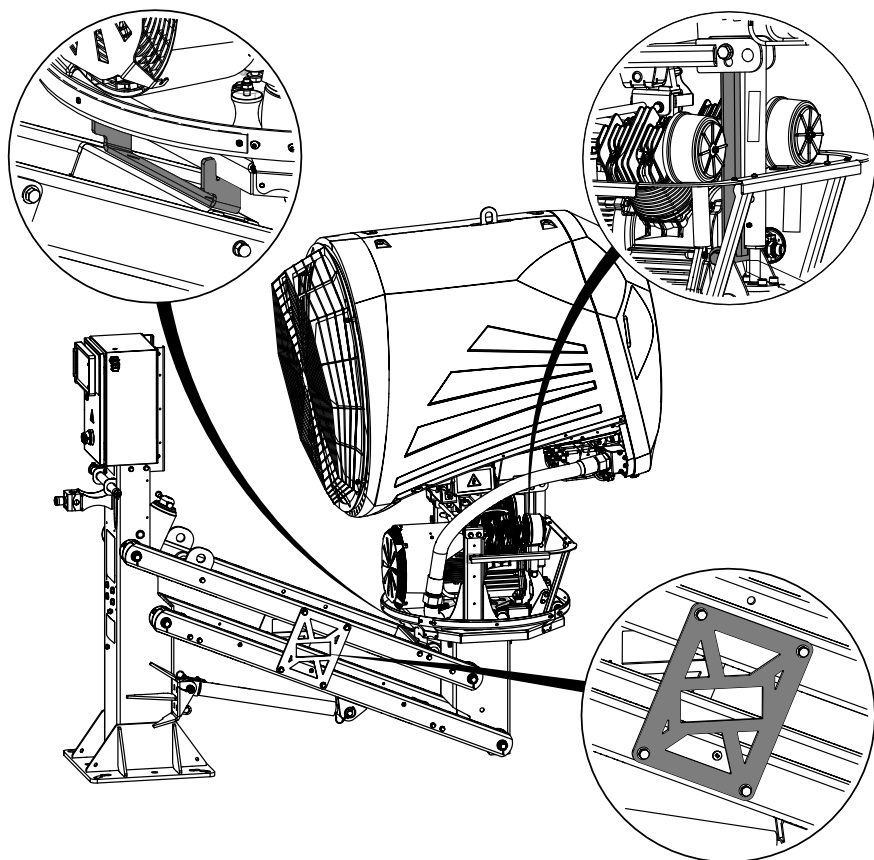
WHEN LOWERING THE LEVELING PAWS, THERE IS A RISK OF CRUSHING THE FOOT. TO AVOID THIS, KEEP A SAFE DISTANCE

Before starting the machine for the first time, the transport locks must be removed. They should be kept and refitted when the snow cannon is to be transported. Transport locks that need to be removed are usually painted red for easy identification.



Installation/disassembly of transport locks 900H

3. TRANSPORT AND INSTALLATION



Installation/disassembly of transport locks 900T



WARNING!

STARTING THE SNOW CANNON WITHOUT DISMANTLING THE OSCILLATION TRANSPORT LOCKS WILL LEAD TO THE FAILURE OF THE MACHINE DUE TO THE FAULT OF THE SNOW CANNON OPERATOR

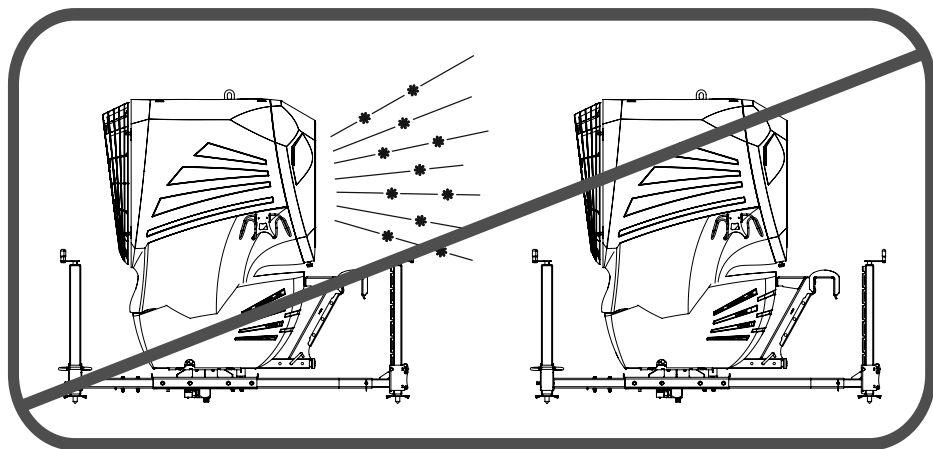
3. TRANSPORT AND INSTALLATION



WARNING!

TRANSPORT LOCKS CAN ONLY BE APPLIED WHEN THE MACHINE IS IN THE CORRECT POSITION. FOR THE HORIZONTAL ANGLE IT IS 180° AND FOR THE VERTICAL ANGLE IT IS 5° (*SECTION 5.2.1.)

The distance between the cannons on the slope should be at least 60 m. It is not allowed to lead to such a situation that there is another one within the range of ejection. You should also take into account the strength and direction of the wind so that it does not blow snow on the neighboring cannon or on itself. Such a situation can lead to icing of the fan and, as a consequence, machine failure.



Prohibition of snow cannon operation when another snow cannon is within its snow ejection range

3. TRANSPORT AND INSTALLATION

Before each start of the cannon, check that the water filter is not contaminated. If necessary, clean the cartridge. During operation, the frequency of checking the cleanliness of the filter cartridge should depend on the efficiency with which the device operates. However, it is recommended to check the cartridge at least every 24 hours of work.

Before connecting the device, check that the fan rotor and fan duct are not covered with ice! Otherwise, use a stream of warm air to defrost. The air must not be too hot so as not to damage the plastic components. Attention should also be paid to the presence and correct installation of all covers/housings. It is also unacceptable for foreign bodies (tools, loose parts) to occur inside the tube or elsewhere in the machine. Any damage to cables and water or hydraulic lines should be removed before connecting the machine.



WARNING!

BEFORE OPENING THE FAN PROTECTION GRILLE, ALWAYS
DISCONNECT THE POWER SUPPLY TO THE CANNON!



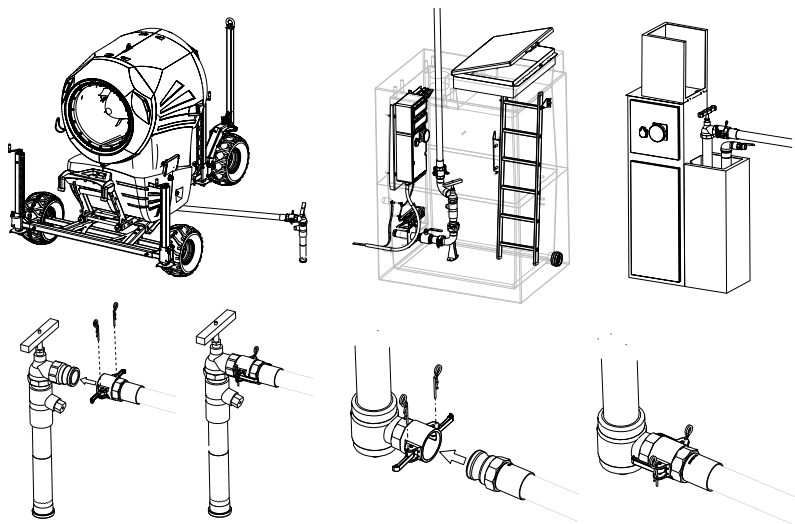
WARNING!

AFTER COMPLETING THE WORK, MAKE SURE THAT THE AIR
INLET PROTECTION GRILLE IS INSTALLED CORRECTLY!

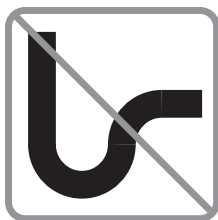
Water for snowmaking purposes should not contain impurities larger than 250 µm. Larger bodies cause the cannon filter to become contaminated quickly. For the cannon to work properly, a pressure in the range of 12 to 45 bar is required.

3. TRANSPORT AND INSTALLATION

To connect the cannon, use a rubber hose with 2" Camlock tips and a flexible hose with a permissible pressure of at least 50 bar (burst pressure of at least 150 bar) with 2" Camlock tips.



Water Backhaul Hose Connection Diagram



Water and pneumatic hoses should be arranged in such a way that they do not hinder the safe operation of the machine, twist with gentle curves and are not twisted. It is unacceptable to arrange water and pneumatic hoses in such a way that they form a siphon. The water remaining there after the machine is finished working can freeze and block the flow.



WARNING!

**ALWAYS SECURE THE CAMLOCK CONNECTOR FASTENERS
WITH COTTER PINS!**

3. TRANSPORT AND INSTALLATION



WARNING!

THE MAXIMUM PERMISSIBLE OPERATING PRESSURE IS 45 BAR, EXCEEDING IT MAY DAMAGE THE MACHINE AND VOID THE WARRANTY!

Before connecting the snow cannon, make sure that the mains voltage is 3 x 400 VAC with an allowable deviation of +5/-10% and a frequency of 50 Hz, and the phase voltage unevenness must not exceed 5%. It is also necessary to make sure that the device is connected to an electrical switchboard in which the appropriate overcurrent fuses and a residual current circuit breaker, or other electrical protections required in a given country are installed. The power supply parameters of the machine refer to standard products and may vary depending on the region and country in which the machine will be operated. To connect the cannon, use the power cord integrated with it. Before starting the snow cannon, check the correct direction of rotation of the fan and compressor. The factory settings guarantee the correct direction of rotation of both of these devices.

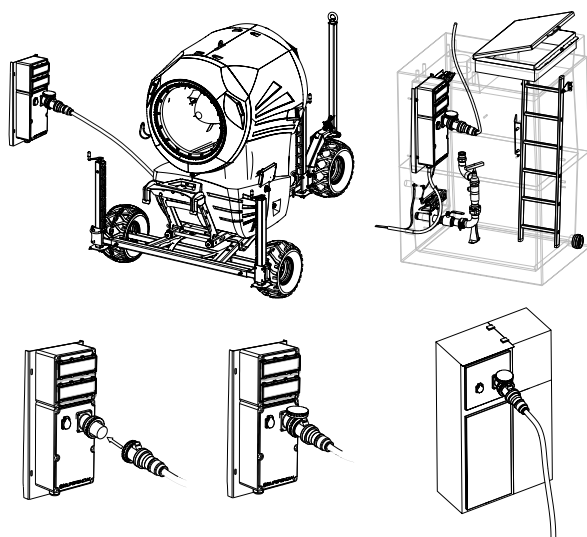
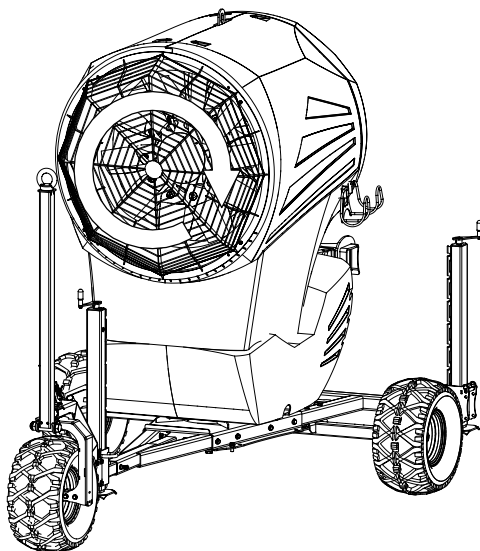


Diagram of connecting the electrical power supply (CEE 63 A connector) of the snow cannon to the deck box and installation in the well

3. TRANSPORT AND INSTALLATION

When you first start the snow cannon, pay attention to the order of the power phases. The control consists in turning on the power in the cannon and then manually starting the fan. The fan of the machine should rotate clockwise (when viewed from the fan grille). If the phase order is reversed, the rotor should not rotate, due to the installed phase sequence control module. Machines with a control panel will receive the message "Failure: Power supply - incorrect phase order".



Correct direction of fan rotation

* In cannons, before starting work, it is necessary to declare the parameters at which the machine is to start automatic operation. A description and a detailed explanation of setting parameters can be found in Chapter 7.

3. TRANSPORT AND INSTALLATION

3.4. 900T CANNON LIFT HYDRAULIC SYSTEM

3.4.1. SAFETY WHEN WORKING WITH THE HYDRAULIC SYSTEM



WARNING!

IT IS FORBIDDEN FOR ANY PERSON TO BE OUTSIDE THE WORKING AREA DESIGNATED WHEN LIFTING THE 900T CANNON



WARNING!

IT IS FORBIDDEN TO ADJUST THE BRAKE VALVE SETTINGS. THIS CAN LEAD TO THE MACHINE FALLING UNCONTROLLABLY FROM A GREAT HEIGHT



WARNING!

LIFTING THE SNOW CANNON WITHOUT REMOVING THE TRANSPORT LOCKS MAY LEAD TO THE FAILURE OF THE MACHINE DUE TO THE FAULT OF THE OPERATOR



WARNING!

WHEN RAISING AND LOWERING THE MACHINE, IT IS FORBIDDEN TO PUT YOUR HANDS WITHIN THE OPERATION OF THE LIFTING MECHANISMS (CRADLE, ARMS, POLE). THIS THREATENS TO CRUSH THE LIMBS!

3. TRANSPORT AND INSTALLATION



WARNING!

BEFORE RAISING AND LOWERING THE CANNON, CHECK THAT THE MECHANISMS ARE NOT BLOCKED IN ANY WAY. MAKE SURE THAT CABLES AND HARNESSSES ARE NOT EXPOSED TO CUTS.



WARNING!

BEFORE LOWERING THE CANNON, CHECK THAT THE HYDRAULIC SYSTEM, AND ESPECIALLY THE CYLINDER, ARE PROPERLY INSTALLED. MAKE SURE THERE IS NO LEAKAGE FROM THE HYDRAULIC SYSTEM.



WARNING!

ACTIVITIES RELATED TO DISASSEMBLY AND MANIPULATION OF THE HYDRAULIC SYSTEM ARE PARTICULARLY DANGEROUS AND THE MANUFACTURER DOES NOT RECOMMEND THAT A PERSON WITHOUT ADDITIONAL TRAINING PERFORM THESE ACTIVITIES.



WARNING!

IN THE "MANUAL" HYDRAULIC SYSTEM, WHEN LOWERING, IF THE HYDRAULIC HOSE FAILS, THE CANNON DESCENT WILL NOT STOP. IT WILL SLOWLY BUT NOT INEVITABLY SINK TO THE VERY BOTTOM.

3. TRANSPORT AND INSTALLATION



WARNING!

DISMANTLING THE HYDRAULIC SYSTEM (ONLY IN ITS ENTIRETY) IS RECOMMENDED WHEN THE SNOW CANNON IS IN THE UPPER POSITION AND IS SECURED WITH A PIN. IT IS ALSO POSSIBLE TO DISASSEMBLE THE HYDRAULIC SYSTEM IN THE LOWER POSITION OF THE COLUMN, BUT BEFORE THIS ACTIVITY IT IS REQUIRED TO INSTALL TRANSPORT BLOCKS, AND IN SPECIAL CASES SUPPORT AT THE FRONT OF THE CRADLE (INCLINATION OF THE TERRAIN, EXCESSIVE PROTRUSION OF THE FOUNDATION WELL BEYOND GROUND LEVEL).



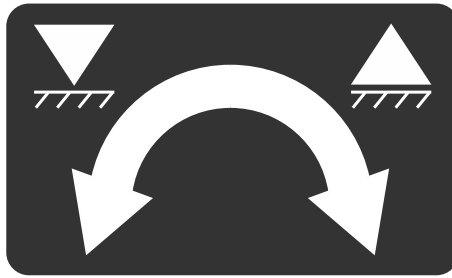
WARNING!

ANY WORK RELATED TO UNSCREWING, TIGHTENING HOSES OR OTHER COMPONENTS AND COMPLETELY CHANGING THE OIL IN THE HYDRAULIC SYSTEM SHOULD BE CARRIED OUT BY THE SUPERSNOW SERVICE OR BY PEOPLE WHO HAVE BEEN ADDITIONALLY TRAINED FOR THIS ACTIVITY. SUCH REPAIR CAN ONLY TAKE PLACE WHEN THE SNOW CANNON IS LOWERED DOWN. THEN, AFTER COMPLETING THE REPAIR ACTIVITIES, WE RAISE THE MACHINE UP, GRADUALLY HIGHER AND LOWER IT DOWN. THIS WILL ALLOW THE SYSTEM TO BE PROPERLY VENTED AND REDUCE THE RISK OF UNCONTROLLED FALL OF THE MACHINE FROM A GREAT HEIGHT.

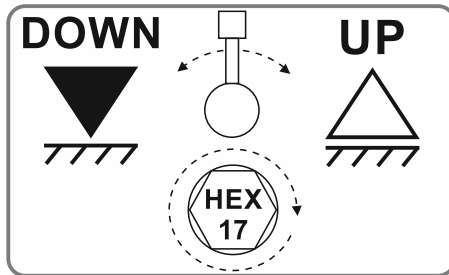
3. TRANSPORT AND INSTALLATION

3.4.2. INITIAL INFORMATION AND DESCRIPTION OF THE CONSTRUCTION

A dedicated hydraulic system is used to raise and lower the 900T cannon, which can be available in two versions. The first of them, "Manual", has a hydraulic pump driven by the power of human muscles. The second "Assisted" version has a hydraulic pump, which requires a drill to drive it.

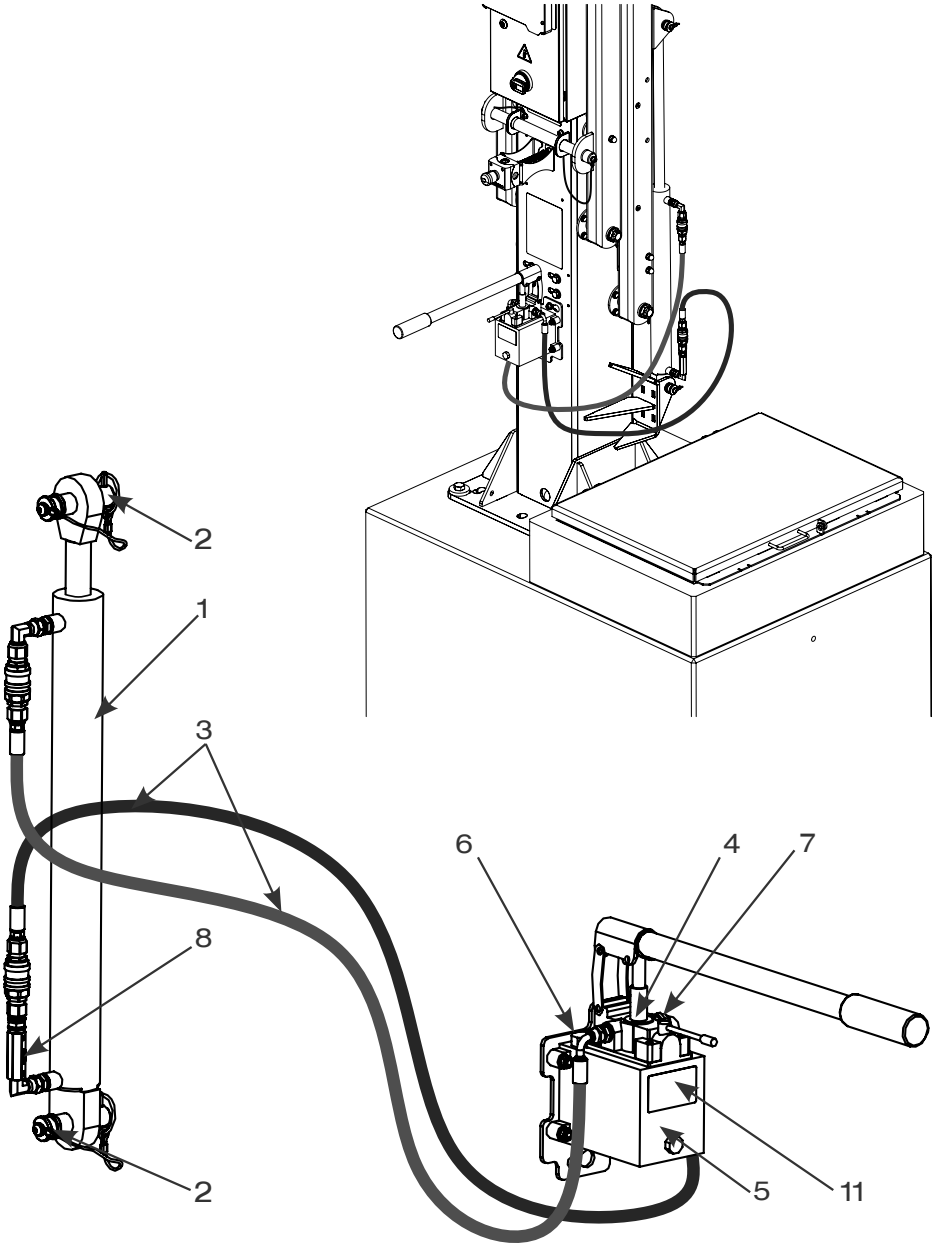


"Manual" Hydraulic System Information Label For 900T Cannon Lift



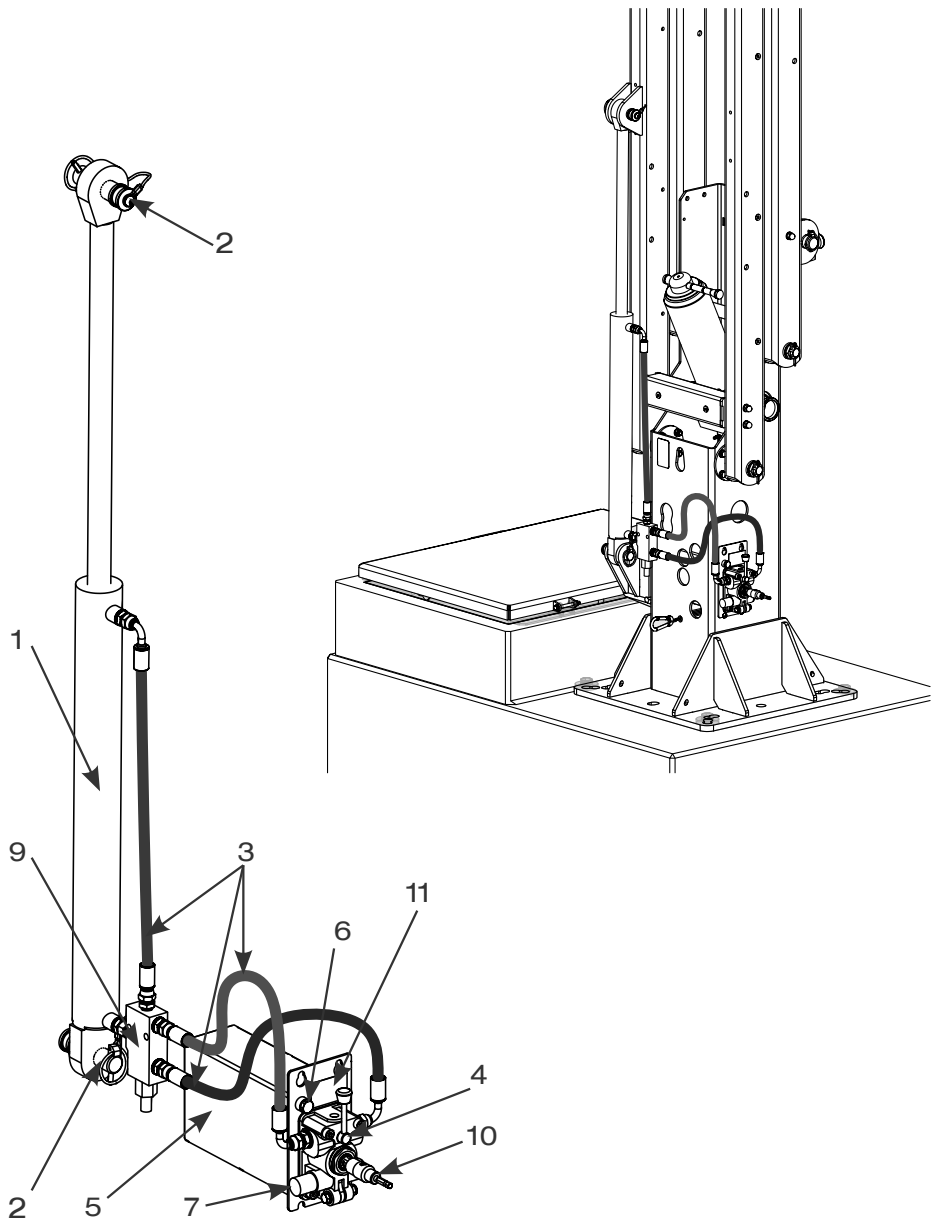
Information label of the "Assisted" hydraulic system for lifting the 900T cannon

3. TRANSPORT AND INSTALLATION



Visualization and description of the construction of the "Manual" hydraulic system for lifting the 900T cannon

3. TRANSPORT AND INSTALLATION



Visualization and description of the construction of the "Assisted" hydraulic system for lifting the 900T cannon

3. TRANSPORT AND INSTALLATION

1	Hydraulic cylinder
2	Actuator pin
3	Hydraulic Hose
4	Hydraulic pump with distributor
5	Oil Tank
6	Filler plug with vent
7	Safety Valve
8	Linear Check and Throttle Valve
9	Overload and locking valve
10	Drill clutch
11	Information label

Legend for the description of the construction of hydraulic systems for lifting the 900T cannon

A screwdriver is necessary to drive the hydraulic pump from the kit should have the necessary specifications.

POWER	MIN 450 W
SOFT TORQUE RATING	MIN 30 NM
SPEED	700 - 9000 RPM
DRILL CHUCK	HEX 1/4

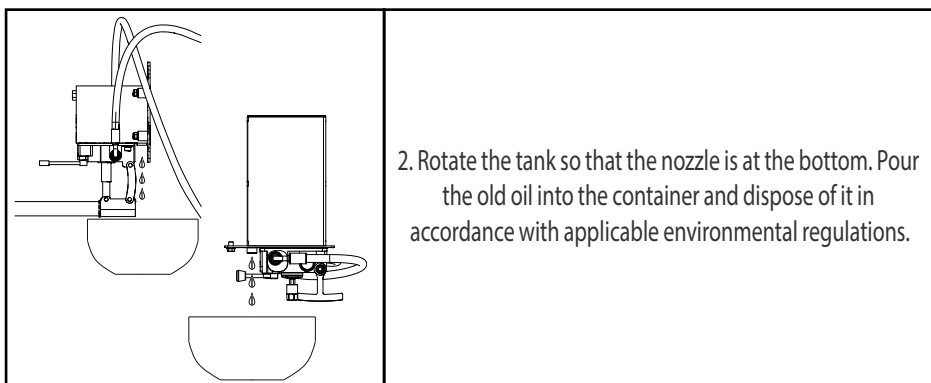
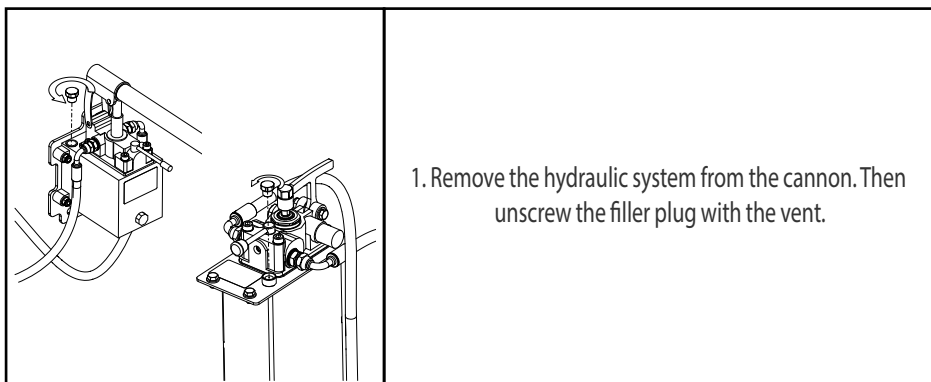


INFORMATION!

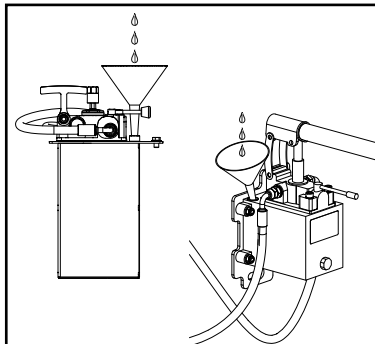
THE DRILL TYPE IS NOT INCLUDED IN THE HYDRAULIC SYSTEM KIT.

3. TRANSPORT AND INSTALLATION

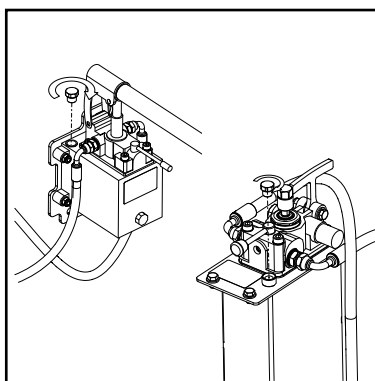
The hydraulic system is filled with biodegradable PANOLIN HLP SYNTH ISO 32 oil, in the amount of 2.2 liters. The pressure in the system can be up to 220bar. It is regulated by the maximum valve, located in the distributor of the hydraulic power unit. Not all of the oil is in the tank, because a significant part of it is always in one of the actuator chambers and in the hoses. In case of any leakage, the oil completely decomposes when exposed to sunlight and water. In this case, the oil level should be topped up so that the tank is always half full. The oil in the hydraulic system should be changed when water gets into the oil or at least once every 2 years. Do not unscrew the hydraulic hoses or cylinder from the system to do this. The oil change procedure is described below.



3. TRANSPORT AND INSTALLATION



3. Position the tank so that the nozzle is on top. Using a suitable funnel, fill the tank with oil to the correct level.



4. Screw on the filler plug with the vent.

After the oil change in the system, you should slide in and out the actuator twice, which will not be installed in the cannon. Then you need to install the system in the cannon and perform the first lifting of the snowmaking machine. Only after these procedures will it be possible to safely lower the cannon down.

3. TRANSPORT AND INSTALLATION

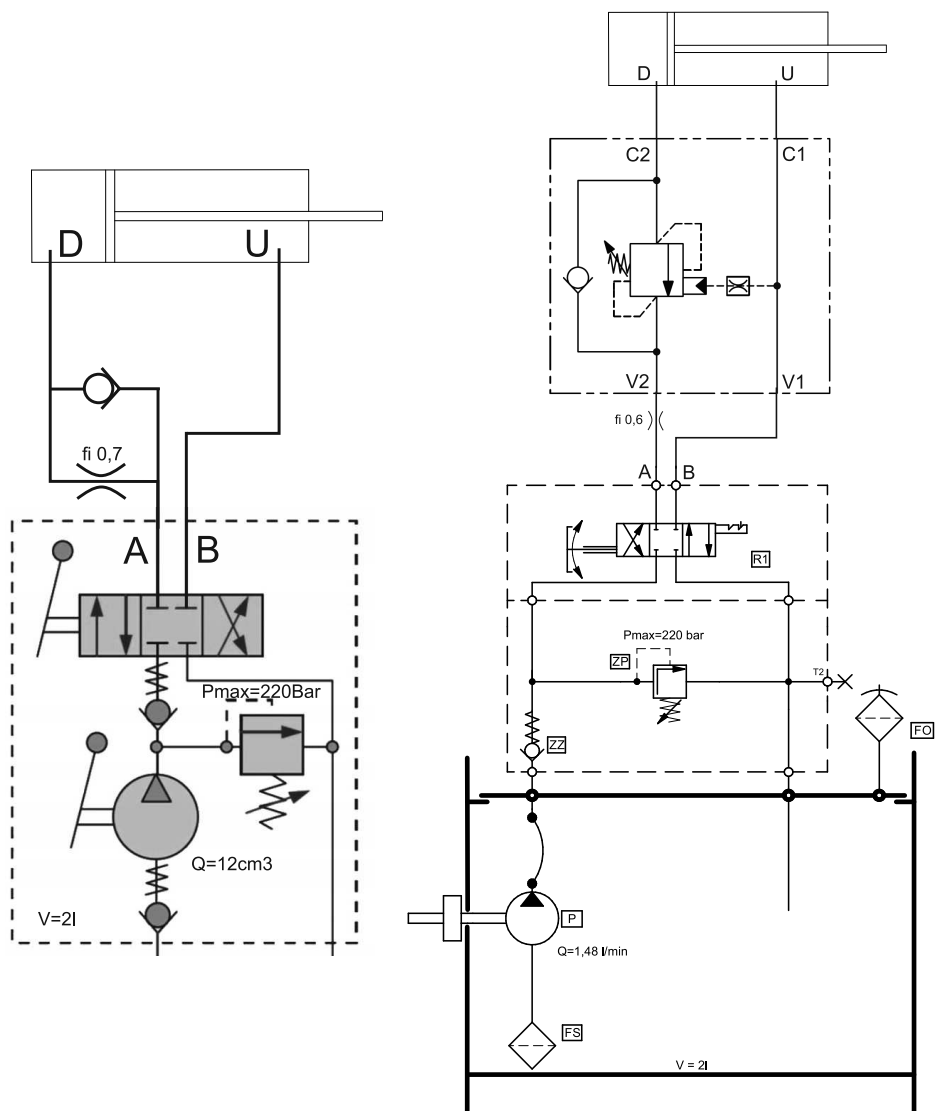
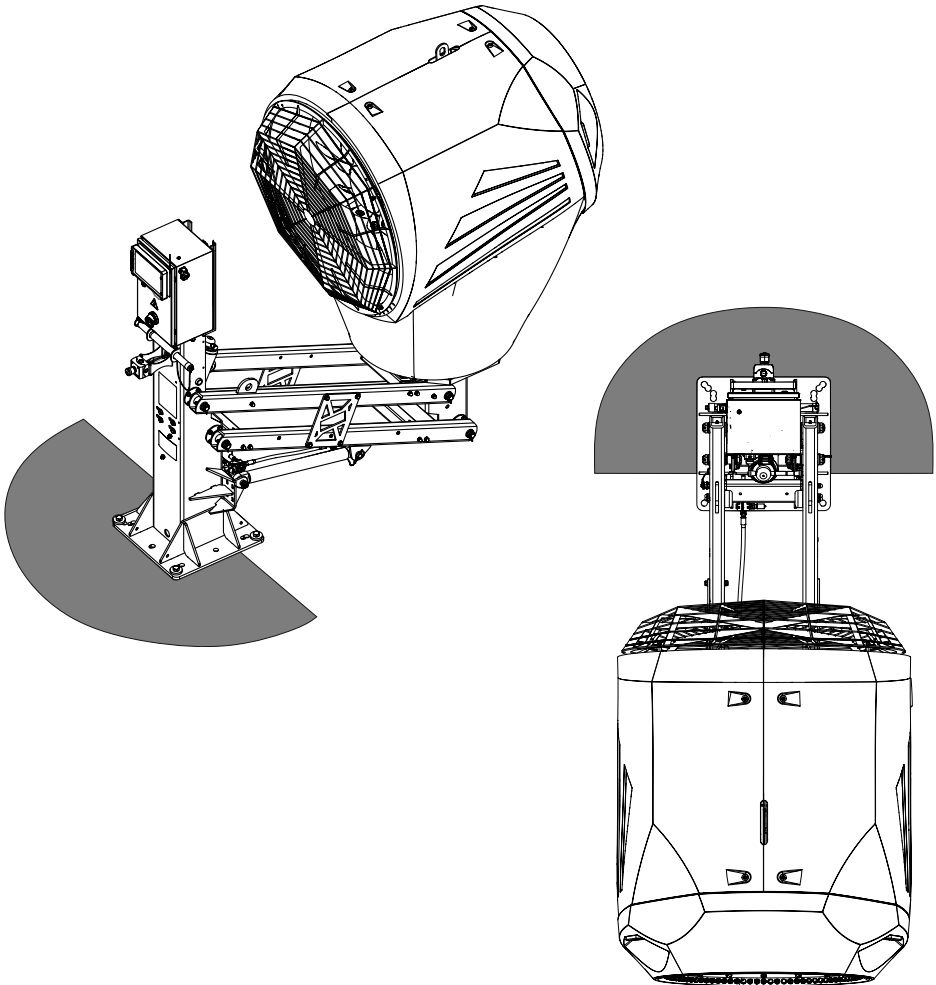


Diagram of the hydraulic system for lifting the 900T cannon - "Manual" - left, "Assisted" - right

3. TRANSPORT AND INSTALLATION

3.4.3. WORKSPACE

The control and operation of the cannon boom during the operation of raising and lowering it can only take place in a specific area. It is located on the left and right side of the boom, and on the back of the device (on the side of the electrical box). The area not allowed to stay is the place directly under the arms and the frame on which the snow cannon tube is located.

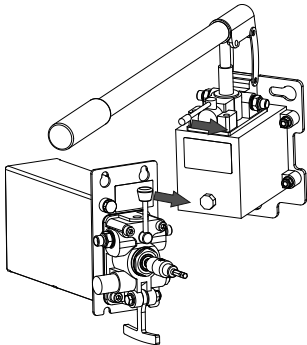
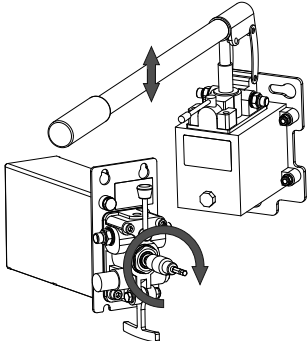
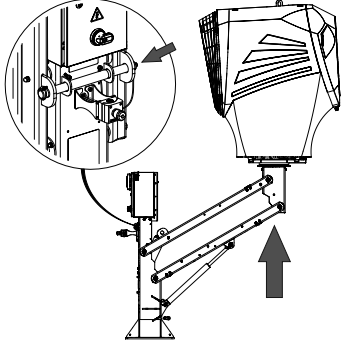


Permissible Area Occupied by the Operator When Lifting a 900T Snow Cannon

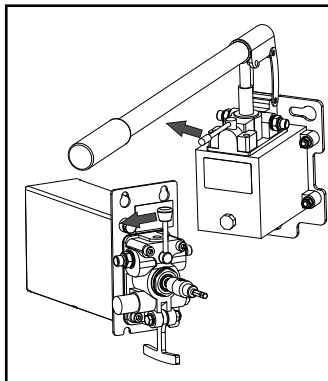
3. TRANSPORT AND INSTALLATION

3.4.4. LIFTING THE 900T CANNON

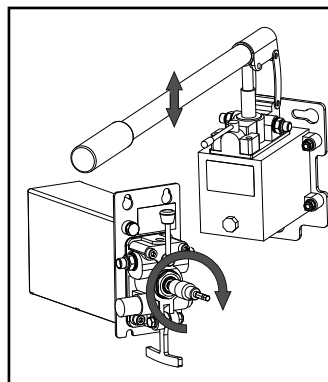
The lifting of the 900T cannon is carried out by the operation of a hydraulic cylinder. The lifting of the cannon frame is the result of pumping oil under pressure into the lower chamber of the cylinder.

	1. Turn the levers in the manifolds to the upward positions according to the information label.
	2. Start the hydraulic pump and start pumping the oil into the lower chamber of the cylinder. For the "Manual" system, this is done using the power of human muscles. The operator performs an up-down motion of the pump lever. For the "Assisted" system, the operator connects the screwdriver to the pump using the appropriate clutch located on the drill (HEX17). The movement of the shaft on the pump should be clockwise.
	3. After lifting the cannon to the very top, position the pin ears in a line. Insert the safety pin and lock it with the cotter pin.

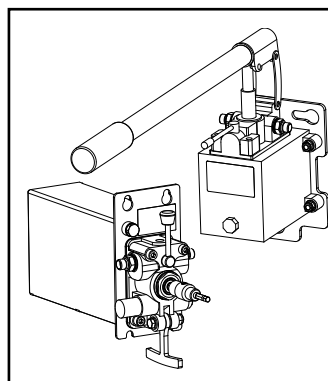
3. TRANSPORT AND INSTALLATION



4. Turn the levers in the manifold to the down position.



5. Start the hydraulic pump and start pumping the oil into the upper chamber of the cylinder. Pass the oil until the pin locks into the ears. Thanks to this sub-roll procedure on the pin, it will be impossible to remove it without first using a hydraulic pump.



6. Set the hydraulic manifold levers to the center position.

3. TRANSPORT AND INSTALLATION



INFORMATION!

AFTER LIFTING THE 900T CANNON, PROTECTIVE MATTRESSES SHOULD BE PLACED ON IT (ROZ.5.7.)

3.4.5. LOWERING THE 900T CANNON

The lowering of the 900T cannon is carried out by the action of a hydraulic cylinder. Lowering the cannon frame is the result of pumping oil under pressure into the upper cylinder chamber.



INFORMATION!

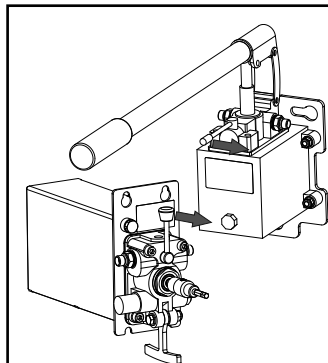
FOR THE "MANUAL" SYSTEM, IT IS ENOUGH TO TILT THE CRADLE OUT OF THE BALANCE POSITION, AND THE CANNON WILL BEGIN TO FALL DOWN WITH THE FORCE OF ITS GRAVITY. THE DESCENT CAN BE INTERRUPTED AT ANY TIME, JUST TURN THE DISTRIBUTOR LEVERS TO THE MIDDLE POSITION OR UPWARDS.



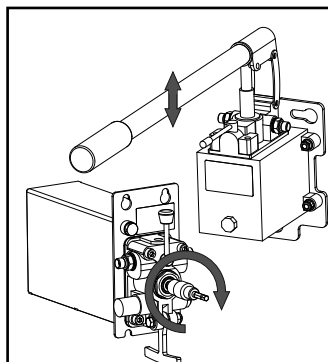
INFORMATION!

FOR THE "ASSISTED" SYSTEM, THE HYDRAULIC PUMP MUST BE DRIVEN ALL THE TIME SO THAT THE CANNON FALLS DOWN. THE DESCENT CAN BE INTERRUPTED AT ANY TIME, JUST TURN THE DISTRIBUTOR LEVERS TO THE MIDDLE OR UP POSITION, OR STOP DRIVING THE HYDRAULIC PUMP.

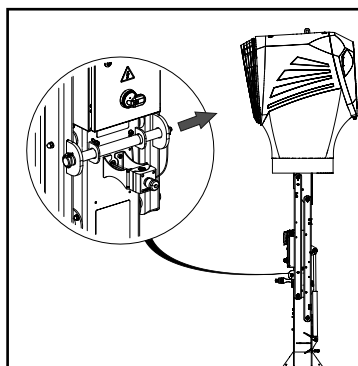
3. TRANSPORT AND INSTALLATION



1. Turn the levers in the manifolds to the upward position.

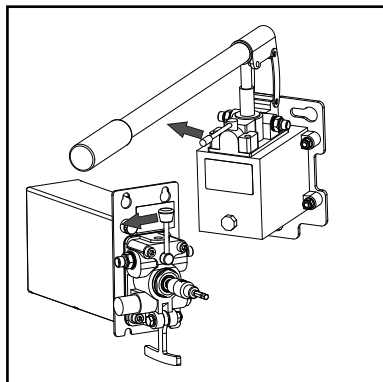


2. Start the hydraulic pump and start pumping the oil into the lower chamber of the cylinder. Pump the oil until the pin unlocks and the ears are in line.

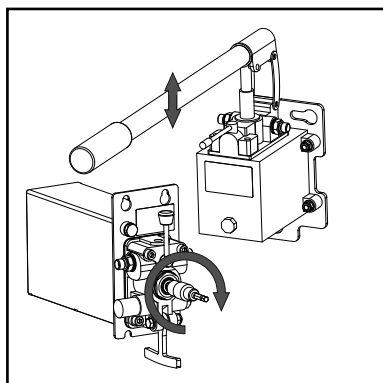


3. Remove the safety pin pin and then the pin itself.

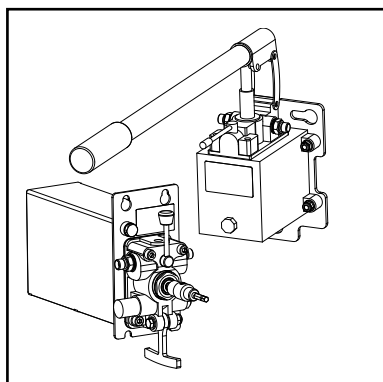
3. TRANSPORT AND INSTALLATION



4. Turn the levers in the manifold to the down position.



5. Start the hydraulic pump and start pumping the oil into the upper chamber of the cylinder. Pump the oil until you lower the snow cannon to the bottom.



6. Set the hydraulic manifold levers to the center position.

3. TRANSPORT AND INSTALLATION



INFORMATION!

THE 900T SNOW CANNON CAN BE STARTED WHEN IT IS IN THE LOWER POSITION, BUT REMEMBER TO DRAIN IT MANUALLY LATER (UNFASTEN THE HOSE AT THE CRADLE OR RAISE THE CANNON). FAILURE TO DO SO MAY RESULT IN THE WATER FREEZING OF WATER IN THE CANNON'S WATER SYSTEM.

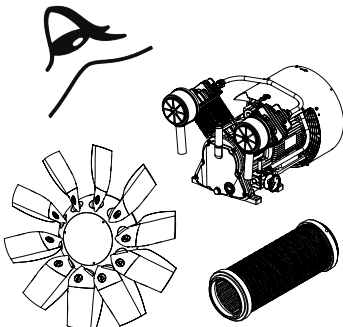


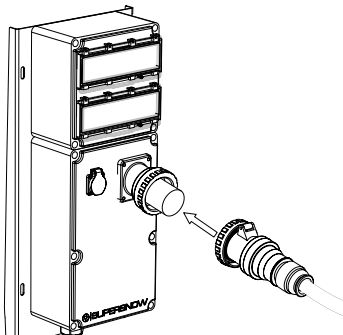
WARNING!

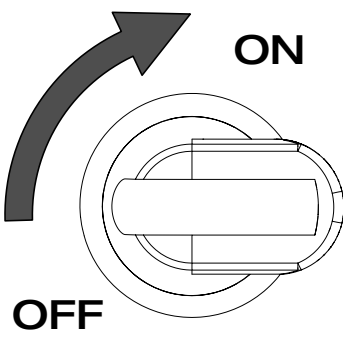
IT IS FORBIDDEN TO RAISE AND LOWER THE SNOW CANNON UNTIL THE WATER PRESSURE IN THE WATER SYSTEM OF THE SNOWMAKING MACHINE DROPS TO 0 BAR.

4. CONTROL

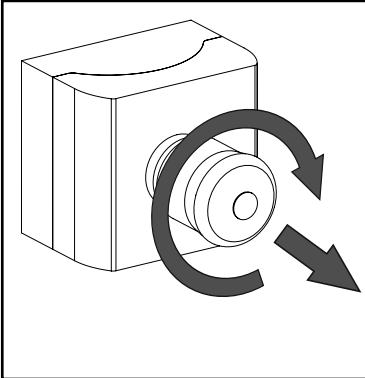
4.1. STARTING AND CONTROLLING THE SNOW CANNONS IN AUTOMATIC MODE

	1. Check the condition of the components (fan, compressor, filter cartridge).
---	--

	2. Connect the cannon to the power supply with a suitable cable.
---	---

	3. Turn the main switch to the ON position.
---	--

4. CONTROL



4. Make sure the emergency button is not pressed. If necessary, pull back or turn the button.



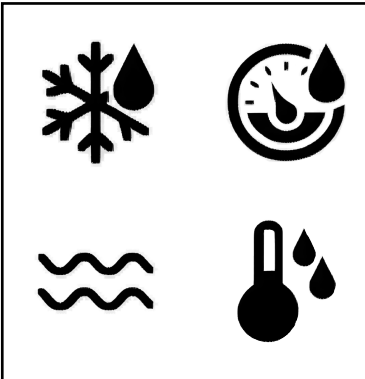
INFORMATION!

IF THE EMERGENCY STOP WAS PRESSED, CHECK THE CAUSE OF ITS CONDITION, AND THEN REMOVE THE FAILURE ON THE PANEL CAUSED BY IT.



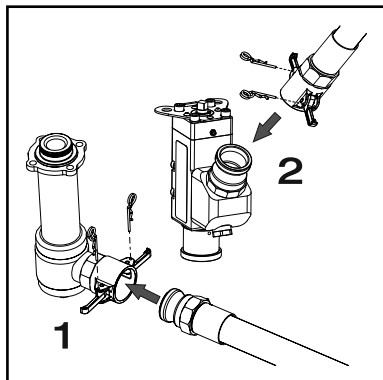
UWARNING!

MAKE SURE THE CABLES AND HOSE ARE ARRANGED IN A WAY THAT WILL NOT CAUSE DAMAGE TO THEM DURING OPERATION!

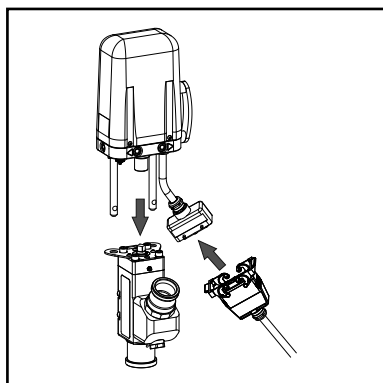


5. Check and set the device settings on the operator panel (snow quality, maximum water flow, maximum pressure, starting temperature, etc.)

4. CONTROL



6. Connect the cannon to the main water valve using a high-pressure hose.



7. Install the main water valve drive and connect it to the cannon with a suitable cable.



8. Start the device using the START button on the panel. The snow cannon controllers will initiate the procedure of starting the individual components of the machine in a predetermined order after the predetermined settings are reached. Change the machine state from Ready (solid yellow) to START (animated green) to change to WORK mode (solid green) later.

4. CONTROL



INFORMATION!

A SNOW CANNON WITH A WATER MAIN VALVE DRIVE CONNECTED WILL OPEN THE WATER SUPPLY AUTOMATICALLY WHILE REGULATING THE MAXIMUM FLOW. IN THE ABSENCE OF A VALVE ACTUATOR, MANUALLY SLOWLY UNSCREW THE MAIN WATER VALVE AND ADJUST THE MAXIMUM WATER PRESSURE IF NECESSARY. THERE IS A SPECIAL MODE OF OPERATION SET ON THE PANEL FOR THE OPERATION OF THE SNOW CANNON WITHOUT THE MAIN WATER VALVE DRIVE.



WARNING!

DO NOT EXCEED THE MAXIMUM WATER PRESSURE OF 45 BAR!



INFORMATION!

THE SNOW CANNON IN AUTOMATIC MODE WILL START ACTIVATING ITS COMPONENTS AFTER SIGNALING THIS ACTION WITH A SOUND SIGNAL.



WARNING!

THE SNOW CANNON CAN TAKE OFF ON ITS OWN IF THE APPROPRIATE CONDITIONS DECLARED BY THE OPERATOR ARE MET IN ADVANCE AND IF IT IS ALLOWED TO TAKE OFF IN ADVANCE OR REMOTELY.

4. CONTROL

4.2. STOPPING THE SNOW CANNONS IN AUTOMATIC MODE

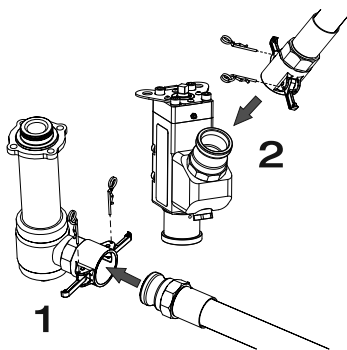


1. Stop the appliance using the STOP button. Change the cannon mode from WORK (solid green) to STOP (animated yellow).



INFORMATION!

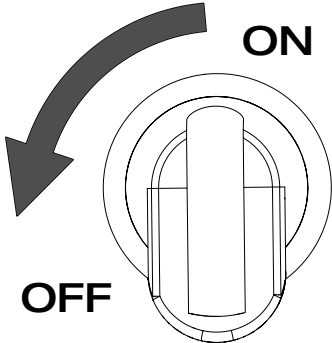
A SNOW CANNON WITH A MAIN WATER VALVE DRIVE CONNECTED WILL SHUT OFF THE WATER SUPPLY AUTOMATICALLY. IF THERE IS NO DRIVE, MANUALLY TURN OFF THE MAIN WATER VALVE.



2. When the pressure drops to zero, disconnect the hose from the main water valve and the snow cannon if necessary.

4. CONTROL

READINESS	3. Wait until all components of the machine are switched off, the cannon will change its state from STOPPED (yellow animated) to READY (yellow solid).

	4. Turn the main switch to the OFF position, thereby turning off the machine.
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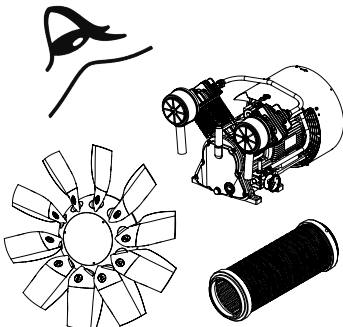


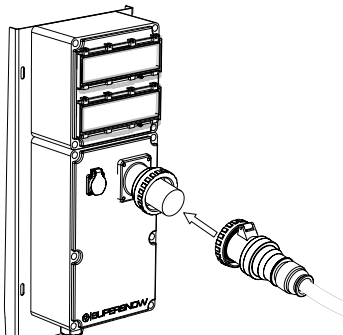
INFORMATION!

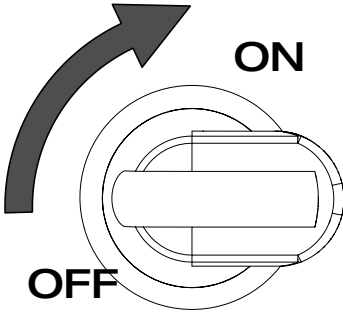
THE SNOW CANNON TUBE RISES TO AN ANGLE OF 15 DEGREES DURING THE START STATE, AND DROPS TO AN ANGLE OF 5 DEGREES DURING STOPPING. AFTER THIS PROCEDURE, THE OPERATOR CAN FREELY CORRECT THE VALUE OF THIS ANGLE.

4. CONTROL

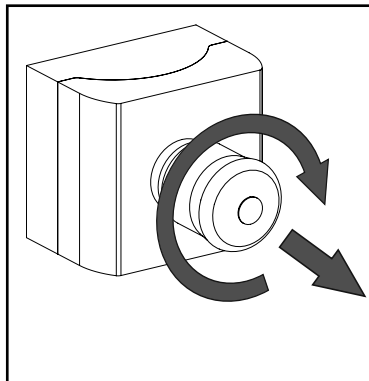
4.3. STARTING AND CONTROLLING THE SNOW CANNON IN MANUAL MODE

	1. Check the condition of the components (fan, compressor, filter cartridge).
---	--

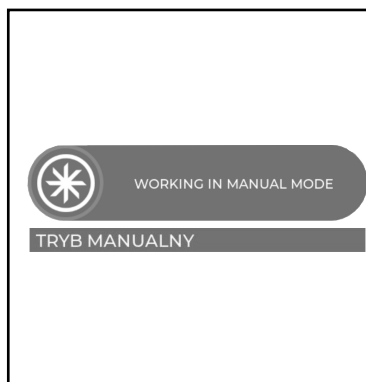
	2. Connect the cannon to the power supply with a suitable cable.
---	---

	3. Turn the main switch to the ON position.
---	--

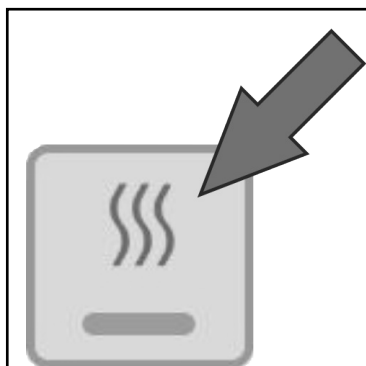
4. CONTROL



4. Make sure the emergency button is not pressed. If necessary, pull back or turn the button.

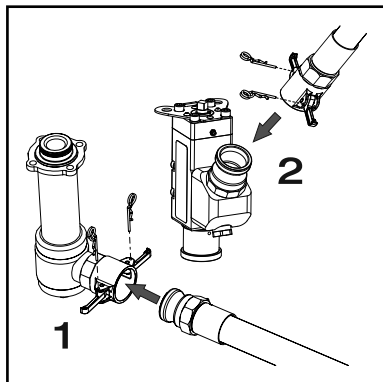


5. Set the manual mode on the cannon panel. To do this, hold down the Start/Stop button.

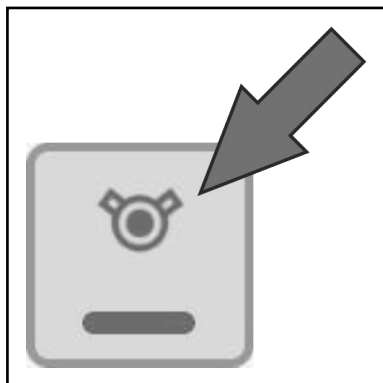


6. Turn on the ring heating functions. Wait until the ring has warmed up to the correct temperature (change to a gray line below the symbol).

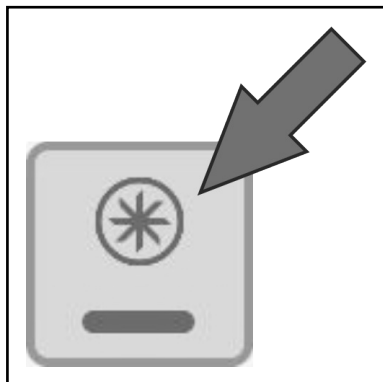
4. CONTROL



7. Connect the cannon to the main water valve using a high-pressure hose.

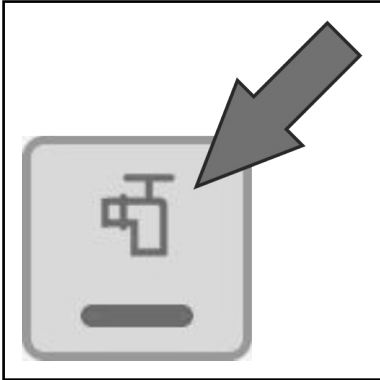


8. Turn on the compressor and check if air is escaping through the nucleus nozzles.



9. Turn on the fan.

4. CONTROL

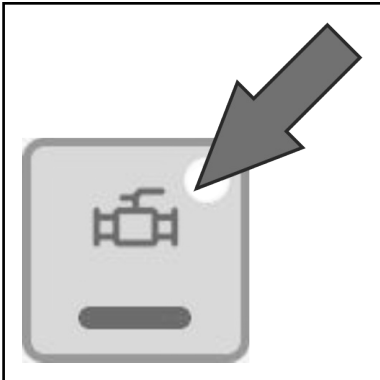


12. Turn on the water main drive opening.



INFORMATION!

A SNOW CANNON WITH A WATER MAIN VALVE DRIVE CONNECTED WILL OPEN THE WATER SUPPLY AUTOMATICALLY WHILE REGULATING THE MAXIMUM FLOW. IF THERE IS NO VALVE ACTUATOR, MANUALLY SLOWLY UNSCREW THE VALVE AND ADJUST THE MAXIMUM WATER PRESSURE IF NECESSARY. THERE IS A SPECIAL MODE OF OPERATION SET ON THE PANEL FOR THE OPERATION OF THE SNOW CANNON WITHOUT THE MAIN WATER VALVE DRIVE.



13. Open the appropriate valves to supply water to the required sections of the ring (depending on weather conditions and the accepted snow quality).

4. CONTROL

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

OPEN VALVE NUMBER	NUMBER OF NOZZLES IN OPERATION
Permanent Government	8x ø1,5 + 8x ø1,3 (7%)
Valve 1	6x ø1,7 (6%)
Valve 2	12x ø1,7 (12%)
Valve 3	24x ø1,7 (25%)
Valve 4	48x ø1,7 (50%)

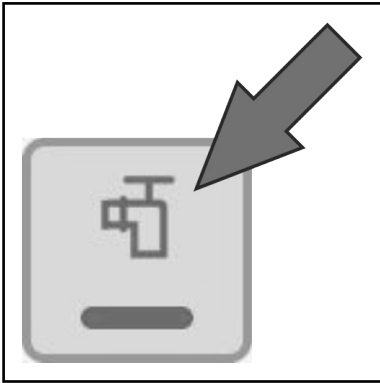
Table specifying the number of nozzles operating depending on the opening of the corresponding valve in relation to the total water flow in the snow cannon



WARNING!
DO NOT EXCEED THE MAXIMUM WATER PRESSURE OF 45
BAR!

4. CONTROL

4.4. STOPPING THE SNOW CANNONS IN MANUAL MODE

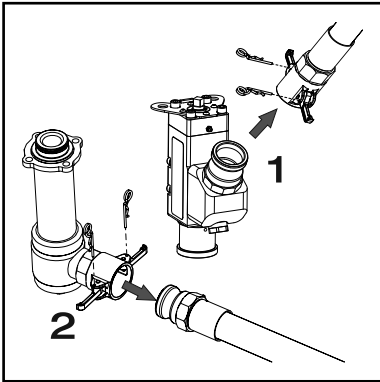


1. Close the main water valve.



INFORMATION!

A SNOW CANNON WITH A WATER MAIN VALVE DRIVE CONNECTED WILL SHUT OFF THE WATER SUPPLY AUTOMATICALLY. IF THERE IS NO VALVE ACTUATOR, MANUALLY TURN OFF THE MAIN WATER VALVE.



2. When the pressure drops to zero, disconnect the hose from the main water valve and the snow cannon if necessary.

4. CONTROL

	3. Turn the fan OFF.
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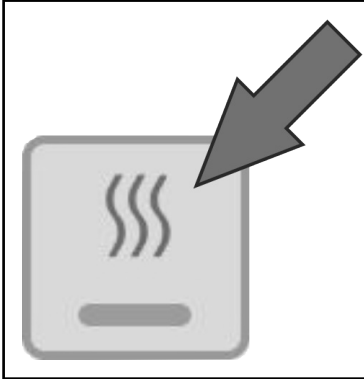
	4. Turn the compressor OFF.
---	------------------------------------



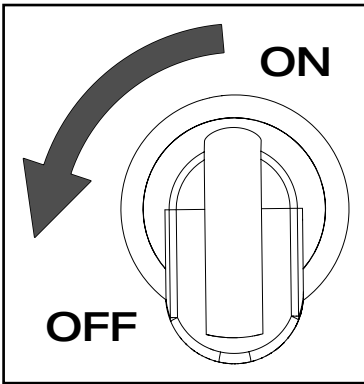
INFORMATION!

THE COMPRESSOR WILL NOT TURN OFF IMMEDIATELY WHEN THE BUTTON STATE IS CHANGED TO OFF. A TIMER (30S) WILL APPEAR ON THE BUTTON ICON TO COUNT DOWN THE TIME UNTIL THE COMPRESSOR STOPS.

4. CONTROL

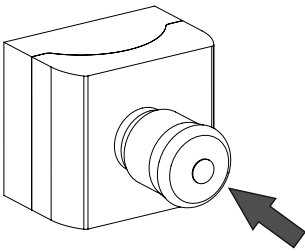


5. When you have finished working with the cannon, wait until the ring is heated to the correct temperature (change to gray line under the symbol) and then turn off the ring heating OFF.



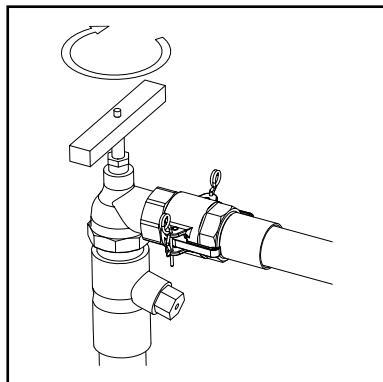
6. Turn the main switch to the OFF position, thereby turning off the machine.

4.5. EMERGENCY STOP / LOSS OF POWER

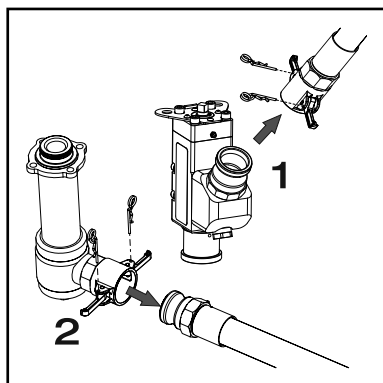


In a situation where human life or health is at risk, or when the machine is in danger, press the emergency button. It is always located in an easily accessible place on a snow cannon, pole or boom. The emergency button cuts off the power supply to all the snow cannon executive components that may pose a threat. In the event of a loss of power or pressing the emergency button, the following actions should be performed after eliminating the hazard:

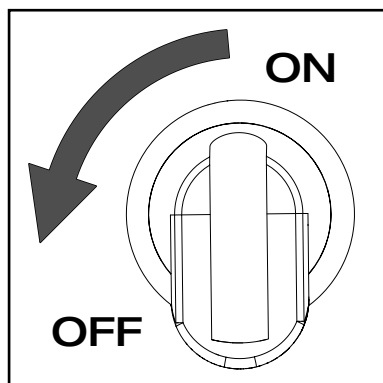
4. CONTROL



1. Close the water main valve (*if the valve actuator is installed, wait for the water main valve to close completely).



2. When the pressure drops to zero, disconnect the hose from the main water valve and the snow cannon if necessary.



3. Turn the main switch to the OFF position, thereby turning off the machine.

5. OPERATION OF THE SNOW CANNON



Before starting to operate the snow cannon, you should carefully read the operating instructions provided with the machine. This will protect the snow cannon from malfunctions caused by improper use, and the operator from damage to health.

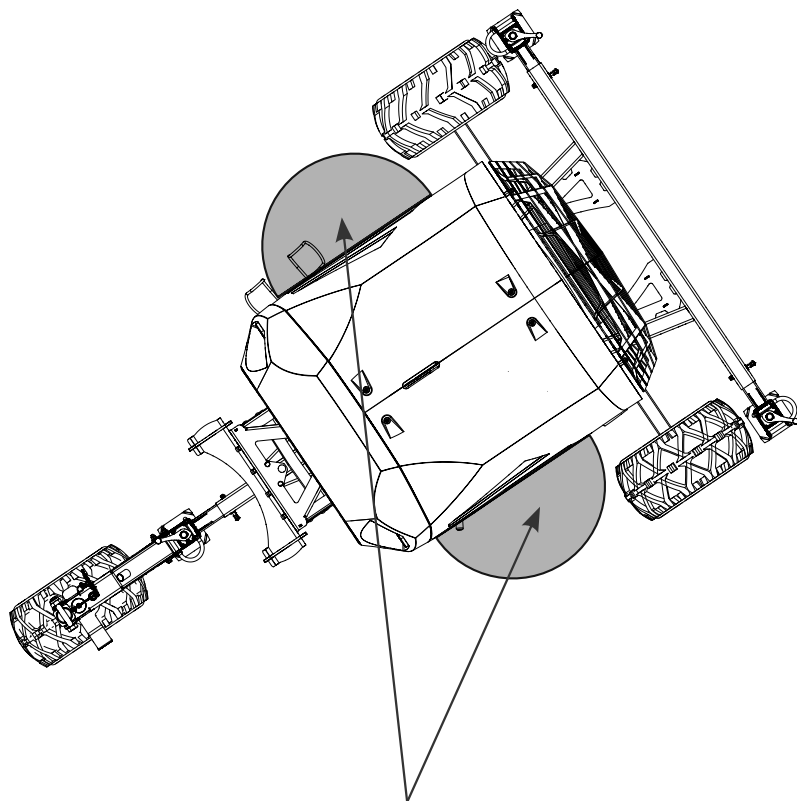


The snow cannon is powered by electricity. Before performing any operations inside the device, it must be disconnected from the voltage.

5. OPERATION OF THE SNOW CANNON

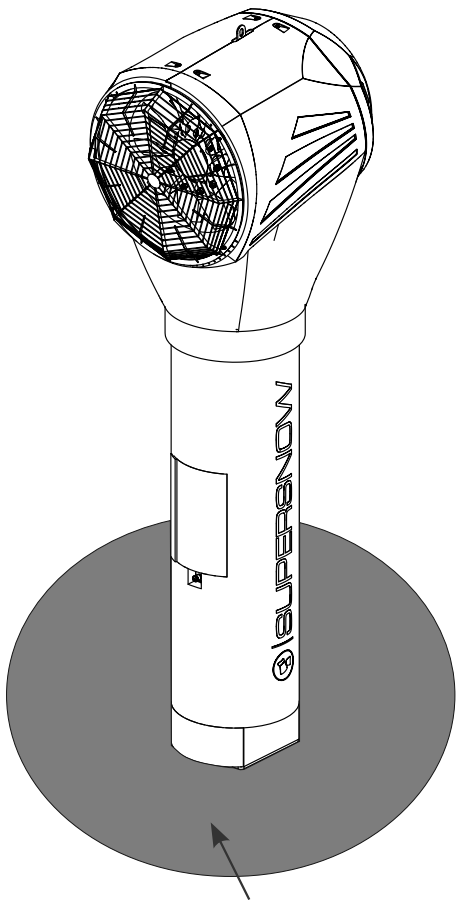
5.1. WORKSPACE

The cannon can be rotated horizontally by an angle of 360° (*approximate), while the height of the barrel is adjustable from about 0° to 45° (*approximate value). The operation of the machine should be controlled so that the snow produced does not get into the fan. The snow cannon inspection can only take place in the designated working area, marked in the figure below.



Permissible area occupied by the operator when working with the cannon 900H

5. OPERATION OF THE SNOW CANNON



Permissible area occupied by the operator when working with the cannon 900T



WARNING!
ON THE 900T SNOW CANNON, THE WORKING AREA IN FRONT OF THE FILTER CAN ONLY BE ACCESSIBLE TO THE OPERATOR WHEN THE MACHINE IS IN THE UPPER POSITION AND IS LOCKED BY A SAFETY PIN!

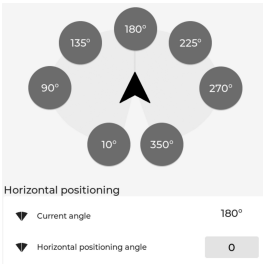
5. OPERATION OF THE SNOW CANNON

5.2. MOTION CONTROL

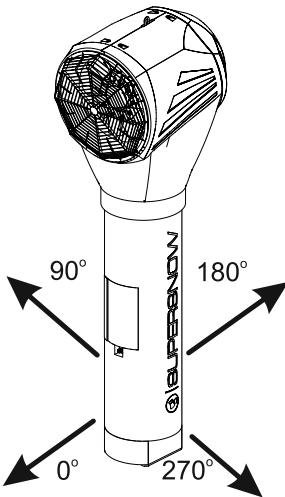
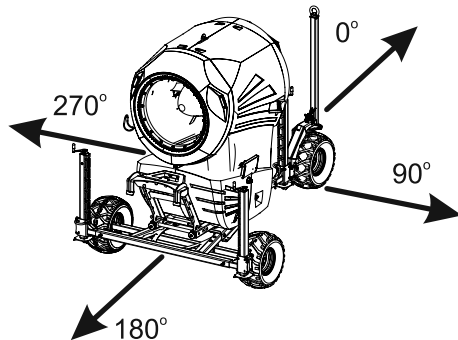
5.2.1. HORIZONTAL POSITIONING



The horizontal positioning of the machine to the left and right can be controlled using the buttons located on the main screen. When rotating, pay attention to the arrangement of cables and hoses.



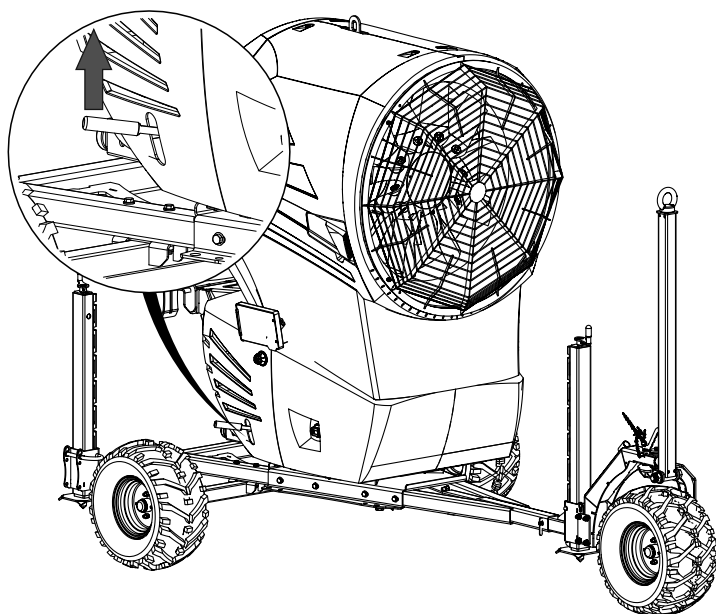
Options for more accurate or predefined setting of the snow cannon angle are located on the positioning screen. This screen allows you to control the 900H and 900T guns in a clearer way.



Standard horizontal base angles for the 900H and 900T snow cannon

5. OPERATION OF THE SNOW CANNON

In the 900H cannon, there is also the possibility of manually rotating the device. To do this, unlock the drive by pulling the release lever upwards, as shown in the figure below.



Method of decoupling the oscillation drive for manual rotation of the machine

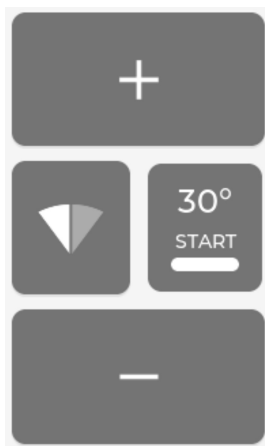


WARNING!

MAKE SURE THE CABLES AND HOSE ARE ARRANGED IN A WAY THAT WILL NOT CAUSE DAMAGE TO THEM DURING OPERATION!

5. OPERATION OF THE SNOW CANNON

5.2.2. HORIZONTAL OSCILLATION



In order for the snow to be evenly distributed on the slope, the cannon is equipped with an auto oscillator. This translates to a large extent into a reduction in expenditures related to the maintenance of routes. The width of the snowmaking angle is set on the main screen of the control panel. The adjustable oscillation angles are 15°, 30°, 45°, 60°, 75°, 90°, 105°, 120°, 135°, 150°, 165° and 180°. The machine operator also has the ability to set the starting point of the oscillation in different ways (from the left, from the right, from the center).



INFORMATION!

THE ROTATION AND OSCILLATION OF THE SNOW CANNON HAVE A SOFT START FUNCTION. THIS ALLOWS THE MACHINE TO START AND STOP GENTLY. THIS ALLOWS FOR MORE ACCURATE POSITIONING AND REDUCTION OF INRUSH CURRENTS, WHICH INCREASES THE DURABILITY OF COMPONENTS.

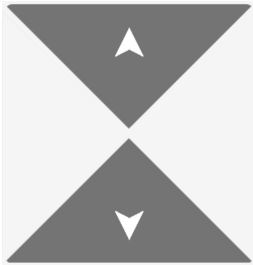


WARNING!

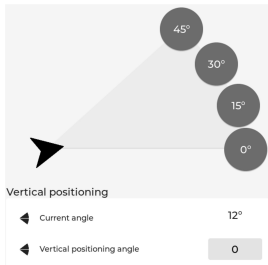
THE 900H/T SNOW GUN POSITIONS ITSELF AT FULL SPEED WHILE OSCILLATING MUCH SLOWER.

5. OPERATION OF THE SNOW CANNON

5.2.3. VERTICAL POSITIONING



The vertical positioning of the machine tube up, down can be controlled using the buttons located on the home screen. The permissible angles of the tube are from 0° to 45°.



Options for more accurate or predefined angle of the snow cannon tube are located on the positioning screen. This screen allows you to control the 900H and 900T guns in a clearer way.



INFORMATION!

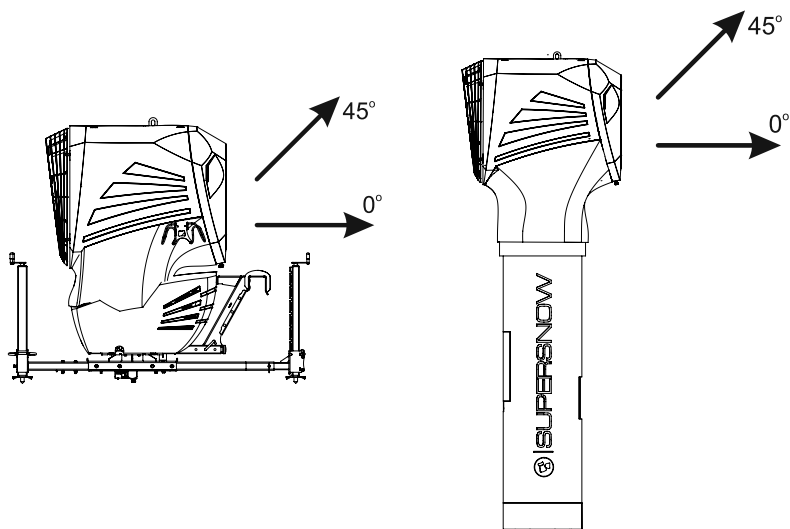
WHEN THE MACHINE STARTS (COMPRESSOR ON), THE SNOW GUN TUBE AUTOMATICALLY RISES TO AN ANGLE OF 15°. WHEN STOPPING THE MACHINE (COMPRESSOR OFF), THE SNOW GUN TUBE AUTOMATICALLY DROPS TO AN ANGLE OF 5°.



WARNING!

TRANSPORT LOCKS CAN ONLY BE APPLIED WHEN THE MACHINE IS IN THE CORRECT POSITION. FOR THE HORIZONTAL ANGLE IT IS 180° AND FOR THE VERTICAL ANGLE IT IS 5°!

5. OPERATION OF THE SNOW CANNON

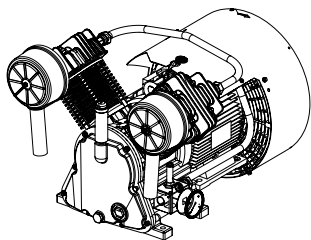


Standard vertical base angles for the 900H and 900T snow cannon

5.3. COMPRESSOR

Before starting work, check the compressor for visible signs of damage and verify the tightness of the air hoses and pressure gauge. In order to extend the life of vibroisolators, it is recommended to level the cannon before starting. The compressor does not require condensate drainage at the end of the job, as it has an automatic condensate drain valve.

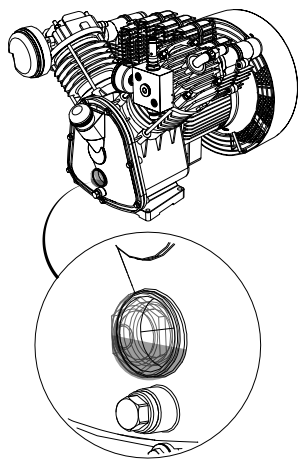
5.3.1. OIL-FREE COMPRESSOR



The oil-free compressor is almost maintenance-free. Maintenance activities are reduced only to replacing the filter and checking the condition of the vibroisolators.

5. OPERATION OF THE SNOW CANNON

5.3.2. OIL COMPRESSOR



In an oil compressor, check the oil condition before each start with the compressor switched off through a transparent inspection sight glass located at the bottom of the compressor body. The oil level should be between the top and bottom edges of the red eye. If the oil level is below the minimum, it should be topped up. Exceeding the maximum level will eject oil through the nucleus nozzles and risk damaging the compressor. The compressor is flooded with oil designed to operate at low temperatures. For this reason, too long a runtime during the summer can cause damage to the compressor. It is allowed to start the compressor temporarily at a temperature above 5°C, but the maximum operating time must not exceed 5 minutes. Change the oil in the compressor according to the recommendations in the maintenance table at the end of Chapter 5. It is recommended to use Shell Corena S46 oil or an oil from another manufacturer with properties corresponding to the above grade.

Oil compressor - oil change method

- 1) Heat the oil in the compressor by turning it on for 5 minutes
- 2) Tilt the appliance so that the oil can drain completely
- 3) Unscrew the oil drain screw in the compressor body and drain all the oil into the vessel, dispose of the used oil in accordance with environmental regulations
- 4) Screw in the oil drain screw
- 5) Level the device
- 6) Pour in the oil recommended by the cannon manufacturer, the oil level should cut in half the red frame of the control eye
- 7) Screw off the oil filler cap

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

5. OPERATION OF THE SNOW CANNON



WARNING!

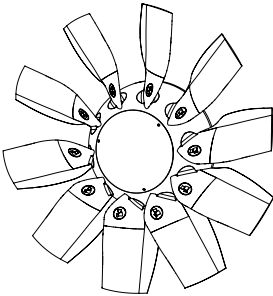
NEVER START THE COMPRESSOR WITHOUT THE SUCTION FILTER!



WARNING!

DURING OPERATION, THE SURFACE OF THE COMPRESSOR HEATS UP, CREATING THE POSSIBILITY OF BURNS.

5.4. VENTILATOR



The 900H and 900T cannon has an aluminum 10-blade fan. The aluminum rotor blades have greater rigidity, which translates into noise reduction and increases fan efficiency. Before operating the snow cannon, make sure that the fan rotor and housing are not covered with ice. If they are icy, use a stream of warm air to defrost. If vibration occurs during operation or the fan sound changes, stop the device and check the condition of the rotor. Working with an icy fan causes accelerated wear of the motor bearings, and in extreme cases, leads to damage to the fan itself. The 900H and 900T cannons have a Soft Start in the fan electrical system, which allows the rotor to be safely started without overloading. If the fan is started with the blades frozen, the Soft Start system will not allow it to rotate.



WARNING!

BEFORE OPENING THE FAN PROTECTION GRILLE, DISCONNECT THE POWER TO THE CANNON!

5. OPERATION OF THE SNOW CANNON

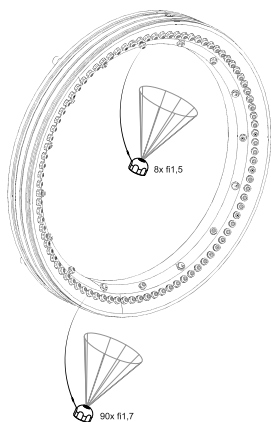
5.5. RING ASSEMBLY

5.5.1. WATER-AIR RING

The water-air ring is a key component of the snow cannon, forming the heart of its snow production system. Designed for the highest performance, its innovative design combines three core functions: precise nozzle positioning, advanced control over the spraying and nucleation process, and efficient thermoregulation for high performance and reliability in all weather conditions. Made of high-quality aluminum, the ring provides an excellent heat conductor. Inside, in addition to water and air ducts, there is also a heater channel. Thanks to this, the system actively transfers heat to the nozzles, protecting them from icing, which is crucial for the uninterrupted operation of the cannon at low temperatures. In addition, the ring acts as a water-air heat exchanger (cooler). The design of the module allows compressed air to flow through channels inside the ring, which are cooled by the flowing water. This process lowers the temperature of the compressed air even before it is released, which increases the efficiency of the nucleation process and snow production.

5.5.2. NOZZLES

During the operation of the cannon, it is necessary to control the correct spraying of water through the nozzles (figure below). If the stream is heterogeneous, the nozzle needs to be cleaned. You should keep the water filter clean and control its O-rings to prevent the ingress of debris and, as a result, clogging of the nozzles.



Water nozzle - cleaning method:

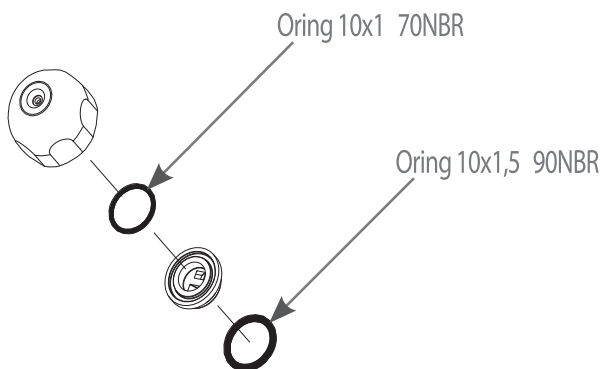
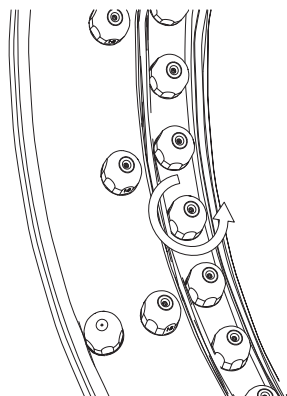
- 1) To clean the nozzle, remove it from the ring (with the nut wrench included in the service kit or with the 19 mm HEX19 open-end or socket wrench) and remove the inner component from the nozzle body.
- 2) Wash the elements under running water, then remove the remaining impurities with a stream of compressed air, or with a wooden stick in the case of more difficult dirt. The nozzle is a very precise element and it is not allowed to use sharp metal tools to clean it, which can cause it to be uncalibrated.
- 3) If you find damage to the O-rings or leaks in the nozzle, replace the sealing O-rings with new ones.
- 4) Install the insert in the ring and screw it with the nut.

5. OPERATION OF THE SNOW CANNON

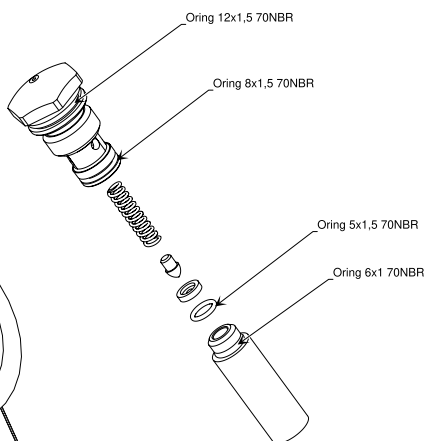
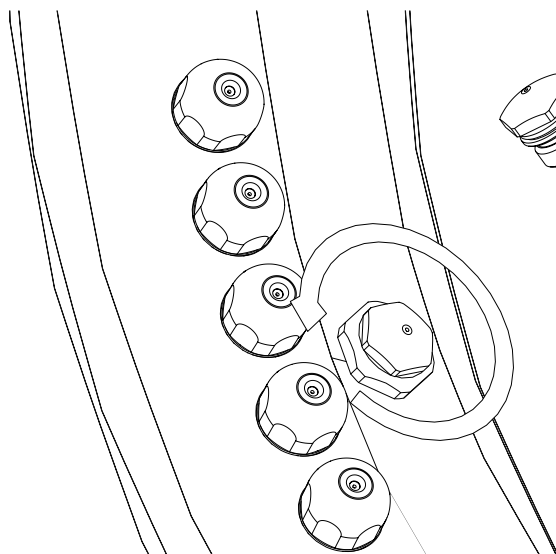


INFORMATION!

IF YOU REPLACE OR DISASSEMBLE THE O-RINGS, ALWAYS COAT THEM WITH TECHNICAL PETROLEUM JELLY.



Components of a water nozzle $\Phi 1,5$; $\Phi 1,7$



Components of the nucleation nozzle

5. OPERATION OF THE SNOW CANNON



INFORMATION!

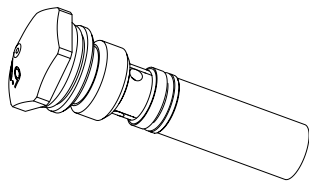
#ARG!



WARNING!

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

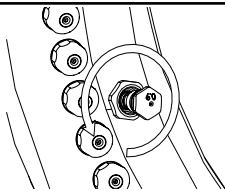
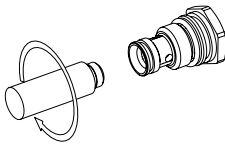
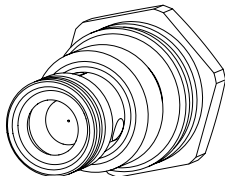
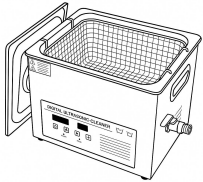
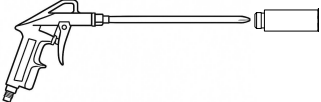
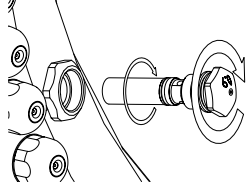
The 900H and 900T cannons feature dual-media nucleation nozzles equipped with an individual water filtration system. These machines do not need a water or air pressure reducer. This makes it possible to lower the required air pressure in the system. A sign of dirty nozzle filter is a lack of water in the outlet stream and a drop in air pressure. Below in the table are the air pressure values depending on the water pressure in the system. The parameters described above should be taken as a guide only, as their values depend on many factors, including altitude, atmospheric pressure, compressor efficiency, accuracy of nozzle components and air humidity.



WATER PRESSURE [BAR]	AIR PRESSURE [BAR]		
	MIN	OPT	MAX
0	3,6	3,8	4,0
20	4,6	5,4	5,8
40	5,2	6,0	6,4

5. OPERATION OF THE SNOW CANNON

The nozzle filter is cleaned as follows:

	1. Unscrew the nucleation nozzle from the water ring - right thread wrench 17mm (HEX17).
	2. Remove the nozzle filter from the nucleus nozzle body - left thread.
	3. Check that the ceramic nozzle placed 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 step, blow the filter with compressed air. Place the tip of the air gun inside the filter.
	6. Install the filter in the nozzle - left thread, then install the nozzle in the ring - right thread.

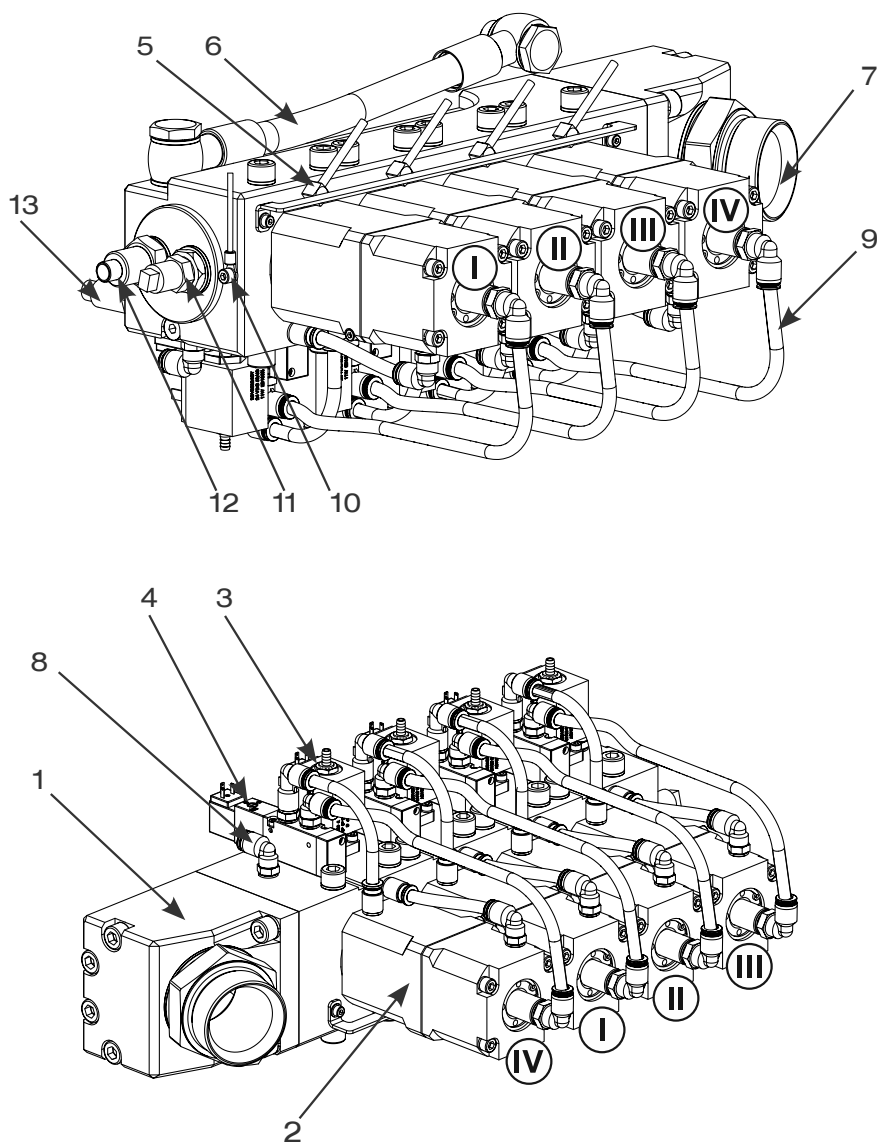
5. OPERATION OF THE SNOW CANNON

5.5.3. VALVE ASSEMBLY

A valve assembly is a device that allows water to be distributed to the appropriate sections of the ring. It allows you to obtain the required snow quality. It is permanently connected to the 900H and 900T snow cannon ring. The pneumatic-water valve works on the principle of electrical control of an appropriate pneumatic solenoid valve, which allows compressed air to flow into a given chamber. Therefore, it is possible to realize the functions of opening, closing and blowing the ring section. Thanks to this design of the Water Ring with Valve Assembly, the machine is drained only when the machine is stopped.

1	Valve block body	x 1
2	Pneumatic and water valve	x 4
3	Pneumatic solenoid valve 3/2	x 4
4	Pneumatic solenoid valve 5/2	x 4
5	Water Block Heater	x 4
6	Nucleation Water Hose	x 1
7	Water Inlet Cutter	x 1
8	Air Inlet Connector	x 2
9	Pneumatic hoses	x 12
10	Block Temperature Sensor	x 1
11	Water Temperature Sensor	x 1
12	Water pressure sensor	x 1
13	Air Pressure Sensor	x 1

5. OPERATION OF THE SNOW CANNON

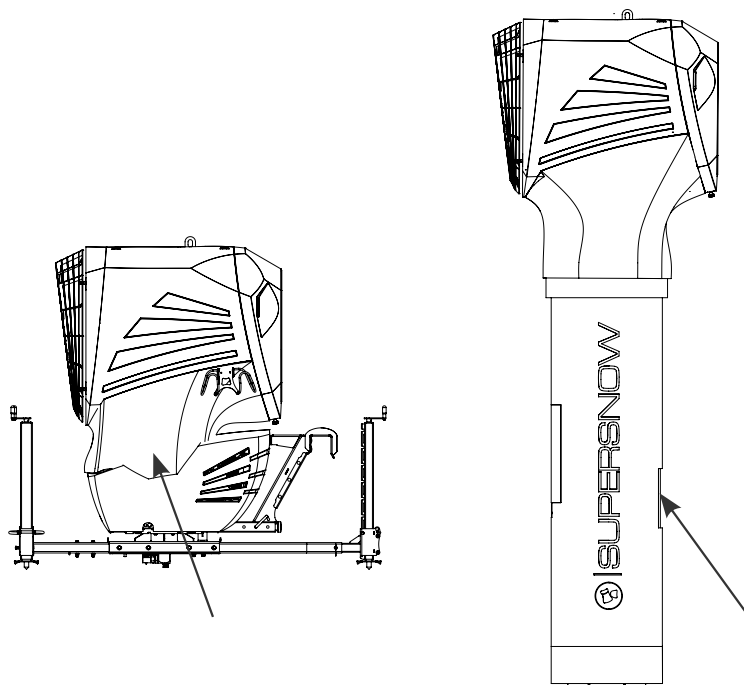


Description of the construction of the water complex

5. OPERATION OF THE SNOW CANNON

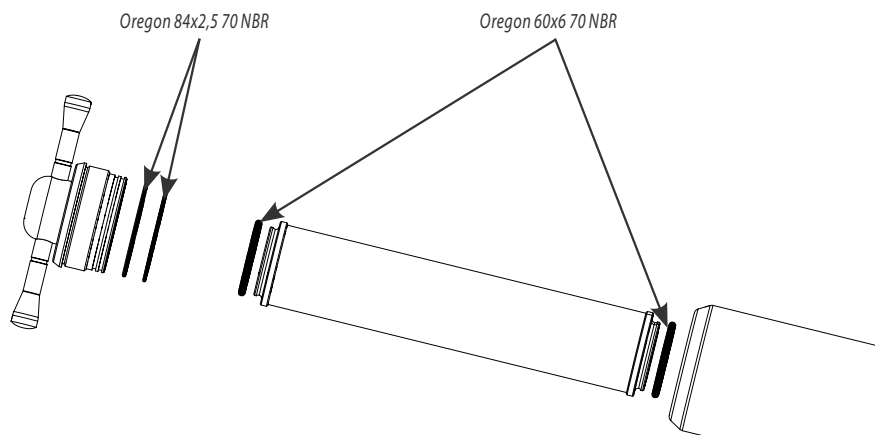
5.6. WATER FILTER

The cannon is equipped with a filter located between the supply hose and the water unit. Before each start-up, check the presence and cleanliness of the filter cartridge! To pull out the filter, unscrew the cap. When cleaning the filter, check the condition of the sealing O-rings and the cartridge itself. To clean the filter, use a plastic bristle brush and a stream of running water. Remove and insert the cartridge carefully so as not to damage or stain the surface and seals. Care must be taken to ensure that no contaminants enter the water flow system. On the 900H machine, to access the filter, you need to unfasten the sleeve slightly, and on the 900T, you need to open the flap located on the opposite side of the electrical box.



Location of Water Filter in 900H, 900T

5. OPERATION OF THE SNOW CANNON



O-rings that need to be checked when cleaning the water filter



WARNING!

NEVER START THE CANNON WITHOUT A WATER FILTER!



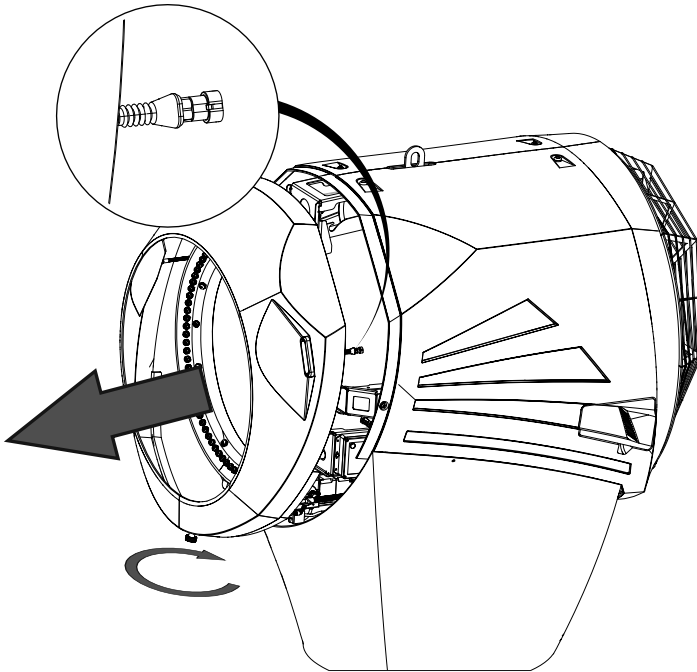
WARNING!

AFTER UNSCREWING THE LID, ALWAYS CHECK IF IT HAS BEEN SCREWED BACK ON!

5. OPERATION OF THE SNOW CANNON

5.7. CASES, SLEEVES & MATTRESSES

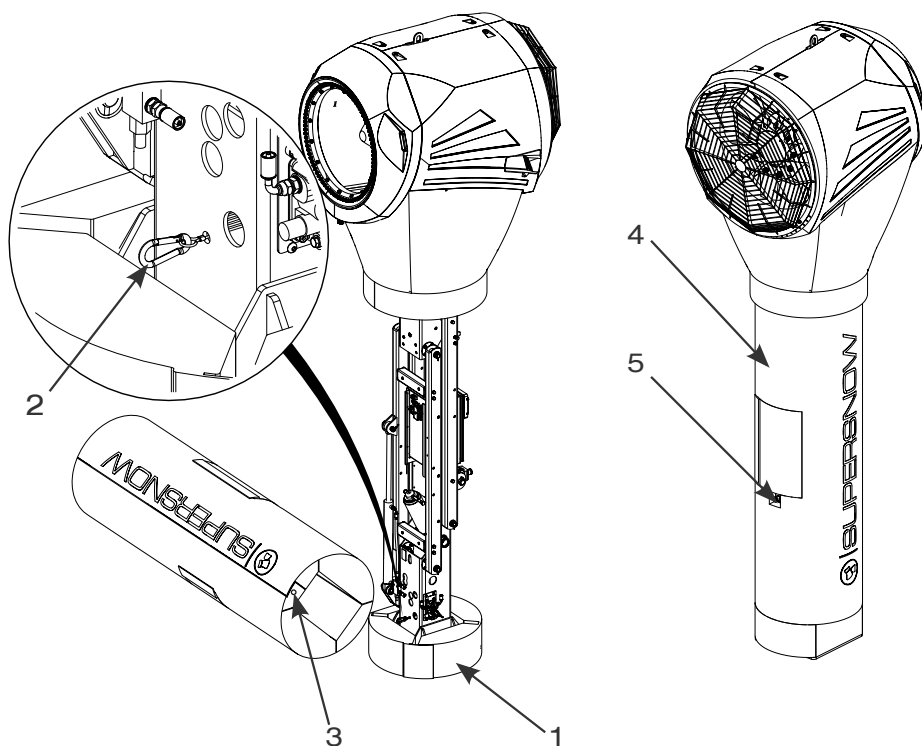
The 900H and 900T snow cannon has casings, sleeves and mattresses that not only perform aesthetic functions, but also protect the operator from many dangers, and the cannon components from damage. Housings, sleeves and mattresses are an integral part of the machine, and running it without these components increases the danger to the operator and can disrupt the machine's operations. However, if necessary, the 900H and 900T snow cannons have some elements that can be quickly dismantled. The easiest way is to detach the sleeve, which is attached to Velcro similarly to a mattress. The ring housing is an element that is removed for easy access to the valve block components. However, be careful and unplug the lamp plugs before removing the ring housing so as not to pull them out.



Lamp cord plug to be unplugged before removing the ring housing

5. OPERATION OF THE SNOW CANNON

After lifting the 900T cannon to an upright position and securing it with a pin, mattresses should be placed on it. First, we put on the Lower Mattress (1). We place it in such a way that the thinner wall of the mattress is on the same side as the manhole of the well. Then, in the lower part of the column of the 900T cannon, there is a special cable with a carbine (2). It should be connected to the lower eyelet (3) in the Middle Mattress (4). This allows you to protect the mattress from going down the slope after removing the mattress from the cannon. The last step is to put the Middle Mattress (4) on the pole. A good reference point for how to put on the Middle Mattress is the correct position of it in relation to the Emergency Button (5.)



How to install 900T mattresses

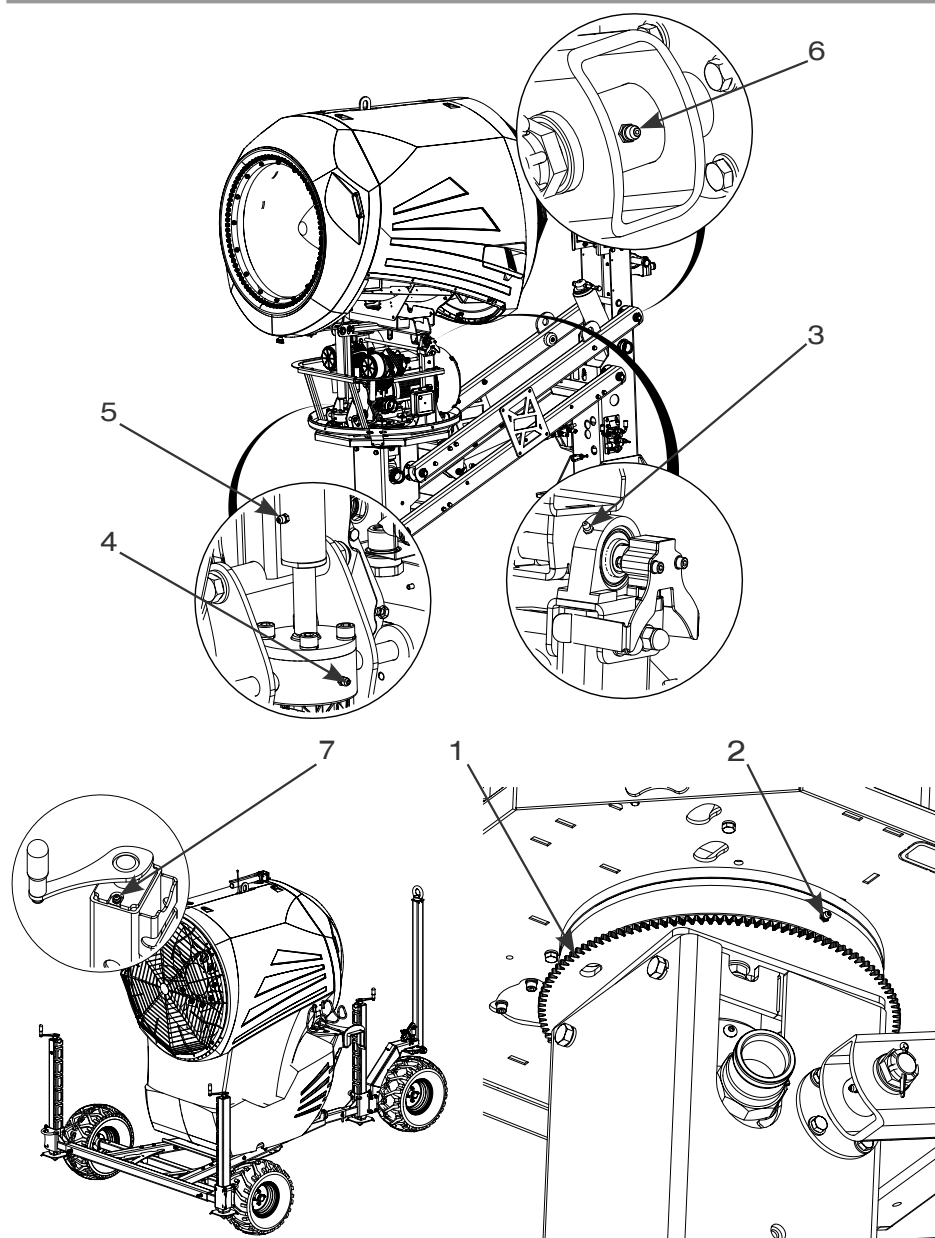
5. OPERATION OF THE SNOW CANNON

5.8. LUBRICATION

Lubrication is necessary to prevent excessive wear and tear of the components that work together. Before lubrication, the machine should be cleaned of any dirt. Lubricate with the machine switched off according to the maintenance table.

1	Turntable Gear Wreath x1	Lubricate with open gear grease (e.g. NILS Atomic) with NLGI grade 2	900H, 900T
2	Turntable Bearing x2	Lubricate with rolling bearing grease (e.g. NILS Atomic RH) with NLGI grade 2. Use a hand or foot grease gun equipped with a straight grease nipple with a conical head	
3	Body Tube Lifting Cylinder x1	Lubricate with a solid grease designed for operation at temperatures of -30 °C. Use a hand or foot grease gun equipped with a straight grease nipple with a conical head.	
4	Tube Lifting Cylinder x1		
5	Leveling foot bearing x3		
6	Cannon Lift Arms x8	900H	
7	Tube Rotation Mechanism Bearing x2		
			900T

5. OPERATION OF THE SNOW CANNON



Periodic lubrication points for the snow cannon

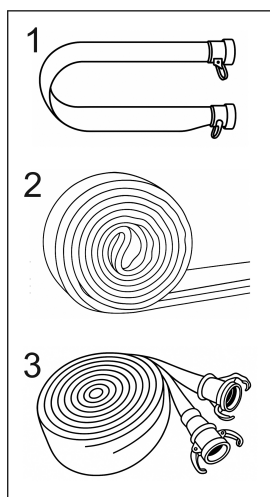
5. OPERATION OF THE SNOW CANNON



WARNING!

DO NOT PUT YOUR HANDS INSIDE THE MECHANISMS
UNLESS YOU ARE SURE THAT THE POWER SUPPLY HAS BEEN
DISCONNECTED AND THE APPLIANCE HAS BEEN PROPERLY
SECURED!

5.9. WATER HOSES

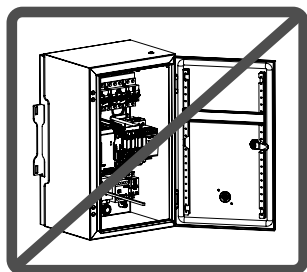


Webbing and rubber water hoses should be laid during use with the bending radii natural for a given hose. Do not allow the hose to bend or become entangled. The webbing water hose should be rolled up in the right way during storage:

1. Fold the hose in half.
2. Start reeling the hose from where it was placed (center).
3. Roll up the hose all the way in, leaving loose ends unrolled.

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

5.10. CONTROL BOX



Do not open the control box while the appliance is operating. A closed box protects the accessories from water getting inside. The control box is also equipped with a pressure compensator that prevents condensate from appearing inside.

5. OPERATION OF THE SNOW CANNON

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

- 1) Check the tightness of all contacts inside it
- 2) Checking that all components are functioning properly and not damaged (if necessary, replace them with new ones)
- 3) Causing an alarm state and checking the operation of the alarm siren
- 4) Checking the correct operation of the emergency button
- 5) Switching on the heating system and other electrical systems in order to test their correct operation

An electrical diagram is supplied with each snow cannon and is located in the electrical box. It contains information about the parameters of the components used, how they are connected to each other and what they are responsible for.



WARNING!

THE SNOW CANNON IS POWERED BY ELECTRICITY. BEFORE PERFORMING ANY OPERATIONS INSIDE THE DEVICE, IT MUST BE DISCONNECTED FROM THE VOLTAGE.

5. OPERATION OF THE SNOW CANNON

5.11. HEATER

The 900H and 900T snow cannon is equipped with 3 types of heaters. Before starting snowmaking, you should heat the elements in which the heaters are located to the appropriate temperature. This allows the water residue in these components to be thawed and thus put into operation without any problems later. Starting the heating turns on the power supply to the heaters. The end of the heating occurs when the ring temperature sensor indicates a value higher than 12°C. Then, depending on the outside temperature, the snow cannon controller regulates the operation of the heaters so as to prevent freezing/icing, e.g. of the water ring.

	RING HEATER	WATER UNIT HEATER	COMPRESSOR HEATER
Type of heater	Tubular	Patron	Patron
Number of heaters of a given type in the machine	1	4	1
Power [W]	2500	125	40
Supply Voltage [V]	400AC	400AC	24DC

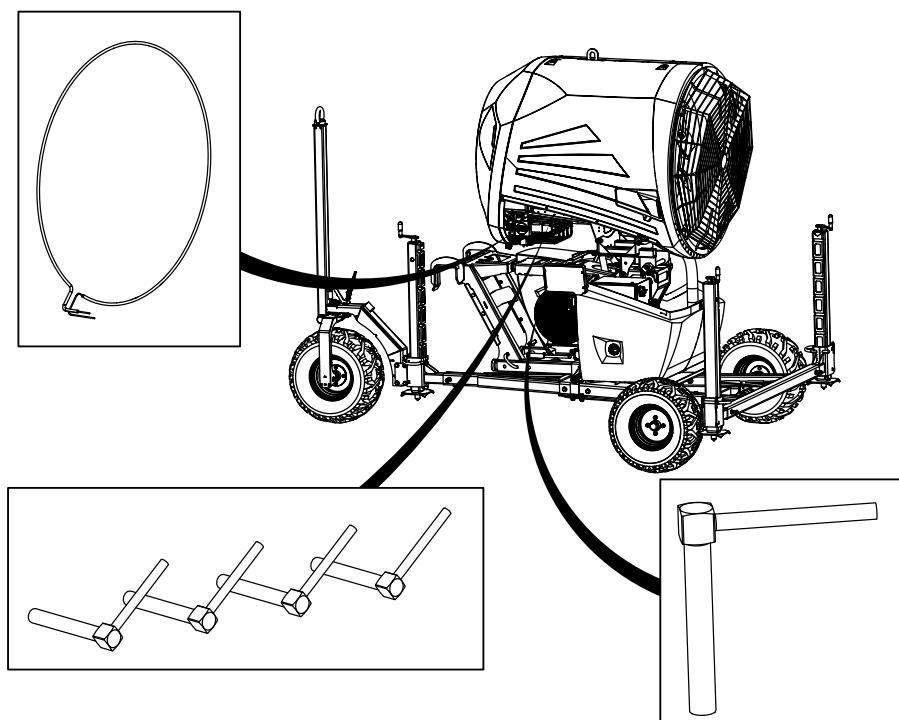
For the snow cannon to work properly in automatic and manual mode, all heaters are necessary for proper operation. If there is a suspicion of damage to any of them, do not check their correct operation by touch. This may result in electric shock (in the event of a heater failure) or burns. It is best to use a dedicated thermometer (e.g. pyrometer) or a thermal imaging camera for this purpose.

5. OPERATION OF THE SNOW CANNON



WARNING!

DO NOT CHECK THE CORRECT OPERATION OF HEATERS BY TOUCH. THIS CAN RESULT IN BURNS, AND IN THE EVENT OF A HEATER FAILURE, ALSO WITH ELECTRIC SHOCK!



Location of heaters in a snow cannon 900H, 900T

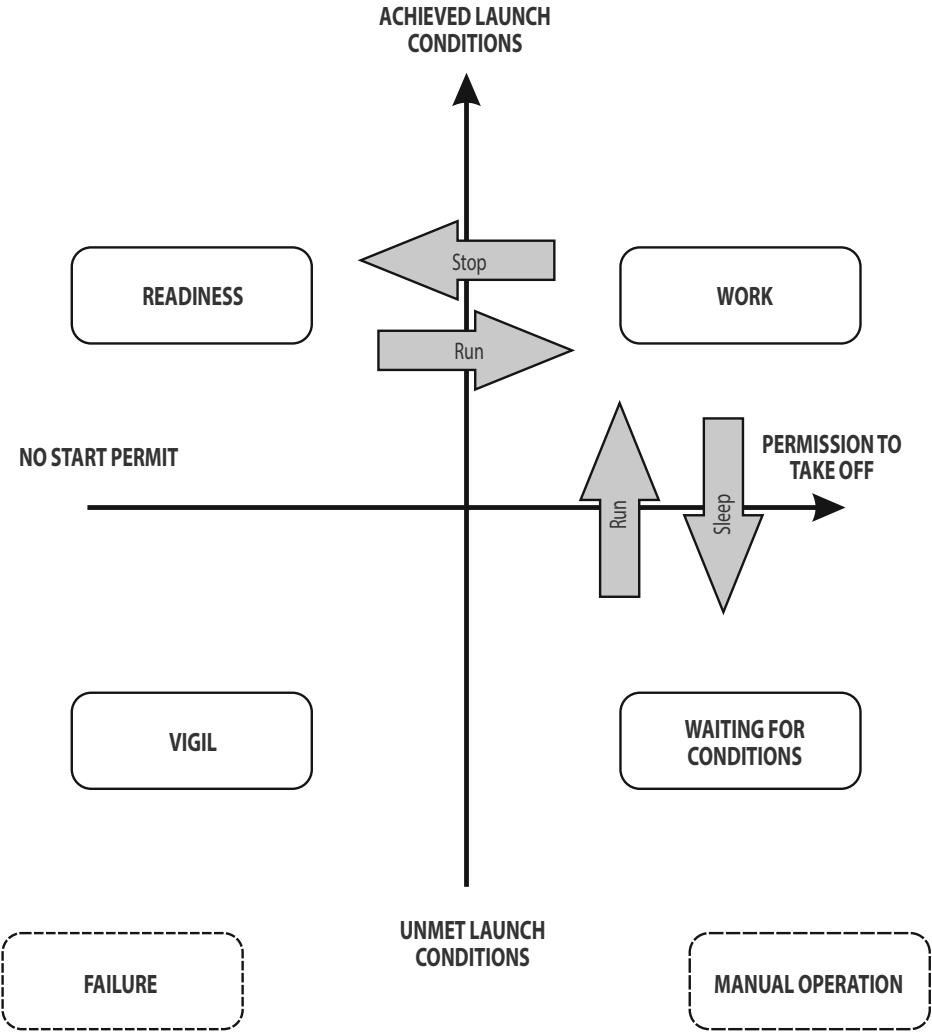
5. OPERATION OF THE SNOW CANNON

5.12. RGB LED SIGNAL LIGHTS

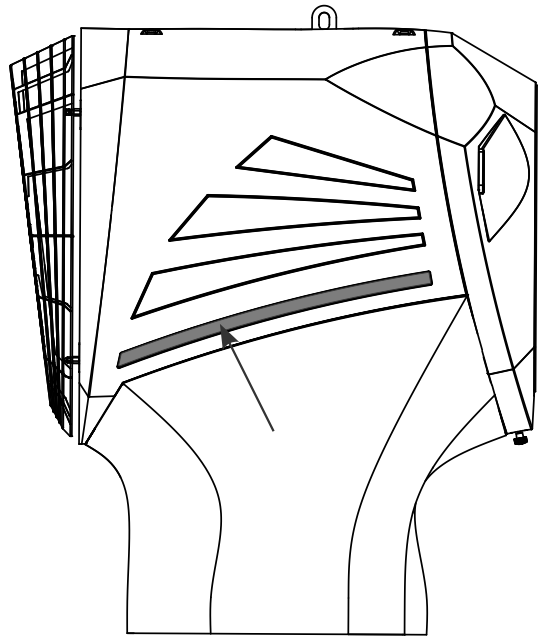
In the 900H and 900T snow cannon, there is an RGB LED signal light on both sides of the tube. It allows you to identify the mode/state of the machine in an easy and simple way for the user. This is visible from a very long distance on the slope, especially at night, when snow cannons are most often in operation. The table and graph below explain the system of colour markings and lighting effects. This corresponds to the names and colors of the modes used in the Cannon Panel, in the Mobile App and in the SNOWMATIC system.

OPERATING STATUS	ACHIEVED LAUNCH CONDITIONS	PERMISSION TO TAKE OFF	SOLID PHASE	COLOUR
Run	✓	✓	✗	Green with animation
Work	✓	✓	✓	Solid Green
Stop	✓	✗	✗	Yellow with animation
Readiness	✓	✗	✓	Solid yellow
Sleep	✗	✓	✗	Blue with animation
Waiting for conditions	✗	✓	✓	Solid Blue
Vigil	✗	✗	✓	White Solid
Manual operation	Not applicable - the operator decides			Orange Solid
Failure	Not applicable - the machine controller decides			Red Pulsating

5. OPERATION OF THE SNOW CANNON

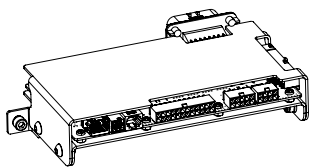


5. OPERATION OF THE SNOW CANNON



Location of RGB LED Signal Lights in 900H and 900T Machines

5.13. DRIVERS AND CAN BUS



Snow cannon controllers using CAN communication integrate all components into a single, reliable digital network. This system replaces complex, point cabling with a single bus, which significantly reduces installation complexity and the number of potential failures. The central unit manages work based on data from distributed I/O modules, and CAN communication ensures fast and interference-tolerant exchange of information in real time. Thanks to this, it is possible to precisely control the snowmaking process and advanced diagnostics of the entire device.

5. OPERATION OF THE SNOW CANNON

5.14. INTERFERENCE TABLE

DISRUPTION	COURSE OF PROCEEDINGS
No possibility to start the snow cannon	Check that the emergency button is not pressed, check that the main switch is not switched off, check that the machine is connected to the mains
Ice forms on the water ring	Check if the water and nucleus nozzles are not clogged, check the correct operation of the ring heaters, check if the cannon is not snowing against the wind, check if the cannon is not within the range of the snow ejection of another cannon
Lack of water in the snow cannon	Check the method of connecting the water hose to the main valve of the water and the cannon, check whether the main water valve is open (in case of no valve drive), check that the valve drive control function is enabled and the cable connecting the valve drive and the cannon is properly connected (in case of installed valve drive), check that the water hose is not clogged
Snow cannon does not drain	Check the level of the snow cannon and the lift of the tube, check the arrangement of the water hoses, in the absence of an automatic steam trap installed on the water hoses, drain them manually
Snow cannon produces snow that is too wet/too dry	Check the configuration of valves (manual, semi-automatic machines), check the set snow quality (automatic machines), check the cleanliness of water and nucleation nozzles, check whether weather conditions allow snow production
Snow cannon vibrates during operation	Check if the fan is not icy or damaged, check the condition of the compressor vibration isolators
The failure alarm is on	Occurrence of a failure about which information is displayed on the control panel
Too little water flow	Check the cleanliness status of the filter

5. OPERATION OF THE SNOW CANNON

5.15. MAINTENANCE TABLE

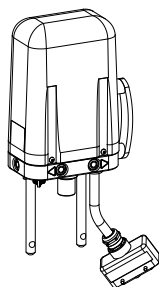
	Pre-season	Every 24 hours/before each start	Every 100 hours	Every 500 hours	Every 1000 hours	Every 2000 hours
Checking the correct operation of the emergency stop		✓				
Checking the oil level in the hydraulic system*	✓		✓			
Checking the cleanliness of the water filter	✓	✓				
Checking the cleanliness of nucleation nozzle filters	✓		✓			
Replacing the filter in the compressor						✓
Checking the condition of the compressor suspension shock absorbers	✓			✓		
Lubrication of machine components	✓			✓		
Control Box Overview	✓					✓
Checking the oil level in the compressor**	✓	✓				
Changing the oil in the compressor**	✓				✓	
Checking the condition of the rubber hoses in the cannon	✓					

*action for the 900T hydraulic system

**Oil compressor only activities

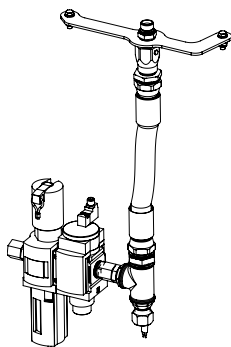
6. OPTIONAL EQUIPMENT

6.1. WATER MAIN VALVE ACTUATOR



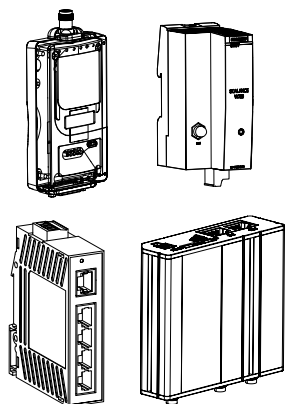
See section 1.5.

6.2. CENTRAL COMPRESSOR CONNECTION



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

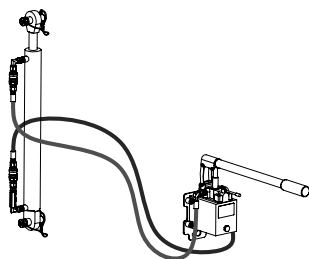
6.3. COMMUNICATION



If you want to control the Snow Cannon remotely, you need to connect the machine to the system. Depending on the customer's requirements, the snow cannon can be communicated using different protocols and data transmission methods. This requires the selection of an individual communication set.

6. OPTIONAL EQUIPMENT

6.4. HYDRAULIC SYSTEM - *900T



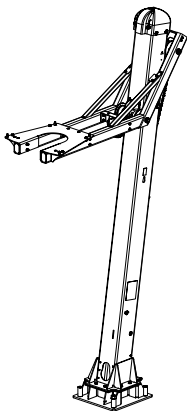
See. Chapter 3.4.

6.5. ST170 POLE, T400 BOOM, T600 BOOM, H800 BOOM - *900H

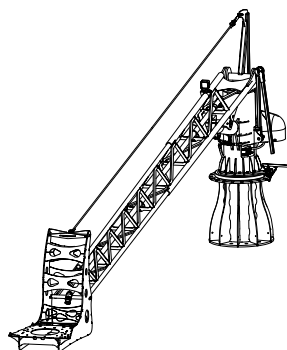
As a standard, the snow cannon is equipped with a paw chassis (paw and wheel). It is possible to increase its snowmaking efficiency through stationary installations such as poles and booms. They increase the position of the snow cannon in relation to the slope. This allows you to increase the snowfall range. The boom differs from the pole in that it allows you to control the height of the snow cannon. The 900H snow cannon designed for poles and booms must have a special distributor with an additional emergency button. It allows you to connect multiple peripherals with a single cable.



ST170 Pole

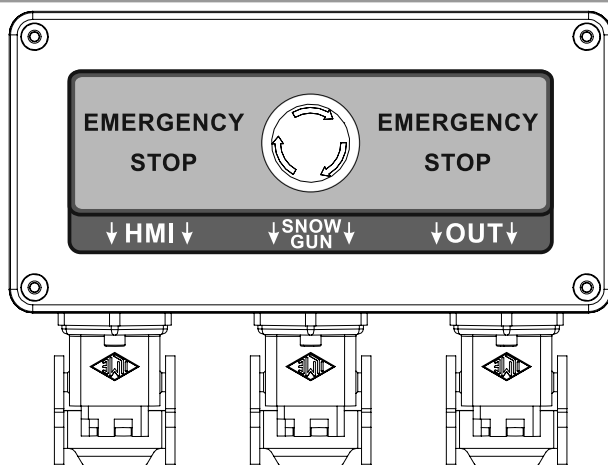


T400/T600 boom



H800 Boom

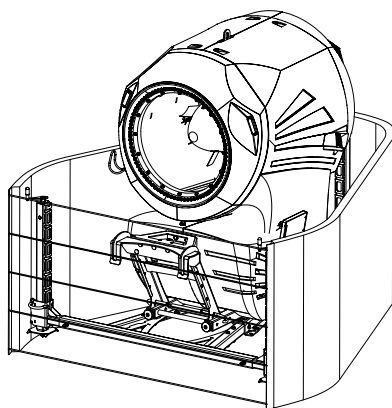
6. OPTIONAL EQUIPMENT



Peripheral splitter with additional emergency button

6.6. COVERS & MATTRESSES

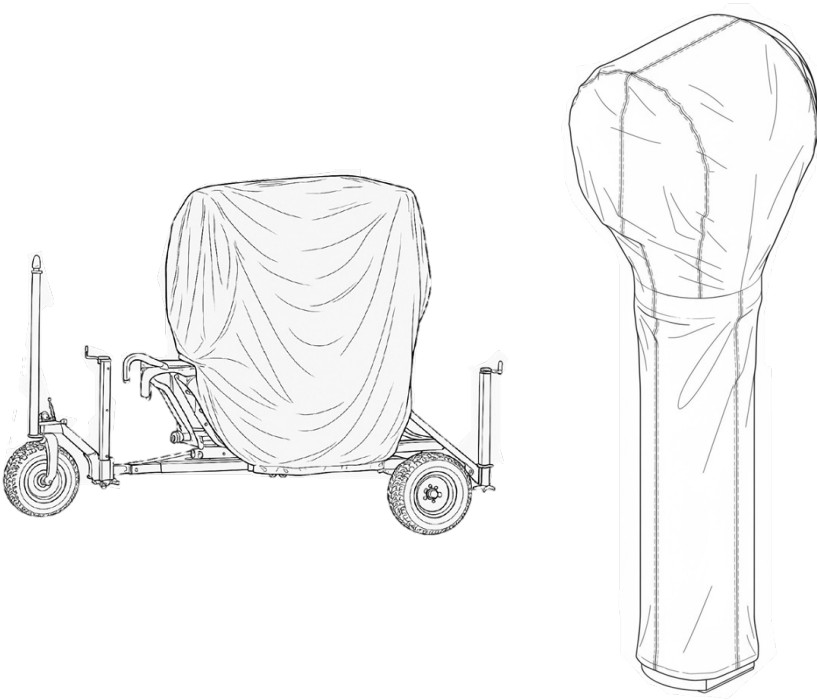
An optional equipment for the 900H cannon, unlike the 900T machine (standard), is a protective mattress. A protective mattress is a key element of the safety infrastructure of ski resorts. Its main task is to minimize the risk of serious injury as a result of a collision of a skier with a fixed obstacle, which in this case is a 900H snow cannon.



How to put on the 900H cannon mattress

6. OPTIONAL EQUIPMENT

The main task of the cover is to create a tight barrier protecting the delicate and precise components of the snow cannon from the destructive effects of adverse weather conditions in the summer (and post-season) season.



Snow Cannon 900H, 900T with Cover On

6.7. SUPERSNOW MOBILE APP

See section 1.5.

6.8. SNOWMATIC

See section 1.5.

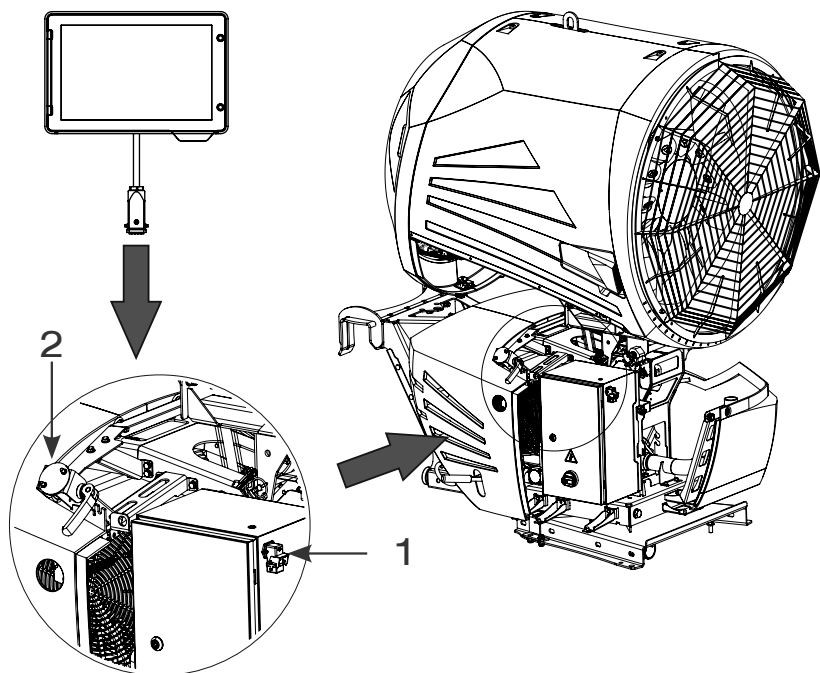
6.9. OPERATOR PANEL

See Chapter 7.

7. CONTROL PANEL

7.1. SNOW CANNON CONTROL PANEL 900H/900T

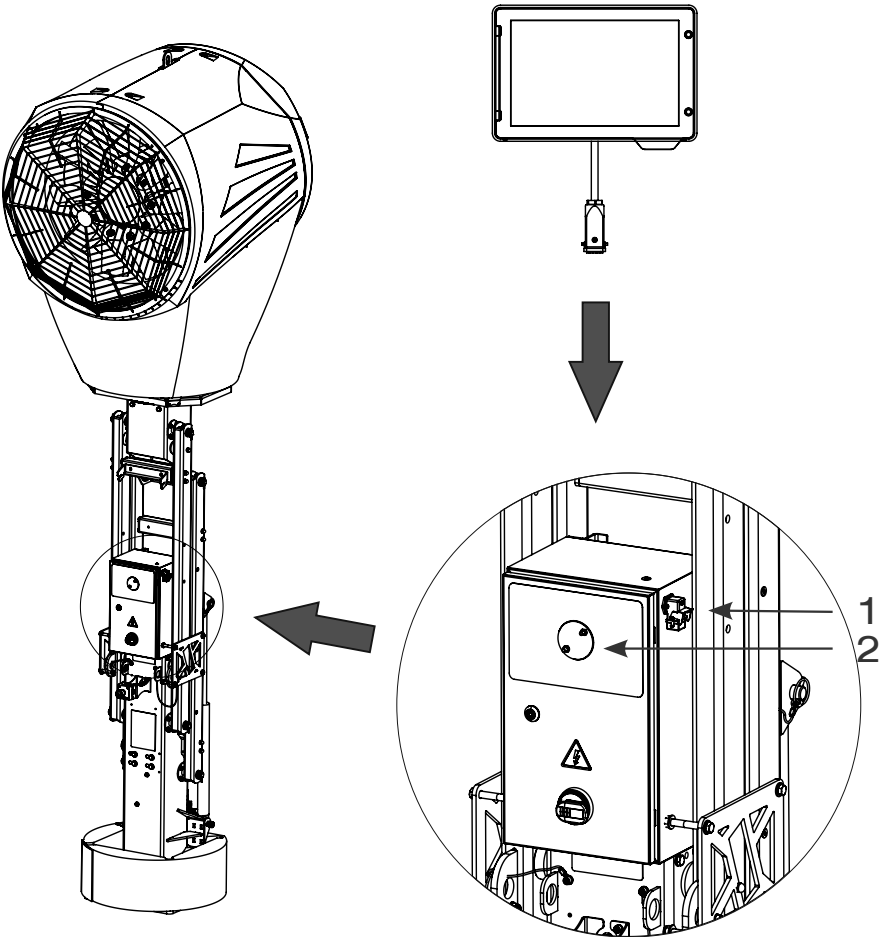
The 900H and 900T series cannons can be optionally equipped with a control panel. This panel can be permanently mounted to the cannon or as a portable panel. According to the manufacturer's recommendations, one control panel should be used to operate a maximum of five devices. In order to achieve full functionality of the device, the manufacturer recommends purchasing at least one operator panel per ski resort. The panel is connected to the machine using a communication connector located on the electrical box (both in the 900H and 900T machines), and is attached by means of a magnetic connector located on the remote control holder (900H machine) or electrical box (900T machine), as shown in the graphics below.



1	Cannon Desktop Electrical Connector
2	Magnetic holder for the cannon desktop

Installing the cannon control panel 900H

7. CONTROL PANEL

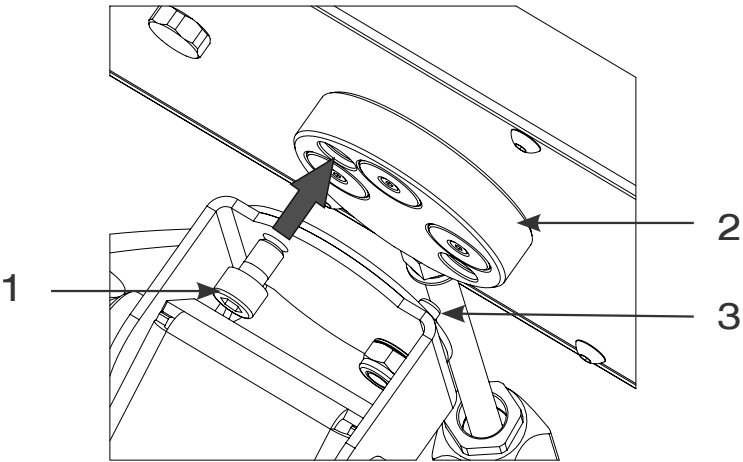


1	Cannon Desktop Electrical Connector
2	Magnetic holder for the cannon desktop

Installing the cannon control panel 900T

7. CONTROL PANEL

The control panel is portable by default. If the user decides to use a fixed mount, they can fix it with the screw included in the set, as shown in the graphic below.



1	Panel locking screw (M8x12)
2	Magnetic Island Panel
3	Brass Panel Positioning Pin



WARNING!

THE PANEL IS EQUIPPED WITH STRONG NEODYMIUM MAGNETS THAT GENERATE AN INTENSE MAGNETIC FIELD! PEOPLE WITH A PACEMAKER OR OTHER IMPLANTED MEDICAL DEVICES SHOULD BE EXTRA CAREFUL NEAR THE MACHINE! THE MAGNETIC FIELD CAN INTERFERE WITH THE PROPER OPERATION OF MEDICAL DEVICES, WHICH ENDANGERS HEALTH AND LIFE!

Permanent fixing of the 900H/900T machine control panel

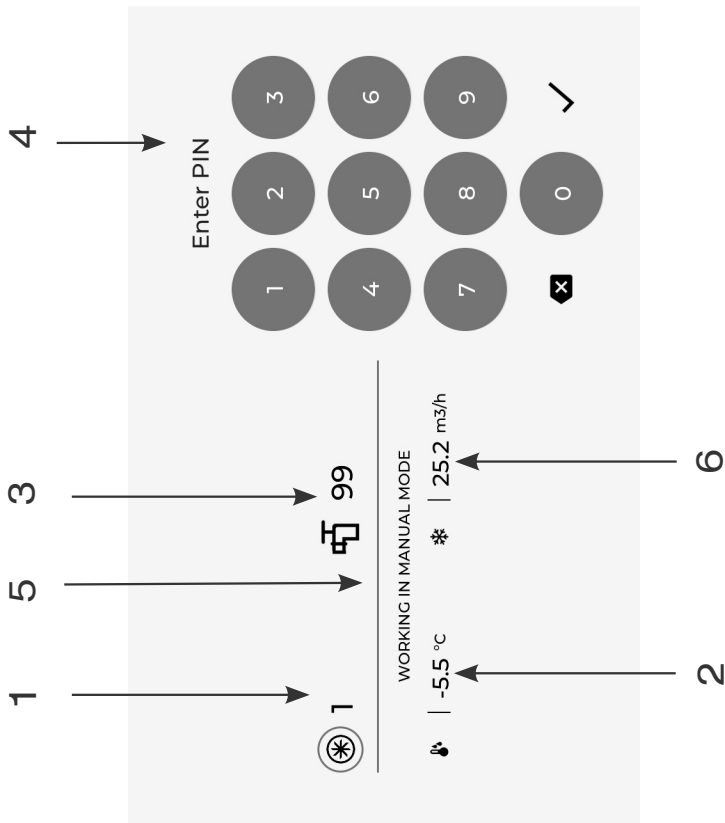
7. CONTROL PANEL

7.1.1. 900H/900T CANNON LOCK SCREEN

When you start your 900H or 900T machine, the first screen that will appear will be the lock screen. To unlock the machine, the operator must type one of the passwords below on the numeric keypad and then confirm it with the Enter key (✓).

User- 1111
Owner - 2222

Connecting the portable panel to the switched on machine also results in the screen below.



900H and 900T Cannon Control Panel Lock Screen

7. CONTROL PANEL

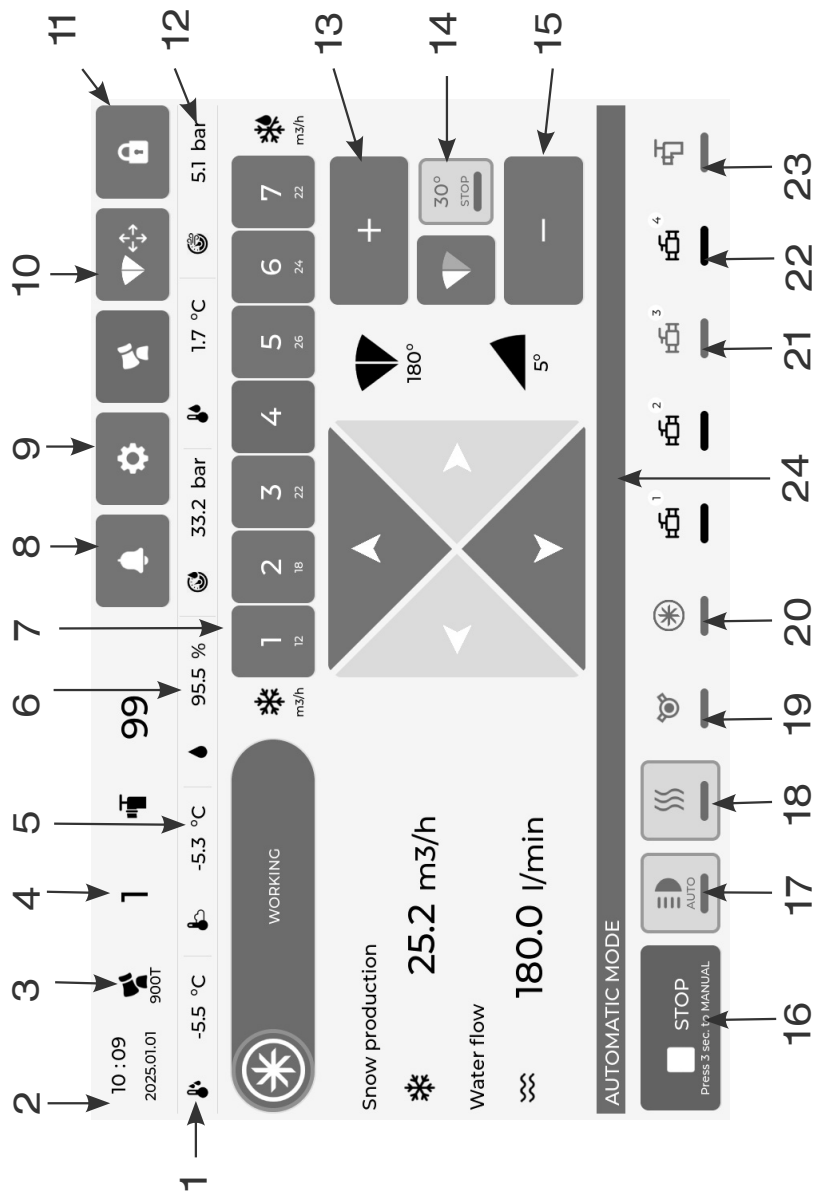
1	Snow Cannon Number
2	Current TWB temperature
3	Water Main Valve Number
4	Numeric keypad
5	Machine Status
6	Snow production

Explanation of the 900H and 900T Snow Cannon Lock Screen Panel Icons

To start working in automatic mode, press the Start button on the main panel. The cannon will enter the condition waiting mode or start working if the conditions set in the settings panel are met. To enter manual mode, hold down the Start Auto button until the progress bar is fully filled.

7. CONTROL PANEL

7.1.2. VIEW OF THE 900H/900T CANNON PANEL - AUTOMATIC MODE



Appearance of the 900H/900T cannon operator panel - Automatic mode

7. CONTROL PANEL

1	Wet Bulb Temperature
2	Date and time
3	Machine Model
4	Machine number
5	Air temperature
6	Humidity
7	Snow quality setting panel
8	Alarms/Warnings
9	Settings
10	Machine positioning menu
11	Screen lock
12	Air Pressure
13	Increasing the Oscillation Angle

Explanation of the 900H and 900T Snow Cannon Panel Icons - Auto Mode

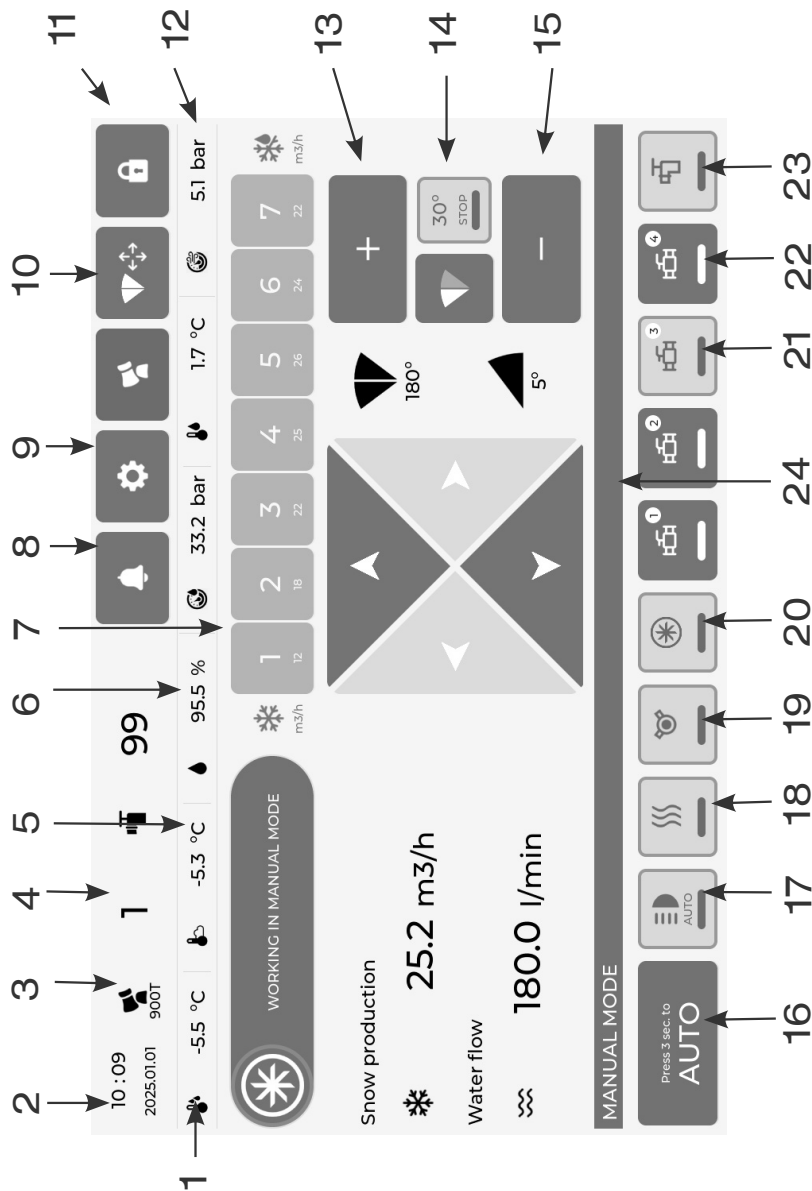
7. CONTROL PANEL

14	Oscillation start/Current oscillation angle setting value	
15	Reduction of the oscillation angle	
16	Switch to manual mode - hold the button Starting the machine in automatic mode/Stopping automatic operation - short press of the button	
17	Lamp	Gray icon - off
		Green icon - on
		AUTO - automatic lighting mode turns on the lamp when the cannon is running and turns off the lighting when the cannon is not working
18	Heating of the ring and valve block	Gray icon - off
		Green icon - enabled
		Green icon with gray line - on, correct ring temperature
19	Compressor	Gray icon - disabled
		Green icon - enabled
20	Ventilator	Gray icon - disabled
		Green icon - enabled
21	Water Section Valve - Closed	
22	Water Section Valve - Open	
23	Active Water Main Valve Actuator	
24	Machine Status Bar	

Explanation of the 900H and 900T Snow Cannon Panel Icons - Auto Mode

7. CONTROL PANEL

7.1.3. VIEW OF THE 900H/900T CANNON PANEL - MANUAL MODE



Appearance of the 900H/900T cannon operator panel -Manual mode

7. CONTROL PANEL

1	Wet Bulb Temperature
2	Date and time
3	Machine Model
4	Machine number
5	Air temperature
6	Humidity
7	Snow quality setting panel
8	Alarms/Warnings
9	Settings
10	Machine positioning menu
11	Screen lock
12	Air Pressure
13	Increasing the Oscillation Angle

Explanation of the 900H and 900T Snow Cannon Panel Icons - Manual Mode

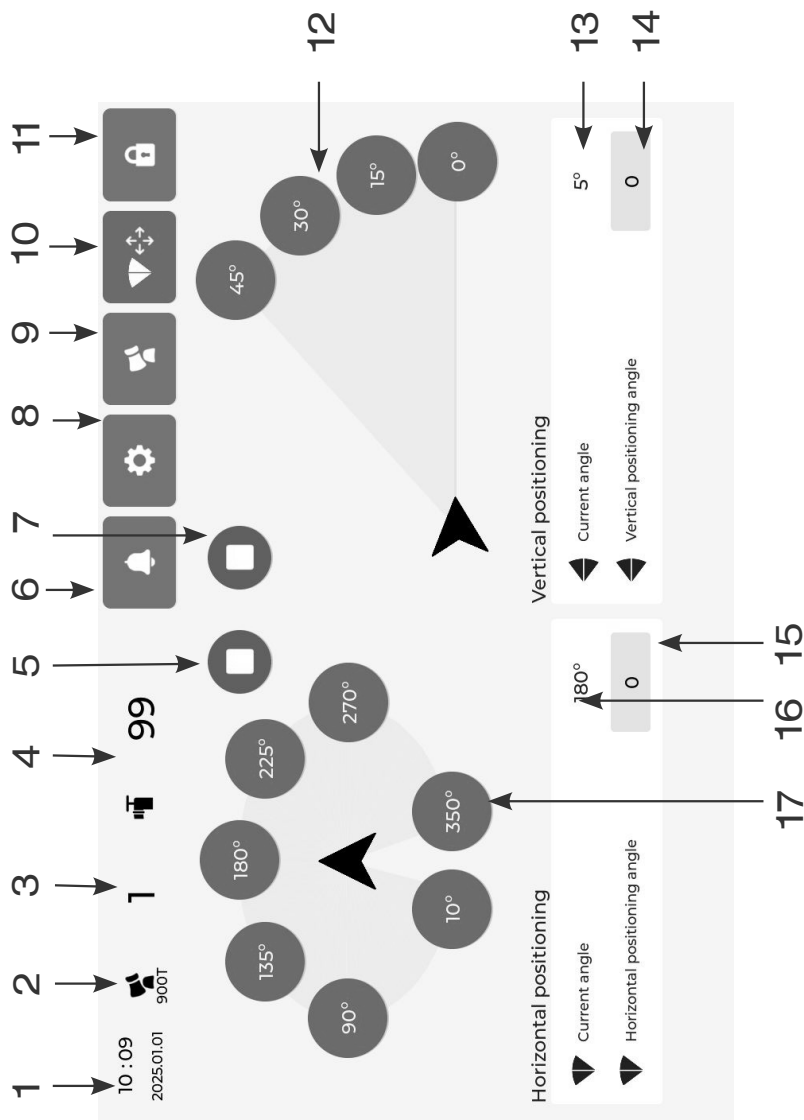
7. CONTROL PANEL

14	Oscillation start/Current oscillation angle setting value	
15	Reduction of the oscillation angle	
16	Entering automatic mode - holding the button	
17	Lamp	Gray icon - off
		Green icon - on
		AUTO - automatic lighting mode turns on the lamp when the cannon is running and turns off the lighting when the cannon is not working
18	Heating of the ring and valve block	Gray icon - off
		Green icon - enabled
		Green icon with gray line - on, correct ring temperature
19	Compressor	Gray icon - disabled
		Green icon - enabled
20	Ventilator	Gray icon - disabled
		Green icon - enabled
21	Water Section Valve - Closed	
22	Water Section Valve - Open	
23	Active Water Main Valve Actuator	
24	Machine Status Bar	

Explanation of the 900H and 900T Snow Cannon Panel Icons - Manual Mode

7. CONTROL PANEL

7.1.4. OSCILLATION AND ELEVATION SETTINGS OF THE 900H/900T CANNON BARREL



Appearance of the 900H/900T Cannon Operator Panel - Tube Oscillation and Elevation Settings

7. CONTROL PANEL

1	Date and time
2	Machine Model
3	Machine number
4	Water Main Valve Number
5	Horizontal Motion Signaling/Horizontal Movement Stop at Current Position
6	Alarms/Warnings
7	Vertical Movement Indication/Vertical Movement Stop at Current Position
8	Settings
9	Main Menu
10	Machine positioning menu
11	Screen lock
12	Quick selection area for the target vertical position of the machine

Oscillation and Elevation Settings of the 900H and 900T Cannon Barrel

7. CONTROL PANEL

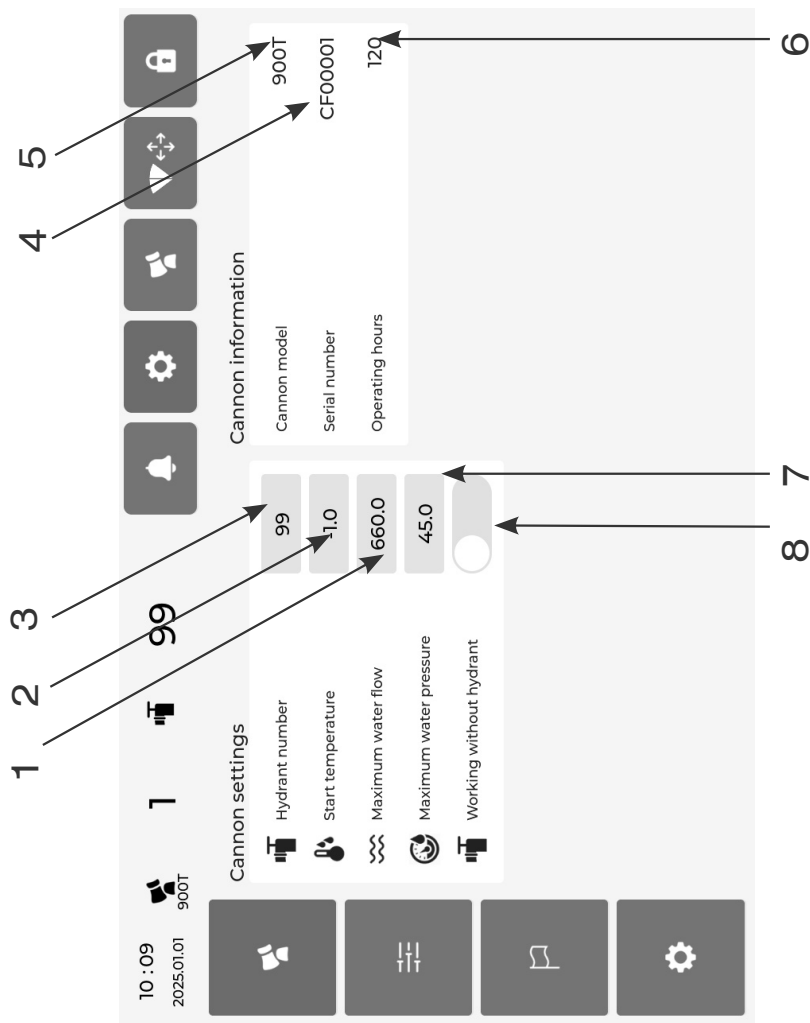
13	Current Vertical Angle of Tube
14	Vertical positioning angle setting
15	Horizontal positioning angle setting
16	Current horizontal angle of the machine
17	Area for quick selection of the target horizontal position of the machine

Oscillation and Elevation Settings of the 900H and 900T Cannon Barrel

7. CONTROL PANEL

7.1.5. 900H/900T GUN SETTINGS - GENERAL SETTINGS

The settings panel on the 900H and 900T guns differs depending on the privilege level of the logged-in operator (see section 7.1.1.). Each access level is assigned specific functions and configuration options, which ensures security and restricts access to sensitive settings to only selected users.



Appearance of the 900H/900T Gun Operator Panel - General Settings

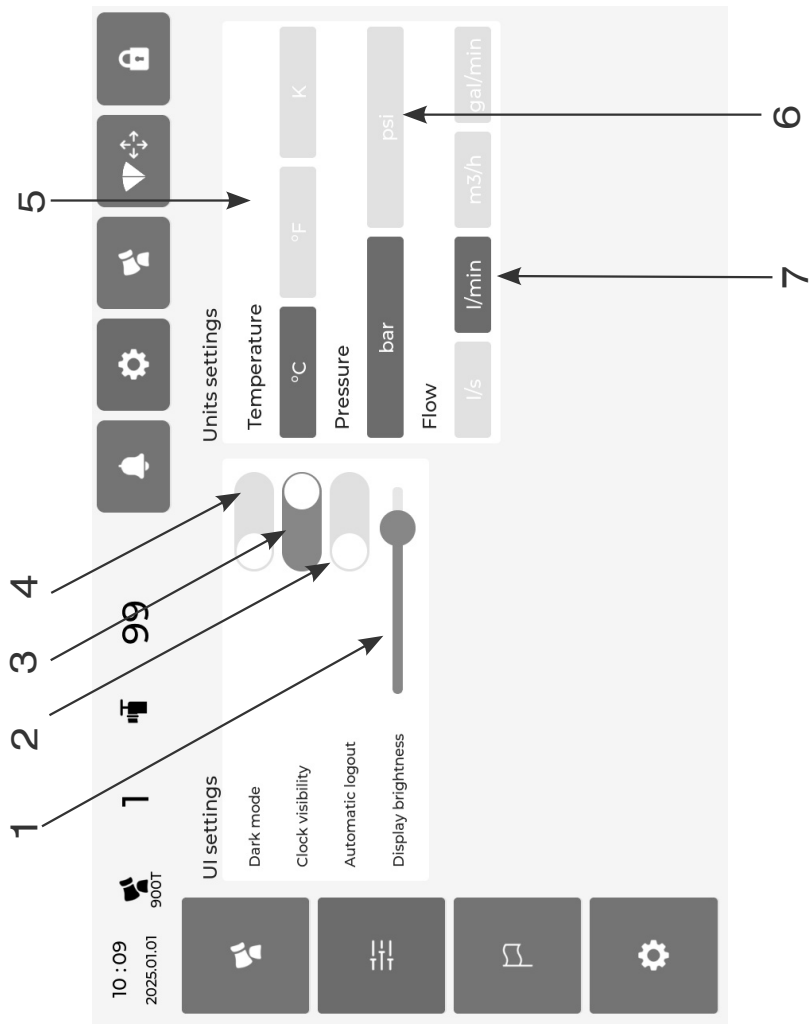
7. CONTROL PANEL

1	Maximum water flow
2	Start Temperature
3	Water Main Valve Number
4	Serial number
5	Cannon model
6	Hour meter
7	Maximum water pressure
8	Operating mode without hydrant drive

Appearance of the 900H/900T Gun Operator Panel - General Settings

7. CONTROL PANEL

7.1.6. 900H/900T CANNON SETTINGS - INTERFACE SETTINGS



Appearance of the 900H/900T Gun Operator Panel - Interface Settings

7. CONTROL PANEL

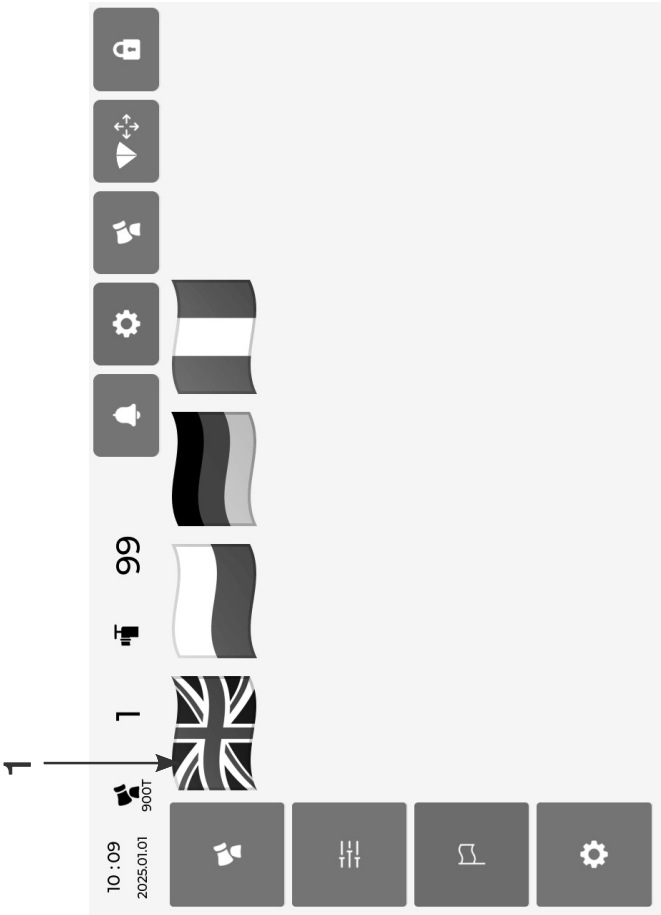
1	Adjusting the screen brightness
2	Activating Automatic Operator Logout
3	Displaying the clock on the home screen
4	Activating Dark Screen Mode
5	Selection of temperature units
6	Selection of pressure units
7	Selection of flow units

Appearance of the 900H/900T Gun Operator Panel - Interface Settings

7. CONTROL PANEL

7.1.7. 900H/900T CANNON INSERTIONS - LANGUAGE SETTINGS

The app allows you to choose the language of the interface, which allows you to customize its appearance according to the user's preferences.



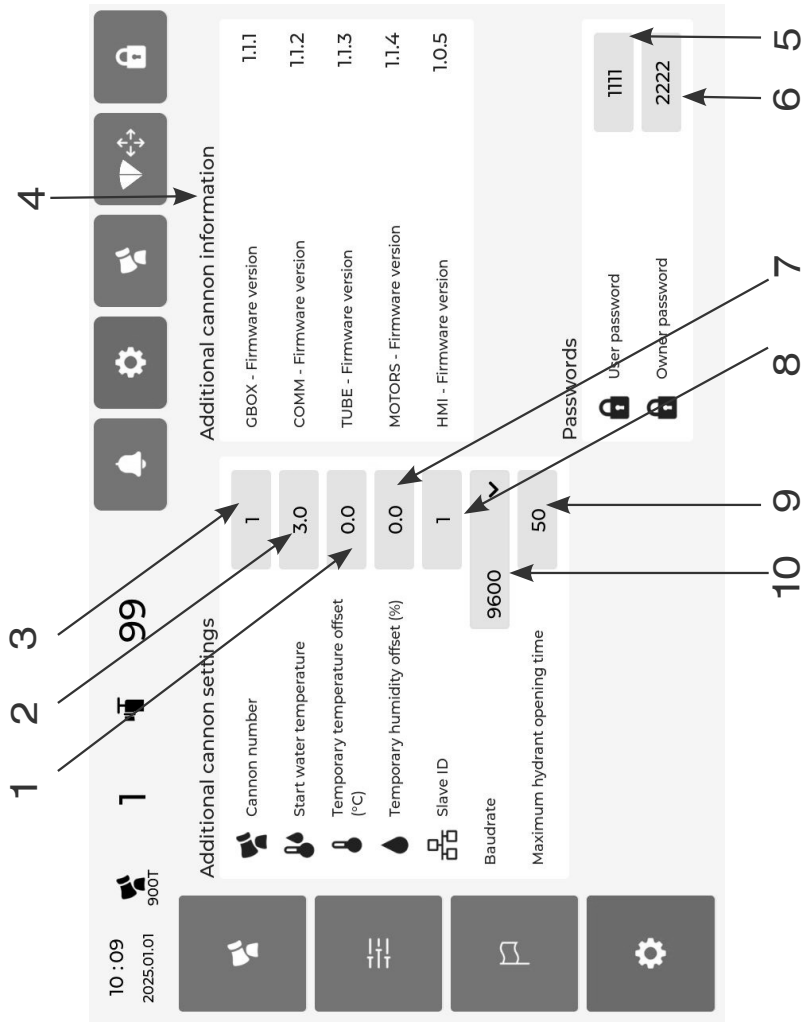
Appearance of the 900H/900T Gun Operator Panel - Language Settings

1	Language selection
---	--------------------

7. CONTROL PANEL

7.1.8. 900H/900T GUN SETTINGS - ADDITIONAL SETTINGS

Note: The additional settings option is activated from the respective level of the logged-in operator (see section 7.1.1).



Appearance of the 900H/900T Gun Operator Panel - Additional Settings

7. CONTROL PANEL

1	Air temperature correction
2	Water temperature for machine start
3	Snow Cannon Number
4	Additional information about the cannon - software versions of individual controllers
5	Password - User
6	Password - Owner
7	Correction of air humidity
8	Device ID
9	Maximum opening time of the main water valve
10	Data rate

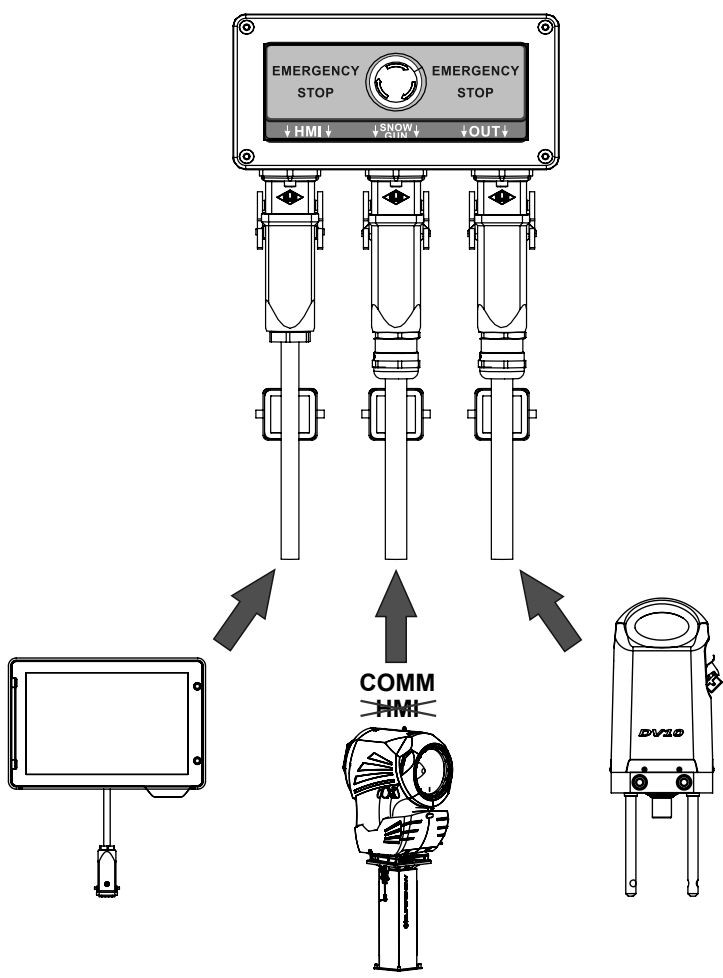
Appearance of the 900H/900T Gun Operator Panel - Additional Settings

7. CONTROL PANEL

7.2. 900H SNOW CANNON CONTROL PANEL - BOOMS

7.2.1 MOUNTING THE PANELS ON THE BOOMS

In the case of installing the 900H cannon on various types of booms, it is necessary to use special panel holders along with an intermediate box of the safety button, which are supplied with the cannon. The schematic diagram of the panel connection is shown in the graphic below. The connection of the hydrant drive to the intermediate box applies only to the new type of hydrant drives. The DV7 drive must be connected directly to the electrical box of the cannon.

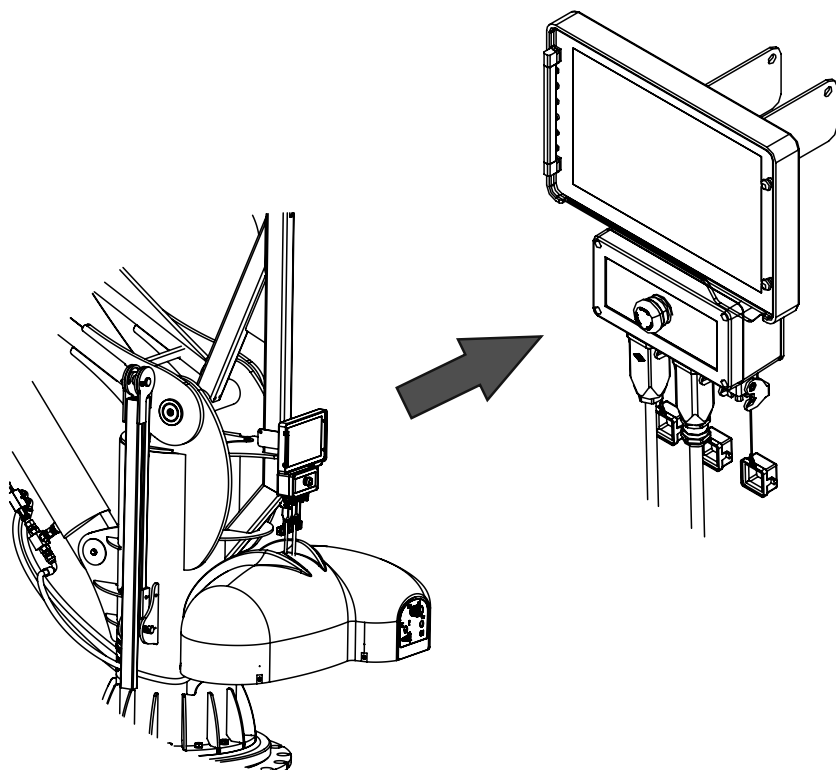


Connecting a 900H Desktop on a Boom

7. CONTROL PANEL

7.2.2. MOUNTING PANELS ON BOOMS - H800

When installing the 900H on the H800 boom, fix the panel with the handle in the designated location, secure it with M8x80 screws (supplied with the handle) and connect it according to the diagram (see section 7.2.1).

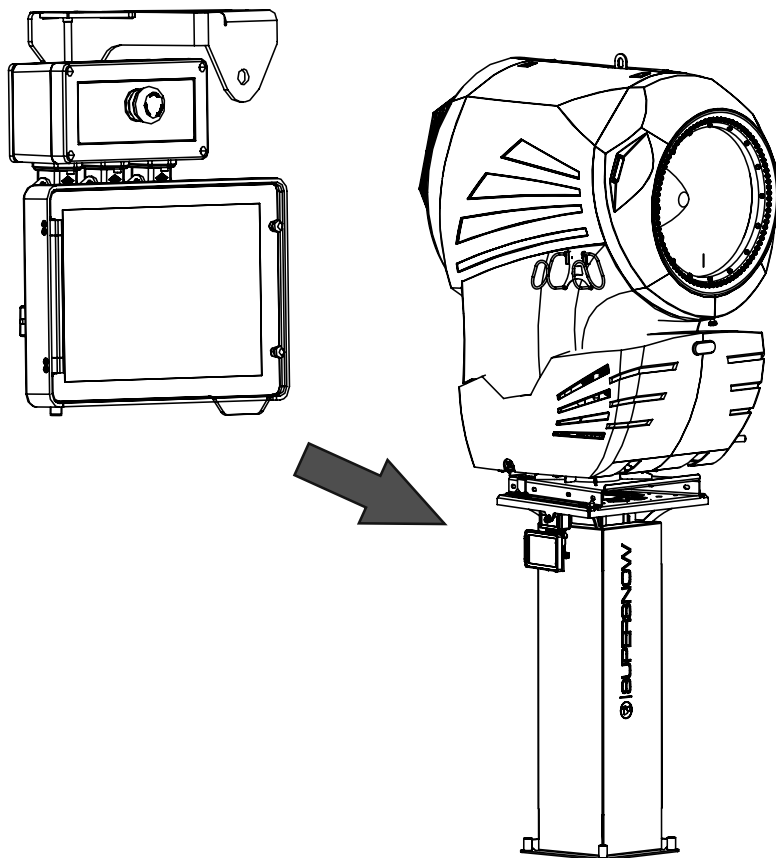


Connecting a 900H Desktop on a Boom - H800

7. CONTROL PANEL

7.2.3. MOUNTING PANELS ON BOOMS - ST170

When installing the 900H on the ST170 pole, fix the panel with the handle in the designated location, secure it with the M10x25 screw (supplied with the handle) and connect it according to the diagram (see section 7.2.1).

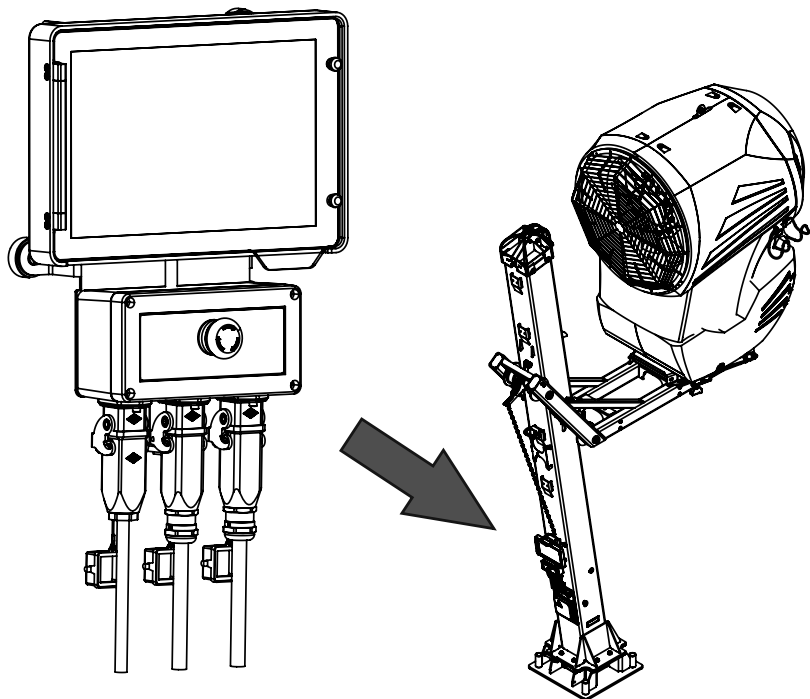


Connecting the 900H Pole Desktop - ST170

7. CONTROL PANEL

7.2.4. MOUNTING PANELS ON BOOMS - T400/T600

When installing the 900H on a T400/T600 boom, attach the panel with the handle in the location provided for this purpose and connect it according to the diagram (see section 7.2.1.) The bracket is attached to the boom with magnets.



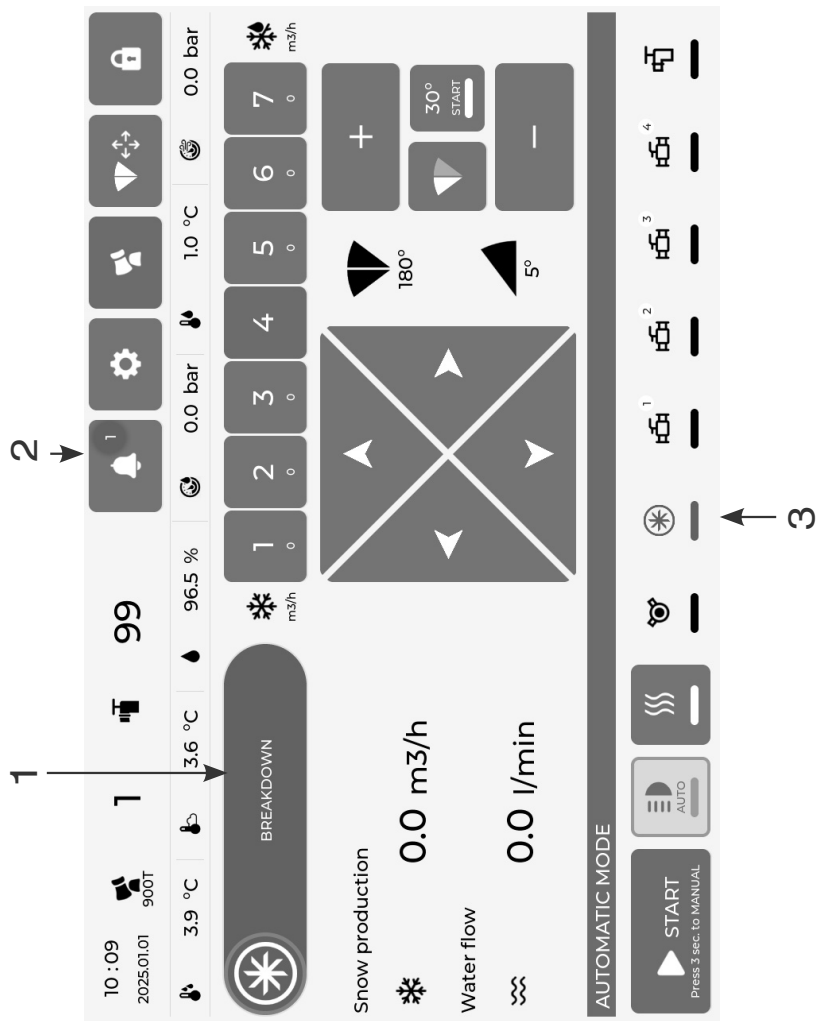
900H Boom Desktop Connection - T400/T600

7. CONTROL PANEL

7.3. SNOW CANNON CONTROL PANEL 900H/900T - MESSAGES

7.3.1. FAILURE SIGNALING

The 900H and 900T series guns are equipped with a self-diagnostic system that informs the user about detected failures or irregularities. Thanks to this, it is possible to quickly diagnose problems and increase the level of safety of the device's operation.



Appearance of the 900H/900T cannon operator panel - Failure Alarm

7. CONTROL PANEL

1	Information about the status of the machine (FAILURE)
2	Crash notifications (error reading possible)
3	Fault Signaling Component

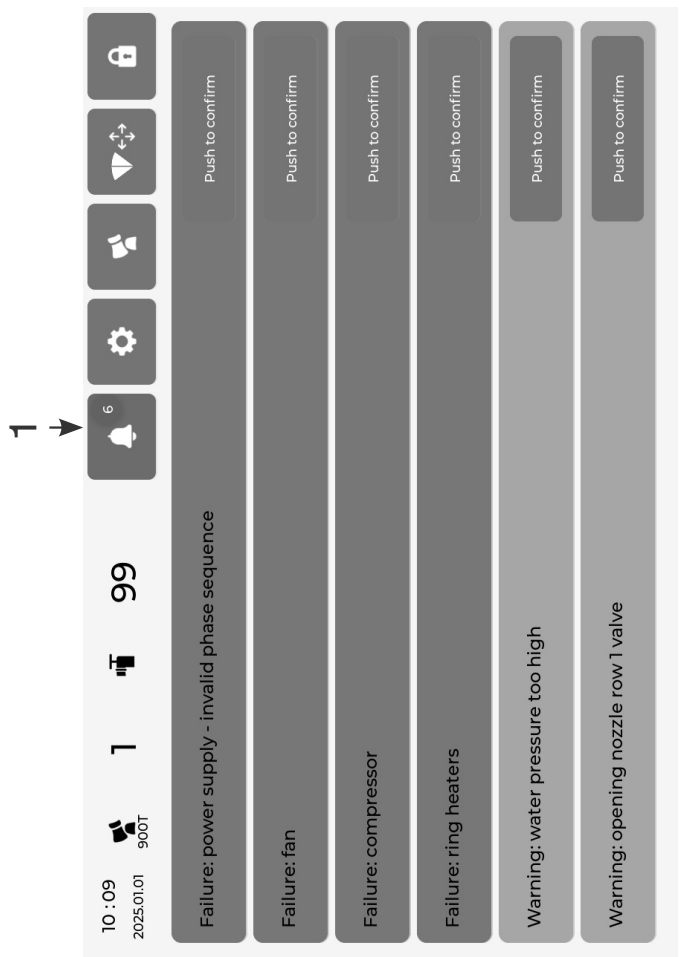
Appearance of the 900H/900T cannon operator panel - Failure Alarm

7. CONTROL PANEL

Messages about irregularities have been divided into two categories:

- 1. FAILURE - red color (cause interruption of machine operation)
- 2. WARNING - orange color (do not interrupt the operation of the machine)

Pressing the notification button 1 allows the messages to be read.



Appearance of the 900H/900T cannon operator panel - Failure Alarm

7. CONTROL PANEL

7.3.2. LIST OF WARNINGS

MESSAGE	PROBABLE CAUSE	POSSIBLE SOLUTION
Air temperature and humidity sensor	Sensor Damage, Cord Damage, Undertightened Plug	Check the condition of the cable, plug and sensor. Replace the sensor at the weather station.
Main water valve drive not connected	No water valve main drive connected	To connect the main water valve actuator or select the option of operation without the main water valve actuator, see section 7.1.5.
Horizontal Motion Encoder	Oscillation encoder failure. Damaged wiring.	Check the encoder connection and wiring status.
Horizontal Motion Motor	Failure of the oscillatory drive motor. Too much load on the engine.	Look for a possible blockage that prevents the machine from rotating.
Vertical Motion Motor	Failure of the tube lifting cylinder motor. Too much load on the engine.	Look for a possible blockage that prevents the tube from rising.
The main water valve actuator cannot be closed	No pressure drop when turning off the main water valve	Check the operation of the main water valve drive
Water Block Temperature Sensor	Valve block temperature sensor failure. Damaged wiring.	Check the condition of the valve block sensor and the hoses.

7. CONTROL PANEL

MESSAGE	PROBABLE CAUSE	POSSIBLE SOLUTION
Water pressure too high	High feed water pressure	Check the operation of the pumps in the pumping station or check that the main water valve has been properly adjusted. After 30 seconds of operation at pressures above 48 bar, the machine will display an overpressure message.
Opening the nozzle row valve I/II/III/IV	Failed opening of the row valve I/II/III/IV	Check the condition of the air supply hoses to the valve. Check the operation of the entire pneumatic system. If there is no visible damage, call for service.

7. CONTROL PANEL

7.3.3. CRASH LIST

MESSAGE	PROBABLE CAUSE	POSSIBLE SOLUTION
Power failure	Wrong phase connection order. Phase loss in the power supply.	With the power off, swap between the two phases. Check for the presence of three phases in the power socket. The above activities may only be performed by a person with appropriate authorizations.
Fan failure	The fan motor protection worked. Soft Start system overheating.	Switch on the switch, according to the electrical diagram. Check if the fan has not been iled, if so - defrost the fan and wait for the Soft-Start system to cool down.
Compressor failure	The compressor motor protection in the electrical box has worked.	Check that the compressor is not damaged or blocked. Turn on the circuit breaker according to the electrical diagram.
Emergency button pressed	Emergency button pressed, alarm button signal wire damaged.	Determine the reason for the activation of the emergency switch. Unlock the emergency button. Check the wiring condition.
Heater failure	Switching off the heater overcurrent circuit breaker.	Check the heaters for punctuations/ short circuits. Turn on the circuit breaker.

7. CONTROL PANEL

MESSAGE	PROBABLE CAUSE	POSSIBLE SOLUTION
Water pressure too low to start	Low feed water pressure (less than 12 bar) when starting in automatic mode.	Verify the water pressure in the machine's supply network for compliance with the technical requirements of the cannon. Confirm that the main water valve is adjusted correctly.
Closing the nozzle row valve I/II/III/IV	Failed row valve closure I/II/III/IV	Check the condition of the air supply hoses to the valve. Check the operation of the entire pneumatic system. If there is no visible damage, call for service.
Vertical Motion Encoder	Encoder damaged, wiring damaged.	Check the encoder connection, wiring status.
Air pressure too low	Air pressure below 3 bar for 3 minutes.	Check the condition of the compressed air system, check the hose connections, check the compressor operation.
Air pressure too high	Air pressure above 9 bar for 3 minutes.	Check the condition of the compressed air system for patency. Check the operation of the nucleus nozzles and, if necessary, disassemble and clean them.

7. CONTROL PANEL

MESSAGE	PROBABLE CAUSE	POSSIBLE SOLUTION
Water pressure sensor	Damaged water pressure sensor or wiring.	Check the status of the pressure sensor and wiring.
Air Pressure Sensor	Damaged air pressure sensor or wiring	Check the air pressure sensor, check the cable connection
Ring temperature sensor	Damaged ring temperature sensor or wiring.	Check the ring temperature sensor, check the cable connection.
Water pressure too low	Low feed water pressure (less than 12 bar) when the machine is running	Verify the water pressure in the machine's supply network for compliance with the technical requirements of the cannon. Confirm that the main water valve is adjusted correctly.
Zasilanie 24V	24V seeder failure, Blown fuses: F3, F4, F5, F6, F7	Sprawdzić stan bezpieczników. Sprawdzić zasilacz 24V.

Deklaracja zgodności
Declaration of conformity
Konformitätserklärung
Déclaration de conformité
декларация соответствия



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

Spełnia wymagania dyrektyw UE	Dyrektywy Directives Richtlinie Directives Директива	
Compiles with the requirements of the EU directives	2006/42/EC	Maszynowa Machines Maschinen Machines Машина
Die Anforderungen der EU-Richtlinien erfüllt	2014/35/EU	Nisko Napięciowa Low Voltage Niederspannung Basse Tension Низкое Напряжение
Compile avec les exigences des directives de l'UE		
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Dokumentacja techniczna przygotowana przez Kierownika Działu Badań i Rozwoju	DARIUSZ KACZOR ul. Ks. A. Siudy 11 34-436 Maniowy POLAND
Technical documentation prepared by Research and Development Manager	
Die technische Dokumentation wurde vom Leiter der Forschung und Entwicklung vorbereitet	
Documentation technique préparée par Manager de recherche et développement	
Техническая документация, подготовленная Менеджер по исследованиям и разработкам	

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