

Operating instructions

Dry Ice Cleaning Device

Champ Turbo Pro

DRY ICE ENERGY 
ENERGY



CE



Servicehotline
+49 30 364 280 120

Preliminary remarks

Thank you very much for choosing our **Champ Turbo Pro** dry ice blasting machine !

Before using the blasting machine, please familiarize yourself with the device first and read the operating instructions. In this way, you avoid dangers for yourself and others.

You will receive the operating instructions as a PDF when the dry ice blasting machine is shipped. You should always have them at hand. Keep this instruction manual in such a way that it is available to the operator at all times.

The operating instructions explain the installation, operation, mode of operation and maintenance of the Champ Turbo Pro dry ice blasting machine and the technology of CO₂ cleaning.

Only persons who have read and understood the operating instructions may use the device. In particular, all safety instructions must be observed.

One of the principles of Dry-Ice-Energy GmbH is to continuously develop and improve the product ranges, which explains any differences in equipment, technical data, brochures and operating instructions.

Descriptions of activities that do not require special knowledge have been omitted.

Repair work that exceeds normal maintenance work is not described and may only be carried out by the service of Dry-Ice-Energy GmbH or an authorized service partner.

The device is built according to recognized safety standards. Improper use can result in dangers for the user.

The manufacturer of this device is not liable for any damage caused to the device or by the user in the event of:

- Improper handling
- Failure to follow the operating instructions
- Repairs by unauthorized professionals
- Installation and replacement of non-original parts
- Improper use

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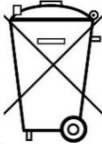
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1 Scope of delivery/standard accessories

- Dry ice blasting machine Champ Turbo Pro
- Push bar
- Omnidirectional nozzle
- Ice scoop
- Grounding wire (optional)
- Operating instructions

2 Environmental protection








Dry-Ice-Energy is committed to comprehensive environmental protection.

	<p>All packaging materials are recyclable. Please recycle the packaging or, if possible, keep the packaging for reuse.</p> <p>For our 24-hour exchange service, we use the transport packaging several times.</p>
	<p>Waste equipment contains valuable recyclable materials that should be recycled. Therefore, please dispose of old appliances using suitable collection systems.</p> <p>Dry-Ice-Energy GmbH will take back your used device.</p>

3 Product Registration

Only if we have your registration data can we look after your blasting machine on the service side and draw your attention to inspection appointments. You can register your blasting machine at any time at the addresses provided by Dry-Ice-Energy GmbH, or obtain information about registration.

4 Safety precautions

 DANGER	
	<p>Refers to an imminent danger. If the information is not followed, there is a risk to life or serious bodily injury may result.</p>
 WARNING	
	<p>Refers to a potentially dangerous situation. If the information is not followed, there is a risk to life or serious bodily injury may result.</p>
 CAUTION	
	<p>Refers to a potentially dangerous situation Failure to follow the information may result in property damage and minor or moderate bodily injury.</p>
HINT	
	<p>Denotes general information Useful user tips and work recommendations, but which do not affect the safety and health of the staff.</p>

5 Policies and Regulations

For the blasting of surfaces when using granular abrasives, the regulations of the respective country apply.

In Germany, the regulations of the employers' liability insurance association apply, named:

BGV D 26

Blasting work / Instructions for execution

Other regulations include:

BGR 195 Use of protective gloves

BGR 189 Use of protective clothing

BGR 117 + BGI 534 Working in confined spaces

BGI 836 Gaswarner

Observe general safety rules!

If hazardous dust is produced as a result of cleaning with the Champ Turbo Pro, appropriate safety measures must be taken before the work begins.

Safety instructions attached to the Champ Turbo Pro





CAUTION



Avoid direct skin contact with CO2 pellets!

Risk of cold burns due to dry ice or cold parts of equipment. Dry ice has a temperature of -79°C . Never touch dry ice and cold parts of the appliance unprotected. When working on the device, wear suitable cold protection clothing or remove dry ice and allow it to warm up. Never put dry ice in your mouth!



Do not radiate against living beings – risk of injury!

Risk of injury from flying dry ice pellets. Do not point the blast gun at people or your own body parts. Keep people and animals away during operation (e.g. by shutting them off). Do not touch the nozzle or dry ice jet during operation.







Electrically ground compressed air connections and cleaning objects!

In the case of non-earthed compressed air connections, the device must also be grounded. Danger of electrostatic discharge. Risk of damage to electronic assemblies. Electrically ground the cleaning object and maintain grounding throughout the cleaning process.



Secure the gun with the slide valve!

Danger of accidental start-up.

 DANGER	
  	<p>When blasting indoors, make sure you have enough fresh air!</p> <p>or</p> <p>Set up extraction at ground level. CO2 is heavier than air!</p> <p>Choking hazard from carbon dioxide. The dry ice pellets consist of solid carbon dioxide. During the operation of the device, the carbon dioxide content of the air in the workplace increases. Ventilate the workplace adequately, use a personal warning device if necessary.</p> <p>Signs of high carbon dioxide concentration in the air we breathe: 3-5%: headache, high respiratory rate. 7-10%: headache, nausea, possibly loss of consciousness.</p> <p>If these signs appear, immediately turn off the device and go out into the fresh air. Before resuming work, improve ventilation measures or use a breathing apparatus.</p> <p>During the cleaning process, the cleaning object can be electrically charged.</p>

If the safety instructions on the device are missing or illegible, they must be replaced!

Switch off in case of emergency

1. Release the trigger lever of the blast gun – the airflow from the nozzle is interrupted – the dry ice conveyance is stopped.
2. Secure the pistol with a ball valve.
3. Interrupt the compressed air supply by turning the compressed air connection.

6 Description of the procedure

The Champ Turbo Pro **dry ice blasting machine** works with granules from dry ice pellets ($\varnothing 1.5\text{mm}$), which are produced by pressing CO₂ snow.

The dry ice pellets in the dry ice tank are mixed with the compressed air in the blast gun via a hose and accelerated via the blasting nozzle.

The dirt on the surface is selectively supercooled and flakes off due to the different coefficients of expansion. The CO₂ granules sublime from a solid to a gaseous state at the moment of impact. And all that remains as a residue is the original dirt.

Attention!

Use the dry ice blasting machine **only** with abrasives, approved by Dry Ice Energy.

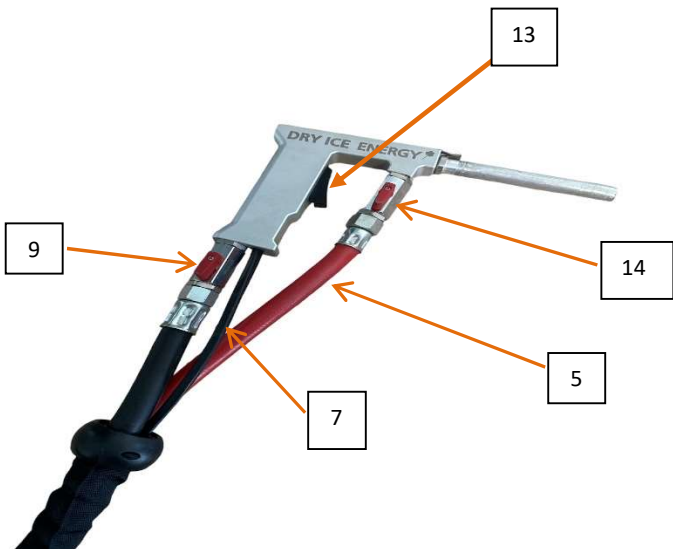
7 Champ Turbo Pro Specs

Length	530 mm
Width	370 mm
Height	470 mm
Leather Weight	23.5 kg
Dry Ice Filling Capacity	8 ltr.
Dry Ice Consumption	30 kg/h – 70 kg/h at 6 bar blasting pressure, each after inserted dosing disc
Required Supply Pressure	min. 4 bar - max. 14 bar
Compressed air consumption	800 l/min – 3,500 l/min
Pressure	max. 14 bar
Compressed air requirements	Compressed air must be clean, oil-free and dry. Min. Quality: ISO 8573-1 Class 3
Compressed air connection	European standard hose NW 7.2
Noise	60 dB (A) - 90 dB(A) – depending on the nozzle combination and the surface of the object to be cleaned
Abrasives	1.5mm or 3.0mm pellets from Dry-Ice-Energy (recommended)
Hose Length Work Hose	5.0 m
Hose length compressed air hose	10.0 m

8 Structure of the Champ Turbo Pro



- 1 Housing with integrated dry ice container
- 2 Blast gun holder
- 3 Blast gun
- 4 Compressed air connection on the back of the device
- 5 Ice Pellet Hose
- 6 Compressed air hose (max. permissible supply pressure 14 bar)
- 7 Control line
- 8 Protective sleeve
- 9 Ball valve for pressure reduction or closing of the volume flow
- 10 Dry Ice Bucket Lid
- 11 Castors
- 12 Safety instructions on the back of the device
- 13 Trigger lever
- 14 Ice Supply Lever
- 15 Druckminder (Pressure Reducer)
- 16 Dometer (Gauge)







9 Commissioning





Please note the following points before commissioning:

 CAUTION	
	<p>Electrically ground compressed air connections and cleaning objects!</p> <p>In the case of non-earthed compressed air connections, the device must also be grounded.</p> <p>Danger of electrostatic discharge. Risk of damage to electronic assemblies. Ground the cleaning object electrically with the enclosed grounding wire and maintain grounding throughout the cleaning process.</p> <p>If there is a lack of grounding, flammable materials can ignite due to static discharge!</p>

HINT	
	<p>Before filling with dry ice, operate the appliance for 5 seconds when empty. This prevents the pellet dosage from freezing when filled with dry ice.</p> <p>Risk of damage to the device. Only use abrasives that are approved by Dry Ice Energy. The use of other abrasives will void the warranty.</p>

 CAUTION	
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	<p>Avoid direct skin contact with CO2 pellets!</p>
	<p>Risk of cold burns due to dry ice or cold parts of equipment. Dry ice has a temperature of -79°C. Never touch dry ice and cold parts of the appliance unprotected. When working on the appliance, wear suitable cold protection clothing or remove dry ice and allow the appliance to warm up. Never put dry ice in your mouth!</p>

 DANGER	
	<p>When blasting indoors, make sure you have enough fresh air! or Set up extraction at ground level. CO2 is heavier than air!</p>
	<p>Choking hazard from carbon dioxide. The dry ice pellets consist of solid carbon dioxide. During the operation of the device, the carbon dioxide content increases. air in the workplace. Ventilate the workplace adequately, if necessary use a personal warning device (see page 15 "Accessories").</p>
	<p>Signs of high carbon dioxide concentration in the air we breathe: 3-5%: headache, high respiratory rate. 7-10%: headache, nausea, possibly loss of consciousness.</p> <p>If these signs appear, immediately turn off the device and go out into the fresh air. Before resuming work, improve ventilation measures or use a breathing apparatus.</p> <p>The Champ Turbo Pro must not be operated in a potentially explosive environment! During the cleaning process, the cleaning object can be electrically charged.</p>


Commissioning:

Compare the air supply (available pressure, capacity, temperature and humidity) with the specified values.

- a) If necessary, fix the cleaning object and ground it electrically.
- b) Wear protective clothing, protective gloves, tight-fitting goggles, hearing protection and a suitable protective mask.
- c) The settings on the pressure regulator depend on the material of the object to be cleaned and the level of contamination. The blasting pressure affects the speed at which the dry ice pellets exit the nozzle. The higher the set blasting pressure, the higher the cleaning effect.
- d) 4 - 5.5 bar for light soiling
6 - 14 bar for heavy soiling
- e) Activate compressed air supply by **ball valve**.
- f) Hold the blast gun securely in your hand.
- g) Activate dry ice blasting by pulling **the trigger**, first "blow through" dry ice for 5 seconds without dry ice.
- h) Pour dry ice pellets into the dry ice bucket using the included ice cream sundae.
- i) During filling, it is important to ensure that no foreign objects fall into the dry ice container. The foreign bodies can clog the pellet dosage during blasting.
- j) Close the lid
- k) Perform the cleaning process.

Switch off in case of emergency



- a) Release the trigger lever of the blast gun – the airflow from the nozzle is interrupted – the dry ice conveyance is stopped.
- b) Securing the gun with the slide valve
- c) Interrupt the compressed air supply by turning the compressed air connection

HINT	
	<p>Keep the lid of the dry ice container closed during operation. This prevents the ingress of radiated dirt.</p> <p>To avoid disturbances caused by clumped dry ice pellets, it makes sense to use up the contents of the dry ice container completely before refilling new dry ice.</p>

	<p>Before longer work stoppages, operate the appliance until the dry ice container is empty or dry ice can be removed by tilting the appliance.</p> <p>Insert the blast gun into the gun holder of the cover and cut off the compressed air supply by turning the compressed air connection.</p> <p>Open the lid to allow the condensation to dry in the drying container.</p>
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10 Finishing the blasting work

- a) If there is still dry ice in the hopper, blast the Champ Turbo Pro completely empty.
- b) As soon as no more pellets come out of the blast nozzle, continue blasting for about 10 seconds to empty the blast hose completely.
- c) let go of the trigger;
- d) Push the slide valve to the OFF position;
- e) To relieve the pressure on the compressed air hose, switch off the compressed air supply to the compressed air source (compressor).
- f) First relieve the compressed air hose (by pressing the trigger), then hold the hose well and pull it off. Blast pressure gauge reads 0 bar.




 CAUTION	
	<p>Avoid direct skin contact with CO2 pellets!</p> <p>Risk of cold burns due to dry ice or cold parts of equipment. Dry ice has a temperature of -79°C. Never touch dry ice and cold parts of the appliance unprotected. When working on the appliance, wear suitable cold protection</p>

	<p>clothing or remove dry ice and allow the appliance to warm up. Never put dry ice in your mouth!</p>
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11 Transport

Before transporting, carry out all the steps in the chapter "Finishing the blasting work".

- Attach the device to the transport vehicle with tension straps.

	
DANGER	
<div style="text-align: center; margin-bottom: 20px;">  </div> <div style="text-align: center;">  </div>	<p>Risk of accidents due to dry ice residues in the device. Before transport in closed vehicles or when parking in small unventilated rooms, e.g. lifts, the dry ice must be completely removed from the device.</p> <p>Set up extraction at ground level. CO2 is heavier than air!</p> <p>Choking hazard from carbon dioxide. The dry ice pellets consist of solid carbon dioxide. During the operation of the device, the carbon dioxide content of the air in the workplace increases. Ventilate the workplace adequately, if necessary use a personal warning device (see page 15 "Accessories").</p> <p>Signs of high carbon dioxide concentration in the air we breathe: 3-5%: headache, high respiratory rate. 7-10%: headache, nausea, possibly loss of consciousness.</p> <p>If these signs appear, immediately turn off the device and go out into the fresh air. Before resuming work, improve ventilation measures or use a breathing apparatus.</p>

12 Maintenance

The pneumatic design of the **Champ Turbo Pro** results in extremely low maintenance requirements. However, checking before each use is very important.

The **Champ Turbo Pro** is factory-designed so that only a few components require maintenance; you can do the following work yourself.

Before and after each assignment

- Inspect hoses for damage, kinks and tightness
- Check the pressure regulator (if fitted) for tightness.

Attention!

All other works may only be carried out by the
Dry-Ice-Energy Service!

Have the appliance inspected by the Dry-Ice-Energy Service 1x a year.
See also 24-hour exchange service.

Maintenance contract

To ensure reliable operation of the system, we recommend that you conclude a maintenance contract with our 24-hour replacement service. Please contact our sales or customer service.

13 Dismantling and disposal


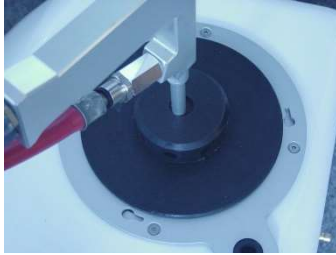
For the disposal of the device, the national regulations must be observed.
Dry-Ice-Energy GmbH will take back your used device.

14 Fault analysis

Disturbance	Root Cause Solution
No compressed air on the gun	Connect compressed air – switch on the main switch on the compressor – open the slide valve (9) on the gun
No pellet conveying	<p>Kinked pellet hose: → Pellets cannot be sucked in → , check the pellet hose for kinks and replace them if necessary.</p> <p>Clumped ice in the pellet dosing → backwash → see note next page</p> <p>Check that there is 600 l/min of compressed air.</p> <p>No pellets in the container or wrong pellets → for the Champ Turbo Pro, only mini pellets from Dry Ice Energy may be used.</p> <p>Foreign objects in the dry ice container – polystyrene parts, etc. → Backwash and refill dry ice container.</p> <p>Dosage does not turn on →, see next cause.</p>
Dosage does not turn on	<p>Check the compressed air supply.</p> <p>Press the reset switch (red) underneath the machine for approx. 5 seconds (with compressed air supply connected).</p> <p>Blast pressure drops below 3 bar during operation → , check if min. 600 l/min compressed air.</p>
Poor cleaning performance	Too little pressure or too small supply line cross-section – if a pressure of 6 bar is set, the display on the upstream pressure regulator must not fall below 4 bar during cleaning.

Device switches off with a delay	Gun nozzle iced → compressed air contains too much water, → check refrigerant dryer of the compressed air system →, empty water cutter on the compressor.
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HINT

		<p>In case of irregular ice flow during blasting - recoil:</p> <p>Insert the gun with the nozzle into the hole provided in the lid. Press the gun firmly against the lid. Operate the trigger lever until a steady flow of air flows out of the openings of the lid.</p>
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15 Warranty and Service Documentation

The warranty is valid for 12 months after delivery.

For an assessment of the warranty, the spare part or the machine must be sent to the company Dry-Ice-Energy GmbH.

The warranty does not cover defects wholly or partially the result of:

- Deviation from the operating and operating instructions regarding normal use with prescribed pressure settings or use of abrasives other than dry ice pellets.
- Normal wear and tear, including wear and tear of the blast hose.
- Assembly/installation or repair by third parties or clients.
- Insufficient maintenance.

Attention: The machine may only be opened by the service department of Dry-Ice-Energy GmbH. If the housing is opened by the machine without permission, the warranty claim will be voided.

In the event of a warranty claim, please contact Dry-Ice-Energy GmbH or one of our sales partners.

Dry-Ice-Energy GmbH
Wiebestraße 36-37
10553 Berlin

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Fax +49 (0) 30-364 280 120
info@dryiceenergy.com
www.dryiceenergy.com

Shipping requirements:

In the event of a return shipment of the Champ Turbo Pro, the original box must be used if possible. This was specially designed for the Champ Turbo Pro and guarantees the highest possible protection of the machine against transport damage.

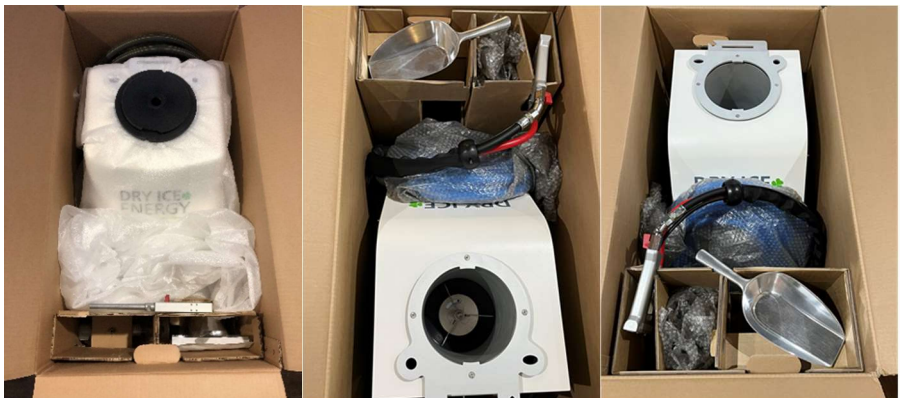
The Champ Turbo Pro should also be protected by cushioning material against abrupt blows to the packaging or the dropping of the box.

Below you can see an example of how the Champ Turbo Pro should not be packed under any circumstances, otherwise transport damage is inevitable:

False:



Correct:



EC Declaration of Conformity

According to the EC Machinery Directive(MRL) 2006/42/EC of May 17, 2006, Annex II A
for machines

The design type of the machine (trade name): Dry ice blasting machine

Brand/Function/Model/Type: Series Champ

Serial No./Year of construction: Indication on the type plate of the machine

was developed, designed and manufactured under sole responsibility of

Manufacturer: DRY-Ice-Energy GmbH
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and complies with all relevant provisions of MRL 2006/42/EC.

The technical documentation has been prepared in accordance with Annex V II A of the MRL 2006/42/EC and can be submitted to the competent market surveillance authority upon request.

Person responsible for documentation (located in the Community): Gernot Schnettler

The operating manual(s) belonging to the machine (original and translations, if applicable) - and installation declarations and assembly instructions, if applicable - are available.

Berlin 16.11.2023
Ort, Datum

Gernot Schnettler, Geschäftsführer
Name, Funktion des Bevollmächtigten


DRY ICE ENERGY
so einfach kann Trockeneisreinigung sein
Stempel, Unterschrift des Bevollmächtigten

Service documentation

DRY ICE ENERGY



so einfach kann **Trockeneisreinigung** sein

