



Oberflächentechnik
Surface Technology



Instruction Manual ***microjet***

Tabletop fine blasting device joke-microjet
Order no.: 0 951 210, 0 951 220, 0 951 223

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Tips on using the manual

We congratulate you on purchasing this device.

This manual has been written for the device user to ensure a problem-free operation, care and maintenance. Important instructions and information concerning safety and operational reliability have been highlighted.

The symbols used in the manual have the following meanings:



Working and operating processes which must be observed to the letter to exclude any risk to persons and avoid damage to the device.



Technical information to which the device operator must give special attention.

The illustrations and diagrams are numbered in sequence within each chapter. Some of these illustrations have keys. References to illustrations within the text e. g. (5.1/2) have the following meaning:

5.1 = Figure 5.1

2 = Position 2 in the key to the figure.

Our service department is available at all times in case of technical problems not addressed in this manual:

Telephone	+49 (0) 22 04 / 8 39 - 0
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Internet	www.joke.de

Safety instructions

This device has been built according to the latest technical standards and generally accepted safety regulations. Nevertheless, it can constitute danger to life and limb for operator or third parties and a hazard to the device itself or other equipment during use.

1. Only use the device if in perfect working order and for its intended purpose. You must always pay attention to the instruction manual and safety instructions therein and be aware of the risks! Repair any faults which could affect the device's safety immediately by yourself or have these repaired.

The device is intended solely for fine blasting of workpieces made of metal, non-ferrous metals and plastics during dry blasting. Any other use (use other than described in this operating manual) is not considered use as intended. This invalidates the warranty. Correct use also includes compliance with the instruction manual and an observation of the care and maintenance conditions.

2. Keep the instruction manual handy at the device's place of use.
3. Pay attention to and observe generally applicable statutory and otherwise binding regulations relating to accident prevention and environmental protection in addition to the information provided in the instruction manual!
4. All personnel commissioned to work on or with the device must have read this instruction manual, and particularly the safety instructions chapter, before starting work. This applies especially for personnel who only work with the device occasionally.
5. Stop the device immediately should you notice changes to the device or its operating behaviour that are relevant to its safety. Have these remedied before restarting work.
6. Observe safety instructions on the device and ensure they remain legible.
7. Do not carry out any modifications, additions or conversions to the device! This also applies to the installation and adjustment of safety equipment.
8. Spare parts must meet the technical requirements specified by the manufacturer. This can only be guaranteed with original joke spare parts.
9. Any work on/with the device may only be carried out by qualified, appropriately trained and authorised personnel. Pay attention to minimum statutory age limits!
10. Personnel undergoing training or in a general apprenticeship should only be allowed to work with the machine under the constant supervision of an experienced operator!
11. Restrain from any type of work that could jeopardise your safety.

12. The device may only be used if all protective and safety equipment is in place and in proper working order.
13. Do not leave the device unattended when switched on!
14. Stop and secure the device immediately in the event of malfunctions! Faults must remedied at once.
15. Observe processes for switching on and off and control indicators according to the instruction manual!
16. The mains cable, foot switch cable and compressed-air line must be laid so as to be tension free and not hinder the user. Nothing must be allowed to stand on the cables.
17. The device must be operated only in dry rooms and must not under any circumstances be exposed to moisture.

The device has no explosion protection!
18. It is essential to observe the manufacturer's processing instructions in handling the blasting shot.
19. Working with explosive blasting shots is forbidden.
20. Workpieces that result in explosive dusts must not be processed with this unit.
21. Working with poisonous substances or blasting shots that give off poisonous substances is not allowed.
22. Workpieces that release poisonous substances must not be processed.
23. Do not start the blasting process with the foot pedal until having locked the flap door and reaching with both hands into the gloves.
24. Do not wear any synthetic clothing on the body, in order to avoid static charge. Wear appropriate conductive working shoes. Depending on the blasting shot and weather, wear antistatic armbands earthed to the unit.
25. Do not remove blasting shot from the unit manually or by compressed air, but exclusively with aid of a tool.
26. Dispose of or replace used blasting shot environment-consciously and in accordance with regulations.
27. Immediately replace windows that are damaged or have become opaque.
28. Replace damaged gloves immediately.

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Warranty / Identification

joke Technology GmbH warrants the correct manufacture of every joke product which is delivered in accordance with the terms of contract and delivery.

This warranty does not cover damages caused by normal wear and tear, incorrect handling, negligent use, the fitting of non-original spare parts, inadequate care and/or a failure to comply with this technical manual.



The device may only be used by appropriately trained personnel. If it is not, all warranty claims will be forfeited according to the terms of delivery.

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Purpose of use

The microjet is a sand-blasting device developed for surface treatment of metal surfaces. Particularly for removing residues and oxide layers or when using glass beads and for polishing the precious metal surfaces.

The microjet can be equipped with between 1 and 3 containers capable of holding corundum or glass beads of different diameters for treating metal, ceramic, marble or similar surfaces. Both the sand manifolds of the containers and the nozzles are dimensioned depending on the selected grit size, which is indicated on the corresponding tank lid. Sand blasting is performed by operating a pneumatic foot switch. When executed with more than one container, the desired container is selected by a practical switch located in the cabin.

The microjet must be connected to a compressor.



The recommended working pressure is approx. 3 bars

This value may of course vary depending on the blasting shot and surface to be treated. Adjustment is performed by means of the pressure switch. The set value is displayed on the pressure gauge. It is also possible as an option to have a pressure controller with a pressure gauge installed for each individual tank. In this case, it is then possible to preset a different pressure for each individual tank independently and read this on the pressure gauge. The air circuit is equipped with a safety valve calibrated to 9 bars.

The microjet must be connected to an extractor equipped with a filter. A corresponding drilling is provided for this purpose on the side of the housing for inserting the extractor tube. The large working cabin is illuminated by a 9-watt lamp. The Plexiglas pane is protected by a plastic film.

The microjet can be additionally equipped with a circulating-extraction blasting device. In this version, a module is added to the fine blasting unit for collecting the blasting shot used. The blasting shot thus collected can subsequently be reused for coarse blasting through a 4 mm nozzle. This saves blasting shot and results in a practically two-in-one blasting device. The selection between fine blasting unit and circulating device (if available) is made by operating the corresponding pedal (1 for fine blasting unit and 1 for circulating blasting unit). The working pressure of the circulating device is predetermined by the compressor and cannot be adjusted on the blasting device.

STARTING OPERATION FOR THE FIRST TIME

Installation site

The unit must not be installed in an environment where there is a risk of explosion, in damp rooms or in rooms with high relative humidity.
The base must be firm, flat and horizontal.

Device overview

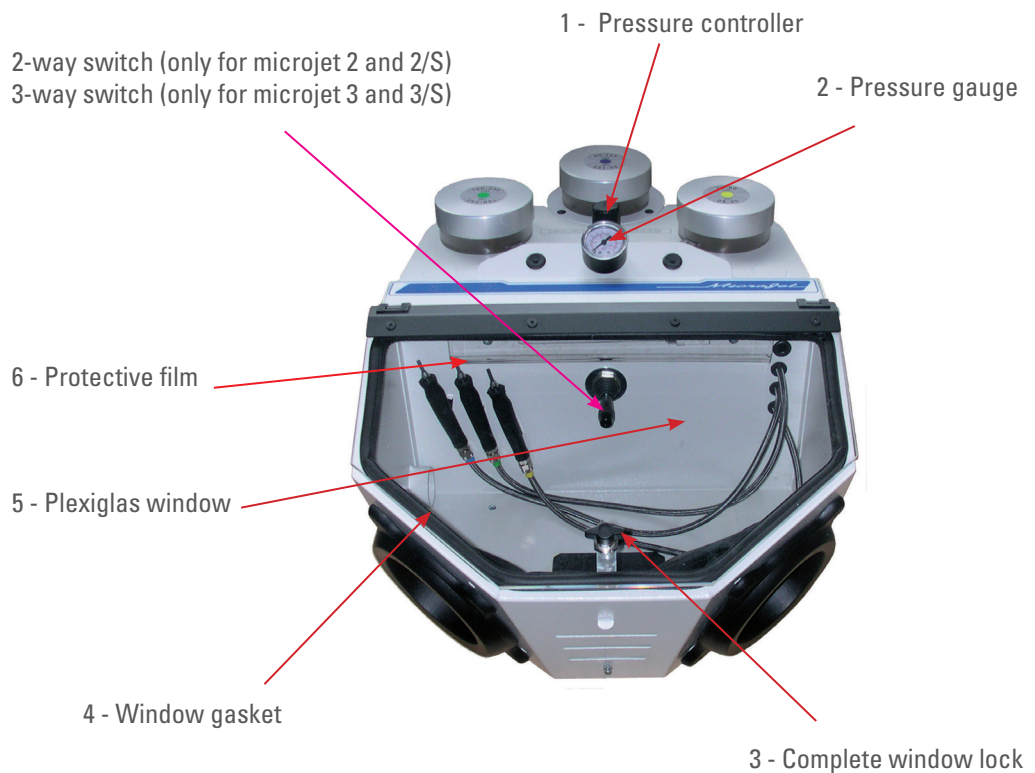


Fig. 6.1 Microjet device overview

Installation and starting the unit for the first time

The unit should always be set up in a dry place in order to prevent the blasting shot inside the cabin from absorbing moisture. This also applies of course to the storage place for the blasting shot.

1. Check whether the mains voltage corresponds to the voltage intended for the device and indicated on the plate. Next connect the plug to the socket of the blasting device and the other end to the power system.
2. Connect the compressed-air line to the compressor. The compressed air must not exceed 6 bars on emerging from the compressor.
3. Connect the pedal hoses to the appropriate connecting pieces: the blue hose to the connecting piece with the blue dot and the black hose to the connecting piece with the black dot.
4. Adjust the pressure to 3-6 bars according to requirements using the pressure controller (Fig. 6.1.1). The controller handle is to be lifted and turned to adjust the pressure; once the desired value is reached, the handle is to be secured again by pressing. Take care not to use force when pushing the handle down to avoid damaging the teeth.
5. Connect the extraction to the corresponding connection. Connect the extractor plug to the corresponding socket.
6. Unscrew the cover and fill the container with the desired blasting shot up to approx. 1-2 cm from the tube edge. Care should be taken that the grit size of the blasting shot corresponds to the value indicated on the lid; finally screw the lid back in place.



Before screwing the cover tight, thoroughly clean the thread free of sand remnants in order to avoid damage to the thread.

7. By operating the switch, the cabin is illuminated and if the sand blasting device is connected, the extraction is set into operation.
8. In order to begin sand blasting, open the viewing window (Fig. 6.1.5), insert the piece to be processed, hold firmly with the glove, close the window and press the pedal.

Technical data

mikrojet fine blasting unit

Voltage	230 V, 50/60 Hz (see indication on type plate)
Total output	9 watts
Operating pressure	3-6 bars
Safety valve	calibrated to 9 bars
Air consumption	max. 80 l/min at 6 bars
Dimensions (W x D x H):	38 x 57 x 28 cm
Weight	approx. 10 kg (plus 1 kg with additional container)
Lighting	9-watt fluorescent tube

Steel housing has a stove-enamel finish.

Wide viewing window with easily replaceable protective film.

Pneumatic foot switch.

Handpiece with 0.8, 1.0 or 1.2 mm fine blasting nozzle.

Large-capacity tank (approx. 1 litre)

Pressure controller and pressure gauge are separate for each tank.

Switches for light and extractor. Air filter included.

Optional: circulating-extraction blasting device

- Additional pneumatic foot switch
- Blasting device with rubber holder and articulated arm
- Circulating nozzle Ø 4 mm
- Plug for emptying
- Dimensions (W x D x H): 38 x 57 x 43 cm
- Weight: approx. 16 kg (with 1 container), 17 kg (with 2 containers), 18 kg (with 3 containers).

Troubleshooting

Malfunction	Possible cause	Remedy
Air pressure is correct, but no sand emerges when the pedal is pressed.	Fine blasting nozzle blocked or worn.	Unscrew fine blasting nozzle and check whether the tube is blocked or excessively worn. Unblock the tube accordingly or replace the nozzle.
	Sand has accumulated in the feed tube.	Remove the nozzle and clear the hose by light pressure on the foot pedal.
	Blasting shot damp or dirty, or does not comply with the grit size indicated on the tank lid.	Completely empty the tank, blow clean and add fresh, clean blasting shot corresponding to the indicated grit size.
		Check the filters of the air manifold and replace if blocked or worn.
		Ensure that the pressure controller is working correctly; otherwise replace.

Version with circulating-extraction blasting device

Air pressure is correct, but neither air nor sand emerges when the pedal is pressed for circulating mode.	Coarse blasting nozzle or compressed air nozzle blocked or worn.	Dismantle the blasting device and check nozzles. Unblock the tube accordingly or replace the nozzle.
		Check hoses for blockages or kinks.
		Check whether the foot switch is properly connected and is operating normally.

Malfunction	Possible cause	Remedy
		Check whether the foot switch is properly connected and is operating normally.
Compressed air passes through, but no sand emerges from the nozzle.	Nozzle possibly blocked.	Check whether the nozzle is blocked, correctly positioned and not excessively worn. In the latter case, replace the nozzle.
		Check whether the air nozzle is correctly positioned: it must be located in the centre of the blasting device and not be screwed in at an angle; furthermore, the bore must be 2 mm in diameter; if this value proves to be exceeded, the nozzle is to be replaced.
		The rubber nozzle carriers must be inserted into the blasting device up to the stop.
		Check that the supply hose is free and undamaged and is immersed in the blasting shot.

Maintenance

1. The parts exposed to the greatest wear are the nozzles and the protective film on the window. To replace the plastic film, simply remove the old film and apply new film. In order to change the fine blasting nozzle, pull out the handpiece unscrew the installed nozzle and screw on a new nozzle.
2. Over time, the filters of the air manifold on the base of the container may become worn or blocked. In this case, the filters are to be screwed out and replaced.
3. Correct functionality of the sand blasting device also depends to a great extent on relative humidity. In order to ensure that the air supplied by the compressor is absolutely dry, both the compressor and air filter of the blasting device should be periodically inspected and emptied if necessary. An excessive relative humidity in fact causes compaction of the sand in the container with ensuing blockage of the manifold.
4. Always keep the extraction in good working order by regular maintenance according to the manufacturer's guidelines.
5. In the version with a circulating-extraction blasting device, the coarse blasting group may become worn over time. Pull the rubber holder out of the sand blasting device, withdraw the Widia nozzle and replace. In doing so, also check the wear of the rubber holder, blasting piece and the compressed-air nozzle and if necessary the corresponding parts.



Danger! Risks to persons and property possible!

Personal injury and material damages occurring directly or consequentially are possible as a result of improper inspection, maintenance or repair.

All servicing and repair work on the blasting cabin may only be performed by qualified specialists with particular observation of the safety instructions chapter.

The regular work for maintenance and servicing must be registered in a log by the maintenance and operating personnel in order to uphold the claim under the warranty.



Only use spare parts approved by joke Technology GmbH and the latter's suppliers!

joke Technology GmbH cannot accept any liability in case of use of non-approved spare or replacement parts and utilities!

Care is to be taken to ensure environment-friendly disposal of the consumables and replacement parts.

Pay attention to proper dismantling and assembly of components in order to avoid material damage and consequential damage to the blasting cabin.

Therefore, during all dismantling and disassembly work, the following basically applies:

- Mark parts that belong together
- Mark and note the installation position and location
- Dismantle, clean and store subassemblies separately.

After repair work, the following basically applies:

- Check all screw connections for a firm seat
- Test all pipe fittings and connections for leaktightness.



If disassembly of protective devices is necessary for maintenance measures, the protective devices must be reapplied and tested immediately after completion of the work.

Operating condition

Depending on the nature and scope of the maintenance measures, the blasting cabin and the area involved must either be shut down or switched completely free of current.

In order to conduct extensive cleaning and repair measures, the blasting cabin and the area involved is to be completely disconnected from the mains power supply.

Care

Only clean the device with a soft brush or dry cloth if required.
Clean the inside and outside of the window.



Do not wet clean!

All blasting cabins are exposed to major stresses and heavy soiling to a particular extent. Consequently, they require very close and regular care.

The duty of the operating personnel is to check the blasting cabin daily for wear and/or damage and report this to the competent maintenance personnel.



The inscriptions of control elements may become illegible as a result of unavoidable dirt deposits. This may result in operating errors that may cause material and consequential damages.

Clean all actuating devices and displays free of dust and other contamination once per shift.



Material damage to the blasting cabin as a result of component contamination!

Residues may deposit themselves or penetrate into moving components.
This may cause damage to the blasting cabin!



Always therefore check the blasting cabin at the beginning of a shift.
Clean heavily contaminated areas daily.
Switch the blasting cabin free of voltage first.
Never reach into moving machine parts with your hands!

Daily maintenance tasks and inspections

Maintenance point	Maintenance work	Comment
Entire blasting cabin	Check of operating performance	Observe all components of the blasting cabin for normal operating performance, e.g.: • running noises, • temperature increase, • odour development. Shut down the blasting cabin in case of irregular operating performance and immediately notify the maintenance personnel.
Entire unit	Check for residues	Check the blasting cabin and surroundings for remains of material and consumables and eliminate if necessary: • baked-on residues, • deposits and the like, • blasting medium residues.
Paths of travel, working surfaces, inscriptions	Eliminate contamination	Eliminate blasting medium residues around the blasting cabin.
Check compressed-air supply lines,	gaskets	Check all movable compressed-air supply lines and gaskets, etc. Have faulty parts replaced if necessary.
Hose lines, piping, fittings, connections	Visual inspection for leaktightness	Particularly perform a control of the blasting hose and the blasting nozzle.
Protective gloves	Visual inspection for integrity	Immediately replace damaged protective gloves with new ones.

Monthly maintenance tasks and inspections

Maintenance point	Maintenance work	Comment
Pneumatic fittings	Check for free running	restore free running or replace if necessary
Electrical connections and cables	Check for damage	Have damaged connections and cables renewed by a skilled electrician if necessary

Wearing parts

Wearing parts include all components carrying blasting shot. These are preferably to be kept in stock in order to avoid unit downtimes. The wearing parts are to be separately checked every week and are also to be replaced as a precaution if necessary.

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Conformity declaration

We, joke Technology GmbH
D-51429 Bergisch Gladbach
Asselborner Weg 14-16,

hereby declare, at our sole responsibility, that the product:

mikrojet fine blasting unit

Series no.:

has been developed, designed and manufactured following the EC guidelines/directives:

2006/95 EC
2004/108 EC
97/23/EC

Authorised for documentation:

Kerstin Otto, joke Technology GmbH, Asselborner Weg 14-16, D-51429 Bergisch Gladbach

Authorized signatory:

Udo Fielenbach, joke Technology GmbH, Asselborner Weg 14-16, D-51429 Bergisch Gladbach



Udo Fielenbach, Managing Director

Bergisch Gladbach, 11 September 2014

To

joke Technology GmbH
 Service-Abteilung
 Fax: 0 22 04 / 8 39 - 60

Sender:

Firma

Name/Department

Customer no.

Street

Postcode town/city

Email:

Please send us the spare parts drawing with the spare parts list for the following equipment:

- ☐ as a printout (see address above),
- ☐ by Fax,
- ☐ as a pdf file to my e-mail address

Tabletop fine blasting device joke-microjet 1, cabin with 1 blasting shot container	Order no. 0 951 210	<input type="checkbox"/>
Tabletop fine blasting device joke-microjet 2, cabin with 2 blasting shot containers	Order no. 0 951 220	<input type="checkbox"/>
Tabletop fine blasting device joke-microjet 3, cabin with 3 blasting shot containers	Order no. 0 951 223	<input type="checkbox"/>
Tabletop fine blasting device joke-microjet, cabin without blasting shot container	Order no. 0 951 221	<input type="checkbox"/>
Protective film for microjet, VE 10 pieces	Order no. 0 951 222	<input type="checkbox"/>

Date

Signature



Brilliant solutions for perfect surfaces

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