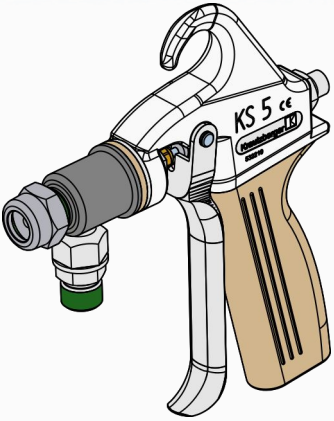


GB

Operating instructions
Hand-held Spray Gun KS 5

T-Dok-653-GB-Rev.0

■ **200-0368**

Translation of the original operating instructions

Krautzberger

Thank you for selecting a Krautzberger product.

This product has been manufactured following state-of-the-art manufacturing procedures and extensive quality assurance measures. We promise you a product of the highest quality.

If you have questions, requests or suggestions, please contact us. We are always glad to assist you.

Information about the operating manual

This manual provides important information on how to work with the device safely and efficiently. The manual is part of the device, must always be kept in the device's direct proximity and should be available to the personnel at all times.

The personnel must have read and understood this manual before starting any work. Compliance with all specified safety information and instructions is a basic requirement for safe working conditions.

In addition, the local occupational safety regulations and general safety rules apply for the area of application of the device.

Due to optional finishing variants, it is possible that the figures shown in this operating manual deviate from your device.

Information about explosion protection

Many of our competitors have been marking their products with the Ex symbol as a matter of principle for some time now.

At Krautzberger we do not do this.

We engineer and manufacture our products in line with currently applicable directives.

If the labelling on the product is required, it is affixed to the product as the result of the necessary analysis of ignition sources. If no labelling is affixed, the analysis of ignition sources and previous experience with the assessment of the suitability of products for use in a potentially explosive area have shown that the product described in this operating manual does not represent a potential source of ignition, with the exception of electrostatic charge.

Taking into account the potential equalisation (provided by proper earth connection), the use in an area at risk for explosions is permitted in accordance with the current valid directives.

Table of contents

1 Function and identification

1.1 Function

The hand-held spray gun, type KS 5, is used to coat surfaces such as metal, plastic, ceramics, wood and similar materials as well as other suitable surfaces. Typical coating materials include paints, dyes, water-soluble paints, adhesives, oils, and anti-adhesives.

The hand-held spray gun operates based on the airless principle, which means the spray jet is exclusively generated by the material pressure, which presses the material through a nozzle. After exiting the nozzle, the spray jet takes the shape specified by the nozzle. It is directed towards the work piece. The effective spray jet is not quite as wide as theoretically possible.

The coating material that is to be processed is applied to the surface by a person who is manually guiding the hand-held spray gun over the surface that needs to be coated and who is starting the spraying process at the respectively intended location by operating the trigger. The coating material is fed to the hand-held spray gun in liquid form under high material pressure.

Pulling the pull lever towards the handle of the main element moves the valve needle back against the resetting force of the valve spring. The valve needle slides out of the valve seat of the valve seat screw and thereby releases the material flow to the fluid nozzle. It sprays the material as an elliptical cone jet.

The volume of the exiting material depends exclusively on the nozzle size and the material pressure!

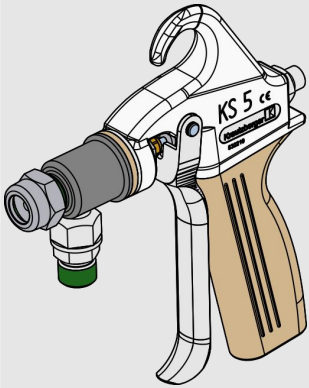
The volume and shape of the jet can only be modified by changing the nozzle. The diameter of the nozzle bore determines the material flow volume, while the size and geometry of the always elliptically shaped nozzle opening determine the height and width of the jet.

A large number of airless nozzles are available. They can only be purchased from Krautzberger GmbH.

The nozzle can be seamlessly turned in the axis of the spray jet by 360° and locked into place in any position. This allows an optimal adjustment of the angle with which the jet hits the work piece to the respective conditions.

The KS model is particularly suitable for use where comparatively large volumes of material need to be processed per unit of time.

1.2 Identification

Scope of delivery	Model	Product number
	Hand-held spray gun KS 5	200-0368
	Operating instructions	T-Dok-653

Serial number

The serial number of the hand-held spray gun is located on the main element. It serves as a unique identifier.

Additional information can be found in (Chapter 11 ‘Technical data’ on page 44).

2 Safety and responsibility

2.1 Symbols in this manual

Safety information

This manual uses symbols to identify safety information. The safety information is preceded by signal words that indicate the severity of the hazard.

DANGER!

This combination of symbol and signal word indicates an immediate dangerous situation, which will cause death or severe injuries if it is not averted.

WARNING!

This combination of symbol and signal word indicates a possibly dangerous situation which can cause death or severe injuries if it is not averted.

CAUTION!

This combination of symbol and signal word indicates a possibly dangerous situation which can cause slight injuries if it is not averted.

NOTICE!

This combination of symbol and signal word indicates a possibly dangerous situation which can cause property and environmental damage if it is not averted.

ENVIRONMENT!

This combination of symbol and signal word indicates potential environmental hazards.

Safety information in operating instructions

Safety information can refer to specific, individual operating instructions. Such safety information is embedded in the operating instructions so that it does not disrupt the reading flow during the execution of the action. The signal words described above are used.

Example:

1. Loosen screw.
2. **CAUTION!**
   Pinching hazard at the cover!

   Carefully close cover.
3. Tighten screw.

Special safety instructions

The following symbols are used in safety instructions to draw the attention to special hazards:

Warning signs	Type of danger
⚠	Warning – danger zone.

Tips and recommendations

This symbol highlights useful tips and recommendations as well as information for efficient and fault-free operation.

Additional identifications

The following symbols are used in this manual to highlight operating instructions, results, lists, references, and other elements:

Identification	Explanation
➥	Step-by-step operating instructions
⇨	Results of procedural steps
🕮	References to sections in this manual and other applicable documents
■	Lists without specified sequence
[Pushbutton]	Operating elements (e.g. buttons, switches), display elements (e.g. signal lights)
'Display'	Screen elements (e.g. buttons, assignment of function keys)

2.2 Personnel requirements

This manual identifies the qualifications of the personnel for the different scopes of work as listed below:

Operator
The operator has been instructed by the system owner in an orientation session on the assigned tasks and possible dangers in case of improper behaviour. Tasks that go beyond the operation in standard mode must only be carried out by the operator if such is indicated in this manual and the operate has explicitly been tasked to do so.

Qualified personnel
Due to their specialised professional training, knowledge, and experience as well as knowledge of the industry-specific standards and regulations, qualified personnel are in a position to perform assigned tasks and to identify and avert potential risks on their own.

User
The user is familiar with the basic regulations on occupational safety and accident prevention.

2.3 Personal safety equipment and clothing

Personal safety equipment is used to protect persons from impacts on safety and health at work.

The personnel must wear personal safety equipment while carrying out the various tasks and while working with the device. The individual sections of this manual will indicate the personal safety equipment separately.

The selection of the personal safety equipment depends on the coating material that is used. To ensure the proper selection of personal safety equipment, the information provided by the spray material manufacturer indicated on the safety data sheet must be adhered to.

Description of the personal safety equipment recommended by Krautzberger

The personal safety equipment and clothing is described below:

Light respiratory protection

The light respiratory protection is used as a protection against hazardous dusts.

Protective clothing

Protective clothing are tight fitting work clothes with low tear resistance, with tight sleeves, and without any protruding parts.

Protective gloves

Protective gloves protect hands from friction, abrasion, puncture wounds, or deeper injuries, as well as from contact with hot surfaces.

Safety goggles

Safety goggles are used to protect the eyes from flying components and splashes of liquid.

Safety shoes

Safety shoes protect the feet against crushing, falling parts or slipping on slippery ground.

2.4 Responsibility of the owner

Owner

The owner is the person, who directly operates the machine for commercial or economical purposes or who allows a third-party to use/apply it and who is responsible for the legal product stewardship for the protection of the user, the personnel or third parties.

Owner responsibilities

The machine is used in an industrial environment. The owner of the machine is therefore subject to the obligations as stipulated by the Occupational Health and Safety Act.

In addition to the safety information in this manual, the country-specific safety, accident prevention guidelines and environmental protection regulations, applicable at the site of implementation of the machine must be adhered to.

Furthermore, the owner is responsible for making sure that the machine is always in perfect technical condition. Therefore, the following applies:

- The owner must ensure that the maintenance intervals described in this operating manual are adhered to.
- The owner must have all safety equipment checked regularly for functionality and completeness.

2.5 Intended use

The hand-held spray gun KS 5 is used for the coating of various surfaces.

The intended use also includes the compliance with all the information in this manual.

Any use beyond the intended use or any other use constitutes misuse.

WARNING!

Danger due to misuse!

Misuse of the hand-held spray gun can cause dangerous situations.

- Only carry out the installation, start-up, and use in accordance with the steps described in this operating manual.
- Ensure that the utilised hose lines fulfil the requirements with respect to pressure, chemical, and mechanical loads.
- Always observe the applicable country-specific safety, accident prevention, occupational safety, and environmental protection regulations for the area of use for the hand-held spray gun.
- The chemical consistency of the materials used by us cannot always be reliably assessed due to the large variety of utilised fluids, concentrations, temperatures, and impurities. For this reason, the suitability must be checked because we cannot extend any respective guarantees.
- Only use the manufacturer's OEM parts.
- Only operate the hand-held spray gun in compliance with the values specified in the (↬ *Chapter 11 'Technical data' on page 44*).
- When using solvent-containing paints, avoid open flames, red-hot parts, and equipment, tools, and parts that can create flammable sparks in the work area.
- When using solvent-containing paints, provide a sufficient fresh air supply.
- Never point the hand-held spray gun at living beings.
- The conformity of the product is voided in case of structural modifications of the hand-held spray gun.
- Unauthorized persons, especially children and youth, must be prevented from entering the hazard zone.
- Always securely store the hand-held spray gun away from children. Especially during work breaks and in particular during the processing of hazardous materials, preventive measures must be taken against the improper use through unauthorised persons! Clean thoroughly prior to storage and/or transport.
- Take preventative measures against unintended operation or triggering of the pull lever!

No claims of any kind can be asserted due to damage resulting from misuse.

2.6 General safety instructions

WARNING!

Risk of death, risk of injury or property damage due to hazardous media!

Potential consequences: The application of hazardous media can lead to death, severe injuries or property damage.

When handling hazardous substances, ensure that the current safety data sheets of the hazardous substance manufacturer are available. The necessary measures can be derived from the content of the safety data sheet. Since the hazardous potential of a material can be reassessed at any time due to new lessons learned, the safety data sheet must be checked regularly and replaced if necessary.

The system owner is responsible for the presence and the up-to-date status of the safety data sheet and the associated generation of the risk assessment of the effected workstations.

DANGER!

Risk of death due to high pressure!

The material jet exits the front opening of the fluid nozzle with high speed. The material jet may penetrate skin, enter the body and forcefully inject air.

This presents the risk of causing a fatal embolism.

In addition, there is a risk of poisoning in case of toxic coating or cleaning material.

- Avoid unintended triggering of the pull lever.
- Concentration at the work station is imperative.
- When unauthorized persons are present, alert them to keep at a distance from the operator while he is performing his work.
- Before starting any cleaning or maintenance work, it is imperative to close the material supply and to discharge the stored residual energy by operating the pull lever. Always wait until the pressure is released.
- Never point the hand-held spray gun at living beings.
- Only trained personnel is permitted to perform cleaning and maintenance work.

2.7 Residual risks

The hand-held spray gun made by Krautzberger GmbH has been manufactured based on state-of-the-art technology and recognised technical safety regulations.

Nonetheless, its use can pose a threat to the life or health of users or third parties, damage the hand-held spray gun itself or cause other property damage.

- The hand-held spray gun must only be used as intended.
- The hand-held spray gun may only be operated in a defect-free condition.
- Any faults impacting the safety must be remedied immediately.

2.8 Course of action in an emergency

In principle, the applicable national, regional and internal company regulations concerning the course of action in case of an emergency must be adhered to and if necessary respective safety measures must be taken on the system owner's side.

3 Transport, delivery condition, storage and packaging

3.1 Transport

- The hand-held spray gun is protected by cardboard packaging.
- The cardboard packaging can be reused for storage.

3.2 Delivery condition

Immediately upon receipt check the delivery for completeness and damage from transport.

In the event of visible exterior transport damage, proceed as follows:

- Do not accept delivery or only do so with reservations.
- Record scope of damage on the transport documents or on the bill of delivery of the shipping company.
- Initiate complaint.

3.3 Storage

Store the hand-held spray gun under the following conditions:

- If possible, store the hand-held spray gun in the original packaging.
- Do not store outside.
- Store in a dry and dust-free environment.
- Keep away from any aggressive media.
- Protect from UV radiation.
- Avoid mechanical shocks.
- Storage temperature: 15 to 40 °C.
- Relative atmospheric humidity: max. 60%.
- When storing for longer than three months, check the general condition of all parts of the packaging on a regular basis.

It is possible that there are notes on the packaged units concerning the storage that extend beyond the requirements listed here. Those must be adhered to accordingly.

DANGER!

Risk of fatal injury due to toxic, flammable or explosive material

High risk potential during the storage and transport of the hand-held spray gun still containing toxic, flammable or explosive material or cleaning products.

– Properly clean the hand-held spray gun before storage and transport so that there is no toxic, flammable or explosive products inside.

3.4 Packaging

The hand-held spray gun is packaged in accordance with the anticipated transport conditions and the packaging needs to protect it against transport damage, corrosion, and other damage.

- Remove packaging material.
- Remove potentially present transport safety restraints.

Disposal of packaging

Dispose of the packaging material in accordance with the respectively applicable statutory regulations and ordinances.

4 Menu

Menu

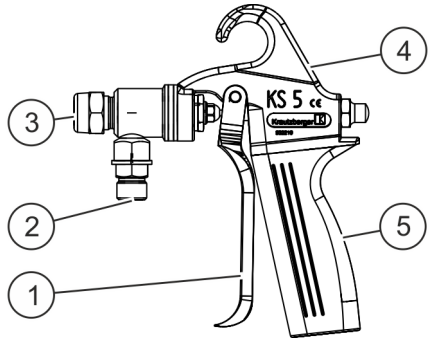


Fig. 1: Overview KS 5 with long pull lever

1 Pull lever, long
2 Material input
3 Material outlet
4 Main element
5 Plastic grip

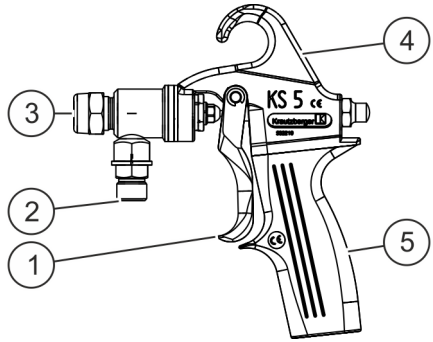


Fig. 2: Overview KS 5 with short pull lever

1 Pull lever, short
2 Material input
3 Material outlet
4 Main element
5 Plastic handle with grip support

4.1 Dimensions

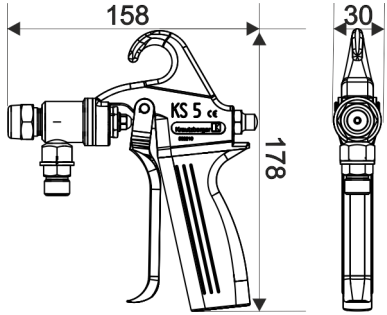


Fig. 3: Dimensions

5 Operation

5.1 Safety

Personnel:

- User

Protective equipment:

- Light respiratory protection
- Safety goggles

DANGER!

Risk of death due to high pressure!

The material jet exits the front opening of the fluid nozzle with high speed. The material jet may penetrate skin, enter the body and forcefully inject air.

This presents the risk of causing a fatal embolism.

In addition, there is a risk of poisoning in case of toxic coating or cleaning material.

– Avoid unintended triggering of the pull lever.
– Concentration at the work station is imperative.
– When unauthorized persons are present, alert them to keep at a distance from the operator while he is performing his work.
– Before starting any cleaning or maintenance work, it is imperative to close the material supply and to discharge the stored residual energy by operating the pull lever. Always wait until the pressure is released.
– Never point the hand-held spray gun at living beings.
– Only trained personnel is permitted to perform cleaning and maintenance work.

WARNING!

Risk of injury due to improper installation!

Improper installation may cause serious personal injury or material damage.

Note:

– Ensure ample of space for the installation prior to starting any work.
– Handle open, sharp-edged components with care.
– Maintain order and cleanliness at the installation site. Components that are loosely stacked or lying around can cause accidents.
– Assemble components properly. Adhere to specified screw tightening torque.
– Secure components against tipping or falling.
– Ensure that the utilised hose lines meet the requirements for pressure, chemical and mechanical loads. At the same time, adhere to the spray media manufacturer's specifications in the safety data sheet.

WARNING!

Risk of injury due to improper operation!

Improper operation can lead to serious personal injuries or property damage.

Note:

– Never point compressed air at people.
– Check the material and compressed air hose lines before each use for damage and tight fit.
– Adhere to the spray media manufacturer's specifications in the safety data sheet.
– Make sure that the connected compressed air is oil-free and free of solid matter.

WARNING!

Life threatening risk of injury or property damage through the application of hazardous media!

The application of hazardous media can lead to death, severe injuries or property damage.

Note:

– Ensure the resistance of the device/machine against the medium that is to be applied.
– Always adhere to the safety data sheet of the medium that is to be applied.
  The owner is responsible for the presence and the up-to-date status of the safety data sheet and the associated generation of the risk assessment of the effected workstations.

WARNING!

Risk of injury due to recoil forces during the activation of the spray gun!

During long-term use, the recoil forces created when the spraying process is activated can damage the central nervous system.

Note:

– Take breaks between spray processes.

5.2 General information about commissioning/start-up

Adhere to the following general commissioning/start-up information:

- Only carry out the commissioning and start-up of the hand-held spray gun in accordance with the steps described in this operating manual.
- Always observe the applicable country-specific safety, accident prevention, occupational safety, and environmental protection regulations for the area of use for the hand-held spray gun.
- Adhere to the spray media manufacturer's safety data sheets.

- Only operate the hand-held spray gun in compliance with the values specified in the (*Chapter 11 'Technical data' on page 44*).
- Only use accessories from Krautzberger GmbH!
- Only use sufficiently sturdy hoses! Check and, if necessary, replace older hoses before starting up the hand-held spray gun.
- Only use hoses that match the hose connections and check them for their proper seat and ensure that they are leak-proof.
- It is recommended to flush the hand-held spray gun prior to start-up using a suitable cleaning agent (spraying process with cleaning product, until it runs clear when exiting).
- To ensure that there are no particles clogging the nozzles, we recommend to clean the coating material with a material filter positioned in front of the fluid connection (high pressure material filters can be purchased from Krautzberger GmbH).
- To achieve a unified coating thickness for high-quality coatings, a cross-coating process is recommended, which means that the area is first coated in horizontal lines and then in vertical lines.

In contrast to compressed air-operated hand-held spray guns, the spray pattern for airless devices can by default not be changed through settings on the nozzle. If a different spray pattern is desired, the airless-nozzle must be exchanged. When adjustable fluid nozzles are used, you can adjust the spray angle.

Among other factors, the spray pattern depends on the viscosity of the coating material. It can be modified through the material pressure. If the optimal application cannot be achieved through material pressure changes, it is recommended to try again with a different fluid nozzle.

5.3 Start-up

5.3.1 Preparation

1. Attach fluid nozzle (*Chapter 6.6 'Replace valve seat screw and fluid nozzle' on page 37*).
2. Establish ground connection for the hand-held spray gun.
3. Connect pressure hose to the fluid connection.
4. Provide the coating material and accessories for the material supply.
5. Switch on fluid pump.
6. Regulate the material pressure with the regulator.
7. Open the shut-off valves at the material source.

Material must not leak at any point!

5.3.2 Function test and start-up

1. Point the hand-held spray gun at a test surface.
2. Start the spraying process by activating the trigger.
3. Assess the spray pattern.
4. If necessary, close the material supply and switch off the pump.
5. Release the residual energy by pulling the pull lever.
6. Replace the fluid nozzle *Chapter 6.6 'Replace valve seat screw and fluid nozzle' on page 37*.
7. If necessary, turn the fluid nozzle in the desired direction (adjustable by 360°).
8. Tighten the nozzle nut again.
9. Guide the spray jet in even movements across the work piece.
10. End the spraying process by releasing the pull lever.

5.4 Shut-down

5.4.1 Temporary shut-down

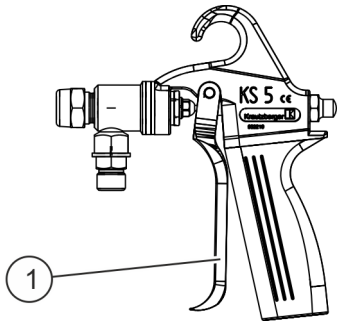


Fig. 4: Temporary shut-down

1. Disrupt the spraying process by releasing the pull lever (Fig. 4/1).
2. Close the material supply and switch off the pump if necessary.
3. Release the residual energy by activating the pull lever (Fig. 4/1).

5.4.2 Long-term shut-down

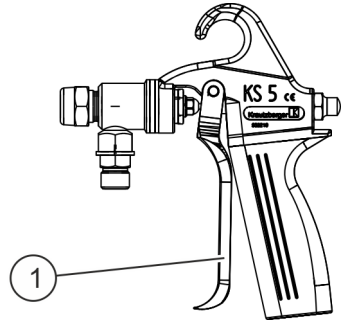


Fig. 5: Long-term shut-down

1. Disrupt the spraying process by releasing the pull lever (Fig. 5/1).
2. Close the material supply and switch off the pump if necessary.
3. Release the residual energy by activating the pull lever (Fig. 5/1).
4. Clean hand-held spray gun (*Chapter 6.4 'Clean hand-held spray gun' on page 26*).
5. Clean parts with adhering residual material in an appropriate manner.
6. Always store the hand-held spray gun well out of the reach of unauthorised persons. If necessary, unscrew the material hose and clean dirty parts, disconnect the earth connection and lock away the hand-held spray gun.

DANGER!

Risk of fatal injury due to toxic, flammable or explosive material

High risk potential during the storage and transport of the hand-held spray gun still containing toxic, flammable or explosive material or cleaning products.

– Properly clean the hand-held spray gun before storage and transport so that there is no toxic, flammable or explosive products inside.

ENVIRONMENT!

Environmental hazard due to incorrect disposal!

Incorrect disposal may cause environmental hazards.

– After the useful life of the device has been exhausted, dispose of it via the commercial waste.
– Properly dispose of potential spray fluid residue separately from the device.
– If in doubt, obtain information about environmentally-appropriate disposal with the local municipalities or specialized disposal companies.

6 Maintenance

6.1 Safety

Personnel:

- Operator
- Qualified personnel

Protective equipment:

- Protective gloves
- Safety goggles

The selection of the personal protective gear depends on the coating material that is used. To ensure the proper selection of personal protective gear, the information provided by the spray material manufacturer indicated on the safety data sheet must be adhered to.

DANGER!

Risk of death due to high pressure!

The material jet exits the front opening of the fluid nozzle with high speed. The material jet may penetrate skin, enter the body and forcefully inject air.

This presents the risk of causing a fatal embolism.

In addition, there is a risk of poisoning in case of toxic coating or cleaning material.

– Avoid unintended triggering of the pull lever.
– Concentration at the work station is imperative.
– When unauthorized persons are present, alert them to keep at a distance from the operator while he is performing his work.
– Before starting any cleaning or maintenance work, it is imperative to close the material supply and to discharge the stored residual energy by operating the pull lever. Always wait until the pressure is released.
– Never point the hand-held spray gun at living beings.
– Only trained personnel is permitted to perform cleaning and maintenance work.

WARNING!

Risk of fatal or other injury through the use of incorrect spare parts!

The use of incorrect or defective spare parts can cause risks for the personnel as well as damage, malfunctions or complete failure.

Note:

– Only use original spare parts from Krautzberger or Krautzberger-approved spare parts.
– In case of ambiguities, always contact our service department (contact information on last page).

CAUTION!

Risk of injury due to fluid needle!

A sharp fluid needle can cause puncture injuries.

Note:

– Caution when handling fluid needles.

CAUTION!

Risk of injury due to sharp edges!

Sharp edges and pointed corners can cause abrasions and cuts on the skin.

Note:

– Proceed cautiously when working on or near sharp edges and pointed corners.
– Wear protective gloves, if in doubt.

6.2 General maintenance information

Check wear parts such as fluid nozzle, valve seat screw, valve needle, seals, and cup collars as well as springs in adequate intervals and replace the parts if necessary, for example if the valve needle does not close properly or if coating material leaks uncontrollably.

NOTICE!

Other than for repair and maintenance purposes, the hand-held spray gun will not be completely disassembled. For cleaning as well as for material changes, you thoroughly flush it with a cleaning agent as recommended or stipulated by the supplier of the coating material until the discharged cleaning product is clean.

Never fully immerse the hand-held spray gun in a cleaning product! There is a risk that seals will be damaged and lubricants will be washed out.

Do not clean fluid nozzles or the valve seat screw with hard, sharp-hedged objects. A special flat brush as well as various nozzle cleaning needles made by Krautzberger GmbH are recommended for cleaning purposes.

In case of prolonged operational interruptions, allow the device to air-dry after flushing it with cleaning product and store it at a suitable location until it will be used again.

A cloth soaked in cleaning product is recommended for exterior cleaning.

6.3 Maintenance schedule

Interval	Maintenance work
Prior to every start-up	Check wear parts
After each use	Clean hand-held spray gun

6.4 Clean hand-held spray gun

WARNING!

Risk of injury due to improper cleaning!

– Adhere to the safety data sheets of the cleaning product manufacturer.
– Do not fully immerse the hand-held spray gun in a cleaning product.

1. Disrupt the spraying process by releasing the pull lever.
2. Close the material supply and switch off the pump if necessary.
3. Release the residual energy by pulling the pull lever.
4. Establish the cleaning product supply at the fluid connection.
5. If necessary, switch on the pump for the cleaning medium.
6. Start spraying process by activating the pull lever.
7. Spray until the cleaning product runs clear.
8. Terminate spraying process by releasing the draw-off lever.
9. Stop cleaning product supply, if necessary switch off pump for cleaning medium.
10. Release the residual energy by activating the pull lever and blow out the cleaning material residue.
11. Clean the outside of the hand-held spray gun with a cloth soaked in cleaning solution.

6.5 Replace valve needle and needle pack

General Information about the replacement of parts

- Slightly grease sliding parts with special Krautzberger grease.

The special grease can be purchased from Krautzberger GmbH (contact data see last page).

- Clean dirty parts, replace non-functioning parts.
- Ensure correct fit of seals.
- Always replace the needle and the valve seats at the same time.
- After the assembly with the needle pusher and the needle bolt, the valve needle should protrude from the needle pusher at a length of 70 mm as exactly as possible. Exceeding the length by up to 0.2 mm is possible. A shorter length leads to an insufficient valve seat.
- Occasionally check the moving parts for free range of motion and relubricate when necessary.

Unscrew valve needle

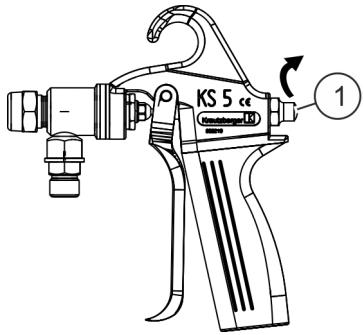


Fig. 6: Unfasten valve lock screw

1. Unscrew the valve lock screw (Fig. 6/1).

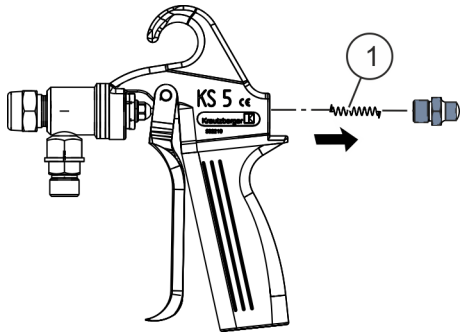


Fig. 7: Remove spring

2. Remove the spring (Fig. 7/1).

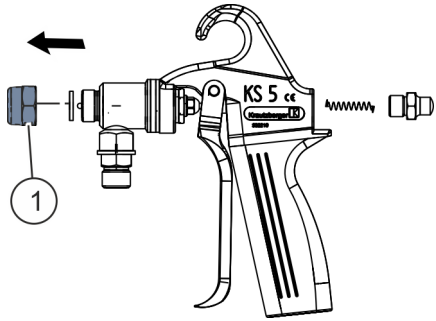


Fig. 8: Unfasten nozzle nut

3. Unscrew the nozzle nut (Fig. 8/1).

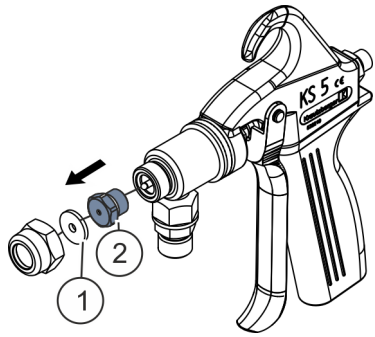


Fig. 9: Unscrew valve seat screw

4. Unscrew the valve seat screw (Fig. 9/2) together with the screw (Fig. 9/1).

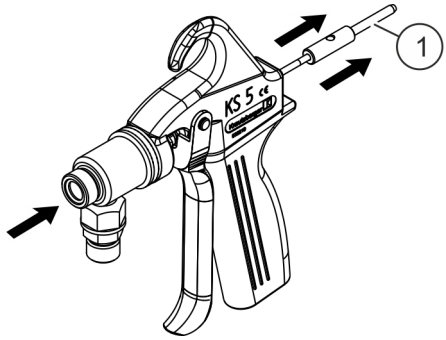


Fig. 10: Push out complete valve needle

5. Push the valve needle (Fig. 10/1) back using a suitably shaped (but not sharp-edged) object, for example made of wood or plastic.

⇨ The back end of the valve needle is thereby completely pushed out of the back section of the main element.

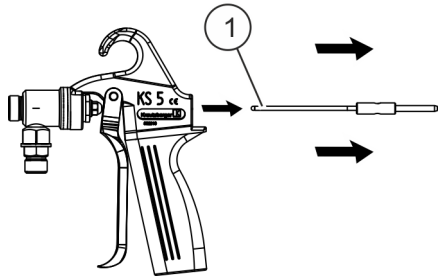


Fig. 11: Pull out complete valve needle

6. Fully pull out complete valve needle (Fig. 11/1).

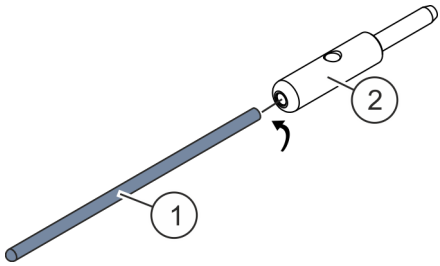


Fig. 12: Unscrew the valve needle from the needle bolt

7. Unscrew the valve needle (Fig. 12/1) from the needle bolt (Fig. 12/2).

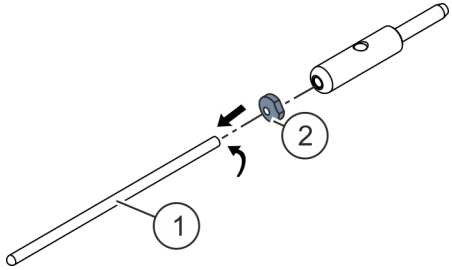


Fig. 13: Screw the needle pusher onto the new valve needle

8. Screw the needle pusher (Fig. 13/2) onto the new valve needle (Fig. 13/1).

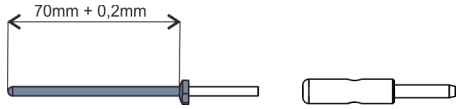


Fig. 14: Dimensions in length 70mm + 0.2mm

9. Set the exact length (70mm + 0.2mm).

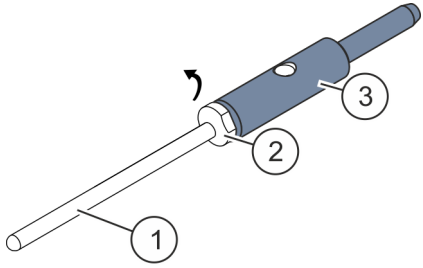


Fig. 15: Screw needle bolt onto the valve needle

10. Screw the needle bolt (Fig. 15/3) onto the valve needle (Fig. 15/1) and counter against the needle pusher (Fig. 15/2).

The "complete valve needle" is comprised of the valve needle, the needle pusher and the needle bolt.

Dismantling needle pack

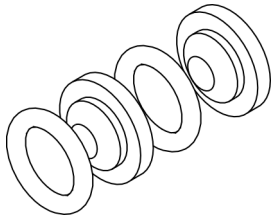


Fig. 16: Needle pack

The needle pack is comprised of two seals and two cup collars.

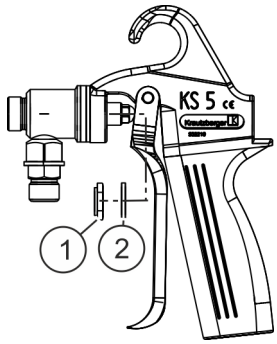


Fig. 17: Remove hexagon nut and insulating washer

1. Unscrew hexagon nut (Fig. 17/1) and remove together with the insulating washer (Fig. 17/2).

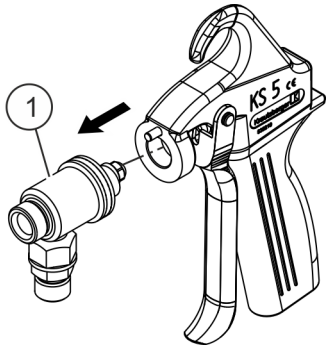


Fig. 18: Pull out head piece from the main element

2. Pull the head piece (Fig. 18/1) towards the front and out of the main element.

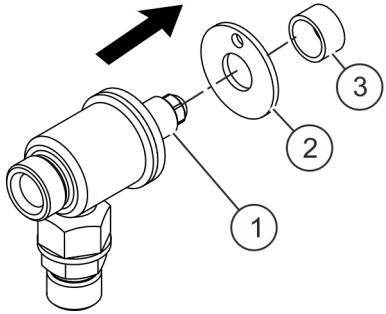


Fig. 19: Pull off insulating sleeve and insulating washer from seal screw

3. Pull off insulating sleeve (Fig. 19/3) and insulating washer (Fig. 19/2) from seal screw (Fig. 19/1).

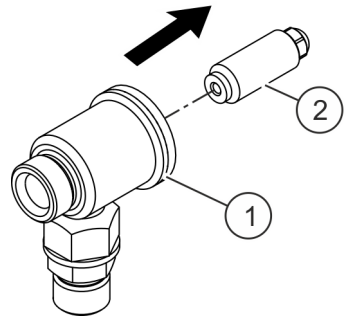


Fig. 20: Unscrew seal screw from the head piece

4. Unscrew the seal screw (Fig. 20/2) from the head piece (Fig. 20/1).

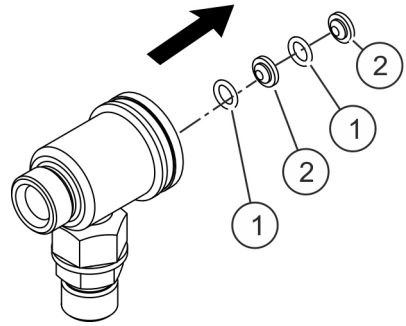


Fig. 21: Remove needle pack

5. Remove parts of the needle pack (Fig. 21/1, 2) comprised respectively of two seals (Fig. 21/1) and two cup collars (Fig. 21/2).

NOTICE!

Risk of damaging threads

When pulling out the pack parts, there is a risk of causing damage to the threads.

– Use a wire hook to pull out the pack parts. Be careful not to damage any threads.

Upon disassembly, thoroughly clean all reusable parts.

Assembly

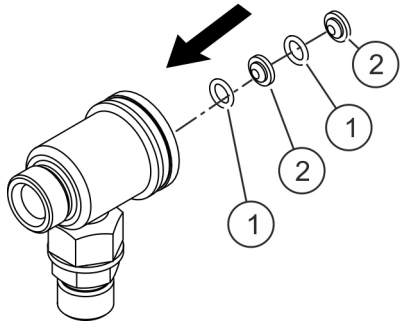


Fig. 22: Installing the needle pack

1. Reinstall new parts of the needle pack comprised of two seals (Fig. 22/1) and two cup collars (Fig. 22/2) into the head piece. Pay attention to the correct installation position.

> **NOTICE!**
>
> **Risk of damaging the reverted edge seals**
>
> During the installation of the needle pack, there is a risk of causing damage to the reverted edge seals due to sharp objects.
>
> – Do not use any sharp objects during the installation of the needle pack.

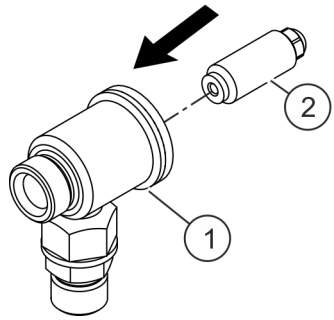


Fig. 23: Screw the seal screw into the head piece

2. Screw the seal screw (Fig. 23/2) into the head piece (Fig. 23/1).

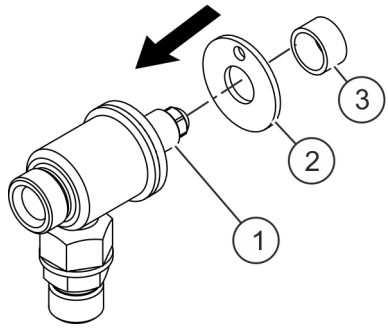


Fig. 24: Slide insulating sleeve and insulating washer over the seal screw

3. Slide insulating sleeve (Fig. 24/3) and insulating washer (Fig. 24/2) over the seal screw (Fig. 24/1).

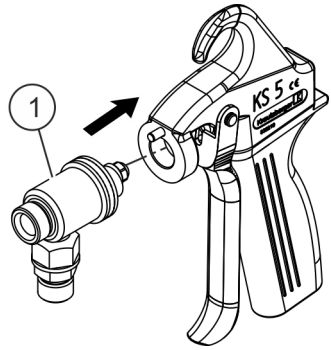


Fig. 25: Slide head piece into the main element

4. Push the head piece (Fig. 25/1) with seal screw, insulating sleeve and insulating washer into the borehole of the main element.

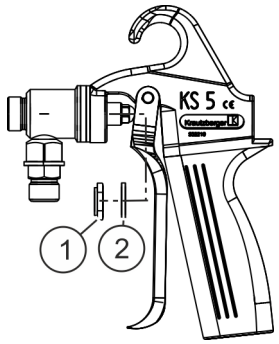


Fig. 26: Slide the insulating washer over the seal screw; screw head piece onto the seal screw using a hexagon nut

5. Slide insulating washer (Fig. 26/2) over the seal screw and screw the head piece onto the sealing screw using the hexagon nut (Fig. 26/1), but do not tighten!

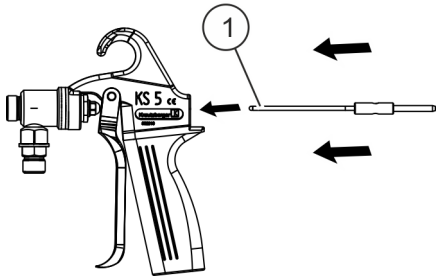


Fig. 27: Insert complete valve needle into the main element

6. Insert the complete valve needle (Fig. 27/1) from the back into the main element and push forward up to the stop.

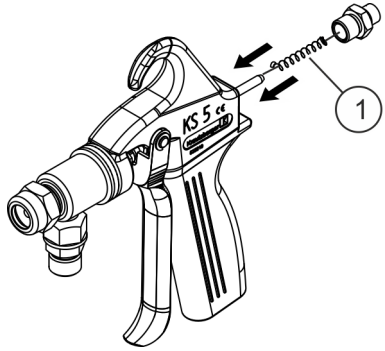


Fig. 28: Push the spring over the needle bolt into the main element

7. Push the spring (Fig. 28/1) over the needle bolt into the main element.

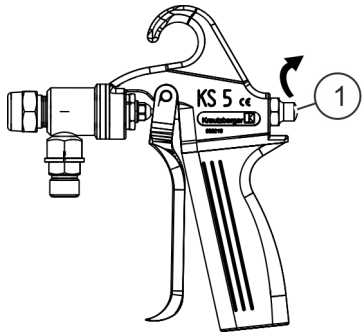


Fig. 29: Screw in valve lock screw

8. Tightly screw in valve lock screw (Fig. 29/1).

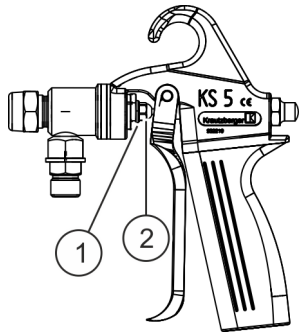


Fig. 30: Tighten seal screw

9. Only then should you tighten the seal screw (Fig. 30/2) until there is noticeable resistance and counter by tightening the hexagon nut (Fig. 30/1).

6.6 Replace valve seat screw and fluid nozzle

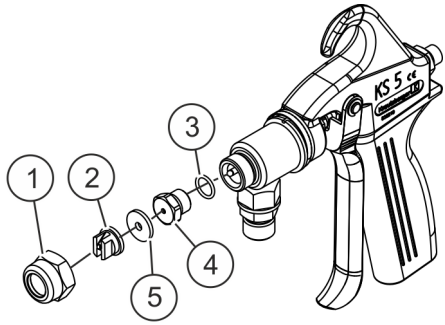


Fig. 31: Replace valve seat screw and fluid nozzle

1. Unscrew the nozzle nut (Fig. 31/1).
2. Remove fluid nozzle (Fig. 31/2) and seal (Fig. 31/5).
3. Unscrew complete valve seat screw (Fig. 31/4) including seal (Fig. 31/3).
4. Remove the seal (Fig. 31/3) from the valve seat screw (Fig. 31/4).
5. Replace valve seat screw and screw seal onto the new valves seat screw.
6. Screw in complete valve seat screw again.
7. Reinsert new fluid nozzle and seal into the nozzle nut.
8. Tighten the nozzle nut again.

7 Troubleshooting

Personnel:

- Qualified personnel

In case of an unsatisfactory spray pattern, check whether the fluid nozzle is dirty. If necessary, insert a material filter in the material supply line, clean the fluid nozzle or replace it. *Chapter 6.6 'Replace valve seat screw and fluid nozzle' on page 37*

Among other factors, the spray pattern depends on the viscosity of the coating material. It can be modified through the material pressure. If the optimal application cannot be achieved through material pressure changes, it is recommended to try again with a different fluid nozzle.

7.1 Customer care

Krautzberger GmbH

Customer service

Stockbornstr. 13

65343 Eltville am Rhein

+49 6123 - 698151

customercare@krautzberger.com

8 Spare parts

Incorrect spare parts

WARNING!

Risk of injury through the use of incorrect spare parts!

The use of incorrect or defective spare parts can result in hazards for the personnel and can cause damage, malfunctions or complete failure.

– Only use original spare parts from Krautzberger or Krautzberger-approved spare parts.
– In case of questions, always contact our service department.

Spare parts order – General

To make spare part ordering easier, please provide the following information:

– *Serial number*
– *Model / product name*
– *Designation*
– *Item number according to spare parts list*
– *Quantity*
– *Desired shipping method (post, freight, sea, air, express)*
– *Delivery address*

8.1 Spare parts

A complete spare part overview is available on the website of Krautzberger GmbH:

www.krautzberger.de

9 Accessories

A wide range of accessories are available for the hand-held spray gun KS 5. For further information, visit us on the Internet (www.krautzberger.com) or contact your Krautzberger dealer, consultant or our office staff.

Here are a few examples:

- Fluid nozzles
- Fine spray nozzles
- Pre-atomiser nozzles
- Nozzle cleaning needles
- Nozzle extensions
- Material pressure hoses
- Material filter
- etc.

10 Disassembly and disposal

10.1 Safety instructions

Personnel:

- Qualified personnel

Protective equipment:

- Protective clothing
- Light respiratory protection
- Safety goggles
- Protective gloves
- Safety shoes

WARNING!

Risk of injury due to improper disassembly!

Residual stored energies, component edges, points and corners on or in the device or on the required tools may cause injuries.

– Make sure you have sufficient space before starting the work.
– Carefully handle open, sharp edged components.
– Keep the workplace orderly and clean! Loosely stacked or scattered components and tools are sources for accidents.
– Properly dismantle components. Pay attention to very high individual weight of some of the components. If necessary, use hoisting equipment.
– Secure components so that they cannot fall or tip over.
– If questions arise, consult with the customer service from Krautzberger.

10.2 Disassembly

Prior to starting the disassembly:

- Switch off the device and secure it against restart.
- Physically disconnect the entire power supply from the device, and discharge any energy stored in the machine.
- Remove and dispose of operating and auxiliary materials as well as remaining processing material in an environmentally friendly manner.

Afterwards, properly clean components and modules and take them apart in compliance with applicable local occupational health & safety regulations as well as environmental protection regulations.

10.3 Disposal

If no return or disposal agreement has been made, recycle the dismantled parts:

- Scrap metals.
- Recycle plastic components.

- Sort remaining components based on the respective material and dispose of accordingly.
- Properly dispose of potential spray fluid residue separately from the device.

If in doubt, obtain information about environmentally-appropriate disposal with the local municipalities or specialised disposal companies.

11 Technical data

11.1 Dimensions and weight

Specification	Value	Unit
Width	30	mm
Height	178	mm
Length	158	mm
Weight	approx. 550	g

11.2 General specifications

Specification	Value	Unit
Material supply	Material pressure container	-
Max. operating pressure	500	bar
Available nozzle sizes	0.18 - 1.55	mm
Jet shape	Round jet	-
Noise emission	60 to 90	dB (A)
Max. material temperature	50°	C
max. diameter of the fluid outlet opening	2.6	mm
Fluid connection	G 1/4	AG

The following dimensions impact the spray gun function (closing of the fluid needle):

- *Reduction of fluid outlet opening*
- *Use of extensions*
- *Selection of compression spring (spring force)*
- *Coating material (viscosity)*
- *Flow rate of the utilized material pump*
- *Length of supply line*

12 Declaration of conformity

Krautzberger

EC-conformance explanation by machine directive 2006/42/EC appendix II 1.A

herewith the manufacturer
Krautzberger GmbH, Stockbornstr. 13, 65343 Eltville, Deutschland

declares, that the following product

Product name:	Hand-held Spray Gun
Fabrikat:	KS 5
Article number	200-0368

to all appropriate regulations of the abovementioned directive as well as the other applied directives (following) - including their changes applying at the time of the explanation – corresponds.

Followers harmonised norms were applied :EN 1953:2013
EN ISO 12100:2010
EN ISO 13732-1:2008

The following national or international norms (or parts / clauses from it) and specifications were applied: none

Name and address of the person who is authorised to put together the technical documents

T.Friedrich
c/o Krautzberger GmbH
Stockbornstr. 13
65343 Eltville
Deutschland

Ort: Eltville
Datum: 23.09.2015

Thomas Weidmann (Manager)

Fig. 32: Declaration of conformity

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