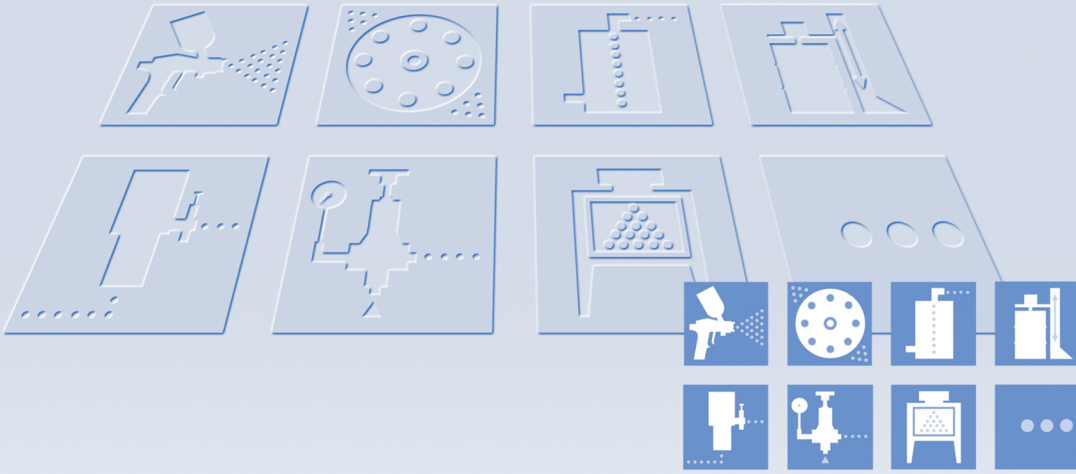
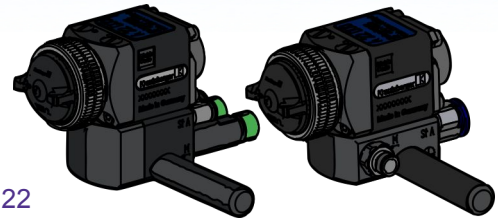


US

Operating instructions
Automatic spray gun DUO A 22



T-Dok-809-US-Rev.2

Item number: 200-0506
Translation of the original operating instructions

Krautzberger

Thank you for selecting a Krautzberger product.

This product has been manufactured in compliance with 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 about the safe and efficient use of the device. The manual is part of the device and must always be kept in the immediate proximity of the device so that it is accessible to the personnel at all times.

The personnel must have carefully 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 relating to 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 that.

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

If the labeling on the product is required, it is affixed to the product as the result of the necessary analysis of ignition sources. If no labeling 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 an electrostatic charge.

Taking into account the potential equalization (provided by proper earthing), the use in an area at risk for explosions is permitted in accordance with the currently valid directives.

Table of contents

1 Information about the operating manual

This operating manual enables safe and efficient use of the product. The operating manual is a component of the product and must be kept in the immediate vicinity of the device so that it is accessible to personnel at all times.

Personnel must have read this operating manual carefully, and understood it, prior to commencing any work. Compliance with all safety information and instructions provided in this operating manual is a basic prerequisite for ensuring safety when working.

The local occupational safety regulations and general safety rules for the product's area of use also apply.

Due to optional equipment differences, the illustrations in this operating manual may not be representative of your product.

Operating manual in chosen language

DE	Eine digitale Form dieser Betriebsanleitung ist über folgenden QR-Code in vielen Sprachen verfügbar. Eine Registrierung ist vorab erforderlich.
GB	A digital version of this operating manual is available in many languages via the following QR code. Registration is required in advance.
FR	Une version numérique de ce mode d'emploi est disponible dans de nombreuses langues via le code QR suivant. L'inscription est obligatoire à l'avance.
ES	Una versión digital de estas instrucciones de funcionamiento está disponible en muchos idiomas a través del siguiente código QR. Es necesario registrarse con antelación.
IT	Una versione digitale di queste istruzioni per l'uso è disponibile in molte lingue tramite il seguente codice QR. La registrazione è richiesta in anticipo.

Fig. 1: QR code

2 Function and identification

2.1 Function

Automatic spray guns are used for

- Automatic coating/marking of surfaces
- Dosing of fluids
- Placing adhesive or marking points

Typical spray media include paints, dyes, adhesives, glazes, enamels, release agents, etc.

The spray medium flows out of the material nozzle under pressure and is atomized at the same time by the compressed air that flows out of the air nozzle.

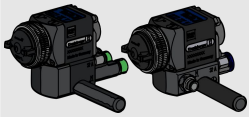
The spray medium is atomized by the material pressure. The geometry of the spray jet and the sprayed quantity of the spray medium can be adjusted using the following measures:

- Selection of the air and material nozzle
- Changing the atomizer air pressure
- Changing the spray medium pressure

The automatic spray gun can be operated both as an individual device as well as in a larger system together with other automatic spray guns (e.g., as a component of a fully-automatic spraying system or a spray robot).

It is particularly suitable for use where comparatively large volumes of material need to be processed per unit of time. Compared to automatic spray guns driven by compressed air, an additional advantage is that there is less spray mist, ensuring that a far greater percentage of the material reaches the workpiece.

2.2 Identification

Scope of delivery	Type	Item number
	Automatic spray gun **DUO A 22** ■ with adapter and material connection in the rear ■ with adapter and material connection on the side ■ with adapter and circulation connection in the rear ■ with adapter and circulation connection on the side	200-0506
	Operating manual	T-Dok-809

Serial number and rating plate

The serial number and the rating plate of the automatic spray gun are located on the main element. They serve as a unique identifier.

3 Using this operating manual

3.1 Information about the operating manual

- Knowledge of the fundamental safety instructions and safety regulations is a basic requirement for safe handling and defect-free operation of the product.
- This operating manual contains the most important information about enabling safe operation of the product.
- This operating manual and, in particular, the safety instructions are to be observed by all persons who work on or with the product.
- Furthermore, the rules and regulations for accident prevention in force at the respective operating site are to be observed.

3.2 Symbols in this operating manual

Safety instructions

This operating manual uses symbols to identify safety instructions. The safety instructions are 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 potentially dangerous situation which can cause death or severe injuries if it is not averted.

CAUTION!

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

NOTICE!

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

ENVIRONMENT!

This combination of symbol and signal word indicates potential dangers to the environment.

Tips and recommendations

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

Example for safety instructions in operating instructions

Safety instructions can refer to specific, individual operating instructions. Such safety instructions are embedded in the operating instructions so that they do not disrupt the reading flow when performing the action. The signal words described above are used.

1. Loosen screw.
2. **CAUTION!**

   Pinching hazard at cover!

   Carefully close cover.
3. Tighten screw.

Special safety instructions

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

Warning signs	Type of danger
	Warning – danger zone.

Additional markings

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

Identification	Explanation
	Step-by-step instructions
⇨	Results of procedural steps

Identification	Explanation
↳	References to sections in this manual and other applicable documents
■	Lists without specified order
[Button]	Operating elements (e.g. buttons, switches), display elements (e.g. signal lights)
“Display”	Screen elements (e.g. pushbuttons, assignment of function keys)

3.3 Personnel requirements

This manual identifies the qualifications of the personnel for the different areas of activity as listed below:

Operator
The operator is familiar with the fundamental regulations on occupational safety and accident prevention.

Specialized personnel
Due to their specialized training, know-how, and experience as well as knowledge of the industry-specific standards and regulations, specialized personnel are in a position to perform assigned tasks and to independently identify and avoid potential hazards.

3.4 Personal protective equipment

Personal protective equipment is used to protect persons against adverse effects on their health and safety when working.

Personnel must wear personal protective equipment while carrying out the different tasks on and with the machine.

In the course of regular, recurring trainings, the owner should inform operating personnel that working without protective equipment can be detrimental to their health.

Protective equipment is selected according to the ambient conditions at the owner’s premises and the raw materials that are used. The information provided by the material manufacturer on the safety data sheet must be adhered to in order to ensure the proper selection of protective equipment.

The recommended personal protective equipment is described below:

Light respiratory protection

Light respiratory protection is used as protection against hazardous dusts.

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 airborne components and splashes of liquid.

Protective clothing

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

Safety shoes

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

Safety helmet

On the one hand, the helmet protects the head from falling parts and suspended loads. On the other hand, it can protect against injuries in limited spaces.

4 Safety and responsibility

4.1 Responsibility of the owner

Owner

The owner is the person who directly operates the machine for commercial or economic 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 the commercial sector. The owner of the machine is therefore subject to stipulations of the Occupational Health and Safety Act.

In addition to the safety information in this manual, the relevant regulations relating to safety, occupational safety and environment, etc. for the location in which the machine is used must be observed as well.

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 observed.
- The owner must have all safety equipment checked regularly for functionality and completeness.

4.2 Intended use

The automatic spray gun is used to spray paints, dyes, adhesives, glazes, enamels, release agents, as well as other fluids. The nozzle size depends on the spray viscosity of the spray medium.

The intended use also includes compliance with all of the specifications in this operating manual.

4.3 Specification for operation in a complete machine

- Operation without CE-marking is prohibited.
- The automatic spray gun must be completed into a complete machine before it can be used.
- Only operate the automatic spray gun after it is properly attached to a suitable supporting structure.

4.4 Foreseeable misuse

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

- Always carry out installation and commissioning 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 etc. for the area of use for the automatic spray gun.
- Ensure that the hose lines used meet the requirements with regard to pressure, chemical, and mechanical loads.
- Do not use highly abrasive, chemically aggressive, very hot or very cold spray media without first consulting Krautzberger GmbH.
- Adhere to the safety data sheets of the spray medium manufacturer.
- Only use the manufacturer's OEM parts.

- Only operate the automatic spray gun after it is properly attached to a suitable supporting structure.
- Depending on the size of the material nozzle and the medium used, a material filter must be installed upstream.
- Do not hold the automatic spray gun in your hand during operation.
- Only operate the automatic spray gun in compliance with the values specified in (*Chapter 13 “Technical data” on page 50*).
- Make sure that the connected compressed air is oil-free and free from solid matter.
- Operate the automatic spray gun with processed, dried compressed air (air quality pursuant to DIN ISO 8573-1: quality class 4).
- Never direct the material discharge or compressed air at living beings.

WARNING!

Misuse of the automatic spray gun can cause dangerous situations.

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

4.5 General safety instructions

WARNING!

Risk of death, 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.

– Ensure the resistance of the machine against the medium that is to be applied.
– Always observe the safety data sheet of the applied medium.

DANGER!

Risk of fatal injury from high pressure!

The material jet comes out of the opening on the front of the material nozzle at high speed. In doing so, the material jet could penetrate the skin and enter the body, carrying air with it.

There is the risk of a fatal embolism.

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

– Prior to cleaning and maintenance work, end the spray process by switching off the control air.
– Never point the automatic spray gun at living beings.
– Have cleaning and maintenance work performed by appropriately trained personnel only.

CAUTION!

Risk of injury through compressed air!

Uncontrolled leaks of compressed air can lead to serious injuries!

– Prior to any work on the device, all compressed-air lines must be closed and vented if necessary.

Outdoor operation and operation in exterior areas!

During the operation in outdoor areas use suitable measures to protect the device against ambient conditions such as:

– *Moisture*
– *UV radiation*
– *Frost, etc.*

4.6 Residual risks

The automatic spray gun made by Krautzberger GmbH has been manufactured according to state-of-the-art design and generally recognized safety regulations.

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

- The automatic spray gun must only be used as intended.
- The automatic spray gun must only be operated in good order and condition.
- Any faults impacting the safety must be remedied immediately.

4.7 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 observed and, if necessary, respective safety measures must be taken by the owner.

5 Transport, storage, and packaging

5.1 Transport

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

5.2 Storage

Storage of the automatic spray gun is subject to following conditions:

- Store the automatic 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 direct sunlight.
- Avoid mechanical shocks.
- Storage temperature: 15 to 40°C.
- Relative humidity: max. 60%.

5.3 Packaging

The automatic spray gun is packaged corresponding to the transport conditions to be expected. The packaging is designed to protect the gun from transport damage, corrosion, and other damage.

- Remove the packaging material.
- Remove any transport locks that may be present.

6 Overview

6.1 Automatic spray gun with circulation connection in the rear

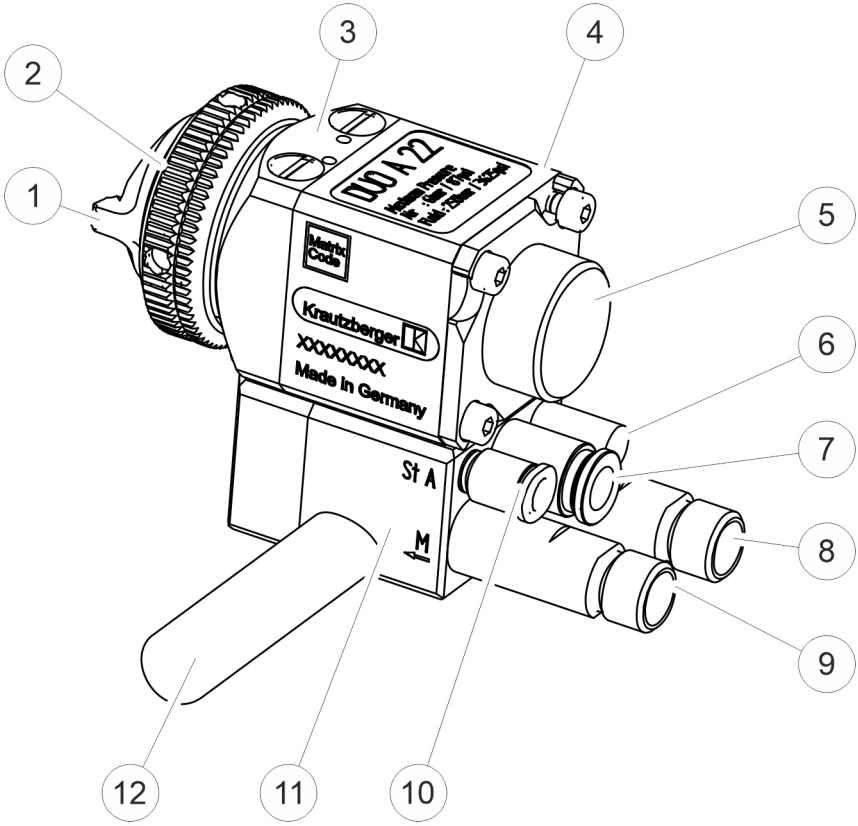


Fig. 2: Automatic spray gun with circulation connection in the rear

1 Air nozzle
2 Cap nut
3 Head section
4 Main element
5 Cover
6 Connection for control air “CLOSED” (“St Z”) *
7 Connection for atomizer air (“Z”)
8 Connection for material circulation line (“M←”)
9 Connection for material supply (“M←”)
10 Connection for control air “OPEN” (“St A”)
11 Adapter
12 Retaining pin

* optional

The connections are marked with letter abbreviations.

6.2 Automatic spray gun with circulation connection on the side

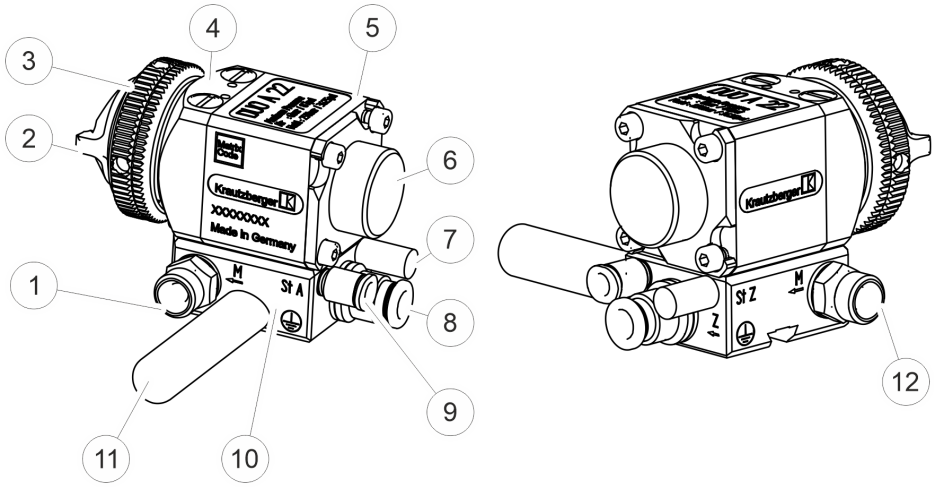


Fig. 3: Automatic spray gun with circulation connection on the side

1 Connection for material supply (“M←”)
2 Air nozzle
3 Cap nut
4 Head section
5 Main element
6 Cover
7 Connection for control air “CLOSED” (“St Z”) *
8 Connection for atomizer air (“Z”)
9 Connection for control air “OPEN” (“St A”)
10 Adapter
11 Retaining pin
12 Connection for material circulation line (“M←”)

* optional

The connections are marked with letter abbreviations.

7 Installation

7.1 Safety

Personnel:

- Specialized personnel

Protective equipment:

The selection of the protective equipment depends on the installation conditions on site. Always observe the applicable country-specific safety, accident prevention, occupational safety, and environmental protection regulations for the proper selection of the protective equipment.

WARNING!

Risk of injury due to improper installation!

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

For this reason:

– Ensure that there is enough installation clearance before starting any work.
– Handle open components with sharp edges with care.
– Ensure that the installation site is tidy and clean. Loosely stacked or scattered components are potential sources of accidents.
– Install the components properly. Observe the specified screw tightening torques.
– Secure components to prevent them from tipping or falling down.
– Ensure that the hose lines used meet the requirements with respect to pressure, chemical, and mechanical loads. Observe the information provided by the spray material manufacturer on the safety data sheet.

7.2 General installation information

Adhere to the following general information for installation:

- Always carry out installation and commissioning in accordance with the steps described in this operating manual.
- Ensure that the hose lines that are used fulfil the requirements with respect to pressure, chemical, and mechanical loads.
- Only operate the automatic spray gun after it is properly attached to a suitable supporting structure.
- Make sure that the connected compressed air is oil-free and free from solid matter.
- Operate the automatic spray gun with processed, dried compressed air (air quality pursuant to DIN ISO 8573-1: quality class 4).
- Vibration and recoil forces may occur on the automatic spray gun during the operation. Ensure sufficient fastening.

7.3 Installing the automatic spray gun

Changing the installation position of the automatic spray gun

The retaining pin can be installed on the automatic spray gun from both sides.

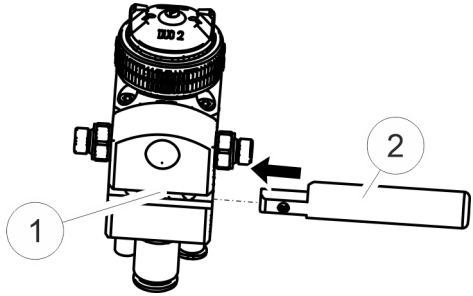


Fig. 4: Dovetail guide

1. Slide the retaining pin (Fig. 4/2) into the dovetail guide (Fig. 4/1) on the underside of the automatic spray gun.

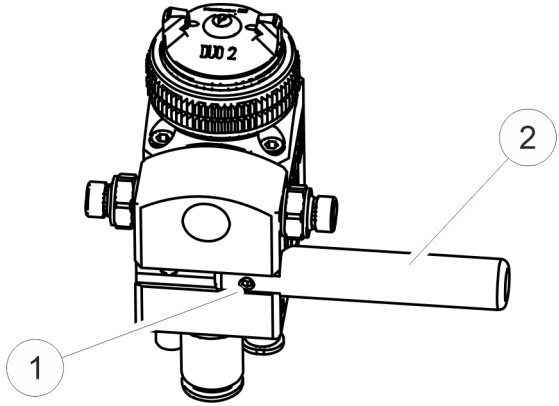


Fig. 5: Installing the automatic spray gun

2. Use the threaded pin (Fig. 5/1) to secure the retaining pin (Fig. 5/2) on the automatic spray gun (tightening torque **2.0 Nm**).

> ***Threaded pin***
>
> *In order to disassemble the retaining pin, it is not necessary to completely remove the threaded pin. In this regard, it is sufficient to loosen the threaded pin to such an extent that the retaining pin can be pushed out of the dovetail guide.*

3. Ensure proper grounding of the automatic spray gun via the retaining pin.

7.4 Disconnecting the automatic spray gun from the adapter

Installing the automatic spray gun

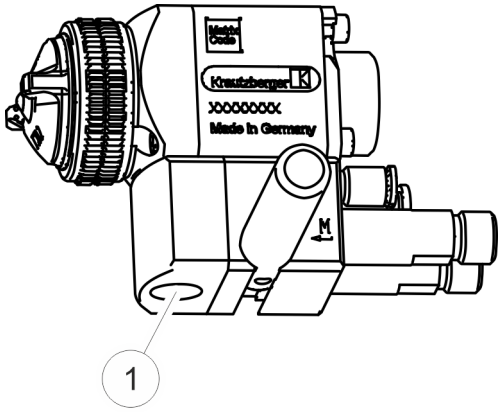


Fig. 6: Removing the plug

1. Remove the plug (Fig. 6/1) at the underside of the adapter.

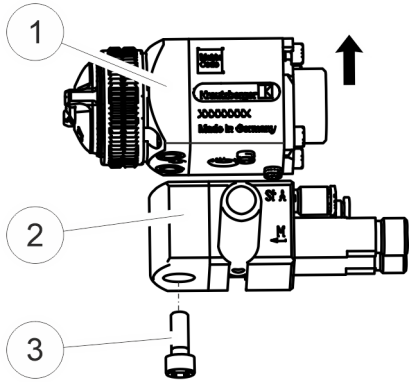


Fig. 7: Installing the automatic spray gun

2. Loosen and remove the cylinder screw located in the adapter (Fig. 7/3). Remove the automatic spray gun (Fig. 6/1) from the adapter (Fig. 6/2).

Installing the automatic spray gun

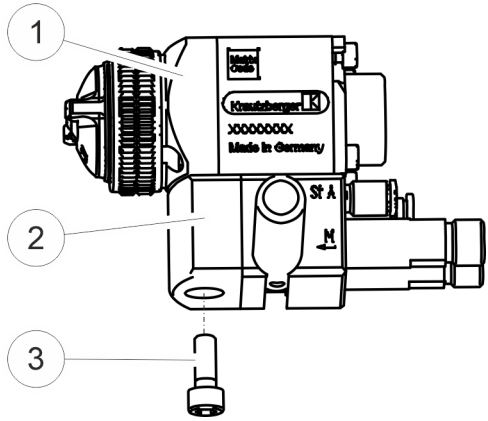


Fig. 8: Installing the automatic spray gun

1. Place the automatic spray gun (Fig. 6/1) back onto the adapter (Fig. 6/2) and tighten with the cylinder screw (Fig. 8/3).

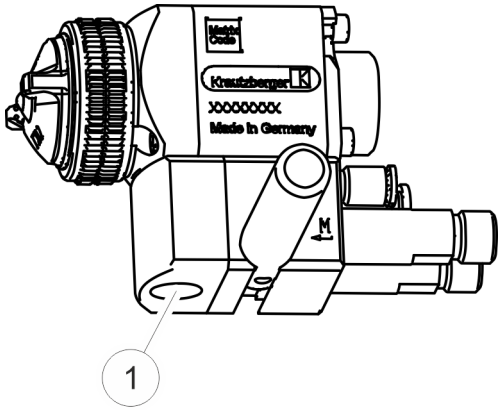


Fig. 9: Inserting the plug

2. Reinsert the plug (Fig. 6/1).

7.5 Nozzle fixation (optional)

Flat jet nozzles can be adjusted to adapt the workpiece geometry either seamlessly or in 45° increments.

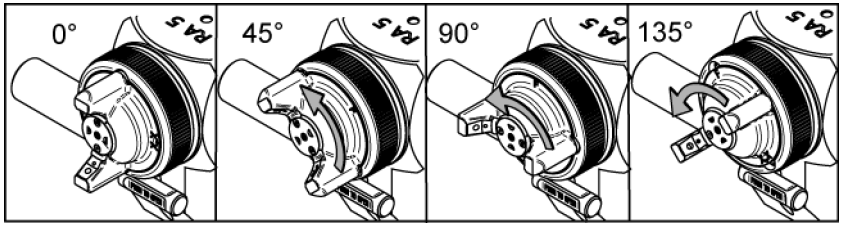


Fig. 10: Nozzle fixation (illustration of nozzles similar)

1. Loosen the cap nut.
2. Turn the flat jet nozzle into the desired position.
3. Tighten the cap nut again.

7.6 Connecting the automatic spray gun

See also (Chapter 7.7 “Connection diagram” on page 25).

The connections are marked with letter abbreviations.

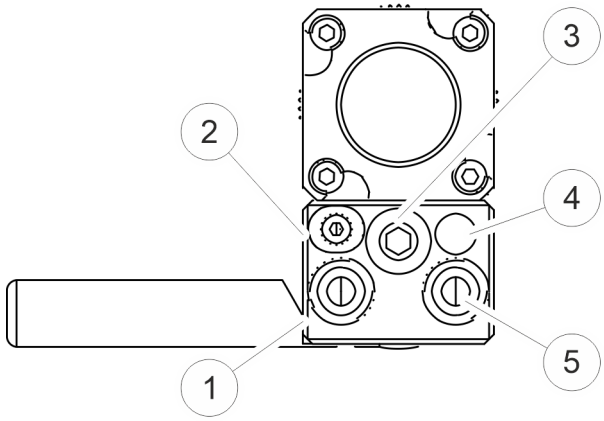


Fig. 11: Connecting the automatic spray gun

1. Connect control air “OPEN” to “ST A” (Fig. 11/2).

2. Connect control air “CLOSED" to "ST Z" (Fig. 11/4) (optional).

The control air can only execute open and close functions. Dosing of the spray jet via the control air is not possible.

3. Connect the flat jet air connection to “F” (Fig. 11/3).

4. Connect the material supply to input “M←” (Fig. 11/1).

5. Connect the material circulation line to output “M←” (Fig. 11/5).

The material connections “M←” are marked by arrows and must not be mixed up.

Illustration of the material supply

The figure shows the material supply on the adapter at the rear. For the alternative illustration of the material supply at the adapter on the side, see Chapter 6.2 “Automatic spray gun with circulation connection on the side” on page 17.

7.7 Connection diagram

Air and material supply

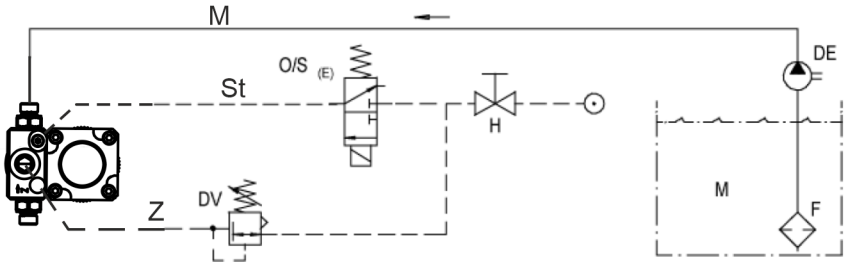


Fig. 12: Air and material supply

St	Control air
Z	Atomizer air
DV	Pressure regulator valve
O/S (E)	Opener/closer with bleed
H	Valve
M	Material
F	Filter
DE	Pressure generator
——	Material supply
- - - -	Air supply

8 Operation

8.1 Safety

Personnel:

- Operator
- Specialized personnel

Protective equipment:

The selection of the protective equipment depends on the medium used by the owner. The information provided by the media manufacturer indicated on the safety data sheet must be adhered to in order to ensure the proper selection of protective equipment.

DANGER!

Risk of fatal injury from high pressure!

The material jet comes out of the opening on the front of the material nozzle at high speed. In doing so, the material jet could penetrate the skin and enter the body, carrying air with it.

There is the risk of a fatal embolism.

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

– Prior to cleaning and maintenance work, end the spray process by switching off the control air.
– Never point the automatic spray gun at living beings.
– Have cleaning and maintenance work performed by appropriately trained personnel only.

CAUTION!

Risk of injury through compressed air!

Uncontrolled leaks of compressed air can lead to serious injuries!

– Prior to any work on the device, all compressed-air lines must be closed and vented if necessary.

WARNING!

Risk of injury due to improper operation!

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

Therefore:

– Check the material and compressed air hose lines for damage and tight fit before each use.
– Adhere to the spray material manufacturer's specifications in the safety data sheet.
– Make sure that the connected compressed air is oil-free and free from solid matter.

WARNING!

Risk of death, risk of injury, or property damage from the application of hazardous media!

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

For this reason:

– Ensure that the device/machine is resistant against the medium to be applied.
– Always observe the safety data sheet of the medium to be applied.
  The owner is responsible for ensuring that the safety data sheet is present and that it is up-to-date. The owner is also responsible for preparing the associated hazard assessment of the affected workplaces.

8.2 General information about initial commissioning and commissioning

Adhere to the following general information for initial commissioning/commissioning:

- Only carry out the commissioning of the automatic spray gun in accordance with the steps described in this operating manual.
- Check the material and compressed air hose lines for damage and tight fit before each use.
- Always observe the applicable country-specific safety, accident prevention, occupational safety, and environmental protection regulations applicable for the area of use for the automatic spray gun.
- Do not use highly abrasive, chemically aggressive, very hot or very cold spray media without first consulting Krautzberger GmbH.
- Adhere to the safety data sheets of the spray medium manufacturer.
- Only operate the automatic spray gun in compliance with the values specified in (*Chapter 13 “Technical data” on page 50*).
- Only operate the automatic spray gun after it is properly attached to a suitable supporting structure.
- Do not hold the automatic spray gun in your hand during operation.
- Never direct the material discharge or compressed air at living beings.
- Adhere to the operating manuals for the respective components.

8.3 Commissioning

DANGER!

Risk of fatal injury due to uncontrolled material discharge when changing the nozzle!

Even though no material can be discharged from the material nozzle when the control air is closed, there is a risk of fatal injury for all persons in the area of the system in the event that the control air supply should open accidentally when changing the nozzle. The material jet comes out of the front opening of the material nozzle at high speed. The jet could penetrate the skin and enter the body, carrying air with it. Risk of a fatal embolism! In addition, there is a risk of poisoning in case of toxic coating or cleaning agent!

– During maintenance work, it is imperative that both the control air supply and the material supply be closed.

The spray pattern can not be changed by adjusting the nozzle. If a different spray pattern is desired, the nozzle must be changed.

Furthermore, the spray pattern depends on the viscosity of the coating material. It can be modified via the material pressure. If optimal application cannot be achieved through material pressure changes, it is recommended trying again with a different material nozzle.

1. Rinse the automatic spray gun with cleaning agent before initial commissioning.
2. **WARNING!**

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

   Open the material supply.
3. **WARNING!**

   Hearing damage due to excessive noise exposure!

   Open the control air supply.

   ⇨ The coating material is sprayed.

8.4 Shutting down

8.4.1 Temporary shutdown

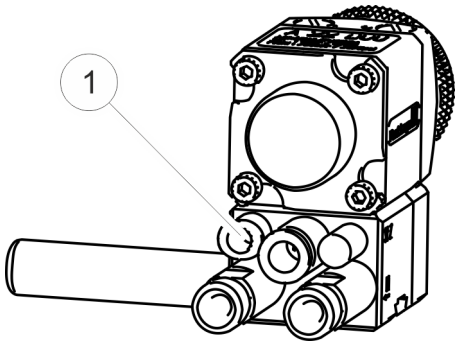


Fig. 13: Shutting down

- End the spray process by switching off the control air (connection “St A”, Fig. 131).

8.4.2 Long-term shutdown

1. End the spray process by switching off the control air (connection “St A”, Fig. 131).
2. Close the material supply and switch off the material pressure pump or the material pressure container if necessary.
3. If necessary, clean the automatic spray gun (*Chapter 9.3 “Cleaning the automatic spray gun” on page 31*).

9 Maintenance

9.1 Safety

Personnel:

- Specialized personnel

Protective equipment:

The selection of the protective equipment depends on the maintenance conditions on site and the medium used by the owner. The applicable country-specific safety, accident prevention, occupational safety, and environmental protection regulations must be adhered to for the proper selection of the protective equipment and the information given by the spray medium manufacturer on the safety data sheet must be taken into consideration.

WARNING!

Risk of injury through the use of incorrect spare parts!

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

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

Hoses and pipelines

Even with intended use, the service life of hoses and pipelines is limited due to environmental influences. For the sake of prevention, all hoses and pipelines should be replaced regularly according to their load.

9.2 Maintenance schedule

The following sections describe the maintenance work that is required for optimal and fault-free operation of the automatic spray gun. Check wearing parts such as seals, nozzles, and needles at regular intervals. The level of wear depends on the abrasiveness of the spray medium used. Escaping air and spray medium as well as the deterioration of the spray pattern are signs that parts are worn. Contact Krautzberger Customer Care should you have any questions about maintenance work and maintenance intervals.

Interval	Maintenance work	Personnel
before performing any maintenance work	Clean the automatic spray gun (*Chapter 9.3 “Cleaning the automatic spray gun” on page 31*).	Qualified personnel
If needed	Change the material nozzle, air nozzle, and valve seat screw (*Chapter 9.4 “Replacing material nozzle, air nozzle, and valve seat screw” on page 34*).	

Interval	Maintenance work	Personnel
	Change the material needle (*Chapter 9.5 “Changing the material needle” on page 37*).	
	Change the needle pack (*Chapter 9.6 “Changing the needle pack” on page 41*).	

Always replace the valve seat screw and material needle at the same time (Chapter 9.4 “Replacing material nozzle, air nozzle, and valve seat screw” on page 34) and (Chapter 9.5 “Changing the material needle” on page 37).

9.3 Cleaning the automatic spray gun

WARNING!

Risk of injury due to improper cleaning!

– Adhere to the safety data sheets of the cleaning agent manufacturer.
– Do not fully immerse the automatic spray gun in cleaning agent.

1. Suspend operation (*Chapter 8.4 “Shutting down” on page 29*).
2. Switch off the system and secure it against a restart.
3. **CAUTION!**
   Risk of injury due to escaping cleaning agent!

   Connect the cleaning agent to the material input.
4. **CAUTION!**
   Risk of injury from compressed air!

   Switch on the compressed air supply.
5. Where applicable, switch on the pump or material pressure container for the cleaning agent.
6. **WARNING!**
   Hearing damage due to excessive noise exposure!

   Begin the spray process by switching on the control air (connection “St A”).
7. Spray until the cleaning agent runs clear.
8. Interrupt the supply of the cleaning agent by switching off the pump or the material pressure container.
9. Blow out the cleaning agent residue by briefly switching on the control air.
10. Switch off the compressed air supply and secure it against a restart.
11. Clean the outside of the automatic spray gun with a cloth dipped in cleaning agent.
12. Slightly grease the sliding parts with special Krautzberger grease.

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

Cleaning prior to sending in the product for maintenance purposes

Before sending in the product for maintenance and servicing work, please clean it completely!

9.4 Replacing material nozzle, air nozzle, and valve seat screw

Removal

1. Suspend operation and secure the automatic spray gun against a restart (*Chapter 8.4 “Shutting down” on page 29*).

2. Disconnect the automatic spray gun from the adapter (*Chapter 7.4 “Disconnecting the automatic spray gun from the adapter” on page 21*).

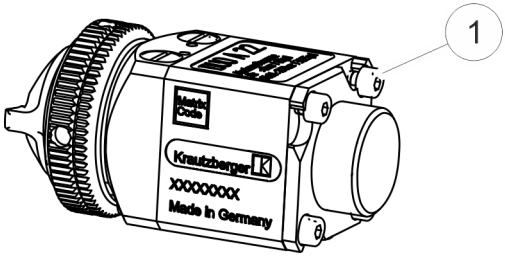


Fig. 14: Loosening the cylinder screws

3. Slightly loosen the four cylinder screws (Fig. 14/1) with a wrench (AF 10) by turning them two times each.

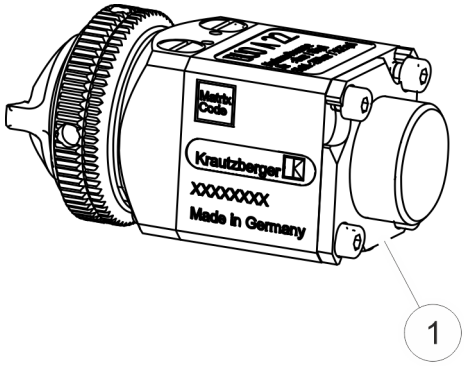


Fig. 15: Turning and removing the cover

4.

WARNING!

The cover (Fig. 15/1) is under spring tension.

To reduce the pretension in the automatic spray gun, turn the cover slightly clockwise and remove.

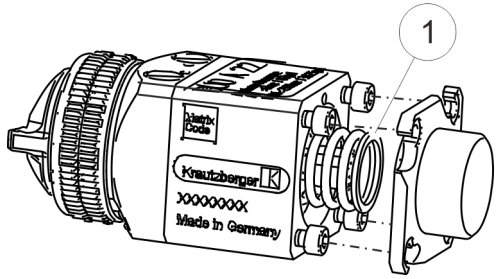


Fig. 16: Removing the pressure spring

5. Remove the pressure spring (Fig. 16/1).

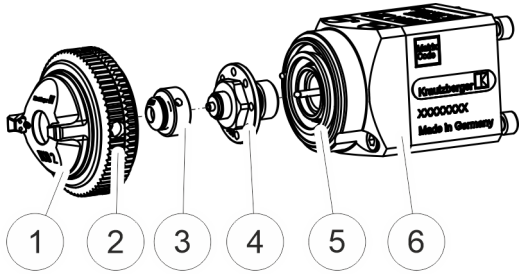


Fig. 17: Removing the nozzles

6. Loosen the cap nut (Fig. 17/2) and remove together with the air nozzle (Fig. 17/1).

⇨ It is now possible to press the air nozzle out of the cap nut by applying slight pressure.

7. Remove the material nozzle (Fig. 17/3) from the air nozzle.

8. Unscrew the valve seat screw (Fig. 17/4) from the head section (Fig. 17/6) with a wrench (AF 14).

Installing the nozzles

1. If necessary, make sure that the air distributor ring (Fig. 17/5) is positioned correctly.

2. **WARNING!**

   Risk of injury from the use of incorrect spare parts!

   Tighten the valve seat screw (Fig. 17/4) on the head section (Fig. 17/6) with a wrench (AF 14).

3. Insert the material nozzle (Fig. 17/3) into the air nozzle.

4. Press the air nozzle (Fig. 17/1) back into the cap nut (Fig. 17/2) by applying slight pressure and tighten it at the head section.

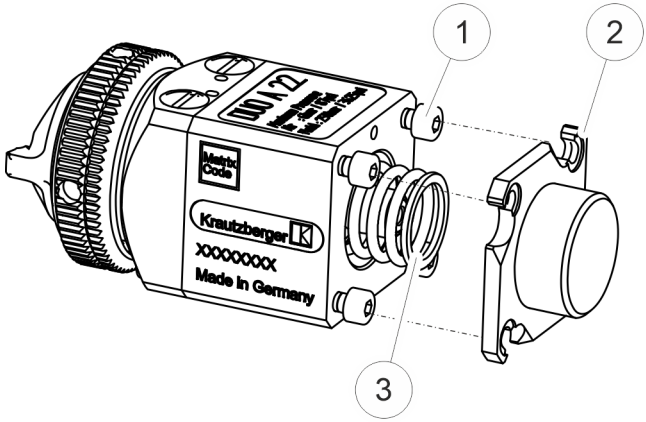


Fig. 18: Screwing the cover in place

5. Install the pressure spring (Fig. 18/3). In doing so, ensure that the spring is seated correctly. Hook the cover (Fig. 18/2) back into the cylinder screws (Fig. 18/1). Tighten the cylinder screws with a wrench to the stop (tightening torque **2.5 Nm**).

6. After assembly, check all parts for tight fit.

7. Mount the automatic spray gun back onto the adapter securely (*Chapter 7.4 “Disconnecting the automatic spray gun from the adapter” on page 21*).

9.5 Changing the material needle

Removing the material needle

1. Clean the automatic spray gun (*Chapter 9.3 “Cleaning the automatic spray gun” on page 31*).
2. Disconnect the automatic spray gun from the adapter (*Chapter 7.4 “Disconnecting the automatic spray gun from the adapter” on page 21*).

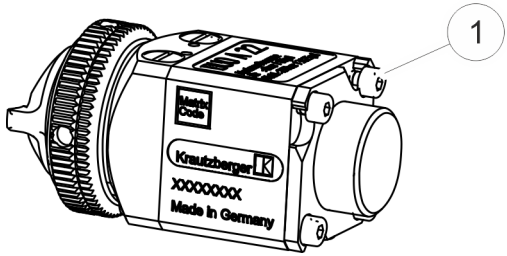


Fig. 19: Loosening the cylinder screws

3. Slightly loosen the four cylinder screws (Fig. 19/1) with a spanner (SW 10) by turning them two times each.

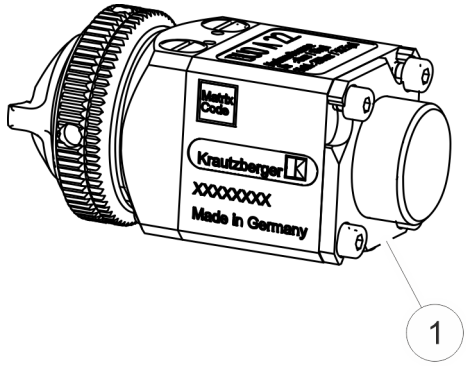


Fig. 20: Turning and removing the cover

4. **WARNING!**

   The cover (Fig. 20/1) is under spring tension.

   To reduce the pretension in the automatic spray gun, turn the cover slightly clockwise and remove.

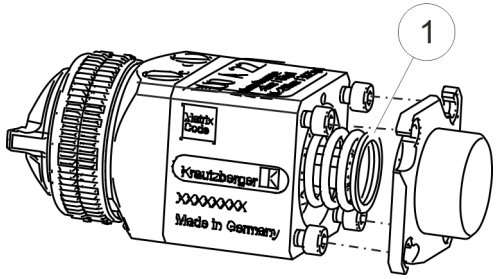


Fig. 21: Removing the pressure spring

5. Remove the pressure spring (Fig. 21/1).

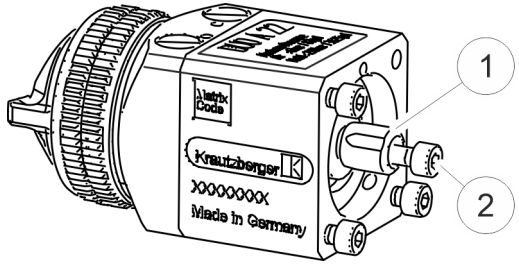


Fig. 22: Removing the material needle

6. Screw a cylinder screw (Fig. 22/2) into the control piston (Fig. 22/1).

7. Pull the control piston from the main element by the cylinder screw.

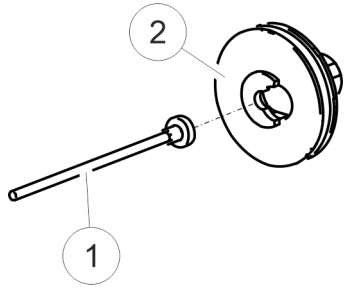


Fig. 23: Changing the material needle

8.

CAUTION!

Risk of injury due to sharp edges and material needles!

Remove the material needle (Fig. 23/1) from the control piston (Fig. 23/2).

Installing the material needle

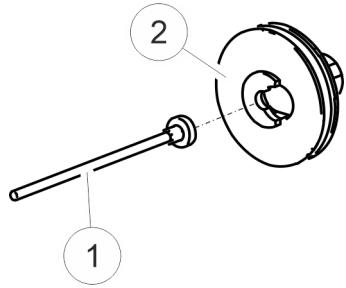


Fig. 24: Installing the material needle

1.

WARNING!

Risk of injury from the use of incorrect spare parts!

CAUTION!

Risk of injury due to sharp edges and material needles!

Connect a new material needle (Fig. 24/1) to the control piston (Fig. 24/2).

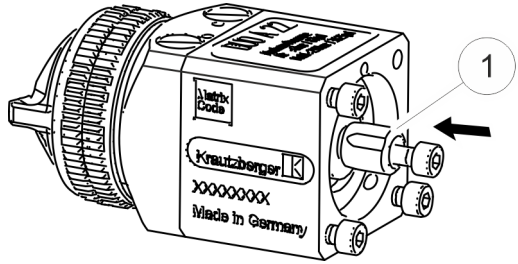


Fig. 25: Installing the material needle

2. Push the material needle (/2) with the control piston (Fig. 25/1) into the main element.

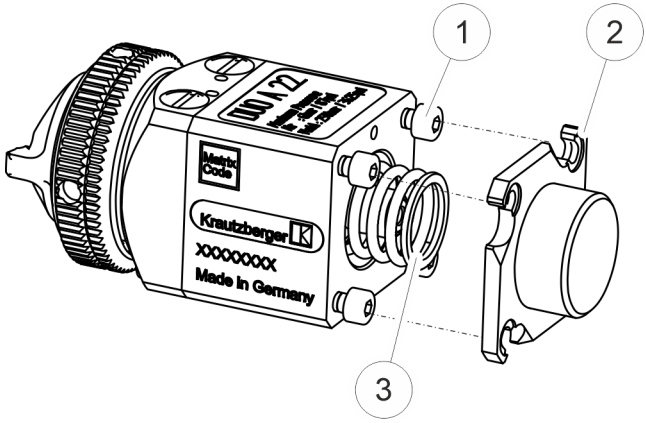


Fig. 26: Screwing the cover in place

3. Install the pressure spring (Fig. 26/3). In doing so, ensure that the spring is seated correctly. Hook the cover (Fig. 26/2) back into the cylinder screws (Fig. 26/1). Tighten the cylinder screws with a spanner (SW 10) to the stop (tightening torque **2.5 Nm**).

4. After assembly, check all parts for tight fit.

5. Mount the automatic spray gun back onto the adapter securely (*Chapter 7.4 “Disconnecting the automatic spray gun from the adapter” on page 21*).

9.6 Changing the needle pack

Removing the needle pack

1. Clean the automatic spray gun (*Chapter 9.3 “Cleaning the automatic spray gun” on page 31*).

2. Disconnect the automatic spray gun from the adapter (*Chapter 7.4 “Disconnecting the automatic spray gun from the adapter” on page 21*).

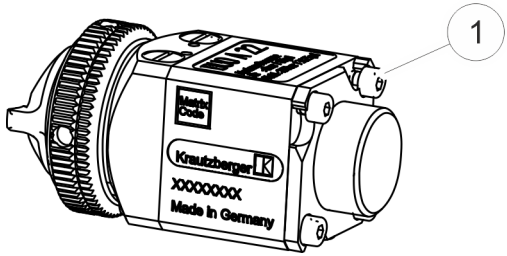


Fig. 27: Loosening the cylinder screws

3. Slightly loosen the four cylinder screws (Fig. 27/1) with a spanner (SW 10) by turning them two times each.

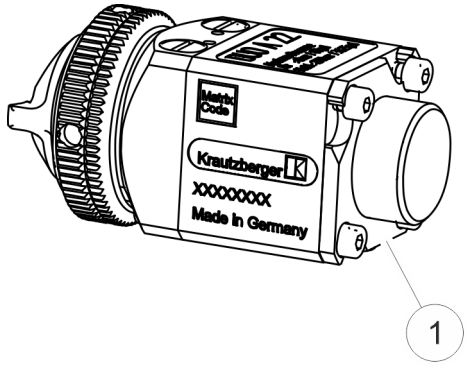


Fig. 28: Turning and removing the cover

4. **WARNING!**

   The cover (Fig. 28/1) is under spring tension.

   To reduce the pretension in the automatic spray gun, turn the cover slightly clockwise and remove.

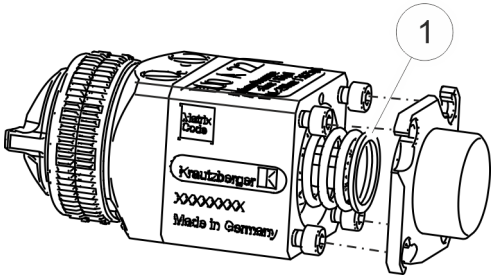


Fig. 29: Removing the pressure spring

5. Remove the pressure spring (Fig. 29/1).

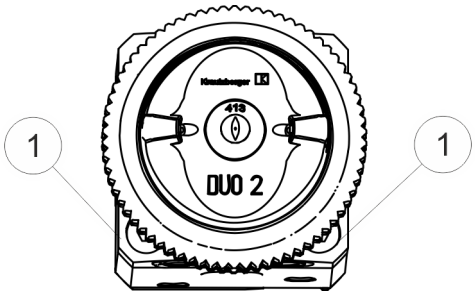


Fig. 30: Loosening the head section

6. At the front side of the head section, loosen the two cylinder screws (Fig. 30/1) with a spanner (SW 3) and remove them.

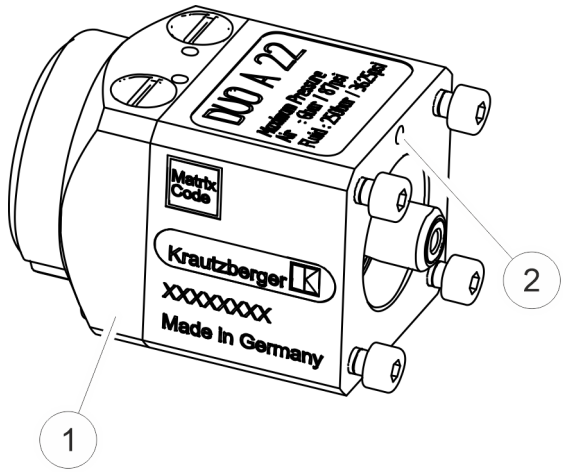


Fig. 31: Loosening the main element

7. Use an Allen wrench (SW 2.5) to loosen the main element through the drill hole (Fig. 31/2) and remove the head section (Fig. 31/1).

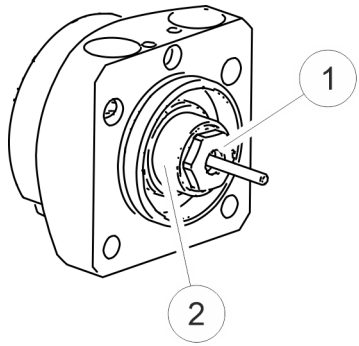


Fig. 32: Removing the needle pack

8. Loosen the packing screw (Fig. 32/1) located in the head section and pull out the complete needle pack (Fig. 32/2).

Installing the needle pack

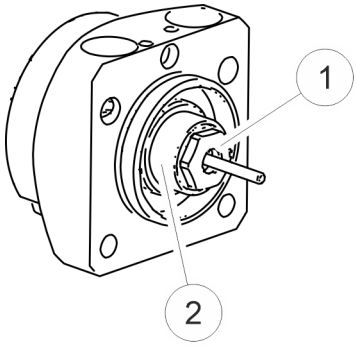


Fig. 33: Inserting the needle pack

1.

WARNING!

Risk of injury from the use of incorrect spare parts!

Insert the new needle pack (Fig. 33/2) back into the head section and tighten with the packing screw (Fig. 33/1).

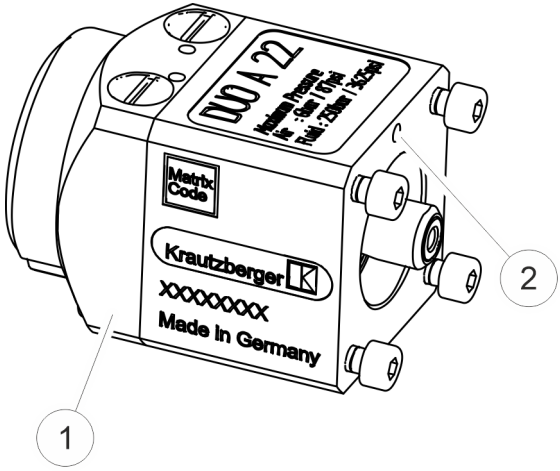


Fig. 34: Installing the main element

2. Press the head section (Fig. 34/1) against the main element and tighten through the drill hole (Fig. 34/2) with an Allen wrench.

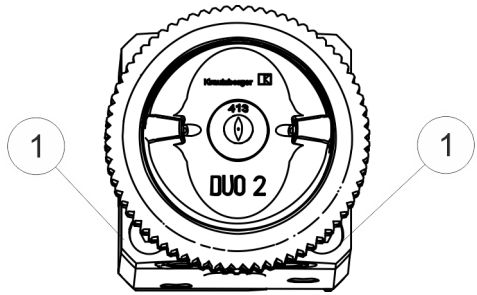


Fig. 35: Tightening the head section again

3. Reinsert the two cylinder screws (Fig. 35/1 and 2) at the front side of the head section and tighten with a spanner (SW 16).

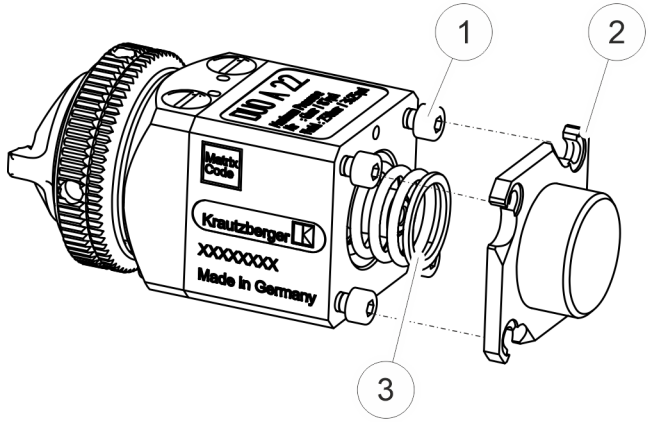


Fig. 36: Screwing the cover in place

4. Install the pressure spring (Fig. 36/2). In doing so, ensure that the spring is seated correctly. Hook the cover (Fig. 36/3) back into the cylinder screws (Fig. 36/1). Tighten the cylinder screws with a spanner to the stop (tightening torque **2.5 Nm**).

5. After assembly, check all parts for tight fit.

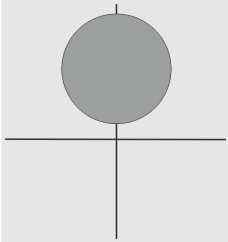
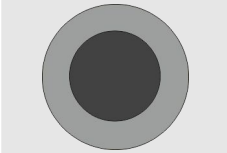
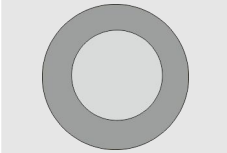
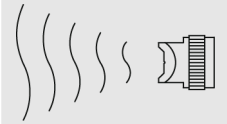
6. Mount the automatic spray gun back onto the adapter securely (*Chapter 7.4 “Disconnecting the automatic spray gun from the adapter” on page 21*).

10 Faults

Personnel:

- Specialized personnel

If the fault is not listed in the following tables or if it cannot be eliminated with the measures described, contact Krautzberger Customer Care.

Spray pattern	Error	Cause	Remedy
	Normal flat jet spray pattern		
	Spray pattern too concentrated towards the top and towards the bottom	■ Dirty air nozzle ■ Dirty material nozzle	Clean the nozzles (*Chapter 9.3 “Cleaning the automatic spray gun” on page 31*).
	Heavy application in the center of the spray pattern	Too much material	Reduce the material supply
		Material too thick	Thin the material
	Hollow spray pattern	Atomizer air/material ratio too high	Reduce the atomizer air, increase the material supply
	Material jet comes out in spurts or rapid bursts	Insufficient material supply	Increase the material supply
		Blocked material path	Clean the nozzles (*Chapter 9.3 “Cleaning the automatic spray gun” on page 31*).

Spray pattern	Error	Cause	Remedy
		Loose or damaged material nozzle	Tighten or replace (*Chapter 9.4 "Replacing material nozzle, air nozzle, and valve seat screw" on page 34*).
		Worn needle pack	Replace the needle pack (*Chapter 9.6 "Changing the needle pack" on page 41*).
	Leak on the needle pack	Needle pack defective	Replace the needle pack (*Chapter 9.6 "Changing the needle pack" on page 41*).
	Material nozzle drips	Worn or damaged material needle	Replace the material needle (*Chapter 9.5 "Changing the material needle" on page 37*).
		Dirty or damaged valve seat screw	Clean (*Chapter 9.3 "Cleaning the automatic spray gun" on page 31*) or replace (*Chapter 9.4 "Replacing material nozzle, air nozzle, and valve seat screw" on page 34*) the material nozzle.

10.1 Customer Care

Krautzberger GmbH

Customer service

Stockbornstr. 13

65343 Eltville am Rhein, Germany

+49 (0) 6123 698-222

customercare@krautzberger.com

11 Spare parts

– *Only use OEM parts from Krautzberger or spare parts approved by Krautzberger.*
– *In case of questions, always contact our Customer Care department.*

Spare parts order - General

To facilitate spare parts ordering, please provide the following information:

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

A complete spare parts list is available on the Krautzberger GmbH website:

www.krautzberger.com

12 Disassembly and disposal

12.1 Safety

Personnel:

- Specialized personnel

Protective equipment:

The selection of the protective equipment depends on the environmental conditions at the site of the system owner and the coating material that is used. To ensure the proper selection of personal protective equipment, the information provided by the spray material manufacturer indicated on the safety data sheet must be adhered to.

12.2 Disassembly

WARNING!

Risk of injury due to improper disassembly!

Prior to starting the disassembly:

- Switch off the device and secure it against a 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 material as well as remaining processing materials in an environmentally friendly manner.

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

12.3 Disposal

ENVIRONMENT!

Danger to the environment due to incorrect disposal!

Incorrect disposal may cause dangers to the environment.

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

- Sort components based on material composition and recycle or dispose of them according to their material composition.
- Properly dispose of potential spray media residue separately from the device.

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

13 Technical data

13.1 Measurements and weight

Specification	Value	Unit
Width with mounted retaining pin	102	mm
Height with mounted adapter	72	mm
Length	119	mm
Connection for spray medium (M) female *	G1/4	"
Connection for atomizer air female *	G1/8	"
Connection for control air (St) female *	M5	-
Weight with adapter	approx. 0.77	kg

* female = internal thread

13.2 General specifications

Specification	Value	Unit
Working pressure, control air (St)	max. 6	bar
	max. 87	psi
Working pressure, spray medium (M)	max. 250	bar
	max. 3,625	psi
Working pressure, atomizer air	max. 6	bar
	max. 87	psi
Sound pressure level depends on the nozzle	approx. 73 - 96	dB(A)
Spray medium temperature	max. 50	°C

13.3 Dimensions

13.3.1 Automatic spray gun

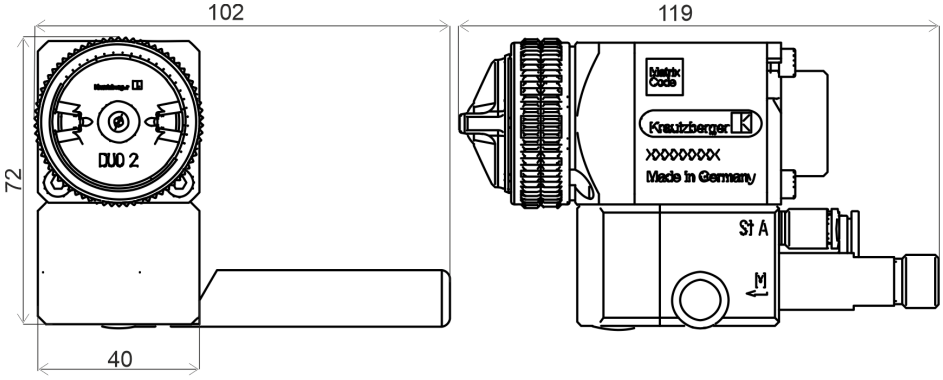


Fig. 37: Dimensions

13.3.2 Spray gun attachment

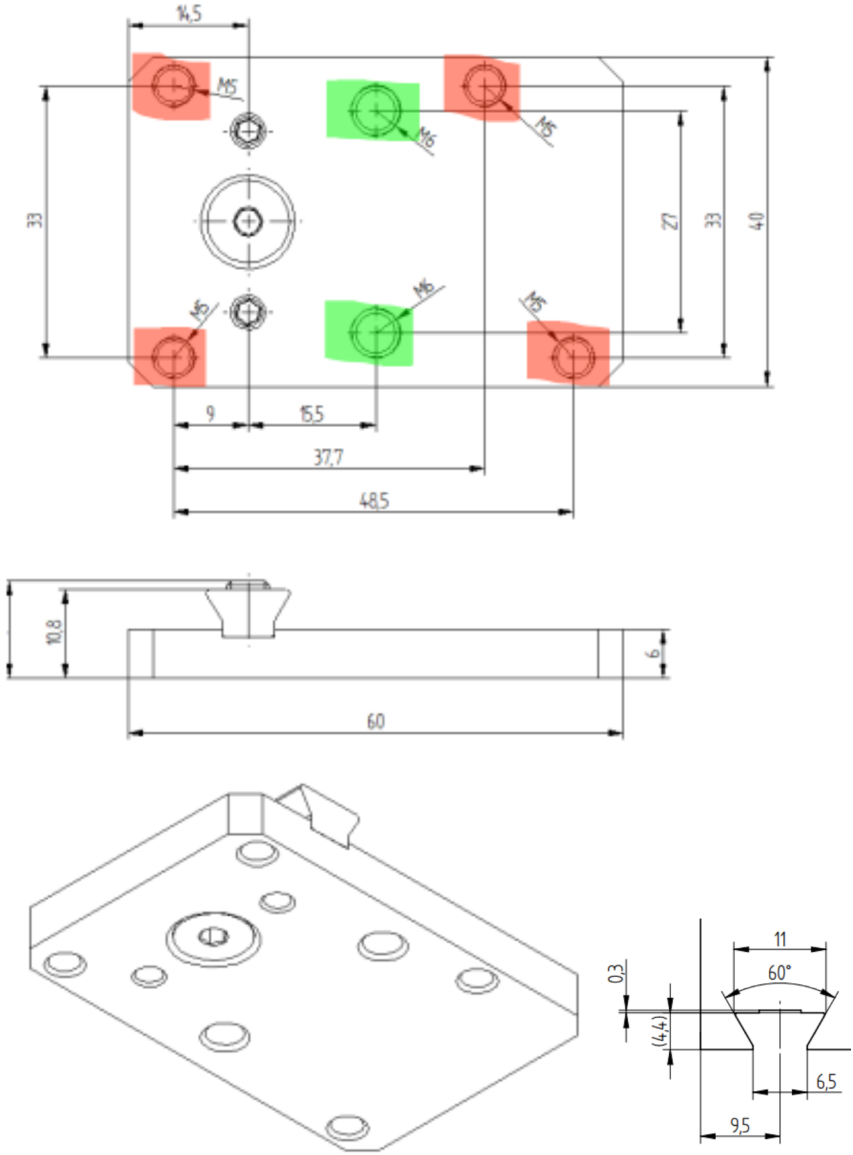


Fig. 38: Spray gun attachment

14 Declaration of Incorporation

Krautzberger

EC Declaration of Incorporation

The manufacturer/distributor

Krautzberger GmbH
Stockbornstr. 13
65343 Eltville am Rhein, Germany

hereby declares that the following product

Product name:	Automatic spray gun
Modes name:	DUO A 22
Item number:	200-0506

complies with the following basic requirements of the Machinery Directive 2006/42/EC as well as all relevant provisions of the applicable legal regulations (hereinafter) – including their amendments applicable at the time of the declaration.
see Annex "List of requirements met as per Annex I of the EC Machinery Directive 2006/42/EC"

The following legal regulations were applied:
Machinery Directive 2006/42/EC

The commissioning of this product is forbidden until the machine or the system, in which this product is to be installed or of which it is a component, complies with the provisions of all relevant legal regulations.

The following harmonized standards were applied:

EN 1953:2013	Atomizing and spraying equipment for coating matersials – Safety requirements
EN ISO 12100:2010	Safety of machinery – General principles for design – Risk assessment and risk reduction (ISO 12100:2010)

Special technical documents were created for the product according to Annex VII part B. Upon justified request, these documents can be transferred to a national authority via e-mail.

Name and address of the person who is authorized to create the technical documents:
Andreas Lotz
Stockbornstr. 13
65343 Eltville am Rhein, Germany

Place: Eltville
Date: 05/05/2023

Jörg Blumrich (Head of Design and Development)

Fig. 39: Declaration of Incorporation

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