



LEADING IN PRODUCTION EFFICIENCY

EcoGun AA AUTO Automatic Spray Gun Air Assist

Operation manual

MSG00008EN, V04



Information about the document

This document describes the correct handling of the product.

- » Read the document prior to every activity.
- » Prepare the document for the application.
- » Pass on the product only together with the complete documentation.
- » Always follow safety instructions, handling instructions and specifications of every kind.
- » Illustrations can deviate from the technical construction.

Validity range of the document

This document describes the following product:

N36230001V
EcoGun AA AUTO



Hotline and Contact

If you have queries or would like technical information, please contact your dealer or sales partner.

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1 Product overview

1.1 Overview

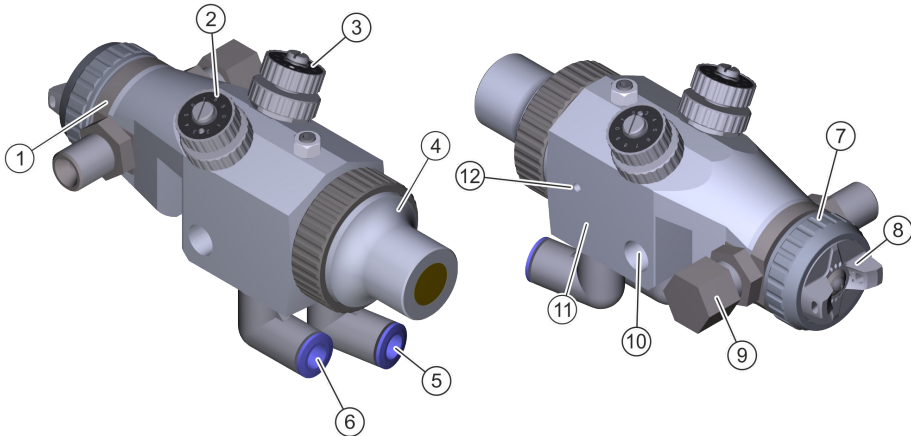


Fig. 1: Product overview

- | | | | |
|---|-----------------------------|----|-------------------------|
| 1 | Connecting piece | 7 | Cap nut with seal |
| 2 | Atomizer air control (R) | 8 | Air cap |
| 3 | Horn air control (F) | 9 | Material connection (M) |
| 4 | End cap | 10 | Fastening bore |
| 5 | Control air connection (C) | 11 | Housing |
| 6 | Spraying air connection (A) | 12 | Leakage bore |

1.2 Short description

The spray gun is intended for surface coating in high pressure area. Compressed air is used to apply material. The atomized coating material is fed through high pressure lines. The operation can be done with paint circulation or tap line.

Use a nozzle with a suitable diameter, depending on the requirement.

The following factors influence the spray jet and therefore the result

- » Alignment of the air cap
 - The alignment of the air cap determines the alignment of the spray jet.
- » Atomizer air pressure
- » Horn air pressure
 - The higher the horn air pressure, the softer the spray jet pattern edges become.
- » Control air pressure
 - Opens the needle and controls the material outflow.
- » Material pressure
 - The higher the material pressure, the higher the material flow and thus the finer the atomization. The lower the material pressure, the higher is the efficiency and the smaller is the overspray generated.
- » Nozzle

The higher the atomizer air pressure, the finer is the atomization and the smaller is the spray pattern.

The higher the bore diameter, the more the material flowing out. The greater the angle, the broader is the spray pattern.

Control air pressure is controlled externally via valves.

The spraying air pressure (A) is controlled externally via valves. The horn air pressure and atomizer air pressure can be adjusted on the spray gun by means of the horn air pressure (F) and the atomizer air control (R). The material pressure is controlled externally via valves.

2 Safety

2.1 Presentation of Notes

The following notes can appear in this instruction:



DANGER!

High risk situation that can lead to serious injuries or death.



WARNING!

Medium risk situation that can lead to serious injuries or death.



CAUTION!

Low risk situations that can lead to minor injuries.



NOTICE!

Situations that can lead to material damage.



ENVIRONMENT!

Situations that can lead to environmental damage.



Additional information and recommendations.

2.2 Intended Use

Use

The **EcoGun AA AUTO** spray gun is only intended for use in industry and craftsmanship.

The **EcoGun AA AUTO** spray gun is solely intended for automatic coating of surfaces by one of the following operating methods:

- » As independent, not hand guided device
- » As part of a fully automated paint booth
- » As part of a paint robot

The material is fed through a high pressure line.

The use is only permitted within the specified technical data ↪ 11 "Technical data".

The spray gun is approved for use in explosive areas of Ex zones 1.

Misuse

If used incorrectly, it can cause serious injuries or death.

Examples of wrong use are:

- » Aiming the spray gun at humans or animals.
- » Atomization of fluid nitrogen
- » Use of unapproved materials
- » Use of hose lines that are unsuited to the material and operating pressure used.
- » Combination of the spray gun with components that are not approved by Dürr Systems for operation.
- » Unauthorized modifications
- » Use in explosive areas Ex zone 0

EX labeling

II 2G T6 X

- II - Device group II: all areas except mining
- 2G - Device category 2 for gas
- T6 - Temperature class T6: Surface temperature, max. 85°C
- X - Specific conditions for safe operation

The following conditions must be observed for safe operation:

- » The spray gun and the work piece must be grounded.
- » Only use conductive lines.
- » Ensure that static electricity can be discharged.

2.3 Staff qualification



WARNING!

Inadequate qualification

Wrong estimation of dangers can cause serious injury or death.

- Only sufficiently qualified persons may execute all work.
- Some work requires additional qualification. Additional qualifications of specialized personnel are marked with a “+”.

This document is intended for qualified personnel in industry and craftsmanship.

Operator

The operator is trained specifically for the field of work in which he works.

Furthermore, the operator possesses the following knowledge:

- » Technical Measures for occupational safety and health

The operator is responsible for the following work:

- » Operate and monitor the system/ product.
- » Introduce measures in the event of faults.
- » Clean system/ product.

+ additional qualification explosion protection

In addition to the knowledge of the various specialist fields, the mechanic has knowledge of regulations and safety measures when working in potentially explosive areas.

Dürr Systems offers special product training for ↪ “Hotline and Contact”.

2.4 Personal protective equipment

Wear the required personal protective equipment when working. Provide the following personal protective equipment:



2.5 Residual risks

Explosion

Sparks, open flames and hot surfaces can cause explosions in explosive atmospheres. Serious injury and death could be the consequence.

- » Before carrying out any work, make sure that there is no explosive atmosphere.
- » Do not use sources of ignition and open light.
- » Do not smoke.
- » Ground the spray gun.
- » Ground the work piece.
- » Only use conductive lines.

Transport, scope of supply and storage

Flammable coating materials and their detergents and cleaning agents can cause a fire or an explosion.

- » Ensure that the flashpoint of the fluid is at least 15 K above the ambient temperature.
- » Note explosion group of the fluid.
- » Follow the safety data sheet.
- » Ensure that forced ventilation and fire protection equipment are in operation.
- » Do not use sources of ignition and open light.
- » Do not smoke.
- » Ground the spray gun.

Danger from harmful or irritant substances

Serious injuries or death can result if you come into contact with dangerous fluids or steam.

- » Spray gun Check regularly for leakage. Observe local regulations and maintenance schedule.
- » Ensure that the forced ventilation is operational.
- » Follow the safety data sheet.
- » Wear specified protective equipment.

Escaping material

Material leaking under high pressure can penetrate the body. Even if the injury looks like a harmless cut wound, the penetrating material leads to amputation, serious injuries can cause death.

- » Do not try to seal leakages using body parts, gloves or towels.
- » If there are injuries, seek medical attention immediately.

Before working on the product:

- » Purge the system, in which the product is installed.
- » Disconnect the system, in which the product is installed, from compressed air and material supply.
- » Depressurize the lines.
- » Secure the system against being switched on again.

Movable components

There is a risk of death if components or equipment in the vicinity move unexpectedly.

- » Switch off and lock out all system components against being switched on again before working on the product.

Noise

The sound pressure level during operation may cause severe hearing damage.

- » Wear ear protection.
- » Do not spend more time than necessary in the work area.

Hot surfaces

During normal operation the surfaces of components can get extremely hot. Contact with it can cause burns.

Before carrying out any work:

- » Check the temperature.
- » Do not touch hot surfaces.
- » Let components cool down.
- » Wear protective gloves.

3 Transport, scope of supply and storage

3.1 Scope of delivery

The scope of supply includes the following components:

- » Spray gun
- » Tool kit ↪ 12.1 "Replacement parts"

Inspect delivery on receipt for completeness and integrity.

Report defects immediately ↪ "Hotline and Contact".

3.2 Handling of packaging material



ENVIRONMENT!

Incorrect disposal

Incorrectly disposed packaging material can damage environment.

- Dispose of material no longer required in an environment-friendly manner.
- Observe local disposal specifications.

3.3 Storage

Storage provisions:

- » Do not store outdoors.
- » Store Spray gun only when dry.
- » Store in a dust-free place.
- » Do not expose to aggressive media.
- » Protect from solar radiation.
- » Avoid mechanical vibrations.
- » Temperature: 10°C to 40°C
- » Relative humidity: 35% to 90%

4 Assembly

4.1 Requirements for the Installation point.

- » The control air supply and the material feed to the spray gun must be interrupted and secured against reconnection.
- » Lines, seals and screw connections must be designed to conform to the requirements of the spray gun ↪ 11.5 "Operating values".
- » A support bracket capable of securing the spray gun is required.
- » The control air supply must be adjustable.
- » The control air supply must have venting.
- » The material must be fed through a filter to avoid clogging of the nozzle.

4.2 Assembly

Stationary assembly

Personnel:

- » Operator
- » + additional qualification explosion protection

Protective equipment:

- » Protective workwear
- » Protective gloves

Observe the following at assembly:

- » Diameter of the fastening bore: 10mm
- » Nominal diameters: ↪ 11.2 "Connections"

1.



WARNING!

Sources of ignition may cause explosions!

Ensure a non-explosive atmosphere.

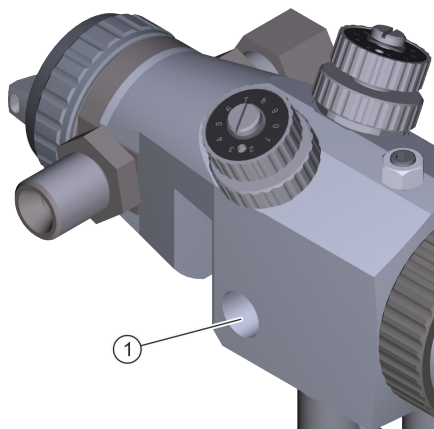



Fig. 2: Assembly

2. Push spray gun with the fastening bore (1) on the support bracket.

 Alignment is not important. Distance to the work piece: 15 to 25cm

3.  **WARNING!**

Statically charged components may cause explosions during operation!

Ground the spray gun through the fastening bore or material connection lines, if the support bracket itself is non-conductive or is not grounded. Ensure housing contact.

» Resistance between housing and grounding terminal $\leq 1M\Omega$.

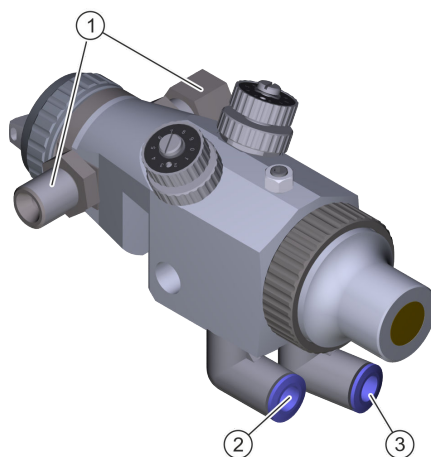




Fig. 3: Connect

4.  The spray gun does not work when the lines are not connected correctly.

Connect lines. Ensure correct assignment.

- 1 - Material (M)
- 2 - Spraying air (A)
- 3 - Control air (C)

 Connect lines to both material connections for paint circulation mode.
For tap line mode, connect line to a material connection. Leave the other material connection closed by means of the sealing screw.

Robot assembly

Personnel:

- » Operator
- » + additional qualification explosion protection

Protective equipment:

- » Protective workwear
- » Protective gloves

For a robot assembly, the corresponding robot version of the spray gun must be used or the spray gun must be reconstructed with the components of the optional robot kit ↪ 12.3 "Accessories" for robot version. The regular inserts are exchanged here against connecting pieces.

The reconstruction and the connection of the robot version of the spray gun are described below.

1. **WARNING!**
Sources of ignition may cause explosions!

WARNING!
Statically charges components may cause explosions during operation!

Attach spray gun on the support bracket as for the stationary assembly and ground it properly ↪ "Stationary assembly".

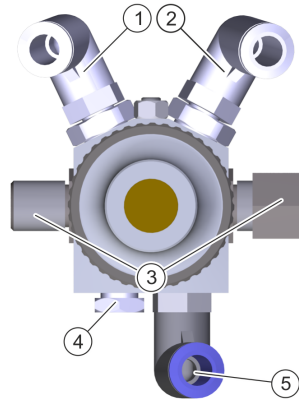


Fig. 4: Assembling robot accessories

2. Lock spraying air connection (A) with the blind plugs of the robot kits (4).
3. Replace regulating inserts of the atomizer air control (R) and the horn air control (F) by the regulating inserts and the screw-in plug connections of the robot kits (1 and 2).

4. The spray gun does not work when the lines are not connected correctly.

Connect lines. Ensure correct assignment.

- 1 - Atomizer air (R)
- 2 - Horn air (F)
- 3 - Material (M)
- 4 - Unused
- 5 - Control air (C)

Connect lines to both material connections for paint circulation mode. For tap line mode, connect line to a material connection. Leave the other material connection closed by means of the sealing screw.

4.3 Setting the spray jet

Personnel:

- » Operator
- » + additional qualification explosion protection

Protective equipment:

- » Protective workwear
- » Protective gloves

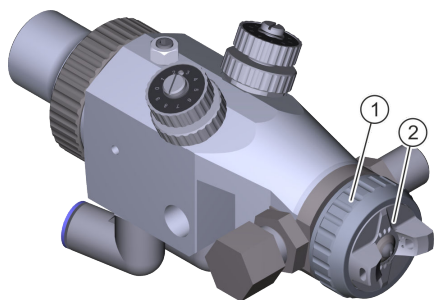


Fig. 5: Adjust spray jet

The orientation of the spray jet can be changed to any direction by rotating the air cap (2).

1. Lightly loosen the cap nut (1).

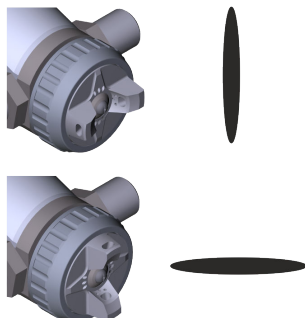


Fig. 6: Align air cap

2. Rotate air cap (2) into the required position.
3. Hand-tighten cap nut (1).

5 Commissioning

Personnel:

- » Operator
- » + additional qualification explosion protection

Protective equipment:

- » Use ear protection
- » Eye protection
- » Respiratory protection device
- » Protective workwear
- » Protective gloves

Depending on the design of the application system, two technicians must be present to execute the commissioning:

- » Technician 1: Operates the controls.
 - » Technician 2: Check on the spray gun.
1. Actuate the spray gun without material via the control unit or the visualizer.
 2. Check the switching behavior.
 - » Does the needle open and close as required?
 - » Are all types of air supply connected?
 3. Purge spray gun ↪ 6.4 "Rinsing".
 4. Connect material.
 5. Create a trial spray pattern on a test work piece.

Setting the spray pattern


Personnel:

- » Operator
- » + additional qualification explosion protection

Protective equipment:

- » Use ear protection
- » Eye protection
- » Respiratory protection device
- » Protective workwear
- » Protective gloves

You can set the spray pattern by using the horn air and atomizer air.

 You can vary the size of the spray pattern by adjusting the distance of the spray gun to the work piece and the selected nozzle size.

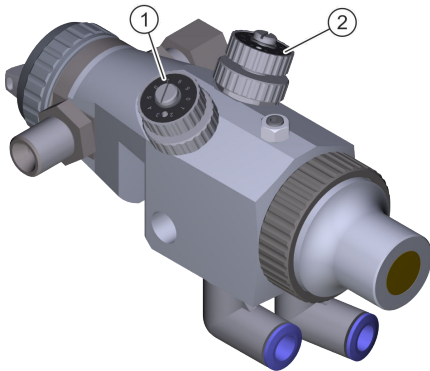




Fig. 7: Setting the spray pattern

1. Close atomizer air control (1) and horn air control (2) or atomizer air supply (R) and horn air supply (F) completely.

 If horn air and atomizer air are blocked, atomization is done exclusively through material pressure (airless mode).

2. Adjust material quantity by means of the nozzle size. Adjust material pressure air through valves in the control cabinet.

 Observe the following characteristic curve.

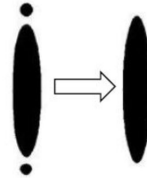


Fig. 8: Rectify the offshoot

3. Open horn air control (2) or horn air supply (F), until the spray pattern no longer has any offshoots (stripes).

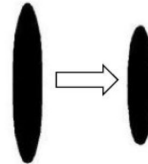



Fig. 9: Shorten spray pattern

4. The length of the spray pattern can be adjusted by opening the atomizer air control (1) or atomizer air supply (R).

 Recommendation: Replace nozzle with a nozzle with a smaller spray jet angle.

Characteristic curve

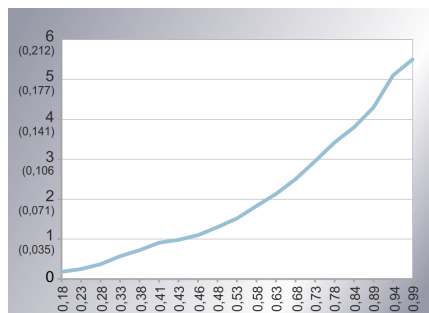


Fig. 10: Characteristic curve

X-Achse Nozzle diameter [mm]

Y-Achse Flow rate [NI/min (CFM)]

The characteristic curve shows the relation between nozzle diameter and the flow rate at 100bar material pressure with water.

6 Operation

6.1 Safety recommendations



WARNING!

Danger of explosion due to chemical reactions

Material, halogenated hydrocarbon-based rinsing agent or cleaning agent can chemically react with aluminum components of the product. Chemical reactions can cause explosions. Serious injury and death could be the consequence.

- Only use purging agents and cleaning agents that do not contain any halogenated hydrocarbons.

! NOTICE!

Material damage due to dried material residues

If material residues dry in the product, that can harm components.

- Rinse product immediately after each use.

6.2 General notes

1. Perform the following checks during operation:
 - » Check O-rings for correct seating and tightness.
 - » Check air car for cleanliness.
 - » Check nozzle for cleanliness.

6.3 Selecting air cap

You can convert the spray gun for various uses by swapping the air cap.

Air cap for hexagonal nozzle

The air cap for hexagonal nozzles is the most frequently used air cap type. The air cap is used for different water-based paints, solvent-based paints and colors.

The air cap for hexagonal nozzles has two different versions:

- » For a spray jet angle from 10 to 30°
- » For spray jet angle from 40 to 130°

A label on the air cap identifies the type of version.

Air cap for circular nozzles

The air cap for round nozzles is used for clear coats and quick drying coating materials. It has slit air ducts for the horn air.

6.4 Rinsing

6.4.1 Safety recommendations

NOTICE!

Material damage due to unsuitable rinsing agent

If the rinsing agent reacts chemically with the components or the material, components get damaged.

- Use only the rinsing agents that are compatible with the components and the material.
- Refer to safety data sheet of material manufacturer.

6.4.2 Rinsing

Personnel:

- » Operator
- » + additional qualification explosion protection

Protective equipment:

- » Use ear protection
- » Eye protection
- » Respiratory protection device
- » Protective workwear
- » Protective gloves

The spray gun must be rinsed:

- » After end of work
- » Before every change of material
- » Prior to cleaning
- » Prior to dismantling
- » Before a long time of non-use
- » Before placing in storage

Additional rinsing intervals depend on the material used.

1. Rinse the spray gun with an appropriate rinsing agent until the rinsing agent runs clean without any material residue.

7 Cleaning

7.1 Safety recommendations

WARNING!

Danger of fire and explosion

Flammable coating materials and their detergents and cleaning agents can cause a fire or an explosion.

- Ensure that the flashpoint of the fluid is at least 15 K above the ambient temperature.
- Note explosion group of the fluid.
- Follow the safety data sheet.
- Ensure that forced ventilation and fire protection equipment are in operation.
- Do not use sources of ignition and open light.
- Do not smoke.
- Check grounding.

WARNING!

Danger from harmful or irritant substances

Serious injuries or death can result if you come into contact with dangerous fluids or steam.

- Spray gun Check regularly for leakage. Observe local regulations and maintenance schedule.
- Ensure that the forced ventilation is operational.
- Follow the safety data sheet.
- Wear specified protective clothing.
- Avoid contact (e.g. with eyes, skin).

**WARNING!****Material escaping under pressure**

Material leaking under high pressure can penetrate the body. Even if the injury looks like a harmless cut wound, the penetrating material leads to amputation, serious injuries can cause death.

- Do not try to seal leakages using body parts, gloves or towels.
- If there are injuries, seek medical attention immediately.

Before working on the product:

- Disconnect the system, in which the product is installed, from compressed air and material supply.
- Secure the system against being switched on again.
- Depressurize the lines.

**WARNING!****Danger of explosion due to chemical reactions**

Material, halogenated hydrocarbon-based rinsing agent or cleaning agent can chemically react with aluminum components of the product. Chemical reactions can cause explosions. Serious injury and death could be the consequence.

- Only use purging agents and cleaning agents that do not contain any halogenated hydrocarbons.

**NOTICE!****Unsuitable cleaning agents**

Unsuitable cleaning agents can damage the product.

- Only use cleaning agents approved by the material manufacturer.
- Follow safety data sheets.
- Place heavily soiled components in a cleaning bath.
 - Only place those parts in the cleaning bath, which are suitable for the cleaning bath.
 - Use only electrically conductive containers.
 - Ground the container.
 - Do not use ultrasound baths.

- » Use alcohols (isopropanol, butanol) for non-flammable coating materials.
- » Remove dried non-flammable coating materials using a material manufacturer-approved organic thinner.

**NOTICE!****Damage due to unsuitable cleaning tools**

Unsuitable cleaning tools can damage the product.

- Only use cloths, soft brushes and paintbrushes.
- Do not use abrasive cleaning tools.
- Do not poke blocked nozzles with metallic objects.
- Do not use compressed air for cleaning.
- Do not use any thinner spray guns.
- Do not use high pressure for cleaning agents.

7.2 Cleaning

Clean spray gun

Personnel:

- » Operator
- » + additional qualification explosion protection

Protective equipment:

- » Use ear protection
- » Eye protection
- » Respiratory protection device
- » Protective workwear
- » Protective gloves

1. Purge spray gun ↪ 6.4 “Rinsing”.
2. Use a cleaning agent to carefully clean the spray gun. Dry with a soft cloth.

Cleaning the air cap und nozzle

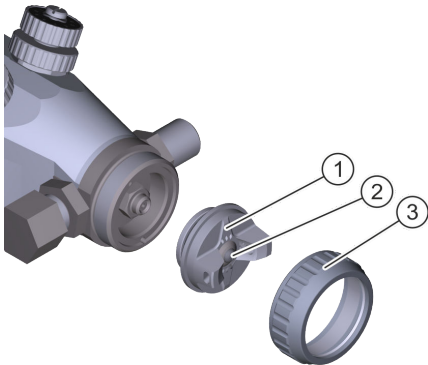


Fig. 11: Clean spray gun

For a thorough cleaning you can remove the air cap and the nozzle.

Disassembly

1. Loosen the cap nut (3) and remove it.
2. Remove air cap (1) and nozzle.

3. Push out nozzle (2) from the back of the air cap and catch it.
4. Clean air cap using cleaning agent and cleaning brush ↪ 12.2 “Tools”.
5. Wipe the cleaned air cap dry with a cloth.
6. Clean the nozzle in the cleaning bath.

Assembly

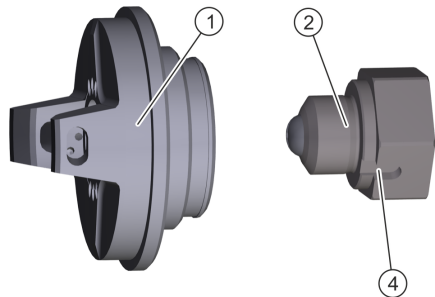


Fig. 12: Insert nozzle

7. Insert nozzle (2) from the back to fit into the air cap (1). Pay attention to the correct alignment of the nozzle groove (4).
8. Fit air cap (1) and nozzle.
9. Align air cap.
10. Fit cap nut (3). Tighten by hand.

8 Maintenance

8.1 Safety notes



WARNING!

Unsuitable replacement parts in explosive areas

Replacement parts not compliant with the specifications of the ATEX guidelines can cause explosions in an explosive atmosphere. Serious injury and death could be the consequence.

- Use exclusively original replacement parts.



WARNING!

Danger from harmful or irritant substances

Serious injuries or death can result if you come into contact with dangerous fluids or steam.

- Spray gun Check regularly for leakage. Observe local regulations and maintenance schedule.
- Ensure that the forced ventilation is operational.
- Follow the safety data sheet.
- Wear specified protective clothing.
- Avoid contact (e.g. with eyes, skin).



WARNING!

Material escaping under pressure

Material leaking under high pressure can penetrate the body. Even if the injury looks like a harmless cut wound, the penetrating material leads to amputation, serious injuries can cause death.

- Do not try to seal leakages using body parts, gloves or towels.
- If there are injuries, seek medical attention immediately.

Before working on the product:

- Disconnect the system, in which the product is installed, from compressed air and material supply.
- Secure the system against being switched on again.
- Depressurize the lines.



CAUTION!

Risk of injury due to spring tension

The end cap of the spray gun is under spring tension. If you remove the end cap, the spring tension could cause the end cap to jump out unexpectedly and cause light injuries.

- Removing and installing end cap

8.2 Maintenance schedule

The maintenance intervals given below are based on experiential values. Maintenance intervals, adjust individually if necessary.

Interval	Maintenance work
Daily	Check condition and tightness (also of the connections and lines). Check fastening.
Before every change of material	Clean ↪ 7.2 "Cleaning".
Monthly	Lubricate internal components ↪ 8.3 "Lubrication".
After each alteration	Check grounding ↪ 4.2 "Assembly".

8.3 Lubrication

Personnel:

- » Operator
- » + additional qualification explosion protection

Protective equipment:

- » Protective workwear
- » Protective gloves

Piston axis, needle shank, piston sleeve and piston glide surface in the gun housing must be lubricated so that there will not be any leakages.

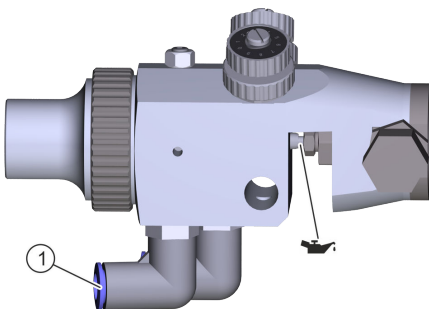


Fig. 13: Lubricate piston components

1. Feed lubricant (silicone-free oil) at the control air connection (C) (1) using control air.

9 Faults

9.1 Safety recommendations



CAUTION!

Risk of injury due to spring tension

The end cap of the spray gun is under spring tension. If you remove the end cap, the spring tension could cause the end cap to jump out unexpectedly and cause light injuries.

- Removing and installing end cap

! NOTICE!

Material damage due to improper replacement of needle and seal retainer screw.

Replacing only the needle or only the seal retainer screw could damage spray gun components. This can compromise the tightness of the spray gun. The spray pattern deteriorates.

- Observe order of disassembly steps (needle – seal retainer screw).
- Observe order of assembly steps (Seal retainer screw – needle).
- Always replace seal retainer screw and needle at the same time.

! NOTICE!

Property damage due to improper handling

Mechanical load can damage needle and nozzle.

- Handle with care during installation and dismantling.
- Do not subject the needle to any mechanical pressure.
- Avoid collisions of components to be assembled and disassembled with the needle.
- Do not excessively tighten components.

! NOTICE!




Improper setting causes damage

The delay time is factory-set. Setting a wrong delay time can damage the nozzle and the needle.

- You should only change the delay time upon inserting a new needle or in case there are problems with the spray pattern.
- If in doubt, contact Dürr Systems ↪ “Hotline and Contact”.

9.2 Defects table

Visualizer of typical spray pattern problems

Spray pattern	Fault identification
	Spray jet is distorted.
	Spray jet distinctly smaller than original (about 25%).
	Spray jet is uneven.

Fault description	Cause	Remedy
No material	Feed line pinched or broken.	Check the line.
	Needle does not open.	Check Control air.
Material escapes with the needle closed.	Needle does not close correctly.	<ul style="list-style-type: none"> » Check control air venting. » Check operation of needle. Replace needle, if defective, together with the seal retainer screw ↪ 9.3.2 "Replace needle and seals."
	Needle spring and plunger spring are worn out.	Replace needle spring and plunger spring ↪ 9.3.3 "Replace needle spring and plunger spring."
	Seal retainer screw, seal washer or needle is worn out.	Replace seal retainer screw, seal washer and needle ↪ 9.3.2 "Replace needle and seals."
Material escapes at the needle seal.	Needle seal is worn out.	Replace needle seal ↪ 9.3.2 "Replace needle and seals."
	Needle gland is loose.	Tighten needle gland sensitively.
Air escapes at the end cap.	Piston sleeve is worn out.	Replace piston sleeve ↪ 9.3.5 "Replace piston seals."

Fault description	Cause	Remedy
Air escapes at the leakage bore.	O-rings of the piston are worn out.	Replace O-rings ↗ 9.3.5 “Replace piston seals.”.
	Sealing rings are worn out.	Have the sealing rings replaced by Dürr Systems.
Air escapes between piston axis and housing.	Lip seal is worn out.	Have the lip seals replaced by Dürr Systems. Or replace lip seal with assembly / dis-assembly tool for lip seal (↗ 12.2 “Tools”).
Spray jet distinctly smaller than original (about 25%).	Nozzle is worn out.	Replace nozzle ↗ 9.3.1 “Replace nozzle”.
Spray jet is distorted.	Air cap is misaligned.	Rotate air cap into the required position ↗ 4.3 “Setting the spray jet”.
Spray jet is uneven.	Nozzle soiled or defective.	Clean and check the nozzle. Replace nozzle if defective ↗ 9.3.1 “Replace nozzle”.
	Material pressure is too low.	Increase material pressure.
	Feed line is pinched or broken.	Check infeed line.
	Needle does not close correctly.	<ul style="list-style-type: none"> » Check Control air. » Check operation of needle. Replace needle, if defective, together with the seal retainer screw ↗ 9.3.2 “Replace needle and seals.”.
	Cap nut is not correctly tightened.	Tighten cap nut ↗ 7.2 “Cleaning”.
Formation of large drops	Delay time is too short.	Set delay time ↗ 9.3.4 “Set delay time”.
Spraying nozzle is blocked.	Material pigmented is too large for the selected nozzle diameter.	<ul style="list-style-type: none"> » Select material with smaller pigmentation. » Insert nozzle with a larger diameter ↗ 9.3.1 “Replace nozzle”.
	Mesh values of the external filter is too large.	Insert filters with smaller mesh width.

9.3 Troubleshooting

9.3.1 Replace nozzle

Personnel:

- » Operator
- » + additional qualification explosion protection

Protective equipment:

- » Protective workwear
- » Protective gloves

Disassembly

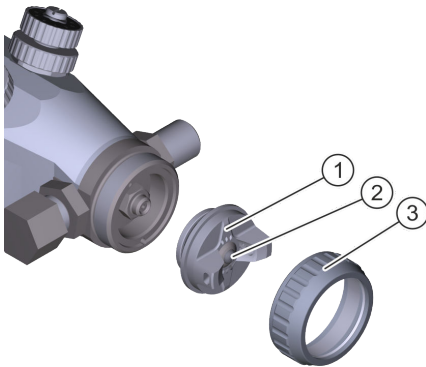


Fig. 14: Disassemble nozzle

1. Loosen the cap nut (3) and remove it.
2. Remove air cap (1) and nozzle.
3. Push out nozzle (2) from the back of the air cap and catch it.

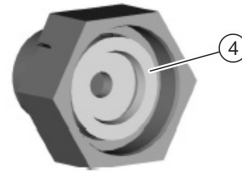


Fig. 15: Check seal

4. Check seal (4) for damage.
5. Replace worn out or defective components.

Assembly

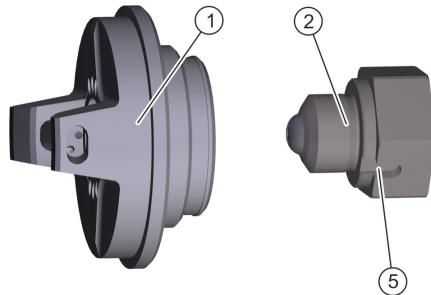


Fig. 16: Insert nozzle

6. Insert nozzle (2) from the back to fit into the air cap (1). Pay attention to the correct alignment of the nozzle groove (5).
7. Fit air cap (1) and nozzle.
8. Align air cap.
9. Fit cap nut (3). Tighten by hand.

Faults

9.3.2 Replace needle and seals.

Personnel:

- » Operator
- » + additional qualification explosion protection

Protective equipment:

- » Protective workwear
- » Protective gloves

Disassembly

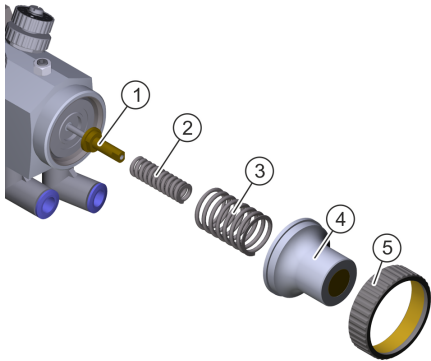


Fig. 17: Disassemble needle

1. Thread off and remove cap nut (5).
2. Pull out end cap (4).
3. Remove needle spring (2) and plunger spring (3).
4. Pull back complete needle (1) out of the housing.

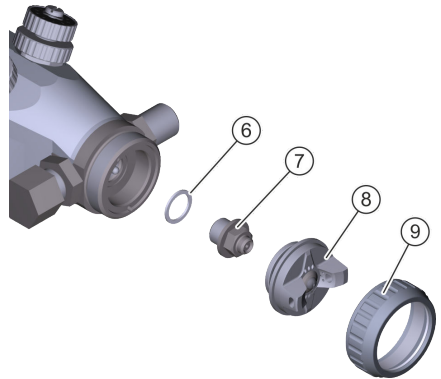


Fig. 18: Disassemble air cap, seal retainer screw and sealing ring

5. Loosen the cap nut (9) and remove it.
6. Remove air cap (8) and nozzle.
7. Unscrew and remove seal retainer screw with sealing washer (7) using a socket wrench (10mm).
8. Remove sealing ring (6).

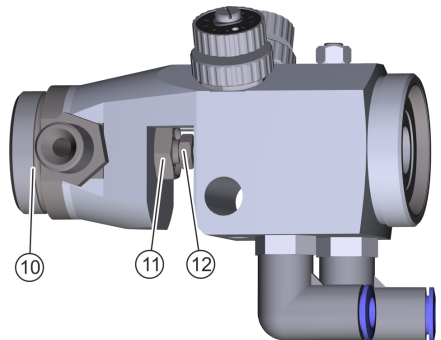


Fig. 19: Disassemble needle seal

9. Unscrew custom nut (11) using an open-end wrench (14mm).

10. Pull out connector (10). Collect custom nut (11).
11. Screw off needle plug (12).

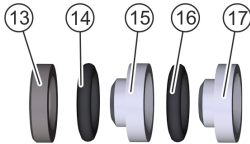


Fig. 20: Remove seals

12. Push out seal washer (13), needle seals (15 and 17) and O-rings (14 and 16).
13. Use a cleaning agent to clean the contact face of the needle seal (15 and 17).

Assembly

14. Insert seal washer (13), needle seals (15 and 17) and O-rings (14 and 16) in the illustrated sequence.
15. Screw-on needle gland (12) loosely.
16. Insert connecting piece (10).
17. Thread in and screw in custom nut (11).
18. Insert new sealing ring (6).
19. Insert and tighten new seal retainer screw with sealing washer (7).
» Tightening torque: 18 to 20Nm
20. Fit air cap (8) and nozzle.
21. Align air cap.
22. Fit cap nut (9). Tighten by hand.
23. Lubricate needle shank lightly with silicone-free oil. Push in needle (1) carefully into the housing from the back.
24. Insert needle spring (2) and plunger spring (3).

25. Fit end cap (4).
26. Fit cap nut (5). Tighten by hand.
27. Tighten needle gland (12) sensitively.

9.3.3 Replace needle spring and plunger spring.

Personnel:

- » Operator
- » + additional qualification explosion protection

Protective equipment:

- » Protective workwear
- » Protective gloves

Disassembly

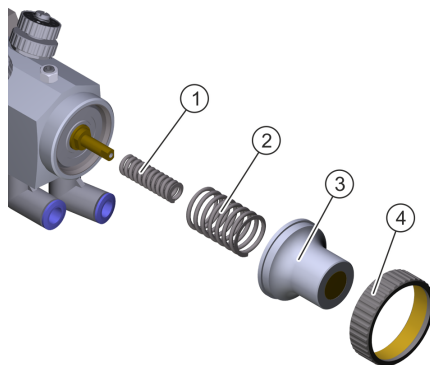


Fig. 21: Disassemble needle spring and plunger spring

1. Thread off and remove cap nut (4).
2. Pull out end cap (3).
3. Remove needle spring (1) and plunger spring (2).

Faults

4. Replace worn out or defective components.

Assembly

5. Insert needle spring (1) and plunger spring (2).
6. Fit end cap (3).
7. Fit cap nut (4). Tighten by hand.

9.3.4 Set delay time

Personnel:

- » Operator
- » + additional qualification explosion protection

Protective equipment:

- » Protective workwear
- » Protective gloves

Disassembly

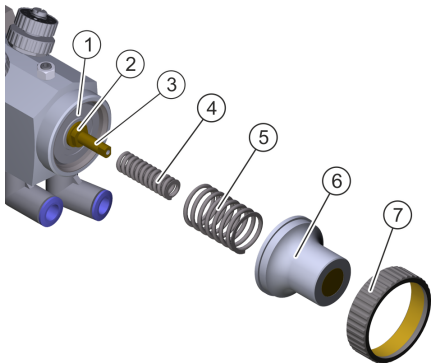


Fig. 22: Set delay time

1. Unscrew and remove cap nut (7).
2. Pull off end cap (6).
3. Remove needle spring (4) and plunger spring (5).

4. Loosen guide nut (3).

Setting

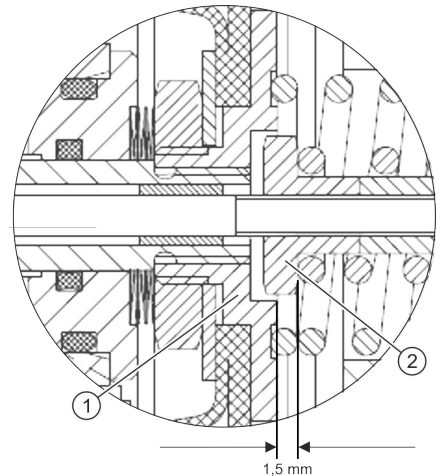



Fig. 23: Adjust distance from piston holder to pre-air stop nut.

5. Rotate pre-air stop nut (2).
 - » Turn it to the right to reduce the delay time.
 - » Turn it to the left to increase the delay time.

 The recommended distance from the pre-air stop nut (2) to the piston holder (1) is about 1.5mm. If a longer delay is needed, increase the distance.

6. Tighten guide nut (3).

Assembly

7. Insert needle spring (4) and plunger spring (5).
8. Fit end cap (6).
9. Fit cap nut (7). Tighten by hand.

9.3.5 Replace piston seals.

Personnel:

- » Operator
- » + additional qualification explosion protection

Protective equipment:

- » Protective workwear
- » Protective gloves

Disassembly

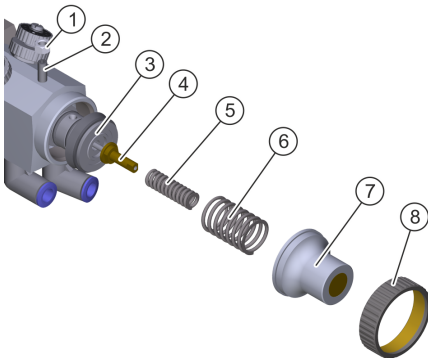



Fig. 24: Disassembling Piston

1. Unscrew and remove cap nut (8).
2. Pull off end cap (7).
3. Remove needle spring (5) and plunger spring (6).
4. Pull back complete needle (4) out of the housing.
5. Loosen hex nut (1).
6. Thread off and remove screw (2).
7. Pull out the complete piston axis (3).

 For simpler disassembly, a M5 screw can be screwed into the piston axis (3).

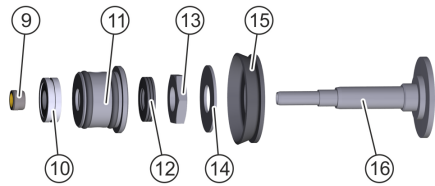



Fig. 25: Replace piston seals

8. Loosen locknut (9).
9. Pull out sealing body (10) from piston axis (16).
10. Pull off stop bush (11).
11. Pull off ball bearing plate springs (12).
12. Loosen bracket nut (13).
13. Pull off counter-washer (14).
14. Pull off piston sleeve (15).
15. Replace seals of the stop bush (11), sealing body (10) and piston sleeve (15).

 Worn out sealing rings, which are inside of the stop bush, need to be replaced by Dürr Systems.

Assembly

16. Use a drop of oil to wet the piston axis (16).
17. Push piston sleeve (15) and counter-washer (14) on to the piston axis (16).
18. Insert and tighten bracket nut (13).
19. Push ball bearing plate springs (12) and stop bush (11) on to the piston axis (16).
20. Push sealing body (10) on to the piston axis (16).
21. Insert and tighten locknut (9).

22. Lubricate piston sleeve and piston glide surface in the housing lightly with silicone-free oil.

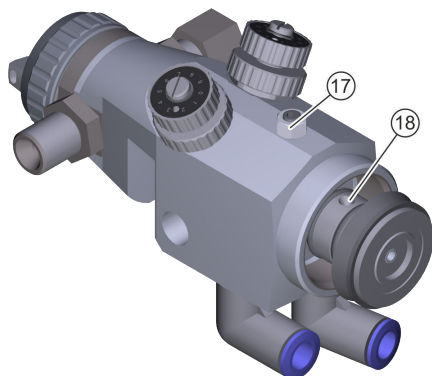


Fig. 26: Insert piston axis

23. Ensure that the tapering bore of the piston axis (18) is perpendicular to the tapped hole (17) in the housing.
24. Push in complete piston axis from behind into the housing.
25. Thread in the screw (2).
26. Screw on hex nut (1) and tighten it.
27. Lubricate needle shank lightly with silicone-free oil. Push in needle (4) carefully into the housing from the back.
28. Insert needle spring (5) and plunger spring (6).
29. Fit end cap (7).
30. Fit cap nut (8). Tighten by hand.

10 Disassembly and Disposal

10.1 Safety recommendations

WARNING!

Material escaping under pressure

Material leaking under high pressure can penetrate the body. Even if the injury looks like a harmless cut wound, the penetrating material leads to amputation, serious injuries can cause death.

- Do not try to seal leakages using body parts, gloves or towels.
- If there are injuries, seek medical attention immediately.

Before working on the product:

- Disconnect the system, in which the product is installed, from compressed air and material supply.
- Secure the system against being switched on again.
- Depressurize the lines.

10.2 Disassembly

Personnel:

- » Operator
- » + additional qualification explosion protection

Protective equipment:

- » Use ear protection
- » Eye protection
- » Respiratory protection device
- » Protective workwear
- » Protective gloves

1. Rinsing ⇨ 6.4 “Rinsing”.
2. Disconnect the compressed air supply and material feed. Secure against reconnection.

3. Disconnect all lines.
4. Disassemble the spray gun from the support bracket.

10.3 Disposal



ENVIRONMENT!

Improper waste disposal

Improper waste disposal threatens the environment and prevents re-use and recycling.

- Clean components before their disposal.
- Always dispose of components in accordance with their characteristics.
↳ 11.7 “Materials used”
- Collect leaked out utilities and auxiliaries completely.
- Dispose of work equipment soaked in coating materials or operating substances according to the disposal provisions in force.
- Dispose of utilities and auxiliaries according to the disposal provisions in force.
- In case of doubt, refer to the local disposal authorities.

11 Technical data

11.1 Dimensions and weight

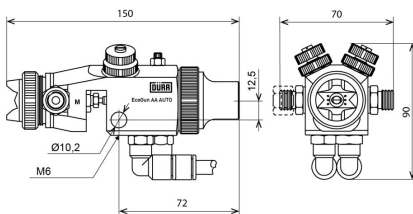


Fig. 27: Dimensions

Detail	Value
Length	150mm
Width	70mm
Height	90mm
Weight	670g
Nozzle diameter	0.18 to 0.7mm

11.2 Connections

Connection	Nominal width
Material (2x)	G1/4" thread
Control air and spraying air (version-dependent)	Control air Ø 6mm or Ø 4mm or Ø 1/4" Spraying air: Ø 8mm or Ø 3/8"

11.3 Operating conditions

Detail	Value
Ambient temperature, minimum	2°C
Ambient temperature, maximum	55°C

11.4 Emissions

Detail	Value
Emission sound pressure level L_{pA} , A – according to EN 14462	91dB
Uncertainty K_{pA}	5dB
Sound power level L_{WA} , A – according to EN14462	104dB
Uncertainty K_{WA}	5dB

Technical data

11.5 Operating values

Detail	Value
Air consumption spraying air (at 2.5bar)	150NI/min
Spraying air pressure, maximum	8.0bar
Spraying air pressure, optimum	1.0 to 2.5bar
Control air pressure	4.5 to 6.0bar
Material pressure, maximum	250.0bar
Material temperature, maximum	60°C

Quality of compressed air

- » Purity classes ISO 8573-1:2010 1:4:1
- » Limitations for purity class 4 (pressure dew point max.):
 - » $\leq -3^{\circ}\text{C}$ at 7bar absolute
 - » $\leq +1^{\circ}\text{C}$ at 9bar absolute
 - » $\leq +3^{\circ}\text{C}$ at 11bar absolute

11.6 Type plate

The type plate is placed on the housing and features the following details:

- » Product designation
- » Material number
- » Year of manufacture
- » Serial number
- » EX labelling
- » Manufacturer
- » CE labelling

11.7 Materials used

Component	Material
Housing	Nickel plated aluminum
Cap nut	Aluminum
Compression springs	Stainless steel
Materials in contact with material	Stainless steel
Seals in contact with material	PTFE, FEPM
Seals without material contact	NBR

11.8 Operating and auxiliary materials

Denomination	Material number
Grease Klüber Syntheso GLEP 1, 100g (for seals and threads)	W32020010

11.9 Material specification

Suitable Material:

- » Flammable and inflammable coating materials



Do not use halogen - hydrocarbon based material.

12 Replacement parts, tools and accessories

12.1 Replacement parts

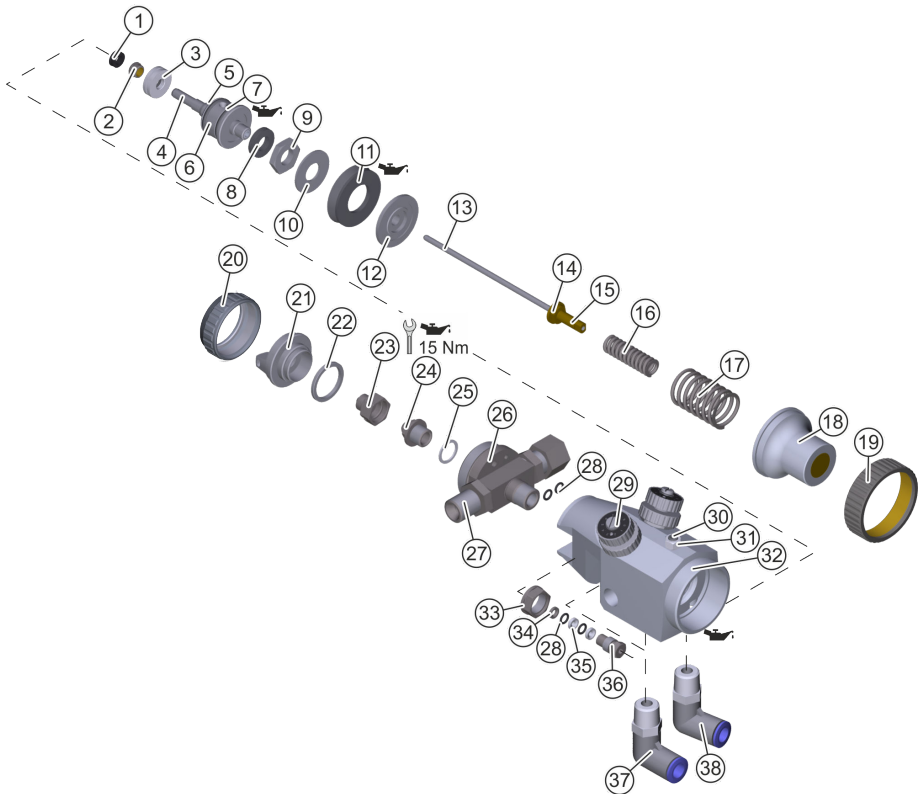


Fig. 28: Exploded view

Klüber Syntheso GLEP 1

Item	Denomination	Quantity	Material number
1	Lip seal 5.0 x 9.0 x 2.9	1	↳ "Spare part sets"
2	Locknut	1	M67010085
3	Sealing body	1	
4	Piston axis	1	

Item	Denomination	Quantity	Material number
5	Sealing ring	2	
6	Stop bush	1	
7	O-ring 16.0 x 2.0	2	
8	Ball bearing plate spring	6	
9	Bracket nut	1	
10	Counter-washer	1	
11	Piston sleeve	1	
12	Piston holder	1	
13	Needle	1	M32020215
14	Pre-air stop nut	1	M30050079
15	Guide nut	1	M30050076
16	Needle spring	1	M68010238
17	Plunger spring	1	M68010241
18	End cap	1	M25010070
19	Cap nut	1	M30010317
20	Cap nut with seal	1	M30010385
21	Air cap	1	↳ "Overview - Air caps and nozzles"
22	Seal	1	M08280049
23	Nozzle	1	↳ "Overview - Air caps and nozzles"
24	Seal retainer screw with sealing washer	1	M41060166
25	Sealing ring	1	M08010529
26	Connecting piece	1	M01010205
27	Double nipple	2	M56100470
28	O-ring 4.0 x 1.2	4	↳ "Spare part sets"
29	Control screw	2	M57930010
30	Threaded pin	1	D09140095
31	Hex nut	1	D09340024

Item	Denomination	Quantity	Material number
32	Housing	1	-
33	Tightening nut	1	M30050073
34	Sealing washer	1	M08080062
35	Needle seal	2	↳ "Spare part sets"
36	Needle gland	1	M08320003
37	Elbow (spraying air A)	1	M57310089 (Ø 8) or M55170052 (Ø 3/8")
38	Elbow (control air C)	1	M55170053 (Ø 6) or M57310085 (Ø 4) or M55170051 (Ø 1/4")

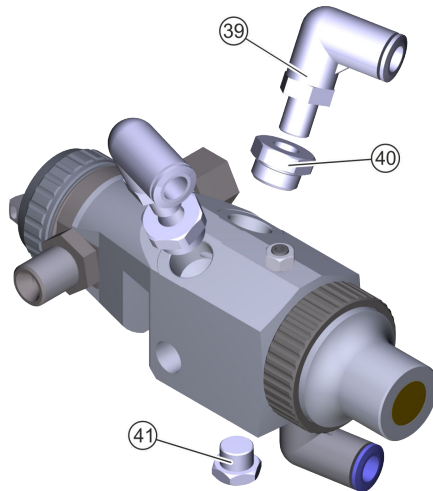


Fig. 29: Exploded view (robot version)

Item	Denomination	Quantity	Material number
39	Elbow plug-in connection	2	↳ 12.3 "Accessories"
40	Regulator insert	2	
41	Sealing screw 1/4"	1	

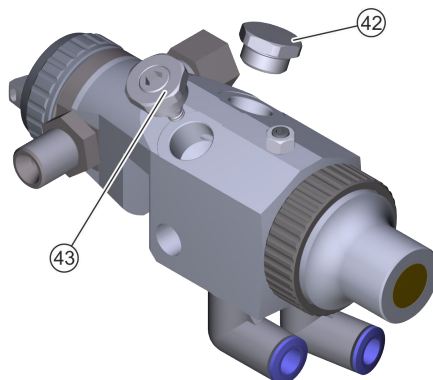


Fig. 30: Exploded view (version only with horn air connection)

Item	Denomination	Quantity	Material number
42	Sealing screw	1	M41090197
43	Throttle, factory set	1	M57930028

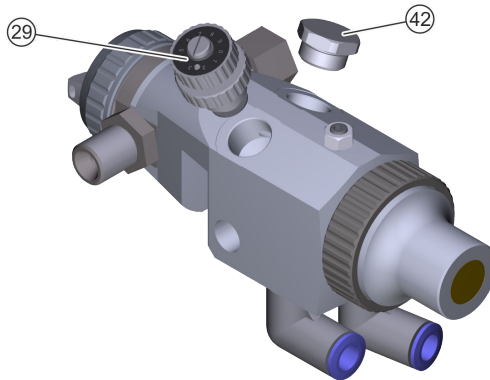


Fig. 31: Exploded view (version only with horn air connection and atomizer air control)

Item	Denomination	Quantity	Material number
29	Control screw	1	M57930010
42	Sealing screw	1	M41090197

Overview - Air caps and nozzles

Nozzle labeling example

411"/428 VZ

- 4 - Spray jet angle (examples: 1 = 10°, 2 = 20°, 3 = 30°, 4 = 40°, etc.)
- 11" - Nozzle size in inches (examples: 07 = 0.007inch, 09 = 0.009inch, 11 = 0.011inch, etc.)
- 28 - Nozzle size in mm (example: 18 = 0.18mm, 23 = 0.23mm, 28 = 0.28mm, etc.)
- VZ - With pre-atomizer

Hexagonal nozzles

Nozzle size in mm	Nozzle size in inch	Spray jet angle	Spray jet width in mm ¹	Flow rate in L/min ^{2 3}	Material number	Item
0.18	0.007	10°	51 to 76	0.18	M09020372	23
0.18	0.007	20°	102 to 152	0.18	M09020373	
0.18	0.007	30°	152 to 203	0.18	M09020374	
0.18	0.007	40°	203 to 254	0.18	M09020375	
0.23	0.009	10°	51 to 76	0.25	M09020376	
0.23	0.009	20°	102 to 152	0.25	M09020377	
0.23	0.009	30°	152 to 203	0.25	M09020378	
0.23	0.009	40°	203 to 254	0.25	M09020379	
0.23	0.009	50°	254 to 305	0.25	M09020380	
0.23	0.009	60°	305 to 356	0.25	M09020381	
0.28	0.011	10°	51 to 76	0.37	M09020382	
0.28	0.011	20°	102 to 152	0.37	M09020383	
0.28	0.011	30°	152 to 203	0.37	M09020384	
0.28	0.011	40°	203 to 254	0.37	M09020385	
0.28	0.011	50°	254 to 305	0.37	M09020386	
0.28	0.011	60°	305 to 356	0.37	M09020387	
0.28	0.011	70°	356 to 406	0.37	M09020388	
0.33	0.013	10°	51 to 76	0.57	M09020389	
0.33	0.013	20°	102 to 152	0.57	M09020390	
0.33	0.013	30°	152 to 203	0.57	M09020391	
0.33	0.013	40°	203 to 254	0.57	M09020392	
0.33	0.013	50°	254 to 305	0.57	M09020393	
0.33	0.013	60°	305 to 356	0.57	M09020394	
0.33	0.013	70°	356 to 406	0.57	M09020395	
0.33	0.013	80°	406 to 457	0.57	M09020396	
0.38	0.015	10°	51 to 76	0.72	M09020397	

Nozzle size in mm	Nozzle size in inch	Spray jet angle	Spray jet width in mm ¹	Flow rate in L/min ^{2 3}	Material number	Item
0.38	0.015	20°	102 to 152	0.72	M09020398	
0.38	0.015	30°	152 to 203	0.72	M09020399	
0.38	0.015	40°	203 to 254	0.72	M09020400	
0.38	0.015	50°	254 to 305	0.72	M09020401	
0.38	0.015	60°	305 to 356	0.72	M09020402	
0.38	0.015	70°	356 to 406	0.72	M09020403	
0.38	0.015	80°	406 to 457	0.72	M09020404	
0.38	0.015	90°	457 to 508	0.72	M09020405	
0.43	0.017	10°	51 to 76	0.98	M09020406	
0.43	0.017	20°	102 to 152	0.98	M09020407	
0.43	0.017	30°	152 to 203	0.98	M09020408	
0.43	0.017	40°	203 to 254	0.98	M09020409	
0.43	0.017	50°	254 to 305	0.98	M09020410	
0.43	0.017	60°	305 to 356	0.98	M09020411	
0.43	0.017	70°	356 to 406	0.98	M09020412	
0.43	0.017	80°	406 to 457	0.98	M09020413	
0.43	0.017	90°	457 to 508	0.98	M09020414	
0.48	0.019	10°	51 to 76	1.30	M09020415	
0.48	0.019	20°	102 to 152	1.30	M09020416	
0.48	0.019	30°	152 to 203	1.30	M09020417	
0.48	0.019	40°	203 to 254	1.30	M09020418	
0.48	0.019	50°	254 to 305	1.30	M09020419	
0.48	0.019	60°	305 to 356	1.30	M09020420	
0.48	0.019	70°	356 to 406	1.30	M09020421	
0.48	0.019	80°	406 to 457	1.30	M09020422	
0.48	0.019	90°	457 to 508	1.30	M09020423	
0.53	0.021	10°	51 to 76	1.52	M09020424	

Nozzle size in mm	Nozzle size in inch	Spray jet angle	Spray jet width in mm ¹	Flow rate in L/min ^{2 3}	Material number	Item
0.53	0.021	20°	102 to 152	1.52	M09020425	
0.53	0.021	30°	152 to 203	1.52	M09020426	
0.53	0.021	40°	203 to 254	1.52	M09020427	
0.53	0.021	50°	254 to 305	1.52	M09020428	
0.53	0.021	60°	305 to 356	1.52	M09020429	
0.53	0.021	70°	356 to 406	1.52	M09020430	
0.53	0.021	80°	406 to 457	1.52	M09020431	
0.53	0.021	90°	457 to 508	1.52	M09020432	
0.60	0.024	10°	51 to 76	1.95	M09020433	
0.60	0.024	20°	102 to 152	1.95	M09020434	
0.60	0.024	30°	152 to 203	1.95	M09020435	
0.60	0.024	40°	203 to 254	1.95	M09020436	
0.60	0.024	50°	254 to 305	1.95	M09020437	
0.60	0.024	60°	305 to 356	1.95	M09020438	
0.60	0.024	70°	356 to 406	1.95	M09020439	
0.60	0.024	80°	406 to 457	1.95	M09020440	
0.60	0.024	90°	457 to 508	1.95	M09020441	
0.70	0.028	10°	51 to 76	2.70	M09020442	
0.70	0.028	20°	102 to 152	2.70	M09020443	
0.70	0.028	30°	152 to 203	2.70	M09020444	
0.70	0.028	40°	203 to 254	2.70	M09020445	
0.70	0.028	50°	254 to 305	2.70	M09020446	
0.70	0.028	60°	305 to 356	2.70	M09020447	
0.70	0.028	70°	356 to 406	2.70	M09020448	
0.70	0.028	80°	406 to 457	2.70	M09020449	
0.70	0.028	90°	457 to 508	2.70	M09020450	

- ¹ - Spray jet at 300mm spraying distance with water
- ² - Flow rate at 100bar pressure with water
- ³ - Use the following formula for calculating flow rate (Q2) for new operating pressure (P2):
 $Q2 = Q1 * \sqrt{(P2/P1)}$. P1 = 100bar, Q1 = flow rate according to table.

Circular nozzles

Nozzle size in mm	Nozzle size in inch	Spray jet angle	Spray jet width in mm ¹	Flow rate in L/min ^{2 3}	Material number	Item
0.18	0.007	10°	51 to 76	0.18	M09020731	-
0.18	0.007	20°	102 to 152	0.18	M09020684	
0.18	0.007	30°	152 to 203	0.18	M09020690	
0.18	0.007	40°	203 to 254	0.18	M09020696	
0.23	0.009	10°	51 to 76	0.25	M09020732	
0.23	0.009	20°	102 to 152	0.25	M09020685	
0.23	0.009	30°	152 to 203	0.25	M09020691	
0.23	0.009	40°	203 to 254	0.25	M09020697	
0.23	0.009	50°	254 to 305	0.25	M09020717	
0.23	0.009	60°	305 to 356	0.25	M09020702	
0.28	0.011	20°	102 to 152	0.37	M09020686	
0.28	0.011	30°	152 to 203	0.37	M09020692	
0.28	0.011	40°	203 to 254	0.37	M09020698	
0.28	0.011	50°	254 to 305	0.37	M09020718	
0.28	0.011	60°	305 to 356	0.37	M09020703	
0.28	0.011	70°	356 to 406	0.37	M09020710	
0.33	0.013	20°	102 to 152	0.57	M09020687	
0.33	0.013	30°	152 to 203	0.57	M09020693	
0.33	0.013	40°	203 to 254	0.57	M09020699	
0.33	0.013	50°	254 to 305	0.57	M09020719	
0.33	0.013	60°	305 to 356	0.57	M09020704	
0.33	0.013	70°	356 to 406	0.57	M09020711	

Nozzle size in mm	Nozzle size in inch	Spray jet angle	Spray jet width in mm ¹	Flow rate in L/min ^{2 3}	Material number	Item
0.33	0.013	80°	406 to 457	0.57	M09020713	
0.38	0.015	20°	102 to 152	0.72	M09020688	
0.38	0.015	30°	152 to 203	0.72	M09020694	
0.38	0.015	40°	203 to 254	0.72	M09020700	
0.38	0.015	50°	254 to 305	0.72	M09020720	
0.38	0.015	60°	305 to 356	0.72	M09020705	
0.38	0.015	70°	356 to 406	0.72	M09020712	
0.38	0.015	80°	406 to 457	0.72	M09020740	
0.38	0.015	90°	457 to 508	0.72	M09020748	
0.43	0.017	30°	152 to 203	0.98	M09020695	
0.43	0.017	40°	203 to 254	0.98	M09020701	
0.43	0.017	50°	254 to 305	0.98	M09020722	
0.43	0.017	60°	305 to 356	0.98	M09020707	
0.43	0.017	70°	356 to 406	0.98	M09020736	
0.43	0.017	80°	406 to 457	0.98	M09020746	
0.43	0.017	90°	457 to 508	0.98	M09020714	
0.48	0.019	30°	152 to 203	1.30	M09020733	
0.48	0.019	40°	203 to 254	1.30	M09020734	
0.48	0.019	50°	254 to 305	1.30	M09020735	
0.48	0.019	60°	305 to 356	1.30	M09020708	
0.48	0.019	70°	356 to 406	1.30	M09020737	
0.48	0.019	80°	406 to 457	1.30	M09020747	
0.48	0.019	90°	457 to 508	1.30	M09020743	
0.53	0.021	50°	254 to 305	1.52	M09020723	
0.53	0.021	60°	305 to 356	1.52	M09020709	
0.53	0.021	70°	356 to 406	1.52	M09020738	
0.53	0.021	80°	406 to 457	1.52	M09020741	

Nozzle size in mm	Nozzle size in inch	Spray jet angle	Spray jet width in mm ¹	Flow rate in L/min ^{2 3}	Material number	Item
0.53	0.021	90°	457 to 508	1.52	M09020749	
0.58	0.023	50°	254 to 305	1.83	M09020724	
0.58	0.023	60°	305 to 356	1.83	M09020745	
0.58	0.023	70°	356 to 406	1.83	M09020739	
0.58	0.023	80°	406 to 457	1.83	M09020742	
0.58	0.023	90°	457 to 508	1.83	M09020744	

¹ - Spray jet at 300mm spraying distance with water

² - Flow rate at 100bar pressure with water

³ - Use the following formula for calculating flow rate (Q2) for new operating pressure (P2):
 $Q2 = Q1 * \sqrt{(P2/P1)}$. P1 = 100bar, Q1 = flow rate according to table.

Air caps

Air cap	Item	Material number
Air cap for hexagonal nozzles (10 to 30°)	21, 22	M35030077
Air cap for hexagonal nozzles (40 to 130°)		M35030078
Air cap for circular nozzles	-	M35030229

Spare part sets

Seal set M08220022

Denomination	Item	Quantity
O-ring 4.0 x 1.2	28	2
Needle seal	35	2

Seal set N36960101

Denomination	Item	Quantity
Lip seal 5.0 x 9.0 x 2.9*	1	1
Sealing body	3	1

Denomination	Item	Quantity
Sealing ring	5	2
O-ring 16.0 x 2.0	7	2
Piston sleeve	11	1
Sealing ring	25	3
O-ring 4.0 x 1.2	28	8
Sealing washer	34	1
Needle seal	35	4
Seal for end cap	-	1
Seal for nozzle (carrier round)	-	4
Sealing washer for nozzle (carrier hexagonal)	-	4
Sealing ring for control screw	-	2

* Tool W02850035 is required for disassembling a worn out lip seal. In addition, a contact adhesive (cyanacrylate) is required for assembly.

Repair kit N36960099

Denomination	Item	Quantity
Lip seal 5.0 x 9.0 x 2.9*	1	1
Locknut	2	1
Sealing body	3	1
Sealing ring	5	2
O-ring 16.0 x 2.0	7	2
Piston sleeve	11	1
Needle	13	1
Seal retainer screw with sealing washer	24	1
Sealing ring	25	3
O-ring 4.0 x 1.2	28	8
Sealing washer	34	1
Needle seal	35	4

Denomination	Item	Quantity
Seal for nozzle (carrier round)	-	4
Sealing washer for nozzle (carrier hexagonal)	-	4
Sealing ring for control screw	-	2

* Tool W02850035 is required for disassembling a worn out lip seal. In addition, a contact adhesive (cyanacrylate) is required for assembly.

Needle set N36960132

Denomination	Item	Quantity
Needle	13	1
Seal retainer screw with sealing washer	24	1
Sealing ring	25	1

Piston axis complete, pre-assembled M67010085

Denomination	Item	Quantity
Locknut	2	1
Sealing body	3	1
Piston axis	4	1
Sealing ring	5	2
Stop bush	6	1
O-ring 16.0 x 2.0	7	2
Ball bearing plate spring	8	6
Bracket nut	9	1
Counter-washer	10	1
Piston sleeve	11	1
Piston holder	12	1

12.2 Tools

Denomination	Item	Material number
Assembly / disassembly tool for lip seal (1)	–	W02850035

Maintenance kit N36960100

Denomination	Item	Quantity
Hexagonal nut M10 DIN934 8 Z St	-	3
Hex screw M10x90 DIN933	-	1
Assembling aid tool Eco Gun	-	1
Open-end wrench double SW 13/14	-	1
Open-end wrench single SW 8	-	1
Pin wrench SW 2.5	-	1

12.3 Accessories



A complete overview of the accessories is available from the Dürr Webshop.

Denomination	Item	Quantity	Material number
Flexible protective sleeve for spray gun	-	1	W20910224
Color tube with filter G1/4"	-	1	M34040020
90°-elbow union G1/4" – 1/4" NPSM in stainless steel, adjustable	-	1	M55030173
90°-elbow union G1/4" – G1/4" in stainless steel, adjustable	-	1	M55030171
Support bracket for stand tube Ø 26	-	1	N66030005
Gun support bracket with angular gauge	-	1	M33120007

Denomination	Item	Quantity	Material number
Cover for protecting the needle and projecting part of the piston axis	-	1	M59012317
Sealing screw for feeding with tap line (reduces dead space in the gun and accelerates the purging process)	-	1	M41090200

Robot kit EU N36960141

Denomination	Item	Quantity	Material number
Elbow plug-in connection for air hose Ø 8	39	2	M57310090
Regulator insert	40	2	
Sealing screw 1/4"	41	1	

Robot kit US N36960142

Denomination	Item	Quantity	Material number
Elbow plug-in connection for air hose Ø 3/8"	39	2	M55170054
Regulator insert	40	2	
Sealing screw 1/4"	41	1	

Cleaning set

Denomination	Item	Quantity	Material number
Cleaning set (21 parts)	-	1	N36960038
Cleaning needles 33mm 0.011" to 0.017" (12 pcs)	-	1	W33130004
Cleaning needles 33mm 0.017" to 0.021" (12 pcs)	-	1	W33130005

12.4 Order



WARNING!

Unsuitable replacement parts in explosive areas

Replacement parts not compliant with the specifications of the ATEX guidelines can cause explosions in an explosive atmosphere. Serious injury and death could be the consequence.

- Use exclusively original replacement parts.



WARNING!

Unsuitable replacement parts

Replacement parts of third-party suppliers may possibly not be able to hold the loads. Serious injury and death could be the consequence.

- Use exclusively original replacement parts.

Ordering replacement parts, tools and accessories as well as information on products that are listed without order number → “Hotline and Contact”.

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Translation of the original operation manual

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