



LEADING IN PRODUCTION EFFICIENCY

EcoGun AL MAN 300 Airless Spray Gun

Operation manual

MSG00016EN, V01



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:

N36240002V
EcoGun AL MAN 300



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

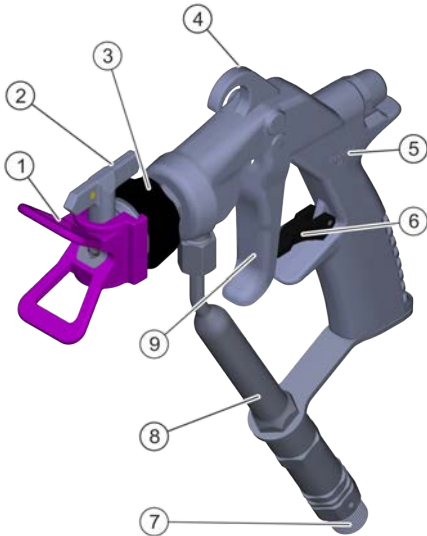


Fig. 1: Product overview

- 1 Spray jet screen
- 2 Reversible nozzle
- 3 Cap nut
- 4 Suspension hook
- 5 Housing
- 6 Retainer lever
- 7 Material connection
- 8 Paint tube
- 9 Trigger

1.2 Short description

The spray gun is intended for surface coating without compressed air. It is suitable for Airless Applications in the high pressure area. The material to be atomized is fed through high pressure lines and atomized with a pressure of up to 300 bar. The spray gun is hand-held.

Use a nozzle with a suitable diameter, depending on the requirement. If there is a blockage, you can rotate and flush the nozzle through without disassembly.

The following factors influence the spray jet and therefore the result

» 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 larger the nozzle, the more material comes out. The greater the angle, the wider is the spray pattern.

2 Safety

2.1 Presentation of Notes

The following notes can appear in this instructions manual.



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.



Contains additional information and recommendations.

2.2 Intended Use

Use

The spray gun **EcoGun AL MAN 300** is used exclusively for hand guided coating of surfaces with non-flammable and flammable paints. Compressed air is not used to apply material by using high material pressure.

The spray gun **EcoGun AL MAN 300** may only be operated in the industrial area and within the approved technical data ↘ 10 "Technical data".

The **EcoGun AL MAN 300** spray gun is approved for use in Ex zones 1 and 2.

Misuse

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

Misuses include, e. g.:

- » Aiming the spray gun at humans or animals.
- » Atomization of fluid nitrogen
- » Use of unapproved materials
- » 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 T 60 °C X

- II - Device group II: all areas except mining
- 2G - Device category 2 for gaseous ex-atmosphere

T 60 °C - Surface temperature max. 60 °C

X - Specific operating conditions for safe operation

The following conditions must be observed for safe operation with inflammable materials:

- » Ground spray gun and work piece.
- » Only use conductive hoses.
- » Ensure that static electricity can be discharged.

2.3 Residual risks

Explosion

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

- » Before carrying out any work, ensure a non-explosive atmosphere.
- » Do not use sources of ignition and open light.
- » Do not smoke.
- » Ground the product.
- » Ground the work piece.
- » Only use conductive lines.

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 safety data sheets.
- » Ensure that forced ventilation and fire protection equipment are in operation.
- » Do not use any sources of ignition and open light.
- » Do not smoke.

Danger from harmful or irritant substances

Contact with hazardous liquids or vapors, can result in serious injury or death.

- » Ensure that the forced ventilation is operational.
- » Follow safety data sheets.
- » Wear specified protective equipment.

Escaping material

Material escaping under pressure can cause serious injuries.

Before working on the product:

- » Disconnect the system with the product from compressed air and material supply.
- » Relieve the lines.
- » Secure the system against reconnection.

Noise

The noise during normal operation may cause severe hearing damage.

- » Wear hearing 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.

2.4 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 are marked with a “+”.

This document is intended for qualified personnel in the industry.

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 high pressure

In addition, the mechanic has knowledge of regulations and safety measures for high pressure systems > 20 bar.

+ 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”.

2.5 Personal protective equipment

When working in explosive areas, the protective clothing, including gloves, must meet the requirements of DIN EN 1149-5. Footwear must meet the requirements of EN ISO 20344. The insulation resistor must not exceed 100 MΩ.

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



3 Transport, scope of supply and storage

3.1 Scope of delivery

The scope of supply includes the following components:

- » Spray gun
- » Tool kit ☞ 11.2 “Tools”

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

Requirements for the warehouse:

- » Do not store outdoors.
- » Store in a dry and 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.

- » It must be possible to disconnect the compressed air supply to the spray gun and secure it against reconnection.
- » The compressed air supply must be adjustable.

- » Lines, seals and screw connections must be designed to conform to the spray gun requirements ☞ 10 “Technical data”.
- » The workplace must have technical ventilation.
- » A hook or a lug must be provided for hanging the spray gun.

Working environment and grounding

Flooring of the working areas must be anti-static, according to DIN EN 50050-1:2014-03, measurement according to DIN EN 1081:1998-04.

4.2 Connecting

Personnel:

- » Operator
- » + additional qualification explosion protection
- » + Additional qualification high pressure

Protective equipment:

- » Safety boots

Requirements:

- » The spray gun is locked ↪ 6.3 “Lock and unlock spray gun”.

1.



WARNING!

Sources of ignition may cause explosions!

Ensure a non-explosive atmosphere.

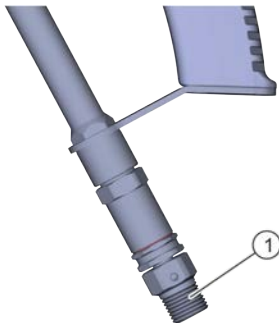


Fig. 2: Assembly

2. Screw material hose to the connection (1).

5 Commissioning

Personnel:

- » Operator
- » + additional qualification explosion protection
- » + Additional qualification high pressure

Protective equipment:

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

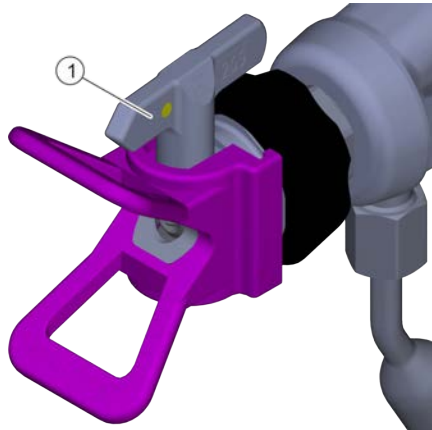


Fig. 3: Commissioning

1. Ensure that the nozzle with the tip of the arrow of the adjustment lever (1) points to the front.
2. Unlocking spray gun ↪ 6.3 “Lock and unlock spray gun”.

! NOTICE!

Discoloration due to residual paint particles in the filter

Use filters only for one color.

3. Select filter for paint pipe ↪ “Filter”.



The mesh width of the filter must be smaller than the nozzle size.

4. Purge spray gun ↪ 6.5 “Rinsing”.

Operation

5.



WARNING!

Statically charged components may cause explosions during operation!

Ground spray guns and work pieces through the cables and pump.

6. Connect material. Begin with low material pressure.
7. Create a trial spray pattern on a test work piece. Raise material pressure slowly, until the desired spray pattern is achieved.



The spray pattern depends on the nozzle size, material viscosity and material pressure.

Filter

Filter color	Filter size	Nozzle size	Examples of materials
Red	200 mesh	< 0.33 mm/0.013"	Paints, oils, stripper
Yellow	100 mesh	0.33 to 0.38 mm/ 0.013 to 0.015"	Filler, primers, dispersion paints
White	50 mesh	0.38 to 0.73 mm/ 0.015 to 0,029"	Latex paints, enamel
Green	30 mesh	> 0.78 mm/0.031"	Corrosion protection paints, spray spatula

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 injuries and death can be the consequence.

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

 **WARNING!****Danger of fire and explosion due to explosive gas-air mixture**

If you spray in a closed container during a purging sequence, an explosive gas-air mixture can form inside the container. Serious injuries and death can be the consequence.

- Do not spray into a closed container.

 **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 safety data sheets.
- Ensure that forced ventilation and fire protection equipment are in operation.
- Do not use sources of ignition and open light.
- Do not smoke.

 **WARNING!****Danger to health from harmful or irritant substances**

Contact with hazardous liquids or vapors, can result in serious injury or death.

- Ensure that the forced ventilation is operational.
- Follow safety data sheets.
- Wear specified protective clothing.

 **WARNING!****Material Escaping Under Pressure**

If material escapes with high pressure, it 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.

- Use hoses that can withstand at least 4 times the operating pressure.
- 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 material supply system.
- Secure the system against reconnection.
- Respect the maximum allowable operating pressure of the product.
- Relieve the lines.

 **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 Checks

- » Material hose is in order.
- » Material connection is in order.
- » The spray gun is clean.

6.3 Lock and unlock spray gun

Personnel:

- » Operator
- » + additional qualification explosion protection
- » + Additional qualification high pressure

Protective equipment:

- » Safety boots

Locking

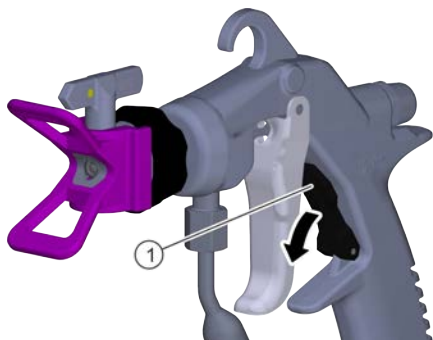


Fig. 4: Locking Spray Gun

1. Swivel safety lever (1) downwards.

⇒ The spray gun is locked.

Unlocking

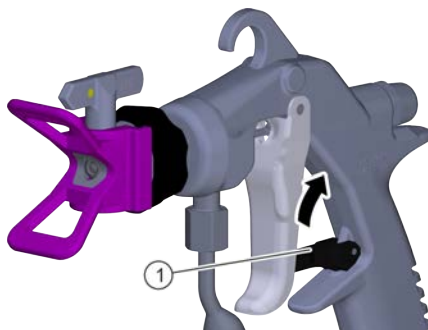


Fig. 5: Unlocking spray gun

2. Swivel safety lever (1) upwards.
⇒ The spray gun is unlocked.

6.4 Painting

! NOTICE!
Paint damages due to wrong guiding of the spray gun

If you guide the spray gun at an angle or in an arc, the spray jet meets the surface to be painted unevenly. Different distances arise in the spray jet between the spray gun and surfaces to paint. This results in uneven material coat thickness and painting defects.

If the distance to the surface to be painted is too short, too much material reaches the surface. Drops and runs arise on the surface.

If the distance to the surface to be painted is too much, too little material reaches the surface. Spray mist is produced. Dry atomization gives rise to a raw and matter material layer.

- Guide the spray gun in a straight line at a 90° angle at a constant distance of 25 to max. 30 cm from the surface to be painted.
- Guide spray gun with a constant speed.
- Ensure that correct material pressure according to the material consistency is selected.
- Ensure that correct nozzle according to the material consistency is selected.

Personnel:

- » Operator
- » + additional qualification explosion protection
- » + Additional qualification high pressure

Protective equipment:

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

Requirements:

- » The spray gun is unlocked.

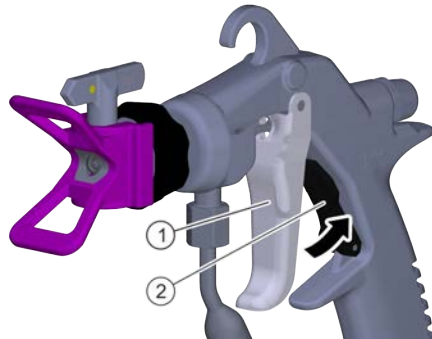


Fig. 6: Painting

1. Drive the trigger (1) completely.
⇨ The material is pumped.

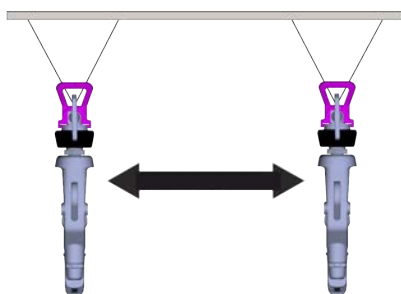
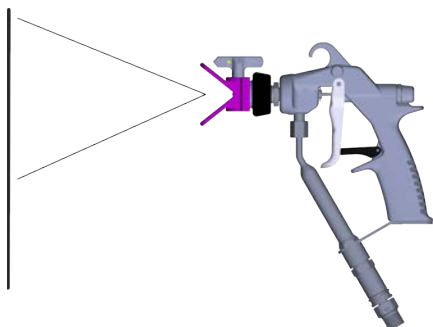



Fig. 7: Guiding the spray gun

2. Guide the spray gun in a straight line at a 90° angle at a constant distance of 25 to max. 30 cm from the surface to be painted.

 The material can be applied cross-wise to increase the covering capacity and coat thickness. Switching between horizontal and vertical spraying stripes (Fig. 8) yields a uniform and closed spray pattern.

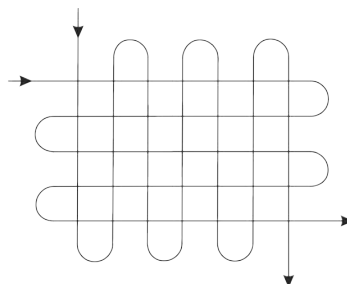


Fig. 8: Apply material

3. Apply material horizontally alternately from left to right.
4. Apply material alternately vertically from top to bottom.
5. Release trigger (1, Fig. 6) after ending the painting process.
6. Continue movement.



The movement must be longer than the spraying strip.

7. Swivel safety lever (2, Fig. 6) downwards after the painting process is over.
⇒ The spray gun is locked.

6.5 Rinsing

6.5.1 General notes

When rinsing, use fluid to remove inner soiling from components.

6.5.2 Rinsing

! 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.

Guide the detergent via the material connection.

Rinse the spray gun in the following cases:

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



Rinsing intervals depend on the material used.

Personnel:

- » Operator
- » + additional qualification explosion protection
- » + Additional qualification high pressure

Protective equipment:

- » Protective workwear
- » Safety boots
- » Protective gloves
- » Eye protection
- » Respiratory protection device

Requirements:

- » Material pressure is present.

1. Unscrew and remove spray jet screen.
2. Rinse the spray gun with an appropriate rinsing agent until the rinsing agent runs clean without any material residue.
3. Ensure proper disposal of the exiting material and rinsing agent.
4. Fit spray jet screen. Tighten by hand.
5. Purge the spray gun again, until the detergent comes out without any material residue.
6. Shut off detergent supply.

7 Cleaning and maintenance

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 safety data sheets.
- Ensure that forced ventilation and fire protection equipment are in operation.
- Do not use sources of ignition and open light.
- Do not smoke.



WARNING!

Risk of injury from 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 injuries and death can be the consequence.

- Use exclusively original replacement parts.



WARNING!

Danger to health from harmful or irritant substances

Contact with hazardous liquids or vapors, can result in serious injury or death.

- Ensure that the forced ventilation is operational.
- Follow safety data sheets.
- Wear specified protective clothing.



WARNING!

Risk of injury due to escaping material and compressed air

Escaping compressed material can cause serious injury.

Before carrying out any work:

- Disconnect the system, in which the spray gun is installed, from compressed air and material supply.
- Secure the system against reconnection.
- Relieve 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 injuries and death can be the consequence.

- Only use rinsing 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.
- » When cleaning with flammable detergent, do not spray into a closed container. An explosive gas-air mixture can form inside closed containers.

! 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 the spray gun.

Personnel:

- » Operator
- » + additional qualification explosion protection
- » + Additional qualification high pressure

Protective equipment:

- » Eye protection
- » Respiratory protection device
- » Protective workwear
- » Protective gloves
- » Safety boots

1. Purge spray gun ↪ 6.5 “Rinsing”.
2. Separate material hose from the spray gun.
3. If the soiling is heavy, dismantle the nozzle seal seat and the nozzle and clean them separately ↪ “Cleaning the nozzle seal seat and nozzle”.
4. Use a cleaning agent to carefully clean the spray gun. Dry with a soft cloth.

Cleaning the nozzle seal seat and nozzle

Requirements:

- » For a thorough cleaning of the nozzle seal seat and the nozzle, disassemble.

Disassembly

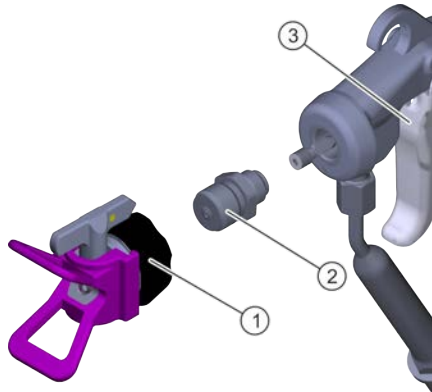


Fig. 9: Cleaning Nozzle Seal Seat

1. Unscrew and remove spray jet screen (1).
2. Drive the trigger (3) completely. Keep it pressed.
3. Unscrew the nozzle seal seat (2) using installation wrench.

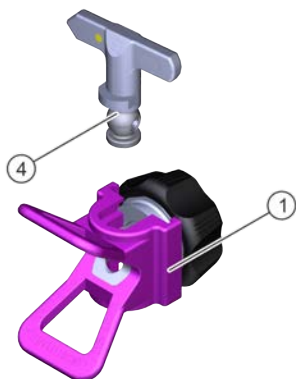


Fig. 10: Clean the nozzle

4. Rotate adjustment lever of the nozzle (4) by 90°, such that the arrow tip points sideways.
5. Pull out nozzle (4) upwards from the spray jet screen (1).
6. Clean nozzle (4) and nozzle seal seat (2) in the cleaning bath.

Assembly

7. Drive the trigger (3) completely. Keep it pressed.

7.3 Maintenance

7.3.1 Maintenance schedule



The intervals of some maintenance work depend on the used materials. It can be adapted to the operating conditions.

8. Insert nozzle seal seat (2) and tighten it.
 - » Tightening torque: 20 Nm
9. Insert nozzle (4) in spray jet screen (1).
10. Turn adjustment lever of the nozzle (4), such that the arrow tip points to the front.
11. Fit spray jet screen (1). Tighten by hand.

Cleaning filter

Clean the filter thoroughly as required to avoid encrustation of the deposits. Encrusted deposits make removal difficult.

1. Remove the filter ↪ 8.3.4 "Replace filter".
2. Clean the filter with a brush.



Do not use wire brushes.



If the filter is clogged up to 20 % after cleaning, replace the filter.

3. Install filter ↪ 8.3.4 "Replace filter".

! NOTICE!

Painting defects due to lubricant containing silicone

If residues containing silicone reach into the material channels of the spray gun, it can result in imperfect painting results.

- Only use silicone-free oil or grease.

Interval	Maintenance work
After each use	Purge spray gun ↪ 6.5 "Rinsing".
Before every change of material	Clean the nozzle ↪ 7.2 "Cleaning".
	Clean the filter. ↪ 7.2 "Cleaning"
Weekly and after every separation of the system	Check grounding of connections and lines.
After every removal/ after every cleaning	Lubricate trigger pin ↪ 7.3.3 "Lubricate trigger pin.".
	Lubricate needle ↪ 7.3.2 "Lubricate needle.".

7.3.2 Lubricate needle.

Personnel:

- » Operator
- » + additional qualification explosion protection
- » + Additional qualification high pressure

Protective equipment:

- » Safety boots

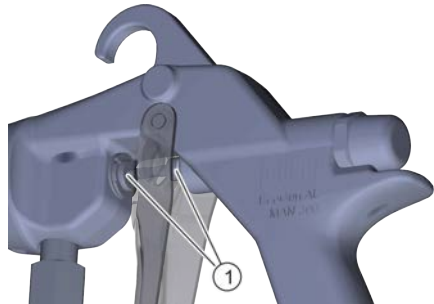


Fig. 11: Lubricate needle.

1. Wet needle (1) with a drop of silicone-free lubricant.

7.3.3 Lubricate trigger pin.

Personnel:

- » Operator
- » + additional qualification explosion protection
- » + Additional qualification high pressure

Protective equipment:

- » Safety boots

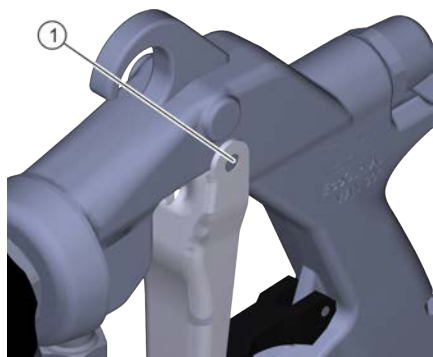


Fig. 12: Lubricate trigger pin.

1. Wet trigger pin (1) from both sides with a drop of silicone-free lubricant.

8 Faults

8.1 Safety recommendations

EX **WARNING!**

Risk of injury from 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 injuries and death can be the consequence.

- Use exclusively original replacement parts.

! **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!**

Property damage due to improper replacement of needle and nozzle seal seat

If you only replace the needle or only the nozzle seal seat, it could damage spray gun components. This can compromise the tightness of the spray gun. The spray pattern deteriorates.

- Always replace nozzle seal seat 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.

8.2 Defects table



The position numbers of the components refer to the chapter ↗ 11.1 “Replacement parts”.

Fault description	Cause	Remedy
Spray jet falls off.	Filter (28) is clogged.	Clean the filter. ↗ 7.2 “Cleaning”
	Material viscosity is too high.	Thin down the material. Use a wide mesh filter or none at all.
	Material pressure is too low.	Raise the feed rate to the pump.
Not enough material.	Filter (28) is blocked.	Clean the filter. Replace filter, if necessary. ↗ 8.3.4 “Replace filter”
	Nozzle (1) is too small.	Use a larger nozzle.
	Material pressure is too low.	Raise the feed rate to the pump.
Colorations occur.	Material particles in the filter (28)	Clean the filter. Replace filter, if necessary. ↗ 8.3.4 “Replace filter”
Spray gun sprays on closing.	Shut-off needle (4 or 6) or nozzle seal seat (3 or 5) is worn out.	Replace shut-off needle and nozzle seal seat ↗ 8.3.3 “Replace needle and seals.”.
Material escapes at the needle gland.	Shut-off needle (4 or 6) is worn out.	Replace shut-off needle ↗ 8.3.3 “Replace needle and seals.”.
	Needle gland (8) is worn out.	Replace needle gland ↗ 8.3.3 “Replace needle and seals.”.
Retainer lever is difficult to drive.	Trigger pin (18) is too dry.	Lubricate trigger pin and bore in the housing ↗ 7.3.3 “Lubricate trigger pin.”.

Spray pattern faults

Spray jet	Fault description
	Point outside the spray jet. The coat is streaky.
	Spray jet is shaped like 8.
	Spray jet is irregular and swirling.
	Spray jet is smaller than it initially was.

Fault description	Cause	Remedy
Point outside the spray jet. The coat is streaky.	Material pressure too low	Increase material pressure.
	Material viscosity too high	Thin down the material.
	Nozzle is too big.	Select smaller nozzle.
Spray jet is shaped like 8.	Material pressure too low	Increase material pressure.
	Nozzle is too big.	Select smaller nozzle.
Spray jet is irregular and swirling.	Nozzle opening is partially clogged.	Remove nozzle blockage ↪ 8.3.1 "Remove nozzle blockage".
	Nozzle is worn out.	Replace nozzle ↪ 8.3.2 "Replace nozzle".
	Nozzle seal seat bore is partially clogged.	Clean the nozzle seal seat bore in solvent using a brush. Blow with air. Remove material residues.

Fault description	Cause	Remedy
Spray pattern is smaller than it initially was.	Nozzle is worn out.	Replace nozzle ↪ 8.3.2 "Replace nozzle".

8.3 Troubleshooting

8.3.1 Remove nozzle blockage.

Personnel:

- » Operator
- » + additional qualification explosion protection
- » + Additional qualification high pressure

Protective equipment:

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

1. Turn adjustment lever of the nozzle (1), such that the arrow tip points back.
2. Briefly actuate the spray gun.
3. Rotate the adjustment lever of the nozzle (1) such that the arrow tip points to the front.

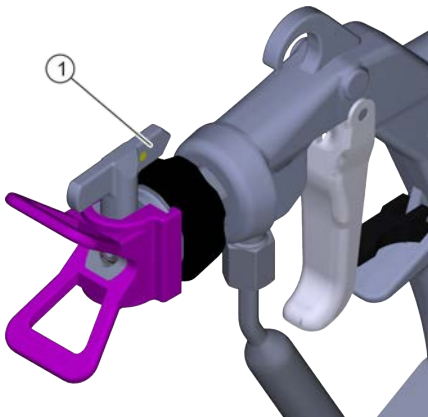


Fig. 13: Blow the nozzle free


8.3.2 Replace nozzle

Personnel:

- » Operator
- » + additional qualification explosion protection
- » + Additional qualification high pressure

Protective equipment:

- » Eye protection
- » Protective workwear
- » Protective gloves

 Follow the special instructions manual for spray jet screen and the nozzle.

5. Insert new nozzle (1) in spray jet screen (2).
6. Rotate the adjustment lever of the nozzle (1) such that the arrow tip points to the front.

1. Unscrew and remove spray jet screen.

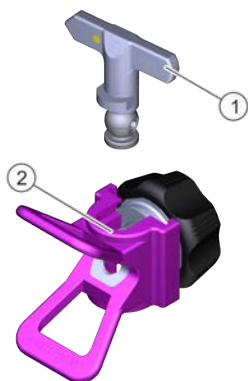



Fig. 14: Replacing Nozzle

2. Rotate adjustment lever of the nozzle (1) by 90°, such that the arrow tip points sideways.
3. Pull nozzle (1) upwards.
4. Replace worn out or defective nozzle.

8.3.3 Replace needle and seals.

 Dürr Systems recommends replacing the shut-off needle together with the needle gland. A worn out needle shank can damage the needle gland.

Personnel:

- » Operator
- » + additional qualification explosion protection
- » + Additional qualification high pressure

Protective equipment:

- » Protective workwear
- » Protective gloves

Requirements:

- » Spray gun is separated from the material supply system.

Disassembly

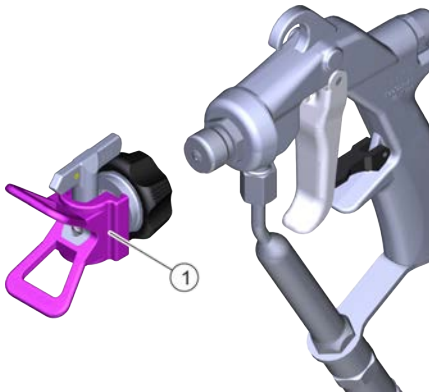


Fig. 15: Disassembling Spray Jet Screen

1. Unscrew and remove spray jet screen (1).

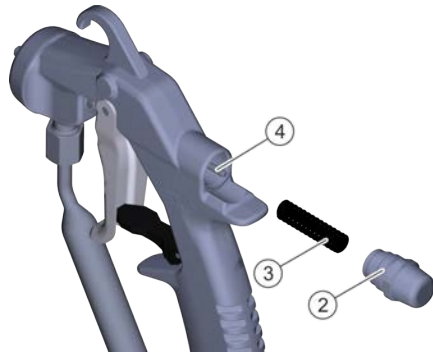


Fig. 16: Disassembling Needle Spring

2. Unscrew end cap (2) using a monkey wrench.
3. Remove the compression spring (3).

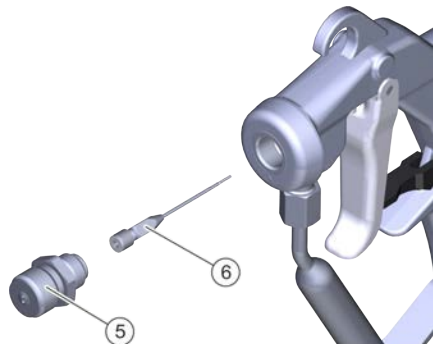


Fig. 17: Disassembling Shut-Off Needle

4. Unscrew the nozzle seal seat (5) using installation wrench.

- Counter needle (4) using monkey wrench on the key side of the shank. Loosen the shut-off needle (6) simultaneously using an installation wrench. Pull out shut-off needle (6) towards the front.

! NOTICE!

Damaged threads

If you unscrew and pull out the shut-off needle with too much force, that can damage the fine threads on the needle tip.

- Unscrew shut-off needle carefully.

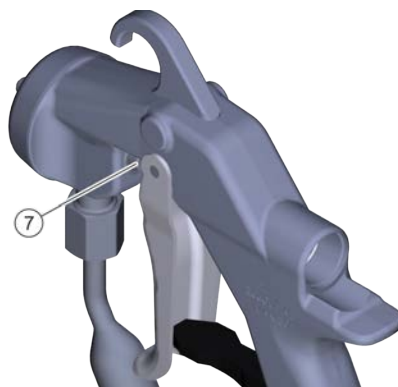


Fig. 19: Loosening Safety Washer

- Loosen safety washer (7).

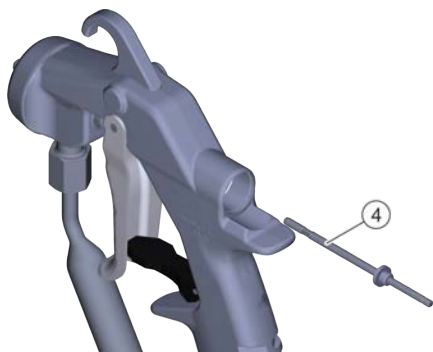


Fig. 18: Disassembling Needle

- Pull out the needle (4) towards the back.

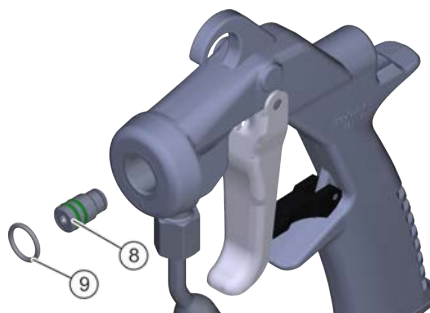



Fig. 20: Disassembling Needle Gland

- Push out needle gland (8) towards the front. Possibly. Use installation wrench.
- To replace the O-ring (9), lever out the O-ring (9) from the housing using a sharp object.
- Replace worn out or defective components.

Assembly

- Push in O-ring (9) into the housing.

12. Push in needle gland (8) into the housing with the rear side of the installation wrench.

 Do not damage O-rings on the needle gland (8).

13. Push safety washer (7) over the needle gland (8).
14. Push needle (4) carefully into the housing.
15. Screw-in shut-off needle (6) into the needle (4). Simultaneously counter needle (4) using a monkey wrench.
16. Insert nozzle seal seat (5). Tighten with installation wrench.
» Tightening torque: 20 Nm
17. Push compression spring (3) on the needle (4).
18. Screw-in end cap (2) using a monkey wrench.
19. Fit spray jet screen (1). Tighten by hand.

8.3.4 Replace filter

Personnel:

- » Operator
- » + additional qualification explosion protection
- » + Additional qualification high pressure

Protective equipment:

- » Eye protection
- » Safety boots
- » Protective gloves

Requirements:

- » Spray gun is separated from the material supply system.

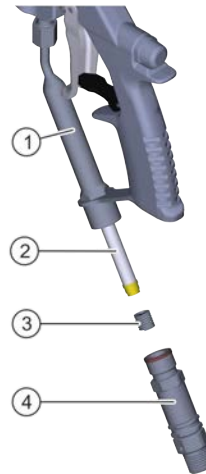


Fig. 21: Replace filter

Disassembly

1. Unscrew material connection (4) on the color pipe (1).
2. Remove filter (2) with compression spring.

Assembly

3. Slide compression spring (3) onto the new filter (2).
4. Insert filter (2).
5. Thread-in the material connection (4).

8.3.5 Replace trigger

Personnel:

- » Operator
- » + additional qualification explosion protection
- » + Additional qualification high pressure

Protective equipment:

- » Safety boots

Requirements:

- » Spray gun is separated from the material supply system.
- » Removal of needle is complete ↪ 8.3.3 "Replace needle and seals."

Disassembly

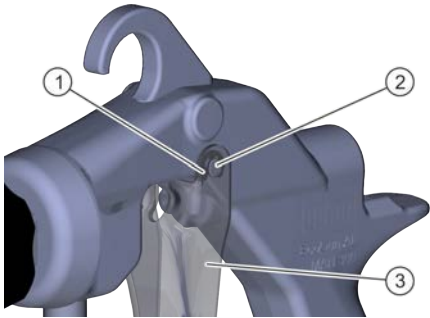


Fig. 22: Disassembling Trigger

1. Remove both safety washers (1) on the trigger pin (2).
2. Remove trigger pin (2).
3. Remove trigger (3).

Assembly

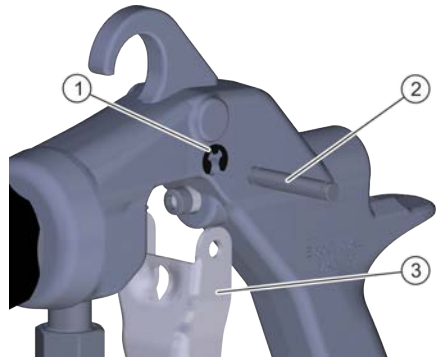


Fig. 23: Assembling Trigger

4. Place new trigger (3), such that the holes of lever and housing are aligned.
5. Insert the trigger pin (2) into the bore hole.
6. Set two safety washers (1) on the trigger pin (2).

9 Disassembly and Disposal

9.1 Safety recommendations



WARNING!

Risk of injury due to escaping material and compressed air

Escaping compressed material can cause serious injury.

Before carrying out any work:


- Disconnect the system, in which the spray gun is installed, from compressed air and material supply.
- Secure the system against reconnection.
- Relieve the lines.

9.2 Disassembly

Personnel:

- » Operator
- » + additional qualification explosion protection
- » + Additional qualification high pressure

1. Rinsing ↪ 6.5 "Rinsing".
2. Switch off material supply system. Secure against reconnection.
3.

 **NOTICE!**
 Release connections using suitable tool.
 Disconnect the material supply.
4. Clean spray gun ↪ 7.2 "Cleaning".

9.3 Disposal



ENVIRONMENT!

Incorrect disposal

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

- Always dispose of components in accordance with their characteristic. ↪ 10.6 "Materials used"
- Collect leaked out operating and auxiliary materials completely.
- Dispose of operating and auxiliary materials according to the disposal provisions in force.
- In case of doubt, refer to the local disposal authorities.

10 Technical data

10.1 Weight

Detail	Value
Weight (dependent on supply)	655 to 730 g

10.2 Connections

Detail	Value
Material connection (configuration-dependent)	1/4" NPSM M16 x 1.5

10.3 Operating conditions

Detail	Value
Maximum allowable material temperature when operating with protective gloves	40 °C
Maximum allowable material temperature when operating with heat-resistant protective gloves	60 °C

10.4 Emissions

Detail	Value
Emission sound pressure level L_{pA} , A – rated according to EN 14462	< 80 dB
Uncertainty K_{pA}	5 dB

10.5 Operating values

Detail	Value
Material pressure, max. (without extension)	300 bar
Material pressure, max. (when using an extension)	250 bar

Technical data

10.6 Materials used

Component	Material
Housing	Nickel plated aluminum
Materials in contact with material	Stainless steel
Seals in contact with material	PTFE

10.7 Operating and auxiliary materials

Material	Material no.
Grease Tube Syntheso Glep1, 100 g (for seals and threads)	W32020010

10.8 Material specification

Suitable Material:

» Non-flammable and flammable paints



No materials containing organochlorine compounds (e. g. trichloroethane, chloromethane).

11 Replacement parts, tools and accessories

11.1 Replacement parts

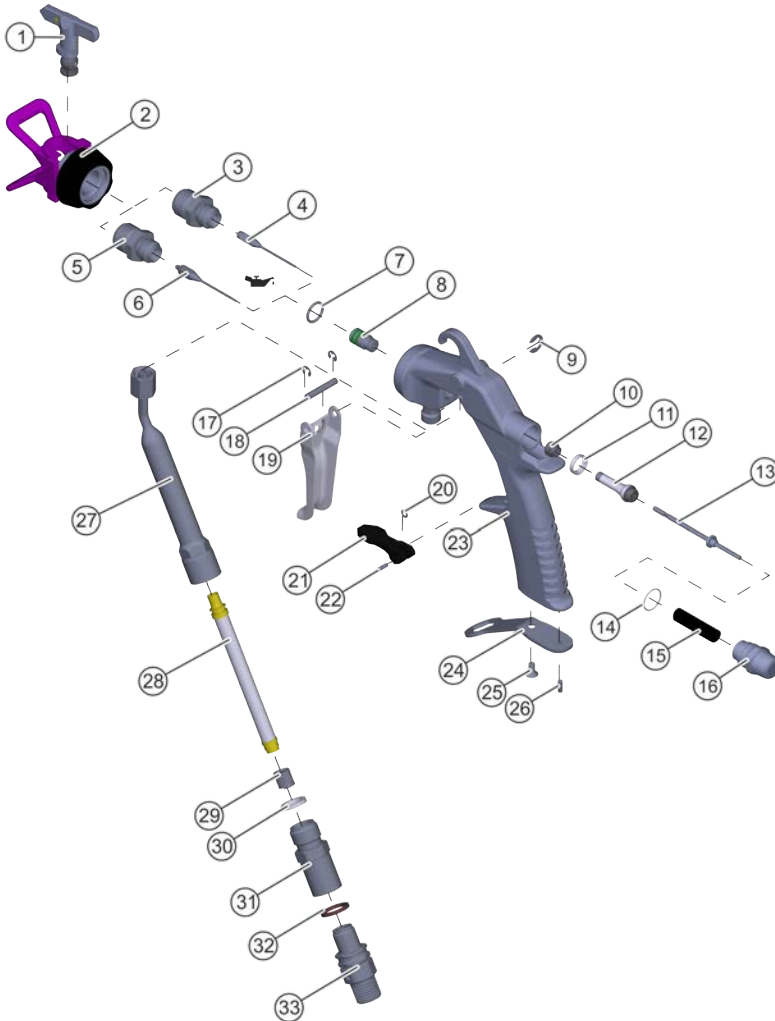


Fig. 24: Exploded view

Klüber Syntheso GLEP1

Item	Description	Quantity	Material number
1	Nozzle	1	↳ "Nozzles"
2	Spray jet screen	1	M60020001
3	Nozzle seal seat B	1	
4	Needle B	1	
5	Nozzle seal seat S	1	
6	Needle S	1	
7	O-ring 10.82 x 1.78	1	M08030807
8	Needle gland	1	
9	Lock washer	1	
10	Valve pin seal	1	M08280057
11	Valve seat seal	1	M35010264
12	Valve pin	1	
13	Needle at the back	1	M32020209
14	O-ring 13 x 1	1	M08030864
15	Compression spring Needle	1	
16	End cap	1	
17	Safety washer 3.2 mm	2	
18	Trigger pin	1	
19	Trigger	1	
20	Spacer 2.5 mm	1	
21	Retainer lever	1	
22	Retainer lever pin	1	
23	Housing	1	
24	Color pipe support bracket	1	
25	Support screw	1	
26	Support pin	1	
27	Color pipe inlet	1	

Item	Description	Quantity	Material number
28	Filter	1	
29	Compression spring Filter	1	
30	Seal	1	
31	Screw connection	1	
32	Sealing ring	1	
33	Material connection	1	

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 no.	Item
0.18	0.007	10°	51 to 76	0.18	M09020475	1
0.18	0.007	20°	102 to 152	0.18	M09020476	
0.23	0.009	10°	51 to 76	0.26	M09020477	
0.23	0.009	20°	102 to 152	0.26	M09020478	
0.23	0.009	30°	152 to 203	0.26	M09020479	
0.23	0.009	40°	203 to 254	0.26	M09020480	
0.28	0.011	10°	51 to 76	0.40	M09020481	
0.28	0.011	20°	102 to 152	0.40	M09020482	
0.28	0.011	30°	152 to 203	0.40	M09020483	
0.28	0.011	40°	203 to 254	0.40	M09020484	
0.28	0.011	50°	254 to 305	0.40	M09020485	
0.28	0.011	60°	305 to 356	0.40	M09020486	
0.33	0.013	10°	51 to 76	0.60	M09020487	
0.33	0.013	20°	102 to 152	0.60	M09020488	
0.33	0.013	30°	152 to 203	0.60	M09020489	
0.33	0.013	40°	203 to 254	0.60	M09020490	
0.33	0.013	50°	254 to 305	0.60	M09020491	
0.33	0.013	60°	305 to 356	0.60	M09020492	

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 no.	Item
0.33	0.013	70°	356 to 406	0.60	M09020493	
0.33	0.013	80°	406 to 457	0.60	M09020494	
0.38	0.015	10°	51 to 76	0.80	M09020495	
0.38	0.015	20°	102 to 152	0.80	M09020496	
0.38	0.015	30°	152 to 203	0.80	M09020497	
0.38	0.015	40°	203 to 254	0.80	M09020498	
0.38	0.015	50°	254 to 305	0.80	M09020499	
0.38	0.015	60°	305 to 356	0.80	M09020500	
0.38	0.015	70°	356 to 406	0.80	M09020501	
0.38	0.015	80°	406 to 457	0.80	M09020502	
0.43	0.017	10°	51 to 76	1.00	M09020503	
0.43	0.017	20°	102 to 152	1.00	M09020504	
0.43	0.017	30°	152 to 203	1.00	M09020505	
0.43	0.017	40°	203 to 254	1.00	M09020506	
0.43	0.017	50°	254 to 305	1.00	M09020507	
0.43	0.017	60°	305 to 356	1.00	M09020508	
0.43	0.017	70°	356 to 406	1.00	M09020509	
0.43	0.017	80°	406 to 457	1.00	M09020510	
0.48	0.019	20°	102 to 152	1.30	M09020511	
0.48	0.019	30°	152 to 203	1.30	M09020512	
0.48	0.019	40°	203 to 254	1.30	M09020513	
0.48	0.019	50°	254 to 305	1.30	M09020514	
0.48	0.019	60°	305 to 356	1.30	M09020515	
0.48	0.019	70°	356 to 406	1.30	M09020516	
0.48	0.019	80°	406 to 457	1.30	M09020517	
0.53	0.021	30°	152 to 203	1.60	M09020518	
0.53	0.021	40°	203 to 254	1.60	M09020519	

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 no.	Item
0.53	0.021	50°	254 to 305	1.60	M09020520	
0.53	0.021	60°	305 to 356	1.60	M09020521	
0.53	0.021	70°	356 to 406	1.60	M09020522	
0.53	0.021	80°	406 to 457	1.60	M09020523	
0.53	0.021	90°	457 to 508	1.60	M09020524	
0.58	0.023	30°	152 to 203	1.90	M09020525	
0.58	0.023	40°	203 to 254	1.90	M09020526	
0.58	0.023	50°	254 to 305	1.90	M09020527	
0.58	0.023	60°	305 to 356	1.90	M09020528	
0.58	0.023	70°	356 to 406	1.90	M09020529	
0.58	0.023	80°	406 to 457	1.90	M09020530	
0.58	0.023	90°	457 to 508	1.90	M09020531	
0.63	0.025	30°	152 to 203	2.30	M09020532	
0.63	0.025	40°	203 to 254	2.30	M09020533	
0.63	0.025	50°	254 to 305	2.30	M09020534	
0.63	0.025	60°	305 to 356	2.30	M09020535	
0.63	0.025	70°	356 to 406	2.30	M09020536	
0.63	0.025	80°	406 to 457	2.30	M09020537	
0.63	0.025	90°	457 to 508	2.30	M09020538	
0.68	0.027	30°	152 to 203	2.70	M09020539	
0.68	0.027	40°	203 to 254	2.70	M09020540	
0.68	0.027	50°	254 to 305	2.70	M09020541	
0.68	0.027	60°	305 to 356	2.70	M09020542	
0.68	0.027	70°	356 to 406	2.70	M09020543	
0.68	0.027	80°	406 to 457	2.70	M09020544	
0.68	0.027	90°	457 to 508	2.70	M09020545	
0.73	0.029	30°	152 to 203	3.10	M09020546	

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 no.	Item
0.73	0.029	40°	203 to 254	3.10	M09020547	
0.73	0.029	50°	254 to 305	3.10	M09020548	
0.73	0.029	60°	305 to 356	3.10	M09020549	
0.73	0.029	70°	356 to 406	3.10	M09020550	
0.73	0.029	80°	406 to 457	3.10	M09020551	
0.73	0.029	90°	457 to 508	3.10	M09020552	
0.78	0.031	30°	152 to 203	3.50	M09020553	
0.78	0.031	40°	203 to 254	3.50	M09020554	
0.78	0.031	50°	254 to 305	3.50	M09020555	
0.78	0.031	60°	305 to 356	3.50	M09020556	
0.78	0.031	70°	356 to 406	3.50	M09020557	
0.78	0.031	80°	406 to 457	3.50	M09020558	
0.78	0.031	90°	457 to 508	3.50	M09020559	

¹ - Spray jet at 300 mm spraying distance with water

² - Flow rate at 100 bar pressure with water

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

Color pipes

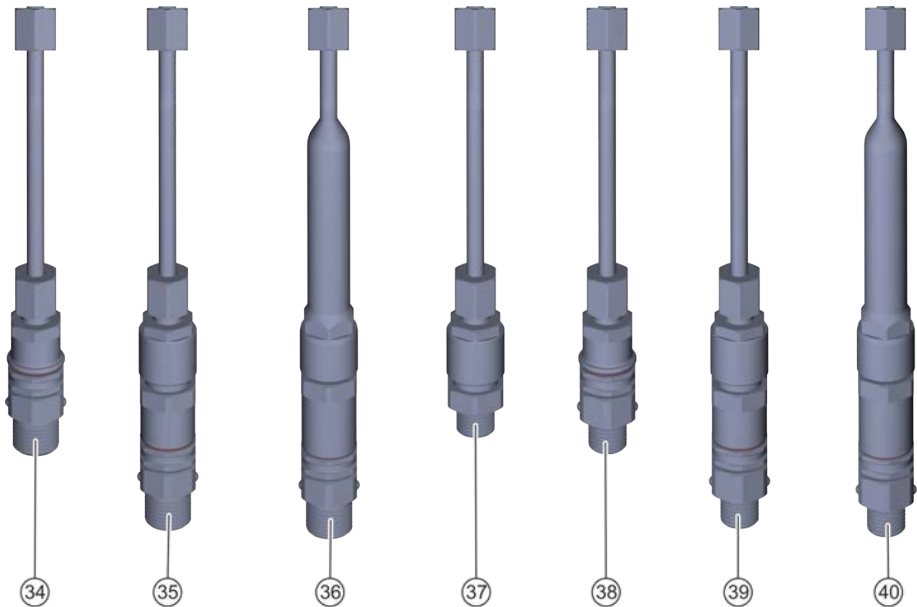


Fig. 25: Color pipes

Item	Description	Material no.
34	Color pipe without filter 1/4" NPS	M34040017
35	Color pipe short with filter 1/4" NPS	M34040018
36	Color pipe long with filter 1/4" NPS	M34040019
37	Paint pipe without filter 1/4" NPS fixed	M34040025
38	Paint pipe without filter M16x1.5	M34040010
39	Paint pipe short with filter M16x1.5	M34040011
40	Paint pipe long with filter M16x1.5	M34040012

Filter

Item	Description	Material number
-	Filter 200 msh red long	M13060010
-	Filter 100 msh yellow long	M13060011

Item	Description	Material number
	Filter 50 msh white long	M13060012
	Filter 30 msh green long	M13060013
	Filter 100 msh short	M13060017
	Filter 200 msh short	M13060018
	Filter, lamellar 100 msh black short	M13100241
	Filter, lamellar 60 msh white short	M13100242

Valve set B (high viscosity media) connection threads 11/16" - 16 UN N36960056

Description	Item no.	Quantity
Nozzle seal seat B	3	1
Needle B	4	1

Valve set S (low viscosity media) connection threads 11/16" - 16 UN N36960055

Description	Item no.	Quantity
Nozzle seal seat S	5	1
Needle S	6	1

Repair kit needle seal N36960057

Description	Item no.	Quantity
O-ring 10.82 x 1.78	7	1
Needle gland	8	1
Safety washer	9	1

Trigger set N36960053

Denomination	Item no.	Quantity
Safety washer 3.2 mm	17	2
Trigger pin	18	1
Trigger	19	1

Valve set N36960058

Denomination	Item no.	Quantity
Valve pin seal	10	1
Valve seat seal	11	1
Valve pin	12	1
O-ring 13 x 1	14	1

Safety lever set N36960090

Denomination	Item no.	Quantity
Spacer 2.5 mm	20	1
Retainer lever pin	21	1
Retainer lever	22	1

Paint pipe support bracket N36960091

Denomination	Item no.	Quantity
Color pipe support bracket	24	1
Support screw	25	1
Support pin	26	1

11.2 Tools

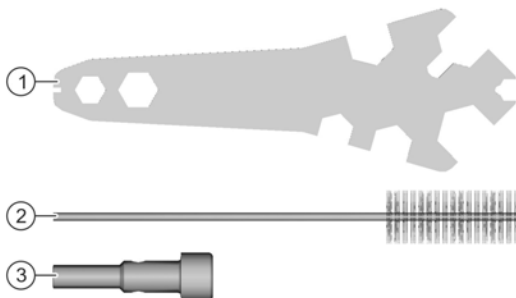
Tool set N36960054


Fig. 26: Tools

Item	Description	Quantity
1	Monkey wrench	1
2	Cleaning brush	1
3	Installation wrench	1

11.3 Accessories



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

Cleaning sets

Denomination	Material no.
Cleaning set (21 parts)	N36960038
Cleaning needles 33 mm 0.011" to 0.017" (12 pcs)	W33130004
Cleaning needles 33 mm 0.017" to 0.021" (12 pcs)	W33130005

Valve sets

Description	Item	Material no.
Connection threads 11/16" - 24 UNEF (2 parts)	4, 5	N36960173
Connection threads 7/8" - 14 UNF (2 parts)	4, 5	N36960174

Extensions

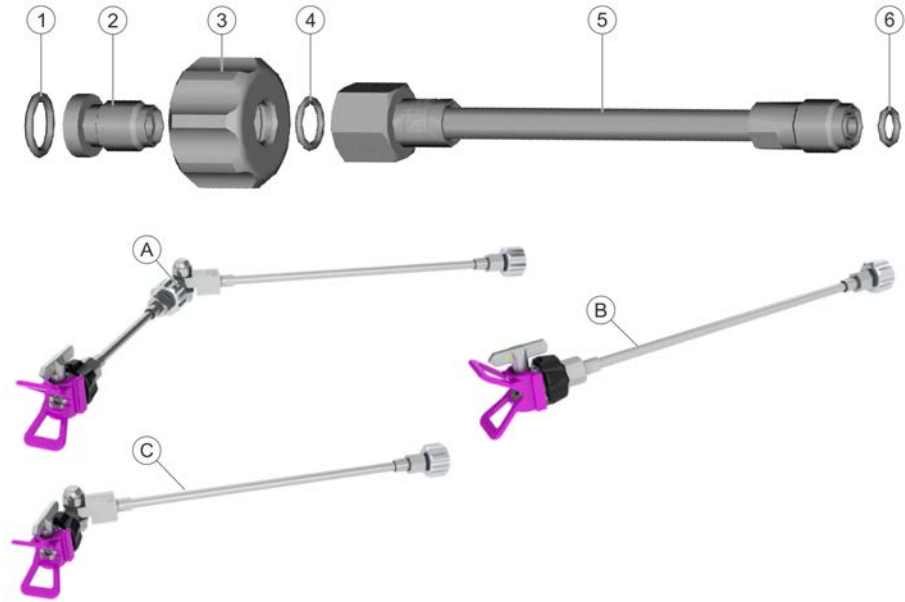


Fig. 27: Extensions

Item no.	Description	Material no.
1	O-Ring 9.5 x 1.8	-
2	Insert	-
3	Cap nut 11/16" - 16 UN	-
4	Seal	-
5	Tube	-
6	O-ring 6.3 x 1.78	-
1, 4, 6	Seal set	N36960179
-	150 mm	M19140001
-	300 mm	M19140002
-	450 mm	M19140003

Item no.	Description	Material no.
-	600 mm	M19140004
-	900 mm	M19140005

The following combinations can be used for operating the extensions:

- » Two extensions with swivel joint and adapter (A)
- » Extension with adapter (B)
- » Extensions with swivel joint (C)

Adapter

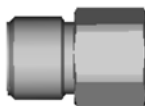


Fig. 28: Adapter

Description	Material no.
11/16" – 16 UN 1/2" – 20 UNF	M01010201

Swivel joint

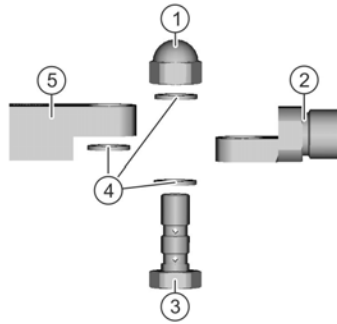


Fig. 29: Exploded view of swivel joint

Item no.	Description	Material no.
1	Nut	-
2	Rotary part 11/16" - 16 UN	-
3	Screw	-
4	Seal set	N36960180
5	Fixed part 1/2" - 20 UNF	-
-	Pivot joint 11/16" - 16 UN 1/2" - 20 UNF	M22150012

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