LEADING IN
PRODUCTION
EFFICIENCY

EcoGun CapCleaner

Cleaning device for EcoGun atomizer

Operation manual

MCD00015EN, V02

N05310001

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:

N05310001 **Eco**Gun CapCleaner EG AS 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

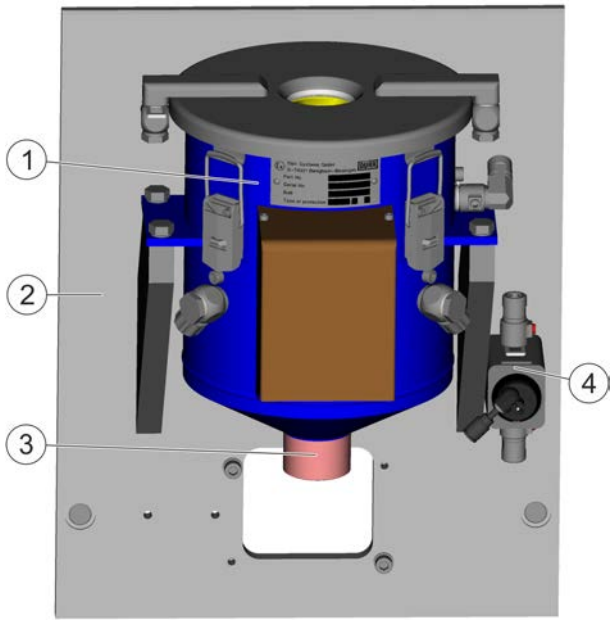

Fig. 1: Overview

1 Cleaning container
2 Console
3 Disposal tube
4 Valve cleaning agents

1.2 Short description

The **Eco**Gun Cap Cleaner (in the following cleaning device) automatically cleans partial areas of Dürr air atomizers.

The robot moves the atomizer into the cleaning container. Flat spray nozzles spray cleaning agent on the soiled surface of the atomizer. The cleaning agent and the cleaned coating material flow down from the cleaning container.

After the cleaning, the air cap is dried via blast nozzles. After cleaning, the atomizer moves slowly out from the cleaning device. The air stream from the blow air ring dries the cleaned areas.

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 cleaning device is only intended for cleaning Dürr rotating atomizers.

The cleaning device is a non-electrical device that is suitable for use in explosive areas. The cleaning device is approved for use in explosive areas of Ex zones 1.

The use of the cleaning device is permissible only in painting booths meeting the requirements of DIN EN 16985.

The use is only permitted in the industrial area within the specified technical data ↳ 12 “Technical data”.

The cleaning device is only permissible in combination with the following Dürr air atomizers:

- **Eco**Gun2 AS AUTO
  - N36040012
  - N36040016
  - N36040017
- **Eco**Gun AS AUTO pro (N36210012V)
  - Use the atomizer only with the additional cap nut M30010375.
- **Eco**Gun AA AUTO (N36230001V)
  - Use the atomized only with the additional cap nut M30010388.

EcoGun AS AUTO pro and EcoGun AA AUTO

If the atomizer uses **Eco**Gun AS AUTO pro or **Eco**Gun AA AUTO, the respective cap nuts must be used. Only with the proper cap nut does the atomizer properly seal with the cleaning device. The cap nut must be ordered separately.

Material number for the cap nut:

- **Eco**Gun AS AUTO pro M30010375
- **Eco**Gun AA AUTO M30010388

- External systems with external atomizers under the user's own responsibility

If the cleaning device is integrated in external systems and used with other atomizers, the use of the cleaning device is under the operator's own responsibility.

Contact Dürr Systems before the installation if you have any questions ↳ "Hotline and Contact".

Misuse

If used improperly, it can cause serious injuries.

Examples of wrong use are:

- Use in explosive areas Ex zone 0
- Setting up the control unit in explosive areas
- Working on the product in explosive areas
- Use of unapproved materials
- Use of components not matching the product
- Operation with high voltage
- Use without control unit
- Unauthorized modifications
- Operation outside of the painting booth
- Use without mechanical ventilation and entry protection

Ex labeling

Ⓔx II 2G Ex h IIA T6 Gb X

II	-	Device group II: all areas except mining
2G	-	Device category: 2 for gas
h	-	Ignition protection category
IIA	-	Explosion group
T6	-	Temperature class
Gb	-	Device protection level: Gb (zone 1)
X	-	Restriction: The device is configured for operation in an ambient temperature of 15 °C to 40 °C.

2.3 Safety devices

2.3.1 Overview

The operator must install safety related device securing the operation in potentially explosive area and conforming to the health requirements and safety requirements according to EC Machinery Directive 2006/42/EC.

This could be, for example, the following safety related devices for the complete system:

- Fire protection
- Entry protection
- Technical ventilation
- Emergency stop
- Explosion protection

The painting booth must meet the requirements of DIN EN 16985 "Painting booths for organic liquid coating materials - Safety requirements".

The control must meet the requirements of Performance Level d of der EN ISO 13849-1 "Safety of machines - Safety-related parts of controls - Part 1: General Design Principles".

More information is available in the German DGUV Information 209-046 "Lackierräume und -einrichtungen für flüssige Beschichtungsstoffe" and DGUV Information 209-052 "Elektrostatisches Beschichten".

The following norms are applicable based on the coating material used:

- Flammable coating materials:
  - EN 50176 "Stationary electrostatic application equipment for flammable liquid coating material - Safety requirements".
- Non-inflammable coating materials:
  - EN 50348 "Stationary electrostatic application equipment for non-flammable liquid coating material - Safety requirements".

2.3.2 Commissioning by operator

If the cleaning device is integrated into a system not supplied by Dürr Systems, the integration of the cleaning device is conducted by the operator or by an integrator commissioned by the operator.

The integrator is responsible for the assembly and initial commissioning and they must ensure that all requirements and safety related devices are met and properly implemented.

Parent control

The integrator must provide a parent control for the "painting system" in total. All relevant, applicable safety requirements and standards depending on the application type and process must be adhered to.

Cleaning device control unit

If the control unit for the cleaning device is not purchased, the integrator is required to set up an equivalent unit. The control unit must have the same functions and be designed according to the diagram in the appendix.

The following performance level must be adhered to:

- Pneumatic components for controlling the blow air valves BL14 and BL15 to PLa
- Pneumatic components for the control of the thinner valve V11 to Plc

If there are changes or modifications, please contact your dealer or sales partner ↳ “Hotline and Contact”

2.4 Safety signs

No safety markings are placed on the product.

2.5 Residual risks

Explosions

Sparks, open flames and hot surfaces can cause explosions in explosive atmospheres. It can cause serious injuries or death.

- 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 product.
- Observe all general safety instructions.
- Wear specified protective equipment.

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

- Ensure that the flashpoint of the cleaning agent is at least 15K above the ambient temperature or clean Cleaning Device at the cleaning areas with active technical ventilation, in painting booths, according to EN 16985.
- Note explosion group of the fluid.
- Follow the safety data sheet.
- Ensure that technical ventilation and fire protection equipment are in operation.
- Do not use sources of ignition and open light.
- Do not smoke.
- Ground the product.
- Wear specified protective equipment.

Danger from harmful or irritant substances

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

- Cleaning Device 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.

Leaking fluids and compressed air:

When working on the product, spurted material and leaking compressed air can cause irreversible damage to the eyes.

Before working on the product:

- Rinse the system.
- Disconnect the system from compressed air and material supply system.
- Secure the system against being switched on again.
- Depressurize the lines.
- Wear eye protection.

2.6 Property damage

Replacement Parts

Replacement parts that are not approved by Dürr Systems may not withstand the full operational loads.

It can result in property damage and production disruption.

- Use exclusively original replacement parts.

Unsuitable coating materials and cleaning agents

If the coating material or the detergent reacts chemically with components of the product, the product will be damaged.

- Use only the coating materials and detergents that are compatible with the components of the product.
- Follow the safety data sheet.
- If there are questions, please contact your dealer or sales partner ↳ “Hotline and Contact”.

2.7 Conduct in the event of a hazardous situation

Conduct in case of danger depends on the operator’s installation situation.

Perform the following activities:

- Close lines.
- Secure against reconnection.
- Depressurize lines.

2.8 Installation schematic

Control unit for cleaning device

Optionally, one control unit is provided for the cleaning device. The control unit includes all the MVS valves of the cleaning device for the cleaning process. The control unit is placed separately outside the station. The control unit is not approved for the Ex zone. The control unit must be connected to the parent control.

If the control unit for the cleaning device is not purchased, the integrator is required to set up an equivalent unit with the same functions by using the following diagram.

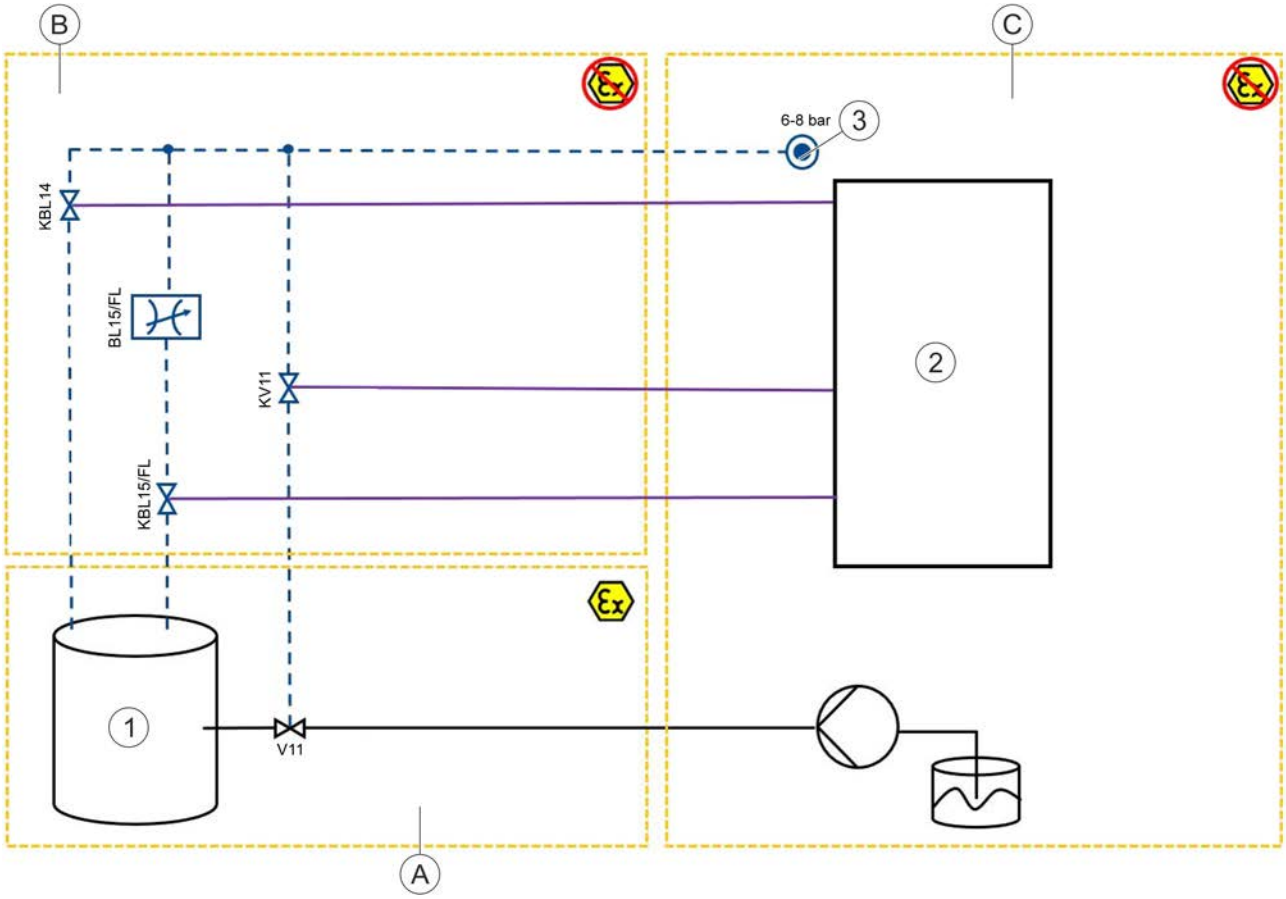

Fig. 2: Setup diagram for cleaning device control unit

A	Scope of delivery of **Eco**Gun CapCleaner	---	Pneumatic signal
B	Optional accessories for **Eco**Gun CapCleaner	—	Paint hose
C	Provision by the customer / operator	⋈	Solenoid valve
1	**Eco**Gun CapCleaner	⋈	Paint valve
2	Control system e.g. Fanuc R30iA	◔	Pump
3	Min. 6bar / max. 8bar	◉	Compressed air supply
—	Electric signal	⊠	Pressure controller

2.9 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 craftmanship.

Cleaning staff

The cleaning staff receives regular instructions from the operator about the following contents:

- Using the product
- Handling cleaning tools
- Handling cleaning agents
- Technical Measures for occupational safety and health

Electrician

Electricians assemble, install, service and repair electrical systems in a professional manner.

Furthermore, electrical engineers have the following knowledge:

- Guidelines, Standards and Rules of Engineering
- Local conditions
- Electrical Systems and Their Loading Limits
- Technical Measures for occupational safety and health

Mechanic

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

Furthermore, he has the following knowledge:

- Guidelines, Standards and Rules of Engineering
- Local conditions
- Technical Measures for occupational safety and health

The mechanic is responsible for the following activities on equipment and components:

- Assembly
- Waiting
- Maintenance
- Disassembly

Robot programmer

The robot programmer is trained specifically for the field of work in which they work. The robot programmer has been instructed by the operator and receives regular training.

The robot programmer is trained and examined in the following specialized areas:

- Advanced knowledge in robot programming
- System knowledge of robot control
- Automation technology
- Control and regulation technology
- System-specific process engineering

Furthermore, the robot programmer possesses the following knowledge:

- Guidelines, standards and rules of engineering
- Local technical measures for occupational safety and health
- Valid accident prevention regulations

The robot programmer is responsible for the following tasks on equipment and components:

- Commissioning
- Maintenance, verification und rectification of faults
- Preparing measuring protocols and shortage lists
- Creating commissioning documents

+ 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”.

2.10 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 and EN IEC 61340-4-3. The volume resistivity must not exceed 100MΩ.

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

Anti-Static Safety Boots

Protect feet from crushing, falling items and slipping on slippery ground.

Moreover, anti-static safety boots reduce electrostatic charge by discharging the electrostatic charges.

Eye protection

Protects eyes from dust, paint drops and particles.

Protective gloves

Protect the hands from:

- mechanical forces
- Thermal forces
- Chemical effects

Protective workwear
Tight fitting workwear with low tear strength, tight sleeves and no hanging parts.

Respirator mask
Protects from hazardous gases, vapors, dust and similar materials and media.

3 Design and Function

3.1 Cleaning container

3.1.1 Lid

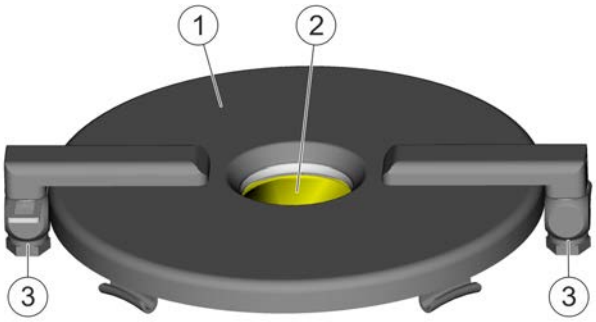

Fig. 3: Lid

In the lid (1) there is a cleaning opening (2) for the atomizer. The atomizer drives into the cleaning opening for cleaning. On the lid there are two connections for cleanholding air (3). The air forms an air gap; together with the sealing collar, the cleaning opening is sealed onto the atomizer.

3.1.2 Housing

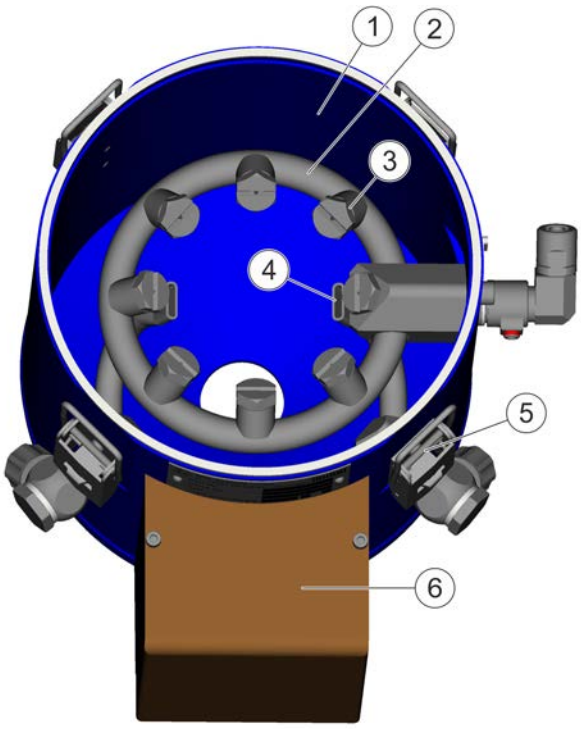

Fig. 4: Cleaning container housing

In the housing (1) the flat spray nozzles (3) and the blast nozzles (4) are installed for the drying air. The flat spray nozzles are mounted on a distribution ring (2).
With the quick closures (5) the lid is attached to the housing (1).
Any air present in the cleaning device can escape via the venting tube (6). The deflector plate ensures that no cleaning media can escape.

3.2 Console

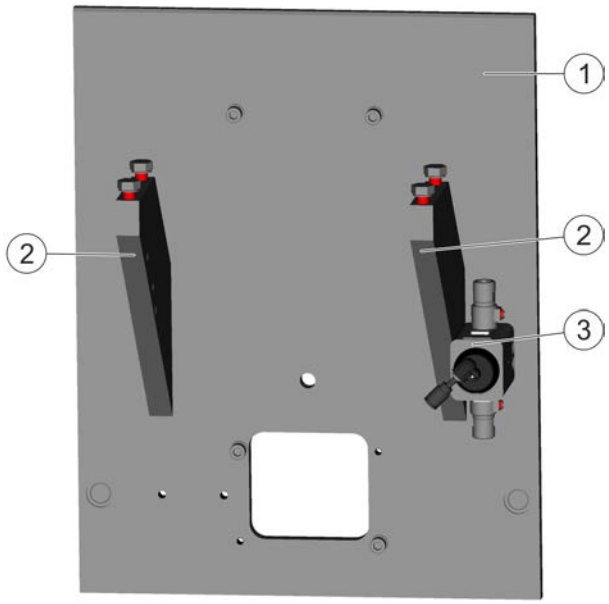

Fig. 5: Console

The console consists of a base plate (1), the corners (2) with the admissions for the cleaning device. In addition, the cleaning agent valve (3) is screwed onto the console.With the console, the cleaning device is screwed onto a wall or a support bracket.

3.3 Cleaning agent valve

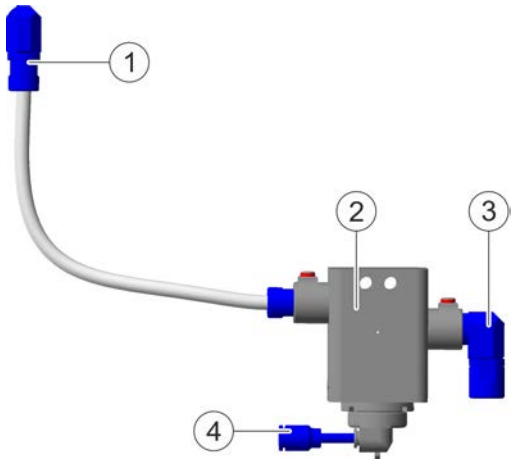

Fig. 6: Cleaning agent valve

The cleaning agent valve is loaded with cleaning agent at the connection (3). If the cleaning agent valve is switched onto the control air connection (4), the cleaning agent flows via the connection (1) to the cleaning nozzle.
Follow the manufacturer's documentation.

3.4 Disposal tube

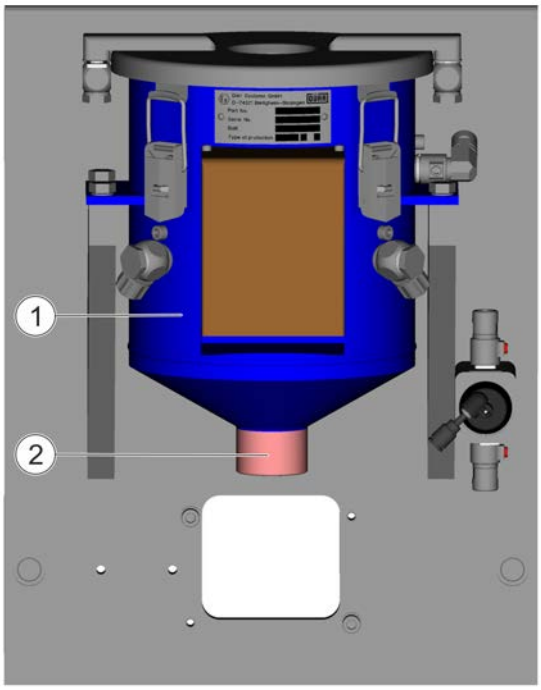

Fig. 7: Disposal tube

The disposal tube (2) is an extension of the cleaning container (1). The disposal tube (2) serves as spray protection and leads away the contaminated cleaning agent and the coating material. Under the disposal tube, a funnel or another reception facility can be installed at a distance of 100 mm. Alternatively, the mixture directly flushes the washout.

NOTICE!

Hardening material

If 2K material hardens in the hopper, the hopper will clog. The material can no longer flow.

- With 2K material, use a rinsed hopper.

Connect the hopper to the collection line:

To prevent the pipe line from clogging, a sufficient gap must be maintained in the piping with DN40.

3.5 Cleaning procedure

On the upper side of the cleaning device, the cleaning opening is found in the cover. The air cap of the atomizer is led by the robot into the cleaning opening of the cleaning device. If the air cap does not exactly meet the center of the cleaning opening, the horizontal movement of the lid can compensate for a certain misalignment.

If the air cap is sufficiently deep into the cleaning device, the robot stops. A sealing collar prevents cleaning material or compressed air from exiting the housing during operation. There is a ring gap under the sealing collar. Cleanholding air blows through the ring gap to the cap nut in order to support the sealing effect. In the interior of the cleaning device, there is a ring-shaped line. Flat spray nozzles are connected to this line. If the air cap is positioned in the cleaning device, cleaning agent is led into the line. The cleaning agent flows from the flat spray nozzles to the air cap. During the cleaning, horn air and atomizer air flow from the air cap. The compressed air prevents the cleaning agent and contamination from getting into the openings of the air cap.

After the cleaning, the air cap is blown dry with compressed air. To dry, compressed air flows from two pipes and under the ring gap of the sealing collar to the air cap. To fully dry the air cap, horn air and atomizer air remain switched on during the retracting of the atomizer.

3.6 Optional components

The following components are optionally available:

- Support bracket for assembly
- Control unit for cleaning device

Optional: Support bracket for assembly

Fig. 8: Cleaning device with support bracket (optional)

The optional support bracket (2) can be used to attach the cleaning device (1) to the booth wall or the steel construction.

Optional: Control unit for cleaning device

Optionally, one control unit is provided for the cleaning device. The control unit includes all the MVS valves of the cleaning device for the cleaning process. The control unit is outside of the cleaning device and must be connected to the parent control.

If the control unit for the cleaning device is not purchased, the operator is required to set up an equivalent unit with the same functions by using the installation plan itself. ↳ 2.8 “Installation schematic”

3.7 Interfaces

The cleaning device has the following interfaces:

- Compressed air on the compressed air regulator
- Cleaning agent in the cleaning agent valve

4 Transport, scope of supply and storage

4.1 Unpacking

DANGER!

Electrostatically charged plastic films and foils in potentially explosive areas

The foil can charge electrostatically at the time of unpacking. Electrostatic discharge can cause sparks that in explosive atmosphere can cause a fire or an explosion. Serious injury and death could be the consequence.

- Unpack product outside Ex zones.

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

- Protective workwear
- Protective gloves
- Anti-Static Safety Boots

1. Check the packaging of the assemblies for damage.
   ⇨ Report damage immediately ↳ “Hotline and Contact”.
2. Remove foils outside of potentially explosive areas.

3. Remove packaging material from all assemblies.
4. Use aids suitable for transport, such as hoists or carrying straps. Observe the weight of the product ↳ 12.1 “Dimensions and weight”.

   Transport assemblies with suitable hoists to the installation location.

4.2 Transport

WARNING!

Lifting heavy loads

Lifting heavy loads could cause back injuries, crushing or compression. Serious injuries can be the consequence.

- Lift heavy loads only by using suitable hoists.

Personnel:

- Mechanic

Protective equipment:

- Protective workwear
- Anti-Static Safety Boots

Requirements:

- Cleaning device is disassembled ↳ 11.3 “Disassembly”.

1. Use the original packing for transporting.
   If the original packing is no longer available, the packing used must meet the following requirements:
   - Comprehensive protection from vibrations
   - Protection from dirt
   - Protection from moisture
2. Place cleaning device onto a pallet using a suitable hoist.
3. Lash cleaning device with a lashing strap on the pallet.
4. Label packaging twice and indicate both contents and weight.

4.3 Scope of delivery

The scope of supply includes the following components:

- Cleaning device with console for fastening
  - Fluid hoses (media hoses and compressed air hoses)
    The lengths of the hoses are sufficient to reach from the cleaning device to the console.
- Cover hood for cleaning device

The cleaning device is supplied pre-assembled.

- All other components are separately available.
- Inspect delivery on receipt for completeness and integrity.
- Report defects immediately ↳ “Hotline and Contact”.

4.4 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.

4.5 Storage

Storage provisions:

- Do not store outdoors.
- Store Cleaning Device 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%

5 Assembly

5.1 Safety recommendations

WARNING!

Danger of fire and explosion

Sources of ignition in explosive atmosphere can cause a fire or an explosion. Serious injury and death could be the consequence.

- Before carrying out any work, make sure that there is no explosive atmosphere.

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 “+”.

WARNING!

Unsuitable tools in explosive areas

Tools that do not have Ex approval can generate sparks and cause a fire or an explosion in Ex zones. It can cause serious injuries or death.

- If possible, carry out cleaning and maintenance work outside the Ex zones.
- For work within the Ex zone, use tools with the corresponding Ex labeling.

WARNING!

Lifting heavy loads

Lifting heavy loads could cause back injuries, crushing or compression. Serious injuries can be the consequence.

- Lift heavy loads only by using suitable hoists. ↳ 12.1 “Dimensions and weight”
- Conduct work with two persons present only.

5.2 Requirements for the Installation point.

- The compressed air feed and the material feed must be ensured against interruption and against restart.
- The cleaning device must be integrated in a closed, remote-controlled and automated process.
- Install the cleaning device in an area with forced ventilation.
- Lines, seals and screw connections must be designed for the requirements of the cleaning device ↳ 12.4 “Operating values”.
- There must be a suitable grounding point at the installation site.
- The installed position of the cleaning device must be accessible for the robot.
- The cleaning device must be accessible for maintenance when installed.
- Installation site and assembly parts must be suitable for carrying the product weight and withstand the stress occurring during the operation.

5.3 Installed position

The cleaning device can be mounted in different positions, depending on the version and drawing:

- On the booth wall
- On the steel structure

The upper edge of the cleaning device must be aligned horizontally.

5.4 Assembly

Optionally with support bracket:

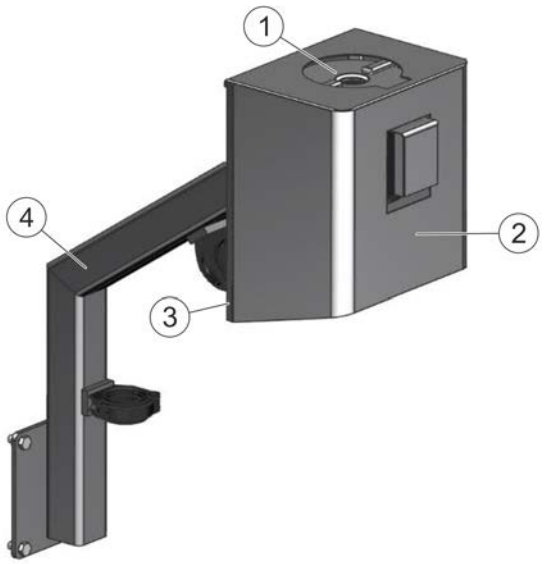

Fig. 9: Cleaning device with support bracket (optional)

The cleaning device (1) is mounted on a console (3) and covered with a cover hood (2). Optionally, the cleaning device can be installed on a support bracket (4). ↳ 13.2 “Accessories”

Personnel:

- Mechanic

Protective equipment:

- Protective workwear
- Protective gloves
- Anti-Static Safety Boots

Requirements:

- Cleaning device is assembled on the console.

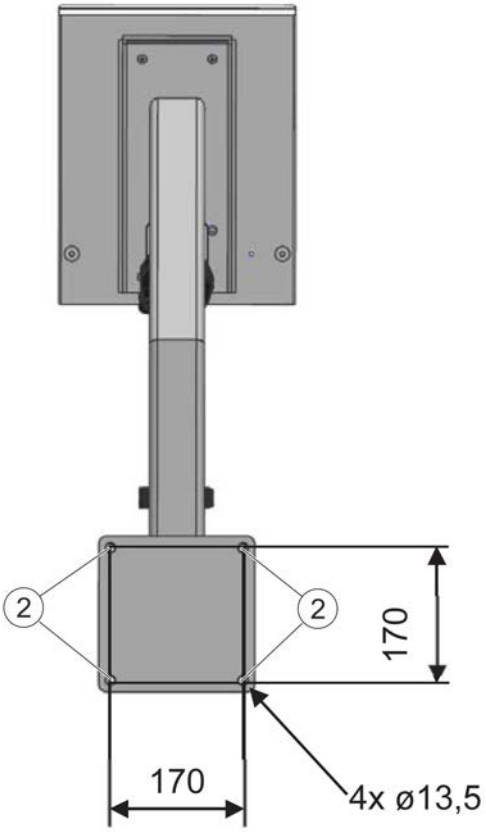

Fig. 10: Support bracket assembly holes

1. Mark assembly bores of the support bracket on the installation point in a suitable operating height.
2. Screw on the support bracket using four M12 screws (2), on the four holes ∅13.5mm.

⇨ Support bracket is assembled.

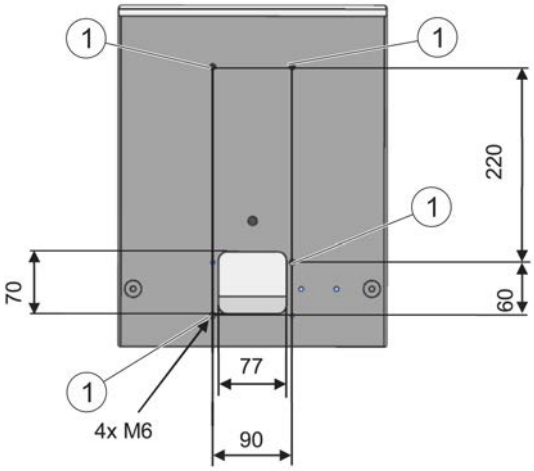

Fig. 11: Assemble bracket

3. Screw the console onto the support bracket using four screws, M6x25, and washers (1).
   ⇨ Console is installed on the support bracket.

Installation without support bracket (Standard)

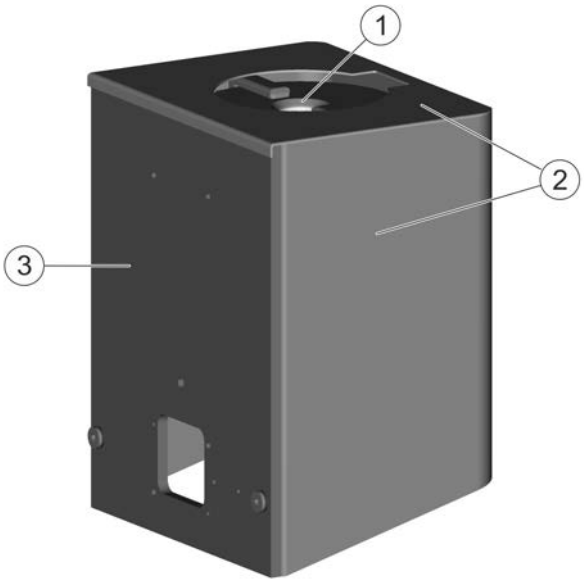

Fig. 12: Cleaning device with console

The cleaning device (1) is mounted on a console (3) and covered with a cover hood (2). The console is directly installed in the installation site.

Personnel:

- Mechanic

Protective equipment:

- Protective workwear
- Protective gloves
- Anti-Static Safety Boots

1. Mark assembly bores of the console on the installation point in a suitable operating height.

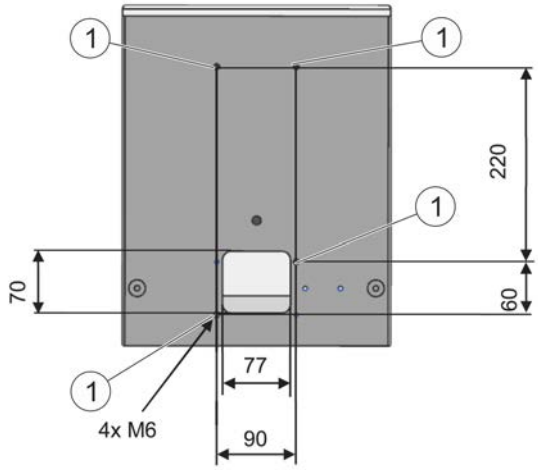

Fig. 13: Assemble bracket

2. Screw the console on the installation point using four screws, M6x25, and washers (1).
   ⇨ Console is assembled.

5.5 Connecting

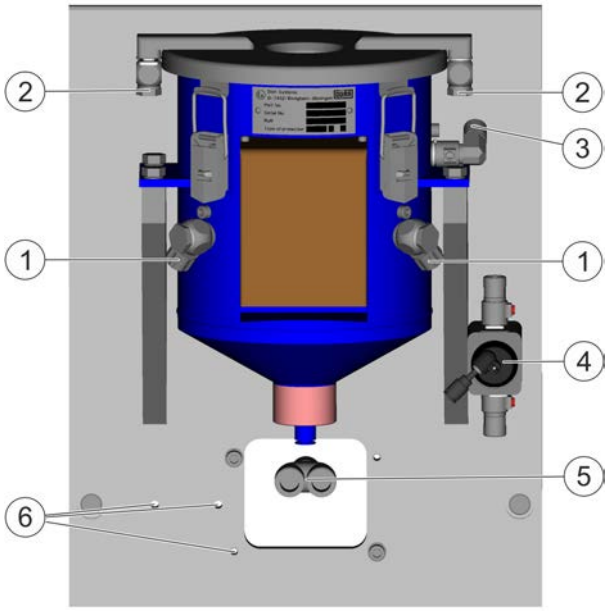

Fig. 14: Connections

1 Blow air connection (BL14)
2 Cleanholding air connection (BL15)
3 Connection of cleaning agent for distribution ring
4 Cleaning agent valve
5 Air manifold
6 Grounding connections

The cleaning device is stored in a console. There are two connections for blow air (1) and two connections for cleanholding air (2) on the cleaning device. The valves for the cleaning medium (4) and the manifold for air (5) are mounted on the console. The cleaning agent valve (4) is connected with the connection for the distributor ring. The distributor for air (5) distributes the compressed air to the ventilation ducts (1+2).

The cleaning medium must be connected in accordance to the setup diagram (see appendix).

The following performance level must be adhered to:

- Pneumatic components for controlling the blow air valves BL14 and BL15 to PLa
- Pneumatic components for controlling the thinner valves V11 and FGV to Plc

All media lines and their connections are uniquely labeled and described using the corresponding technical documentation. The piping must be conducted in accordance with these specifications.

Personnel:

- Mechanic

Protective equipment:

- Protective gloves

1. Connect the material supply to the cleaning agent valve (4).
2. Connect compressed air to the manifold for air (5).

5.6 Ground the cleaning device

WARNING!

Sparks due to electrostatic discharge

If the cleaning device is not properly grounded or the potential equalization fails, components may get charged electrostatically. Electrostatic discharge can cause sparks that in explosive atmosphere can cause a fire or an explosion. Serious injury and death could be the consequence.

- Check connection of grounding cable.
- Measure volume resistivity.

Personnel:

- Electrician

Protective equipment:

- Protective workwear
- Anti-Static Safety Boots

1. Cleaning Device und console are delivered connected to each other. The grounding must start at the console.

   Connect console on ground connection with external potential equalization, see figure ↳ 5.5 “Connecting”.
2. Connect grounding cable of cover hood with the ground connection of the console.
3. Measure volume resistivity.

6 Commissioning

6.1 Safety Instructions

WARNING!

Ignition due to electrostatic discharge

If loose parts remain in the cleaning device, contact can cause sparks to ignite the explosive atmosphere. It can cause serious injuries or death.

- Before commissioning, ensure that there are no lose parts in the cleaning device such as, for example, tools.
- Put the cleaning device only into operation if fully assembled.

WARNING!

Sparks due to electrostatic discharging of components

If components of the cleaning device are not grounded, the cleaning device can be charged electrostatically and sparking may occur. In an explosive atmosphere, these sparks can be the source of ignition for fire or explosion. It can cause serious injuries or death.

- Ground cleaning device and all components as specified.
- Before carrying out any work, make sure that there is no explosive atmosphere.
- Working on the cleaning device only by trained staff.
- Wear specified protective equipment.

WARNING!

Leakage of flammable purging media

If components are leaking or burst under pressure, there is the danger of fire. Serious injuries can be the consequence.

- Check system (thinner and compressed air) and lines for leakages.
- Replace defective components.
- Wear eye protection and protective clothing.

WARNING!

Danger due to squirting material

Serious injuries can be the consequence.

- Wear eye protection when working on the product.
- Check product for leakage.
- Check all connections for proper assembly.

WARNING!

Danger from harmful or irritant substances

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

- Cleaning Device 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!

Robot movement

If persons are present in the danger zone during the teach sequence, death or serious injuries may ensue.

- Ensure that the robot programmer is able to view the entire danger zone.
- Tduring the teach sequence, make sure that there are no persons present in the danger zone.

CAUTION!

The pneumatically lockable carriage poses a danger of crushing

The quick action locks on the lid are under tension. The finger could get crushed when working on the lid.

- Wear protective gloves.

NOTICE!

Danger of collision with atomizer or components

If atomizer or components collide with the cleaning device, that could cause material damage.

- Check all movements and fixed positions of the individual robot programs after installing the cleaning devices.
- The atomizer must move linearly when inserting and retracting.

NOTICE!

Property damage due to collision

If atomizer and Cleaning Device collide, that could cause property damage.

- Before commissioning, check the set positions using the teach tool.
- Correct deviations.

The cleaning device can compensate for slight positional differences of the atomizer through the horizontal movement of the lid. Too great a deviation leads to collision and material damage.

The cleaning device may only be put into operation when completely and properly mounted. All aids (e.g. tools) must be removed out of the danger zone after completion of work.

6.2 Protect cleaning device

During operation, the cleaning device is exposed to various factors e.g. over-spray. The following measures will help extend the life cycle of the cleaning device and ensure smooth fault-free operation.

- Coat the external surfaces and the cover hood with a thin layer of petroleum jelly.
- Cover external surfaces with an electrically conductive foil.

For all measures, ensure that:

- The process air must be able to escape for ventilation purposes.
- The ring gap of the cleanholding air must be free of petroleum jelly.

6.3 Check safety devices

- Integrate the product into the safety devices of the complete system.

6.4 Setting operating parameters

Personnel:

- Mechanic

Protective equipment:

- Protective gloves
- Anti-Static Safety Boots

- Input pressures of the media supplied via the tube system are within the required ranges ↳ 12.4 “Operating values”.

6.5 Positioning

The correct positions of the atomizer in the cleaning device can, for example, be installed with the help of an allen wrench.

WARNING!

Robot movement

If persons are present in the danger zone during the teach sequence, death or serious injuries may ensue.

- Ensure that the robot programmer is able to view the entire danger zone.
- Tduring the teach sequence, make sure that there are no persons present in the danger zone.

NOTICE!

Damage due to collision during positioning

If atomizer and cleaning device collide, that could cause material damage.

- Before commissioning, check the set positions.
- Move atomizer slowly.
- Correct deviations.

Personnel:

- Robot programmer

Protective equipment:

- Anti-Static Safety Boots
- Protective workwear
- Eye protection
- Protective gloves

1. Move atomizer (1) slowly into the calibrated cleaning position.

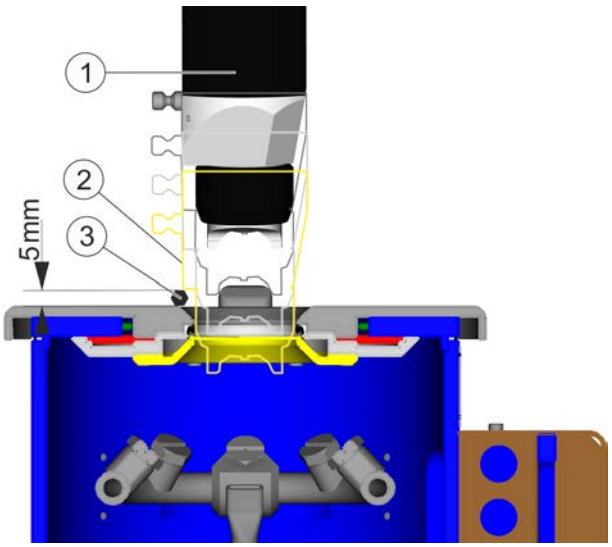

Fig. 15: Positioning

2. Lay the allen wrench SW 5 mm (3) on the lid of the cleaning device.

The distance between the atomizer and the cleaning device must be 5 mm.

3. Start the cleaning opening slowly. Check visually whether the atomizer is oriented centrally. If necessary, correct the position.
4. When the atomizer (1) touches the allen wrench (3), stop the movement immediately.
   ⇨ The allen wrench is still free to move and can be removed.
5. Store position (2) on the system control.
6. Remove allen wrench.

6.6 Final checks

1. Check prior to commissioning:
   - Correct hose connection of the cleaning device
   - Tightness
   - Under all operating conditions, whether the cleaning medium runs unobstructed.
   - The displays and signals of the cleaning device in the visualizer
   - Approached positions of the atomizer in the cleaning device

7 Operation

7.1 Safety recommendations

WARNING!

Electrostatically charged films

If cleaning device is not covered with electrically non-conductive foils, the foil could collect electrostatic charge during operation. Electrostatic discharge can cause an explosion.

- Only use electrically conductive foils.
- Apply a light layer of technical petroleum jelly on the cleaning device.

WARNING!

Sparks due to electrostatic discharging of components

If components of the cleaning device are not grounded, the cleaning device can be charged electrostatically and sparking may occur. In an explosive atmosphere, these sparks can be the source of ignition for fire or explosion. It can cause serious injuries or death.

- Ground cleaning device and all components as specified.
- Before carrying out any work, make sure that there is no explosive atmosphere.
- Working on the cleaning device only by trained staff.
- Wear specified protective equipment.

WARNING!

Sparks due to collision

Sparks can occur if atomizer and cleaning device are colliding. In an explosive atmosphere, these sparks can be the source of ignition for fire or explosion. Serious injury and death could be the consequence.

- Before commissioning, check the set positions using the teach tool.
- Correct deviations.
- Before carrying out any work, make sure that there is no explosive atmosphere.
- Working on the cleaning device only by trained staff.

WARNING!

Danger due to damaged components

Operating the product with damaged components can result in serious injury or death.

- Check components at specified intervals for damage.
- If you detect unusual operating sounds or any other noticeable aspects, put the product out of service.
- Contact the manufacturer ↳ “Hotline and Contact”.
- Replace damaged components promptly.

WARNING!

Danger from harmful or irritant substances

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

- Cleaning Device 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!

Squirting material

Serious injuries can be the consequence.

From beginning of production:

- Check product regularly for tightness and damage. Observe local regulations and maintenance schedule.
- Check all connections for proper assembly.

WARNING!

Robot movement

If persons are present in the danger zone during the teach sequence, death or serious injuries may ensue.

- Ensure that the robot programmer is able to view the entire danger zone.
- Tduring the teach sequence, make sure that there are no persons present in the danger zone.

NOTICE!

Material damage due to hardening material

If mixed 2K material from the atomizer is rinsed in the cleaning device, the material hardens in the cleaning device. This can cause material damage.

- Rinse 2K material in leaching or in a separate funnel.
- Before modifying purging programs, contact Dürr Systems . ↳ “Hotline and Contact”.

NOTICE!

Property damage due to collision

If atomizer and Cleaning Device collide, that could cause property damage.

- Before commissioning, check the set positions using the teach tool.
- Correct deviations.

NOTICE!

Property damage through atomizer in the cleaning device

If the cleaning device is atomized, the components can stick and be damaged.

- Carry out painting processes without air (supply air/heating air).
- Only 1K coating materials
- Not at the same time as the cleaning process

NOTICE!

Unsuitable coating materials and cleaning agents

If the coating material or the detergent reacts chemically with components of the product, the product will be damaged.

- Use only the coating materials and detergents that are compatible with the components of the product.
- Follow safety data sheets.

7.2 General notes

Perform the following checks during operation:

- Cleaning result on the atomizer
- Sealing
- Operating pressure 12 “Technical data”
- Movement and fixed positions of the individual robot programs

7.3 Operating

7.3.1 Switching on

The cleaning device is controlled by the overriding control system during operation. Intervention in the operation is not required.

7.4 Rinsing program

The rinsing programs of the cleaning device are invoked via a parent control. The figures below show recommendations for the design and execution of the rinsing programs.

The duration of the rinsing program depends on the installation, set pressures and media used.
Check purging program with the coating material used. Adjust, if necessary.

The separate steps of the rinsing program can be visualized in the control unit. Bits in various colors represent the statuses within the program:

- Blue bit: Component is opened.
- White bit: Component is closed.
- Gray bit: Position request or position check

Example for rinsing program for EcoGun Cap Cleaner

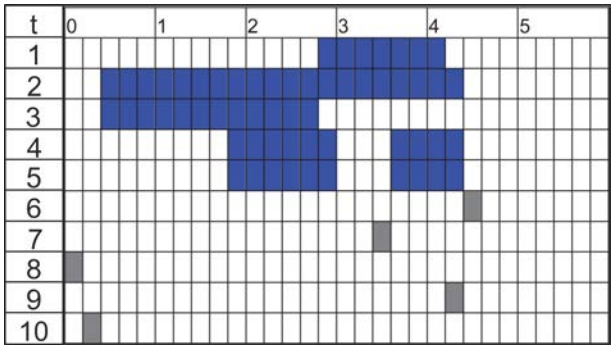

Fig. 16: Rinsing program

Item	Detail	Function	Value
1	BL14	Blow air (BL) Blowpipe dry air	6 bar
2	BL 15 / FL	Blow air ring gap Cleanholding air (FL) of the moving stored cover	5 bar
3	V11	Rinsing thinner	7 bar
4	HL	Horn air	150Nl/min
5	ZL	Atomizer air	150Nl/min
6	End	Rinsing program ended	
7	Drive into position “InBox”		
8	Drive into position “”		
9	Wait until position “InBox”		
10	Wait until position “AboveBox”		

A standard rinsing program consists of the following steps:

- Drive to position “InBox” (8).
- Wait until the “InBox” position is reached (10).
- Seal cleaning device with cleanholding air (2).
- Start cleaning in “InBox” position.
  - When half of the time is expired, switch on HL (4) and ZL (5).
- End cleaning Switch off purge thinning (3).
- Switch off HL (4) and ZL (5).
- Dry atomizer with blow air (1) and cleanholding air.
- Move to “AboveBox” position (7). Switch on HL (4) and ZL (5) during drive out.
- Wait until “AboveBox” position is reached (9).
- End purging program (6)

8 Cleaning

8.1 Safety recommendations

WARNING!

Sparks due to electrostatic discharge

If the cleaning device is not grounded, there can be an electrostatic charge on the the cleaning device. Electrostatic discharge can cause sparks that in explosive atmosphere can cause a fire or an explosion. Serious injury and death could be the consequence.

- Ground Cleaning Device as specified.
- Before carrying out any work, make sure that there is no explosive atmosphere.

WARNING!

Squirting material and compressed air

When working on the product, spurted material and leaking compressed air can cause irreversible damage to the eyes.

Before working on the product:

- Rinse the system.
- Disconnect the system with the product from material supply and compressed air.
- Secure the system against being switched on again.
- Depressurize the system.
- Wear eye protection.

WARNING!

Danger from harmful or irritant substances

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

- Cleaning Device 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).

CAUTION!

The pneumatically lockable carriage poses a danger of crushing

The quick action locks on the lid are under tension. The finger could get crushed when working on the lid.

- Wear protective gloves.

NOTICE!

Unsuitable Cleaning Tools

Unsuitable cleaning tools can cause damage.

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

NOTICE!

Unsuitable coating materials and cleaning agents

If the coating material or the detergent reacts chemically with components of the product, the product will be damaged.

- Use only the coating materials and detergents that are compatible with the components of the product.
- Follow safety data sheets.

NOTICE!

Paint contamination

If the paint residues cannot be removed, there is no guarantee for an error-free functioning. This can cause property damage.

- Clean components.
- Replace any components that cannot be cleaned anymore.

8.2 General notes

Before conducting any work, verify the following:

- Station is switched off and secured against being switched on again.
- There must be no Ex atmosphere inside of the Ex zone at all times.

The period of time contaminants require to deposit on assemblies depends on the operating conditions. If 2K coating materials are used, the Cleaning Device must be cleaned and maintained more frequently.

If the personnel has sufficient experience in operating the Cleaning Device, the intervals may be adjusted to the individual needs.

8.3 Cleaning

Check cleaning device regularly for contamination in order to avoid larger, stubborn contamination.

- Clean contaminated components using a moist cloth.
- Clean the entire cleaning device regularly.

Personnel:

- Cleaning staff

Protective equipment:

- Protective workwear
- Anti-Static Safety Boots
- Protective gloves
- Eye protection
- Respirator mask

Requirements:

- Operating mode “Maintenance” is active.
- Ensure a non-explosive atmosphere.
- Station is secured against reconnection.

1. Clean the cleaning device using a moist, lint-free cloth or a fine brush; clean carefully starting outside.

Moving cover

If the cover clamps, the cover must be disassembled and cleaned thoroughly.

2. Clean the lid and the moving cover of the sealing collar carefully daily using a moist, lint-free cloth or a fine brush.
3. Maintain nozzle ring. Clean the flat spray nozzles with the other hand using a moist, lint-free cloth or a fine brush.

   For stronger contaminations, the flat spray nozzles can be cleaned in an ultrasonic bath.
4. Wipe down blow air pipe with a moist, lint-free cloth.
5. **NOTICE!**

   Non-conductive materials such as compressed air hoses and media lines, must be cleaned using a moist cloth.

   Clean compressed air hoses and media lines using a moist cloth.
6. If necessary, apply technical petrolatum jelly on the cleaning device to protect from external factors.

9 Maintenance

9.1 Safety notes

WARNING!

Danger of fire and explosion

Sources of ignition in explosive atmosphere can cause a fire or an explosion. Serious injury and death could be the consequence.

- Before carrying out any work, make sure that there is no explosive atmosphere.

WARNING!

Danger of sparking if components are falling down

Sparking can occur if components fall onto the steel grates. Sparking occurring in an explosive atmosphere can cause fire or explosion. It can cause serious injuries or death.

- Working on the product only by trained staff.
- Conduct work on the product only outside of Ex zones.

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.

- Cleaning Device 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!

Unsuitable tools in explosive areas

Tools that do not have Ex approval can generate sparks and cause a fire or an explosion in Ex zones. It can cause serious injuries or death.

- If possible, carry out cleaning and maintenance work outside the Ex zones.
- For work within the Ex zone, use tools with the corresponding Ex labeling.

WARNING!

Lifting heavy loads

Lifting heavy loads could cause back injuries, crushing or compression. Serious injuries can be the consequence.

- Lift heavy loads only by using suitable hoists. ↳ 12.1 “Dimensions and weight”
- Conduct work with two persons present only.

CAUTION!

The pneumatically lockable carriage poses a danger of crushing

The quick action locks on the lid are under tension. The finger could get crushed when working on the lid.

- Wear protective gloves.

9.2 General notes

Only trained and instructed staff may conduct maintenance work.

Detailed information about the maintenance is given in the operating instructions of the individual components.

Before conducting any work, verify the following:

- Disconnect assemblies from the energy supply (e.g. pressure). Secure against reconnection.
- There must be no Ex atmosphere inside of the Ex zone at all times.

Before working on the product:

- Wear suitable protective equipment (e.g. gloves, protective goggles and safety boots).
- Use suitable aids (e.g. slings) and tools.
- Use only approved replacement parts and accessories, ↳ 13 “Replacement parts and accessories”.
- The specified maintenance intervals must be adhered to and documented.
- Check cleaning device for contamination in order to avoid larger, stubborn contaminants.

Check prior to recommissioning:

- All assemblies are fully assembled (e.g. covers).
- All hoses and lines are connected.
- Check hoses and lines for leakage.
- Correct grounding of the assemblies
- Volume resistance test was carried out.
- Technical ventilation is in operation.
- No aids (e.g. tools) are lying around in the danger zone

9.3 Maintenance schedule

The specified maintenance intervals are recommendations only. The intervals may vary depending on the operating conditions.

If a maintenance assistant is used in the system visualizer, the maintenance intervals of the maintenance assistant are valid.

Interval	Maintenance work
Weekly	Clean the seal and ring cap and check for damages ↳ 8.3 “Cleaning”. Replace, if necessary ↳ 9.5 “Dismantling”.
	Check moving cover in the lid for function, contamination and damages. Dismantle and clean if necessary ↳ 9.4 “Cleaning the pins”.
Monthly	Clean cover hood and check for damage ↳ 8.3 “Cleaning”.
	Check flat spray nozzles for soiling and damages. Clean if necessary ↳ 10.5.1 “Clean the nozzle ring”.
	Check cleaning container for soiling and damages.
	Check pipes for damages. Replace, if necessary ↳ 9.6 “Replace hoses”.
	Check system pressure ↳ 6.4 “Setting operating parameters ”.
	Check process valves and media lines for operation and for tightness.

9.4 Cleaning the pins

In the flange disc are six radially oriented spring pins. All spring pins must be pressed into the lid lightly and with the same resistance.

Requirements:

- The cover is disassembled ↳ 9.5 “Dismantling”.

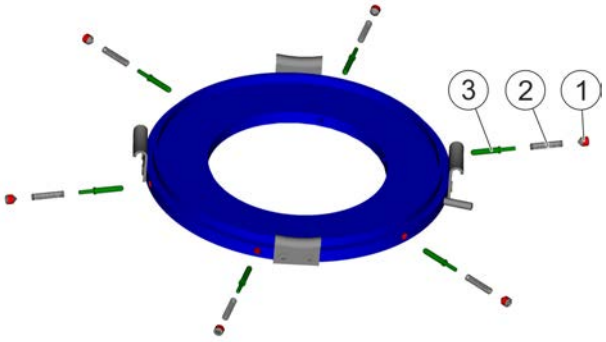

Fig. 17: Remove spring pins from the flange disk.

1. Loosen screws (1).
2. Remove spring (2).
3. Remove spring pin (3).
4. Repeat steps 1-3 for all spring pins.
5. Wipe down all individual parts with a moist, lint-free cloth.

NOTICE!

Property damages due to contamination

Contamination and residues on the components will influence the function of the cover.

- Check whether all pipes of the spring pins and balls are clean.
- Replace damaged components.

6. Insert spring pin.
7. Insert spring.
8. Tighten screws.
9. Repeat steps 6-8 for all spring pins.
10. Assemble lid . ↳ 9.7 “Assembly”

9.5 Dismantling

Lid

In dismantling, lay the lid upside down. The image shows the lid lying on its head.

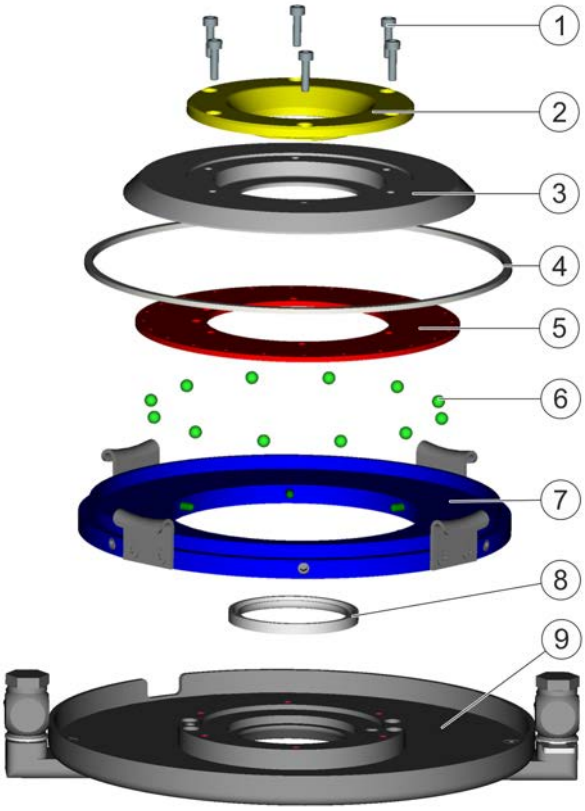

Fig. 18: Lid disassembled.

1 Screws
2 Blow air ring
3 Lid ring
4 Flat seal
5 Distributor disk
6 Balls
7 Flange disk
8 Sealing collar
9 Lid upper portion

1. Release air hoses from the lid upper portion (9).
2. Open four clamp fasteners in the lid upper portion.
3. Remove the lid (9). Lay it upside down on a support.

   Lay the lid upside down on a support so that no small parts go missing.

4. Loosen and remove six screws (1) on the lid upper part.
5. Take off the blow air ring (2).
6. Take off the lid ring (3).
7. Remove flat seal (4).
8. Remove safety washers (5).
9. **NOTICE!**

   In removing the flange disk, the twelve balls are at risk of falling uncontrolled.

   Carefully remove the flange disk (7).
10. Remove twelve balls (6) from the flange disk.
11. Remove sealing collar (8).

Cleaning container

Disassemble nozzle ring

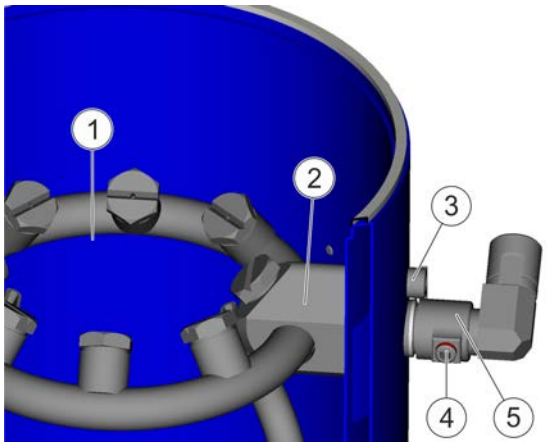

Fig. 19: Disassemble nozzle ring holder

1. Loosen screw-in plug connection (5) on the screw (4).
2. Loosen screw (3) outside on the nozzle ring holder (2).
3. Remove nozzle ring holder and distributor ring.

   Ensure in this that the sealing ring does not go missing.

4. Remove distributor ring (1) from the nozzle ring holder (2).

5. Loosen the flat spray nozzles from the distributor ring.

Disassmble blow air pipes

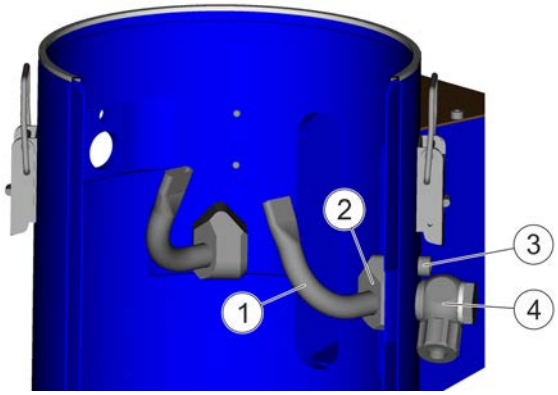

Fig. 20: Disassmble blow air pipes

6. Remove connection (4).
7. Loosen screw (3) on the blow air support bracket (2).

   Ensure in this that the two sealing rings do not go missing.

8. Remove blow air pipe support bracket (2).
9. Pull out blow air pipes (1).
10. Repeat steps 6-9 for the second blow air pipe.

9.6 Replace hoses

Personnel:
- Mechanic

Protective equipment:
- Protective workwear
- Anti-Static Safety Boots
- Eye protection
- Protective gloves

Requirements:
- All lines have been rinsed and de-pressurized.
- Connections are disassembled.

New chemical-resistant hose, acc. to parts list

1. Remove damaged hose.
2. Determine hose length.
3. Cut the new hose with a hose cutter at a 90° angle.
4. Press the new hose up to the stop in the corresponding connection or screw it in; see ↳ 5.5 “Connecting”.
5. Perform the follwoing checks:
   - Check connection for tightness.
   - Check hose for flexing.
   - Observe allowable bend radii of the hose.
   - Check error-free traverse of the hose without tensile load.

Remove all external objects (e.g. tools) in Station after concluding all work.

9.7 Assembly

Insert spring pin into flange disk

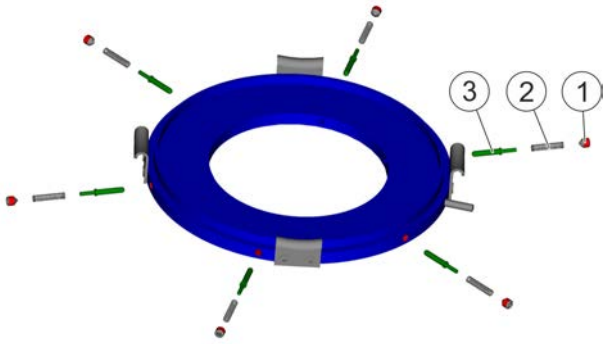

Fig. 21: Insert spring pin into flange disk

1. Check completeness of the individual parts.
2. Insert spring pin (3).
3. Insert spring (2).
4. Tighten screw (1).
5. Repeat steps 2-4 for all six spring pins.
6. Test function of the spring pins. The spring pins must be able to move with little effort needed.

Lid

Requirements:
- Lid is disassembled.
- Lid lies turned over on a support.
- Spring pins are inserted into the flange disk.

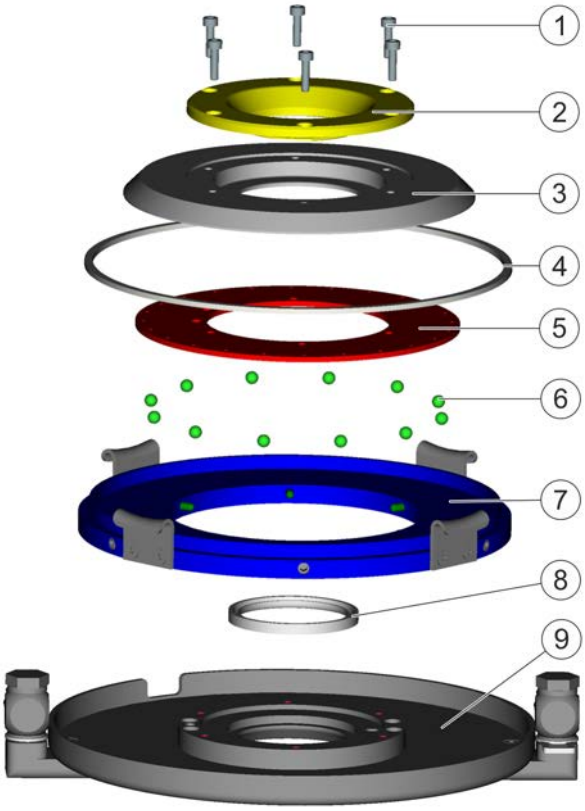

Fig. 22: Assemble lid

1. In the twelve bores of the balls in the flange disk, fill in with special lubrication or technical petroleum jelly.
2. Thinly coat twelve balls lightly with special lubrication or technical petroleum jelly.
3. Insert twelve balls into the flange disk (7).
4. Align flange disk to the lid upper portion (9). The six spring pins may not bend during the putting together of the flange disk and the lid upper portion.
5. Lay the flange disk (7) on the lid upper portion (9).
6. Attach sealing collar (8).
7. Place distributor disc (5).
8. Lay flat seal (4) in the flange disk.
9. Place distributor disc (3).
10. Position blow air ring (2).
11. Insert six screws (1) into the lid upper portion (9) and tighten using the cross.
12. Check whether the lid and the flange disk can move past one another with low forces. Disassemble if necessary.

Cleaning container

Assemble blow air pipes

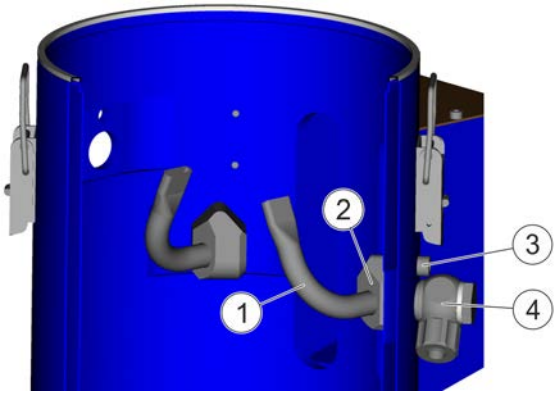

Fig. 23: Assemble blow air pipes

1. Press blow air pipes (1) into the blow air pipe support bracket (2).

Ensure in this that the two sealing rings are inserted into the blow air support bracket.

2. Reinforce the blow air pipes and the blow air pipe support bracket from the outside with the screw (3).
3. Screw in connection (4).
4. Repeat steps 1-3 for the second blow air pipe.

Assemble nozzle ring

5. Screw in flat spray nozzles on the distributor ring.

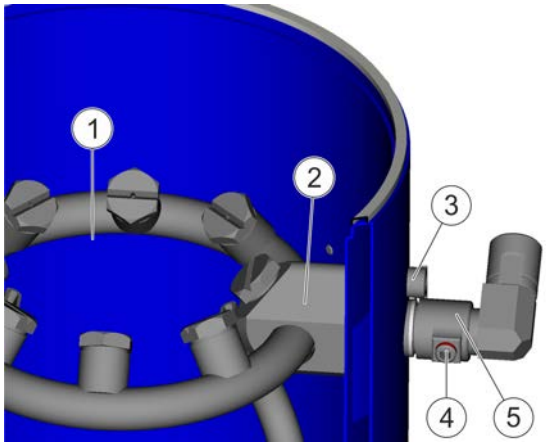

Fig. 24: Disassemble nozzle ring holder

6. Set distribution ring (1) in the nozzle ring holder (2).
7. Remove nozzle ring holder and distributor ring in the cleaning container.

   Ensure in this that the sealing ring is inserted.

8. Reinforce the nozzle ring holder from the outside with a screw (3).
9. Attach screw-in plug connector (5) using a screw (4).

Cleaning Device

1. Place lid on the cleaning container.
2. Hook on four quick release fasteners in the cover. Close quick release fasteners.

10 Faults

10.1 Safety recommendations

WARNING!

Danger of fire and explosion

Sources of ignition in explosive atmosphere can cause a fire or an explosion. Serious injury and death could be the consequence.

- Before carrying out any work, make sure that there is no explosive atmosphere.

WARNING!

Danger due to damaged components

Operating the product with damaged components can result in serious injury or death.

- Check components at specified intervals for damage.
- If you detect unusual operating sounds or any other noticeable aspects, put the product out of service.
- Contact the manufacturer ↳ “Hotline and Contact”.
- Replace damaged components promptly.

NOTICE!

Property damage due to collision

If atomizer and Cleaning Device collide, that could cause property damage.

- Before commissioning, check the set positions using the teach tool.
- Correct deviations.

NOTICE!

Material damage due to hardening material

If mixed 2K material from the atomizer is rinsed in the cleaning device, the material hardens in the cleaning device. This can cause material damage.

- Rinse 2K material in leaching or in a separate funnel.
- Before modifying purging programs, contact Dürr Systems . ↳ “Hotline and Contact”.

10.2 Behavior during faults

If faults occur:

- Shut down the power supply. Secure against reconnection.
  Verify that no current is present in cables.
- Disconnect the compressed air supply and material feed. Secure against reconnection.
  Depressurize the lines.
- Follow the defects table to correct the fault.

10.3 Fault Indicator

Faults are indicated in the fault report line of the visualizer in text form.

10.4 Defects table

Fault description	Cause	Remedy
The cover does not move in the lid.	Spring pins are attached.	Clean spring pins ↳ 9.4 “Cleaning the pins”.
Poor cleaning result	Flat spray nozzles are clogged.	Clean flat spray nozzles ↳ 8.3 “Cleaning”. Replace, if necessary ↳ 9.5 “Dismantling”.
	Nozzle ring defective	Replace nozzle ring ↳ 9.5 “Dismantling”.
	Purging program faulty	Check purging program. ↳ 7.4 “Rinsing program”
	Cleaning interval is too long.	Clean more frequently, adjust interval ↳ 7.4 “Rinsing program”.
Atomizer is not dried completely.	Seal is damaged.	Replace seal ↳ 9.5 “Dismantling”.
	Insufficient drying air	Check operating parameters ↳ 6.4 “Setting operating parameters ”.
	Purging program faulty	Check purging program. ↳ 7.4 “Rinsing program”
Cleaning agent sprays upwards.	Atomizer is not in cleaning position.	Check the cleaning position of the atomizer ↳ 6.5 “Positioning”.
	Air pressure is too low.	Check operating parameters ↳ 6.4 “Setting operating parameters ”.
	Seal damaged	Replace seal ↳ 9.5 “Dismantling”.

10.5 Troubleshooting

10.5.1 Clean the nozzle ring

NOTICE!

Unsuitable coating materials and cleaning agents

If the coating material or the detergent reacts chemically with components of the product, the product will be damaged.

- Use only the coating materials and detergents that are compatible with the components of the product.
- Follow safety data sheets.

Personnel:

- Mechanic

Protective equipment:

- Protective gloves
- Protective workwear
- Anti-Static Safety Boots
- Eye protection

Requirements:

- Ensure a non-explosive atmosphere.
- Cleaning device has been purged and disconnected from material supply.
- Lines are depressurized.
- Cleaning device is dismantled ↳ 9.5 “Dismantling”.

1. Unscrew nozzles from the nozzle ring.
2. Clean nozzles using a moist cloth.
3. Replace damaged nozzles that can no longer be cleaned.
4. Apply screw locking onto the threads ↳ 12.6 “Operating and auxiliary materials”.
5. Screw nozzles onto the threads.
6. Assemble cleaning device ↳ 9.7 “Assembly”.

11 Disassembly and Disposal

11.1 Safety recommendations

WARNING!

Danger of fire and explosion

Sources of ignition in explosive atmosphere can cause a fire or an explosion. Serious injuries and death can be the consequence.

- Before carrying out any cleaning and maintenance work, ensure there is no explosive atmosphere.

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 cleaning device is installed, from compressed air and material supply.
- Secure the system against being switched on again.
- Depressurize the lines.

CAUTION!

The pneumatically lockable carriage poses a danger of crushing

The quick action locks on the lid are under tension. The finger could get crushed when working on the lid.

- Wear protective gloves.

11.2 Disconnecting connections

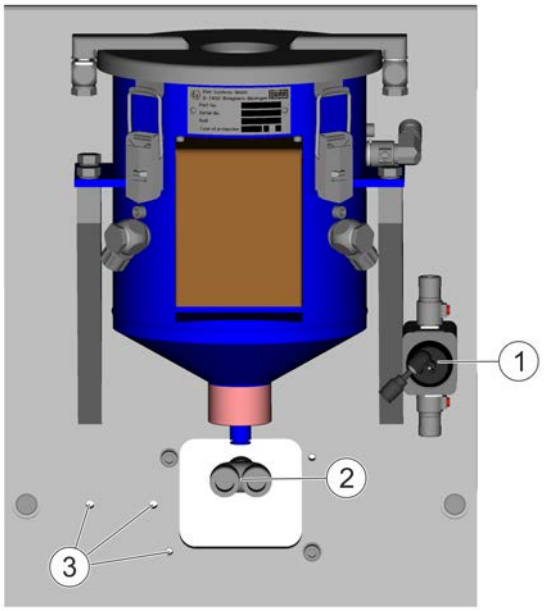

Fig. 25: Disconnecting connections

1 Cleaning medium valve
2 Air manifold
3 Grounding connections

Personnel:

- Mechanic

Protective equipment:

- Protective workwear
- Anti-Static Safety Boots
- Protective gloves

Requirements:

- Ensure a non-explosive atmosphere.

1. Disconnect compressed air from the manifold for air (2).
2. Disconnect material supply from the valves for cleaning agents (1).
3. Disconnect ground connections (3).

11.3 Disassembly

Personnel:

- Mechanic

Protective equipment:

- Protective workwear
- Anti-Static Safety Boots
- Protective gloves

Requirements:

- Connections are separated ↳ 11.2 “Disconnecting connections”.
- Cleaning device is cleaned of all residues ↳ 8.3 “Cleaning”.

1. One person will secure the cleaning device.
2. The second person releases the four screws that connect the console with the support bracket, the steel construction, or the cabin wall.
3. Remove and save screws and washers.
   ⇨ Console and cleaning device are disassembled.

Optional: Disassemble support bracket

Personnel:

- Mechanic

Protective equipment:

- Protective workwear
- Anti-Static Safety Boots
- Protective gloves

Requirements:

- Support bracket with console and cleaning device are disassembled.

1. One person will secure the cleaning device.
2. The second person releases the four screws that connect the console with the support bracket.
3. Remove and save screws and washers.
   ⇨ Support bracket is disassembled.

11.4 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.
- 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.

12 Technical data

12.1 Dimensions and weight

Detail	Value
Height	384 mm*
Width	303 mm*
Depth	357 mm*
Weight	16 kg
Cleaning device, weight	5kg
Weight of support bracket	11kg

*Measurement without support bracket

12.2 Connections

Detail	Value
Cleaning agent connection V11	Screw-in plug connection D12 (6-8bar)
Drying air BL14/15	Plug connection D12 (6-8 bar)
Control air for V11	Plug connection D6 (6 bar)
Cleaning medium leakage	Open pipe (G1”) Optionally, a funnel or container can be placed beneath it.
Drying air leakage	Open ring gap
Optional: Control unit for cleaning device	3x connection magnet valve (opener contact closed, 2-ply cable (+24 V / 0 V))

12.3 Operating conditions

Detail	Value
Ambient temperature, min.	15°C
Ambient temperature, max.	40°C
Recommended ambient temperature	23 ± 3°C
Humidity	35 - 90 %
Recommended humidity	65 ± 5%
Ex labeling	Ex II 2G Ex h IIA T6 Gb X

12.4 Operating values

Compressed air	
Detail	**Value**
Compressed air operating pressure, min.	6 bar
Compressed air operating pressure, max.	8bar

Cleaning	
Detail	**Value**
Cleaning agent pressure, min.	7 bar
Cleaning agent pressure, max.	10bar
Cleaning agent temperature, max.	40 °C
Cleaning quantity per cleaning sequence	65 ml at 7 bar
Total air flow, max.	1500 Nl/min
Air consumption	1000Nl/min
Cleaning duration	5-8 s

12.5 Type plate

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

- Product name
- Material number
- Year of manufacture
- Serial number
- EX labelling
- Maximum air pressure
- Maximum material pressure
- CE label
- QR Code
- Manufacturer's address

12.6 Operating and auxiliary materials

Description	Type
Screw locking, intermediate strength	Loctite type 243
Cleaning medium	Cleaning medium of the system, coordinated for the paint system used

12.7 Material specification

Material

Suitable Material:

- Flammable and non-flammable coating materials
- 1K coating materials and 2K coating materials
- Cleaning media and solvent
  Cleaning media of the explosion group IIA

Material specifications:

- Max. media temperature 40°C, always 15K below flashpoint

13 Replacement parts and accessories

13.1 Spare part

Item numbers relate to the ↳ 9.5 “Dismantling”.

Item	Replacement parts	Material no.
3	Lid ring D180	M63010771
4	Flat seal	M08090101
8	Sealing collar	M08220012
–	Flat spray nozzle	M09100025
–	Blow air pipe	M34070060
–	Fastener	M53010004
–	Control valve	N32040084

13.2 Accessories

Detail	Value
Assembly support bracket	M19023576
Control unit for cleaning device	N32220006

13.3 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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LEADING IN
PRODUCTION
EFFICIENCY

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