LEADING IN PRODUCTION EFFICIENCY

# Pneumatic Agitator A FIX R PR

## Operation manual

MAG00002EN, V07

www.durr.com

N68040285
N68040286

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Translation of the original operation manual

MAG00002EN, V07

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## 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 products with the following material numbers:

| | |
|---|---|
| N68040285<br>Agitator A FIX R PR 185 580 | |
| N68040286<br>Agitator A FIX R PR 185 860 | |

## 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

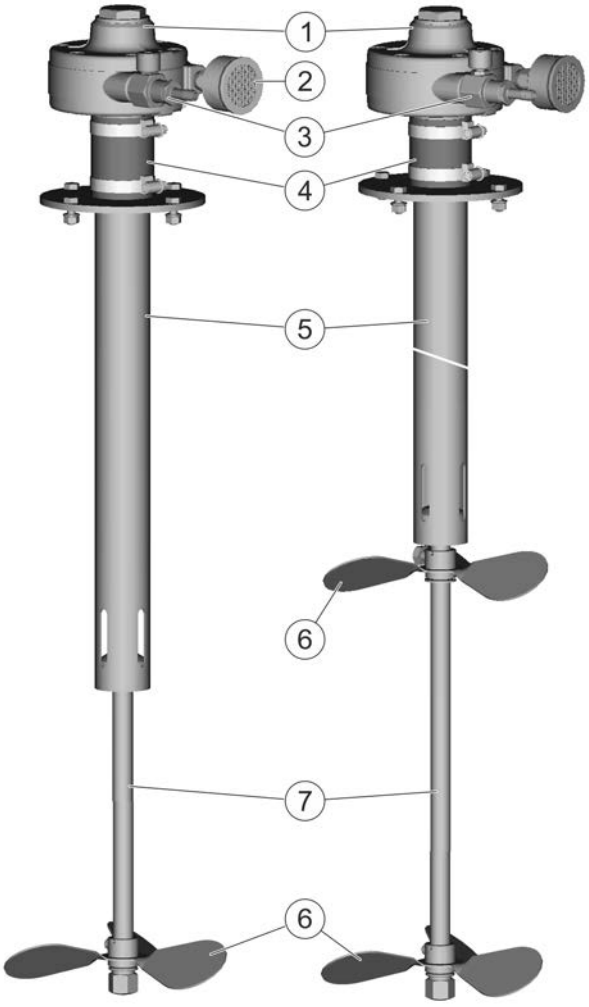



Fig. 1: Overview

1 Pneumatic motor
2 Sound muffler
3 Throttle valve on/off
4 Connector
5 Guide tube
6 Agitator
7 Agitator shaft

## 1.2 Short description

The pneumatic agitator (hereafter called “agitator”) is used for agitating, mixing and consistency maintenance of fluid coating materials.

# 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 agitator A FIX R PR with pneumatic motor is to be used exclusively for agitating, mixing and consistency maintenance of fluid coating materials. The agitator may exclusively be used in original packs of 60 to 200liters and with suitable approved cleaning agents.

The agitator may only be operated within the approved technical data ↳ 11 “Technical data”.

The agitator is intended for use in industry and trade only.

The agitator may exclusively be used in a closed container. The container must be firmly closed with a lid. The agitator must be bolted using the flange with the lid. The guide tube and the agitator shaft must be in the container.

The agitator may be used under the following conditions:

- In explosive areas of Ex zones 1 and 2
- In non-explosive areas
- With flammable fluid coating materials of the explosion group IIC
- With non-flammable fluid coating materials
- Only use agitator in a container pointed downwards.

### Misuse

Not using as intended entails danger to life.

Examples of wrong use are:

- Processing of gaseous or solid materials
- Use of components that are not approved by Dürr Systems for operation.
- Use of unapproved materials, see safety data sheets
- Making conversions or changes on your own
- Use of the agitator in Ex zone 0
- Operation of the agitator without liquid coating materials

### Ex labeling

Ex II 2G Ex h IIC T4 Gb X

| | | |
|---|---|---|
| II | - | Device group II: all areas except mining |
| 2G | - | Device category 2 for gaseous ex-atmosphere |
| h | - | Ignition protection category |
| IIC | - | Explosion group |
| T4 | - | Temperature class |
| Gb | - | Device protection level EPL |
| X | - | Restriction: The device is configured for operation in an ambient temperature of 0°C to 40°C. |

## 2.3 Safety signs

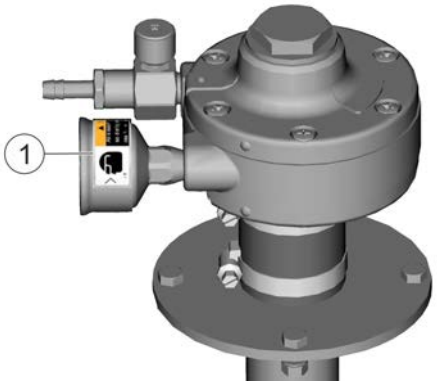



Fig. 2: Overview of Safety Marking

1 Wear eye protection

## 2.4 Residual risks

### Explosion

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

- Before carrying out any work on the product, ensure a non-explosive atmosphere.
- Do not use sources of ignition and open light.
- Do not smoke.
- Ground the product.
- Wear suitable protective equipment.

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 15K above the ambient temperature.
- Observe explosion group of the coating materials and their detergents and cleaning agents.
- 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 suitable protective equipment.

### Material

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

» Ensure that the forced ventilation is operational.
» Follow the safety data sheet.
» Adjust the rotational speed to the material viscosity.
» Avoid eddy formation.
» Reduce rotational speed when removing material.
» Keep the agitator at a safe distance from the wall and the bottom of the container.
» Wear specified protective equipment.

### Noise

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

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

### Rotary components

If using the agitator outside a closed container, clothing or hair can get entangled in the rotary components and if body parts come in contact with them, it can result in serious injuries.

» The agitator may only be used in a closed container.
» Wear close-fitting work clothes.

### 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.

### Compressed air

Hoses under pressure can tear or burst. Escaping compressed air can cause serious injury.

» Protect compressed air hoses from heat and sharp edges.
» Do not let the compressed air hose bear the weight of the agitator.
» Do not use the compressed air hose to pull the throttle valve.
» Separate the agitator from the compressed air supply after the end of working hours.
» Wear specified protective equipment.

If hoses under pressure come off loose, the hoses can lash around and cause injuries.

» Check that the hose connections are seated tightly.
» Check compressed air hoses for damage.
» Relieve pressure from the hoses after each operation end and before servicing and maintenance work.

## 2.5 Property damage

### Rotational speed too high

Operating the agitator at excessively high rotational speeds causes eddy currents and mixes-in air. Air in the material line can cause uneven coating.

» Adjust the rotational speed to the material viscosity.
» Reduce rotational speed when removing material

### Unprepared material

If you do not agitate the material well, the settled material particles remain at the bottom of the container. This can cause imperfect painting results.

» Agitate the material in the delivery pack before painting or emptying.

## 2.6 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.

## 2.7 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

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

Furthermore, the operator possesses the following knowledge:
- Technical Measures for occupational safety and health

The operator is responsible for the following work:
- Operate and monitor the system/ product.
- Introduce measures in the event of faults.
- Clean system/ product.

**+ additional qualification explosion protection**
In addition to the knowledge of the various specialist fields, the mechanic has knowledge of regulations and safety measures when working in potentially explosive areas.

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

## 2.8 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.

**Respiratory protection device**
The respiratory protection device protects from hazardous gases, vapors, dust and similar materials and media. The version of the respiratory protection device must be suitable for the media used as well as their usage.

**Safety boots**
Protect feet from crushing, falling items and slipping.

**Use ear protection**
Protects from auditory damage due to noise.

# 3 Design and Function

## 3.1 Agitator

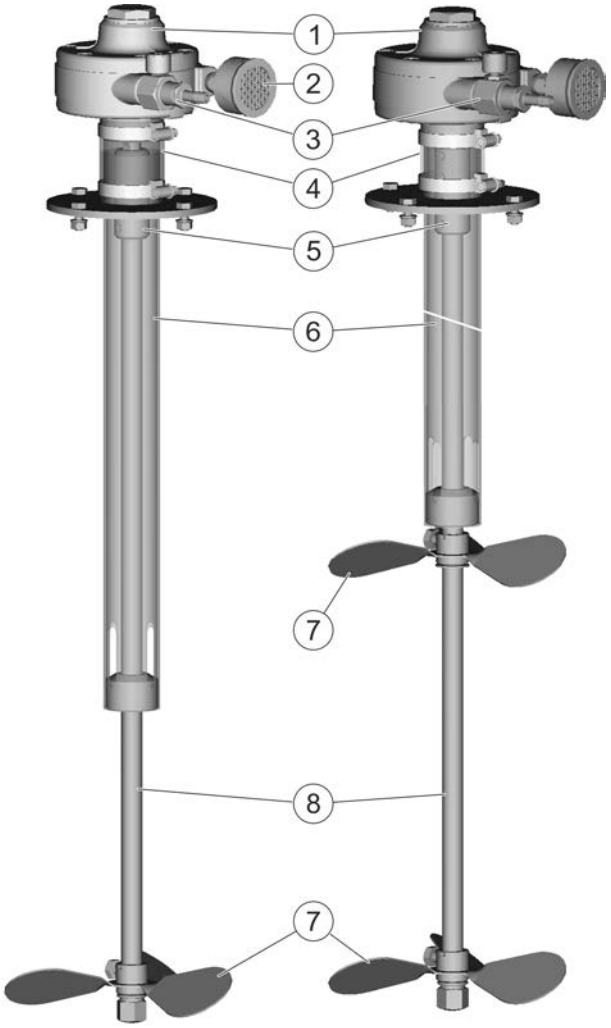



Fig. 3: Construction and function

1 Pneumatic motor
2 Sound muffler
3 Throttle valve on/off
4 Connector
5 Connecting piece
6 Guide tube
7 Agitator
8 Agitator shaft

For agitating material, the agitator must be mounted on the lid in the closed container. The pneumatic motor (1) drives the agitator shaft via the connecting piece (5). The agitator blades (7) is firmly connected to the agitator shaft and rotate synchronously with it.

## 3.2 Pneumatic motor

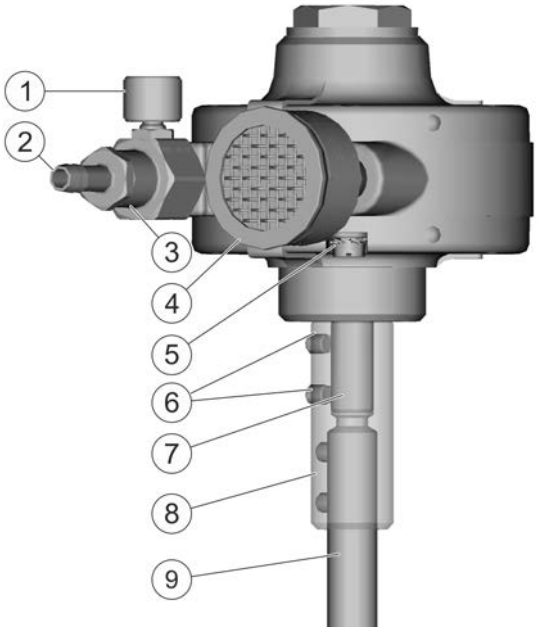



Fig. 4: Construction of pneumatic motor

1 Adjusting screw on/off.
2 Compressed air connection
3 Throttle valve
4 Sound muffler
5 Grounding screw
6 Threaded pin
7 Drive shaft
8 Connecting piece
9 Agitator shaft

Use the connection (2) on the throttle valve (3) to connect the agitator to compressed air. Connect and disconnect the agitator and adjust the rotational speed of the agitator shaft on the adjusting screw (1). The drive shaft (7) of the pneumatic motor is connected with the agitator shaft (9) by means of a connecting piece (8). The sound muffler (4) at the outlet of the pneumatic motor reduces the sound emission.

# 4 Transport, scope of supply and storage

## 4.1 Scope of delivery

The scope of supply includes the following components:

» Agitator
» Ground conductor
↳ 12.2 “Accessories”

Inspect delivery on receipt for completeness and integrity.
Report defects immediately ↳ “Hotline and Contact”.

## 4.2 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.

## 4.3 Storage

Storage provisions:

» Do not store outdoors.
» Store Agitator 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%
» Protect agitator shaft and agitator blade from load to avoid bending.

# 5 Assembly

## 5.1 Requirements for the Installation point.

**Container**

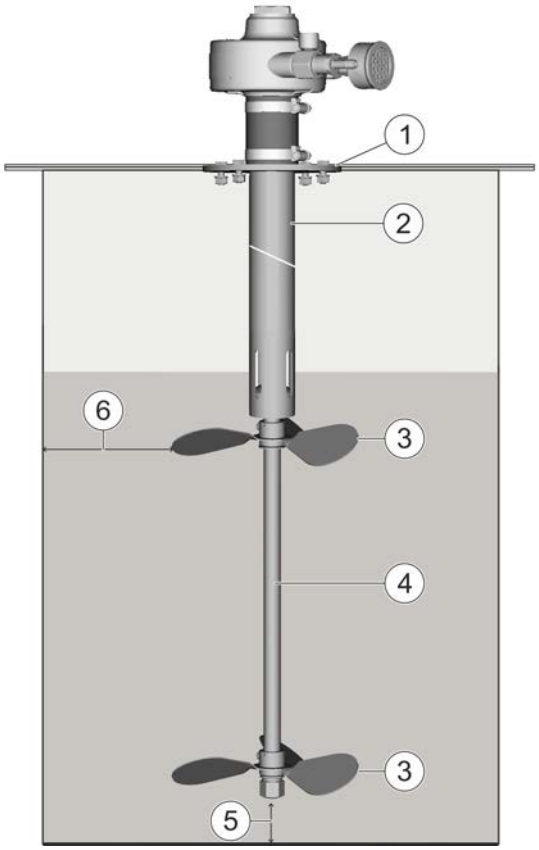



Fig. 5: Installation site of container (example N68040286)

Use agitator in a closed container only.
Requirement:

» The guide tube (2) and the agitator shaft (4) are in the container.
» The container is made of a non-sparking and unbreakable material.
» The agitator blades (3) are completely submerged in the material.
» The minimum distance to the wall (6) and to the bottom (5) of the container is at least 25mm.
» A suitable agitator shaft (4) is mounted, depending on the container height.

### Lid

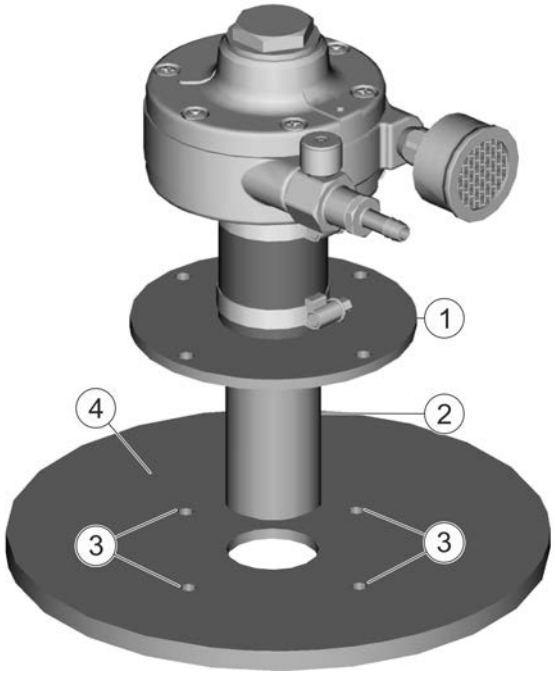



Fig. 6: Installation site of lid

Requirement:
- » The flange (1) is bolted to the lid (4).
- » The lid is fully lockable.
- » The lid is made of a non-sparking and unbreakable material.
- » The lid is maximum 3mm tall.
- » Observe the hole pattern of the flange for the screw connections of the lid.
- » Note the dimensions of the flange when adjusting the lid ↳ 11.1 “Dimensions and weight”.

## 5.2 Assembly

### Assemble the agitator

Personnel:
- » Mechanic

Protective equipment:
- » Safety boots
- » Protective gloves

Materials:
- » Container with lid ↳ 5.1 “Requirements for the Installation point.”.

Requirements:
- » Agitator blades are disassembled ↳ 9.4.1 “Replace agitator blade”.

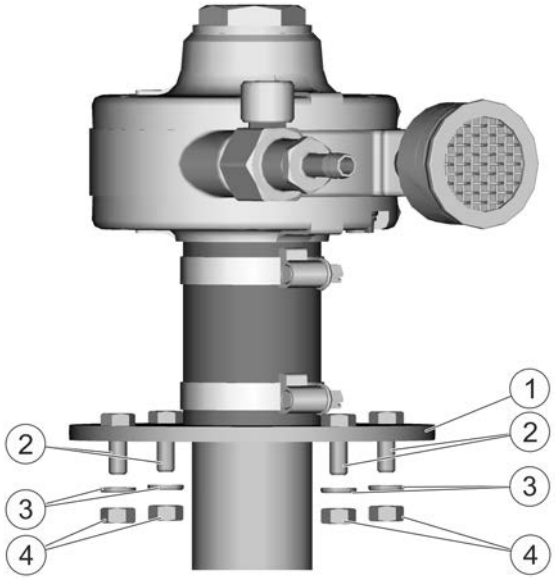



Fig. 7: Assemble the agitator

1. Thread off nuts (4) on the flange (1).
2. Remove washers (3).
3. Remove screws (2).
4. Place lid on the container.

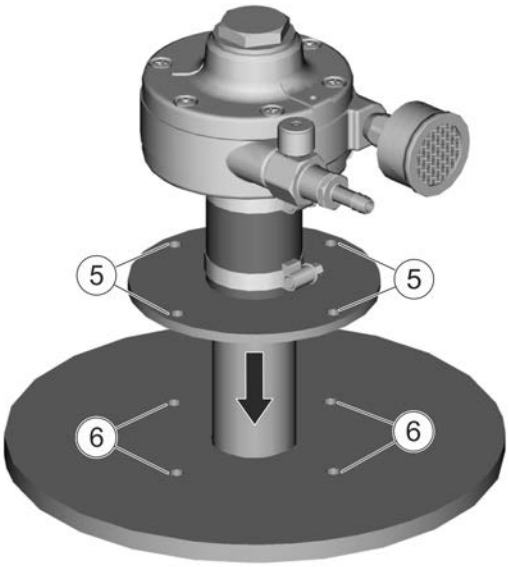



Fig. 8: Insert agitator

5. Insert agitator up to the flange into the bore of the lid.
   ⇨ Bores in the flange (5) and in the lid (6) match with each other.

6. Ensure that the minimum distance of 25 mm to the wall and bottom of the container is maintained.
7. Screw in screws (2) on the flange of the agitator.
8. Set washers (3) on the screws (2).
9. Insert nuts (4) on the screws (2) and tighten them.
10. Assemble agitator blade ↳ 9.4.1 “Replace agitator blade”.
    ⇨ Agitator is assembled.
11. Shut the container tightly with the lid.

## 5.3 Connecting

### Ground agitator

**WARNING!**

**Sparks due to electrostatic discharge**

If the agitator is not grounded, there can be an electrostatic charge on the the agitator. 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 Agitator as specified.
– Before carrying out any work, make sure that there is no explosive atmosphere.

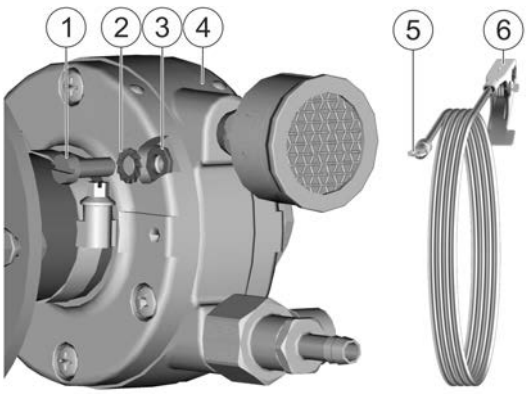



Fig. 9: Grounding

Personnel:
» Electrician
» + additional qualification explosion protection

Protective equipment:
» Anti-Static Safety Boots

1. Unscrew screw (1).
2. Remove lock washer (2) and washer (3).
3. Insert lock washer (2) on the screw (1).
4. Fit cable lug (5) of the ground conductor onto the screw (1).
5. Insert washer (3) on the screw (1).
6. Screw the screw (1) into the pneumatic motor (4).
7. Connect the ground conductor (6) to a secure current conductor.
8. Measure grounding resistance ↳ 11.6 “Operating values”.

Container for the material must be grounded.

### Assemble the compressed air hose

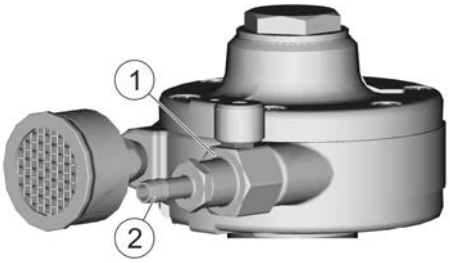



Fig. 10: Assemble the compressed air hose

Personnel:
» Mechanic
» + additional qualification explosion protection

Protective equipment:
» Eye protection
» Protective gloves
» Safety boots

Materials:
» suitable compressed air hose
Observe the maximum operating pressure ↳ 11.6 “Operating values”.

1. Pull up compressed air hose on the nozzle (2) of the throttle valve (1).
2. Secure compressed air hose with a hose clamp to prevent slipping.
3. Connect the other end of the compressed air hose to the compressed air supply.

# 6 Operation

## 6.1 Safety recommendations

**WARNING!**

**Danger of explosion due to sources of ignition in an explosive atmosphere.**

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

– Do not use any sources of ignition and no open light in the work area.
– Do not smoke.
– Check grounding.
– Wear suitable protective equipment.
– Observe the explosion group of the medium.

**WARNING!**

**Danger of explosion due to sources of ignition in an explosive atmosphere.**

If a rotary component of the agitator touches a fixed object, it can generate sparks. Sparks can cause explosions in explosive atmospheres. Serious injury and death could be the consequence.

– The agitator may only be used in the delivery pack.
– Make sure that there are no objects present in the container.
– Maintain minimum distances to the container.

**WARNING!**

**Danger from harmful or irritant substances**

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

– Agitator 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!**

**Danger due to rotary components**

If using the agitator outside a closed container, clothing or hair can get entangled in the rotary components and if body parts come in contact with them, it can result in serious laceration and amputation.

– The agitator may only be used in a closed container.

**WARNING!**

**Risk of injury from whipping hoses**

If hoses under pressure come off loose, the hoses can lash around and cause injuries.

– Check that the hose connections are seated tightly.
– Check hoses for damage.
– Before carrying out any work:
  » Depressurize hoses.
  » Secure the system against reconnection.

**WARNING!**

**Escaping compressed air**

Compressed air hoses may rupture if under pressure. Escaping compressed air can cause serious injury.

– Disconnect the product from the compressed air supply after the end of working hours.
– Observe the service life of the compressed air hoses. Replace outdated compressed air hoses.

**WARNING!**

**Danger due to escaping compressed air**

Compressed air escaping from the sound muffler can contain solid or liquid particles. Particles under pressure can injure the eyes or the skin.

– Wear specified protective equipment.

**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.

## 6.2 General notes

**NOTICE!**

**Unprepared material**

If you do not agitate the material well, the settled material particles remain at the bottom of the container. This can cause imperfect painting results.

– Agitate the material before painting or emptying.

**NOTICE!**

**High rotational speed**

Operating the agitator at excessively high rotational speeds causes eddy currents and mixes-in air. Air in the material line can cause uneven coating.

– Adjust the rotational speed to the material viscosity.
– Reduce rotational speed when removing material

**NOTICE!**

**Low filling level**

If the agitator blade is not completely submerged in the material, the material can remain adhered to the agitator blade. Material residues can choke the material lines.

– Ensure that the container holds sufficient material.
– Clean the agitator every time after opening the lid.

**NOTICE!**

**Operation without medium**

Operating the agitator in an empty container or in air may damage the agitator shaft.

Operate the agitator in a medium only.

## 6.3 Checks

Check for unusual noises during operation. Perform the following checks before beginning the shift:

» Cleanliness

Ensure there are no material residues and other contaminants. Damage and leaks can only be seen on clean components.

» Check tightness of the connections and lines.
» Threaded pins on the connecting piece are tightened.
» A pin is present in the agitator blade.
» Nut on the agitator blade is tightened.
» Hose clamps have been tightened ↳ 5.3 “Connecting”.
» Safety washer on the top agitator blade is seated firmly (only for an agitator with two agitator blades).
» Material temperature ↳ 11.3 “Operating conditions”
» Operating pressure ↳ 11.6 “Operating values”
» Ground conductor is correctly connected ↳ 5.3 “Connecting”.
» Grounding screw is tightened ↳ 5.3 “Connecting”.

## 6.4 Agitate

**NOTICE!**

**Unprepared material**

If you do not agitate the material well, the settled material particles remain at the bottom of the container. This can cause imperfect painting results.

– Agitate the material before painting or emptying.

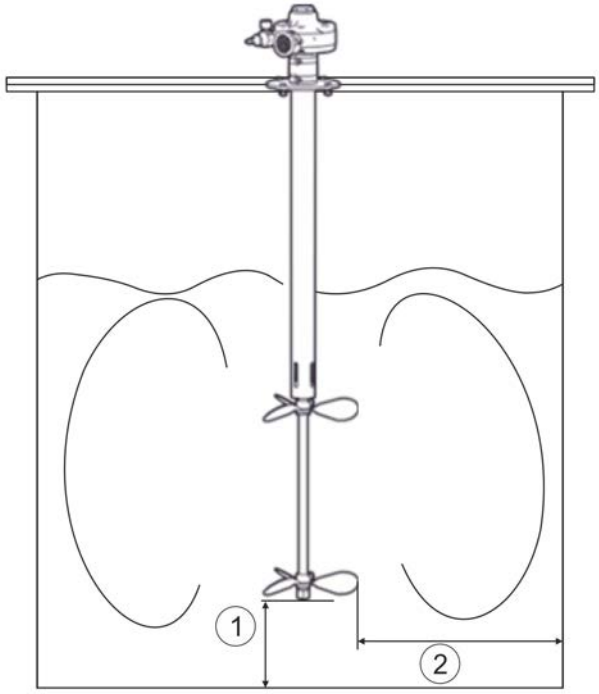



Fig. 11: Ideal agitating position

1 Distance from the wall, min. 25mm
2 Distance from the floor, min. 25mm

Personnel:

» Operator
» + additional qualification explosion protection

Protective equipment:

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

Requirements:

» Compressed air supply is switched on.
» Material is in the container.
» Agitator and container are grounded.
» Agitator is correctly mounted ↳ 5.1 “Requirements for the Installation point.”.

### Switching on

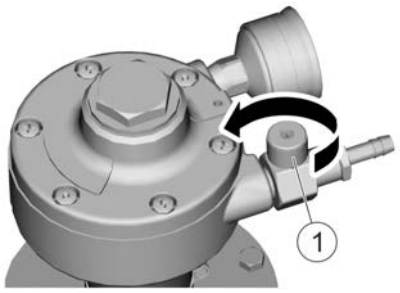



Fig. 12: Switching on

1. Slowly rotate the adjusting screw (1) on the throttle valve in the direction of the arrow.
   ⇨ Agitator is switched on. The more the throttle valve is opened, the faster does the agitator shaft rotate.

   The rotational speed depends on the material viscosity.

2. **NOTICE!**

   **High rotational speed**

   Operating the agitator at excessively high rotational speeds causes eddy currents and mixes-in air. Air in the material line can cause uneven coating.
   – Adjust the rotational speed to the material viscosity.
   – Reduce rotational speed when removing material

   Rotate the adjusting screw (1) further open to increase the rotational speed.

### Switching off

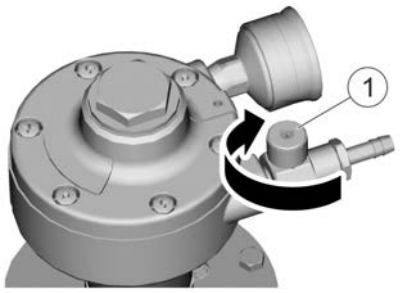



Fig. 13: Switching off

3. Rotate the adjusting screw (1) on the throttle valve in the direction of the arrow for closing.
   ⇨ The more the throttle valve is closed, the slower does the agitator shaft rotate. If the throttle valve is closed completely, the agitator is switched off.

# 7 Cleaning

## 7.1 Safety recommendations

**WARNING!**

**Danger of fire and explosion**

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

- Do not conduct cleaning work in an explosive atmosphere.
- Ensure that the flashpoint of the fluid is at least 15K above the ambient temperature.
- Note explosion group of the fluid.
- Only use approved cleaning agents.
- Follow the safety data sheet.
- Conduct cleaning work only in an area with technical ventilation.
- Ensure that forced ventilation and fire protection equipment are in operation.
- Do not use sources of ignition and open light.
- Do not smoke.
- After completing the cleaning work, remove cleaning agents and cleaning tools from the danger zone.

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

**WARNING!**

**Danger from harmful or irritant substances**

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

- Agitator 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!**

**Danger of fire and explosion**

Electrostatic charges on the protective device pose an ignition hazard.

- Clean protective device with moist cloth only.
- Do not use dry cloth for drying.

**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.

## 7.2 Overview

Clean agitator:

» Before every change of material

» After end of operation

Depending on the level of contamination, Dürr Systems recommends the following cleaning methods:

» Manual cleaning for light contamination

» Cleaning in a cleaning bath, if heavily contaminated

## 7.3 Manual cleaning

Clean the following components of the agitator manually for light contamination:
- Pneumatic motor
- Agitator shaft
- Agitator

Personnel:
- Cleaning staff
- + additional qualification explosion protection

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

Requirements:
- Compressed air supply is switched off and secured against being switched on again.
- Compressed air hose is depressurized.

1. Remove contamination with a cloth or a soft brush.

## 7.4 Cleaning bath

**NOTICE!**

**Penetration of cleaning agents**

If cleaning agents penetrates the pneumatic motor, the pneumatic motor can be damaged.
– Do not submerge pneumatic motor in the cleaning medium.

Clean the following components of the agitator in a cleaning bath, if they are heavily contaminated:
- Agitator shaft
- Agitator

Personnel:
- Cleaning staff
- + additional qualification explosion protection

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

Requirements:
- Compressed air supply is switched off and secured against being switched on again.
- Compressed air hose is depressurized.

1. Disassemble agitator blade ↳ 9.4.1 “Replace agitator blade”.
2. Disassemble agitator shaft ↳ 9.4.2 “Replace agitator shaft”.
3. Place components in the cleaning bath.

   The cleaning duration depends on the contamination.
4. Remove components.
5. Remove residual contamination with a soft cloth or a soft brush.
   If necessary, repeat steps 3 and 4 until agitator is clean.
6. Wipe components dry with a dry clean cloth.
7. Assemble agitator shaft ↳ 9.4.2 “Replace agitator shaft”.
8. Assemble agitator blade ↳ 9.4.1 “Replace agitator blade”.

# 8 Maintenance

## 8.1 Safety recommendations

Do not conduct cleaning and maintenance work in explosive atmosphere.

**WARNING!**

**Danger of fire and explosion**

Flammable coating materials and their detergents and cleaning agents can cause a fire or an explosion.
– Ensure that the flashpoint of the fluid is at least 15 K above the ambient temperature.
– Note explosion group of the fluid.
– Follow the safety data sheet.
– Ensure that forced ventilation and fire protection equipment are in operation.
– Do not use sources of ignition and open light.
– Do not smoke.
– Check grounding.

**WARNING!**

**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 agitator is installed, from compressed air and material supply.
– Secure the system against being switched on again.
– Depressurize the lines.

**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 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!**

**Danger of explosion due to sources of ignition in an explosive atmosphere.**

Metal parts falling into the container can cause sparking. Sparks can cause explosions in explosive atmospheres. Serious injury and death could be the consequence.

– Perform maintenance work outside the reach of the container.
– Prevent metal parts from falling into the container.
– After completing the maintenance work, tools from the danger zone.

**WARNING!**

**Danger from harmful or irritant substances**

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

– Agitator 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!**

**Components flying about**

The components in the pneumatic motor are under pressure and can cause serious injuries on dismantling the pneumatic motor.

– Do not dismantle pneumatic motor.
– If there is a malfunction or fault in the pneumatic motor, please return it to the reseller.

## 8.2 Maintenance schedule

| Interval | Maintenance work |
|---|---|
| Before every use | Check grounding ↳ 5.3 “Connecting”. |
| | Ensure that the nut on the agitator blade is tightened ↳ 9.4.1 “Replace agitator blade”. |
| | Ensure that the threaded pins on the connecting piece are tightened ↳ 9.4.2 “Replace agitator shaft”. |
| After each use | Clean agitator ↳ 7 “Cleaning”. |
| Semi-annually | Check safety markings ↳ 2.3 “Safety signs”:<br>» Clean contaminated safety markings.<br>» Replace missing or damaged safety markings. |

## 8.3 Lubrication schedule

| Interval | Maintenance work |
|---|---|
| After 16 operating hours | Lubricate pneumatic motor ↳ 8.4 “Lubrication”. |

## 8.4 Lubrication

**Lubricate pneumatic motor.**

If you operate the agitator with oil-free compressed air, the pneumatic motor must be lubricated manually.

Personnel:

» Mechanic

» + additional qualification explosion protection

Protective equipment:

» Protective gloves

» Anti-Static Safety Boots

» Eye protection

1. Switch off compressed air supply.
2. Depressurize the line.
3. Disconnect the compressed air hose from the compressed air supply.
4. Put in two drops of lubricant in the compressed air hose ↳ 11.5 “Operating and auxiliary materials”.

   Do not fill in the lubricant directly in the pneumatic motor.
5. Connect the compressed air hose to the compressed air supply.
6. Switch on compressed air supply.
   ⇨ The lubricant is distributed in the pneumatic motor.

# 9 Faults

## 9.1 Safety recommendations

**WARNING!**

**Danger of fire and explosion**

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

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

**WARNING!**

**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 agitator is installed, from compressed air and material supply.
– Secure the system against being switched on again.
– Depressurize the lines.

**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 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!**

**Danger of explosion due to sources of ignition in an explosive atmosphere.**

Metal parts falling into the container can cause sparking. Sparks can cause explosions in explosive atmospheres. Serious injury and death could be the consequence.

– Perform maintenance work outside the reach of the container.
– Prevent metal parts from falling into the container.
– After completing the maintenance work, tools from the danger zone.

**WARNING!**

**Danger from harmful or irritant substances**

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

– Agitator 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!**

**Components flying about**

The components in the pneumatic motor are under pressure and can cause serious injuries on dismantling the pneumatic motor.

– Do not dismantle pneumatic motor.
– If there is a malfunction or fault in the pneumatic motor, please return it to the reseller.

## 9.2 Behavior during faults

If faults occur:

» Switch off compressed air supply. Secure against reconnection.
» Depressurize lines.
» Follow the defects table to correct the fault.
» Carry out repairs according to IEC 60079-19.

## 9.3 Defects table

| Fault description | Cause | Remedy |
|---|---|---|
| Pneumatic motor does not turn, or only slowly. | Compressed air supply is switched off. | Switch on compressed air supply. |
| | Filter in the sound muffler is blocked. | Replace filter. |
| | Compressed air supply is paused. | Localize and eliminate compressed air interruption. |
| | Throttle valve is not opened. | Turn on the throttle valve slowly. |
| | Throttle valve is defective. | Replace throttle valve ↳ 9.4.3 “Replace throttle valve”. |
| | Pneumatic motor has no lubrication or is running dry. | Lubricate pneumatic motor ↳ 8.4 “Lubrication”. |
| | Pneumatic motor is defective. | Send in pneumatic motor for repairs or replace it ↳ 9.4.4 “Replace pneumatic motor.”. |
| | Compressed air hose with cross section less than DN 8 is used. | Assemble compressed air hose with the required diameter. ↳ 11.2 “Connections” |
| Agitator vibrates or does not run smoothly. | Agitator shaft or agitator blade is not correctly assembled. | » Assemble agitator shaft again ↳ 9.4.2 “Replace agitator shaft”.<br>» Assemble agitator blade again ↳ 9.4.1 “Replace agitator blade”. |
| | Agitator blade is damaged or bent. | Replace agitator blade ↳ 9.4.1 “Replace agitator blade”. |
| | Agitator shaft has an imbalance or is damaged. | Replace agitator shaft ↳ 9.4.2 “Replace agitator shaft”. |
| | Bearing housing is defective. | Replace bearing housing ↳ 9.4.2 “Replace agitator shaft”. |
| Material coat is uneven. | Material is being agitated with too high a rotational speed. | Reduce rotational speed ↳ 6.4 “Agitate”. |

## 9.4 Troubleshooting

### 9.4.1 Replace agitator blade

Check components for damage before assembly. If necessary, replace with new components.

Personnel:

» Mechanic

Protective equipment:

» Protective gloves

» Safety boots

» Eye protection

Requirements:

» Compressed air hose is disassembled. ↳ 10.2 “Disassembly”

» Throttle valve is closed.

» Agitator is outside of the container.

The agitator with the material number N68040286 has two agitator blades.

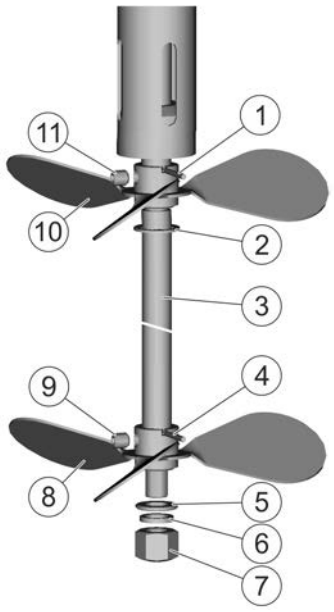



Fig. 14: Replace agitator

### Disassemble agitator blade

#### Lower agitator blade

1. Unscrew nut (7).
2. Remove washers (5) and (6).
3. Unscrew threaded pin (9).
4. Remove agitator blade (8).
   ⇨ Contaminants can stick agitator blades together.

> **NOTICE!**
>
> **Property damage due to disassembly of the agitator blade**
>
> If components are stuck together due to contamination, the agitator shaft and the agitator blade may bent during the disassembly of the agitator blade.
> – Knock off agitator blade carefully using a rubber mallet.

5. Pull off pin (4) from the agitator shaft (3).
   ⇨ Lower agitator blade is disassembled.

#### Upper agitator blade

6. Loosen retention ring (2).
7. Unscrew threaded pin (11).
8. Remove agitator blade (10).
9. Pull off pin (1) from the agitator shaft (3).
   ⇨ Upper agitator blade is disassembled.

### Assemble agitator blade

#### Upper agitator blade

1. Insert pin (1) into agitator shaft (3).
2. Insert new agitator blade (10) on the agitator shaft (3).
   ⇨ The pin (1) rests in the groove of the agitator blade.
3. Press retention ring (2) into the groove of the agitator shaft.
4. Screw in and tighten threaded pin (11).
   ⇨ Upper agitator blade is disassembled.

#### Lower agitator blade

5. Insert pin (4) into agitator shaft (3).
6. Insert new agitator blade (8) on the agitator shaft (3).
   ⇨ The pin (4) rests in the groove of the agitator blade.
7. Screw in and tighten threaded pin (9).
8. Fit washer (5) on the agitator shaft.
9. Fit flexible washer (6) on the agitator shaft.
10. Screw nut (7) on the agitator shaft and tighten it.
    ⇨ Lower agitator blade is assembled.

### 9.4.2 Replace agitator shaft

Check components for damage before assembly. If necessary, replace with new components.

Personnel:

» Mechanic

Protective equipment:

» Protective workwear
» Protective gloves
» Safety boots
» Eye protection

Requirements:

» Compressed air hose is disassembled.
↳ 10.2 “Disassembly”
» Throttle valve is closed.

**Disassembly**

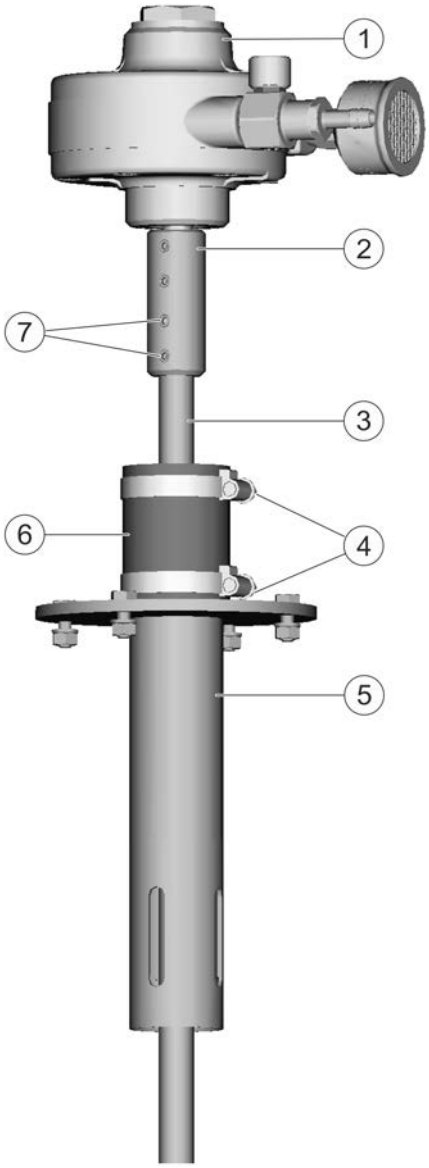



Fig. 15: Disassemble agitator shaft

1. Disassemble agitator blade ↳ 9.4.1 “Replace agitator blade”.
2. Loosen screws (4) on the hose clamps.
⇨ Hose clamps have been loosened.
3. Pull up the agitator (1) on the pneumatic motor. Pull off agitator shaft (3) from the guide tube (5).
⇨ Guide tube remains mounted on the lid.

4. Unscrew and remove threaded pins (7) on the connecting piece (2).
5. Pull off agitator shaft (3) from the connecting piece (2).
   ⇨ Agitator shaft has been disassembled.

**Assembly**

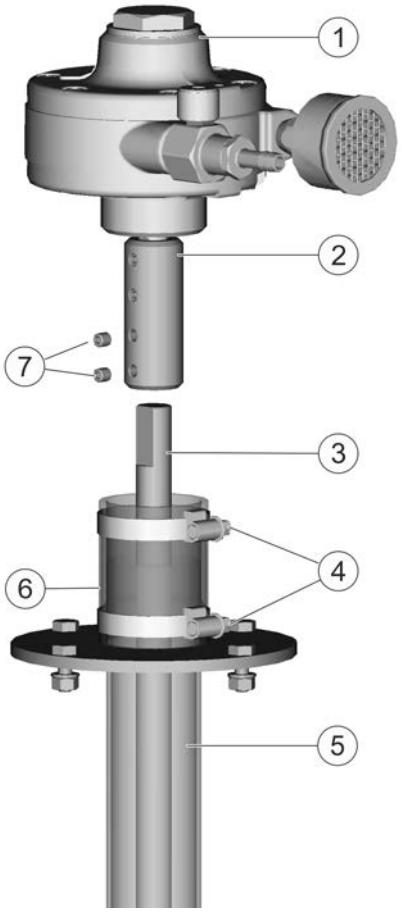



Fig. 16: Assemble agitator shaft

1. Fit agitator shaft (3) into the connecting piece (2) with the flattened side towards the bores.
2. Screw in and tighten threaded pins (7).
3. Insert agitator shaft (3) with the pneumatic motor (1) into the guide tube (5).
4. Position hose clamps on the connector (6).
5. Tighten screws (4) on the hose clamps.
   ⇨ Agitator shaft has been assembled.
6. Assemble agitator blade ↳ 9.4.1 “Replace agitator blade”.

### 9.4.3 Replace throttle valve

Check components for damage before assembly. If necessary, replace with new components.

Personnel:
» Mechanic

Protective equipment:
» Protective gloves
» Safety boots
» Eye protection

Requirements:
» Compressed air hose is disassembled.
  ↳ 10.2 “Disassembly”
» Throttle valve is closed.

**Disassembly**

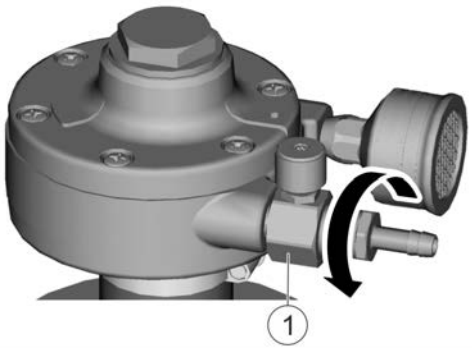



Fig. 17: Disassemble throttle valve

1. Unscrew throttle valve (1) as indicated by the arrow, using a wrench.

⇨ Throttle valve is disassembled.

2. Clean external threads.

### Assembly

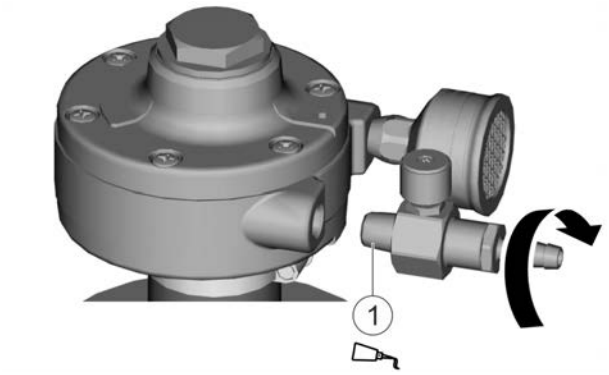



Fig. 18: Assemble throttle valve

Thread seal Loctite 511

**NOTICE!**

**Contamination**

If you use a sealing tape, frayed threads from the sealing tape and damage the product.

– Only use thread seal.

1. Apply thread seal on the external threads (1) of the throttle valve.
2. Screw in throttle valve. Make sure that a distance of 3 to 5mm in maintained between nut and motor.
   ⇨ Throttle valve has been assembled.

## 9.4.4 Replace pneumatic motor.

Check components for damage before assembly. If necessary, replace with new components.

Personnel:

» Mechanic

Protective equipment:

» Protective gloves
» Safety boots
» Eye protection

Requirements:

» Ground conductor and compressed air hose are disassembled.
  ↳ 10.2 “Disassembly”
» Throttle valve is closed.

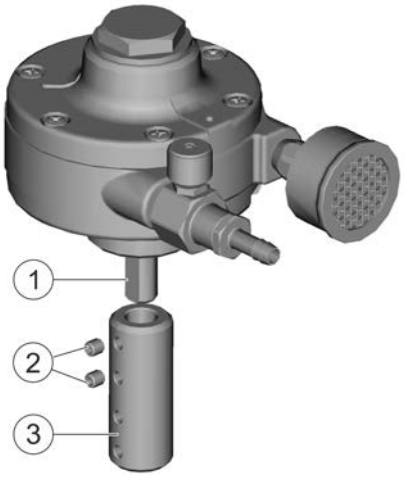



Fig. 19: Replace pneumatic motor

### Disassembly

1. In the case of an agitator with two agitator blades, loosen the top agitator blades. Repeat steps 6 to 9 of the disassembly instructions ↳ 9.4.1 “Replace agitator blade”.
2. Slide agitator blade along the agitator shaft on the bottom agitator blade.
3. Disassemble agitator shaft ↳ 9.4.2 “Replace agitator shaft”
4. Unscrew threaded pins (2).
5. Pull off connecting piece (3) from the drive shaft (1) of the pneumatic motor.
   ⇨ Pneumatic motor is disassembled.

### Assembly

1. Fit connecting piece (3) on the drive shaft (1) of the pneumatic motor.
2. Screw in and tighten threaded pins (2).
3. Assemble agitator shaft ↳ 9.4.2 “Replace agitator shaft”.
4. In the case of an agitator with two agitator blades, assemble the top agitator blades. Repeat steps 1 to 4 of the assembly instructions ↳ 9.4.1 “Replace agitator blade”.
   ⇨ Pneumatic motor is assembled.

## 9.5 After troubleshooting

» Connect compressed air supply.
  ↳ 5.3 “Connecting”
» If the agitator is used in an EX zone, check grounding for correct connection.
  ↳ 5.3 “Connecting”

# 10 Disassembly and Disposal

## 10.1 Safety recommendations

**WARNING!**

**Escaping compressed air**

Compressed air hoses may rupture if under pressure. Escaping compressed air can cause serious injury.

– Disconnect the product from the compressed air supply after the end of working hours.
– Observe the service life of the compressed air hoses. Replace outdated compressed air hoses.

## 10.2 Disassembly

### Disassemble compressed air hose

Personnel:

» Mechanic
» + additional qualification explosion protection

Protective equipment:

» Eye protection
» Protective gloves
» Safety boots

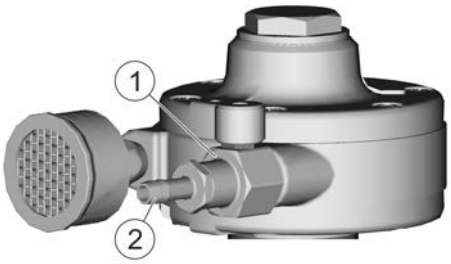



Fig. 20: Disassemble compressed air hose

Requirements:

» Atmosphere is not explosive.
» Compressed air supply is switched off.
» Lines are depressurized.
» Throttle valve is closed.

1. Open the hose clamp at the throttle valve (1).
2. Pull out the compressed air hose from the nozzle (2).

### Disassemble ground conductor

Personnel:

» Electrician
» + additional qualification explosion protection

Protective equipment:

» Protective gloves
» Anti-Static Safety Boots

Requirements:

» Atmosphere is not explosive.

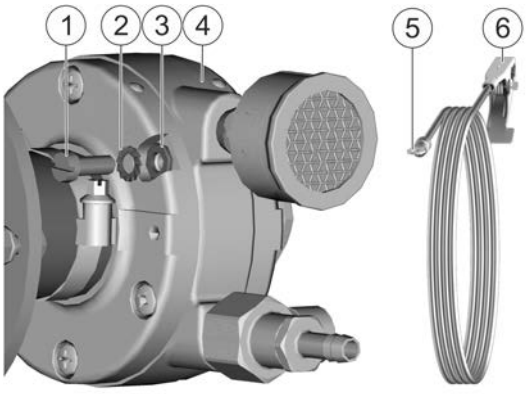



Fig. 21: Grounding

1. Unscrew screw (1).
2. Remove lock washer (2) and washer (3).
3. Remove cable lug (5) from the ground conductor.
4. Disassemble terminal (6) of the ground conductor from the current conductor.
5. Fit lock washer (2) and washer (3) on the screw (1).
6. Insert the screw (1) again and tighten it.
   ⇨ Lock washer (2) and washer (3) are captive.

## 10.3 Disposal

**ENVIRONMENT!**

**Improper waste disposal**

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

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

# 11 Technical data

## 11.1 Dimensions and weight

### Agitator N68040285

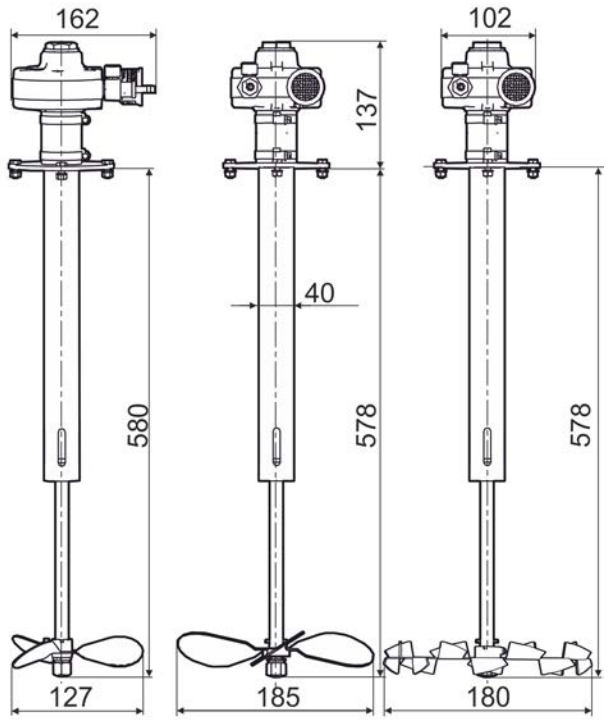



Fig. 22: Dimensions N68040285

| Detail | Value |
|---|---|
| Length | approx. 717mm |
| Width | approx. 102mm |
| Depth | approx. 162 to 185mm |
| Agitator shaft including agitator blade(s) | 580mm |
| Guide tube blade diameter | 40mm |
| Weight | approx. 4.2kg |

### Agitator N68040286

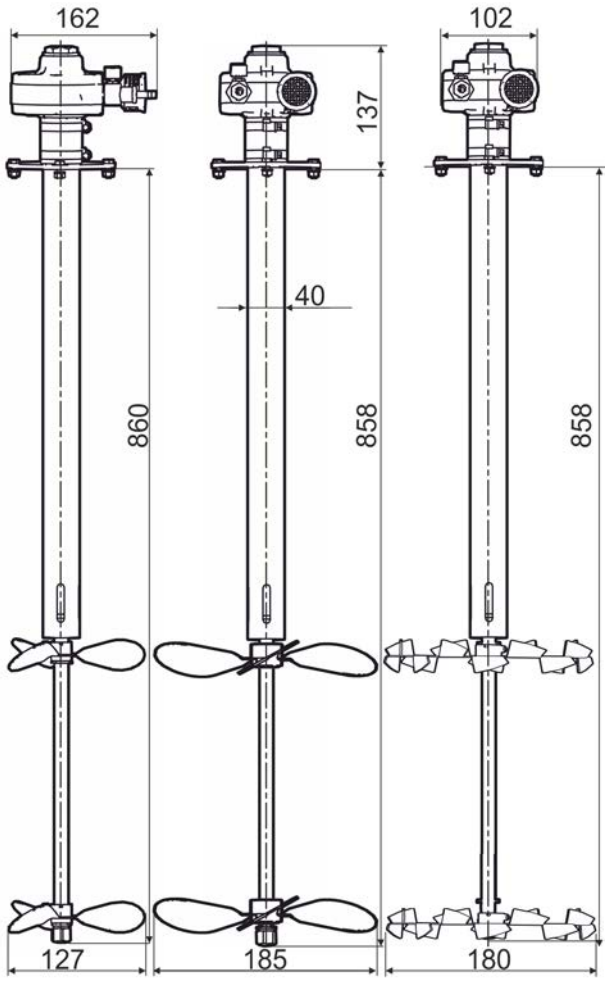



Fig. 23: Dimensions N68040286

| Detail | Value |
|---|---|
| Length | approx. 997mm |
| Width | approx. 102mm |
| Depth | approx. 162 to 185mm |
| Agitator shaft including agitator blade(s) | 860mm |
| Guide tube blade diameter | 40mm |
| Weight | approx. 5.2kg |

### Top View

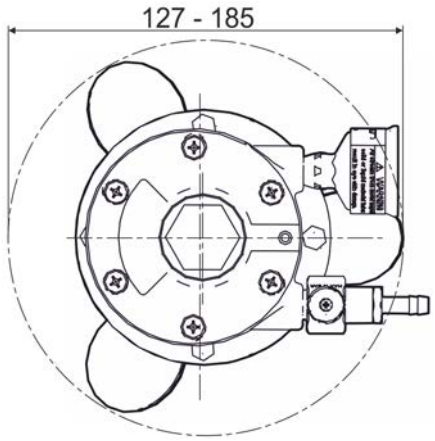



Fig. 24: Dimensions, top view

| Detail | Value |
|---|---|
| Agitator blade diameter | approx. 127 to 185mm |

### Flange

The flange is used for fastening the agitator at the lid.

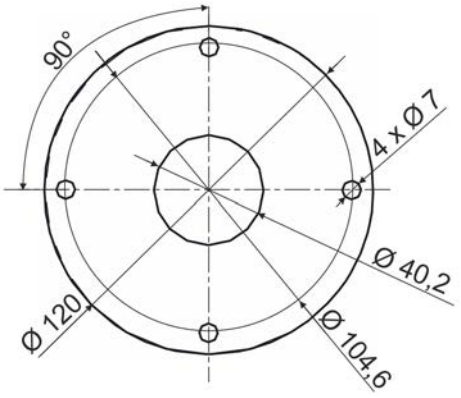



Fig. 25: Dimensions, flange

| Detail | Value |
|---|---|
| External diameter | ∅120 |
| Internal diameter | ∅40.2 |
| Angle between bores | 90° |
| Pitch circle diameter | ∅104.6 |
| Bore diameter | 4 x ∅ 7 |

## 11.2 Connections

| Detail | Value |
|---|---|
| Compressed air connection | DN 8mm |
| Ground conductor | min. 4 $mm^2$ |
| Cable lug | 10 x 6 |

## 11.3 Operating conditions

| Detail | Value |
|---|---|
| Material temperature, max. | 40°C |
| Ambient temperature | 0°C – 40°C |
| Container capacity of agitator N68040285, max. | 60L |
| Container capacity of agitator N68040286, max. | up to 200L |
| Distance of the agitator blade from the wall and the bottom of the container, min. | 25mm |

## 11.4 Emissions

| Detail | Value |
|---|---|
| Noise level without load, operating pressure max. 7 bar | 94 dB |
| Noise level at 600 RPM, operating pressure max. 4 bar | 76 dB |

## 11.5 Operating and auxiliary materials

| Material | Material number |
|---|---|
| Thread seal Loctite 511 | -- |
| Lubricant VG 32 0.2 l | W32020045 |
| Lubricant VG 32 1 l | W32020047 |

## 11.6 Operating values

| Detail | Value |
|---|---|
| Protection type | IP65 |
| Operating pressure, min. | 0.5 bar |
| Operating pressure, max. | 7 bar |
| Grounding resistance | <2 Ω |
| Recommended rotational speed range | 100 to 1000RPM |
| Power | 0.7kW |

### Air consumption

The characteristic curve shows the dependence between the air consumption and the speed of the agitator.

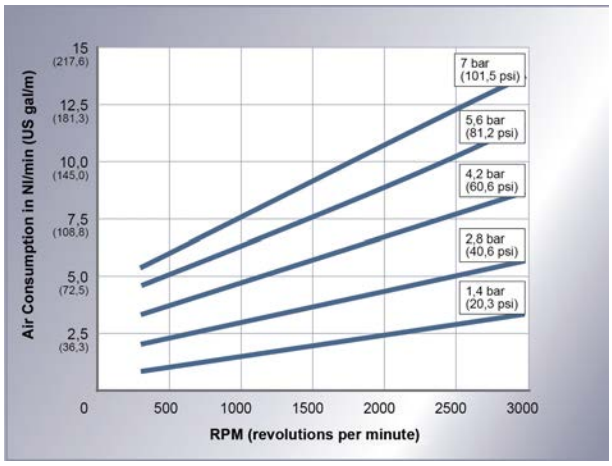



Fig. 26: Characteristic curve N68040285

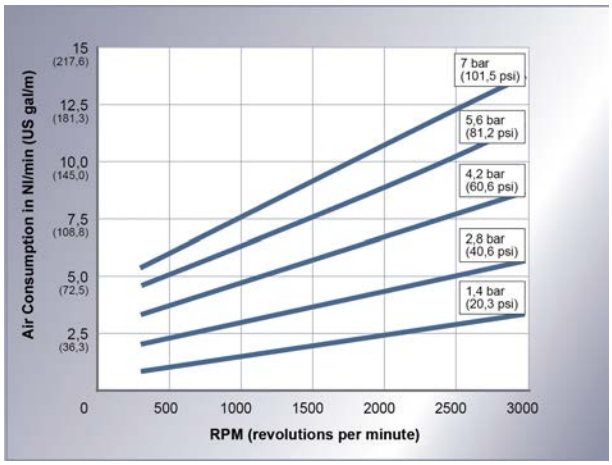



Fig. 27: Characteristic curve N68040286

## 11.7 Type plate

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

- Product name
- Material number
- Year of manufacture
- Serial number
- Maximum operating pressure
- CE labeling
- Ex labeling

## 11.8 Materials used

All parts in contact with material are made of stainless steel

The bearing housing is manufactured from polyoxymethylene copolymer (POM-C)..

The position numbers of the components refer to the chapter ↳ 12.1 “Replacement parts”.

| Component | Material |
|---|---|
| Guide tube (16) | 1.4301 |
| Agitator blade (19) | 1.4308 |
| Threaded pin for agitator blade (20) | 1.4310 |
| Nut (25) | 1.4310 |
| Agitator shaft (12) | 1.4305 |
| Pin (18) | 1.4305 |
| Washers (21), (23), (24) | 1.4305 |
| Retainer ring (22) | 1.4034 |
| Bearing housing (17) | POM-C |

## 11.9 Compressed air

### Compressed air quality

- Purity classes according to ISO 8573-1:2010 3:4:X
- Limitations for purity class X:
  - ≤ 25mg/m$^3$

# 12 Replacement parts, tools and accessories

## 12.1 Replacement parts

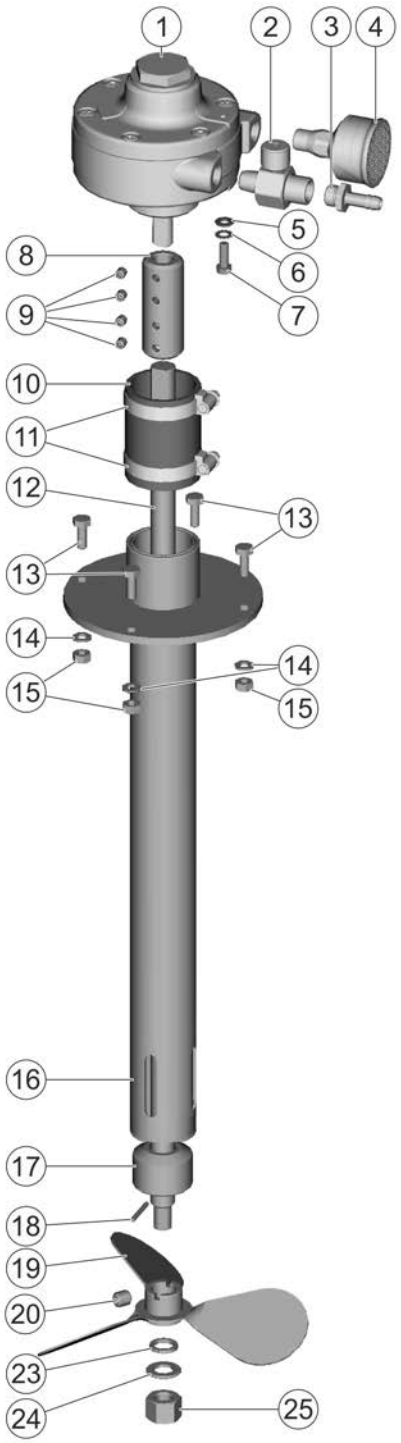



Fig. 28: Exploded view N68040285

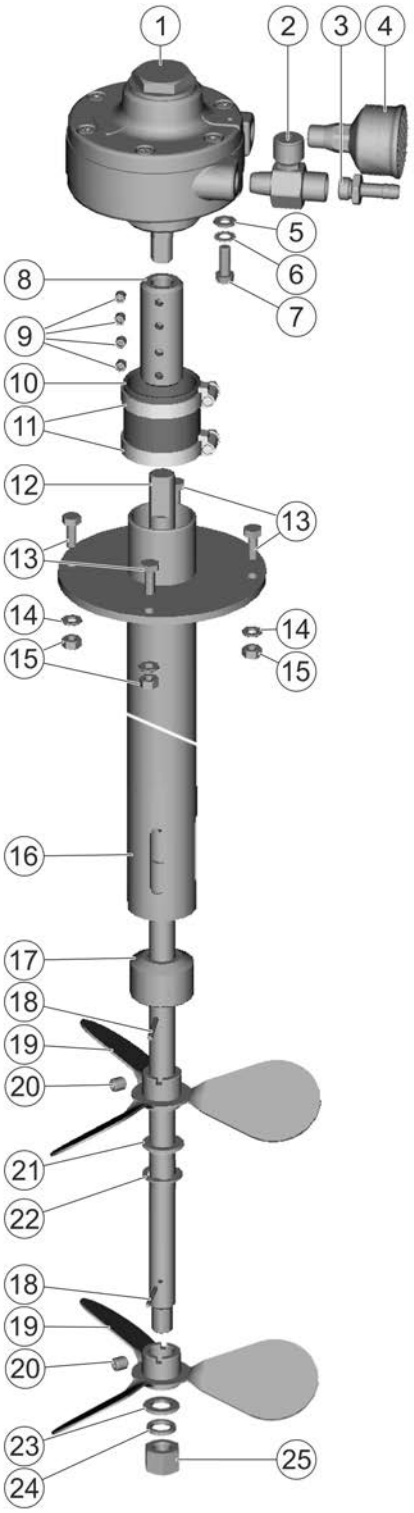



Fig. 29: Exploded view N68040286

| Item | Denomination | Amount | Material number |
|---|---|---|---|
| 1 | Pneumatic motor | 1 | N04390003 |
| 2 | Throttle valve | 1 | M54680027 |

| Item | Denomination | Amount | Material number |
|---|---|---|---|
| 3 | Compressed air connection DN 8 Js 8 | 1 | |
| 4 | Sound muffler | 1 | M54610068 |
| 5 | Washer, pneumatic motor 6.4mm | 1 | |
| 6 | Lock washer 6.4mm | 1 | |
| 7 | Grounding screw M6x16 | 1 | |
| 8 | Connecting piece | 1 | |
| 9 | Threaded pin M6x6 | 4 | |
| 10 | Hose | 1 | |
| 11 | Hose clamp | 2 | |
| 12 | Agitator shaft L580 (only for N68040285) | 1 | M04080847 |
| | Agitator shaft L860 (only for N68040286) | 1 | M04080846 |
| 13 | Screw M6x16 | 4 | |
| 14 | Washer, flange 6.4mm | 4 | |
| 15 | Nut, flange M6 | 4 | |
| 16 | Guide tube | 1 | |
| 17 | Bearing housing | 1 | M16080100 |
| 18 | Pin 3 x 25 (only for N68040285) | 1 | Included in Kit M04620013 |
| | Pin 3 x 25 (only for N68040286) | 2 | Included in M04620010 |
| 19 | Agitator blade ∅185mm (only for N68040285) | 1 | Included in Kit M04620013 |
| | Agitator blade ∅185mm (only for N68040286) | 2 | Included in M04620010 |
| 20 | Threaded pin agitator blade M8x8 (only for N68040285) | 1 | Included in Kit M04620013 |
| | Threaded pin agitator blade M8x8 (only for N68040286) | 2 | Included in M04620010 |
| 21 | Washer, upper agitator blade (only for N68040286) | 1 | Included in M04620010 |
| 22 | Retainer ring, upper agitator blade (only for N68040286) | 1 | Included in M04620010 |
| 23 | Washer, agitator blade | 1 | Included in M04620010, M04620013 |
| 24 | Flexible washer, agitator blade | 1 | Included in M04620010, M04620013 |
| 25 | Nut, agitator blade | 1 | |

## 12.2 Accessories

| E04030005 | Agitator model |
|---|---|
|  | N68040285 |
| | N68040286 |
| Ground conductor 10 x 6 | |

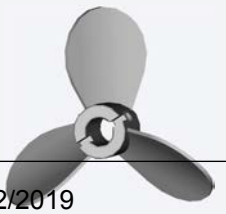
### Accessories N68040285

| M04620012 | Components | Amount |
|---|---|---|
|  | Pin | 1 |
| | Agitator | 1 |
| | Threaded pin | 1 |
| | Washer | 1 |
| | Flexible washer | 1 |
| Agitator blade, 3-blade Ø127mm | | |

| M04620013 | Components | Amount |
|---|---|---|
|  | Pin | 1 |
| | Agitator | 1 |
| | Threaded pin | 1 |
| | Washer | 1 |
| | Flexible washer | 1 |
| Agitator blade, 3-blade Ø185mm | | |

| M04620014 | Components | Amount |
|---|---|---|
|  | Pin | 1 |
| | Agitator | 1 |
| | Threaded pin | 1 |
| | Washer | 1 |
| | Flexible washer | 1 |
| Agitator blade, 16-blade Ø180mm | | |

### Accessories N68040286

| M04620007 | Components | Amount |
|---|---|---|
|  | Pin | 2 |

| M04620007 | Components | Amount |
|---|---|---|
| Agitator blade, 3-blade Ø127mm | Agitator | 2 |
| | Threaded pin | 2 |
| | Washer | 1 |
| | Flexible washer | 1 |
| | Retainer ring | 1 |

| M04620010 | Components | Amount |
|---|---|---|
|  | Pin | 2 |
| | Agitator | 2 |
| | Threaded pin | 2 |
| | Washer | 1 |
| | Flexible washer | 1 |
| | Washer, upper agitator blade | 1 |
| Agitator blade, 3-blade Ø185mm | Retainer ring | 1 |

| M04620011 | Components | Amount |
|---|---|---|
|  | Pin | 2 |
| | Agitator | 2 |
| | Threaded pin | 2 |
| | Washer | 1 |
| | Flexible washer | 1 |
| | Washer, upper agitator blade | 1 |
| Agitator blade, 16-blade Ø180mm | Retainer ring | 1 |

## 12.3 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”.

# 13 INDEX

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Translation of the original operation manual

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