LEADING IN
PRODUCTION
EFFICIENCY

Agitator A FIX R PR CORE

Operation manual

MAG00008EN, V03

N68040550 – N68040599, N68040659 – N68040683, N68040685 – N68040759

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:

N68040550 – N68040599 N68040659 – N68040683 N68040685 – N68040759 Agitator A FIX R PR xxx yyy - G CORE Agitator A FIX R PR xxx yyy - G CORE	

xxx - Ø agitator 75-210mm

yyy - Agitator shaft length 100-770mm

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

The pneumatic agitator is available in the following versions:

- Agitator with pneumatic motor (Type A)
- Agitator with pneumatic motor (Type B)

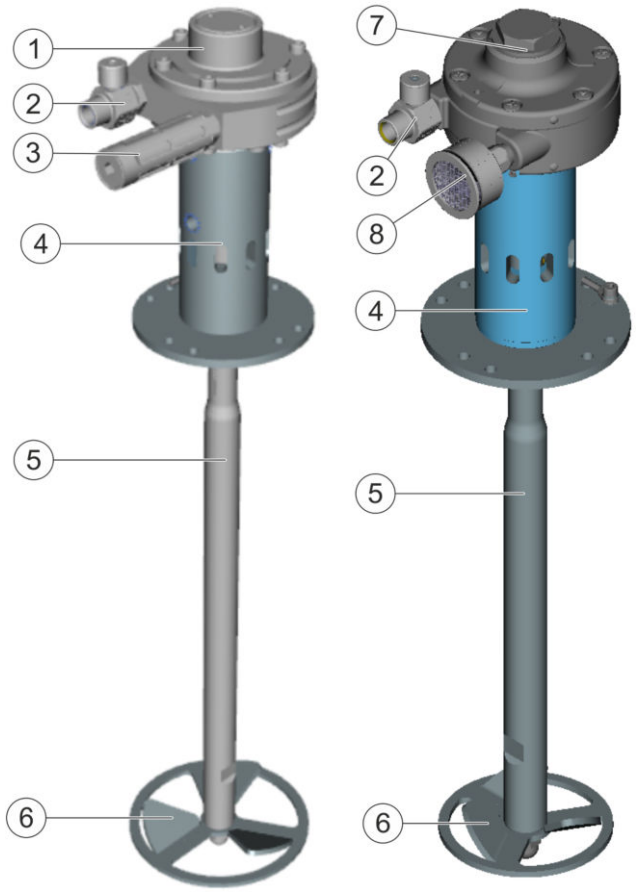


Fig. 1: Overview

1 Pneumatic motor (Type A)
2 Compressed air connection
3 Compressed air outlet with sound muffler (Tyoe A)
4 Housing
5 Agitator shaft
6 Agitator
7 Pneumatic motor (Type B)
8 Compressed air outlet with sound muffler (Tyoe B)

1.2 Short description

The pneumatic agitator (hereafter called “agitator”) is used for maintaining the material consistency and for avoiding deposition behavior.

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 A FIX R PR xxx yyy CORE agitator is intended for use in industry and in trade.

The Agitator A FIX R PR xxx yyy CORE with pneumatic motor is used exclusively for maintaining the material consistency and for avoiding deposition behavior.

Keep a minimum distance of 40mm to the container wall and bottom.

Position the agitator only centrally in the container.

Observe the minimum conductivity of the mediums in the amount of 10,000pS/m.

Maintain maximum bleeder resistance of 1MOhm.

Use agitator in a closed conductive container only.

Only operate agitator in areas with suitable forced ventilation system.

The agitator may be operated with flammable and non-flammable water-based and solvent-based fluid coating materials and their approved detergents and cleaning agents.

Operate agitator with a monitored maximum operating pressure of 6 bar. The agitator may only be operated within the approved technical data 12 “Technical data” . The agitator is intended for use in unpressurized and pressurized containers with a maximum operating overpressure of 6bar.

The operating pressure must be secured using pressure monitoring 5.3 “Assembly” .

Misuse

Not using as intended entails danger to life.

Examples of wrong use are:

- Installation without mechanical ventilation
- Use of the agitator in pass-through operation or in idle run
- Use of components that are not approved by Dürr Systems for operation.
- Use of unapproved materials, see safety data sheets
- Processing of gaseous or solid materials
- Making conversions or changes on your own
- Use in open containers
- Use in non-conductive containers
- Use of the drive in Ex zone 0
- Use of the agitator in Ex zone 0 above the flange disk
- Use of the agitator without connection to the potential equalization
- Use of the agitator outside of the container zones
- Operation of the agitator without liquid coating materials

Passing through operation

The agitator is not designed for pass-through operation.

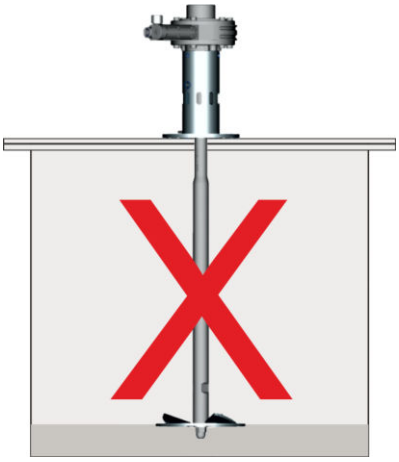


Fig. 2: Passing through operation

The operation during the passing through operation is not permitted. During passing through operation, the agitator blade is not completely immersed into the fluid.

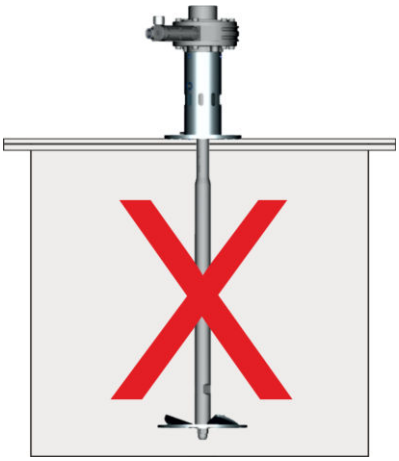


Fig. 3: Operation during idle run

The operation without fluid is not permitted.

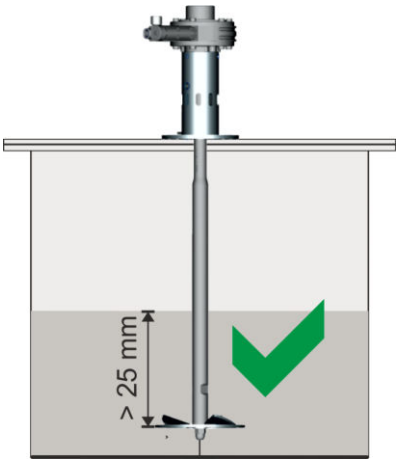


Fig. 4: Approved operation

The agitator blade is completely immersed into the fluid. The distance of the agitator blade to the surface of the fluid is at least 25mm.

Ex labeling

0408 ⟨Ex⟩ II 1/2G Ex h IIA T4 Ga/Gb X
TÜV-A 21ATEX0103 X

0408	-	Notified authority: 0408 TÜV Austria, Germany
II	-	Device group II: all areas except mining
1/2G	-	Device category 1 for gaseous Ex atmosphere for agitator blade to cover, Device category 2 for gaseous Ex atmosphere for drive
Ex h	-	Ignition protection category
IIA	-	Explosion group
T4	-	Temperature class
Ga/Gb	-	Device protection level EPL
X	-	The agitator is configured for operation in an ambient temperature of 15°C to 40°C.

2.3 Safety devices

The use of a pressure limiting device according to Performance Level PL=c or Safety Integrity Level SIL=1 is required.

As a safety barrier, a safety valve must be installed on the agitator ↳ 13.3 “Accessories optional on order” .

The safety valve protects the agitator and the connections from any damages resulting from too high pressure. The safety valve has an adjustment pressure ↳ 12 “Technical data” . The safety valve releases air if the adjustment pressure is exceeded.

2.4 Residual risks

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.
- Keep the agitator at a safe distance from the wall and the bottom of the container.
- Wear specified protective equipment.

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.

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.
- Do not reach for lashing hoses.
- Relieve pressure from the hoses after each operation end and before servicing and maintenance work.

2.5 Property damage

Increased wear on the pneumatic motor

Pneumatic slatted motors are subject to constructively restricting wear.

The following factors can lead to increased wear:

- Continuous operation
- Oil-free operation
- Unfavorable operating parameters

Increased wear can lead to a failure of the pneumatic motor.

Passing through operation

If the agitator blade is not completely immersed into the fluid during operation, vibrations occur at the agitator shaft. This could cause damages to the agitator and the container.

- Immerse agitator blade at least 25mm into the fluid.

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.

The following describes the different qualifications required for the work in this document. The required qualification is presented prior to the individual tasks in the appropriate chapters.

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:
- Directives, 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:
- Directives, 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 EN 1149-5. Footwear must meet the requirements of ISO 20344 and 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.

3 Design and Function

3.1 Agitator

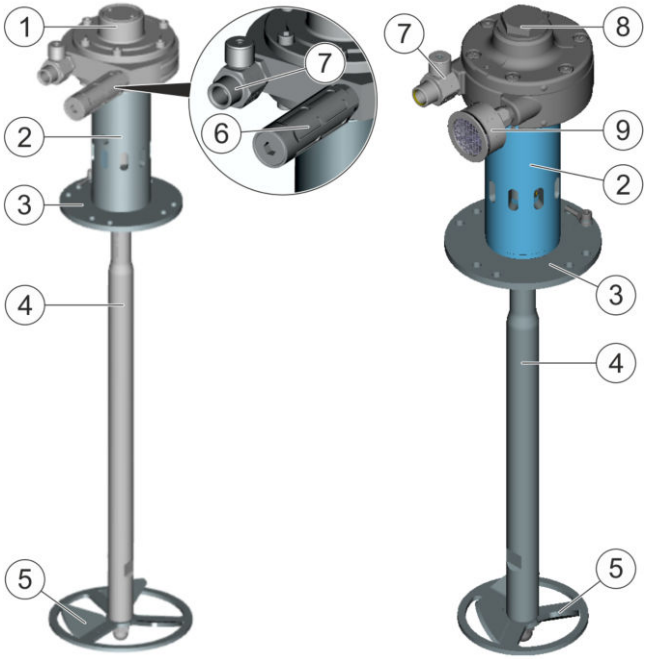


Fig. 5: Agitator design

1 Pneumatic motor (Type A)
2 Housing
3 Flange
4 Agitator shaft
5 Agitator
6 Compressed air outlet with sound muffler
7 Compressed air connection
8 Pneumatic motor (Type B)
9 Compressed air outlet with sound muffler

The construction and function of the agitators with pneumatic motor (Type A) and pneumatic motor (Type B) are identical.

The agitator is driven by a pneumatic motor (1), (8). The pneumatic motor (1), (8) is connected via the compressed air connection (7) to the compressed air supply. The pneumatic motor (1), (8) drives the agitator shaft (4). The agitator blade (5) is firmly connected to the agitator shaft (4) and rotates synchronously with it.

For agitating the material, the agitator must be installed in a closed container. For this, the agitator is mounted to the flange (4) using four fastening screws (not included in the scope of supply) on the container lid.

3.2 Pneumatic motor

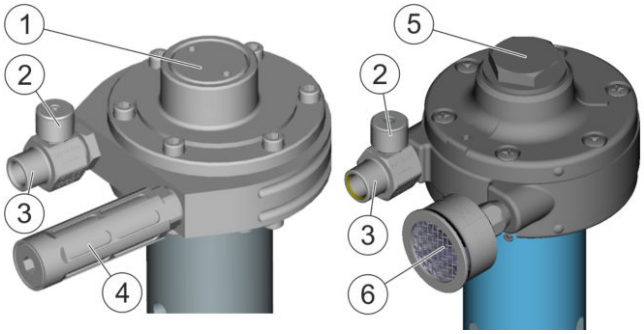


Fig. 6: Pneumatic motor design

1 Pneumatic motor (Type A)
2 Throttle valve with adjusting screw
3 Compressed air connection
4 Sound muffler (Type A)
5 Pneumatic motor (Type B)
6 Sound muffler (Type B)

The agitator is connected to the compressed air via the compressed air connection (3). The adjusting screw is used for switching on and off the agitator. The speed of the agitator shaft is set with the throttle valve (2). Compressed air from the pneumatic motor (1), (5) escapes through the sound muffler (4), (6). The sound muffler (4), (6) reduces noise emissions.

4 Transport, scope of supply and storage

4.1 Unpacking

DANGER!

Electrostatically charged plastic films and foils in potentially explosive areas

The foil and the product can charge electrostatically at the time of the 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.
- Discharge the product.
- Dispose packaging outside of the Ex zone in accordance with the regulation or store properly for a later return.

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.

4.2 Transport

NOTICE!

Incorrect Transport

Incorrect Transport can cause property damage.

- Protect Agitator from moisture.
- Protect Agitator from vibrations.
- Transport temperature (short term): -30 to +65°C
- Relative humidity: 35% to 90%

4.3 Scope of delivery

The scope of supply includes the following components:

- Agitator

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 Agitator only when dry.
- Store Agitator only cleaned and freed from material residue.
- Store in a dust-free place.
- Do not expose to aggressive media.
- Protect from solar radiation.
- Avoid mechanical vibrations.
- Temperature: 10°C to 45°C
- Relative humidity: 35% to 90%

5 Assembly

5.1 Safety recommendations

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.

WARNING!

Escaping material and compressed air

Escaping material under pressure can cause serious injuries.

Before carrying out any work:

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

5.2 Requirements for the Installation point

Container

Use agitator in a closed container only.

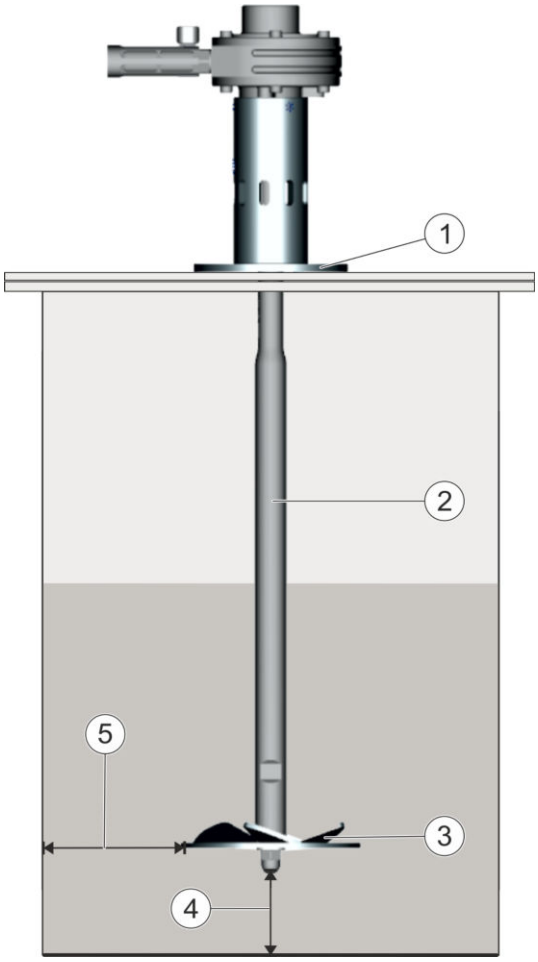


Fig. 7: Installation of container

Requirement:

- The agitator shaft (2) is not damaged.
- The agitator shaft (2) is centered inside of the container.
- The flange (1) is positioned on the container lid and mounted.
- The container is made of a non-sparking and unbreakable material.
- The container is closed and conductive.
- The agitator blades (3) are submerged in the material.
- The minimum distance to the wall (5) and to the bottom (4) of the container is at least 40mm.
- The four M6 fastening nuts (not included in the scope of suppl) are tightened and glued using thread lock Loctite 542 to fix the agitator to the lid.
  Observe the allowable tightening torque of the four fastening screws.
- The agitator is connected to the potential equalization.

Lid

Requirement:

- The lid is fully lockable.
- The lid is made of a non-sparking and unbreakable material.
- The lid has a bore with a diameter of:
  - at least 27mm
  - max. 70mm
- The lid has the following bores for fastening:
  - Four bores or threads for M6 screws with a hole ring diameter of 104.6mm
  - Or
  - Four bores or threads for M6 screws with a hole ring diameter of 100mm

5.3 Assembly

Assemble the agitator

WARNING!

Sparks due to friction of components

Friction may occur between agitator, container and rotating parts to fixed parts. Friction between components can cause sparking. When occurring in an Ex atmosphere, sparks may cause explosions or fires. Serious injuries can be the consequence.

- Use the positioning device for agitator and container to ensure that the minimum distance of 40mm between rotating parts and fixed parts (such as wall and bottom of the container) is maintained.

Use assembly platforms for assembly work in elevated position.

Personnel:
- Mechanic
- + additional qualification explosion protection

Protective equipment:
- Anti-Static Safety Boots
- Protective gloves

Material:
- Container with lid

Requirements:
- Ensure a non-explosive atmosphere.
- Agitator blade has been assembled ↳ 10.4 “Replace agitator blade” .
- The agitator shaft is not deformed, e.g. through a transport damage.

Assembly of the agitator with a Type B pneumatic motor is identical to the assembly of the agitator with an Type A pneumatic motor.

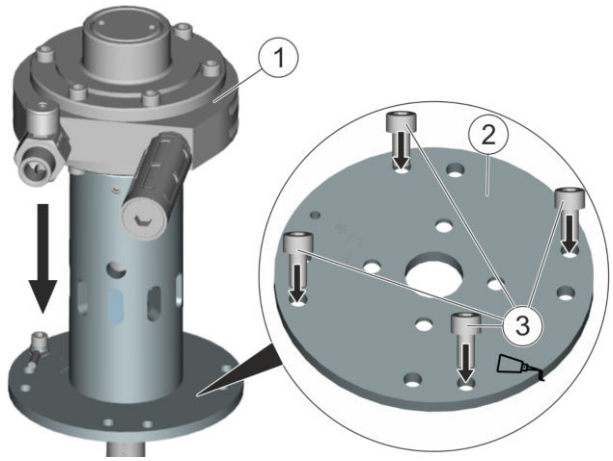


Fig. 8: Assemble agitator (example with Type A)

Thread lock Loctite 542

1. Insert agitator (1) up to the flange (2) into the bore of the lid.
2. Slide four fastening screws (3) from above through the bores on the flange (2).
3. Tighten fastening screws (3).
   ⇨ The agitator is fixed on the lid.
4. Assemble agitator blade ↳ 10.4 “Replace agitator blade” .
   ⇨ The agitator is assembled.
5. Shut the container tightly with the lid.

Install lid monitoring

A pressure limiting device according to Performance Level PL=c or Safety Integrity Level SIL=1 is required.

Use suitable compressed air hose ↳ 12.2 “Connections” .

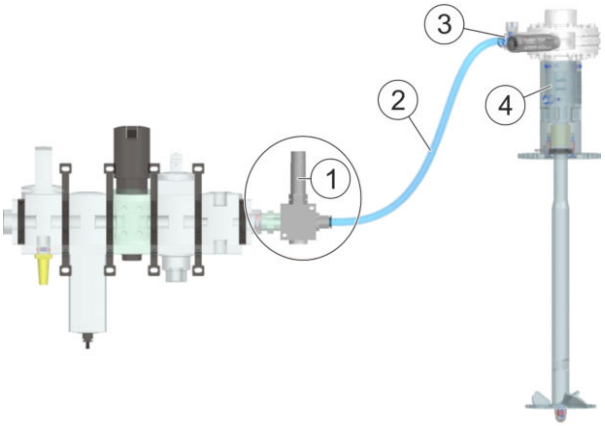


Fig. 9: Pressure monitoring upstream of the agitator (example)

1. Connect compressed air hose (2) to the agitator ↳ 5.4 “Connecting” .
2. Connect safety valve (1) ↳ 13.3 “Accessories optional on order” .

5.4 Connecting

Assembling ground conductor

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.

Personnel:
- Electrician
- + additional qualification explosion protection

Protective equipment:
- Protective gloves
- Anti-Static Safety Boots

Requirements:
- Ensure a non-explosive atmosphere.

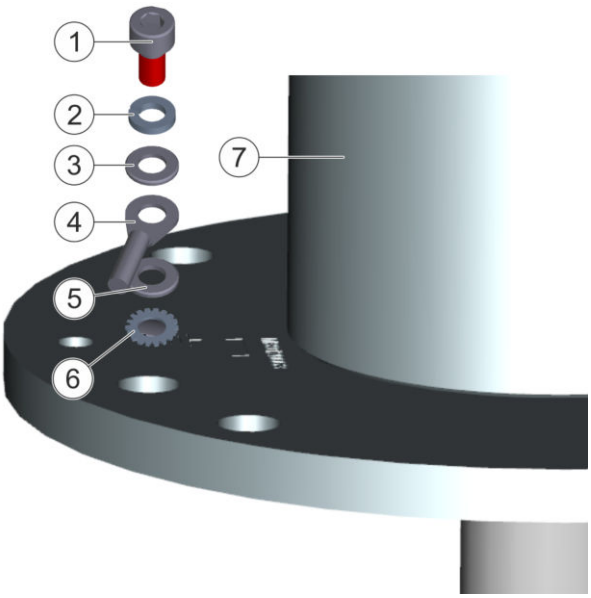


Fig. 10: Ground agitator

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

Container for the material must be grounded.

Assemble the compressed air hose

Personnel:
- Mechanic
- + additional qualification explosion protection

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

Requirements:
- Ensure a non-explosive atmosphere.

Connecting the compressed air connection to a Type B pneumatic motor is identical to connecting the compressed air connection to an Type A pneumatic motor.

NOTICE!

Motor damages

If material or sealant enters the compressed air connection of the motor, the motor can be damaged.
- Keep compressed air connection clean.
- Spray only oil onto the compressed air connection.

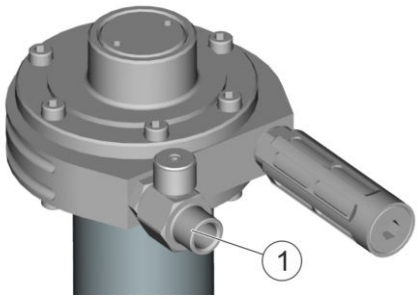


Fig. 11: Assemble compressed air hose (example with Type A)

1. Connect compressed air hose to the compressed air connection (1) ↳ 12 “Technical data” .

NOTICE!

If the agitator is connected to an oil-free compressed air connection, there is the risk of corrosion when the motor stands still.

NOTICE!

Damage of agitator

If no overpressure valve is used, the agitator or components of the agitator may become damaged.
- Provide overpressure valve.

If the agitator is connected to an oil-free compressed air connection, the following conditions apply:
- Speed is below 200 min-1.
- Compressed air is fine-filtered, at 5µ.
- The pressure dew point must fit the specifications ↳ 12.6 “Compressed air” , so that no condensation develops in the motor.

The operation of the agitator with oil-free compressed air leads to higher wear of the pneumatic motor.

2. Connect the other end of the compressed air hose to the compressed air supply.

6 Commissioning

6.1 Commissioning

Checks before commissioning:
- The agitator is grounded.
- The agitator is properly assembled ↳ 5 “Assembly” .
- The air supply of the agitator is equipped with a safety valve to keep the maximum allowable pressure at 6bar.
- Test of volume resistance < 1MOhm

Personnel:
- Electrician
- + additional qualification explosion protection

Protective equipment:
- Protective gloves
- Anti-Static Safety Boots

1. Disassemble sound muffler ↳ 10.7 “Replace sound muffler” .

NOTICE!

Dry run

If the pneumatic motor is not oiled while starting up, the pneumatic motor becomes damaged.
- Before commissioning, spray some oil into the air inlet on the compressed air connection.

2. Fill some oil into the compressed air connection ↳ 12.9 “Operating and auxiliary materials” .
3. Connect agitator ↳ 5.4 “Connecting” .
4. Switch on agitator shortly ↳ 7.5 “Agitate” .
5. Switch off agitator ↳ 7.5 “Agitate” .
6. Assemble sound muffler ↳ 10.7 “Replace sound muffler” .

7 Operation

7.1 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 relevant safety data sheets.
- Wear specified protective equipment.
- 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!

Hoses whipping around

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.
- Do not reach for lashing hoses.
- Before carrying out any work:
  - Disconnect the compressed air supply and secure it personalized from being switched on again.
  - Depressurize hoses.

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!

Squirting material

When working on the product, spurted material can cause irreversible damage to the eyes.

- Wear eye protection.

CAUTION!

Escaping compressed air

The compressed air escaping from the sound muffler can contain solid or liquid particles. Particles escaping 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.

WARNING!

Hot agitator shaft

The agitator shaft may become very hot during operation when operated with maximum rotational speed. Contact can cause burn injuries.

- Operate the agitator shaft only for a short period with maximum rotational speed.
- Let the agitator shaft cool down.
- Wear protective hand gloves.

7.2 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!

Idle run

When operating the pneumatic motor in dry run and/or at high speed, the motor may become damaged.

- Avoid high rotational speeds when in idle operation.
- If the surface temperature of the motor exceeds the maximum operating temperature, do not continue using the motor.

7.3 Checks

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

- Check agitator for cleanliness.
  Ensure there are no material residues and other contaminants. Damage and leaks can only be seen on clean components.
- Check connections and lines for tightness.
- Ensure that the hose clamps are firmly tightened ↳ 5.4 “Connecting” .
- Ensure that the fastening nut on the lid is firmly tightened.
- Ensure that the agitator shaft is not damaged.
- Ensure that the agitator shaft is not deformed.
- Ensure that the screw on the agitator blade is tightened.
- Ensure that the allowable material temperature is maintained ↳ 12.3 “Operating conditions” .
- Ensure that operating pressure is maintained ↳ 12.5 “Operating values” . Provide overpressure valve.
- Ensure that the ground conductor is correctly connected ↳ 5.4 “Connecting” .
- Ensure that no aids (tools, lifting devices, etc.) are inside of the danger zone.

7.4 Measures extending service life

- Always avoid operation during idle run.
- Secure compressed air quality according to specifications ↳ 12.6 “Compressed air” .
- Operation with oiled compressed air will increase the service life of the pneumatic motor.
  Oil-free operation will result in increased wear on the pneumatic motor.
- Dürr Systems recommends lubrication of the pneumatic motor in continuous operation ↳ 9.3 “Lubrication” .
- Operation with oiled compressed air: Clean sound muffler if necessary.
  A progressive reduction of the agitator speed or a stoppage of the agitators is an indication of a blocked sound muffler.
- Carry out regular preventative cleaning ↳ 8 “Cleaning” and maintenance ↳ 9 “Maintenance” .
- Ensure that the agitator is positioned only centrally in the container.
- Operate the agitator at low speeds if possible.
  Only set the speed high enough for the material to be kept moving.
- Use a large agitator wing diameter (agitator unit) if possible.
- Use a low-volumed container.

7.5 Agitate

Note the safety data sheet of the material.

Personnel:
- Operator
- + additional qualification explosion protection

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

Requirements:
- Compressed air supply is switched on.
- Material is in the container.
- Agitator and container are grounded.
- Agitator is correctly mounted 5.2 “Requirements for the Installation point” .
- Agitator is connected 5.4 “Connecting” .

Switching on

Switching on and off of the agitator with a Type B pneumatic motor is identical to the switching on and off of a Type A pneumatic motor.

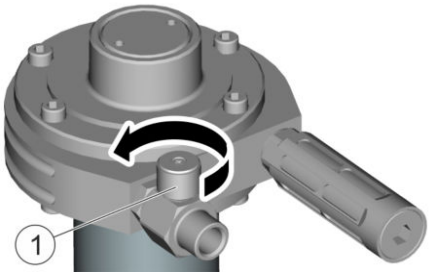


Fig. 12: Switch on agitator (example with Type A)

1. Rotate the adjusting screw (1) on the throttle valve slowly 1/4 turn in the direction of the arrow for opening.
   ⇨ The 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.
   Varying operating noises of the agitator may hint to the buildup of a vortex and the mixing of air to the drum due to the fact that the rotational speed is too high.

2. **NOTICE!**

   High rotational speed

   Operating the agitator at excessively high rotational speeds causes eddy currents and mixed-in air. Air in the material line can cause uneven coating.
   - Adjust the rotational speed to the material viscosity.
     Recommended rotational speed depending on the material viscosity: 60 to 600RPM
   - With oil-free operation, do not exceed speed of 200 U/min.

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

Switching off

Switch off agitator during removing material. The agitator is not designed for pass-through operation.

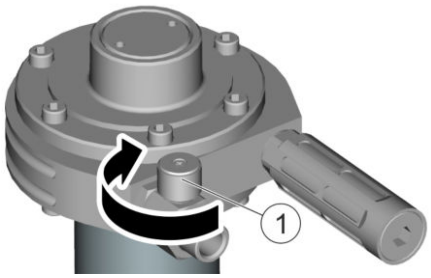


Fig. 13: Switch off agitator (Example of Type A)

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.

8 Cleaning

8.1 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 cleaning agent is at least 15K above the ambient temperature or clean Agitator at the cleaning areas with active technical ventilation, in painting booths, according to EN 16985.
- Note explosion group of the fluid.
- Only use approved cleaning agents.
- 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.
- After completing the cleaning work, remove cleaning agents and cleaning tools from the danger zone.

WARNING!

Escaping material and compressed air

Escaping material under pressure can cause serious injuries.

Before carrying out any work:

- Disconnect the system, in which the agitator is installed, from compressed air and material supply.
- Secure system personalized from 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 relevant safety data sheets.
- Wear specified protective equipment.
- 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.

8.2 Cleaning

8.2.1 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

8.2.2 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.

8.2.3 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

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 ↳ 10.4 “Replace agitator blade” .
2. Place components in the cleaning bath.

The cleaning duration depends on the contamination.

3. Remove components.
4. Remove residual contamination with a soft cloth or a soft brush.
   If necessary, repeat steps 3 and 4 until agitator is clean.
5. Wipe components dry with a dry clean cloth.
6. Assemble agitator blade ↳ 10.4 “Replace agitator blade” .

8.2.4 Clean interior room of the motor

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 compressed air hose ↳ 11.1 “Disassembling connections” .
2. Disassemble sound muffler ↳ 10.7 “Replace sound muffler” .
3. Fill approx. 20-30mL detergent into the compressed air connection.
4. Turn agitator shaft manually for approx. 5-10 minutes into both directions.
   ⇨ The detergent will spread itself inside of the interior room of the motor.
5. Assemble compressed air hose ↳ 11.1 “Disassembling connections” .
6. Cover compressed air outlet with a cloth.
7. Switch on agitator ↳ 7.5 “Agitate” .
8. Set compressed air to approx. 0.7bar.
   ⇨ The interior room of the motor is cleaned when no more detergent escapes on the compressed air outlet.

9. Oil pneumatic motor ↳ 6.1 “Commissioning” .
10. Assemble sound muffler ↳ 10.7 “Replace sound muffler” .

9 Maintenance

9.1 Safety notes

WARNING!

Escaping material and compressed air

Escaping material under pressure can cause serious injuries.

Before carrying out any work:

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

WARNING!

Unsuitable spare parts in explosive areas

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

- Use exclusively original spare 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 corresponding Ex approval.
  - Or ensure that at no time does an explosive atmosphere exist.

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 relevant safety data sheets.
- Wear specified protective equipment.
- 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 Maintenance schedule

Interval	Maintenance work
Before every use	Check grounding ↳ 5.4 “Connecting” .
	Ensure that the fastening nut is tightened ↳ 5.3 “Assembly” .
all 8 operating hours	Lubricate pneumatic motor ↳ 9.3 “Lubrication” .
after each use	Clean agitator ↳ 8 “Cleaning” .
monthly	Check radial shaft seal for damage. Replace if necessary.

9.3 Lubrication

Lubricate pneumatic motor.

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. Fill a few drops of lubricant into the compressed air hose if needed ↳ 12.9 “Operating and auxiliary materials” .

   Do not fill the lubricant directly into the pneumatic motor.
5. Connect the compressed air hose to the compressed air supply.
6. Switch on compressed air supply.
   ⇨ The lubricant will spread itself out in the pneumatic motor.

Lubricate compressed air automatically

Alternately, the compressed air can be lubricated automatically with a compressed air oiler ↳ 13.3 “Accessories optional on order” and ↳ 12.9 “Operating and auxiliary materials” .

Install the compressed air oiler in the compressed air connection as close as possible to the agitator. For this, the oiler must be installed in a higher position than the agitator.

9.4 Replace plain bearing

Personnel:
- Mechanic
- + additional qualification explosion protection

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

Tool:
- W02850079 - Assembly tool for plain bearing

Material:
- W32020044 - Molykote TP-42 paste

Disassembling Plain Bearing

Requirements:
- Ensure a non-explosive atmosphere.
- Agitator shaft has been disassembled and cleaned ↳ 10.5 “Replace agitator shaft” , ↳ 8.2 “Cleaning” .

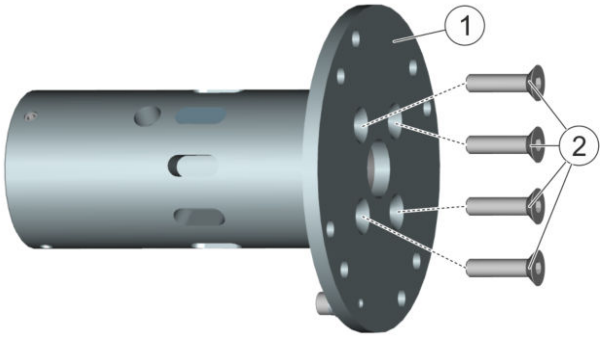


Fig. 14: Disassemble flange

1. Loosen four countersunk-head screws (2) from the flange (1).

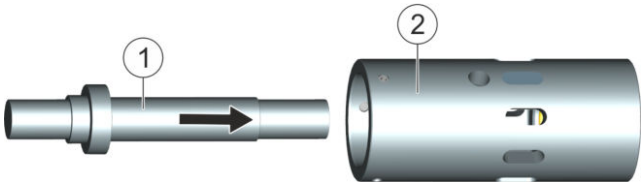


Fig. 15: Disassembling Plain Bearing

2. Insert assembly tool (1) with the long side from the left side into the housing (2).
3. Center assembly tool (1) in the plain bearing.

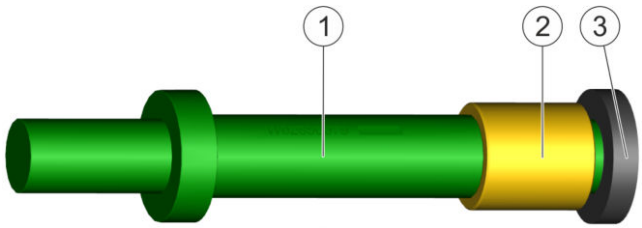


Fig. 16: Plain bearing on assembly tool

4. Hit on the rear side of the assembly tool using a plastic hammer until the plain bearing (2) and the seal (3) are completely on the assembly tool (1).
5. Pull off plain bearing (2) and seal (3) from the assembly tool (1).

Assemble plain bearing

1. Grease exterior and interior of plain bearing with Molykote TP-42 paste.

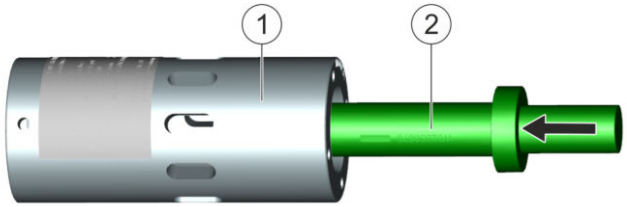


Fig. 17: Assemble plain bearing

2. Center plain bearing with assembly tool (2) with the long side in the housing (1).
3. Push plain bearing carefully into the housing (1) using a pressing device.
4. Grease exterior and interior of seal with Molykote TP-42 paste.
5. Center seal with assembly tool (2) with the short side in the housing (1).
6. Push seal carefully into the housing (1) using a pressing device.

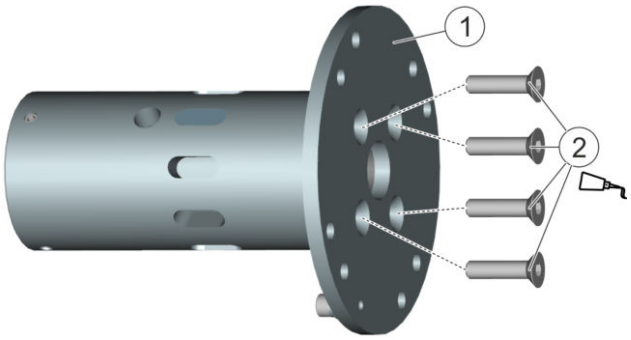


Fig. 18: Assemble flange

Thread lock Loctite 542

7. Insert four countersunk-head screws (2) on the flange (1) and tighten them.
8. Assemble agitator shaft 10.5 “Replace agitator shaft” .

10 Faults

10.1 Safety recommendations

WARNING!

Escaping material and compressed air

Escaping material under pressure can cause serious injuries.

Before carrying out any work:

- Disconnect the system, in which the agitator is installed, from compressed air and material supply.
- Secure system personalized from 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 relevant safety data sheets.
- Wear specified protective equipment.
- 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.

10.2 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 toIEC 60079-19.

10.3 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.
	Bearing noise on the plain bearing.	Replace plain bearing ↳ 9.4 “Replace plain bearing” .
	Filter in the sound muffler is blocked.	Replace filter.
	The slats inside of the motor are soiled or stuck together.	Purging of the interior room of the motor ↳ 8.2.4 “Clean interior room of the motor” .
	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 ↳ 10.6 “Replace throttle valve” .
	Pneumatic motor has no lubrication or is running dry.	Lubricate pneumatic motor ↳ 9.3 “Lubrication” .
	Pneumatic motor is defective.	Send in pneumatic motor for repairs or replace it ↳ 10.8 “Replace pneumatic motor.” .
	Compressed air hose with cross section less than DN 9 is used.	Assemble compressed air hose with the required diameter. ↳ 12.2 “Connections”
Agitator vibrates or does not run smoothly.	Agitator shaft or agitator blade is not correctly assembled.	▪ Assemble agitator shaft again ↳ 10.5 “Replace agitator shaft” . ▪ Assemble agitator blade again ↳ 10.4 “Replace agitator blade” .
	Agitator blade is damaged or bent.	Replace agitator blade ↳ 10.4 “Replace agitator blade” .
	Agitator shaft has an imbalance or is damaged.	Replace agitator shaft ↳ 10.5 “Replace agitator shaft” .
	Cap nut is loose.	Tighten cap nut (20Nm) and glue it with Loctite 542.
Material coat is uneven.	Material is being agitated with too high a rotational speed.	Reduce rotational speed ↳ 7.5 “Agitate” .

10.4 Replace agitator blade

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

Disassemble agitator blade

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

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

Requirements:

- Compressed air hose is disassembled ↳ 11.1 “Disassembling connections” .
- Throttle valve is closed.
- Agitator is outside of the container.
- Components are cleaned ↳ 8.2 “Cleaning” .

1. Fix agitator on the agitator shaft in the vise.

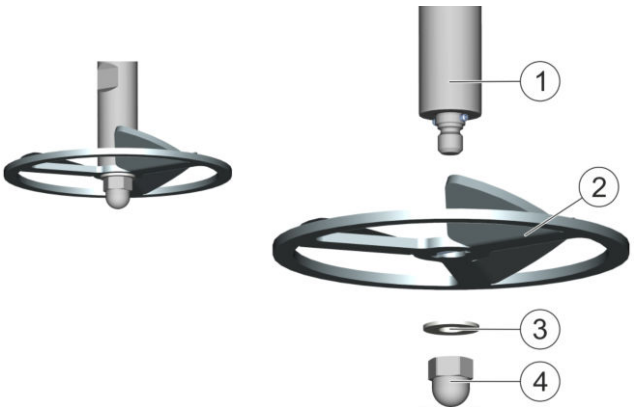


Fig. 19: Disassemble agitator blade

2. Loosen agitator blade (2):
   - Fix agitator shaft (1) with an open-end wrench.
   - Unscrew cap nut (4) with an open-end wrench.
3. Remove seal (3).
4. Remove agitator blade (2) from the agitator shaft (1).

If the screw is stuck, clamp the agitator shaft vertically in a vise. Horizontal clamping may bend the agitator shaft while loosening the screw.

Assemble agitator blade

Use assembly fixture ↳ 13.2 “Tools” .
If no assembly fixture is present, two mechanics are required for the assembly.

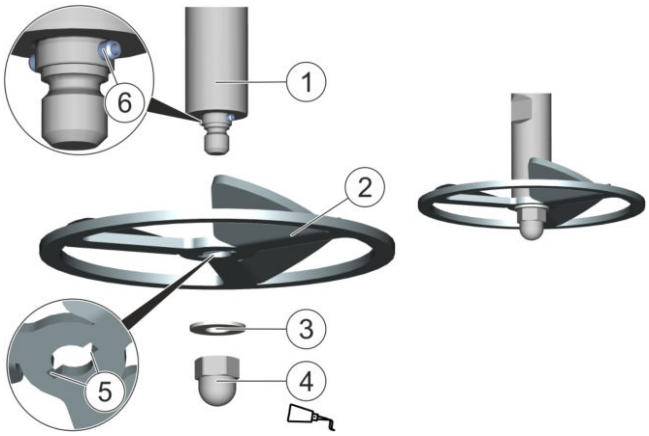


Fig. 20: Assemble agitator blade

Thread lock Loctite 542

1. Insert new agitator blade (2) on the agitator shaft (1).
2. Fit the recess (5) on the dowel pin (6).
3. Fit seal (3) onto the agitator shaft (1).
4. Tighten agitator blade (2):
   - Fix agitator shaft (1) with an open-end wrench.
   - Wet thread of cap nut (4) with Loctite 542.
   - Tighten cap nut (4) using an open-end wrench.
   - Observe tightening torque of 20Nm.

10.5 Replace agitator shaft

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

Personnel:
- Mechanic
- + additional qualification explosion protection

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

Requirements:
- Ensure a non-explosive atmosphere.
- Agitator blade has been assembled ↳ 10.4 “Replace agitator blade” .

Disassemble agitator shaft on the Type A pneumatic motor

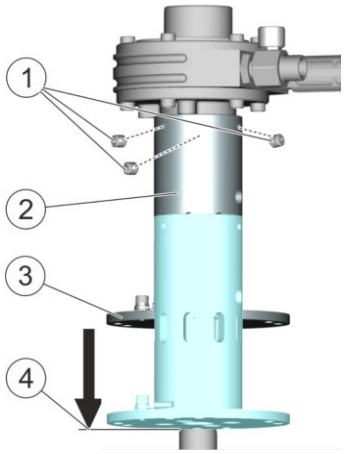


Fig. 21: Loosen housing

1. Loosen three threaded pins (1) on the housing (2).
2. Push housing (2) with flange (3) up to the diameter augmentation of the agitator shaft (4).

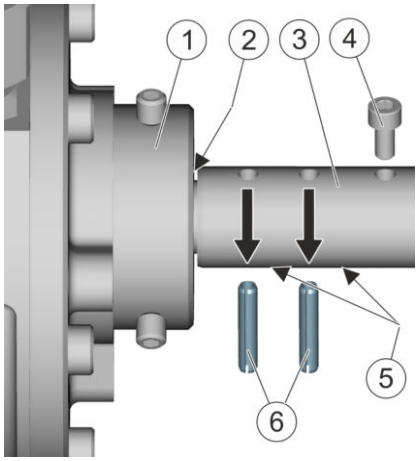


Fig. 22: Loosen agitator shaft

3. **NOTICE!**

   Property damages due to disassembly

   If the agitator shaft is not supported on the 5 positions, the agitator shaft may become damaged during disassembly.
   - Use assembly fixture ↳ 13.2 “Tools” .
   - If no assembly fixture is present, two mechanics are required for the disassembly.

   Support agitator shaft (3) on position 5.
4. Drive out two dowel pins (6).
5. Loosen cylinder head screw (4).

NOTICE!

Axial forces on the drive shaft of the pneumatic motor cause property damage or damages to the pneumatic motor.

If the motor (1) sits tight on the agitator shaft (3), insert a screw driver into the gap (2) between motor (1) and agitator shaft (3).

6. Use the screw driver to leverage the motor (1) from the agitator shaft (3).

7. Slide motor (1) from the agitator shaft (3).
   ⇨ Agitator shaft (3) is separated from the motor (1).

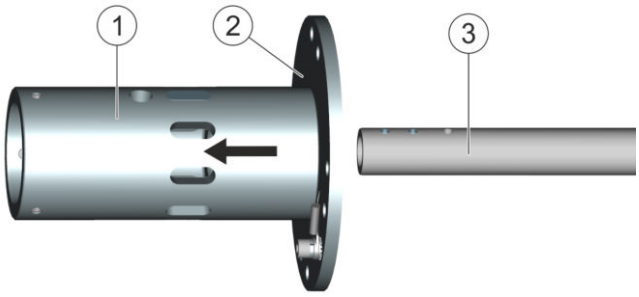


Fig. 23: Housing with flange

8. Slide housing (1) with flange (2) from the agitator shaft (3).
   ⇨ The agitator shaft has been disassembled.

Disassemble agitator shaft on the Type B pneumatic motor

See illustration Type A pneumatic motor

1. Loosen three threaded pins on the housing.
2. Push housing with flange up to the diameter augmentation of the agitator shaft.

Use assembly fixture ↳ 13.2 “Tools” .
If no assembly fixture is present, two mechanics are required for the disassembly.

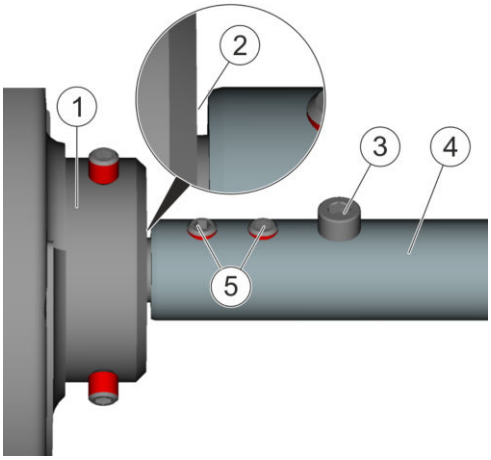


Fig. 24: Loosen agitator shaft

3. Unscrew two threaded pins (5).
4. Loosen cylinder head screw (3).

! NOTICE!

Axial forces on the drive shaft of the pneumatic motor cause property damage or damages to the pneumatic motor.

If the motor (1) sits tight on the agitator shaft (4), insert a screw driver into the gap (2) between motor (1) and agitator shaft (4).

5. Use the screw driver to leverage the motor (1) from the agitator shaft (4).
6. Slide motor (1) from the agitator shaft (4).
   ⇨ Agitator shaft (4) is separated from the motor (1).

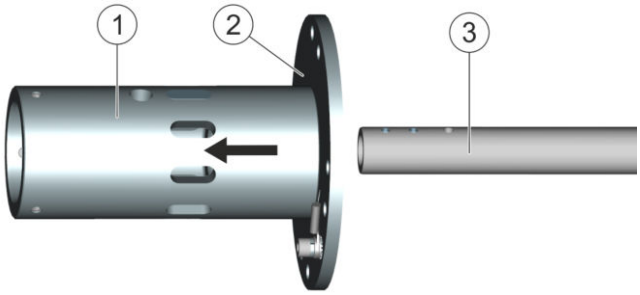


Fig. 25: Housing with flange

7. Slide housing (1) with flange (2) from the agitator shaft (3).
   ⇨ The agitator shaft has been disassembled.

Assemble agitator shaft on Type A pneumatic motor

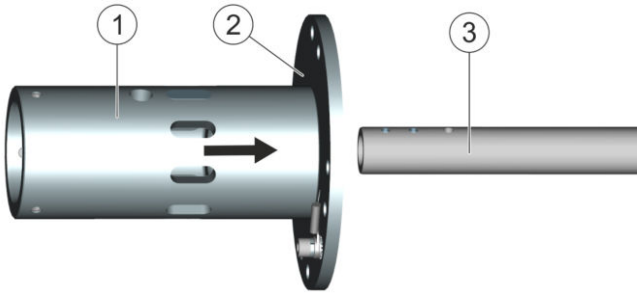


Fig. 26: Housing with flange

1. Slide housing (1) with flange (2) onto the agitator shaft (3).

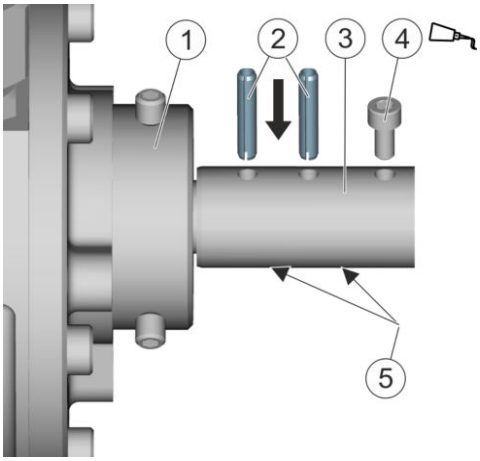


Fig. 27: Assemble agitator shaft

Thread lock Loctite 542

2. Slide motor (1) onto the agitator shaft (3).
3. Insert and tighten cylinder head screw (4).

NOTICE!

Property damage due to assembly

If the agitator shaft is not supported on the 5 positions, the agitator shaft may become damaged during assembly.

- Use assembly fixture ↳ 13.2 “Tools” .
- If no assembly fixture is present, two mechanics are required for the assembly.

4. Support agitator shaft (3) on position 5.
5. Drive in two dowel pins (2).

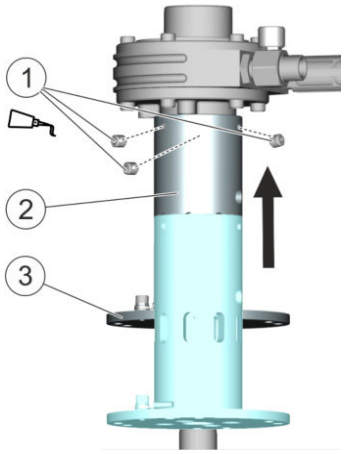


Fig. 28: Fasten housing

Thread lock Loctite 542

6. Push housing (2) with flange (3) up to the motor.
7. Insert and tighten three threaded pins (1) into the housing (2).
   ⇨ The agitator shaft has been assembled.
8. Assemble agitator blade ↳ 10.4 “Replace agitator blade” .

Assemble agitator shaft on the Type B pneumatic motor

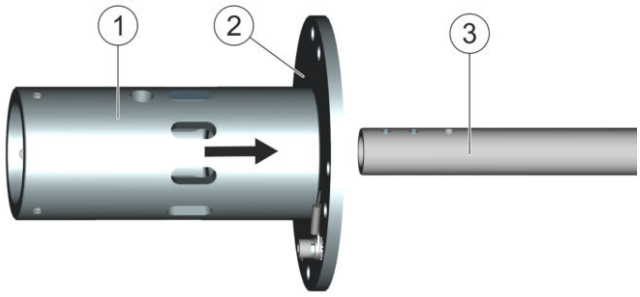


Fig. 29: Housing with flange

1. Slide housing (1) with flange (2) onto the agitator shaft (3).

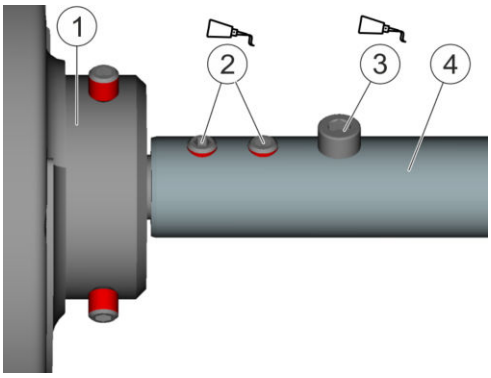


Fig. 30: Assemble agitator shaft

Thread lock Loctite 542

2. Slide motor (1) onto the agitator shaft (4).

Use assembly fixture ↳ 13.2 “Tools” .
If no assembly fixture is present, two mechanics are required for the assembly.

3. Insert and tighten cylinder head screw (3).
4. Insert and tighten two threaded pins (2).

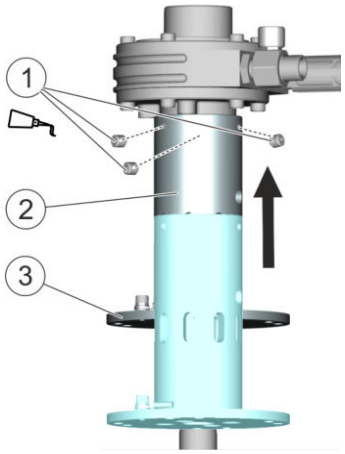


Fig. 31: Fasten housing

Thread lock Loctite 542

5. Push housing (2) with flange (3) up to the motor.
6. Insert and tighten three threaded pins (1) into the housing (2).
   ⇨ The agitator shaft has been assembled.
7. Assemble agitator blade ↳ 10.4 “Replace agitator blade” .

10.6 Replace throttle valve

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

Personnel:
- Mechanic
- + additional qualification explosion protection

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

Requirements:
- Ensure a non-explosive atmosphere.
- Compressed air hose is disassembled ↳ 11.1 “Disassembling connections” .
- Throttle valve is closed.

Disassemble throttle valve

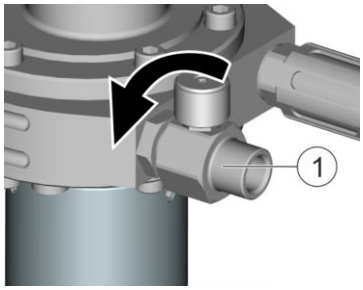


Fig. 32: Disassemble throttle valve

1. Unscrew throttle valve (1) as indicated by the arrow, using a wrench.
   ⇨ Throttle valve is disassembled.
2. Clean external threads.

Assemble throttle valve

NOTICE!

Contamination

If you use a sealing tape, frayed threads from the sealing tape and damage the product.
- Only use thread seal.

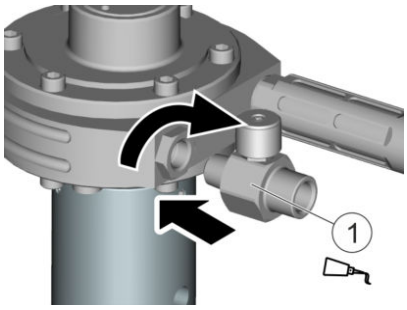


Fig. 33: Assemble throttle valve

Thread lock Loctite 542

3. Apply thread lock on the external thread of the throttle valve (1).
4. Screw in throttle valve (1). Make sure that a distance of 3 to 5mm in maintained between nut and motor.
   ⇨ Throttle valve (1) is assembled.

10.7 Replace sound muffler

Personnel:

- Mechanic
- + additional qualification explosion protection

Protective equipment:

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

Requirements:

- Ensure a non-explosive atmosphere.
- Compressed air hose is disassembled ↳ 11.1 “Disassembling connections” .

Disassemble sound muffler on the Type A pneumatic motor

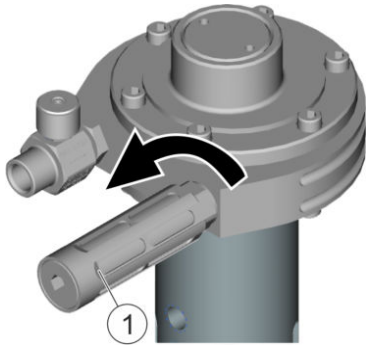


Fig. 34: Disassemble sound muffler

1. Unscrew sound muffler (1) as indicated by the arrow, using a wrench.
   ⇨ The sound muffler (1) is disassembled.

Assemble sound muffler on the Type A pneumatic motor

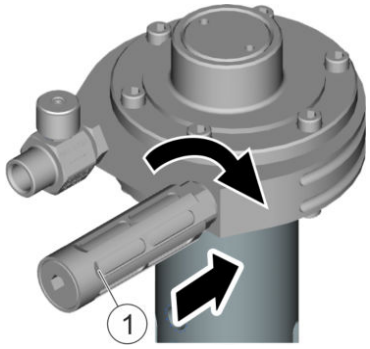


Fig. 35: Assemble the sound muffler

2. Screw in sound muffler (1).
   ⇨ The sound muffler (1) is assembled.

Disassemble sound muffler on the Type B pneumatic motor

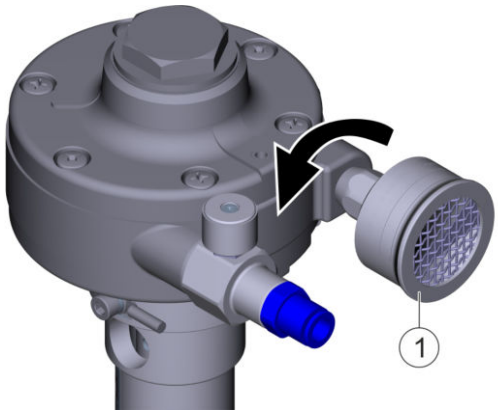


Fig. 36: Disassemble sound muffler

1. Unscrew sound muffler (1) as indicated by the arrow, using a wrench.
   ⇨ The sound muffler (1) is disassembled.

Assemble sound muffler on the Type B pneumatic motor

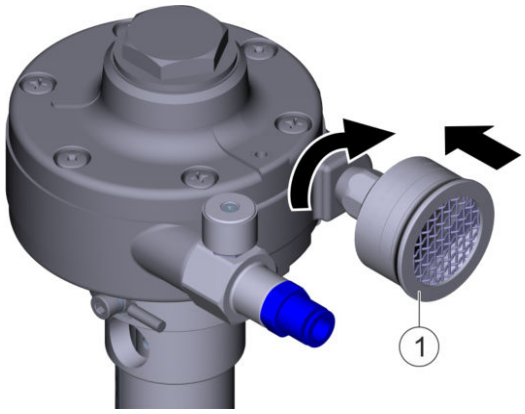


Fig. 37: Assemble the sound muffler

2. Screw in sound muffler (1).
   ⇨ The sound muffler (1) is assembled.

10.8 Replace pneumatic motor.

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

Personnel:

- Mechanic

Protective equipment:

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

Requirements:

- Ensure a non-explosive atmosphere.
- Ground conductor and compressed air hose are disassembled ↳ 11.1 “Disassembling connections” .
- Throttle valve is closed.

Disassemble pneumatic motor on Type A pneumatic motor

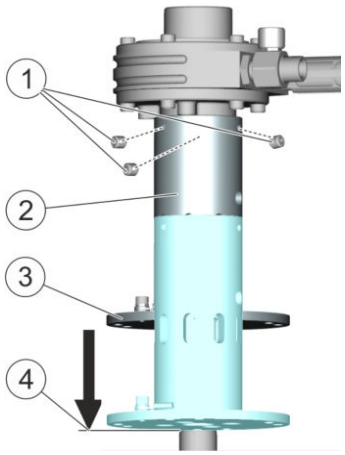


Fig. 38: Loosen housing

1. Loosen three threaded pins (1) on the housing (2).
2. Push housing (2) with flange (3) up to the diameter augmentation of the agitator shaft (4).

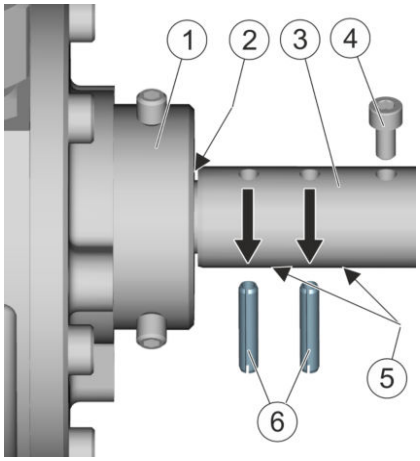


Fig. 39: Loosen agitator shaft

3. **NOTICE!**

   Property damages due to disassembly

   If the agitator shaft is not supported on the 5 positions, the agitator shaft may become damaged during disassembly.
   - Use assembly fixture ↳ 13.2 “Tools” .
   - If no assembly fixture is present, two mechanics are required for the disassembly.

   Support agitator shaft (3) on position 5.
4. Drive out two dowel pins (6).
5. Loosen cylinder head screw (4).

NOTICE!

Axial forces on the drive shaft of the pneumatic motor cause property damage or damages to the pneumatic motor.

If the motor (1) sits tight on the agitator shaft (3), insert a screw driver into the gap (2) between motor (1) and agitator shaft (3).

6. Use the screw driver to leverage the motor (1) from the agitator shaft (3).
7. Slide motor (1) from the agitator shaft (3).

Assemble pneumatic motor on Type A pneumatic motor

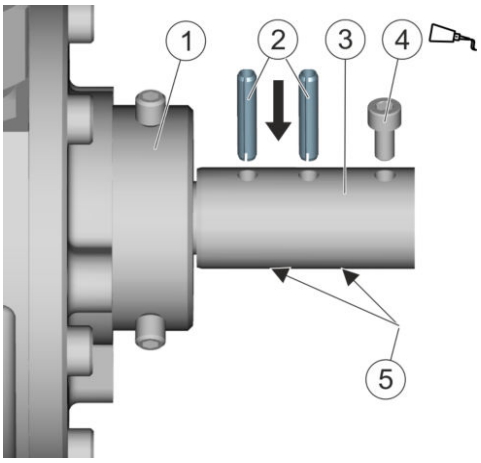


Fig. 40: Assemble agitator shaft

Thread lock Loctite 542

1. Slide motor (1) onto the agitator shaft (3).
2. Insert and tighten cylinder head screw (4).

NOTICE!

Property damage due to assembly

If the agitator shaft is not supported on the 5 positions, the agitator shaft may become damaged during assembly.

- Use assembly fixture ↳ 13.2 “Tools” .
- If no assembly fixture is present, two mechanics are required for the assembly.

3. Support agitator shaft (3) on position 5.
4. Drive in two dowel pins (2).

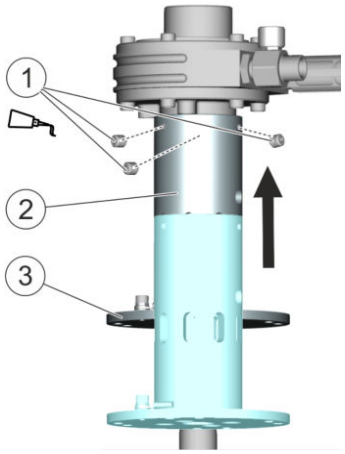


Fig. 41: Fasten housing

Thread lock Loctite 542

5. Push housing (2) with flange (3) up to the motor.
6. Insert and tighten three threaded pins (1) into the housing (2).

Disassemble pneumatic motor on the Typ B pneumatic motor

See illustration Type A pneumatic motor

1. Loosen three threaded pins on the housing.
2. Push housing with flange up to the diameter augmentation of the agitator shaft.

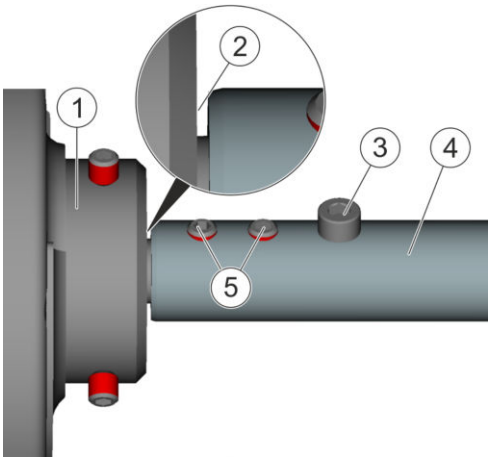


Fig. 42: Loosen agitator shaft

3. Unscrew two threaded pins (5).
4. Loosen cylinder head screw (3).

NOTICE!

Axial forces on the drive shaft of the pneumatic motor cause property damage or damages to the pneumatic motor.

If the motor (1) sits tight on the agitator shaft (4), insert a screw driver into the gap (2) between motor (1) and agitator shaft (4).

5. Use the screw driver to leverage the motor (1) from the agitator shaft (4).
6. Slide motor (1) from the agitator shaft (4).

Assemble pneumatic motor on the Type B pneumatic motor

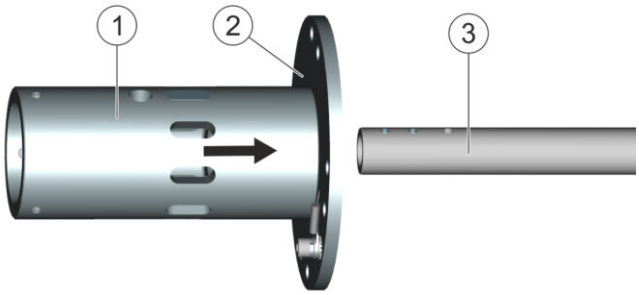


Fig. 43: Housing with flange

1. Slide housing (1) with flange (2) onto the agitator shaft (3).

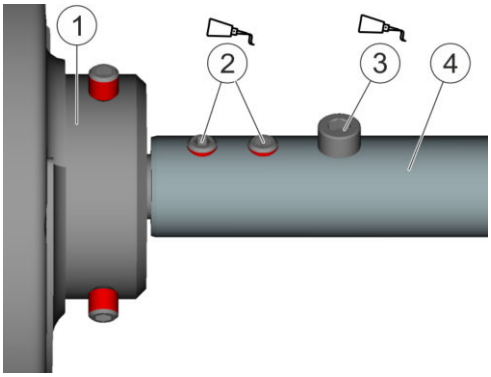


Fig. 44: Assemble agitator shaft

Thread lock Loctite 542

2. Slide motor (1) onto the agitator shaft (4).

Use assembly fixture ↳ 13.2 “Tools” .
If no assembly fixture is present, two mechanics are required for the assembly.

3. Insert and tighten cylinder head screw (3).
4. Insert and tighten two threaded pins (2).

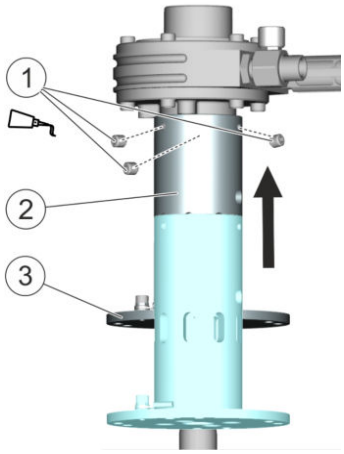


Fig. 45: Fasten housing

Thread lock Loctite 542

5. Push housing (2) with flange (3) up to the motor.
6. Insert and tighten three threaded pins (1) into the housing (2).

10.9 After troubleshooting

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

11 Disassembly and Disposal

11.1 Disassembling connections

Disassemble compressed air hose

Personnel:
- Mechanic
- + additional qualification explosion protection

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

Requirements:
- Ensure a non-explosive atmosphere.
- Compressed air supply is switched off and secured against being switched on again.
- Lines are depressurized.
- Throttle valve is opened.
- Agitator is cleaned ↳ 8.2 “Cleaning” .

Disassembling the compressed air hose with a Type B pneumatic motor is identical to assembling the agitator with an Type A pneumatic motor.

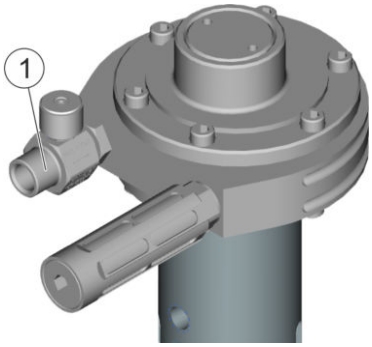


Fig. 46: Disassemble compressed air hose (Type A)

1. Pull out compressed air hose from throttle valve (1).

11.2 Disassembly

Disassemble the agitator

Use assembly platforms for disassembly work in elevated position.

Personnel:
- Mechanic
- + additional qualification explosion protection

Protective equipment:
- Anti-Static Safety Boots
- Protective gloves

Requirements:
- Ensure a non-explosive atmosphere.
- Connections are disassembled ↳ 11.1 “Disassembling connections” .
- Agitator blade has been assembled ↳ 10.4 “Replace agitator blade” .

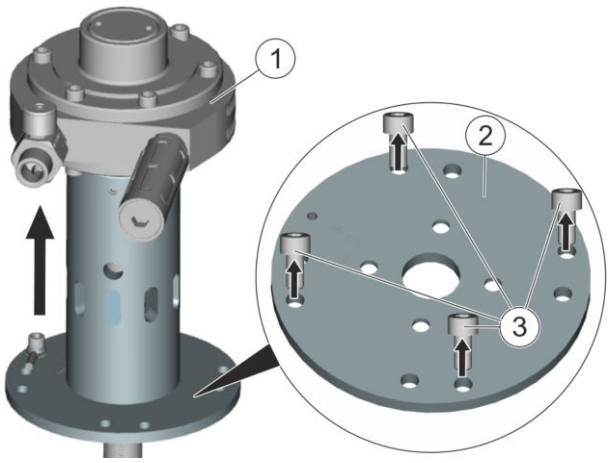


Fig. 47: Disassemble the agitator

1. Loosen four fastening screws (3) on the agitator (1).
2. Pull agitator (1) out of the lid.
3. Assemble agitator blade ↳ 10.4 “Replace agitator blade” .

11.3 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.
  ↳ 12.8 “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.

12 Technical data

12.1 Dimensions and weight

Type A motors

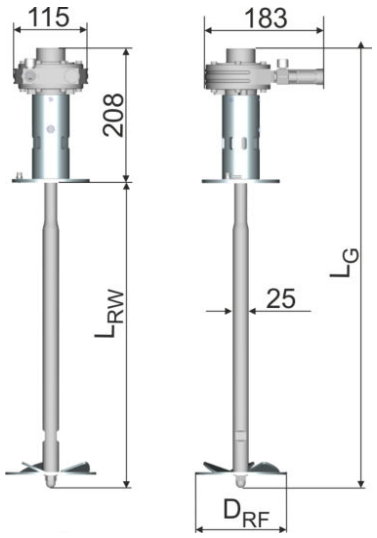


Fig. 48: Dimensions

Detail	Value
Length L_G	300mm to 970mm
Width	115mm
Depth	183mm
Agitator shaft length L_{RW}	100mm to 770mm
Ø agitator shaft	20mm
Ø agitator blade D_{RF}	75mm to 210mm
Weight	4.853kg to 8kg

Type B motor

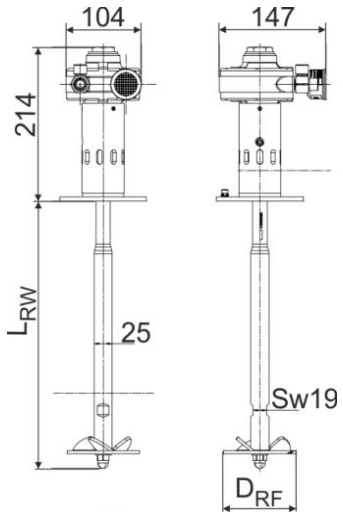


Fig. 49: Dimensions

Detail	Value
Width	104mm
Depth	147mm
Agitator shaft length L_{RW}	100mm to 770mm
Ø agitator shaft	20mm
Ø agitator blade D_{RF}	75mm to 210mm
Weight	4.853kg to 8kg

12.2 Connections

Detail	Value
Compressed air connection	G1/4
Compressed air hose	DN9

12.3 Operating conditions

Detail	Value
Ambient temperature, min.	15°C
Ambient temperature, max.	40°C
Material temperature, max.	40°C
Relative humidity, min.	35 %
Relative humidity, max.	90%
Distance of the agitator blade from the wall and the bottom of the container, min.	40mm
Fastening bore for lid:	Ø 27mm to Ø 85mm

12.4 Emissions

Detail	Value
Sound pressure level	77dB(A)

12.5 Operating values

Detail	Value
Operating pressure, min.	0.5 bar
Operating pressure, max.	6bar
Rotational speed range	0 to 1,200 RPM
For oil-free compressed air: Speed, max.	200 RPM
Power	0.63kW

12.6 Compressed air

Compressed air quality

For oil-free operation

- Purity classes in accordance with ISO 8573-1: 6:8:4

For operation with oiled compressed air

- Purity classes in accordance with ISO 8573-1 6:8:X
- Limitations for purity class X:
  - ≤ 25mg/m^3

12.7 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

12.8 Materials used

Component	Material
Housing	AW-6082 T6
Flange	1.4301
Drive shaft	1.4301
Cap nut	1.4301
Agitator blade, agitator shaft	1.4301

12.9 Operating and auxiliary materials

Material	Material number
Molykote TP-42	W32020044
Thread lock Loctite 542	W31010003
Lubricant VG 32 0.2L	W32020045
Lubricant VG 32 1L	W32020047
Cleaning agent for pneumatic motor	W33020013

12.10 Material specification

Suitable Material:

- Flammable fluid coating materials and their cleaning media
- Non-flammable fluid coating materials and their cleaning media

Conductivity

Detail	Value
Conductivity, min.	10000pS/m

13 Spare parts and accessories

13.1 Spare parts

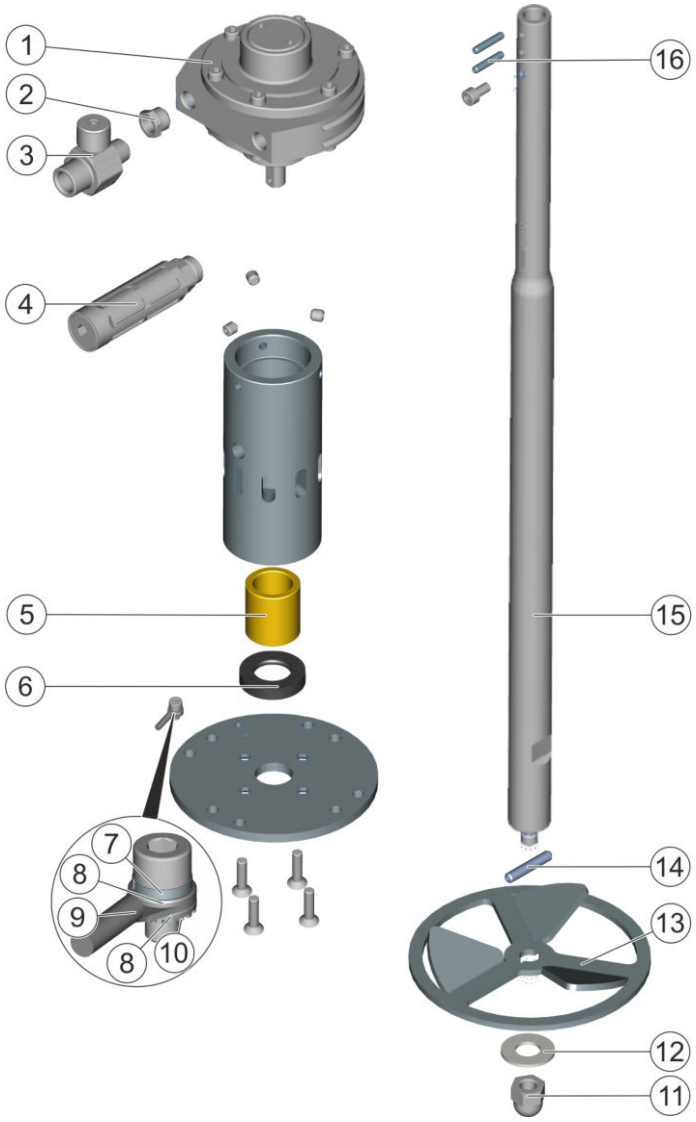


Fig. 50: Spare parts Type A

Spare parts Type A			
Item	Denomination	Amount	Material number
1	Air motor with exhaust air throttle Type A	1	N23080056
2	Reduction nipple R3/8"a-G1/4"i PN50 VA	1	M56100096
3	Throttle valve for agitator	1	M54680027
4	Sound muffler G3/8" 0-10bar Al	1	M54610019
5	Plain bearing D28 d20 L30 CuZn	1	M28010145
6	Radial shaft seal	1	M08020104
7	Spring ring 5 DIN7980 1.4301	1	D79800007
8	Washer B5,3 DIN125 1.4301	2	D01250056

Item	Denomination	Amount	Material number
9	Cable lug for ring PVC-ISOL.4-6 qmm d5,3	1	E38010009
10	Lock washer A M5 DIN6797 A BN 789	1	D67970020
11	Cap nut	1	D15870008
12	Sealing ring d10,2 D22,0 s1,5 POM	1	M08010203
13	Agitator unit D210 Agitator unit D185 Agitator unit D140 Agitator unit D100 Agitator unit D75	1	M04640015 M04640022 M04640016 M04640017 M04640018
14	Dowel pin 3x16 DIN1481 VA9	1	D14810062
15	Shaft length 100mm Type A Shaft length 120mm Type A Shaft length 170mm Type A Shaft length 220mm Type A Shaft length 270mm Type A Shaft length 320mm Type A Shaft length 370mm Type A Shaft length 420mm Type A Shaft length 470mm Type A Shaft length 520mm Type A Shaft length 570mm Type A Shaft length 620mm Type A Shaft length 670mm Type A Shaft length 720mm Type A Shaft length 770mm Type A	1	M04081055 M04081056 M04081057 M04081058 M04081059 M04081060 M04081001 M04081061 M04081062 M04081002 M04081063 M04081064 M04081065 M04081066 M04081000
16	Dowel pin 4x20 ISO8572 A2	2	D14810072

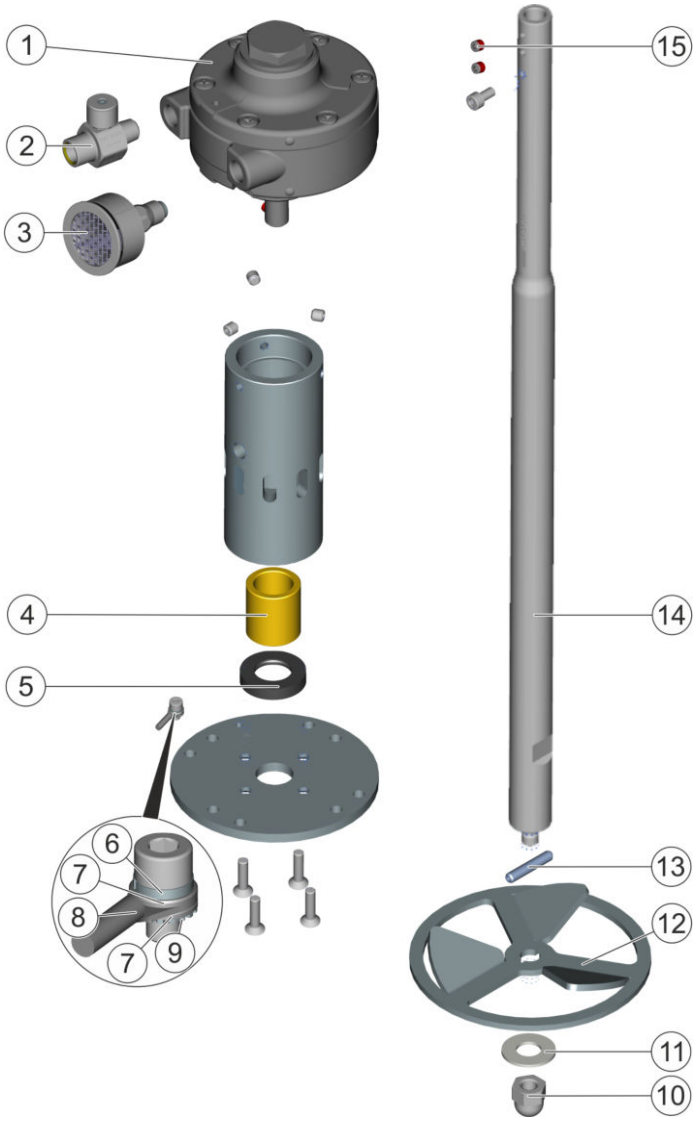


Fig. 51: Spare parts Type B

Spare parts Type B			
Item	Denomination	Amount	Material number
1	Air motor Type B	1	N23080019
2	Throttle valve for agitator	1	M54680027
3	Sound muffler G/4" AC980	1	M54610068
4	Plain bearing D28 d20 L30 CuZn	1	M28010145
5	Radial shaft seal	1	M08020104
6	Spring ring 5 DIN7980 1.4301	1	D79800007
7	Washer B5,3 DIN125 1.4301	2	D01250056
8	Cable lug for ring PVC-ISOL.4-6 qmm d5,3	1	E38010009
9	Lock washer A M5 DIN6797 A BN 789	1	D67970020
10	Cap nut	1	D15870008

Item	Denomination	Amount	Material number
11	Sealing ring d10,2 D22,0 s1,5 POM	1	M08010203
12	Agitator unit D210 Agitator unit D185 Agitator unit D140 Agitator unit D100 Agitator unit D75	1	M04640015 M04640022 M04640016 M04640017 M04640018
13	Dowel pin 3x16 DIN1481 VA9	1	D14810062
14	Shaft length 100mm Type B Shaft length 120mm Type B Shaft length 170mm Type B Shaft length 220mm Type B Shaft length 270mm Type B Shaft length 320mm Type B Shaft length 370mm Type B Shaft length 420mm Type B Shaft length 470mm Type B Shaft length 520mm Type B Shaft length 570mm Type B Shaft length 620mm Type B Shaft length 670mm Type B Shaft length 720mm Type B Shaft length 770mm Type B	1	M04081071 M04081072 M04081073 M04081074 M04081075 M04081076 M04081077 M04081078 M04081079 M04081080 M04081081 M04081082 M04081083 M04081084 M04081085
15	Threaded pin M6x6 DIN913 1.4301	2	D09130025

13.2 Tools

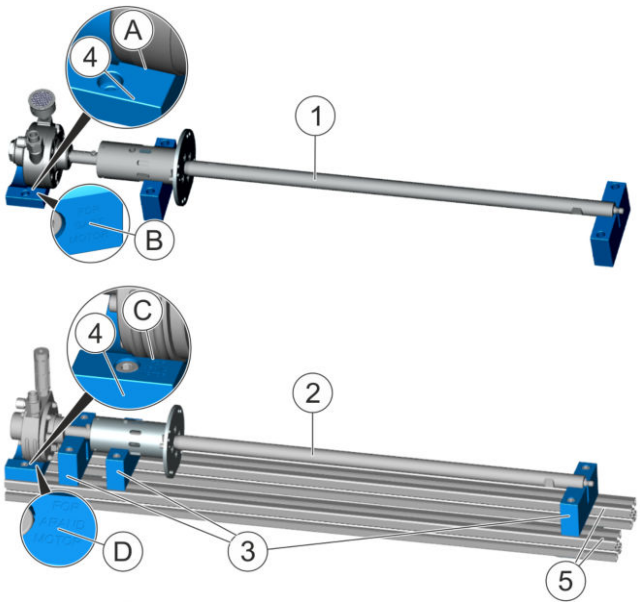


Fig. 52: Assembly fixture for agitator assembly

A Support diameter for agitator (1)
B Labeling (FOR MOTOR TYPE A)
C Support diameter for agitator (2)
D Labeling (FOR MOTOR TYPE B)
1 Agitator A FIX R PR xxx yyy - G CORE
2 Agitator A FIX R PR xxx yyy - G CORE
3 Assembly fixture for agitator assembly
4 Assembly support for pneumatic motor
5 Mounting rail

The installation position of the assembly support (4) is marked for the corresponding pneumatic motor (B), (D).

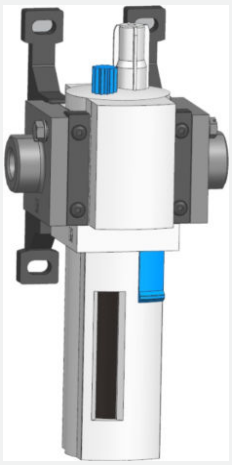
Item	Denomination	Quantity	Material number
3, 4, 5	Assembly fixture for agitator assembly	1	N99030012
-	Assembly tool	1	W02850079

The installation device can be ordered from Dürr Systems.
Alternatively: Download 3D data of the installation device (positions 3 and 4 only) for a 3D print
https://shop.durr.com/s/sfsites/c/cms/delivery/media/MCGLLSZDXFFBFDNK3Y32ZMVUQRVE

Fig. 53: QR code

13.3 Accessories optional on order

- Safety valve
- Initiator for speed detection

Designation	Illustration	Amount	Material number
Safety valve		1	N91890023
Initiator for speed detection		1	E07030069
Compressed air oiler		1	N35110010

The safety valve protects the agitator and the connections from any damages resulting from too high pressure. The safety valve has an adjustment pressure 12 “Technical data” . The safety valve releases air if the adjustment pressure is exceeded.

13.4 Order

WARNING!

Unsuitable spare parts in explosive areas

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

- Use exclusively original spare parts.

WARNING!

Unsuitable spare parts

Spare 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 spare parts.

Ordering spare 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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Translation of the original operation manual
MAG00008EN, V03