because it works

Operation manual

DUAL COMPONENT GEL SYSTEM

Type:

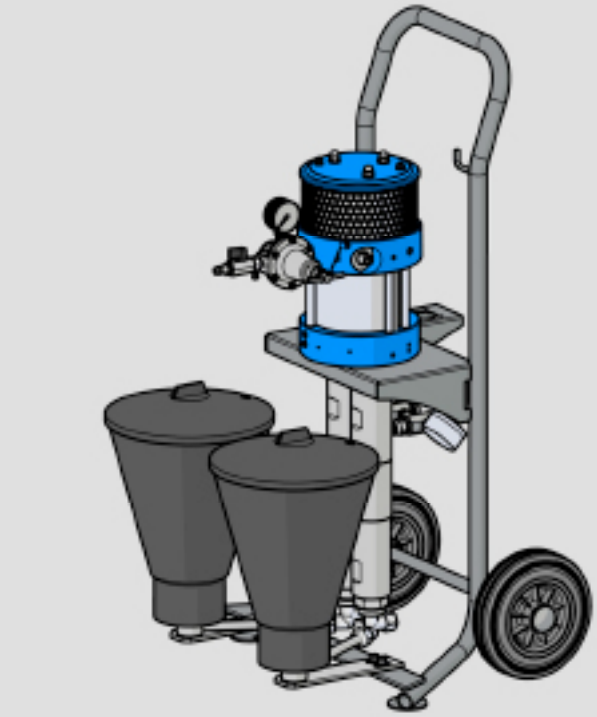
- ❍ 14025 R/F
  - ❍ 0641976
  - ❍ 0643500
- ❍ 25015 R/F
  - ❍ 0647884
  - ❍ 0652174
  - ❍ 0652381
  - ❍ 0662060

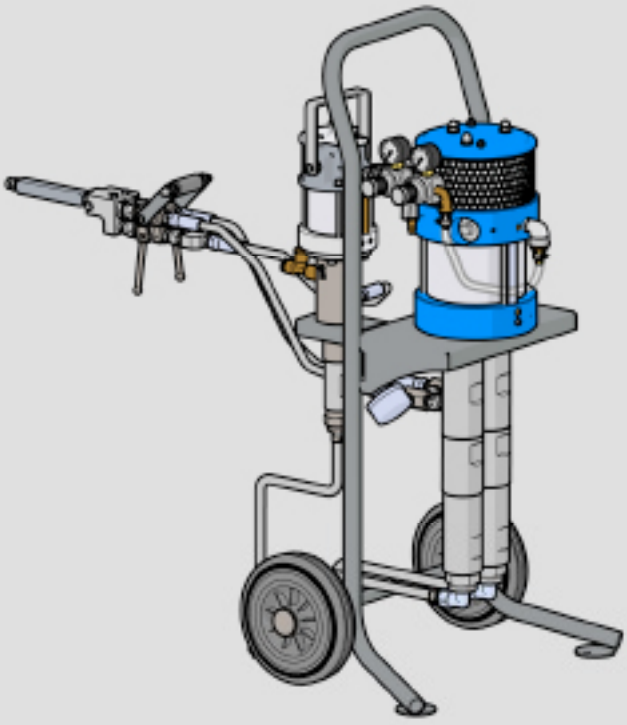
Version with:

- ❍ hopper
- ❍ suction system

Serial-No.

_____





Original operation manual
2KGel_14025_25015_DBE_en_1701 • jw

EC Declaration of Incorporation

according to Appendix II No. 1 B of the Machinery Directive 2006/42/EC, last amended by 2009/127/EC

The company **WIWA Wilhelm Wagner GmbH & Co. KG**
Gewerbestr. 1-3
35633 Lahnau
Germany

hereby declares
that the devices of types **DUAL COMPONENT GEL SYSTEM** **14025 R/F**
25015 R/F

with Serial-No.

are incomplete units according to Article 2 g and solely for installation or incorporation in other machines or equipment. These units are in compliance with the following underlying safety and health and safety requirements of the above-mentioned directive: Appendix I, Paragraphs 1.1.2, 1.1.3, 1.1.5, 1.1.6, 1.2.1, 1.2.2, 1.2.3, 1.2.4.1, 1.2.4.3, 1.3.1, 1.3.2, 1.3.4, 1.3.7, 1.5.2, 1.5.3, 1.5.4, 1.5.6, 1.5.7, 1.5.8, 1.6.1, 1.6.2, 1.6.4, 1.7.1, 1.7.3, 1.7.4.1, 1.7.4.2

The commissioning of these incomplete units is prohibited until it is shown that the equipment into which the above-mentioned unit(s) are to be installed or incorporated is in compliance with the provisions of Machinery Directive 2006/42/EC.

The equipment-specific technical documentation was written in accordance with Appendix VII, Part B of the above-mentioned directive.

Documentary authority: WIWA GmbH, Tel. +49 6441 609 0

The manufacturer commits to electronic transmission of the equipment-specific documentation for the incomplete units to individual national authorities upon request.

Lahnau, 24.08.2018
Place, date

Dipl.-Ing. (FH) Peter Turczak
Managing Director

EC Declaration of Conformity

according to ATEX Directive

The company **WIWA Wilhelm Wagner GmbH & Co. KG**
Gewerbestr. 1-3
35633 Lahnau
Germany

hereby declares
that the devices of types **DUAL COMPONENT GEL SYSTEM** **14025 R/F**
25015 R/F

with Serial-No.

conforms with the provisions of the relevant harmonisation legislation of the union: Directive 2014/34/EU.

The machine is assigned to group II, category 2G.

Marking: **II 2G cT4**

Lahnau, 24.08.2018
Place, date

Dipl.-Ing. (FH) Peter Turczak
Managing Director

Contents

1 Foreword

Dear valued customer,

We are delighted that you have chosen one of our machines.

This operation manual is directed at the operating and maintenance personnel. It contains all information required in order to work with this machine.

The machine owner must ensure that the operating and maintenance personnel always have access to a copy of the operation manual in a language that they understand.

In addition to the operation manual, further information is also essential for the safety operation of the machine. Read and observe the directives and accident prevention regulations valid in your country.

We recommend enclosing all relevant directives and accident prevention regulations with the operation manual.

Furthermore, always observe the manufacturer's instructions and processing guidelines for coating or conveyance materials.

If questions should arise, we shall be happy to assist you.

We wish you successful work with your machine,
WIWA Wilhelm Wagner GmbH & Co. KG

2 Safety

This machine has been designed and manufactured with consideration to all safety aspects. It reflects current engineering practice and the valid accident prevention regulations. The machine left the factory in faultless condition and guarantees a high level of technical safety. However, improper operation and misuse will pose a risk to:

- the life and limb of the operator or third parties,
- the machine and other property of the owner,
- the efficient function of the machine.

Any method of work that has a negative influence on the safety of the operating personnel and the machine is fundamentally prohibited. All persons involved in the installation, commissioning, operation, care, repair and maintenance of the machine must have read and understood the operation manual beforehand - in particular the "Safety" chapter.

Your safety depends on it!

We recommend that the machine owner have this confirmed in writing.

2.1 Explanation of symbols

Safety notes warn of potential accident risks and describe the measures required for accident prevention. In the **WIWA** operation manual, safety notes are highlighted and labeled as follows:

DANGER

Signals a risk of accidents that are very likely to result in serious injuries and even death, if the safety note is not observed!

WARNING

Signals a risk of accidents that may result in serious injuries and even death, if the safety note is not observed!

CAUTION

Signals a risk of accidents that may result in injuries, if the safety note is not observed!

Signals important information for proper handling of the machine. A failure to observe this may result in damage to the machine or its environment.

Various pictograms are used in the safety notes for accident risks that may result in injury, depending on the hazard source — examples:

General risk of accident

Risk of explosion due to explosive atmosphere


Risk of explosion due to explosive substances


Risk of accident due to electricity or electrostatic charge


Risk of crushing due to lifting movements


Risk of cutting injuries due to rotating machine parts


Risk of burning due to hot surfaces


Risk of freezing due to cold surfaces

The first line of the safety instructions indicates the personal protective equipment that must be worn. This is also highlighted and labeled as follows:


Wear protective clothing
Signals an instruction to wear the prescribed protective clothing, in order to prevent skin injuries due to spray material or gases.


Use eye protection
Signals an instruction to wear protective goggles, in order to prevent eye injuries due to material spray, gases, vapors or dust.


Use ear defenders
Signals an instruction to wear ear defenders, in order to prevent damage to hearing caused by noise.


Use respiratory protection
Signals an instruction to use respiratory protection, in order to prevent damage to the respiratory tract caused by gases, vapors or dust.


Wear protective gloves
Signals an instruction to wear protective gloves in order to prevent injuries due to aggressive chemicals, fire injuries when processing heated materials, or freezing due to contact with very cold surfaces.


Wear safety shoes
Signals an instruction to wear safety shoes, in order to prevent foot injuries due to falling, toppling or rolling objects, as well as slipping on slippery floors.


Signals references to directives, work instructions and operation manuals that contain very important information and must be observed.

2.2 Safety notes

Always remember that the machine operates in a high pressure process and can cause life-endangering injuries if handled incorrectly!

Always observe and follow all information in this operation manual and in the separate operation manuals for the individual machine parts or the optionally available auxiliary devices.

2.2.1 Working pressure

WARNING

Parts that are not designed for the maximum permissible working pressure may rupture and cause serious injuries.

- ➤ It is essential to observe the prescribed maximum working pressures for all parts. With varying working pressures, the lowest value always applies as the maximum working pressure for the complete machine.
- ➤ Material hoses and hose assemblies must comply with the maximum working pressure, including the required safety factor.
- ➤ Material hoses may not exhibit leakage, kinks, signs of wear or bulges.
- ➤ Hose assemblies must be tight.

2.2.2 Risks due to the injection jet

WARNING

The material exits the mixing unit under very high pressure. The spray jet can cause serious injuries through its cutting action, or by penetrating the skin or eyes.

- ➤ Never aim the mixing unit at yourself, other persons or animals!
- ➤ Never hold your fingers or hand in front of the mixing unit!
- ➤ Never reach into the material jet!

WARNING

An unintended ejection of material from the mixing unit can cause personal injury and property damage.

- ➤ Close all levers on the mixing unit during each work interruption!
- ➤ Check the functionality of all levers on the mixing unit before each commissioning!

2.2.3 Risks due to electrostatic charge

WARNING

The high flow velocities during the injection process can result in an electrostatic charge.
Static discharges can result in fire and explosions.

- ➤ Make sure that the machine is correctly grounded!
- ➤ Always use open, electrically conductive containers!
- ➤ Set the container down on a grounded surface.
- ➤ Never convey cleaning agents or materials containing cleaning agents into narrow-mouthed cans or barrels with a bung opening!
- ➤ When using metal containers, make sure that the mixing unit is in continuous contact with the container wall.
- ➤ Only use conductive material hoses.
  All original material hoses from **WIWA** are conductive and designed for our machines.

WARNING

If the machine becomes contaminated with coating material during spraying, a static charge may result due to the increasing coating thickness. Static discharges can result in fire and explosions.

- ➤ Clean the machine of contaminants through injection material immediately.
- ➤ Perform the cleaning work outside of potentially explosive areas.

2.2.4 Explosion protection

WARNING

Machines that are not explosion-protected must not be used in operating facilities that fall under the explosion protection ordinance!
Explosion-protected machines can be identified by the corresponding ⟨Ex⟩ mark on the type plate and/or the ATEX declaration of conformity provided.

Explosion-protected machines meet the requirements of the ATEX Directive for the device group, device category and temperature class cited on the type plate or in the declaration of conformity.

The owner is responsible for designating the zoning in accordance with ATEX Directive, Appendix II, No. 2.1–2.3 in accordance with the stipulations of the responsible regulatory body. The owner is required to check and ensure that all technical data and labeling comply with the applicable stipulations according to ATEX.

Please note that some parts have their own type plate with separate labeling according to ATEX. In this case, the lowest explosion protection of all labels displayed applies to the entire machine. For applications, whereby a failure of the machine could lead to dangers to personnel, the owner is required to implement appropriate safety measures.

If agitators, heaters or other electrically operated accessories are attached, the explosion protection must be checked. Plugs for heaters, agitators, etc. that do not have explosion protection may only be plugged in outside of areas that fall under the explosion protection ordinance, also if the accessory itself is explosion protected.

2.2.5 Health risks

CAUTION

Depending on the materials being processed, solvent vapors may arise, which could cause damage to health and property.

- ➤ Make sure the workplace is sufficiently ventilated and aired.
- ➤ Always observe the processing instructions of the material manufacturer.

When handling paint, solvents, oils, greases and other chemical substances, observe the safety and proportioning instructions of the manufacturer and the generally applicable regulations.

Only use suitable skin protection, skin cleansing and skincare products for cleansing the skin.

In systems that are closed or under pressure, dangerous chemical reactions may arise, if parts produced from aluminium or galvanised parts come into contact with 1.1.1 - trichloroethane, methylene chloride or other solvents that contain halogenated chlorinated hydrocarbons (CFCs). If you wish to process materials that contain the aforementioned substances, we recommend that you contact the material manufacturer to clarify their suitability for use.

A range of machines in rust and acid-resistant designs is available for these types of materials.

2.3 Safety signs

The safety signs attached on the machine, such as for example the safety card (see Fig. 1), indicate possible hazard points and must be observed.

The symbols on the safety signs corresponds to the labeling of the safety information described in chapter 2.1 on page 6.

The safety signs may not be removed from the machine.

Damaged and illegible safety signs must be replaced immediately.

Also read and observe the safety notes in the operation manual!

Fig. 1: Safety card

2.4 Safety features

WARNING

If safety feature is missing or is not fully functional, the operating safety of the machine is not guaranteed!

- ➤ Put the machine out of operation immediately if you detect safety feature defects or any other faults on the machine.
- ➤ Only put the machine back into operation once the faults have been fully rectified.

The machine is equipped with the following safety features:

- ➤ Safety valve on proportioning pump and flush pump
- ➤ Compressed air shut-off valve
- ➤ Ground cable

Check the safety features on the machine:

- ➤ Prior to commissioning,
- ➤ Always prior to starting work,
- ➤ After all set-up work,
- ➤ After all cleaning, maintenance, and repair work.

Checklist on the pressureless machine:

- ☑ Seal on the safety valve OK?
- ☑ Safety valve externally free of damage?
- ☑ Function of the compressed air shut-off valve OK?
- ☑ Function of the ball valves and the one-hand lever on the mixer block OK?
- ☑ Ground cable free of damage?
- ☑ Is the ground cable connected to the machine and OK at the circuit board?

Checklist on the pressurized machine:

- ☑ Function of the safety valve(s) OK?

When checking additional safety features, observe the operation manuals for the optional accessories.

2.4.1 Safety valve

Safety valves are located on the machine:

- in the air motor for the proportioning pump
- in the air motor for the flush pump (if present)

The safety valve prevents the maximum permissible air inlet pressure from being exceeded. If the air inlet pressure exceeds the permanently set threshold value, the safety valve discharges.

WARNING

If the maximum permissible air inlet pressure is exceeded, parts may rupture. The consequences may be personal injuries and property damage.

- Never operate the machine without safety valves or with defective safety valves!
- If it is necessary to replace a safety valve, please refer to the machine card for the order number.
- With new safety valves, make sure that these are set to the maximum permissible air inlet pressure of the machine (see type plate or machine card) and sealed.

To check the function of a safety valve, briefly increase the air inlet pressure on the system components monitored by the safety valve by approx. 10% above the maximum permissible value according to the type plate — the safety valve must discharge.

2.4.2 Compressed air shut-off valve

The compressed air shut-off valve on the proportioning pump interrupts the air supply to the entire machine in the closed position. Furthermore, a compressed air shut-off valve is located on the flush pump, with which the compressed air supply of this pump can be interrupted.

The functional principle of all compressed air shut-off valves installed on the machine is the same:

- Open ⇨ Position in the flow direction
- Close ⇨ Position transverse to the flow direction

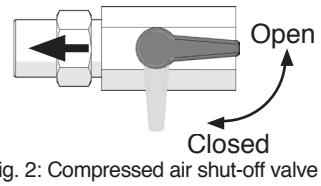


Fig. 2: Compressed air shut-off valve

After shutting off the air, the machine remains under pressure. It is therefore necessary to fully relieve the pressure prior to any maintenance and repair work!

2.4.3 Ground cable

The ground cable serves to prevent electrostatic charging of the machine.

The ground cable is already connected to the machine at the time of delivery (e.g. to the high pressure filter, the grounding rail, or the like).

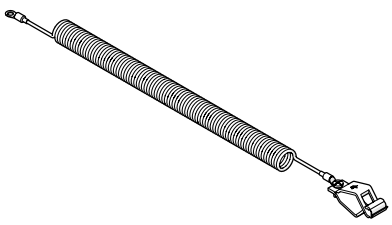


Fig. 3: Ground cable

If the ground cable is lost or defective, it must be replaced immediately!

2.5 Operating and maintenance personnel

2.5.1 Obligations of the machine owner

The machine owner:

- is responsible for training the operating and maintenance personnel,
- must instruct the operating and maintenance personnel on correct handling of the machine, and on wearing the correct work clothing and protective equipment,
- must make work aids, such as e.g. lifting gear for transporting the machine or container, available to the operating and maintenance personnel,
- must make the user manual accessible to the operating and maintenance personnel and must ensure that this remains constantly available,
- must ensure that the operating and maintenance personnel have read and understood the user manual.

Only then are they permitted to put the machine into operation.

2.5.2 Personnel qualifications

Differentiation is made between 2 groups of personnel, depending on their qualifications:

- Instructed operators have received verified instruction from the machine owner regarding the tasks entrusted to him and the possible risks if the correct procedure is not followed.
- Trained personnel have received instruction provided by the machine manufacturer and are capable of carrying out maintenance and repair work on the machine, independently recognizing possible dangers and avoiding risks.

2.5.3 Authorized operator

Activity	Qualification
Set-up and operation	Instructed operator
Cleaning	Instructed operator
Maintenance	Trained personnel
Repair	Trained personnel

Young persons under the age of 16 are not permitted to operate this machine.

2.5.4 Personal protective equipment

Wear protective clothing
Always wear the protective clothing stipulated for your working environment (e.g. antistatic protective clothing in potentially explosive areas) and also observe the recommendations in the safety data sheet of the material manufacturer.

Use eye protection
Wear protective goggles to prevent eye injuries due to material spray, gases, vapors, or dust.

Use ear defenders
Suitable noise protection equipment must be made available to the operating personnel. The machine owner is responsible for compliance with the accident prevention regulation "Noise" (BGV B3). It is therefore necessary to pay particular attention to the conditions at the installation site – for example noise pollution can increase if the machine is installed in or on hollow bodies.

Use respiratory protection
Although the injection process minimizes the paint mist with the right pressure adjustment and correct work method, we recommend that you wear a respiratory protection mask.

Wear protective gloves
Wear anti-static, chemical-resistant protective gloves with forearm protection to prevent injuries due to aggressive chemicals, fire injuries when processing heated materials, or freezing due to contact with very cold surfaces.

Wear safety shoes
Wear antistatic safety shoes, in order to prevent foot injuries due to falling, toppling or rolling objects, as well as slipping on slippery floors.

2.6 Guarantee instructions

Observe our General Business Conditions (GBC) at www.wiwa.de.

2.6.1 Spare parts

- When repairing and maintaining the machine, only original spare parts from **WIWA** may be used.
- If spare parts are used, that have not been produced or supplied by **WIWA** then the guarantee is voided and all liability shall be excluded.

2.6.2 Accessories

- If you use original **WIWA** accessories, their suitability for use in our machines is guaranteed.
- If you use third-party accessories, these must be suitable for the machine - in particular with respect to the working pressure, the current connection data, the connection variables, and use in Ex-zones, if applicable. **WIWA** will not be liable for any damage or injuries due to these parts.
- It is essential to observe the safety provisions applicable to the accessories. You can find these safety provisions in the separate operation manuals for the accessories.

2.7 How to respond in an emergency

2.7.1 Shutting down and de-pressurising the machine

In an emergency, bring the machine to an immediate standstill and relieve the pressure.

1. Close the compressed air shut-off valve.
2. Actuate the one-hand lever on the mixing unit again briefly so that no material pressure is present and the machine is completely free of pressure.

This process is not suitable for decommissioning. The machine is not flushed. The material inside the machine can harden and clog the machine.

- ➤ For controlled decommissioning, please see chap. 5.9 on page 30.
- ➤ After remedying the emergency situation, the machine must be flushed (see chap. 5.4 on page 28*)*.
  Observe the pot life of the materials used.

2.7.2 Leakage

WARNING

In case of leakage, material may escape under very high pressure and cause serious physical injuries and property damage.

- ➤ Bring the machine to an immediate standstill and relieve the pressure.
- ➤ Tighten threaded connections and replace defective parts (must be performed by trained personnel).
- ➤ Do not seal leakage at connections and on high pressure hoses with the hand or by wrapping.
- ➤ Do not patch material hoses!
- ➤ Check hoses and threaded connections for leak-tightness when starting the machine up again.

2.7.3 Injuries

If case of injuries caused by processing material or solvents, always have the manufacturer's safety data sheet ready to show the doctor (supplier or manufacturer address, their telephone number, material designation and material number).

3 Machine description

The 2K GEL UNIT is a pneumatically operated two-component high pressure injection unit with a fixed mixing ratio. The output is 80 to 144 cm³ per double stroke depending on the unit type. The components are fed to a mixing unit via the proportioning pump.

The units are optionally equipped with a flush pump and/or mixing unit.
The flush pump facilitates the immediate flushing of all parts that have come into contact with the mixed material. The mixing unit is an external mixing unit and is available with different coupling pieces for the packer connection.

The technical data for your machine can be found on the machine card enclosed, or on the type plate.

3.1 Intended use

The 2K GEL UNIT is intended for use in building renovation to, among other things, seal cracks and apply moisture barriers. Only water-based acrylate gels and silicate injectors can be processed with it.

Two designs are available depending on customer requirements:

- 2K GEL UNIT with attachment kit for suction hose
  This machine is only suitable for processing runny materials, wherein the two components must have a relatively equal viscosity.
- 2K GEL UNIT with attachment kit for hopper
  Viscous materials with varying viscosities can be processed with this machine.

Intended use also includes:
- observing the technical documentation and
- complying with the operating, maintenance and servicing guidelines.

3.2 Erroneous use

Any use other than that stipulated in the technical documentation is deemed to be erroneous use and will void the warranty.

Erroneous use applies in particular if

- impermissible materials are processed,
- unauthorized modifications or changes are implemented,
- the safety features are removed, modified or bypassed,
- spare parts are installed that were not manufactured or delivered by WIWA (see chap. 2.6.1 on page 14),
- accessories are used that are not suitable for the machine (see chap. 2.6.2 on page 14),
- machines without Ex identification are used in potentially explosive atmospheres.
- the machine is operated outside of the operating limits according to the type plate.

3.3 Machine design

The **2K GEL UNIT** is available in two variants, which differ through the output:

- the 14025 has an output up to 14 l/min at a free flow rate
- the 25015 has an output up to 25 l/min at a free flow rate

Each unit type can optionally be equipped with the attachment kit for suction hoses or the attachment kit for the hopper.
Both attachment kits can be exchanged at any time.

Depending on the machine type, a flush pump is installed on the frame of the machine.

Material hoses are connected to the material outlets of the pump and to the external mixing unit.

By default, all parts of the machine are installed on a common cart.

3.3.1 Injection unit with attachment kit for suction hose

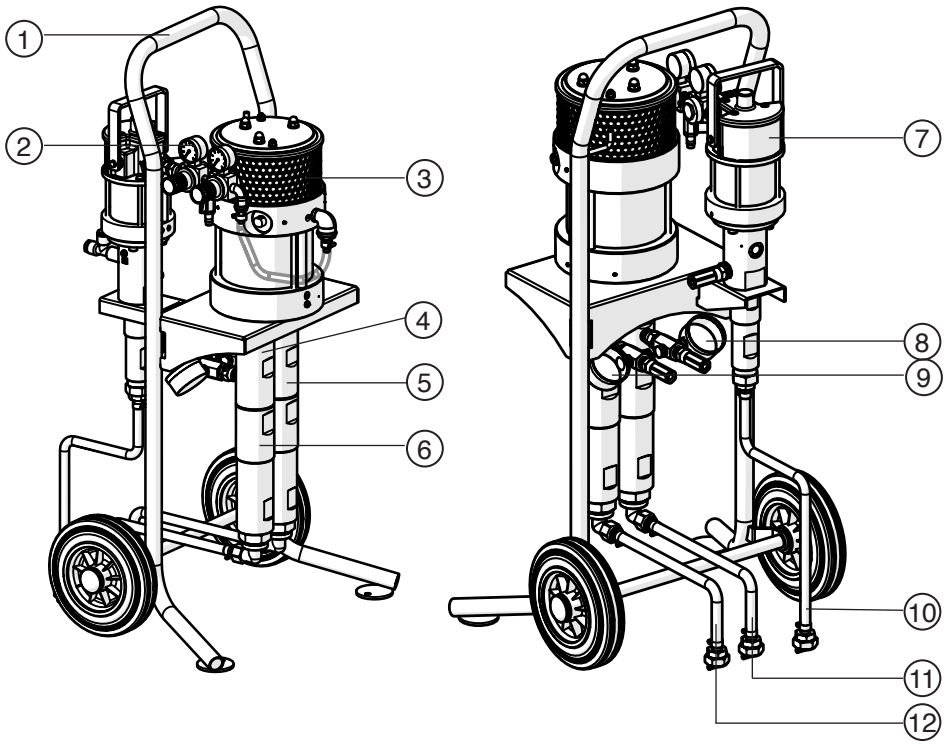


Fig. 4: Front view and rear view of an injection unit with attachment kit for suction hose

No.	Designation
1	Cart
2	Air supply
3	Air motor (proportioning pump)
4	Ground cable
5	Fluid pump for component B
6	Fluid pump for component A
7	Flush pump (optional)
8	Material pressure display for component A

No.	Designation
9	Material pressure display for component B
10	Flushing agent suction hose (only for design with flush pump)
11	Suction hose for component A
12	Suction hose for component B

3.3.2 Injection unit with attachment kit for hopper

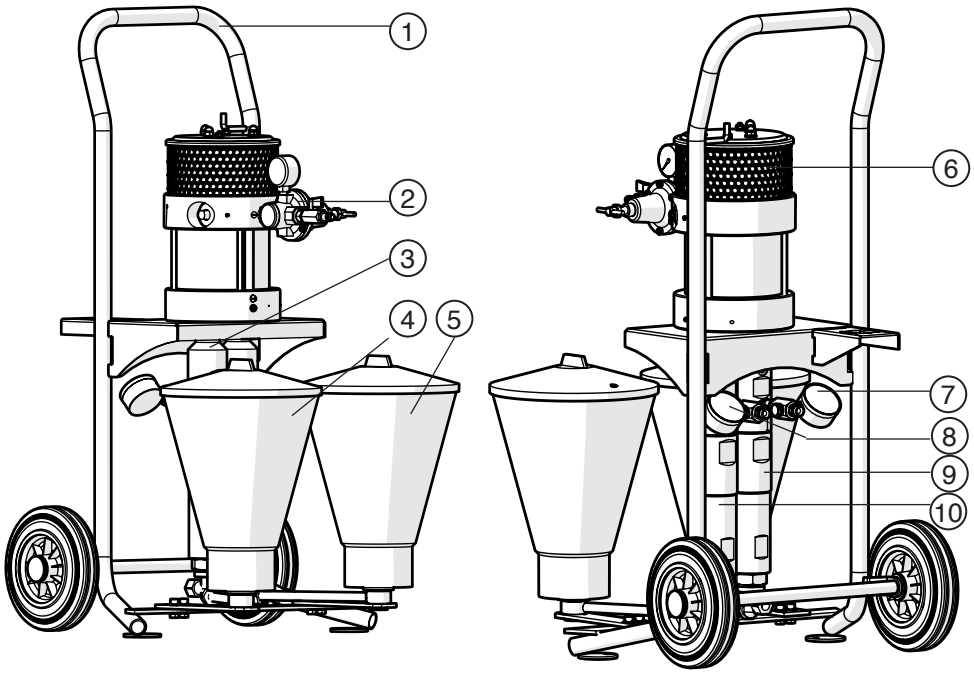


Fig. 5: Front view and rear view of an injection unit with attachment kit for hopper

No.	Designation
1	Cart
2	Compressed air regulator
3	Ground cable
4	Hopper for component A
5	Hopper for component B
6	Air motor (proportioning pump)
7	Material pressure display for component B
8	Material pressure display for component A
9	Fluid pump for component B
10	Fluid pump for component A

3.4 Compressed air connection

The connection of the compressed air line provided by the owner occurs at the compressed air connection.

The compressed air supply for the entire machine is opened or interrupted with the compressed air shut-off valve. Separate compressed air regulators are present for the proportioning pump and flush pump. The existing pressure can be read on the pressure gauges.

The **2K GEL UNIT** without a flush pump is factory-equipped with a compressed air regulator.

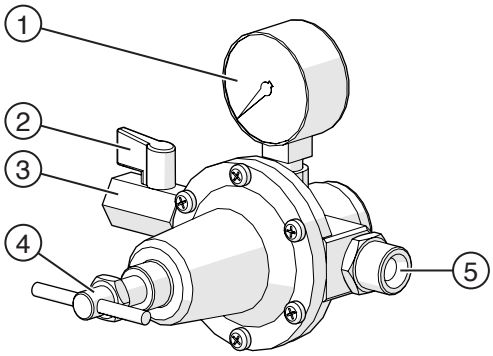


Fig. 6: Compressed air regulator

The **2K GEL UNIT** with a flush pump is factory-equipped with an air supply.

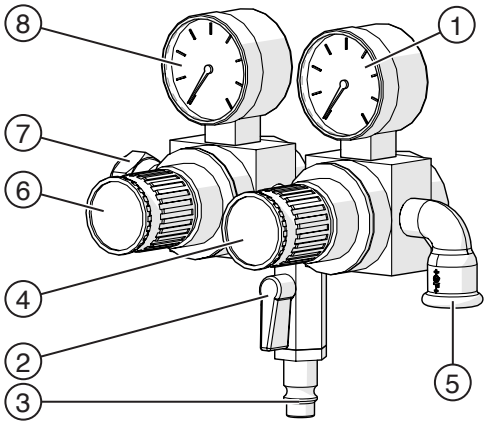
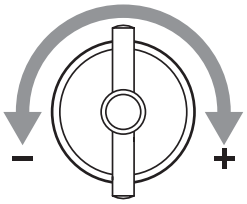


Fig. 7: Air supply

No.	Designation
1	Pressure display for proportioning pump
2	Compressed air shut-off valve
3	Compressed air connection for the compressed air supply provided by the owner
4	Compressed air regulator for proportioning pump
5	Compressed air connection for proportioning pump
6	Compressed air regulator for flush pump
7	Compressed air connection for flush pump
8	Pressure display for flush pump

The functional principle of all compressed air regulators installed on the machine is the same:

- ➤ To increase the pressure, turn the adjusting screw clockwise,
- ➤ To decrease the pressure, turn the adjusting screw counter-clockwise.



3.5 Mixing unit

The **2K GEL UNIT** is optionally available with an external mixing unit.

No.	Designation
1	One-hand lever INJECTION / STOP
2	FLUSHING "A" ball valve
3	FLUSHING "B" ball valve
4	Mixer block
5	Static mixer

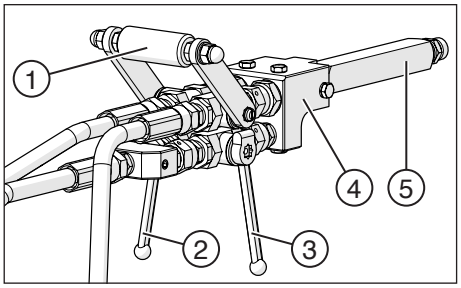


Fig. 8: Mixing unit

Using the one-hand lever and both ball valves, the operating modes "Injection", "stop" "Flushing A" and "Flushing B" can be set as follows:

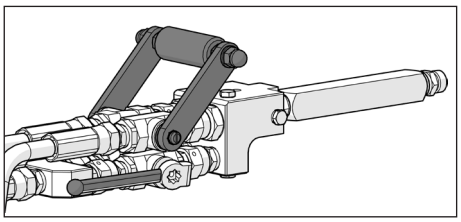


Fig. 9: "Injection" operating mode

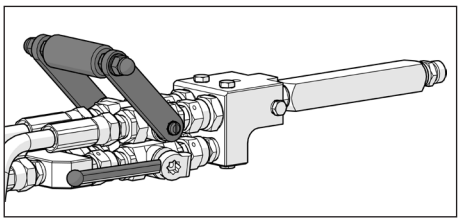


Fig. 10: "Stop" operating mode

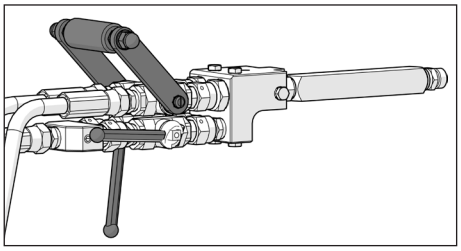


Fig. 11: "Flushing A" operating mode

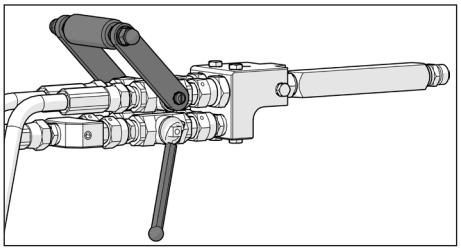


Fig. 12: "Flushing B" operating mode

Open and close the flushing ball valves multiple times in alternation during flushing to ensure that each side of the mixer block is flushed out separately. Finally, flush with both ball valves simultaneously.

You can extend the life span of the ball valves if the levers

- ➤ are not activated while the pressure is too high,
- ➤ always push to the end stop of the desired position.

4 Transport, installation, and assembly

The machine left the factory in faultless condition, packaged correctly for transport.

Check the machine at the time of receipt for any transport damage and for completeness.

4.1 Transport

When transporting the machine, observe the following information:

- When loading the machine ensure sufficient load-bearing capacity of the lifting gear and lifting accessories. The dimensions and weight of the machine can be found on the machine card and type plate.
- The machine must be lifted exclusively at the intended attachment points for lifting accessories. Never lift the machine at the crane eye of an installed pump, or that of any other attachments. These transport devices are only designed for the attachment and not for the total weight of the machine including attachments.
- When lifting or loading the machine, do not transport other objects simultaneously (e.g. material drums) with the machine.
- Never stand under suspended loads or in the loading area. There is a risk of death here!
- Secure the load on the transport vehicle to prevent sliding and falling.

If the machine has previously been in operation, please observe the following:

- Disconnect the entire energy supply to the machine - even for short transport distances.
- Empty the machine prior to transport - residual liquids may still leak out of the machine during transport.
- Remove all loose parts (e.g. tools) from the machine.

4.2 Installation site

WARNING

If the machine is used outdoors, a life-endangering situation may arise for the operating personnel due to lightning!

- Never operate a machine outdoors during a storm!
- The machine owner must ensure that a machine that is outdoors is equipped with suitable lightning protection equipment.

Position the machine horizontally on floor that is level, firm and free of vibrations. The machine may not be tilted or tipped. Make sure that all controls and safety features are easy to reach.

Safety measures at the installation site:

- For safe operation of the machine, stability and sufficient free space must be ensured.
- Keep the working area clean, especially all walking and standing areas. Remove any spilled material and cleaning agents immediately.
- In order to prevent harm to health and damage to property, ensure sufficient ventilation and airing of the workplace. At least 5-times air exchange per hour must be guaranteed.
- Always observe the processing instructions of the material manufacturer.
- Even if there are no legal regulations for the low-mist injection process itself, dangerous cleaning agent vapors and material particles should be extracted.
- Protect all items neighboring the object against possible damage due to paint mist.

4.3 Assembly

WARNING

If untrained personnel carry out assembly work, they endanger themselves and others, as well as risking the operational safety of the machine.

- Electrical and electronic parts may only be installed by specialist personnel with electrical training - all other parts, such as for example, the material hose and mixing unit, may only be installed by personnel trained for this.

WARNING

During installation work ignition sources may arise (e.g. due to mechanical sparks, electrostatic discharge, etc.).

- Carry out all assembly work outside of potentially explosive areas.

Prior to commissioning, correctly refit any parts or equipment items removed for transport purposes, as required for the intended use.

For correct connection of the material lines and the suction hoses, the following labeling was carried out on the unit and on the material hoses:

- blue = component A
- red = component B
- yellow = flushing agent

The assignment must be maintained for all future applications to avoid unwanted material reactions and damage to the machine.

4.3.1 Installing the material hose and mixing unit

If the machine is delivered with **WIWA** material hoses and a **WIWA** mixing unit, observe and follow the information in this chapter.

WARNING

Parts that are not designed for the maximum permissible working pressure of the machine may rupture and cause serious injury.

➤ Prior to installation, check the maximum permissible working pressure of the material hoses and the mixing unit. It must be greater than or equal to the maximum working pressure of the machine stated on the type plate.

WARNING

If the connections for the hoses are subjected to strain, these may be torn out. The material escaping under high pressure may cause injuries and damage to property.

➤ If tensile forces are anticipated on the hose connections (for example due to the positioning of the mixing unit), it is necessary to utilize strain relief!

1. Close the material hoses at the material outlet of the associated fluid pump. Observe the color coding during the component assignment.

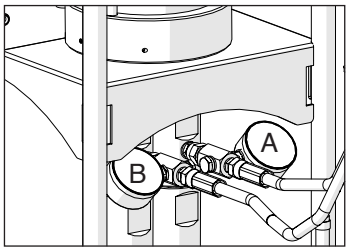


Fig. 13: Connecting the material hoses

2. Connect the material hoses to the mixing unit.

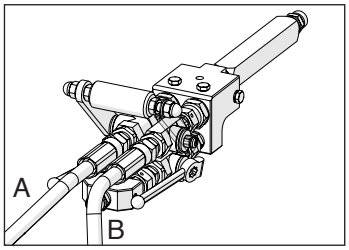


Fig. 14: Connecting the mixing unit

3. Install the coupling piece for the packer on the static mixer of the mixing unit.

The selection of the coupling piece is dependent on the type of packer used.

No.	Coupling piece
1	Coupling G ¼" I
2	Nozzle M10x1 IG
3	Slide coupling M10x1

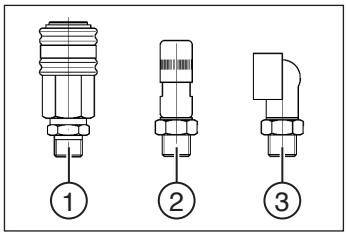


Fig. 15: Coupling pieces for packer

4.3.2 Installing the flushing agent hose

Depending on the machine type, the **2K GEL UNIT** is equipped with a flushing agent pump.

1. Connect the flushing agent hose marked yellow to the material outlet of the flush pump.

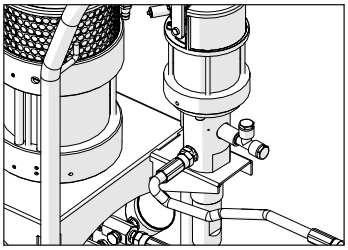


Fig. 16: Connection to flush pump

2. Connect the other hose end to the distributor of the mixing unit.

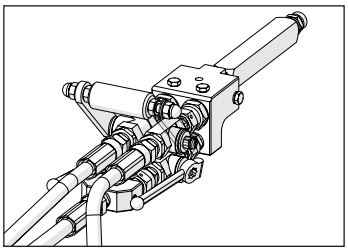


Fig. 17: Connection to mixing unit

4.3.3 Connecting the compressed air supply

To ensure the required quantity of air, the compressor output must comply with the air requirement of the machine, and the diameter of the air supply hoses must match the connections.

Operation with contaminated or moist compressed air leads to damage in the machine's pneumatic system.

➤ Only use air that is dried, and free of oil and dust!

1. Make sure that all compressed air regulators are turned down fully and that the compressed air shut-off valve is closed.
2. Connect the compressed air line to the compressed air connection of the compressed air regulator/air supply.

4.3.4 Grounding the machine

WARNING

The high flow velocities during the injection process can result in an electrostatic charge.
Static discharges can result in fire and explosions.

➤ Make sure that the machine is correctly grounded!

The ground cable is already connected to the machine at the time of delivery. To ground the machine, connect the terminal of the ground cable to an electrically conductive object outside of potentially explosive areas.

5 Operation

Prerequisites:

- The machine must be correctly installed and fully assembled.
- Only put the machine into operation if you are equipped with the prescribed personal protective equipment. Details on this can be found in chap. 2.5.4 on page 13.
- The processing material must be available in sufficient quantity.

Furthermore, two appropriate collecting vessels are required for catching excessive material. These containers are not included in the scope of delivery.

Observe the safety data sheet of the respective material manufacturer when processing and storing acrylate gels and silicate injectors.

WARNING

If fluid pumps run dry, this can lead to fire or an explosion due to the resulting friction heat.

- During operation ensure that the drums never run empty. Never leave the machine running when unattended.
- However, if this were to happen, bring the respective pump to an immediate standstill and add material.

5.1 Putting the machine into operation

Checklist:

- Check if all safety features are present and fully functional (see chap. 2.4 on page 11).
- During commissioning (flushing), check that all machine parts are leak-tight and tighten the connections if necessary.
- Make sure that the machine is properly grounded (see chap. 4.3.4 on page 24).

Overview of the work steps during commissioning:

1. Put the flush pump into operation
2. Flush out the remains of the test substance
3. Fill the machine with processing material and ventilate

5.1.1 Putting the flush pump into operation

The flush pump must always be ready for operation during work, in order that all parts that have come into contact with the mixed material can be flushed at any time within the specified pot life!

You will need:

- the cleaning agent pertaining to the material being processed and recommended by the material manufacturer in an open container
- an additional collecting vessel for the cleaning agent that is flushed out.

1. Set the one-hand lever of the mixing unit to "Stop" and close the flushing ball valves on the mixing unit.
2. Make sure that all compressed air regulators are turned down completely.
3. Place the suction for the flush pump into the cleaning agent container.
4. Point the outlet opening on the static mixer into an empty container to be able to collect the escaping material mixture.
5. Open the compressed air shut-off valve.
6. Open the flushing ball valves on the mixing unit.
7. Set a low pressure on the compressed air regulator of the flush pump so that the pump starts slowly.
8. Adjust the running speed for the flush pump to approx. 15 double strokes per minute.

5.1.2 Flushing out the remains of the test substance

Following assembly, the machine was tested with a test substance in the factory for proper function. During initial commissioning, it is therefore necessary to first fully clean the machine to flush out the remaining test substance (see chapter 5.7 on page 29).

5.1.3 Filling the machine with processing material and ventilating

1. Establish the material supply:
   - ➤ For proportioning pumps that are supplied with material via a suction hose, place the suction hoses into the corresponding material drums for components A and B.
   - ➤ For proportioning pumps that are supplied with material via hoppers, fill the material for components A and B into the corresponding hoppers and open the stop cocks at the material inlet of the proportioning pumps as required.
2. Hold the mixing unit, directing the material ejection against the inner wall of the collecting vessel.
3. Set the one-hand lever of the mixing unit to "Injection".
4. Let the injection pumps start up slowly. Slowly adjust the air inlet pressure to approx. 1-2 bar for this.
5. As soon as mixed material (component A and B) consistently escapes out of the mixing unit, the filling and venting process is completed.
   Set the one-hand lever of the mixing unit to "Stop"
   The proportioning pumps stop!
6. In order to be able to check the material reactions, fill a suitable test container (approx. 0.2 l) with the material to be processed.
   Repeat work steps 3-5 of this chapter for this.
7. Flush the mixer block immediately until clean cleaning agent runs out (see chap. 5.4 on page 28).

5.2 Injection

Prerequisites:

➤ The machine has been put into operation.

➤ The required packer nipples are attached at the points to be injected.

1. Turn the compressed air regulator for the proportioning pumps down completely.
2. Set the one-hand lever of the mixing unit to "Stop".
3. Connect the coupling piece on the material outlet of the mixing unit to the packer nipple.
4. Set the one-hand lever of the mixing unit to "Injection".
5. Set a low air inlet pressure on the compressed air regulator for the proportioning pumps.
6. Start the injection with an as low of a pressure as possible so that the safety of operating personnel and masonry is not endangered.
7. Slowly increase the pressure to the desired working pressure.
8. Set the one-hand lever of the mixing unit to "Stop" after the injection process is completed.

Observe the fill level of the material drum during injection. Refilling the material in a timely manner prevents the pumps from suctioning air and thereby having to vent the unit.

9. Switch to the next packer within the pot life of the material used and repeat work steps 3-7.
10. Flush the mixer block immediately after completing the last injection process until clean cleaning agent runs out.
    Always observe the pot life of the material used!

5.3 Checking the injection pressure

Check the function of both proportioning pumps by repeatedly opening and closing the one-hand lever of the injection lance. Observe the material pressure display on the pressure gauges while doing so:

➤ Both pressure gauges must always display the same values!

➤ If the one-hand lever is closed during injection, an equally high dynamic pressure is displayed on both material pressure gauges.

➤ The values must go back to the working pressure when the one-hand lever is opened again.

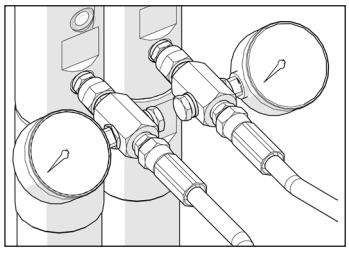


Fig. 18: Material pressure display

If this is not the case, shut down the machine immediately and check the machine or contact **WIWA** customer service.

5.4 Flushing

Flushing is used to flush the mixed material out of the machine during an interruption to the spray operation before it hardens.

Flush all parts that have come into contact with the mixed material within the pot life stipulated by the manufacturer.

1. Hold the mixing unit, directing the material ejection against the inner wall of the collecting vessel.
2. Set the one-hand lever of the mixing unit to "Stop".
3. Open the flushing ball valves alternately on the mixing unit until clean flushing agent runs out.
4. Close the flushing ball valves on the mixing unit as soon as sufficient clean flushing agent has run out.

5.5 Work interruption

1. Set the one-hand lever of the mixing unit to "Stop".
   The injection pumps stop.
2. Turn the compressed air supply for the proportioning pumps down completely.
3. Remove the mixing unit from the packer nipple.
4. Hold the mixing unit sideways against the inner wall of the collecting vessel.
5. Relieve the pressure in the material lines. To do so, briefly switch the positions of the one-hand lever on the mixing unit between "Injection" and "Stop".
6. Flush all parts that have come into contact with the mixed material according to chap. 5.4 on page 28.
7. Close the compressed air shut-off valve.

5.6 Pressure relief

1. Finish the work according to chap. 5.5 on page 28.
2. Make sure that the compressed air shut-off valve is closed and all compressed air regulators are turned all the way down.
3. Hold the mixing unit sideways against the inner wall of the collecting vessel.
4. Set the one-hand lever of the mixing unit to "Stop" and open the flushing ball valves to let the material pressure escape.

5.7 Cleaning the machine completely

A complete cleaning of the machine is necessary:

- ➤ during the initial commissioning so that the spraying material is not influenced by the test substance with which the machine was tested for correct operation in the factory.
- ➤ during a change of the material.
- ➤ if the machine is to be deactivated for a longer period.

1. Interrupt work according to chap. 5.5 on page 28.

Complete the following work steps to clean the area from the material inlet to the mixing unit.

Both components must also be kept strictly separate during cleaning.
Use a separate material drum and collecting vessel for each component to prevent material reactions and damage to the machine.

2. Relieve the pressure in the machine according to 5.6 on page 28.
3. Stop the material supply:
   - ➤ For proportioning pumps that are supplied with material via a suction hose, take the material suction hoses for both components out of the material drums and strip the material located therein into the associated container.
   - ➤ For proportioning pumps that are supplied with material via hoppers, pump any existing material completely out of the hoppers and remove the material residues with a cloth.
4. Connect the cleaning agent supply:
   - ➤ For proportioning pumps that are supplied with material via a suction hose, place each material suction hose into a separate container with the cleaning agent associated with the material.
   - ➤ For proportioning pumps that are supplied with material via a hopper, fill the cleaning agent associated with the material into each hopper.
5. Open the compressed air shut-off valve.
6. Hold the mixing unit, directing the material ejection against the inner wall of the collecting vessel.
7. Set the one-hand lever of the mixing unit to "Injection".
8. Set a low air inlet pressure on the compressed air regulator for the proportioning pumps.
9. Set the one-hand lever of the mixing unit to "Stop" as soon as clean flushing agent runs out.
10. Turn the compressed air supply for the proportioning pumps down completely.
11. Close the compressed air shut-off valve.
12. Relieve the pressure in the material lines by briefly opening and closing the one-hand lever on the mixer block.

5.8 Material change

The machine has been specially configured for your application case. It is necessary to check compatibility of the materials used with other materials in each individual case. **WIWA** is happy to help determine the suitability of your machine for another material.

1. Clean the machine completely according to chap. 5.7 on page 29.
2. Put the machine into operation with the new material according to chap. 5.1 on page 25.

5.9 Decommissioning

Shut down the machine when there is a longer work interruption. For the exact time specification of how long the unmixed material can remain in the machine, please take the recommendations of the material manufacturer.

To do so, proceed as follows:

1. Interrupt work according to chap. 5.5 on page 28.
2. Clean the machine completely according to chap. 5.7 on page 29.

5.10 Replacing the attachment kits

WARNING

Disassembling machine parts that are under pressure can cause serious bodily injury and injuries to the eyes.

So that the safety of the operating personnel and the machine is not endangered:

- ➤ Conversion measures may only be carried out by trained personnel!
- ➤ The machine must be shut down according to chap. 5.9 on page 30.

5.11 Disposal

It is necessary to collect residues of spraying material, cleaning fluids, oil, greases and other chemical substances according to the legal regulations for recycling or disposal. The official local waste water protection laws apply.

At the end of the machine's use it must be put out of use, disassembled and disposed of according to the legal regulations.

- ➤ Thoroughly clean the machine of material residues.
- ➤ Disassemble the machine and separate the materials - metals must be taken to a scrap metal depot, plastic parts can be disposed of with household waste.

6 Maintenance

WARNING

If untrained personnel carry out maintenance and repair work, they endanger themselves and others, as well as risking the operational safety of the machine.

➤ Maintenance and repair work on electrical parts may only be performed by specialist personnel with electrical qualifications — all other maintenance and repair work may only be performed by **WIWA** customer service or specially trained personnel.

WARNING

During maintenance work, ignition sources may develop (e.g. due to mechanical sparks, electrostatic discharge, etc.).

➤ Carry out all maintenance work outside of potentially explosive areas.

Observe the maintenance information in the operation manual for the optional accessories.

Prior to maintenance and repair work:

1. For proportioning pumps that are supplied with material via a hopper, pump out the material that is still located in the hoppers completely.
2. Shut off the compressed air supply.
3. Completely de-pressurize the machine.

WARNING

Despite relieving the pressure, residual pressures can still be present due to material congestion or clumping which can suddenly escape during disassembly work and cause serious injuries.

➤ You must be particularly careful during disassembly work!

➤ When disassembling material hoses, cover the screw connection with a cloth in order to catch possible material sprays.

After completion of the maintenance and repair work, check the function of all safety features and the faultless function of the machine.

6.1 Regular testing

The machine must be inspected and maintained by a specialist:

➤ prior to first commissioning,

➤ after changes to / the servicing of parts of the installation that affect safety,

➤ after an interruption to operation lasting more than 6 months,

➤ although at least every 12 months.

In the case of machines that have been put out of use, the test can be delayed until the next time commissioning takes place.

The results of the tests must be recorded in writing and stored until the next test. The test certificate or a copy of this must be available at the machine's place of use.

6.2 Maintenance schedule

The information in the maintenance schedule constitutes recommendations only. The time frames may vary depending on the characteristics of the materials used, as well as external influences.

Time frame	Activity	For further reading
Prior to each commissioning	Check release agent level of the flush pump	Chap. 6.3.1 on page 32
1 time per week	Visual inspection of the compressed air and material hoses	
Every 50 operating hours	Check the flush pump release agent for impurities	Chap. 6.3.2 on page 32
Every 3 years	have the compressed air and material hoses checked by a specialist and replace if necessary	

6.3 Maintaining the flush pump

6.3.1 Checking the release agent level

Prior to every commissioning, check the release agent level. To do so, unscrew the sealing plug (see Fig. 19, no. 1) from the filler neck (see Fig. 19, no. 2).

At the optimal fill level, the release agent is visible in the filler neck (approx. 1 cm below the filler opening). The total filling quantity is approx. 50 ml.

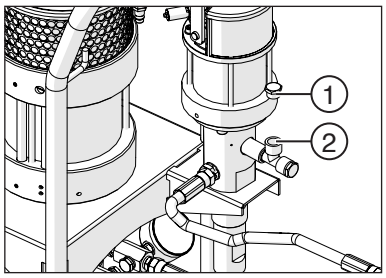


Fig. 19: Checking the release agent level

6.3.2 Checking the release agent for impurities

Check the release agent regularly for impurities through flushing agent. To do so, drain a small quantity of release agent at the draining screw (see Fig. 19, no. 2).

If impurities are apparent in the release agent, you must assume that the packing for the flush pump is worn.

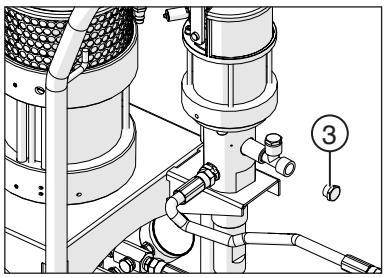


Fig. 20: Draining the release agent

In this case, have the pump packing replaced as quickly as possible.

After performing the check, add a corresponding quantity of clean release agent through the filler opening. We recommend using the release agent from **WIWA** (order no. 0163333).

6.4 Recommended operating fluids

Only use original operating fluids from **WIWA**:

Operating fluid	WIWA order number
Release agent (0.5 l)[1]	0163333
Release agent for isocyanate (0.5 l)[1]	0640651
Anti-freeze agent (0.5 l)[2]	0631387
Pneumatic oil (0.5 l)[2]	0632579
Locking agent (50 ml)[3]	0000015
Lubricant (acid-free grease, 0.4 kg)[3]	0000025
Lubricant for stainless steel[3]	0000233

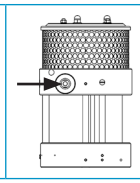
[1] Plasticizer for filling the release agent vessels of the proportioning pump and feed pumps

[2] for the maintenance unit

[3] Materials required during maintenance and repair work (see information in the spare parts lists)

The release agent and pneumatic oil are also available in larger containers on request.

7 Eliminating operational faults

Fault	Possible cause	Remedy
Pump does not start despite operation of the mixing unit.	Compressed air shut-off valve closed.	Open the compressed air shut-off valve.
	Air motor does not start up or stops.	Push in pin on the air motor with a small screwdriver. 
		Only use clean air.
	Air motor defective.	Repair air motor using the spare parts list and repair manual (if necessary, contact customer service).
Pump is running, but no injection material is being conveyed to the outlet of the mixing unit.	Suction hose blocked.	Replace hose.
	The one-hand lever of the mixing unit is set to "Stop".	Set the one-hand lever of the mixing unit to "Injection".
	The ball in the bottom valve does not lift (stuck).	Move the bottom valve to the side with a slight impact (hammer).
		Unscrew suction system and press out the ball in the bottom valve from the bottom using a pin or a screwdriver.
	Bottom valve does not close.	Unscrew the bottom valve and clean the ball and the seat thoroughly.
Pump conveys material, but does not stop when the mixing unit is closed.	Packing or valve worn out.	Replace parts.
Pump runs smoothly, but the required injection pressure is not achieved.	Air pressure is too low or too little air.	Increase the air pressure on the compressed air regulator or check the air line for the correct cross-section.
	Air motor is iced (runs too slowly).	Reduce the air inlet pressure if possible.
		If not present, attach maintenance unit with oiler. Fill the oiler with anti-freeze agent (Glysantin) and set according to the instructions in the operation manual: the guideline is 1 drop for approx. 10 double strokes.
The pump does not run consistently (recognizable by the different stroke speeds of the upstrokes and downstrokes) and does not reach the required injection pressure.	Suction system leaking.	The gaskets on all threaded connections of the suction pipe.
	Bottom valve is leaking (pump only stops in the upstroke when mixing unit is closed).	Unscrew the bottom valve and clean the ball and the seat thoroughly, if necessary replace the ball or the valve seat.
	Piston valve is leaking (pump only stops in the downstroke when mixing unit is closed).	Clean and check the ball and seat in the double piston, replace the ball or valve seat as required.
	Lower or upper packing leaks (wear).	Replace the packing.

8 Technical data

You can find the technical data for your machine on the machine card enclosed, on the type plate or in the documentation for the individual components.

Type	**14025**		**25015**				**Flush pump**
Item no.	**0641976**	**643500**	**0647884**	**0652174**	**0652381**	**0662060**	
Pressure ratio	25:1		15:1				33:1
Max. output at free flow rate (l/min)	14		25				3.0
Output per double stroke (cm³)	80		144				33
Max. air inlet pressure (bar) / safety valve	8		8				8
Maximum permissible working pressure (bar)	200		120				264
Max. air requirement (l) at 7 bar air inlet and 30 double strokes	480		480				100
Max. material temperature (°C)	80		80				80
Dimensions (LxWxH in mm) approx.	55 x 50 x 100		68 x 55 x 100	55 x 50 x 100			30 x 18 x 59 (without suction hose)
Approx. weight (kg)	47	47	54	50	50	50	8
Emission sound pressure level in the workplace was determined according to the standards DIN EN ISO 3744, DIN EN 31200, DIN EN 31201 and DIN 45635-20							
when idling (LpAd) (dB)	75						80
under load (LpAd) (dB)	73						84

8.1 Type designation

e.g. **14025**

14025	**14**	**0**	**25**
Model series	Output	Disconnection point	Pressure ratio x :1

8.2 Machine card

The machine card contains all important and safety-relevant data and information regarding the machine:

- precise designation and manufacturer's data,
- technical data and limit values,
- equipment and test confirmation,
- procurement data,
- machine identification (machine components and accessories supplied with article and spare parts numbers).

8.3 Type plate

The type plate is located on the air motor of the proportioning pump

It contains the most important technical data for the machine.

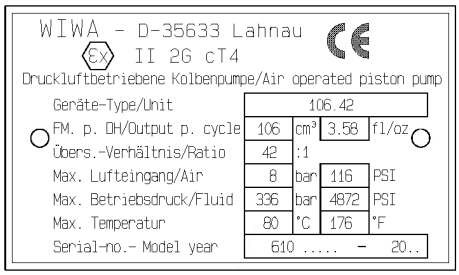


Fig. 21: Example of a type plate

Please ensure that the data on the type plate matches the information on the machine card. In case of errors or a missing type plate, please inform us immediately.

Furthermore, several machine components possess a separate type plate, e.g.:

- Flush pump (if present)

These type plates contain the technical data and serial numbers for the corresponding components.

because it works

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