User’s Handbook WIWA  Plural Component Airless Spraying System

serial No.: .................................

DUOMIX 230
We: WIWA Wilhelm Wagner GmbH & Co. KG
Gewerbestraße 1-3
D - 35633 Lahnau

hereby declare in sole responsibility that the WIWA Plural Component Airless Paint Spraying System
Model: DUOMIX 230

to which this declaration relates, complies with the following standards and documented regulations:

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<tr>
<td>DIN ISO 12100 Part 1, edition 04.04 (German version 12100-1 : 2003)</td>
<td>DIN EN 1127-1 edition 10.97 (German version EN 1127-1;1997)</td>
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<tr>
<td>DIN ISO 12100 Part 2, edition 04.04 (German version 12100-2 : 2003)</td>
<td>DIN EN 13463-1 edition 04.01 (German version EN 13463-1; 2001)</td>
</tr>
<tr>
<td>DIN EN 1050, edition 01.97 (German version EN 1050 : 1996)</td>
<td>The required documentation is located at: TÜV Anlagentechnik GmbH, EC Code 0035</td>
</tr>
<tr>
<td>DIN EN 983, edition 09.96 (German version EN 983 : 1996)</td>
<td>The listed equipment falls under Group II, Category 2G.</td>
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<tr>
<td>Third Ordinance of the Equipment Safety Act (January 18, 1991)</td>
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<td>The following standard was used for noise measurements:</td>
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<tr>
<td>DIN EN ISO 3744, edition 11.95 (German version EN ISO 3744 : 1995)</td>
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This machine and its components/parts must not be taken into operation until it has been determined that the end product complies with the provisions of the EC directive 98/37 EC.

Lahnau, 23.06.2006

Place, Date

Heidrun Wagner - Turczak
Managing Director
Safety Information
First read, then start

Remember that plural component spraying equipment works under high pressure and that very high spray pressures are created!

■ Never hold your finger or hand in front of the gun and never reach into the spray jet.

■ Never point the spray gun towards yourself, other people or other living creatures.

■ Always pay close attention to the references and specifications found in the User's Handbook!

Before each usage, be especially certain to:

■ Check the grounding conditions (for the unit and the object to be sprayed).

■ Check the seal of all connections and mounted parts.

■ Observe the maximal allowed pressure of the unit and accessory parts.

Before beginning any work on the equipment and at any pause during operation, be absolutely sure to:

■ Close the air tap lock to stop the pump.

■ Release the pressure found in the spray gun and hose.

■ Secure the spray gun.

Pay attention to safety!

The accident prevention regulation "Handling of Coating Materials" (BGV D25) and the guidelines covering fluid sprayers ZH1/406 from the German Employer’s Liability Insurance Association are to be observed without fail. To ensure a safe operating environment, the condition of fluid sprayers must be inspected by an expert every 12 months or sooner, if deemed necessary. A written record of the inspection results is to be kept.

Remaining paint and solvent are to be disposed of according to legal regulations. This also applies for environmentally friendly water lacquer or enamel systems.

In case of injuries, consult a physician or go to the next hospital without delay. If paint/material or solvent has gone into the skin, the physician has to be informed about the type of paint/material or the solvent applied. Therefore, always ensure that the product specification sheet, with address and telephone number of the manufacturer, is at your disposal!
This User’s Handbook must always be available to operating staff!

The operating authority of the equipment must ensure, that a User’s Handbook is available to the operator, in a language which he understands.

Dear customer!
Thank you for your decision to purchase WIWA equipment.

In the User’s Handbook, you can find all information required for the proper handling of your WIWA DUOMIX 230. However, for safe operation, there are further essential details which you should adhere to:

Please read and observe the guidelines valid for your country.
In Germany, the "Richtlinien für Flüssigkeitsstrahler" (Guidelines for fluid sprayers) published by: Hauptverband der Gewerblichen Berufsgenossenschaften (Industrial Employer's Liability Insurance Association), are valid.

Manufacturer's notes and operating guidelines for coating and pumping materials should be observed at all times.

No method of operation should be exercised which impairs the safety of WIWA products and the operating personnel.

We wish you much success and excellent working results when applying your WIWA DUOMIX 230.
WIWA Wilhelm Wagner GmbH & Co.KG.

Copyright
The copyright for this User’s Handbook remains with WIWA Wilhelm Wagner GmbH & Co. KG. The User’s Handbook is intended for preparation, operating and maintenance staff. It contains technical regulations and drawings which may not, in whole or in part, be copied, distributed or be used by or passed on as information to others for whatever purposes without authorisation.

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This User’s Handbook is only valid in conjunction with the machine card which is presented in chapter 9.3 of the user’s handbook for the equipment you have purchased. Please ensure that the data on the nameplate corresponds with the information on the machine card. If they do not correspond or the User’s Handbook has been compiled wrongly or the nameplate is missing, we would ask you to inform us immediately.
Note:
We reserve the right to make changes to the contents of this handbook. WIWA Wilhelm Wagner GmbH & Co. KG is not liable for any mistakes found in this documentation or any assessable damages resulting from its delivery or usage, as far as legally allowed.
The manufacturer reserves the right to make technical changes in order to improve the products, which may not be documented in this User’s Handbook.
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The signs and symbols used in this User's Handbook have the following meaning:

STOP
This marks a section of text which is especially relevant to safety. Special attention should be paid to this section and its content strictly observed.

SMOKING PROHIBITED
This marks a situation in which a fire hazard arises through the use of flammable or explodable solid, fluid or gaseous materials.

WARNING
This marks a situation which could be dangerous. If not observed, death or very serious injuries could result.

DANGER OF EXPLOSION
This marks a situation, where there is danger of explosion. Observation of this information is absolutely essential.

ELECTRICAL VOLTAGE
This marks a situation, where there is a danger of explosion through an electrostatic charge. Observation of this information is absolutely essential.

USE EAR PLUGS
For health reasons, it is very important to pay attention to this warning.

USE BREATHING PROTECTION
For health reasons, it is very important to pay attention to this warning.

HEALTH DANGER
This marks materials which are hazardous to your health. Observation of this information is absolutely essential.

FIRST AID
In case of injuries or accidents, these instructions should be absolutely adhered to.
Warning instructions located on the unit

Warning signs and symbols which have been placed on the unit are there to inform of possible dangers and must be observed.

Warning signs and symbols may not be removed.

Damaged and illegible warning signs and symbols are to be replaced immediately.

The following signs are located on the unit:

- Warning sign covering the grounding of the unit (Picture 2.2.1)
  On the high-pressure filter:

  The proprietor is required according to the German Accident Prevention Regulation (Unfallverhütungsvorschrift), BGV D25, to ensure that the machine is properly grounded. Please, observe our User's Handbook.

- Nameplate (Picture 2.2.2)

  Please observe that the information located on the nameplate corresponds to data found on the machine card (Chapter 9.3). We request immediate notification should there be any discrepancies or if the nameplate is missing.

- Further nameplates for other system components are located as follows:
  - Material pumps A + B
  - Flush pumps (optional)
  - Feed pumps A + B (optional)
  - Fluid heaters (optional)
Safety

Dangers arising from the equipment

2.3

This unit was designed and built in accordance with all safety aspects. It corresponds with the present standards of technical regulations and current rules for accident prevention.

It left the factory in perfect condition and warrants a high level of safety. However, the following dangers exist if operated incorrectly or used inappropriately:

- risk of physical injury or death to the operator or third persons
- risk of damage to the unit and other property belonging to the owner
- risk of poor coating results

All personnel involved in the starting, operation and maintenance of the unit must read the following notes carefully and observe them. It is a matter of their safety!

We recommend that the managers responsible for the proper operation of the unit have this confirmed in writing.

Additionally, please pay attention to the following:

Please, read and observe the guidelines valid for your country.

In Germany the "Richtlinien für Flüssigkeitsstrahler" (Guidelines for liquid sprayers) Published by: Hauptverband der Gewerblichen Berufsgenossenschaften, are valid. We recommend adding a copy of all guidelines and accident prevention regulations into the User's Handbook.

Manufacturer's notes and operating guidelines for coating material and pumping material should be observed at all times.

In principle, no method of working should be exercised which impairs the safety of WIWA products or the operating personnel.
The WIWA DUOMIX 230 is designed to work with low, medium and high viscosity paints or other coatings.

This two component system has been designed according to your specifications (mixing ratio, coating material, required output, etc.). Precise mixing results are ensured by the interchangeable mixing ratio. By simply exchanging the material pumps (hardener or base component), the mixing and pressure ratios can be changed to meet different spraying requirements.

Using this equipment in areas requiring protection from explosions

Marking:  
II 2G cT4

This equipment fulfills the explosion-proof requirements found in the guideline 94/9/EC for the type of explosion, equipment category and temperature class found on the nameplate.

This equipment is able to be installed in areas requiring Zone I explosion protection. Due to the possibility that explosive gases and overspray may be created, this unit is to be considered as Group II, Equipment Category 2G.

The flash point for the materials being sprayed, as well as the solvent being used, must be above 200°C.

When operating this equipment, the User’s Handbook must be followed closely. The required inspection and maintenance intervals must be adhered to strictly. All information found on the unit’s signs or plates must be adhered to and not exceeded. Do not allow this unit to be overloaded. It is the responsibility of the operator of this equipment to determine the explosion risk (zone determination according to EC regulation 94/9/EC, Appendix II, Nr. 2.1-2.3) in the area of usage, in accordance with local regulatory authority guidelines. Furthermore, it is the responsibility of the operator on-site to check and ensure that the technical specifications and markings according to ATEX are compliant with local requirements.

Please observe that some components have their own nameplate with separate markings according to ATEX. The marking with the lowest rating for explosion protection becomes valid for the entire system. If the intended application could lead to injury of personnel if this equipment malfunctions, on-site precautions and preventive measures must be implemented.

If this equipment appears to be malfunctioning or behaving strangely during operation, the unit must be shut down immediately and WIWA Customer Service contacted as soon as possible.

It must be ensured that the unit is grounded either separately or together with the equipment it is mounted to (maximum resistance $10^8\,\Omega$, picture 2.4.1 ground / potential equalization).

Other usage is not in line with regulations. Before WIWA equipment is used for other purposes or with other materials, and, therefore, not according to the regulations, permission should be obtained from the manufacturer as the guarantee is otherwise invalid. The observation of technical documentation and the compliance with specified operational, maintenance and starting guidelines are mandatory in accordance with the valid regulations.
Safety

Alterations, additions and emissions

Rebuilds and changes

For safety reasons, it is not allowed to carry out rebuilds or changes without authorization.
Protective equipment may not be dismounted, changed or neglected.
If using components which are not produced or delivered by WIWA, warranty coverage is negated as well as liability.
The machine may only be operated within the prescribed limits and machine parameters.

Danger caused by attachments and spare parts

If you use original attachments and original spare parts from WIWA Wilhelm Wagner GmbH & Co. KG, the compatibility with our equipment is guaranteed. It is, however, essential that the safety regulations of the attachments and spare parts are observed. You can find these safety regulations in the User's Handbook located with the spare parts lists.

If you use attachments and spare parts from another source, WIWA cannot guarantee the safety of the entire system. In this case, our guarantee does not cover any damage or injury caused by such attachments and spare parts.

Emissions

It is possible for solvent vapours to occur, depending on the materials used. Therefore, please ensure the workplace is sufficiently ventilated in order to avoid damage to health and property. Always observe the processing information given by the material manufacturer.

The sound pressure level of the equipment is below 85 db(A). Nevertheless, appropriate means of noise protection should be made available to the operating staff.
The operator is responsible for compliance with the rules covering the prevention of accidents due to „noise“ (BGV B3). Therefore, pay special attention to the environmental conditions at the site, e. g. noise can be increased if the machine is installed in or on hollow bodies.
Exact specifications covering noise emissions are found on the machine card. The sound pressure level emitted at the work place has been determined according to the following standard: DIN EN ISO 3744, DIN EN 31200, DIN EN 31201 and DIN 45635-20.
Safety
Sources of danger

Always remember, plural component systems operate at very high pressure levels and unauthorized usage could lead to life-threatening injuries.

Please observe the following instructions:

- Fluid hoses **must** be rated to correspond to the maximum operating pressure of the unit, with an appropriate safety factor allowance. Fluid hoses may never be patched or taped!

- **Never** point the spray gun towards yourself, other people or other living creatures.

- **Never** hold your finger or hand in front of the spray gun and **never** reach into the spray jet.

- **Never** try to seal leaks on joints and high pressure hoses with your hand or by binding the spot. Should a leak occur, the whole system (gun, hose, pressure filter, pump, etc.) is to be depressurized immediately. Defective parts are to be replaced.

- **Never** spray solvents or materials containing solvents into narrow-necked cans or barrels with bung holes. **DANGER OF EXPLOSION!**

- Always use an open container. Due to possible electrostatic charges, it is imperative to ensure that the spray gun has contact to the container walls when working with metal containers. It is possible for a static charge to occur due to the high flow speeds during the airless spraying procedure. Static charges can lead to fire and explosions. The equipment **must**, therefore, always be appropriately grounded (Picture 2.6.3). The original WIWA DUOMIX 230 unit is fitted standard with a cable for grounding. If lost or defective, please, order an immediate replacement (Order No.: 0474487).

- **Never** operate the unit outdoors during a thunderstorm.

- Equipment that is not explosion-proof may not be operated in areas requiring explosion protection. This plural component system is designed for use in Zone 1 (DIN EN 1127-1) areas. If, however, accessories such as agitators, fluid heaters or other electrical devices are added to the system, the explosion-proof rating of each item must be checked. Plugs for fluid heaters, agitators, etc. that are not explosion-proof may only be plugged into sockets outside of the area requiring explosion protection, even if the accessory itself is considered explosion-proof.
Due to the possibility of electrostatic charging, only conductive fluid hoses may be used. All original WIWA fluid hoses are conductive and correspond to the requirements of each system. The maximum operating pressure of the hoses must be equal to or greater than the maximum operating pressure of the plural component unit.

If the material being used clogs or clumps within the machine, remnant pressure may still exist despite depressurization efforts. This must be kept in mind when carrying out repairs! Special care must be taken when dismantling the high-pressure filter, material hoses and high-pressure spray gun to ensure that no accidents occur due to escaping remnant pressure. We recommend covering the material hoses’ fittings with a cloth during unscrewing, in order to capture any fluid which might escape.

When working on the high-pressure filter, for example to change the filter, the machine must first be turned off and depressurized.

If the mixing ratio is changed, this can result in the need to adjust the maximum allowable inbound air pressure to the air motor. The safety valve must be exchanged for one with a different rating in this event. You will receive a new nameplate from WIWA showing the changed technical specifications that is to be mounted to the system. If this is necessary, contact WIWA immediately.

This equipment may never be operated without a safety valve.

If the safety valve needs to be replaced, refer to the machine card (Chapter 9.3) for the relevant part number. New safety valves must first be checked to ensure that they correspond to the required maximum inbound air pressure for the WIWA DUOMIX 230 system (see nameplate/machine card, Chapter 9.3) and that they are properly sealed.

During operation, always control the flow of material to the unit to avoid friction caused when the material pumps run dry.

Be certain that:
- no feed containers run empty when the pump is operating
- the suction system is not clogged, kinked or otherwise defect
- the unit is immediately shut down if it stops delivering material

In closed or pressurised systems where aluminium or galvanised parts come into contact with the solvent, dangerous chemical reactions can occur if 1.1.1-Trichlorethylene, Methylene Chloride or other solvents containing halogenated chlorinated hydrocarbons (CFCs) are used. If you wish to work with the above solvents or with lacquers and paints which contain them, we recommend you contact either WIWA customer services or WIWA directly.

If using such materials, stainless steel plural component systems are available.
Safety

Sources of danger

- The maximum operating pressure stated by us must correspond to all WIWA components and accessory items within the system (i.e. pumps, heaters, hoses, spray guns, safety valves).
  If the pressure ratings differ, the lowest rated max. pressure becomes valid for the entire system.

  Example:
  - Pump: max. 420 bar (6090 psi)
  - Fluid hose: max. 600 bar (8700 psi)
  - Spray gun: max. 500 bar (7250 psi)
  - Reversible tip: max. 350 bar (5075 psi)

  The maximum allowable operation pressure for the entire system is 350 bar (5075 psi).

- Smoking, using open fires or other ignitable sources is prohibited in the entire area of operation!

- Observe and adhere to all instructions found in the User's Handbooks for optional accessories.
Authorised Operators

People under the age of 16 should not operate this equipment. The management in charge of the operation of the machine must make the User’s Handbook available to the operator and must make sure that he has read and understood it. Only then may the system be put into operation.

We recommend the manager has this confirmed in writing. The operator of the machine is obliged to report any changes in the machine which might affect its safety to the manager, as he must ensure that the machine is functional. The responsibilities for the different activities on the system must be laid down clearly and adhered to. No unclear competences may remain as these could endanger the safety of the users.

The operator must make sure that only authorised persons work on the machine. He is responsible to third parties in the working vicinity of the system.

The operator of the equipment is obliged to repeat instructions about dangers and safety measures at regular intervals (at least once a year, for young persons twice a year).

Personal protective equipment

We call to your attention that the valid guidelines and requirements in accordance with work surroundings (mining, closed areas etc.) must be absolutely adhered to.

Please, wear the prescribed protective clothing at all times, as solvent vapours and solvent splashes cannot be completely avoided.

The sound pressure level of the equipment is below 85 db(A). Nevertheless, appropriate noise protection means should be made available to the operating staff.

Although spraying fog is kept to a minimum when the correct pressure setting and proper method of operation are observed, the operating painter should wear a protective breathing mask.

Never use solvent or other materials which present a health hazard for cleaning skin. Only suitable skin protective, skin cleansing and skin care materials may be used.
Installation site

High-pressure spray equipment can be installed inside or outside of spray booths and spray rooms. To avoid pollution, an outside installation is preferable.

Safety measures at the installation site

■ The unit must have a fixed position and sufficient space to ensure safe operating. The passage to the safety fittings must not be blocked.

Versions mounted on four-wheel cart:
Lock the unit into position at the installation site. This is done by pressing down the brake locks found on the wheels of the frame. This will avoid any accidental movement of the pump. If the unit is to be moved to a different location, the brake locks must be released by pulling upward.

■ Keep the area you are working in clean, especially walkways. Remove any spilled paint or solvent immediately.

■ Ensure that sufficient ventilation is available to avoid any injuries or damage to equipment.
   Always follow the handling instructions given by the materials manufacturer.

■ Although there are no laws governing the low overspray airless spraying method, dangerous solvent fumes and paint particles need to be suctioned and filtered out of the air.

■ Protect any neighboring objects against damage caused by possible overspray.

■ The operator of this equipment must ensure that the complete system is protected against lightning strikes.

■ Adhere closely to all relevant guidelines covering safety and/or accident prevention.
Safety  2
Installation site and transporting the unit  2.8/2

Transporting the unit

- Disconnect the unit from the main air supply and from any electrical outlets for accessory items, even if the unit is only to me moved a short distance.

- Empty the unit before it is transported.

- Be careful when using a hoist to load this equipment!
  If using a hoist, ensure that the weight capacity is not exceeded and that proper lifting attachments are employed.
  The dimensions and weight of the unit are found on the machine card.
  The weight can also be found on the frame / cart to which the pump is mounted.

- This equipment may only be lifted at the points designated for this purpose.
  Pay attention to hanging ropes / cables used for lifting and use a yoke, if necessary. The ropes / cables used for transport must be at least 3 meters (10 ft.) long.
  Connect the hoisting assembly securely to the mounts on the unit (Chapter 3, Pos. 1.4.1 and 1.4.2).
  **Warning!** Danger of tipping! Ensure that the load is evenly distributed to avoid the unit from tipping and possible falling.

- When lifting or loading the unit, do not transport any further items (i.e. paint cans or pails) along with it. Remove any loose items (i.e. tools) from the unit before moving it. Never stand under or near the unit when it is suspended. This could lead to life-threatening injuries!

- Secure the unit to the transporting vehicle in such a way that it can not slide or fall off.

- Any components or accessories that had to be removed for transport must be remounted by skilled and trained personnel before beginning operation.
Safety
Behavior in case of emergency 2

Leaks

If leaks occur in the system, it must be shut down immediately and the entire system depressurised:

- Cut off the compressed air supply with the compressed air tap lock.
  Turn the control tap on the pressure regulator (Chapter 3, Pos. 1.5.1) counter clockwise until it turns freely and close the compressed air tap lock (Chapter 3, Pos. 1.5.2).

- Open the spray gun and hold it into an open, empty container. Be sure to maintain contact with the inner wall of the container.

- Set the lever (Chapter 3, Pos. 8.1.2 / 8.2.2) to „STOP-FLUSH“

- Set the lever (Chapter 3, Pos. 8.1.1 / 8.2.1) to "ON" (drain/circulation on).

- Replace the defective parts immediately or contact WIWA Customer Service.

Injury

- Should an injury through contact with liquid spray, we recommend a doctor be called immediately.

- Inform the doctor of the material sprayed (e.g. paint) and the solvent (thinner). Have the product data sheet at hand (address and telephone number of supplier or manufacturer, name of material and material number).

- Memorize where you can call for aid.

- Memorize the local emergency phone numbers.

- In any case, become familiar with the first-aid measures.

Fires

- Read and observe the instructions for fire alarm and escape routes put up in your factory.

- Memorize the local emergency phone numbers.

- Memorize the location and operation of fire alarms, fire extinguishers and sprinkler installations.

- Take care that sufficient information notes/labels for fire prevention are provided.

- Do not use any other extinguishing agents than those which are prescribed by the manufacturer of the materials.
This equipment is delivered with the following safety devices:

**Safety valve** (Picture 2.10.1, pos. 1)
The safety valve prohibits the maximum allowable inbound air pressure from being exceeded. If the inbound air pressure exceeds the maximum allowable value, the safety valve will blow off.

**Air tap lock** (Picture 2.10.1, pos. 2)
The compressed air tap lock makes it possible to shut down the unit immediately. Before beginning any work on the unit, the entire system incl. feed pumps must first be shut down and depressurized.

**Spray gun safety catch** (Picture 2.10.2)
The spray gun safety must be applied at any break in work, regardless of how long the interruption lasts. By setting the safety catch to its horizontal position, accidental triggering of the spray gun is avoided.

**Ground cable** (Picture 2.10.3)
To avoid electrostatic charging, the plural component unit must be grounded to a conductive object using the ground cable.

**Rupture disc** (Picture 2.10.4)
Rupture discs prevent the maximum allowable working pressure from being exceeded significantly. They are located in the fittings behind the high-pressure filters. If damaged or blown, the rupture discs must be replaced. The ordering information can be found on the machine card.

**Safety valve on the outbound manifold of the feed pumps** (not pictured here)
(Feed pumps are available optionally)
This safety valve is set for a maximum working pressure of 70 - 80 bar (1015 - 1160 psi). This setting may not be changed.

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All safety devices must be checked:
- Before commissioning the system!
- Before beginning to work with the system!
- After any customizing or other changes have been made to the unit!
- After flushing or cleaning the system!
- After any repair or maintenance work on the system!

---

**Checklist for checking the safety devices with the system depressurized**
- Check to see whether the seal on the safety valve is damaged.
- Check the safety valve for signs of damage.
- Check the ground cable for damage.
- Check the connections for the ground cable on the unit and the conductive object it is connected to.
- Check whether the air tap lock is functioning properly.
- Check the spray gun safety catch to ensure it functions properly.
- Check the rupture discs for damage

---

If one of the safety devices is not functioning properly or if any other malfunction is found, the system must be shut down immediately (if it is running). The unit may only be restarted once the problem has been solved and the system is functioning perfectly again.
Safety
Handling and auxiliary materials

Adjusting, servicing, maintenance and repair of the unit

Adjustments to the unit (i.e. due to a change in production, such as a paint change), servicing and cleaning may only be carried out by trained operating personnel. Personnel performing maintenance and repair on the unit must be trained and specialized on completing these tasks.

Before starting work, the compressed air supply of the unit must be shut-off (Picture 2.11.1).

Make sure that the machine is absolutely free of pressure. To do this, hold the drain hoses into an open container and open the drain valve.

In any case, the function of all protective devices, as well as perfect function of the unit, must be checked after work completion.

Handling of auxiliary materials

When handling auxiliary materials such as paint, solvent, oil, grease and other chemical substances, comply with the safety and dosing instructions of the manufacturer and the generally applicable regulations.

Leftover solvents, oils, grease and other chemical substances must be collected according to the legal regulations for recycling and waste disposal.

The local official laws for the protection of waste water must be observed.
Sample configurations

DUOMIX 230 mounted on four-wheel cart

Position:
1.1 Air motor
1.2 Safety valve
1.3 Air maintenance unit
1.4 Lifting point
1.5 Air pressure regulator
1.5.1 Compressed air tap lock
1.5.2 Compressed air tap lock
1.5.3 Viewing port
1.5.4 Drain valve
1.6 High-pressure filter
1.7 Circulation hoses
3 Filling funnels
3.1 Ball valve
5 Fluid heater
5.1 Adjusting knob
6 Flush pump
6.1 Air pressure regulator
6.2 Suction hose
8.1 Frame-mounted mixing block
8.1.1 Lever "Drain" (Circulation)
8.1.2 Lever "Spray/Stop-Flush"* optional according to customer requirements
8.1.3 Lever "A" or "B"
Inbound air connection
Sample configurations

DUOMIX 230 mounted on stationary frame
Sample configurations
DUOMIX 230 mounted on two-wheel cart

Position:
1.1 Air motor
1.2 Material pumps
1.3 Two-wheel cart
1.4 Lifting point
1.5 Air maintenance unit
1.5.1 Pressure regulator
1.5.2 Air tap lock
1.5.3 Sight glass
1.5.4 Drain valve
1.6 High-pressure filters

4 Suction assembly
4.1 Suction hose
4.2 Suction sieve
8.1 Frame-mounted mixing block
8.1.1 Lever „Drain“ (Circulation)
8.1.2 Lever „Spray/Stop-Flush“

"optional according to customer requirements"

Inbound air connection

OFF
ON
SPRAY
STOP-FLUSH

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Sample configurations
DUOMIX 230 mounted on wall bracket with pressure and metering monitor

Position:
1.1 Air motor
1.2 Material pumps
1.4 Wall mount*
1.5 Air maintenance unit
1.5.1 Pressure regulator
1.5.2 Air tap lock
1.5.3 Sight glass
1.5.4 Drain valve
1.6 High-pressure filters

2 Pressure and metering monitor
2.1 Contact pressure gauge
2.3 Pressure regulator with fine filter
2.5 Switch “START”
2.6 Switch “MANUAL / AUTOM.”

8.1 Frame-mounted mixing block
8.1.1 Lever „Drain“ (Circulation)
8.1.2 Lever „Spray/Stop-Flush“

*optional according to customer requirements

Inbound air connection
Sample configurations
Pressure and metering monitor (Pos. 2)

Position:
2.1 Pressure gauge
2.2 Precision pressure regulator
2.3 Air pressure regulator with fine filter
2.4 Air pressure regulator with switching valve
2.5 Button "START"
2.6 Switch "MANUAL / AUTOM."
Sample configurations

Feed pump (Pos. 7)

Position:

7.1 Pressure regulator
7.2 Ball valve
7.3 Suction hose
Sample configurations  3
Standard frame mounted mixing block (Pos. 8.1)  /7

Position:
8.1.1 Lever "OFF" (drain/circulation off) / "ON" (drain/ circulation on)
8.1.2 Lever "SPRAY" / "STOP-FLUSH"
Sample configurations 3
External mixing block (Pos. 8.2) /8

Position:
8.2.1 Lever "OFF" (drain/circulation off) / "ON" (drain/circulation on)
8.2.2 Lever "SPRAY" / "STOP-FLUSH"
Job
You wish to erect the unit on-site and prepare it for operation.

Prerequisite
The material to be sprayed is available and ready.

All materials to be sprayed should be marked with information on viscosity, processing temperatures, mixing proportions etc. If this is not the case, please, acquire this data from the relevant manufacturer.

When dealing with plural component materials, the pot life must be observed. The unit must be flushed and completely cleaned with the specified cleaning agent within the pot life given by the manufacturer. Please, observe that the hardening time shortens at higher temperatures.

To optimize the preparation of materials to be sprayed, WIWA offers an extensive range of relevant accessories, such as:
- Agitators in different sizes
- Pre-heating containers in different sizes
- Fluid heaters

Procedure
The machine is to be set up securely on a level and solid surface. All operating elements must be easily accessible. In order to ensure that sufficient inbound air is available, the compressor capacity must comply with the amount of air needed by the pump and the diameter of the air supply hoses must correspond to the connections.

High-pressure spray equipment can be installed inside or outside of spray booths and spray rooms. To avoid pollution, an outside installation is preferable.

For transportation purposes, the following components were dismounted and packed in a separate carton:

- Connect dismounted hoses as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Hoses lead from</th>
<th>to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed hoses</td>
<td>Feed pumps (optional)</td>
<td>Main pump</td>
</tr>
<tr>
<td>Circulation hoses</td>
<td>High-pressure filters</td>
<td>Transfer pumps or feed containers</td>
</tr>
<tr>
<td>Spray hoses</td>
<td>Mixing manifold</td>
<td>Spray guns</td>
</tr>
</tbody>
</table>

Be certain that all hoses and pumps correspond to correct material component they were designed to work with.

Base component (A) = Blue
Hardener (B) = Red
Plural component systems work under high levels of pressure.

- Check all turnable parts, nuts, bolts and hose connections and tighten them properly to avoid any leaks that could lead to injury.
- To avoid any electrostatic charging, the plural component unit must be connected to a conductive object using the ground cable.
- The object to be coated must be grounded as well.
- Check the maximum pressure ratings for all hoses and spray guns. They have to be equal to or higher than the maximum operating pressure of the plural component system (this can be found on the nameplate mounted to the system).
- Compare the safety valves maximum allowable inbound air pressure rating to the information found on the machine card (Chapter 9.3). The ratings must be equal.
- Now, fill the material pump lubrication chambers with lubricant (see Chapter 7.2 Maintenance plan). We recommend using WIWA lubricant, Order No. 0163333.
- Fill pneumatic oil, anti-freeze or a mixture of the two into the oiler of the air maintenance unit and set it according to the instructions found in Chapter 7.3/2 "Maintenance on the air maintenance unit". Please, only use the pneumatic oil listed in Chapter 9.1.

For maximum protection, we recommend using:
WIWA Pneumatic Oil, Order No.: 0632579 and
WIWA Anti-Freeze, Order No.: 0631387.

Result
The unit is now ready for operation. You can continue with the instructions covering initial operation found in Chapter 4.2.
Job
This unit was function tested at our factory after assembly with a test-medium. The entire system must therefore first be flushed with the solvent that corresponds to the paint to be used to ensure that it is not affected by the test-medium.

Prerequisite
Always wear proper protective clothing, as solvent fumes and splashes can not be completely avoided.

You will need:
2 open containers, each containing one of the material components of the paint to be sprayed (component A+B), hereafter called container "A" and "B".

2 open containers of appropriate solvent, hereafter called container "C".
A separate solvent container must always be available for each component ("A" + "B") to avoid the components from reacting to each other and possibly damaging parts of the system.

2 empty, open containers for the mixture of solvent and test-medium, hereafter called container "D".
A separate container "D" must always be available for each component ("A" + "B") to avoid the components from reacting to each other and possibly damaging parts of the system.

Do not use narrow-necked cans or drums with bungholes!

When working with metal containers, be sure to maintain contact between the spray gun and the container inner wall to avoid electrostatic charging.

- Check whether the fluid hoses are rated to correspond to the maximum operating pressure of the system, with an appropriate safety factor. They may not show any signs of leaks, kinks, abrasion or blistering. The hose connections must be tight and also correspond to the maximum pressure rating of the system.

- If using a fluid heater (optional), ensure that it is cold during flushing. Before turning on the fluid heater, the unit must be allowed to circulate cold to be sure that all residue solvent is removed from the fluid heater.

Procedure
Please, skip over steps below if they cover an accessory not included in your particular system.

- Close the compressed air tap lock (Picture 4.2.1, Pos. 1.5.2) and turn the control tap on the air maintenance unit's pressure regulator (Picture 4.2.1, Pos. 1.5.1) counter clockwise until it turns freely.

- Connect the the inbound compressed air supply hose to the system.

- Place an appropriate clean filter insert into each high-pressure filter (Chap. 3, Pos. 1.6).
Observe and follow the instructions located in Chapter 7.3.
Start-up

Initial operation

The filter mesh should be finer that the size of the spray tip being used:

<table>
<thead>
<tr>
<th>Filter Insert</th>
<th>Tip Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>M200 (white)</td>
<td>up to 0,23 mm/.009&quot;</td>
</tr>
<tr>
<td>M 150 (red)</td>
<td>over 0,23 mm/.009&quot; up to 0,33 mm/.013&quot;</td>
</tr>
<tr>
<td>M 100 (black)</td>
<td>over 0,33 mm/.013&quot; up to 0,38 mm/.015&quot;</td>
</tr>
<tr>
<td>M 70 (yellow)</td>
<td>over 0,38 mm/.015&quot; up to 0,38 mm/.016&quot;</td>
</tr>
<tr>
<td>M 50 (orange)</td>
<td>over 0,66 mm/.026&quot;</td>
</tr>
</tbody>
</table>

Note

If spraying coarsely pigmented coatings or materials filled with fibers, no filter insert should be used.

The standard suction sieve (Chapter 3, Pos. 4.2) should remain in the sieve housing or be exchanged for a sieve with a larger mesh size. If a paint / material change is made, the inserts in the high-pressure filters and the suction sieve need to be cleaned or exchanged, if necessary.

Step 4

Place each of the circulation return hoses (Chap. 3, Pos. 1.7) into a separate empty container "D" and secure them against slipping or falling out.

Step 5

Prepare to feed solvent to the unit.

Keep the solvent used for each component separate at all times!

Versions with suction hoses (Chap. 3, Pos. 4):

- Place the suction hoses for the A + B material pumps into separate solvent containers "C".

Versions with filling funnels (Chap. 3, Pos. 3):

- Close the drain ball valves (Chap. 3, Pos. 3.1 A + B).
- Fill solvent into the funnels.

Versions with feed pumps (Chap. 3, Pos. 7):

- Place the A + B feed pump suction hoses (Chap. 3, Pos. 7.3 A + B) into separate solvent containers "C".
- Open the ball valves (Chap. 3, Pos. 7.2 A+B).
- Turn the control knob on the feed pump air pressure regulators (Chap. 3, Pos. 7.1 A+B) clockwise until they register approx. 1-2 bar (15 - 30 psi).

Step 6

Circulate the system.

a) Versions with standard frame-mounted mixing blocks (Chap. 3, Pos. 8.1)

The circulation hoses are mounted to the high-pressure filters. Engaging the lever (Picture 4.2.2, Pos. 8.1.1) will enable the system to circulate and/or drain. Allowing the components to circulate will ensure an even material consistency and remove any air pockets found in the components.

Circulation / Air Removal:

The circulation hoses run from the high-pressure filters back into the feed containers

Material Drain / Pressure Drain:

The circulation hoses run from the high-pressure filters into separate empty containers

- Press the lever (Picture 4.2.2, Pos. 8.1.1) to "ON (drain/circulation on)".
- Press the lever (Picture 4.2.2, Pos. 8.1.2) to "STOP-FLUSH".
- Open the air tap lock (Picture 4.2.1, Pos. 1.5.2) on the air maintenance unit.
- Adjust the maintenance unit's air pressure regulator (Picture 4.2.1, Pos. 1.5.1) to approx. 0.5 - 1 bar (7 - 15 psi) by turning it clockwise.
Version with pressure and metering monitor (Chap. 3, Pos. 2):

- Set the switch MANUAL/AUTOM. (Picture 4.2.3, Pos. 2.6) to "MANUAL".
- Press the START button (Picture 4.2.3, Pos. 2.5).

- Flush the system thoroughly through the circulation hoses (Chap. 3, Pos. 1.7 A+B).
Fill the available empty containers "D" with the contaminated material until clear solvent exits the hoses.
- Pull the lever (Picture 4.2.2, Pos. 8.1.1) upward to "OFF" (drain/circulation off).
This stops the flow of material through the circulation hoses.
- Press the lever (Picture 4.2.2, Pos. 8.1.2) to "SPRAY".

b) Versions with an external mixing block (Chap. 3, Pos. 8.2)

The circulation hoses are not mounted to the high-pressure hoses, but instead they are included in the hose package for the external mixing block and are connected directly to it. The lever between the high-pressure filters (Picture 4.2.2, Pos. 8.1.1) is only used for draining pressure from the system or for flushing the high-pressure filters (see Chapter 7.3).

The removal of air from the material hoses takes place through the external mixing block.

- Press the lever (Picture 4.2.2, Pos. 8.1.1) to the position "OFF".
- Press the lever (Picture 4.2.4, Pos. 8.2.1) to the position "ON".
- Press the lever (Picture 4.2.4, Pos. 8.2.2) to "STOP-FLUSH".
- Open the air maintenance unit's air tap lock (Picture 4.2.1, Pos. 1.5.2).
- Adjust the maintenance unit's air pressure regulator (Picture 4.2.1, Pos. 1.5.1) to approx. 0.5 - 1 bar (7 - 15 psi) by turning it clockwise.

Versions with pressure and metering monitor (Chap. 3, Pos. 2):

- Set the switch MANUAL/AUTOM. (Picture 4.2.3, Pos. 2.6) to "MANUAL".
- Press the START button (Picture 4.2.3, Pos. 2.5).

- Flush the system thoroughly through the circulation hoses (Chap. 3, Pos. 1.7 A+B).
Fill the available empty containers "D" with the contaminated material until clear solvent exits the hoses.
- Pull the lever (Picture 4.2.4, Pos. 8.2.1) upward to "OFF" (drain/circulation off).
This stops the flow of material through the circulation hoses.
- Press the lever (Picture 4.2.4, Pos. 8.2.2) to "SPRAY".

Step 7

- Open the spray gun by pulling on the trigger.
Spray the contaminated material out of the system and into an empty open container "D" until clean solvent emerges.

Warning

Due to electrostatic charging, never use narrow-necked cans or drums with bung-holes. If using metal containers, always maintain contact between the spray gun and the inner wall of the container when spraying into it.

Step 8

- Let the unit run until empty:

Versions with suction hoses (Chap. 3, Pos. 4):

- Remove the suction hoses for the A + B component material pumps from
Step 9

Prepare the material feed:

**Warning**

Base component (A) = Blue
Hardener (B) = Red

**Versions with suction hoses (Chap. 3, Pos. 4):**
- Place each suction hose (Chap. 3, Pos. 4.1 A + B) into the appropriate "A" or "B" material container.
- Open the air tap lock (Picture 4.2.1, Pos.1.5.2) on the air maintenance unit.
- Adjust the air pressure regulator (Picture 4.2.1, Pos. 1.5.1) to a pressure of approx. 0.5 - 1 bar (7 - 15 psi).
- Set the control knob (Chap. 3, Pos. 5.1) of the fluid heater (optional) to the desired temperature.
- If fitted with a pressure and metering monitor (optional), press the START button (Picture 4.2.3, Pos. 2.5).
- Press the lever (standard frame-mounted mixing block: Picture 4.2.2, Pos. 8.1.2 / external mixing block Picture 4.2.4, Pos. 8.2.2) to "STOP-FLUSH".
- Press the lever (frame-mounted mixing block: Picture 4.2.2, Pos. 8.1.1 / external mixing block Picture 4.2.4, Pos. 8.2.1) to "ON" (drain/circulation on).
- Pump the remaining solvent in the system through the circulation hoses (Chap. 3, Pos. 1.7 A + B) into the "D" containers until only coatings material exits the hoses.
- Hold the circulation hoses into the "D" containers tightly!

**Warning**

**Versions with filling funnels (Chap. 3, Pos. 3):**
- Fill each material component separately into the respective funnel (Chap. 3, Pos. 3 A+B).
- Open the air tap lock (Picture 4.2.1, Pos.1.5.2) on the air maintenance unit.
- Adjust the air pressure regulator (Picture 4.2.1, Pos. 1.5.1) to approx. 0.5 - 1 bar (7 - 15 psi) by turning it clockwise.
- Set the control knob (Chap. 3, Pos. 5.1) of the fluid heater (optional) to the desired temperature.
Start-up 4
Operation 4.2/5

- If fitted with a pressure and metering monitor (optional), press the START button (Picture 4.2.3, Pos. 2.5).
- Press the lever (standard frame-mounted mixing block: Picture 4.2.2, Pos. 8.1.2 / external mixing block Picture 4.2.4, Pos. 8.2.2) to "STOP-FLUSH".
- Press the lever (frame-mounted mixing block: Picture 4.2.2, Pos. 8.1.1 / external mixing block Picture 4.2.4, Pos. 8.2.1) to "ON" (drain/circulation on) (Picture 4.2.2 + 4.2.4)
- Pump the remaining solvent in the system through the circulation hoses (Chap. 3, Pos. 1.7 A + B) into the "D" containers until only coatings material exits the hoses.

Hold the circulation hoses into the "D" containers tightly!

Warning

Versions with feed pumps (Chap. 3, Pos. 7):
- Immerse the suction assemblies (Chap. 3, Pos. 7.3 A + B) into the respective "A" + "B" component containers.
- Open the air tap lock (Picture 4.2.1, Pos.1.5.2) on the air maintenance unit.
- Adjust the air pressure regulator (Picture 4.2.1, Pos. 1.5.1) to approx. 0.5 - 1 bar (7 - 15 psi) by turning it clockwise.
- Set the control knob (Chap. 3, Pos. 5.1) of the fluid heater (optional) to the desired temperature.
- If fitted with a pressure and metering monitor (optional), press the START button (Picture 4.2.3, Pos. 2.5).
- Press the lever (standard frame-mounted mixing block: Picture 4.2.2, Pos. 8.1.2 / external mixing block Picture 4.2.4, Pos. 8.2.2) to "STOP-FLUSH".
- Press the lever (frame-mounted mixing block: Picture 4.2.2, Pos. 8.1.1 / external mixing block Picture 4.2.4, Pos. 8.2.1) to "ON" (drain/circulation on).
- Open the ball valve (Chap. 3, Pos. 7.2 A + B).
- Adjust the air pressure regulator on each feed pump to approx. 3 - 4 bar (44 - 58 psi).
- Pump the remaining solvent in the system through the circulation hoses (Chap. 3, Pos. 1.7 A + B) into the "D" containers until only coatings material exits the hoses.

Hold the circulation hoses into the "D" containers tightly!

Warning

Versions with flush pumps (Chap. 3, Pos. 6)
- Feed the suction hose (Kap. 3, Pos. 6.2) into the solvent container "C".

Step 10
- Allow the unit to circulate to remove any air from the fluid hoses.
This results in an even material consistency, as well as an even temperature throughout the system if fluid heaters are used.

Warning

Perform this step every time the unit is started!
- Place the circulation hoses (Chap. 3, Pos. 1.7 A+B) into the appropriate A or B component feed container or funnel and secure them.

Versions with flush pumps (Chap. 3, Pos. 6)
- Set the air pressure regulator (Chap. 3, Pos. 6.1) on the flush pump maintenance unit to approx. 3 - 6.5 bar (44 - 95 psi).

Versions with heaters
  a) Fluid Heaters (Chap. 3, Pos. 5)
  - Using the fluid heater's control knob (Chap. 3, Pos. 5.1), set the desired material temperature from 0 - 80°C (32 - 176°F).
  - Follow all instructions found in the separate User's Handbook issued for the fluid heater.
b) Drum Floor Heater
   • Turn on the Drum Fluid Heater and select the desired temperature using the Control Knob.

   c) Hose Heater
   • Turn on the Hose Heater and select the desired temperature using the Control Knob.

   • Allow the components to circulate until an even temperature is achieved. Measure the temperature using a probe (optional accessory).

   • Slowly circulate the components until all air is drained from the system.
   • Press the lever (frame-mounted mixing block: Picture 4.2.2, Pos. 8.1.1 / external mixing block: Picture 4.2.4, Pos. 8.2.1) upward to the position "OFF" (drain/circulation off).
   • Push the lever (frame-mounted mixing block: Picture 4.2.2, Pos. 8.1.2 / external mixing block: Picture 4.2.4, Pos. 8.2.2) to "SPRAY".
   • Set the unit to the desired spray pressure by turning the control tap on the air maintenance unit (Picture 4.2.1, Pos. 1.51) clockwise and watching the pressure gauges mounted on the high-pressure filters.
   • To even the pressure of the two components, trigger the spray gun with a tip mounted.
   • Spray the coatings material into an open container "D".

   Due to electrostatic charging, never use narrow-necked cans or drums with bungholes. If using metal containers, always maintain contact between the spray gun and the inner wall of the container when spraying into it.

   ■ Check the pressure readings of the two pressure gauges mounted to the high-pressure filters (Chap. 3, Pos. 1.6). The pressures should be relatively equal.

   Versions with pressure and metering monitor (Chap. 3, Pos. 2)
   • Set the red needles in the contact pressure gauge (Chap. 3, Pos. 2.1) using the included adjusting key (refer to the instructions in Chapter 4.3).
   • With gun(s) closed, upper red needle approx. +20 bar to black needle
   • With gun(s) triggered, lower red needle approx. -20 bar to black needle

   If the desired spray pressure changes, the red needles in the contact pressure gauge must be adjusted accordingly.

   If the black needle in the contact pressure gauge does not appear to move sufficiently or at all, the unit may not be operated.
   DANGER OF MIXING RATIO FAILURE!!!

   • Set the switch MANUAL/AUTOM. (Picture 4.2.3, Pos. 2.6) to „AUTOM.“.

   It is important to switch to AUTOM., otherwise the mixing ratio will not be properly monitored and poor mixing results can occur.

   ■ You may now begin coating the intended object.
Start-up 4
Mixing ratio control using a pressure and metering monitor 4.3

To ensure optimal mixing results, this accessory enables the system to monitor the pressure of the "B" component (hardener) using a contact pressure gauge (Picture 4.3.1, Pos. 2.1).

The upper and lower control settings for this component can be adjusted.

If the switch MANUAL / AUTOM. is set to "MANUAL" (Picture 4.3.2, Pos. 2.6), the lower red needle is deactivated and pressures below the set stall pressure (upper red needle) are no longer monitored.

Pressures above the set stall pressure (upper red needle) are still monitored for safety reasons.

The pressure regulator with filter (Picture 4.3.1, Pos. 2.3) is set by our factory at 8 bar (116 psi).

Inside the control box, the air pressure regulator (Picture 4.3.1, Pos. 2.2) is set at 1.4 bar (20.3 psi) and the pressure regulator for the switching valves (Picture 4.3.1, Pos. 2.4) is set at 5.5 bar (80 psi).

These settings may not be changed.

The black needle shows the actual pressure being applied to the "B" component. Using the upper and lower red needles, the maximum stall pressure (with the spray gun closed) and minimum spray pressure (with the spray gun triggered) can be set.

Proceed as follows:

1. Setting the minimum spray pressure with the spray gun triggered
   - Observe the pressure gauge and note the lowest spray pressure reading.
   - Place the included adjusting key into the center of the pressure gauge (Picture 4.3.1, Pos. 2.1).
   - Press the key into the pressure gauge (Picture 4.3.1, Pos. 2.1).
   - Move the lower red needle to 20 - 30 bar (290 - 435 psi) below the lowest spray pressure reading (below the black needle). This is usually at the point where the downward stroke switches over to the upward stroke. (Picture 4.3.3).
   - Remove the adjusting key from the gauge.

2. Setting the maximum stall pressure with the spray gun closed:
   - Observe the pressure gauge and note the highest stall pressure reading.
   - Press the key into the pressure gauge (Picture 4.3.1, Pos. 2.1).
   - Press the key into the pressure gauge (Picture 4.3.1, Pos. 2.1).
   - Move the upper red needle to 20 - 30 bar (290 - 435 psi) above the highest stall pressure reading (above the black needle). (Picture 4.3.3).
   - Remove the adjusting key from the gauge.

The pressure gauges on the high-pressure filters must run synchronus.
Job
Use the manual volume check (optionally available):

a) to check the mixing ratio between component A and component B
b) to mix small amounts of paint (i.e. for touching up by hand or roller)

Prerequisite
You will require:

2 containers "A" + "B", one with component A and the other with component B

2 empty, open measuring cups "C" to measure the amounts of A and B component

2 empty, open containers "D" for the A + B components

Do not use narrow-necked cans or drums with bungholes.

Use a separate measuring cup "C" and separate container "D" for the A and B components to avoid them from reacting with one another and to enable the material used for measuring to be poured back into the respective feed containers.

Procedure

■ Push the lever (frame-mounted mixing block: Picture 4.4.1, Pos. 8.1.2 / external mixing block Chap. 3, Pos. 8.2.2) to "STOP-FLUSH".

■ Press the lever (frame-mounted mixing block: Picture 4.4.1, Pos. 8.1.1 / external mixing block Chap. 3, Pos. 8.2.1) to "ON" (drain/circulation on).

■ Allow the components to circulate. (See Chapter 4.2, Step 10)

■ Reduce pressure by turning the control tap on the air pressure regulator (Chap. 3, Pos. 1.5.2) counter clockwise.

■ Push the lever (frame-mounted mixing block: Picture 4.4.1, Pos. 8.1.1 / external mixing block Chap. 3, Pos. 8.2.1) to "OFF" (drain/circulation off).

■ Remove the circulation hoses (Picture 4.4.1, Pos. 1.7) from the feed containers "A" + "B".

■ Mount one male adapter and one valve each (part of Volume Check Mounting Kit) onto the two circulation hoses (Picture 4.4.1).

■ Place each circulation hose into a separate container "D" and secure them against slipping.

■ Press the lever (frame-mounted mixing block: Picture 4.4.1, Pos. 8.1.1 / external mixing block Chap. 3, Pos. 8.2.1) to "ON" (drain/circulation on).

■ Apply pressure using the air pressure regulator (Chap. 3, Pos. 1.5.2) on the maintenance unit until material begins to flow out of the valves of the volume check assembly and into the containers.
### Start-up

#### Mixing ratio control by manual volume check

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pay attention to the readings given by the pressure gauges mounted on the high-pressure filter. (Picture 4.4.1, Pos. 1.6) The gauges must run synchronus with one another!</td>
</tr>
<tr>
<td>2.</td>
<td>Push the lever (frame-mounted mixing block: Picture 4.4.1, Pos. 8.1.1 / external mixing block Chap. 3, Pos. 8.2.1) to &quot;OFF&quot; (drain/circulation off).</td>
</tr>
<tr>
<td>3.</td>
<td>Place each circulation hose into a separate measuring cup &quot;C&quot; and secure them against slipping.</td>
</tr>
<tr>
<td>4.</td>
<td>Push the lever (frame-mounted mixing block: Picture 4.4.1, Pos. 8.1.1 / external mixing block Chap. 3, Pos. 8.2.1) to &quot;ON&quot; (drain/circulation on).</td>
</tr>
<tr>
<td>5.</td>
<td>Fill enough of component &quot;A&quot; + &quot;B&quot; into the measuring cups to be able to calculate the volume mixing ratio.</td>
</tr>
<tr>
<td>6.</td>
<td>Reduce the pressure completely by turning the tap on the air pressure regulator (Chap. 3, Pos. 1.5.2) counter clockwise until it turns freely.</td>
</tr>
<tr>
<td>7.</td>
<td>Press the lever (frame-mounted mixing block: Picture 4.4.1, Pos. 8.1.2 / external mixing block Chap. 3, Pos. 8.2.2) to &quot;SPRAY&quot;.</td>
</tr>
<tr>
<td>8.</td>
<td>Hold the spray gun into an open, empty container. To depressurize the system, trigger the spray gun until no material exits the tip.</td>
</tr>
<tr>
<td>9.</td>
<td>Set the lever (frame-mounted mixing block: Picture 4.4.1, Pos. 8.1.1 / external mixing block Chap. 3, Pos. 8.2.1) to &quot;OFF&quot; (drain/circulation off).</td>
</tr>
<tr>
<td>10.</td>
<td>Push the lever (frame-mounted mixing block: Picture 4.4.1, Pos. 8.1.2 / external mixing block Chap. 3, Pos. 8.2.2) to &quot;STOP-FLUSH&quot;.</td>
</tr>
<tr>
<td>11.</td>
<td>Remove the male adapter and valve from each circulation hose (Picture 4.4.1, Pos. 1.7). Be careful when disassembling the manual volume check kit to avoid injury caused by remnant pressure in the system. We recommend covering the connections with a rag before unscrewing them to prevent material that is still in the lines from squirting out.</td>
</tr>
<tr>
<td>12.</td>
<td>Flush the mixing block immediately: a) refer to Chap. 6.1 &quot;Job completion&quot; for versions with flush pump b) refer to Chap. 6.2 &quot;System flushing&quot; for versions without flush pump</td>
</tr>
<tr>
<td>13.</td>
<td>Be sure to observe the pot life of the coatings material!</td>
</tr>
<tr>
<td>14.</td>
<td>Clean the volume check assembly thoroughly. Use the solvent recommended by the coatings manufacturer or connect the volume check assembly to an available flush pump.</td>
</tr>
<tr>
<td>15.</td>
<td>Compare the amount of material in the two measuring cups. The result provides the basis to calculate the mixing ratio.</td>
</tr>
</tbody>
</table>
Job
Preparing the unit for painting or coating jobs.

Prerequisite
Always wear proper protective clothing, as solvent fumes and splashes cannot be completely avoided.

Check the seal of all system components and ensure that all connections are tightened correctly.

Note
Do not use narrow-necked cans or drums with bungholes.

Warning
Pay close attention that all hoses and pumps only come into contact with the proper component (A or B) or solvent.

Procedure
If your unit is not fitted with one or more of the following accessories, then skip over the steps describing their use.

Step 1
- Connect the inbound air line to the unit.

Step 2
- **Versions with heaters**
  - Adjust the fluid, drum and hose heaters to the desired temperature.

Step 3
- **Versions with flush pumps (Kap. 3, Pos. 7):**
  - Set the air pressure regulator (Chap. 3, Pos. 7.1) to 3-4 bar (44-58 psi).

Step 4
- Push the lever (frame-mounted mixing block: Chap. 3, Pos. 8.1.2 / external mixing block Chap. 3, Pos. 8.2.2) to "SPRAY".

Step 5
- **Versions with pressure and metering monitor: (Chap. 3, Pos. 2)**
  - The pressure and metering monitor was set according Chap. 4.3.
  - Set the switch MANUAL/AUTOM. (Pos. 2.6) to "MANUAL".
  - Press the START button (Chap. 3, Pos. 2.5).

Step 6
- Slowly increase the system pressure using the maintenance unit's pressure regulator (Chap. 3, Pos. 1.5.1) until a low spray pressure is achieved.
  - Trigger the spray gun.
  - Spray remaining solvent into a container "D" until only the coating material exits the gun.
  - Set the desired spray pressure by using the maintenance unit's pressure regulator (Chap. 3, Pos. 1.5.1) and watching the readings the pressure gauges located on the high-pressure filters and control box (if included).

Step 7
- Allow the components to circulate (see Chapter 4.2, Step 10).

Step 8
- **Versions with pressure and metering monitor: (Chap. 3, Pos. 2)**
  - Set the switch MANUAL/AUTOM. (Chap. 3, Pos. 2.6) to "AUTOM.".

Warning
If the black needle in the contact pressure gauge does not appear to move sufficiently or at all, the unit may not be operated.
DANGER OF MIXING RATIO FAILURE!!!
Disengage the safety and trigger the spray gun to begin working.

Operating pressure
The optimal operating pressure is reached when an even coating thickness is achieved without paint build-up on the rim of the spray pattern. Only use enough pressure to achieve proper atomization at the recommended distance of 30 - 40 cm (12 - 16 in.) between the gun and surface being coated.

- Excessive spray pressure leads to higher paint consumption and overspray.
- Insufficient spray pressure leads to fingering and varying coating thicknesses.

Spraying - Coating
- Hold the spray gun at a right angle (90°) to the surface of the object being coated. If the gun is held at any other angle, the coating will be applied uneven and patchy (Picture 5.2.1).
- Move your arm in an even motion. Maintain a constant speed and keep the spray gun parallel to the object being coated. Move the spray gun using your arm and not your wrist. Waving the spray gun back and forth with the wrist leads to uneven coating results (Picture 5.2.2).
- Already begin moving your arm before the spray gun is triggered. This will ensure an even coating with the spray jet and avoids excessive paint build-up when the gun is first triggered. Release the trigger before finishing the movement with your arm.

Breaks in work
- Apply the spray gun safety catch if stopping work for a few minutes.

Versions with flush pumps (Kap. 3, Pos. 6):
Flush all components (mixing block Chap. 3, Pos. 8.1 / 8.2, static mixer, fluid hose, spray gun) that come into contact with mixed material within the pot life stated by the coatings manufacturer. Observe and follow the instructions found in Chapter 6.1 „Job completion“.

Versions without flush pumps:
Flush the complete system. Observe and follow the instructions found in Chapter 6.2 „System flushing“.

Spray tips
- Exchange the spray tip before it is worn. Worn tips result in higher paint consumption and lower spray pattern quality.
Note

Job completion - only versions with flush pumps -

Job

At the end of work, the unit is to be shut down and all components which come into contact with mixed material are to be flushed.

Prerequisite

Flushing components that come into contact with mixed material is only possible if a flush pump is used.

Otherwise the entire system must be flushed (Chapter 6.2) at the end of work to avoid mixed material from hardening within the system and causing damage.

Always wear recommended protective clothing, as solvent fumes or spills can not be totally avoided.

You will require:

2 containers of component A and B, hereafter called container "A" or "B"

1 open container with solvent (the solvent must correspond to the coating and be recommended by the coatings manufacturer), hereafter called container "C"

1 empty, open container to fill the mix of solvent and coatings material into, hereafter called container "D"

Do not use narrow-necked cans or drums with bungholes

Pay close attention that all hoses and pumps only come into contact with the proper component (A or B) or solvent.

Procedure

If your unit is not fitted with one or more of the following accessories, then skip over the steps describing their use.

Step 1

- Close the spray gun and apply the safety catch.

Step 2

- Versions with heaters:
  - Adjust the temperature controls on the fluid, drum and hose heaters to the "OFF"/lowest position.

Step 3

- Turn the control tap on the air maintenance unit's pressure regulator (Chap. 3, Pos. 1.5.1) counter clockwise until it turns freely.

Step 4

- Versions with pressure and metering monitor (Kap. 3, Pos. 2):
  - Set the switch (Chap. 3, Pos. 2.6) to "MANUELL".

Step 5

- Push the lever (frame-mounted mixing block: Picture 6.1.1, Pos. 8.1.2 / external mixing block Picture 6.1.2, Pos. 8.2.2) to "STOP-FLUSH".
  - The lever (frame-mounted mixing block: Picture 6.1.1, Pos. 8.1.1 / external mixing block Picture 6.1.2, Pos. 8.2.1) remains in the position "OFF" (drain/circulation off).

Step 6

- Apply a small amount of pressure to the flush pump using the pressure regulator (Chap. 3, Pos. 6.1 A + B).
### Shutting down

**Step 7**
- Trigger the spray gun until clear solvent emerges at the tip.

This will thoroughly flush the mixing block, static mixer, spray hose and gun. The material that remains in the unit (unmixed component A and B) can remain, as there will be no contact that could lead to hardening.

### Warning
Due to possible electrostatic charging, no narrow-necked cans or drums with bungholes may be used. If working with metal containers, ensure that contact is maintained between the spray gun and the inner wall of the container when spraying into it.

**Step 8**
- Turn the control tap on the air maintenance unit's pressure regulator (Chap. 3, Pos. 1.5.1) counter clockwise until it turns freely.

**Step 9**
- **Versions with feed pumps (Chap. 3, Pos. 7):**
  1. Turn the control tap on the feed pump's air pressure regulator (Chap. 3, Pos. 7.1 A+B) counter clockwise until it turns freely.
  2. Close the outbound ball valve (Kap. 3, Pos. 7.2) for the feed hose.

**Step 10**
- Turn the control tap on the feed pump's air pressure regulator (Pos. 6.1) counter clockwise until it turns freely.

**Step 11**
- To drain pressure, press the lever (frame-mounted mixing block: Picture 6.1.1, Pos. 8.1.1 / external mixing block Picture 6.1.2, Pos. 8.2.1) to the position "ON" (drain/circulation on) until both pressure gauges on the high-pressure filters (Chap. 3, Pos. 1.6) and (if applicable) the black needle on the contact pressure gauge (Chap. 3, Pos. 2.1) mounted to the pressure and metering monitor (optional) show 0 bar pressure.

**Step 12**
- After the pressure has been drained, bring the lever (frame-mounted mixing block: Picture 6.1.1, Pos. 8.1.1 / external mixing block Picture 6.1.2, Pos. 8.2.1) back to the position "OFF" (drain/circulation off).

**Step 13**
- Trigger gun shortly to release the equipment from pressure.

When shutting down the system, ensure that no pressure remains in the system.

### Note
To avoid unnecessary downtime, ensure that the material feed containers always have sufficient material to feed the system and that no air is suctioned. If this happens, the system will shut down automatically (only versions with pressure and metering monitor). Always allow the system to circulate before resuming work to drain any air from the lines!
Job
The unit is to be fully flushed at the end of work or before changing coating materials.

Prerequisite
Always wear recommended protective clothing, as solvent fumes or spills can not be totally avoided.

You will require:
2 open containers with solvent (the solvent must correspond to the coating and be recommended by the coatings manufacturer), hereafter called containers "C"
Always have a separate container "C" available for the "A" + "B" components, as this will avoid unwanted catalysation and possible damage to the unit.

2 empty, open containers to fill the mix of solvent and coatings material into, hereafter called containers "D"

Note
Do not use narrow-necked cans or drums with bungholes.

Warning
When flushing, the material components are to remain separate.
Always use separate solvent and collection containers for each component to avoid catalysation and possible damage to the unit.

Warning
Do not allow the temperature of the solvent to rise too high.
DANGER OF EXPLOSION!

Procedure
If your unit is not fitted with one or more of the following accessories, then skip over the steps describing their use.

Step 1
- Shut down the unit completely.
  Turn the control tap on the air maintenance unit’s pressure regulator (Chap. 3, Pos. 1.5.1) counter clockwise until it turns freely.
  Close the spray gun and apply the safety catch.

Step 2
 Versions with heaters :
  - Insure that the temperature controls on the fluid, drum and hose heaters are in the „OFF“ / lowest position.

Step 3
- Place the circulation hoses (Chap. 3, Pos. 1.7) into the "D" containers.
  Secure the hoses against slipping.

 Versions with filling funnels (Chap. 3, Pos. 3):
  - Place the circulation hoses into the corresponding filling funnel for the A and B components.
  Secure the hoses against slipping.

Step 4
- Prepare the feed of solvent.

 Versions with suction hoses (Kap. 3, Pos. 4):
  - Place the suction hoses for the A and B components into separate solvent containers "C".
Shutting down

System flushing

**Versions with filling funnels (Chap. 3, Pos. 3):**
- Open the ball valve (Chap. 3, Pos. 3.1 A + B) on the drain port.
- Empty the funnels. Collect the A and B components in separate containers.
- Close the ball valve (Chap. 3, Pos. 3.1 A + B) on the drain port.
- Fill both funnels with solvent.

**Versions with feed pumps (Chap. 3, Pos. 7):**
- Dip the feed pump suction assemblies (Chap. 3, Pos. 7.3 A + B) into separate solvent containers "C".
- Open the ball valves (Chap. 3, Pos. 7.2 A+B).
- Turn the feed pump pressure regulator taps (Chap. 3, Pos. 7.1 A+B) clockwise until approx. 1 - 2 bar (15 - 29 psi) are reached.

**Step 5**
- **Versions with pressure and metering monitor (Kap. 3, Pos. 2):**
  - Set the switch MANUAL/AUTOM. (Chap. 3, Pos. 2.6) to "MANUAL".

**Step 6**
- **Versions with flush pumps (Chap. 3, Pos. 6):**
  - Depending upon the hose length, apply approx. 3 - 6.5 bar (44 - 94 psi) pressure using the air regulator (Chap. 3, Pos. 6.1).

**Step 7**
- Apply pressure to the main pump by turning the tap on the air maintenance unit's pressure regulator (Chap. 3, Pos. 1.5.1) clockwise until the pump cycles slowly.

**Step 8**
- **Versions with filling funnels (Chap. 3, Pos. 3):**
  - Push the lever (frame-mounted mixing block: Picture 6.2.1, Pos. 8.1.1 / external mixing block Picture 6.2.2, Pos. 8.2.1) to the position "ON" (drain/circulation on).
  - Push the lever (frame-mounted mixing block: Picture 6.2.1, Pos. 8.1.2 / external mixing block Picture 6.2.2, Pos. 8.2.2) to "STOP-FLUSH".
  - Allow the unit to circulate until the A and B components have mixed with the solvent from the funnels.
  - Stop circulating by pressing the lever (frame-mounted mixing block: Picture 6.2.1, Pos. 8.1.1 / external mixing block Pict.6.2.2, Pos. 8.2.1) to "OFF" and secure the circulation hoses in separate containers "D".
  - Begin circulating again by pushing the lever (frame-mounted mixing block: Picture 6.2.1, Pos. 8.1.1 / external mixing block Picture 6.2.2, Pos. 8.2.1) downward to the "ON" position.
  - Empty the filling funnels and system through the circulation hoses.
  - Place the circulation hoses back into the filling funnels and secure them. Be sure to place the correct hose into the correct funnel (blue/blue and red/red)!
  - Repeat this step as often as necessary until clean solvent emerges from the circulation hoses.
  - To clean the mixing block, refill the funnels with solvent.
  - Place the circulation hoses into separate containers "D" and secure.

**Step 9**
- Push the lever (frame-mounted mixing block: Picture 6.2.1, Pos. 8.1.1 / external mixing block Picture 6.2.2, Pos. 8.2.1) to the "OFF" (drain/circulation off) position.
- Push the lever (frame-mounted mixing block: Picture 6.2.1, Pos. 8.1.2 / external mixing block Picture 6.2.2, Pos. 8.2.2) to "SPRAY".
Shutting down

System flushing 6.2/3

**Step 10**
- Disengage the safety catch and trigger the spray gun.
- Spray all remaining material into an open container "D" until clean solvent emerges from the tip.

**Note**
Due to possible electrostatic charging, no narrow-necked cans or drums with bungholes may be used. If working with metal containers, ensure that contact is maintained between the spray gun and the inner wall of the container when spraying into it.

**Step 11**
- Press the lever (frame-mounted mixing block: Picture 6.2.1, Pos. 8.1.1 / external mixing block Picture 6.2.2, Pos. 8.2.1) to the position "ON" (drain/circulation on).
- Push the lever (frame-mounted mixing block: Picture 6.2.1, Pos. 8.1.2 / external mixing block Picture 6.2.2, Pos. 8.2.2) to "STOP-FLUSH".

**Step 12**
- Pump all remaining material into the containers "D" through the circulation hoses (Pos. 1.7 A + B) until clean solvent emerges.
  - Remember to secure the hoses to the containers "D"!

**Step 13**
- Push the lever (frame-mounted mixing block: Picture 6.2.1, Pos. 8.1.1 / external mixing block Picture 6.2.2, Pos. 8.2.1) to the "OFF" (drain/circulation off) position.

**Step 14**
- Versions with feed pumps (Chap. 3, Pos. 7):
  - Turn the regulator tap (Chap. 3, Pos. 7.1) counter clockwise until it turns freely.
  - Close the ball valves (Chap. 3, Pos. 7.2)

**Step 15**
- Turn the regulator tap (Chap. 3, Pos. 1.5.1) on the air maintenance unit counter clockwise until it turns freely.

**Step 16**
- Versions with flush pumps (Chap. 3, Pos. 6):
  - Turn the regulator tap (Chap. 3, Pos. 6.1) counter clockwise until it turns freely.

**Step 17**
- Remove the suction hoses from the solvent containers.

**Versions with filling funnels (Chap. 3, Pos. 3):**
  - Remove the solvent from the funnels.

**Step 18**
- Trigger gun shortly to release the equipment from pressure.
- When shutting down the system, ensure that no pressure remains in the system.
1. Shutting down
   Complete all steps covering shutting down / system flushing (Chapter 6.2).

   **Note**
   If changing from an EPOXY based material to a POLYURETHANE based material, the entire system must be cleaned thoroughly. Before filling the unit with the new material, the entire system must first be flushed using the solvent recommended by the coatings manufacturer for this purpose.

2. Control the filters
   Any time a change in coatings materials takes place, the filter inserts in the high-pressure filters must be cleaned according to Chapter 7.3/1.

3. Changing coatings materials
   Prepare the material feed as follows:

   Base component (A) = Blue
   Hardener (B) = Red

   **Versions with suction hoses (Chap. 3, Pos. 4):**
   • Place the suction hoses for the A and B material pumps into the corresponding "A" and "B" component feed containers.

   **Versions with filling funnels (Chap. 3, Pos. 3):**
   • Close the ball valves (Chap. 3, Pos. 3.1).
   • Fill the "A" and "B" components separately into the corresponding funnels.

   **Versions with feed pumps (Chap. 3, Pos. 7):**
   • Place the suction hoses for the A and B feed pumps into the corresponding "A" and "B" component feed containers.

   **Versions with flush pumps (Chap. 3, Pos. 6)**
   • Place the suction hose into the solvent container "C".

4. Beginning to work
   Observe and follow the instructions found in Chapter 5.1.
Maintenance / Repair
Checks

According to the rules for the prevention of accidents „Working with liquid jet systems“ BGV D15 the equipment must be checked and overhauled at regular intervals by a specialist (WIWA Customer Service).

The equipment must be checked:

■ before the first start-up,
■ after changes and repairs of equipment parts having an effect on safety,
■ after an interruption of operation of more than 6 months,
■ however at least every 12 months.

For equipment, which has been taken out of operation, the check can be postponed up to the next start-up.

The results of the checks must be recorded in writing and kept until the next check. A certificate showing that the checks were made (or a copy of it) must be available at the place where the equipment is used.
Before each start-up, check the level of the lubricant and, if necessary, refill the lubrication chamber.

Check lubricant once every 50 operating hours for discoloration due to mixing with one or both material components.

If slightly discolored:
Change the lubricant. By draining a small amount, the degree of discoloration can be controlled. Once finished, refill an equal amount of clean lubricant to that which was drained.

If heavily discolored and a large amount of spraying material is present:
Clean the lubricant chamber, change the upper pump packing(s) (see list of spare parts for material pump) and fill with new lubricant. We recommend using WIWA flushing agent, Order No.: 0163333.

Flush the high-pressure filters whenever the coatings material is changed or at latest once per week (see Chapter 7.3).

Further maintenance instructions for the individual system components are found in the corresponding attachments to the spare parts lists.

Filling and draining lubrication fluid (Picture 7.2.1)
The total filling volume of each material pump lubrication chamber is approx. 100 ml (4.8 oz).
Cut off the inbound air supply and depressurize the system before beginning any maintenance on the high-pressure filters.

Clean the high-pressure filter inserts whenever the coatings material is changed or at latest once per day.

Changing and cleaning the filter inserts and o-rings

- Complete all steps found in Chapter 6 "Shutting down".
- Push the lever (frame-mounted mixing block: Picture 7.3.1, Pos. 8.1.2 / external mixing block Picture 7.3.2, Pos. 8.2.2) to "STOP-FLUSH".
- Versions with external mixing blocks (Pos. 8.2)
  - Push the lever (Picture 7.3.2, Pos. 8.2.1) to the "OFF" position.
- Press the lever (Picture 7.3.1, Pos. 8.1.1) to the position "ON" (drain/circulation on) to ensure that the unit is depressurized.
- Using the peg key, unscrew the cap on top of the high-pressure filters.
- Loosen and remove the nuts from the filter inserts.
- Clean the filter inserts with solvent.
- Use the solvent recommended by the materials manufacturer. Replace the filter inserts with new ones if they show any sign of damage.
- Slide the filter inserts back over the bolts in the filter housing and tighten them down with the corresponding nuts.
- If the o-rings no longer hold their seal, exchange them for new ones.

**Note**

For R or RS version high-pressure filters:

Be sure to lightly grease the threadings on the filter housing before screwing the cap back on. This will avoid galling.
Oil and/or anti-freeze

- Check the amount of oil being added to the air entering the air motor located in the receptacle found in the air maintenance unit. Refill if necessary.
- High humidity can lead to icing of the air motor.
- If icing becomes an issue, use anti-freeze only.

Setting the air maintenance unit oiler

- Allow the air motor to slowly cycle at about 4 bar (58 psi).
- Looking at the oiler's sight glass, check whether one drop of oil is added to inbound air every 10 to 15 cycles. If necessary, adjust the drop rate by turning the regulating screw with a screwdriver.
- Check the oil level in the reservoir daily. The air maintenance unit may not be operated without oil. The maximum oil level is marked with a line around the reservoir. To fill the reservoir, remove the filler screw or remove the reservoir and fill directly.

Only use the oil and anti-freeze listed in Chapter 9.1.

Drain condensed water

- The collected condensation will be automatically drained by the drain valve. Place the hose into an empty catch basin.
- Check the reservoirs regularly for contamination and clean as necessary.

Check Filter once a week from Suction System and if necessary clean or replace. The Filter Element in the Return Line on the Hardener Component Drum should be dried in an oven (4 hrs. at 120°F) after each 250 gallons of Hardener.
## Malfunctions and troubleshooting

<table>
<thead>
<tr>
<th>Faults</th>
<th>Probable Causes</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Feed pumps operate continously.</td>
<td>- The feed container is empty.</td>
<td>- Exchange or refill fluid container</td>
</tr>
<tr>
<td></td>
<td>- The ball valve is closed.</td>
<td>- Repair ball valve</td>
</tr>
<tr>
<td></td>
<td>- The suction hose is defect ✗ the pump is sucking air.</td>
<td>- Repair suction hose</td>
</tr>
<tr>
<td></td>
<td>- The feed pump(s) is(are) defect.</td>
<td></td>
</tr>
<tr>
<td>2. Feed pumps do not deliver material to the proportioning unit.</td>
<td>- Ball valve at the material inlet is closed.</td>
<td>- Open ball valve</td>
</tr>
<tr>
<td></td>
<td>- Dirt collector(s) at the material inlet of the proportioning unit's material pumps is(are) clogged.</td>
<td>- Clean dirt collector(s)</td>
</tr>
<tr>
<td>3. When the proportioning pump is on the downstroke, the hardener pump does not build up pressure.</td>
<td>Bottom valve of the hardener pump is defective.</td>
<td>- Remove and clean the bottom valve.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Replace defective ball or valve plate</td>
</tr>
<tr>
<td>4. When the proportioning pump is on the upstroke, the hardener pump does not build up pressure.</td>
<td>The hardener pump piston valve is leaking.</td>
<td>- Remove the piston valve and clean it thoroughly.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Replace the ball or valve plate if defective.</td>
</tr>
<tr>
<td>5. The hardener pump does not build up pressure when cycling up and down.</td>
<td>- No material is delivered to the hardener pump.</td>
<td>- Check material supply</td>
</tr>
<tr>
<td></td>
<td>- Rupture disc at the high pressure filter is defect.</td>
<td>- Check the rupture disc</td>
</tr>
<tr>
<td></td>
<td>- Drain valve of the hardener is leaking.</td>
<td>- Check function and seal of the the hardener pump drain valve.</td>
</tr>
<tr>
<td></td>
<td>- Ball valve at the material inlet is closed.</td>
<td>- Open ball valve</td>
</tr>
<tr>
<td>6. Pressure of hardener and base is considerably higher on the upstroke than it is on the downstroke, or there is a slow increase in pressure of both components.</td>
<td>One of the piston valves of the base material pumps does not work.</td>
<td>- Check and clean both piston valves</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Replace defective balls and valve plates.</td>
</tr>
<tr>
<td>7. Base pumps do not build up pressure on the upstroke. Pressure on the hardener side is very high.</td>
<td>Piston valves of both base material pumps are faulty.</td>
<td>- Check and clean both piston valves</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Replace defective balls and valve plates.</td>
</tr>
</tbody>
</table>
## Malfunctions and troubleshooting

<table>
<thead>
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</tr>
</thead>
</table>
| 8.     | Pressure of hardener and base is considerably higher on the upstroke than on the downstroke. Feed hose bloats or the feed pump's outbound safety valve opens and material is retuned to the feed container through the return hose. | One of the bottom valves of the base material pumps is defective. | - Check and clean both bottom valves.  
- Replace defective balls and valve plates. |
| 9.     | No pressure is built up on the base side when cycling up and down. Pressure on the hardener side is very high. | - No material is delivered to the base material pumps  
- Rupture disk is defect. | - Check material supply  
- Check rupture disk for the base component |
| 10.    | When circulating/drain ing, the pressure on the base side remains (does not go down). | - Lever (Pos. 8.1.1/8.2.1) is leaking  
- Lever (Pos. 8.1.2/8.2.2) is closed | - Check lever for seal and function  
- Push lever to open position |
| 11.    | When circulating/drain ing, the pressure on the hardener side remains (does not go down). The base component pressure drops. | - Lever (Pos. 8.1.1/8.2.1) is not open  
- Circulation hoses are clogged.  
- High-pressure filter insert is dirty and clogged. | - Check lever.  
- Check circulation hoses.  
- Clean high-pressure filter. |
| 12.    | When spraying, pressure of base increases continuously compared to the pressure on the hardener component. | - High-pressure filter insert of base is becoming clogged.  
- Packings of hardener pump are starting to leak. | - Clean filter insert or replace it with larger mesh size.  
- Repair hardener pump. |
| 13.    | When spraying, pressure of hardener increases continuously compared to the pressure of the base pump. | - High-pressure filter insert of hardener is becoming clogged.  
- Packings of hardener pump are starting to leak. | - Clean filter insert or replace it with larger mesh size.  
- Repair hardener pump. |
| 14.    | When spraying, there is not sufficient pressure or paint at the gun, although the operating pressure of the pump is high. | - Filter inserts are clogged  
- Mixing block, static mixer, paint hose or spray gun are clogged.  
- Tip is clogged. | - Clean filter insert or replace it with larger mesh size.  
- Clean mixing block and replace static mixer, paint hoses or gun if necessary  
- Replace tip |
## Malfunctions and troubleshooting

<table>
<thead>
<tr>
<th>Faults</th>
<th>Probable Causes</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>15. When spraying, the air motor runs irregularly. The contact pressure gauges and inbound air pressure gauge show a drop in pressure.</td>
<td>- The inbound air supply is insufficient. - Diameter of inbound air hose is too small. - Air supply pressure is too low. - The air maintenance unit pressure setting is the same as available pressure of the air supply system.</td>
<td>- Close the spray gun and allow pressure to build. - Enlarge diameter of air supply hose. - Increase air supply pressure. - Lower the pressure setting of the air maintenance unit.</td>
</tr>
<tr>
<td>16. When flushing the mixing block, an increase in pressure on one or both contact pressure gauges is registered, although the unit has been depressurized and the lever for circulation is in the closed position.</td>
<td>- Mixing block non-return valves are not functioning properly.</td>
<td>- Clean mixing block. - Replace defective balls, valve seats or tension springs.</td>
</tr>
<tr>
<td>17. When switching from „SPRAY“ to „STOP-FLUSH“, the flush pump does not operate.</td>
<td>- The flush pump is defective. - The lever (8.1.2 / 8.2.2) on the mixing block does not open.</td>
<td>- Check whether the flush pump is ready for operation. - Check lever (8.1.2 / 8.2.2) and exchange if necessary. - Perform a function test of the flush pump by removing the feed line to the lever (8.1.2 / 8.2.2) and attaching it to a spray gun.</td>
</tr>
<tr>
<td>18. Compressed air leaks from the air motor guide axles.</td>
<td>The gaskets/o-rings in the air motor are worn.</td>
<td>Replace worn gaskets/o-rings.</td>
</tr>
<tr>
<td>19. The air motor does not cycle, although sufficient compressed air is available. There is no material pressure in the system.</td>
<td>The air motor is defective.</td>
<td>The air motor must be repaired by the WIWA Service Center or an authorized distributor.</td>
</tr>
<tr>
<td>20. The unit does not start. The pressure gauge on the air maintenance unit shows that pressure is available.</td>
<td>- The ball valve on the maintenance unit is closed. <strong>Only for units with pressure and metering monitors:</strong> - The pressure supply to the control box is blocked. - The filter pressure regulator in the control box is set wrong.</td>
<td>- Open the ball valve. <strong>Only for units with pressure and metering monitors:</strong> Check the air supply to the control box and set it to 8-10 bar (116-145 psi).</td>
</tr>
<tr>
<td>21. Only for units with pressure and metering monitors: The unit only starts for short periods (only as long as the START button is pushed).</td>
<td><strong>Only for units with pressure and metering monitors:</strong> - The switch MANUAL/AUTOM. is set to „AUTOM.“ - The material pressure on the hardener side is above the red spray pressure control needle.</td>
<td><strong>Only for units with pressure and metering monitors:</strong> - Set the switch to „MANUAL“. - Reduce the material pressure.</td>
</tr>
</tbody>
</table>
## Malfunctions and troubleshooting

<table>
<thead>
<tr>
<th>Faults</th>
<th>Probable Causes</th>
<th>Solution</th>
</tr>
</thead>
</table>
| **22. The contact pressure gauge shows pressure, although the system has been depressurized.** | - The contact pressure gauge is sending the wrong signal.  
- The contact pressure gauge is defective. | - Replace the contact pressure gauge. |
| **23. The black needle of the contact pressure gauge does not move or moves only slightly. When spraying, the needle stays at one pressure reading and does not pulsate.** | - The contact pressure gauge is defective (oil has leaked from the gauges pressure reader). | - Replace the contact pressure gauge. |
| **24. The unit no longer cycles when the switch is set to either „SPRAY“ or „STOP-FLUSH“.** | - The pot life has been exceeded.  
- The mixing block, hoses and spray gun were not flushed properly.  
- Material has hardened | The components with hardened material must be cleaned or replaced. |
| **25. Hardener or base component leaks from the lower housing of the air motor** | - The material pump packings are worn. | Replace the packings and seals of the material pumps. |
| **26. A fluid heater does not operate** | - The supply of electricity has been cut off.  
- The ambient temperature is under 5-8°C (41-46°F).  
- The fluid heater has a technical defect. | - Observe and follow the separate User’s Handbook for the fluid heater.  
- Check the supply of electricity.  
- Press the overload protection button until the glow lamp remains lit.  
- Allow the fluid heater to be checked by a qualified electrical technician. |
Appendix

Auxiliary items / special tools 9

9.1 Auxiliary items

Pneumatic oil for air maintenance units
Our factory uses Pneumatic Oil Mobilarma 524.
WIWA Order No. 0632579 (0.5 liters/16 fl.oz.)

Anti-freeze for air maintenance units
For optimal protection we recommend WIWA anti-freeze.
WIWA Order No. 0631387.

Lubricating fluid
We recommend using WIWA lubricating fluid.
WIWA Order No. 0163333

Required for maintenance and/or repairs:
• Thread sealant (50 ml/6.8 fl.oz), WIWA Order No. 000015
• Grease (acid-free), WIWA Order No. 000025

9.2 Special tools

Warning
Peg key for opening the caps on the high-pressure filters
The high-pressure filters may only be opened when the entire system has been depressurized!

Warning
Key for opening the control box
Only open if repairs are necessary!
(available option with the pressure and metering monitor)

Warning
Key for setting the spray and stall pressures on the contact pressure gauge
(available option with the pressure and metering monitor)
Appendix
Certificate of Training  9

This certificate corresponds to the EU guideline for working substances 85/655/EWG, Paragraph II, Article 7.

The owner of the following machine has trained the operating personnel.

.......................................................... ..........................................................
(Make, Model, Year of Construction, Order Number)

The training was conducted by the following designated person:

..........................................................
(Foreman or responsible Superior, Name, Department)

The persons trained have read and understood the User's Handbook for the above mentioned equipment, especially the chapter "Safety", and are certain that they can operate this machine safely.

..........................................................
(Operating Personnel, Date, Name)

..........................................................
(Personnel for Maintenance and Repair, Date, Name)

..........................................................
(Personnel Electric/ Electronics, Date, Name)
This User’s Handbook is valid only in connection with the following machine card:

The machine card includes all machine specifications and details which are important and relevant for safety:
• exact designation and manufacturing data
• technical specification and limit values
• equipment and checking certificate
• details and order numbers for spare parts
• machine features (machine components and accessories supplied with spare parts number)

Please pay attention that the machine card specification is in accordance with the nameplate. In case of any deviations or if the nameplate is missing, we would ask you to advise us without delay.
MACHINE CARD FOR WIWA DUOMIX 230

Manufacturer: WIWA Wilhelm Wagner GmbH & Co. KG
35633 Lahnau 1

Distributor: WIWA Wilhelm Wagner LP
3734A Cook Blvd.
Chesapeake, VA 23323
Telephone: 866-661-2139

Description: Duomix 333 2K Plural Component Machine
Mix Ratio: 2:1
Manufacturer Serial No.
Production Year: 2007
Customer: CSI
Delivery Date: Feb. 2009

Working Pressure (max., in psi) 4640
Pressure Ratio: 40:1
Air Inlet Pressure (max., in psi) 116
Output per cycle (fl.oz.): 4.88

Machine Specifications:

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<tr>
<th>Part No.</th>
<th>Description</th>
<th>Spare Parts Reference Number</th>
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<tr>
<td>0634222A</td>
<td>Proportioning Unit -N- consisting of:</td>
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<tr>
<td>0643220</td>
<td>Air Motor 230/75, Serial No. 08900236</td>
<td>0643220</td>
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<tr>
<td>0413224</td>
<td>Safety Valve 8.0 bar/116 psi</td>
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<tr>
<td>0643211</td>
<td>Cart</td>
<td>0643211</td>
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<tr>
<td>0648369</td>
<td>Air Maintenance Unit</td>
<td>0643206</td>
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<tr>
<td>0643203</td>
<td>Dual High Pressure Filter</td>
<td>0643203</td>
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<tr>
<td>0644776</td>
<td>Proportioning Unit consisting of:</td>
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</tr>
<tr>
<td>0644776</td>
<td>Material Pump for Component A, 48.1/75, x2 Serial Numbers 18000103, 18000065</td>
<td>0644776</td>
</tr>
<tr>
<td>0644776</td>
<td>Material Pump for Component B, 48.1/75, x1 Serial Number 18000148 (ALL TEFLON PACKINGS)</td>
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<tr>
<td>0644597</td>
<td>External Manual Mixer</td>
<td>0644597</td>
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<tr>
<td>0646897</td>
<td>Flush Pump, 27.32 RS consisting of:</td>
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<tr>
<td>0644195</td>
<td>Air Motor 85/75</td>
<td>0644195</td>
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<tr>
<td>0644198</td>
<td>Material Pump 27/75 RS</td>
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<td>Air Pressure Regulator</td>
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<td>Suction Manifold</td>
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<td>0643209</td>
<td>Suction Screw Fitting</td>
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<td>0633468</td>
<td>Outlet Elbow</td>
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<td>0650363</td>
<td>Outlet Manifold</td>
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<td>0643515</td>
<td>Dirt Collector, Mounting Kit</td>
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<tr>
<td>0163333</td>
<td>Bottle, Lubricating Fluid</td>
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2/3/09
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<th>Description</th>
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<td>0632579</td>
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<tr>
<td>0640651</td>
<td>Bottle, Lubricating Fluid, Red</td>
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</table>
Alle beweglichen Teile einfetten!
Grease slightly over all movable parts!
Enduire une légère couche de graisse sur tous les parts marchants!
<table>
<thead>
<tr>
<th>Pos. Code</th>
<th>Bestell-Nr.</th>
<th>Order-No.</th>
<th>Référence</th>
<th>Stück / Pièce</th>
<th>Artikelbezeichnung</th>
<th>Part Description</th>
<th>Désignation des articles</th>
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<td>couvercle</td>
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<td>tôle perforée</td>
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<td>silencieux</td>
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<td>écrou à capuchon</td>
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<td>toggle</td>
<td>bascule</td>
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<td>plateau piston</td>
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<td>29. 0460613 4</td>
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## Luftmotor • Air Motor • Moteur pneumatique

### Bestell-Nr. • Order-No. • Référence: 0643220

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<tr>
<th>Pos. Code (Forts.)</th>
<th>Bestell-Nr. Order-No. Référence</th>
<th>Stück Pieces Pièce</th>
<th>Artikelbezeichnung Part Déscription Désignation des articles</th>
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<td>0643731</td>
<td>R Dichtungssatz seal kit</td>
<td>R</td>
<td>jeu de joints</td>
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<tr>
<td>0643732</td>
<td>Reparatursatz repair kit</td>
<td>R</td>
<td>jeu de réparation</td>
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<td></td>
<td>ohne Abbildung für Mischungsverhältnis 1:1</td>
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<td>sans illustration pour proportion de mélange 1:1</td>
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<td>vis</td>
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<td>0460613</td>
<td>U-Scheibe washer</td>
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<tr>
<td>0643251</td>
<td>Abdeckung covering</td>
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<td>couverture</td>
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</table>

1V = Verschleißteile • Wear parts • Pièces d’usure usuelles  
2D = Teile des Dichtungssatzes • Parts of seal kit • Pièces de kit de joints  
3R = Teile des Reparatursatzes • Parts of repair kit • Pièces de kit de réparation  
3G = Teile des Reparatursatzes, groß • Parts of repair kit, big • Pièces de kit de réparation grand  
3K = Teile des Reparatursatzes, klein • Parts of repair kit, small • Pièces de kit de réparation, petit

### Sicherungsmittel / Thread sealant / produit d'étanchéité

<table>
<thead>
<tr>
<th>Symbol / Symbol / Symbole</th>
<th>Beschreibung / Description / Description</th>
<th>Artikel / Bestell-Nr. Artikel / Order-No. L’Article / Référence</th>
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<tbody>
<tr>
<td>schwach / light / léger</td>
<td>222 / 0000016</td>
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<tr>
<td>mittel / medium / medium</td>
<td>243 / 0000015</td>
<td></td>
<td></td>
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<tr>
<td>hochfest / high-strength</td>
<td>480 / 0000017</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hochfest für CrNi-Teile</td>
<td>601 / 0000014</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hochfest für CrNi-Teile</td>
<td>2701 / 0000001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hochfest für CrNi-Teile</td>
<td>225 / 0000017</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hochfest für CrNi-Teile</td>
<td>754 / 0000018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hochfest für CrNi-Teile</td>
<td>770 / 0000010</td>
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### Schmiermittel / Lubrication grease / Matière graisse

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<tr>
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<th>Artikel / Bestell-Nr. Artikel / Order-No. L’Article / Référence</th>
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<tr>
<td>Fetts, säurefrei / acid-free / sans acide</td>
<td>0000025</td>
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<tr>
<td>Spülmittel / lubricating fluid / produit de nettoyage</td>
<td>0163333</td>
<td></td>
<td></td>
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<tr>
<td>Montagepaste (für R- und RS-Ausführung) / assembly paste (for version R or RS) / pâte d’assemblage de version R et RS</td>
<td>0000045</td>
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<th>Stück / Pos. Code</th>
<th>Artikelbezeichnung</th>
<th>Part Description</th>
<th>Désignation des articles</th>
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<td>1.</td>
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<td>Gestell</td>
<td>frame</td>
<td>châssis</td>
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<tr>
<td>2.</td>
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<td>1</td>
<td>Halter</td>
<td>holder</td>
<td>porte-outil</td>
</tr>
<tr>
<td>3.</td>
<td>0617997</td>
<td>2</td>
<td>Schraube</td>
<td>screw</td>
<td>vis</td>
</tr>
<tr>
<td>4.</td>
<td>0460613</td>
<td>2</td>
<td>U-Scheibe</td>
<td>washer</td>
<td>rondelle</td>
</tr>
<tr>
<td>5.</td>
<td>0460648</td>
<td>2</td>
<td>Mutter</td>
<td>nut</td>
<td>écrou</td>
</tr>
<tr>
<td>6.</td>
<td>0634113</td>
<td>2</td>
<td>Rad</td>
<td>wheel</td>
<td>roue</td>
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<tr>
<td>7.</td>
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<td>holder</td>
<td>porte-outil</td>
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<td>screw</td>
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<tr>
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<td>Mutter</td>
<td>nut</td>
<td>écrou</td>
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<tr>
<td>11.</td>
<td>0460877</td>
<td>2</td>
<td>U-Scheibe</td>
<td>washer</td>
<td>rondelle</td>
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<tr>
<td>12.</td>
<td>0461350</td>
<td>2</td>
<td>Splint</td>
<td>split pin</td>
<td>goupille</td>
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<td></td>
<td>0510548</td>
<td>2</td>
<td>ohne Abbildung</td>
<td>not illustrated</td>
<td>sans illustration</td>
</tr>
<tr>
<td></td>
<td>0632287</td>
<td>2</td>
<td>Kunststoffflasche</td>
<td>plastic bottle</td>
<td>flacon en matière plastique</td>
</tr>
</tbody>
</table>

**Sicherungsmittel 50ml** - Thread sealant 50ml - produit d'étanchéité 50ml

- schwach + light + léger: Best.-Nr.: 0000016
- mittel + medium + medium: Best.-Nr.: 0000015
- hochfest + high-strength + haute résistance: Best.-Nr.: 0000014

**Schmiermittel** - Lubrication grease - Matière graisse

- Fett, säurefrei + acid free + sans acide: Best.-Nr.: 0000025
- Spülmittel + lubricating fluid + produit de nettoyage: Best.-Nr.: 0163333
- Montagepaste (für R- und RS-Ausführung) + assembly paste (for version R or RS) + pâte d’assemblage (de version R et RS): Best.-Nr.: 0000045

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### Air Maintenance Unit cpl. • Unité d’entretien DuoMix 230

**Bestell-Nr. • Order-No. • Référence:** 0648369  
**Serie • Series • Série:** 000  
**Akt.: 21.02.06**

<table>
<thead>
<tr>
<th>Pos. Code</th>
<th>Bestell-Nr.</th>
<th>Stück / D1 / D2</th>
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<th>Part Description</th>
<th>Désignation des articles</th>
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<tbody>
<tr>
<td>1.</td>
<td>0646942</td>
<td>0,3m</td>
<td>Druckluftschläuch</td>
<td>compressed air hose</td>
<td>flexible à l’air comprimé</td>
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<tr>
<td>2.</td>
<td>0646944</td>
<td>2</td>
<td>Schlauchklemme</td>
<td>hose clip</td>
<td>pince pour tuyaux souples</td>
</tr>
<tr>
<td>3.</td>
<td>0648368</td>
<td>1</td>
<td>Schlauchfüll</td>
<td>stern</td>
<td>embout à olive</td>
</tr>
<tr>
<td>4.</td>
<td>0411949</td>
<td>1</td>
<td>Winkel</td>
<td>elbow</td>
<td>coude</td>
</tr>
<tr>
<td>5.</td>
<td>0411701</td>
<td>1</td>
<td>Reduziernippel</td>
<td>reducing nipple</td>
<td>raccord de réduction</td>
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<tr>
<td>6.</td>
<td>0648417</td>
<td>1</td>
<td>Verschraubung</td>
<td>screw fitting</td>
<td>vissage</td>
</tr>
<tr>
<td>7.</td>
<td>0643925</td>
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<td>Druckluftschläuch</td>
<td>compressed air hose</td>
<td>flexible à l’air comprimé</td>
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<td>0411965</td>
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<td>Kupplung</td>
<td>coupling</td>
<td>accouplement</td>
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<tr>
<td>9.</td>
<td>0411949</td>
<td>1</td>
<td>Winkel</td>
<td>elbow</td>
<td>coude</td>
</tr>
<tr>
<td>10.</td>
<td>0621749</td>
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<td>T-Stück</td>
<td>T-piece</td>
<td>pièce en T</td>
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<td>0621730</td>
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<td>Langnippel</td>
<td>extension nipple</td>
<td>nipple longue</td>
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<td>0468622</td>
<td>1</td>
<td>Kugelhahn</td>
<td>ball valve</td>
<td>vanne</td>
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<tr>
<td>13.</td>
<td>0648094</td>
<td>1</td>
<td>Doppelnippel</td>
<td>male adaptor</td>
<td>raccord double mâle</td>
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<tr>
<td>14.</td>
<td>0647298</td>
<td>1</td>
<td>Wartungseinheit</td>
<td>air maintenance unit</td>
<td>unité d’entretien</td>
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<tr>
<td>15.</td>
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<td>16.</td>
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<td>coude</td>
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<td>17.</td>
<td>0647270</td>
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<td>Pneumatikventil</td>
<td>pneumatic valve</td>
<td>soupape pneumatique</td>
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<tr>
<td>18.</td>
<td>0412621</td>
<td>1</td>
<td>Steckverschraubung</td>
<td>plug-type fitting</td>
<td>vissage à fiche</td>
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<tr>
<td>19.</td>
<td>0630467</td>
<td>1</td>
<td>Rohrverschraubung</td>
<td>pipe fitting</td>
<td>raccord vissé</td>
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<td>20.</td>
<td>0413623</td>
<td>1</td>
<td>Reduziernippel</td>
<td>reducing nipple</td>
<td>raccord de réduction</td>
</tr>
</tbody>
</table>

---

**Diagram:**

The diagram shows the components of the Air Maintenance Unit, including various fittings and hoses. Each component is labeled with its function and code.

---

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## Doppelhochdruckfilter • Dual High Pressure Filter • Filtre double à haute pression

**Bestell-Nr. • Order-No. • Référence:** 0643203  
**Serie • Serie • Série:** 002  
**Akt.: 03.03.06**

### Pos. Code / Plaques d'assemblage / Code de pièce

<table>
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<tr>
<th>Pos. Code</th>
<th>Bestell-Nr. / Order-No. / Référence</th>
<th>Stück / Pièce</th>
<th>V¹ / D² / R³</th>
<th>Artikelbezeichnung / Part Description / Désignation des articles</th>
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<td>2. 0615870</td>
<td>2 Nippel / nipple / raccord</td>
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<tr>
<td>3. 0643218</td>
<td>2 Filtereinsatz / filter insert (see table) / tamis (voir tableau)</td>
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<tr>
<td>4. 0485977</td>
<td>2 Mutter / nut / écrou</td>
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<tr>
<td>5. 0643216</td>
<td>2 Kappe / cap / chapeau</td>
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<tr>
<td>6. 0218375</td>
<td>2 O-Ring / o-ring / joint torique</td>
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<tr>
<td>7. 0643216</td>
<td>2 Mutter / nut / écrou</td>
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<tr>
<td>8. 0414719</td>
<td>1 Stiftschüssel / spanner / clef</td>
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<tr>
<td>9. 0646865</td>
<td>1 Schaltgriff / handle grip / manette de changement</td>
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<tr>
<td>10. 0630577</td>
<td>2 Manometer / gauge / manomètre</td>
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<td>11. 0647662</td>
<td>1 Verbindungsstück / connection piece / pièce de jonction</td>
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<td>13. 0647137</td>
<td>2 V Kugelhahn, beinhaltet ball valve, includes vanne, inclus</td>
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<td>15. 0214396</td>
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<td>8 U-Scheibe / washer / rondelle</td>
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<td>17. 0460206</td>
<td>4 Schraube / screw / vis</td>
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<td>18. 0632420</td>
<td>2 Filterhalterung / filter support / support de filtre</td>
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<td>19. 0632421</td>
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<td>20. 0643217</td>
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<td>21. 0460230</td>
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<td>22. 0460567</td>
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<tr>
<td>23. 0631578</td>
<td>2 Berstscheibe / safety rupture device / dispositif de plaque de rupture</td>
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<td>23.1 0630783</td>
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<td>25. 0643213</td>
<td>1 Gehäuse, rechts / housing / carcase</td>
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<td>2 Gehäuse, links / housing / carcase</td>
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<tr>
<td>27. 0648098</td>
<td>2 Rückschlagventil / non-return valve / soupape de non-retour</td>
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</table>

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  E-mail: info@wiwa.de • Internet: www.wiwa.de  
  E-mail: s_nelsen@wiwa.com • Internet: www.wiwa.com

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Materialpumpe • Material Pump • Section fluid

Bestell-Nr. • Order-No. • Référence: 0644776

Serie • Series • Série: 002
Akt.: 14.06.06

Materialpumpe • Material Pump • Section fluid

Bestell-Nr. • Order-No. • Référence: 0644776

Serie • Series • Série: 002
Akt.: 14.06.06

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Materialpumpe • Material Pump • Section fluid

Bestell-Nr. • Order-No. • Référence: 0644776

Serie • Series • Série: 002
Akt.: 14.06.06

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Tel.: 1.866.661.2139 • Fax: 1.757.436.2103
E-mail: s_nelsen@wiwa.com • Internet: www.wiwa.com
### Materialpumpe • Material Pump • Section fluid

**Bestell-Nr. • Order-No. • Référence:** 0644776  
**Serie • Serie • Série:** 002  
**Akt.: 14.06.06**

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<th>Bestell-Nr.</th>
<th>Stück Code</th>
<th>Artikelbezeichnung</th>
<th>Part Description</th>
<th>Désignation des articles</th>
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<td>tension</td>
<td>goupille</td>
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<tr>
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<td>o-ring</td>
<td>joint torique</td>
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<tr>
<td>4. 0643247</td>
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<td>Hochdruckkopf</td>
<td>high pressure head</td>
<td>tête à haute pression</td>
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<tr>
<td>5. 0643249</td>
<td>1</td>
<td>Anzugring</td>
<td>connecting ring</td>
<td>bague de montage</td>
<td></td>
</tr>
<tr>
<td>6. 0643259</td>
<td>1</td>
<td>Sattelring</td>
<td>saddle ring</td>
<td>bague de retenue</td>
<td></td>
</tr>
<tr>
<td>7. 0643262</td>
<td>1</td>
<td>V, R</td>
<td>Manschettensatz gemischt</td>
<td>packing ring set</td>
<td>jeu de joints</td>
</tr>
<tr>
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**Sicherungsmittel 50ml • Thread sealant 50ml • produit d’étanchéité 50ml**

- schwach • light • léger  
- mittel • medium • moyen  
- hochfest • high-strength • haute résistance  
- Schmiermittel • Lubrication grease • Matière graisse  
- Fett, säurefrei • acid-free • sans acide  
- Spülmittel • lubricating fluid • produit de nettoyage  
- Montagepaste (für R- und RS-Ausführung) • assembly paste (for version R or RS) • pâte d’assemblage (de version R et RS)

*V= Verschleißteile • Wear parts • Pièces d’usure usuelles  
*D= Teile des Dichtungssatzes • Parts of seal kit • Pièces de kit de joints  
*R= Teile des Reparatursatzes • Parts of repair kit • Pièces de kit de réparation  

* Pos. Nr. in Klammern () sind keine Betandteile dieser Baugruppe  
* Items markedthus () are not part of assembly shown  
* Les pièces entre paranthéses ne font pas partie du sous-groupe

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Tel.: +1.866.661.2139 • Fax: +1.757.436.2103  
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### Sicherungsmittel (50ml) - Thread sealant 50ml - produit d'étanchéité 50ml

- schwach • light • léger
- mittel • medium • medium
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- Schmierrmittel • Lubrication grease • Matière graisse
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### Pos. Nr. in Klammern (i) sind keine Betandteile dieser Baugruppe

- Items markedthus (i) are not part of assembly shown
- Les pièces entre parenthèses ne font pas partie de cette sous-groupe

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Materialpumpe • Material Pump • Section fluid

Bestell-Nr. • Order-No. • Référence: 0644776
Serie • Series • Série: 002 Akt.: 14.06.06
Mischeinheit, handbetätigt, kpl. • Manual Mixing Unit, cpl.

Bestell-Nr. • Order-No. • Référence: **0644597**
Serie • Serie ~ Série: **001**
Akt.: **05.07.06**

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### Manual Mixing Unit, cpl.

**Bestell-Nr. • Order-No. • Référence:** 0644597  
**Serie • Serie • Série:** 001  
**Akt.: 05.07.06**

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**ohne Abbildung**  
**Dichtung (ø28xø22,2x3,5)**  
**Dichtungssatz**  
**Reparatursatz**
Mischeinheit, handbetätigt, kpl. • Manual Mixing Unit, cpl.

Bestell-Nr. • Order-No. • Référence: 0644597

Serie • Serie • Série: 001

Akt.: 05.07.06

1V= Verschleißteile • Wear parts • Pièces d’usure usuelles
2D= Teile des Dichtungssatzes • Parts of seal kit • Pièces de kit de joints
3R= Teile des Reparatursatzes • Parts of repair kit • Pièces de kit de réparation
3RG= Teile des Reparatursatzes, groß • Parts of repair kit, big • Pièces de kit de réparation grand
3RK= Teile des Reparatursatzes, klein • Parts of repair kit, small • Pièces de kit de réparation, petit

Sicherungsmittel / Thread sealant / produit d'étanchéité

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<tr>
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<td>hochfest / high-strength / hauteistance (50 ml)</td>
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Schmiermittel / Lubrication grease / Matière graisse

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Operation Manual: WIWA External Manual Mixing Block

Manual External Mixing Block
incl. Individual Flushing Arrangement

Part No.: 0644597
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• Technical Specifications 9

Please note, this Operation Manual only refers to the function of the External Manual Mixing Block described herein. The same safety and operational guidelines apply as found in the User’s Handbook covering WIWA DUOMIX Plural Component Equipment. If the operator does not have a copy of the User’s Handbook, this equipment may not be used until the Handbook is available and has been read and understood by the operator.
## Component Description

### Signs located on the mixing block

<table>
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<th>Location</th>
<th>Purpose</th>
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<tr>
<td>This sign is mounted on the mixing block itself.</td>
<td>The sign refers to the SPRAY LEVER and shows the direction the lever has to be moved to open (ON) or close (OFF) the two inbound base/hardener ball valves. Please note, the ON and OFF positions are opposite those of the other signs!</td>
</tr>
<tr>
<td>This sign is located on the left side of the mounting plate, next to the FLUSH A BALL VALVE.</td>
<td>The sign refers to the FLUSH A BALL VALVE and shows the direction the lever has to be moved to open (ON) or close (OFF) the ball valve.</td>
</tr>
<tr>
<td>This sign is located on the right side of the mounting plate, next to the FLUSH B BALL VALVE.</td>
<td>The sign refers to the FLUSH B BALL VALVE and shows the direction the lever has to be moved to open (ON) or close (OFF) the ball valve.</td>
</tr>
<tr>
<td>This sign is located on the left side of the mounting plate, next to the CIRCULATION / DRAIN LEVER.</td>
<td>The sign refers to the CIRCULATION / DRAIN LEVER and shows the direction the lever has to be moved to open (ON) or close (OFF) the two return ball valves.</td>
</tr>
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Component Description

Ball valve and mixing block description

<table>
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<th>Operation</th>
<th>Purpose</th>
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<tr>
<td>The two inbound ball valves under the FLUSH A &amp; B BALL VALVES are opened and closed by way of the SPRAY LEVER.</td>
<td>These two inbound ball valves allow base (left) and hardener (right) to flow into the mixing block.</td>
</tr>
<tr>
<td>The FLUSH A &amp; B BALL VALVES are located above the inbound base and hardener ball valves and can be opened and closed by way of the levers mounted on the sides.</td>
<td>These two valves enable solvent to flush the base (A) and hardener (B) check valves individually. They can both be turned on at the same time when flushing the mixing block, hose and gun.</td>
</tr>
<tr>
<td>The circulation / drain ball valves are opened and closed by way of the CIRCULATION / DRAIN LEVER.</td>
<td>These valves reroute inbound base (A) and hardener (B) components to allow them to flow back to the feed containers.</td>
</tr>
<tr>
<td>The two inbound base and hardener connections, as well as the two flush lines are connected directly to the mixing block.</td>
<td>The primary purpose of the mixing block is to pre-mix paint before it goes through the static mixer (connected outbound from the mixing block).</td>
</tr>
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</table>
Operation

Never!

During operation, the SPRAY LEVER and CIRCULATION / DRAIN LEVER should **never** come into contact. This position would result in opening both the spray valves and the circulation valves, leading to improper mixing results and coating failure!!

During operation, the SPRAY LEVER and the FLUSH A and/or B BALL VALVES should **never** be opened (ON) at the same time. This would result in solvent being added to the mixed paint, leading to improper mixing results and coating failure!!

Initial Start-Up

When first starting up a WIWA DUOMIX Plural Component System, it is recommended to flush the entire unit with solvent, to remove any remaining test medium used for quality control at WIWA’s factory (described in detail in the User’s Handbook for the DUOMIX unit).

To do this, the levers must be positioned as follows:

The SPRAY LEVER is set at the ON position.

The FLUSH A & B LEVERS are in the OFF position.

The CIRCULATION / DRAIN LEVER is set at the OFF position.

After setting up the system for initial flushing as described in the User’s Handbook, solvent will flush the entire system as soon as the spray gun is triggered. This should be done until all test medium has left the system (only pure solvent exits the spray gun).
Operation

Circulation

When first starting a WIWA DUOMIX Plural Component System, it is recommended to circulate the base (A) and hardener (B) components, to ensure that any air pockets in the lines are removed and to allow the components to be brought up to the appropriate spray temperature (if heating is necessary).

To enable the operator to circulate the unit, the levers on the mixing block must be positioned as follows:

With the CIRCULATION / DRAIN LEVER pressed forward, the two return valves are opened. Base and hardener bypass the mixing block and flow back to the feed containers.

The SPRAY LEVER is set at the OFF position.

The FLUSH A & B LEVERS are in the ON position. If the spray gun is triggered during circulation, the solvent pump will start cycling and solvent will be sprayed out of the gun.

Spray

Once the materials have reached the desired spray temperature and all air has been removed from the system, the unit is now ready for spraying.

To do this, the operator must position the levers as follows:

The SPRAY LEVER is set at the ON position.

The FLUSH A & B LEVERS are in the OFF position.

The CIRCULATION / DRAIN LEVER is set at the OFF position.

The mixing block is now fed with base (A) and hardener (B) at the mixing ratio defined by the choice of material pumps for each component. The pre-mixed paint then exits the mixing block and passes through the static mixer.
**Operation**

**Flushing**

If at any time during operation it becomes necessary to flush the parts that come into contact with mixed material (i.e. mixing block, hose, spray gun) then the mixing block valves must be set for flushing. This refers to any breaks in work, maintenance or repairs on the pump or stopping work at the end of the shift.

**Always remember to take into account the pot life of the mixed paint being worked with to avoid any unwanted hardening in the lines and damage to the unit.**

This mixing block enables the operator to flush not only the block, hose and gun, but also the inbound check valves for the base (A) and hardener (B) components. Also, to provide a more thorough flush, these valves can be flushed individually before engaging both solvent lines for complete flushing.

### Base (A) Component Check Valve Flush

- The SPRAY LEVER is set at the OFF position.
- The FLUSH A LEVER is in the ON position.
- The FLUSH A LEVER is in the OFF position.
- The CIRCULATION / DRAIN LEVER is set at the ON position.

In this position, the flow of inbound base and hardener has been stopped. When the gun is triggered, solvent will flow through the base (A) check valve in the mixing block, through the block, static mixer, hose and gun.

WIWA recommends flushing in this position for 5 – 10 seconds for better flushing results.

Please note, pictured at the left the CIRCULATION / DRAIN LEVER is in the ON position. If the operator intends to resume work shortly after flushing, he may want to circulate the base (A) and hardener (B) components to ensure that the required spray temperature is maintained.
Operation

Hardener (B) Component Check Valve Flush

The SPRAY LEVER is set at the OFF position.

The FLUSH A LEVER is in the OFF position.

The FLUSH A LEVER is in the ON position.

The CIRCULATION / DRAIN LEVER is set at the ON position.

In this position, the flow of inbound base and hardener has been stopped. When the gun is triggered, solvent will flow through the hardener (B) check valve in the mixing block, through the block, static mixer, hose and gun.

WIWA recommends flushing in this position for 5 – 10 seconds for better flushing results.

Base (A) and Hardener (B) Flush

The SPRAY LEVER is set at the OFF position.

The FLUSH A LEVER is in the ON position.

The FLUSH A LEVER is in the ON position.

The CIRCULATION / DRAIN LEVER is set at the ON position.

In this position, the flow of inbound base and hardener has been stopped. When the gun is triggered, solvent will flow through both the base (A) and hardener (B) check valves in the mixing block, through the block, static mixer, hose and gun.
Operation / Technical Specifications

Depressurizing / Draining

If during operation it becomes necessary to depressurize the system, this can be done quickly by engaging the CIRCULATION / DRAIN LEVER when inbound air has been cut off to the WIWA DUOMIX pumps and any feed pumps being used. After cutting off the air supply (as described in the User’s Handbooks for the respective components), position the mixing block as follows:

With the CIRCULATION / DRAIN LEVER pressed forward, the two return valves are opened. Remaining material pressure is relieved through the hoses heading back to the feed containers.

The SPRAY LEVER is set at the OFF position.

The FLUSH A & B LEVERS are in the ON position. If the spray gun is triggered during circulation, the solvent pump will start cycling and solvent will be sprayed out of the gun.

Should the operator desire to change coatings or completely flush the system, base (A) and hardener (B) still located within the unit can be saved by draining them back into the respective feed containers. This is accomplished by removing the suction hoses from the feed containers and allowing the pump to circulate (CIRCULATION / DRAIN LEVER positioned as above). The operator must pay attention to the return lines in the feed containers and, once base (A) and hardener (B) stop flowing, the main pump must be shut down. This process is also described in the User’s Handbook for the WIWA DUOMIX.

Technical Specifications

| Connection for inbound solvent hose | 1/4” NPSM |
| Connection for outbound base (A) return hose | 3/8” NPSM |
| Connection for outbound hardener (B) return hose | 1/4” NPSM |
| Connection for inbound base (A) | 3/8” NPSM |
| Connection for inbound hardener (B) | 1/4” NPSM |
| Maximum operating pressure | 6525 psi (450 bar) |
### Luftmotor • Air Motor • Moteur pneumatique:

**Bestell-Nr. • Order-No. • Référence:** 0644195  
**Serie • Serie • Série:** 000  
**Akt.: 12.04**

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**Typ D 85/75 - 02**

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**Note:** Items marked thus () are not part of assembly shown.

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*Les pièces entre paranthéses ne font pas partie du sous-groupe.*
Materialpumpe • Material Pump • Section fluide
HD 27/75 - N
Bestell-Nr. • Order-No. • Référence: 0644198
Serie • Série: 000
Akt.: 21.12.05

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<td>connecting ring</td>
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<td>Hochdruckkopf</td>
<td>pump head</td>
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<td>22.</td>
<td>0644219</td>
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<td>Federgehäuse</td>
<td>spring housing</td>
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<td>23.</td>
<td>0644221</td>
<td>1</td>
<td>Doppelkolben</td>
<td>dual piston</td>
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<td>24.</td>
<td>0483664</td>
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<td>24.1</td>
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<td>tension pin</td>
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<td>24.2</td>
<td>0478806</td>
<td>1</td>
<td>Abstandhülse</td>
<td>spacer sleeve</td>
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*Sicherungsmittel 50ml • Thread sealant 50ml • produit d'étanchéité 50ml

- Schwach • Light • Leger
- Mittel • Medium • Medium
- Hoch • High • Hautesistance
- Fett • Fett • Graisse
- Spülmittel • Lubricating fluid • produit de nettoyage
- Montagepaste für R- und RS-Anführung • Pâte d’assemblage (de version R et RS)

*Items markedthus () are not part of assembly shown
*Les pièces entre paranthéses ne font pas partie du sous-groupe

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E-mail: s_nelsen@wiwa.com • Internet: www.wiwa.com
### Materialpumpe • Material Pump • Section fluide:

**Bestell-Nr. • Order-No. • Référence:** 0644198  
**Serie • Serie • Série:** 000  
**Akt.: 21.12.05**

<table>
<thead>
<tr>
<th>Pos. Code (Forts.)</th>
<th>Bestell-Nr. Order-No. Référence</th>
<th>Stück / Pièce</th>
<th>V¹ / D² / R³</th>
<th>Artikelbezeichnung</th>
<th>Part Description</th>
<th>Désignation des articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>25. 0410187</td>
<td>1 V, R</td>
<td>Kugel</td>
<td>ball</td>
<td>als Sonderausführung erhältlich: Manschetten oben</td>
<td>optionally available</td>
<td>disponible optionalement</td>
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<tr>
<td>26. 0644241</td>
<td>1 D, R</td>
<td>O-Ring</td>
<td>o-ring</td>
<td>Manschette Teflon, schwarz</td>
<td>packing ring teflon, black</td>
<td>joint en teflon, noir</td>
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<tr>
<td>27. 0410527</td>
<td>1 V</td>
<td>Ventilplatte</td>
<td>valve seat</td>
<td>Manschette Leder</td>
<td>packing ring leather</td>
<td>joint cuir</td>
</tr>
<tr>
<td>28. 0210870</td>
<td>1 V</td>
<td>Gewindestopfen</td>
<td>threaded plug</td>
<td>Manschette Teflon, weiss</td>
<td>packing ring teflon, white</td>
<td>joint en teflon, blanc</td>
</tr>
<tr>
<td>29. 0644220</td>
<td>1 V</td>
<td>Druckzylinder</td>
<td>pressure cylinder</td>
<td>Manschette SDM, hellgrün</td>
<td>packing ring SDM, light-green</td>
<td>joint en SDM, vert clair</td>
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<tr>
<td>30. 0641336</td>
<td>1 D, R</td>
<td>O-Ring</td>
<td>o-ring</td>
<td>Manschette PUR, rot</td>
<td>packing ring PUR, red</td>
<td>joint en PUR, rouge</td>
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<td>31. 0410217</td>
<td>1 V</td>
<td>Kugel</td>
<td>ball</td>
<td>als Sonderausführung erhältlich: Manschetten unten</td>
<td>packing ring lower</td>
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<tr>
<td>32. 0644188</td>
<td>1 V</td>
<td>Ventilgehäuse</td>
<td>valve housing</td>
<td>Manschette Teflon, schwarz</td>
<td>packing ring teflon, black</td>
<td>joint en teflon, noir</td>
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<tr>
<td>33. 0218057</td>
<td>1 D, R</td>
<td>Dichtung</td>
<td>gasket</td>
<td>als Sonderausführung erhältlich: Manschette Leder</td>
<td>packing ring teflon, white</td>
<td>joint en teflon, blanc</td>
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<tr>
<td>34. 0644382</td>
<td>1 R</td>
<td>Dichtungssatz (Standard)</td>
<td>seal kit (standard)</td>
<td>Manschette Teflon, natur+SDM</td>
<td>packing ring set, pos. 3</td>
<td>joint en teflon, nature+SDM</td>
</tr>
<tr>
<td>35. 0644383</td>
<td>1 R</td>
<td>Reparatursatz (Standard)</td>
<td>repair kit (standard)</td>
<td>Manschette Teflon, natur+SDM</td>
<td>packing ring set, pos. 3</td>
<td>joint en teflon, nature+SDM</td>
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**Sicherungsmittel 50ml • Thread sealant 50ml • Produit d’étanchéité 50ml**  
| Best.-Nr.: 0000016 | schwach + light + léger |
| Best.-Nr.: 0000015 | mittel + medium + medium |
| Best.-Nr.: 0000014 | hochst + high-strong + haute résistance |
| Best.-Nr.: 0000025 | Fett, sättigt + acid bound + sans acide |
| Best.-Nr.: 0163333 | Spülmittel + lubricating fluid + produit de nettoyage |
| Best.-Nr.: 0000045 | Montagepaste (für R- und RS-Ausführung) |

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E-mail: s_nelsen@wiwa.com • Internet: www.wiwa.com  
Materialpumpe • Material Pump • Section fluide:  
HD 27/75 - N  
Bestell-Nr. • Order-No. • Référence: 0644198  
Serie • Serie • Série: 000  
Akt.: 21.12.05  
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<th>Pos.</th>
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<td>swivel nut</td>
<td>écrou-raccord</td>
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<td>insert</td>
<td>pièce d'insertion</td>
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<td>pipe nipple</td>
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<td>Y-adaptor</td>
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**Key:**

1. V = Verschleißteile • Wear parts • Pièces d'usure usuelles
2. D = Teile des Dichtungssatzes • Parts of seal kit • Pièces de kit de joints
3. R = Teile des Reparatursatzes • Parts of repair kit • Pièces de kit de réparation

**Notes:**
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## Ansaugverschraubung • Suction tube • Vissage:

**Bestell-Nr. • Order-No. • Référence:** 0643209  
**Serie • Série • Série:** 000  
**Akt.: 10.04**

### Table of Parts

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<td>swivel nut</td>
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<td>coude</td>
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<td>male adaptor</td>
<td>raccord double mâle</td>
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</table>

- V = Verschleißteile • Wear parts • Pièces d’usure usuelles
- D = Teile des Dichtungssatzes • Parts of seal kit • Pièces de kit de joints
- R = Teile des Reparatursatzes • Parts of repair kit • Pièces de kit de reparation

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Auslaßwinkel • Suction elbow • Cornière de soupape:

Bestell-Nr. • Order-No. • Référence: 0633468  
Serie • Serie • Série: 000  
Akt.: 04.03

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<td>nipple</td>
<td>raccord</td>
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<tr>
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<td>1</td>
<td>Winkel-Verschraubung</td>
<td>elbow joint</td>
<td>raccord a vis conde</td>
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</table>

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**Auslaßverteiler • Outlet manifold • Distributeur de sortie:**

| Bestell-Nr. • Order-No. • Référence: | 0650363 | Serie • Serie • Série: 000 | Akt.: 13.09.07 |

<table>
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<td>2.</td>
<td>0634085</td>
<td>1</td>
<td>Mat.Schlauch fluid hose flexible de fluide</td>
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<td>3.</td>
<td>0623121</td>
<td>1</td>
<td>T-Stück T-piece pièce en T</td>
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<tr>
<td>4.</td>
<td>0633927</td>
<td>2</td>
<td>Doppelnippel male adaptor raccord double mâle</td>
</tr>
</tbody>
</table>

1\*1= Verschleißteile • Wear parts • Pièces d’usure usuelles

2\*2= Teile des Dichtungssatzes • Parts of seal kit • Pièces de kit de joints

3\*3= Teile des Reparatursatzes • Parts of repair kit • Pièces de kit de réparation

4\*4= Teile des Reparatursatzes, groß • Parts of repair kit, big • Pièces de kit de réparation grand

5\*5= Teile des Reparatursatzes, klein • Parts of repair kit, small • Pièces de kit de réparation, petit

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### Sicherungsmittel / Thread sealant / produit d’étanchéité

<table>
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<td>F</td>
<td>schwach / light / léger (50 ml)</td>
<td>222 / 0000016</td>
</tr>
<tr>
<td>D</td>
<td>mittel / medium / medium (50 ml)</td>
<td>243 / 0000015</td>
</tr>
<tr>
<td>SCHW</td>
<td>mittel, Kunststoff-Stahl / medium, plastic-steel / medium, plastique-acier (20 ml)</td>
<td>486 / 0000107</td>
</tr>
<tr>
<td>G</td>
<td>hochfest / high-strength / haute résistance (50 ml)</td>
<td>601 / 0000014 / 2701 / 0000030</td>
</tr>
<tr>
<td>P</td>
<td>Rohrdichtungspaste / pipe sealant / pâte étanchéité pour tuyaux (50 ml)</td>
<td>225 / 0000017</td>
</tr>
<tr>
<td>L</td>
<td>Aktivator / activator / activateur (50 ml) / Activator für Kunststoffteile / activator for plastic parts / activateur pour pièces de plastique (10 ml)</td>
<td>734 / 0000018 / 770 / 0000108</td>
</tr>
<tr>
<td></td>
<td>Gewindeband / threaded tape / ruban de filetage</td>
<td>/ 0000099</td>
</tr>
</tbody>
</table>

### Schmiermittel / Lubrication grease / Matière graisse

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Beschreibung / Description / Description</th>
<th>Bestell-Nr. / Order-No. / Référence</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Fett, säurefrei / acid-free / sans acide</td>
<td>0000025</td>
</tr>
<tr>
<td>S</td>
<td>Spülmittel / lubricating fluid / produit de nettoyage</td>
<td>0163333</td>
</tr>
<tr>
<td>M</td>
<td>Montagepaste (für R- und RS-Ausführung) / assembly paste (for version R or RS) / pâte d’assemblage de version R et RS</td>
<td>0000045</td>
</tr>
</tbody>
</table>