Geräte- und Anlagentechnik

S.U.M.O.

Spray Gun Washer

Operating Manual and Test Log Book for
Spray Gun Cleaning System S.U.M.O.

– Translation of German Original Document –

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B-TEC
Geräte- und Anlagentechnik

Declaration of Conformity

Manufacturer: B-TEC GmbH
Zunftweg 6-8
31303 Burgdorf
Germany

Herewith, we declare that the machines and marketed models described in the following conform in conception and in design to the relevant fundamental safety and health requirements of the applicable directives. This object of conformity is issued under the sole responsibility of the manufacturer. The object of the declaration is in conformity with the relevant Union harmonisation legislation.
If you modify the machine without our explicit agreement, this declaration will be invalidated.

Product type:	Spray gun cleaning system
Type designation:	**S.U.M.O.**
Serial number:	_____
Date of construction (month/year):	_____

This machine has been designed in accordance with the following regulations:

Machine directive **2006/42/EC**
ATEX directive **2014/34/EU** ATEX description: Ex II 2G Ex h IIB T6 Gb
Registered with: PTB 0102 / R.No.: 05 ATEX D 116

The following harmonised technical standards have been applied:

Safety of machinery:	**DIN EN ISO 12100**
Machines for surface cleaning and pre-treatment of industrial items using liquids or vapours	
- Part 1: Common safety requirements:	**DIN EN 12921-1**
- Part 2: Safety of machines using water based cleaning liquids:	**DIN EN 12921-2**
- Part 3: Safety of machines using flammable cleaning liquids:	**DIN EN 12921-3**
Explosive atmospheres: Non-electrical equipment for explosive atmospheres	
- Part 36: Basic method and requirements:	**EN ISO 80079-36**
- Part 37: Protection constructional safety "c":	**EN ISO 80079-37**
Pneumatic liquid power - General rules and safety requirements for systems and their components:	**DIN EN ISO 4414**

Responsibility for technical documents: Michael Bellroth, Christian Bellroth
Address: Refer to manufacturer's address

Place/Date/Manufacturer's signature: Hannover, 27.11.2024
Job title of signatory: Managing director

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1. Important Information

Thank you for the trust you placed in us by purchasing this B-TEC product. On the machines type plate you find the exact type designation and serial number to ensure good service and shipment of spare parts. The cleaners have been designed and manufactured to the highest quality standards for best operational safety.

Read this document carefully before putting the machine into operation and keep it for future reference.

On page 29 of this manual, there is a form for documenting the safety inspections to be carried out at regular intervals. The form has to be filled in by specialist technicians (persons with sufficient knowledge and experience or manufacturer's technicians) or experts (e.g. engineers or Technical Control Board experts).

A safety inspection must be carried out before commissioning and at least once a year.

B-TEC machines are to be used solely in accordance with the intended use. Usage not in accordance with the intended use as well as unauthorised modifications invalidate the liability of the manufacturer for any damages resulting from this. Detailed information regarding intended use to as well as liability and warranty can be read in section 1.3 and 1.4.

The B-TEC machines are only to be used according to the intended used. Improper use of the machine can endanger the health of the operator.

1.1. Explanation of the Symbols

To directly draw attention to important information in this operating manual, the symbols "Caution!" and "Notice!" are used. Please note that paragraphs with these symbols need particular attention.

Caution!

You will see this symbol whenever attention is drawn to situations in which danger to life can arise due to or during incorrect or improper operation. Pay special attention to these symbols and act carefully.

Notice!

You will see this symbol in the operating manual whenever your attention is being drawn to correct work procedures, economic ways of operating or when the machines may be damaged by incorrect operation.

1.2. Operating Instruction

The responsible person within the company where the machine is placed has to create operating instructions in accordance with the "Occupational Safety and Health Regulations" applicable in the respective country. The operating instructions must be adapted to the cleaning liquid used and country of application.

1.3. Liability and Warranty

The cleaning machine is state of the art, tested and operationally safe. Liability for the function of the machine is transferred to the operating company, if the machine is improperly maintained or repaired by persons who are not authorised by the manufacturer and / or supplier, or if it’s used against the

intended use and the instructions of the user manual. The operator is obliged to operate the machine only when in immaculate condition. The manufacturer is liable for errors or omissions - to the exclusion of further claims - only within the scope of the statutory warranty obligations. We reserve the right to make technical changes any time for continuous development and improvement of our products. Such changes, mistakes and misprints do not constitute a claim for damages. Only original spare parts and accessories are to be used. The manufacturer and / or supplier is not responsible for damages caused by ignoring the instructions in this operating manual. Warranty and liability conditions of the manufacturers and / or supplier sales and delivery terms are not extended by the above notes.
B-TEC warrants its products to be free from defects in materials and workmanship, for a period of 24 months on a one shift basis. In case of exceptional usage such as multiple-shift operation, the statutory warranty is shortened to 12 months (two-shift operation) or 8 months (three-shift operation). The period starts from the date the machine is shipped from the factory. The guarantee expires prematurely if the customer or a third party undertakes inappropriate modifications or repairs or if the customer, in case of a defect, does not immediately take all appropriate steps to mitigate the damage and give the supplier the possibility of remedying such defect.

1.4. Intended Use

This spray gun cleaning system may only be used for its intended purpose. It is not intended for other purposes than the following terms. The manufacturer/supplier is not liable for any damages resulting from improper use.

The intended use of this machine is to clean spray guns or paint-soiled parts/tools (e.g. stirring rods, mixing bowls etc.).

The machine can be used with the following cleaning agents (For details see section 3):

- Solvents (GHS categories 2 and 3).
- Non-combustible, water-based cleaning liquids for water soluble paints.
- Low VOC cleaning liquids for solvent-based paints: Exclusively B-TEC E2C - Easy 2 Clean with associated modification kit.

This machine is for commercial use only, but not for continuous operation.

This machine is classified as equipment group II, equipment category 2G, type of protection Ex h, eligible for gases of explosion group IIB, equipment protection level Gb and can be used in zone 1.

See also type plate: Ex II 2G Ex h IIB T6 Gb

Improper use of the machine can endanger the health of the operator and of others and cause damage to the cleaner itself or to other objects. Any other use of the machine must be agreed and approved with the manufacturer in advance.

1.5. Requirements to be the Operator

The machine may only be used by competent personnel who, by virtue of their training, knowledge or experience, ensure proper handling and are aware of the dangers (for example, by reading the operating manual).

2. Safety Requirements

2.1. General Safety

The machine is built according to the state of the technology and can be operated safely. However, this does not mean that the consequences of all operational failures are protected by technical measures. Dangers can arise from this machine if it is used improperly or incorrectly. However, additional organisational measures have to be taken into account for certain workflows, such as the removal of residual paint from the gun.

- Read and follow the operating instructions for machine as well as the safety instructions before commissioning.
- Always keep the manual available in the immediate vicinity of the machine.
- The machine may only be operated by trained personnel. Operators under the age of 18 are only allowed to operate the machine when under supervision of an expert.

For some users, hazard assessment activity restrictions may result, e.g. for persons with chronic respiratory problems or allergic diseases as well as for pregnant women or nursing mothers.

For the correct operation of the machine, the safety and operating instructions are valid in all cases. These must be read carefully and followed strictly!

The manufacturer recommends to strictly follow the occupational safety provisions, rules and information applicable in the respective country for using spray gun and part cleaning systems such as the following examples: "Accident prevention - Principles and prevention", "Safety and health protection warnings at the workplace", "Safety rules for air pollution control systems for the workplace", "Safe use of the machine by following operating instructions", "Safe use of the machine by following operating instructions", "Avoidance of ignition from electrostatic charges", "Guidelines for facilities for cleaning parts with solvents", "Use of protective clothing", "Use of eye and face protection", "Use of protective gloves", " Industrial Safety".

2.2. Safety checks

In order to comply with the requirements of DGUV Rule 209-088, it is necessary to check the cleaning machine for ‘safe working condition’ before initial commissioning and on an annual basis.

On page 29 of these operating instructions, you will find the ‘Safety test sheet’ form as proof of the safety tests to be carried out regularly. The form in connection with the tests to be performed may only be carried out by authorised persons. Qualified persons are skilled workers who, due to their training and experience, are technically capable of assessing the safe working condition of work equipment. The specific definition of a qualified person can be found in the definition of the German Ordinance on Industrial Safety and Health (BetrSichV).

2.3. Operational Safety

Follow the information and warning signs attached to the machine.

- **When using flammable cleaning liquids in the washer, it must be ensured in particular that:**
  - (Solvent) vapors can be safely extracted. This can be achieved by using the integrated extracton system (Venturi system with flexible exhaust air hose) or an explosion-proof external exhaust air fan. See section 9.4.
  - grounding / earthing is ensured using a grounding cable (potential equalisation)! Connection must be carried out by a specialist. See section 9.3.
- In all cases, the local safety and accident prevention rules for the use of the machine must be followed.
- Fire, naked flame and smoking prohibited.
- Open fires and other sources of ignition (e.g. due to grinding or welding, any flying sparks) are not allowed within a radius of 1 metre around the machine. This applies also e.g. for lighting and fans as well as the associated electrical components.

- Depending on the cleaning application, use the required personal protective and chemical resistant protective equipment. The minimum required protective equipment is eye protection, gloves and electrostatic dissipative footwear (ESD shoes). Optionally protective clothing and safety shoes are recommended.

Minimal requirement:

Optional:

- Do not place the protective equipment on the machine.
- If clothing has been wetted with solvent / cleaning liquid, smoking is also prohibited outside the Ex-zone. Take off the contaminated clothing immediately. There is risk of skin irritation, allergies, etc. Persons wearing contaminated clothing must not be exposed to sources of ignition (e.g. welding). Risk of fire.
- In the event of a fire, immediately stop the compressed air supply and close the door of the machine.
- Compliance with country-specific workplace exposure limits legislation according to safety data sheets must be documented.
- The limit values of the country specific air pollution and adherence thereto must be observed.
- If the machine is not used, the door must always be closed for safety reasons.
- The operator has to ensure that nobody else is in the working area of the machine.
- Use only permitted solvents / cleaning liquids (section 3). These must be free of Halogenated hydrocarbons (CKW, CFC, TRI, PER, etc.).
- If water (e.g. with additives) is used as a cleaning liquid, this must not be discharged into the sewer system.
- Pay attention to the safety data sheet of the cleaning liquid.
- Do not eat or drink near the machine. Clean your hands before eating any food or drink after working. Danger of poisoning!

- Avoid inhalation of fumes and contact with the solvent / cleaning liquids. Risk of respiratory tract irritation!
- Do not add any other liquids to the cleaning liquid, such as kerosene, gasoline, chlorinated hydrocarbons, acids, alkalis, pickling agent or brake cleaner.
- Do not overfill the unit with cleaning liquid, as this may lead to an overflow of the barrel.
- Immediately collect spilled solvent(s) with suitable binders and dispose them in accordance with regulations. The water resources legislation must be complied with.
- When changing the cleaning liquid, all applicable regulations (e.g. waste water regulations) must be observed!

It is prohibited to open the pump casing in the machine. The manufacturer is not liable for any damage and/or secondary/subsequent damage caused by opening the pump casing on purpose or negligent opening. If you have any problems with your pump, please contact your distributor or the manufacturer's support service.

2.4. Hazards from Pneumatic Energy

Only specialists with expert knowledge and experience may work on pneumatic machines. When working on pneumatic systems, these must be disconnected from the air supply and de-pressurised in order to prevent injury.

2.5. Suggestions for Operating Instructions

Operating instructions are regulations that a company creates for safe working for its employees. These are binding instructions issued by the company in line with its policy and the law. Employees are obligated to follow these instructions.

The employer is responsible for creating and publishing workplace related operating procedures e.g. regarding Occupational Safety and Health Regulations, the Water Resources Legislation and, where applicable, the Control of Hazardous Substances applicable in the relevant country. These operating instructions are therefore to be complemented by national regulations on accident prevention and environmental protection.

Give your employee e.g. the following information:

- The hazards involving the handling of contaminated parts and the solvents used, the necessary protective measures and guidelines, including instructions in case of danger and first aid.
- The type and scope of periodic inspection for the safe working condition of the machine.
- Environmental Protection.
- Safe operation of the pneumatic system.
- Clean and safe working environment.
- The responsibility for operation must be clearly regulated by the company and must be complied with by all persons designated to operate the machine. Under no circumstances should unauthorised or untrained persons use the machine.
- The operator has to operate the cleaning machine only in perfect condition and has to notify their supervisor immediately in case of any changes affecting safety and environmental protection.
- Follow all warnings and warning signs.

3. Approved Cleaning Agents

Only use solvents / cleaning liquid that meet the following specifications:

- Highly flammable liquids (category 2, flam. liq. 2):
  - GHS/CLP H225, flash point <23°C, boiling point >35°C.
  - Formerly according to 67/548/EWG: R11, Hazard symbol „F“.
- Flammable liquids (category 3, flam. liq. 3):
  - GHS/CLP H226, flash point 23°C - 60°C
  - Formerly according to 67/548/EWG: R10, no Hazard symbol.
- Non-combustible, aqueous cleaning agents (neutral or slightly alkaline pH) such as B-TEC H_2O Cleaner for water-soluble paints.
- Low VOC cleaning liquids for solvent-based paints: Exclusively B-TEC E2C - Easy 2 Clean with associated modification kit.

If using flammable cleaning liquids, ensure at least a medium electrical conductivity of the liquid. Usually solvents are mixtures of liquids with high and low conductivity and therefore are sufficiently conductive. If you have any doubts, ask your supplier.

Mix the B-TEC H_2O-RK cleaner concentrate with purified water.

Ensure that the used cleaning liquid is suitable and does not attack the surface of the object to be cleaned. Suitability shall be ensured by the operator in preliminary tests. The manufacturer and / or supplier does not assume any liability for damages caused by these tests.

Acids are not permitted. Paint strippers or other additives (e.g. brake cleaners etc.) must not be used in the machine.

Safety data sheets relevant to the products supplied should always be available on the premises. These will contain the information about the cleaning agents that you are using.

Never alternate the use of solvents and cleaning liquids (for water-based paints) in the same machine as this will damage it and void the warranty. Follow the manufacturer’s instructions at all times. Alternating the two types of cleaning agents can cause gas build up and explosions!

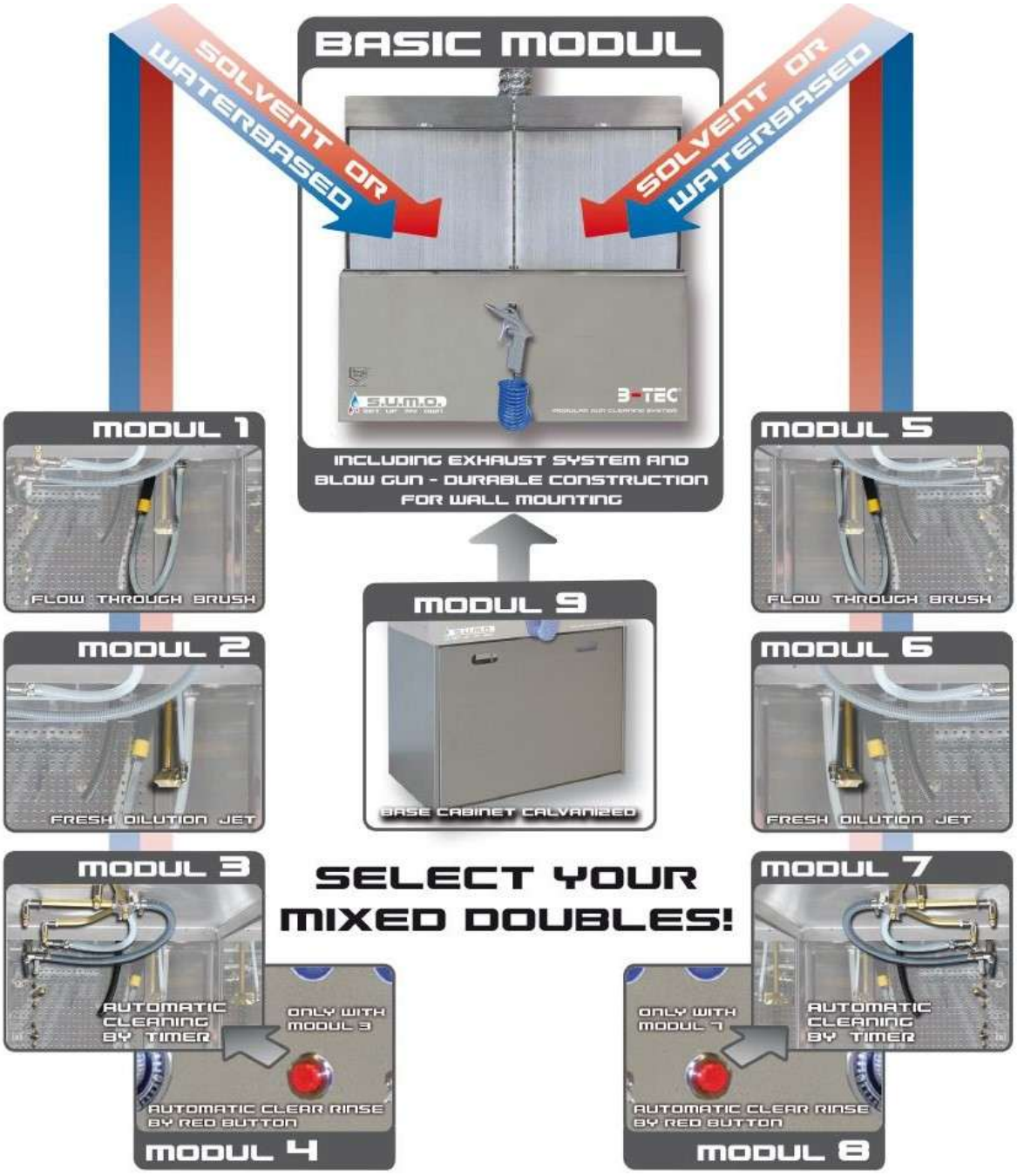
When changing from solvents to cleaning liquids for water-based paints (or vice-versa) the paint gun cleaner must be completely cleaned of paint, water and liquid residues.

<u>Recommendation to reduce solvent consumption:</u>

If the machine is connected to a continuously running exhaust system and you’re using solvent, we recommend the pneumatic exhaust solvent safer to reduce solvent consumption: B-TEC Pneumatic exhaust solvent saver diameter 125 mm art.-no.: 10001701

4. Technical Description of the Machine

The „S.U.M.O.“ is a washer, which can be set up as required from the following 9 individual modules:



The automatic washing cycle (Modules 3 & 7) is activated by a timer and the automatic clean rinse (Modules 4 & 8) by a push button. Depending on the requested configuration there is also a flow-through brush (Modules 1 & 5) and a clean rinse nozzle (Modules 2 & 6) in the cleaning chambers.

The machine has a blow-out and blow-off gun for drying and blowing out spray guns. In addition, the spray gun to be cleaned can be connected to the stainless steel universal coupling of the blow-off gun for blowing out after cleaning or to protect the air ducts during manual cleaning.

The washer has a strong exhaust system that switches on and off automatically as soon as the device´s door is opened or closed. It is operated exclusively by pneumatic parts and has a blow-off gun.

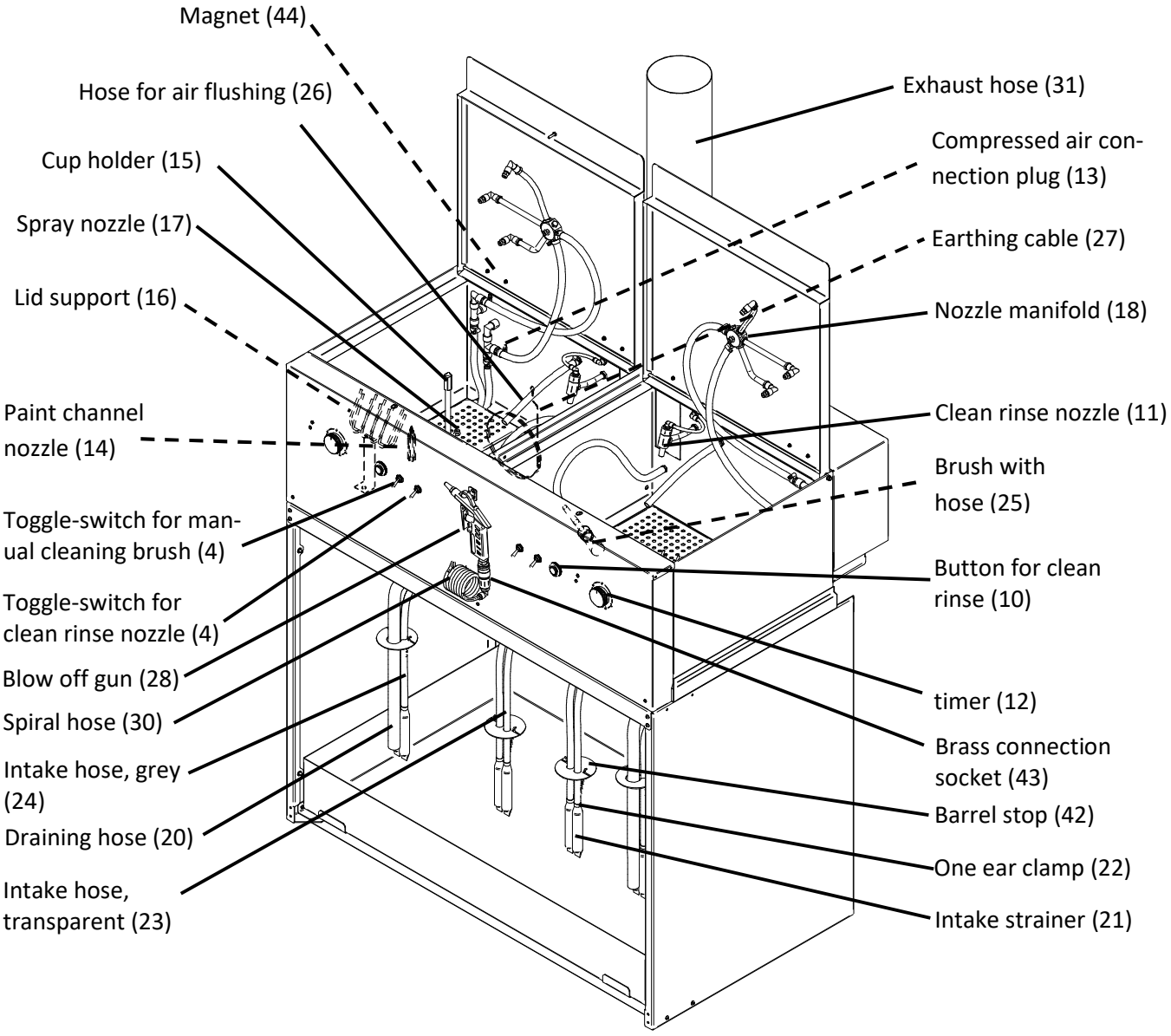


Abbildung 4-1

- Technical changes and errors reserved. All pictures similar -

4.1. Technical Data

Compressed air connection

Operating pressure:	5 - 6 bar
Compressed air demand for automatic cleaning:	49 l/min per side
Compressed air demand max.*:	200 l/min

Exhaust air flow rate

Flow rate**:	300 m³/h
Diameter exhaust duct:	Ø125 mm

Acoustic emission

Average level of acoustic emission:	78 dB(A)

Machine dimensions

Machine total (Width × Height × Depth):	1020 × 1580 × 670 [mm]
Washing chamber per side (W × H × D):	460 × 300 × 390 [mm]

Size of the container below the cleaning machine per side

1 × container for circulating liquid. Container size max. 60 litres.
1 × container for fresh liquid. Container size max. 30 litres.

*If all functions incl. extraction nozzle activated at the same time.
**Guide Value: Safe extraction may also be possible with a lower exhaust air flow rate. If external extraction fan is implemented, integrated extraction nozzle may be deactivated.

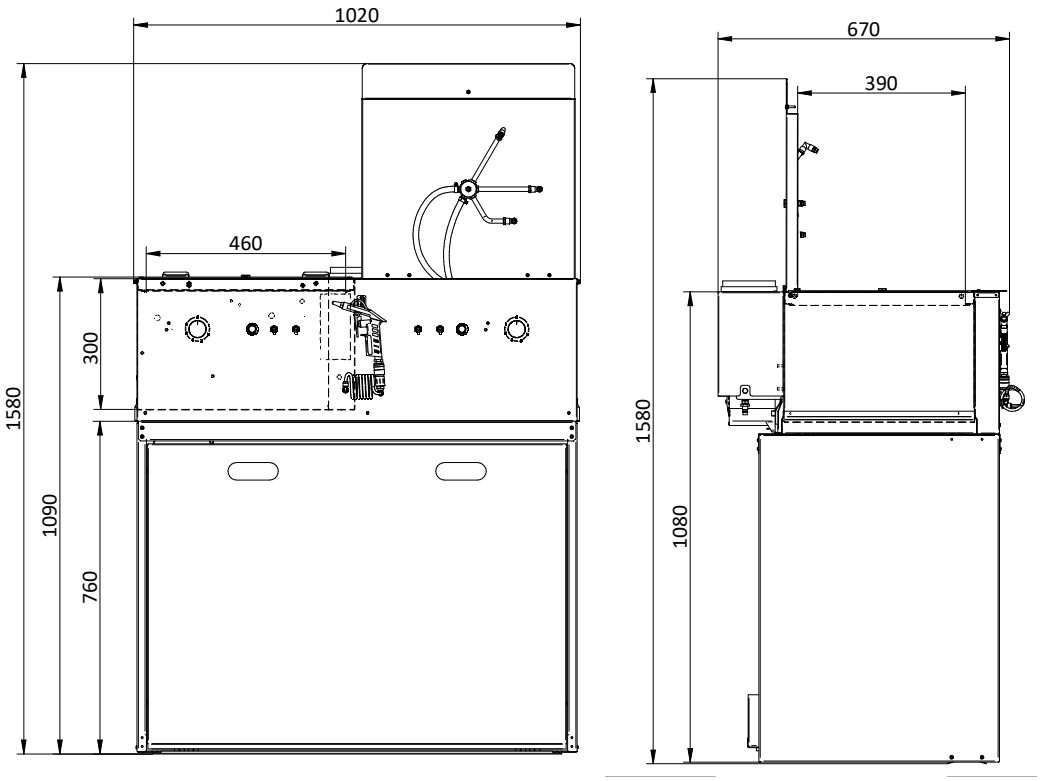
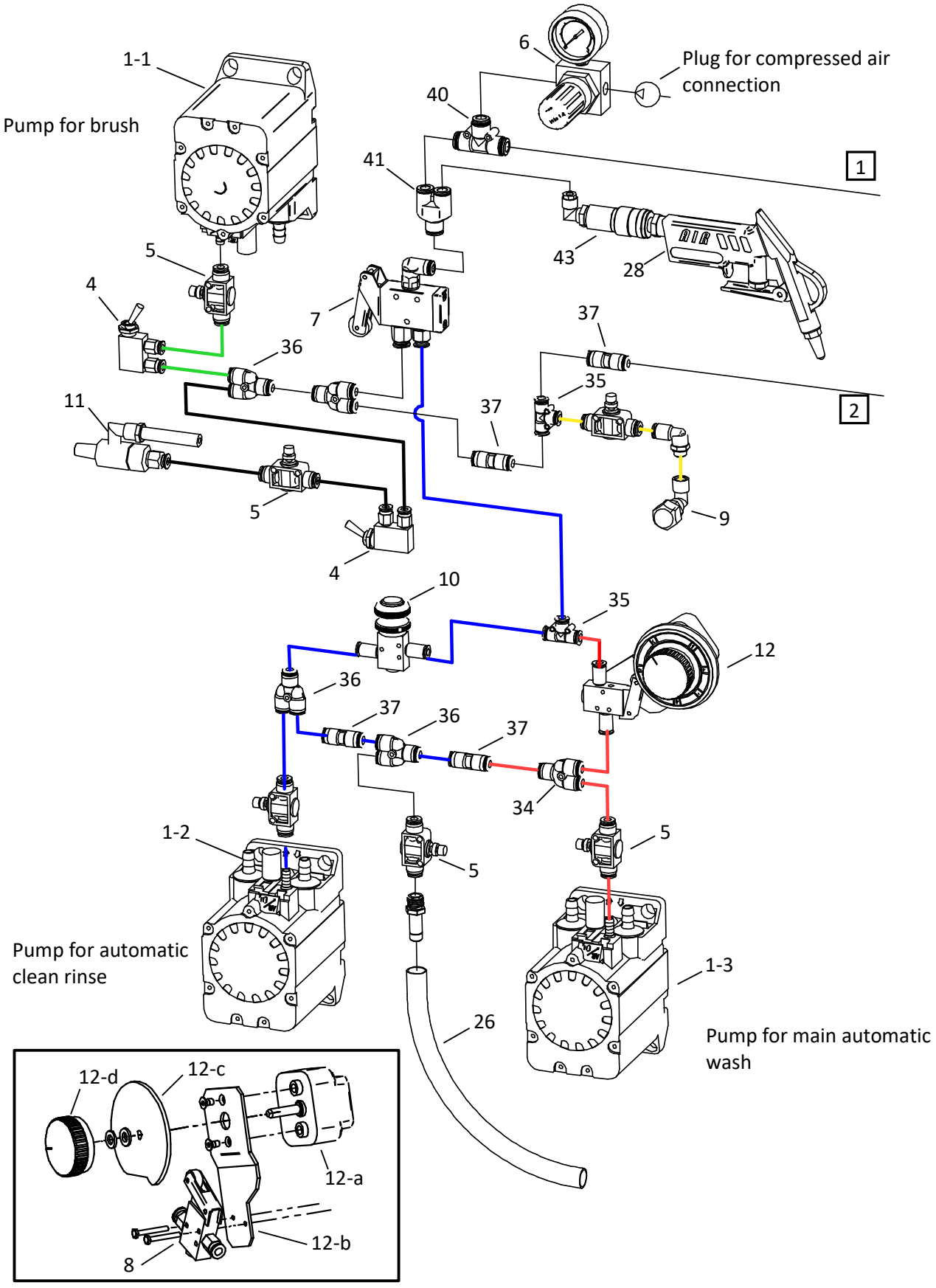


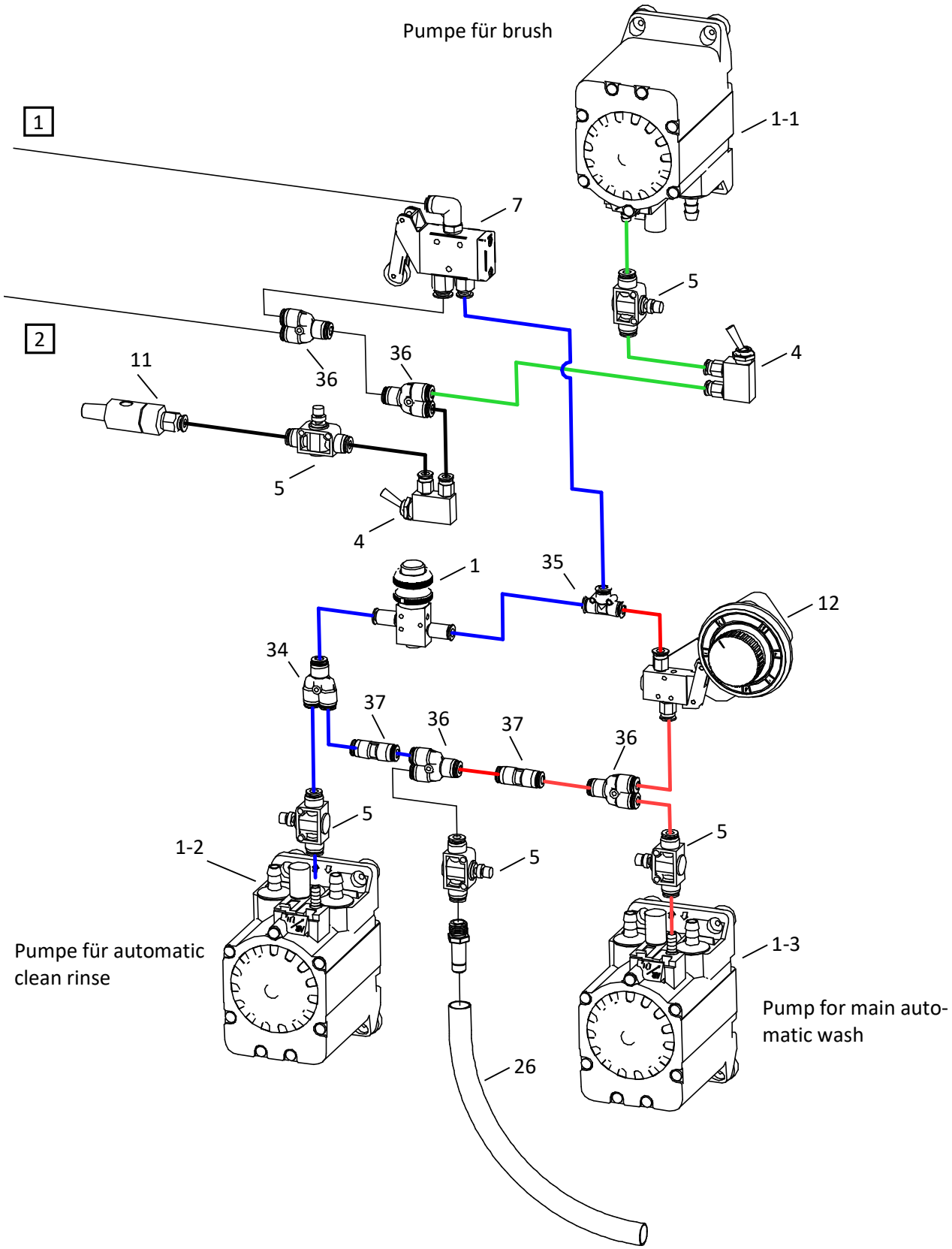
Figure 4-2

- Technical changes and errors reserved. All pictures similar -

4.2. Pneumatic Diagram Left Side



4.3. Pneumatic Diagram Right Side



– Technical changes and errors reserved. All pictures similar –

5. Spare Parts Ordering Numbers

1	-	Pump ¼” Connector for pump ¼”, incl. O-ring (included in art.-no. 10000554)	10000554 10000561
2	-	Check-valve, inner thread, G 1/4" EPDM (for pump of clean rinse)	10001069
3	-	Mini ball valve 1/4" i/a 2/2 Wege / MSV / PTFE/EPDM	10001504
4	-	Toggle-switch	10000589
5	-	Flow adjuster	10000582
6	-	Pressure regulator 0-8 bar w. manometer and push-in fitting	10000577
7	-	Roller valve for activation Roller valve for activation with connectors	10000620 10000608
8	-	Roller valve for inside door or timer	10000579
9	-	Air suction nozzle complete with fittings Air suction nozzle single	10000415 10001270
10	-	Button for automatic clean rinse, completely assembled	10000414
11	-	Clean rinse nozzle complete with pipe and connections for Starter/SUMO	10000419
12a	-	Timer – Time limit switch 6 min	10000444
12b	-	Timer – Fixing plate	10000327
12c	-	Timer – Switching disk	10000328
12d	-	Timer – Timer knob	10000443
13	-	Compressed air connection plug NW7.2 (European Standard) Compressed air connection plug UK-Profile	10000908 10001761
14	-	Paint channel nozzle with double nipple for Starter/SUMO Paint channel nozzle (separately)	10000323 10001281
15	-	Cup holder complete for lower manifold Cup holder separately	10000418 10001281
16	-	Lid support (fork)	10000439
17	-	Spray nozzle	10000429
18	-	Lower manifold SUMO left side with connectors and hoses Lower manifold SUMO right side with connectors and hoses Upper manifold SUMO left side with connectors and hoses Upper manifold SUMO right side with connectors and hoses	10001491 10001769 10001420 10001419
19	-	Double ball catch	10000467
20	-	Corrugated hose for draining	10000658
21	-	Strainer, stainless steel	10000473
22	-	Strainer one ear clamp	10000649
23	-	Corrugated hose, transparent	10000656
24	-	Corrugated hose, grey	10000655
25	-	Brush with hose Brush loose	10000417 10000463
26	-	Corrugated hose for air flushing, black E2C: Quick connection coupling UNI G1/4" Stainless steel	10000657 10001434
27	-	Grounding / earthing cable	10000958
28	-	Blow-off gun with short tube	10000446
30	-	Spiral hose 1m with Connectors angle and straight + double nipple	10000645
31	-	Exhaust hose aluminium 125 mm	10000644
33	-	Trigger clamp standard, Stainless steel	10000436
34	-	T-plug connector 2 x 8 mm, 1 x 6 mm	10000847
35	-	T-plug connector 6 mm	10000845
36	-	Y-plug connector 6 mm	10000896
37	-	Connector 6mm with check-valve function	10001371
38	-	Cross connector 6 mm	10000893

39	-	Straight connector reduced 8-6mm hose plastic	10000837
40	-	T-plug connector 8 mm	10000846
41	-	Y-plug connector 8 mm	10000836
42	-	Barrel plug 2x suction Barrel plug 2x suction 1x drain E2C : Barrel plug 3x suction 1 xdrain	10000353 10000354 10001221
43	-	Quick connection coupling UNI G1/4" Stainless steel	10001434
44	-	Magnet for cover	10002008

6. Accessories

Item	Part Number	Image
Roller bund for SUMO	10002041	
RST-01 - Waste Paint Collector incl. exhaust suction	10000739	
Pneumatic exhaust solvent saver, ATEX - 125 mm	10001701	
Pressure regulating valve with pressure gauge and connections	10000619	
E2C Modification Kit SUMO(Retrofit)	10001438	
H_2O-Cleaner-RK, water based paint cleaner concentrate, 10 L	10000348	
E2C - Easy 2 Clean cleaning liquid for solvent based paints - 20 Litres	10001465	
Plastic container 30,0 L with cap, non-conductive	10000711	
Plastic container 30,0 L with cap, conductive F105	10000691	
Plastic container 60,0 L with cap, conductive F105	10000767	

7. Zone and Machine Classification according to ATEX

This machine is classified as equipment group II, equipment category 2G, type of protection Ex h, eligible for gases of explosion group IIB, equipment protection level Gb and can be used in zone 1.

See also type plate: II 2G Ex h IIB T6 Gb

In accordance with legal requirements, the ATEX zone definition around the machine and creation of an explosion protection document comes under the responsibility of the "responsible person of the company" where the machine is placed as this classification is subject to the cleaning liquid used and various conditions such as ventilation.

However, at this point the operator should be supported with general advice to comply with this obligation. Helpful advice can also be found in EN 12921-1 and -3 and EN ISO 80079-36.

If using the machine with flammable cleaning liquids, the following zone designation can be applied:

Zone 1 →The interior of the cleaning chamber
Zone 2 →Surroundings within 1.0 m

Mark the different zones with appropriate warning and prohibition signs. Markings on the floor can be helpful. In the area surrounding the machine, open flames and other ignition sources (e.g. welding or grinding equipment) are not allowed. In addition, smoking is prohibited. Temporary work causing ignition sources must be approved in writing and appropriate additional safety measures must be applied (e.g. remove all combustible materials; firefighting equipment must be on hand in the working area.)

8. Requirements for the Installation Site

- When operating the machine with flammable liquids or in Ex-Zones:
  - Horizontal industrial floor with electrical resistance of max. 10^8 Ohm.
  - Very good technical room ventilation with at least 5 air changes per hour (Depending on local regulations).

    Requirement in German DGUV (German Social Accident Insurance) Information 209-046:
    "In rooms with filling, mixing and pumping of flammable liquids you must have at least 5 air changes per hour. Therefore, a technical room ventilation system is required. The air-outlet opening must be near the ground. Air-inlet and –outlet must be placed in a way that a complete and even air exchange is achieved"
  - Do not install or operate the machine within a radius of 1.5 m from heat sources.
  - Ensure an ambient temperature of 5 °C – 40 °C and do not expose the machine to direct sunlight, as this carries a risk of overheating.
  - Follow the safety regulations according to zone designation.
- Follow the relevant legislative and regulatory safety instructions regarding substances hazardous to water applicable in the country where the machine is installed.
- The machine can be placed against the wall or in a corner. A 1.5 m space should be provided in front of the machine.

9. Transport and Installation

The machine is delivered packed in a cardboard box. Take out the machine carefully with two persons outside an explosive atmosphere. Open the machine lids and grasp it by the edge of the wash cabinet to lift it out of the box. Note that the two cover plates above the hoses on the backside of machine are not meant to be used as a handle. Bring the machine it to the installation site and install it as described in the following sections.

A detailed video showing the installation process can be found on YouTube:
S.U.M.O. Unboxing and Installation | B-TEC (youtube.com)

9.1. Assembling the Base

The following parts are available for mounting the substructure (see Figure 9-1)

- 2 x angle
- 1 x Side part
- 8 x M4x10
- 16 x M4 Nuts

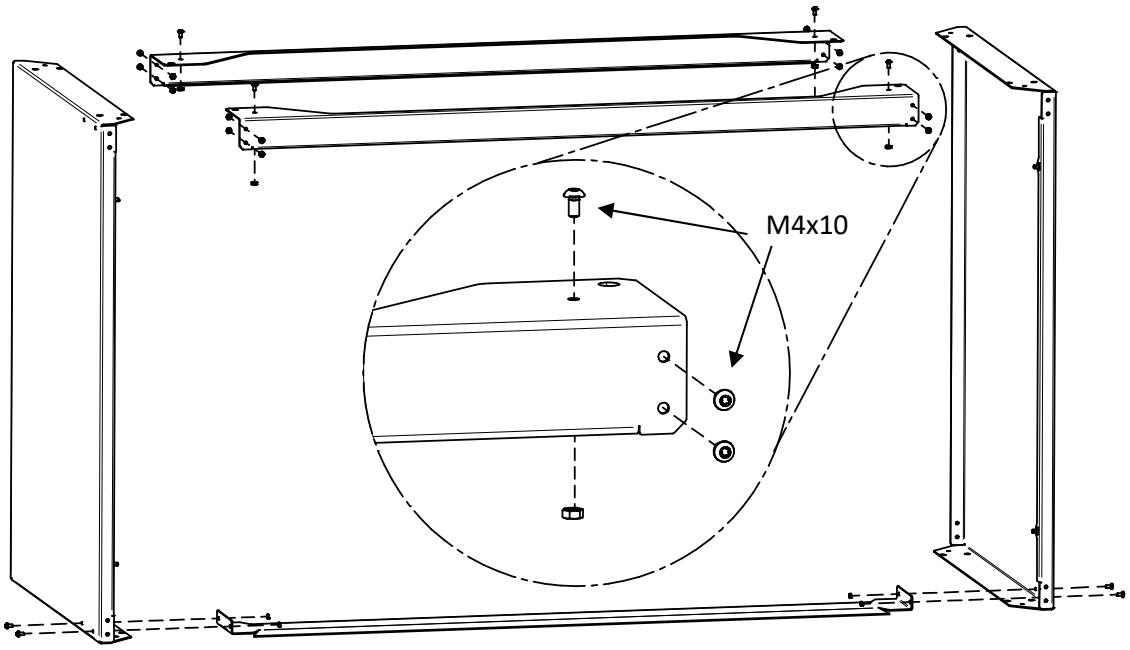


Figure 9-1: SUMO base

The screws are screwed from the outside to the inside. After assembling, carefully place the machine on the base. The welding studs on the underside of the machine fit into the 4 larger holes on the top of the base and are fastened from below using the corresponding M5 nuts and washers (see Figure 9-2).

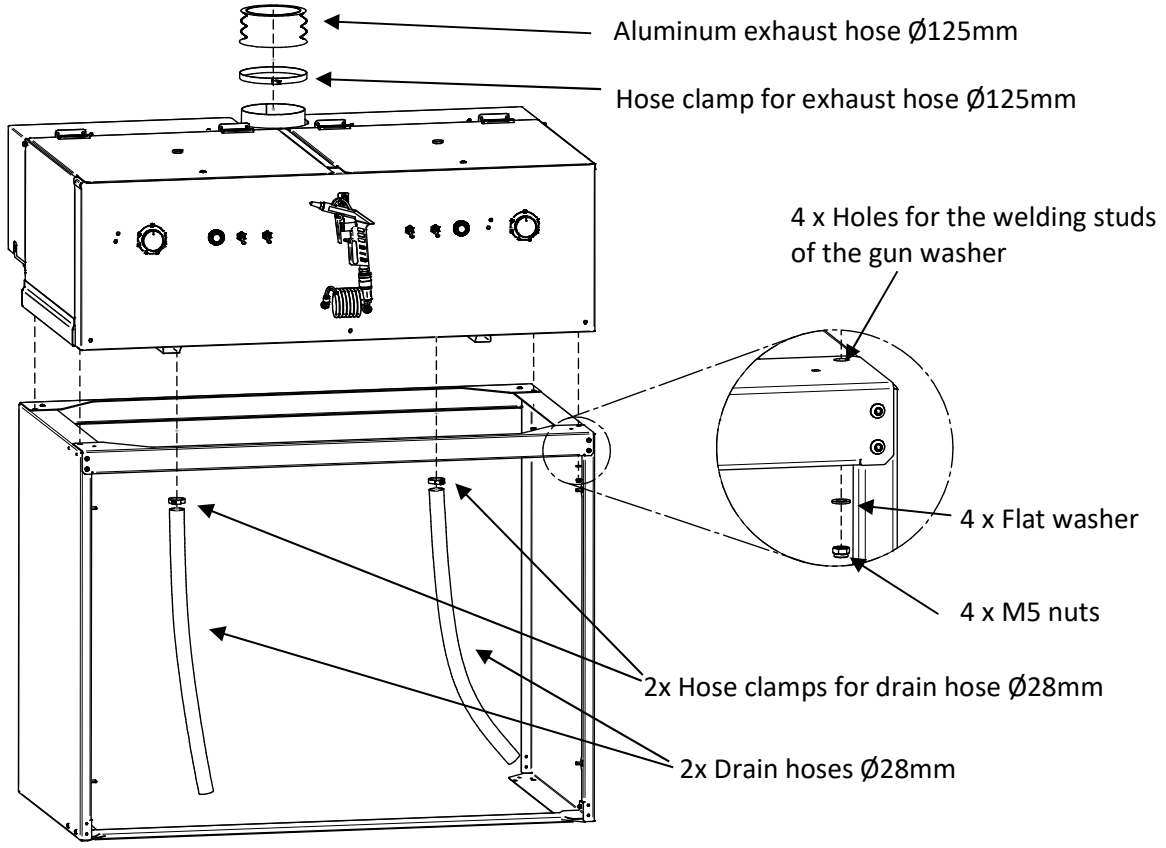


Figure 9-2: SUMO base, after assembly

9.2. Installing the drain hoses

The black drain hose (Ø 28 mm) in the unit is attached to the drain connection (underside of the unit) using the hose clamp supplied.

9.3. Grounding / Earthing

The machine has a grounding / earthing connection. If the machine is operated with flammable liquids or placed in an Ex-Zone, it may not be operated without being grounded!

The machine has a grounding / earthing cable, which needs to be grounded / earthed safely by a competent person (e.g. electrician). **Customer-provided containers have to be grounded separately!**

9.4. Exhaust Ducting

The aluminum exhaust hose (Ø 125 mm) in the unit is attached to the exhaust air connection (top of the unit) with the enclosed hose clamp. The exhaust air must be led outside (into the so-called “free air flow”) on site via the exhaust hose using the integrated exhaust air device in accordance with the regulations. It is essential to ensure that the exhaust hose is fully extended and runs vertically for at least 1 m so that the flow cross-section is not restricted. This is the only way to achieve optimum extraction results. Ensure that the exhaust air is not exhausted into areas or traffic paths where people are usually present. The exhaust air must be exhausted safely via ATEX-compliant exhaust systems, i.e. not into chimneys from fireplaces, not into exhaust ducts on the pressure side of combined spray and drying cabins. If the distance to be bridged exceeds the length of the exhaust hose supplied or the local conditions preclude the exhaust air routing described above, we recommend consulting a specialist company for ventilation construction in accordance with ATEX to ensure that the appliance is operated in accordance with the regulations. The power of the integrated air suction nozzle is limited to max. ca. 4 metres of ducting. An explosion-proof exhaust fan is recommended for longer ducting. It’s recommended not to connect the machine directly to a rigid pipe. Use at least 30-40 cm of the flexible B-TEC exhaust hose to ensure that the machine can be relocated or repaired conveniently if necessary.
Diameter of exhaust hose: Ø125 mm

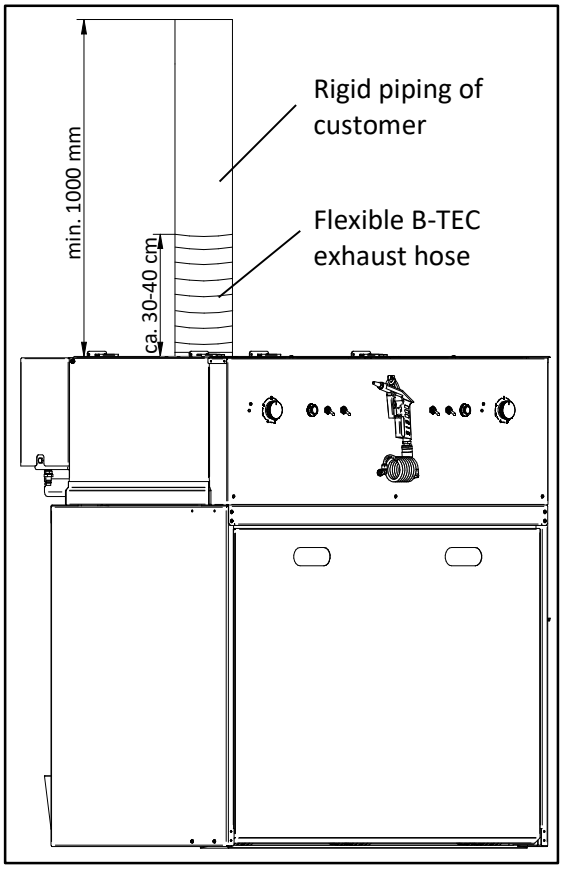


Figure 9-3

The exhaust air flow rate can be adjusted at the flow adjuster as needed depending on the length of the duct.

Caution! Only use original B-TEC exhaust air hoses! Risk of fire! Do not use plastic hoses!

9.5. Compressed Air Connection

A compressed air supply is needed for the machine. An on-site shut-off valve is recommended.

Operating pressure max.: 600 kPa (6 bar , 87 psi)
Operating pressure min.: 500 kPa (5 bar , 73 psi)

Betriebsdruck 5 – 6 bar
trockene und ölfreie Luft einsetzen
operating pressure 5 – 6 bar (73 – 87 psi)
dry and oil free air only

Only dry and oil-free air may be used! The compressed air connection should not fall below the minimum pressure of 5 bar for the extraction to function. Also observe the instructions in section 9.4 for safe extraction!

10. Commissioning

Commissioning may be done only after reading and following the operating manual carefully! Commissioning performed without following the operating manual and complying with all applicable regulations can lead to damage to persons, property, or the environment. Wear personal protective clothing. See section 2.3 - Operational Safety).

After proper installation (Section 7, 8, 9), the machine can be commissioned. The arrangement of the containers and allocation of the hoses depends on the type of cleaning medium used. The use of conventional solvents, low-VOC cleaners and water-based cleaners is explained below:

10.1. Setup the Washer with Conventional Solvents

When using flammable cleaning liquids, only use conductive containers that are suitable for use with flammable liquids!

1. Remove the front cover and place the containers as shown in Figure 10-1 (right side).
2. Place 1 × 30 litre container filled with 20 litres (recirculating liquid) and 1 × 30 litre container filled with 10 litres (fresh liquid) in the base of the machine.
3. Moisten the draining and intake hoses incl. intake strainer with a wet cloth and insert the moist hoses as follows: Insert the black draining hoses (Ø 28 mm) and grey intake hoses into the container for recirculating cleaning liquid. Insert the transparent hose into the container for fresh cleaning liquid.
4. Reinsert the front cover.

When refilling the fresh liquid, ensure that the container for recirculating liquid has sufficient remaining capacity to prevent overflowing of liquid

Figure 10-1

10.2. Setup the Washer with B-TEC H_2O Water Based Cleaner

1. Fill the 10 litre canister of B-TEC H2O-RK (Art. 10000633) water-based paint cleaner concentrate into a 30 litre empty container (Art. 10000711).
2. Fill the 30 litre container with water to obtain 30 litres of mixed water-based paint cleaner. If the tap water contains a lot of iron and/or lime, we recommend mixing the B-TEC water-based paint cleaner concentrate (B-TEC H2O-Cleaner-RK) with demineralised water.
3. Remove the front door from the unit (if present) and position the 30 litre canister and the empty 10 litre canister under the unit (in the roller bund, if present) as shown in Figure 9-1 (left side).
4. Insert the black drain hose (Ø 28 mm) into the empty 10 litre canister and the grey suction hose(s) into the 30 litre canister. Now activate the toggle switch of the flow brush or the timer to pump 10 litres of water-based paint cleaner from the 30 litre canister into the 10 litre canister. Observe the filling level!
5. Now insert the complete hose package consisting of the black drain hose and the grey suction hoses into the 30 litre canister for circulating cleaner.
6. Insert the hose package consisting of one or two transparent suction hoses into the 10 litre canister for fresh rinse.
7. Reinsert the front door. The water side of the washing machine is now ready for operation.

10.3. Setup the Washer with B-TEC E2C Low VOC Cleaning Liquid for Solvent Based Paints

When using B-TEC E2C – Easy 2 Clean (Art. 10001465) for cleaning solvent-based paints, automatic clean rinsing (red push button) is no longer necessary and therefore deactivated at new gun washers equipped with an E2C-Kit. For this reason, a separate container for fresh cleaning liquid is not necessary. B-TEC E2C – Easy 2 Clean can only be used in B-TEC gun washers and only after installing the corresponding modification kit. With the modification kit installed, the hoses can be put into the E2C canister as shown below:

- Draining hose (Black Ø28mm)
- Brush (grey Ø13mm)
- Automatic cleaning (grey Ø13mm)
- Clean rinse nozzle (transparent corrugated Ø13mm hose, which doesn't go to a pump)
- Automatic clean rinse (transparent corrugated Ø13mm hose, which goes to a pump)

Figure 10-2

11. Working with the Machine

A detailed video showing the cleaning process in B-TEC gun washers can be found on YouTube: [Spray Gun Cleaning | B-TEC (youtube.com)]

11.1. Manual Cleaning with Brush and Clean Rinse Nozzle

Open the main door. The exhaust suction system starts working automatically.

Brush (Modules 1&5)

Activate the pump for the brush with the toggle-switch labelled **"Brush"**. The recirculating cleaning liquid flows through the brush. The flow rate can be adjusted by using the green marked flow adjuster near the pumps.

Clean rinse nozzle (Modules 2&6)

The clean rinse nozzle can be activated by the toggle-switch **"Clean rinse"**. Fresh cleaning liquid flows through the nozzle. The output can be adjusted by using the black marked flow adjuster near the pumps.

Blow-off gun

With the blow-off gun you can dry objects or spray guns.

When the manual cleaning area is no longer required, put toggle switch to off and close the main door. The exhaust suction stops automatically.

Figure 11-1

While cleaning and fresh rinsing, ensure that no cleaning liquid enters the air channels of the spray gun.

Don't pull the trigger of the spray gun, if no compressed air is connected to the spray gun. If gun is put upright, don't put cleaning liquid directly on the air cap to avoid that liquid gets behind the air cap and into the air channels.

Connect spray gun to compressed air while cleaning manually. Pull the trigger only, if compressed air is connected to the spray gun!

Do not allow the doors to slam shut! All doors must be handled carefully and with caution by the user!

The brush has to be used only as intended for brushing parts. Never point the brush towards persons or pull outside of the machine.

Do not immerse the spray gun in cleaning fluid. Immersing the spray gun can damage the spray gun, regardless of the cleaning fluid used. The spray gun must always be thoroughly blown dry from the inside and outside after cleaning.

11.2. Automatic Cleaning

Open the main door. The exhaust suction system starts working automatically. Place the gun as follows (Figure 10-2):

1. Remove the lid of the cup and place it into the lid support fork. Ensure that the paint-soiled inner surface faces downwards towards the interior of the cleaner.

2. Unscrew the cup and place it upside down on the cup holder.

3. Paint spray gun without strainer: Place the gun upside down on the paint channel nozzle **without pulling the trigger**.
   Paint spray gun with strainer: Remove the strainer from the spray gun and place it on one of the tines of the lid support fork. Place the spray gun upside down on the paint channel nozzle **without pulling the trigger.**

4. Now the gun is inverted. **Pull back the trigger** and dip it with the trigger clamp. Ensure correct application of trigger clamp. Keep trigger clamp always in cleaning chamber. This ensures that the paint channel is opened for cleaning and remaining paint can drain from cup connection socket. Make sure that the tension clamp is correctly aligned (Figure 11-2 and Figure 11-3)!

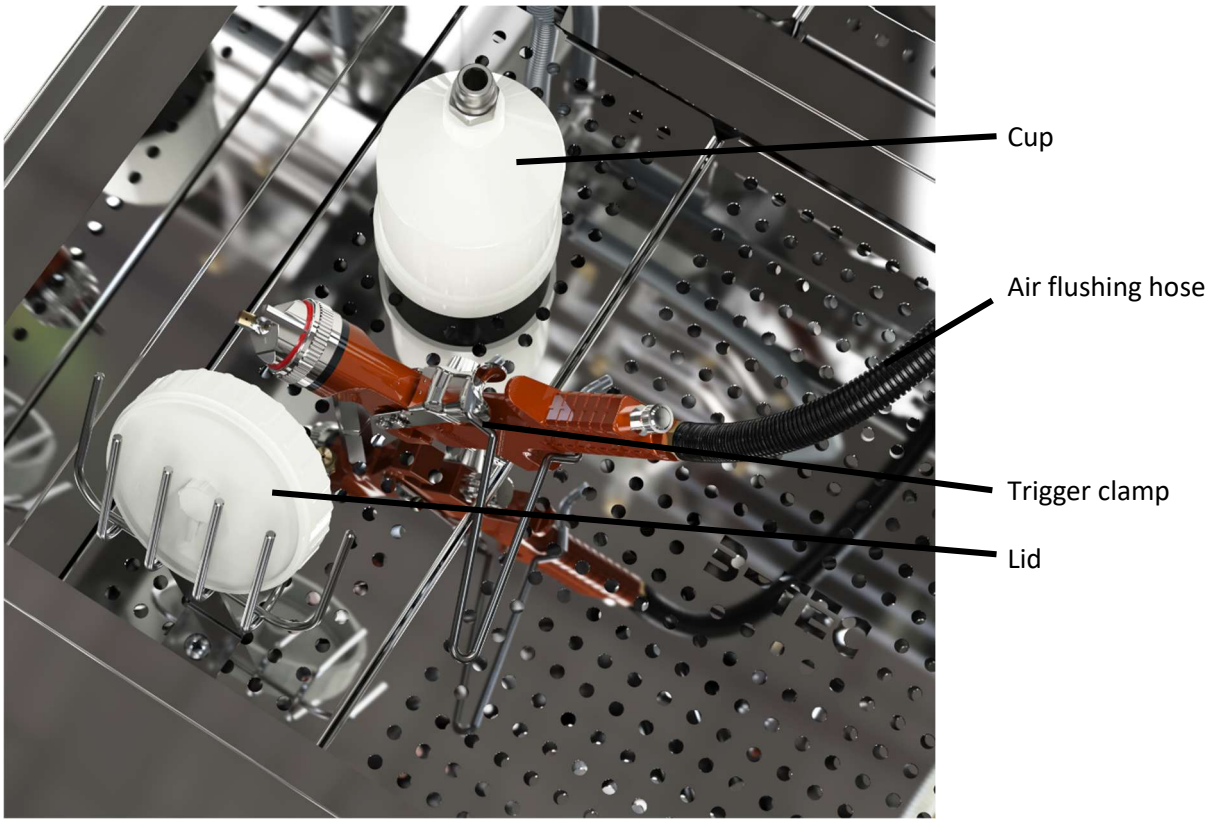


Figure 11-2

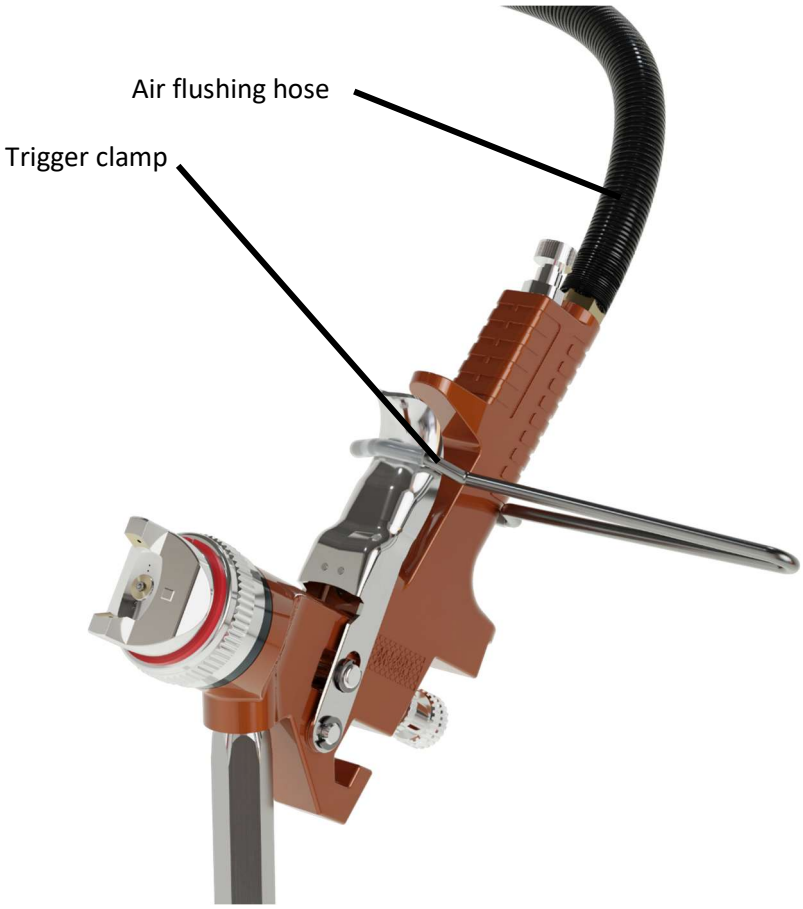


Figure 11-3

5. Connect black hose for air flushing to the spray gun. Ensure that the set screw on the gun is in the "opened" position to allow air flow.

> This ensures that the air channels of the spray gun are pressurised during the cleaning process and therefore cleaning liquid and paints cannot enter the air channels or the air cap.

The spray gun is now positioned properly.

6. Close the door of the machine.

> **Do not allow the doors to slam shut! All doors must be handled carefully and with caution by the user!**

Automatic cleaning with timer (Modules 3&7)

Main cleaning cycle

Set timer to 1-3 minutes. The main cleaning cycle is activated. Cleaning liquid circulates. The timer can be reset to zero by hand to stop the cleaning cycle. When the set time is over, open the door slowly and check the cleaning result.
Use the blow-off gun to dry the gun with cup and lid in the machine. The spray gun is now clean. Reassemble and bring back into action.

> **Do not open the door of automatic cleaning chamber while automatic cleaning cycle is running! If necessary, turn the timer to "0".**

Automatic clean rinse (Modules 4&8)

Since the cleaning liquid is circulated while the timer is on, it will have a fair amount of contamination after a certain period of time. If a grey film remains on the spray gun after the main cleaning cycle, rinsing with fresh cleaning liquid can be used. For automatic clean rinsing, close the door again and press and hold the rinse button (red button) for 3-4 seconds. Fresh cleaning liquid is drawn. The spray gun is rinsed from inside and outside with fresh cleaning liquid.
Use the blow-off gun to dry the gun with cup and lid in the machine. The spray gun is now clean. Reassemble and bring back into action.

Do not immerse the spray gun in cleaning fluid. Immersing the spray gun can damage the spray gun, regardless of the cleaning fluid used. The spray gun must always be thoroughly blown dry from the inside and outside after cleaning.

Clean the spray gun as soon as possible after all painting processes.

Before placing the spray gun in the machine, unscrew the lid from the cup and drain the remaining paint into a collecting container. For example the B-TEC collecting container for waste paint RST-01. The more thoroughly the cup is emptied, the longer the solvent or cleaner can be used.

Following these process steps and hints will ensure an optimal cleaning result!
Note:

The brush has to be used only as intended for brushing parts. Never point the brush towards persons or pull outside of the machine.

Avoid dry runs of the pumps.

Do not open the door of automatic cleaning chamber while automatic cleaning cycle is running! If necessary, turn the timer to "0".

11.3. Adjusting Options

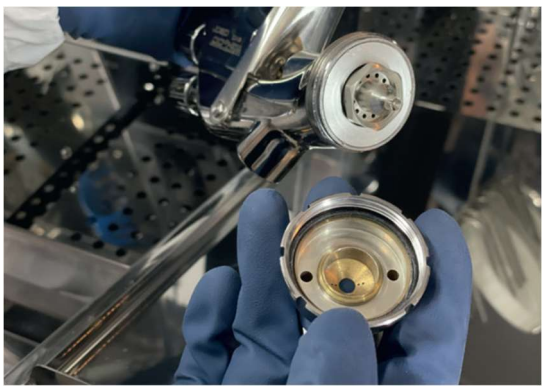
There are throttle valves on the coloured hoses on the back of the device and near the pumps for the following settings:

- Green: Brush
- Black: Clean rinse nozzle
- Blue: Automatic clean rinse
- Red: Automatic cleaning
- Yellow: Exhaust suction
- White: Air flushing of spray gun

Refer to pneumatic diagram section 4.2 and 4.3.

12. Working with Low VOC Cleaning Liquid B-TEC E2C – Easy2Clean

Hint: Working with low VOC liquid only with E2C modification kit for gun washers!



1. Without pulling the trigger turn the spray gun upside down and place the paint inlet on top of the dedicated paint channel nozzle.

2. Connect the compressed air coupling to the air inlet of the spray gun.

3. Using the trigger clamp to keep spray gun trigger in open position. Close door of automatic cleaning box and set timer to 2-3 minutes.

4. Remove trigger clamp and with spray gun still in place, blow it dry using the air blow gun. Do not touch the trigger!

5. Now remove spray gun from automatic cleaning box and connect the air coupling of the blow-off gun to the spray gun. Operate the spray gun to discharge any liquid out into the washer.

6. Finally wipe the spray gun dry with a microfibre cloth and check that there are no liquid residues behind the air cap. **If liquid enters the air cap, please increase the air flow of the air flushing hose (See section 11.3).**

During the entire automatic cleaning process, the spray gun must not be disconnected from the compressed air coupling and the trigger may only be pulled when the gun is correctly seated on the dedicated cleaning jet.

Manual cleaning may only be done with the compressed air coupling of the air blow gun connected to the spray gun, as this is the only source were compressed air flows continuously.

Prior to the next painting cycle, the paint channel and the inside of the air cap must always be free of cleaning liquid.

Failure to follow the application instructions may result in paint problems!

13. Care and Maintenance

The machine has to be disconnected from the compressed air supply before any repair work! Wiping with a cloth only with sufficient moisture/wetness!

- We recommend regular wet cleaning of intake hoses and intake strainers (at least each time the cleaning liquid is changed). If the intake strainer is defective, it must be replaced immediately. Defective intake strainers either have heavy paint build-up, causing clogging of the filter surface, or the filter suffer damage that allows contaminated cleaning liquid to be drawn in to the pump, which can damage it or clog the cleaning nozzles.

- Clean the perforated stainless steel grille and the interior walls of the machine regularly. Clean any residue out of the drain pan, in order to ensure reliable drainage of the cleaning agent / solvent and to ensure that there is permanent sufficient flow capacity in the drain.

- It is recommended to use each function of the machine shortly at least once a day in order to avoid drying of the membranes inside the pumps and keeping the nozzles clean.

- **When the machine is not operated for a longer period of time (for example during holidays) a cleaning cycle with fresh cleaning liquid should be performed after the final cleaning cycle so that the nozzles are not clogged with heavily contaminated cleaning liquid.**

The warranty is invalidated, if other than original B-TEC replacement parts are used!

Customer service: Contact your dealer or directly:

B-TEC GmbH
Zunftweg 6-8
31303 Burgdorf / Ehlershausen
Germany
Tel.: +49(0)5085-97100-0
Fax: +49(0)5085-97100-30
Email: info@btecsystems.de
www.btecsystems.de

14. Disposal

- If the machine shall be disposed of, please contact B-TEC or your dealer and request an appropriate quotation or the requirements for proper disposal.

- The machine must not be disposed of as domestic waste, but should be disposed of as hazardous waste depending on the degree of soiling. Contact your local authority for support.

15. Troubleshooting

Application:

Error / Problem	Possible cause	Solution
Liquid in the air channel or behind the air cap of the spray gun.	Air flushing hose wasn‘t used.	Attach the air flushing hose to the spray gun during automatic cleaning.
	Air flushing not sufficient.	Increase the power of the air flushing hose (see section 11.3).
	Spray gun not sufficiently protected during manual cleaning.	Connect the quick coupling to the spray gun during manual cleaning.
	Air cap removed.	Do not remove the air cap when cleaning!
	Handling the spray gun.	Only pull the trigger of the gun with compressed air connected or upside down.
	Paint spray gun seals defective.	Replace seals.
	See sections 11 and 12!	
Paint wetting disorders.	Paint spray gun not sufficiently dried.	Thoroughly dry the spray gun after cleaning.
	Cleaning fluid has penetrated air channels.	See above!
	See sections 11 and 12!!	
Paint spray gun scratched.	Trigger clamp applied incorrectly.	Apply trigger clamp correctly (See section 11.2).
Paint spray gun not clean.	Cleaning liquid heavily soiled.	Replace the cleaning liquid.
	Machine input pressure too low.	Supply the machine with 5 - 6 bar compressed air.
	Pump flow adjuster (throttle valve) closed too far.	Open the flow adjuster (throttle valve) further (see section 11.3).
	Cleaning liquid unsuitable.	Use a suitable cleaning liquid.
	Colour already too dry.	Start the cleaning process as soon as possible after painting.
Clean rinse liquid is dirty.	Allocation of hoses is not correct.	Check the allocation of the hoses (see section 10.
	Check valve of the pump for automatic clear rinsing is defective.	Replace check valve
Automatic clean rinse (red push button) does not work.	Function deactivated as washer is configured for use with E2C.	Function not required. Reactivating clean rinse function is possible.
	Check valve is stuck.	Replace check valve
	Clean rinse container empty.	Replace liquids.

Function and installation:

Error / Problem	Possible cause	Solution
Pump is not working.	Pump is not supplied with air despite activation of the function.	Trace the air paths and identify any faulty components.
		Check whether the safety roller valve is fully actuated.
		Close the flap of the automatic washroom properly.
		Connect compressed air to the machine and ensure 5 - 6 bar inlet pressure.
	Intake filter and/or nozzles clogged.	Clean or replace the intake filter and/or nozzles.
Pump runs quickly and does not deliver any liquid.	Pump is dry.	Loosen the liquid hoses and fill the pump with cleaning liquid.
	Cleaning liquid is empty.	Fill up with cleaning liquid.
	Suction filter is not in the cleaning liquid.	Ensure that suction filter is immersed in cleaning liquid and refill if necessary.
	Pump defective.	Replace pump.
Pump runs very slowly.	Cleaning liquid heavily soiled.	Replace the cleaning liquid.
	Machine input pressure too low.	Supply the machine with 5 - 6 bar compressed air.
	Pump flow adjuster (throttle valve) closed too far.	Open the flow adjuster (throttle valve) further (see section 11.3).
	Water in the air line -> pump freezes.	Dry compressed air, e.g. with a refrigeration dryer.
It smells strongly of solvent.	Exhaust air nozzle deactivated.	Activate the exhaust air nozzle (see section 11.3).
	Exhaust air duct unfavourable or too long.	Fully extend the flexible aluminium exhaust air hose, shorten if necessary. Optimise the exhaust air routing (see section 9.4).
	Air flushing at the spray gun too strong.	Reduce the air flushing power (see section 11.3).
	Unfavourable air movement (e.g. draughts) at the installation site. Air currents draw vapours out of the washing appliance.	Close doors and windows if necessary.
	Solvent very volatile.	If necessary, use less volatile solvents or VOC-reduced cleaners.
	Power of pump for spray nozzles too high.	Reduce the power of the spray nozzles by throttling the pump output (see section 11.3).
Solvent consumption very high.	Washing unit connected to a permanently operating extraction system.	Install pneumatic solvent saver (see section 6).
	Air flushing at the spray gun too strong.	Reduce the air flow rate (see section 11.3).
	Solvent very volatile.	If necessary, use less volatile solvents or VOC-reduced cleaners.
	Power of pump for spray nozzles too high.	Reduce the power of the spray nozzles by throttling the pump output (see section 11.3).
Automatic clear rinse (red push button) does not work.	Function deactivated as washer is configured for use with E2C.	Function not required. Reactivating clean rinse function is possible.
	Check valve is stuck.	Replace check valve
	Clean rinse container empty.	Replace liquids.

16. Safety Inspection Checklist

Please make copies before filling out for the first time!

Safety inspections must be carried out at least once a year! Audit according to the applicable document regarding European Council Directive 2009/104/EC in the respective country.

Model: _____ Expert technician: _____

Serial number: _____ Company: _____

Year of construction: _____ Inspection date: _____

Customer / Operator: _____

_____

_____

Item checked	OK	Not OK	Remark
1. Operating manual / Instructions available	☐	☐	
2. Type plate present and readable	☐	☐	
3. Warning signs present and readable	☐	☐	
4. Condition of hoses and connectors[1]	☐	☐	
5. Intake strainer undamaged and permeable	☐	☐	
6. Cleaner cabinet not leaking and undamaged	☐	☐	
7. All functions intact and properly set	☐	☐	
8. Grounding / Earthing wire connected[2]	☐	☐	
9. Exhaust air duct connected[3]	☐	☐	
10. Extraction starts when opening the machine door[3]	☐	☐	
11. Safety shutdown intact	☐	☐	

[1]Check for brittleness, tight connections, etc.

[2]When operating with flammable cleaners and/or in an Ex-zone.

[3]When using flammable cleaners. Not absolutely necessary for non-flammable cleaners.

Remarks:

Result of the safety inspection

☐ No faults, can be operated without restrictions

☐ Restricted operation, faults to be fixed by date _____.

☐ Operation not permitted. Re-inspection necessary.

_____ _____

Date and signature of expert technician Signature of customer/operator