

Cleaning Device

S.U.M.O.



Operating Manual and Test Log Book for Water-Based Paint and Solvent Cleaning System S.U.M.O.

Declaration of Conformity According to DIN EN 45014

Manufacturer: B-TEC GmbH
Zunftweg 6-8
D-31303 Burgdorf / Ehlershausen



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 EU directives.

All of our manufactured or assembled parts conform to the listed regulations.

If you change the machine without our explicit agreement, this declaration will be herewith invalidated.

Product type: Spraying-gun cleaning-device

Type designation: **S.U.M.O.**

Serial-no.: **Construction year: 2016**

The machines conform to the following regulations:

Machinery Directive **2006/42/EG**

Explosion-Protection Directive **94/9/EG** ; Registered with: PTB 0102 / R.Nr.: 05 ATEX D 116
as from **20.04.2016** directive **94/9/EG** is going to be replaced and conforms the directive **2014/34/EU!**

The following harmonizing standards have been used:

Safety of machinery, equipment and facilities: **DIN EN ISO 12100 : 2011**

Machines for surface cleaning, aqueous and combustible liquids: **DIN EN 12921-1:2011-02**

General rules and safety requirements for pneumatic-systems: **DIN EN ISO 4414**

Special national norms are applied:

Guidelines for facilities to clean work pieces with liquid detergents: **BGR 180**

Safety- and health signs at workplace: **BGV A8**

Ex declaration: II 2 G c II B T6

Responsibility for technical documents: Michael Bellroth, Hans-Joachim Bödrich

Address: Refer to manufacturer's address

Location/Date/Manufacturer's signature

Function of the signer: Managing director

Hannover, 02.01.2016

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1. Important Information



We thank you for your trust you gave to us by buying the spraying-gun cleaning-device "S.U.M.O. – Set Up My Own". At the rating plate at your cleaner you will find the exact name and serial-number of your cleaner for an uncomplicated service and shipment of spare parts.

The B-TEC cleaner has been built under highest quality standards for high reliability. Due to certain operation procedures there are places and parts, which can't be protected without limiting the usability and function. Therefore we ask you to read this document very carefully before using the cleaner to achieve maximum life and reliable operation.



Read this document very carefully before commissioning and keep it for future reference!

On page 23 of this user manual you will find a form in order to document safety inspections at regular intervals. The form has to be filled by specialist technicians (persons with sufficient knowledge and experience or manufacture's mechanics) or experts (e.g. engineers or Technical Control Board experts).



Safety inspections have to be conducted before the first operation and at least once every year!

The B-TEC devices and machines are only allowed to be used for the explicitly described purpose below. Any other use is in contrast with the regulations. The manufacturer cannot be held liable for damages resulting out of non-regulations use.



The B-TEC devices and machines are only allowed to be used for the explicitly described purpose below.

These devices and machines are allowed to be used for cleaning varnish and spray paint guns as well as paint soiled parts and hand tools by using solvents (A I, A II, A III) or non-combustible, aqueous cleaners for water-based varnishes. Exception: Share of Acetone > 65 %.

The cleaners are not allowed to be used in continuous operation as for instance in serial production. Improper use of the washers can endanger the health of the operator and of others and cause damage to the cleaner itself or to other materials and assets.



Improper use of the cleaner can endanger the user's health!

1.1 Explanation of the Symbols

Attention!



You will find 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.

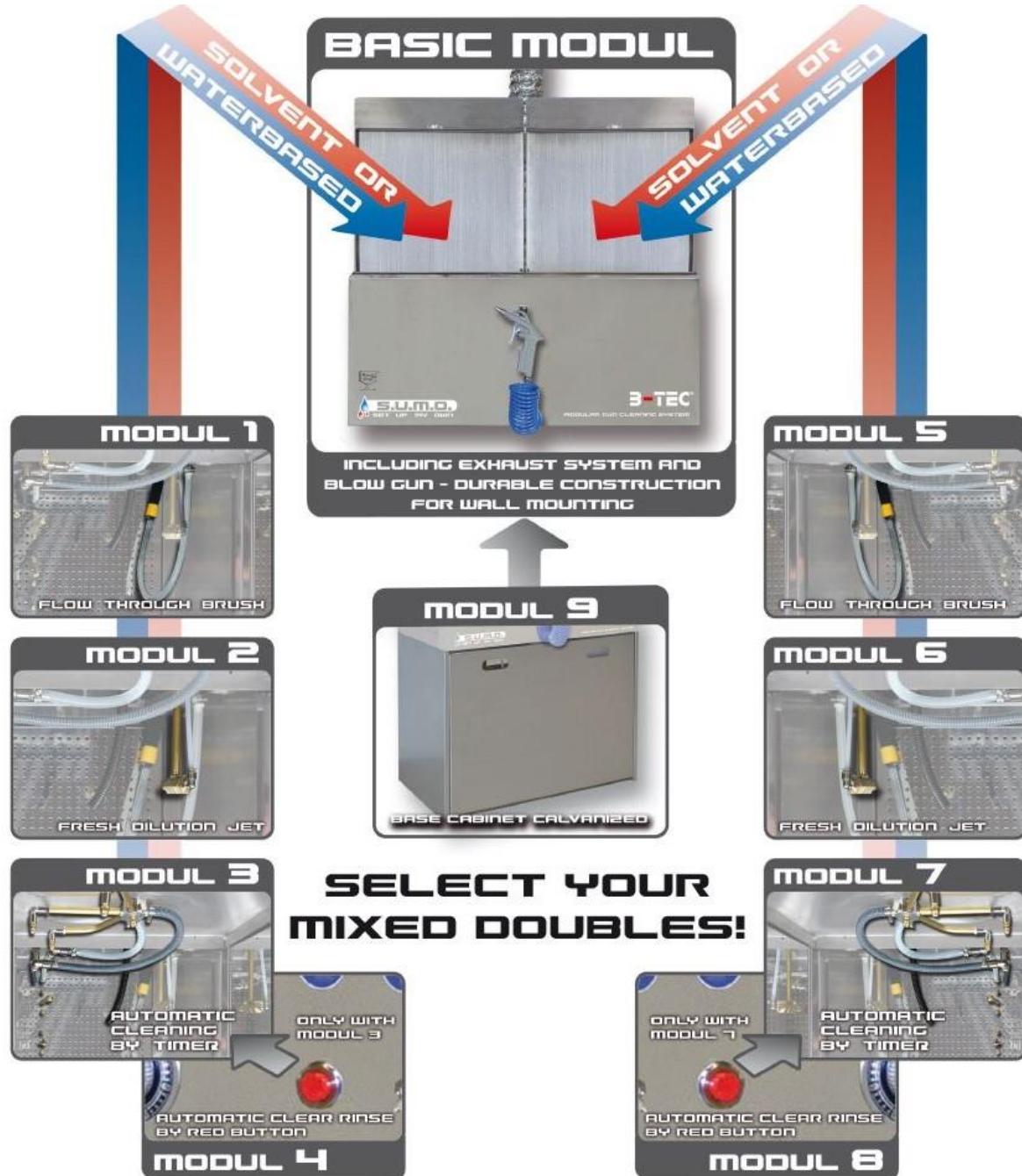
Notice!



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

2. Technical Description of the Cleaner

The „S.U.M.O.“ is an universal washer, which can be set up as desired of the following individual 9 modules:



The automatic washing cycle (Modules 3&7) is activated by a timer and the automatic clear rinse (Modules 4&8) by a button. Depending upon the requested configuration there is also a brush (Modules 5&8) and a fresh dilution jet (Modules 2&6) in the cleaning chambers.

All models have a strong exhaust system that switches on and off automatically as soon as the device's lid is opened or closed. All models are operated exclusively by pneumatic parts and have a blow gun.

2.1 Technical Information

Compressed-air connection

Operating pressure: max. 6 bar

Acoustic emission

Average level of acoustic emission: 76 dB(A)

Total exhaust air flow at 6 bar

415 m³/h

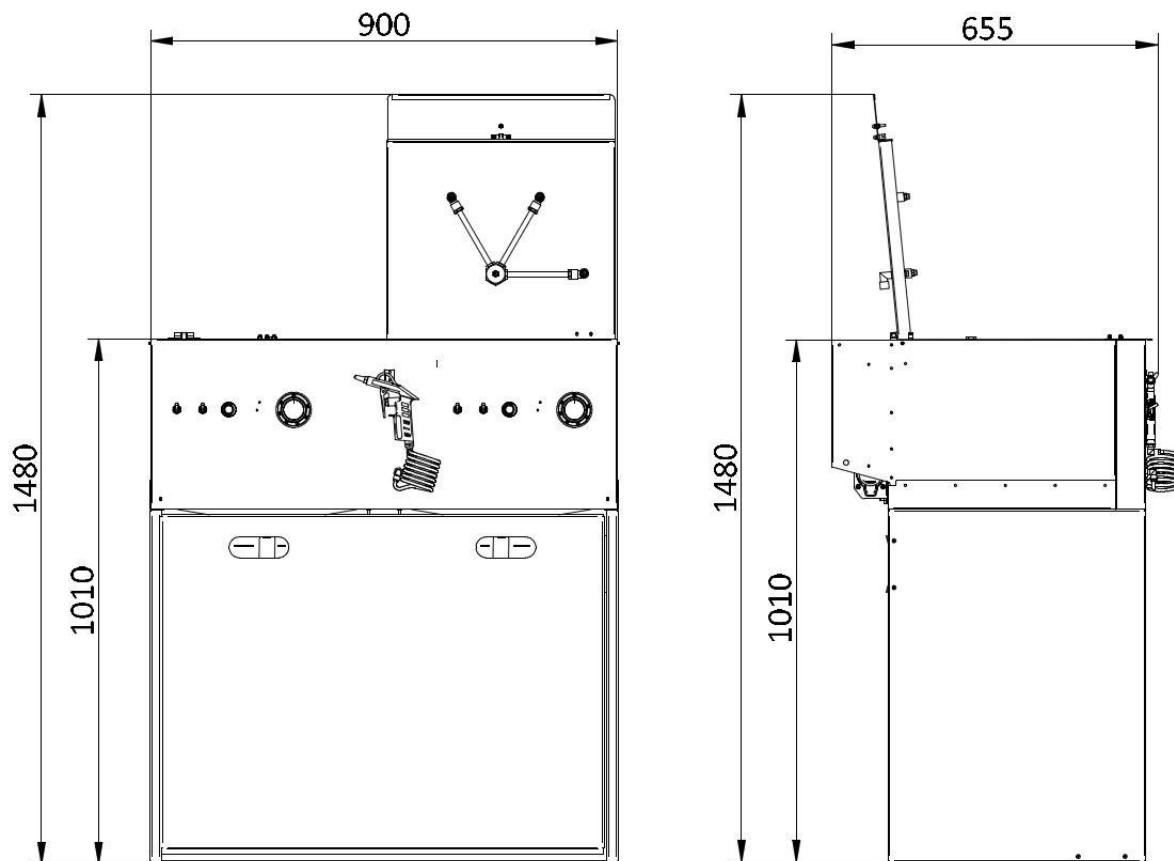
Container size per side under the cleaning device:

Container size max. 30 - 60 Liter

1 pc. Circulating solvent

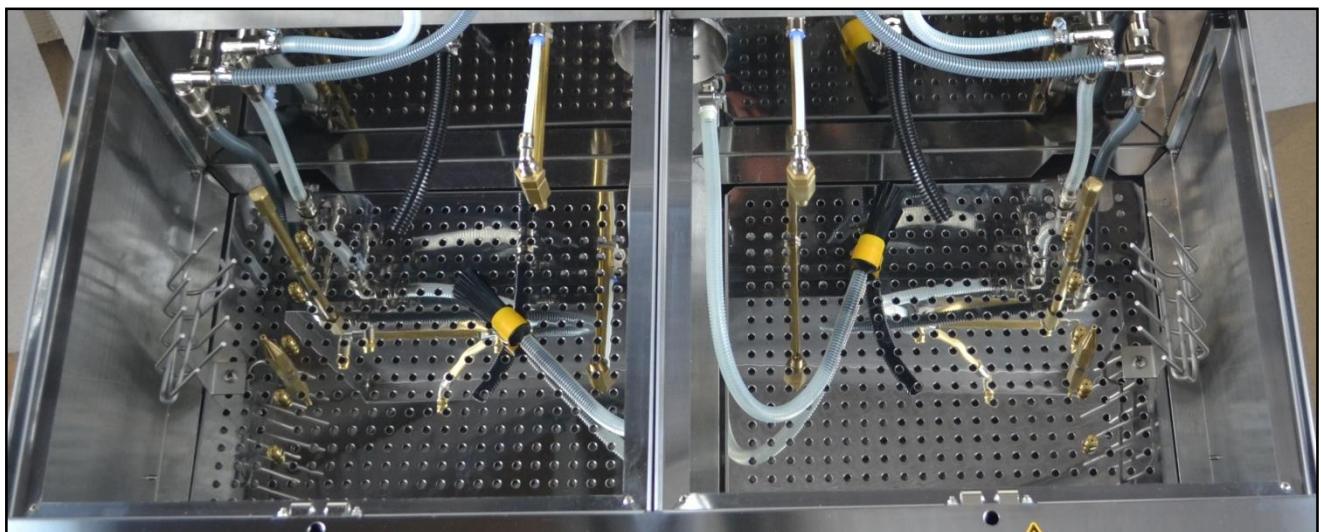
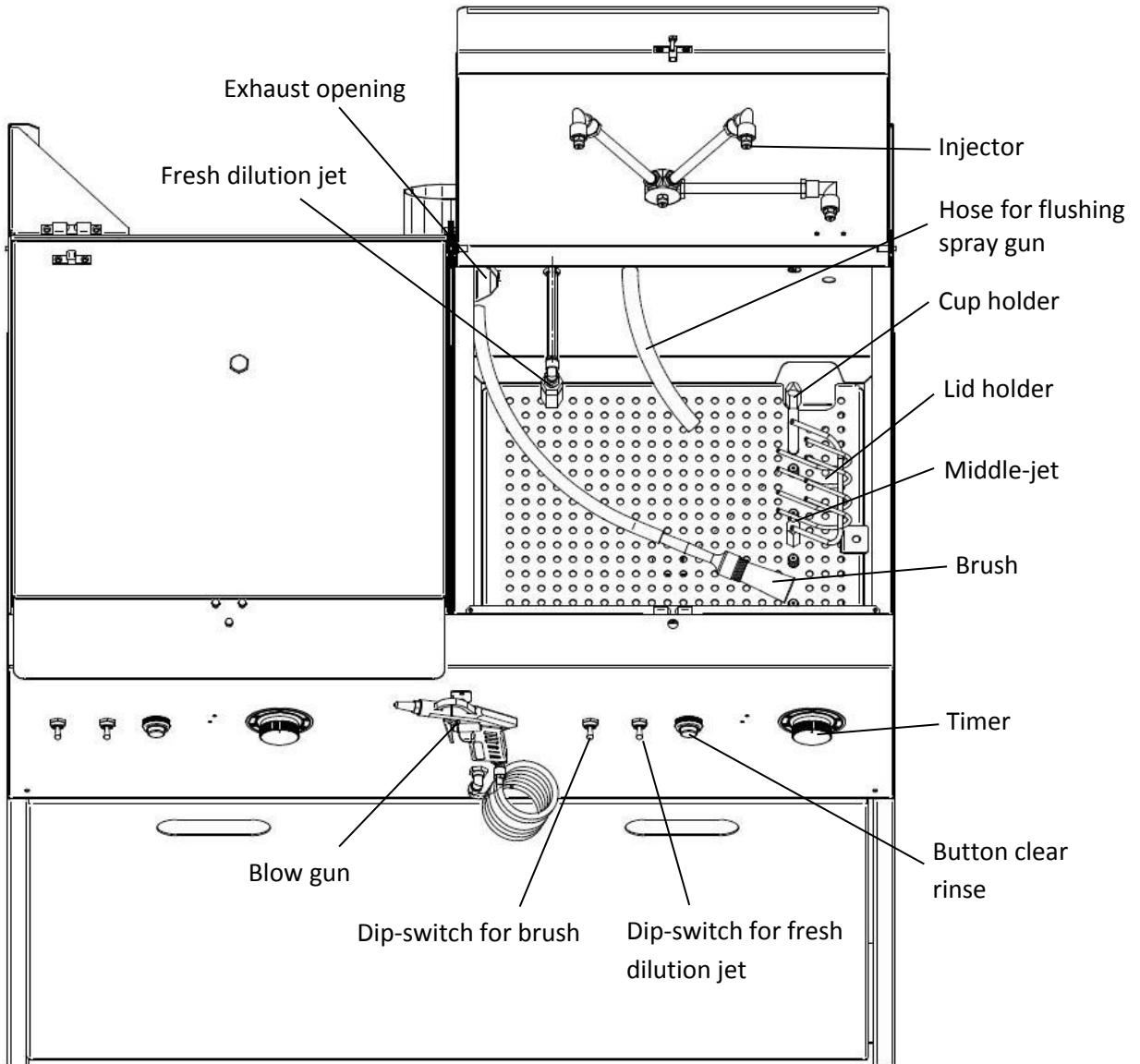
Container size max. 15 - 30 Liter

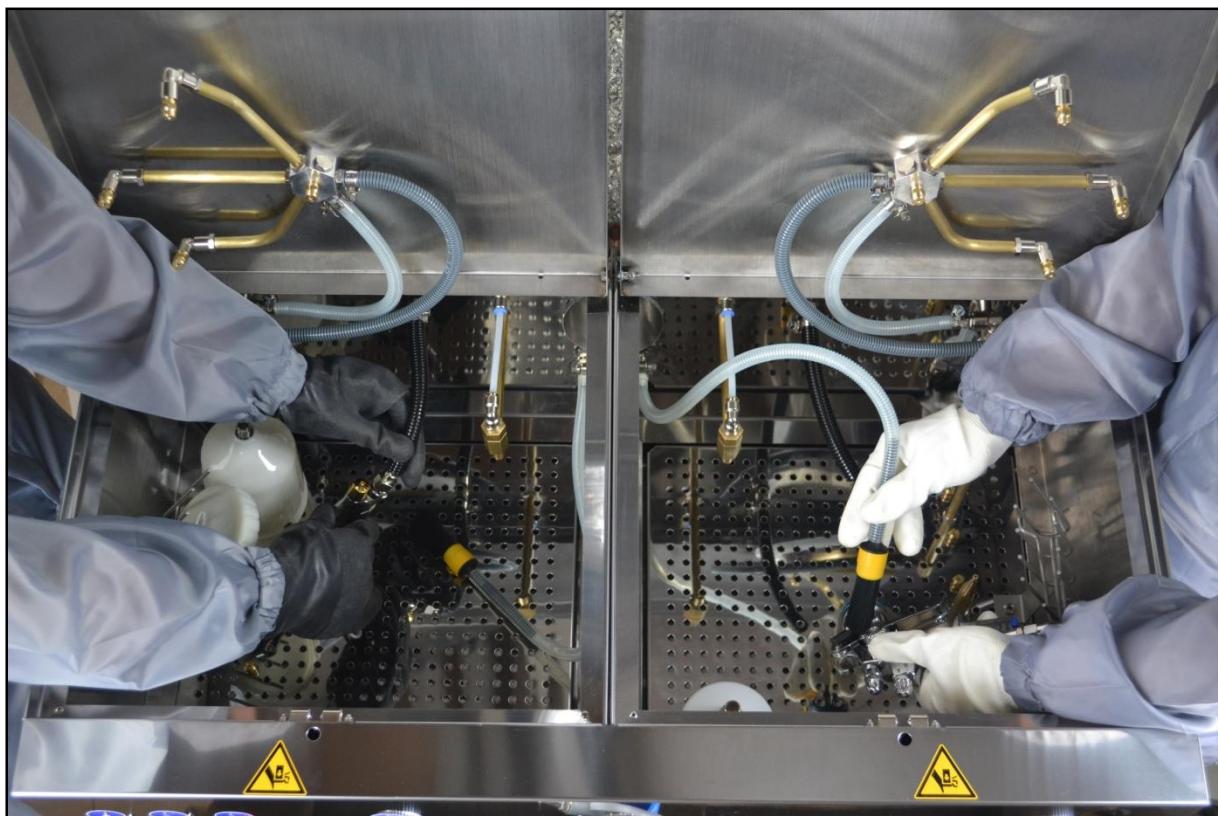
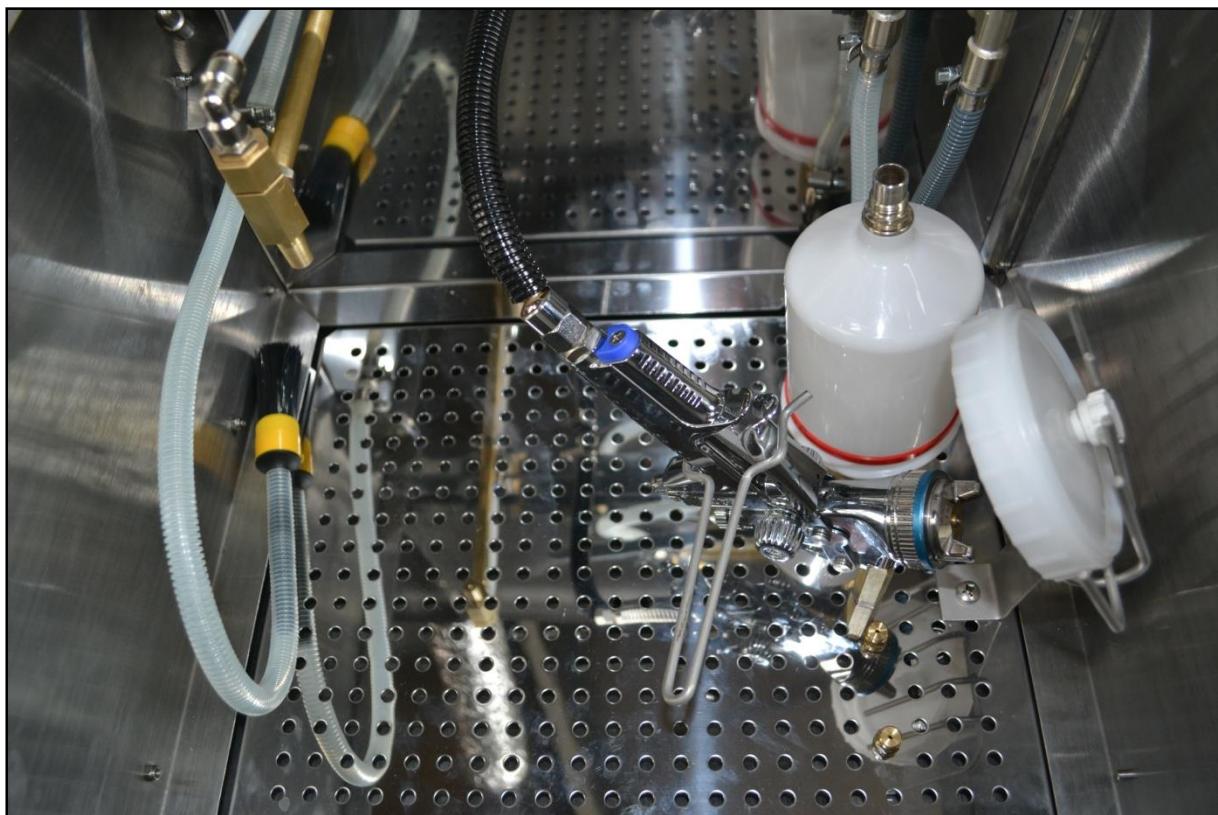
1 pc. Clean solvent



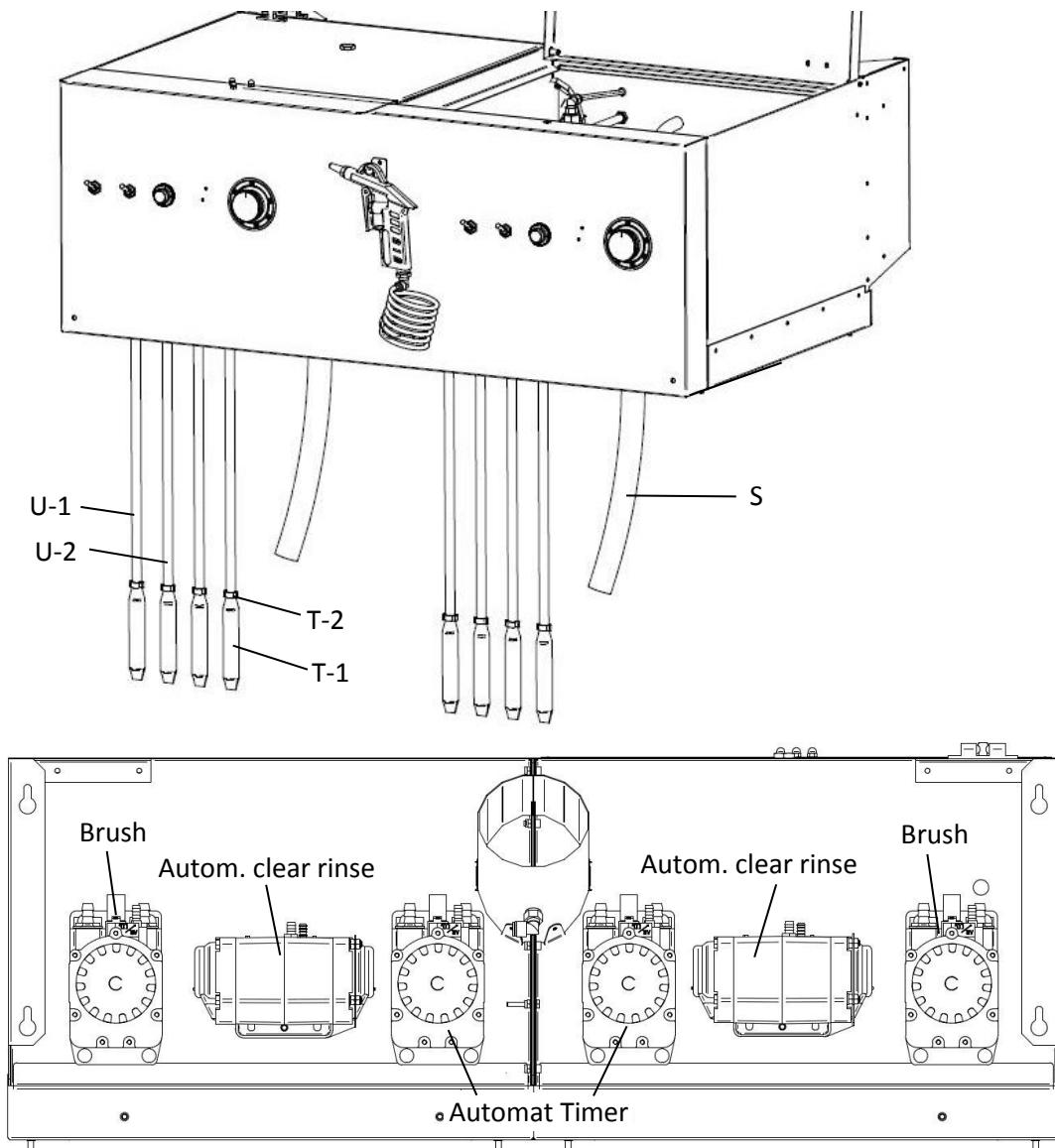
- Technical changes and errors reserved. All pictures similar -

2.2 Details





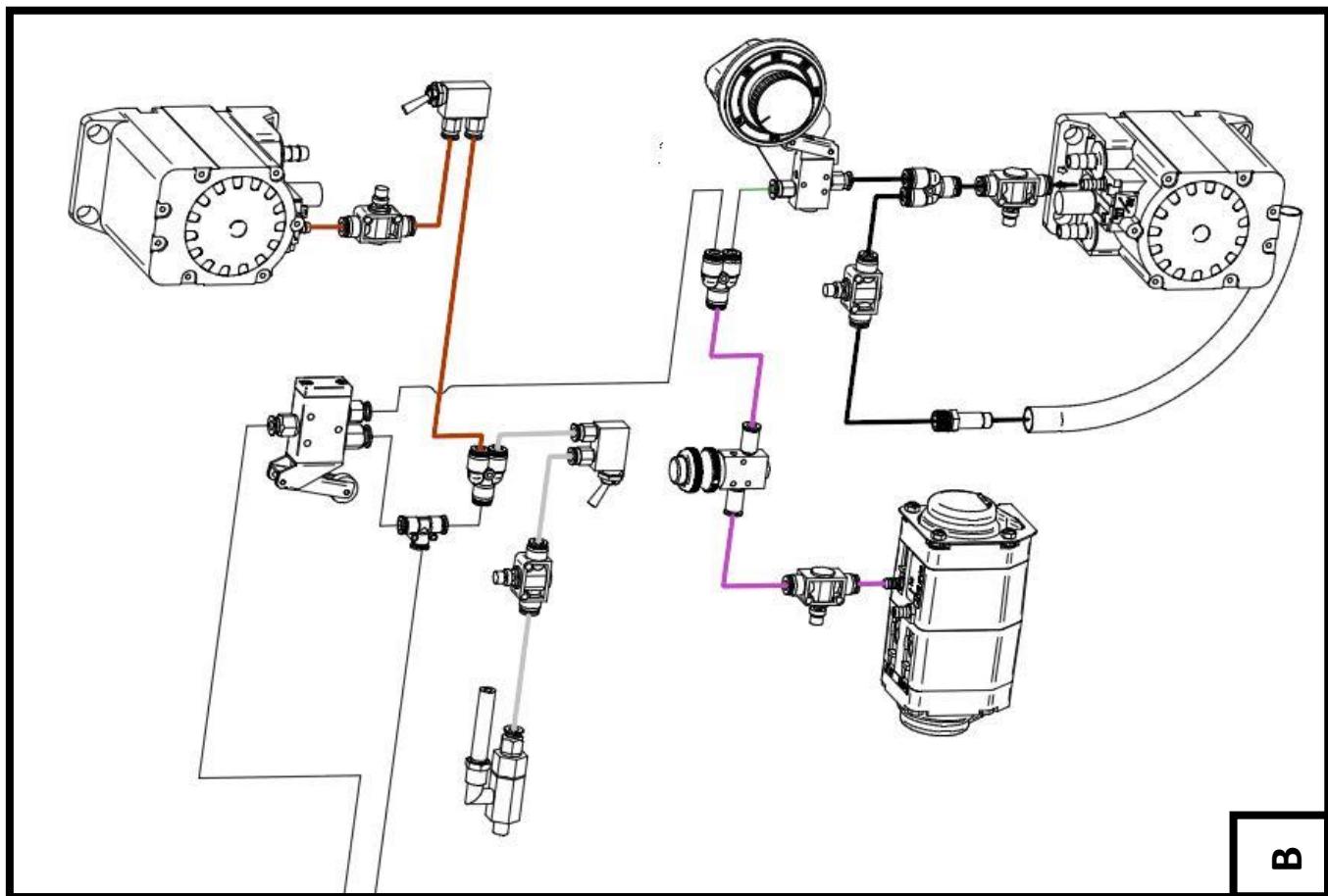
2.3 Part Names



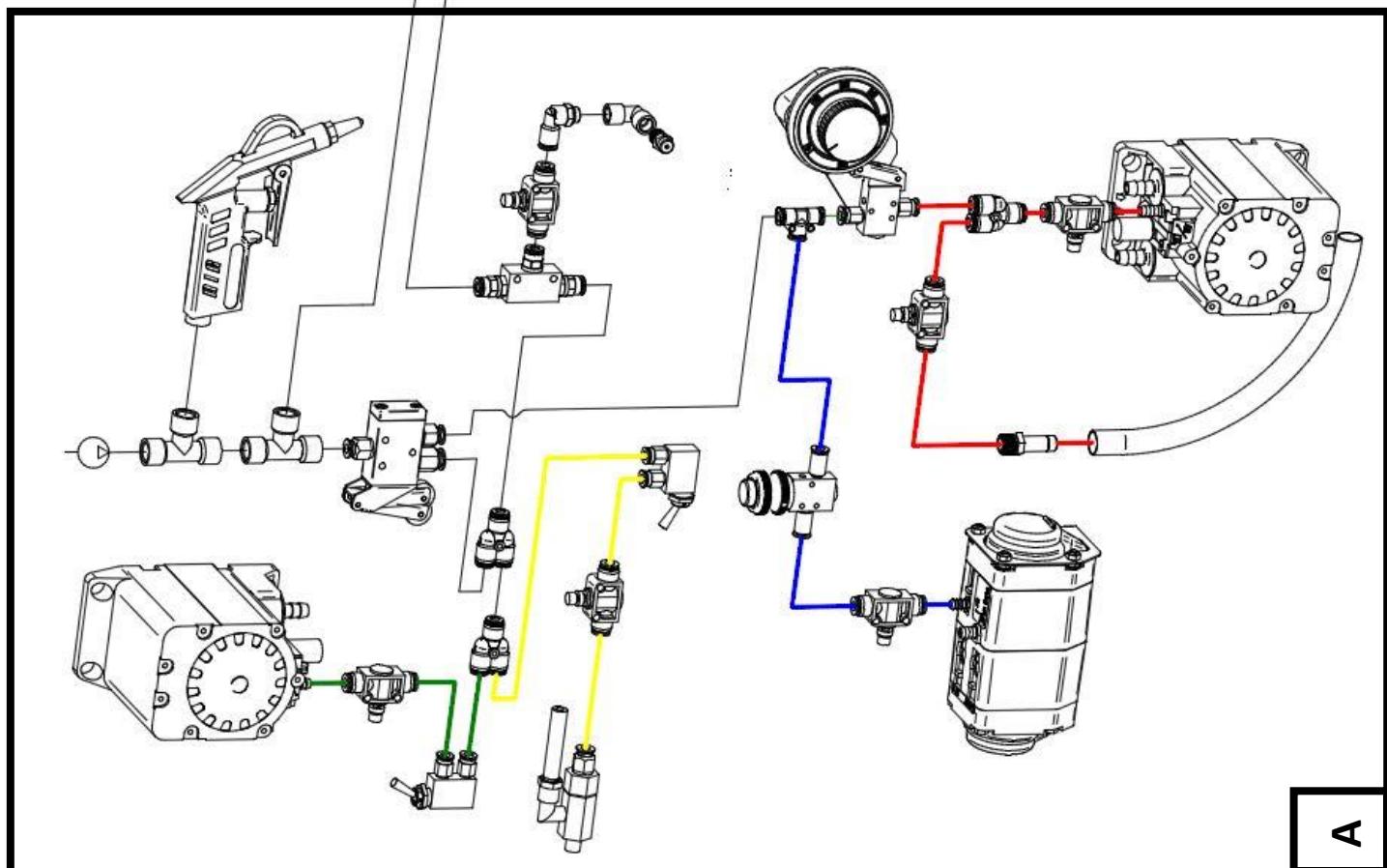
A	- Pump	O	- Lid holder
B	- Dip-switch	P	- Or-valve G1/8"
C	- Throttle valve	Q	- Y-Connector
D	- Role valve for activation G1/8"	R	- Two ball snapper
E	- Role valve 3/2-ways M5	S	- Drain hose
F	- Injector	T-1	- Intake-strainer
G	- Button clear rinse	T-2	- Strainer connecting clamp
H	- Fresh dilution jet	U-1	- Transparent intake hose clean solvent
I	- T- Connector	U-2	- Grey intake hose circulating solvent
J	- Cross connector	V	- Brush with hose
K	- Timer	W	- Hose for flushing spray gun
L	- Air connection	Y	- Grounding cable
M	- Middle jet	Z	- Blow gun
N	- Cup holder		

- Spare parts ordering numbers on page 11 -

2.4 Pneumatic Plan

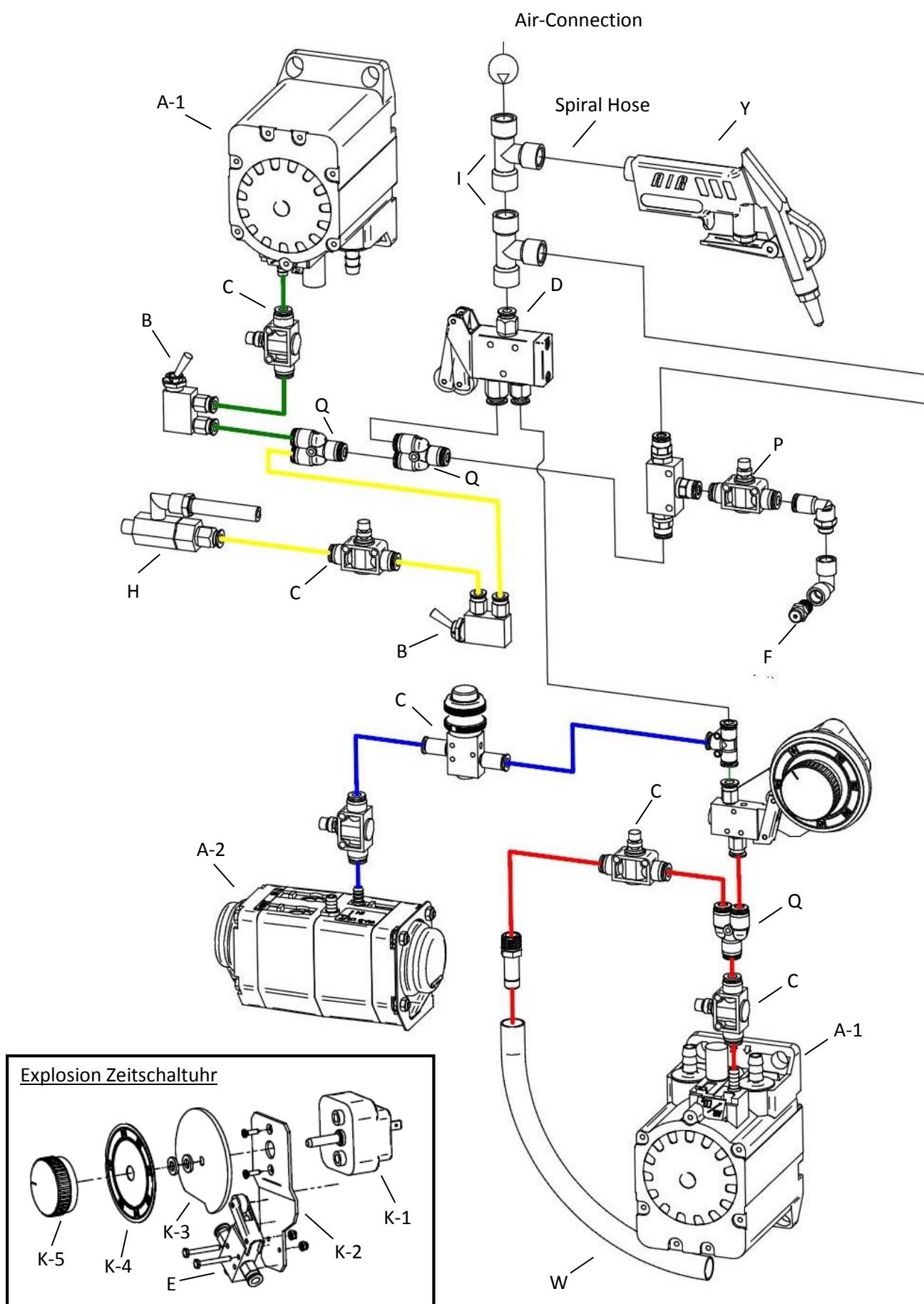


B

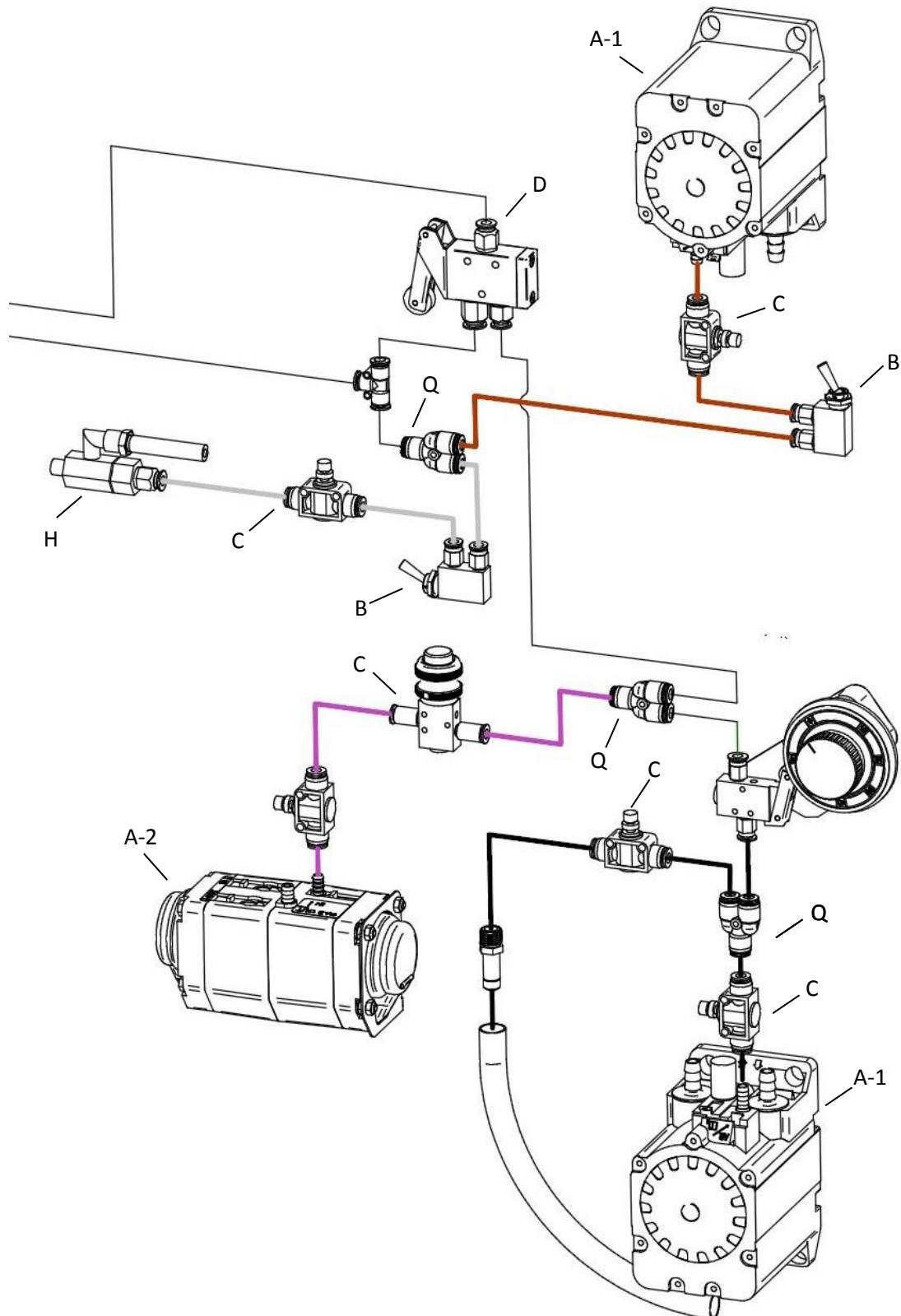


A

Pneumatic Plan A



Pneumatic Plan B



2.5 Spare Parts Ordering Numbers

A-1	- Pump 1/4"	10000554
A-2	- Clean rinse pump 1/8", with connectors	10000565
B	- Dip-switch	10000589
C	- Throttle valve	10000582
D	- Roller valve, G1/8", for activation	10000620
E	- Roller valve 3/2 ways M5, for timer, lifts, ud-800 flap	10000579
F	- Injector	10000415
G	Push button for automatic clean rinse, completely assembled incl. Connectors	10000414
H	- Fresh dilution jet	10000419
I	- T-Connector	10000845
J	- Cross connector	10000893
K-1	- Timer, 6 min	10000444
K-2	- Bracket	10000327
K-3	- Switch-plate	10000328
K-4	- Scale for timer	10000445
K-5	- Timer knob	10000443
L	- Air connection NW 7.2	10000908
M	- Middle jet	10000420
N	- Cup holder	10000418
O	- Lid holder	10000439
P	- Or-valve	10000596
Q	- Y-Connector	10000896
R	- Two ball snapper	10000467
S	- Corrugated hose 25 x 28, black	10000658
T-1	- Filter, stainless steel	10000473
T-2	- Strainer connecting clamp	10000663
U-1	- Corrugated hose 13 x 10, transparent	10000656
U-2	- Corrugated hose 13 x 10, grey	10000655
V	- Brush with hose	10000417
W	- Corrugated hose 15 x 12, black	10000657
Y	- Grounding cable	10000391
Z	- Blow gun	10000446
	Spiral hose with connections	10000645

3. Approved Cleaning Agents

- Highly flammable liquids, hazard symbol „F“ / R 11 flashpoint < 21°C
GHS/CLP H 225 flashpoint < 23°C, boiling point > 35°C
- Flammable liquids, hazard symbol - / R 10, flashpoint 21 – 55°C
GHS/CLP H 226 flashpoint 23 – 60°C
- Non-flammable aqueous cleaning agents (neutral or slightly alkaline pH value for water-soluble paints and dyes, such as demineralized water).
- The machine S.U.M.O. is classified as machine category 2, group II, machine type explosion group II B and can be used in zone 1.

See also machine rating plate:  II 2 G c II B T6



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



Ask the supplier of your cleaning device for a material safety data sheet. This provides information about the cleaning medium you are using.



Never alternately use solvents and cleaning agents for water-based paints. Follow the cleaner manufacturer's instructions. Alternating the two types of agents can cause gas buildup and risk of explosion.



If you plan on changing from solvent to water-based paint remover (or the other way round), the spray gun washing unit has to be cleaned completely of all paint, water, and solvent residues.



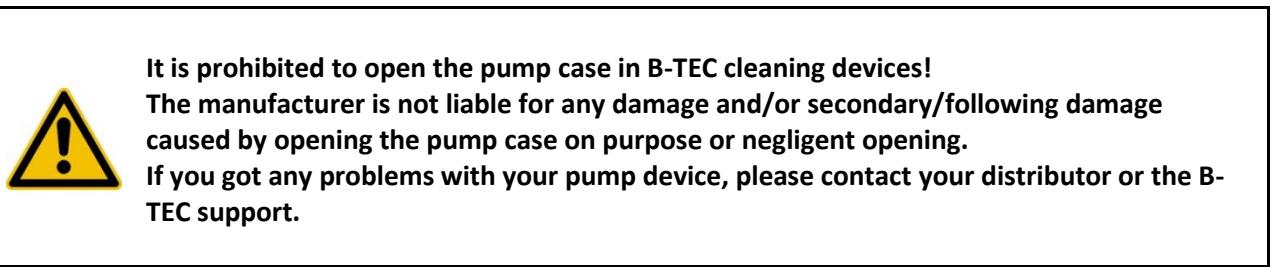
Recommendation to reduce solvent consumption:
If the unit shall be connected to a continuously running exhaust when using solvent, we recommend the pneumatic exhaust damper to reduce solvent consumption.
See B-TEC, catalogue no.: 065.015.030.005 / ATEX version.

4. Safety Regulations

The B-TEC GmbH machines operate reliably and have been constructed according to the state of the art. Due to the nature of the processes there are processes and parts that cannot be protected without impairing operability and functionality. Improper use of the gun-cleaner can be endanger the health of the operator and of other and cause damage to the cleaner itself or to other materials and assets. B-TEC GmbH is not liable for any damages resulting from improper or incorrect use.



The manufacturer is not liable for damages caused by changes of the cleaner that have not been specifically authorized by the manufacturer. The removal or alteration of safety devices immediately voids the warranty and is an infringement of European safety standards.



4.1 Instructions, Rules and Information of the Employers' Liability Insurance Association



The following occupational safety regulations (BGV), rules (BGR), and information (BGI) have to be followed while using spray guns and parts cleaning systems:

BGV A1 "Principles and prevention", general rules

BGV A8 "Safety and health protection warnings at the workplace"

BGR 121 "Safety rules for air pollution control systems for the workplace"

BGI 578 "Security by operating instructions"

BGI 5127 " Avoidance of ignition from electrostatic charges"

BGR 180 " Guidelines for facilities for cleaning parts with solvents"

BGR 189 " Use of protective clothing"

BGR 192 "Use of eye and face protection"

BGR 195 "Use of protective gloves"

BetrSichV " Ordinance on Industrial Safety"

The source documents (with exception of the " Ordinance on Industrial Safety") can be obtained from: Carl Heymann Verlag KG, Luxemburger Str. 449, D-50939 Köln, Germany.

4.2 Safety Precautions

- **The following persons are not allowed to operate these gun cleaners:**
 - Women who are pregnant or breastfeeding.
 - Persons with chronic respiratory disorders or allergies.
 - Children under 16 years of age are only allowed to operate these washers under the supervision of a trained operator.
- The exhaust must be connected continuously whenever operating the machine to avoid the risk of fire, explosions and risk to health.
- Provisions must be made for protective clothing depending on how the machine is operated (gloves, eye protection, airway protection, whole body protection).



- Hands must be washed thoroughly after using the machine and before eating or drinking
→ Danger of poisoning!
- Keep the operating manual available near to the machine.
- Observe the respective information sheets of the trade co-operative association and the safety sheets when working with solvents.
- Make use of local safety and accident prevention regulations always during the operation of the machine. These have to be observed and adhered to.
- Water used as a cleaning agent with or without additives must not be fed into the sewer system. (Obtain information on this point from your local water authority).
- Solvent spills must be dealt with according to the relevant local environmental and safety laws and regulations.
- Compliance with maximum concentrations of solvents for the workplace must be documented according to the local regulations.
- The maximum concentration limits according to local regulations must be observed!
- Only use approved solvents or cleaning agents according to page 12.
- A sufficient conductivity of the clothing (especially shoes) should be respected.
- Open flames or other sources of sparking ignition (e.g. welding or grinding apparatus, flexing) are only permitted with a sufficient safety distance to the machine. Exception sockets min. 1 Meter. Please note classification of zones on page 15!
- Smoking is also prohibited!



A good grounding is essential!

4.3 Safety Regulations Pertaining to the Installation of B-TEC Machines

The risk zoning around the cleaning machine and the possible creation of an explosion protection document is, in accordance with legal requirements, the operator's obligation, because this division is amongst others depending on the used solvents and various conditions such as the ventilation. However, at this point the operator should be supported with general advice to comply with the obligation. Helpful advice can also be read at BGR 104, BGR 180 and DIN EN 12921-1 and -3.

For example, in many cases the classification of the zones looks like this:

Zone 0 => The interior of the machine

Zone 2 => In periphery of 1,0 – 1,5 m

Identify the different zones with appropriate warning and prohibition signs. Marks at the floor can be helpful. In the area surrounding the unit, open flames and other ignition sources (e.g. welding or grinding equipment places) are not allowed. Similarly, smoking is prohibited. Temporary work with ignition must be approved in writing and appropriate additional safety precautions must be adhered to (remove all combustible materials, classification of a fire station, ...).



5. Transport and Installation

- The machine is completely assembled delivered in a robust carton.
- Bring it to the installation site.
- If device is ordered with base cabinet (Module 9), a separate assembling of the base cabinet is necessary.

5.1 Requirements to the Installation Site

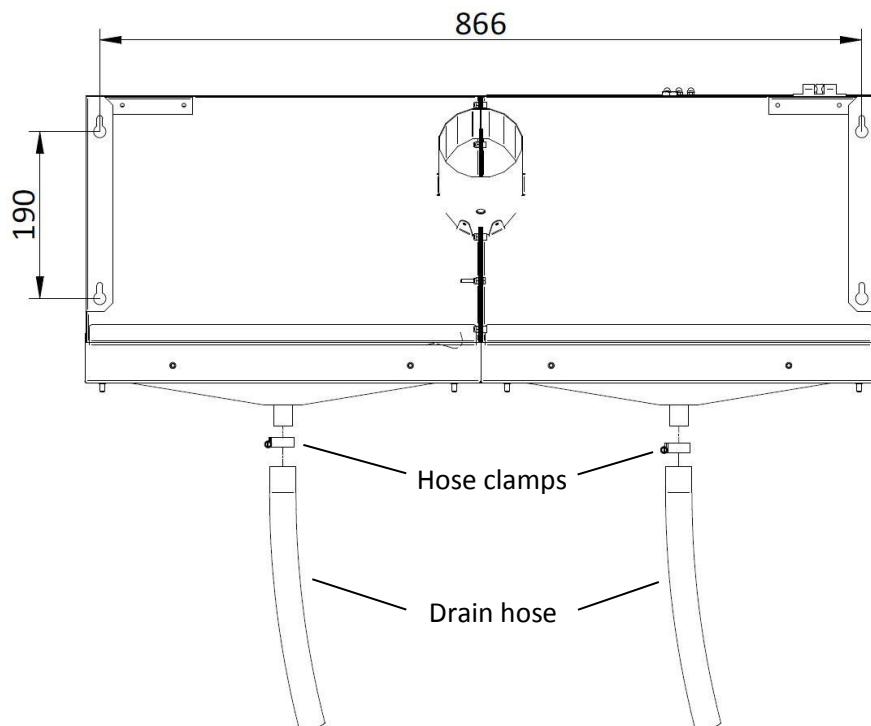
- Dry and frost-free.
- Very well ventilated, force-ventilated, both supply and exhaust.
- Don't position the machine close to heat sources.
- Follow the safety instructions about the site.
- Follow the safety instructions according to the zone designations (Page 15).
- Maintain the ambient temperatures (5° - 35°C / 41°F - 95°F) and do not expose the machine into direct sunlight, as this carries a risk of overheating.
- Horizontal, conductive industrial floor (max. discharge resistance 10⁸ Ohm).

5.2 Wall Mounting

Hole pattern as shown in the figure below. Please use a spirit level and mark out hole points on the chosen side wall such that there is sufficient space below the Starter to place the largest fluid container you wish to use (usually the waste container) and at a height that suits your own working position. Depending on wall condition, please use min. 6 mm dowels and min. 5 mm screws. Set the screws such that their heads are about 10 mm out from the wall. Place the gun cleaner on the screws and check that the lid can close easily, then tighten the screws firmly. Check that the lid is free to stay back when open.

5.3 Connecting Drain Hose

Take the black drain hoses (Ø23 mm) out of the machine and connect it with the enclosed hose clamp under the gun cleaner as shown in the picture above.

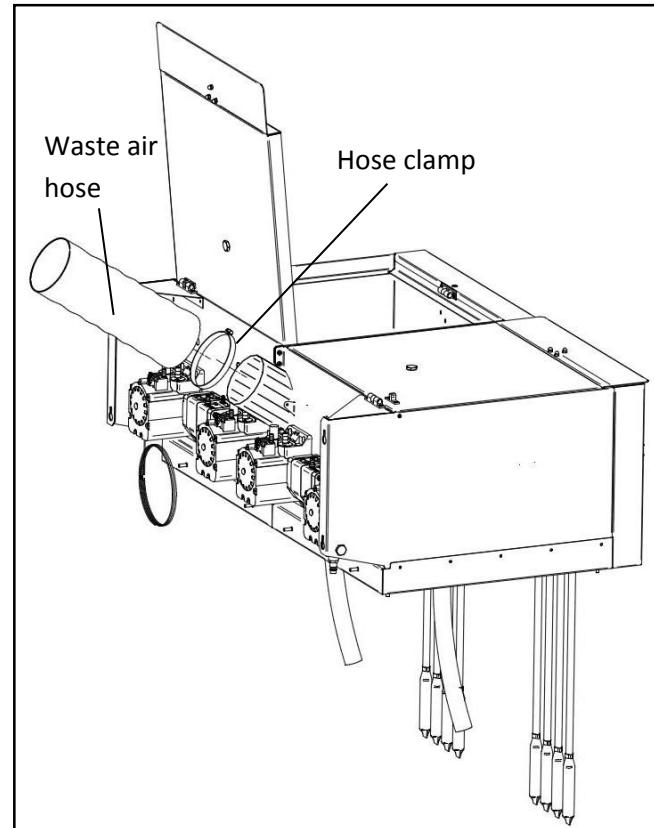


5.4 Connecting Exhaust

The waste air hose must lead outside. Place the waste air hose minimum one meter lengthwise for optimal work of the exhaust system. Stretch the hose as far as possible in order to avoid a reduced flow cross-section. This is necessary in order to ensure that the exhaust system works well.

Ensure that the fumes are not led into areas where people are likely to be. The waste air has to be exhausted safely. This means that it has not to be fed into chimneys serving furnaces or fireplaces and not into exhaust channels of spraying and drying cabinets.

Attention! Only use original B-TEC waste air hoses. Risk of fire if other hoses are used.



You can adjust the exhaust air flow rate at the throttles as needed for the length of the waste air hose.

5.5 Connecting Compressed-Air

One compressed air connection has to be provided by the operator:



Operating pressure max. : 600 kPa (6 bar ; 87 psi)

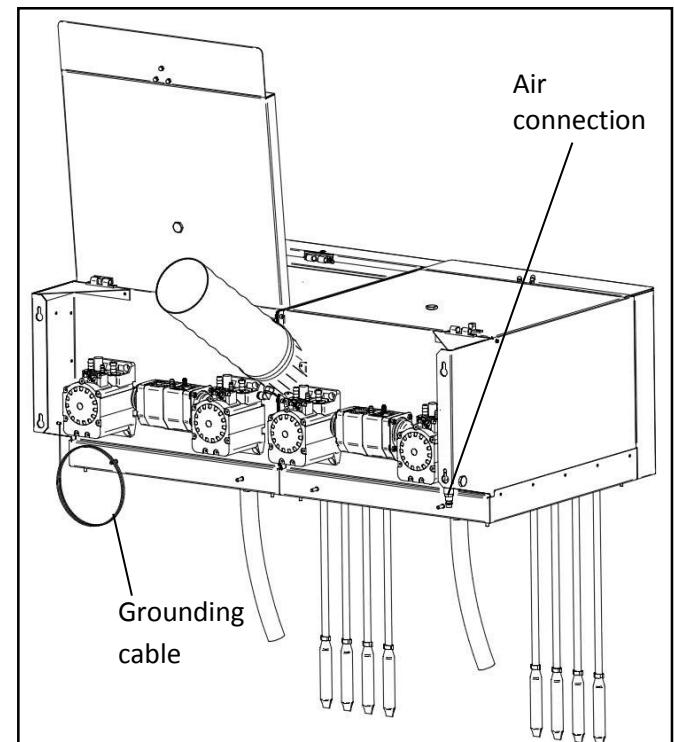
Operating pressure min. : 500 kPa (5 bar ; 73 psi)



Use of a pressure-regulating valve is necessary if the compressed air connection does not deliver the required operating pressures.



Use only dry and oil-free air!!



5.6 Grounding



This machine should be earthed in accordance with appropriate local regulations using a separate earth cable. There is an earth cable on the backside of the machine for the purpose of electrostatic earthing, for example to a metal water pipe. The cable must be grounded safely by a qualified person (e.g. electricians). **Customer-provided solvent tanks must be grounded separately!**

After proper installation and connection to the compressed air supply, the cleaning unit can be commissioned.



Unnecessary dry running of the membrane pumps should be avoided.



**Do not open the device's lid when the automatic wash cycle is still running.
If necessary, turn the timer to "0".**

6. Operating Instructions

Please follow the set-up sequence exactly!!

Transport the washer to the installation site as described in chapter 4.3 „Safety regulations pertaining to the installation of B-TEC machines“, connect compressed air supply (**maximum 6 bar / 87 p.s.i.**) and attach the waste air hose. Stretch the hose as far as possible in order to avoid a reduced flow cross-section. This is necessary in order to ensure that the exhaust system works well.

The safety regulations in section 4 have to be read in advance and followed during the installation!

The following solvent drums are required:

1 x 60 liters drum filled with 30 liters and 1 x 30 liters drum filled with 30 liters or 1 x 30 liters drum filled with 15 liters and 1 x 30 liters drum filled with 15 liters.

6.1 Commissioning

Insert the black discharge hoses ($\varnothing 23$) and grey intake hoses into the 60 l drum, which is provided for contaminant dilution and circulating material. Insert the transparent intake hoses into the 30 l drum provided for fresh thinner and material.

The cleaning device is now ready to work.

6.2 Operational Procedure

Depending on the ordered modules, the operational procedure will be different. In the following sections the operational procedure for a fully equipped device will be shown.

Working with the manual side of the machine (cf. pages 5f)

Brush (Modules 1&5)

Open the device's lid. The exhaust starts automatically. Activate the pump of the brush with the dip-switch labeled with a brush-symbol. Circulating solvent flows out of the brush. The output can be adjusted with help of the throttle valve located in front of the pump.

Fresh dilution jet (Module 2&6)

Activate the pump of the fresh dilution jet with the dip-switch labeled with a fresh dilution jet symbol. Fresh solvent flows out of the fresh dilution jet (30 liters drum). The output can be adjusted with help of the throttle valve located in front of the pump.

With the blow gun, which is positioned at the front of the machine, you can dry objects or spray guns. When the manual cleaning area is not longer in use, switch it off and close the door. The exhaust stops automatically.

Working with the automatic side of the machine (cf. pages 5f)

Open the device's lid. The exhaust system starts automatically. Then install the gun as described as follows:

1. Remove the lid of spray gun and place it in the lid holder. Ensure that the paint-soiled inner surface faces downwards → towards the interior of the washer.
2. Unscrew the cup and place it upside down on the cup holder.
3. Remove the strainer from the gun and place it on one of the tines of the cup holder. Den Siebfilter aus der Spritzpistole nehmen und auf einen Zinken des Deckelhalters stecken. Place the spray gun upside down on the middle jet.
4. Only after the spray gun is placed upside down on the middle jet, pull back the gun's trigger by using the trigger clamp delivered in the washing chamber. That ensures that solvent flows through the paint channel of the spray gun. In addition, it is necessary to ensure that the set screw is in "opened"-position so that an air flow is possible.

5. Connect black compressed air hose to the air-connection plug of the spray gun.
 This ensures that air is forced into the air channels of the spray gun during the cleaning process and that solvent and paint residues are prevented from entering. The spray gun is now properly installed.
6. Close the device's lid. **Do not allow the lids on the machine to fall shut. All machine lids must be operated with appropriate care and caution by the user.**


 **Do not open the door while automatic washing cycle is running. If necessary, turn the timer to "0".**

Automatic washing cycle via timer (Modules 3&7)

Set timer for 2-3 minutes. The main cleaning cycle is activated. Solvent is drawn from the 60 liters drum and circulates. The timer can be reset to zero by hand. When the set time is over, open the lid slowly and check the cleaning result.

Automatic clear rinse (Modules 4&8)

Since the solvent is circulated when the timer is used, it will be heavily contaminated after a certain period. If a paint film remains on the spray gun after the main cleaning cycle, the gun has to be cleaned manually by using the clear rinse.

For automatic rinsing, close again the device's lid and press and hold the rinse button (red button) for 3-4 seconds. Thinner is drawn from the 30 l drum. The spray gun is rinsed on the inside and outside with fresh thinner.

1. Open the device's lid again and dry spray gun, cup and lid by using the blow gun.
2. The spray gun is cleaned. Reassemble it and bring it back into production.



Clean the spray gun as soon as possible after the painting process.



Before insert the spray gun, unscrew the cover from the cup and empty out the remained paint into a collecting container. For example the B-TEC residue collecting station RST-01. The more thoroughly the cup is emptied, the longer the solvent or cleaner can be used.

If you follow these process steps, you will have an optimal cleaning result.

6.3 Adjusting Facilities

Slightly above the pumps are color-coded throttle-valves for following adjusting:

Left side

- Green: Brush
- Blue: Clear rinse
- Red: Jet automatic
- Yellow: Fresh dilution jet

Right side

- Brown: Brush
- Purple: Clear rinse
- Black: Jet automatic
- Grey: Fresh dilution jet

7. Care and Maintenance



The machine hast to be disconnected from the compressed air supply before any repair work!

7.1 Maintenance of the Machine

- We recommend cleaning the stainless steel filter on the intake hose regularly (at least every time the cleaner is changed.) → if the filter is defective, it must be replaced immediately. Defective filters either have heavy paint buildup, causing clogging of the filter surface, or, the filter has a breach that allows contaminated solvent to be drawn in by the pump, which can damage the pump or clog the washing nozzle.
- 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 and solvent and to ensure that there is permanent sufficient flow capacity in the drain.
- It is recommended to use each function of the device shortly at least once a day in order to avoid drying of the membranes inside the pumps and keeping the jets clean.
- When the machines will not operate for a longer period of time (for example during vacations) a clear rinse should be used after the final cleaning cycle so that the jets will not be clogged with heavily contaminated solvent.
- The operating permission will expire, if other than original B-TEC replacement parts are used.

Customer service: Contact your dealer, or directly:

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

7.2 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 standard household waste. Depending on the level of contamination, it has to be handled as hazardous waste. Consult your local authorities as needed.

8. Safety Inspection Checklist

Please make copies before filling in the first time!



Safety inspections must be conducted at least once every year!

<u>Item checked</u>	<u>OK</u>	<u>Missing or faulty</u>	<u>Rechecked</u>
1. Operating instructions			
2. Model design label			
3. Warning signs			
4. Condition of fluid hoses*			
5. Condition of compressed air hoses*			
6. Clean intake filters			
7. Check washer cabinet for leaks			
8. Function test of all control elements			
9. Grounding of the gun cleaner			
10. Check of the exhaust			

* Check for brittleness etc.

Expert technician

Name: _____

Address: _____

Date of the safety check _____

Result of the safety inspection



No faults, can be operated without restrictions.



Restricted operation, faults to be repaired by _____.



Operation not allowed, Re-inspection necessary.

Signed by expert technician _____

Signed by operator _____

After correction faults

Signed by expert technician _____

Signed by operator _____