



Spray-Gun Cleaner iMAGO SMART





EU-Declaration of Conformity According to DIN EN ISO/IEC 17050-1

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: iMAGO SMART						
Serial-no.:	Construction year: 20					
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 harmonising 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 Non-electrical equipment for use in potentially explosive atmospheres: DIN EN 13463-1 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: DGUV rule 109-010 Safety- and health signs at workplace: DGUV regulation 9						
Ex declaration: Ex II 2 G c II B T6						

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

Address: Refer to manufacturer's address

Location/Date/Manufacturer`s signature Function of the signer: Managing director



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1. Important Information



We thank you for your trust you gave to us by buying the spraying-gun cleaning-device "iMAGO SMART". On the identification plate at your cleaner you can find the exact type designation and serial-number of your cleaner to ensure an uncomplicated service and shipment of spare parts. The cleaners have been designed and manufactured to the highest quality standards for high operational safety. Due to certain operation processes, there are places and parts that can't be protected without impairing operability and functionality. Therefore we ask you to read this document carefully before using the cleaner in order to achieve maximum operational safety and lifetime. The instructions are an integral part of the product and must be stored with the gun cleaner.



Read this document carefully before putting the gun cleaner into operation and keep it for future reference!

On the last page of this instruction book, there is a form for documenting safety inspections, which have to be conducted at regular intervals. The form has only to be filled out 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 must be conducted before commissioning and at least once a year!



The Marx devices and machines are only allowed to be used according to the intended purpose explicitly described below. A usage not according to the intended purpose as well as unauthorized modifications exclude the liability of the manufacturer for any damages resulting from this.



The Marx devices and machines are only to be used according to the intended purpose explicitly described below!

These machines are to be used for cleaning varnish and spray paint guns as well as paint soiled parts and hand tools using solvents (A I, A II, A III) or non-combustible, aqueous cleaners for water-based paints. The Acetone content of the solvent used must be less than 65 %.

These gun cleaners must not be subjected continuous operation, such as, for instance, the 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 cleaners can endanger the health of the operator!

1.1 Explanation of the Symbols

Caution!



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.

Noticel



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 universal washer "iMAGO SMART" is produced for automatically cleaning tube attached spray paint guns as well as spray paint guns with coupler plug. The automatic wash cycle is activated by a timer. In addition, there is a brush and a fresh solvent jet in the wash enclosure for manually cleaning objects or spray guns and a jet gun in order to dry the cleaned objects.

2.1 Technical Information

Compressed-air connection

Operating pressure: max. 6 bar

Acoustic emission¹

Closed machine: 74 dB(A)
Opened machine: 76 dB(A)

Exhaust air flow rate at operating Pressure 6 bar: 152 m³/h

Containers

Max. size 60 litres

Quantity 2

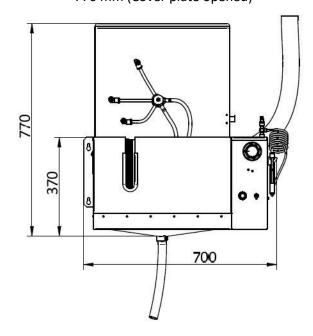
External dimensions

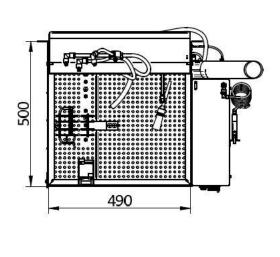
Width: 670 mm Depth: 500 mm

Height: 370 mm (Cover plate closed) 770 mm (Cover plate opened)

Cleaning-room

Width: 490 mm Depth: 410 mm Height: 295 mm



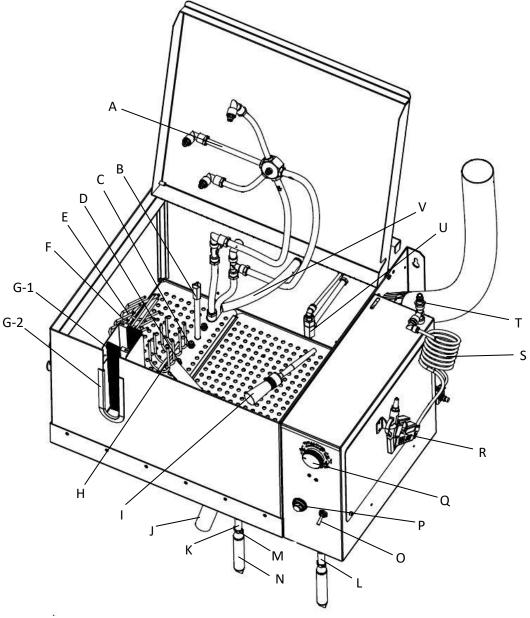


- Technical changes and errors reserved. All pictures similar -

¹ Measurement at ear level - Tolerance: 0,5% measurement method - 1,0 dB(A) analyzer



2.2 Details



A - Blast connection

B - Cup holder

C - Injector

D - Middle-jet

E - Trigger clamp

F - Lid holder

G-1 - Brush strip

G-2 - Edge protection

H - Gun holder

I - Brush with hose

J - Drain hose

K Grey intake hose

L - Transparent intake hose

M - Strainer connecting clamp

N - Intake-strainer

O - Dip-switch fresh solvent jet

P - Rinse button

Q - Timer

R - Jet gun with short tube

S - Spiral hose

T - Air connection

U - Fresh solvent jet

V Compressed air hose for flushing

W - Throttle valve

X - Draw-jet

Y-1 - Pump 1/4"

Y-2 - Pump 1/8"

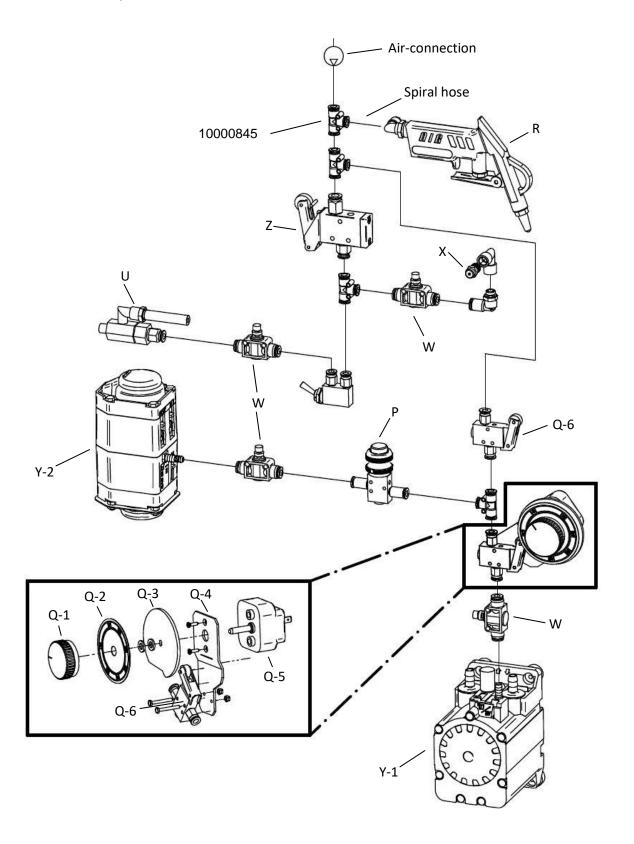
Z - Role valve 3/2-ways M5

Grounding Cable

Spare parts ordering numbers on page 6



2.3 Pneumatic plan





2.4 Spare Parts Ordering Numbers

Α	_	Blast connection	10000204
B	_	Cup holder	10000418
	_	Injector	10000418
	_	Middle-jet	10000429
E	_	Trigger clamp, standard	10000323
	_	Lid holder	10000439
G-1	_	Brush strip	10000439
G-2	_	Edge protection	10000369
H	_	Gun holder	10000370
<u> </u>	_	Flow-trough bursh, size 4, 50 mm length, nylon, black	10000463
	_	Corrugated hose 25 x 28, black	10000658
K		Corrugated hose 13 x 10, grey	10000655
	_	Corrugated hose 13 x 10, transparent	10000656
	_	Strainer connecting clamp	10000663
N	_	Filter, stainless steel	10000473
0	_	Dip-switch fresh solvent jet	10000589
P	-	Push button for automatic clean rinse, completely assembled incl. Connectors	10000414
Q	-	Timer	
Q-1	-	Short-timer / clock unit	10000443
Q-2	-	Bracket	10000445
Q-3	-	Switch-plate	10000328
Q-4	-	Timer scale	10000327
Q-5	-	Timer knob	10000444
Q-6	-	Roller valve 3/2 ways M5, for timer, lifts, ud-800 flap	10000579
R	-	Jet gun with short tube	10000446
S	-	Spiral hose	10000645
Т	-	Air connection	10000908
U	-	Fresh solvent jet	10000419
V		Corrugated hose 15 x 12, black	10000657
W	-	Throttle valve	10000582
Х	-	Draw-jet	10000415
Y-1	-	Pump 1/4"	10000554
Y-2	-	Clean rinse pump 1/8", with connctors	10000565
Z	-	Roller valve 3/2 ways M5, for timer, lifts, ud-800 flap	10000579
*	-	Grounding Cable	10000391



3. Approved Cleaning Agents

- Highly flammable liquids, hazard symbol "F" / R 11 flashpoint < 21°C such as lacquer solvents, but excluding all "extremely flammable" fluids with a flash point under 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) such as distilled water for water-soluble varnishes and paints.
- The machine iMAGO SMART 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: (Ex) II 2 G c II B T6



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



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 fluids (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 fluids for water-based paints (or vice-versa) the paint gun washer must be completely cleaned of paint, water and fluid 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 catalog no.: 065.015.030.005 / ATEX version.



4. Safety Regulations

The Marx GmbH machines are safe to operate and have been designed and built according to state-of-the-art technology. Due to the nature of the processes there are functions and parts that cannot be protected without impairing operability and functionality. A usage not according to the intended purpose as well as unauthorized modifications exclude the liability of the manufacturer for any damages resulting from this.



A usage not according to the intended purpose as well as unauthorized modifications exclude the liability of the manufacturer for any damages resulting from this and infringes European safety standards.



It is prohibited to open the pump case in Marx cleaning devices!

The manufacturer is not liable for any damage and/or secondary/following damage caused by opening the pump case on purpose or negligent opening.

If you got any problems with your pump device, please contact your distributor or the Marx support.



Read and follow this Instruction manual and the safety instructions carefully before commissioning!

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 part 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 7.
- 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 10!
- Smoking is also prohibited!







A good grounding is essential!



4.3 Safety Regulations Pertaining to the Installation of Marx 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 inter alia depending on the solvents used 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 1 => 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 delivered in carton.
- Take the machine out of the carton and bring it to the installation site.

5.1 Requirements for the Installation Site

- The gun cleaner is build for wall mounting. Optional with a Marx stand.
- Horizontal and industrial floor, if installing the the stand (Art.-No.: 65.40.20)
- Conductive industrial floor (max. conductive resistance 10⁸ Ohm).
- Dry and protected from frost.
- Very well ventilated and means of ducting the exhaust fumes to an approved area.
- Follow the safety instructions about the site.
- Follow the safety instructions according to the zone designations (chapter 4.3).
- Maintain the ambient temperatures (5° 35°C / 41°F 95°F) and do not expose the machine to direct sunlight, as this carries a risk of overheating.
- Horizontal,



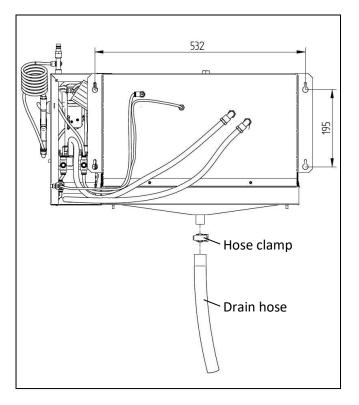
Attention to the official regulations about the floor, otherwise take the collecting tray art.-no.: 65.15.55.

5.2 Wall Mounting

Hole pattern as shown in the adjacent figure. 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 hose (Ø23 mm) out of the machine and connect it with the enclosed hose clamp under the gun cleaner as shown in the picture above.



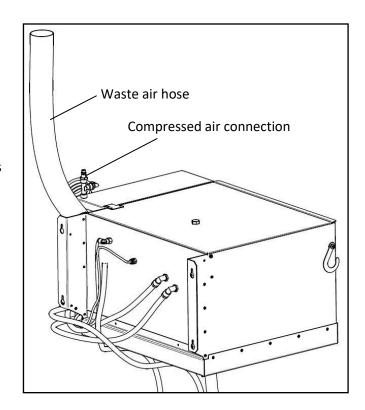


5.4 Connecting Exhaust

The waste air hose must lead outdoors or to an approved and tested extract system and the fumes discharged safely. Ensure that the fumes are not led into areas where people are likely to be, into chimneys of furnaces or fireplaces and not into exhaust ducts of spraying and drying cabinets. 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.

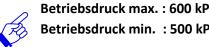
Connect the waste air hose with the hose clamp on the air exhaust connecting piece as shown in the adjacent figure.

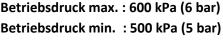
Attention! Only use original waste air hoses. There is risk of fire if other hoses are used.



5.5 Connecting Compressed Air

Das Gerät benötigt einen Druckluftanschluss:







Sollte Ihr Druckluftanschluss nicht den geforderten Betriebsdrücken entsprechen und zu hoch sein, so muss unbedingt ein Druckminderer eingesetzt werden. Es darf nur trockene und ölfreie Luft verwendet werden!

5.6 Grounding



This machine should be earthed in accordance with appropriate local regulations using a separate earth cable. There is an earth cable adjacent to the pump 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 as described above, the machine can be put into operation.



6. Operating Instructions

Please follow the set-up sequence exactly!!

Conduct the initial installation as described in section 5. The following paragraphs explain how to prepare the required fluids and describes the operational procedure.

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

The following solvent/was fluid drums are required:

if using the RK water-soluble paint fluid it MUST be diluted in the ratio of 2 volumes of fresh tap water to one volume of RK e.g. pour 10 liters of RK into the 30 liter container and fill to 30 litres with 20 liters of water:

One 60 liter drum, approx. half filled with fluid* and one 30 liter drum filled with fresh solvent or diluted fluid.

*The 60 liter drum is for recycling but must be 'charged' with fresh fluid in order to start re-cycling.

If mounted at the wall, you might have to use smaller drums suitable for the height of the cleaner.

6.1 Commissioning

Insert the black drain hose (\emptyset 23 mm) and the grey intake hose into the 30 liters drum that is used for waste solvent (Circuit solvent). Insert the transparent intake hose into the 30 liters drum that is used for fresh solvent.

6.2 Operational Procedure

Working with the manual washer section

Open the hinged lid. The exhaust will start automatically. Über den Kippschalter wird die If manual cleaning using the fresh solution jet is required, operate the toggle switch labelled "jet for fresh solvent". Fresh solvent will be atomized from the spray jet. When the manual cleaning area is not longer in use, switch it off and close the hinged lid. The exhaust stops automatically.

Operating the automatic washer section

Open the hinged lid. The exhaust will start automatically. Install the spray paint gun to be cleaned as described below:

- 1. Remove the lid of the spray gun cup and place it in the lid holder. Make certain that the paint-soiled inner surface faces downwards → towards the interior of the washer.
- 2. The paint cup must be removed. The strainer is removed from the spray gun and placed on a peg on the lid holder. The spray gun is then placed upside-down on the middle jet.
- 3. The paint cup must be be placed upside-down on the jet in front of the middle jet

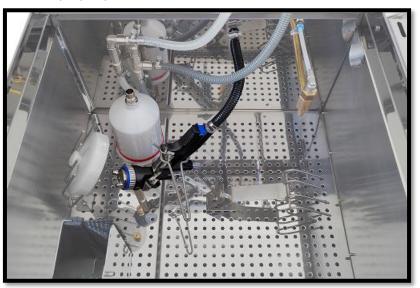


4. The spray gun trigger is pulled back with the trigger clamp located in the washing chamber.

This ensures that solvent flows through the paint passage of the spray gun. In addition, ensure that the set screw is in "opened"-position, so that the air flow is possible.

5. Connect the black compressed air hose to the connection on the spray paint gun .This ensures that air is forced into the air passages of the spray gun during the cleaning process and that solvent and paint residues are prevented from entering the airways. It is not necessary to firmly secure this hose to the gun air inlet provided it stays comfortably over the gun inlet fitting. Air will flow through the gun keeping the air cap free from being contaminated by recycled fluids.

The spray gun is now properly installed.





of the gun-cleaner. Do not allow the lid to fall shut. All machine ust be operated with appropriate care and caution by the user.

Spray gunwith cup

e knob clockwise to a setting for 1 - 3 minutes. Do not apply knob. If you set the knob beyond the time you need, carefully rse direction until the setting required is reached. When the set open the hinged lid slowly and check the cleaning result.

- 8. Since the solvent/mulu is circulated during automatic cleaning, eventually it will become heavily contaminated after a certain amount of use. When this condition is reached, a thin opaque paint film will be observed on the spray gun after the main cleaning cycle. The gun will then need to be manually cleaned externally using the fresh solvent jet.
- 9. The spray gun is now clean. Depending on the used cleaning agent, rinse it with water, reassemble and put back into production.





Clean spray gun immediately after each use.



Before placing the spray gun in the washer, remove lid from the paint cup and empty remaining paint into a collection container. The more thoroughly the cup is emptied, the longer the solvent can be used in the washer.

Following these steps will ensure optimal cleaning results and long machine life.

Arbeiten mit dem automatischen Waschgeräteteil: Spülen der Pistole von außen

Open the devices door. The exhaust system starts automatically. Insert the spray-gun as follows:

- 1. Put the gun into the gun-holder.
- 2. Put the tube(s) vertical into the brush-watergate.



- 3. Safe position of the tubes with the swivel hook on the left hand side of the machine.
- 4. The spray gun is now properly installed.
- 5. Close the door again carefully. The Exhaust stops working.



Close the hinged lid of the gun-cleaner. Do not allow the lid to fall shut. All machine doors and hatches must be operated with appropriate care and caution by the user.

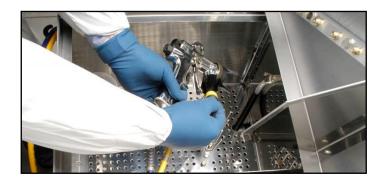
6. Set timer for 1-3 minutes. The main cleaning cycle is activated. Solvent is drawn from the container and circulated. The timer can be reset to zero by hand. When the set time is over, open the door slowly and check the cleaning results.



7. 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 using the fresh solvent jet. The solvent is saturated and has to be replaced.

You can adjust the output at the throttle valve near by the pump.

8. Use the brush to remove residual dirt.



9. The spray gun is now clean. Depending on the used cleaning agent, rinse it with water, reassemble and put back into production.



Clean spray gun immediately after each use...



Unnecessary dry running of the membrane pump should be avoided!



Do not open the door when the automatic wash cycle is running. If necessary, turn the timer to "0".



It's forbidden to clean or flush electrostatic guns by using combustible cleaners!

6.3 Adjusting Facilities

On the back of the machine near the pumps are color-coded throttle-valves for following adjusting:

Blue: Clear rinse Red: Jet automatic



7. Care and Maintenance



The machine hast to be disconnected from the compressed air supply during cleaning and maintenance!

7.1 Maintenance of the Machine

- We recommend cleaning the stainless steel filter on the intake hose at regular intervals (at least at every solvent/fluid change.) → 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 grates and the interior walls of the machine at regular intervals. Remove any residues from the drain pans under the grids to ensure rapid solvent run-off.
- 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 are not to be operated 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. In the unlikely event that the cleaning jets do become blocked, then they can be easily unscrewed from the machine and cleaned separately in neat solvent or cleaning solution and then re-fitted to the machine.
 Replacement jets are available as spare parts.
- The operating permission will expire, if other than original B-TEC spare parts are used.

Customer service: Contact your dealer, or directly:

Uwe Marx Oberflächentechnik GmbH Friedrichsgaber Weg 390 22846 Norderstedt Tel: +49 / 40 5281159

Fax: +49/ 40 5231959

Email: info@marx-spritzgeraete.de https://www.marx-spritzgeraete.de

7.2 Disposal

- If the machine shall be disposed of, please contact us 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 out for the first time!



Safety inspections must be conducted at least once a year!

Item checked	OK Missing or faulty Rechecked
nem encercu	
 Operating instruction Identification plate Warning signs Condition of fluid hoses* Condition of compressed air hoses* Clean intake filters Check washer cabinet for leaks Function test of all control elements Grounding of the gun cleaner Hinged lid open → exhaust is working Hinged lid closed → exhaust stops 	
* Check for brittleness etc.	
Name: Address: Result of the safety inspection	Date of the safety check
No faults, can be operated without restrict	tions.
Restricted operation, faults to be fixed by	·
Operation not permitted, Re-inspection ne	ecessary.
Signed by expert technician	Signed by operator
After correction of faults	
Signed by expert technician	Signed by operator