



# ***Operating instructions***

***Type***

***TEKA – STRONGMASTER-BGIA***

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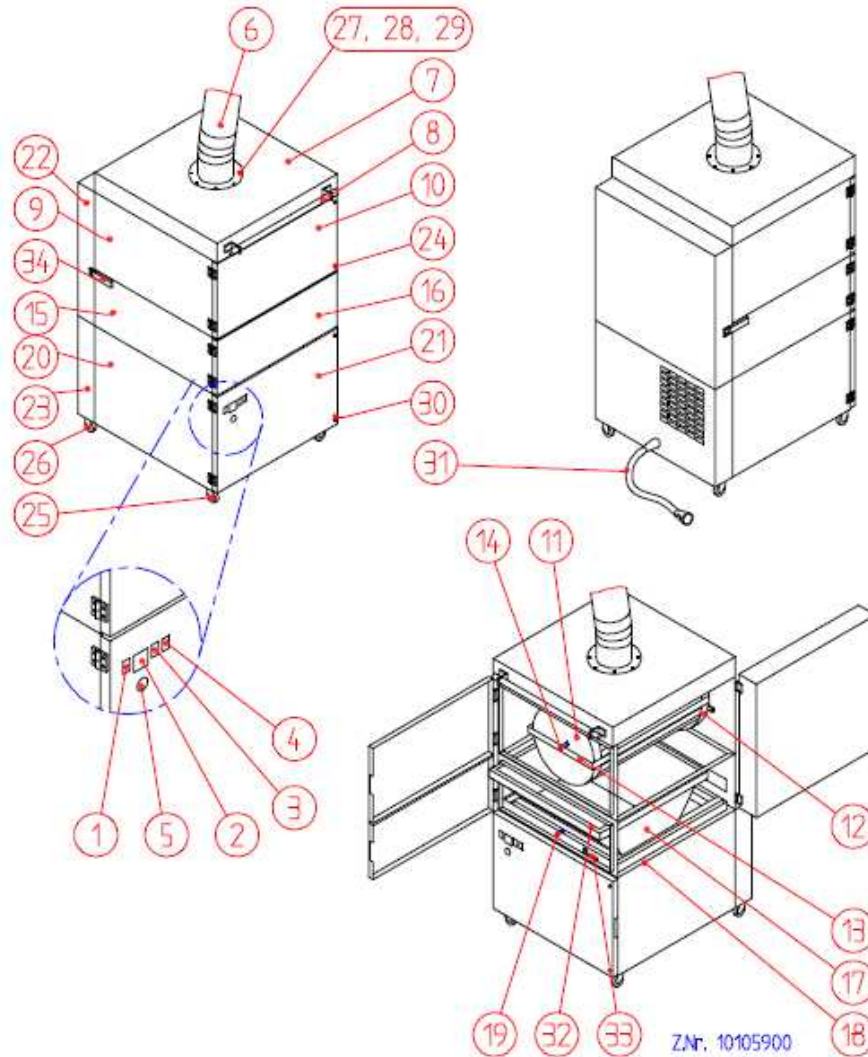
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**1 Drawing / Description of components**



Pos.1	Power switch	Pos.18	Lifting device
Pos.2	Operating hour counter	Pos.19	Fastening screw for dust collecting bin
Pos.3	Operating status lamp: green	Pos.20	Fan housing
Pos.4	Volume flow control lamp: red	Pos.21	Fan access door
Pos.5	Signal horn	Pos.22	Cleaning access door
Pos.6	Suction arm with suction hood or connecting piece	Pos.23	Silencing housing with air outlet grid
Pos.7	Lid	Pos.24	Cap nut for cartridge door
Pos.8	Hand grip	Pos.25	Caster with brake
Pos.9	Cartridge box	Pos.26	Caster
Pos.10	Cartridge access door	Pos.27	Screw for mounting of suction arm
Pos.11	Filter cartridge	Pos.28	Spring washer for mounting of suction arm
Pos.12	Cartridge guide	Pos.29	Turning flange
Pos.13	Cartridge bracket	Pos.30	Cap nut for fan access door
Pos.14	Fastening screw for filter cartridge	Pos.31	Mains cable with plug
Pos.15	Drawer box	Pos.32	Dust collecting bag
Pos.16	Drawer access door	Pos.33	Wrench for the lifting device
Pos.17	Dust collecting bin	Pos.34	Toggle clamp



## **2 Introduction**

In recent years, a special type of welding fume extraction systems has become an ever more prominent factor: Filtering of welding fumes and return of the filtered air into the workshop area.

This shows that the issue of environmental consideration has turned for the better for all concerned. There never has been any doubt about the existence of harmful fumes at welding sites. However, type of fumes depends on the particular welding process and welding technique. One can generally differentiate between gases and fumes. The fumes could also be referred to as fine dust. Investigating them under the microscope, we are able to see particles of a size that will pass through the respiratory tract deep into our lungs. The size of these particles is as small as 0.001 mm or even less.

Ventilation is the general approach to improve the conditions at the relevant work positions. Generally, this is effected by continuously exchanging the air in the workshop, i.e. the total air volume is exchanged at a high rate. This method will reduce the concentration of harmful particles within the hall to a great extent, however, it will improve the air within the breathing range of the individual welder to a negligible portion only.

This also applies to overhead suction systems, i.e. the installation of large extraction hoods overhead of welding places. Here again the heavily polluted air passes upwards through the breathing range of the welder. Extraction and/or filtering take place overhead and outside the range of the welder. A point-attack extraction of the welding fumes right at their place of origin is far more effective than room ventilation or overhead extraction. Both capital investment for on-the-spot fume extraction as well as the operating costs for such systems are far below those of the previous conventional solutions.

Environmental and work protection measures are prerequisite for the successful application of advanced welding technologies, aside from the optimisation of such welding processes. In view of increased awareness of the problems involved and in compliance with pertinent legal directives, the danger potential for personnel and environment must be considered at an early stage and it must be minimised using appropriate technical solutions.



### **3 Functional principle TEKA – STRONGMASTER-BGIA**

The filter unit TEKA - STRONGMASTER-BGIA is used mainly for extracting welding fumes on the spot. One or two flexible extraction hoses or other specific conduits are provided for the specific type of application.

Operational limits:

welding fumes containing oil mist, aluminium dust, grinding dust, suction of metallic dusts, gases, water, etc. (If there is any doubt about the application, please contact the manufacturer.)

The polluted air is extracted via the suction hood (or a specific suction head) and directed into the suction arm (or suction hose) and into the filter unit. Here, the particles are collected on the surface of the filter cartridge. The clean air passes the fan and returns into the room via the exhaust grid (Pos.31).

**Caution:**

As soon as the accumulated dust particles on the filter cartridge yield a maximum resistance to the air flow, the integrated electronic control will illuminate the red lamp of the air flow volume control (Pos.4) and the signal horn (Pos.5) sounds up.

The filter cake is removed manually by directing the air jet of a compressed air pistol onto the filter area.

*(Refer to chapter 6.1 'Cleaning of filter cartridge')*

The removed filter cake is gathered in the dust collecting bin from which it can be taken for final waste handling. *(Refer to chapter 6.3 'Emptying of the dust collector bin')*

### **4 Safety instructions**

The following basic safety measures must be observed to prevent of electric shocks, injury or fire when using electrical devices:

- Read and follow the instructions listed below before using the filter systems !
- Store the operating and service instructions in a secure and readily accessible space !
- Do not employ the unit for the extraction of easily combustible or explosive gases!
- Do not employ the unit for the extraction of aggressive media !
- Do not employ the unit for setting it in explosive zones, e.g. zone 0, zone 1, zone 2, zone 20, zone 21, zone 22!
- Do not employ the unit for sucking off burning or glowing materials, e.g. cigarettes, matches, metallic types of dust and/or splinters, paper, cleaning cloths, etc.!
- Do not employ the unit for sucking off burning and/or inflammatory materials, e.g. oils and/or oil mist, fats, parting agent (e.g. silicone spray), cleaning agent, etc.!



- Do not employ the unit for the sucking up of liquids of any kind !
- Do not employ the unit for extraction of any organic matters without the written permission of the manufacturer !
- Protect the connecting lead from heat, wetness, oils and sharp edges !  
  
Confirm the correct voltage. (Refer to the unit type plate)
- Use only original TEKA spare parts !
- Do not operate the unit without a filter cartridge installed !
- Pull the mains plug before opening the unit !
- The exhaust gird must not be obstructed or blocked in any way!
- Always take care that the unit stands secured and that the caster brakes are set !
- Pull the mains plug when cleaning or servicing the unit, when exchanging any parts or when changing machine settings for a different function !
- The filter cartridges cannot be regenerated for repeated use !
- The filter cartridges must be disposed of according to pertinent legislation and directives !
- At regular intervals inspect the mains supply lead for signs of damage !
- The unit must not be used when there is any damage or irregularity at the mains supply lead !
- Use only dry and oil-free compressed air with pressure ratings from minimum 3 bar to 4 bar maximum.
- Reposition the suction arm during welding operations, if possible by exploiting the thermal flow of the welding fumes
- The maximum permissible distance of 25 cm to the welding point should not be exceeded.
- Do not use the filter unit when any one or more components of the system are defective, missing or damaged. In any one of these instances contact the TEKA Service Department: Phone: ++49 (0) 2863 / 92 82 0
- When extracting carcinogenic welding fumes as from the processing of nickel or chrome alloys, the requirements of the directives on clean air of the German TRGS 560 'Return of process air when working with carcinogenic media' must be observed. (And/or the equivalent national directives for the respective user.) The suction unit TEKA-STRONGMASTER-BGIA2110/4110 has been checked and approved by the Institute for Work Safety (BGIA) under the certification number xxxxxx. This certification is part of the operating instructions.
- Further information regarding the TRGS 560 can be obtained from the  
'BGIA - Berufsgenossenschaftliches Institut für Arbeitssicherheit'  
(Institute for work safety of the employers' liability insurances) at  
D-53754 Sankt Augustin, Germany.

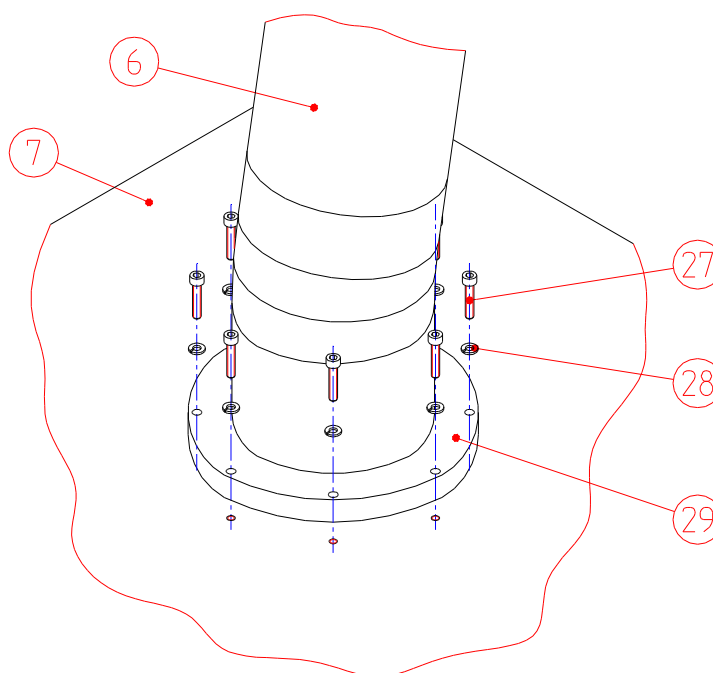
## **5 Initial operations**

The filter unit is delivered in a state ready to be plugged to the mains supply.

Prior to using the machine, the extraction/suction elements, e.g. the suction arm and appropriate optional accessories, must be mounted or installed.

### **5.1 Mounting of suction arm**

Attach the suction element (Pos.6) e.g. the suction arm or the connecting piece and clamping flange (Pos.29), screws (Pos.27) and spring washers (Pos.28).



**Caution:**

The connecting element must move/turn freely !



## **5.2 Electrical connection**

- Connect the filter unit to the mains supply. (Observe the information on the type plate!)
- When you switch the unit on for the first time, make sure that the fan rotor turns in the required direction. This can be detected in case of a weak extraction performance. An adhesive label is fixed within the fan housing for a visual inspection. In case of connections of 400 V or 500 V, it is possible that the set rotary field is incorrect and needs to be changed.
- Procedure: Loosen the cap nuts (pos. 30) at the fan access door (pos. 21) and open the door.

### **Attention:**

The warning label „Disconnect the unit from the mains supply before opening the housing“ is **only** to be ignored **in exactly this case**. Open the door when the unit is switched off, but do not reach into the fan housing **at any moment**. Now switch the unit switch on for a short time and then switch it out. The fan starts operating slightly and it is now possible to compare the sense of rotation to the label. Wait until the fan has stopped to shut the door with the help of the cap nuts. If you have any further questions, please contact our after-sales team: Phone: +49 2863 8282 0.

### **Please note:**

It is possible that the sense or rotation has to be checked every time the device is connected to another mains connection.  
Only authorized electricians are allowed to carry out tasks in the electrical field!

## **6 Explanation of the controls**

- |       |   |
|-------|---|
| Pos.1 | The main switch switches the filter unit on or off.   |
| Pos.2 | The operating hour counter starts to count as soon as the filter unit will be switch on.  |
| Pos.3 | The operating status lamp shows if the filter unit will be switch on.   |
| Pos.4 | The indicator lamp for flow volume shows whether the suction power is adequate. If it lights up, the filter inserts must be replaced. |
| Pos.5 | The signal horn shows whether the suction power is adequate. When releasing acoustic signal, the filter inserts must be replaced.     |





## **7 Maintenance and service**

The accumulation of extracted particles on the filter cartridge will eventually lead to a reduction of the suction / extraction performance.

The rate of accumulation and thereby the degrading of the filter cartridge (Pos.11) is monitored electronically. In order to maintain the designed suction performance, the filter cartridge must be cleaned when the red volume control lamp (Pos.4) illuminates and/or the signal horn (Pos.5) sounds. (Refer to chapter 6.1: "Cleaning of filter cartridge / Manual cleaning")

The accumulated dust particles are blown off the filter by applying compressed air from the clean side. The released filter cake will drop into the dust collecting bin (Pos.17). (Refer to chapter 6.3: "Emptying of dust collector bin")

The useful service life of the filter cartridge greatly depends on the operational environment. For this reason, it cannot be predicted.

If the operating pressure of the filter unit should not be achieved after cleaning the filter cartridge, the cartridge must be replaced. (Refer to chapter 6.5: "Change of filter cartridge")

### **Caution:**

Stop the operation of the filter unit when changing the filter cartridge.

Exchange of the filter cartridge and the disposal of the element may be executed only in amply ventilated environments and when using an appropriate protective respiratory mask!

We recommend to use a respiratory mask to DIN EN 141/143 - Protection class P3. It is also recommended to use appropriate protective gloves.

Dispose of the filters according to the legal regulations. The polluted filter elements must be put in an appropriate container (e.g. PE bag), bags are available as an option (see list of spare parts)! We recommend to stockpile some PE bags in time.

The task of changing the filter elements should be executed by trained personnel only!

### **7.1 Cleaning of filter cartridge**

When the red volume control lamp (Pos.4) illuminates and the signal horn (Pos.5) sounds, the filter cartridge must be cleaned according to the following procedure:

- Disconnect the filter unit from the mains supply (Pull the plug) !
- Close the throttling flap at the suction hood.
- The front doors of the housing (pos.10 + 16 + 21) have to be closed.
- Open the cleaning access door (Pos.22) by releasing the overcentre lock (Pos.34).
- Evenly apply the air jet from the compressed air pistol (available as an option) to the filter cartridge (Pos.11). (Refer to chapter 6.2. " Compressed air supply")
- Apply the air jet for ca. 5 – 10 minutes.
- Close the cleaning access door (Pos.22) and secure it with the overcentre lock (Pos.34).
- Connect the filter unit to the mains supply.  
(Observe the information on the type plate!)



**Caution:**

Without the compressed air supply, the filter cartridge will be clogged, and its performance will degrade rapidly. The unit will indicate a fault (Filter clogged/full) !

Do not manually shake or wash the filter element as this will damage the filter medium, and the harmful waste particles will be returned into the workshop's atmosphere !

## **7.2 Compressed air supply**

A suitable compressed air supply must be provided to ensure the correct function of the suction unit.

- The compressed air must be dry and oil-free.
- External air supply via an approved pressure hose and at an operating pressure from 3 bar minimum to 4 bar maximum.

**Caution:**

Without the compressed air supply, the filter cartridge will be clogged, and its performance will degrade rapidly. The unit will indicate a fault (Filter clogged/full) !

## **7.3 Emptying of dust collector bin**

After a certain number of operating hours, the duct collector bin (Pos.17) shall be cleaned. The schedule depends on the mass of accumulated dust.

- Disconnect the unit from the mains supply (Pull the plug).
- Open the drawer access door (Pos.16).
- Lower the lifting device (Pos.18) by turning the fastening screw (Pos.19) downward.
- Pull out the dust collector bin (Pos.17).
- The dust collecting bag (Pos.32) with the accumulated dust take and lock.
- The accumulated dust must be stored/disposed off the matter according to pertinent directives.
- A new plastic bag into the dust collecting bag insert, so that the opening of the bag is inverted over the edge of the dust collecting drawer.
- Push the dust collector bin (Pos.17) all the way back into the drawer box (Pos.15).
- Raise the lifting device (Pos.18) by turning the fastening screw (Pos.19) until the dust collector bin (Pos.17) sits tight and leak-free.  
(Also check for possible damage of the sealing gasket under the cartridge box (Pos.9).)
- Close the drawer access door (Pos.16).
- Connect the filter unit to the mains supply.  
(Observe the information on the type plate!)

**Caution:**

Exchange of the filter cartridge and the disposal of the element may be executed only in amply ventilated environments and when using an appropriate protective respiratory mask !

We recommend to use a respiratory mask to DIN EN 141/143 - Protection class P3.

The task of changing the filter elements should be executed by trained personnel only !



## 7.4 Change of filter cartridge

- Disconnect the filter unit from the mains supply.
- Release the cap nut (Pos.24) and open the cartridge access door (Pos.10).
- Release the fastening screw (Pos.14) of the cartridge bracket (Pos.13).
- Release the cartridge bracket (pos. 13) at one upper side and swivel it to the side.
- When the filter cartridge (pos. 11) is withdrawn, let it slide into a PE bag, taking care of a low dust release.
- Withdraw the displacer from the used filter cartridge, then close the PE bag.

**Attention:**

The polluted filter elements must be put in an appropriate container (e.g. PE bag), bags are available as an option (see list of spare parts)! We recommend to stockpile some PE bags in time.

- Put the displacer into the new filter cartridge.
- Push the new filter cartridge into the cartridge guide (Pos.12).

**Caution:**

Only use original TEKA replacement filter cartridges !

- Tighten the fastening screw (Pos.14) of the cartridge bracket (Pos.13).
- Close the cartridge access door (Pos.10) and tighten the cap nut (Pos.24).
- Connect the filter unit to the mains supply.  
(Observe the information on the type plate!)

**Caution:**

Exchange of the filter cartridge and the disposal of the element may be executed only in amply ventilated environments and when using an appropriate protective respiratory mask !  
We recommend to use a respiratory mask to DIN EN 141/143 - Protection class P3.  
The task of changing the filter elements should be executed by trained personnel only !  
Disposal of the old filter cartridge according to pertinent directives !

## 8 Handling of waste

To ensure an efficient and orderly operation of your TEKA-STRONGMASTER-BGIA extraction unit and for compliance with the correct disposal of the collected dust media, we offer the following services:

- A list of such speciality companies in Germany can be provided on your request at no extra cost.
- Our customer services by phone or Fax

Feel free to contact our Service Department where you will be assisted on a round-the-clock basis:  
Phone: ++49 (0) 2863 / 9282-0      Fax: ++49 (0)2863 / 9282-72



## 9 Technical data

**Caution:**

Refer to the data on the type plate !

Filter unit		TEKA - STRONGMASTER-BGIA		
		230	400	500
Electrical power supply	V	230	400	500
Current	Ph	1	3	3
Frequency	Hz	50		
Motor rating	kW	1,1		
Air volume flow, max.	m <sup>3</sup> /h	1400		
Vacuum, max.	Pa	2900		
Protection class		IP 54		
ISO - class		F		
Control voltage	V	24		
Operating time	%	100		
Width x Depth x Height	mm	665 x 820 x 1365		
Weight	kg	165		
Number of suction arms		1		
Typy of filter		Filter cartridge		
Filter area of filter cartridge	m <sup>2</sup>	10		
Rate of extraction/separation	%	>99		
Mode of cleaning		manual		
Noise level (Measured acc. to DIN 45635 T1 in 1m distance from the surface of the unit in a clear area at the maximum air flow volume.)	dB(A)	72		
Compressed air		External		
Pressure, min.	bar	3		
Pressure, max.	bar	4		
Compressed air supply		dry / oil-free		



## **10 List of spare parts**

<b><u>Designation:</u></b>	<b><u>Article-No.:</u></b>
PE bag for the disposal of filter cartridges (4 units)	10030251702
Motor 1.1 kW 230V 1Ph 50 Hz	66664
Motor 1.1 kW 400V 3 Ph 50 Hz	951009
Signal horn (Pos.5)	10317
Hand grip (Pos.9)	10505
Cartridge access door (Pos.10)	10503
Drawer access door (Pos.16)	66660
Fan access door (Pos.21)	66619
Cleaning access door (Pos.22)	66661
Caster with brake (Pos.25)	10022
Caster (Pos.26)	10025
Spare hose, suction arm 2 m	101925
Spare hose, suction arm 3 m	101926
Spare hose, suction arm 4 m	101927
Suction hood	66200
Hose clamp	10228
Compressed air pistol	99005



## **11 Declaration of conformity TEKA-STRONGMASTER-BGIA**



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e-Mail: [sales@teka.me](mailto:sales@teka.me) Internet: <http://www.teka.me>

We herewith declare in sole responsibility that the before mentioned product, starting from machine No.: 7400010011001, conforms to the following standards:

**Directives on machine building:** 2006/42/EG  
**Electromagnetic compatibility:** 2004/108/EG  
**Directives on printing device:** 97/23/EG  
**Directives on low voltage:** 2006/95/EG

**Applied harmonised standards:**

- DIN EN 349
- DIN EN 983
- DIN EN 12100 part 1 and part 2
- DIN EN 60204 part 1
- DIN EN ISO 13857
- DIN EN ISO 14121

**plus further national standards and specifications:**

- DIN 45635 Teil 1
- DIN EN ISO 15012-1
- DIN EN ISO 14121
- TRGS 560

This declaration will become void if changes are effected to the suction and filter systems which were not agreed upon in writing by the manufacturer.

**Authorized representative for the technical documentation:** Technical department, TEKA GmbH, D-46342 Velen

A handwritten signature in black ink, appearing to be 'Ling' followed by a stylized flourish.

Velen, December 29, 2009