Operating Instructions

TEKA – Cartmaster

Type PF-W 1, PF-W 2

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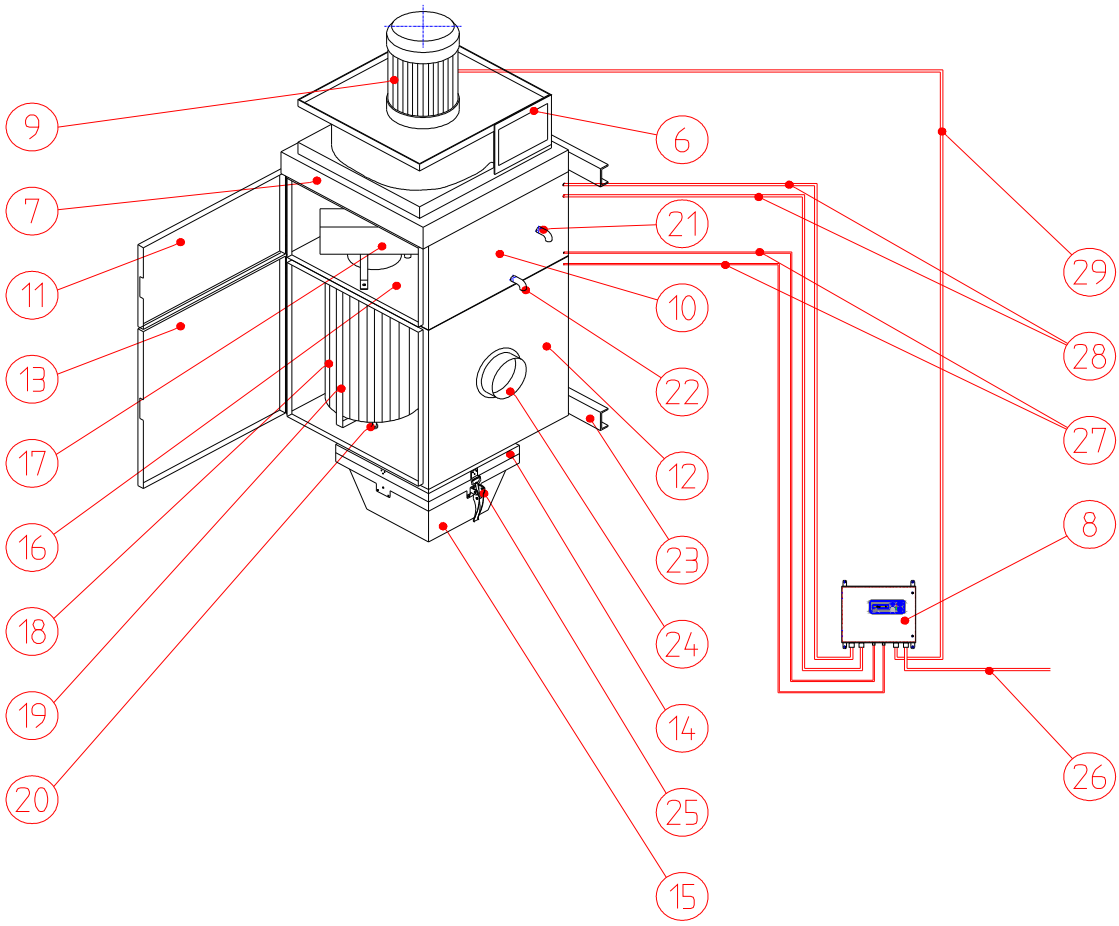
1 Diagram/Description of the Components



Pos.6	Exhaust outlet stub	Pos.18	Filter cartridge
Pos.7	Housing cover	Pos.19	Cartridge holder
Pos.8	Control for cleaning cycle	Pos.20	Fastening screw for filter cartridge
Pos.9	Fan	Pos.21	End sleeve
Pos.10	Pneumatic housing	Pos.22	Ball valve
Pos.11	Pneumatic door	Pos.23	Wall attachment
Pos.12	Filter cartridge housing	Pos.24	Suction stub connector *
Pos.13	Cartridge door	Pos.25	Toggle clamp
Pos.14	Chute	Pos.26	Mains cable
Pos.15	Dust collector	Pos.27	Differential pressure hoses
Pos.16	Shelf with cartridge guide	Pos.28	Valve expensive cable
Pos.17	Compressed air tank	Pos.29	Fan cable

* PFW-1: connection of 1 suction arm (left or right)
* PFW-2: connection of 2 suction arms (left and right)

2 Introduction

In the past few years those extractor units which filter the extracted welding fumes and redirect the filtered air into the workspace have gained considerably in importance

From this we can see quite clearly that we have become much more aware of the damage we are doing to the outside environment. Welding causes hazardous airborne contaminants, varying in type depending on the welding technique. The two basic categories are gases and fumes. Fumes are really tiny dust particles. If you look at what you think are fumes under a microscope, you will find that they consist of very small particles of often only 0.001mm in size or less and these of course are well able to enter the lungs.

The usual method of improving the working environment is to ventilate. The effect is to change the entire air in the welding hall over and over, and the method has only a minimal effect on the concentration of the contaminants in the immediate area around the worker, i.e. in the air he breathes.

The same applies to so-called overhead extractor systems, i.e. large extractor heads mounted above the work space. The direction of air flow takes the contaminants upwards right across the breathing space of the worker and it is only when they arrive at the extractor head that they are collected and taken out. This is surely not what the inventor had in mind. A much more effective method than this is to remove the contaminants directly at source by means of spot extraction. Such a system reduces investment levels and overall running costs.

Welding technology works best however when the process itself is operating optimally from a technical point of view and correct measures have been taken regarding the environment and the prevention of accidents at work. Regulations are becoming much tighter and people are becoming much more aware of the environment and therefore any potential hazard whether for the environment or for the workspace must be recognised as early as possible and minimised wherever necessary.

3 Function of the TEKA - PFW-2

The TEKA-PFW-2 filter unit is used mainly for the removal of welding fumes at source. The unit must be fitted with the correct collecting devices to suit the particular application.

Restrictions on use: welding gas containing oil mist, aluminium dust, grinding dust, the extraction of metallic dusts, gases, water etc. (If you are not sure about your application, please contact the manufacturer!)

The contaminated air is collected by the intake unit and is led into the filter unit via the suction stub (Pos.24). Here, the tiny contaminants are collected on the surface of the filter cartridge. The purified air is then sucked in by the ventilator and led out through the outlet (Pos.6) into a exhaust pipe or exhaust hose or back into the workplace.

Important:
When a certain number of dust particles have collected and the resistance of the filter cartridge has reached maximum, the integrated monitoring electronics will cause the red volume flow control lamp to light up (Pos.4).
The integrated pneumatic cleaning system distributes the compressed air evenly over the surface of the filter and blows off the cake of dust. *(see Chapter 6.1: "Cartridge Cleaning")*
The dust thus blown off is collected in the dust collector (Pos.15) and can then be removed. *(see Chapter 6.3: "Emptying the Dust Collector")*

4 Safety Rules

When using electrical appliances, please make sure you comply fully with the following rules to safeguard against electric shock, risk of injury and fire:

- Read and follow these instructions carefully before you use the unit!
- Keep this user guide and the maintenance instructions in a safe place!
- Do not use the appliance to extract explosive or flammable gases!
- 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 use the unit for the extraction of aggressive media!
- Do not use the unit for the extraction of burning or red-hot materials!
- Do not use the unit for the extraction of liquids!
- Do not use the unit for the extraction of organic materials without the prior written approval of the manufacturer!

- Protect the mains leads from heat, damp, oil and sharp edges!
- Make sure you comply with the permissible connecting up voltages (comply with the data on the nameplate!)
- Only use TEKA spare parts!
- Do not use the unit without a filter!
- Before opening the unit, disconnect the mains supply by pulling out the plug!
- Empty the compressed air container before you carry out any maintenance or repair work.
- Do not close or cover the exhaust outlet!
- Make sure the unit is firm at all times!
- When cleaning or servicing the unit, when replacing parts, or when changing over to another method of operating, you must disconnect the unit from the mains electricity supply by pulling out the plug!
- The filters cannot be re-used!
- Dispose of (recycle) the filters in accordance with all legal requirements!
- Check the mains supply line regularly for signs of damage!
- Do not use the unit unless the mains cable line is in perfect working order.
- Only use dry and oil-free compressed air, and only use an operating pressure of (min.) 3 bar and. (max.) 4 bar.
- Do not use the filter unit if one or more parts are defective, missing or damaged. In this case, contact TEKA Service under 0 28 63 / 92 82 - 0.
- When extracting carcinogenic welding fumes, e.g. materials containing nickel or chrome, make sure you comply with ventilation requirements as per TRGS 560 “Air re-flow when using carcinogenic, hazardous materials”!
- Further information on the TRGS 560 can be obtained from the BIA – the Berufsgenossenschaftliches Institut für Arbeitssicherheit - in 53754 Sankt Augustin.

5 Start up

The filter unit comes ready for connecting up to the mains electricity supply and with the suction arms already assembled.

Before start up, the intake element and any accessories must be mounted onto the unit.

5.1 Connecting up of the Intake and Exhaust Elements

- Connect up the intake element to the suction connector (Pos.24) with a suction pipe or suction hose.
- The exhaust air piping or exhaust air tube should be connected up to the exhaust outlet (Pos.6).

5.2 Connecting up the Compressed Air Supply

- Any external supply must only be made via a manufacturer-certified compressed air hose!
- Connect up the compressed air hose onto the end sleeve by means of a hose coupling (Pos.21).
- The operating pressure must be min. 3 bar and max. 4 bar.

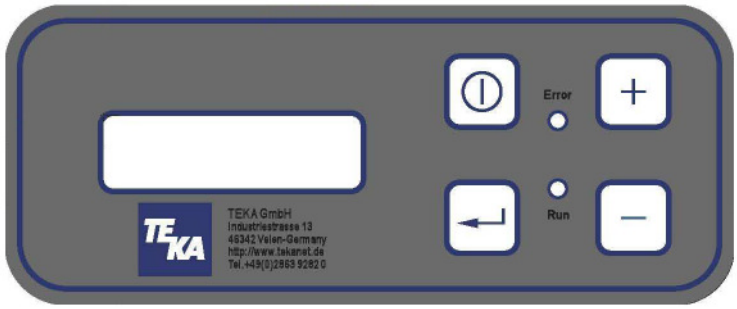
Important:
The compressed air container must be emptied before carrying out any maintenance or repair work.
The filter unit must not be used again if there is a leakage in the pneumatic unit!
Without a supply of compressed air, the filter cartridge will get dirty very quickly and the unit will switch over to “Fault” (filter full)!

5.3 Connecting up the Unit itself

- Connect the ventilator to the mains supply via a motor circuit-breaker or a star-delta connection. If the motor runs in the wrong direction (reduced suction output) then disconnect the ventilator from the mains supply (pull out the plug) and change over to two phases at the infeed to the circuit breaker or the star-delta connection. (please comply with the data given on the nameplate!)
- Connect the control system for the cleaning system up to the mains supply.
  (please comply with the data given on the nameplate!)

Important:
The cleaning system is in operation as soon as the control is connected up to the mains supply!
All work on electrical parts must only be carried out by fully-qualified personnel!
(follow the data given on the nameplate!)

5.4 Operation of the system



Attention:
Possibilities of adjustment of the programme, menu navigation ecc of the system you will find in the separate attached manual of steering.

6 Maintenance

As more and more dust particles are collected the filter cartridge will begin to perform less well and the suction performance will drop.

The filter cartridges are cleaned via a differential-pressure or a time-controlled mechanism *(see Chapter 6.1: "Cleaning the Filter Cartridges")*

On the cleaned gas side the dust particles are blown off from inside to outside and the cake of dust thus removed falls into the dust collector (Pos.15). *(see Chapter 6.3: "Emptying the Dust Collector")*

The service life of a filter cartridge depends on the application. It cannot be predicted exactly in advance.

If, after cleaning the filter cartridge, the operating pressure of the filter unit is no longer obtained, then the filter cartridge must be replaced. *(see Chapter 6.5: "Replacing Filter Cartridges")*

Important:
The filter unit itself must be switched off while the filter cartridge is being replaced.
The compressed air container must be drained before carrying out any maintenance or repair work.
The replacement and disposal of the filter cartridge must only be carried out in well-ventilated rooms and with an appropriate breathing mask!
We recommend the half-mask facepiece DIN EN 141/143 Protection Level P3.
Filter cartridges must only be changed by correspondingly trained members of staff!

6.1 Cleaning the Filter Cartridge

During the automatic cleaning process the filter unit remains in operation.

Δp – Control: in order to retain the permissible suction performance of the unit, the level of dust particles on the filter cartridges (Pos.18) is monitored electronically. When the pre-set differential pressure is exceeded, the filter cartridges are cleaned automatically until the pre-set threshold value is reached.

Time Control: In the case of time-controlled cleaning the filter cartridges are cleaned at a pre-set interval independently of the pressure at the time.

For the settings and functions of the various control systems please see the relevant user guide.

Important:
Without a supply of compressed air, the filter cartridge will get dirty much quicker and the suction performance will drop

6.2 Compressed Air Supply

For the unit to function perfectly there must be a regular and constant supply of compressed air.

- The compressed air must be dry and free of oil.
- The condensation which collects in the tank (Pos.17) must be drained at regular intervals. *(See Chapter 6.4: "Drainage of the Condensation")*
- If you are using a water separator (connected in series and obtainable as an extra), then this should also be checked at regular intervals and emptied as required.
- The pneumatic parts should be checked regularly for leaks.
- The external supply must be made via an approved compressed air hose and at an operating pressure of minimally 3 bar and maximally 4 bar.
- A compressed air container of 15 litres has been installed in the pneumatic housing as a reserve.
- It is sufficient for one cleaning cycle.
- After the cleaning cycle compressed air will immediately start to flow for the next cleaning interval.

Important:
Before carrying out any maintenance or repair work, you must empty the compressed air tank.
The filter unit must not be used if there are any leaks in the pneumatic parts.
Without a correct supply of compressed air, the filter cartridge will get dirty very quickly and the unit will switch over to "Fault" (filter full)!

6.3 Dust Collector Drainage

The dust collectors (Pos.15) must be cleaned after a specific number of operating hours.
This will depend on the amount of dust which has collected.

- Disconnect the ventilator from the mains supply (pull out the plug).
- Disconnect the control for cleaning process from the mains supply. (In the case of Δp – controls you must wait for the pre-set cleaning intervals.)
- Open the toggle clamp connections (Pos.25) approx. 5 minutes after the last cleaning and unhook them. When doing so, remember to hold the container firmly!
- Place the dust collectors (Pos.15) carefully on the floor.
- Store and dispose of the collected dust in a suitable container and in accordance with legal requirements.
- Lift the dust collector (Pos.15) and position it under the chute (Pos.14) and hang it on with the toggle clamp connectors, so that the container and the chute form a tight seal. When doing so, check the seal under the cartridge housing (Pos.9) for any damage.
- Connect the ventilator up to the mains. (Follow the data given on the nameplate!)

Important:
Only empty the dust collector tray in well-ventilated rooms and with a corresponding breathing mask.!
You must empty the compressed air container before you carry out any maintenance and repair work.
We recommend the half-mask facepiece DIN EN 141/143 Protection Level P3.
The above-mentioned work must only be carried out by adequately trained members of staff!
Dispose of the dust in accordance with all applicable legal regulations!

6.4 Drainage of the Condensation

The condensation water which collects in the compressed air tank (Pos.17) should be drained regularly at regular intervals as follows:

- Disconnect the ventilator from the mains supply (pull out the plug).
- Disconnect the control for the cleaning cycle from the mains supply (pull out the plug).
- Disconnect the filter unit from the external compressed air supply (pull out the plug).
- Open the ball valve (Pos.22) and fill the condensation water into a suitable container. (when you open the ball valve the compressed air stored in the compressed air tank (Pos.17) will come out.)
- Store or dispose of the drained condensation water correctly in a suitable container and in accordance with regulations.

- Close the ball valve (Pos.22) again.
- Connect up the filter unit to the external compressed air supply.
- Connect up the control for the cleaning system to the mains electricity supply.
  (Follow the data on the nameplate!)
- Connect up the ventilator to the mains supply.
  (Follow the data on the nameplate!)

Important:
The above work must only be carried out by properly trained personnel!
Dispose of the condensation water in line with all legal requirements!

6.5 Changing the Filter Cartridge

- Disconnect the ventilator from the mains supply (pull out the plug).
- Disconnect the control for the cleaning cycle from the mains supply (pull out the plug).
- Disconnect the filter unit from the external compressed air supply (pull out the plug).
- Empty the compressed air tank (Pos. 17) by opening the ball valve (Pos.22).
  (when you open the ball valve, small amounts of condensation may come out.)
- Loosen the cap nuts and open the cartridge door (Pos.13).
- Loosen the attachment bolt (Pos.20) of the cartridge holder (Pos.19).
- Remove the filter cartridge (Pos.18).
- Insert a new filter cartridge into the cartridge guide sited under the shelf (Pos.16).

Important:
Only use TEKA replacement filters!

- Tighten the attachment bolt (Pos.20) of the cartridge holder (Pos.19).
- Close the cartridge door (Pos.13) and tighten the cap nuts.
- Connect the filter unit up to the external compressed air supply.
- Connect up the control for the cleaning process to the mains electricity supply.
  (Follow the data given on the nameplate!)
- Connect the ventilator up to the mains supply.
  (Follow the data given on the nameplate!)

Important:
Only carry out any filter change and filter disposal in well-ventilated rooms and wearing a corresponding face mask!
Before carrying out all maintenance and repair work, the compressed air container must be emptied.
We recommend the half-mask facepiece DIN EN 141/143 Protection Level P3.
The above-described work must only be carried out by a suitably trained member of staff.
Dispose of the filter in accordance with legal regulations!

7 Disposal/Recycling

In order to enable you to operate your TEKA-PFW-2 extractor unit perfectly and to guarantee the correct disposal of the dust particles extracted, we offer you the following services:

- Assistance in finding a recycling company in your vicinity.
- On request we will send a list of all disposal or recycling companies in Germany free of charge.
- A maintenance and servicing agreement.
- Customer telephone hot-line

If you wish to avail yourself of these services please contact our service department, which is available round the clock:

Telephone: 0 28 63 / 92 82 - 0 Fax: 0 28 63 / 92 82 72

8 Technical Data

Filter Unit		PF-W 1	PF-W 2
System Voltage (connection voltage)	V	400	
Frequency	Hz	50	
Current	Ph	3	
Motor Output	kW	1,5	2,2
Air Volume Flow	m³/h	1145	1900
Underpressure max.	Pa	2000	2000
Number of suction connections		1	2
Protection		IP 54	
ISO Category		F	
Control Voltage	V	230	
ON Duration	%	100	
Width x Depth x Height	mm	665 x 681 x 1975	665 x 681 x 2075
Weight	kg	180	185
Type of Filter		Cartridges	
Filter Area of Filter Cartridge	m²	10-20	
Separation Level	%	>99	
Cleaning Type		Pulse-Jet	
Sound Pressure Level (measured in accordance with DIN 45635 T1 at 1m distance from the machine surface, free field and at max. volume flow.)	dB(A)	70	
Compressed Air		External	
Pressure min.	bar	3	
Pressure max.	bar	4	
Compressed Air Supply		dry / oil-free	

9 Declaration of conformity TEKA-PFW-2

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We herewith declare in sole responsibility that the before mentioned product, starting from machine No.: 9000010011001, 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 Teil 1
- DIN EN ISO 13857
- DIN EN ISO 14121

plus further national standards and specifications:

- DIN 45635 Teil 1

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.

Velen, the 29.December 2009