Taal: engels

MSH
equipment

Handleiding

ATEX
CA F-ATEX - Filterinstallatie voor alum. schuurstof

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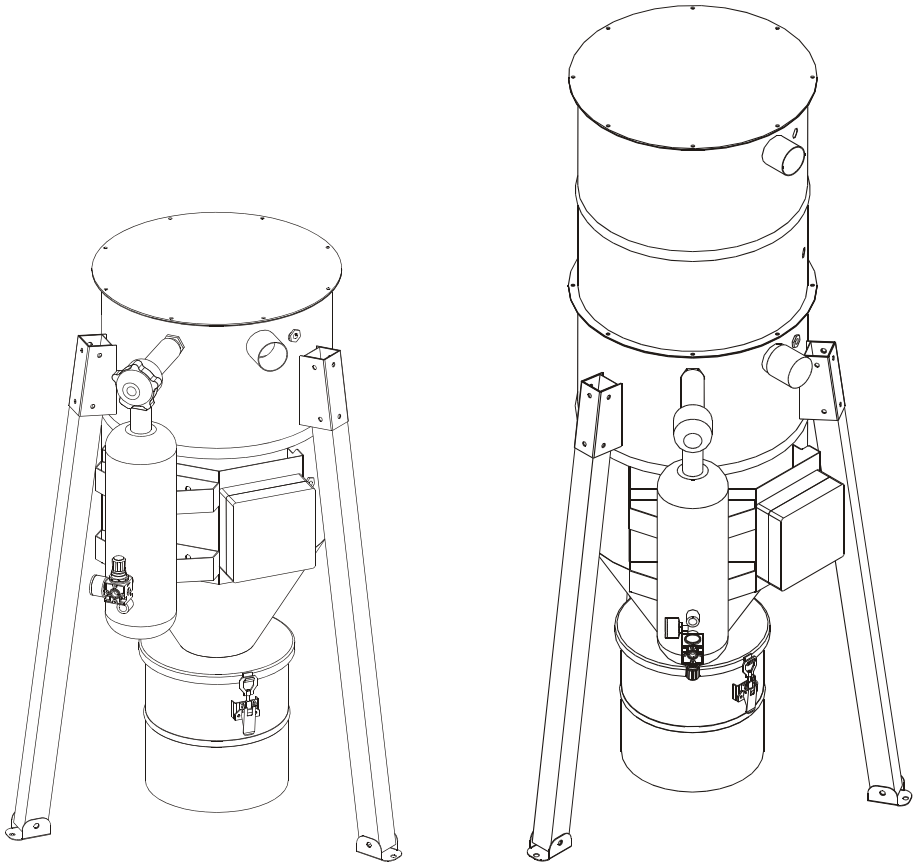
Original Instruction manual
Installation - Use - Maintenance



FILTERING UNIT
F-ATEX - F-ATEX-HEPA

F-ATEX manual	04-2016
Document	Revision

INDEX

1 GENERAL INFORMATION

1.1 MANUFACTURER

CAV S.r.l. has been manufacturing suction systems for industrial use for more than twenty years; this experience has led to a considerable technological Know-how based on many years of R&D activities carried out in tight connection with the product manufacturing and trading on the international market, and this is the best quality guarantee that CAV can offer to users.

1. 2 POINTS OF SALE AND SERVICE CENTRES

CAV directly offers after-sales service for its products sold in Italy or in Europe.
(Sales, After-sales, Spare parts)

CAV S.r.l.,
Via Morandi, 93 - Toscanella di Dozza (Bologna), Italy
Postal Code 40060
Phone +39 (0)542 673488
E-mail: sales@cavitaly.com

Customers are kindly requested to contact the above-indicated central After-sales Service for any doubt or clarification about use, maintenance or request for spare parts. Please remember to specify the Machine identification details that can be found on the nameplates:
See Nameplate A, paragraph 3.9

1. 3 CERTIFICATION

The Machine complies with the prevailing European Union Directives applicable at the moment of its release on the market, as detailed in the declaration of conformity.

1.4 WARRANTY

Machine components are covered by a 12-month (twelve month) warranty: this period starts from the date indicated on the purchase document (invoice). **Warranty does not cover electrical and electronic parts.**
Warranty only covers faulty parts, no labour costs and service call fee.
Warranty excludes any Filtering unit damage due to:

- transport and/or handling;
- wrong or improper use of the Machine;
- failed compliance with maintenance specifications given in this Manual; (see paragraph 6.5)
- failures and/or faults not ascribable to faulty parts.

1.5 CUSTOMER'S OBLIGATIONS

The Customer shall, within the time frame agreed upon with the Manufacturer, fulfil its obligations indicated in the Documents attached to the sales contract. Unless otherwise agreed, the Customer normally shall take care of:

- Preparing the rooms, including any required building works and/or channels;
- Supply with compressed air (see paragraph 4.6.1);
- Machine Power Supply, complying with the prevailing rules in the Country of use (see paragraph 4.6.2).

1.6 MANUAL LAYOUT

The Customer is required to carefully read this manual since correct pre-setting, installation and use of the Machine are basic requirements for its trouble-free and safe operation.

1.6. 1 PURPOSE AND CONTENTS

This manual shall give all necessary information for correct and safe use of the product. It deals with technical information, operation and maintenance details, as well as instructions for spare parts and safety warnings. Before attempting any operation on the machine, operators and qualified technicians are required to carefully read the instructions given herein.
Manual content derives from an ongoing and methodical job of data processing and technical tests filed and approved by C.A.V., complying with the internal safety procedures and data quality rules.
Data herein indicated are **EXCLUSIVELY** for specialised personnel, that could interface with the product under safety conditions for any person, the machine and the environment, carry out a simple troubleshooting and understand strange/faulty operating conditions, carry out simple inspections and maintenance, still fully complying with the instructions given in the following pages and prevailing health and safety regulations.
All details about installation, assembly, removal, extraordinary maintenance, repair and installation procedures for any accessories, devices and equipment, are mentioned and can only be performed by specialised personnel or by the **AUTHORISED AFTER-SALES SERVICE**, fully complying with the manufacturer's recommendations and the prevailing health and safety rules.
It is important to keep this manual in a known place and ensure it is legible, for possible future reference. In case of damage or for further technical and operation details, please contact directly our **AUTHORISED AFTER-SALES SERVICE**.

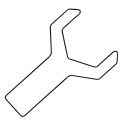
1. 6. 2 MANUAL ADDRESSEES

This Manual addresses both the operator and the technicians allowed to carry out maintenance operations on the machine. Operators shall not carry out any operation reserved to Maintainers or Qualified Technicians. Failure to do so, the Manufacturer will not be liable for any resulting damage.

1.6.3 MANUAL STORAGE

This Manual shall be kept next to the Machine and in such a position protected from any fluid or any other condition that could compromise its readability.

1.6.4 SYMBOLS

	DANGER	Indicates a hazard resulting in a (serious) risk for user or any other person.
	WARNING	Pay utmost attention to the paragraphs highlighted by this symbol.
	DANGER OF ELECTRO-CUTION	Indicates a hazard of electrocution resulting in a (serious) risk for user or any other person.
	SPECIALISED PER-SONNEL	Specialised personnel is required for special op-erations.
	SEE MANUAL	It is necessary to refer to the User's Manual before attempting a certain operation.
	ADJUST	Mechanical adjustment and/or electric set-up could be necessary.

2 MACHINE DESCRIPTION

2. 1 2. 1 PRINCIPLE OF OPERATION

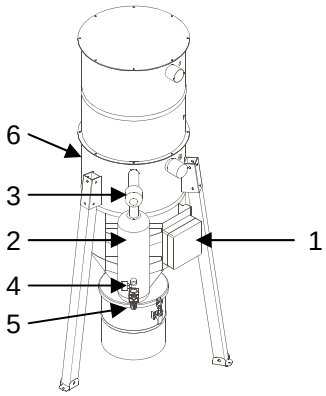
This F-ATEX filtering unit is made of a load bearing frame on which are installed mechanical, electromechanical, electronic and pneumatic devices or units that are used, altogether or combined with one another, for filtering also fuel dust.

The machine description specifies the intended use for which the product was designed, produced and protected. Any different use or failure to comply with the following specifications could create danger for persons and/or property.
The model described herein consists of some main and auxiliary units, whose functions are listed here below and are aimed at carrying out a production cycle under safety conditions.
Please exclusively contact directly the AUTHORISED AFTER-SALES SERVICE for further details or specifications.

2.2 MAIN COMPONENTS

The machine consists of the following main components marked separately:

1. Economiser (att. 1)
2. Compressed air tank (att.2)
3. Solenoid valve (att.2)
4. Pressure gauge (att.3)
5. Pressure regulator (att.4)
6. Filter cartridge (att.5)



The use and maintenance manuals of the single equipment are attached to this manual. They are an integral part of it and contain information for the safety of the entire system .

It is forbidden to replace any component without prior written authorisation of CAV.

2.3 FILTERING UNIT STRUCTURE

Unit bedplate and main parts are made of a stiff metal structure. At the bottom is the dust collector bin. Power supply connections are realised by means of power and control cables.

2.4 DIMENSIONS

Overall dimensions are specified under paragraph 2.9 -Specifications.

2.5 AMBIENT CONDITIONS

The Filtering unit does not require any special ambient conditions. Nevertheless, it shall be installed in a well-lit industrial building, featuring suitable minimum guaranteed air change.
Ambient temperature for correct unit operation shall be in the range +5°C to +40° C.

2. 6 LIGHTING

Room lighting shall comply with the prevailing rules in the country where the machine is installed. In the area where the Filtering unit is installed, good visibility shall be ensured for easier routine and extraordinary maintenance. Minimum recommended illumination: 400 lux.

2.7 VIBRATIONS

If unit is used according to the instructions for correct use, vibrations shall not create any dangerous situation.

2.8 NOISE EMISSIONS

The Filtering unit is designed and manufactured to limit noise emissions at the source.
Actual noise emission shall be measured after installation, in order to ensure that it still conforms to the specifications required by the prevailing laws.

2.9 SPECIFICATIONS

This section indicates Machine technical features and specifications user shall refer to in case of contact with the Manufacturer After-sales Service.

TABLE 2. 9A - Technical Features and Specifications

Description	Characteristics
Power supply	230V-50Hz
Compressed air supply	Max 10 Bar
Max. air flow rate	300 cu. m/h
Relative humidity	Max 90% w/out condensate
Weight (kg)	72 kg
Dimensions	685x785x h1660 mm
Main filtering surface (class M):	4 sq. m
Optional filtering surface (class H13):	6 sq. m

2.10 EQUIPMENT

The following equipment refers to the standard production Filtering units. Any special machine could hence require parts different than the listed ones.

2.10.1 STANDARD

The Filtering unit comes with:

- User's Manual
- Declaration of conformity
- Installation equipment

2. 10.2 OPTIONAL EQUIPMENT ON REQUEST

No options are set with respect to the standard outfit.
Any change and/or addition of any accessory whatsoever must be explicitly approved and made by the Manufacturer.

2. 11 ELECTROMAGNETIC ENVIRONMENT

The Filtering unit is designed to operate correctly within an electromagnetic or industrial environment. Design conforms to the principles of the product Harmonised Technical Standards:
HARMONISED EUROPEAN STANDARD
EN 60439-1(third edition)
February (1995) ref. CENELEC EN 60439-1:1994-01
HARMONISED EUROPEAN STANDARD
EN 60439-1/Al/Ali September (1997) ref. CENELEC EN 60439-1/Al:1995-12+ EN 60439-1/All:1996-02
In particular, manufacturer used proven components and principles, as required by 7.10 of EN 60439-1/ Al:1995-12+ EN 60439-1/Al1:1996-02
Built-in electronic equipment was installed as indicated in the instructions that come with the equipment itself and considering the general criteria for **EMC** specified in **EN 60204-1 art. 4.**
HARMONISED EUROPEAN STANDARD EN 60439-1(third edition)
February (1995) ref. CENELEC EN 60439-1:1994-01
HARMONISED EUROPEAN STANDARD EN 60439-1/Al/Ali
September (1997) ref. CENELEC EN 60439-1/Al:1995-12+ EN 60439-1/All:1996-02
In particular, manufacturer used proven components and principles, as required by 7.10 of EN 60439-1/ Al:1995-12+ EN 60439-1/Al1:1996-02
Built-in electronic equipment was installed as indicated in the instructions that come with the equipment itself and considering the general criteria for **EMC** specified in **EN 60204-1 art. 4.**

3 SAFETY RULES

3. 1 GENERAL WARNINGS

The Operator shall carefully read the information given in this Manual, especially the Safety rules and precautions specified in this section.
Moreover, it is fundamental that the Operator follows these warnings:

- Keep the Filtering unit and the work area clean and in order;
- Use the Filtering unit in normal psychophysical conditions;
- Wear appropriate clothes and personal protection gear suitable for products in use;
- Do not remove or tamper with the Manufacturer nameplates on Filtering unit;
- Do not remove or make inoperative any of the Filtering unit Safety systems.

3. 2 INTENDED USE

The Filtering unit is designed for removing dust in general or similar material.

3.3 UNSUITABLE USE

Do not use the Filtering unit :

- for different purposes than those indicated in 3.2;
- in environments with a serious fire hazard;
- outdoors, exposed to any weather condition;
- to take in red-hot parts and/or parts on fire;
- in a different way than stated in safety installation rules given herein.

3.4 DANGEROUS AREAS

Although the Filtering unit does not involve any particular danger for exposed persons, it shall be used taking some precautions, considering that:

- The operator can come into contact with dangerous chemical products by accident and without being aware of the resulting danger.
- Before use, the person in charge of production shall evaluate unit use conditions according to the danger possibly caused by products and take suitable protections such as: work in a room featuring a guaranteed minimum ventilation or change of air.
- Significato della marcatura : CE EX II 3D T140°C X

    - **CE**: the material is compliant with the European standards.
    - **0081**: identification number of the qualified body when involved in the production control phase. This number corresponds to that of LCIE – Bureau Véritas. This number can also be 0080, for instance for INERIS.
    -  use authorised in explosive atmosphere
    - **II:** equipment group (I = mines, II = surface industries)
    - **3:** equipment category (1 = permanent risk (areas 0/20), 2 = frequent risk (areas 1/21), 3 = sporadic risk (areas 2/22))
    - **D**: type of fuel: dust.
    - **T140°C**: temperature corresponding to a surface temperature
    - **X**: special use conditions and safe use of the equipment indicated in the declaration of conformity.

3. 5 SAFETY DEVICES

The Filtering unit comes complete with suitable guards to protect the persons exposed to risks due to moving organs, pressurised air lines blowing up, or risks connected to power supply, and so on.
The unit fits the following safety devices:

- Safety release on the lever for removing the dust collection cylinder metal body.

The power supply system of the machines shall be performed by the user in compliance with the EN 60079-14 standard.
For the electric connections refer to the attached use and maintenance manuals.

3.6 STOP CONTROLS

The Filtering unit stop controls are:

- Main power cut-out by Main Switch (to set unit out of service; located on control board installed by the Customer);
- Cut-out through power plug.

3.7 SAFE WORKING PROCEDURES

The Filtering unit design features aim at eliminating all risks connected to its use.
The residual risks involved in operating mode are:

- Risks connected with the use of pneumatic energy;
- Risks connected with the use of electric energy;
- Risks of possible contact with product removed by suction.;

To limit the consequences of such dangers as much as possible, it is important to comply with the following rules:

- Ensure that air supply pressure is set to specified value: max. 10 bars;
- Do not start the Filtering unit before checking the correct installation and set parameters; this can be done by running a cycle with no product to be taken in by exhauster;
- Wear the personal protection gear suitable for the product in use;
- Wear clothes with close-fitting sleeves.

3. 8 RESIDUAL RISKS

During the normal suction cycle and during maintenance, the Operators can run some residual risks that can not be completely avoided, due to the type of operation being performed, such as danger of electrocution.

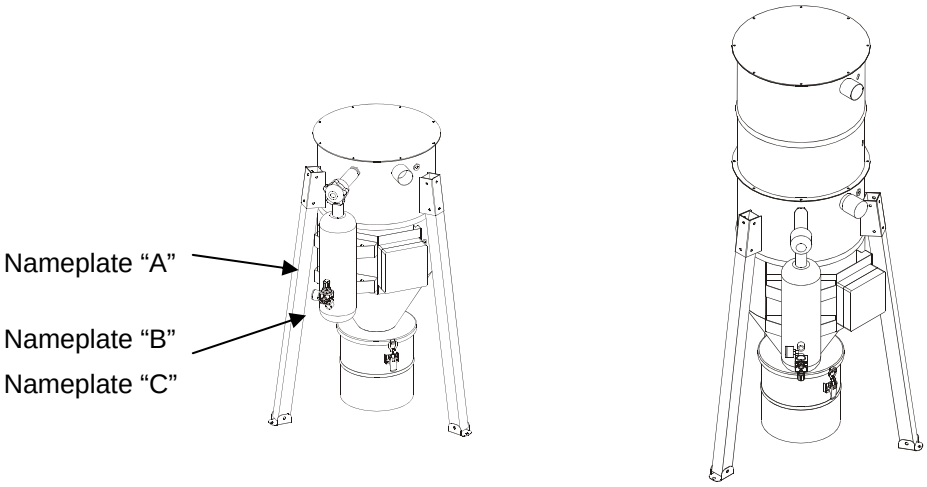
3.9 NAMEPLATES

Table 3. 9A - Types of Nameplates

Nameplates on the Filtering unit fig. 3.9.A

Nameplate “A”	Nameplate “B”	Nameplate “C”
Via R. Morandi, 93 - 40060 Toscanella Bologna Italy Tel. +39 0542-673488 Fax +39 0542-672065	**ATTENTION: CONNECT TO DRY COMPRESSED AIR**	**CONDENSATE DRAIN COCK**
MOD. F-ATEX		
MASSA kg		
Volt 230		
Hz 50		
m^3/h 300		
mbar 300		
MATRICOLA N.		
MESE ANNO COSTRUZIONE		
II 3D T140°C X 5°C ≤ Tamb ≤ 40°C TÜV IT 15 ATEX- 044 X		

Figure 3. 9 B - Nameplates position



	WARNING! THE SAFETY WARNING NAMEPLATES SHALL NOT BE REMOVED, COVERED OR DAMAGED.

4 INSTALLATION

4. 1 TRANSPORT AND HANDLING

Have unit transported by qualified and trained Personnel. The Filtering unit shall be handled in a suitable way so as to avoid damages. All protections, electric circuits, control equipment, shall be suitably closed and fastened.

The Filtering unit is packed on pallet, wrapped in plastic and covered with cardboard. Packed machine dimensions and weight are indicated on the package. Check for transport damages together with the carrier.

N.B. The Manufacturer will not be liable for damages due to improper lifting and handling of the packed unit.

	WARRANTY does not cover any damage to the Filtering unit due to Transport and Handling. Any repair or replacement of damaged parts is at the Customer's charge .

4. 2 STORAGE

For any long period of inactivity, store the Filtering unit in a suitable place, considering storage environment and time. In particular, consider allowed temperature range, humidity and pollution:

- Store the Filtering unit indoors;
- Protect the Filtering unit from any shock and stress;
- Protect the Filtering unit from humidity and extremely wide temperature ranges +0° C + 60 °C;
- Avoid contact with corrosive substances .

4.3 ARRANGEMENTS BEFORE INSTALLATION

Before installation, it is necessary to prepare a suitable operating area, limiting any interference with other activities as much as possible.

4.4 ASSEMBLY

Filtering unit can be assembled either by the Technicians authorised by the manufacturer or directly by the customer, following these steps:

Unpacking.

Remove all packing material from the machine, using suitable tools and setting it in a suitable place. Dispose of the packing material according to the prevailing environment protection regulations.

(Visually) check machine external parts for damage, carefully ensure that there are no scratches, denting or damaged parts.

Report any fault, failure or missing parts found within five days from machine arrival. Beyond this term the Manufacturer is no longer liable for the machine supplied.

WARNINGS AND PRECAUTIONS FOR INSTALLATION

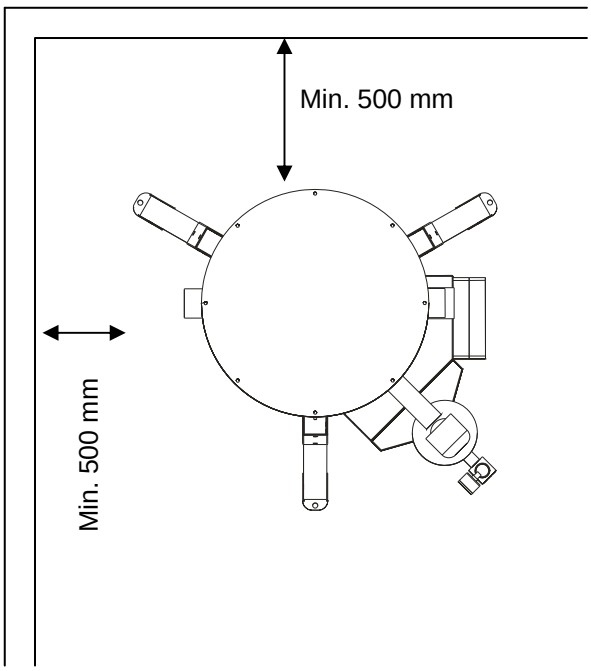
Always start by checking correct operation, assembly and efficiency of controls and safety systems. **In case** you find operating faults, immediately stop the machine and contact the AUTHORISED AFTER-SALES SERVICE. **Pay attention** to the adhesive nameplates on the machine. Should they become damaged or illegible, promptly change them. For this operation contact the AUTHORISED AFTER-SALES SERVICE or the Manufacturer. **Have any maintenance intervention** -as per the definition of "user" given in the foreword section- performed by qualified personnel. **Using spare parts** that do not comply with the following specifications, any change or tampering (though small as they may be) relieve the Manufacturer of any liability concerning the correct use, operation and safety of persons and/or property. **It is strictly forbidden** to tamper with equipment, control organs and safety devices. **Dispose of waste** as required by the prevailing laws. **If the machine is used by many operators**, all of them shall read the instructions for use and indicate any maintenance intervention or parts replaced, or just suspected faults on the servicing data sheet.

4.5 SET-UP

Set the Filtering unit on a flat and clean surface and ensure that the equipment and tools for machine mechanical set-up are in place.

Once the machine has been positioned, level it and fix it to the floor by means of special holes and on the cylinder supports lower side.

N.B. It shall always be possible to work all around the machine for maintenance purposes. During installation pay special attention to this rule.



4.6 CONNECTIONS

To avoid any problem at Filtering unit start-up, follow the instructions below.

4.6.1 PNEUMATIC CONNECTIONS

Figure 4. 6. 1A- Pneumatic System Layout

Connection to the air supply is ensured by a hose connected to regulator.
The mobile connection is supplied together with the Filtering unit.
The standard Filtering unit comes with regulator.
Air supply requirements:

- Operating pressure: 5 bars
- Maximum pressure: 10 bars

Connect compressed air supply to the supplied line by inserting a gate valve (to be supplied by Customer) on the pre-set line so that the supply can be cut off during maintenance. It is strongly recommended to feed the machine with dry compressed air.

Compressed air of the supply line must be completely dry, i.e. treated upstream of the exhauster. It is recommended to install a 5 micron air filter.

44.6.2 ELECTRIC CONNECTIONS
Figure 4. 6. 3A- Electric System Layout

POWER SUPPLY
Filtering unit electrical connections are at the Customer's charge, under its own responsibility (see par. 3.5).

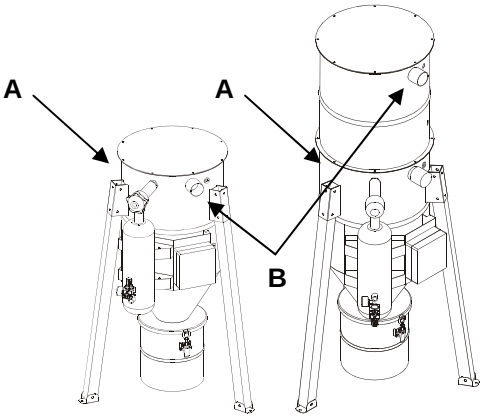
Make the electrical connections. Supply power to the machine with a separate line of suitable cross-section, also providing suitable protections for direct and indirect contact. **This line and the relevant protections are at the Customer's charge.**

It is necessary to ensure a safe ground connection.
ALWAYS use an anti-loosening device (grover, split washer, cup washer).

The electrical system design and components ensure utmost dependability and safety of use. The attached wiring diagrams will allow identification of all connections and components. Only make the required electrical connections; do not modify any circuits, calibrations, components, etc. Failure to follow this warning will be considered as tampering. Before connecting to the mains, ensure that power voltage and frequency correspond to the specifications indicated on the nameplate. **Perform ground connections and/or zero setting as required by the prevailing laws of the country.**

4.6.3 DUST INLET (A)

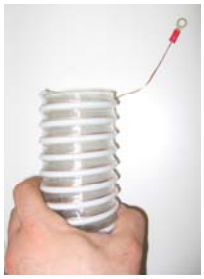
Connect the Ø63mm fitting located on dust cylinder to an antistatic flexible hose deriving from the main suction line. “Peel” the copper cable and connect it to an equipotential or ground conductor. Fasten the hose with its metal clamp.
It is recommended to use overpressure/spark trap devices at dust suction points. We recommend installing the filter at least five meters from the first dust suction mouthpiece.



The user/process manager shall assess the electrostatic charges and any other ignition sources generated by the process.

4.6.3a SUCTION INLET (B)

Connect the Ø63mm fitting located on filter holder cylinder to an antistatic flexible hose deriving from the exhauster. “Peel” the copper cable and connect it to an equipotential or ground conductor. Fasten the hose with its metal clamp.



4.7 PRELIMINARY INSPECTIONS

Power supply, compressed air supply and Filtering unit preparation stages for Commissioning do not require any special knowledge apart from those acquired after reading this manual.
Before starting up the Machine it is necessary to perform some inspections and checks in order to avoid errors or accidents:

- Ensure that the Filtering unit did not suffer any damage during assembly;
- Pay special attention when checking electrical parts, control panels, cables and air lines;
- Check that all external supplies connections are correct;
- Ensure that all mobile parts can move freely .

4.8 ADJUSTMENTS AND CHECKS

The Filtering unit is tested at the Manufacturer's premises, before shipment. No further adjustment is necessary.
When starting the filtering unit for the first time, proceed as follows:

- Set the Main switch QSl lever to ON **(switch is installed by the Customer)**;
- Open compressed air supply cock; ensure that compressed air regulator reads 5 bars;
- After being supplied, the Filtering unit sets to automatic operation mode.
- To change the economiser setup, refer to the attached manual of the manufacturer.

5 OPERATION

5.1 PERSONNEL

The Filtering unit is designed for use by many Operators.
Personnel allowed to work on the Filtering unit shall have the following knowledge (or acquire it after suitable training) and be familiar with the contents of this Manual as well as all Safety-related concerns:

- General and technical knowledge of suitable level to understand Manual contents;
- Knowledge of the main health and safety and accident prevention rules;
- Knowledge of how to behave in an emergency situation, where to find personal protection gear and how to use it correctly.

Maintainers, apart from the above, shall also have suitable electrical, pneumatic and mechanical Technical knowledge.

5.2 CONTROL PANEL

Filtering unit controls are on the control panel.

Figure 5.2 a - **Controls on front panel**

Refer to the economiser use and maintenance manual to understand and set the main parameters.

5.3 COMMISSIONING AND USE

To power on the Filtering unit proceed as follows:
set Main switch to ON
Open compressed air supply cock

5.4 OPERATING MODES

After commissioning you can use the machine, no operator intervention is necessary.

5. 5 JOB END

The procedure for a voluntary Stop is as follows:
1. Turn the main switch on the electric panel installed by the customer to OFF or disconnect the power plug;
2. Close compressed air supply cock.

5.6 DECOMMISSIONING

For any long period of inactivity or in case of maintenance, user shall compulsorily:

- Open and padlock the main switch on main control panel (see Figure 6.1 A);
- Close and lock compressed air inlet valve (see Figure 6.1.B);
- Release circuit air by opening the condensate drain cock;
- Put out a panel reading "FILTERING UNIT BEING SERVICED" .

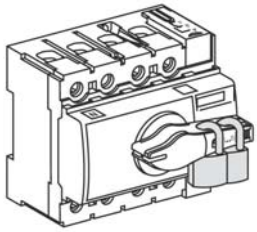
6 MAINTENANCE

6.1 FILTERING UNIT INSULATION

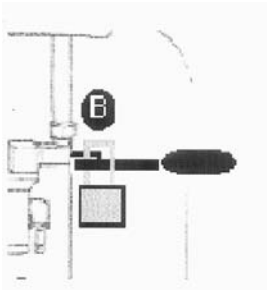
Before attempting any Maintenance or Repair job, user must cut all Filtering unit supplies, proceeding as follows:

- Turn the switch on the main electric panel to OFF and padlock it, and remove the power plug from the relevant outlet.
- Close and padlock the compressed air supply and open the condensate drain cock to drain the system

6.1A



6.1B



6.2 SPECIAL PRECAUTIONS

When carrying out maintenance or repair jobs, it is recommended to proceed as follows:

- Before starting, put out a panel reading "FILTERING UNIT BEING SERVICED" in a visible position.
- Do not use solvents and flammable materials;
- Do not release lubricants into the environment;
- Machine parts are not designed to bear a Person's weight; do not stand on them or they could break.
- When job is completed, restore and correctly fasten all protections and guards previously removed or opened, as well as any safety device, if previously disabled.

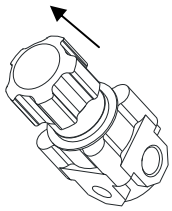
6.3 PARTS SUBJECT TO ROUTINE MAINTENANCE

Maintenance shall be carried out with the Filtering unit set out of service for replacement of damaged or worn parts. The Filtering unit does not require frequent maintenance. If compressed air does not meet indicated requirements, the following could get damaged:

- Pressure regulator
- Solenoid valve
- Filter cartridge

1) Pressure regulator
Remove the regulator:

- Close air feed;
- Bleed any residual air;
- Set the regulator to zero by working the knob counter clockwise until it locks, then disconnect all the lines connected to the regulator;
- Remove the regulator from the tank;
- Open the regulator by loosening the knob tang.
- Clean or change the membrane then reassemble the unit proceeding in the reverse order.

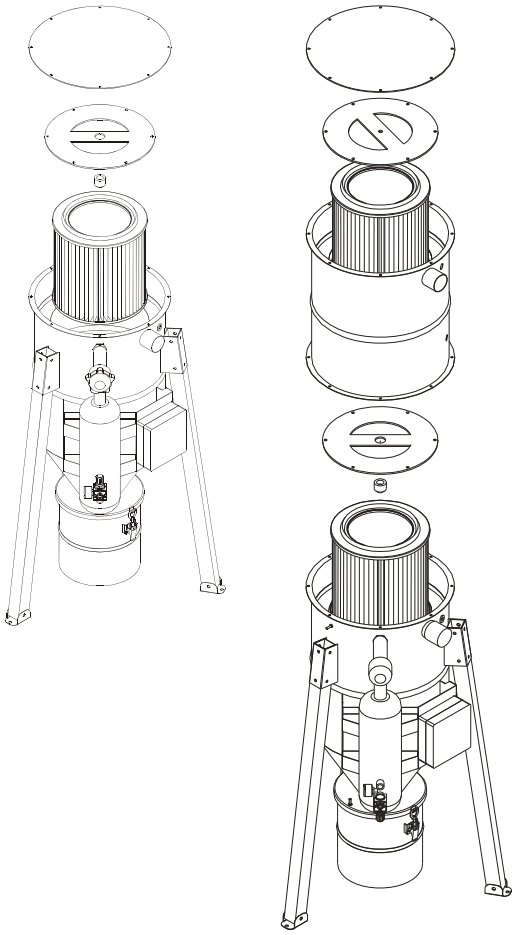


2) Replace solenoid valve if it jams. Change as follows:
Close air feed;

- Release any residual air by opening the condensate drain cock;
- Remove the connector by undoing the retaining screw;
- Remove the connecting tube and loosen the solenoid valve;
- Clean and/or change the solenoid valve;
- Connect the connector, reconnect the lines, etc.

3) Filter cartridge

- Cut off power and air supply (see relevant procedures in the previous pages);
- disconnect Ø63 inlet tube from inlet manifold;
- Remove the upper cylinder/cover;
- Remove the cartridge holder plate;
- Loosen nut under cartridge;
- Set the new cartridge in place, ensuring to set it at the centre and that the seal correctly sets against the plate;
- Tighten the nut, do not squeeze seal too much (nut finger tight + two turns);
- Reposition the cartridge holder plate;
- To reassembly, follow the disassembly procedure in the reverse order.



6.4 CLEANING

It is recommended to frequently clean the whole Machine (intervals depend on type and frequency of use). Use a soft rag. Do not use water and/or solvents.

- **Dust collector emptying.** It is impossible to set a standard interval to empty the dust collector tank so it is important to frequently check dust quantity during the first two weeks of use. Periodically empty the tank according to the work you do. Release the two levers to unlock the dust collector cylinder. Remove the cylinder using the two side handles and empty it in a container for the disposal. It is necessary to dispose of the collected dust according to the prevailing laws of the country where machine is installed.

In dust emptying process must be considered in the analysis of the explosion hazard performed by the system safety manager.

6.5 ROUTINE MAINTENANCE

The following operations shall be performed at the indicated time intervals. Failure to comply with this schedule will relieve the Manufacturer of any liability or warranty obligation.
These operations, though simple as they may be, shall be carried out by **suitably trained and expert Personnel.**
Scheduled routine maintenance includes inspections, tests and interventions aiming at preventing system stoppage due to faults or potentially dangerous situations

6.6 EXTRAORDINARY MAINTENANCE

Extraordinary maintenance is an activity reserved to personnel appointed by the manufacturer or the manufacturer itself. Please contact the centres specified under paragraph 1.2 in case of need. **Considering the machine routine maintenance, the intervention of a technician for extraordinary maintenance is highly unlikely, unless for special cases or when expressly requested.**

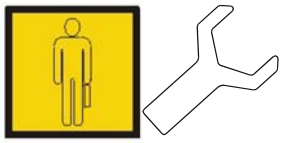
MAINTENANCE	DESCRIPTION	INTERVENTION
Pneumatic System	Valves and tubes/lines	No scheduled maintenance required.
Electrical System	Economiser	No scheduled maintenance required.
Suction System	Filter	Change every 1500 hours or when the load loss is more than 70/80 mm H_2O.

7 DIAGNOSTICS

7.1 TROUBLESHOOTING

Table 7.1 A

TROUBLE	CAUSE	INSPECTION AND/OR FIX
The solenoid valve or regulator “hiss”	• Poor air quality, dirty membranes • Membrane failure	• Install air filter at inlet • Clean/change regulator/solenoid valve
Filter is not automatically cleaned	• No compressed air feed. • Faulty economiser • Faulty solenoid valve	• Restore compressed air feed. • Change the economiser • Clean/change the solenoid valve
Faulty or insufficient suction	• Filter clogged due to failure of emptying dust collector tank • Damp filter • Suction of objects • Faulty solenoid valve • Faulty economiser. No compressed air supply.	• Empty dust collector tank more frequently: an excessive quantity of accumulated dust clogs the filter cartridge • Check for condensate in the machine accumulation tank. Install a filter at machine inlet • Remove jamming. • See above
Control electric panel does not switch on, even though it is correctly powered.	•	See economiser use manual
With openings open, differential pressure gauge displayed pressure is considerably different from zero	• Clogged filter/clogged/ broken connecting tubes	• See above • Clean the connecting tubes and reconnect them to pressure gauge



7.2 AFTER-SALES SERVICE

The Manufacturer is always willing to answer Customer's questions and give information on use, maintenance or installation and so on. Please follow the instructions given under paragraph 1.2 on how to request our assistance.

8 SPARE PARTS

8.1 SPARE PARTS LIST

Filtering unit use does involve some expendable parts. Following is the list of available spare parts and expendable parts.

POS.	DESCRIPTION	PART NO.
1	Solenoid valve	
2	Pressure regulator	PCX-0044
3	Pressure gauge	K2-78
4	Filter cartridge	FCC300EX
5	Hepa filter cartridge	HEPA
6		
7		
8		
9		

8.2 ORDERING SPARE PARTS

We remind you that the machine can only be repaired by a qualified technician.
It is hence recommended to contact the Manufacturer After-sales Service that will make available Qualified Personnel, suitable equipment and original spare parts.
To order above-listed spare parts, please refer to paragraph 1.2

9 SCRAPPING

9.1 DISPOSING OF WASTE

During processing, waste or rejections are created that shall be collected, recycled or disposed of, in compliance with the prevailing laws of the country where the Machine is installed.

9.2 MACHINE SCRAPPING

Upon unit scrapping, separate the plastic parts from any electrical components, that shall be sent to different waste disposal centres, as per prevailing rules.
The machine metal parts shall be divided into steel and other metals or alloys, and then routed to recycling firms.
Unit scrapping does not cause any special risk, as far as it is performed by qualified personnel with suitable equipment.

10 ANNEXES

10.1 DECLARATIONS

The following Declarations are hereby attached:

- Declaration of conformity

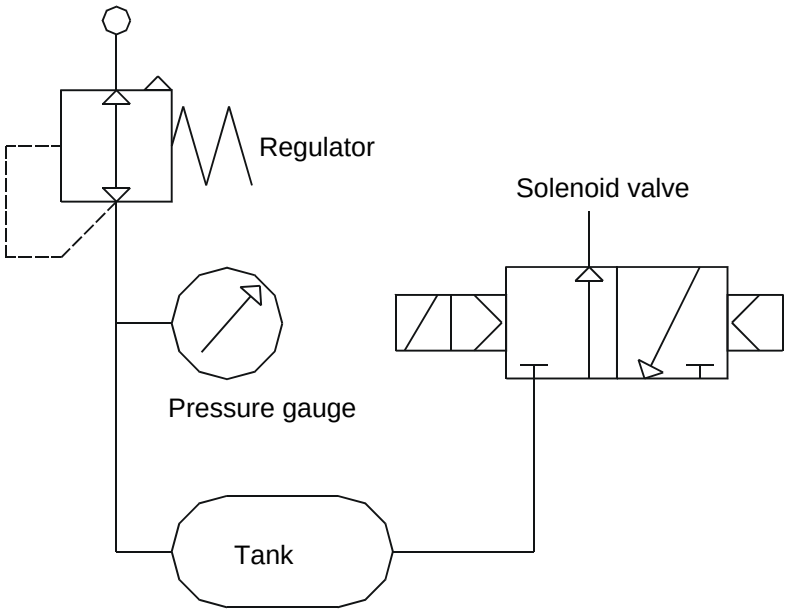
10.2 DIAGRAMS

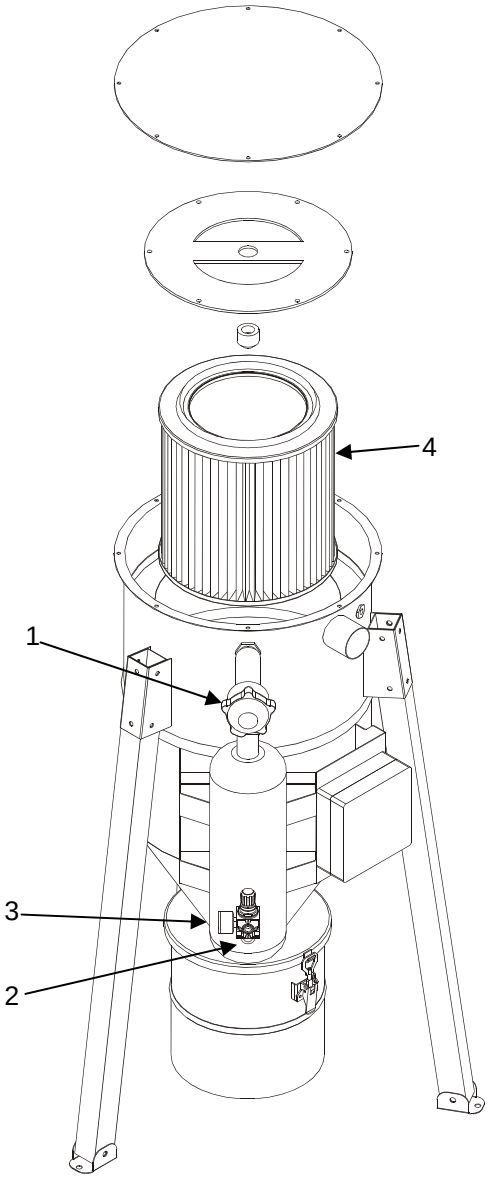
- The following Diagrams are hereby attached:
- Electric circuit diagram and key;
- Pneumatic circuit diagram;
- Machine exploded view.

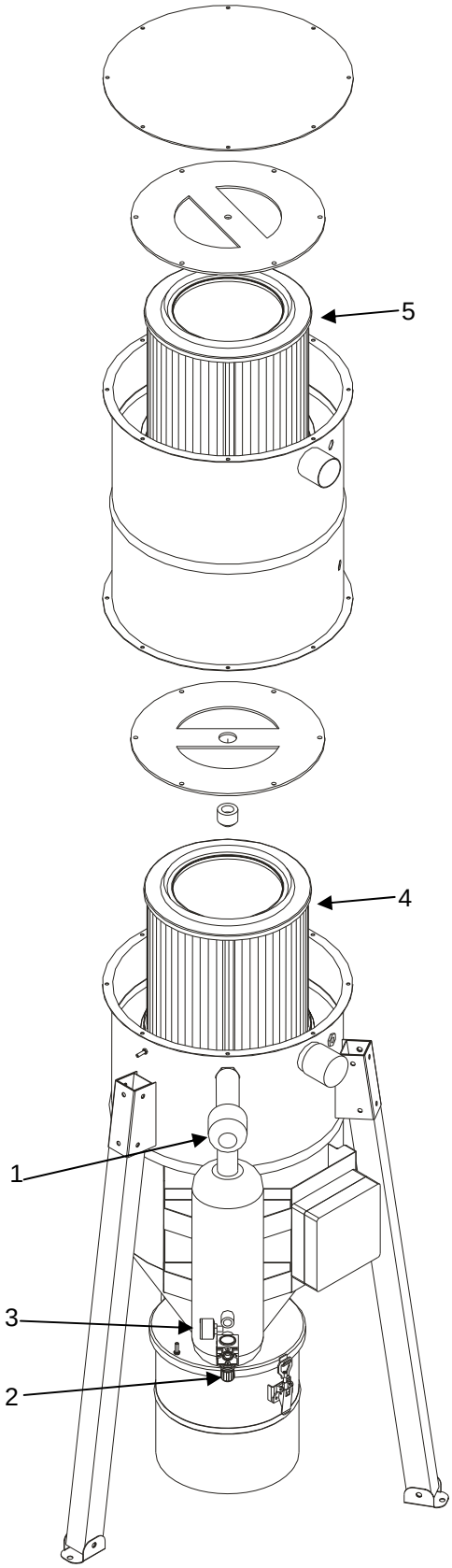
10.3 ANNEXES

- Certified equipment use and maintenance manuals

Pneumatic circuit diagram







Please see descriptions in Table 8.1 A

THE UNDERSIGNING COMPANY

C.A.V SR.L.

VIA R. MORANDI, 93 - 40060 TOSCANELLA DI DOZZA (BO)
TEL.: +39 0542 673488 - TELEFAX: +39 0542 672065
E-MAIL: SALES@CAVITALY.COM - HTTP://WWW.CAVITALY.COM
M/BO 015576
ITALY

DECLARES, UNDER ITS OWN RESPONSIBILITY, THAT THE MACHINE

MODEL **F-ATEX - F-ATEX-HEPA**

SERIAL NO.

CONSTRUCTION DATE

ATEX MARKING: II 3D T140°C X 5°C = TAMB = 40°C TÜV IT 15 ATEX 044 X

TO WHICH THIS DECLARATION IS REFERRED, COMPLIES WITH THE FOLLOWING DIRECTIVES:

DIRECTIVE 2006/42/EC (MACHINERY DIRECTIVE)

DIRECTIVE 2014/35/CE (LOW VOLTAGE DIRECTIVE)

DIRECTIVE 2014/30/CE (ELECTROMAGNETIC COMPATIBILITY DIRECTIVE)

DIRECTIVE EN 1127-1 : 2009

DIRECTIVE EN 13463-1 : 2009

DIRECTIVE EN 60079-0: 2012

DIRECTIVE 2014/34/CE

FURTHERMORE, WE DECLARE THAT THE TECHNICAL DOSSIER HAS BEEN DRAWN UP BY:

LUCA LUCIA
C/O C.A.V. SRL
VIA R. MORANDI, 93 - 40060 TOSCANELLA DI DOZZA (BO)
TEL.: +39 0542 673488 - TELEFAX: +39 0542 672065
E-MAIL: UT@CAVITALY.COM

TOSCANELLA,

TECHNICAL DOSSIER DRAFTER **LEGAL REPRESENTATIVE**

LUCA LUCIA DOMENICO LUCIA

CE

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

CERTIFICATE

TÜV SÜD Italia

[1] **TYPE EXAMINATION CERTIFICATE**

[2] **Equipment or Protective System intended for use in potentially explosive atmospheres Directive 94/9/EC**

[3] Type Examination Certificate number:

TÜV IT 15 ATEX 044 X

[4] Equipment or Protective System: F-ATEX-HEPA

[5] Manufacturer: CAV S.r.l.

[6] Address: Morandi,93 – Toscanella di Dozza – 40060 (Bologna) * ITALY

[7] This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] TÜV Italia certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. R 15 EX 033

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 1127-1 : 2009 EN 13463-1 : 2009 EN 60079-0 : 2012

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This TYPE EXAMINATION CERTIFICATE relates only to the design, examination and tests of the specified equipment or protective system in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

[12] The marking of the equipment or protective system shall include the following:

Ⓔx II 3D T140 °C Tamb= +5 °C ÷ 40 °C

This certificate may only be reproduced in its entirety and without any change, schedule included.

date: 14 July 2015

TÜV Italia Srl Industrie Service 09 48 Notified Body

Approved
Gennaro Oliva
Industrie Service Director

TÜV Italia • Gruppo TÜV SÜD • Via Carducci 125, Pal. 23 • 20099 Sesto San Giovanni (MI) • Italia • www.tuv.it TÜV®

[13] **SCHEDULE**

[14] **TYPE EXAMINATION CERTIFICATE no. TÜV IT 15 ATEX 044 X**

Italia

[15] **Description of equipment**

The filters unit ,F-ATEX, is an assembly for dust filtering. It is composed by an economiser, a compressed air tank, an electrovalve, a pressure regulator and a filter. Following the equipment separately marked:

- Econimizer E2T
- Pack cylinder
- pressure gauge

Rated characteristics

Description	Characteristics
Permissible range ambient\process temperature	+5 °C ÷ 40 °C
Voltage	230V-50Hz
Compressed air supply	Max 10 Bar
Max Air flow	300 m^3/h
Relative Humidity	Max 90%
Mass	72 Kg
Dimension	685x785x h1660 mm
Main filter area (class M)	$4m^2$
Optional filter area (class H13)	$6m^2$

Warning label

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

[13] **SCHEDULE**

[14] **TYPE EXAMINATION CERTIFICATE no. TÜV IT 15 ATEX 044 X**

Italia

[16] **Report no.** R 15 EX 033

Routine tests

Listed documents (prot. EX-260140)

- User manual rev. 04/2015 no. pg. 90 dated April 2015
- F-ATEX rev. 05/2015 no.pg. 2 dated May 2015
- Technical data HEPA H.13 rev. / no. pg 1 dated /
- Ass bidone inferiore rev. 0 no. pg. 1 dated 31/03/2009
- Ass bidone per hepa rev. 0 no. pg. 1 dated 17/03/2015
- Ass filtro superiore rev. 0 no. pg. 1 dated 25/08/2014
- Bombola pack5 standard rev 0 no. pg 1 dated /
- Coperchio rev. 0 no. pg. 1 dated 25/08/2014
- Disco per filtro atex rev. 1 no. pg. 1 dated 25/08/2014
- Disco per filtro hepa rev. 0 no. pg. 1 dated 15/04/2015
- Gamba rev. 0 no. pg. 1 dated 25/08/2014
- Piede rev. 0 no. pg. 1 dated 25/08/2014
- tappo per imbocco aspir rev. 0 no. pg. 1 dated 15/04/2015

One copy of all documents is kept in TÜV Italia files.

[17] **Special conditions for safe use**

- The area inside filter housing is not on the scope of this certificate. The evaluation on static electricity and other ignition sources generated by the process\maintenance operation are under the responsibility of the user.
- The user must evaluate all potential ignition sources during the dust removal process
- Before putting in service the assembly, the user must check the compliance of the complete electric installation to the requirements of EN 60079-14.
- All special conditions for safe use of all separately marked equipment must be considered

[18] **Essential Health and Safety Requirements**

Assured by compliance with the standards set out in the [9].

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Please fill in and return this form by fax for Warranty registration

Data: ……

Machine model:

Serial no.:

Year of manufacture:

To be filled in by the Customer

Company name ……..

Address ..……

Phone no.: ……. Fax no.: ……. E-mail: ..... …….

Company name of installing firm

……
……..

Maintenance log book
(please fill in at any servicing)

Date	Operation description	Signature

C.A.V. srl
Via R. Morandi, 93 - 40060 Toscanella di Dozza (BO)
Tel.: +39 0542 673488 / Fax: +39 0542 672065
www.cavitaly.com - sales@cavitaly.com
www.smaisystem.com - info@smaisystem.com

ALLEGATO 1

TURBO S.R.L.
Electronic Control Systems for dust collectors
e-mail: info@turbocontrols.it
web: www.turbocontrols.it
TEL. ++39 (0)362 574024
FAX ++39 (0)362 574092

MANUALE UTENTE ECONOMIZZATORE SERIE E2T

24/06/2014

Release Manuale 1.22

Release Software 2.2

Descrizione generale

Economizzatore per il comando della pulizia pneumatica degli impianti di depolverazione industriale. Controllo digitale della pressione differenziale da trasduttore interno che consente una precisa analisi dello stato di intasamento del filtro. Presenti 1 contatto a relè in uscita e 2 ingressi digitali da contatti. Ampio e luminoso display, che consente, in ogni momento, leggere lo stato di intasamento del filtro, le elettrovalvole attive e gli eventuali allarmi.

L'innovativo software gestito da un potente microprocessore rende lo strumento facile da utilizzare anche da parte di utenti poco esperti.

Caratteristiche tecniche

Contenitore

- Costruito in ABS.
- Grado di protezione dall'acqua e dalla polvere IP65(EN60529).
- Resistente agli urti IK08/07(8 joule) (EN62262).

Prestazioni del dispositivo

- Display led 7 segmenti, 3 cifre da 0.8";
- Due modalità di funzionamento: manuale, automatico.
- Tempi operativi espressi in secondi con range selezionabili per qualsiasi funzione.
- Unità di misura della pressione espressa in kPa.
- Tensione di alimentazione 115-230 Vac 50-60 Hz selezionabile tramite jumper (opzionale 24 Vac/Vdc).
- Tensione di uscita 24Vdc, 24-115-230Vac selezionabile tramite jumper.
- Funzione lavaggio con ventilatore spento (post-pulizia) tramite soglia "Δp ventilatore" nella modalità automatica e tramite contatto nelle modalità manuale con numero di cicli selezionabili fino a 99.
- Conta ore totale e parziale per manutenzione.
- Un relè di allarme.
- Allarme Δp massimo (filtro intasato).
- Allarme elettrovalvola non operativa.
- Allarme manutenzione elementi filtranti (con possibilità di inclusione/esclusione).
- Attivazione pulizia da contatto esterno.
- Ingresso di consenso presenza aria compressa.
- Funzione precoating.
- Uscita 4-20mA proporzionale alla lettura di dP per lettura remota di pressione.
- Attivazione manuale elettrovalvola.

Caratteristiche elettriche

Attenzione! Prima di collegare il dispositivo leggere la sezione riguardante l'installazione

Alimentazione elettrica:

- 115 VAC 50-60 Hz – 25W
- 230 VAC 50-60 Hz – 25W
- 24 VAC 50-60 Hz– 25W (Opzionale)
- 24 VDC– 25W (Opzionale)

Tensione uscita selezionabile tra:

- 24Vdc
- 24Vac
- 115Vac
- 230Vac

Ingressi e uscite non galvanicamente isolati:

- Contatto consenso (abilitazione remota pulizia).
- Contatto ventilatore (post-pulizia).
- 4 – 20mA (lettura remota Δp).

Le elettrovalvole collegate alla centralina sono del tipo normalmente chiuso.
L'attivazione di una di esse ne causa l'apertura e il conseguente getto d'aria.

Relè di allarme:
Il relè di allarme presenta 1 contatto pulito ai morsetti 4 e 5.
Carico massimo ammesso: 3A @ 250Vac - 2A @ 24Vdc

Fusibile
1 x 1 A @ 230Vac.
1 x 2 A @ 115Vac.
1 x 3 A @ 24Vac (opzionale).
1 x 3 A @ 24Vdc (opzionale).

Temperatura di lavoro
-10°C÷55°C
Temperatura di stoccaggio
-20°C÷60°C

Caratteristiche timer:

Tempo Impulso (apertura valvola)
50 ms ÷ 5 s
Tempo Pausa (intervallo tra aperture valvole)
1 sec. ÷ 999 sec.

Misuratore di pressione differenziale

Attenzione! Pressioni maggiori danneggiano il dispositivo. Non collegare i tubi di misura dell'intasamento al circuito dell'aria compressa.

Range di pressione misurabile: 0 ÷ 4 kPa
Pressione massima applicabile: 16 kPa – 0.16 bar

Norme D'installazione / Note e Avvertenze

- Proteggere l'apparecchiatura dall'esposizione diretta dei raggi solari.
- Posizionare l'apparecchiatura non in prossimità di fonti di calore e campi elettromagnetici o non direttamente a contatto con esse.
- Collegare l'apparecchiatura su linee di alimentazione diverse da quelle usate per azionamenti di motori o altri dispositivi di grande potenza che possono creare disturbi di rete.
- Fissare a parete l'apparecchiatura ad almeno 60 cm dal pavimento.
- Per i tutti segnali di controllo in ingresso utilizzare cavi antifiamma di sezione minima 0,25 mm^2.
- Prima di intervenire sull'apparecchiatura per effettuare qualunque operazione verificare di essere in condizioni di atmosfera sicura.
- Per operazioni di natura elettrica inoltre togliere sempre tensione, attendere 30 secondi per la scarica dei condensatori interni prima di aprire. Terminate le operazioni richiudere l'apparecchiatura per ripristinare il grado di protezione prima di dare tensione.
- Per il collegamento della tensione d'alimentazione utilizzare cavi antifiamma di sezione minima 0,75mm^2.
- Per i contatti dei relè di segnalazione usare cavi antifiamma di sezione 1,5 mm^2.
- L'uso non previsto da questo manuale utente e l'utilizzo non corretto del dispositivo può causare danno allo stesso e ad eventuali apparecchi connessi ad esso.
- In oltre l'uso scorretto o la manomissione dell' apparecchiatura può causare danni alle persone.
- L'impermeabilità del contenitore è garantita a sportello chiuso.
- Se si utilizzano canaline rigide o flessibili per effettuare i cablaggi evitare che queste si riempiano di acqua o altri liquidi.
- Non effettuare fori sul contenitore non protetti, o protetti da accessori con grado di protezione inferiore a quello dell'economizzatore.
- Se all'interno del contenitore viene rilevata dell'acqua sospendere immediatamente l'erogazione della tensione di alimentazione.
- Se non si è compreso o letto questo manuale non utilizzare l'economizzatore.

Display/Tastiera

Sul pannello frontale sono presenti 4 tasti circolari per il controllo dell'apparecchiature e all'accensione il display si presenta come da seguente immagine.

Figura 1

- Il tasto SET consente di entrare e uscire dal menù di programmazione, e attivare il test manuale della elettrovalvola selezionata nella funzione F06.
- I tasti + e – consentono di scegliere la funzione, incrementare/decrementare i valori, visualizzare contaore totale (+) e contaore manutenzione (-).
- Il tasto OK consente di confermare i dati e resettare gli allarmi.

Schema dei menù

Accesso alla programmazione :

- Premere SET (vedi figura 2)

Figura 2

- Con i tasti + e – scegliere la funzione desiderata.
- Confermare con il tasto OK.
- Aumentare o diminuire il valore del parametro.
- Confermare ed uscire con OK.
- Con una ulteriore pressione del tasto SET, si esce dalla modalità programmazione.

Elenco funzioni

- **F01:**
  Impostazione automatico con uso DP o manuale.
  Valori impostabili: 0 - Manuale
  1 – Automatico (Default)
- **F02:**
  Tempo attivazione elettrovalvole .
  Valori impostabili: 0.05” – 5.00” step 0.01”.
  Default = 0.20”.
- **F03:**
  Tempo pausa in lavaggio tra le elettrovalvole .
  Valori impostabili: 001” – 999” step 1”.
  Default = 020”.
- **F04:**
  Numero uscite collegate.
  Valori impostabili: 01 – 16 step 1.
  Default = 001.
- **F05:**
  Impostazione tensione d’uscita:
  Valori impostabili: d24, a24, 115, 230.
  Default = a24.
- **F06:**
  Attivazione manuale uscita:
  Valori impostabili: 1 – nr. uscite impostate in F04.
  Premere SET per attivare l’uscita impostata.
- **F07:**
  Soglia di zero DP.
  Valori impostabili: 0.00 kPa – 3.99 kPa step 0.01.
  Default = 0.00 kPa.
- **F08:**
  Soglia di Start ciclo pulizia.
  Valori impostabili: 0.00 kPa – 3.99 kPa step 0.01.
  Default = 0.80 kPa.
- **F09:**
  Soglia di Stop ciclo pulizia.
  Valori impostabili: 0.00 kPa – 3.99 kPa step 0.01.
  Default = 0.40 kPa.
- **F10:**
  Livello Max DP.
  Valori impostabili: 0.00 kPa – 3.99 kPa step 0.01.
  Default = 3.00 kPa.
- **F11:**
  Modalità riconoscimento ventilatore acceso.
  Valori impostabili: 0 da contatto – 1 da DP.
  Default = 1 da DP.

- **F12:**
  Soglia DP per riconoscimento ventilatore acceso, nel caso F11=1.
  Valori impostabili: 0.00 kPa – 3.99 kPa step 0.01.
  Default = 0.10 kPa.
- **F13:**
  Numero cicli di Post Pulizia, dopo stop ventilatore.
  Valori impostabili: 01 – 99 step 1.
  Default = 01.
- **F14:**
  Tempo pausa in Post Pulizia (ventilatore off).
  Valori impostabili: 001” – 999” step 1”.
  Default = 010”.
- **F15:**
  Intervallo di manutenzione espresso in decine di ore (es.: 1=10h, 10=100h).
  Valori impostabili: 001 – 999 step 1.
  Default = 100 (=1000h).
- **F16:**
  Abilitazione dell’allarme su intervallo di manutenzione.
  Valori impostabili: 0 (disabilitato) – 1 (abilitato).
  Default = 0 (disabilitato).
- **F17:**
  Reset contatore ore manutenzione.
  Valori impostabili: 0 (disabilitato) – 1 (reset).
  Default = 0 (disabilitato).
  Nota: Impostando a 1 la funzione F17, verrà resettato il contatore delle ore di manutenzione ed il parametro F17 tornerà a 0.
- **F18:**
  Abilitazione della funzione di Precoating.
  Valori impostabili: 0 (disabilitato) – 1 (abilitato).
  Default = 0 (disabilitato).
- **F19:**
  Soglia DP per termine funzione di Precoating.
  Valori impostabili: 0.00 kPa – 3.99 kPa step 0.01.
  Default = 2.00 kPa.

Allarmi

Durante il ciclo di accensione ed il normale funzionamento, la centralina esegue una serie di controlli. Di seguito si riporta la descrizione dei possibili allarmi e relative soluzioni.

TABELLA ALLARMI

Numero Allarme	**Descrizione**	**Azione**
E01	F05 impostato a 24V dc – Rilevato jumper AC	- Se si desidera 24Vdc, spegnere il dispositivo e spostare i jumper AC/DC su DC. Tabella jumper p 12. - Se si desidera 24Vac, premere OK, poi premere SET, impostare con "+" e "-" la funzione F05, scegliere A24 e confermare con OK.
E02	F05 impostato 24V ac – Rilevato jumper DC	- Se si desidera 24Vac, spegnere il dispositivo e spostare i jumper AC/DC su AC. Tabella jumper p 12. - Se si desidera 24Vdc, premere OK, poi premere SET, impostare con "+" e "-" la funzione F05, scegliere d24 e confermare con OK.
E03	F05 impostato 24Vac o dc. Rilevata tensione fuori range.	- Se si desidera utilizzare valvole a 24V, spegnere il dispositivo e spostare il jumper di selezione della tensione d'uscita su 24V. Tabella jumper p 12. - Se invece il jumper è nella posizione corretta, premere OK, poi SET, scegliere con "+" e "-" la funzione F05, impostare 115 o 230 (come jumper) e premere OK.
E04	F05 impostato a 115V. Rilevata tensione fuori range.	- Se si desidera utilizzare valvole a 115V, spegnere il dispositivo e spostare il jumper di selezione della tensione d'uscita su 115V. Tabella jumper p 12. - Se invece il jumper è nella posizione corretta, premere OK, poi SET, scegliere con "+" e "-" la funzione F05, impostare 115 o 230 (come jumper) e premere OK.
E05	F05 impostato a 230V. Rilevata tensione fuori range.	- Se si desidera utilizzare valvole a 230V, spegnere il dispositivo e spostare il jumper di selezione della tensione d'uscita su 230V. - Se invece il jumper è nella posizione corretta, premere OK, poi SET, scegliere con "+" e "-" la funzione F05, impostare a24, d24 o 115 (come jumper) e premere OK.
E06	Corrente Elettrovalvola inferiore alla soglia minima o elettrovalvola scollegata.	Verificare corretto collegamento elettrovalvola e dati della stessa. L'allarme si auto-resetta.
E07	Corrente Elettrovalvola superiore alla soglia massima.	Verificare corretto collegamento elettrovalvola e dati della stessa. L'allarme si auto-resetta.
E08	Cortocircuito uscite. Allarme **non resettabile**.	Spegnere e riaccendere il dispositivo, dopo aver verificato l'impianto delle elettrovalvole.
E09	Superato valore massimo pressione DP (F10).	Verificare stato elementi filtranti.
E10	Offset hardware sensore DP fuori range.	L'autocalibrazione del sensore DP ha determinato un valore fuori range. Scollegare i tubi aria e ripetere la funzione. Qualora l'allarme si ripresentasse portare il dispositivo in assistenza.
E11	Raggiunto intervallo di manutenzione.	Eseguire manutenzione.
E12	Raggiunto il fondo scala del sensore dP.	Verificare stato elementi filtranti. **ATTENZIONE: Il funzionamento in questa condizione può danneggiare il dispositivo.**

Descrizione del funzionamento

Quando l'economizzatore viene alimentato il display mostra innanzitutto la versione SW installata ed il simbolo **---**, che sta ad indicare che è in corso la verifica della congruità fra impostazioni memorizzate in E2Prom ed i ponticelli impostati. Qualora ci sia discrepanza tra le impostazioni, verrà visualizzato il codice di errore corrispondente (si veda Tabella Allarmi). La funzionalità della centralina sarà limitata alla sola modifica dei parametri, oppure l'operatore potrà spegnere e configurare i jumpers in modo corretto.

Se, invece il test ha superato tutti i controlli, verrà visualizzato il simbolo **0_0** e, successivamente, le seguenti schermate:

- In modalità automatico (F01=1):
  - Valore dP alternato a OFF se è aperto il contatto di abilitazione (14-15).
  - Valore dP alternato a -0- se è chiuso il contatto abilitazione (14-15) e ventilatore spento .
  - Il solo valore dP se abilitato e attivo il ventilatore.
- In modalità manuale (F01=0):
  - OFF se è aperto il contatto di abilitazione (14-15).
  - -0- se è chiuso il contatto abilitazione (14-15) e ventilatore spento .

Modalità operativa manuale

Impostando la modalità manuale l'economizzatore funzionerà come un sequenziatore ciclico programmabile. Le uscite collegate verranno attivate ad intervalli di tempo programmati. L'attivazione della funzione manuale è possibile accedendo al menù di configurazione ed impostando F01 a 0. F02 e F03 imposteranno, rispettivamente, il tempo di sparo e quello di pausa.

Modalità operativa automatica

Selezionando la modalità automatica (F01=1), l'economizzatore funzionerà in autonomia eseguendo il lavaggio pneumatico solo se necessario. Il dispositivo, se rileva che l'intasamento è superiore a Soglia_DP_Start (F08), avvia il ciclo di lavaggio. Se l'intasamento scende al di sotto del livello Soglia_DP_Stop (F09) il lavaggio viene sospeso fino a che la pressione salga nuovamente ad un valore superiore a Soglia_DP_Start. Quando il lavaggio è attivo, i tempi con cui l'economizzatore esegue il lavaggio, sono sempre quelli impostati in F02 (tempo di sparo) e F03 (tempo di pausa).

Funzione pulizia con ventilatore spento (PCC)

Questa funzione permette di effettuare uno o più cicli di pulizia (il numero di cicli è definito in F13), quando il ventilatore è spento. Lo stato di acceso o spento del ventilatore, può essere determinato dallo stato dei contatti 12-13 (contatti aperti = ventilatore spento) se F11=0, oppure può essere determinato automaticamente (con F11=1) quando la pressione DP scende al di sotto della soglia definita in F12. Il tempo di impulso delle valvole sarà sempre quello definito in F02, mentre quello di pausa, in questo caso, è definito in F14.

Il display mostra alternativamente il numero della valvola attivata e la scritta PCC.

Selezione del numero delle uscite

E' possibile selezionare il numero di uscite (elettrovalvole) su cui l'economizzatore eseguirà il ciclo di lavaggio. Il lavaggio verrà effettuato in ordine dalla prima elettrovalvola fino all'ultima. La regolazione delle valvole è possibile dalla funzione F04.

Funzione di precoating (F18=1)

Questa funzione permette di effettuare il precoating. Il precoating è un trattamento degli elementi filtranti che si effettua con una polvere detta appunto polvere di precoating. Durante la fase di precoating è sospeso il lavaggio e l'attivazione manuale delle uscite, fino al raggiungimento della soglia di precoating, definita in F19.
Il display mostra alternativamente il valore del Δp e la scritta PC (precoating).

Taratura zero dP (F07)

Questa funzione permette di effettuare l'azzeramento della lettura del dP a ventilatore spento.
Incrementare o decrementare il valore mostrato con "+" e "-" a piacere. Questo valore verrà sottratto al valore letto dal sensore dP.

Auto calibrazione sensore dP.

Questa funzione permette di effettuare l'azzeramento automatico della lettura del dP a ventilatore spento.
A dispositivo spento, premere e tenere premuti contemporaneamente i pulsanti "SET" e "OK" e accendere. Dopo il test di accensione, comparirà la scritta "CAL". Rilasciare i tasti. Dopo alcuni istanti, la centralina tornerà allo stato normale. La calibrazione automatica è completa.

Fusibile

In prossimità della morsettiera di alimentazione, si trova un fusibile che è possibile ripristinare in caso di necessità. Utilizzare un fusibile ritardato 5x20mm. come da tabella a pag. 12.

Schema di connessione

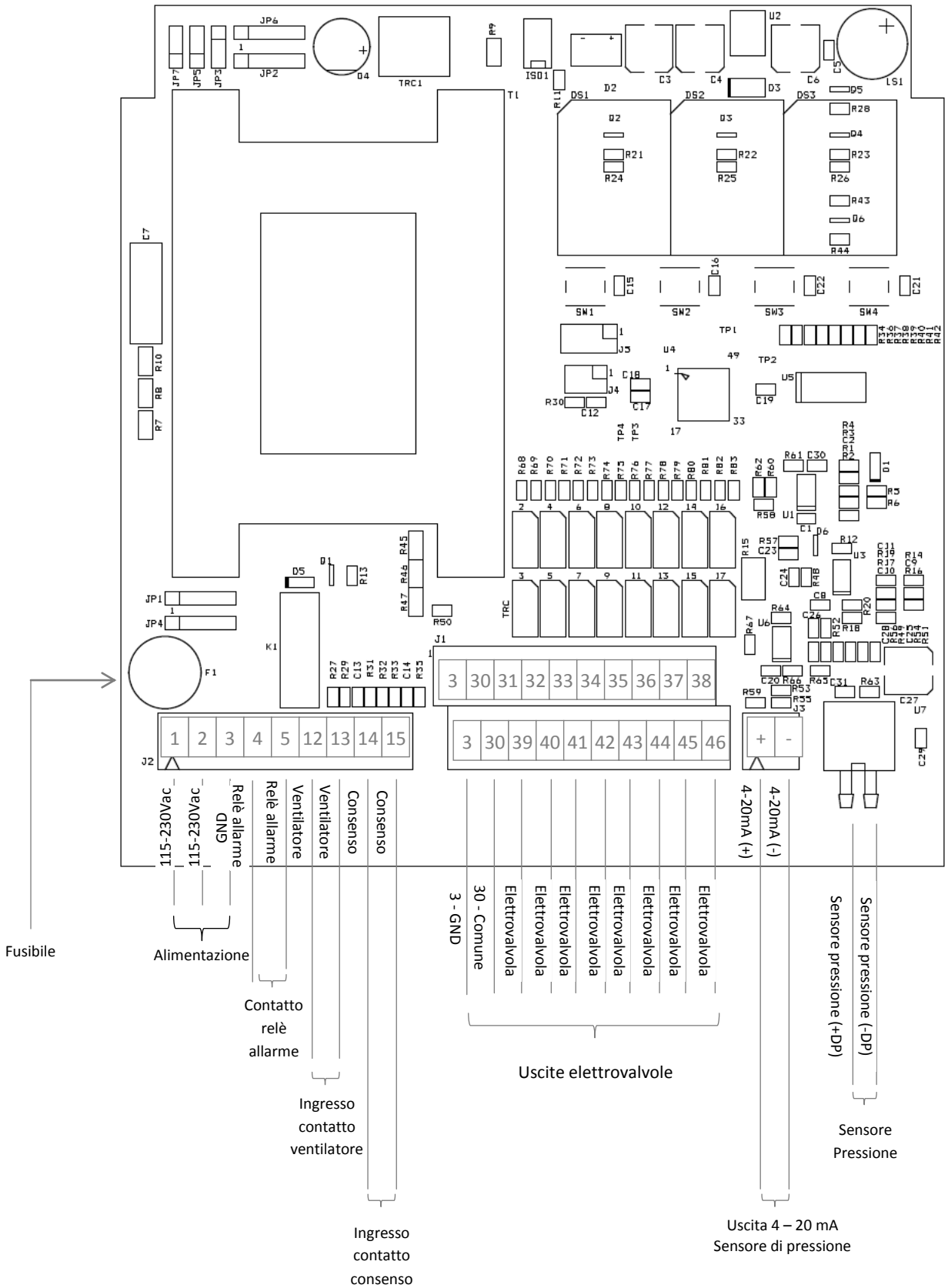


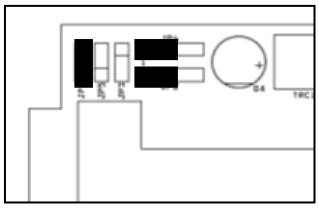
Tabella morsetti

Morsetto nr.	Descrizione	Morsetto nr.	Descrizione
1	Alimentazione 115 – 230 Vac	35	Uscita elettrovalvola 5
2	Alimentazione 115 – 230 Vac	36	Uscita elettrovalvola 6
3	Terra (gnd)	37	Uscita elettrovalvola 7
4	Contatto Relè	38	Uscita elettrovalvola 8
5	Contatto Relè	39	Uscita elettrovalvola 9
12	Ingresso Ventilatore	40	Uscita elettrovalvola 10
13	Ingresso Ventilatore	41	Uscita elettrovalvola 11
14	Ingresso Consenso	42	Uscita elettrovalvola 12
15	Ingresso Consenso	43	Uscita elettrovalvola 13
30	Comune Elettrovalvole	44	Uscita elettrovalvola 14
31	Uscita elettrovalvola 1	45	Uscita elettrovalvola 15
32	Uscita elettrovalvola 2	46	Uscita elettrovalvola 16
33	Uscita elettrovalvola 3	11	Uscita “+” 4-20mA dP
34	Uscita elettrovalvola 4	10	Uscita “-” 4-20mA dP

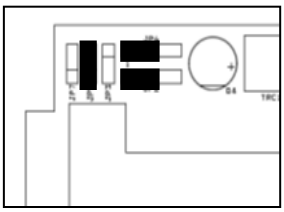
Tabella Fusibili

Tensione	Valore
230 V	1 A
115 V	2 A
24 Vdc / ac	3 A

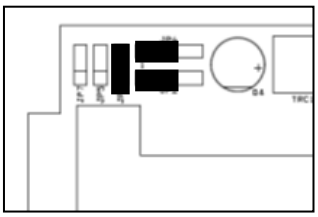
Configurazione Jumper – Uscita



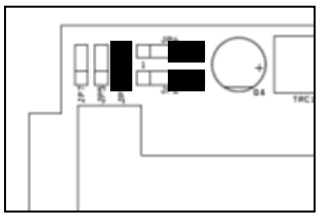
230 Vac



115 Vac

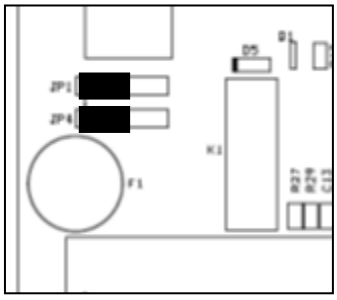


24 Vac

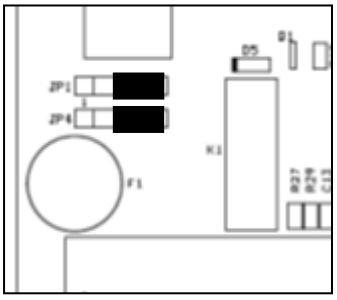


24 Vdc

Configurazione Jumper – Alimentazione

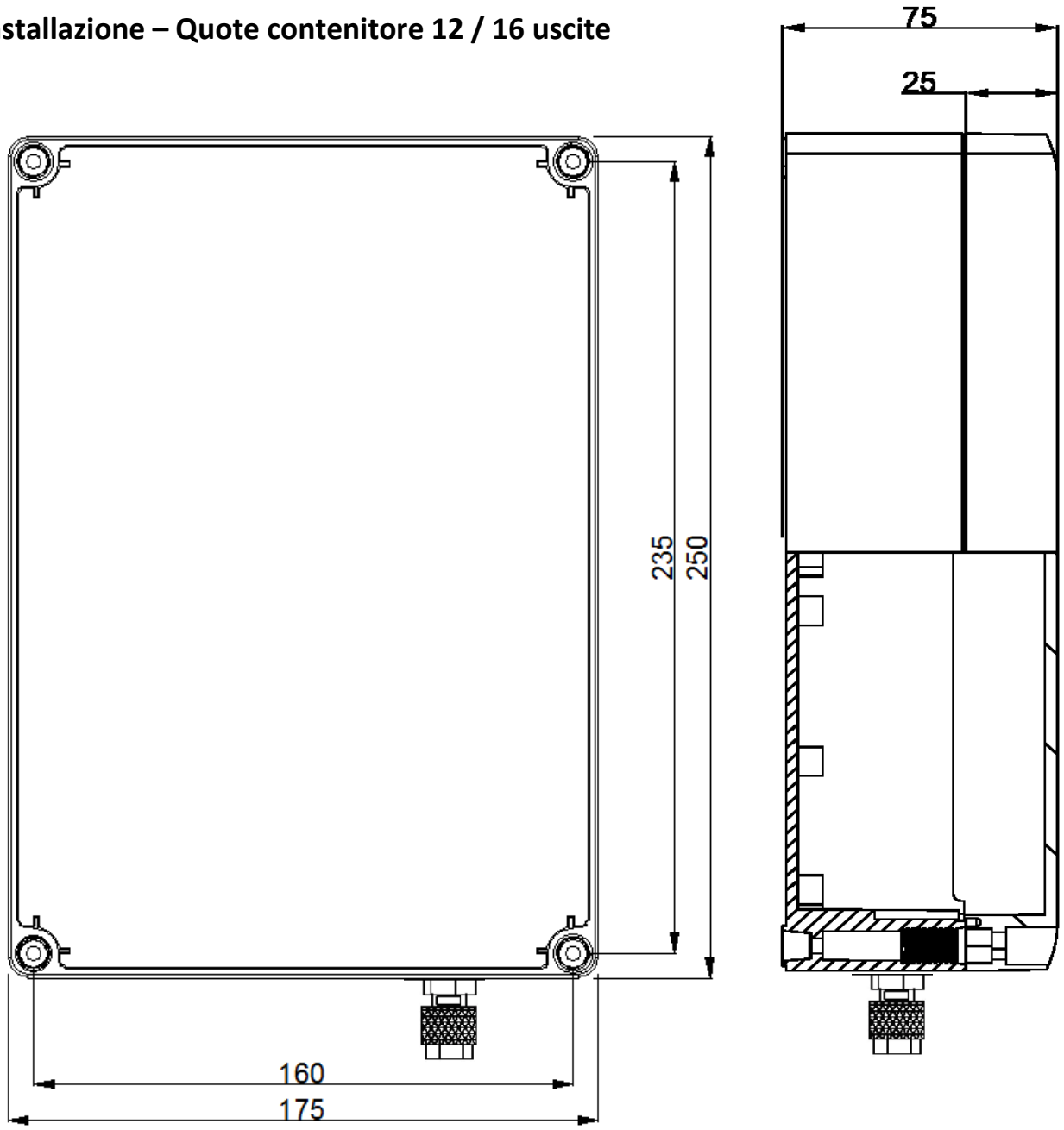


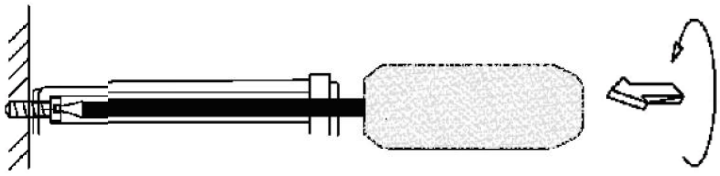
230 Vac



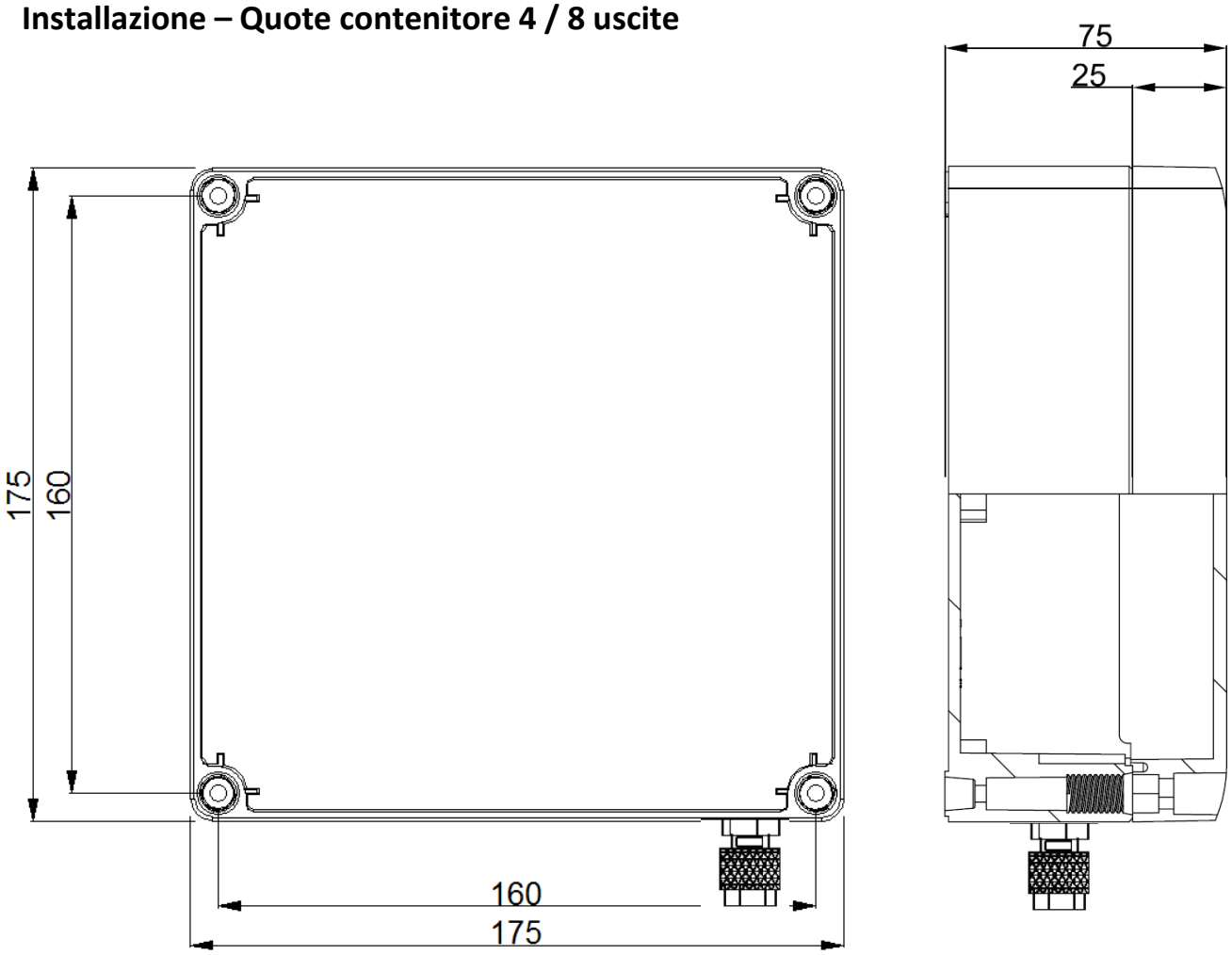
115 Vac

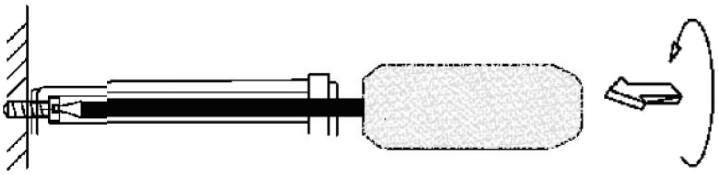
Installazione – Quote contenitore 12 / 16 uscite





Installazione – Quote contenitore 4 / 8 uscite





Manutenzione

Le uniche parti che possono essere sostituite sono i fusibili.
Tutte le altre operazioni di riparazione devono essere effettuate dal costruttore.

Dismissione

Non disperdere nell'ambiente dopo l'uso. Smaltire il prodotto secondo le norme vigenti per la dismissione delle apparecchiature elettroniche.

Il dispositivo è un apparecchio utilizzabile in un impianto di depolverazione quindi è parte di un'installazione fissa.

Valori impostazione di fabbrica

Le impostazioni di fabbrica sono le seguenti:

Numero Funzione	Descrizione	Valore Impostato
F01	Impostazione automatico con uso DP (1) o manuale (0)	1
F02	Tempo sparo	0.20"
F03	Tempo pausa in ciclo normale	020"
F04	Numero uscite.	1
F05	Tensione uscita: dc24V, ac24V, ac115, ac230.	ac24
F06	Attivazione manuale Ev.	1
F07	Soglia zero DP.	0 kPa
F08	Soglia DP start ciclo.	0.80 kPa
F09	Soglia DP stop ciclo.	0.40 kPa
F10	Livello max DP.	3.00 kPa
F11	Modalità ventilatore: 0 da contatto, 1 da DP.	1
F12	Soglia DP ventilatore. (nel caso F11 = 1). Se < ventilatore off.	0.10 kPa
F13	Numero cicli dopo stop ventilatore.	1
F14	Tempo di pausa in ciclo con ventilatore Off.	010"
F15	Intervallo manutenzione in 10h. (1=10h, 100=1000h)	100
F16	Abilitazione (1) o disabilitazione (0) allarme intervallo di manutenzione	0
F17	Reset contaore manutenzione: impostando 1 alla conferma azzera il contaore manutenzione	0
F18	Abilitazione (1) o disabilitazione (0) precoating	0
F19	Soglia DP precoating. (nel caso F17 = 1).	2.00 kPa

GARANZIA

La garanzia ha una durata di 2 anni. L'Azienda provvederà a sostituire qualsiasi componente elettronico ritenuto difettoso, esclusivamente presso il nostro laboratorio, salvo diversi accordi che devono essere autorizzati dall'Azienda .

ESCLUSIONI DALLA GARANZIA

La garanzia decade in caso di:

- Segni di manomissioni e riparazione non autorizzate.
- Errato utilizzo dell'apparecchiatura non rispettando i dati tecnici.
- Errati collegamenti elettrici.
- Mancato rispetto delle normative impiantistiche.
- Utilizzo al di fuori delle norme CE.
- Eventi atmosferici (fulmini, scariche elettrostatiche), Sovratensioni.
- Connessioni pneumatiche otturate. Tubi danneggiati.

Risoluzione problemi (FAQ)

DIFETTO	POSSIBILE CAUSA	SOLUZIONE
Il display non si accende	Fusibile bruciato.	Controllare il fusibile di protezione sulla tensione d'alimentazione. Verificare che la tensione d'alimentazione sia presente e concorde con quella richiesta per l'apparecchiatura (morsetti 1, 2 e 3).
Le uscite non si attivano	Tensione d'uscita errata. Cablaggio alle elettrovalvole.	Verificare che la tensione d'uscita della centralina e delle elettrovalvole siano concordi. Controllare il cablaggio tra economizzatore e le elettrovalvole.
La lettura della pressione differenziale non è corretta.	Connessioni pneumatiche otturate. Tubi danneggiati.	Controllare che a tubetti scollegati la lettura della pressione differenziale sia 0.00 kPa. In tal caso verificare che i tubetti di collegamento tra l'apparecchiatura e il filtro non siano otturati o danneggiati.
Il ciclo di pulizia non viene eseguito	La soglia di start ciclo (F08) è impostata troppo alta quindi non esegue alcuno sparo.	Modificare la soglia di pressione di partenza o mettere l'economizzatore in modalità MANUALE (F01=0).
Compaiono messaggi di allarme		Verificare il codice d'allarme con la tabella.
Gli allarmi non attivano i dispositivi di segnalazione.	Errori nel cablaggio dell'impianto. Mancata alimentazione dei dispositivi di allarme.	I dispositivi di allarme devono essere alimentati da tensione esterna all'economizzatore. Questo per attivarli dispone l'apertura del relativo relè.
Il post-lavaggio parte durante il lavaggio normale.	Soglia ventilatore (F12) impostata troppo alta.	Modificare la soglia di partenza del post-lavaggio (F12) abbassandola.
Il post-lavaggio non si avvia quando il ciclo di pulizia normale termina.	Soglia ventilatore (F12) impostata troppo bassa.	Verificare che a ventilatore spento la pressione misurata sia più bassa della pressione di attivazione post-lavaggio.
Sporadicamente l'economizzatore si resetta	Verificare che sulla linea di alimentazione non sia presente un carico impulsivo non filtrato (puntatrici, saldatrici, taglio plasma ecc.)	Eventualmente installare un filtro sull'alimentazione dell'economizzatore.
A ventilatore spento il display non visualizza 0.0 kPa.	Taratura zero DP (F07) non corretta.	Tarare lo zero DP impostando opportunamente il parametro F07 o eseguire la funzione di auto calibrazione spiegata a pag. 10.

DICHIARAZIONE DÌ CONFORMITA' DEL COSTRUTTORE

CE

Nome del costruttore:

TURBO SRL

Indirizzo del costruttore:

via Po 33/35 20811 Cesano Maderno Italia

Dichiara che il prodotto:

Nome del Prodotto(i):

Economizzatore / Sequenziatore E2T

Modelli:

E2T / E1T 4 - 16

Opzioni del prodotto:

TUTTE

Codice Articolo e Serial Number : E2T08MB5022G01M01

E' conforme alle seguenti direttive:

Direttiva Macchine 2006/42/CE “compatibilità elettromagnetica” rispondenti alle norme Europee armonizzate EN61000-6-2:2005 classe B della norma EN61000-6-4:2001
Direttiva Bassa Tensione (DBT) 2006/95/CE rispondente alle norme Europee armonizzate EN 60947-1:2004

Informazioni supplementari:

Il prodotto è stato sottoposto ai test in configurazione tipica .

Cesano Maderno, 24/06/2013

F. MESSINA (Amministratore Delegato)

TURBO s.r.l.

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ECONOMISER
SERIES E2T
USER MANUAL

24/06/2014

Manual Release 1.22

Software Release 2.2

General Description

Economiser for controlling the pneumatic cleaning function of industrial dust collection systems. The pressure differential is digitally controlled by an internal transducer allowing to determine filter obstruction with accuracy. The device has one output relay contact and two digital input contacts. A large, bright display is provided for reading the filter obstruction level, the active solenoid valves and any alarms in any moment.

The innovative software managed by a powerful microprocessor makes the device easy to use by everyone. No special skills needed.

Technical Specifications

Casing

- Made of insulating, ABS.
- Degree of protection to water and dust: IP65 (EN60529).
- Shock resistance: IK08/07 (8 joule) (EN62262).

Performance of the Device

- LED display with 7 segments, 3 digits (0.8” each).
- Two operating modes: manual, automatic.
- Operating times expressed in seconds with selectable ranges for any application.
- Pressure measurements expressed in kPa.
- Power voltage 115-230 Vac 50-60 Hz selectable by means of jumpers (optional 24 Vac/Vdc).
- Output voltage 24Vdc, 24-115-230Vac selectable by means of jumper.
- Fan off (post-cleaning) washing function using the “fan Δp” threshold in automatic mode and by means of contact in manual mode with selectable number of cycles up to 99 cycles.
- Total and partial hour counter for maintenance.
- One alarm relay.
- Maximum Δp (filter obstructed) alarm.
- Solenoid valve not working alarm.
- Filtering element maintenance deadline alarm (with on/off selection).
- External contact cleaning activation.
- Compressed air presence enable input.
- Precoating function
- 4-20mA output proportional to dP reading for remote pressure reading.
- Manual solenoid valve activation.

Electric Specifications

Important: Read the installation instruction section before connecting the device.

Electric power:

- 115 VAC 50-60 Hz – 25W
- 230 VAC 50-60 Hz – 25W
- 24 VAC 50-60 Hz – 25W (optional)
- 24 VDC– 25W (optional)

Selectable output voltage:

- 24Vdc
- 24Vac
- 115Vac
- 230Vac

Inputs and outputs (not galvanically insulated):

- Enable contact (remote cleaning enable).
- Fan contact (post-cleaning).
- 4 – 20mA (Δp remote reading).

The solenoid valves connected to the unit are normally closed.
The activation of a solenoid valves causes them to open and consequently let out a jet of air.

Alarm relay:
The alarm relay has one voltage-free contact on terminals 4 and 5.
Maximum permitted load: 3A @ 250Vac - 2A @ 24Vdc

Fuses:
1 x 1 A @ 230Vac.
1 x 2 A @ 115Vac.
1 x 3 A @ 24Vac (optional).
1 x 3 A @ 24Vdc (optional).

Working temperature:
from -10°C to 55°C
Storage temperature:
-20°C to 60°C

Timer specifications:

Pulse time (valve opening)
from 50 ms to 5 sec
Pause time (interval between valve openings)
1 sec - 999 sec

Differential pressure gauge:
Measurable pressure range: from 0 to 4 kPa
Maximum applicable pressure: 16 kPa - 0.16 bar

Important: Higher pressures may damage the device. Do not connect the obstruction measuring pipes to the compressed air circuit.

Installation Instructions /Notes and Warnings

- Protect the device from direct exposure to sunlight.
- Do not position the device near or directly in contact with sources of heat or electromagnetic fields.
- Connect the device to power lines other than those for operating motors or other large power devices which could generate network interference.
- Fix the device of a height of at least 60 cm from the ground.
- Use flame-retardant cables with a minimum cross-section area of 0.25 mm2 for all control signals.
- Check that atmospheric conditions are safe before starting any operation on the device.
- For electric operations, always remove voltage, wait 30 seconds for the inside capacitors to discharge before opening. At the end of the operations, close the device to restore the correct degree of protection before powering up.
- Use flame-retardant cables with a minimum cross-section area of 0.75mm² to connect to the power supply.
- Use flame-retardant cables with a minimum cross-section area of 1.5 mm2 to connect to the indicating relays.
- Any use not described in this user instruction manual or incorrect use of the device may cause damage to the device or to the devices connected to it.
- Furthermore, incorrect use or tampering with the device may cause injury.
- Waterproofness of the casing is guaranteed when the flap is closed.
- Make sure that rigid or flexible ducts used for wiring, if any, do not fill up with water or other liquids.
- Any holes made in the casing must be protected by accessories with degree of protection equal to at least that of the economiser.
- Cut off power supply immediately if water is found in the casing.
- Do not use the economiser if you have not read or do not understand this manual.

Display/Keypad

There are four round buttons on the front panel for controlling the device and turning on the display as shown in the following figure.

Figure 1

- Press SET to open and close the programming menu and activate the manual solenoid test by selecting function F06.
- Press + and – to select a function, increase/decrease values, view the total hour counter (+) and the maintenance counter (-).
- Press OK to confirm data and reset the alarms.

Menu Diagram

How to access programming:

- Press SET (see figure 2).

Figure 2

- Press + and – to select the required function.
- Press OK to confirm.
- Increase or decrease the value of the parameter.
- Press OK to confirm and exit.
- Press SET again to exit programming mode.

List of Functions

- **F01:**
  Automatic setting using dP or manual.
  Possible values: 0 - Manual
  1 – Automatic (Default)
- **F02:**
  Solenoid activation time.
  Possible values: 0.05” – 5.00” step 0.01”.
  Default = 0.20”.
- **F03:**
  Washing pause time between solenoid valves.
  Possible values: 001” – 999” step 1”.
  Default = 020”.
- **F04:**
  Number of connected outputs.
  Possible values: 01 – 16 step 1.
  Default = 001.
- **F05:**
  Output voltage setting.
  Possible values: d24, a24, 115, 230.
  Default = a24.
- **F06:**
  Manual output activation.
  Possible values: 1 – number of outputs set in F04.
  Press SET to activate the set output.
- **F07:**
  Zero dP threshold.
  Possible values: 0.00 kPa – 3.99 kPa step 0.01.
  Default = 0.00 kPa.
- **F08:**
  Cleaning cycle start threshold.
  Possible values: 0.00 kPa – 3.99 kPa step 0.01.
  Default = 0.80 kPa.
- **F09:**
  Cleaning cycle stop threshold.
  Possible values: 0.00 kPa – 3.99 kPa step 0.01.
  Default = 0.40 kPa.
- **F10:**
  Max. dP level.
  Possible values: 0.00 kPa – 3.99 kPa step 0.01.
  Default = 3.00 kPa.
- **F11:**
  Fan on recognition mode.
  Possible values: 0 from contact – 1 from dP.
  Default = 1 from dP.

- **F12:**
  dP threshold for fan on recognition if F11=1.
  Possible values: 0.00 kPa – 3.99 kPa step 0.01.
  Default = 0.10 kPa.
- **F13:**
  Number of post cleaning cycles after stopping the fan.
  Possible values: 01 – 99 step 1.
  Default = 01.
- **F14:**
  Post cleaning mode pause time between solenoid valves (fan off).
  Possible values: 001” – 999” step 1”.
  Default = 010”.
- **F15:**
  Maintenance frequency expressed in tens of hours (e.g.: 1=10h, 10=100h).
  Possible values: 001 – 999 step 1.
  Default = 100 (=1000h).
- **F16:**
  Maintenance deadline alarm enable.
  Possible values: 0 (disabled) – 1 (enabled).
  Default = 0 (disabled).
- **F17:**
  Maintenance hour counter reset.
  Possible values: 0 (disabled) – 1 (reset).
  Default = 0 (disabled).
  Note: The maintenance hour counter will be reset and the F17 parameter will be set back to 0 by setting F17 to 1.
- **F18:**
  Precoating function enabling.
  Possible values: 0 (disabled) – 1 (enabled).
  Default = 0 (disabled).
- **F19:**
  dP threshold for precoating function.
  Possible values: 0.00 kPa – 3.99 kPa step 0.01.
  Default = 2.00 kPa.

Alarms

The unit runs a number of checks during the start-up cycle and during normal operation. The possible alarms and respective solutions are shown in the following table.

ALARMS TABLE

Alarm number	Description	Action
E01	F05 set to 24Vdc – AC jumper detected	- For 24Vdc, switch the device off and move the AC/DC jumpers to DC. Jumper table p. 12. - For 24Vac, press OK, then press SET, set the function F05 using "+" and "-", select A24 and press OK to confirm.
E02	F05 set to 24Vac – DC jumper detected	- For 24Vac, switch the device off and move the AC/DC jumpers to AC. Jumper table p. 12. - For 24Vdc, press OK, then press SET, set the function F05 using "+" and "-", select d24 and press OK to confirm.
E03	F05 set to 24Vac or dc. Voltage out of range detected	- To use 24V valves, switch the device off and move the output voltage selection jumper to 24V. Jumper table p. 12. - If the jumper is in the correct position, press OK, then SET, select the F05 function with "+" and "-", set 115 or 230 (as jumper) and press OK.
E04	F05 set to 115V. Voltage out of range detected	- To use 115V valves, switch the device off and move the output voltage selection jumper to 115V. Jumper table p. 12. - If the jumper is in the correct position, press OK, then SET, select the F05 function with "+" and "-", set 115 or 230 (as jumper) and press OK.
E05	F05 set to 230V. Voltage out of range detected	- To use 230V valves, switch the device off and move the output voltage selection jumper to 230V. - If the jumper is in the correct position, press OK, then SET, select the F05 function with "+" and "-", set a24, d24 or 115 (as jumper) and press OK.
E06	Solenoid valve current lower than minimum threshold or disconnected solenoid valve	Check correct connection of the solenoid valve and respective data. The alarm is self-reset.
E07	Solenoid valve current higher than maximum threshold	Check correct connection of the solenoid valve and respective data. The alarm is self-reset.
E08	Output short circuit. Alarm **cannot be reset**	Switch the device on and back on after having checked the solenoid valve system.
E09	dP maximum pressure exceeded (F10)	Check state of filtering elements.
E10	dP sensor hardware offset out of range.	The self-calibration of the dP sensor has determined that a value is out of range. Disconnect the air tubes and repeat the function. Take the device to be serviced if the alarm occurs again.
E11	Maintenance deadline reached	Carry out maintenance.
E12	dP sensor full-scale value reached	Check state of filtering elements. **IMPORTANT: Running in this condition may damage the device.**

Description of Operation

The installed SW version and the symbol **---**, meaning that coherence between settings stored in E2Prom and the set jumpers is being checked, will appear on the display when the economiser is

powered up. A corresponding error code will appear in case of discrepancies between settings (see Alarms Table). Only editing functions will be allowed on the unit. The operator may switch off the unit and configure the jumpers correctly.

Symbol **0_0** will appear on the display if the test is entirely successful. The following pages will then appear:

- In automatic mode (F01=1):
  - dP value alternating with OFF if the enabling contact (14-15) is open
  - dP value alternating with -0- if the enabling contact (14-15) is closed and the fan is off
  - dP value only if the fan is enabled and active.
- In manual mode (F01=0):
  - OFF if the enabling contact is open (14-15)
  - -0- if the enabling contact (14-15) is closed and the fan is off

Manual operating mode

The economiser will work as a programmable cycle sequencer in manual mode. The connected outputs will be activated at the programmable frequencies. Manual mode can be activated by accessing the configuration menu and setting F01 to 0. F02 and F03 will set the activation time and the pause time, respectively.

Automatic operating mode

By selecting automatic mode (F01=1), the economiser will work autonomously can carry out the pneumatic washing cycle only when needed. The device will start the washing cycle if the obstruction is higher than Threshold_DP_Start (F08). Washing is suspended when obstruction drops under Threshold_DP_Stop (F09) level until it reaches a value higher than the Threshold_DP_Start threshold once again. When washing is active, the economiser respects the times set in F02 (operating time) and F03 (pause time).

Cleaning function with fan off (PCC)

This function allows to carry out one or more cleaning cycles (the number of cycles is defined by F13) when the fan is off. The on or off state of the fan may be determined by the state of the contacts 12-13 (contacts open = fan off) if F11=0, or may be determined automatically (with F11=1) when the dP pressure drops under the threshold defined in F12. The pulse time of the valves will always be that defined in F02, while the pause time in this case is defined in F14.
The display alternately shows the number of the valve activated and the word CCP.

Number of output selection

The number of outputs (solenoid valves) on which the economiser will run the cleaning cycle can be selected. Cleaning will be carried out in order from the first to the last solenoid valve. The valves can be adjusted by the F04 function.

Precoating function (F18=1)

This function is used to carry out precoating. Precoating is a filtering element treatment carried out with precoating powder. Washing and manual output activation is suspended during precoating until the precoating thresholds defined in F19 is reached.
The Δp value and the message PC (precoating) will appear alternatively on the display.

dP zero calibration (F07)

This function is used to reset dP reading with the fan off.
Increase or decrease the value shown by pressing “+” and “-” as required. This value will be subtracted from the value read by the dP sensor.

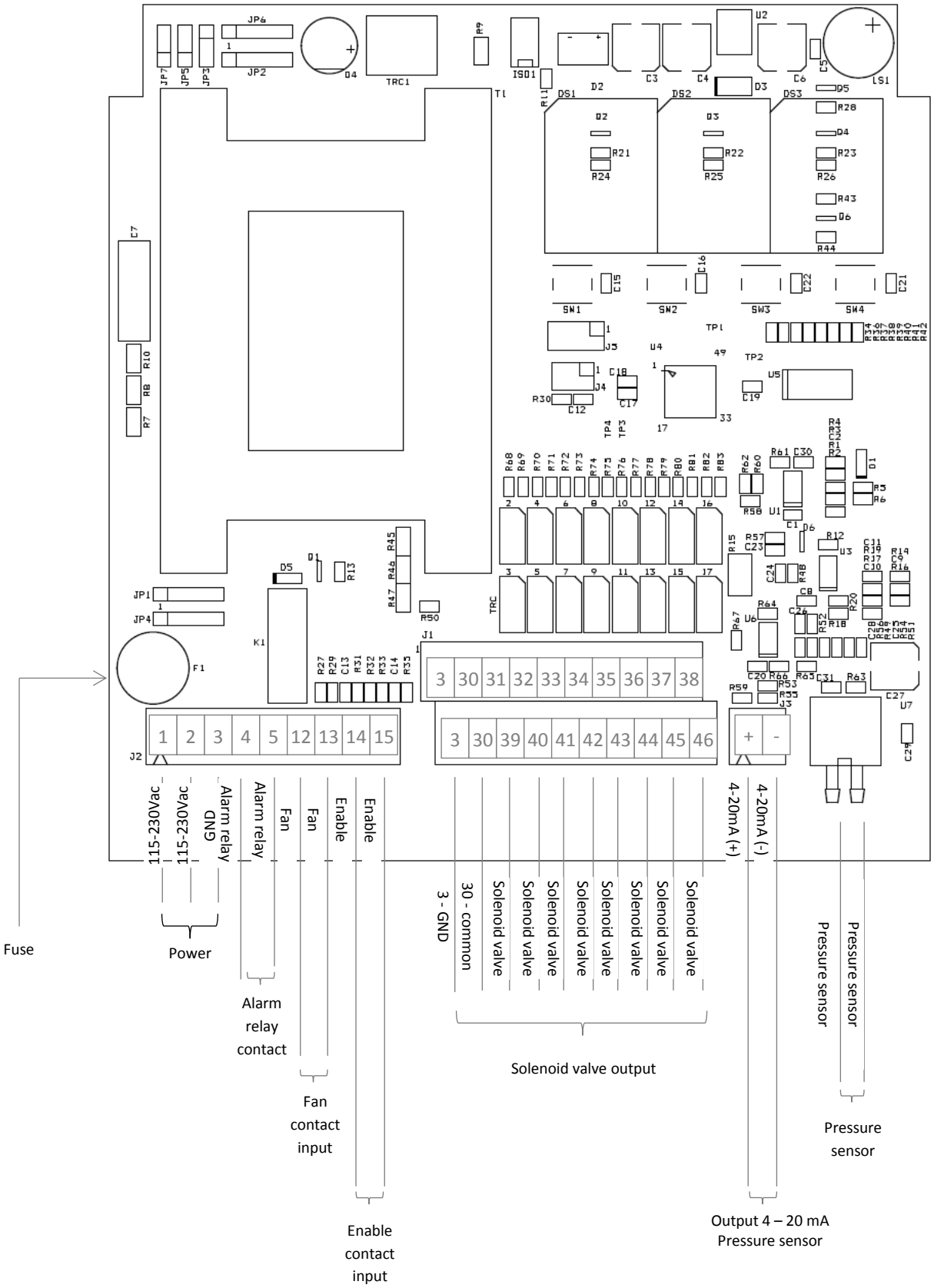
dP sensor self-calibration

This function allows to reset dP reading with the fan off automatically.
Hold “SET” and “OK” pressed at the same time with the device off. The message “CAL” will appear after the start-up test. Release the buttons. The unit will go back to normal state after a few instants. Automatic calibration is complete.

Fuse

A fuse which can be reset in case of need is located near the power terminal board. Use a delayed fuse 5x20mm as shown in the table on page 12.

Connection diagram



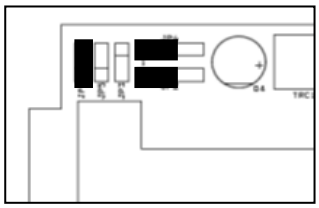
Terminal table

Terminal n.	Description	Terminal n.	Description
1	Power 115 – 230 Vac	**35**	Solenoid 5 output
2	Power 115 – 230 Vac	**36**	Solenoid 6 output
3	Earth (GND)	**37**	Solenoid 7 output
4	Relay contact	**38**	Solenoid 8 output
5	Relay contact	**39**	Solenoid 9 output
12	Fan input	**40**	Solenoid 10 output
13	Fan input	**41**	Solenoid 11 output
14	Enable input	**42**	Solenoid 12 output
15	Enable input	**43**	Solenoid 13 output
30	Solenoid valve common	**44**	Solenoid 14 output
31	Solenoid 1 output	**45**	Solenoid 15 output
32	Solenoid 2 output	**46**	Solenoid 16 output
33	Solenoid 3 output	**11**	"+" 4-20mA dP output
34	Solenoid 4 output	**10**	"-" 4-20mA dP output

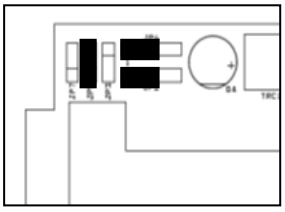
Fuse table

Voltage	Value
230 V	1 A
115 V	2 A
24 Vdc / ac	3 A

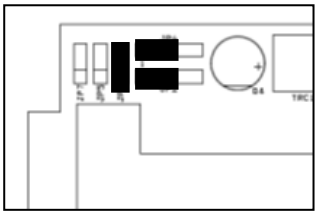
Jumper configuration - Output



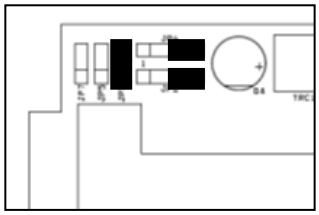
230Vac



115Vac

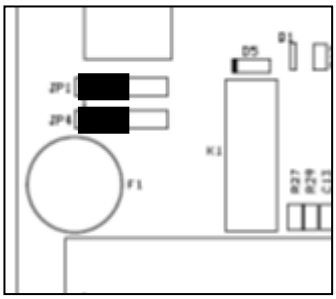


24Vac

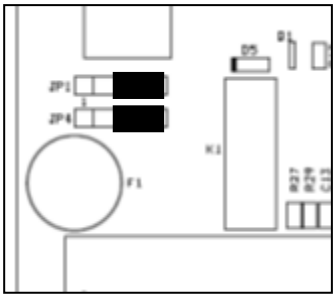


24Vdc

Jumper configuration - Power

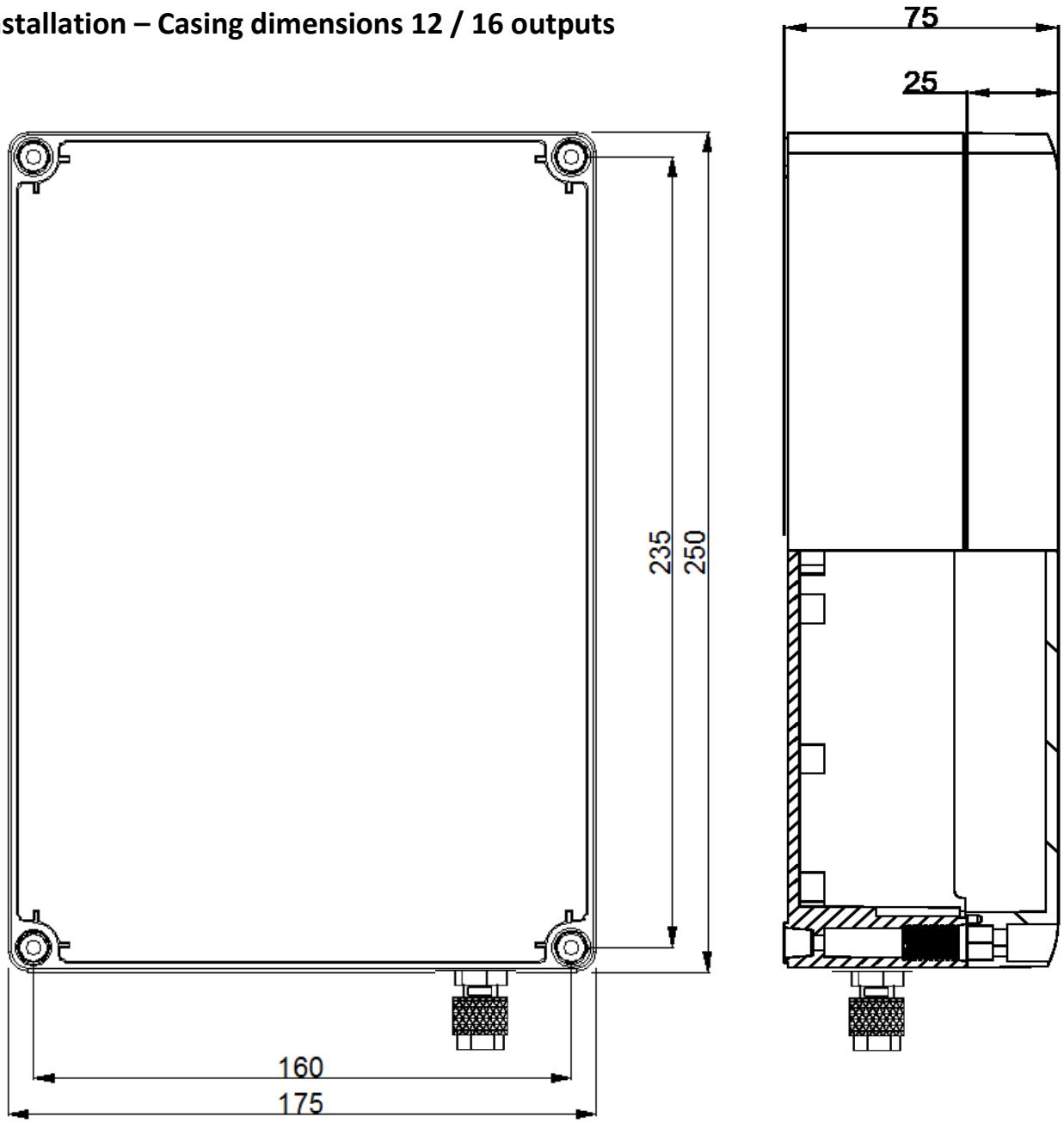


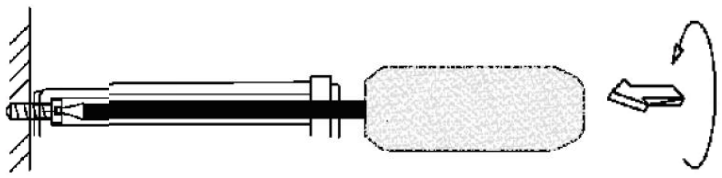
230Vac



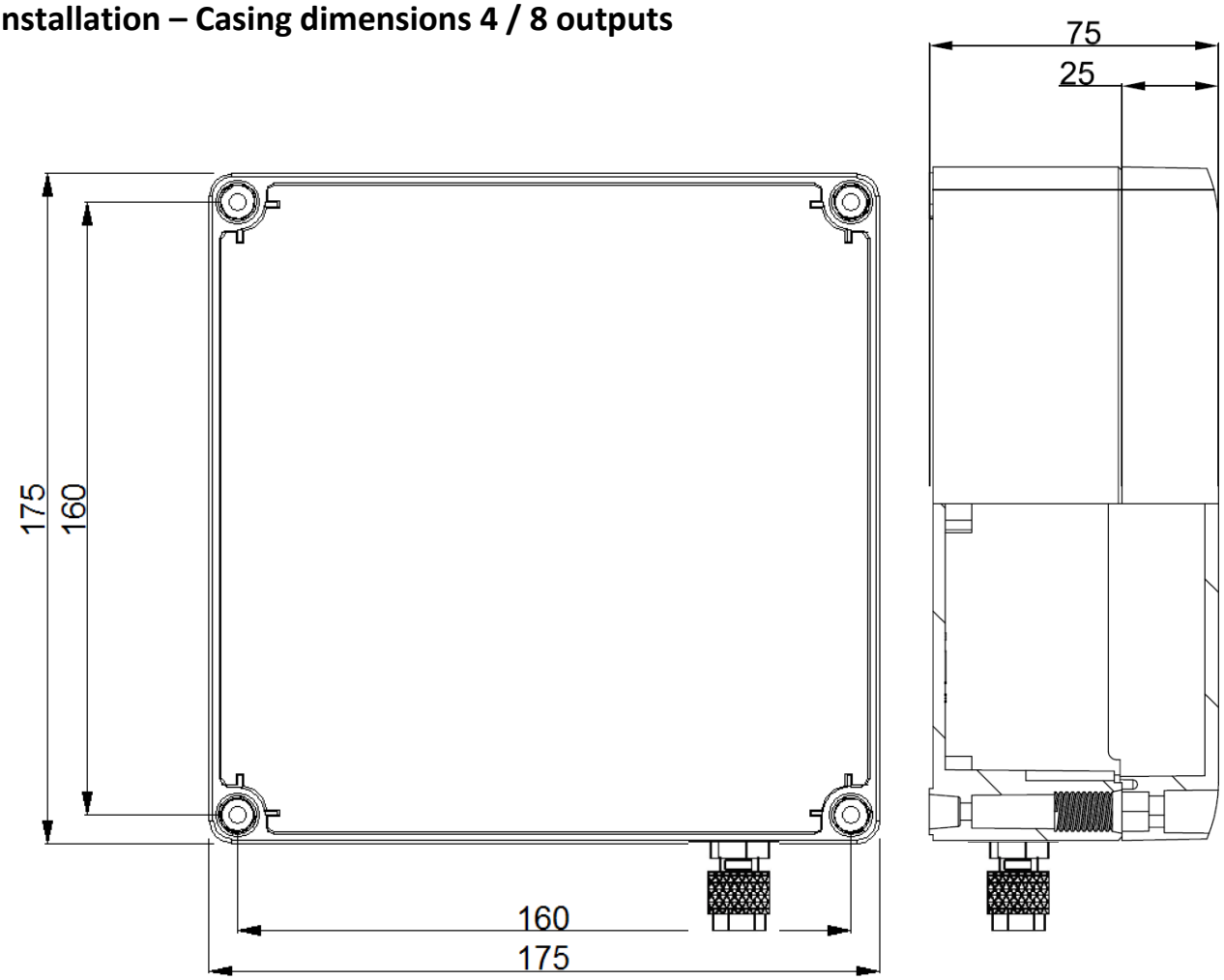
115Vac

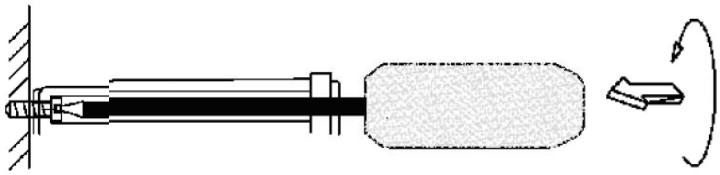
Installation – Casing dimensions 12 / 16 outputs





Installation – Casing dimensions 4 / 8 outputs





Maintenance

The only parts which may be replaced are fuses.
All other operations must be carried out by the manufacturer.

Scrapping

Dispose of properly after use. Dispose of the product according to laws in force for electronic equipment.

This device is for use in a dust collection system and is therefore part of a fixed installation.

Default settings

The default settings are:

Function number	Description	Set value
F01	Automatic setting using dP (1) or manual (0)	1
F02	Solenoid valve activation time	0.20”
F03	Washing pause time between solenoid valves in normal cycle	020”
F04	Number of outputs	1
F05	Output voltage: 24Vdc, 24Vac, 115ac, 230ac.	24 ac
F06	Manual solenoid valve activation	1
F07	Zero dP threshold	0 kPa
F08	Cycle start dP threshold	0.80 kPa
F09	Cycle stop dP threshold	0.40 kPa
F10	Max. dP level	3.00 kPa
F11	Fan mode: 0 from contact , 1 from dP	1
F12	Fan dP threshold (if F11 = 1). If < fan off	0.10 kPa
F13	Number of cycles after fan stop	1
F14	Pause time between solenoid valves in cycle with fan off	010”
F15	Maintenance frequency in 10h (1=10h, 100=1000h)	100
F16	Maintenance deadline alarm on (1) or off (0)	0
F17	Maintenance hour counter reset: set 1 and confirm to reset the maintenance hour counter	0
F18	Precoating on (1) or off (0)	0
F19	Precoating dP threshold (if F17 = 1).	2.00 kPa

WARRANTY

The warranty lasts for two years. The manufacturer will replace any faulty electronic component at their own facilities only, unless otherwise authorised by the manufacturer.

WARRANTY EXCLUSIONS

The warranty will be cancelled in case of:

- Signs of unauthorised tampering and repairs.
- Incorrect use of the device not respecting technical data.
- Incorrect electric connections.
- Failure to respect system standards.
- Use not in accordance with EC standards.
- Atmospheric events (lightening, electrostatic discharges, power surges).
- Obstructed pneumatic connections. Damaged pipes.

Problem solution (FAQ)

FAULT	POSSIBLE CAUSE	SOLUTION
The display does not light up.	Burnt fuse.	Check the protection fuse on the power voltage. Check that the power voltage is present and compliant with that required for the device (terminals 1 and 3).
The outputs are not activated.	Incorrect output voltage. Wiring to solenoid valves.	Check that the unit and solenoid vale output voltage agree. Check wiring between economiser and solenoid valves.
The differential pressure reading is not correct.	Obstructed pneumatic connections. Damaged pipes.	Check that the differential pressure is 0.00 kPa with the pipes disconnected. In this case, check that the connection pipes between device and filter are not obstructed or damaged.
The cleaning cycle is not carried out.	The set cycle start threshold (F08) is too high and therefore the cycle is not activated.	Adjust the start-up pressure threshold or set the economiser to MANUAL mode (F01=0).
Do alarm messages appear?		Check the alarm code with the table.
Do the alarms fail to activate signalling devices?	System wiring errors. No power to alarm devices.	The alarm devices must be powered by voltage external to the economiser. Activating to open the respective relay.
Does post-cleaning start during normal cleaning?	Fan threshold (F12) set too high.	Change the post-cleaning start-up threshold (F12) by lowering it.
Does post-cleaning fail to start when the normal cleaning cycle ends?	Fan threshold (F12) set too low.	Check that the measured pressure is lower than the post-cleaning activation pressure when the fan is off.
Does the economiser occasionally reset?	Check the there is no filtered pulse load on the power line (spot welding machines, welding machines, plasma cutters etc.).	Install a filter on the power line of the economiser, if needed.
The value of 0.0 kPa does not appear on the display when the fan is off.	dP zero calibration (F07) is not correct.	Calibrate the dP zero by appropriately setting the parameter F07 or running the self-calibration function explained on page 10.

DECLARATION OF CONFORMITY OF THE MANUFACTURER

The manufacturer:

TURBO SRL

The manufacturer's address:

Via Po 33/35 20811 Cesano Maderno (MB), Italy

declares that:

Product Name:

Economiser / Sequencer E2T

Models:

E2T / E1T 4 - 16

Product Options:

ALL

Code and Serial Number: E2T08MB5022G01M01

complies with the following directives:

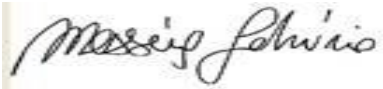
Machinery Directive 2006/42/EC 'Electromagnetic compatibility' compliant with Harmonised European standards EN61000-6-2:2005 class B of EN61000-6-4:2001
Low Voltage Directive 2006/95/EC compliant with Harmonised European Standards EN 60947-1:2004

Supplementary Information:

A typical configuration of the product was tested.

Cesano Maderno, 24/06/2013

F. MESSINA (C.E.O.)



TURBO s.r.l.

CE

DICHIARAZIONE DI CONFORMITA' DEL COSTRUTTORE

CONFORMITY DECLARATION OF THE MANUFACTORY

Nome del costruttore:
Turbo Srl
Indirizzo del costruttore:
via Po 33/35 I 20811 Cesano M. (MB) Italia

Manufactory name:
Turbo Srl
Manufactory address
via Po 33/35 I 20811 Cesano M. (MB) Italia

Dichiara che il prodotto:

Nome del Prodotto(i):	Econimizzatore
Modello:	E2T
Opzioni del prodotto:	Tutte

Declare that the device:

Device(s) name:	Economizer
Model:	E2T
Device options:	All

E' conforme alle seguenti direttive:

Direttiva 2004/108/CE 'compatibilità elettromagnetica'
rispondenti alle
norme Europee armonizzate
EN61000-6-2:2005 classe B della norma
EN61000-6-4:2001

Meets the following directive:

Directive 2004/108/CE
'electromagnetic compatibility'
related to the
European Standard
EN61000-6-2:2005 class B of the rule
EN61000-6-4:2001

Direttiva Bassa Tensione (DBT) 2006/95/CE rispondente alle norme Europee armonizzate EN 60947-1:2004

Low Voltage Directive 2006/95/CE related to the European Standard EN 60947-1:2004

Informazioni supplementari:
I prodotti sono stati sottoposti a test in configurazione tipica e con potenza di carico 40 watt

Additional informations
the devices were tested in typical configuration with load power of 40 watt

Cesano M., 21 Gennaio, 2014

F. MESSINA
Amministratore delegato / Managing director

Turbo s.r.l.

TURBO S.R.L.

Electronic Control Systems for dust collectors
e-mail: info@turbocontrols.it web: www.turbocontrols.it
TEL. 0362-574024 FAX 0362-574092

DECLARATION OF CONFORMITY
DICHIARAZIONE DI CONFORMITA'

CE

Manufacteurer's name Nome del costruttore	**Turbo s.r.l.**
Manufacteurer's address Indirizzo del costruttore	**Via Po, 33/35 - 20811 Cesano M. (MB) - Italy**

Herewith declares conformity of the Products
Dichiara con la presente la conformità del prodotto

Product description: Descrizione del prodotto	**Econimizer / Economizzatori** **Code / Codice: E2T**
Marking Marcatur	CE Ex **II 3D Ex tc IIIC IP65 T100°C**

S/N:

In accordance with applicable regulations below:
Soddisfa la seguente Direttiva:

EC Directive:/ Direttive CEE: **94/9/CE - Atex**

As in accordance to the European Armonized Standards applied when the certificate was issued:
In quanto conforme alla Norme Europee Armonizzate applicabili alla data di
emissione del certificato sopra indicato:

EN 60079-0:2009; EN 60079-31:2009

Data/Date: 21.01.2014

FABRIZIO MESSINA

II 3D Ex tc IIIC IP65 T100°C

NORME DI INSTALLAZIONE AGGIUNTIVE

Togliere sempre tensione all'apparecchiatura in caso di interventi di manutenzione sul filtro.

Una volta al mese o più frequentemente se necessario verificare la presenza di polvere sul contenitore ed eventualmente rimuoverla usando un panno umido.

La certificazione ATEX decade nel caso in cui vengano effettuate lavorazioni di qualunque tipo non effettuate dall'Azienda stessa.

I cablaggi devono essere effettuati secondo le indicazioni della normativa Europea EN 60079-14

In caso di anomalie di funzionamento non dipendenti esclusivamente dal fusibile di protezione togliere immediatamente tensione all'apparecchiatura e contattare il fornitore. L'eventuale riparazione deve essere fatta esclusivamente presso il nostro laboratorio e l'apparecchiatura deve essere inviata comprensiva della cassetta.

Non effettuare forature sul contenitore dell'apparecchiatura. L'azienda declina ogni responsabilità relativamente all'applicazione di pressacavi al contenitore da parte dell'utilizzatore finale. In questo caso utilizzare esclusivamente pressacavi IP65 certificati ATEX con certificazione concorde o superiore a quella dell'apparecchiatura e filetto ISO R/68. Effettuare le forature con il diametro esatto indicato per l'applicazione del pressacavo.

II 3D Ex tc IIIC IP65 T100°C

DETTAGLI MARCATURA ATEX

CE	Marchio conformità UNIONE EUROPEA
Ex	Applicazione in area classificata ATEX con atmosfera potenzialmente esplosiva.
II	Gruppo II. Industrie di superficie.
3D	Categoria Polveri:
Ex tc	Livello di protezione custodia
IIIC	Gruppo polveri esplosive conduttive
IP65	Grado di protezione polveri
T100°C	Massima temperatura superficiale
(-10<Ta<+55)°C	Temperatura ambiente

II 3D Ex tc IIIC IP65 T100°C

ADDITIONAL INSTALLATION RULES

Switch always off the supply voltage to the device in case of maintenance on the filter.

One time in a month or more frequently if necessary verify if there is dust on the enclosure of the device and remove it if it is present by using wet cloth.

The ATEX certification decade in case of every type of modifications of the original device that are not done by company

All the electrical wiring must be done according to the Europen rule EN 60079-14

In case of faulty that does not depend only to the fuse, switch off immediately the supply voltage and contact the supplier. The reparation of the device must be done only in our laboratory and the device must be sent with the enclosure to our factory.

Do not add other holes on the enclosure of the device. In case of application of cable glands by the final user, The company does not assume any responsibility. Use only cable glands IP65 ATEX certified with same or superior certification of the device and type ISO R/68. The fixing holes must be done with the right diameter indicated for that cable gland.

II 3D Ex tc IIIC IP65 T100°C

ATEX MARKING DETAILS

CE	EUROPEAN UNION Conformity brand
Ex	Useful in ATEX classified zone with potentially explosive atmosphere.
II	Group II. Surface plant
3D	Dust category:
Ex tc	Enclosure protection degree
IIIC	Explosive conductive powders group
IP65	Dust protection degree
T100°C	Maximum surface temperature
(-10<Ta<+55)°C	Ambient temperature

ALLEGATO 2

Dichiarazione di Conformità

ai sensi della Direttiva 94/9/CE (All. X, p.to B)

Il Fabbricante

TURBO S.r.l.
Via Po, 33/35
20031 Cesano Maderno (MB) – Italia

Dichiara che le apparecchiature oggetto della presente dichiarazione, sono state sottoposte alla procedura di valutazione relativa al "controllo di fabbricazione interna" (sec. Allegato VIII) e sono conformi ai requisiti della Direttiva 94/9/CE (Atex) relativa agli apparecchi e sistemi di protezione destinati ad essere utilizzati in atmosfera potenzialmente esplosiva

Descrizione dell'apparecchiatura:

Serbatoi e valvole a membrana

Serie: TF, TD, TL, Integral, F, D, E, S

Classificazione: **II 3 D**, ovvero, apparecchiatura Gruppo II (impianti di superficie), Categoria 3
idonea per polveri zona 22

Classe di temperatura: T140°C
Grado di protezione: IP65

Norme armonizzate applicate:

UNI EN 1127-1:2008	Atmosfere esplosive. Prevenzione dell'esplosione e protezione contro l'esplosione. Concetti fondamentali e metodologia.
UNI EN 13463-1:2009	Apparecchi non elettrici per atmosfere potenzialmente esplosive. Metodo di base e requisiti.

Altre Norme, Direttive Comunitarie e specifiche tecniche di riferimento:

CEI EN 60529:1997	Gradi di protezione degli involucri (Codice IP)
2004/108/CE	Direttiva di compatibilità elettromagnetica
2006/95/CE	Direttiva di Bassa Tensione

Identificazione del firmatario che ha il potere di impegnare il fabbricante o il suo mandatario stabilito nella Comunità Europea:

Cognome e Nome: Fabrizio Messina

Titolo: Direttore Generale

Firma:

Messina Fabrizio

Data: 02/12/2010

Dichiarazione di Conformità

ai sensi della Direttiva 94/9/CE (All. X, p.to B)

Il Fabbricante

TURBO S.r.l.
Via Po, 33/35
20811 Cesano Maderno (MB) – Italia

Dichiara che le apparecchiature oggetto della presente dichiarazione, sono state sottoposte alla procedura di valutazione relativa al "controllo di fabbricazione interna" (sec. Allegato VIII) e sono conformi ai requisiti della Direttiva 94/9/CE (Atex) relativa agli apparecchi e sistemi di protezione destinati ad essere utilizzati in atmosfera potenzialmente esplosiva

Descrizione dell'apparecchiatura
Bobine per elettrovalvole Serie: **BH10** Grandezze: **230 – 110 – 24V / 50-60Hz 19VA e 24VDC 18W** Classificazione: **II 3 GD**, ovvero, apparecchiatura Gruppo II (impianti di superficie), Categoria 3 idonea per Gas, zona 2 e Polveri, zona 22 Marcatura: **Ex nA IIC T5** **Ex tc IIIC T140°C** Grado di protezione IP: n.a. se la bobina non è munita di apposito connettore Min. IP6X con apposito connettore montato (vedere istruzioni di sicurezza ATEXturbo06-010)

Norme armonizzate applicate	
EN 60079-0:2009	Atmosfere esplosive Parte 0: Apparecchiature - Prescrizioni generali
EN 60079-15:2010	Atmosfere esplosive Parte 15: Apparecchiature con modo di protezione "n"
EN 60079-31:2009	Atmosfere esplosive Parte 31: Apparecchi con modo di protezione mediante custodie "t" destinati ad essere utilizzati in presenza di polveri combustibili

Altre Norme, Direttive Comunitarie e specifiche tecniche di riferimento:	
2004/108/CE	Direttiva di compatibilità elettromagnetica
2006/95/CE	Direttiva di Bassa Tensione

Identificazione del firmatario che ha il potere di impegnare il fabbricante o il suo mandatario stabilito nella Comunità Europea	
Cognome e Nome: Fabrizio Messina	Titolo: Direttore Generale
Firma:	Data: 13 Giugno 2013

Premessa
Queste istruzioni di sicurezza si riferiscono all'installazione, uso e manutenzione di bobine serie BH10 per l'azionamento di elettrovalvole progettate, fabbricate e collaudate secondo i requisiti della Direttiva 94/9/CE – Atex, destinate ad essere utilizzate in aree con presenza di atmosfere potenzialmente esplosive.

1. Immagazzinamento e conservazione

Le bobine oggetto della presente istruzione sono confezionate e protette ai fini del loro trasporto, immagazzinamento e conservazione, in ambienti puliti e asciutti. Tali protezioni dovranno essere mantenute integre sino al momento del loro utilizzo.

2. Installazione

2.1 Idoneità al luogo di installazione

Per l'utilizzo in aree con pericolo di esplosione, è necessario verificare che le bobine siano idonee alla classificazione della zona ed alle caratteristiche di infiammabilità delle sostanze presenti nell'area.

I requisiti essenziali di sicurezza contro il rischio di esplosione nelle aree classificate, sono sanciti dalle Direttive Europee 94/9/CE Atex (inerente le apparecchiature) e 1999/92/CE (inerente gli impianti).

A fronte delle suddette disposizioni legislative si pongono all'attenzione dell'utilizzatore i seguenti aspetti:

- *tipo di impianto* : gruppo I (miniere) , gruppo **II** (impianti di superficie)
- *classificazione della zona* : 0, 1, **2** (a cui rispondono le caratteristiche delle apparecchiature di **ca**t. 1, 2, **3 Gas**)
- *classificazione della **zona*** : 20, 21, **22** (a cui rispondono le caratteristiche delle apparecchiature di **cat.** 1, 2, **3** Polveri)
- *caratteristiche delle sostanze infiammabili presenti sottoforma di **gas e polveri combustibili***
- *massima temperatura superficiale:* classe di temperatura T e in °C
- *grado di tenuta:* IP

2.2 Limiti di utilizzo

- Come definito ai par. 2.1 e 2.3
- **IP 6x sec. CEI EN 60529** come di seguito descritto:

  le bobine, a seconda degli accordi contrattuali tra fabbricante e utilizzatore, devono essere sempre provviste di appositi connettori + pressacavo Atex, di categoria minima equivalente alla bobina. Tali connettori dovranno avere un grado di protezione IP (Ingress Protection) minimo come qui riportato (es. IP65, 66 o 67)

Dati elettrici nominali:

- Tensioni di alimentazione: come indicato sulla marcatura della bobina
- Temperatura utilizzo: versione standard -20 / +80°C
  versione bassa temperatura -40 / +80°C

2.3 Dati di targa che riguardano la sicurezza

La targa dell'apparecchio riporta i seguenti dati:

CE	marchio della Comunità Europea
	marchio di conformità alla Direttiva 94/9/CE ed alle relative norme tecniche
II 3 GD	apparecchiatura per impianti di superficie con presenza di: gas, vapori o nebbie di categoria 3, idonea per zona 2 polveri di categoria 3, idonea per zona 22
Ex nA	modo di protezione per apparecchiature elettriche protette da gas combustibili
Ex tc	modo di protezione per apparecchiature elettriche protette da polveri combustibili
IIC	Gruppo Gas
IIIC	Gruppo Polveri
T5	classe di temperatura (Gas)
T 140°C	massima temperatura superficiale (Polveri)
IP6x	grado di protezione da penetrazione di polveri e liquidi

Sulla targa dell'apparecchio, oltre alle suddette informazioni, sono stampati il nome ed indirizzo del Fabbricante, il codice prodotto e l'anno di produzione (incluso nel nr. di matricola).

2.4 Collegamenti alla rete di alimentazione

Le bobine oggetto della presente istruzione sono dotate di apposite connessioni elettriche sec.EN175301-803, per il collegamento alla rete di alimentazione, attraverso appositi connettori dotati di pressacavo certificati in conformità alle Norme EN 60079-0, EN 60079-15 e EN 60079-31 e quindi conformi i requisiti della Direttiva 94/9/CE, Atex.
Tali connessioni devono inoltre garantire il mantenimento del grado di protezione IP.
I cavi uscenti devono riportare la marcatura prevista dalla Norma EN 60034-8.

2.5 Collegamento di terra

Le bobine sono provviste di apposito pin di messa a terra, da utilizzarsi per mezzo del connettore, e contrassegnato come indicato:

La connessione dovrà essere dotata di sistema antirotazione e/o antiallentamento e collegata con la linea di messa a terra generale dell'impianto mediante cavi conduttori aventi sezione ≥4 mm^2

3. Verifiche e manutenzioni

Tutte le operazioni di verifica e manutenzione devono essere effettuate nel pieno rispetto delle seguenti prescrizioni:

- Togliere sempre tensione all'apparecchiatura prima di rimuovere il connettore o allentare il pressacavo.
  Terminate le operazioni necessarie riposizionare il connettore, come di seguito descritto, prima di dare tensione.
- Il corpo del connettore deve essere serrato sino alla battuta meccanica e bloccato tramite il serraggio dell'apposita vite.
- La sostituzione delle parti soggette ad usura o invecchiamento, deve essere effettuata con componenti identici a quelli forniti dal costruttore al fine di garantire il mantenimento del livello di protezione.
- Le superfici dei giunti piani di accoppiamento NON DEVONO ESSERE LAVORATE, MODIFICATE E/O DANNEGGIATE.
- Non effettuare forature o altre lavorazioni aggiuntive.
- Al fine di evitare l'accumulo di polveri dovrà essere effettuata una pulizia frequente dell'apparecchiatura con panni antistatici o soffio d'aria compressa.

Inoltre, per garantire il mantenimento del grado di tenuta "IP", ad ogni smontaggio, bisogna controllare e se necessario ripristinare le guarnizioni di tenuta ove presenti.

4. Riparazioni da danneggiamento

La riparazione delle bobine e/o del connettore non è prevista e/o consentita.

In caso di guasto o malfunzionamento ogni bobina deve essere sostituita con una nuova dello stesso tipo e grado di protezione.

HIGH TECH PRODUCTS s.r.l. Via Lesina, 45 - 24030 - Brembate di Sopra (BG) ITALY
Tel. +39.035.692509 - Fax +39.035.203291 - www.webhtp.eu - info@webhtp.eu

Attestato di conformità
ATEX 94/9/CE

Num- Documento, Mese, Anno: 101-AGOSTO 2011

Fornitore: H.T.P. S.r.l

indirizzo: Via Lesina, 45 - 24030 Brembate di Sopra (BG) - Italia

Identificazione del prodotto: DIN43650-A Serie: G1-G2
DIN43650-B Serie: M1-M2

Descrizione del prodotto: CONNETTORE PER ELETTROVALVOLA A CABLARE SENZA CIRCUITO

Il prodotto in esame è destinato ad esser incorporato in dispositivi complessi; non è permesso utilizzarlo fino a quando l'intero dispositivo non sarà certificato in base alle norme CE. La sua incorporazione dovrà essere eseguita in conformità a quanto specificato nelle istruzioni.
Dichiariamo che i componenti sopra specificati sono conformi alle esigenze imposte dalla direttive "ATEX" 94\9\CE trasposta nell'ordinamento legislativo Italiano tramite il DPR 126\98 limitatamente alla propria classe di ptotezione

Conformity assessment
ATEX 94/9/CE

Document number,Month,Year: 101-AUGUST 2011

Supplier : H.T.P. S.r.l

Address: Via Lesina, 45 - 24030 Brembate di Sopra (BG) - Italia

Product description: DIN43650-A Series: G1-G2
DIN43650-B Series: M1-M2

The present is an unit designed to be assembled into complete devices;it is not allowed to use it until the complete device will be certified according to CE regulation. The component must be incorporated into the complete device and use there after following the instructions provided.
We declare that the above mentioned components are conform to the requirements of the European directive 94\9\CE for their protection class.

Issued By:

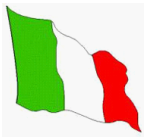
H.T.P. HIGH TECH PRODUCTS S.R.L.
Via Lesina,45-24030 Brembate di Sopra(BG) ITALY
Tel 035.692509-Fax 035.203291
P.I. 02622450167

Authorized signature:

Place and date: Brembate di Sopra, Bergamo - August 2011

Not any owneship is implied from this declaration.
Use instructions to be follwed in order to achieve the declared performances.

HIGH TECH PRODUCTS s.r.l. Via Lesina, 45 - 24030 - Brembate di Sopra (BG) ITALY
Tel. +39.035.692509 - Fax +39.035.203291 - www.webhtp.eu - info@webhtp.eu



Istruzioni per l'uso - Connettore a cablare per elettrovalvola

!! AVVISO DI SICUREZZA !!
Prima di effettuare le operazioni sottodescritte assicuratevi che il cavo non sia sotto tensione e che non ci siano fonti di corrente nelle vicinanze-

- Prima di effettuare le operazioni successive, pulire la zona di installazione dalla polvere, in quanto potrebbe entrare nel connettore vanificando la protezione IP.
- Verificare le condizioni di impiego: V max 250V, I max 10 Amp, Temp max 85°C
- Se necessario, sguainare adeguatamente il cavo ed I conduttori con un utensile appropriato.
- Svitare il serracavo, il pressacavo di gomma e le rondella ed infilarli nel cavo da connettere.
- Tramite un cacciavite, aprire il connettore facendo leva nell'apposita finestrella, situata sul fondo del connettore.
- Collegare i cavi secondo lo schema elettrico e serrarli nei morsetti del portacontatti. ASSICURARSI CHE I CONDUTTORI SIANO COLLEGATI CORRRETTAMETE CONTROLLANDO CHE L'INDICAZIONE DELLA POLARITA'(1,2 GND) POSTA IN RILIEVO SOTTO IL CONNETTORE CORRISPONDA AL CODICE COLORE E/O ALLA NUMERAZIONE DEL CAVO SECONDO LO SCHEMA DI INSTALLAZIONE
- Chiudere il connettore, assicurandosi che il pressacavo sia adeguatamente stretto.
- Collegare il connettore alla bobina, interponendo la guarnizione inclusa nella confezione
- Aggiungere la vite di fissaggio (pure inclusa nella confezione) ed chiudere utilizzando l'apposito cacciavite
- Adesso è possible dare corrente e controllare il funzionamento della valvola.

SE PER QUALSIASI MOTIVO, OCCORRE SCOLLEGARE IL CONNETTORE DALLA BOBINA, ASSICURARSI PREVENTIVAMENTE DELL'ASSENZA DI CORRENTE

Il presente connettore è conforme alle norme applicabili della Direttiva 94/9/CE limitatamente alla propria classe di protezione

Operating instructions - Solenoid Field Attachable connector

!! SECURITY WARNING !!
before doing any of the above described operation , please make sure that cable is not under power supply and there are not current sources nearby .

- Before proceeding with of the following steps, please assure that the installation-operating zone is free from dust. Dust presence may affect IP protection performances.
- Double check the products rating: V max 250V, I max 10 Amp, Temp max 85°C
- If this is the case, peel the cable jacket and the wires of about 7 mm using suitable tools.
- Unscrew the cable gland, the grommet and the washer from the connector and put them on the cable you want to connect
- Using a screwdriver, open the connector inserting the tool into the apposite lid.
- Connect the wires according to the electrical plan to the wire clamps on the connector terminal block. MAKE SURE THAT WIRES ARE CONNECTED CORRECTLY BY CHECKING THAT THE POLES INDICATION (1,2,.. GND) WHICH IS PRINTED ABOVE THE CONNECTOR FITS WITH WIRE COLOR AND/OR CONNECTION ACCORDING TO INSTALLATION DRAWING.
- Close the connector, assuring the gland is suitably tight.
- Connect the connector to the solenoid, putting between the solenoid and the coil the gasket which is included in the package.
- Fit the fixing screw (included in the package) and screw it tightly to the solenoid using the apposite screwdriver.
- Now it is possible to give power and check solenoid operation.

IF, FOR ANY REASON, YOU NEED TO UNCOUPLE THE CONNECTOR FROM THE SOLENOID MAKE PREVIOUSLY SURE THAT POWER IS OFF.

This connector complies with the applicable norms (for its protection class only) contained in European directive 94/9/CE

ALLEGATO 3

P SERVICE S.R.L.
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P.IVA 04317350371 - C.F. e R.I. Bologna 01648141206
R.E.A. N. 356556 - Cap.Soc. Euro 50.000 i.v.

SOCIETA' DEL GRUPPO METAL WORK PNEUMATIC
COMPONENTI PER AUTOMAZIONE INDUSTRIALE
IMPIANTI ARIA COMPRESSA

DICHIARAZIONE ATEX

Spett.Le P Service
v. Arcoveggio 190/E
40129 Bologna

PRODOTTI : ***MANOMETRI***

Con la presente si dichiara che i manometri a Voi forniti:

PA319918LF	M1-ABS 63 -1-0 G1/4C/D+LF+C
PA321218LF	M1-ABS 63 0-12 G1/4C /D+LF+C
PB110117LF	M3A-ABS 42 0-1 G1/8C /D+LF+C
PB120317LF	M3A-ABS 40 0-2.5 G1/8C /D+LF+C
PB120617LF	M3A-ABS 40 0-6 G1/8C /D+LF+C
PB121017LF	M3A-ABS 40 0-10 G1/8C /D+LF+C
PB219917LF	M3A-ABS 50 -1/0 G1/8C /D+LF+C
PB220317LF	M3A-ABS 50 0-2.5 G1/8C /D+LF+C
PB321218LF	M3A-ABS 63 0-12 R1/4 /D+C+QK+LF
PB321618LF	M3A-ABS 63 0-16 G1/4C /D+LF+C
PBFR1212DE00	M3A-ABS 40 0-12 R1/8/D+C+QK+JX+LF
PBFR2212DE01	M3A-ABS 50 0-12 R1/8/D+NK+LF
PBFR3212DF00	M3A-ABS 63 0-12 R1/4 /D+LF+NK
PC151217LF	M3B-40 0-12 G1/8C /D+LF+C
PC340118LF	M3B-63 0-1 G1/4C /D+LF+C+QK
PC351218LF	M3B-63 0-12 G1/4C /D+LF+C
PD150417LF	M3F-40 0-4 G1/8C /D+LF+C
PD151217LF	M3F-40 0-12 G1/8C /D+LF+C
PD340118LF	M3F-63 0-1 G1/4C /D+LF+C
PZFEB120417LF	M3A-ABS 40 0-4 R1/8 /D+C25+LF+JEGG+
PZFEB121217LF	M3A-ABS 40 0-12 G1/8C/D+C25+LF+JEGG
PZFEB221217LF	M3A-ABS 50 0-12 R1/8/D+C25+NK+TR+LF

non rientrano nel campo di applicazione delle direttive 94/9/9CE, comunemente chiamate direttive ATEX, in quanto non hanno potenziali sorgenti di innesco che sono sue proprie.

(vedi capitolo 1 articolo 1 della direttiva 94/9/CE).

Biassono, 30/03/2015

Watts Industries Italia Srl
Div. Fimet

Stefania Meli| Sales Department Assistant | Watts Industries Italia Srl, Via Brenno 21, 20853 Biassono (MB), ITALY | Tel. +39 039 4986201, fax +39 039 2759089 | e-mail: **meli.s@wattsindustries.it**

ALLEGATO 4

Dichiarazione di Conformità

Direttiva 94/9/CE
"Atmosfere potenzialmente esplosive"

CE
CERTIFICATO TÜV
IT 12 ATEX 011 AR

La Ditta

METAL WORK S.p.A.
Via Segni 5 - 25062 Concesio (BS) - ITALIA

come sola parte responsabile dichiara che in base alla direttiva europea

94/9/CE
DEL PARLAMENTO EUROPEO E DEL CONSIGLIO
CONCERNENTE...APPARECCHI E SISTEMI DI PROTEZIONE ATTI A ESSERE UTILIZZATI IN ATMOSFERA POTENZIALMENTE PERICOLOSA

I prodotti forniti dalla METAL WORK delle seguenti serie:

- BIT
- NEW DEAL

Esclusivamente nella loro parte NON - ELETTRICA
come riportato in questa dichiarazione, rispettano le seguenti normative nella loro forma attuale

UNI EN 13463-1: 2009	Apparecchi non elettrici destinati ad essere utilizzati in atmosfere potenzialmente esplosive Parte 1: Metodo e requisiti di base
UNI EN 13463-5: 2011	Apparecchi non elettrici per atmosfere potenzialmente esplosive Parte 5: Protezione per sicurezza costruttiva "c"

I prodotti sono contrassegnati con la seguente marcatura:

II 2 GD c T5 T100°C -10°C < Ta < 50°C

Concesio, Gennaio 2012

Responsabile di prodotto

Ing. Giorgio Guzzoni.

Declaration of Conformity

"Potentially explosive atmosphere"
Directive 94/9/CE

TÜV CERTIFICATE
IT 12 ATEX 011 AR

The Company

METAL WORK S.p.A.
Via Segni 5 - 25062 Concesio (BS) - ITALY

As the solely responsible party herewith declares that under the provision of CE directive
94/9/CE
COUNCIL DIRECTIVE...IN POTENTIALLY EXPLOSIVE ATMOSPHERE

In its current form
The models supplied by METAL WORK of the following products types:

- BIT
- NEW DEAL

Exclusively in their NOT- ELECTRICAL part
As referred to in this declaration,
complies with the following standards and normative documents
In they current form

UNI EN 13463-1: 2009	Non - electrical equipment for use in potentially explosive atmospheres Part 1: Basic method and requirements
UNI EN 13463-5: 2011	Non - electrical equipment intended for use in potentially explosive atmospheres Part 5: Protection by constructional safety "c"

Products are marked additionally with the following characteristics:

Ex II 2 GD c T5 T100°C -10°C < Ta < 50°C

Concesio, January 2012

Chief Engineer

Ing. Giorgio Guzzoni

ALLEGATO 5

IFA
Institut für Arbeitsschutz der
Deutschen Gesetzlichen Unfallversicherung
Prüf- und Zertifizierungsstelle im DGUV Test

Datum/*Date:* 20.01.2012 Tob/Sol

PRÜFZEUGNIS
TEST CERTIFICATE

Nr./*No.:* **201220225/6210**

1	**Auftraggeber/** ***Customer***	ALTAIR S.R.L. VIA CASELLE 113 10040 Leini (To) / Italien
2	**Prüfmuster/** ***Test specimen***	Filtermaterial
2.1	Hersteller/ *Manufacturer*	ALTAIR S.R.L.
2.2	Bauart, Bezeichnung/ *Type, designation*	Filtermaterial 1-lagig / COL270BAL
	Kennzeichnung/ *Marking*	COL270BAL
2.3	Bestimmungsgemäße Verwendung/ *Intended use*	Entsprechend den IFA-Grundsätzen zur Prüfung von Filtern für die Verwendung in staubbeseitigenden Maschinen und Geräten (Ausgabe 01/2010).
2.4	Datum der Herstellung/ *Date of fabrication*	2011
2.5	Weitere Angaben/ *Further details*	s. Prüfprotokoll

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3 Prüfung/ *Testing*

3.1	Art der Prüfung/ *Type of test*	Typprüfung
3.2	Datum der Prüfung/ *Date of testing*	Januar 2012
3.3	Prüfverfahren, -grundlagen/ *Test method, requirements*	DIN EN 60335-2-69:2008; IFA-Grundsätze zur Prüfung von Filtern für die Verwendung in staubbeseitigenden Maschinen und Geräten (Ausgabe 01/2010).

4 Beurteilung, Eignung/ *Assessment, suitability* (Besondere Hinweise/ *Special remarks*)

Das Filtermaterial COL270BAL erfüllt bei einer Filterflächenbelastung von 200 $m^3/m^2 \cdot h$ entsprechend einer Filteranströmgeschwindigkeit von 0,056 m/s die Anforderungen der DIN EN 60335-2-69 an Filter zum Einsatz in staubbeseitigenden Maschinen und Geräten der Staubklasse "M".

Besondere Hinweise:

Dieses Prüfzeugnis gilt nur für das Filtermaterial mit der Anströmseite: aluminiumbeschichtete Seite .

Eine Beurteilung der Arbeitssicherheit der gesamten Staubabscheide-einrichtung ist auf Grund dieses Prüfzeugnisses nicht zulässig.

5 Gültigkeit des Prüfzeugnisses/ *Validity of Test Certificate*

Dieses Prüfzeugnis gilt, solange die zugrundeliegenden sicherheitstechnischen Anforderungen (3.3) gelten, für alle mit dem Prüfmuster identischen Erzeugnisse, die gefertigt werden bis zum:
As long as the underlying safety-technical requirements (3.3) are in force, the present Test Certificate applies to all products equal to the test specimen and manufactured at the latest on:

19.01.2015

Die Identität der Erzeugnisse mit dem Prüfmuster wird von der Prüfstelle nicht überwacht.
Conformity with the test specimen will not be verified by the testing institute.

Eine Verlängerung der Gültigkeitsdauer ist auf Antrag möglich ***(bis zu zweimal)***.
Period of validity may be extended upon request.

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6 Allgemeine Hinweise/ *General remarks*

Dieses Prüfzeugnis besteht aus **5** Seiten
The present Test Certficate consists of *Pages.*

Die Seiten 1 bis 3 enthalten das Gesamtergebnis der Prüfung, sie dürfen nur ungekürzt veröffentlicht werden. Zum vollständigen Prüfzeugnis gehört das Prüfprotokoll, aus dem die Einzelangaben ersichtlich sind.
Pages 1 to 3 indicate the overall test result; they shall only be published with the full wording being quoted. The complete Test Certificate also includes the test protocol containing all pertinent details.

Dieses Prüfzeugnis berechtigt n i c h t zur Verwendung des GS-Zeichens, BG-Zeichens oder CE-Zeichens.
The present Test Certificate does n o t warrant the use of the GS-label, BG-label or CE-mark.

Im übrigen gilt die Prüf- und Zertifizierungsordnung der Prüf- und Zertifizierungsstellen im BG-PRÜFZERT in Verbindung mit den Allgemeinen Geschäftsbedingungen der Deutschen Gesetzlichen Unfallversicherung e.V.
In all other respects the Rules of Procedure for Testing and Certification carried out by the Test and Certification Bodies in BG-PRÜFZERT shall apply in conjunction with the General Business Conditions of the Deutsche Gesetzliche Unfallversicherung e.V.

Für die Beurteilung: *For the assessment:*	Für die Prüfung: *For the testing:*
Dipl.-Ing. Hans-Ulrich Tobys	Christian Sollik
Fachzertifizierer(in) *Certification officer*	Leiter(in) des Prüflabors *Head of Testlaboratory*

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Prüf- und Zertifizierungsstelle im DGUV Test

Prüfprotokoll
Test protocol

1.	**Prüfgrundlage:**	DIN EN 60335-2-69:2008; IFA-Grundsätze zur Prüfung von Filtern für die Verwendung in staubbeseitigenden Maschinen und Geräten (Ausgabe 01/2010).
2.	**Art der Prüfung:**	Typprüfung
3.	**Antragsteller:**	ALTAIR S.R.L.
4.	**Prüfmuster:**	Filtermaterial
4.1	Bauart:	Filtermaterial 1-lagig
4.2	Bezeichnung:	COL270BAL
4.3	Kennzeichnung:	COL270BAL
5.	**Staubklasse:**	**"M"**

6. Herstellerangaben Filtermaterial

6.1	Material und Art:	100% Spunbond Polyester
6.2	Flächengewicht:	280 g/m^2
6.3	Luftdurchlässigkeit:	500 m^3/m^2·h
6.4	Anströmseite:	aluminiumbeschichtete Seite
6.5	Farbe:	weiß, mit aluminiumbeschichteter Anströmseite

7. Durchlassgradprüfung Filtermaterial

7.1	Filterflächenbelastung:	200 m^3/m^2·h
7.2	Anströmgeschwindigkeit:	0,056 m/s
7.3	Anforderung Staubklasse "M"	
	Maximal zulässiger Durchlassgrad:	< 0,10 %

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Prüf- und Zertifizierungsstelle im DGUV Test

7.4 Prüfergebnisse

Mittlerer Durchlassgrad: 0,02 % (sechs Messungen)

Standardabweichung: 0,01 % .

Bei einer Filterflächenbelastung von 200 $m^3/m^2 \cdot h$ entsprechend einer Filteranströmgeschwindigkeit von 0,056 m/s ist der Durchlassgrad sicher < 0,10 % (s. Pkt. 5 der Grundsätze zur Prüfung).

Die Anforderungen an die Filtermaterialabscheideleistung der Staubklasse "M" werden erfüllt.

8. Durchflusswiderstand

Der Durchflusswiderstand des Filtermaterials wird vor der Quarzstaubprüfung ermittelt.

8.1 Filterflächenbelastung: 200 $m^3/m^2 \cdot h$

8.2 Anströmgeschwindigkeit: 0,056 m/s

8.3 Prüfergebnis

Mittlerer Durchflusswiderstand: 74 Pa (6 Messungen)

9. Luftdurchlässigkeitsprüfung: 550 $m^3/m^2 \cdot h$

Die Luftdurchlässigkeit des Filtermaterials wird bei einem Differenzdruck von 200 Pa vor der Quarzstaubprüfung ermittelt.

10. Flächengewichtsprüfung: 280 g/m^2

11. Kennzeichnung

Die Anforderungen werden erfüllt.

Institut für Arbeitsschutz – IFA –
Im Auftrag

Christian Sollik