

# OPERATING INSTRUCTIONS

MISTRAL (PLUS), MISTRAL ECO (PLUS),  
MISTRAL SUPER PLUS 110 V AND 230 V  
VERS.: 4.8

Register here please the specific data to the Mistral acquired by you, in order to have available immediately all necessary data with telephone consultation with the Trotec GmbH:

Equipment designation /- type:

Mistral:

Year of construction:

Machine-No.:

Commission-No.:

Start up date:

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## **1. General Information**

This operating instructions are a substantial assistance for the successful and safe operation of the Mistral, Mistral Eco, Mistral Plus, Mistral Eco Plus and the Mistral Super Plus in the following briefly mentioned as Mistral.

The operating instructions contains important notes, in order to operate the Mistral safely, properly and economically. Their attention helps to avoid dangers to decrease repair costs and down-times and to increase the reliability and the life span of the Mistral.

The operating instruction must be available constantly at the Mistral and has to be read and used from each person, who is assigned to work with/and on the Mistral e.g.:

- Operation, disturbance recovery in the work routine, disposal of operating and auxiliary materials,
- Maintenance (maintenance, care, repair) and/or
- Transport

### **1.1. Referring to author and patent rights**

This operating instructions are to be treated confidentially. It is to be made accessible only to authorised persons. A hiring to third may take place only with express, written agreement of the manufacturing firm. All documents are protected in the sense of the copyright law. The passing on as well as the duplication of documents, also in part, as well as an utilisation and a report of their contents are not entitled so far not expressly in writing permitted.

Offences are punishable and obligate to compensation. We reserve all rights for the practice of commercial patent rights to ourselves.

### **1.2. Notes for the operator**

The operating instructions are a substantial component of the Mistral. The operator ensures that the operating personnel takes these guidelines to the knowledge.

Since the operating instruction is presumably exposed to a strong demand at the place of work of the Mistral, it is incumbent on the operator:

- to keep the original surely,
- to concern for the fact that a copy of the operating instruction is constantly available at the Mistral,
- that each user reads the operating instruction attentively and considers and keeps all data.

The operating instructions are to be supplemented around operating instructions due to the existing national regulations for accident prevention (BGV D27) and to the environmental protection, including the information of the duty to supervision and obligations to register, the consideration of operational characteristics e.g. regarding working particularity relating to the work sequences and assigned personnel by the operator.

Beside the operating instructions and the in the user country and at the employment place valid obligatory regulations for accident prevention are to be considered also the recognised specialised technical rules for security and professional working.

After one year at the latest the examination of the Mistral is to be made by experts. The test report is to be documented in a test book in writing.

The operator/user may not make changes at the Mistral, which could impair security, without permission of the manufacturing firm! This applies in particular to the installation and the attitude of safety devices.

Spare parts must correspond to the technical requirements specified by the manufacturing firm. This is always ensured with original spare parts.

Use trained or instructed personnel only. Specify the competencies of the personnel for serving, controlling and repairing clearly!

The maintenance of the Mistral may take place only via particularly trained personnel of the Trotec Produktions- u. Vertriebs GmbH and/or a service company authorised in addition.

### **1.3. Service and warranty**

The Trotec Produktions - Vertriebs GmbH is endeavoured to work on your questions and order as fast as possible. We ask you to indicate your names as acknowledging address as well as the identifications data of your Mistral before each inquiry. They are registered behind the first page of this operating instructions.

The warranty of the manufacturing firm for the Mistral extends within the implied warranty period to damage, which can be proved on construction – to lead back material or production defects.

The time of warranty is 36 month, exception: turbine with brushes: 6 month. It begins with the delivery e.g. start-up time of the Mistral.

A warranty is transferred only in its entirety if:

- the distribution inspection, the delivery and the instructions are implemented correctly,
- the Mistral is for intended use only,
- the maintenance and servicing instructions are to be strictly obeyed (With dirty turbine no warranty claim exists).

In the case of a warranty the manufacturing firm transfers the material- and repair costs, which result directly from the remedy at the Mistral.

Only the spare part prices and the fee of the manufacturing firm are valid.

We refer to the regulations as well as the general trading conditions of the Trotec Produktions- u. Vertriebs GmbH.

### **1.4. Instruction- and training course topics**

As operator of the Mistral you are obligated to inform and/or to instruct the operating/maintenance staff about existing rules for the prevention of accidents and on the rights as well as about existing safety devices to and around the Mistral. Different technical qualifications of the personnel are to be considered.

The operating/maintenance staff must have understood the instruction and it must be guaranteed that the instruction is considered.

Only in such a way you can achieve security and the danger-conscious working of your staff. Each co-worker should confirm the participation in the training course and instruction in writing.

On the following pages you will find examples of instruction topics, for copying as well a list for the confirmation.

## **1.5. Examples of training course topics**

1.	To the safety
→	Rules for the prevention of accidents
→	General legal regulations
→	General safety references
→	Measures in an emergency
→	Disposal of the filter
→	The personal protection equipment
→	Safety references for the operation of the Mistral
→	Handling the safety devices at the Mistral
→	Safety devices in the surrounding field of the Mistral
→	Meaning of symbols and signs
2.	To the operating of the Mistral
→	Handling the controls of the Mistral
→	Explanation of the operating instruction for the operating personnel
→	Special experiences of the operator in handling the Mistral
→	The use of used materials, aids and auxiliary facilities
→	Experiences regarding the employment of the Mistral
→	Removal of operating disturbances
3.	To the maintenance
→	Correct handling agents, lubricants
→	Special experiences of the operator within the ranges servicing, maintenance, cleaning servicing of the Mistral

Confirmation of the instruction		
Topic of the instruction:		
Date:	Training course leader:	Signature of the training course leader:
No	Name, Pre-name	Signature
1		
2		
3		
4		
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11		
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13		
14		
15		
16		

## **2. Safety**

### **2.1. General information**

The Mistral is built according to the state of technology and the recognised safety-relevant rules. Nevertheless dangers for the user or third and/or impairments of the Mistral and other real values can develop with its use, if:

- it is operated by not trained or not instructed personnel,
- it is not intended used,
- it is inappropriately held or waited.

### **2.2. Duty of Information**

#### **For your security!**

As operator of the filter system please, consider absolutely the data given in the CE manufacturer explanation, CE - declaration of conformity, the data and information in the user manual and in particular the operating and safety instructions.

#### **Residual Risk**

Filter systems and suction units contain inflammable construction parts (filter material, seals, plastic parts, etc.). Consider in your work place evaluation after the law for employee protection (AschG the residual risk of a case of fire. It is important to have **the approval of us with changes** in the use of the filter system **in writing**.

#### **CE – Declaration of Conformity**

As a rule we deliver the filter system with a CE - declaration of conformity. When assembled with other parts it becomes a higher - ranking filter system for which you, as operator, have the duty to make a danger analysis and you must provide a CE - declaration of conformity for the whole filter system.

#### **Duty of Information**

Sparks, cigaret stubs or similar may not be sucked into the filtering device.

Our plants may be used only as described in the operating manual and as intended. Changes in the use require our express written permission.

Each use going beyond it is not considered as intended, the manufacturer / supplier can not be made liable for developing damages which result from it. The risks carries the operator.

#### **Intended use of the filter system(s) / plant**

**It is not allowed sucking off dust, smoke, gases and media which do not correspond with this operating instruction, take notice of chapter 2.3. The media exhausted may be classified in no dust explosion class (St-Class).**

#### **Start-up Maintenance Work and Service**

Refer to maintenance and safety instructions in the operating manual.

All repair and maintenance work may only be carried out with complete stand still of the machine/plant (separate all poles by switching off from the mains, pull the plug out of the socket). Only trained and authorised personnel may operate, make maintenance work service at the machine/plant. Work within the electrical range may be implemented by authorised specialists only!

The plant must at least 1x annually be examined per AAV §16 Abs. 8.

### **2.3. Intended Use**

The Mistral and Mistral Eco of the Trotec Produktions- u. Vertriebs GmbH exclusively serve for sucking off gases and smoke with pollutants, which is developed with:

- Stamp production
- Marker/sign production, and engraving procedure

No statements can be made for other fields of activity than in this operating instruction specified regarding the endangerment of humans and environment. No overall statement can be made to the suitability of the Mistral, if loaded gases and smoke with pollutants in another than here mentioned purposes are sucked off. In this case the Trotec Produktions- u. Vertriebs GmbH is to be addressed, otherwise any warranty claim is void.

Consider also while handling dangerous materials the rules for the prevention of accidents and here in particular the safety rules for extractor equipment for air pollution control on the job, ZH 1/140.

The Mistral may be operated only with accessory/with the equipment which are intended and approved from the Trotec Produktions- u. Vertriebs GmbH.

The data in chapter 3.6 technical data are to be considered and kept.

Valid as not intended is the extraction of:

- damp, liquid or vapourous materials,
- explosive or inflammable gas/material/material air mixtures,
- in air-impermeable layers crystallising materials,
- sticky or statically responsible materials or
- incandescent or burning substances.

Another or beyond it going use, e.g. industrial extractor is considered as not intended.

If gases and smoke on production conditions are to be extracted, in the course of which carcinogenic materials after BIA TRGS 900 are developed and/or be contained, you may not use the Mistral!

Alone the operator of the Mistral is responsible for those from not intended use resulting damage. This implies arbitrarily accomplished changes on the Mistral.

Imperfect construction unit/spare parts are to be exchanged immediately. Use only original spare parts. In particular with non original filter devices it is not ensured that they filter the pollutants from the extracted gas/smoke completely!

To the intended use also belongs keeping the references:

- for safety,
- to the operation,
- to maintenance and servicing

which are described in this operating instruction.

## **2.4. Referring of signs and symbols**

In this operating instruction following designations and/or indications are used for safety references and particularly important data:



**Danger!**

Powers on a directly threatening danger attentively which will lead to heaviest injuries of persons or to death, if not accurately responded to the designated instructions.



**Warning!**

Powers on a directly threatening danger attentively which will lead to heaviest injuries of persons or to death, if not accurately responded to the designated instructions.



**Caution!**

Powers on a directly threatening danger attentively which will lead to heaviest injuries of persons or to death, if not accurately responded to the designated instructions.

All these WARNINGS must be kept in every detail!



**Information!**

This refers to special circumstances whose attention ensures safe, adequate and efficient handling of the Mistral.

All references should be fulfilled in the interest of an intended use of the Mistral. Pass all references on to other users!

- With this point work /or control steps are marked. The steps are to be implemented in the sequence from above downwards!
- By the mirror line enumeratings are marked.

References and symbols attached direct on the Mistral like warnings, warning sticker, construction unit markings etc. must absolutely be considered.

On the Mistral attached references and symbols may not be removed and are to be kept completely readable!

## **2.5. Residual risk**

Also with attention to all safety regulations a residual risk remains with the operating of the Mistral.

All persons, who work on and with the Mistral, must know these residual risks and must obey the instructions, which prevent, that these residual risks lead to accidents or damage.



Caution!

By the inhalation of poisonous gases and types of dust poisoning damage can occur. Likewise long-term damage can occur to internal organs by repeated inhalation, sips and contact with gases and dust contained in the filter-unit and suction hose itself.

Before all work on the inside of the Mistral, in particular at the filter devices as well as on the dust extraction hose the personal protect equipment is to put on.

In addition belongs:

1. Protection gloves (one-way gloves from polyethylene, long version),
2. Protection mask (purifying dust respirator with examination of the protection stage 3),
3. Eye protector.

## **2.6. Safety references for the operating personnel**

The Mistral may be used only in technically perfect condition and as intended. Safety and danger-consciously considering of this operating instruction is supposed! All disturbances in particular such, which can impair security, are immediately to be eliminated!

Each person, who is assigned to the assemble, start-up, maintenance or repair at the Mistral, must have completely read and understood this operating instruction, in particular the chapter security before beginning with the operation.

During the work it is too late.

This applies in particular to personnel used only occasionally at the Mistral.

Each person, who is assigned to work on the Mistral, must confirm by signature that he/she read and understood the operating instructions before first handling the Mistral.

The operating instructions must be at hand constantly at the Mistral.

For damage and accident by neglecting the instructions no responsibility will be taken over.

The relevant rules for the prevention of accidents as well as the other general recognised safety-relevant rules according to industrial medicine are to be kept.

The competencies for the different activities in the context of the operation, the maintenance of the Mistral must be clearly fixed and kept. Only then miss-actions in particular danger situations can be avoided.

The operator has to obligate the serving and maintenance staff to carry personal protection equipment. In addition protection gloves, purifying dust respirator mask.

Are there safety-relevant changes at the operational behaviour or disturbances at the Mistral so it has to be stopped immediately and announced to the competent authority!

Keep first aid facilities (first aid box, eye rinsing bottles etc.) within reach!

Make known the location and operation of fire extinguishers and the possibilities of fire reporting and fire fighting.

Absolutely consider the notes for maintenance, service and safety equipment!

Work on the Mistral may be accomplished only by reliable personnel. The legal permissible minimum age must be considered!

Use only trained or instructed personnel!

Training, or in the context of general training personnel who is to be trained may become active at the Mistral only under constant supervision of an experienced person!

## **2.7. Safety references for the operation of the Mistral**

With all work which concern:

- the operating,
- the re-equipment or the adjustment of the Mistrals and its safety devices,
- the inspection,
- the maintenance and
- the repairing

consider the turn on and turn off processes in accordance with the operating instruction and the references to the maintenance!

The Mistral only may be operated, if all protection and safety devices e.g. solvable protection devices, housing bolts etc. are on its place and functional!

Before starting up the personnel has to make itself familiar around the Mistral.

The Mistral may never remain unsupervised during the operation!

At least once per shift the Mistral must be examined for outwardly recognisable damage. Changes (including that of the operational behaviour) have to be announced immediately to the responsible shift leader and/or the plant manager.

Stop and secure immediately with malfunctions at the Mistral. Disturbances are to be eliminated immediately through trained specialists.

## **2.8. Safety references to the maintenance**

Before beginning inform the operating personnel about the execution of special- and maintenance work.

Keep the periods for tests/inspections prescribed in this operating instructions.

For the execution of maintenance work appropriate workshop equipment is absolutely necessary.

Illuminate maintenance ranges, to the extent necessary, additionally with hand or stand lamps.

For Maintenance or repair the Mistral must be switched off and secured against unexpected restarting, by:

- switching off at the circuit breaker and afterwards
- disconnecting the device from the mains by pulling out the plug of the mains cable.

With prepare-, assembly or maintenance work do not reach into the covering grid plate of the turbine or the filter chambers in the filter-unit.

After switching off/stopping the Mistral wait for the stop of the turbine.

To avoid current impacts do not open electrical construction units as well as housings and covers.

Do not touch damaged, torn life (voltage) parts.

Make no program modifications at programmable control systems.

Work on electrical equipment may be made only by trained specialists!

Check regularly for damage on cable and hose connections, particularly such at mobile construction units and if necessary exchange.

Exchange the filter-unit in the indicated and/or in appropriate time/intervals, even if no safety/relevant lack is recognisable!

Tighten always again solved screwed joints with maintenance and repairs!

If the disassembly of safety devices is necessary with servicing or repairing, the assembly and examination of safety devices must take place immediately after conclusion of maintenance and repair work!

At the beginning of maintenance/repair/care the Mistral, and here in particular connections and screw connections are to be cleaned of all contamination and residues, e.g. dust, fuels or preservative agents.

Do not use aggressive cleaning agents containing solvent Use a lint free cleaning cloths.

Use only mild cleaning agents on water basis. Consider the data of the manufacturers.

Do not use organic solvents, since fire and danger of explosion exists!

Provide for safe and environmental careful disposal of operating and auxiliary materials as well as replacement parts!

## **2.9. Referring to special danger kinds**

### **2.9.1. Electricity**

The work on the electrical equipment of the Mistral may be made only by an electrical specialist or personnel instructed by/under line and supervision of an electrical specialist, in accordance with the electrical rules!

It must be waited always five minutes after switching off, so that the inserted condenser in the control board can unload themselves. Opening of the housing is only permissible at the end of this time.

Use only original safety devices with prescribed amperages!

Never accomplish work on live parts!

With repairs pay attention to the fact that constructional characteristics are not to be safety reducing changed in particular: allowed air creeping and air clearance as well as distances are not to be made smaller by isolations.

The perfect grounding of the electrical system must be ensured by a protective grounding system.

Program modifications at the control system may be made only in consultation with Trotec Produktions- u. Vertriebs GmbH or directly with the manufacturing firm.

With disturbances at the electrical power supply separate immediately the Mistral from the net, by:

- switching off the Mistral at the transparency keyboard and thereafter
- disconnecting the plug from the mains.

### **2.9.2. Types of dust and other chemical substances**

With the Mistral partial toxic types of dust from contaminated air are filtered. Depending upon the kind of the assigned materials these types of dust can be health-endangering and/or carcinogenic.

While handling toxic types of dust special caution is required.

Consider and keep valid regulations and safety data sheets of the manufacturers concerning storage, handling, employment and disposal, while handling chemical substances.

With eye or skin contact with the types of dust in the filters or the suction hose the part concerned must be flushed immediately with much water. Suitable mechanisms (eye wash bottle, wash basin, shower) must be available at hand!

By cleaning and disinfectants loaded skin should be maintained after washing. Irritation can be avoided by the preventing use of skin protection means and a suitable skin care. The preservative agent which can be used is to be selected as a function of the pollution impact and the individual condition of the skin. Containing fat preservative agents are predominantly applicable.

Eating, drinking, smoking and keeping food in areas, in which chemicals are, is forbidden!

Keep dangerous materials never in bottles or containers for food. Mark always clearly for the respective material use certified containers.

Depending upon pollution impact particle and gas filters are subjects to the special hazardous waste regulation and are to dispose accordingly.

The inappropriate exchange of the pollutant-loaded filter-units represents a health risk for the implementing persons and their environment. Consider therefore with the exchange of the filter parts absolutely the section 7.4.2, exchange of the filter-unit in this operating instructions.

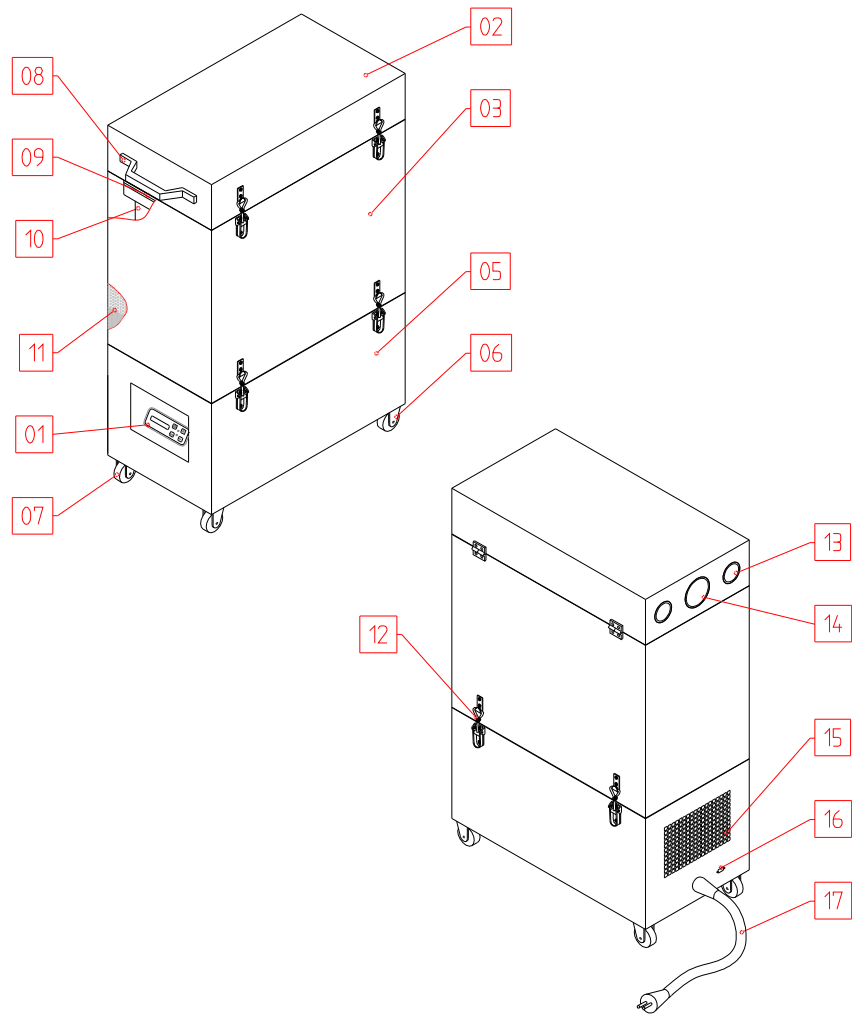
### **2.9.3. Noise**

The A-weighted one equivalent continuous sound pressure level on the operation job of the Mistral lies during normal operation below 68 dB(A), depending upon type of device.

Dependent on the local conditions a higher sound pressure level in the surrounding field of the Mistral can prevail. This increased sound pressure level can be caused by neighbouring machines and may cause a deafness.

### 3. Product description

#### 3.1. Overview Mistral (Eco)



### 3.2. Overview Mistral (Eco, Super) Plus

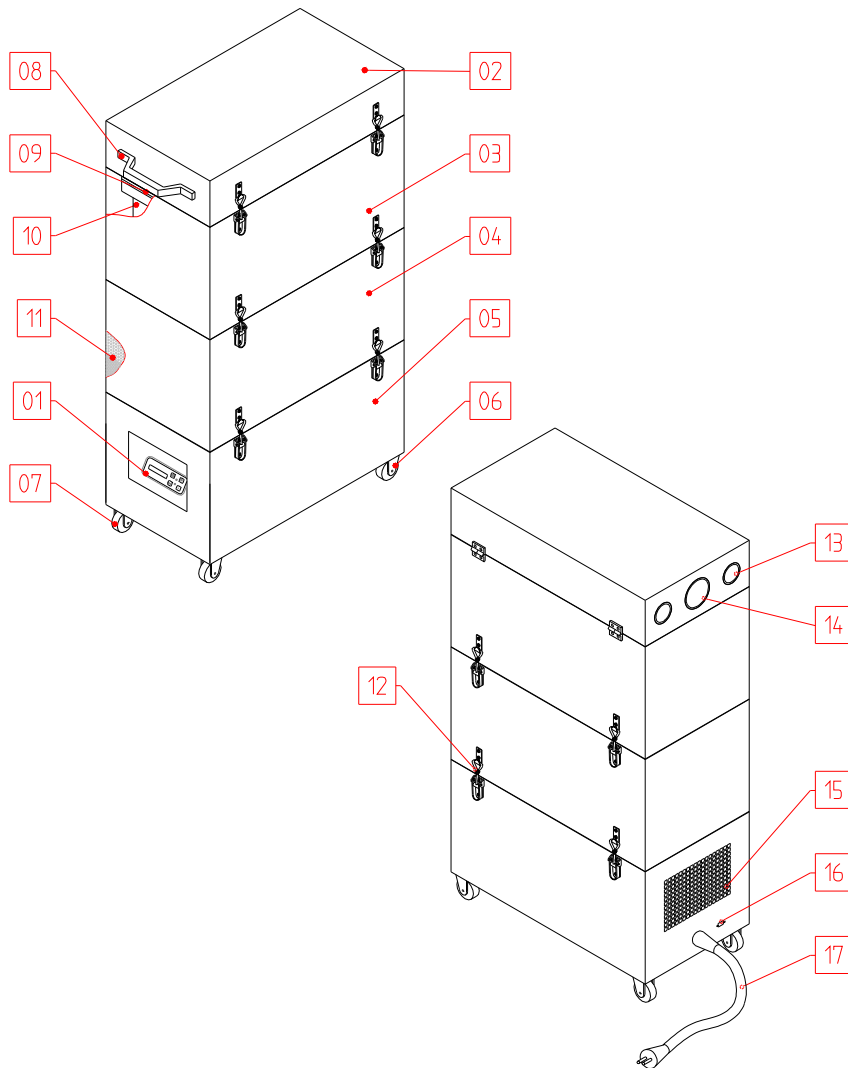
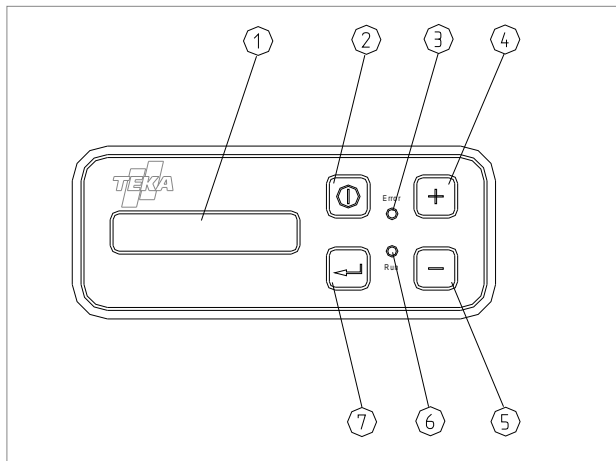


Illustration 1: Total view1 Transparent announcement, transparency keyboard

- |   |                            |
|---|----------------------------|
| 1 Transparent announcement, transparency keyboard | 10 Filter unit             |
| 2 Covering  | 11 Activated carbon        |
| 3 Filter casing                                   | 12 Tension close device    |
| 4 Activated carbon casing                         | 13 2x Extraction tube NW50 |
| 5 Turbine casing                                  | 14 Extraction tube NW71    |
| 6 Guiding roller                                  | 15 Exit grille             |
| 6 Guiding roller with brake                       | 16 Sub-D9 connection       |
| 8 Handle  | 17 Mains connection        |
| 9 Frame (empty)                                   |                            |

Illustration 2: Transparent announcement, transparency keyboard



- 1 Transparent announcement
- 2 Key EIN/AUS
- 3 LED-announcement „filter full“
- 4 Key +
- 5 Key -
- 6 Announcement: „Run“
- 7 Key ENTER

### **3.3. Description of function**

The Mistral serves for extraction of gases and smoke loaded with pollutants. With a connected suction hose between the machine which can be exhausted and the Mistral.

The Mistral is switched on and/or headed for either at its transparency keyboard or by the controlling of the machine which can be exhausted (remote switching mechanism).

The gas/smoke are sucked in by the suction hose into the filter housing with the assigned filter-unit.

The Mistral consists of the following filter stages:

- Filter-unit and
- Activated carbon filter.

Through the turbine underneath the activated carbon filter the clean gas is sucked in and blown out through the exit grille (Pos.15) attached in the back, to the ambient air.

### **3.4. Connection to external control**

For the operation of the Mistral with a remote switching mechanism a control cable with a Sub-D9-plug is needed. The pin allocation of the Sub-D9-plug (see in section 4,5,1) is to be considered!

### **3.5. Protective device**

The Mistral is equipped with protection device, that with intended use of the Mistral no dangers for security and health of the operator and/or third exist.

The entire Mistral is designed and manufactured according to the current state of the art and the recognised safety-relevant rules. In order to ensure the safe operation for personnel and environment, the precautions/safety devices described in the following were taken and/or installed.

Unauthorised removing or bridging (go around) of protection device represents a punishable action. In the case of loss each liability claim expires.

The turbine is secured by a shield and/or a grille, which can be removed only with tool.

All elements of the control systems place themselves with power failure or announced disturbances into a safe condition for operators, Mistral and environment.

All live construction units are secured against contact (isolated) and with sufficient estimate distance installed. Live building groups are built in the turbine case, and can be opened only with tool.

All electrical construction units carry the CE characteristic for low-voltage and/or EMV.

For the grounding of the Mistral a potential equalisation ( $\varnothing > 1.5 \text{ mm}^2$ ) of all leading components is installed.

The Mistral is implemented according to the type of protection IP 54.

All connections of the control and the gas-prominent hoses are clearly characterised. Electrical connection diagrams with associated parts lists are to be found in the appendix.

### **3.6. Technical data**

#### **3.6.1. Mistral and Mistral Eco**

Filtering device:	Mistral and Mistral ECO	
Housing:	Breadth	365 mm
	Width	1089 mm
	Depth	681 mm
Surrounding:	Surrounding temperature, perm.	+ 5 °C ^to + 35 °C
	Relative air humidity	max. 65 %
Data		
Mistral 230:	Maximum air flow	280 m <sup>3</sup> /h
	Power of the motor	1,1 kW
	Connection voltage	230 V / 50/60Hz
	Maximum negative pressure	21000 Pa
Mistral Eco 230:	Maximum air flow	330 m <sup>3</sup> /h
	Power of the motor	1,2 kW
	Connection voltage	230 V / 50/60 Hz
	Maximum negative pressure	14.000 Pa
Mistral 110:	Maximum air flow	280 m <sup>3</sup> /h
	Power of the motor	1,2 kW
	Connection voltage	110 V / 50/60 Hz
	Maximum negative pressure	21.000 Pa
Mistral Eco 110:	Maximum air flow	330 m <sup>3</sup> /h
	Power of the motor	1,2 kW
	Connection voltage	110 V / 50/60 Hz
	Maximum negative pressure	14.000 Pa
Filter material		
Filter-Unit:	Filter classification	F 9
Activated carbon:	13,5 kg	fresh carbon
Pre-filter mat for activated carbon	Filter classification	G4

### 3.6.2. Mistral Plus, Mistral Eco Plus and Mistral Super Plus

Filtering device:	Mistral Plus and Mistral ECO Plus	
Housing:	Breadth	365 mm
	Width	1240 mm
	Depth	681 mm
Surrounding:	Surrounding temperature, perm.	+ 5 °C bis + 35 °C
	Relative air humidity	max. 65 %

#### Data

Mistral Plus 230:	Maximum air flow	280 m <sup>3</sup> /h
	Power of the motor	1,1 kW
	Connection voltage	230 V / 50/60Hz
	Maximum negative pressure	21000 Pa
Mistral Eco Plus 230:	Maximum air flow	330 m <sup>3</sup> /h
	Power of the motor	1,2 kW
	Connection voltage	230 V / 50/60 Hz
	Maximum negative pressure	14.000 Pa
Mistral Plus 110:	Maximum air flow	280 m <sup>3</sup> /h
	Power of the motor	1,2 kW
	Connection voltage	110 V / 50/60 Hz
	Maximum negative pressure	21.000 Pa
Mistral Eco Plus 110:	Maximum air flow	330 m <sup>3</sup> /h
	Power of the motor	1,2 kW
	Connection voltage	110 V / 50/60 Hz
	Maximum negative pressure	14.000 Pa
Mistral Eco Super Plus 230:	Maximum air flow	640 m <sup>3</sup> /h
	Power of the motor	2,4 kW
	Connection voltage	230 V / 50/60 Hz
	Maximum negative pressure	14.000 Pa
Mistral Eco Super Plus 110:	Maximum air flow	640 m <sup>3</sup> /h
	Power of the motor	2,4 kW
	Connection voltage	110 V / 50/60 Hz
	Maximum negative pressure	14.000 Pa
Filter material		
Filter-Unit:	Filter classification	F 9
Activated carbon:	27 kg	fresh carbon
Pre-filter mat for activated carbon	Filter classification	G4

### **3.7. Differential pressure**

	unit	Pa
Mistral with 1 turbine		2500
Mistral with 1 Turbine and the Prefilter		3500
Mistral with 2 turbines		3200
Mistral with 2 turbines and the Prefilter		5000

## **4. Transport, storage and start-up**

### **4.1. Transport on wooden palette**

The Mistral is transported on a wooden pallet. The following corridor promotion vehicles are permissible for the transport of the wood pallet:

- Fork lift and
- Fork truck.

Hard impacts of the Mistral (e.g. on the loading area of a transport vehicle) must be avoided when setting off.

Secure the wood pallets with the Mistral in the case of transport against tilting.

Imprinted arrows on the transportation crates must show upward.

Consider the valid accident prevention and industrial safety regulations.

Consider absolutely danger warnings and information on the packing!

The Mistral and/or the wood pallet with the Mistral is to be secured on the transport vehicle against slipping and tilting.



**Danger!**

Mortal danger by falling down of the Mistral!

By inappropriate attachment on the wood pallets the Mistral can fall down and cause heaviest injuries or death.

Use suitable lifting tools and means of mounting only!

The driver must be entitled for leading the corridor promotion vehicle.

Drive the forks of the fork-lift truck between the side members of the wood pallet.

The contact between the Mistral and stroke rack of the corridor promotion vehicle is to be prevented:

- Wedge in a distance wood or a pasteboard between the packing of the Mistral and the stroke rack.
- Avoid hard impacts against the Mistral when setting off.

Before raising the Mistral all persons must depart from the work area of the corridor promotion vehicle.

## **4.2. Unpack and set up**



### **Information!**

Unpack the Mistral only at the place of assembly.

Do not set up the Mistral in direct proximity of heating/heating elements.

Consider sufficient area for the exchange of the filter-unit when setting up.

Proceed when unpacking and setting up the Mistral as follows:

- Lift the Mistral off the wood pallet and/or from the transportation packing only at the place of assembly. Remove the packing carefully.
- Examine the completeness of the supply on the basis of the packing list. If parts should be missing or supplied wrongly, contact immediately the Trotec Produktions- u. Vertriebs GmbH. The same applies to transport damages.
- In addition do examine the complete supply for outside damage, which may have developed e.g. in the case of transport.
- Transport the Mistral afterwards attentively and prudently on its guiding rollers up to the place of assembly.
- Set up the Mistral to even, firm underground.
- Always check that the Mistral stands secured and that the guiding roller's brakes are set.
- Set up the Mistral in such a way, that the attached suction hoses between the Mistral and machine which can be exhausted do not lie in through ways and/or generally do not have to be exceeded.

## **4.3. Scope of supply**

Examine with the delivery of the Mistral the scope of supply in every detail and announce immediately if parts are missing or should be damaged. Later complaints are not accepted.

To the regular scope of supply belong:

- Mistral, completely (with inserted filter-unit); mains cable (cold equipment cable);
- Blind cover (inserted in the extraction inlets).

Please note that the scope of supply can deviate in individual cases from this list. In this case the list in the delivery document is binding.

## **4.4. Storage**

The Mistral must be stored at vibrationsless, dry and as dust free a place as possible. It may not be stored outside of closed areas.

The air temperature must be in a temperature range between + 5 °C and + 35 °C.

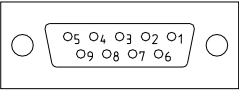
The relative air humidity may not amount to any more than 65 %. The condensation of air humidity on the surface of the Mistral must absolutely be avoided.

## 4.5. Start-up of the Mistral

### 4.5.1. Connection of an external control

The Mistral is switched on and/or headed either at the transparency keyboard or by an external/remote control (e.g. the machine which can be exhausted). With the manual switching on, push ON/OFF key about 0,5 sec.

At the Mistral the connection of the remote control is made by a nine-pole cable with Sub-D9-plugs.

Illustration	Pin	Designation	Declaration
 <p>Connector Sub-D9, device sided</p>	1	Start-/stop contact 24 V DC	Input signal for starting/stop contact from the external machine: High: start contact (24 V DC) Low: stop contact (0 V DC)
	2	Operational status indicator	Output signal for operation of the filter unit: High: Filter unit is in operation (24 V DC) Low: Filter unit is out of operation (0 V DC)
	3	„Filter full“	Output signal for failure alarm of the filter-unit: High: Filter, activated carbon and /or brushes are correct (24 V DC) Low: Filters, activated carbon and /or brushes must be changed (0 V DC)
	4	Increase capacity of the turbine	Input signal of the external machine for increasing the capacity of the turbine: High: Capacity of the turbine rises (24 V DC) Low: Capacity of the turbine remains constant (0 V DC)
	5	Reduction capacity of the turbine	Input signal of the external machine for lowering the capacity of the turbine: High: Capacity of the turbine decreases (24 V DC) Low: Capacity of the turbine remains constant (0 V DC).
	6	5 V DC	Output signal with permanently 24 V DC
	7,8		Not occupied
	9		Common masse for PIN 1 to PIN 6

Schedule 1: Connection of an external control (arrangement of plug contact/connection allocation)

#### **4.5.2. Connecting the Mistral**

Attach the Mistral as follows:

- Connect the mains cable (Pos. 17) at the Mistral with the power supply.
- If an external control of the mistral is intended, connect the external control with the Sub-D9-connector (Pos.16) at the turbine case.

Push the suitable flexible connection tube as far as possible into the extraction opening (Pos.13 and Pos.14). Is the suction power of the Mistral sufficient, several suction hoses can be attached, in order to extract several machines.

- Examine all connections for a correct and firm seat.

After connecting all hoses and the examination of the connections, the Mistral can be taken in operation.

#### **5. Operation of the Mistral**

##### **5.1. Qualification of the operating personnel**

Only trained or instructed personnel may operate the Mistral. Specify the competencies of the personnel for the setting-up and maintaining clearly!

Changes of attitudes on the Mistral may be made by particularly trained service staff of the Trotec Produktions- u. Vertriebs GmbH only.

Specify the area of responsibility of the operating personnel and make it possible for them to reject safety adverse instructions.

The operating personnel must be informed about the existing right and rules for the prevention of accidents and of existing safety devices to and around the Mistral as well.

The operating personnel must have understood the instructions and it must be guaranteed that the instructions are considered.

Security and danger conscious working of all co-workers is reached only in such a way.

##### **5.2. Operating conditions**

The Mistral must be operated at a vibrationsless, dry and as dust free a place as possible. The Mistral may not be operated outside of closed area.

The air temperature must be in a temperature range between + 5 °C and + 35 °C.

The relative air humidity may not amount to any more than 65 %. The condensation of air humidity on the surface of the Mistral must absolutely be avoided.

### 5.3. Operation

The operation of the Mistral takes place at its clear view control panel with plain language announcement. Here are all functions of the Mistrals can be adjusted.

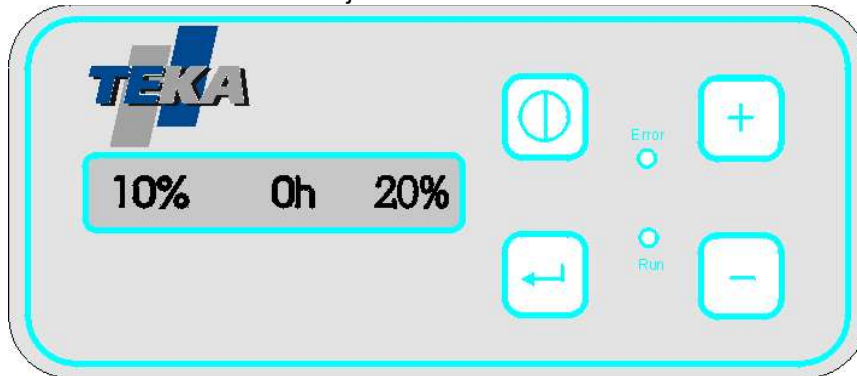


Illustration 3: Clear view control panel with plain language announcement

When switching on the plain language announcement the basic adjustment is indicated:

- On the left the current filter pollution in per cent,
- In the centre the operation hours passed so far,
- On the right the current adjusted number of revolutions of the turbine in per cent (from the maximum number of revolutions). The minimum value is adjusted to 20 %.

You will find the following control elements at the clear view control panel:



Key ON/OFF

The key ON/OFF serves for switching the Mistral on and/or off. When switching on push the key for about 0,5 sec, the turbine starts audibly and the sucking of the gas/or of the smoke begins

If you change the values (e.g. the number of revolutions of the turbines), then these attitudes are stored when switching off. After restarting the Mistral keeps running with these attitudes.



Key ENTER

With this key you arrive the submenu which shows the system-parameter.

By pushing the key ENTER you reach the next parameter. After the last point the standard announcement reappears.

The announcement recedes automatically to the basic announcement, if several Minutes no entries are made.

Never attempt to change the adjustment settings without specific authorisation.



Key +

By that the number of revolutions of the Turbine(n) in %-steps is increased. You can notice the increase at the noise increase. The changed value is taken over directly.



Key -

By that the number of revolutions of the Turbine(n) in %-steps is reduced. You can notice the decrease at the noise reduction. The changed value is taken over directly.



LED



LED Error (Red)

If the LED error shines red, the filter is full (It can also mean: change the brushes, change the activated carbon.) and must be exchanged, since the cleaning achievement of the Mistral is reduced.

LED Run (Green)

Indicates that the Mistral is switched on.

## **5.4. Program**

### **5.4.1. Key pad**

Version 3.01

Operating button:	ON / OFF
Confirmation button:	Enter
Turning speed button:	„+“ and „-“

### **5.4.2. Display**

Standard-announcement: „\_\_%\_\_h\_\_%“  
Filter accumulation      %  
Operating hours           h  
Turning speed            %

- Indication of current filter saturation in %, max. reading 100%
- Operating hours from 0 h to 999999 h ((The system counts operating hours in terms of when the turbine receives a control-system signal.)
- Turning speed of turbine from 0% to 100%.

### **5.4.3. ON / OFF**

Manual: The device is activated and shut down manually from the ON / OFF key.

Remote Control: Starter contact 24V DC, externally via potential-free contact.

### **5.4.4. Turning-speed control**

„Plus“ (+) key – press to increase turning speed  
„Minus“ (-) key – press to decrease turning speed

Turning-speed ranges from a minimum of 20% to a maximum of 100%.

When the filter system is restarted, the turbine runs at the turning speed to which it was last adjusted.

#### **5.4.5. Volume-flow control**

The Volume-flow control will be activated by pushing the key ENTER for 3 seconds – announcement: „flow control“ for 2 seconds.

Announcement: „\_\_\_%\_\_\_ hF \_\_\_%“

Whenever the volume-flow control is activated, a letter "F" is displayed after the operating hours for the Flowcontrol.

Operation of the "ENTER" button for 3 seconds deactivates the Volume-flow control – announcement "speed control" for 2 seconds. The "F" disappears from the display.

Announcement: „\_\_\_%\_\_\_ h \_\_\_%“

The setting continues to be saved when the device is switched off, so that the filter device runs at the same volume flow rate when it is restarted.

#### **5.4.6. Operating message**

The operating message is activated whenever a negative pressure of 150 Pa is detected on the filter or raw air side.

Indicator light: green

Output signal: switch (make contact) 24 V DC

#### **5.4.7. Collective error message**

##### **Collective error message filter full**

Turning speed: When filter saturation reaches 100%.

Volume-flow control: When filter saturation or turbine capacity reaches 100%.

Display-announcement: „change filter“

Acoustic indicator: buzzer

The filter must be replaced.

Indicator light: red

Output signal: 24 V DC if the collective error message is not active.

The displayed error message, along with the buzzer signal, can be cancelled by pressing the "+" or "-" or ENTER button.

The error message is displayed once more as soon as the control system has been switched off and on again.

The error message is repeated after eight hours, and then after a further four and then two hours, and finally every hour.

The alarm is cancelled if the filter saturation level drops below 100% once more after the replacement of the filter with a new unit; or if turbine capacity drops below 100% for a given volume flow.

##### **Collective error message „change coal“**

Display-announcement: „change coal“

Acoustic indicator: buzzer

The activated coal must be replaced.

Indicator light: red

Output signal: 24 V DC if the collective error message is not active.

The displayed error message, along with the buzzer signal, can be cancelled by pressing the "+" or "-" or ENTER button.

The error message is displayed once more as soon as the control system has been switched off and on again.

The error message is repeated after eight hours, and then after a further four and then two hours, and finally every hour.

After replacing the coal the alarm must be cancelled by pushing the "+" and "-" simultaneous for 3 seconds – the announcement reads „coal O.K.“ for 3 seconds. With this action the signal will be reset to the fix pre-set data (1000 h).

#### **Collective error message „change brushes“**

Display-announcement: „change brushes“

Acoustic indicator: buzzer

The brushes must be changed.

Indicator light: red

Output signal: 24 V DC if the collective error message is not active.

The displayed error message, along with the buzzer signal, can be cancelled by pressing the "+" or "-" or ENTER button.

The error message is displayed once more as soon as the control system has been switched off and on again.

The error message is repeated after eight hours, and then after a further four and then two hours, and finally every hour.

After replacing the brushes the alarm must be cancelled by pushing the "+" and „ENTER“ key for 3 seconds in one operation – the announcement reads „brushes O.K.“ for 3 seconds. With this action the signal will be reset to the fix pre-set data (450 h).

With several error messages at the same time the display-announcement indicates each error for 4 seconds by turns.

#### **5.4.8. Indicating and adjusting the system-parameter**

Confirmation with the ENTER key opens access to the submenu where the system parameters are displayed.

Press ENTER again to jump to the next parameter or return to the basic adjustment. If no entry is made for 10 seconds, the screen returns automatically to the basic adjustment.

Program and version:	Display of programs and version No. e.g. Mistral 3.01
Pass-code	Announcement Code 10
	Indicates the number entered last.

The following entries may be made with the pass-code for servicing personnel only.

Differential-pressure filter:	Announcement „filter 2000 Pa“. Maximum filter load setting, in Pascal. This corresponds to 100% of the filter saturation display. Pre-set data: 2000 Pa.
Maintenance-interval activated carbon:	Announcement: „coal time: 1000h“. Pre-set data for the maintenance-interval indicated in hours.
Maintenance-interval brushes:	Announcement: „brushes no“. Indicates whether the maintenance-interval is activated. The maintenance-interval for the brushes is pre-set fix and can not be changed.
Pressure sensor reset:	Announcement adjust? 0000 Pa The display shows the current pressure (in Pa) on the clean air side. The pressure sensors can be activated by pressing the “+” button. While the adjustment is being carried out, the turbine (s) are switched off. The display shows a countdown from 20 sec. After 20 sec, the pressure sensors are adjusted (reset) and “OK” is displayed. The basic announcement appears once more when the function is concluded. Confirmation with the “+” or “-” button allows the turbine (s) to be reactivated.

**Attention:** In order to receive correct results of measurement, the pressure sensor should be reset at least every 6 month. Reset the pressure sensor also when the announcement indicates illogical results or with error tracing.

## **5.5. Remote Control**

Apart from the operation with the transparency keyboard there is still additionally the possibility to control the Mistral about a wireless remote control or over a lead to an external control console (e.g. at the machine which can be exhausted).

Depending upon execution of the remote control all or only one part of the functions described in the previous section can be implemented.

Attach the external control console with a shielded cable at the Sub-D9-plug at the turbine case of the Mistral Consider the references in the section 4.5.1.



Reference!

If you switch off the Mistral externally via the remote control, the turbines run after (the pre-set time of 10 seconds) and switch off only then.

This delay ensures that a majority of the gas/smoke are sucked off.

## 5.6. Test operation



Reference!





Accomplish the test operation, if you have acquired the Mistral and want to know/learn the functions.

Accomplish the test operation in addition, if you attached the Mistral to (new) a remote control or disturbances at the Mistral have been repaired before.

Accomplish the test of the Mistral as follows:

- Examine first all connections at the Mistral for correctness and a firm seat.

Connect the Mistral to the mains supply.

- Switch the Mistral on at the transparency keyboard with the key . Important: When switching on at the keyboard hold on the ON / OFF button for about 0,5 seconds. Alternatively you switch the machine on which can be exhausted. The Mistral is switched on automatically.
- Increase the number of revolutions of the turbine(s), by touching lightly  and keeping the key pressed. You can notice the increase of the number of revolutions at the noise increase. In addition in the display increases the right %-announcement.
- Increase the number of revolutions of the Turbine(n) to 100 %. The left %-announcement must thereby rise a little.
- Reduce afterwards the number of revolutions of the turbine(s), by touching  lightly and keep the key pressed. You can notice the reduction of the number of revolutions at the noise acceptance. In addition the right %-announcement in the plain language announcement (minimum on 20 %) is reduced.
- If you operate the Mistral at a remote control, examine now also all existing functions. These can be:
  - direct OFF/and again switching ON of the Mistral,
  - increasing the number of revolutions,
  - reducing the number of revolutions,
  - automatic switching OFF of the Mistral, if the machine is switched off,
  - automatic switching ON of the Mistrals, if the machine is switched on.
- Afterwards switch the Mistral off at the transparency keyboard with the key . Alternatively switch off the machine which can be exhausted. The Mistral is switched off automatically after the adjusted time.

If the test operation ran off to your satisfaction and without malfunctions the Mistral is now ready for operation.

## **6. Filter pollution**

### **6.1. Pre-filter**

Due to the large storage capability of the filter-unit the Mistral is operated in principle without a pre-filter mat.

### **6.2. Filter-unit**

During the operation of the Mistral the percentage figure for the filter pollution (left percentage figure in the plain text announcement) must be controlled regularly and the filter-unit must be exchanged at the latest with a percentage figure of 100 %.



Warning!

Destruction of the filter-unit!

Destruction of the turbine. If the turbine(s) are dirty no warranty claim is given!

Possibility of direct skin contact or the inhalation of the dust!

If it is not noted that the filter pollution amounts to 100 %, it can come to tearing of the filter paper in the housing of the filter-unit.

If the degree of pollution (left percentage figure in the plain language announcement) already indicates a strong contamination (95 - 100 %) and afterwards indicates a smaller percentage the possibility exists that the filter paper contained in the filter-unit tore.

In this case the Mistral has to be stopped immediately, because it can come to a damage of the turbine(s). Call the service department of the Trotec Produktions- u. Vertriebs GmbH!

Exchange the filter-unit at once!

If "filter full" is announced, though the filter is new, the measuring hose must be controlled whether it is e.g. broken or clogged.

### **6.3. Activated carbon**

The activated carbon must be changed after a certain time (1000 h are pre-set). With reaching the buzzer sounds, the red control light shines and the plain language announcement reads "change coal".



Warning!

Possibility of the direct skin contact or the inhalation of the dust!

If it is not noted that the carbon is to change, there can be separated no more all gases and smokes.

In this case the operation of the Mistral has to be stopped as fast as possible, since it can come to an endangerment of the health.

Speak immediately with the service department of the Trotec Produktions- u. Vertriebs GmbH!

Exchange the activated carbon at once!

## **7. \_\_\_\_\_ Maintenance**

### **7.1. \_\_\_\_\_ General information**

The chapter maintenance covers the ranges servicing, visual inspection (inspection) and maintenance by the operating personnel as well as those of the service of the Mistral by particularly trained maintenance personnel. The arrangement of these ranges into different maintenance intervals is to facilitate the planning of each necessary maintenance for you.

The instructions described in this chapter are to be understood as minimum recommendations. Depending upon operating conditions expansions can become necessary, in order to remain the high quality of the Mistral. The indicated time intervals refer to the operation hours of the Mistral indicated at the display.



**Warning!**

Endangerment of humans and real values possible!

By inappropriate inspection, maintenance or repair damages to property and person arising direct or in the future are possible.

All maintenance and repair at the Mistral may be implemented only by qualified technical personnel (consider chapter 2, security).

References to repairs and orders of spare parts please take from the product description and spare parts list.



**Information!**

For the preservation of the warranty claim the regular work for the maintenance must be proven by maintenance and operating personnel by record.

Use only approved original spare parts!

With the use of unapproved spare or replacement parts and operational funds the Trotec Produktions- u. Vertriebs GmbH does not take over warranty!

Provide for careful and safe environmental disposal.



**Reference!**

To avoid damages at the Mistral pay attention to a normal disassembly and assembly of construction units.

With all dismantle and disassembling applies therefore in principle:

- Mark parts.
- Note the installation position and place.
- Disassemble, clean and keep building groups separately.

After repairs applies in principle:

- Control all bolt connections for tightness.
- Control all hose and fittings as well as connections for tightness.



Reference!

If the disassembly of protection device is necessary for maintenance, the reattachment and the examination of the protection device has to take place immediately after conclusion of the work.



Reference!

Consider also the safety references in section 2,8, safety references to the maintenance as well as the referring to special danger kinds in section 2.9.

## **7.2. Operating condition**

Depending upon kind and range of the maintenance the Mistral must be stopped and/or switched completely dead.

For execution of cleaning and repair the Mistral is to be separated in principle from mains supply.



**Danger!**

High voltage!

Causes death or lethal injuries.

With cleaning and maintenance work disconnect the Mistral from the power supply.

## **7.3. Care and visual inspection**

Task of the operating personnel is it to check the accessible ranges of the Mistral daily for contamination and damages. Contamination should, so far accessible, be removed and damages announced to the responsible maintenance personnel.



**Reference!**

By unavoidable dirt deposits the inscription of control elements or warning references can become illegible. Thus it can come to faulty operations, which can cause damages.

- Always control the Mistral at the beginning of work.
- Remove dust and other impurity from all control elements, announcements and warning sticker once a week by wiping off with a damp cloth.

With the selection of the cleaning agent it is to be made certain that no surfaces, keyboards, plastics or seals are attacked.

All aqueous industrial cleaner are usable without restriction.

### **7.3.1. Visual inspections**

Kind of control	Activity/construction units	✓
Control of the operations behaviour	Observe the Mistral on normal operational behaviour: – Operation noise, – Heating up – Smell development. Stop immediately with irregular operational behaviour if necessary and inform maintenance personnel.	
Control for residue	Check the Mistral and surrounding for residues of material and fuels and if necessary remove it.	
Remove contamination	– Corridor, work surfaces, inscriptions.	
Wear control	– Mobile supplying and extraction pipes, – Outwardly recognisable seals etc. Renew construction units if necessary.	
Control for damage	– Outwardly recognisable damages at all construction units.	
Examine for leakage	– Hoses for supplying and extraction from the Mistral.	

## **7.4. Service**

### **7.4.1. General information**

All service work must be accomplished in the indicated period and with the appropriate care.

The life span and good quality of the Mistral can be preserved by the maintenance of the components.

Apart from the regular cleaning the precautionary exchange of wearing parts is recommended urgently.

The Mistral types Mistral (Plus) 230 and Mistral (Plus) 110 are supplied with a coal runner turbine.

Change the carbon brush approx. all 450 operating hours!

If damage occurs to the turbines or other construction units within the locked turbine case please, contact the Trotec Produktions- u. Vertriebs GmbH.

In special cases the Trotec Produktions- u. Vertriebs GmbH designates you then a service bureau in your proximity, which accomplishes the repairs.

### **7.4.2. Exchange of the filter-unit**

The filter-unit has to be exchanged, as soon as the measured differential pressure at the filter-unit exceeds the adjusted final value. In this case the announcement of the differential pressure in the plain language announcement indicates 100 % and the red disturbance LED (error) shines continuously.

An acoustic signal generator (acoustic alarm) is inserted, that draws the attention by a well perceptible beep to the filter exchange.



#### **Reference!**

The acoustic signal inserted at all Mistral models can be switched off by unique operation by the keys +, – or ENTER at the transparency keyboard.

The acoustic alarm sounds again after each switching on.

You are reminded regularly within continuous operation of the Mistral of the necessity to exchange the filter-unit, the acoustic signal repeats itself after 8 hours, then after 4 hours, after 2 hours and then each further hour.

Only by the exchange of the filter-unit the alarm is immediately terminated.



#### **Caution!**


Poisonous types of dust!

When working with/on the filter-unit exists the danger of inhaling or coming into contact with whirling up types of dust.

- Put on therefore before beginning the work a purifying dust respirator of the protection stage 3 and one-way gloves from polyethylene (long execution).

Proceed with the filter exchange as follows:

#### **Turn off the Mistral**

- Switch off the Mistral at the transparency keyboard with the key  .  
Alternatively switch off the machine which can be exhausted. After the adjusted time the Mistral is switched off automatically.
- Secure the Mistral against unexpected restarting by:
  - disconnect the mains cable from the power supply main.

## Open the housing

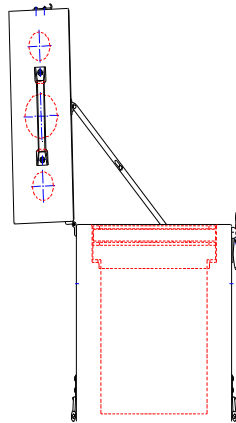


Illustration: open the cover

- Loosen the tension closing device (Pos.12) from the cover (Pos.2) and tilt it to the left side. The cover can be opened approx. 90°. A perforated plate is fastened to the cover.
- Pull out the frame and the filter-unit from the filter housing (Pos. 3).
- Push the filter-unit into a closing plastic bag and do lock this.
- Supply the filter-unit immediately to the disposal.



Caution!

Poisonous types of dust!

When working with/on the filter exists the danger that you inhale or come into contact with whirling up types of dust.

- Put on therefore before beginning the work a purifying dust respirator of the protection stage 3 and one-way gloves from polyethylene (long execution).

### Put in a new filter-unit

In principle the new filter-unit / activated carbon is used in reverse order. Consider thereby the following work procedures:

- Take the filter-unit which will be inserted out of the packing.
- Lift the filter-unit into the filter housing.
- Put the frame on top of the filter-unit.

### Shut the cover of the Mistral

- Close the cover and lock the tension closing device.
- Connect the Mistral again with the electricity mains.

### **7.4.3. Exchange of the activated carbon**

The carbon has to be exchanged after 1000 operating hours.



Reference!

The acoustic signal inserted at all Mistral models can be switched off by unique operation by the keys +, – or ENTER at the transparency keyboard.

The acoustic alarm sounds again after each switching on.

You are reminded regularly within continuous operation of the Mistral of the necessity to exchange the filter-unit, the acoustic signal repeats itself after 8 hours, then after 4 hours, after 2 hours and then each further hour.

Only by the exchange of the carbon the alarm is immediately terminated.




Caution!

Possibility of the direct skin contact or the inhalation of the dust!

Proceed as follows:

#### **Turn off the Mistral**

- Switch off the Mistral at the transparency keyboard with the key  .  
Alternatively switch off the machine which can be exhausted. After the adjusted time the Mistral is switched off automatically.
- Secure the Mistral against unexpected restarting by:
  - disconnect the mains cable from the power supply main.



Caution!

Poisonous types of dust!

When working with/on the filter exists the danger that you inhale or come into contact with whirling up types of dust.

- Put on therefore before beginning the work a purifying dust respirator of the protection stage 3 and one-way gloves from polyethylene (long execution).

#### **Mistral (Eco)**

##### **Open the housing**

- Loosen the tension closing device (Pos.12) from the cover (Pos.2) and tilt it to the left side.
- Pull out the frame and the filter-unit from the filter housing (Pos. 3) and put it aside.
- Empty the filter housing through tilting or with other aids.
- Fill in the carbon in a tight closing plastic bag and lock this.
- Supply the carbon immediately to the disposal.

### **Filling in the new carbon**

- Put in one of the filter mats delivered with the carbon. This mat must be larger than the bottom of the housing.
- Pour in some of the carbon, than check if the mat is in the right position (the bottom of the housing must be covered completely).
- Now pour in the new activated carbon from the supply bag into the activated carbon housing. Consider absolutely the quantity in the technical data (chapter 3.6).
- Place the second filter-mat on top of the carbon after you have cut it to the right size.
- Put in the filter-unit and the frame.

### **Shut the cover of the Mistral**

- Close the cover and lock the tension closing device.
- Connect the Mistral again with the electricity mains.
- **Reset the failure announcement:** To cancel the failure signal, push the keys + and – at the same time for about 3 sec till the failure message disappears (display shows coal O.K.).

### **Mistral (Eco, Super) Plus**

#### **Open the housing**

- Loosen the tension closing device (Pos.12) from the cover (Pos.4).
- Lift the filter-unit housing and put it aside.
- Empty the carbon housing through tilting or with other aids.
- Fill in the carbon in a tight closing plastic bag and lock this.
- Supply the carbon immediately to the disposal.



Reference!

### **Filling in the new carbon**

- Put in one of the filter mats delivered with the carbon. This mat must be larger than the bottom of the housing.
- Pour in some of the carbon, than check if the mat is in the right position (the bottom of the housing must be covered completely).
- Now pour in the new activated carbon from the supply bag into the activated carbon housing. Consider absolutely he quantity in the technical data (chapter 3.6).
- Place the second filter-mat on top of the carbon after you have cut it to the right size.
- Put in the filter-unit and the frame.

### **Shut the cover of the Mistral**


- Put the filter-unit housing on top of the carbon housing. The sealing should not be damaged!
- Close the cover and lock the tension closing device.
- Connect the Mistral again with the electricity mains.

- **Reset the failure announcement:** To cancel the failure signal, push the keys + and – at the same time for about 3 sec till the failure message disappears (display shows coal O.K.).

#### **7.4.4. Exchange of the carbon brushes**

With the Mistral with AC turbine appears after 450 hours:

„change brushes“.

- Switch off the Mistral at the transparency keyboard with the key  .  
Alternatively switch off the machine which can be exhausted. After the adjusted time the Mistral is switched off automatically.
- Secure the Mistral against unexpected restarting by:  
– disconnect the mains cable from the power supply main.
- Loosen the tension closing device between the activated carbon filter unit and the housing of the turbine.
- Lift the filter device off the housing and put it aside.
- Pull the male spade from the mains cable off the flat pin from the old carbon brushes.
- Pull out the carbon brushes by pressing down the rehooks.
- Push in the new carbon brushes up to rehook.
- Pin the male spade of the mains cable onto the flat pin of the new carbon brush conductor.
- Set the filter housing again on top of the turbine case and hook in the tension closing device.
- Connect the Mistral with the electricity mains again.
- **Reset the failure announcement:** To cancel the failure signal, push the keys + and ENTER at the same time for about 3 sec till the failure message disappears (display shows brushes O.K.).



High voltage!

Work within the electrical range may be implemented by authorised specialists only! Consider data on the identification plate!

## 8. Error tracing and break down search

Error	Cause	Elimination
No suction power (Smoke/gas are not sucked off).	Suction hose not attached at the Mistral.	Attach the suction hose at the Mistral.
	Suction hose not attached at the machine.	Attach the suction hose at the industrial laser.
	Damage of the suction hose.	Exchange the suction hose.
	Suction hose is attached to the wrong machine.	Attach the suction hose to the correct machine.
	Suction hose is connected to the wrong opening of the machine.	Attach the suction hose to the correct opening of the machine.
No suction power and/or error announcement „change filter“ with a new filter-unit inserted.	Inlet clogs.	Examine inlet. If necessary repair disturbance.
	Clean gas way clogs.	Examine clean gas way. If necessary repair disturbance.
	Compressed-air hose kinked.	Examine compressed-air hose. If necessary repair disturbance.
	Suction air way too long.	Test the Mistral with a short length of hose. If necessary, use only a hose no longer than 2,5 m.
Suction power too small (Smoke/gases are hardly sucked off).	Filter-unit is full.	Exchange filter-unit, deposit old filter-unit duly!
	Damage of the suction hose.	Exchange the suction hose.
	The suction hose is not attached correctly at the machine.	Examine the fitting of the suction hose on the machine, if necessary attach the suction hose again.
	The suction hose is not attached correctly at the Mistral.	Examine the fitting of the suction hose on the Mistral, if necessary attach the suction hose again.
	Clean gas way narrows.	Examine clean gas way, if necessary repair disturbance.
	Suction hose is connected to the wrong opening of the machine.	Attach the suction hose to the correct opening of the machine.
	Inlet narrows.	Examine inlet, if necessary repair disturbance.
Suction power too small (Smoke/gases are hardly sucked off) the turbine does not reach the necessary speed.	Overheating through huge filter pollution.	Turn off the Mistral, exchange the filter-unit. Switch on the Mistral only after the turbine has cooled itself.
	Failure on the Mistral.	Contact the Trotec Produktions- u. Vertriebs GmbH. If necessary send the Mistral to Trotec.

<b>Error</b>	<b>Cause</b>	<b>Elimination</b>
The Mistral does not start.	Plug connection of the current supply is not or wrongly put in.	Examine the connection of the current supply, if necessary connect correctly.
	No current on plug socket.	Examine current mains, if necessary repair disturbance.
	Connecting cable for external control not or wrongly plugged in.	Examine the connecting cable for the external control, if necessary plug in correctly.
	No control signal for remote control of the machine.	According to the manual eliminate disturbance.
	Failure on the Mistral.	Contact the Trotec Produktions- u. Vertriebs GmbH. If necessary send the Mistral to Trotec.
Motor stops within operation.	Overheating through huge filter pollution. The thermal protection of the turbine is released.	Turn off the Mistral, exchange the filter-unit. Switch on the Mistral only after the turbine has cooled itself.
	The turbine is stalled through tearing of the filter unit!	No warranty claim is given! The exchange of the turbine is necessary. The filter-unit and the activated carbon must be exchanged also. It is absolutely necessary that all parts of the Mistral have to be cleaned, in particular the housing inside.

## **9. \_\_\_\_\_ Disposal**

By the operation of the Mistral waste materials and replacement parts result, which have to be deposited according to the laws and environmental protection.

### **9.1. \_\_\_\_\_ Environmental protection**



Caution!

With all work on and with the Mistral the legal obligations for waste avoidance and duly utilisation/removal are to be kept in particular with repair and maintenance work.

In particular with repair and maintenance work water-endangering materials like:

- lubricating oils and –fats as well as
- solvent containing cleaning agents

may not load the soil or arrive into the drains!

These materials must be caught, kept and transported in suitable containers and be deposited!

## **9.2. Filter and types of filter dust**



Caution!

Poisonous dust!

While handling toxic types of dust special caution is required. When working with/on the filter exists the danger that you inhale or come into contact with whirling up types of dust.

- Put on therefore before beginning of the work a purifying dust respirator of the protection stage 3 and one-way gloves from polyethylene (long execution).

Depending upon pollution impact particle and gas filters are subjects to the special refuse regulation and are accordingly to dispose.

## **9.3. Final putting out of operation**

For the Mistral finally is set out of operation, the disposal of the construction units and filter have to be kept according to the at this time valid laws and regulations for disposal.

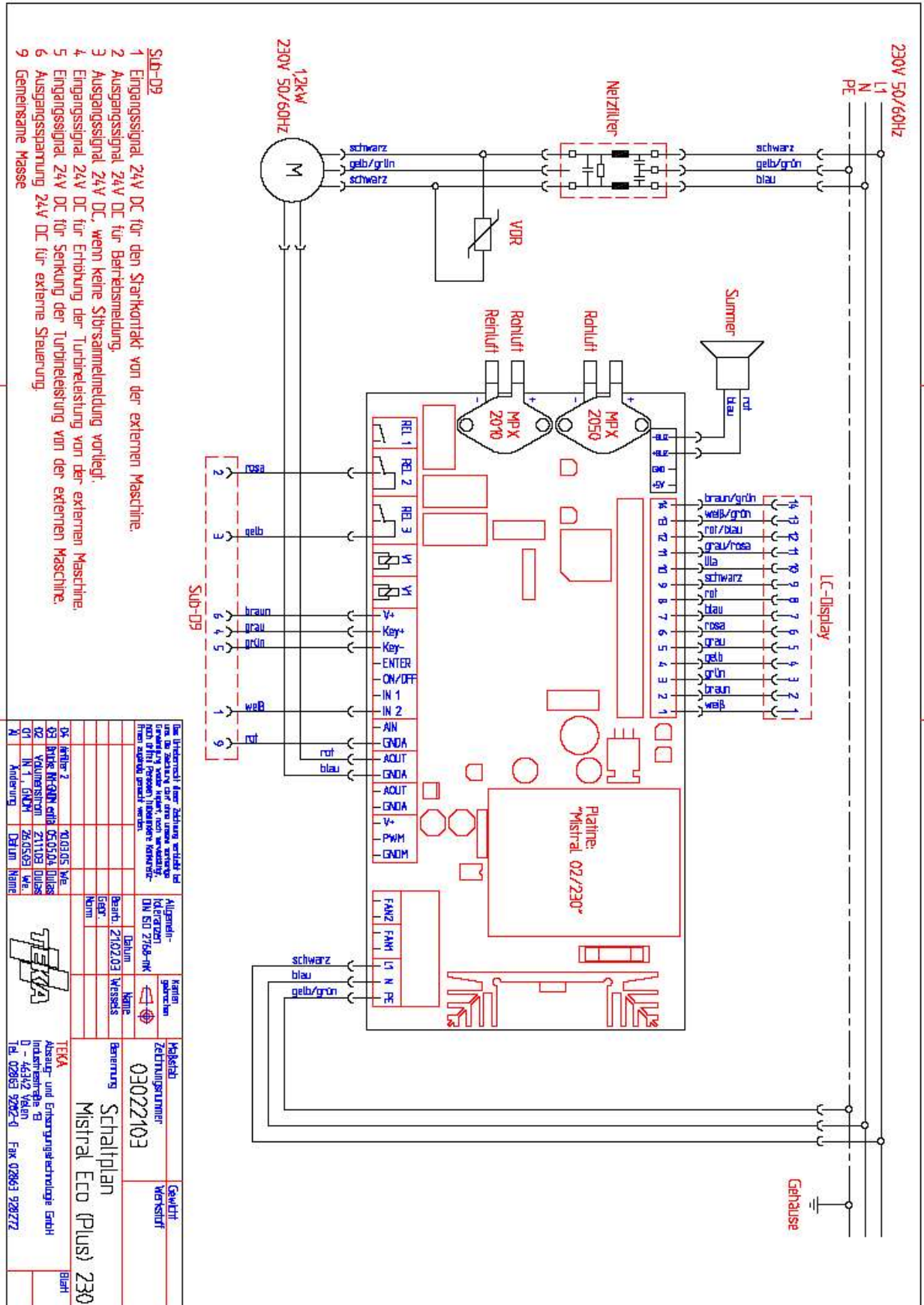
## **10. Appendix**

### **10.1. Spare and wearing parts**

Parts	Art.-Nr
Activated carbon for Mistral (Eco, Super) Plus	85914
Activated carbon for Mistral (Eco)	85915
Filter-unit	85921
Guiding roller D=50mm, with breaks	85941
Guiding roller D=50mm, without breaks	82620
Guiding roller D=75mm, with breaks	
Guiding roller D=75mm, without breaks	
Turbine 1,1 kW, AC, 230V (Mistral (Plus) 230)	85916
Turbine 1,2 kW, DC, 230V (Mistral Eco (Super, Plus) 230)	85919
Turbine 1,1 kW, AC, 110V (Mistral (Plus) 110)	85917
Turbine 1,2 kW, DC, 110V (Mistral Eco (Super, Plus) 110)	85920
Brushes for 1,1 kW turbine (Type: Mistral and Mistral Plus)	85918

## 10.2. Circuit diagram

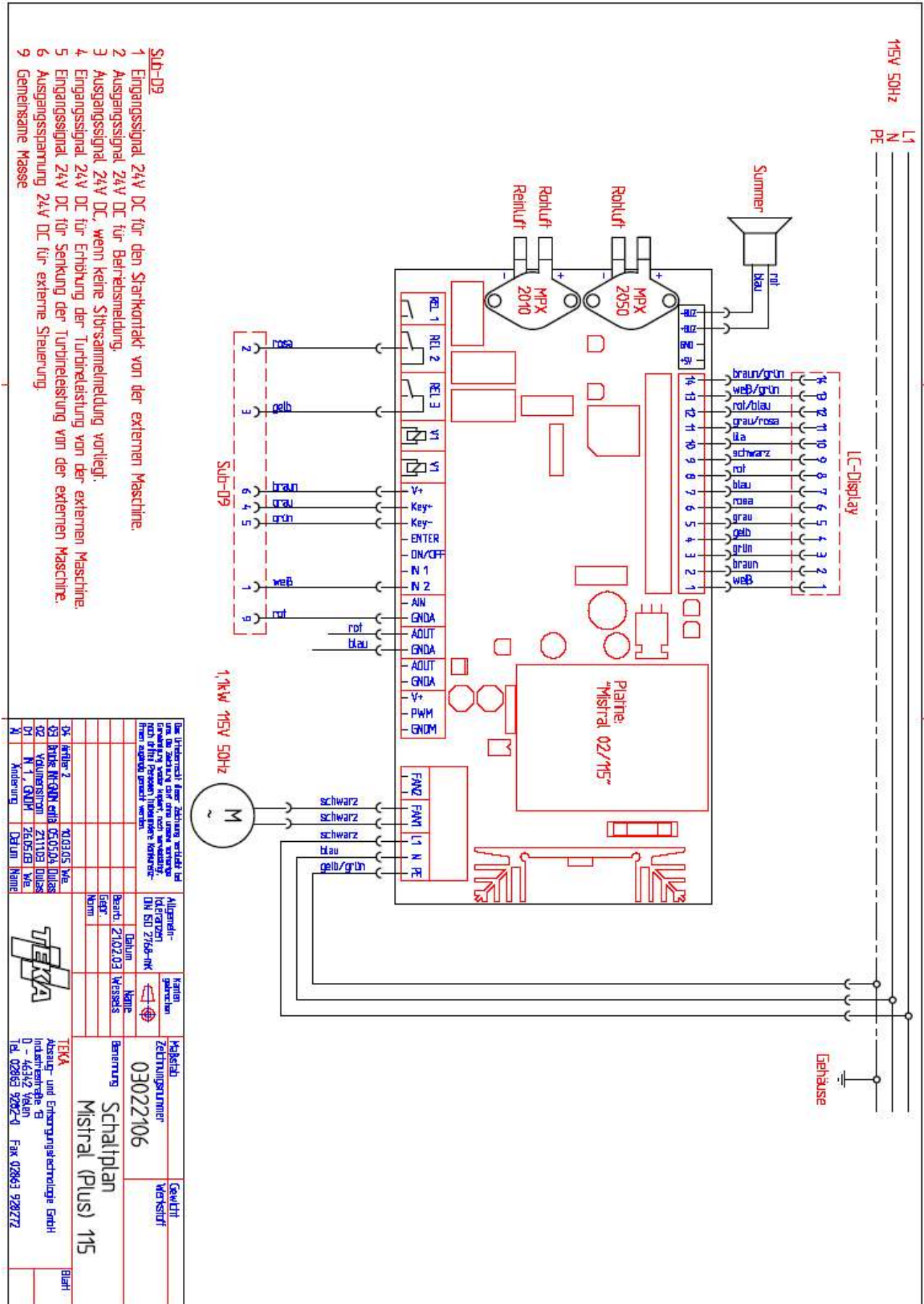
### 10.2.1. Circuit diagram Mistral Eco (Plus) 1,2kW, 230V







### 10.2.4. Circuit diagram Mistral (Plus) 1,1kW, 110V







**11. Declaration of conformity of the Mistral**



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We declare, under our exclusive responsibility, that the above mentioned product from machine No. 110000000 on complies with the following standards:

Machines directive:	98/37/EG
Electromagnetic compatibility:	89/336/EG
Printing device guideline:	97/23/EG
Low voltage directive:	73/23/EWG (1.GSGV)

**Co-ordinated standards applied:**

- DIN EN 292 Part 1
- DIN EN 292 Part 2
- DIN EN 294
- DIN EN 349
- DIN EN 418
- DIN EN 983
- DIN EN 1050
- DIN EN 60204 Part 1

**other possible national standards and specifications applied:**

- DIN 45635 Part 1
- UVV BGV D 1

This declaration will loose its validity if modifications are carried out in the filtering device that do not have written authorisation from the manufacturer.

A handwritten signature in black ink, appearing to be "Rainer", is written over a light blue rectangular background.

Velen, the 20<sup>th</sup> of February 2003

TEKA  
Absaug - und Entsorgungstechnologie GmbH