

**USER AND  
MANINTENANCE  
MANUAL**

**TECNODRY**

## INDEX

<b>1.0 FUNCTIONAL DESCRIPTION.....</b>	<b>3</b>
<b>2.0 PRELIMINARY INSPECTION AND ASSEMBLY .....</b>	<b>4</b>
2.1 PRELIMINARY INSPECTION	4
2.2 ASSEMBLING THE TECNODRY	4
<b>3.0 OPERATING METHODS AND LIMITS OF USE.....</b>	<b>12</b>
<b>4.0 TECHNICAL DATA.....</b>	<b>13</b>
4.1 TECHNICAL CHARACTERISTICS	13
4.2 OVERALL DIMENSIONS	14
4.3 CHARACTERISTICS OF FILTER PAPER	15
4.3 CHARACTERISTICS OF FIBRE GLASS FILTER (only optional)	15
<b>5.0 MAINTENANCE.....</b>	<b>16</b>
<b>6.0 WIRING DIAGRAMS.....</b>	<b>17</b>
<b>7.0 CE MARK AND CERTIFICATIONS.....</b>	<b>18</b>
<b>8.0 SYMBOLS.....</b>	<b>18</b>
<b>9.0 TROUBLESHOOTING.....</b>	<b>19</b>
<b>10.0 PARTS LIST .....</b>	<b>21</b>

This manual contains all the information needed for correct use of the machine. The user must observe all the warnings and read every part of this manual. Store this manual in a safe place. This manual may be changed without notice in order to include modifications and improvements to units already delivered.

## 1.0 FUNCTIONAL DESCRIPTION

The “TECNODRY” series of spray booths have been designed for maximum versatility, modularity and efficiency. The booths are built entirely of galvanized plates that are bolted together.

The functional principle of the “TECNODRY” spray booth is simple and effective, and is clearly illustrated in the section of figure 1.

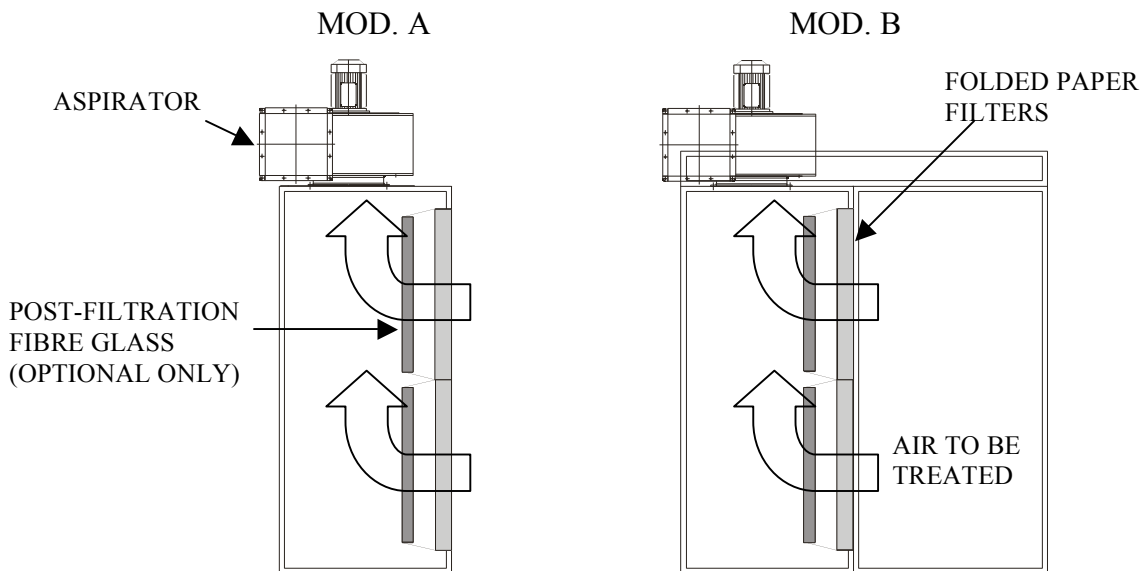


Figure 1

The centrifugal aspirator on the roof of the booth generates a depression that creates forced air circulation, which conveys the overspray through the filters without any dispersion into the room. In the TECNODRY, a paper mechanical barrier blocks pigments with larger particle size, while the first filtering stage, in sized fibreglass (optional), traps smaller pigment particles. The perfectly purified air is expelled from the centrifugal aspirator, whose characteristics guarantee frontal aspiration speeds conforming to current regulations.



**The unit is designed to work in depression.**



ANTIPOLLUTION SYSTEMS

## 2.0 PRELIMINARY INSPECTION AND ASSEMBLY

### 2.1 PRELIMINARY INSPECTION

The “TECNODRY” spray booths are delivered to the customer completely unassembled and packed in a protective cage. See the data on the technical table for weights.



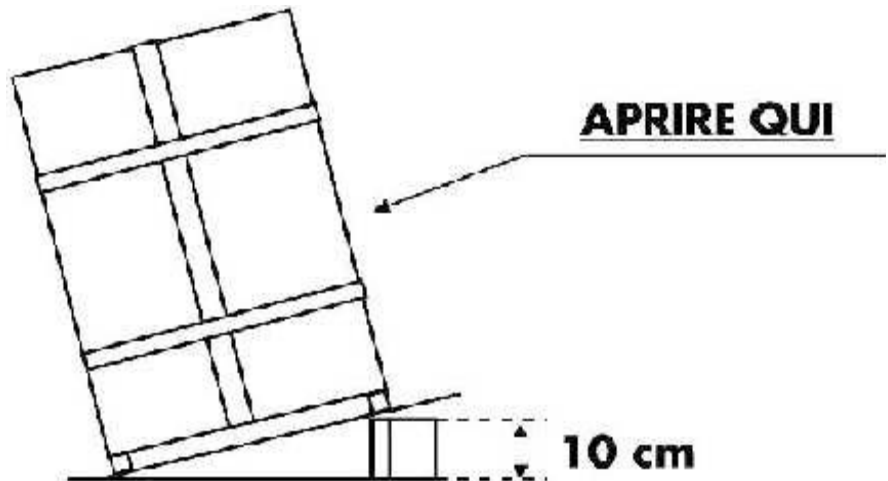
**WHEN HANDLING THE MATERIALS, USE ADEQUATE HOISTING MEANS AND ADOPT ALL SAFETY PRECAUTIONS REQUIRED FOR YARD WORK.**



**Before opening the packing, tilt the cage by inserting a 10 cm. (approx.) wood shim under one side (see figure) to prevent possible rollover of the material.**

After removing all the material from the packing, check that nothing was damaged during shipping. Use the packing list to check that the supply is complete. If not, call your dealer immediately (in all cases, no later than 10 days after delivery).

Aprire qui: open here



### 2.2 ASSEMBLING THE TECNODRY



**Assembling the TECNODRY booth requires the simultaneous presence of at least two qualified workers who have taken special training courses and who have experience in installing, starting up, and servicing plants.**



**For proper assembly, follow the installation procedure described below. Refer to the exploded drawings given at the end of this manual. For non-standard booths (length > 5 m), refer to the assembly of the respective sub-multiple booths (for example, 6 m booth = 2 x 3 m).**



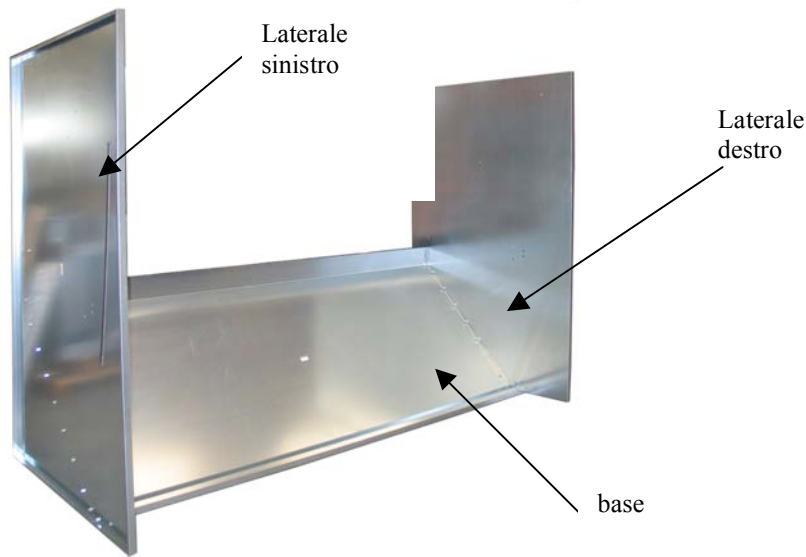
**The siliconing procedure guarantees perfect sealing of the filter and therefore must be done very carefully. It will be done throughout the assembly phase before every tightening of nuts and bolts.**



**Position the booth so that there is free access to the electric motor. Keep it a proper distance from the ceiling.**

BOOTH TYPE	CODE	TYPE OF BOOTH	CODE
<b>TECNODRY</b> height = 3m without walls and extended roof	<b>TD NA</b>	<b>TECNODRY</b> height = 3m with walls and extended roof	<b>TD NB</b>

1. First prepare the support platform for the booth. The platform must be made of tamped cement, suitable for supporting the load, and properly levelled.



Place the right and left side beside the base panel and fix with M8x16 screws.



Fix the roof panel onto the base with two M8x16 screws and turn it upwards until the holes coincide with those on the left and right side panels.



Fix the roof panel with the M8x16 screws without tightening



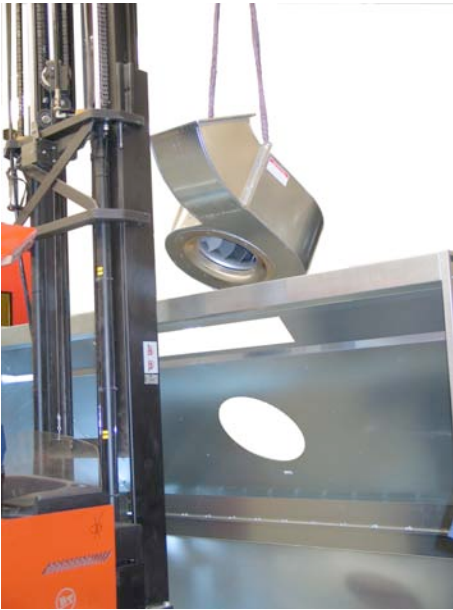
Position the lamp holder panel and fix it with the M8x16 screws without tightening



Seal what has been assembled to this point with a layer of neutral silicon.



Using a spanner or an electric tool tighten all the nuts and bolts. For the NB series booths (help yourself with the exploded drawings at paragraph 10) place the extended panels to the RIGHT and LEFT sides and fix them with M8x16 screws. In the same way position the roof extension panels joining them to each other and placing the junction reinforcement.



Using appropriate hoisting means (see weight of electric fan on the packing), position the fan unit on the roof panel taking care to make the holes on the opening meet with those positioned on the booth roof.



Fix the fan with M8x16 screws and lay a layer of neutral silicon between the roof panel and the opening.





Position the diffuser and protection panel of the fan fixing it with M8x16 screws.



Select the TBEI M8x16 screws required to fix the filter carrying guide panel



Assemble the filter carrying guide



Tighten the TBEI M8x16 screws



Shape the magnetic profile and apply it to the two side walls.



Assemble the plafond on the lamp carrying panel



Lay the folded filtering paper on the filter carrying guide and bring the metal band to the end so it covers the magnetic profile.



If the booth has a post filtration system (optional), place the filtering panels on the filter carrying guide before applying the folded paper.

### 3.0 OPERATING METHODS AND LIMITS OF USE

The “TECNODRY” spray booths are designed to aspirate and filter the overspray produced during painting procedures.



**The booth is NOT designed to handle explosive vapors or substances that are toxic by nature or by reaction. It is FORBIDDEN to smoke and/or to use open flames inside and outside the workplace within a radius of 1.5 meters from the booth.**



**The operator must NEVER stand in the flow of contaminated air. The object to be painted must ALWAYS be between the operator and the filter wall of the booth.**



**Freshly-painted material that may release volatile substances must not remain near the booth. Such material must remain in a well-ventilated passivation chamber.**



**High filter separation (< 0.35%) is guaranteed only with filtration speeds lower than 0.5 m/sec.**



**Recirculating air needed for normal booth operation must be obtained from an uncontaminated zone outside the work area and in a volume at least equal to that expelled by the electric fan.**



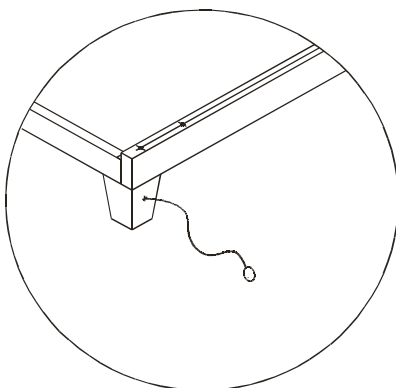
**Incorrect replacement of the filters creates a risk of contaminating the outside environment and the work area. This can be detected only with an electronic expelled particle detector (not standard).**



**Extracted air MUST be expelled outside.**



**The booth MUST be electrically grounded by connecting the contact points to the article with a copper braid of adequate section (a section of 2.5 mm<sup>2</sup> is recommended), taking care to maintain continuity.**



**NOTE: Improper use is defined as any act that compromises the functionality, integrity, and/or safety of the machine structure, of the internal electrical and/or mechanical components, and/or of any control and connection element. Coral Customer Service is always available for any additional information you may need on the product.**

## 4.0 TECHNICAL DATA

### 4.1 TECHNICAL CHARACTERISTICS

The following tables show the maximum value of useful static head that the fan can supply for an expulsion vent. The user **MUST** respect this limit.

The characteristics below refer to the NA and NB models

TECNODRY									
MODEL	TECHNICAL CHARACTERISTICS								
	CAPACITY Q (m <sup>3</sup> /h)	USEFUL HEAD (Pa)	FAN STANDARD VOLTAGE V 230/400 – 50 Hz – 1400 revs/min						
			Qty.	TYPE	HP	kW	Flange suction inlet	Round-square fitting on press inlet	Diam. Expulsion pipe
TD 2 / N	7000	350	1	AC450/4	2	1,5	Ø 453	307x307	Ø 450
TD 2.5 / N	10000	350	1	AC500/4	3	2,2	Ø 502	350x350	Ø 550



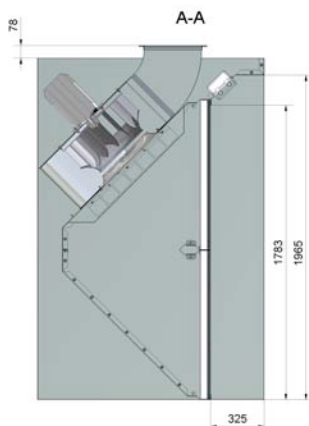
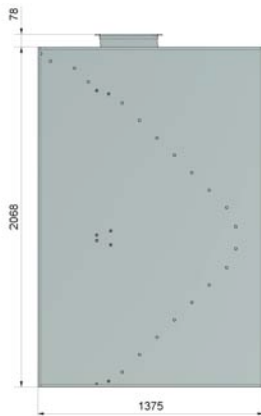
**ANTIPOLLUTION SYSTEMS**

TD 3 /N	10000	350	1	AC500/4	3	2,2	Ø 502	350x350	Ø 550
TD 4 /N	14000	350	2	AC450/4	2	1,5	Ø 453	307x307	2 x Ø 450 → Ø630
TD 5 /N	20000	350	2	AC500/4	3	2,2	Ø 502	350x350	2 x Ø550 → Ø710
TD 6 /N	20000	350	2	AC500/4	3	2,2	Ø 502	350x350	2 x Ø550 → Ø710

**4.2 OVERALL DIMENSIONS**

MODEL	A	B	C	D	A1	C1
	TD 2 /NA	2068	2066	1375	1965	-
TD 2.5 /NA	-	2566	1375	1965	2146	1790
TD 3 /NA	-	3066	1375	1965	2146	1790
TD 4 /NA	2068	4068	1375	1965	--	1790
TD 5 /NA	-	5068	1375	1965	2146	1790
TD 6 /NA	-	6068	1375	1965	2146	1790

For the NB models add ... mm to.... quota





### 4.3 CHARACTERISTICS OF FILTER PAPER

The mechanical separator used on our dry booths is a special paper with fire-resistant treatment, double-bellows folded with alternating holes. The overspray deposits on its inside surfaces due to inertia, having to change direction four times (see fig. 2).

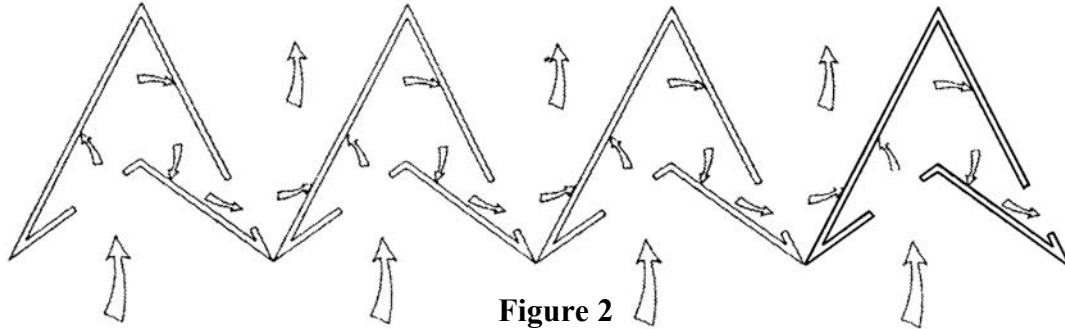


Figure 2

Type of baffle	- Kraft double surface paper
Max. separation level	- 90 % gravimetric (at V=0,75 m/s)
Test method	- ASHRAE 52-76 ATM
Regenerable	- NO
Max. work temperature	- 80 °C
Fire resistance class	- F1
Initial flow resistance	- 50 Pa (at V=0.75 m/s)
Final flow resistance	- 140 Pa
Accumulation capacity	- 15 Kg / m <sup>2</sup> (at V=0.75 m/s)

### 4.3 CHARACTERISTICS OF FIBRE GLASS FILTER (only optional)

Flat filter cell with fiberglass baffle inserted in a cardboard frame with 4 angles reinforced by a strip of tape.

Type of baffle	- fibre glass
Dimensions	- 500mm x 860mm x 48mm
Max. separation level	- 86 % gravimetric
Test method	- ASHRAE 52-76 ATM
Classification	- Eurovent 4/5 EU3
Regenerable	- NO
Fire resistance class	- F1
Max. work temperature	- 160 °C
Initial flow resistance	- 28 Pa
Final flow resistance	- 120 Pa

## 5.0 MAINTENANCE



**DO NOT perform any maintenance when the plant is running or connected to the electrical outlet. During maintenance, padlock the controls to prevent unwanted startup.**



**DO NOT use flammable liquids to clean the filters.**

Thanks to their design, “TECNODRY” booths require only very routine maintenance. We recommend that you:

- Periodically check the condition of the electrical power cables;
- Check the filters at least once a week. You can check less frequently if the filter system is monitored by a differential pressure gauge (optional).
- Replace the filters at regular intervals.
- Periodically check the fan for any unusual vibration: paint residue that gradually accumulates on the blades could unbalance them. In this case, disconnect the motor electrically and remove the motor - disk – fan group by loosening the ring of bolts on the side of the fan. Remove the paint deposit with a brush and reassemble the group. This procedure is very delicate because you have to carefully and uniformly remove all of the paint: any residue could cause an imbalance of the wheel and generate unwanted vibrations.



**It is necessary to have a static and dynamic balancing performed of the fan after any cleaning operation**

- Clean the area around the booth to prevent dust from being raised when the electrical aspirators are switched on

The above-described procedures must be performed by trained workers equipped with personal safety devices (mask, gloves) and in complete conformity to accident prevention regulations of the country of destination.

**Note: a qualified worker is defined as a person who has taken special training courses and has experience in installing, starting up, and servicing plants.**



**PAPER FILTER: VISUALLY CHECK ITS CONDITION AND REPLACE IF NECESSARY. THE FILTER CANNOT BE REGENERATED.**



**FIBRE GLASS FILTER (OPTIONAL): VISUALLY CHECK ITS CONDITION AND REPLACE IF NECESSARY. THE FILTER CANNOT BE REGENERATED.**

Do not throw out used filters. Deliver them to authorised waste companies.



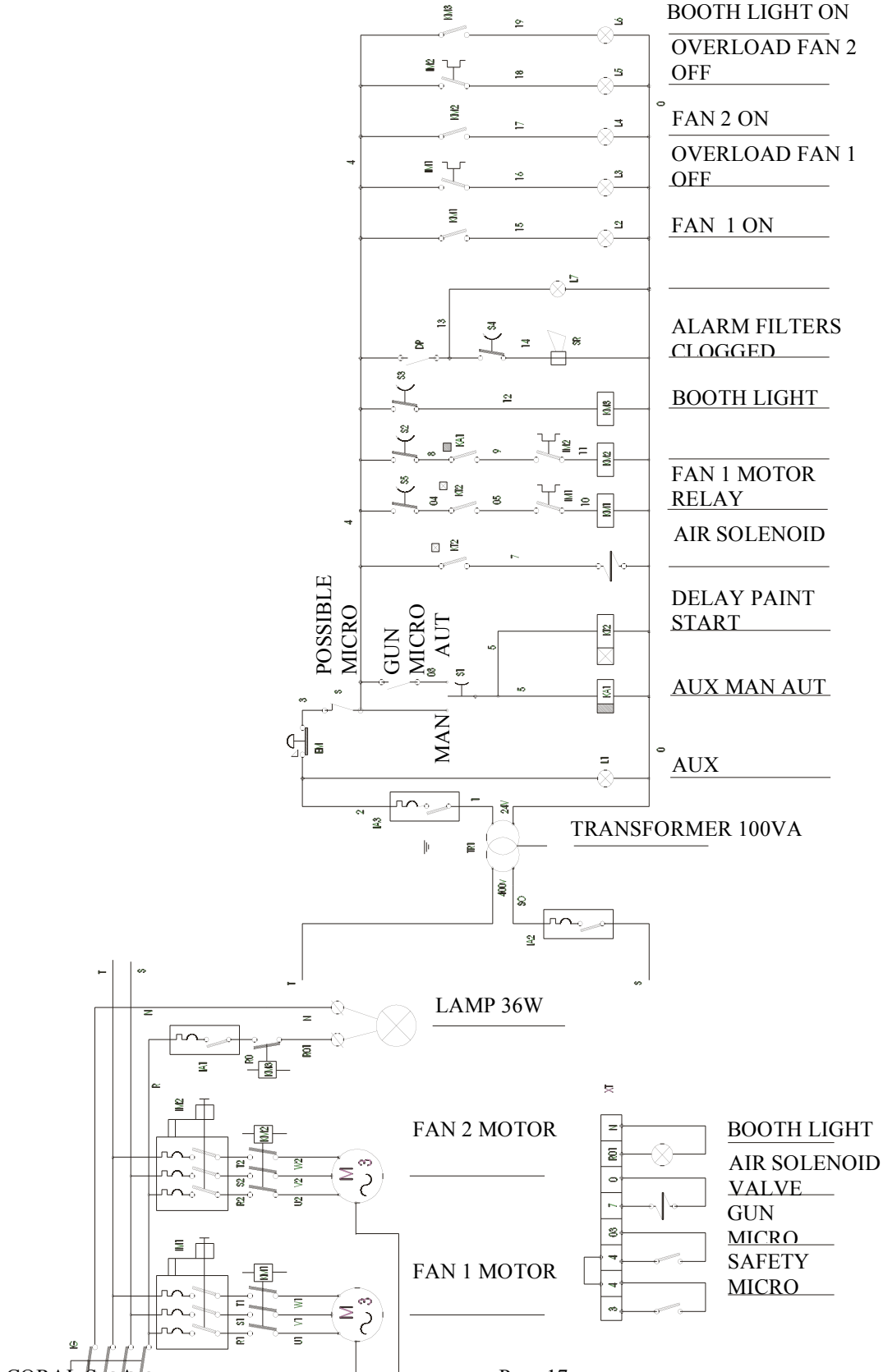


ANTIPOLLUTION SYSTEMS

## 6.0 WIRING DIAGRAMS

Legenda dello schema elettrico: Electrical diagram legend

During electrical connection, respect voltage correct polarity and direction of rotation.





## LEGENDA DELLO SCHEMA ELETTRICO

IG	INSULATING SWITCH WITH KEY-OPERATED DOOR
KM1	FAN 1 CONTACTOR
KM2	FAN 2 CONTACTOR
KM3	LAMP CONTACTOR
IM1	FAN 1 CUTOUT
IM2	FAN 2 CUTOUT
IM3	LAMP CUTOUT
TR1	TRANSFORMER
EM	EMERGENCY SWITCH
SR	EMERGENCY SIREN
KT2	SUPPLEMENTAL LOAD TIMER
S1	LAMP SELECTOR
S4	ROTATING BUTTON FOR SIREN
L1,L2,L3,L4,L5,L6,L7	LIGHT SIGNALS

## 7.0 CE MARK AND CERTIFICATIONS

The “TECNODRY” models have been inspected according to the Machines Directive C.E.E. 89/392 as amended, EMC 89/336 on Electromagnetic Compatibility. Approval is indicated by placement of the CE mark on the machine and by the declaration of conformity that accompanies this manual.

## 8.0 SYMBOLS

The symbols   plus the wording indicating the potential risk level deriving from nonobservance of the pertinent instruction, as specified below:



400 V

Sticker indicating that the control panel has parts at 400 V.



Sticker indicating correct direction of rotation of fan wheel.



Stickers indicating mandatory use of gloves during filter maintenance procedures



Stickers indicating mandatory use of mask during filter maintenance procedures

## 9.0 TROUBLESHOOTING

N°.	Problem	Cause	Possible solution
1.	Expelled air is not sufficiently purified	Inefficient filters	Check cleanliness; replace if necessary
2.	Reduced flow of aspirated air.	Inefficient filters	Check cleanliness; replace if necessary
3.	Fan vibrates	Wheel not balanced	Remove and clean wheel
4.	Machine doesn't switch on	Incorrect power connection	Check correct electrical power connection switch on to motor terminals
5.	Fan turns but suction is insufficient	Wrong direction of rotation	Invert two phases to motor
6.	No flow, with reduced power at normal rotation speed	Pipes clogged and/or suction points blocked	Clean pipes and hoods, check air lock position
		Insufficient rotation speed	Check voltage and connection to motor terminals
		Work pressure exceeds design pressure	Design error: replace motor, replace and/or adapt circuit
		Wheel clogged	Clean wheel through door with machine stopped
		Filter overloaded	Check cleanliness; replace if necessary
		Swirl at aspiration in same direction of rotation of wheel	Install an anti-turbulence device (blades straightener)
		Section changes, sharp and closely located bends	Check layout of air flow circuit
7.	Excess air flow (if rotation speed is correct, high input for radial fans with curved blades forward)	Rotation speed	See 4) Check direction of rotation, unusual turbulence at aspiration, AC motor rotation speed, voltage, winding defects
		Air leaks due to open access doors, ducts or parts poorly built or installed, or bypass gates not perfectly closed	Check system and replace non-conforming parts
		Overestimate of circuit flow resistance	Close gates or lower speed until required performance level is reached
8.	Insufficient pressure	Rotation speed too low	See 4)
		Capacity exceeds design values due to incorrect sizing of circuits or due to air temperature significantly different from 15°C reference value	Replace fan, resize circuit
8.		Wheel partially blocked and/or damaged	Check wheel assembly position and conditions
		Direction of rotation reversed	See 4)

9.	<b>Drop in performance after a period of satisfactory operation</b>	Leak from washer of fan volute and/or leak in suction and pressure pipes	Replace washer and check conditions of pipes
10.	<b>Difficult startup</b>	Excessive electrical input	See 1)
		Low voltage	Check motor plate data
		Static torque of motor is insufficient	Replace with a more powerful motor or close gates until reaching full speed .
		Inadequate fuses	Replace
		Inadequate assessment of inertia of fan and of coupling components	Recalculate moments of inertia and equip with new drive if necessary
11.	<b>Input exceeds plate data</b>	Rotation speed so high it requires power greater than power installed	Replace motor and pulleys and/or redesign the plant
		Air density exceeds design data	As above
		Capacity exceeds design levels due pressure below design value	As above
12.	<b>Air pulses</b>	Axial fan that works in initial zone of characteristic in stall conditions	Redesign plant and/or replace fan
		Overestimate of circuit flow resistance	Close gates or lower speed until required performance level is reached
		Centrifugal fans running under conditions of zero flow	As above
		Unstable flow at aspiration with presence of vortices	Redesign inflow with insertion of deflectors
		Fluid vein detached from back of vane or from walls of a channel	Redesign plant and/or replace fan
13.	<b>Excess noise</b>	High rpm's to obtain required performance	Use soundproofing boxes and/or silencers; choose a larger machine with equal performance or a machine with lower surface speed
		Fault at bearings	Check bearings for wear (especially dustproof bearings); check lubrication
		Wheel out of balance or scraping on casing pipes	Check assembly of wheel
		Eccentricity between rotor and stator	Check coaxiality
		Vibrations in winding	Can be reduced with higher-quality motors
14.	<b>Vibrations</b>	Imbalance of rotating parts	Check balance
		Unsuitable support structure (natural frequency close to that corresponding to fan rotation speed)	Change frequency of support by adding weights



## 10.0 PARTS LIST