Dust free over pressure room

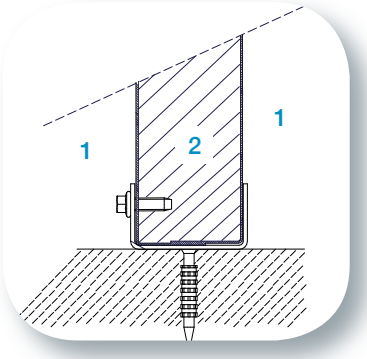
60th 1958-2018 Anniversary

www.coral.eu

CORAL®
ANTIPOLLUTION SYSTEMS

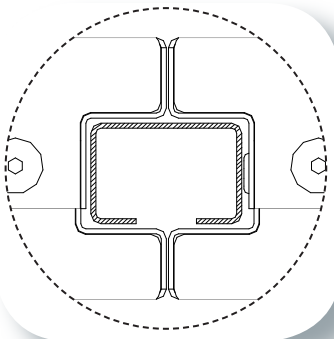
DUST FREE OVER PRESSURE ROOM

The CORAL pressurised cabins are mainly constituted of one or more ZINCOVELO water veil or TECNODRY / EURODRY dry wall cabins, of an environment realised by assembling modular sandwich panels, zinc plated or varnished externally (optional), an air integration filtering roof, a pressurisation unit CTA or hot air generator and a control panel. The varnishing cabins suck in the contaminated air loaded with overspray through the front panel and discharge it in filtered form via the centrifugal fan. The pressurisation cabin is directly connected to the varnishing cabin and can be accessed through the folding or sliding doors and can be inspected from outside through the porthole. The operating procedure of the plant is clearly illustrated in diagram A, where a post filtration via active carbons using our Karb modular unit (optional) is also illustrated.
The pressurised air is completed constituted of air from outside the pressurisation cabin, and is distributed in to the varnishing environment at a constant temperature, monitored by a data acquisition and temperature adjustment system and perfectly filtered.
The internal lighting is guaranteed by neon bulbs 2x36W each, with IP 65 protection.



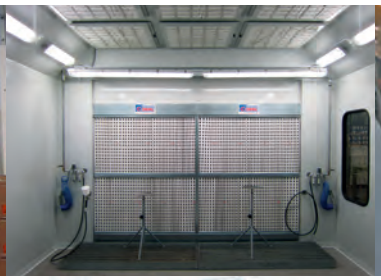
1 • Internal or external panel thickness 1,5 mm press folded

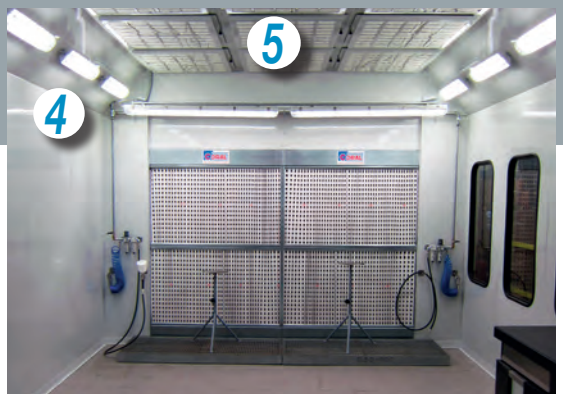
2 • Fibre glass pad density 80 kg/m³



Specification of the panel

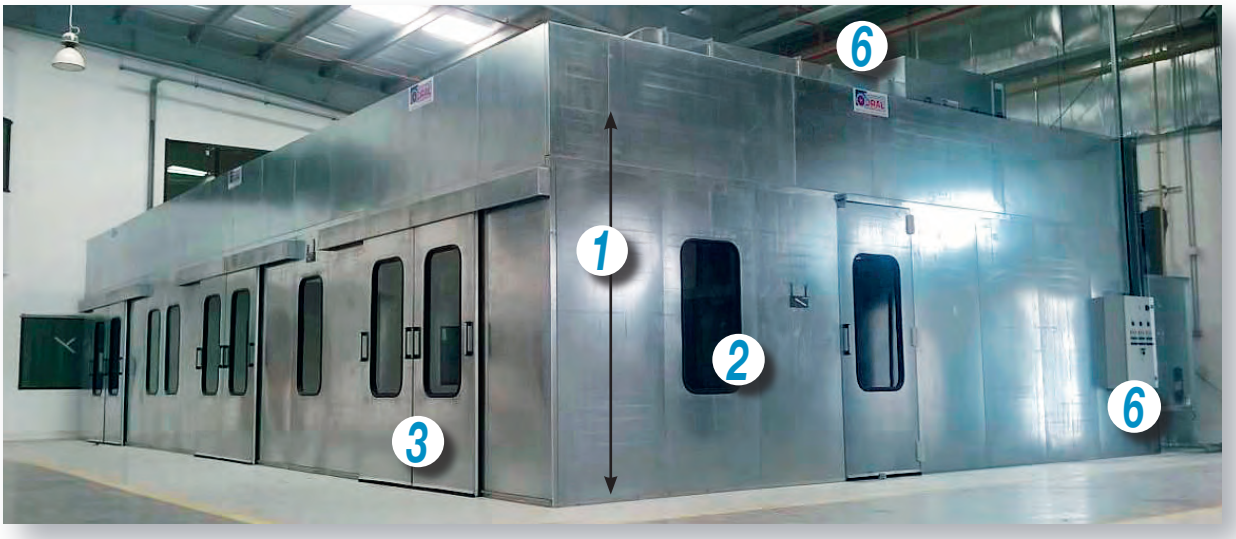
Specification of interlocking panels

Dry booth

Water booth



Cabin dimensions

3 x 4 3 x 6 3 x 8 mt.	4 x 4 4 x 6 4 x 8 mt.	5 x 6 5 x 8 5 x 10 5 x 12 mt.	6 x 6 6 x 8 6 x 10 6 x 12 mt.

1 - Working height under filtering roof 3 mt.

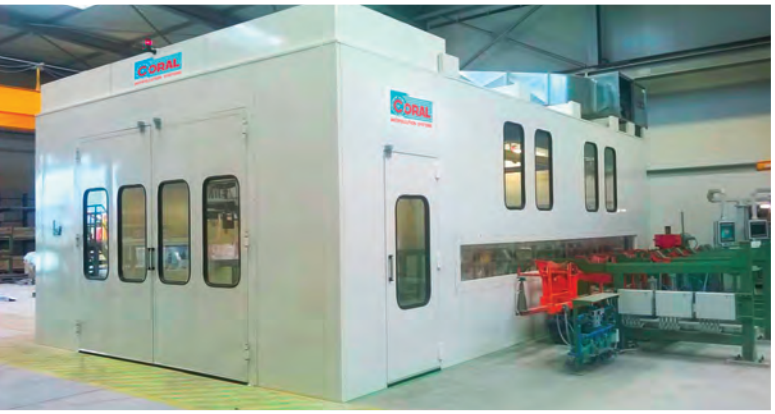
2 - A panel with glass alternated with a closed panel

3 - One double door 2 x 2,1 mt.H and one single door 1 x 2,1 mt. H.

4 - One waterproof lamp 2 x 36 w each 2 mts. on the long sides of the cabin.

5 - Filtering roof

6 - Electric control board and inlet connectors between filtering roof CTA/generator



Legend

1 *Air handling unit, CTA model*

2 *Control board*

3 *Air distribution and filtration plenum*

4 *Doors*

5 *Lamps*

6 *Spray booth*

7 *Centrifugal fan*

8 *Active carbon filtering unit KARB model* **OPTIONAL**

9 *Filtered air stack*

10 *Porthole*

Outside air

Conditioned air

Clean air

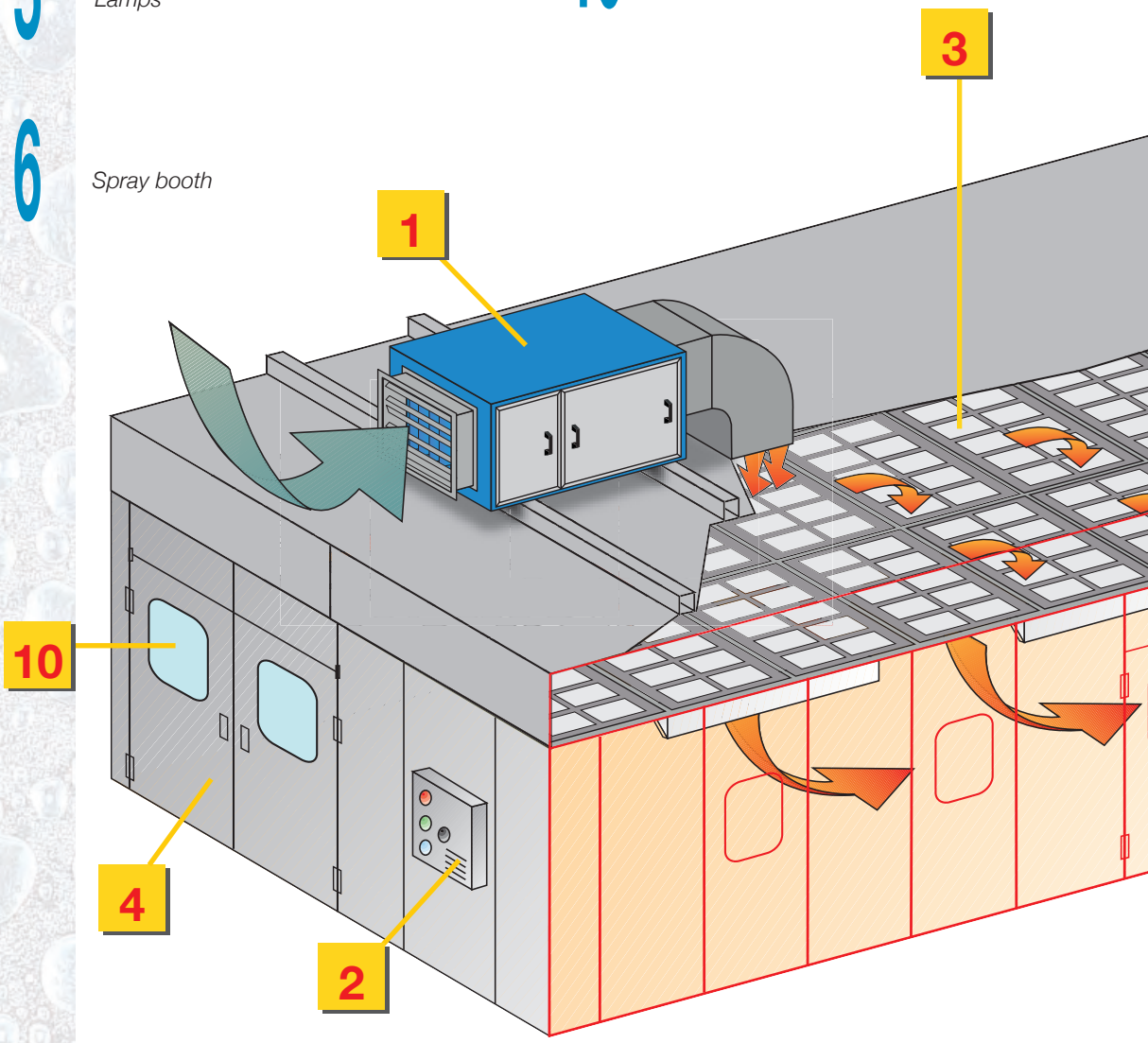


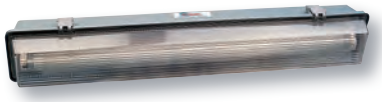
Diagram A

Accessories

2
Three way valve

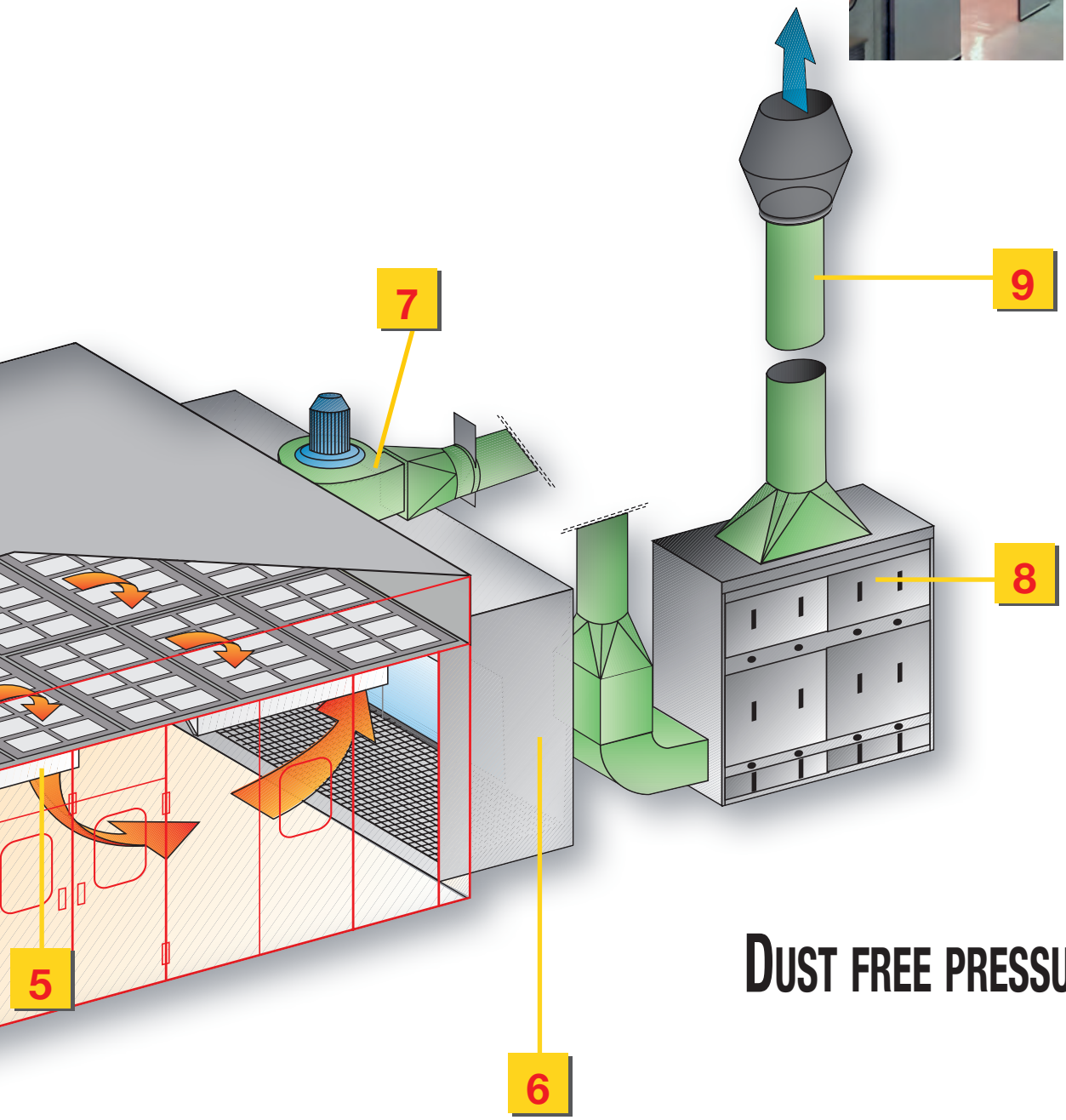
2
Control board

5
Lamps



4
Sliding door

Folding door



DUST FREE PRESSURISED ROOM

Legend

1 *Air handling unit, CTA model*

2 *Control board*

3 *Air distribution and filtration plenum*

4 *Doors*

5 *Lamps*

7 *Centrifugal fan*

9 *Filtered air stack*

10 *Porthole*

11 *Air exhaust outlets*

Outside air

Conditioned air

Clean air

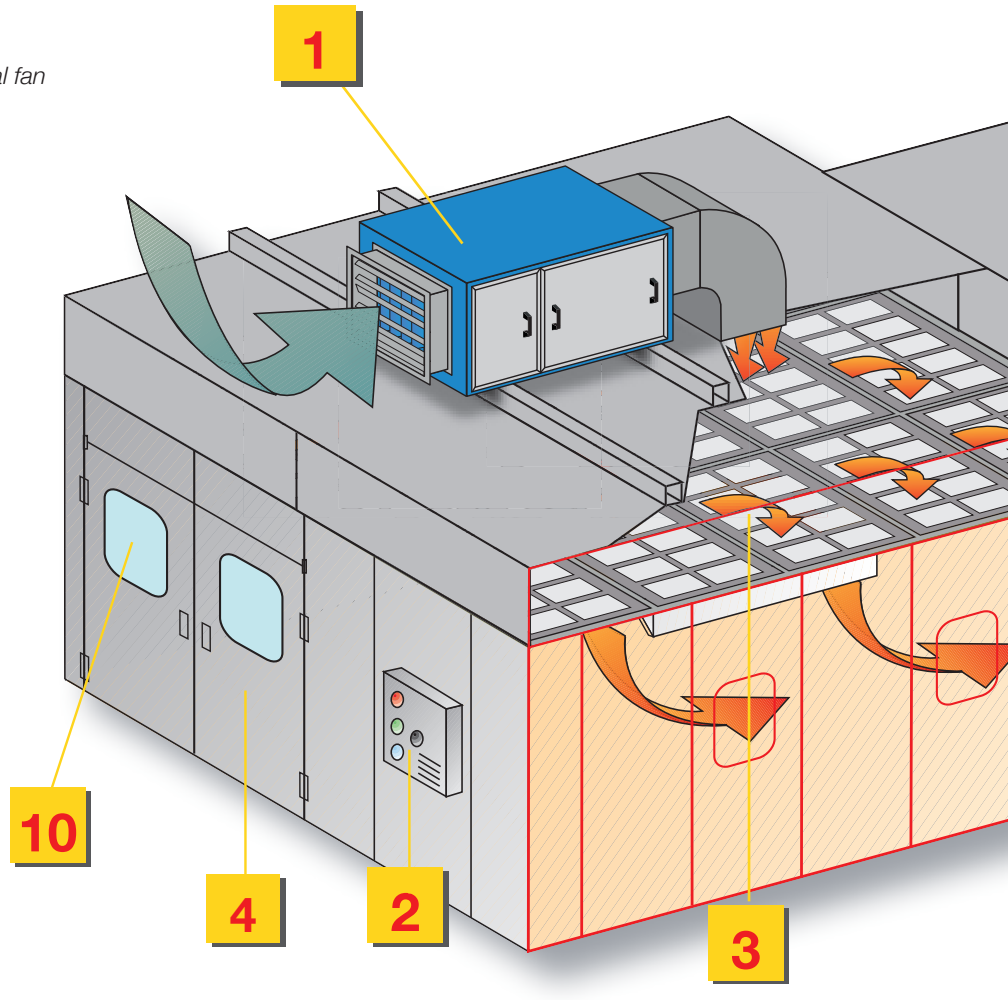
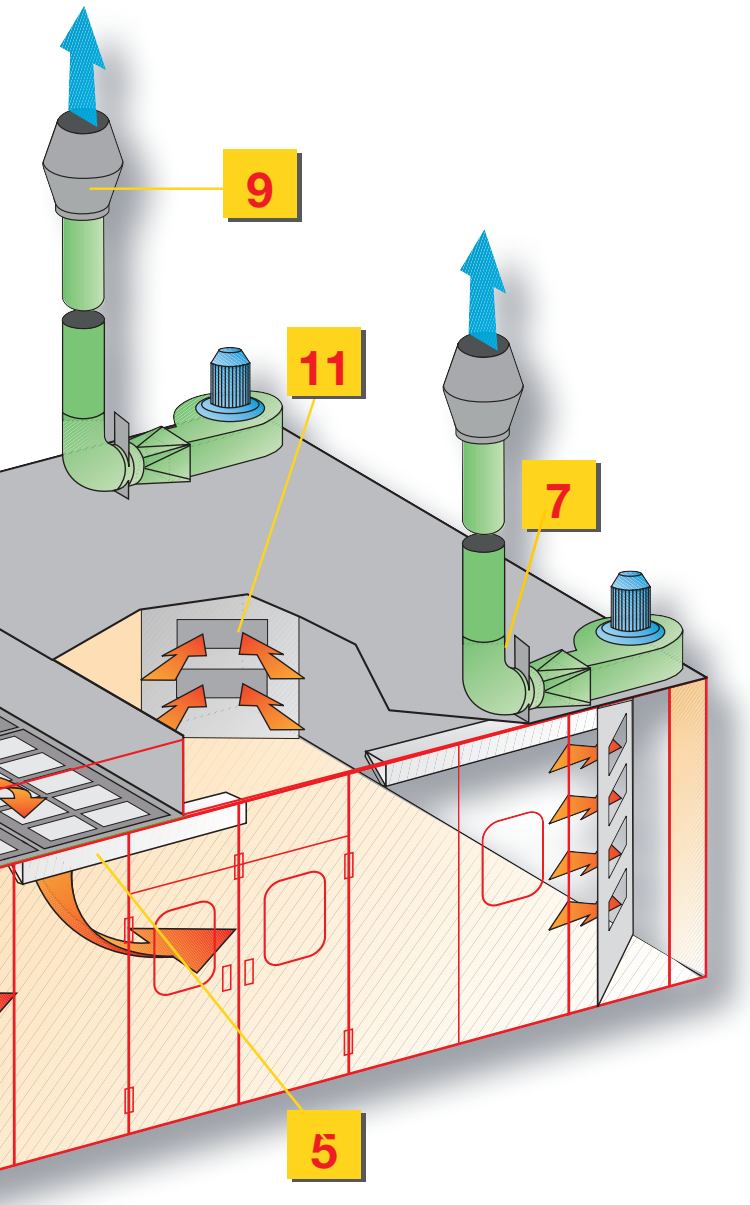


Diagram B

DRYING OVENS

The CORAL varnish drying ovens consist of an environment created by assembling modular panels in a sandwich manner. The exterior part of these panels are zinc plated or varnished (optional) and include an air circulation plenum, a CTA model air conditioning unit or a hot air generator, two or more vapour extraction fans, a control panel.
The plant operating procedure is clearty explained in diagram B. The temperature is automatically controlled up to a maximum of 40°C according to the applications.



Legend

DUST FREE ROOM

1 *Filtering wall*

2 *Control board*

3 *Porthole window*

4 *Sliding door*

5 *Folding door*

6 *Lamps*

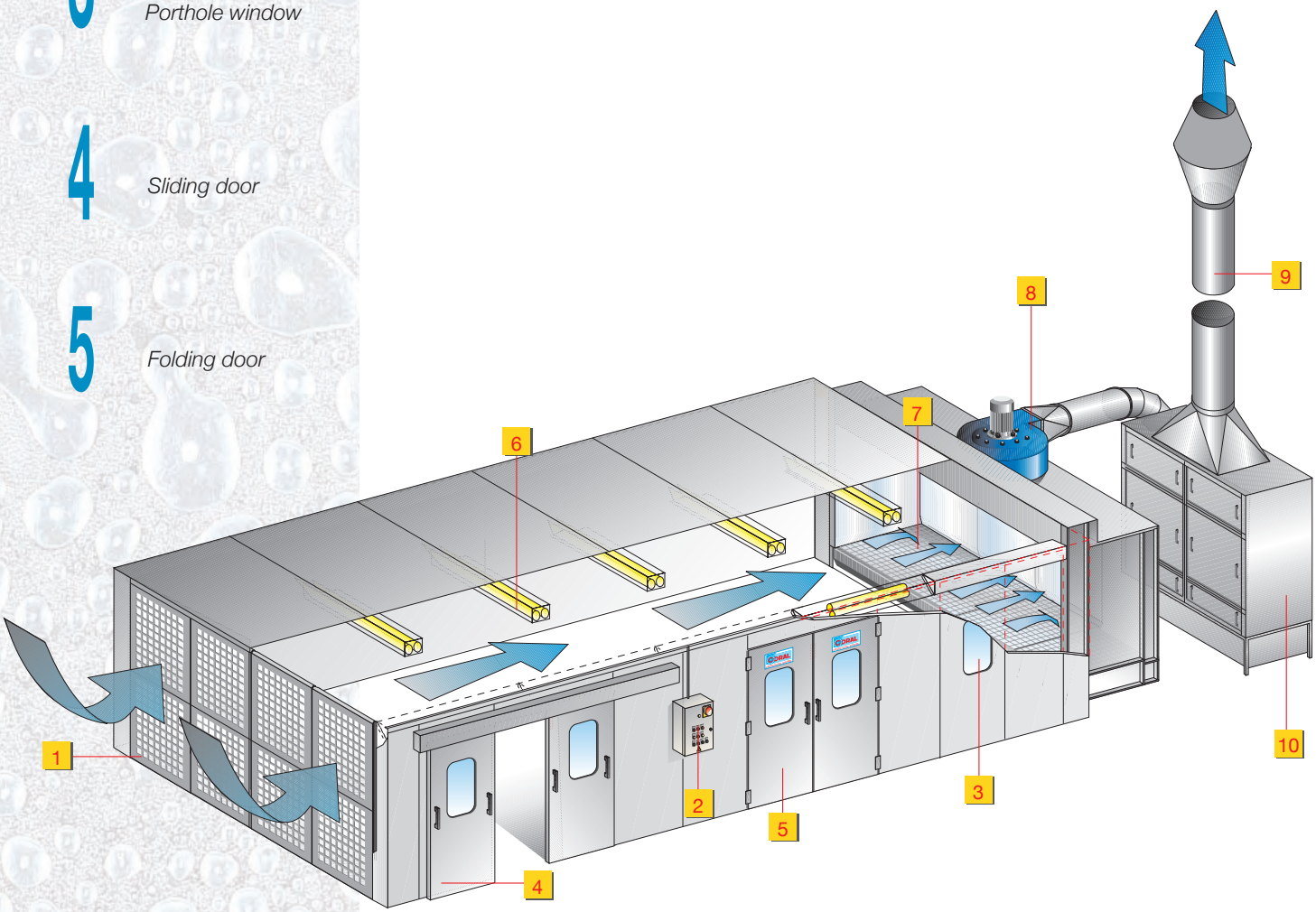
8 *Centrifugal fan*

9 *Filtered air stack*

10 *Active carbon filtering unit KARB model* **OPTIONAL**

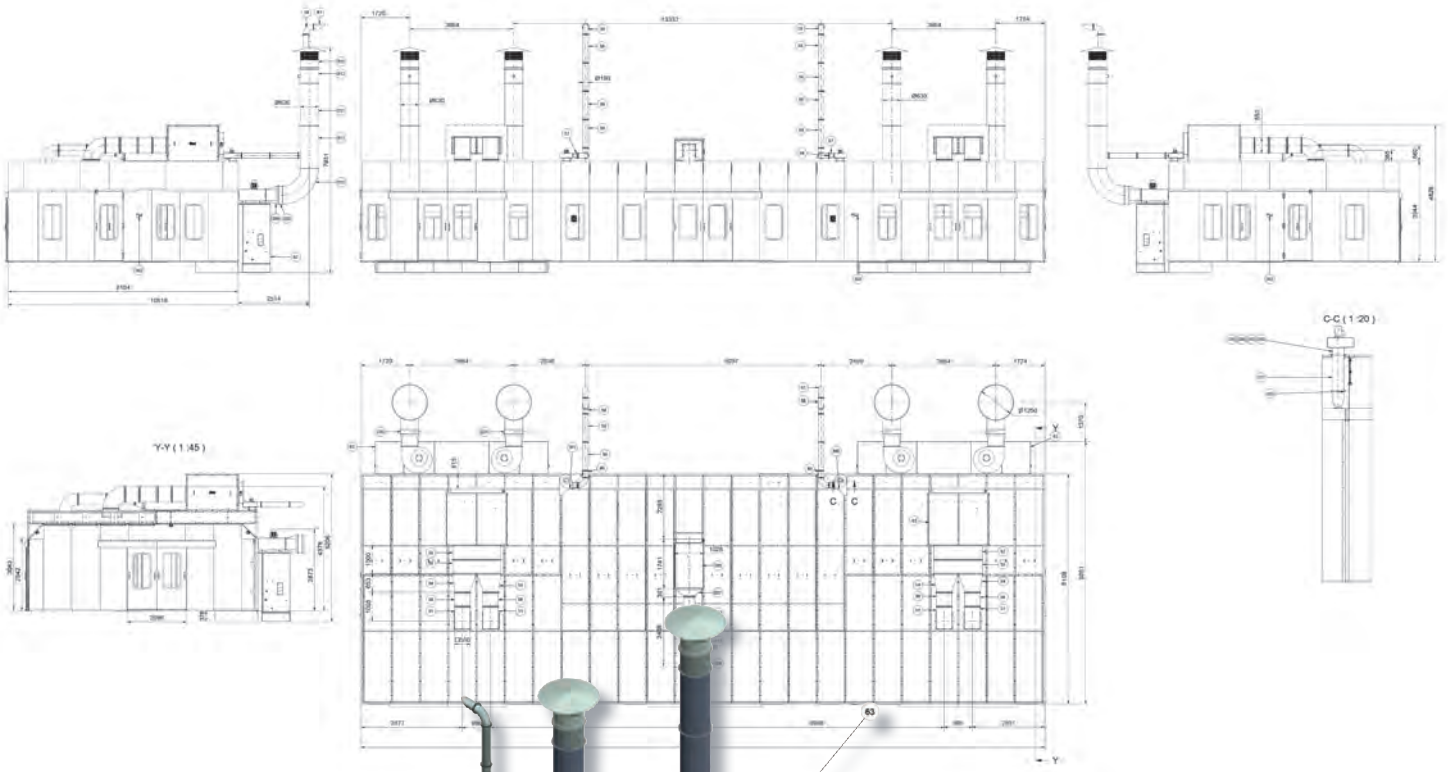
Outside air

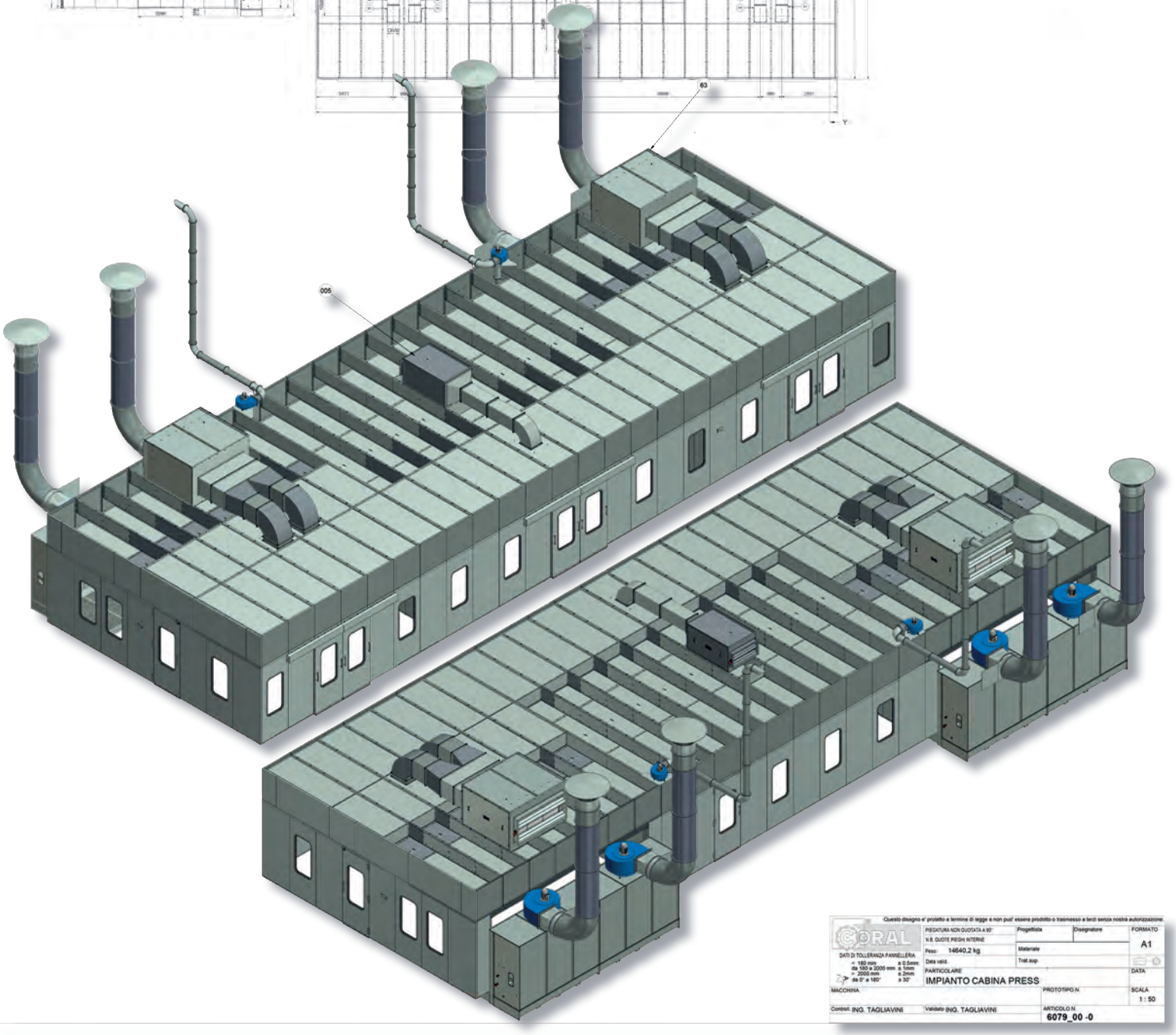
Clean air



Design and Assembly

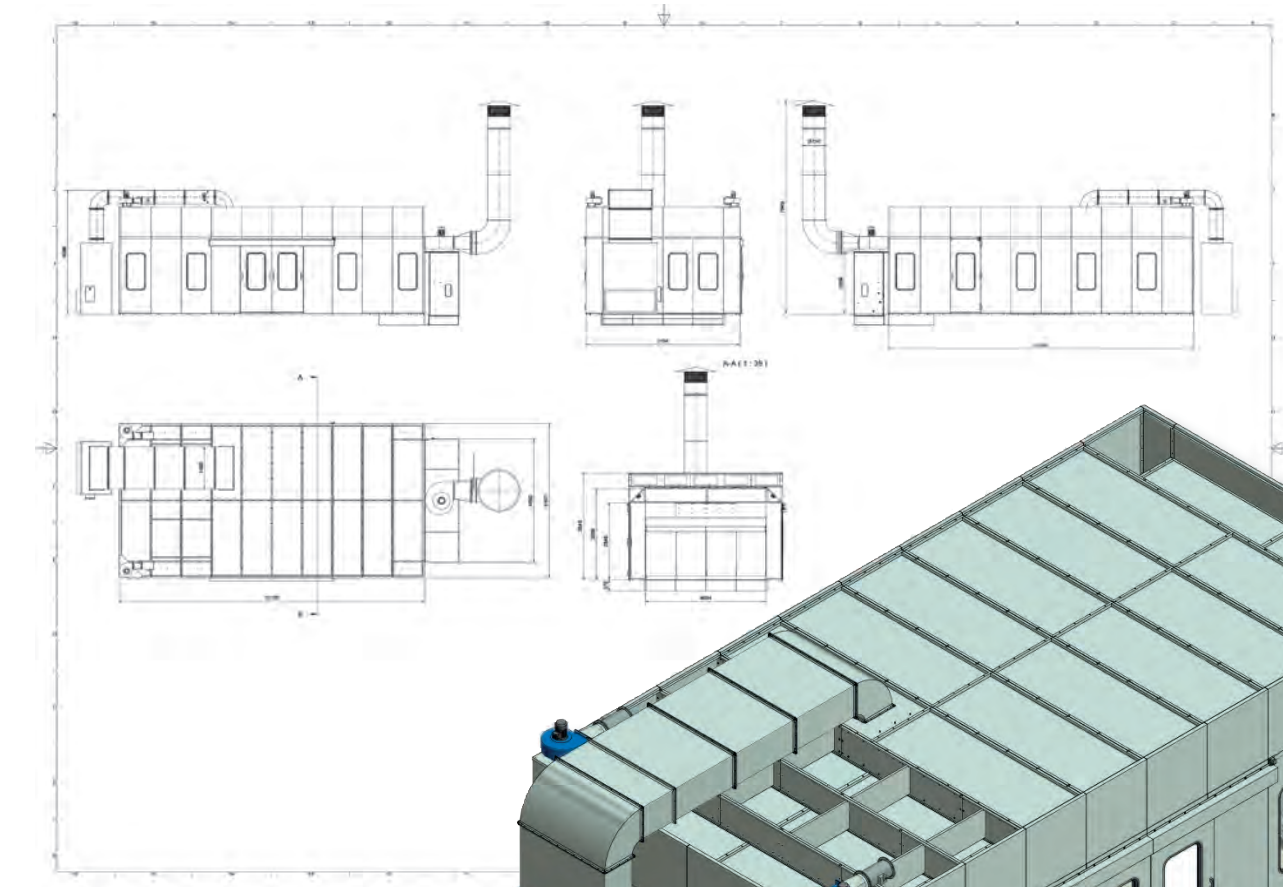
CORAL
ANTIPOLLUTION SYSTEMS





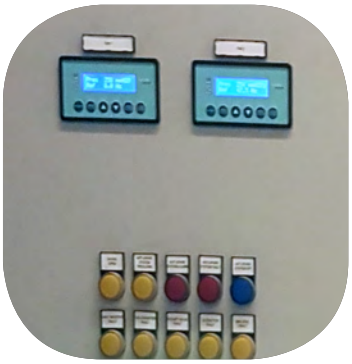
CORAL	PIEGATURA NON QUOTATA A 90°	Progettista	Disegnatore
DATI DI TOLLERANZA PANNELLERIA	V.E. QUOTE PRESH INTERNE		FORMATO A1
< 160 mm ± 0,5mm da 160 a 2000 mm ± 1mm > 2000 mm ± 2mm da 0° a 180° ± 30'	Peso: 14640,2 kg	Materiale	
	Data valid.	Trat.sup.	
	PARTICOLARE: IMPIANTO CABINA PRESS		DATA
MACCHINA		PROTOTIPO N.	SCALA 1 : 50
Control. ING. TAGLIAVINI	Validato ING. TAGLIAVINI	ARTICOLO N. 6079_00 -0	

Design and Assembly



Design and Assembly

Automatic Electronic System For Pressurisation And Pressure Stabalisation



The pressurisation and pressure stabilisation system in the spray-painting cabins designed by Coral is based on the use of technologically advanced systems to detect the functional parameters of the plant. Combined with inverters, which pilot the air extraction and emission fans in the cabins, and with CTA/generators, they result in perfect pressurization even as the filters progressive become clogged. In addition, this also allows for a significant reduction in power consumption. This is possible by installing pressure sensors within the cabin. The sensors use a 4-20 mA or 0-10 V signal to pilot an inverter, the so-called Master, which “drags” a second inverter, called Slave. In this manner, the system can always guarantee the proper level of pressurization within the cabin.
Everything can be configured, personalised and visualised from a touch screen panel, in order to adapt each single plant to one’s own needs, modifying outputs whenever necessary and visualising the effects of these modifications. The panel also returns information regarding the progressive clogging and expiration of the filtering elements.
The system is fully automatic, and it also regulates and stabilises pressure even in case of prolonged opening of the doors.
The system must be assembled and certified by one of our technicians.

Cabins With Hot Air Generator

Generator	Max capacity	Fan power	RPM	Voltage	Static pressure	Thermical variation	Max thermic power
	m^3/h	**Kw**	**min / rpm**	**V 50 Hz**	**Pa**		**Kw / Kcal/h**
G1	6.000	1,1	705	230/400	200	**Delta T 40°C**	102 / 87.450
GE1	6.000	1,1	705	230/400	200	**Delta T 30°C**	80 / 68.700
						Delta T 20°C	47 / 40.445
G2	10.000	2,2	737	230/400	200	**Delta T 40°C**	170 / 146.000
GE2	10.000	2,2	737	230/400	200	**Delta T 30°C**	132 / 113.500
						Delta T 20°C	95 / 81.450
G3	16.000	2x1,5	691	400/690	200	**Delta T 40°C**	276 / 237.600
GE3	16.000	2x1,5	691	400/400	200	**Delta T 30°C**	220 / 189.000
						Delta T 20°C	155 / 133.600
G4	20.000	2x2,2	746	400/690	200	**Delta T 40°C**	345 / 296.550
GE4	20.000	2x2,2	746	400/400	200	**Delta T 30°C**	276 / 237.150
						Delta T 20°C	196 / 168.200
G5	26.000	2x3	647	400/690	200	**Delta T 40°C**	425 / 365.900
GE5	26.000	2x3	647	400/400	200	**Delta T 30°C**	320 / 259.700
						Delta T 20°C	198 / 170.520

CTA

AIR HANDLING UNITS

Description

The CORAL company manufactures a wide range of air conditioning equipment. The CTA range is among the most qualified and technologically advanced.
The CTA air conditioning units can be used for many purposes among which:
- pressurisation with or without heating of the varnishing, drying and seasoning areas etc.
- clean air issuing/pressurisation of sealed areas and chambers (dust free)
- heating/cooling/air conditioning of industrial areas

The CTA units are available in various versions and models to meet the most varied requirements, please refer to the attached technical specifications.

ANTIPOLLUTION SYSTEMS

Description

The CORAL company manufactures a wide range of air conditioning equipment. The CTA range is among the most qualified and technologically advanced.
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CTA DS
Complete with the Rigid Pockets flter in Microfber Glass "DUAL LAYER" , rated M6 (EN 779:2012) , colorimetric efciency 65% ,and without hot water battery.

OPTIONAL
CTA
With electric battery

CTA

Technical features CTA

Description

CORAL manufactures a wide range of equipment for air conditioning, together with its standard production it also offers personalised units that meet individual plant system requirements.
The high quality components and accessories together with the field of air pressure covered, place the CORAL CTA range of air conditioning units among the most qualified and technologically developed.

They are constructed in galvanised sheet steel (varnished on request) bolted together with the possibility of creating a double wall with thermo-acoustic insulation.
The attachment of the panels using bolts is far more reliable than that of self-tapping screws, making the structure extremely rigid and at the same time easy to dismount if necessary.
The inspection hatches are constructed in the same way as the panels and are equipped with nylon resin handles.

The registers are finned with opposed pitch of 100 or 150 mm made of galvanised sheet steel the pins of which are housed in ferrules located on the vertical segments of the frame. The maximum pressure variance is 1400 Pa for the registers with closed fins and with a maximum torsion of 12 Nm on 3 sq. Mt. of surface area and a static pressure of 500 Pa. The registers can be manual or servo controlled according to customer request.

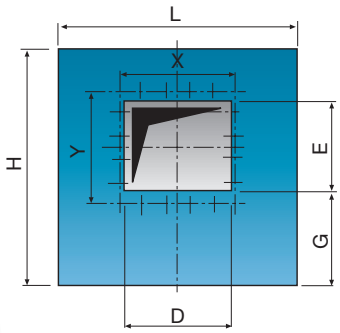
The PRECLEAN filter corrugated panels are 100 mm thick constructed of a galvanised sheet steel frame and polyester filter with protective grill. The corrugated type structure provides a double filtering surface compared to that of the air vane rated G3 (EN 779:2001). The standard filtering system is of type A250 with high level separation with self extinguishing features (F1 class).

The heating unit of the CTA houses the hot water supplied batteries (standard) or by electric resistors (optional) with a number of ranks sulted to the thermic variations expected. The hot water batteries are of copper pipes with aluminium pack finning with a maximum operating temperature of 150° C and a maximum pressure of 15 bars.
The batteries can also be equipped for cold water supply produced by a chiller (not provided) for cooling/conditioning of air entering the CTA.

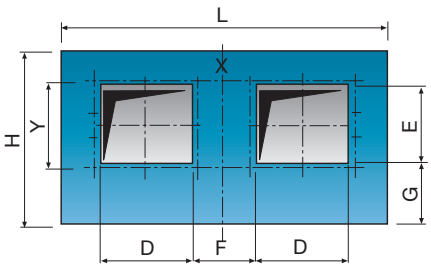
The ventilating section consists of double intake fans with basket type vanes, coupled to the motor by belts and pulleys mounted on a common trame in steel plate and supported by anti vibration brackets. The motors are mounted on stainless steel guides with a single movement screw simplifying the tension and belts replacement operations.

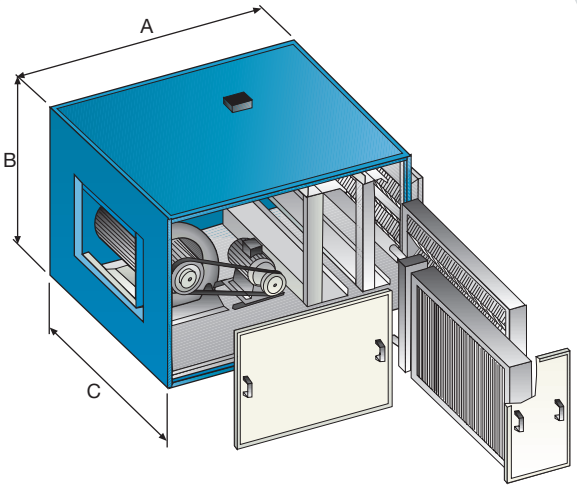
Technical features

CTA 1/2/3



CTA 4/5





Dimensions

Model			C	D	E	F	G	H	L	X	Y	Pipe channel	Flow
CTA 1	1350	770	730	330	362	-	255	720	770	500	500	470	470
CTA 2	1606	840	1025	490	425	-	285	840	1025	950	720	920	690
CTA 3	1850	1320	1280	580	500	-	346	1320	1280	630	630	600	600
CTA 4	1850	970	1780	494	424	358	290	970	1780	1430	480	1400	450
CTA 5	1850	1320	2145	580	500	435	345	1320	2145	1730	580	1700	550

			CTA1	CTA2	CTA3	CTA4	CTA5
Max capacity		(m^3/h)	6000	10000	16000	20000	26000
Fan power		(Kw)	3	4	5,5	7,5	7,5
RPM			1300	1100	800	1050	725
Voltage		(V) 3-PH	230/400	230/400	400/690	400/690	400/690
Static pressure		(Pa)	150	150	150	150	150
DT H_2O (°C)			20	20	20	20	20
			Max thermic power				
(Kw)/(Kcal/h)	Thermical variation	DT 40°C	102/87450	170/146000	276/237600	345/296550	425/365900
		DT 30°C	80/68700	132/113500	220/189000	276/237150	302/259700
		DT 20°C	47/40445	95/81450	155/133600	196/168200	198/170520
			Capacity				
(m^3/h)	Thermical variation	DT 40°C	4,5	7,4	12	14,8	19
		DT 30°C	3,5	5,8	9,5	12	13
		DT 20°C	2,1	4,2	7	8,5	9,2
			Battery joints				
	Thermical variator	DT 40°C	1''	1'' 1/4	2''	2''	2'' 1/2
		DT 30°C	1''	1'' 1/4	2''	2''	2''
		DT 20°C	1''	1''	1'' 1/2	1'' 1/2	1'' 1/2
			Battery loss				
(Pa)	Thermical variation	DT 40°C	157	139	55	94	40
		DT 30°C	120	108	43	70	29
		DT 20°C	70	72	33	51	22
Sound level dB(A)			69	69	71	72	74

KARB

FILTER FOR PAINTING OPERATIONS

KARB

ACTIVATED CHARCOAL THICKNESS	80 mm
MAX CROSSING SPEED	0,5 m/s
CONTACT TIME	0,16 s

MODEL	MAX. FLOW RATE m^3/h - c.f.m.	POWER RATING kW	VOLTAGE V	ACTIVE CARBONS Kg	CARTRIDGES pcs.	PREFILTERS pcs.	SOUND LEVEL dB(A)
karb 3	9500-5590	3	230/400	330	6	6	71
karb 4	12000-7062	4	230/400	330	6	6	71
karb 5,5	16000-9416	5,5	400/690	440	8	8	71
karb 7,5	19500-11475	7,5	400/690	440	8	8	71
karb 9,5	22000-12947	9,5	400/690	550	10	10	73
karb 11	29000-17066	11	400/690	550	10	10	73

CORAL®
ANTIPOLLUTION SYSTEMS

KARB

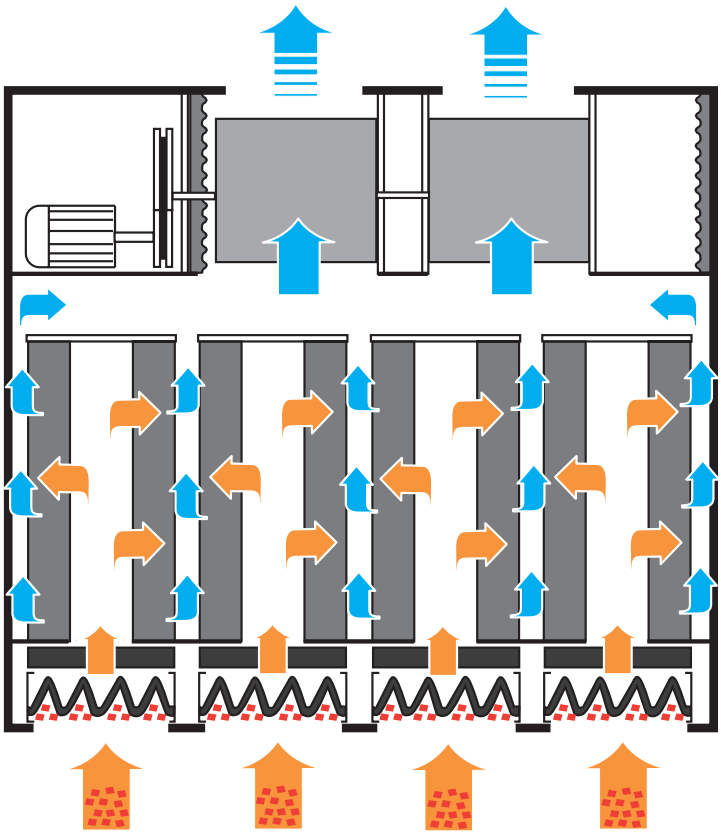
Description

The optimum application for the KARB unit is in the treatment of emissions released by painting operations and it is therefore advisable for an extensive range of customers who use paints containing organic solvents.The considerable amount of active carbons contained in KARB makes it possible to eliminate the gassy pollutants from the emission, thereby ensuring compliance with the current international regulations.

The KARB unit comprises a structure of galvanized panels (painted upon request) which are bolted to one another and house:

• a filtering section: : comprising corrugated panels which trap the solid pigments released during painting operations; these panels may be reconditioned and they can be removed from the special inspection hatches;
• active carbon section: this section adsorbs the gasseous phase of the emission, i.e. the organic solvents contained in the paint;
• ventilating section: comprising a double inlet belt-driven fan which sets the whole unit under vacuum, ejecting the filtered air. The motor is isolated from the air-flow according to current regulations.
It may be positioned:
- on the floor, to create a vacuum on grated suction shelves, with glass fibre prefilters under the grille;
- in combination with painting booths with front suction;
- on oven and/or pressurised booths.

KARB



“Over spray” extracted

Solid paint particulate

Vapours

Prefilters

Active carbons

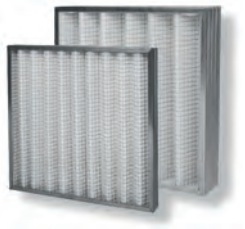
Purified air

Dimensions

MODEL	Height (mm)/(inch)	Lenght (mm)/(inch)	Width (mm)/(inch)
karb 3	**2320/91,3**	**1770/69,7**	**1115/43,9**
karb 4	2320/91,3	1770/69,7	1115/43,9
karb 5,5	**2200/86,6**	**2320/91,3**	**1115/43,9**
karb 7,5	2200/86,6	2320/91,3	1115/43,9
karb 9,5	**2370/93,3**	**2740/107,8**	**1115/43,9**
karb 11	2370/93,3	2740/107,8	1115/43,9

KARB

RECONDITIONABLE PREFILTERS



Technical specifications of the filtering media

Type of fibres	synthetic
Max. degree of separation	87,5%
Max. operating temperature	100°C
Flame resistance	self-extinguishing (class F1)
Classification	Eurovent 4/5 EU3

• **Reconditionable prefilters.**
These comprise corrugated panels formed of a galvanized frame and polyester filtering media with protective mesh.

ACTIVE CARBONS

Dimensions	2,4 - 4,8 mm
Apparent density	470/440 Kg/m^3
Specific surface	1250 m^2/g (±50)

• **Active carbons.**
The carbons are contained in microperforated sheet metal cylinders, which can be removed from the front for replacement.

PRODUCTION PROGRAM

Portable dust collectors - Cartridge filters - Silo & boilers - Filtering extraction units for metal, chemicals, electronic, textile, food and woodworking industry - Soldering fumes filters - Source fume capture articulated arms - Spray booths - Soundproofed cabins & panels - Pressurized cabins & dust free rooms - Fans - Soundproofed boxes for fans - Ductwork and accessories - Smoke and vapour filters - Dryers: conventional & heat pump - Hose reels with suction fans for automotive industry.

CORAL
ANTIPOLLUTION SYSTEMS

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