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SEC. D. DESCRIPTION AND TECHNICAL NOTES

SEC. D.1. DESCRIPTION

Air extraction and abatement plant for fumes deriving from a copper smelting furnace.

TECHNICAL NOTES

Pollutant material

Characteristics

- Your confermed furnace loading typology	98% cooper + 2% enamelling varnish
- Type of material:	Fumes from smelting induction furnace
- Material concentration	< 500 gr/m^3
- Explosive characteristics of the material:	not exploding
Area classification filter positioning	- NEUTRAL

Air quantity calculation

- N° of induction furnaces	3
- Crucible's diameter indicated by the Customer:	660 mm
- N° and type of intakes indicated by the Customer	N° 3 (toggle type)
- Suction intake's diameter constructed by the Customer on the toggle:	* 350 mm
- Functionality use indicated by the Customer:	2 furnaces out of 3
- Prpjected air quantity by you indicated:	20.000 Em^3/h
- Calorific power considered:	4.000 Kcal/Kg
- Pollutant temperature at the inlet of the filter indicated:	<150 °C

Abatement filter

- Type of filter:	dry, with sleeves; upstream washing through compressed-air impulses.
- Maximum fumes capacity that can be treated::	20.000 m^3/h
- Inlet fumes' temperature at the filter:	< 150 °C
- Filter model:	PJ 264/11
- N° of installed sleeves:	264
- Sleeves' dimensions:	Ø 123 x H:3.000 mm
- Type of sleeves:	Nomex Teflon

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- Average washing consumption of compressed air (it has to be supplied at an adjustable pressure between 4 and 7 Atm, without water and oil condensations):	25 N m^3/h
- Maximum pressure drop at the filter:	80 mm c.a.
- Dusts concentration guaranteed at the filter's outlet:	Ø 123 x 3.000 mm

Centrifugal fan

- Type of fan installed:	EUMc 801
- Pressure drop of the machine::	300 Pa
- nstalled power:	30 KW

SEC. D.2.2. FIREPROOF FEATURES

The plant has been designed and built to avoid any risk of fire and explosions or of overheating caused by the plant itself.

The fireproof systems used on the plant are broadly described in SEC. F. "Accident-prevention laws - Risks".

The applied rules, besides those mentioned in the Machines Directive, are those described by the Italian rules in the D.M 16-02-1982 and the following regulations emitted in the circulars of the Regional Examination office of National Fire Brigade, the rules described by the Italian Technical Committee for Fireproof Materials and those of the Italian Fires Agreement .

SEC. D.2.3. NOISINESS FEATURES

The plant is build with a number of parts assembled together.

In the design of plant has been considered usage of rotating or moving parts with the lower noisiness rate compatibly with their practical aspects .

The features of plant global noisiness are also affected by environment, and therefore the noisiness estimate must be done only with installed and operating plant .

When the Maximum Sound Pressure exceed 85 dBA, the noise level will be indicated on the CE plate.

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SEC. D.3. INSTALLED DIMENSIONS AND POWER

SEC. D.3.1. DIMENSION PRINCIPAL UNITS AND WEIGHTS

COMPONENTS **PLANT**	TYPE	DIMENSIONS mm	WEIGHT Kg.
FILTER with sleeves, upstream washing system with compressed-air impulses. Composed by strong modular panels in carbon steel plate 30/10, with reinforcement structural steel; N° 1 settling chamber; Fire pipeline; batten explosion-proof panels; ;Access ladder; Handrail; Compressed air reservoir; Solenoid valves; Compressed-air dispensing pipes, N° 264 filtering sleeves in Nomex Teflon, Ø 123 x 3.000 mm; Sleeves' holding baskets in strong steel net; with Fe. Venturi; dusts collection hopper, legs, manhole; access doors; Electrical switchboard to control the frequency and timing of the compressed-air impulses. Continuous dust discharge system with spiral auger, 1,8 Kw ratio-motor ; paddle level gauge	PJ 264/11	4620x2400xH:7000	4065
ROTARY VALVE, rotor diameter Ø 305 mm; 18 lt./h capacity. Realized in iron casting and rotor in carbon steel plate. with a worm screw ratio-motor 0,75 Kw		250x250	154
CONNECTING DUCT, between the filter and the fan, in carbon steel plate 20/10, with flanged joints, curves, adapting cones		Ø 600	241
BUTTERFLY VALVE for the fan's start-up, in galvanized plate, mounted on bearings and controlled with a pneumatic actuator interlocked with a solenoid valve, H.T. gaskets		Ø 600	63
CENTRIFUGAL FAN, in carbon steel plate. Reversed blades impeller, driven with belts and pulleys, with cooling fan. Electric motor, 440 Volt; 60 Hz, shape B3, 4 poles, 30 Kw. IP 55.	EUMc 801	1340x1235x1650	685
CIRCULAR SOUND ATTENUATOR in stainless steel AISI 304. The inside hollows spaces are covered with ashore noise-abating rubber		Ø 600	212
AIR EXTRACTION CHIMNEY directly connected on the fan discharge outlet. Constructed in stainless steel AISI 304, with ring and/or flanged joints, smooth ducting, connecting parts, vented finishing element, analysis socket		Ø 600	268

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COMPONENTS **Aggregate System process**	TYPE	DIMENSIONS mm	WEIGHT Kg.
REAGENT TANK (to be installed inside the building), with manual loading. Inclusive of below hopper, fluidifiers, motorized discharge leaf-spring, adjustable manual butterfly valve, supporting legs		Ø 1.000 x H 1.000	382
LADDER AT FOOT inclusive of resting platform for the lime loading, constructed in galvanized plate and safety handrail			138
AUGER BATCHING UNIT for the input of reagent in the system. Hollowed core type, ducted, Ø 60 mm duct. Inclusive of ratio-motor 0,18 Kw. Scrapper with ratio-motor 0,25 Kw, supporting structure, and discharge connection			80

COMPONENTS **Lime loading line**	TYPE	DIMENSIONS mm	WEIGHT Kg.
CONNECTING DUCT, between the intake and the centrifugal fan. Realized in spiral galvanized plate. Inclusive of ring junctions, curves and adapting cones		Ø 100	5
CENTRIFUGAL FAN, in carbon steel plate. Reversed blades impeller, Directly connected on the motor's shaft. Electric motor, 440 Volt; 60 Hz, shape B3, 2 poles, 3 Kw. IP 55.	TF 501/B	735x440x800	119
SOUNDPROOF BOX for the TF501/B. Constructed with one micro-ribbed plate and one smooth plate insulated and self-supporting, interposed high density rocky wool, positioned in vertical strips or joints longitudinally staggered and transversally compact according to a patented system. Access door on the fan made with the same panels abovementioned and expanded neoprene gaskets. Inlet/outlet openings for the ducting to connect at the fan, appropriately joint with semi-rigid gaskets. Motor's cooling air, with insulated ducting and grill on the return cooling air. It is forbidden to walk on the roof			353
CONNECTING DUCT between the centrifugal fan and the existing ducting. Realized in spiral galvanized plate. Inclusive of ring junctions, curves and adapting cones		Ø 100	12

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SEC. D.3.2. INSTALLED POWERS

MEMBER	POS	VOLTAGE Volt (60 Hz)	POWER KW	ABSORB. A
EUMc 801 Fan's motor		440	30	58
Auger ratio-motor on PJ 264/11		440	1,8	4,6
Rotary valve's ratio-motor		440	0,75	2,15
TF 501/B Fan's motor		440	3	6,8
Lime batching ratio-motor		440	0,18	0,75
Scapper ratio-motor		440	0,25	0,87
Totale			**36 Kw**	**73,2 A**

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SEC. D.4. LIST OF COMPONENTS

SEC. D.4.1. COMPONENTS OF THE PJ 264/11 FILTER

1. Safety handrail
2. Filtering sleeve 123 x 3000
3. Filtering sleeve's supporting basket with Fe Venturi
4. Sleeves' holding plate
5. Solenoid valves VEM3 308; 127 V AC; 60 Hz
6. Full immersion compressed-air reservoir
7. Roof panels
8. Filtering section's panels
9. Air inlet
10. Connecting chassis of the filtering section
11. Connecting chassis of the hopper section
12. Hopper section's panels
13. Auger 300 x 300 x 70 mm
14. Auger's supports SNH 511 with bearings C3 H.T.
15. Supporting legs
16. Auger's ratio-motor NMRV – P i = 1: 80; 1,8 Kw
17. Air outlet
18. Paddle level gauge PLS-W-S-1-2-0-SS
19. Differential pressure gauge 616W
20. Rotary valve 0,75 Kw
21. Safety micro-switch SPDT 15 A; 230 V AC

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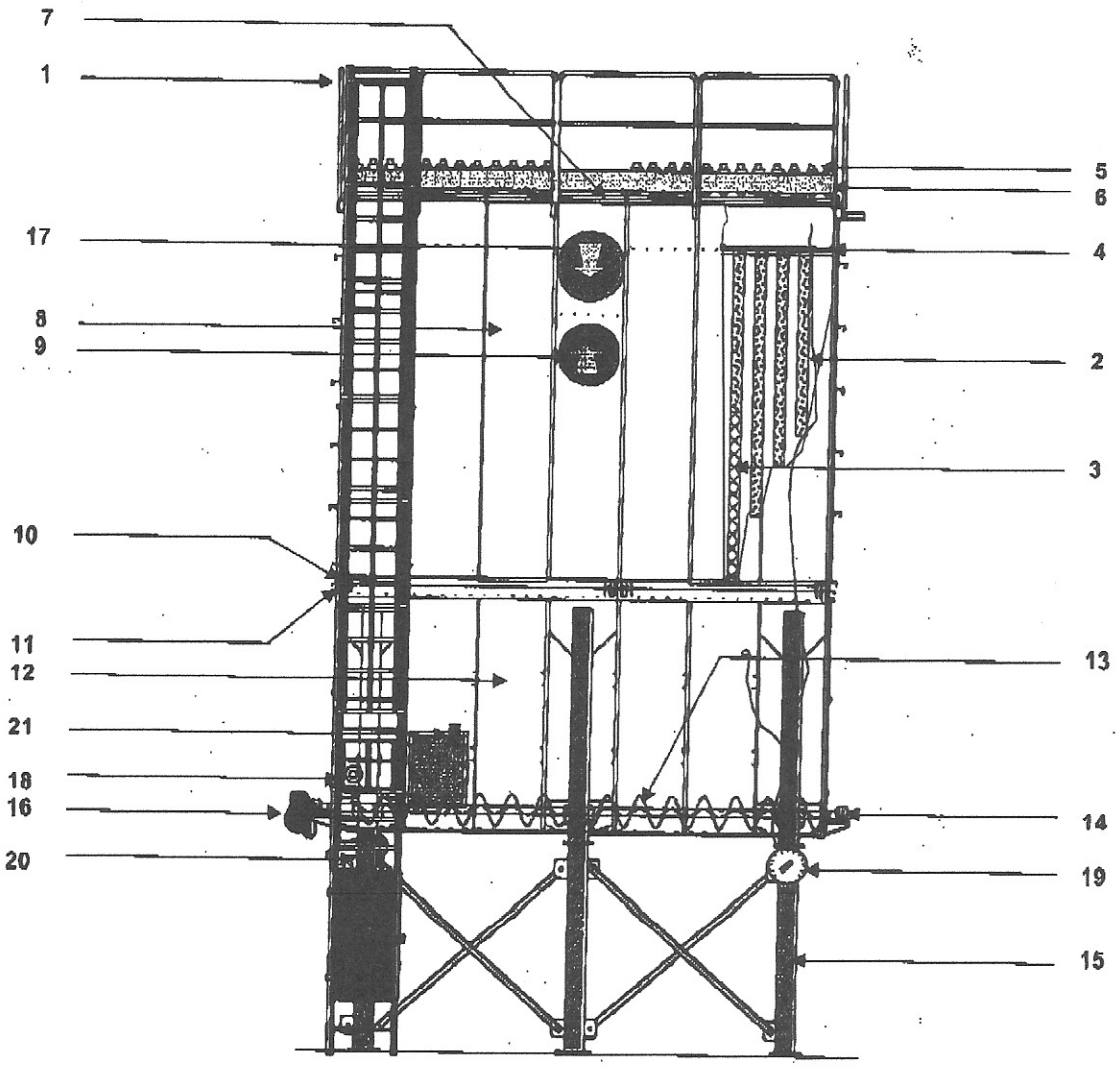
DRW. D.1. Overall view of the PJ 264/11 filter



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