



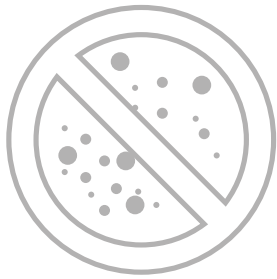
www.instalmec.it

DRYING SYSTEM FOR WOOD PARTICLES

 ENGLISH

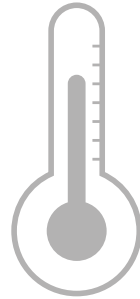


The advantages of our system



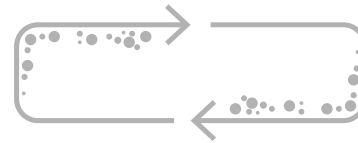
Removal of pollutants

Our innovations allow the effective separation of light and heavy pollutants



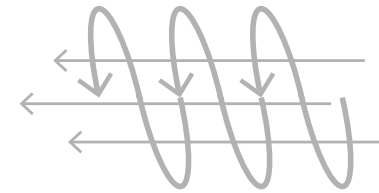
Temperature monitoring

The plant is provided with sensors that prevents the melting of silica and its vitrification, thus avoiding maintenance stops.



Extraction of silica

The extraction of silica is automatic and continuous, it is no longer necessary to stop the plant.



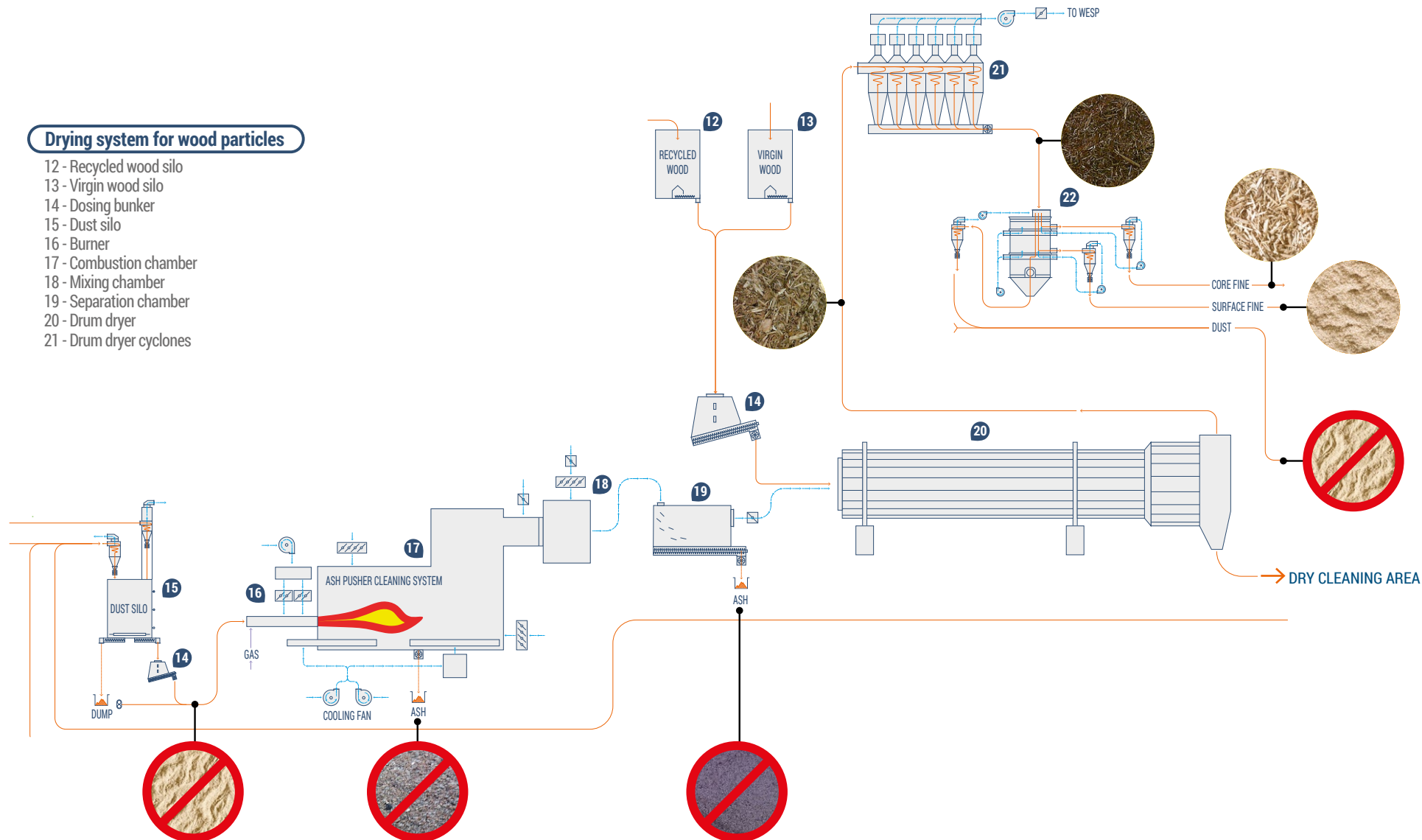
Clever drying

Coarse, dry particles remain longer in the dryer, whereas fine and wet particles leave soon the dryer and are conveyed to the cyclone.

Drying system for wood particles

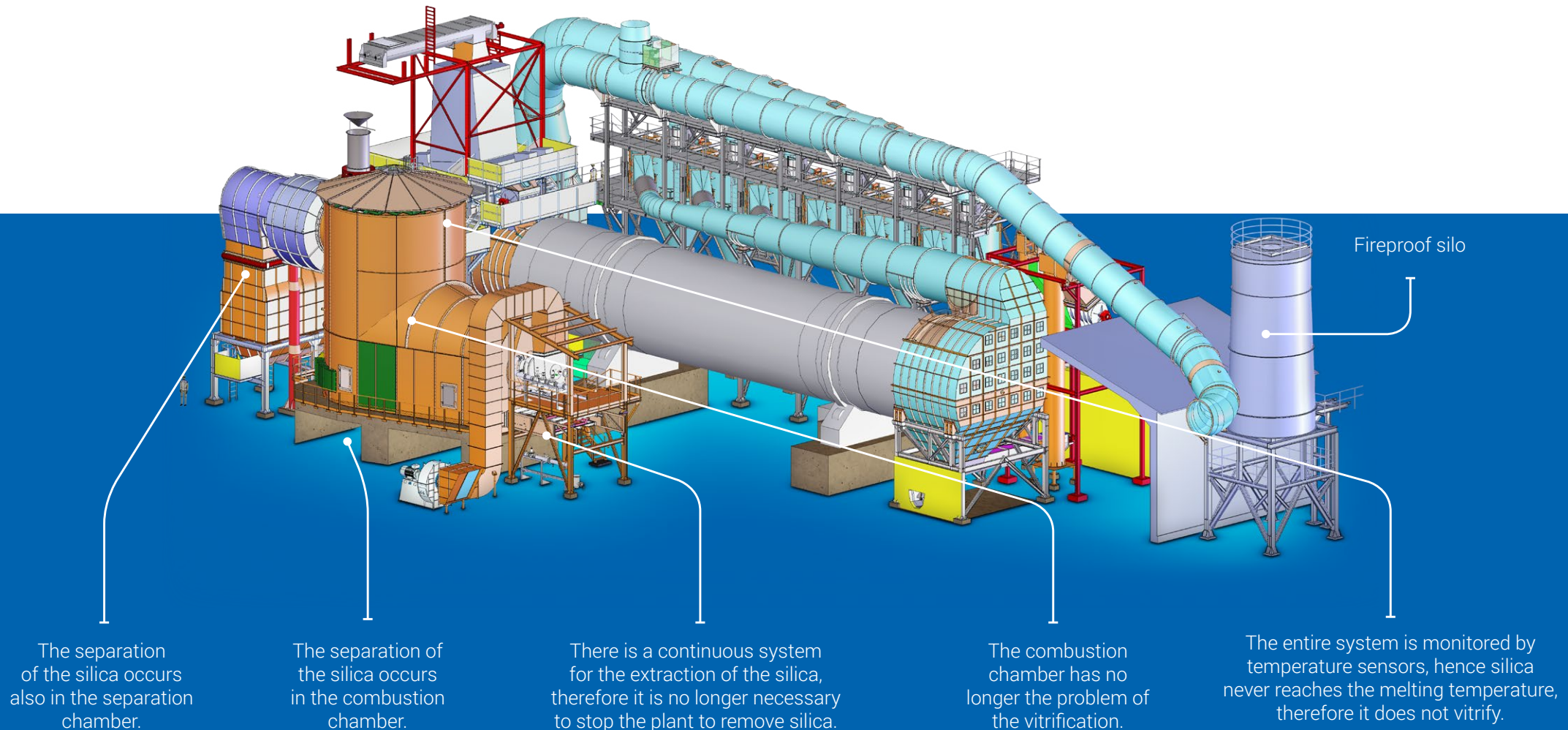
Drying system for wood particles

- 12 - Recycled wood silo
- 13 - Virgin wood silo
- 14 - Dosing bunker
- 15 - Dust silo
- 16 - Burner
- 17 - Combustion chamber
- 18 - Mixing chamber
- 19 - Separation chamber
- 20 - Drum dryer
- 21 - Drum dryer cyclones



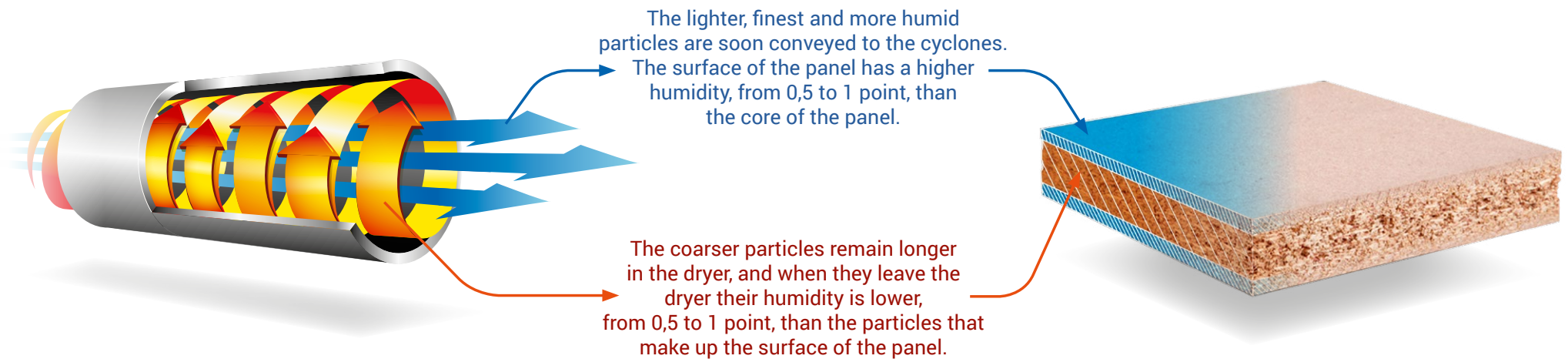
The smart dryer

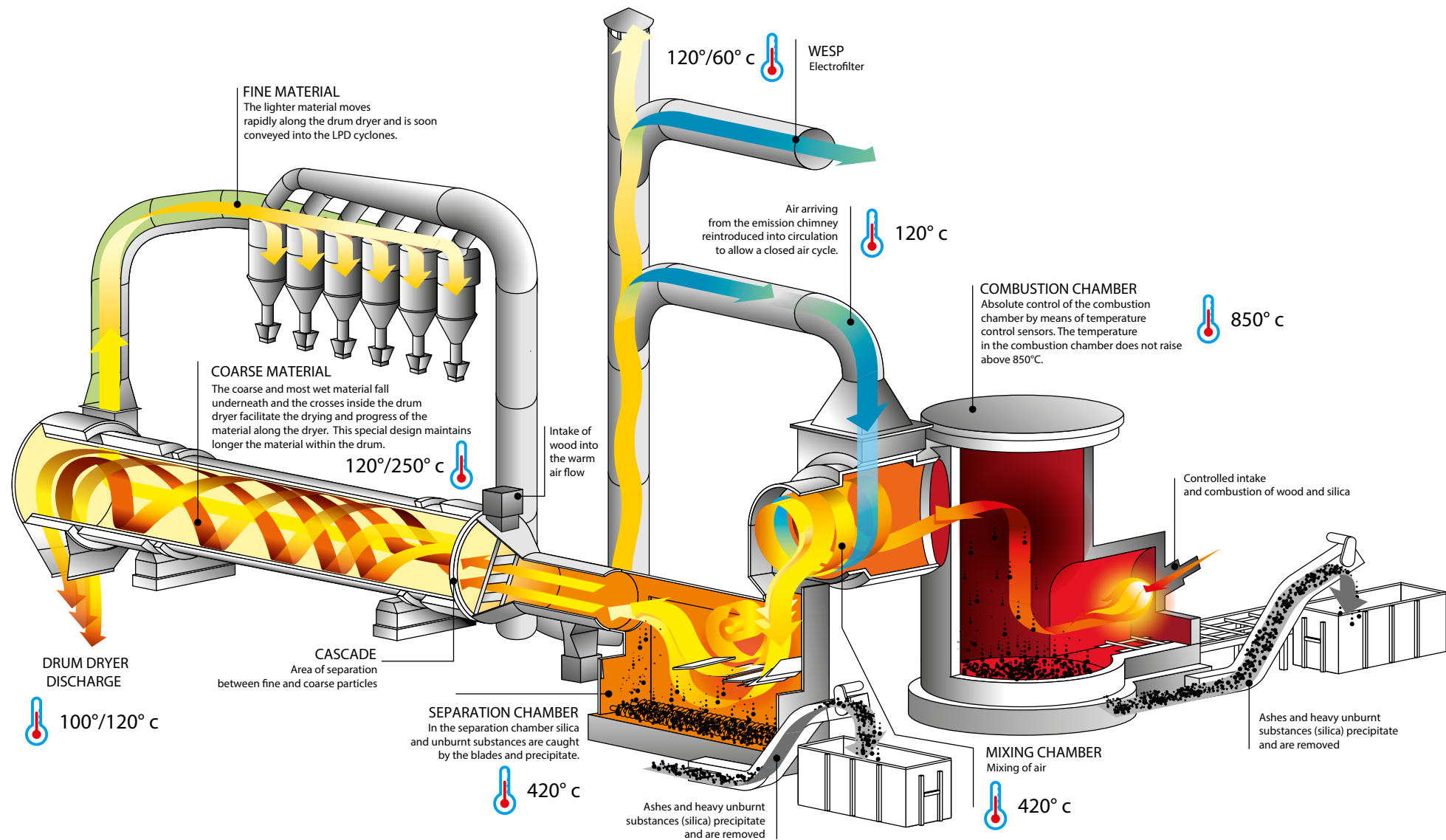
because it solves the typical problems of all dryers and has also other important functions.

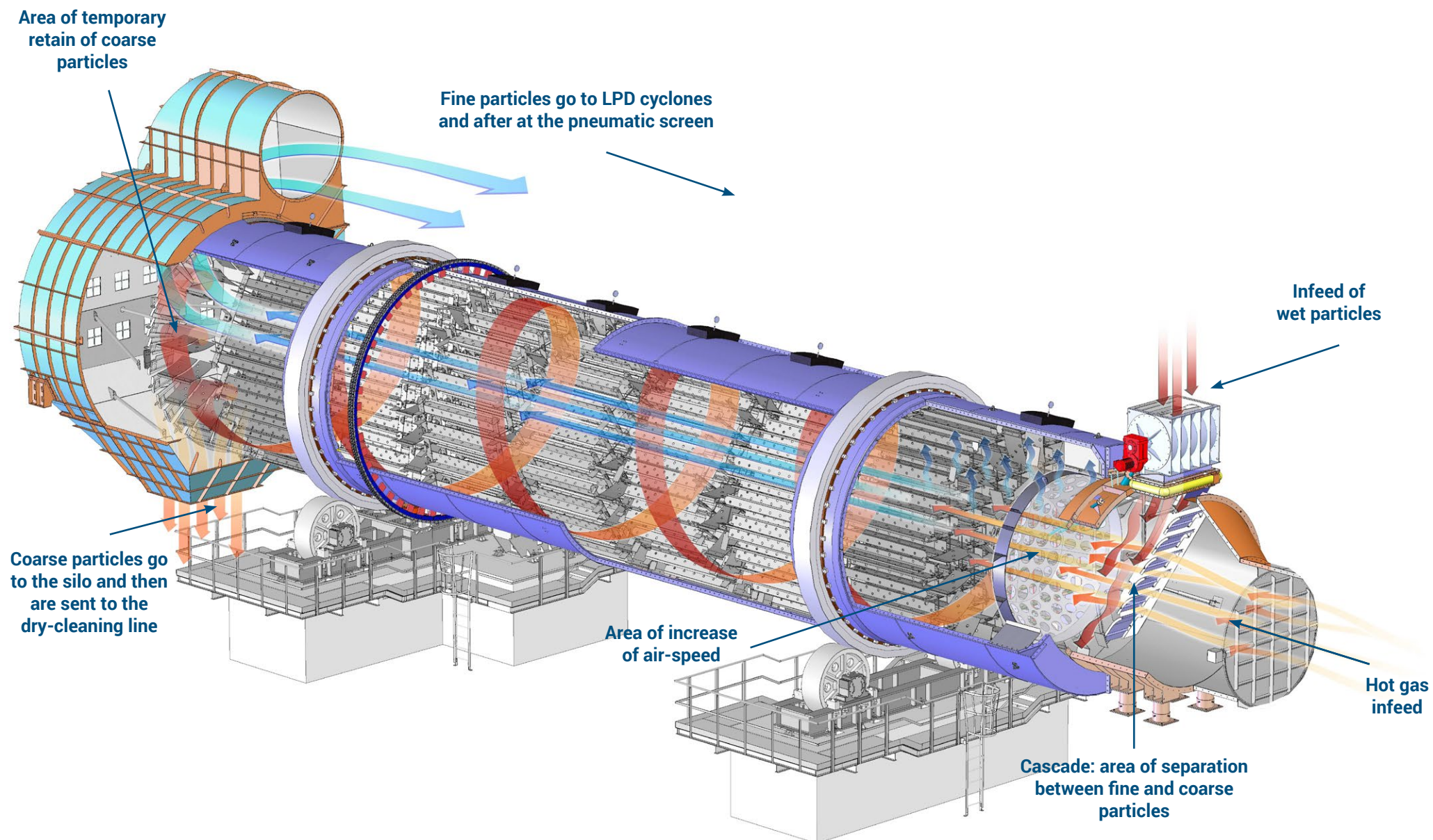


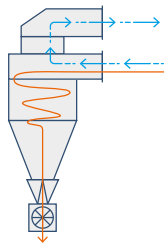
We have designed and manufactured a “smart dryer”,
with several functions in addition to the main one, drying.

Our dryer is clever because it dries fine wood particles less than coarse ones, therefore coarse particles will have a lower humidity with respect to fines.



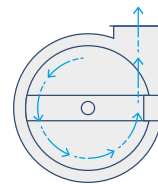






Another important innovation is the installation of our patent LPD cyclones after the dryer.

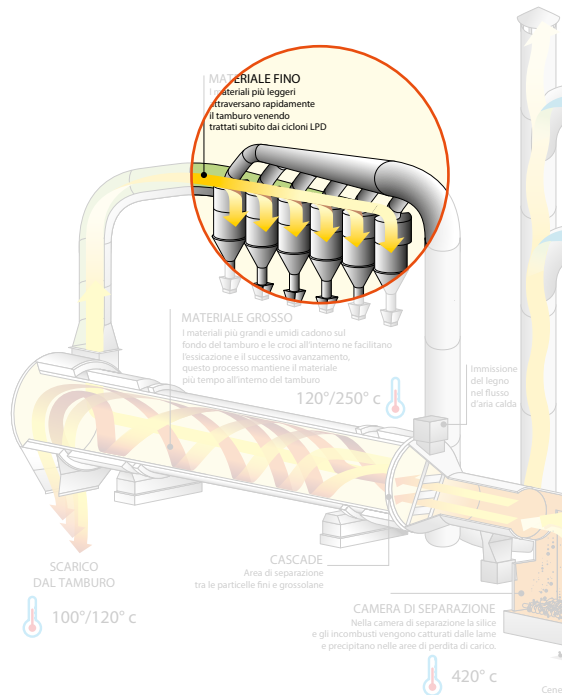
These cyclones have a very low wear and a low pressure drop, together with a little energy consumption.



Reduced energy consumption

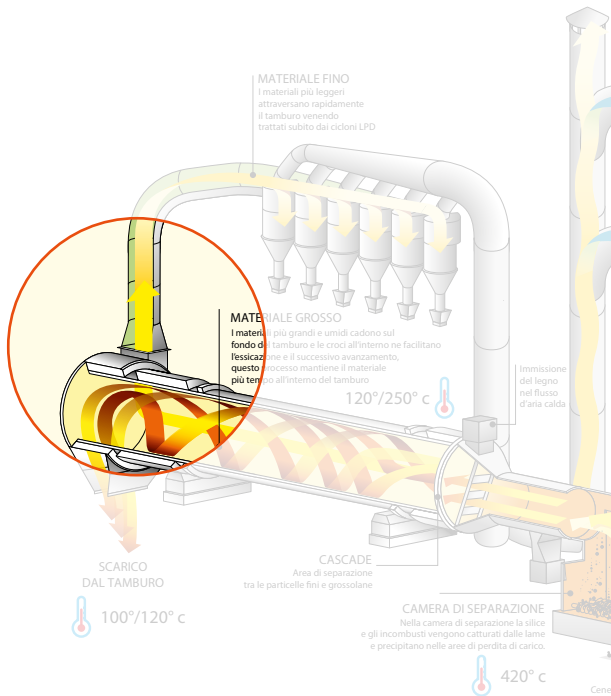
For such a big dryer a ventilator with 1.700 MW of installed capacity and 1.350 MW of absorbed power would be necessary, but we managed to install a ventilator with 1250 MW of installed capacity and 940 kW of absorbed power, saving on energy consumption.

Startup Burgos - 29/11/2016



Material at outfeed of the cyclones, after the drum dryer



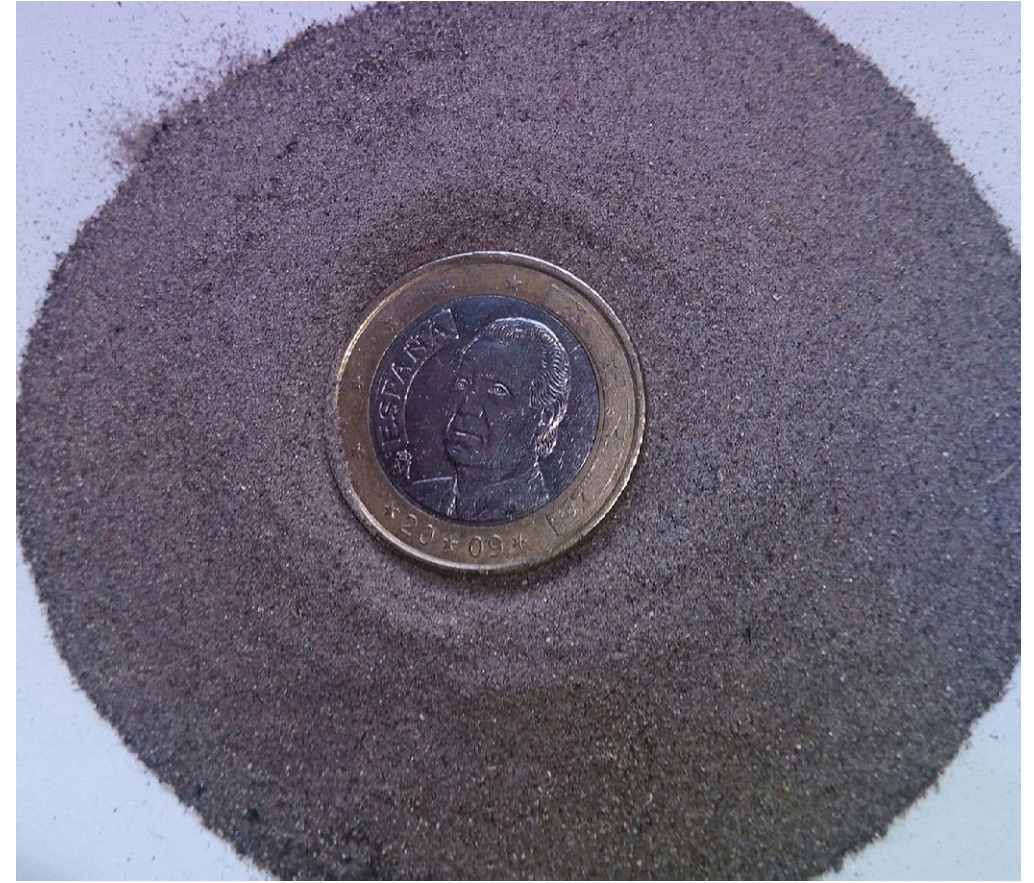


Material at outfeed of the drum dryer settling chamber





Ashes from the combustion chamber



Ashes from the separation chamber



Close cooperation with specialized companies allows us to supply systems equipped with:

- Burners
- Heat exchangers
- Particles dosing units
- Electrical plants and control units
- Fire-fighting and extinguishing systems
- Refractory coating
- Thermal insulation

Wide experience in panel board technology allows INSTALTEC to be on the market with complete, reliable and cost-effective drying units, provided with innovative solutions. Our knowledge of the problems connected with the use of recycled wood was enriched by the experience developed working together with the biggest Italian panel board producers.

Therefore, we are able to propose innovative solutions, which allow the automatic cleaning of the combustion chamber, the separation of the pollutants through the pre-dryer and a long-life of the plant components subjected to wear. The plant management is extremely safe and economical.

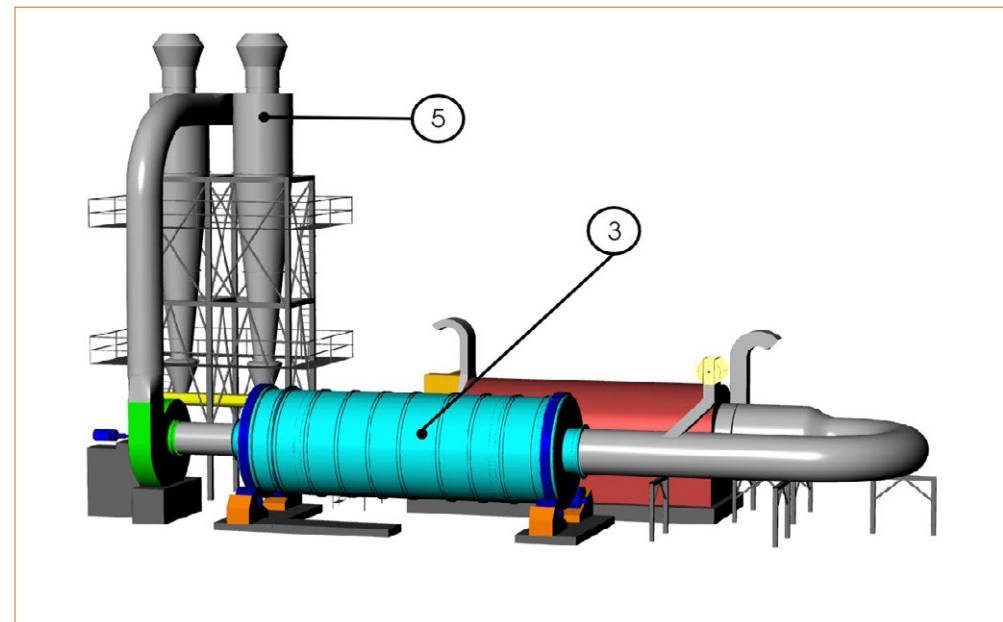
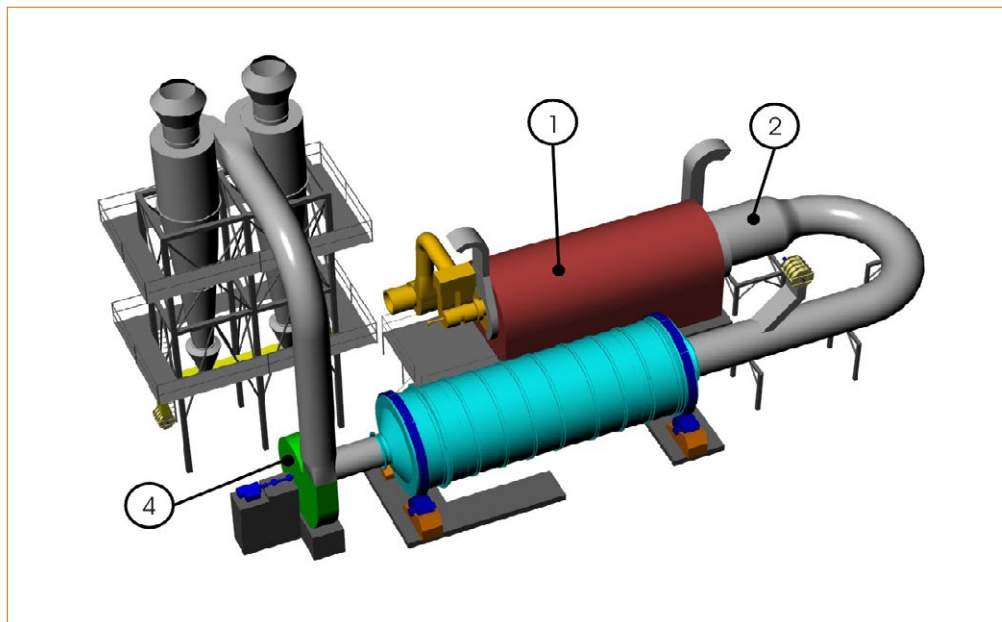
We are at your disposal to solve any technical and technological problems and to modify existing plants to increase their capacity and to improve the plant management. INSTALTEC designs, manufactures and assembles these plants availing itself only of its internal staff.

We are able to provide “turn key” plants suitable for all Customer needs.



Dryer type CT

Dryer for wood particles. Suitable for low capacity of dried particles.
 Simple and very reliable. Small installation area. Low investment.



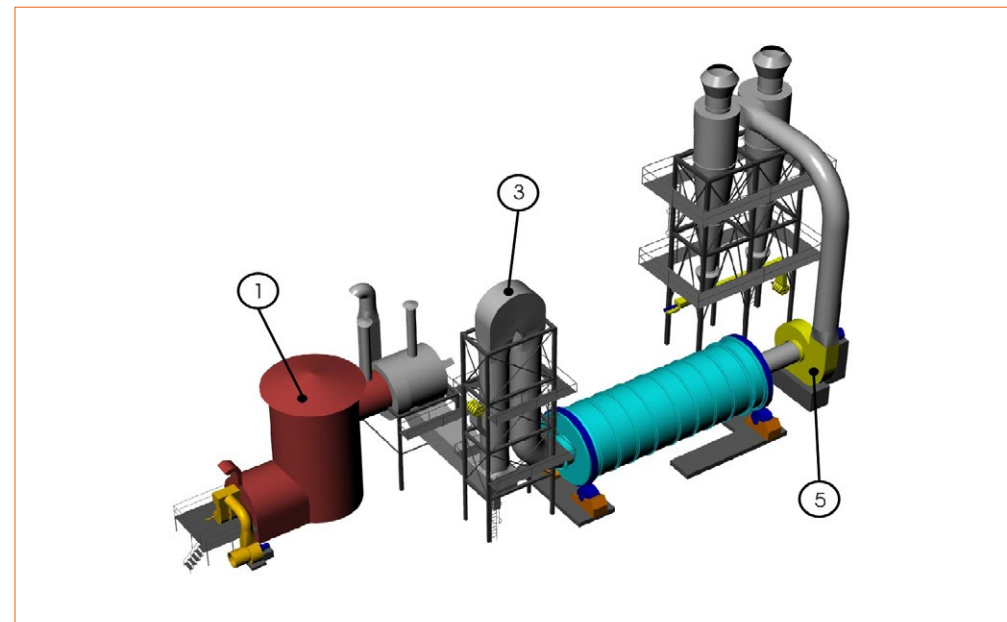
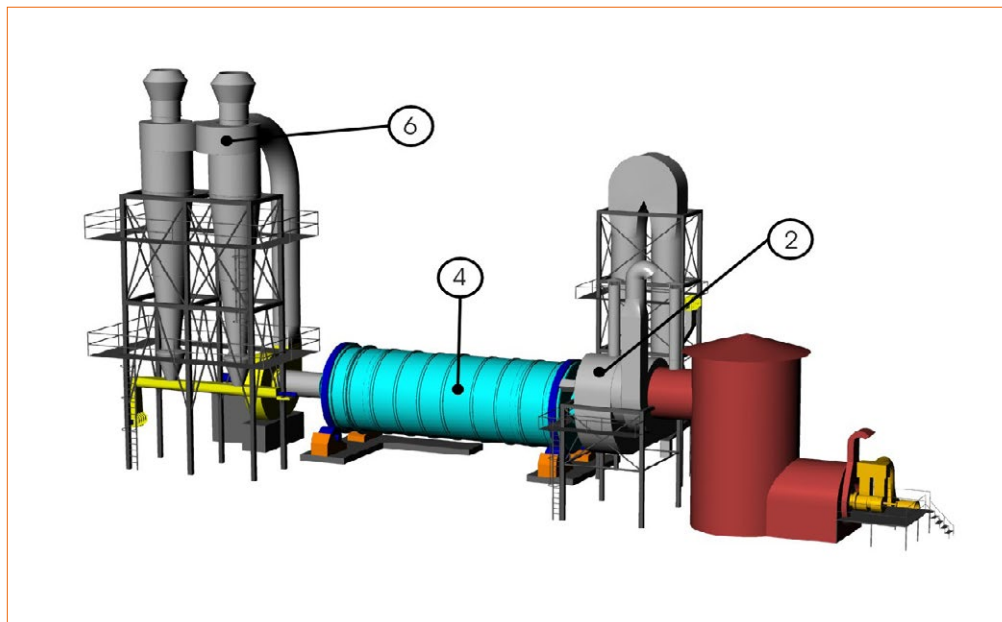
Type	Water evaporation*	Drum dimensions	Cyclones battery	Installed power
CT 20	2.000 Kg/h	Ø=2.400mm / L=10.000mm	Ø=1.800mm / N°=1	70 kW
CT 40	4.000 Kg/h	Ø=3.200mm / L=10.000mm	Ø=2.500mm / N°=1	120 kW
CT 60	6.000 Kg/h	Ø=3.600mm / L=12.000mm	Ø=2.000mm / N°=2	175 kW

1. Combustion chamber
2. Mixing chamber
3. Three-pass drum
4. Main fan
5. Cyclones battery

* Note: wood particles inlet moisture 100% atro

Dryer type COT

Dryer for wood particles. Suitable for low capacity of dried particles.
High technology. Small installation area. Integrated pre-dryer.



Type	Water evaporation*	Drum dimensions	Cyclones battery	Installed power
COT60	6.000 Kg/h	Ø=3.600mm / L=12.000mm	Ø=2.000mm / N°=2	175 kW
COT80	8.000 Kg/h	Ø=4.000mm / L=12.000mm	Ø=2.250mm / N°=2	270 kW
COT100	10.000 Kg/h	Ø=4.000mm / L=15.000mm	Ø=2.500mm / N°=2	270 kW

1. Combustion chamber
2. Mixing chamber
3. Pre-dryer
4. Three-pass drum
5. Main fan
6. Cyclones battery

* Note: wood particles inlet moisture 100% atro

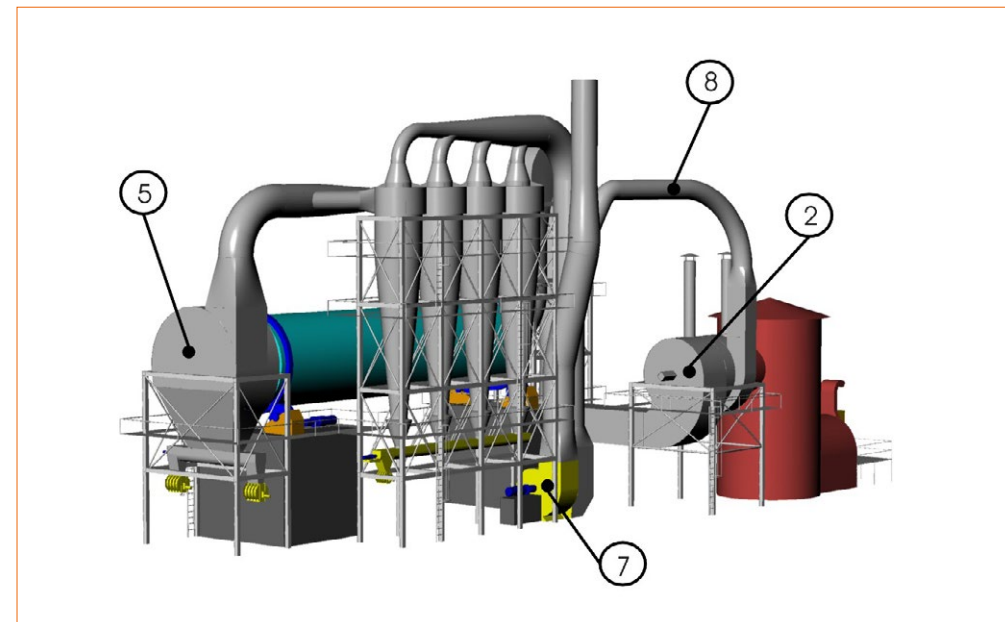
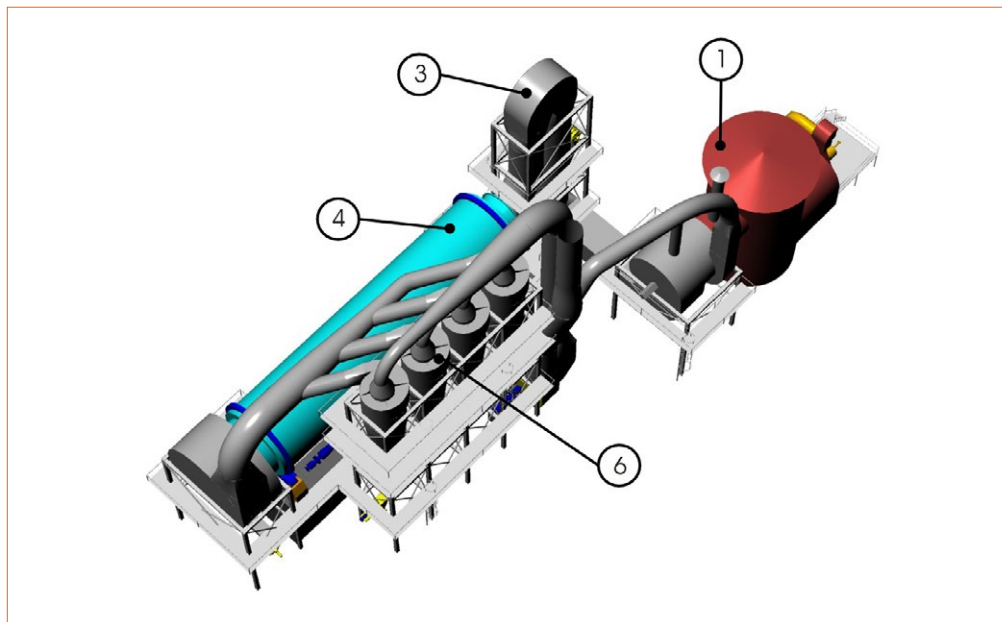
Dryer type COT/V

Dryer for wood particles. Suitable for medium capacity of dried particles. High technology. Specially designed for RECYCLED wood.

Combustion chamber with automatic ash extraction system.

Separation chamber for the settling of heavier particles.

Fan installed after cyclones battery.



Type	Water evaporation*	Drum dimensions	Cyclones battery	Installed power
COT100/V	10.000 Kg/h	Ø=4.000mm / L=15.000mm	Ø=2.250mm / N°=3	260 kW
COT120/V	12.000 Kg/h	Ø=4.400mm / L=15.000mm	Ø=2.000mm / N°=4	325 kW
COT150/V	15.000 Kg/h	Ø=4.400mm / L=18.000mm	Ø=2.250mm / N°=4	400 kW

* Note: wood particles inlet moisture 100% atro

1. Combustion chamber
2. Mixing chamber
3. Pre-dryer
4. Three-pass drum
5. Separation chamber
6. Cyclones battery
7. Main fan
8. Recycling duct

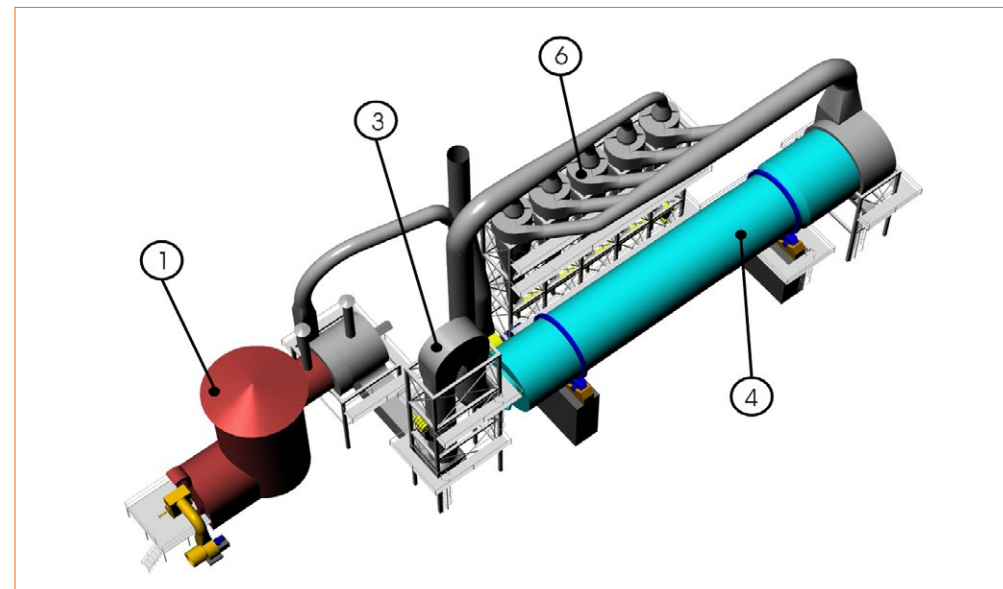
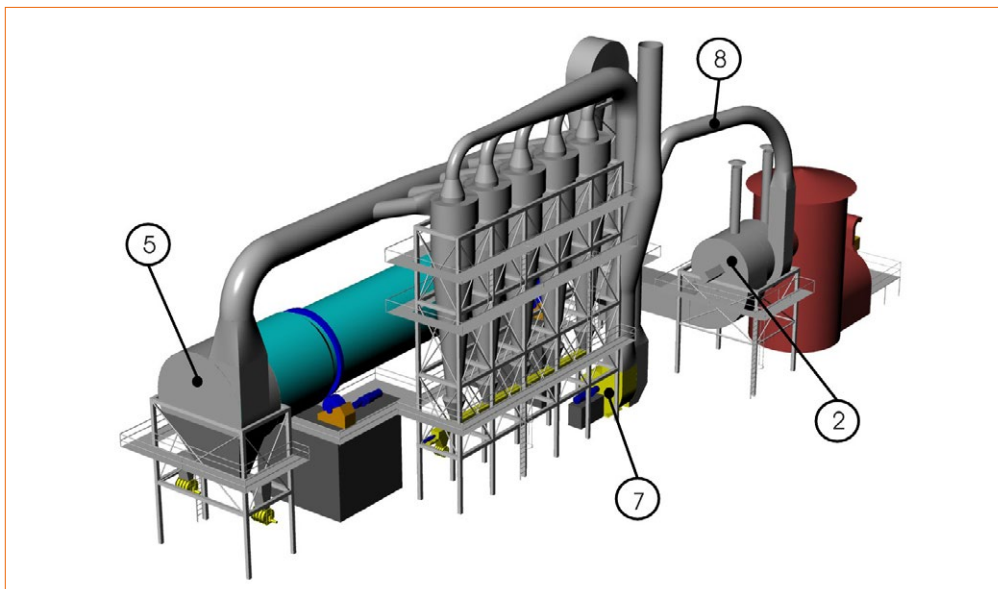
Dryer type COM/V

Dryer for wood particles. Suitable for high capacity of dried particles.

High technology. Specially designed for RECYCLED wood. Combustion chamber with automatic ash extraction system.

Separation chamber for the settling of heavier particles. Fan installed after cyclones battery.

1. Combustion chamber
2. Mixing chamber
3. Pre-dryer
4. Single-pass drum
5. Separation chamber
6. Cyclones battery
7. Main fan
8. Recycling duct



Type	Water evaporation*	Drum dimensions	Cyclones battery	Installed power
COM120/V	12.000 Kg/h	Ø=3.600mm / L=26.000mm	Ø=2.000mm / N°=4	320 kW
COM150/V	15.000 Kg/h	Ø=4.000mm / L=26.000mm	Ø=2.250mm / N°=4	375 kW
COM180/V	18.000 Kg/h	Ø=4.400mm / L=26.000mm	Ø=2.250mm / N°=5	500 kW
COM200/V	20.000 Kg/h	Ø=4.400mm / L=26.000mm	Ø=2.250mm / N°=6	500 kW
COM250/V	25.000 Kg/h	Ø=4.800mm / L=26.000mm	Ø=2.500mm / N°=5	625 kW

Type	Water evaporation*	Drum dimensions	Cyclones battery	Installed power
COM300/V	30.000 Kg/h	Ø=5.400mm / L=26.000mm	Ø=2.500mm / N°=6	800 kW
COM350/V	35.000 Kg/h	Ø=5.400mm / L=30.000mm	Ø=3.000mm / N°=5	900 kW
COM400/V	40.000 Kg/h	Ø=6.000mm / L=30.000mm	Ø=3.000mm / N°=6	1.000 kW
COM450/V	45.000 Kg/h	Ø=6.000mm / L=30.000mm	Ø=3.000mm / N°=7	1.150 kW
COM500/V	50.000 Kg/h	Ø=6.600mm / L=30.000mm	Ø=3.000mm / N°=8	1.250 kW

* Note: wood particles inlet moisture 100% atro



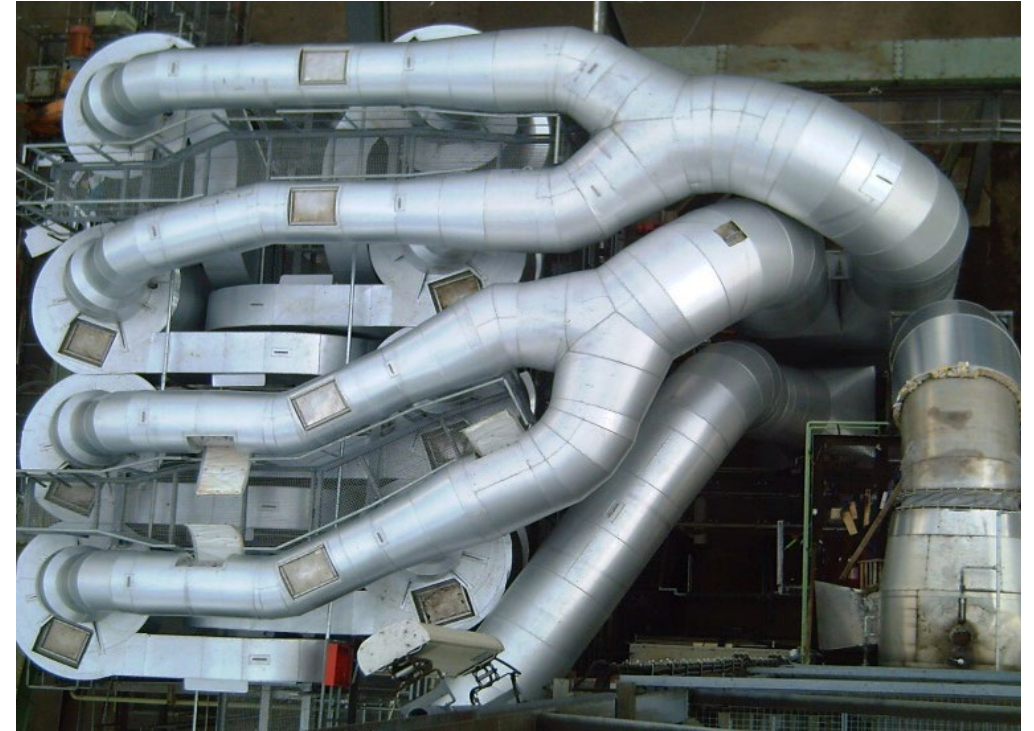
La camera di combustione utilizza polverino di legno contenente sabbia. Il bruciatore è studiato per la massima resa a costi contenuti dei ricambi soggetti a usura. Il bruciatore regola in automatico il combustibile per mantenere costanti temperatura in uscita dal tamburo e umidità del legno. La camera di combustione facilita il deposito della sabbia contenuta nel polverino di legno e ha un sistema automatico di rimozione degli incombusti che si depositano sul fondo della camera. La camera è dotata di una serie di ingressi per l'aria esterna. Un software regola in automatico i flussi di aria esterna mantenendo le temperature all'interno della camera entro i limiti previsti ed evitando che all'interno la sabbia nel polverino possa fondere creando blocchi solidi che potrebbero dare problemi al sistema di pulizia automatico.

Vantaggi

- **Riduzione dei tempi di manutenzione fermo impianto;**
- **Aumento della durata dei componenti;**
- **Combustione ottimale.**



Its original design and revolutionary operating principle, developed and patent by Instalmec, gives the LPD cyclone incomparable benefits with respect to traditional cyclones. The main innovation is the special finned flow breaker system within the cyclone, which enables the separation of particles at lower air speed than in traditional cyclones.



Advantages

- Reduction of pressure drop
- Lower particle speed (hence less wear and maintenance costs)
- Lower kW absorption
- Simpler and lighter steel frames
- Cheaper installation costs
- Compact design suitable for indoor installation
- Less surface to be insulated

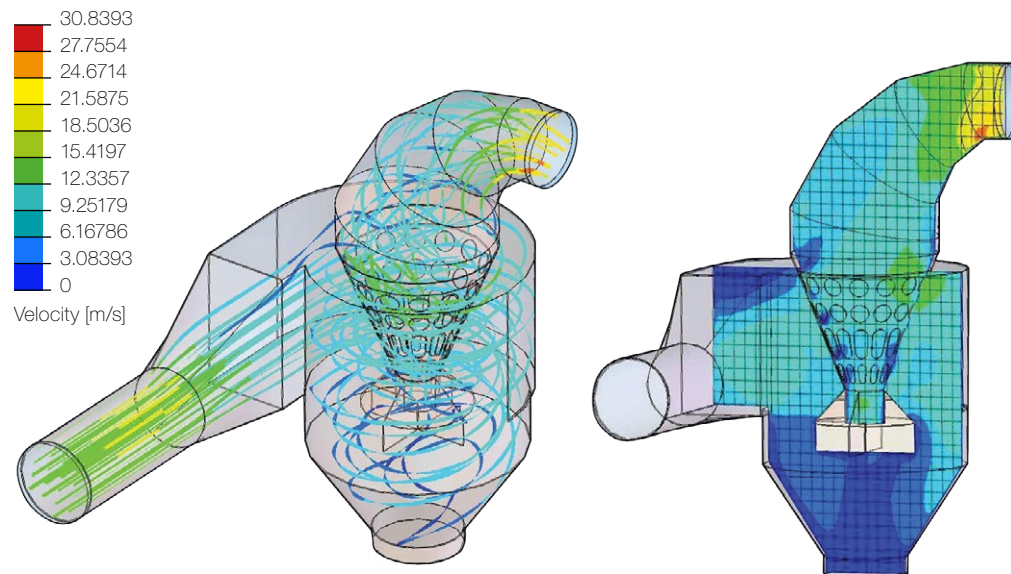
Cyclones (Fluid dynamics simulations)

Operating principle

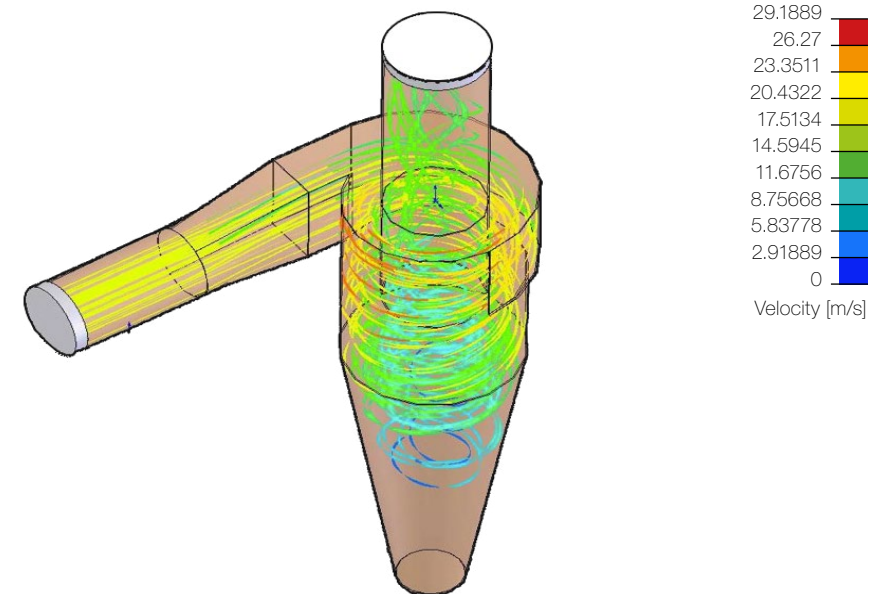
The innovative design of the air outlet, the internal helical scroll (for specific applications) and the installation of a special finned flow breaker system enable the separation of material at lower air speed compared to traditional cyclones as the air is evacuated in the cylindrical section through the special finned flow breaker (main innovation concept).

Low Pressure Drop (& low speed)

Cyclones patented by Instalmec



Standard cyclones



Lower
air speed

Lower
Pressure Drop

Lower kW
absorption

Application example for dryer

Energy saving		
Air throughput [m³/h]	Ø cyclone [mm]	kW Absorption
1.000	350	- 0,26 kW/h
2.000	510	- 0,51 kW/h
2.500	575	- 0,64 kW/h
3.500	650	- 0,89 kW/h
4.500	750	- 1,15 kW/h
6.500	900	- 1,66 kW/h
8.000	1000	- 2,04 kW/h
10.000	1.125	- 2,55 kW/h
12.500	1.250	- 3,19 kW/h
18.000	1.500	- 4,60 kW/h
25.000	1.750	- 6,26 kW/h
32.000	2.000	- 8,17 kW/h
40.000	2.250	- 10,21 kW/h
46.000	2.400	- 11,74 kW/h
60.000	2.700	- 15,32 kW/h
75.000	3.000	- 19,15 kW/h
85.000	3.250	- 21,70 kW/h
100.000	3.500	- 25,53 kW/h
130.000	4.000	- 33,19 kW/h
160.000	4.500	- 40,85 kW/h
200.000	5.000	- 51,06 kW/h

Dryers retro-fit

Taking advantages of its long experience in the world of dryers for wood particles, Instalmec offers to retro-fit existing old dryers with state of the art technology.

- New design of the pneumatic circuit.
- Fluid dynamic optimization by means of 3D Flow Works
- Modification of the connections of the fan.
- The inlet of the fan is connected to the outlet of the cyclones.
- Installation of LPD (low Pressure Drop) cyclones.

Advantages

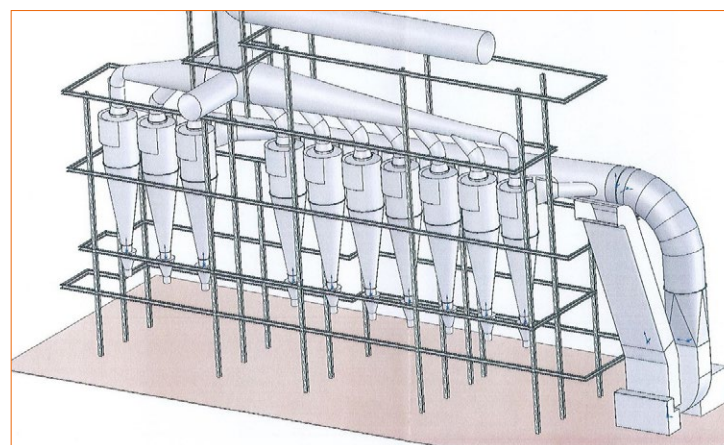
- Less foundation loads: -60%
- Less costs for steel frames: -55%

Benefits

- Increasing of the dryer capacity.
- Electric energy saving thanks to reduced pressure drop.
- Reduction of particle damages as they do not go though the fan.
- Panels of better quality.
- Elimination of wear in the fan, in the pipes and in the cyclones.

- Less costs for assembly: -60%
- Less costs for thermal insulation: -50%
- Electrical absorption (kW) saving: -60%

Traditional concept



Instalmec innovative concept

