



LPD CYCLONE

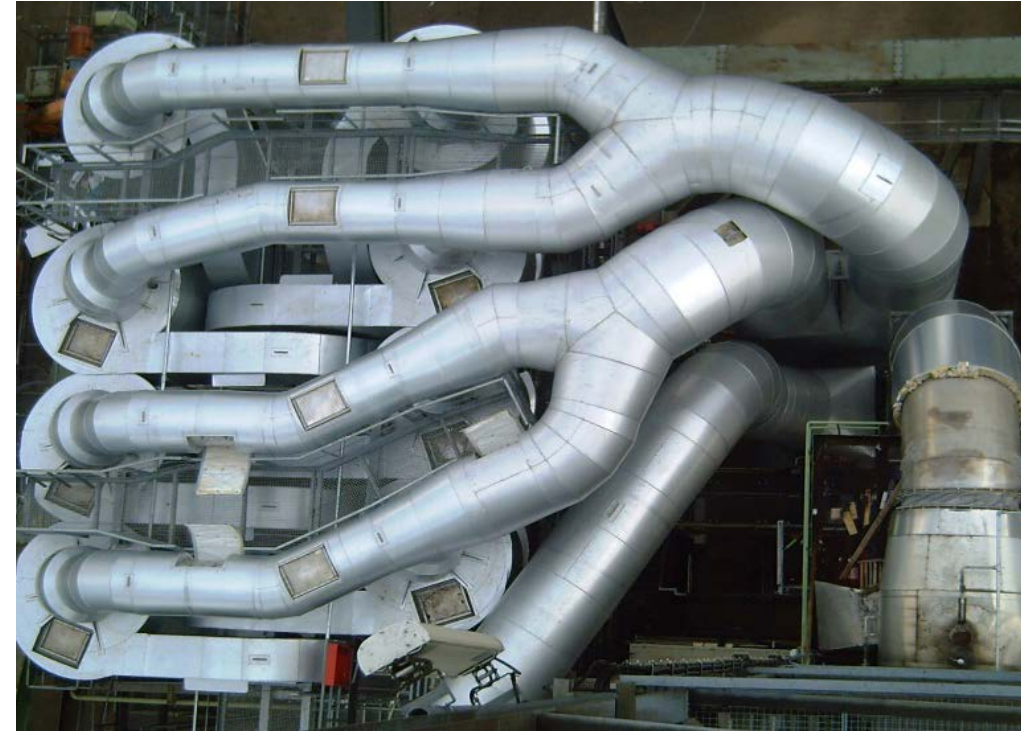
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Its original design and revolutionary operating principle, developed and patent by Instalmec, gives the LPD cyclone incomparable benefits with respect to traditional cyclones. The main innovation is the special finned flow breaker system within the 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

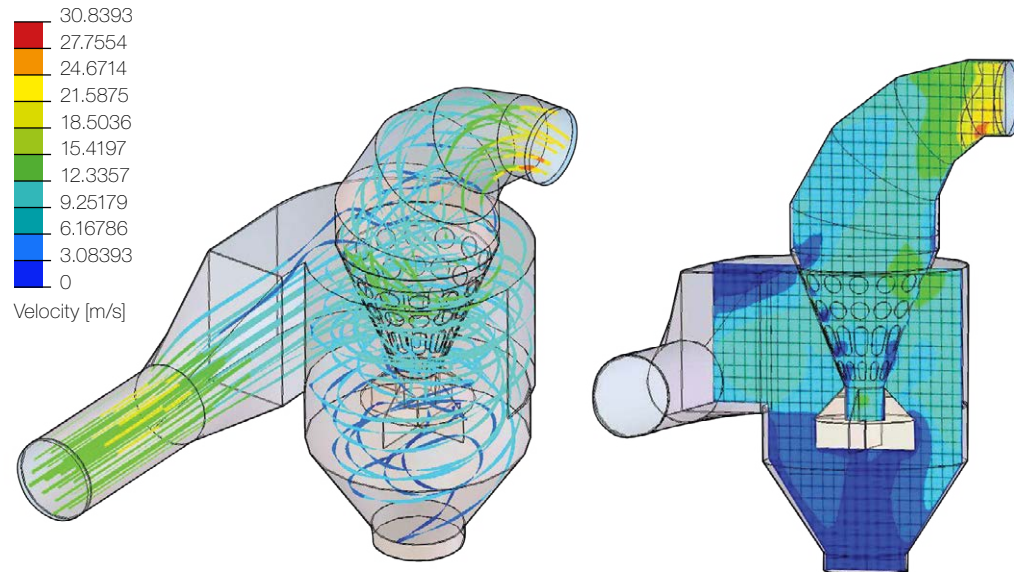
Cyclones (Fluid dynamics simulations)

Operating principle

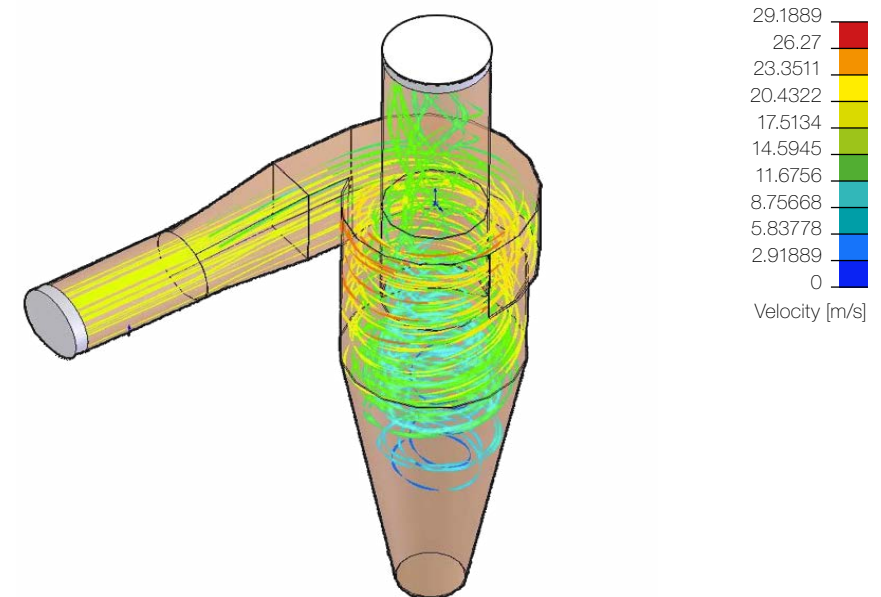
The innovative design of the air outlet, the internal helical scroll (for specific applications) and the installation of a special finned flow breaker system enable the separation of material at lower air speed compared to traditional cyclones as the air is evacuated in the cylindrical section through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

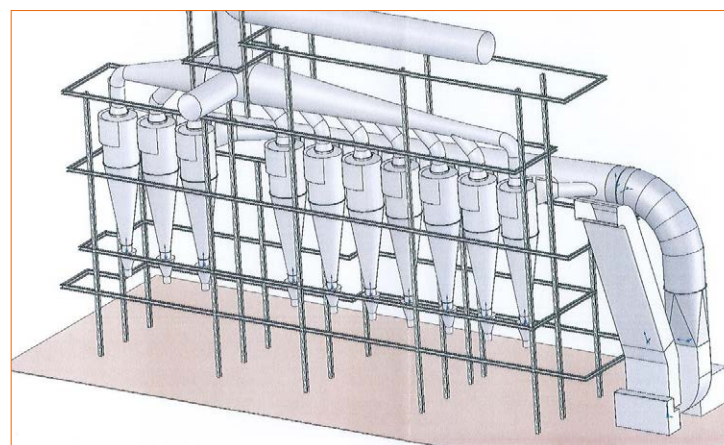
- Less foundation loads: -60%
- Less costs for steel frames: -55%

Benefits

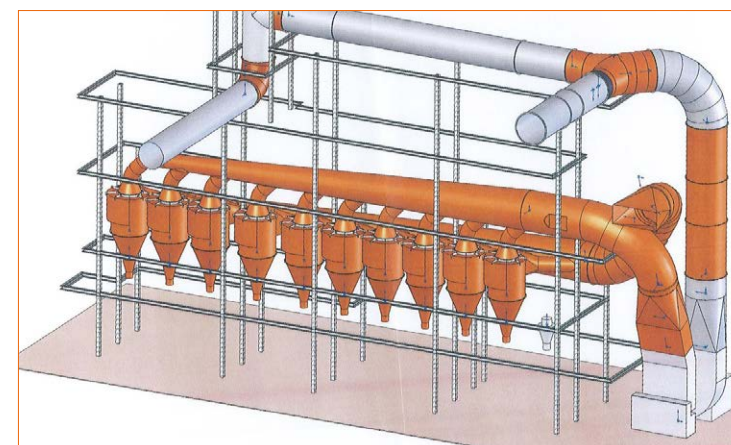
- Increasing of the dryer capacity.
- Electric energy saving thanks to reduced pressure drop.
- Reduction of particle damages as they do not go though the fan.
- Panels of better quality.
- Elimination of wear in the fan, in the pipes and in the cyclones.

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

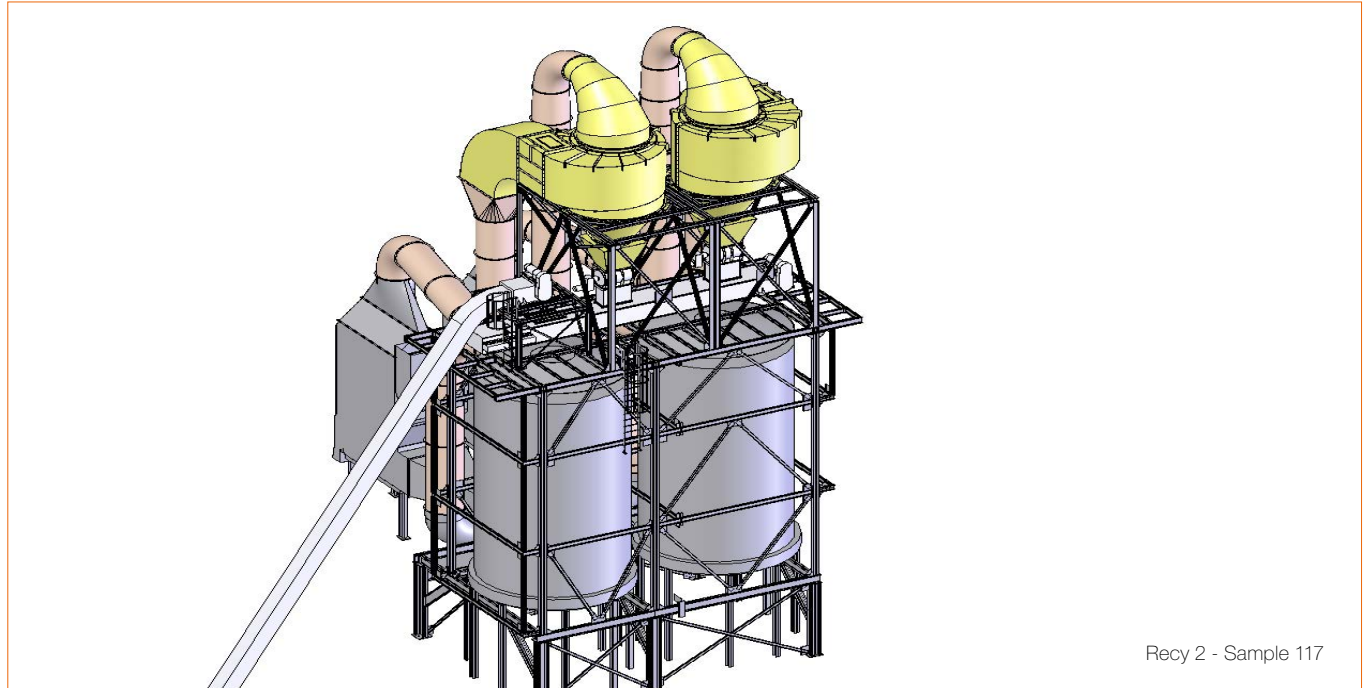
Traditional concept



Instalmec innovative concept



How the problem of cyclones wear in gruppo Frati was solved definitively



Problem:

Because of the cyclones' internal surface wear, every single year FRATI group was forced to repair and, often, even replace its cyclones. This involved considerable maintenance costs and extended plant standstills.

Solution:

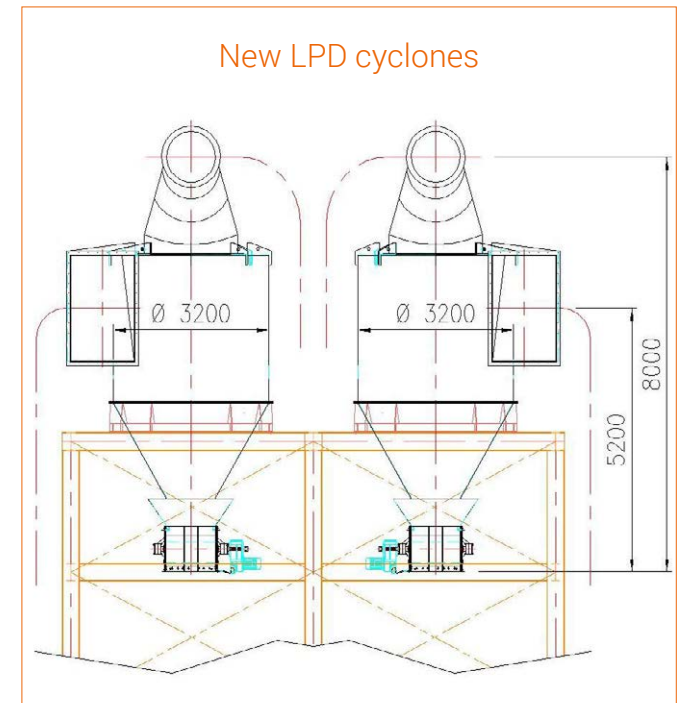
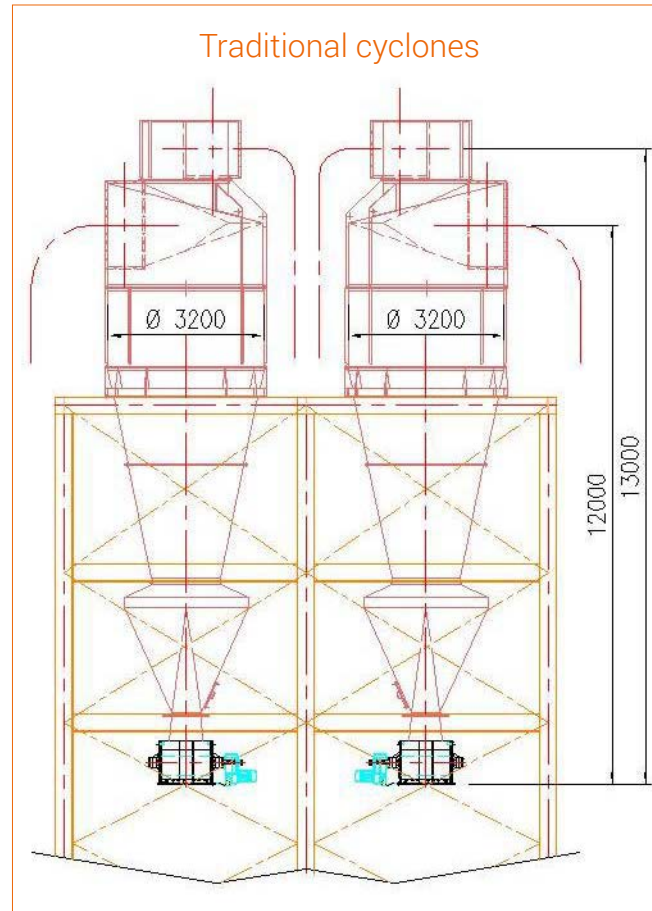
Recycled wood cleaning

Instaltec solution

— New LPD cyclones installation

— D.= 3.200 mm H.= 8.000 mm

Traditional cyclones with same diameter are 13.000 mm high



Wear measured two years from installation of our LPD cyclones

After two years of continuous operation, the original thickness of 5 mm decreased of only 0,20 mm maximum.

(Measured by the client)

