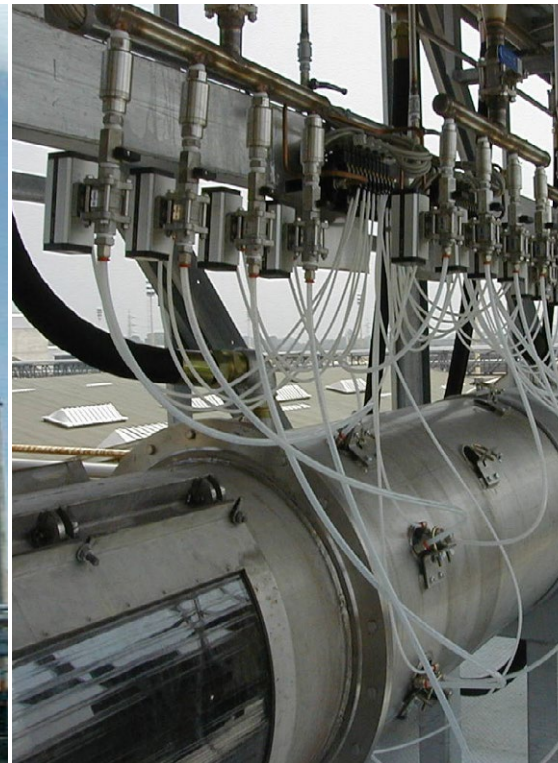




PLANT FOR MDF PANELS

www.instalmec.it

 ENGLISH



The advantages of our system



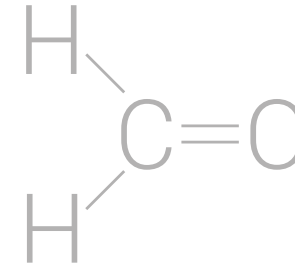
Increase
+5% of production

The aim of the dryer is to dry the water, and not the glue, in this way there is a 5% production.



Less glue
-15 up to 20%

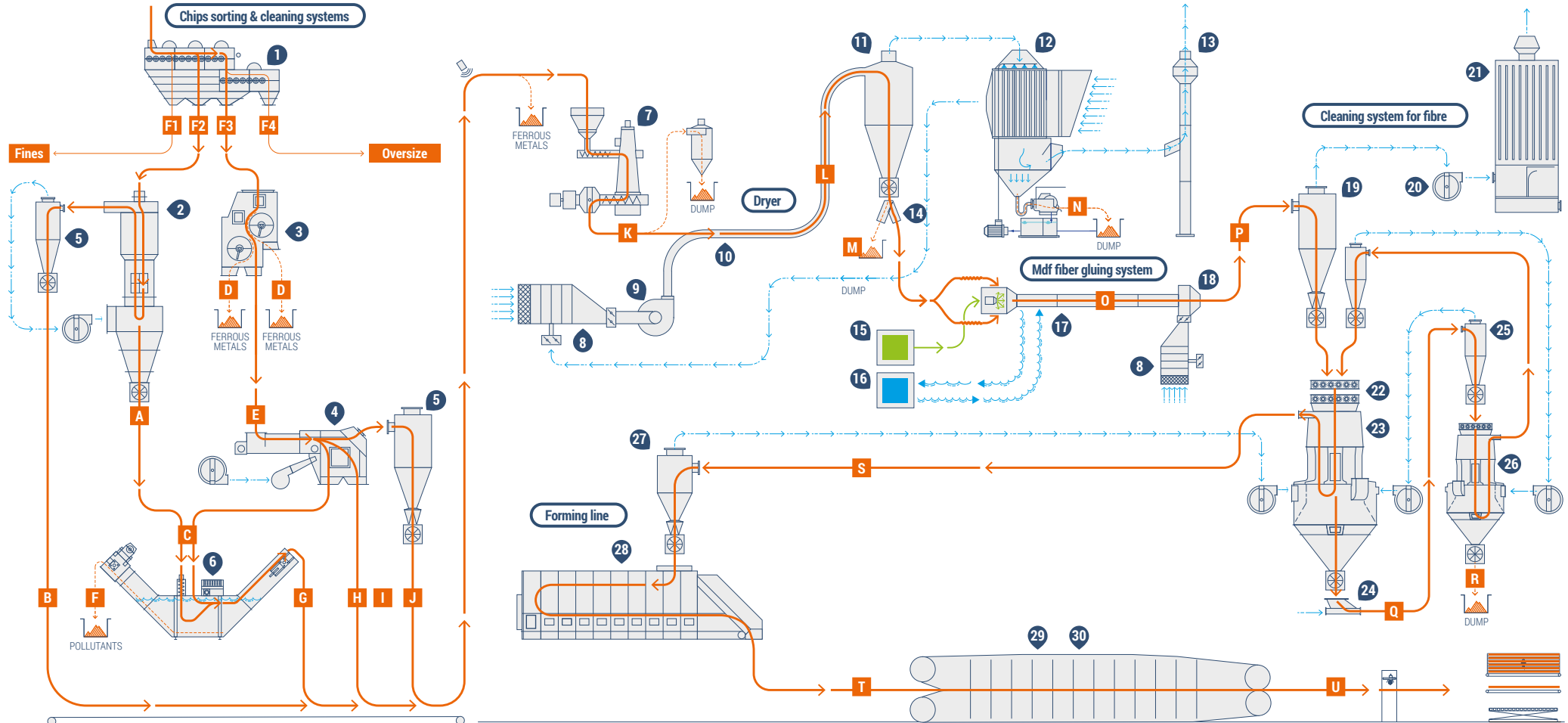
The glue does not enter into the dryer, in this way glue is not stressed and maintains its perfect properties, moreover you save on the amount of glue used.



Less emissions
only 1 - 2 mg/Nm³

Glue does not enter into the dryer and does not exceeds 60° in the processes, in this way it does not release formaldehyde into the environment.

Instalmec machinery and systems



CHIPS SORTING & CLEANING SYSTEMS

- 1 - Disk roller screen
- 2 - Gravimetric separator
- 3 - Magnetic separator for metals
- 4 - Kinetic separator
- 5 - Cyclone LPD
- 6 - Water separator
- 7 - Defibrator (No Instalmec)

DRYER

- 8 - Mixing chamber
- 9 - Dryer fan
- 10 - Drying
- 11 - Cyclone
- 12 - Heat exchanger
- 13 - Chimney demister
- 14 - Diverter

MDF FIBER GLUING SYSTEM

- 15 - Glue preparation
- 16 - Chiller
- 17 - Dry inline gluing
- 18 - Mixing chamber

CLEANING SYSTEM FOR FIBRE

- 19 - Pre sifter cyclones
- 20 - Filter fan
- 21 - Filter
- 22 - Defibrator
- 23 - Pre sifter
- 24 - Ejector
- 25 - Cyclone Post sifter
- 26 - Post sifter

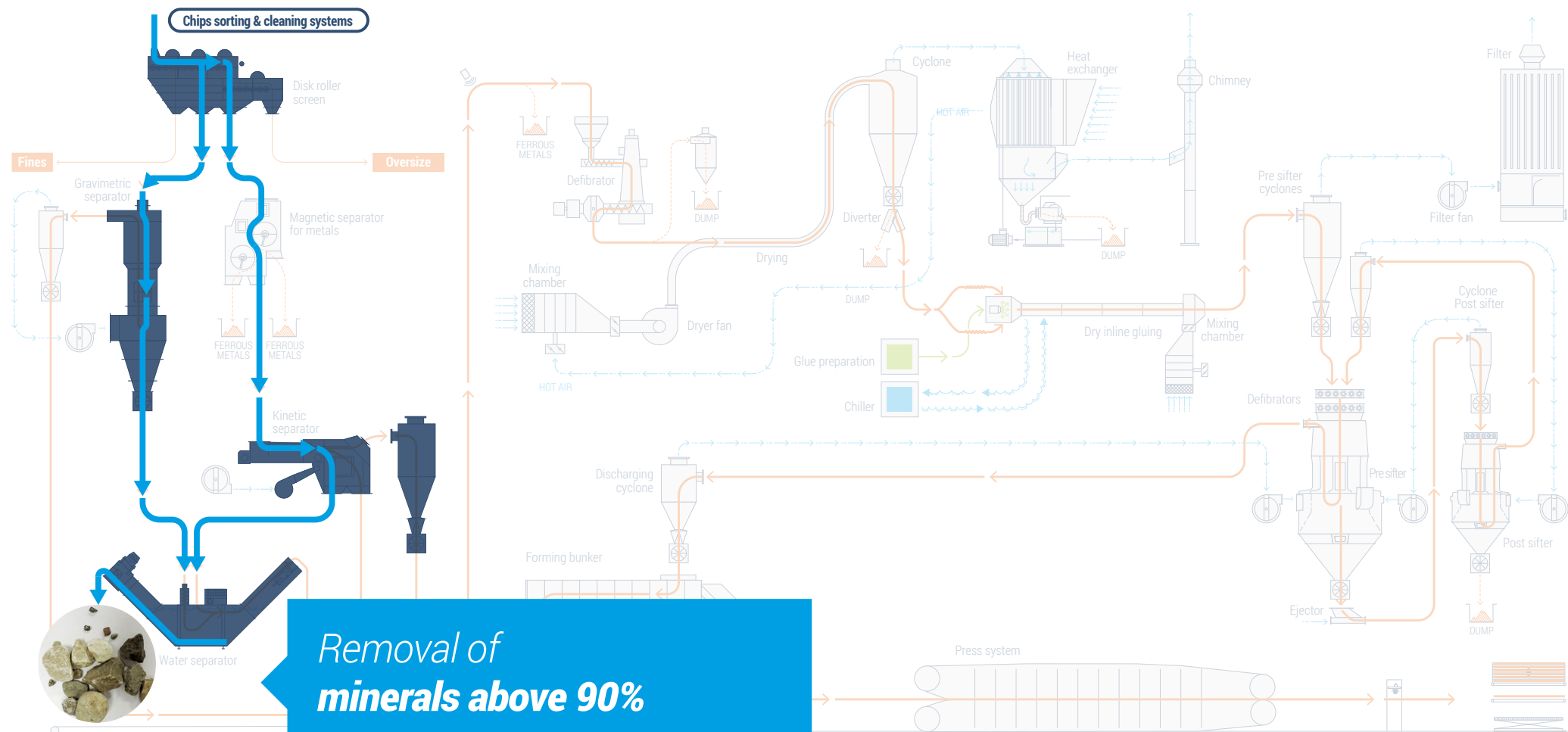
FORMING LINE

- 27 - Discharging cyclone
- 28 - Forming bunker
- 29 - Press system (No Instalmec)
- 30 - Press exhaust cleaning system

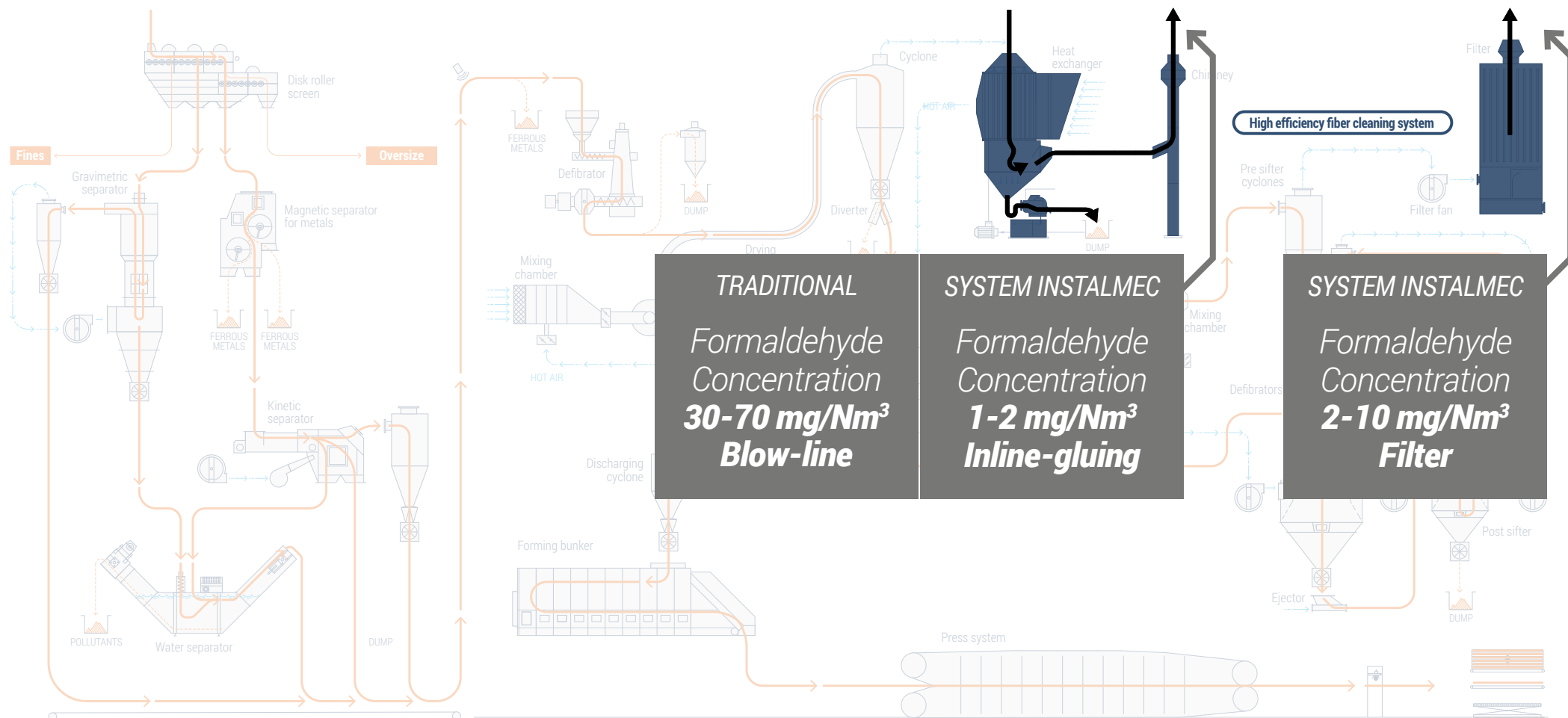
The advantages of our solutions



The advantages of our solutions

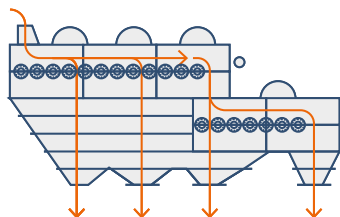


The advantages of our solutions

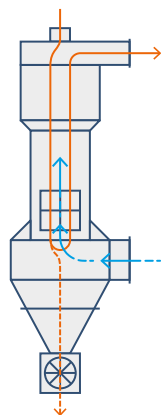


CHIPS SORTING & CLEANING SYSTEMS

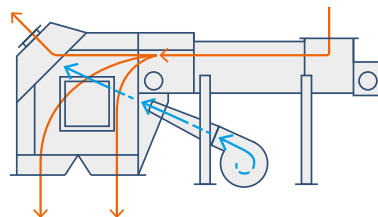
Chapter 01



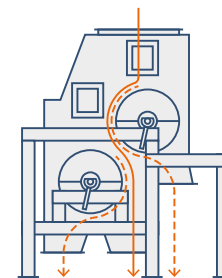
Disk roller screen



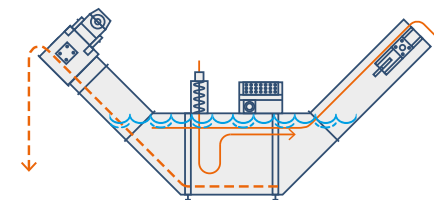
Gravimetric separator



Kinetic separator



Magnetic separator
for metals

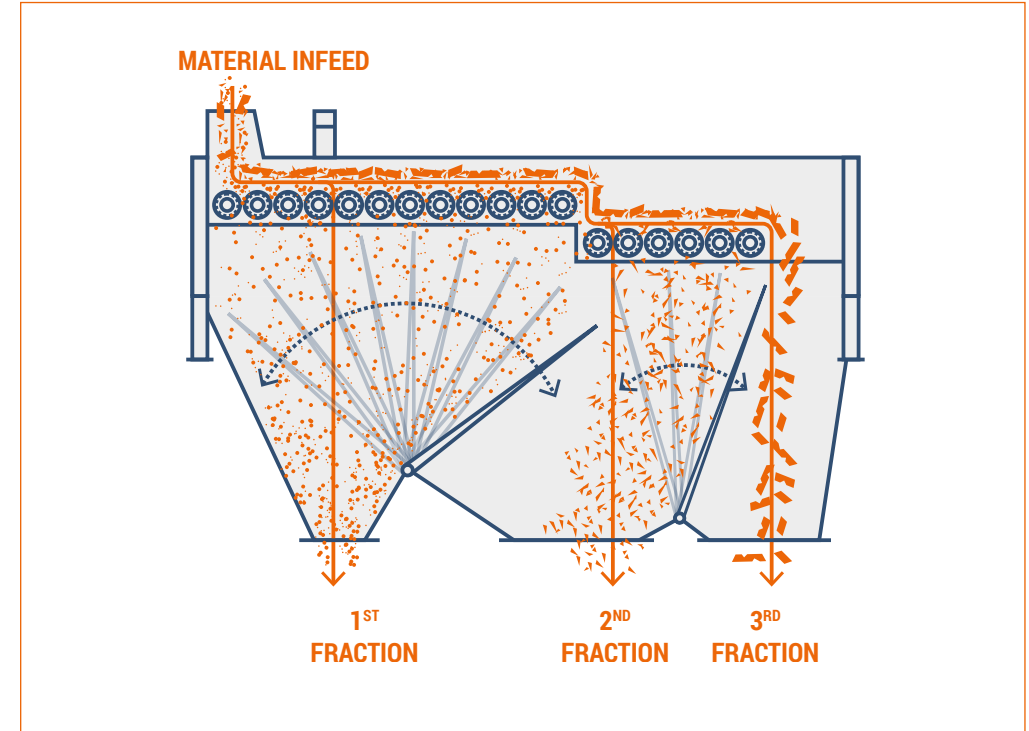


Water separator

1 Disk roller screen

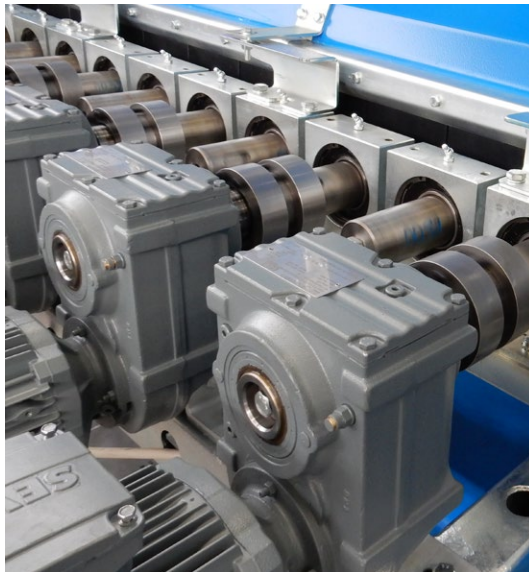


This screen guarantees an excellent classification of the material thanks to the particular geometrical shape of the disks and the gap between them. By varying the velocity of the rolls and the spacing varies the grade of separation of the three fractions. The material spreads homogeneously onto the classification surface of the screen, the velocity of rotation favors the progress and classification of the material. The fine fraction gets separated from the coarse fraction and from the oversize which are recovered separately underneath the screen.

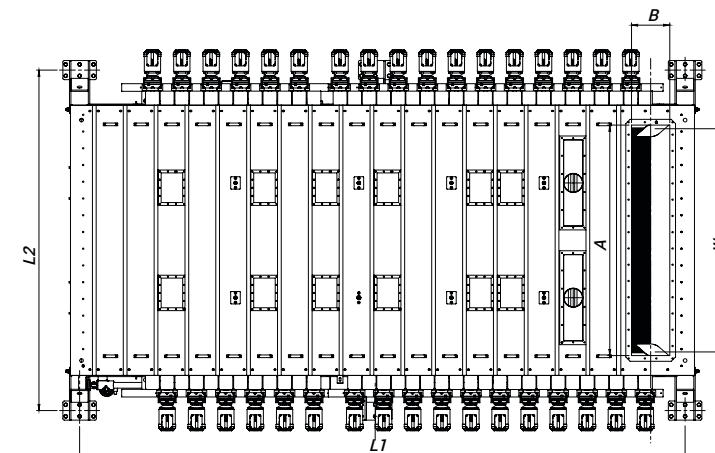
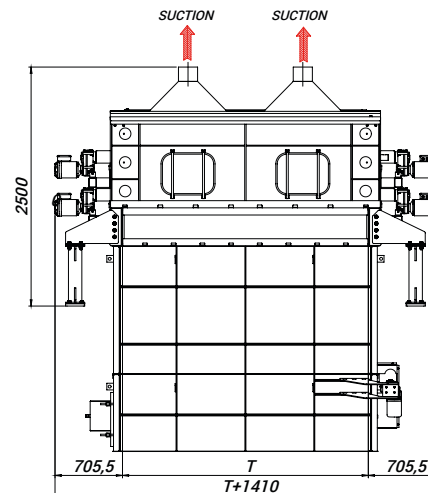
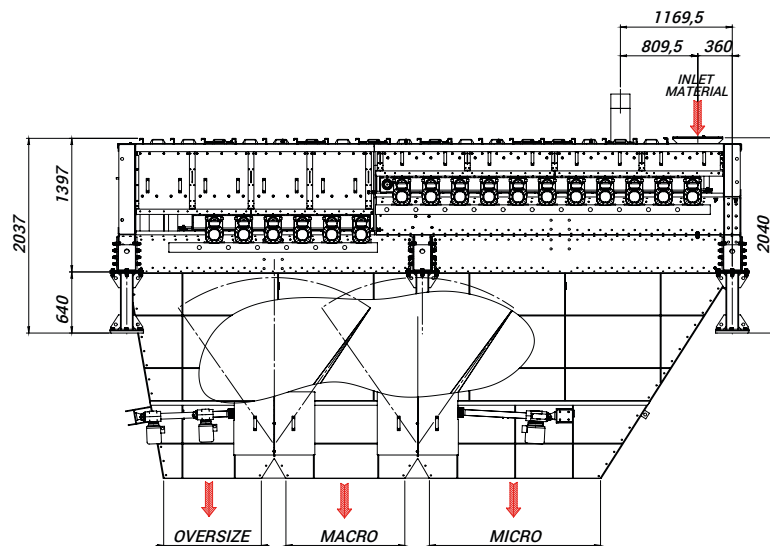


Advantages

- High resistance and long lifespan of the components
- High precision of the disk units, therefore maximum screening efficiency
- Protection from wear of the devices installed afterwards



F3

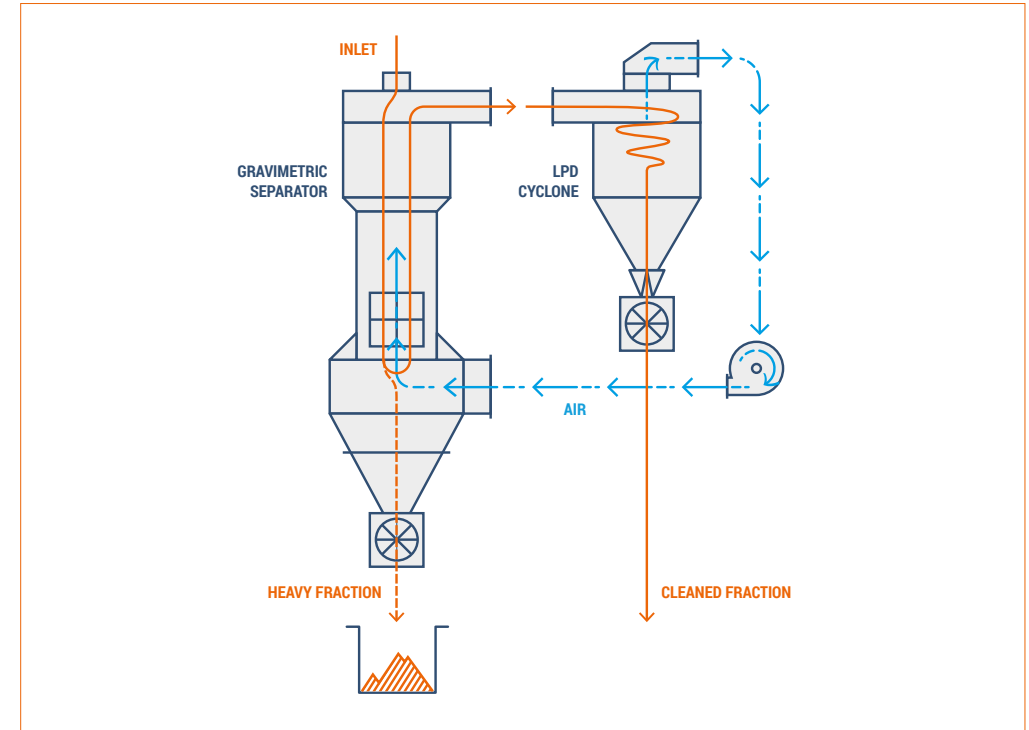


MODEL	L1	L2	T	W	AxB	Installed power	Capacity t/h (bd)	Weight
DSSD - 1000 - 1006	3300	2185	1195	960	1035 x 300	12 kW	8	7500 Kg
DSSD - 1400 - 1408	4150	2585	1595	1360	1435 x 350	18 kW	18	11500 Kg
DSSD - 2000 - 1608	4600	3225	2235	2000	2075 x 370	28 kW	25	1400 Kg
DSSD - 2400 - 1810	5250	3560	2570	2335	2410 x 400	32 kW	35	17500 Kg
DSSD - 2400 - 2212	6330	3560	2570	2335	2410 x 400	40 kW	45	19500 Kg

2 Gravimetric separator

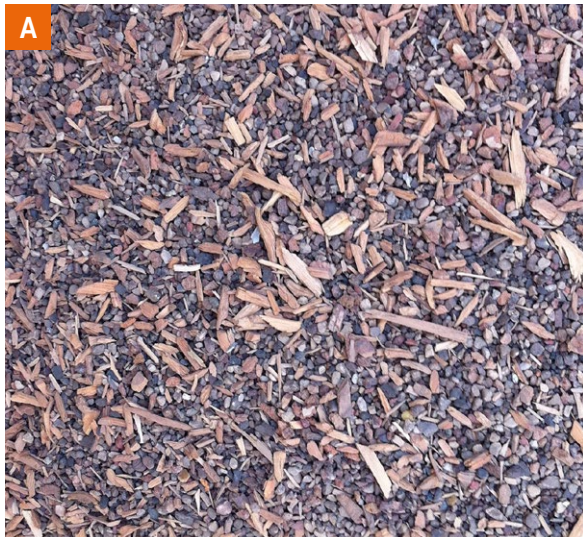


The gravimetric separator is a very efficient device for the separation of any polluting substances that might be present in the wood chips. Its action is due to a different density of the particles. The polluted material is introduced at the top of the separator and falls down for the effect of gravity into a counter air flow. The wooden material, which is lighter, remains suspended in the air flow and gets cleaned. The cleaned wood chips are then transported to a cyclone. The heavier pollutants (little stones, glass, plastic, etc.) fall to the bottom of the separator and are extracted by a rotary valve to be discarded.



Advantages

- Ideal for cleaning
- Extraordinary cleaning efficiency
- No wear
- No maintenance required
- Easy to regulate
- Constant efficiency
- Low energy consumption



> Typical rejects

Pollutants separator for wet particles						
Type	Capacity		Bulk density	Main dimensions	Cyclone	Installed power
	Kg/h F2-th. 2-2,5mm	Kg/h F3-th. 4-6mm	Kg/m³	DN (mm)	DN (mm')	kW*
WPS 1	2750	3000	250 - 300	1500	1400	22
WPS 2	3850	4200		1900	1600	30
WPS 3	5500	6000		2200	2000	45
WPS 4	6600	7200		2500	2200	55
WPS 5	8250	9000		2700	2500	75
WPS 6	11000	12000		2900	2800	90
WPS 7	13200	14400		3100	3000	110
WPS 8	16500	18000		3700	3200	132
WPS 9	22000	24000		3700	3500	160
WPS 10	33000	36000		4100	4100	250
WPS 11	66000	72000		5300	2x 4100	400

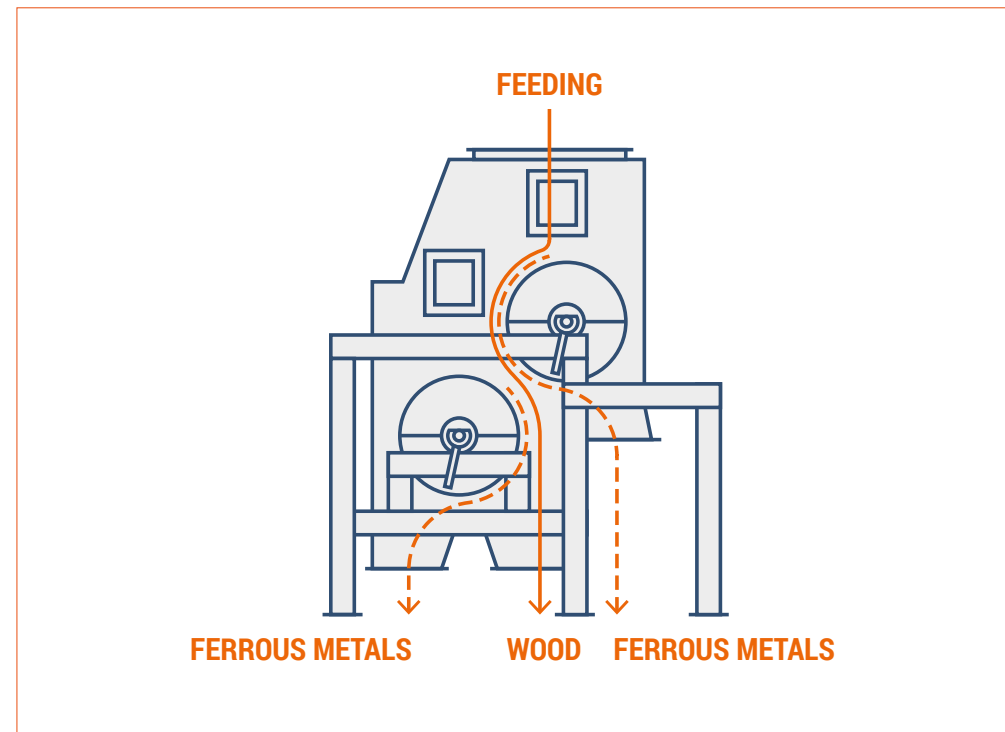
Pollutants separator for dry particles						
Type	Capacity		Bulk density	Main dimensions	Cyclone	Installed power
	Kg/h Core Layer	Kg/h Surface Layer	Kg/m³	DN (mm)	DN (mm')	kW*
DPS 1	2500	1750	120 - 150	1500	1250	18,5
DPS 2	3500	2450		1900	1400	22
DPS 3	5000	3500		2200	1800	37
DPS 4	6000	4200		2500	1900	45
DPS 5	7500	5250		2700	2200	55
DPS 6	10000	7000		2900	2500	75
DPS 7	12000	8400		3100	2700	90
DPS 8	15000	10500		3700	2800	110
DPS 9	20000	14000		3700	3200	132
DPS 10	30000	21000		4100	3800	200
DPS 11	60000	42000		5300	2x 3800	355

Not binding data. We reserve the right of modification at any time without prior notice. *According to the project parameters and lay out.

3 Magnetic separator for ferrous metals



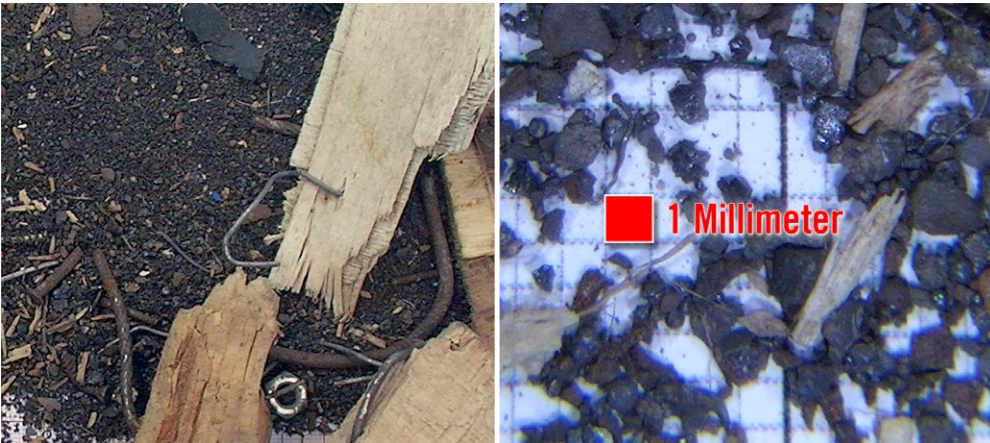
A conveyor carries the wooden material contaminated with ferrous metals at the top of the magnetic separator. The material flow is forced through two opposite deferrizing magnetic drums that separate effectively the ferrous stuff from the wood chips. This Separator is capable of detecting and dividing ferrous materials of a wide range of sizes, from very fine dust to grains of a few millimeters, from metal shavings to pieces of ferrous metal of various centimeters. The effectiveness of separation is ~ 98%. This device is so powerful that can even detect with extreme precision tiny bits of nails embedded within small pieces of wood.



Advantages

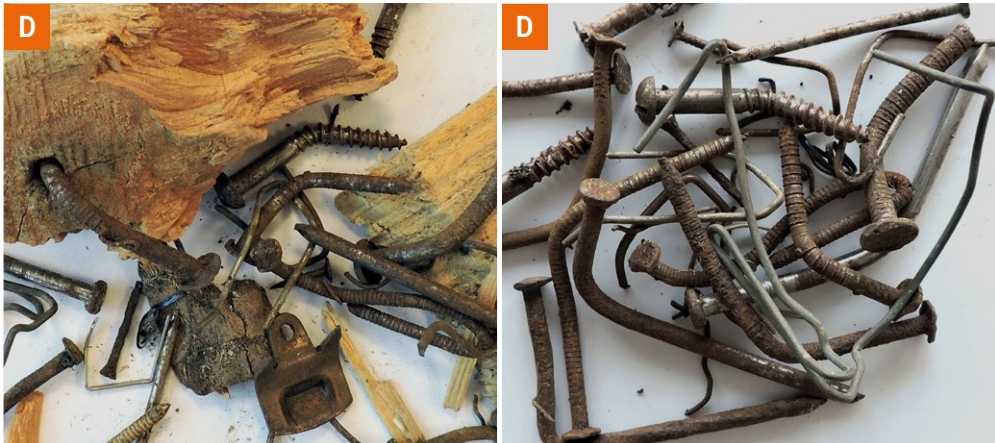
- Highly effective detection of ferrous metals from a few millimeters to various centimeters in size
- Efficacious sorting of ferrous particles in a wide range of size
- Successful separation of all ferrous metals included in the wood chips flow, even those embedded within wood pieces
- No spreading of metal dust or ferrous materials in proximity of the machine operational area
- Neglectable quantity of wood discarded during the separation of metals

Recycled wood



> Ferrous material to be separated from recycled wood > Discarded material

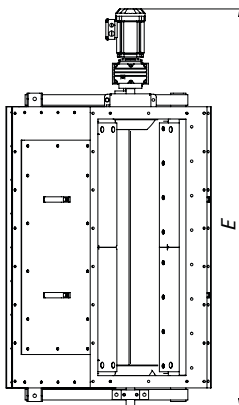
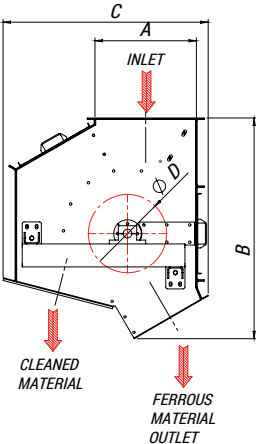
Virgin wood



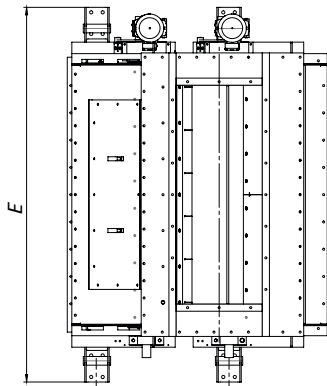
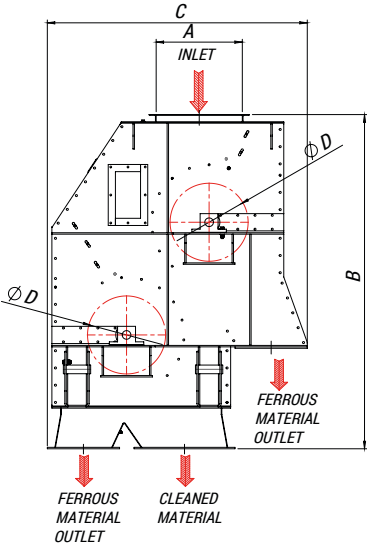
> Ferrous material to be separated from virgin wood > Discarded material

MAGNETIC DRUM SEPARATOR				
Type		DZ.1.070	DZ.1.125	DZ.2.170
Capacity	m³/h			
INSTALLED POWER				
Drum rotation 1	kW	0,55	1,1	1,5
Drum rotation 2	kW			1,5
OVERALL DIMENSION				
A	mm	450	530	600
B	mm	1150	1150	2330
C	mm	1070	1070	1810
D	mm	400	400	520
E	mm	1405	2075	2610

DZ.1 MODEL
Overall dimensions



DZ.2 MODEL
Overall dimensions



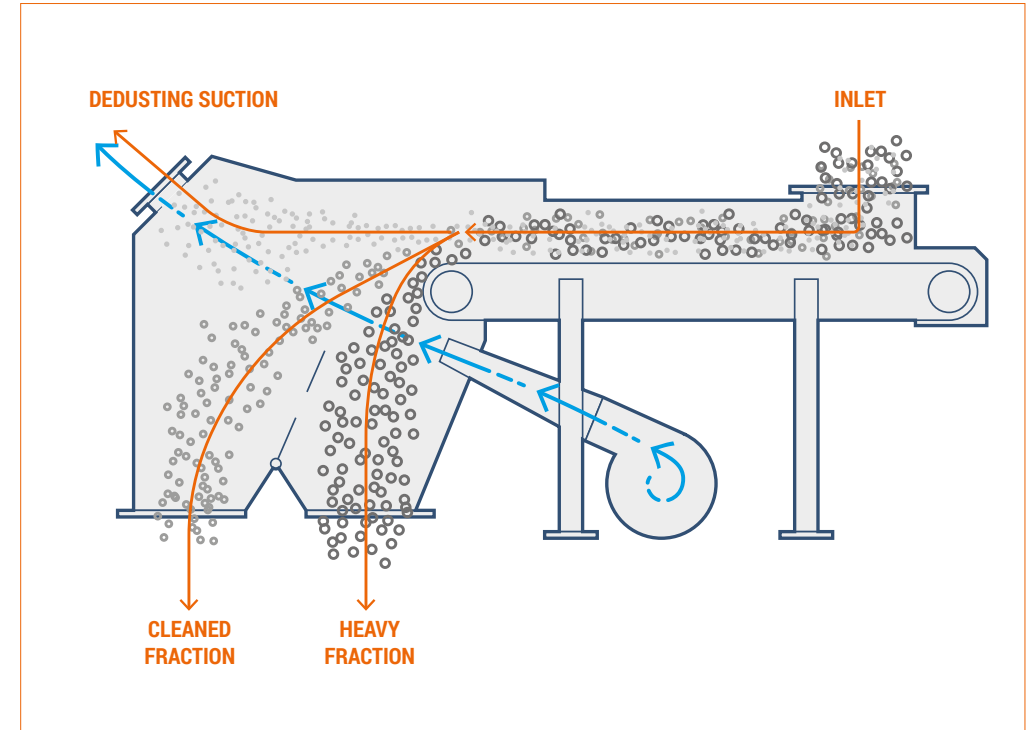
Not binding data. We reserve the right of modification at any time without prior notice. *According to the project parameters and lay out.

4 Kinetic separator



The separation occurs thanks to the suspension within an air flow of the lighter materials, together with the kinetic effect of the conveyor belt. Heavier polluting bodies fall down due to the gravity effect and are discarded, whereas lighter pollutants are suspended in air and separated from the cleaned wooden chips. Three fractions are obtained after separation: clean wood chips, heavy pollutants, light contaminants (sand, paper, cellophane, polystyrene).

The kinetic separator is often associated with a dust aspiration system.



Advantages

- Effective separation of heavy pollutants from the wood chips
- Easy regulation of the separator achieved through inverters
- Velocity of the belt and intensity of the air flow are easily adjustable
- Low energy consumption thanks to the inverters that drive the belt and the fan.

Recycled wood



> Rejects from Macrochips

> Rejects from Microchips

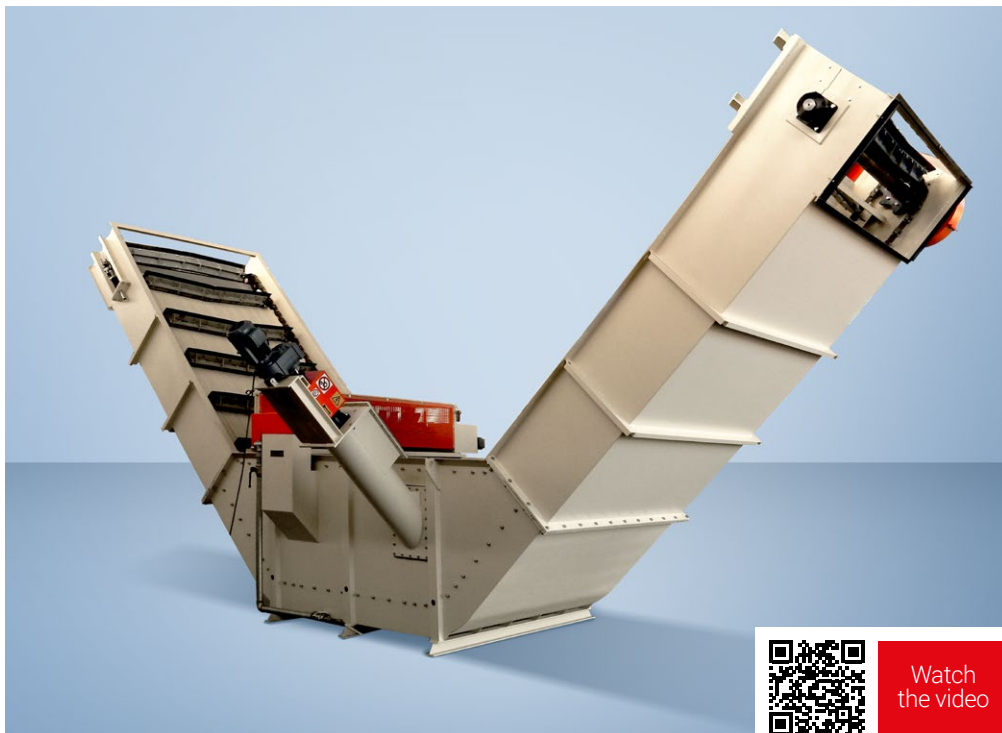
Virgin wood



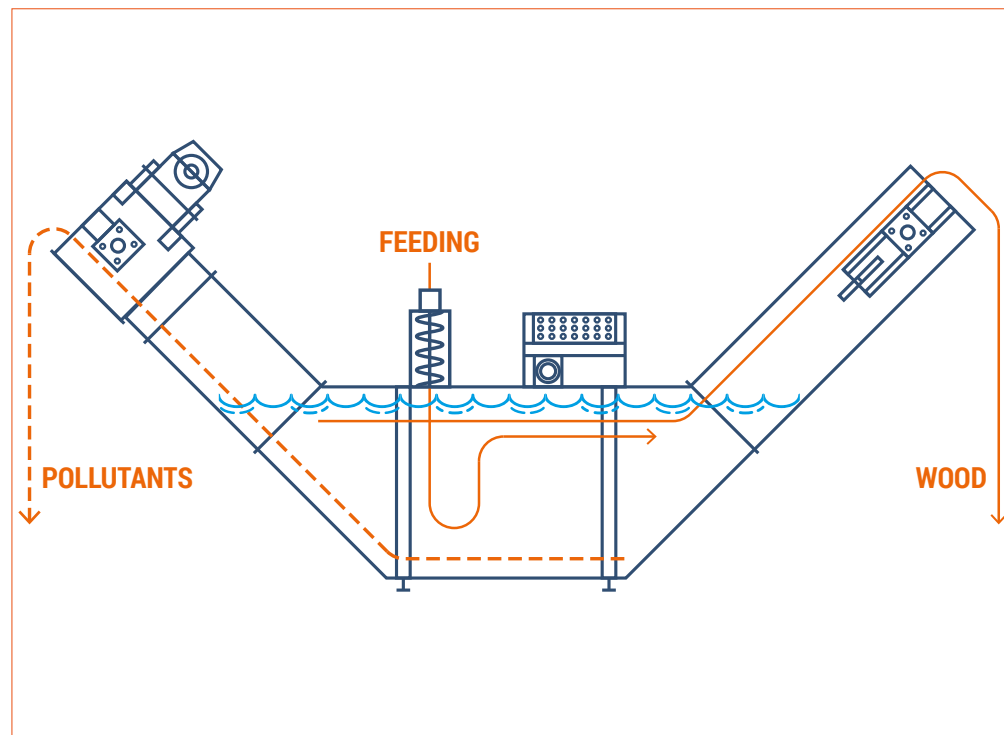
KINETIC SEPARATORS RANGE				
Type		KS-80	KS-100	KS-150
Capacity	m³/h	80	100	150
INSTALLED POWER				
Belt conveyor	kW	1,5	2,2	3,0
Main fan	kW	30,0	37,0	45,0
Rotary valve	kW	1,5	2,2	2,2
Cyclone	DN	1400	1600	1800
Exhaust air	m³/h	3000	4000	5000
OVERALL DIMENSION				
Length	mm	3900	3900	3900
Width	mm	2000	2300	2800
Height	mm	1700	1700	1700

Not binding data. We reserve the right of modification at any time without prior notice. *According to the project parameters and lay out.

6 Water separator

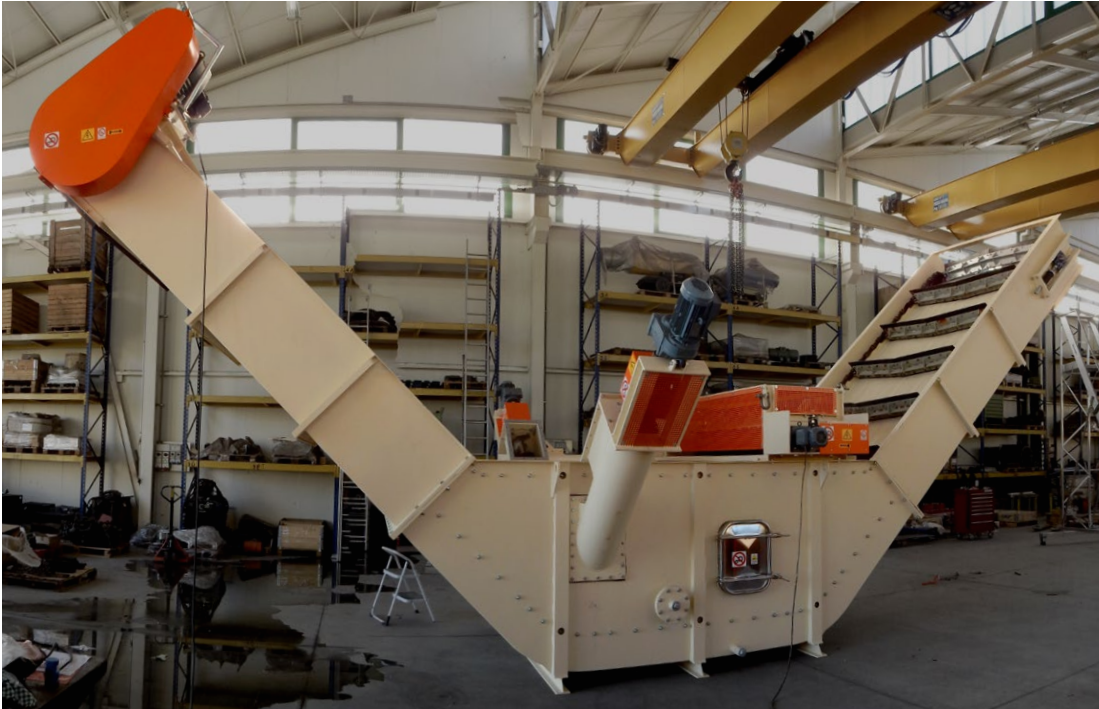


The material to be cleaned is fed through a dosing screw into the water separator where light material floats, while the heavier pollutants such as stones, metals, glass, etc. fall down and are removed by a chain conveyor. On the opposite side the same chain conveyor removes the floating material which is clean and ready to be sent to production. A device helps dipping the material, optimizing the cleaning process.



Advantages

- **Effective cleaning of wood from heavy pollutants**
- **Further recovery of wood rejected by other cleaning systems;**
- **Fast process, hence wood does not absorb any water**
- **Water does not need to be treated, nor changed, only occasionally replenished**
- **Low kW absorption**
- **Simple and reliable operating system**



Model	CAPACITY cleaned chips (m³/h)	Width (mm)	Depth (mm)	Height (mm)	M1 Redler (kW)	M2 Screw (kW)	SCREW DIAMETER (mm)	M3 Spread unit (kW)	Total installed power (Kw)
WB 1250	10	6.702	1.908	3.507	4	1.5	250	1.1	6.6
WB 2000	16	10.204	2.580	4.628	5.5	1.5	300	1.1	8.1
WB 3000	24	11.255	3.658	4.628	7.5	2.2	350	1.5	11.2

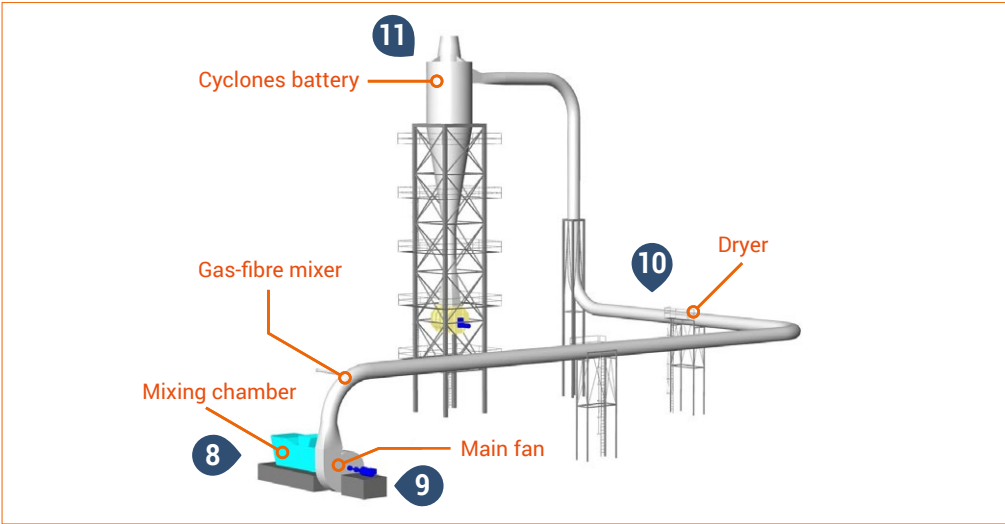
Not binding data. We reserve the right of modification at any time without prior notice. *According to the project parameters and lay out.



MDF FIBER GLUING SYSTEM

Chapter 02

Dryer for wood fibre. Suitable for any capacity of dried fibre. High technology. Different heating units.
 Gas-fibre mixer. Very low dirtiness. Simple and reliable.

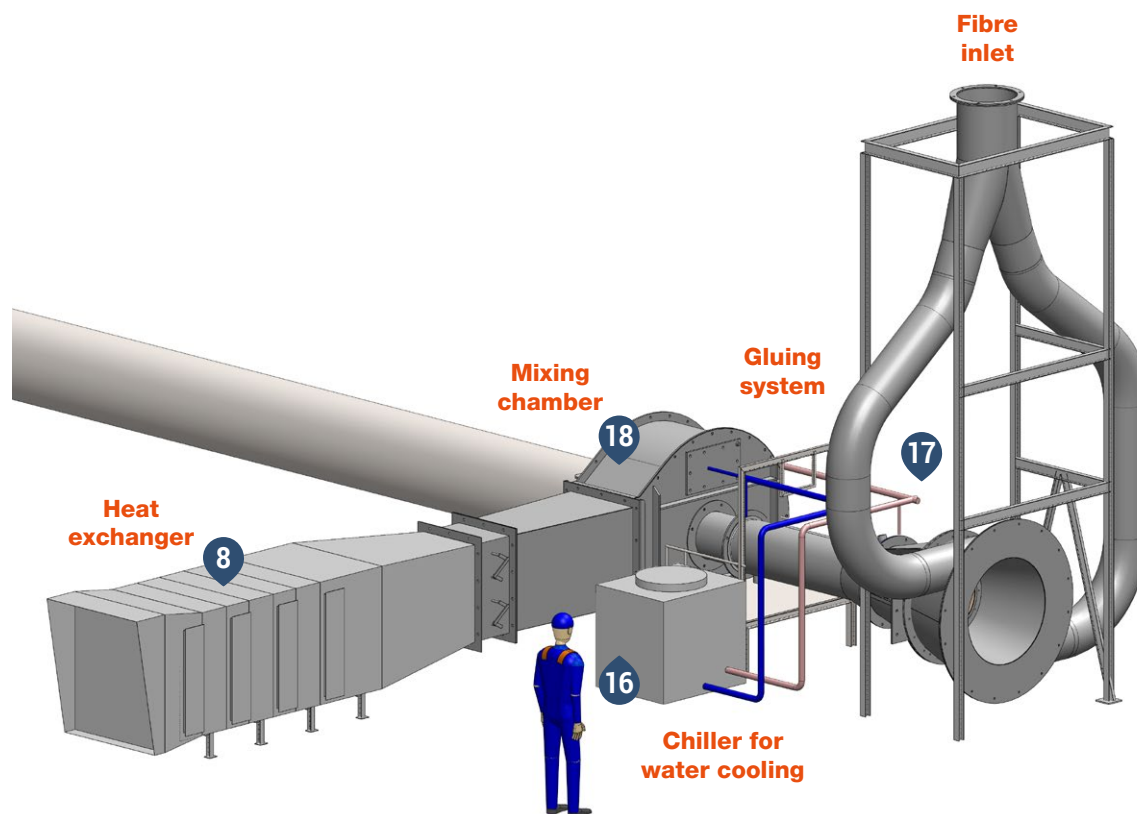


Type	Fiber*	Heat requirement	Cyclones battery	Installed power
MEF60	6.000 Kg/h	5.000.000 Kcal/h	Ø=4.500mm / N°=1	250 kW / N°=1
MEF80	8.000 Kg/h	6.800.000 Kcal/h	Ø=5.200mm / N°=1	355 kW / N°=1
MEF100	10.000 Kg/h	8.500.000 Kcal/h	Ø=5.700mm / N°=1	400 kW / N°=1
MEF120	12.000 Kg/h	10.500.000 Kcal/h	Ø=6.200mm / N°=1	500 kW / N°=1
MEF150	15.000 Kg/h	13.000.000 Kcal/h	Ø=4.700mm / N°=2	630 kW / N°=1
MEF180	18.000 Kg/h	15.500.000 Kcal/h	Ø=5.500mm / N°=2	710 kW / N°=1
MEF200	20.000 Kg/h	17.200.000 Kcal/h	Ø=5.700mm / N°=2	800 kW / N°=1

Type	Fiber*	Heat requirement	Cyclones battery	Installed power
MEF250	25.000 Kg/h	21.500.000 Kcal/h	Ø=6.300mm / N°=2	1.000 kW / N°=1
MEF300	30.000 Kg/h	25.800.000 Kcal/h	Ø=4.700mm / N°=4	1.200 kW / N°=1
MEF350	35.000 Kg/h	30.500.000 Kcal/h	Ø=5.500mm / N°=4	1.400 kW / N°=1
MEF400	40.000 Kg/h	34.000.000 Kcal/h	Ø=5.700mm / N°=4	1.600 kW / N°=1
MEF500	50.000 Kg/h	42.500.000 Kcal/h	Ø=6.300mm / N°=4	2.000 kW / N°=1
MEF600	60.000 Kg/h	51.500.000 Kcal/h	Ø=5.700mm / N°=6	2.400 kW / N°=1
MEF800	80.000 Kg/h	68.000.000 Kcal/h	Ø=6.500mm / N°=6	3.000 kW / N°=1

Not binding data. We reserve the right of modification at any time without prior notice. *According to the project parameters and lay out.

* Note: wood particles inlet moisture 100% atro



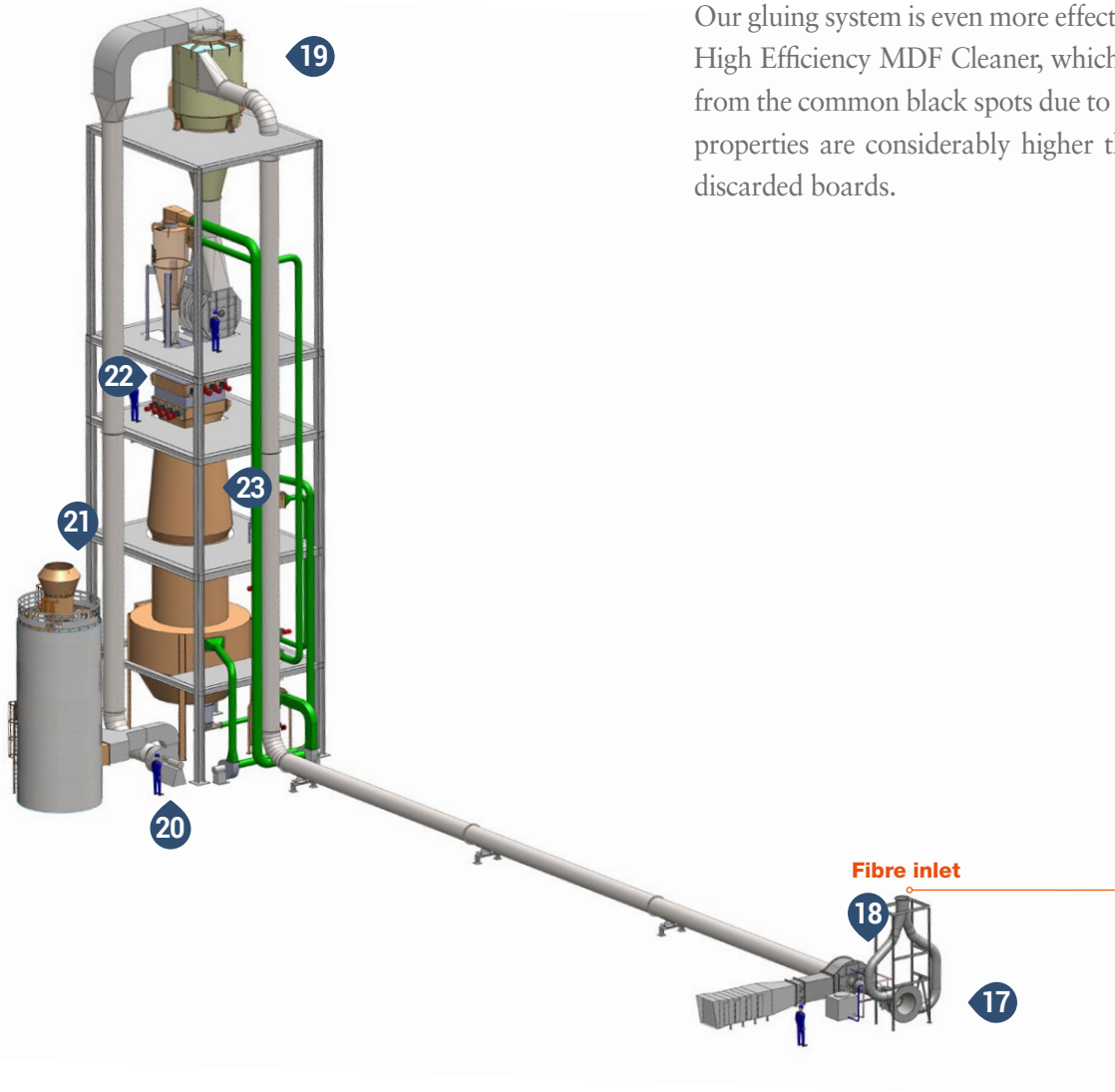
Instaltec has developed an innovative gluing system that respects the environment, reducing the level of formaldehyde released into atmosphere, preserves the mechanical characteristics of the panels, and reduces the consumption of glue.

In our Gluing Systems the wood fibre is glued after the dryer.

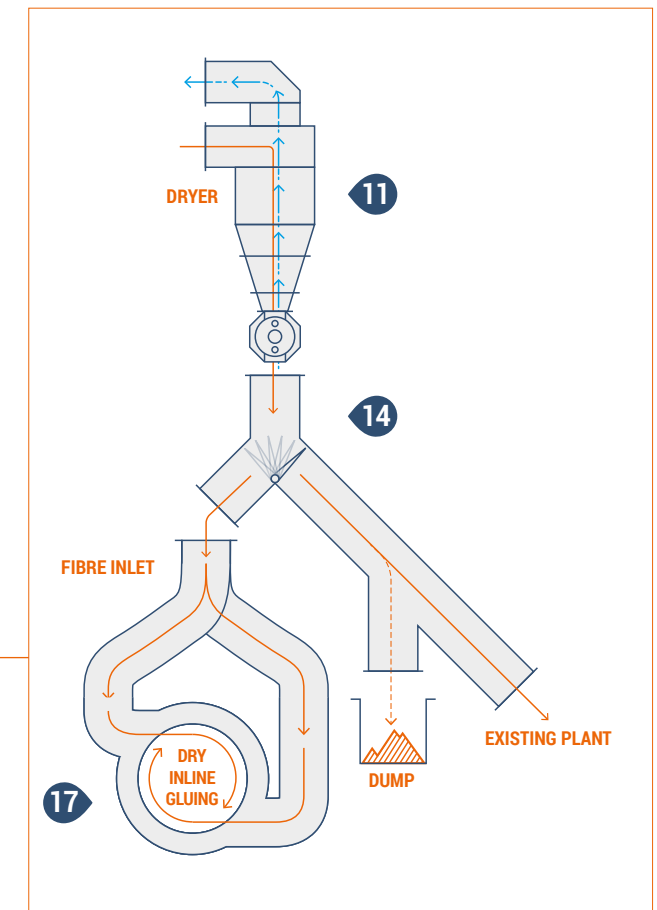
This innovation enabled us to obtain the following advantages:

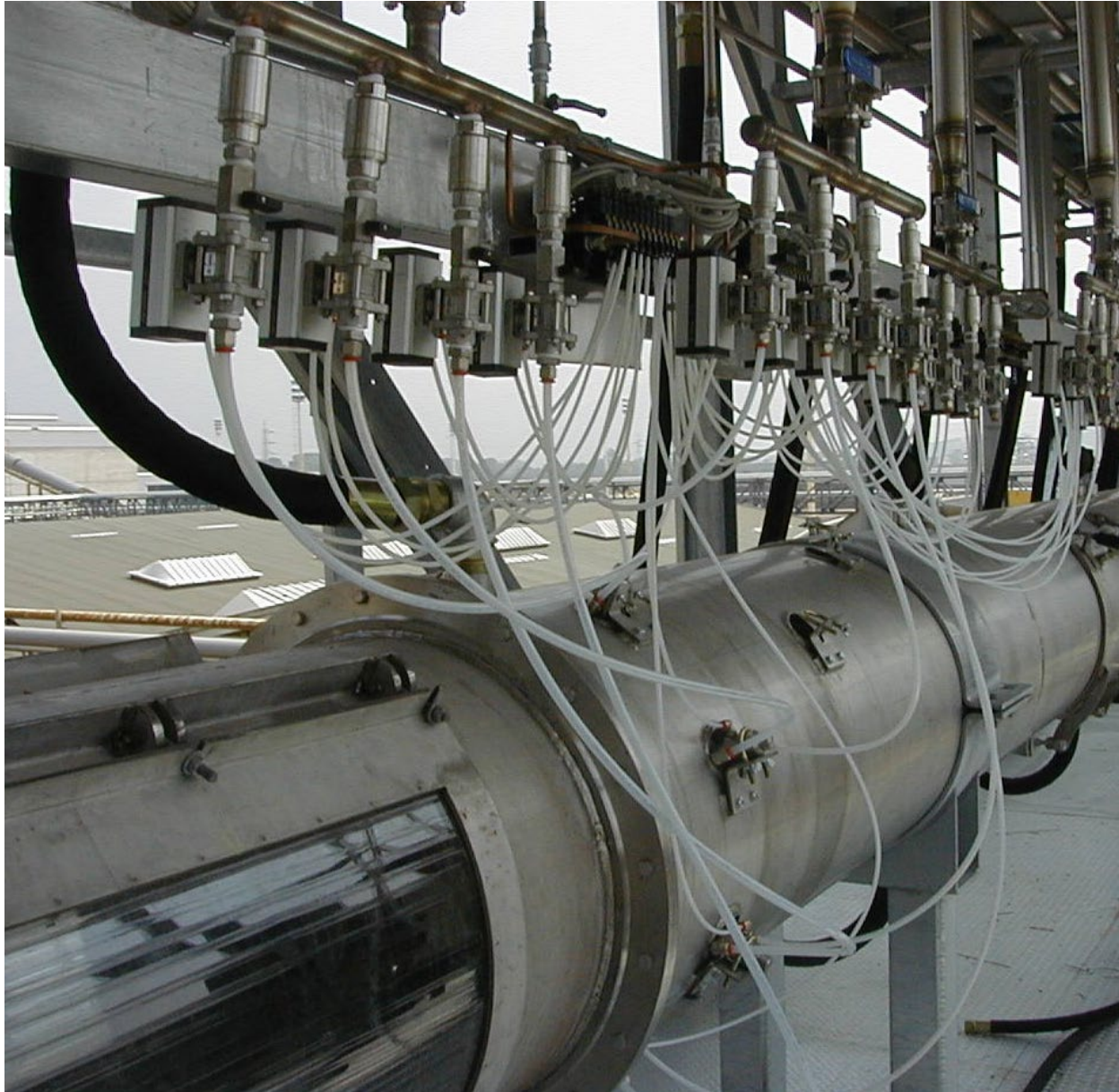
- a significative reduction of the amount of glue used in the panel, i.e. a saving up to 15-20%
- a more accurate dosing of the glue into the wood fibre;
- a fine atomization of the glue into the wood fibre, hence a fine blending with fibre;
- better mechanical properties of the panels, since glue is warmed only up to 60°C;
- less dirt in the gluing areas, since the gluing system is auto-cleaning;
- constant effectiveness of gluing;
- absence of condensation in the system;
- less environment pollution, since formaldehyde is not released into the atmosphere if heated up at temperatures below 60°C;

Our plant production range: from 1 - 50 ton/h



Our gluing system is even more effective if the wood fibre is treated after gluing by our special fibre sifter, i.e. Instalmec High Efficiency MDF Cleaner, which contributes to a perfect and homogeneous surface of the panel, keeping it free from the common black spots due to glue/resin lumps. The final result is an MDF panel whose surface and mechanical properties are considerably higher than the average MDF panels, and a considerable reduction in the number of discarded boards.







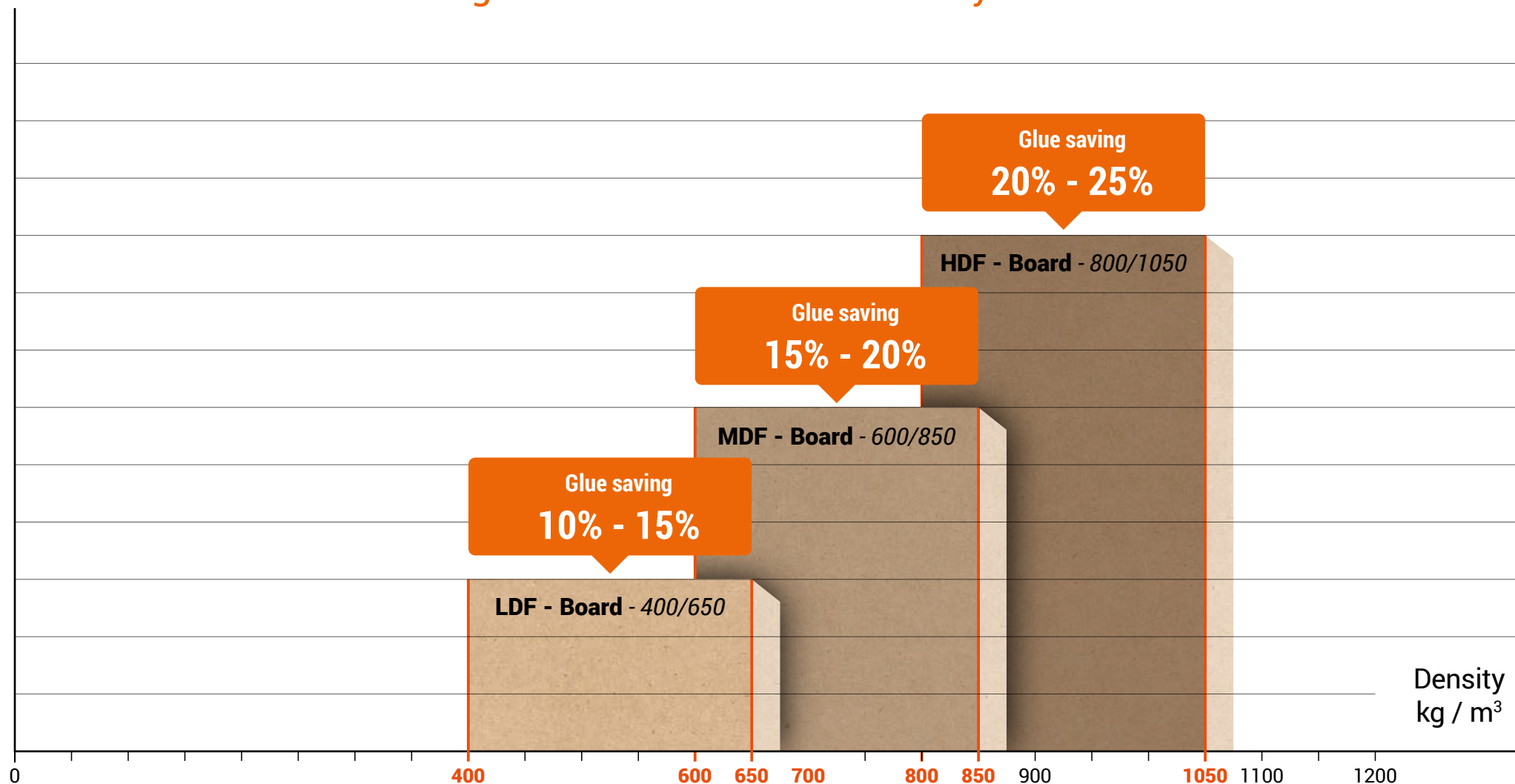


HIGH EFFICIENCY FIBER CLEANING SYSTEM

Chapter 03

GUARANTEED GLUE SAVING FROM INSTALMECC

Against traditional blow-line system



Density comparison between LDF, MDF and HDF - Board Kg/m³

It is generally known, that 98% of all MDF production lines have a common problem which is not solvable with traditional separation systems available on the market:

Small black spots on the panels' surface.

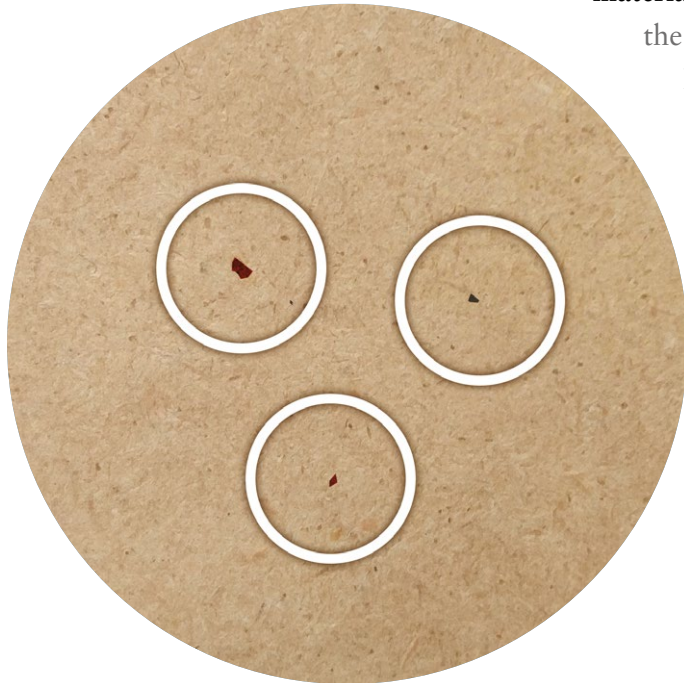
Today, after several studies, analysis and trials, Instaltec is proud to offer a **new generation technology of separators of material operating in two steps** and obtain a much higher classification efficiency compared to traditional systems on the market.

Instaltec's High efficiency MDF Cleaner separates both fine and coarse material eliminating **every kind of pollutants** contained in fiber wood such as rubber, glue lumps, small stones, sand, fiber lumps and foreign bodies.

The new Instaltec High Efficiency MDF Cleaner is the **first fiber cleaning system in the world in which fiber does not go through the fan**. In such a way the fiber does not enter in contact with the fan blades, instead it keeps its original structure and therefore the final result is an MDF panel whose mechanical characteristics are much higher than the average MDF panel.

Advantages

- Higher efficiency than in traditional cleaners
- Considerable cut of the installed and absorbed power
- Excellent protection of the press steel band
- Improved panel quality
- Excellent panel surface
- Increased production of first quality boards
- Significant reduction of discarded panels
- Low production costs
- Compact installation





MATERIAL BEFORE SEPARATION

Material that enters the Separator
of the MDF System.



REJECTED MATERIAL

Glue lumps, fiber lumps, sand, heavy fiber,
ferrous and non ferrous material, bark, stones
and dirt inside the dryer.



MATERIAL AFTER SEPARATION

Excellent material for production
(no more lumps or black spots).



Watch
the video



The Metering Bin is installed upstream the forming machine, and it is used to supply it steadily with wood chips or fiber.

The control of the material unloading is brought about by using both a weighing instrument, and a conveyor belt.

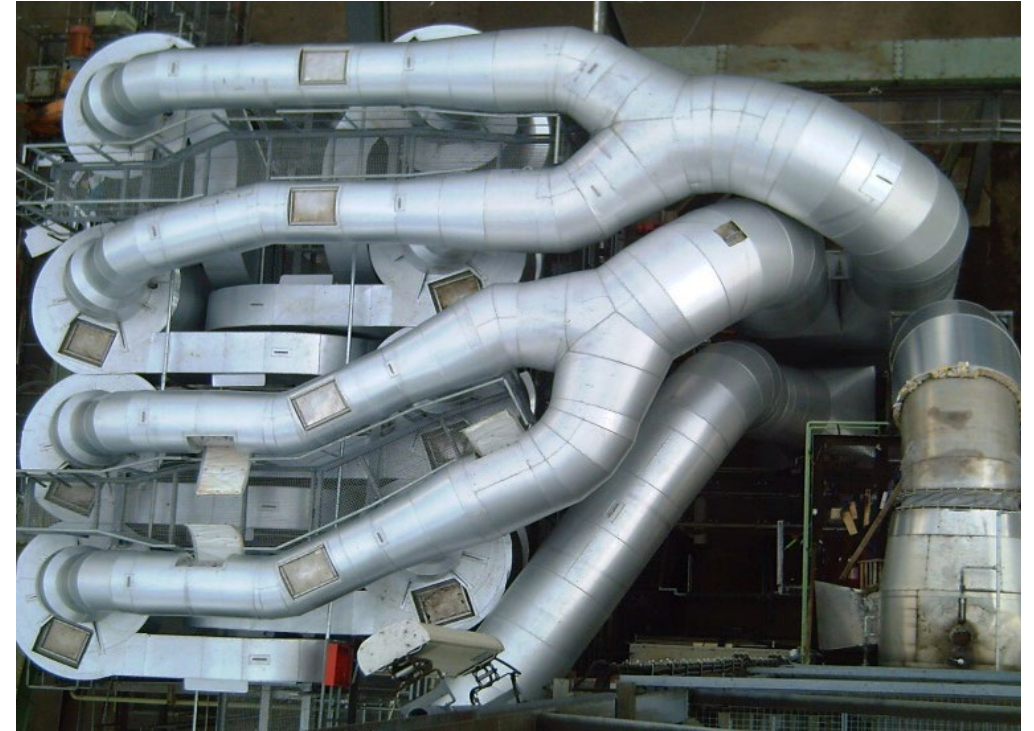
Advantages

- Modular construction with insulation panels
- Quick and easy installation
- 35-40% less weight than the competition (and therefore lighter steel structures)
- Sensors for level control
- Constant and homogeneous material unloading
- Different rakes according to the type of material to be handled, which guarantee their durability and the integrity of the material to be processed





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

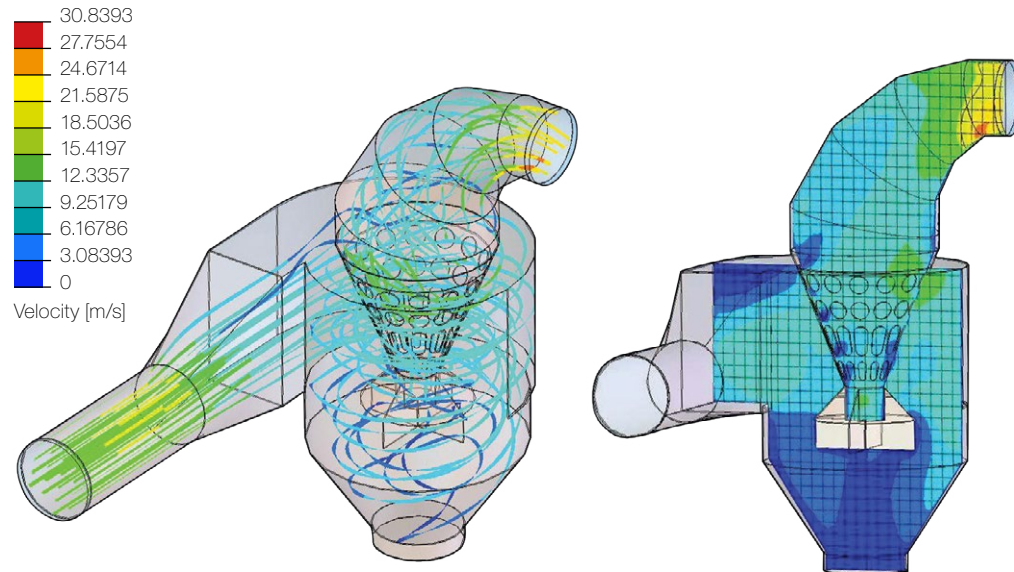
Cyclones (Fluid dynamics simulations)

Operating principle

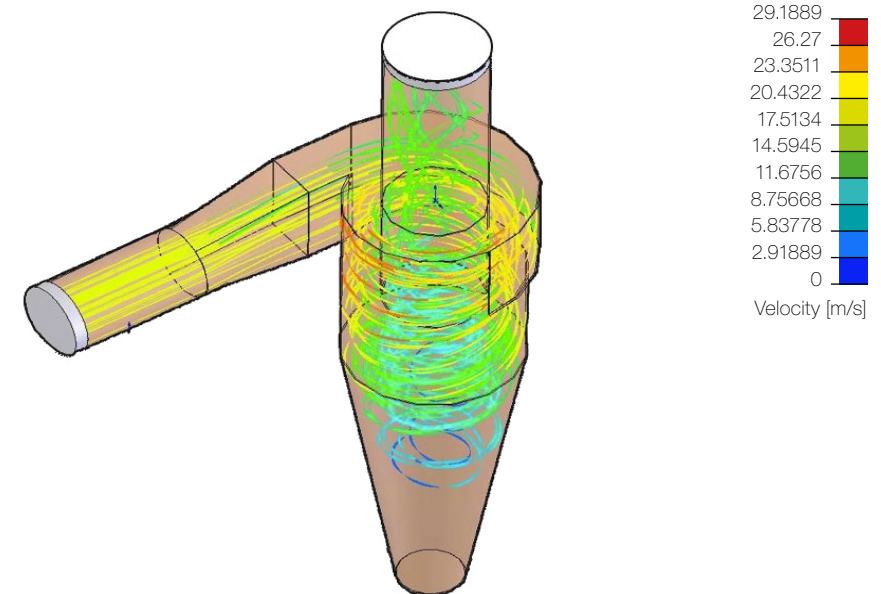
The innovative design of the air outlet, the internal helical scroll (for specific applications) and the installation of a special finned flow breaker system enable the separation of material at lower air speed compared to traditional cyclones as the air is evacuated in the cylindrical section through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

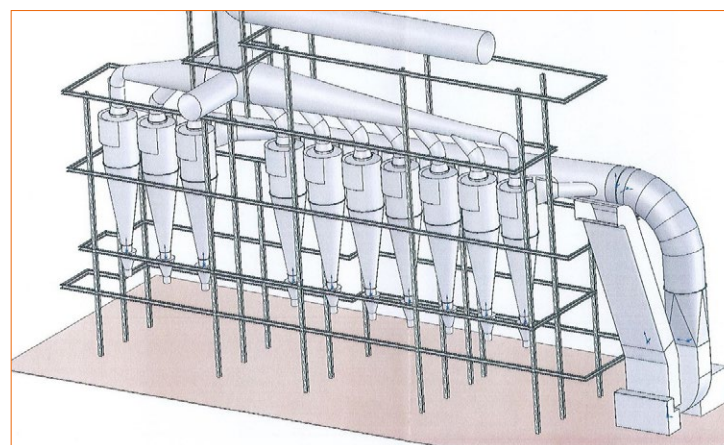
- Less foundation loads: -60%
- Less costs for steel frames: -55%

Benefits

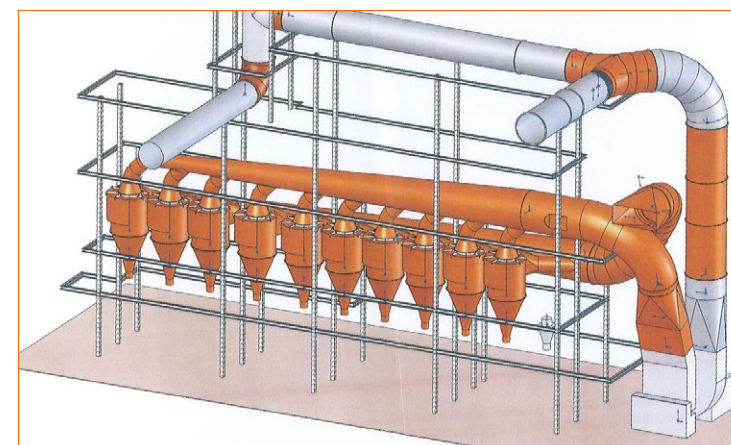
- Increasing of the dryer capacity.
- Electric energy saving thanks to reduced pressure drop.
- Reduction of particle damages as they do not go though the fan.
- Panels of better quality.
- Elimination of wear in the fan, in the pipes and in the cyclones.

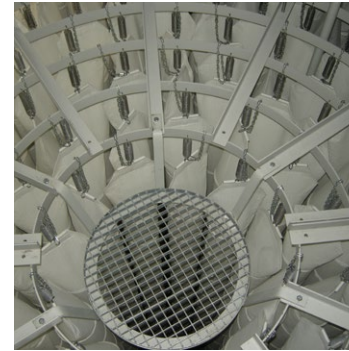
- Less costs for assembly: -60%
- Less costs for thermal insulation: -50%
- Electrical absorption (kW) saving: -60%

Traditional concept



Instalmec innovative concept

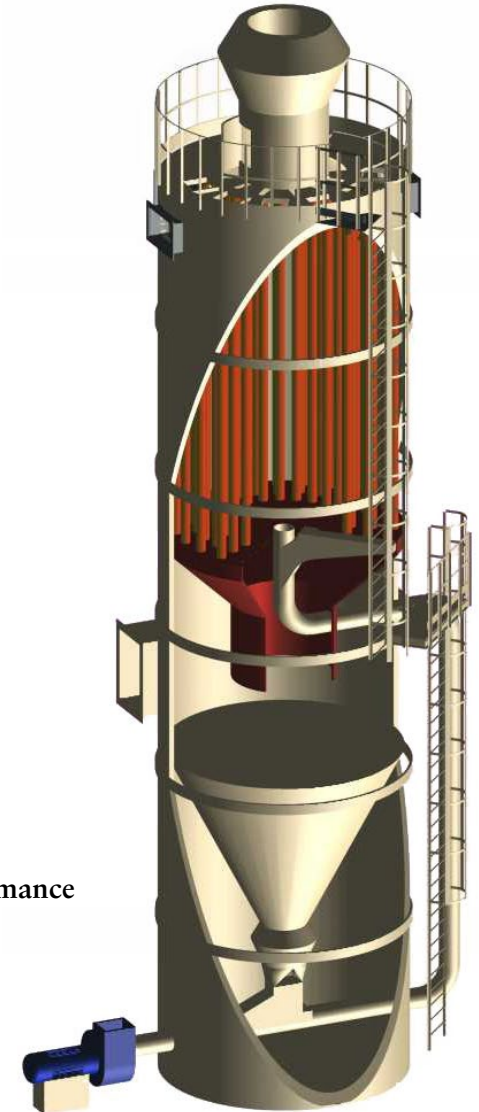


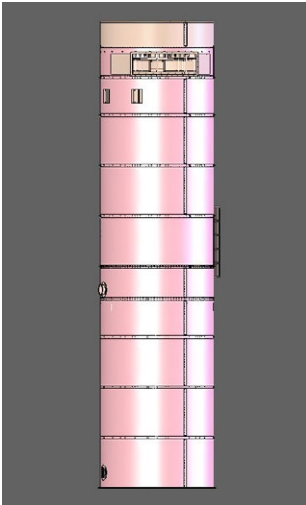


The cyclone-filter is a reliable suction and de-dusting system which allows the separation of coarse polluting particles, reducing the dust concentration on the filtering sleeves. Polluted air is filtered by suction through a series of sleeves which are cleaned by a simple fan. The sleeves cleaning system reduces the energy requirements and increases the lifespan of the filter sleeves avoiding mechanical stress that would be caused by the use of compressed air. The cylindrical shape and the over-pressure hatches make the plant very resistant against explosion.

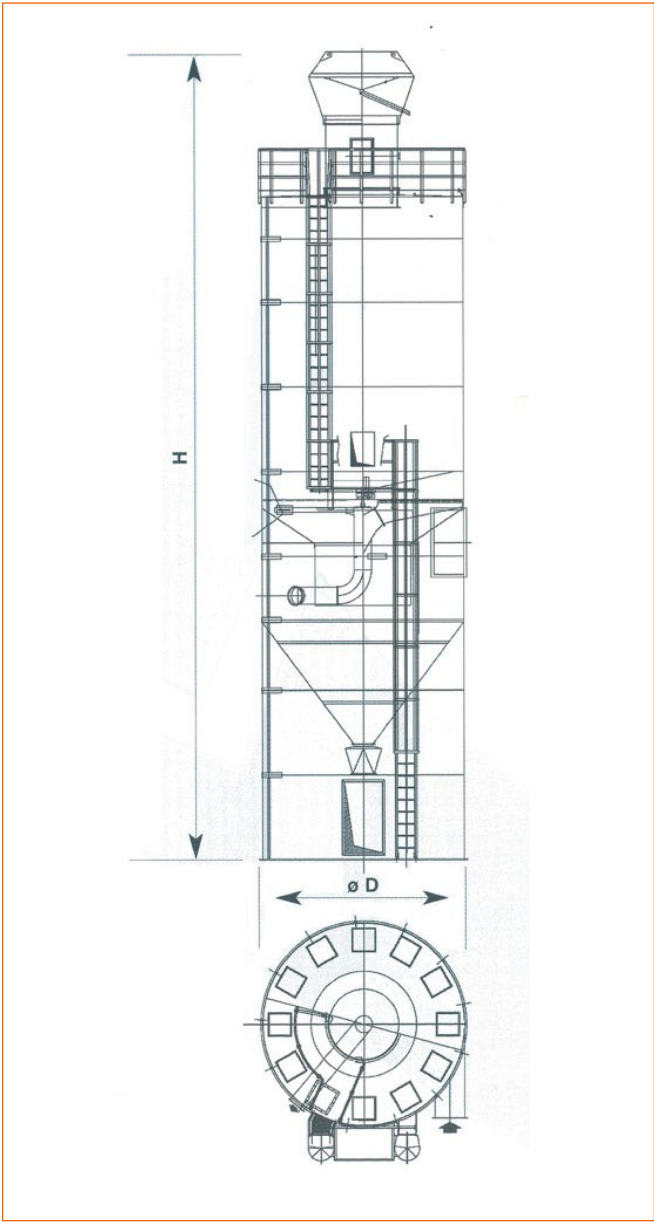
Advantages

- High reliability and constant performance
- Longer lifespan of filtering sleeves
- Compact design
- High resistance to explosions
- Water extinguishing system
- Low energy consumption



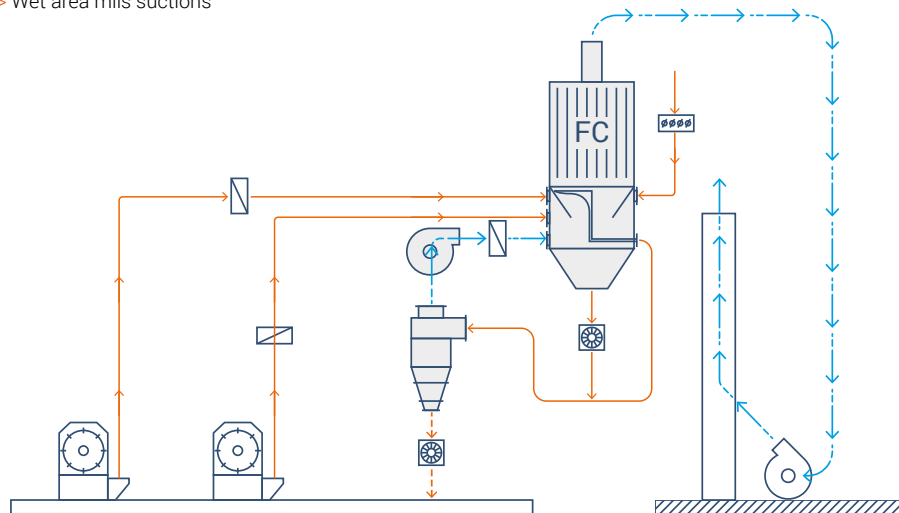


Type	Maniche			Dimensions		Filtering surface
	N°	Ø, mm	H, mm	Ø, mm	H, mm	m²
FC 2040	56	160	6100	2040	14000	172
FC 2460	88	160	6100	2460	15000	270
FC 2880	124	160	6100	2880	16000	380
FC 3240	116	200	6100	3240	17500	445
FC 3740	160	200	6100	3740	18000	613
FC 4240	204	200	6100	4240	18500	781
FC 4740	256	200	6100	4740	19000	981
FC 5240	308	200	6100	5240	19500	1180
FC 5740	368	200	6100	5740	20000	1410
FC 6240	436	200	6100	6240	23000	1670

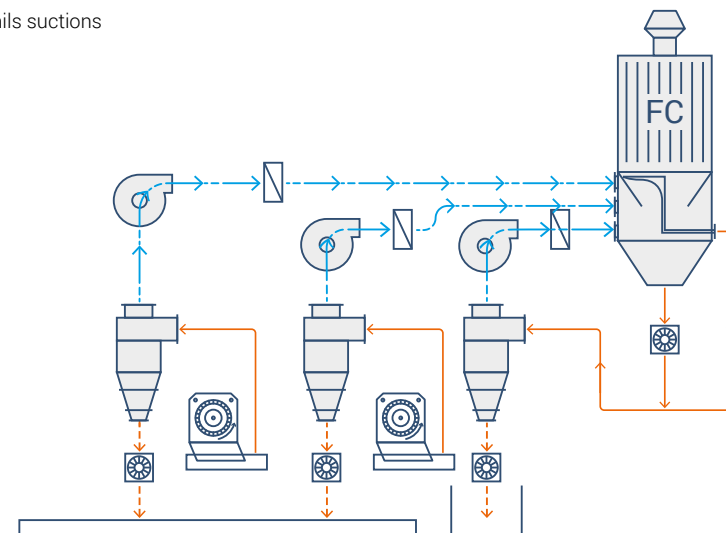


Not binding data. We reserve the right of modification at any time without prior notice. *According to the project parameters and lay out.

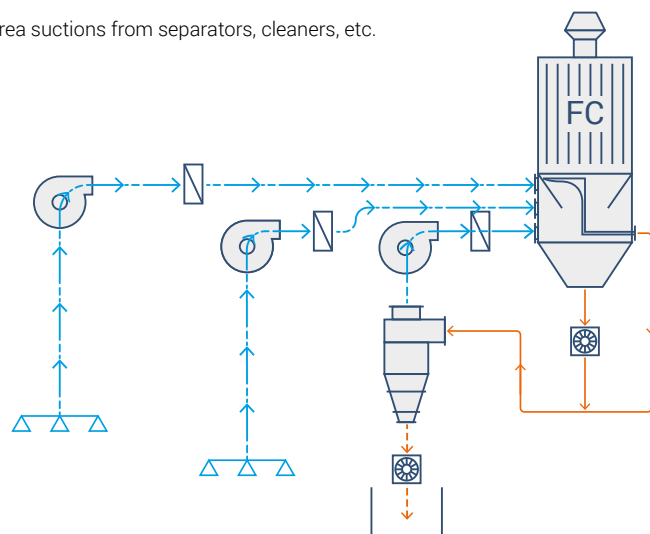
> Wet area mills suctions



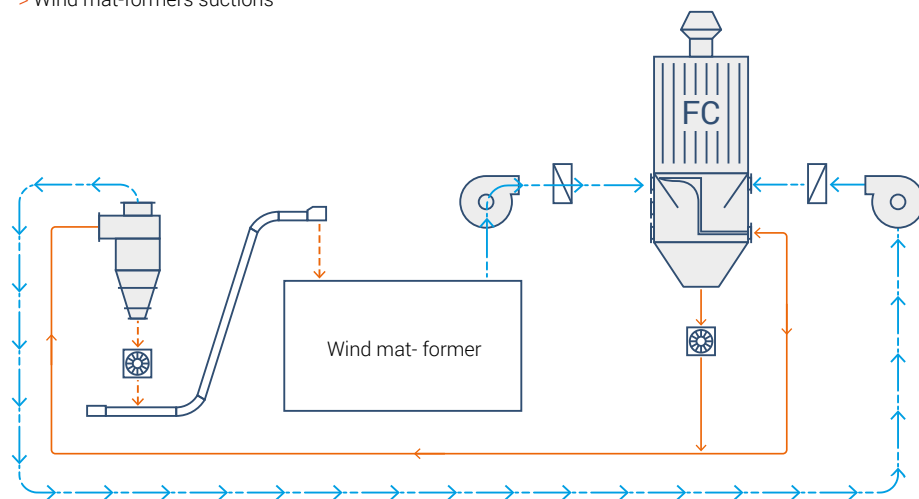
> Dry area mills suctions



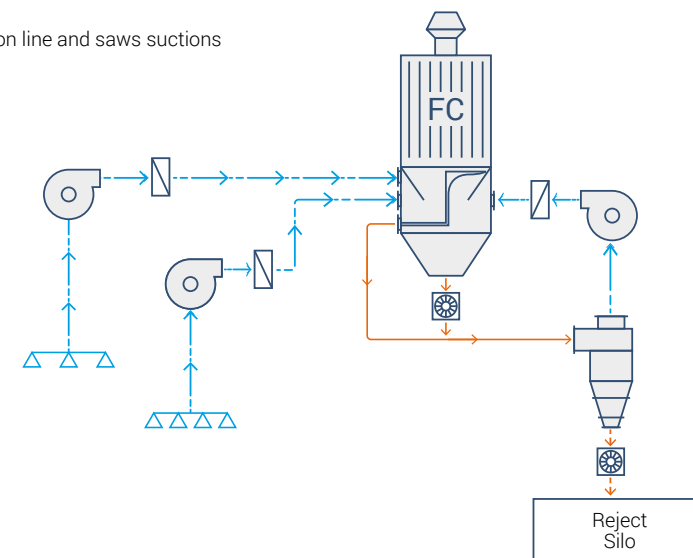
> Wet or dry area suctions from separators, cleaners, etc.



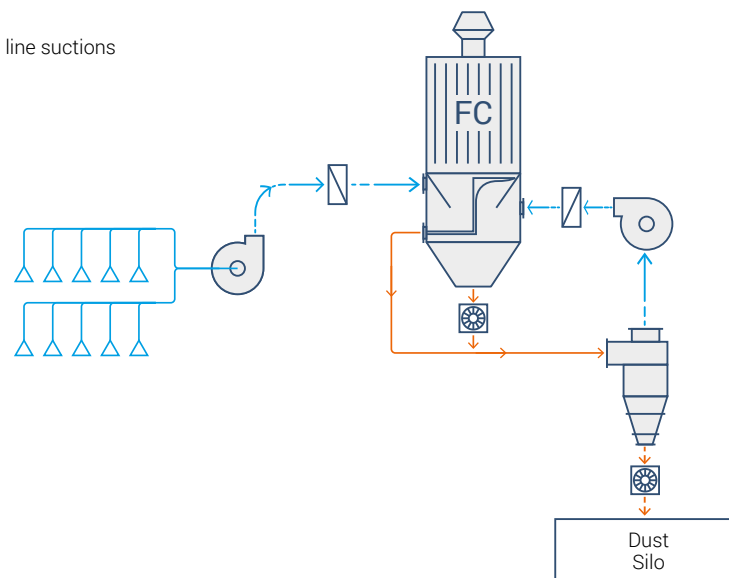
> Wind mat-formers suctions



> Production line and saws suctions



> Sanding line suctions





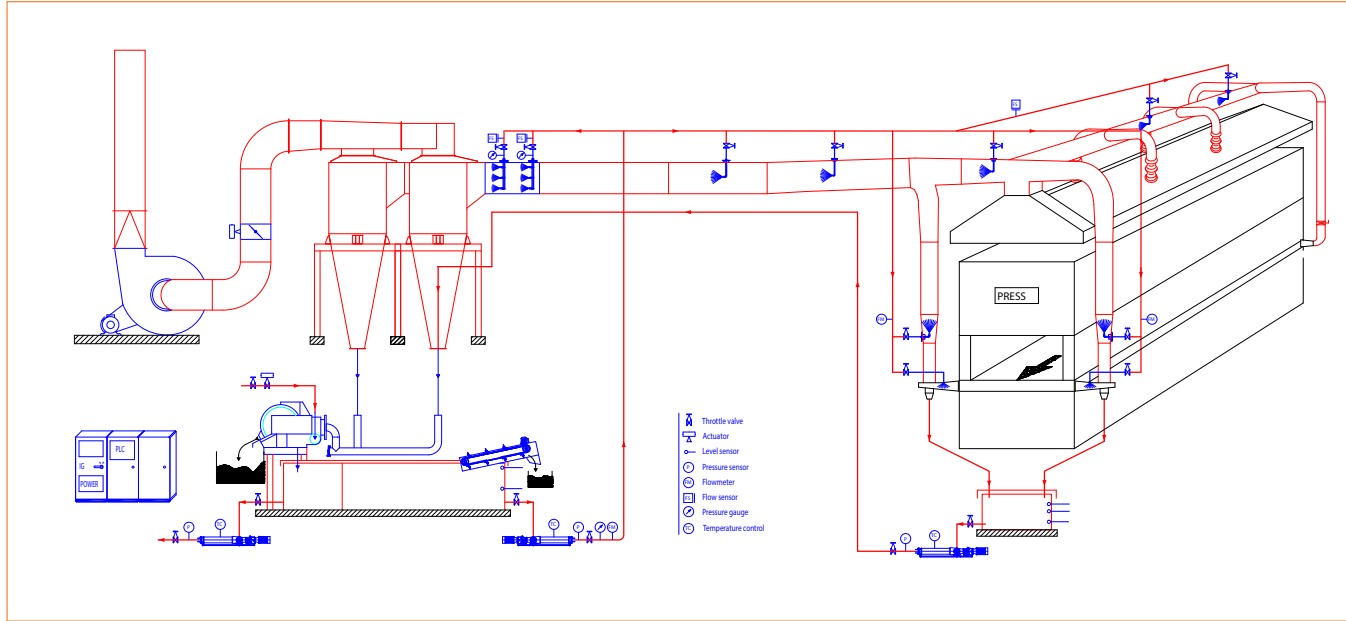
The exhaust gas extraction system is installed on the continuous press in charge of panel production in order to minimize the risks of fire.

Indeed, fire might be caused by deposits of substances present in the fumes released during the pressing process of the wood panel.

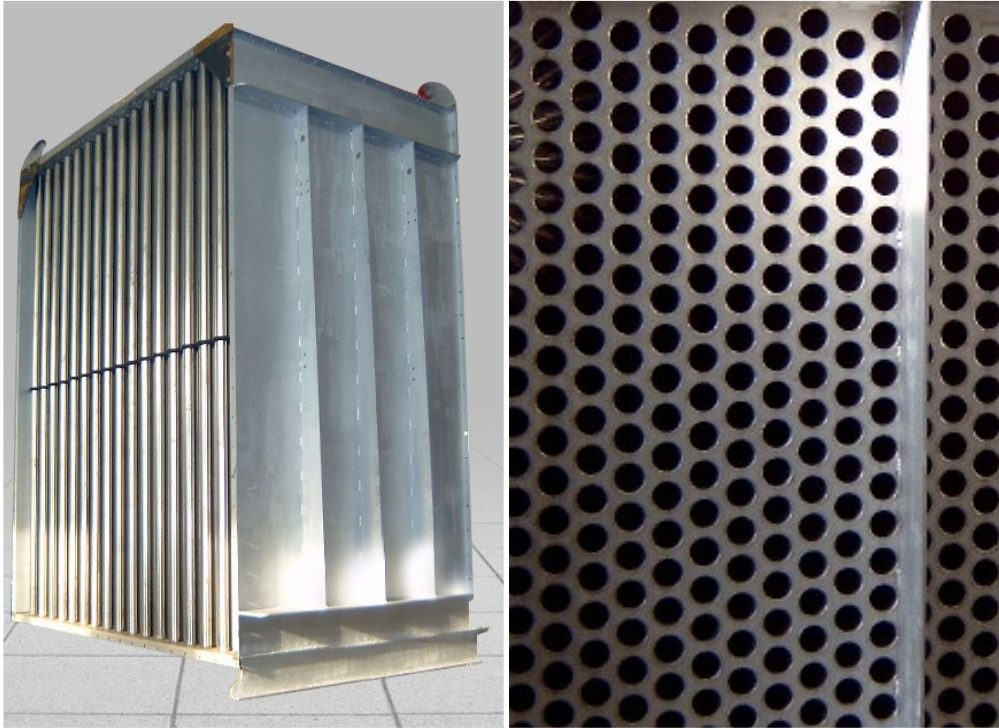
Suitable hoods positioned along the machine suck up gases, dusts and vapours (saturated with resin, paraffin, phenol and formaldehyde) coming from the panel during the pressing process, helping to maintain the work environment healthy. The above substances are then brought down by means of a water system.

Advantages

- **Top reduction of fire risks in the press**
- **Preservation of press cleanness and maintenance reduction**
- **No need for a water treatment system**



12 Heat exchanger



13 Chimney demister



NOTES

