



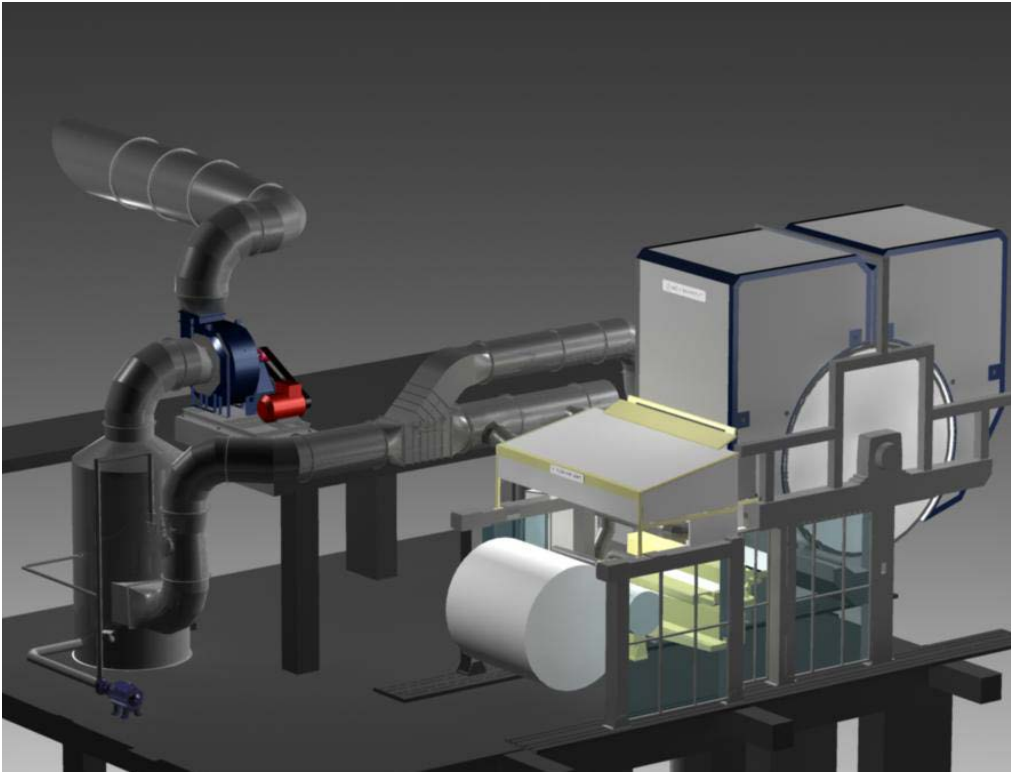
TISSUE MACHINE DUST CONTROL TECHNOLOGY

DUST CONTROL TECHNOLOGY



- Dust for Tissue industry is like an infective virus
- Problems created are infections of :
 - Machine room environment
 - Final product quality
 - Operator's health

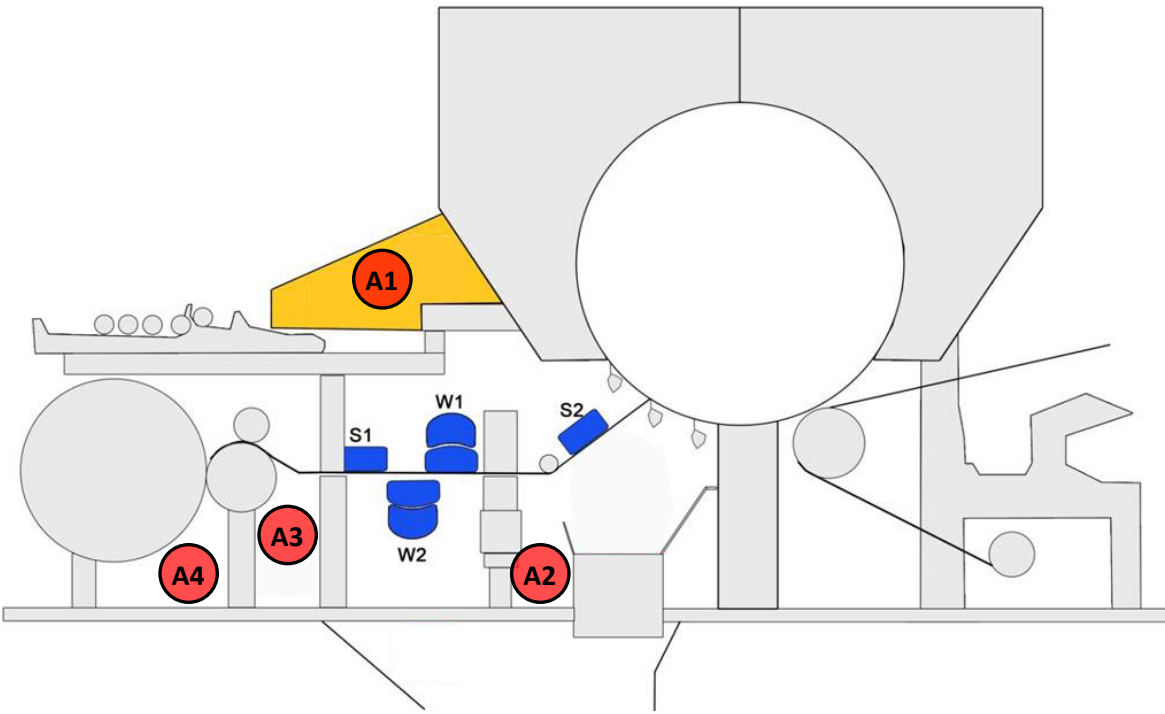
DUST COLLECTING TYPICAL LAYOUT



Novimpianti tissue machine dust control technology is based on the concept to control dust level in the machine area sucking in the most critical points where dust is generated.

Each system needs to be taylorized and customized on the particular tissue machine

DUST COLLECTING TYPICAL LAYOUT



A1 Canopy hood suction
(Elephant trunk)

A2 Lower sucking box before QCS

A3 Lower sucking box before the
reel

A4 Lower sucking box under the
reel

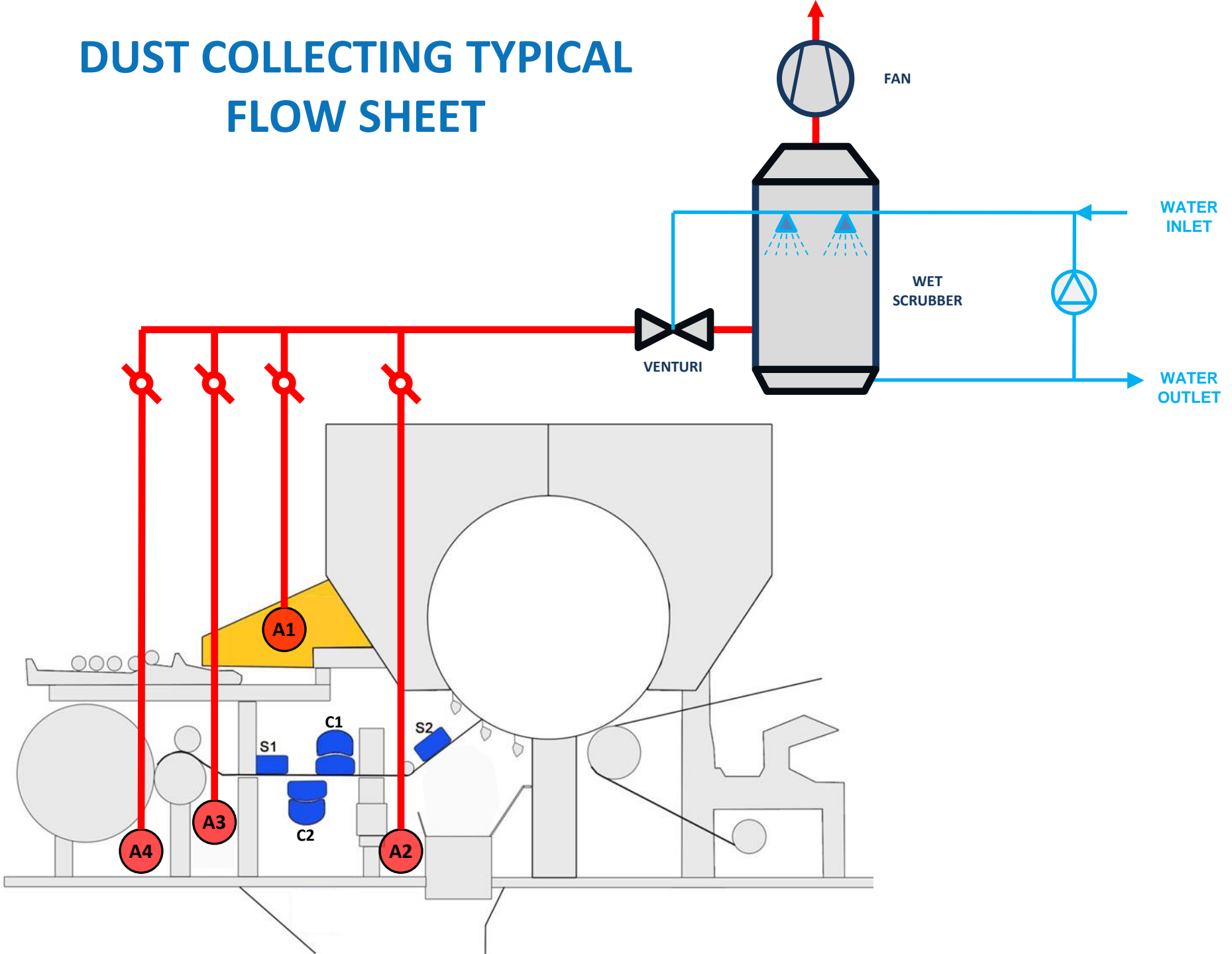
S1 Suction foil before reel

S2 Suction foil after doctor blades

W1 Web cleaning upper side
(Option)

W2 Web cleaning lower side
(Option)

DUST COLLECTING TYPICAL FLOW SHEET



REQUIREMENTS FOR NOVIMPIANTI TISSUE DUST CONTROL

- ⇒ Adaptations due to local needs are possible : fibers, layout...
- ⇒ Basic system: **suction-points → wetscrubber → fan**
- ⇒ Extraction of UTM-scrubber is recommended
- ⇒ Avoid oversized fans (maximize energy saving)
- ⇒ Define position of inspection/cleaning/extinguishing-doors thoroughly
- ⇒ Consider ATEX rules

DUST CONTROL GENERAL LAYOUT



A Boxes are positioned to capture the dusty air flowing in the following areas:

- Under the sheet before QCS
- Under the sheet before reel
- Under the reel nip

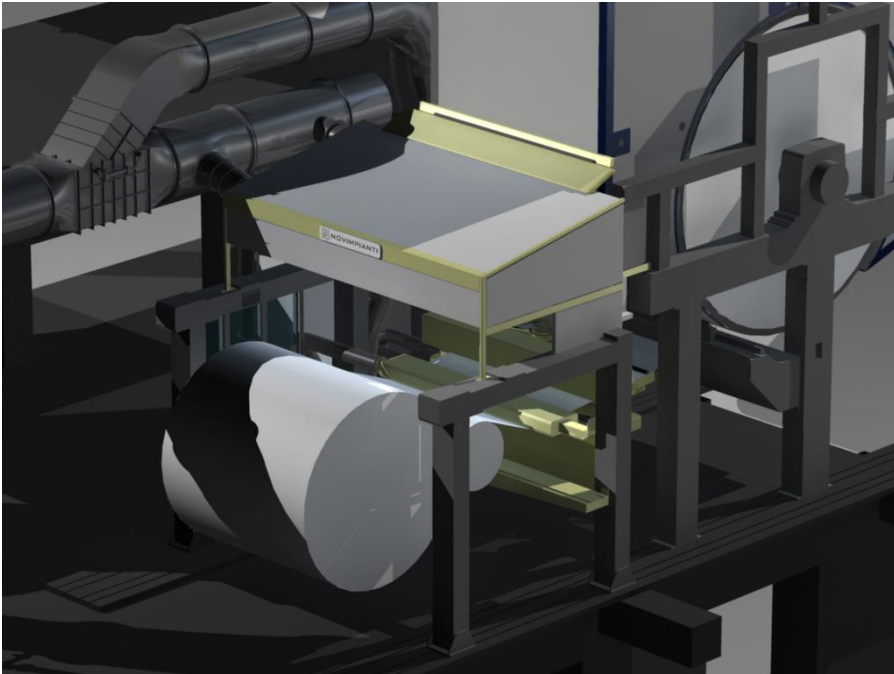
DUST COLLECTING GENERAL LAYOUT



A Boxes can achieve high efficiency in dust removing taking advantage of an internal design that grants:

- High internal turbulence allowing to avoid flow stagnation and dust accumulation
- Low pressure drop granting equal captation capacity across the span of the box

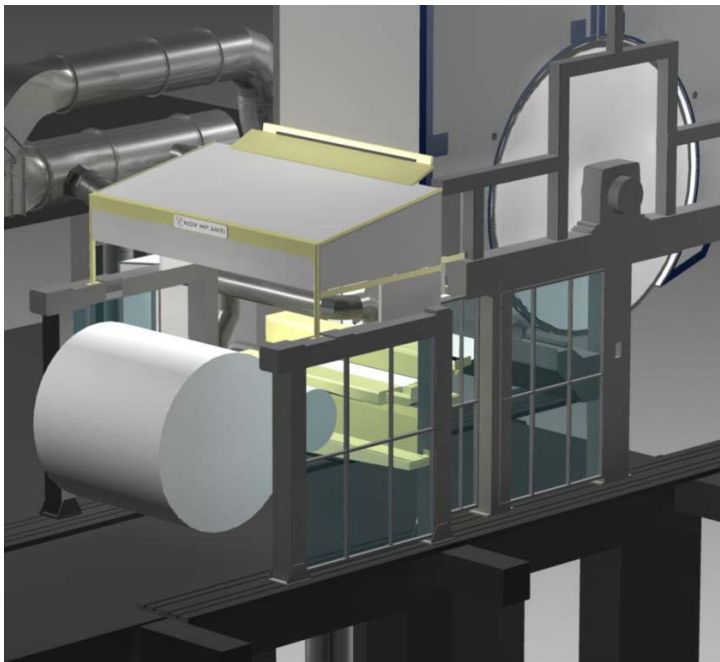
DUST COLLECTING GENERAL LAYOUT



Special suction roof canopy hood over reel:

- Integrated with the compartmenting to assure full dust containment in the area
- Drive side sliding door is provided for operators access

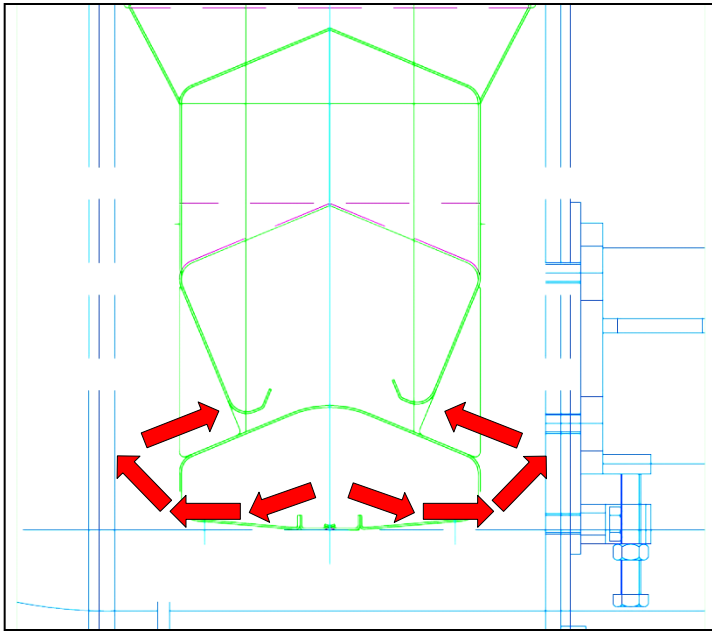
DUST COLLECTING GENERAL LAYOUT



Total Box for total enclosure, made by fixed and sliding surfaces:

- Encapsulating the area from Yankee to reel guarantees the highest environmental standards (below 2 mg/m³)
- Avoiding airborne dust to contaminate the surroundings and migrate to other areas
- Reducing the energy consumption and noise during operation

WEB CLEANING OPTION



C Boxes are provided to clean across the web the remaining boundary dust :
Top and bottom surfaces are blown and sucked up

Blowing tangentially allows to scratch dust from the paper web.
At the same time suction allows to capture the dusty air.

WEB CLEANING OPTION

C Boxes allows the following benefits:

- Provide a clean product to converting
- Avoid dust problems during converting and rewinding
- Allow a final better / cleaner product to the market



DUST SEPARATION



Each box is connected to an external air system to separate dust from air.

Dust is separated from air using water (for fire hazards reasons).

Wet Scrubber is used to wash the exhaust separating dust particles from air.



Depending on local authorities and ATEX rules for explosive environment may require a spark detection system connected to a water/steam fire fighting system to be installed on air system main manifold.

DUST SEPARATION



Wet Scrubbing system is composed of:

- Ducting from dust collectors
- Venturi section
- Wet scrubber
- Exhaust fan
- Chimney to outside
- Silencer

SYSTEM INDICATIVE OPERATIONAL DATA

Production [tpd]	100	200
Paper at reel [mm]	2800	5600
Flow rate [m³/h]	58.000	100.000
Electric consumption [kW]	80	140
Water consumption [m³/h]	5	10

The Lowest Energy Consumption :

- The system is strictly designed for customer production and tissue machine
- The number of suction boxes “drives” the fan volume / motor power consumption
- Reduction up to 10% compared to other suppliers similar installation

SYSTEM INDICATIVE PERFORMANCE GUARANTEES

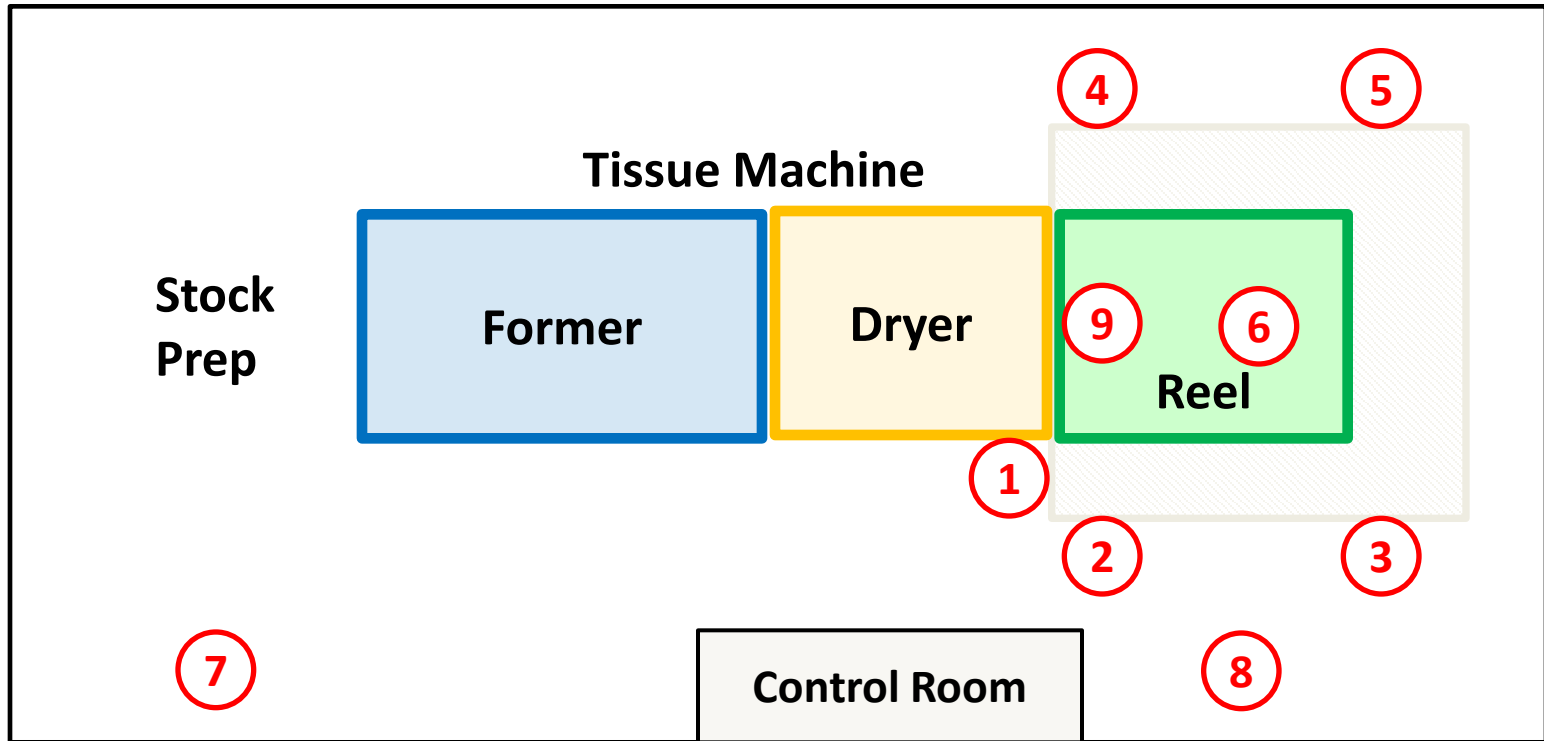
Novimpianti guarantees that the dust control system will provide an airborne exposure level at the machine area not exceeding:

	Standard System	with Total Box
Dust Level Guarantee	5 mg/m³	2 mg/m³

The Total Box allows to achieve the highest environmental standards

PERFORMANCE TEST

Measurement Grid



PERFORMANCE TEST

Measurement Grid

1	2 mg/m ³	measured in ~ 1,2 m height
2	2 mg/m ³	measured in ~ 1,2 m height
3	2 mg/m ³	measured in ~ 1,2 m height
4	-	measurement for information
5	-	measurement for information
6		measurement for information
7		measurement for information
8	2 mg/m ³	measured in ~ 1,2 m height
9	-	measurement for information

DUST CONTROL TECHNOLOGY FOR TISSUE

Novimpianti with more than 32 orders and deliveries for Tissue Customers in the last 3 years has developed and consolidated dust control technology for :

- Tissue machines
- Tissue rewinders

Last important references are for Top Corporate for their Europe and Asia tissue machines & rewinders



BENEFITS SUMMARY

Novimpianti latest dust technology, compared to other suppliers, provides:

- The most efficient boxes to remove the dust
- The lowest energy consumption
- The highest environmental standards :
 - For the final product
 - For the operators

