

**ANDRITZ**

 **NOVIMPIANTI**  
DRYING TECHNOLOGY

**PULP & PAPER**

**PAPER & BOARD PRODUCTS  
PLATFORM**

# CHAPTER OVERVIEW

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**01** P&B TECHNOLOGY PLATFORM

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**02** DRYING

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**03** VENTILATION

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**05**

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# 01 – P&B TECHNOLOGY PLATFORM

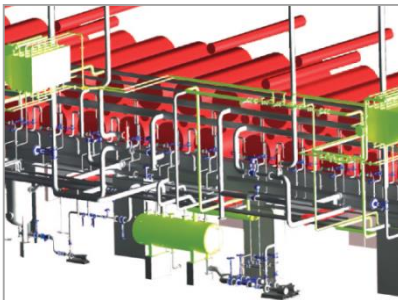
- Drying

S&C Systems

Closed Hood

Mini Yankee Hood

MG Yankee Hood

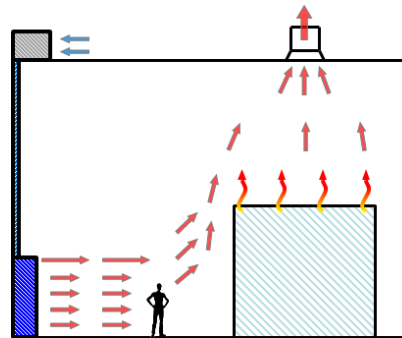


- Ventilation

Heat recovery Units

Pocket ventilation

P&B Hall Ventilation



- Service

Surveys

Maintenance &  
Repair

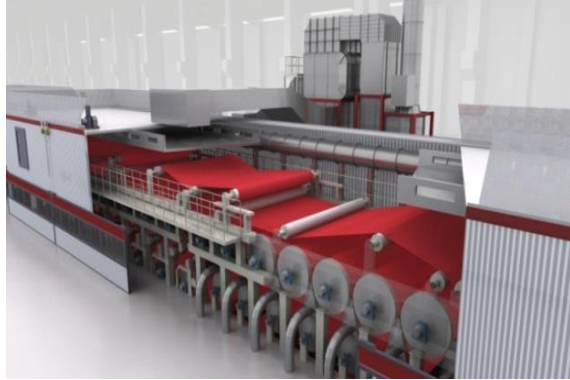
Components

Spare parts

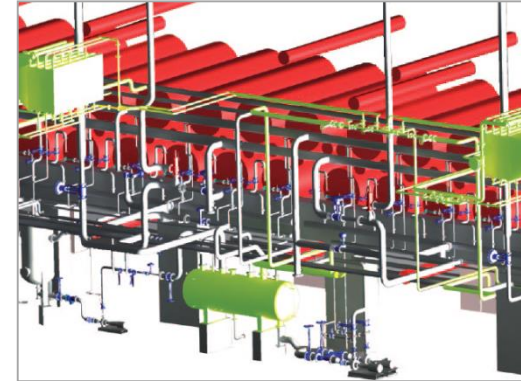


# 02 – DRYING

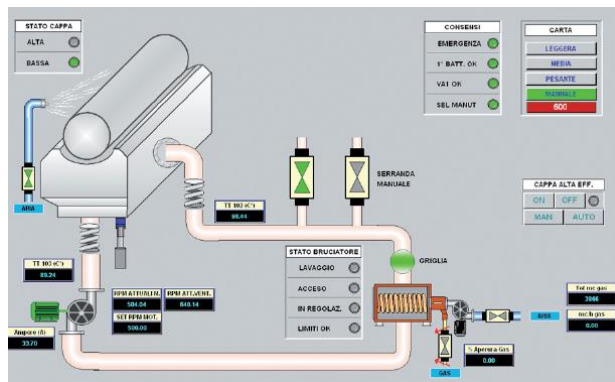
## PRODUCTS OVERVIEW



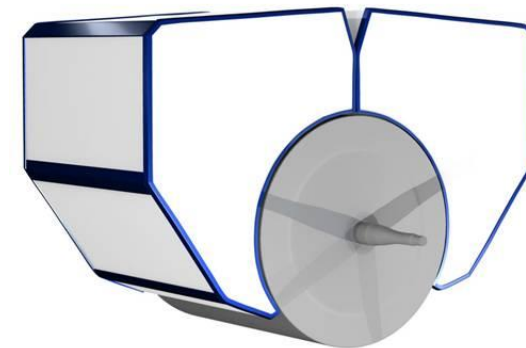
Closed Hood



Steam & Condensate system



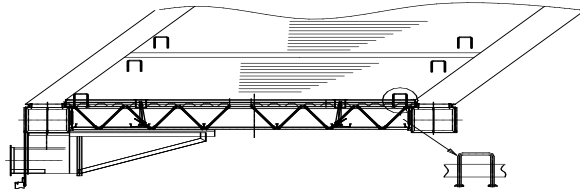
Mini Yankee Hood



MG Yankee Hood

# 02 – DRYING

## CLOSED HOOD & AIR SYSTEMS FOR DRYER SECTIONS



### BETTER DRYER SECTION VENTILATION

The special manufacturing of the hood exhaust system through across false ceiling regulating slots and make-up air distribution provide even optimized conditions for paper web drying, ventilation and final quality.

### LOWER ENERGY CONSUMPTION

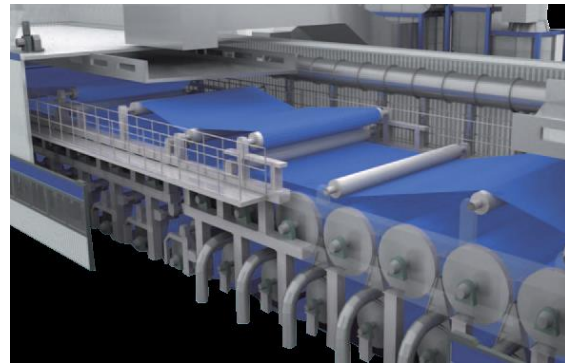
Novimpianti closed hood provides high dew point capability and consequent lower energy consumption per ton of paper produced reducing both the amount of the exhausted air and consequent make-up through the pocket ventilation air system

### EASIER ACCESS AND MAINTENANCE

Special modularized construction with fast removable roof elements allows easier maintenance and felt change from the using machine overcrane. Novimpianti can provide also an optional version with side doors for lateral felt change as also available on request.

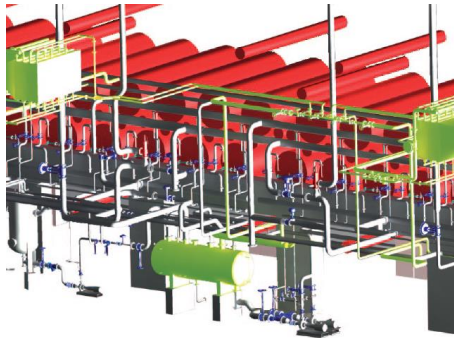
### QUALITY GUARANTEED BY MANUFACTURING IN OUR FACILITIES

Novimpianti Hood quality is guaranteed by the manufacturing realized directly in our workshop. Each component is subjected to a rigorous quality control.



# 02 – DRYING

## STEAM & CONDENSATE SYSTEM FOR DRYER SECTIONS

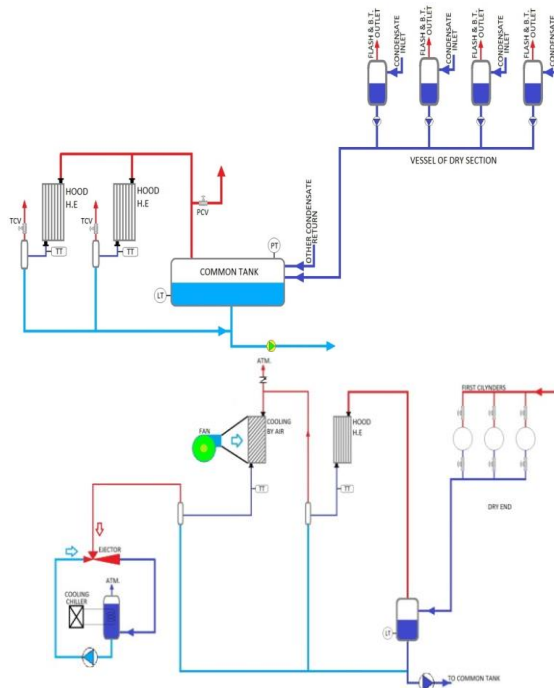


### BETTER STEAM & CONDENSATE ARCHITECTURE FOR DIFFERENT DRYER SECTIONS

Different paper and board grades, machines speed and drying curves need long experience, flexibility and engineering capabilities to design the correct solution for each dryer section and for its total drying concept and automation. Novimpianti can provide from single dryer sections upgrade to total new or rebuild steam and condensate solutions.

### LOWER STEAM CONSUMPTION WITH CLOSED HOOD INTEGRATION

By supplying both the closed hoods, air systems and dryer sections pocket ventilation as well as steam and condensate systems, Novimpianti can provide the best integrated solution to recover the thermal power used in the steam drying process through main common tanks and flash steam recovery for hood air PV heating. All those arising in the lowest possible steam consumption and final cost per ton of produced paper.

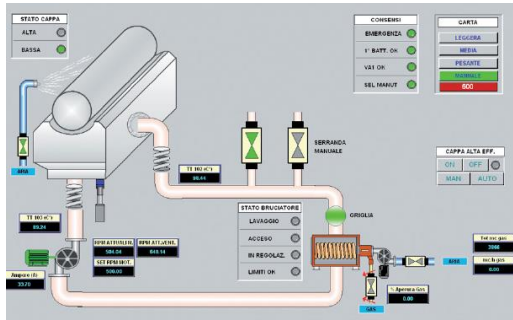


### LOWER MAINTENANCE & LONG SYSTEMS LIFE

By using high quality materials, international brands for strategic components, Novimpianti steam & condensate provides longer material life, reduced maintenance and easier spare parts traceability all those in compliance with international and local pressure vessel rules as well as safety regulations..

# 02 – DRYING

## MINI YANKEE HOOD FOR SLALOM DRYER SECTIONS



### IMPROVE PAPER PROPERTIES/QUALITY

Mini Yankee Hood hot air even distribution on paper web with automatic temperature and air velocity regulation provide the paper of the needed parameters to get more strength, avoid wrinkles and brakes caused by weakness and instability when not covered by the fabric . Heating system of the Mini Yankee Hood be gas or steam heated connected by heavy duty regulation, exhaust fans and connected by sealed and insulated ductworks.

### INCREASE DRYING CAPACITY

One Mini Yankee Hood is equivalent to about 3 cylinders drying capacity of the first slalom section. It can be provided as single dryer or twin dryer Mini Yankee Hood installation by blowing hot re-circulation air on the lower paper surface not covered by the fabric. High efficiency cross nozzle boxes, and protected return slots allow optimal operations of the Mini Yankee Hood.

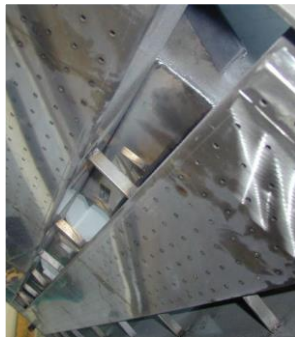
### HEAT RECOVERY AIR SYSTEM (OPTION)

The Mini Yankee Hood thermal power used to blow on the paper surface during the drying process and partially exhausted, can be recovered in a heat exchanger to preheat the combustion air of the same Mini Yankee Hood burner and/or the make-up air renewing the exhausted one.



# 02 – DRYING

## MG YANKEE HOOD x BOARD MACHINES YANKEE SECTION



### INCREASED DRYING CAPACITY WITH BETTER CONTROL OF COMBINED MG/BOARD/YH DRYING SECTION PROCESS

To increase drying capacity by a yankee hood blowing hot air on MG paper or board is not simple and can cause, if not properly done, serious damages to the MG and board papers arising in low quality and reduced production. The importance and experience in finding correct blowing and drying parameters both from yankee side as well as from Hood side is the key in achieving higher drying capacity with good MG and board.

### IMPROVE MG PAPER AND BOARD PROPERTIES, QUALITY, RUNNABILITY

Hot air even distribution on MG paper and board web with automatic temperature and air velocity control, provide the paper of the needed parameters to get more strength, avoid wrinkles, bobbies and brakes caused by weakness and instability when not covered by the fabric. Air heating system to supply those parameters to the yankee hood can be gas or steam heated connected by heavy duty recirculating, exhaust fans with sealed and insulated ductworks.

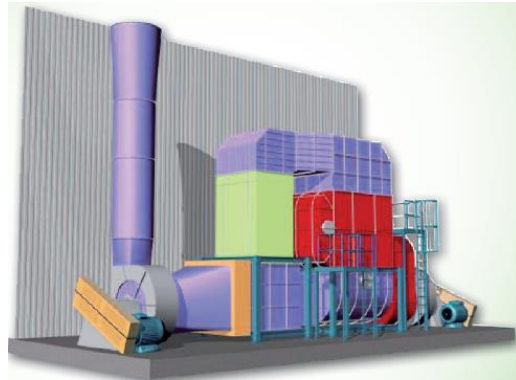
### HEAT RECOVERY SYSTEM (OPTION)

The yankee hood thermal power used to blow on the MG paper and board surface during the drying process and partially exhausted can be recovered in a heat exchanger to preheat the combustion air of the Hood burners and/or the make-up air to renew the exhausted one.

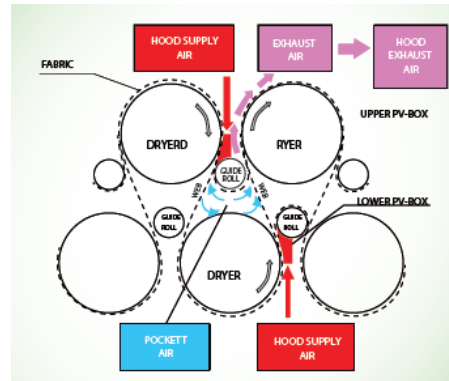


# 03 – VENTILATION

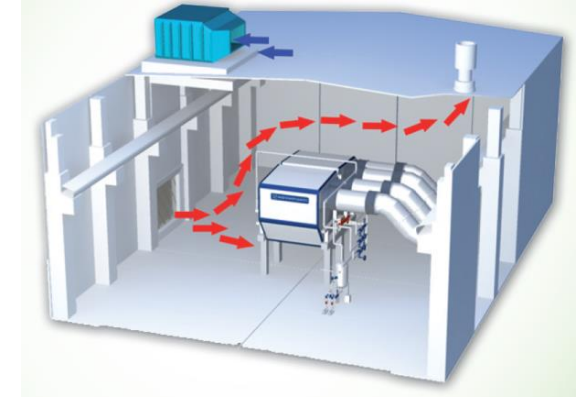
## PRODUCTS OVERVIEW



Heat Recovery Units



Pocket ventilation



Room ventilation

# 03 – VENTILATION

## HEAT RECOVERY SYSTEMS FOR AIR & WATER



### AIR TO AIR HEAT EXCHANGER

Made in stainless steel tubes (optional aluminum) with higher heat transfer, primarily used for dryer sections supply air heating and/or for room ventilation air heating. Strong construction for mezzanine inside/outside installation and of access for easy cleaning and maintenance.

### AIR TO WATER SCRUBBER

Made in stainless steel and complete of special unplugging nozzles banks for heating process water. Typically placed after the air system is provided of a strong construction for mezzanine inside/outside installation and of access for easy cleaning and maintenance.

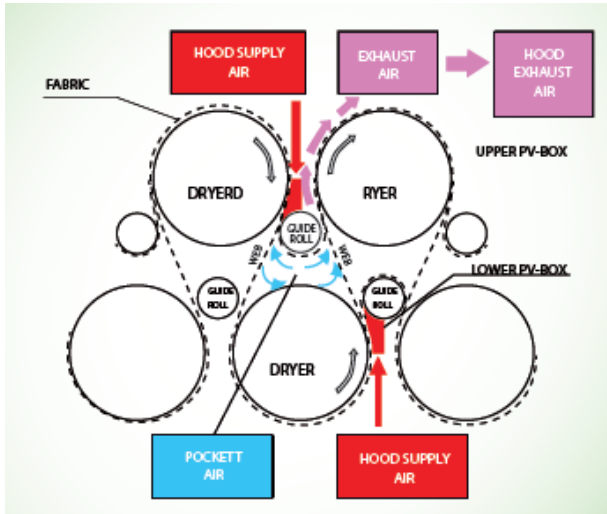


### AIR TO WATER INDIRECT HEAT EXCHANGER

Made in stainless steel with higher heat transfer used for heating water or glycol-water for machine room ventilation heating unit fluid distribution. Strong construction for mezzanine inside/outside installation provided of access for easy cleaning and maintenance.

# 03 – VENTILATION

## POCKET VENTILATION



### POCKET VENTILATION IN STANDARD MACHINE GEOMETRY

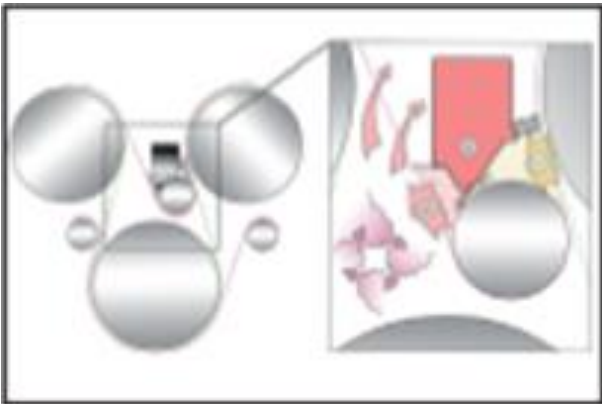
Our pocket ventilation system is studied to provide a good air distribution in a standard pocket where the fabric roll is in the center of the pocket. The PV provides uniform across air distribution with an easy regulation of the needed volume. The even air distribution across the web is provided by a special inner construction.

### POCKET VENTILATION IN THE OFFSET ROLL MACHINE GEOMETRY

An offset roll geometry is typically used in the modern and faster paper machines. This kind of geometry and machine speed creates some pumping effect in the pocket that, if not properly corrected by the PV box, can arise in fluttering and paper brakes. The twin tier stabilizing PV box have all those features needed to combine a perfect and uniform pocket ventilation with good web stabilization and runnability.

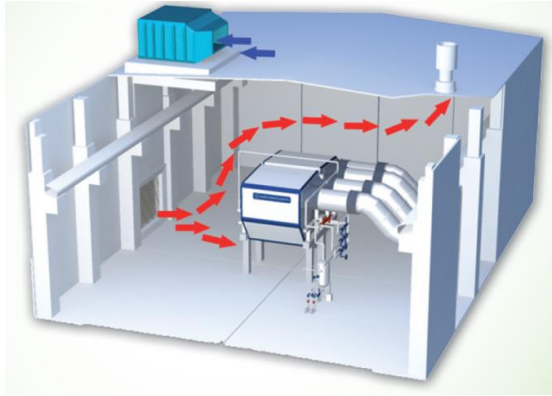
### EFFECTIVE DESIGN, MAINTENANCE AND PERFORMANCES

The long experience on paper and board machines ventilation combined operators and machine supplier new standards needs has given Novimpianti the capability to develop a family of pocket ventilation boxes capable to match successfully any kind of different machine grade and geometry, reducing and simplifying maintenance activities.



# 03 – VENTILATION

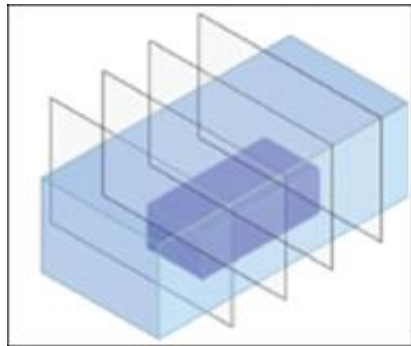
## P&B MACHINES HALL VENTILATION



### OPTIMAL OPERATORS ENVIRONMENT

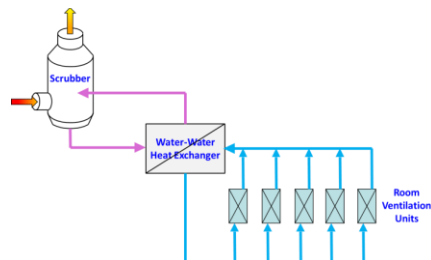
Bad environment conditions of the machine arise on big problems both on possible health claims as well as operators reduced alertness on the machine production activities caused by too high temperature and/or humidity.

The importance of a proper segmentation of the operators areas and apply the correct ventilation parameters as temperature, humidity and air speed is the key to have optimal environment conditions and safe operations



### BUILDING CORROSION PROTECTION

The paper machine hall building and the auxiliaries can have severe corrosion and deterioration problems arising on safety issues to the normal production operations and shortening the life of the building itself. Low temperatures typically combined with high humidity are the most frequent cause of those problems. The importance in a proper segmentation of the machine hall according to the different heat and humidity loads typically of any machine section and use of correct ventilation parameters are the key to have a proper building and machinery corrosion protection.



### OPTIMAL ENERGY CONSUMPTIONS

The importance in finding energy recovery sources from the machine production sections and use correctly differentiated amount of air for different hall areas is the key to an optimal machine hall ventilation consumption.