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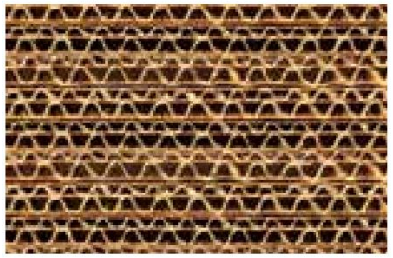
INTRODUCTION TO LANTIER SOLUTIONS

Pulp

Paper



Board

Tissue

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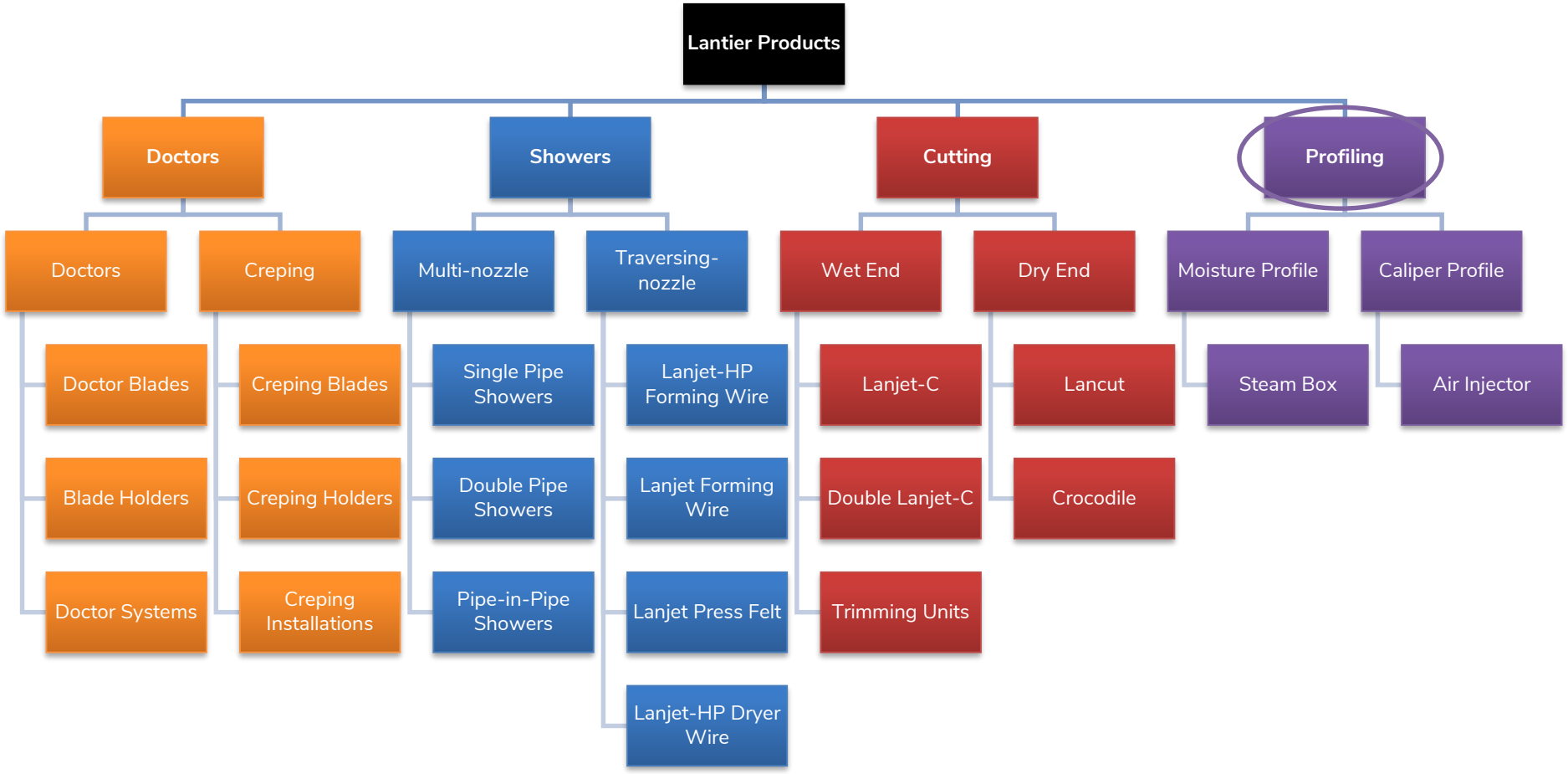

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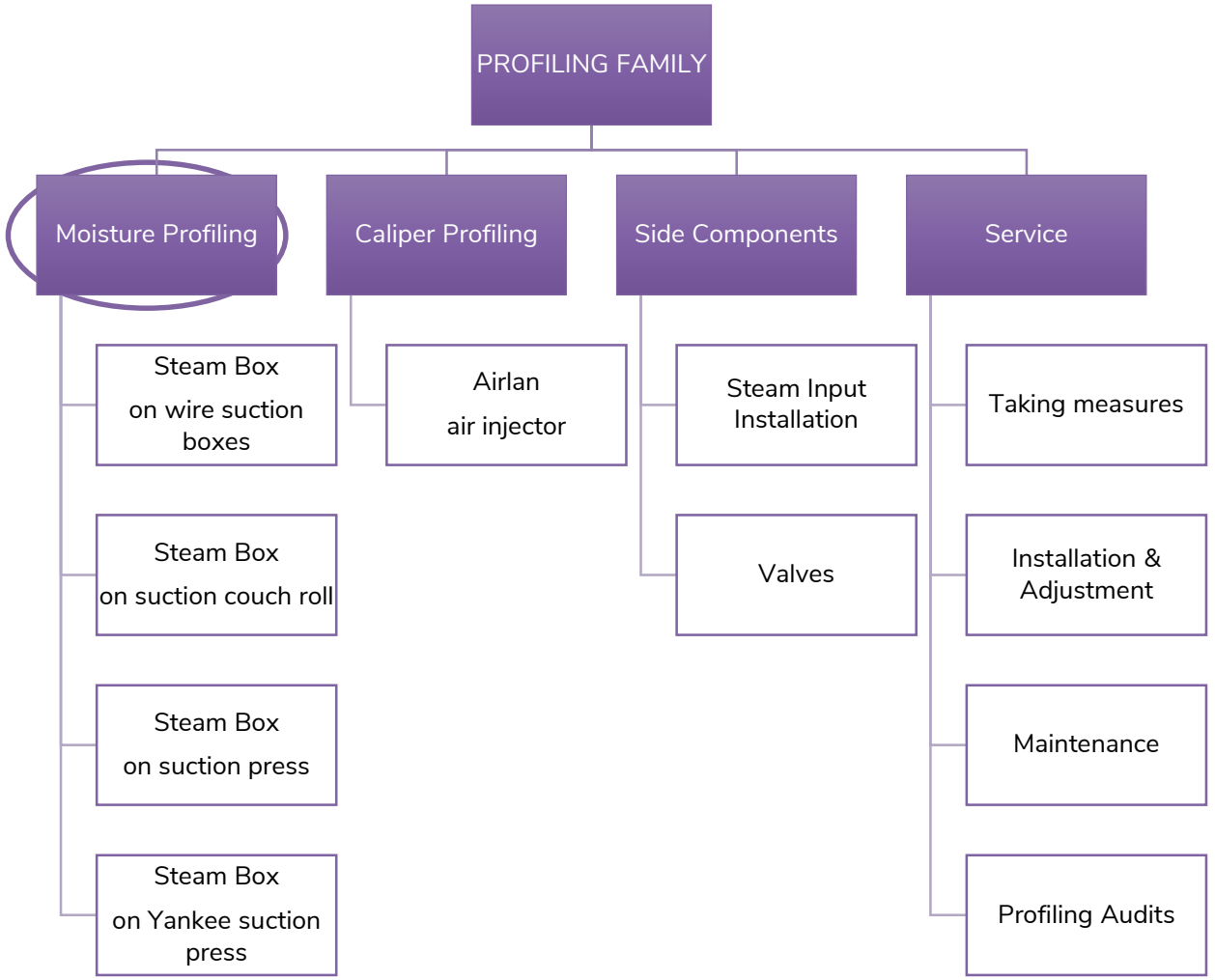
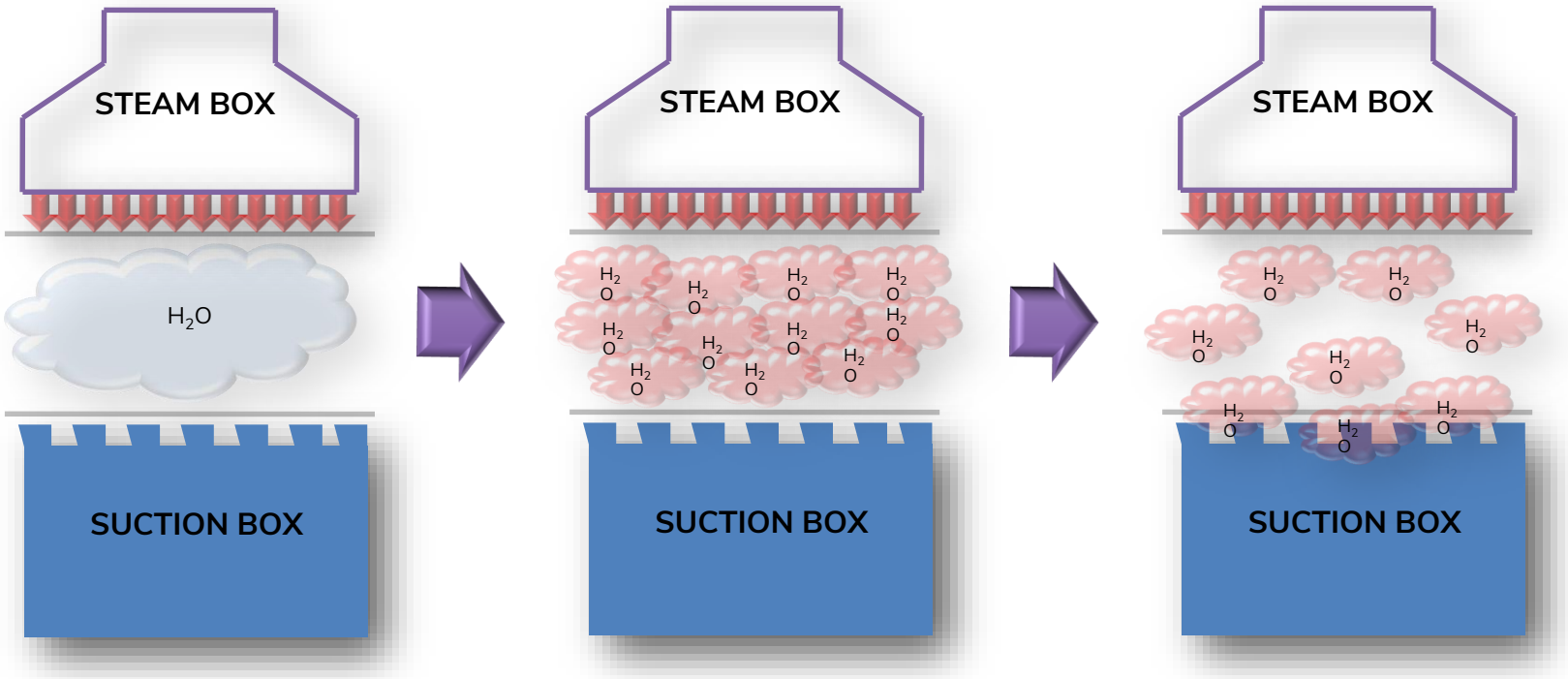
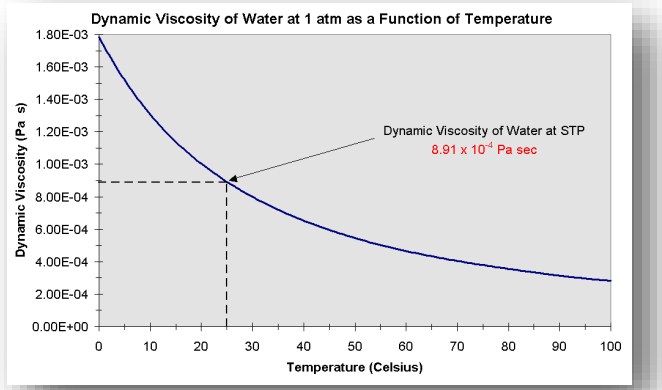
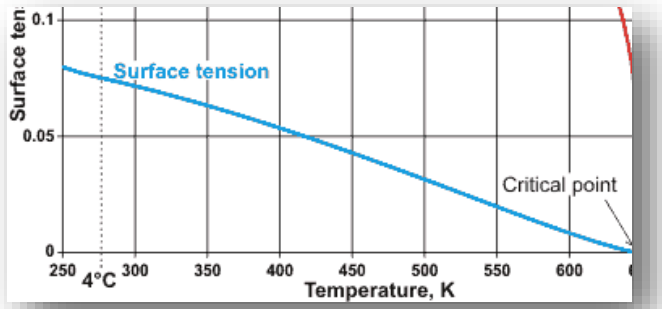


Working principle







Purposes of the Steam Boxes:

- ✓ Raise-up the water temperature inside the sheet
- ✓ Decrease water viscosity
- ✓ Decrease water surface tension

ISO 9001
BUREAU VERITAS
Certification

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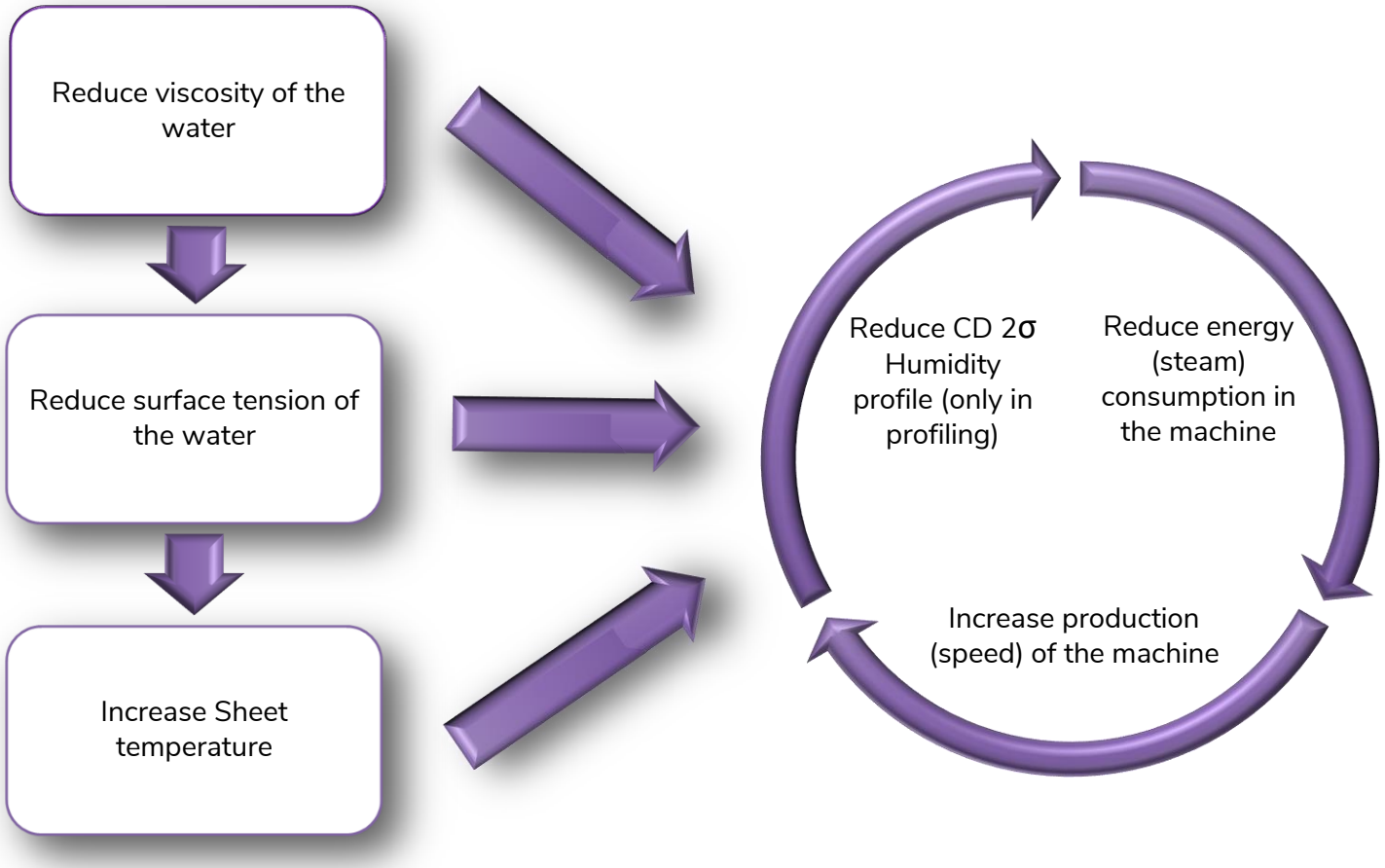
Why to install a “LANBOX” ?



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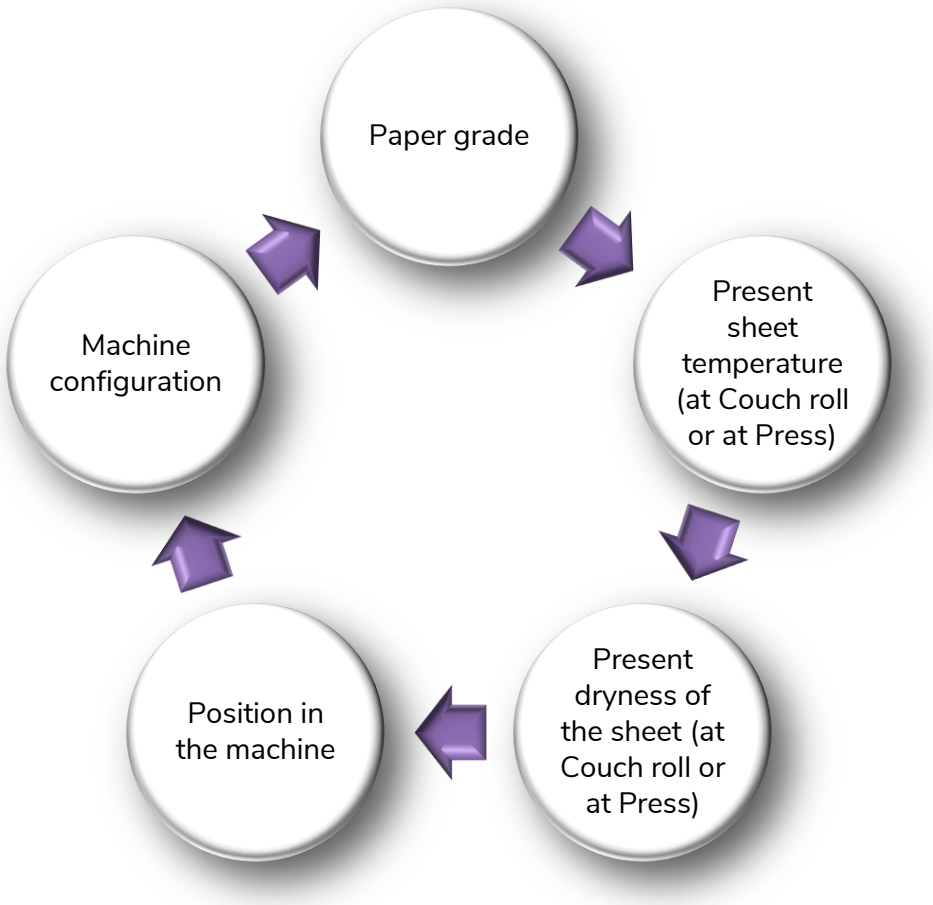
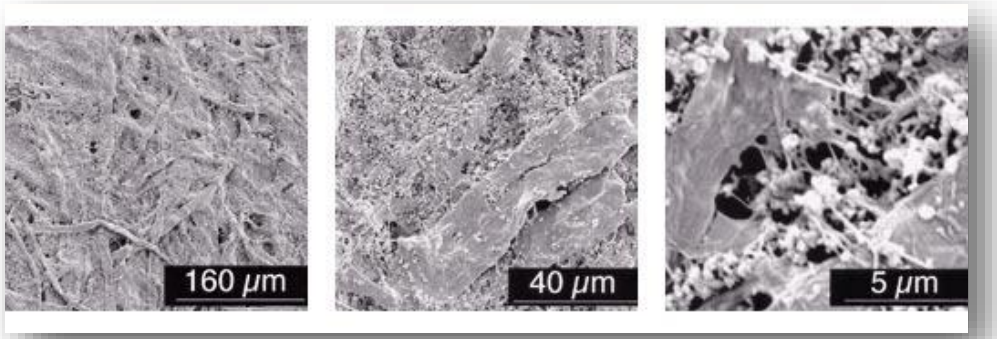
Points to consider for installing a **“LANBOX”**



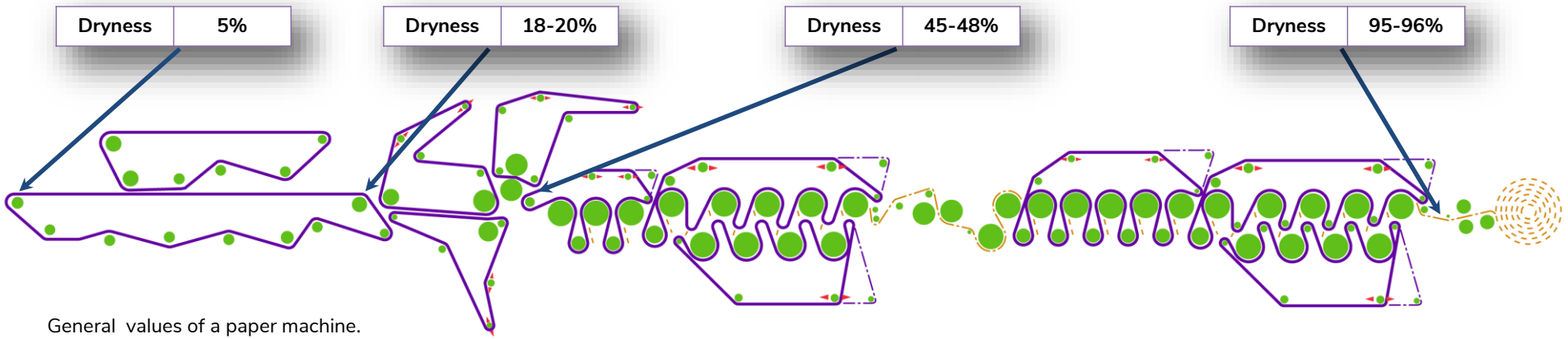
Paper grade

CHARACTERISTIC	PROS & CONS
Porosity	More porous → GOOD
	Less porous → BAD
Length of the Fiber	Long Fibers → GOOD
	Short Fibers → BAD
Schopper Grade (°SR)	Less refined → GOOD
	More refined → BAD



Cigarette paper photos taken by a microscope

Present temperature & dryness of the sheet



General values of a paper machine.
Each paper machine has its own values and characteristics

Position in the machine

CHARACTERISTIC	PROS & CONS
Vacuum capacity of the box/roll	High vacuum → GOOD
	Low vacuum → BAD
Distance to the Nip	Near to the Nip → GOOD
	Far from the Nip → BAD
Installation possibility	Easy to install → GOOD
	Difficult to install → NO PROBLEM

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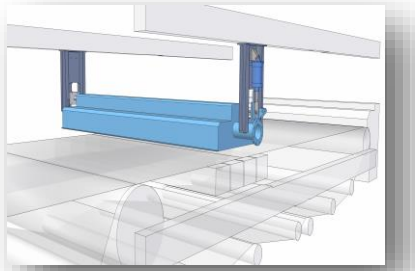
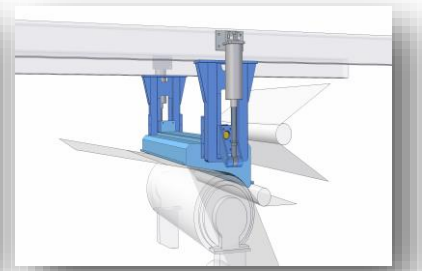
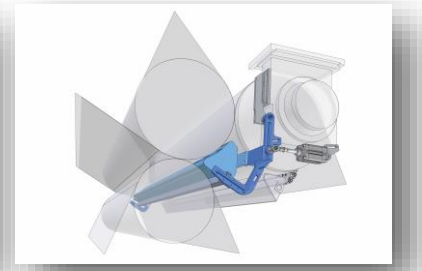
A full range of equipment to cover all needs



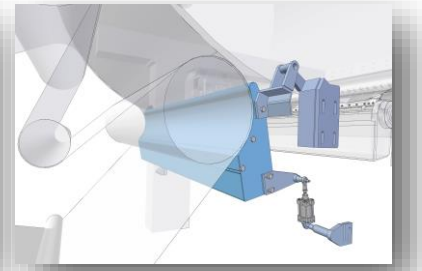
"LANBOX",
Steam box on Former



"LANBOX",
Steam box on Suction Couch Roll



"LANBOX",
Steam box Suction Press Roll



"LANBOX",
Steam box on Yankee Suction Press

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Main characteristics

CHARACTERISTIC	EXPLANATION
Steam projection	1x projection in the same direction of the same 1x projection against the paper direction
Design	Design adapted to any new or existing paper machine
Profiling	Different width of projections compartments (50-150 mm) for profiling
Not Profiling	3x different steam projection zones in cross direction covering all the width of the paper: - 1x In the central part of the Steam Box - 2x In the edges of the Steam Box
Lifting System	Designed for fitting to each machine and position

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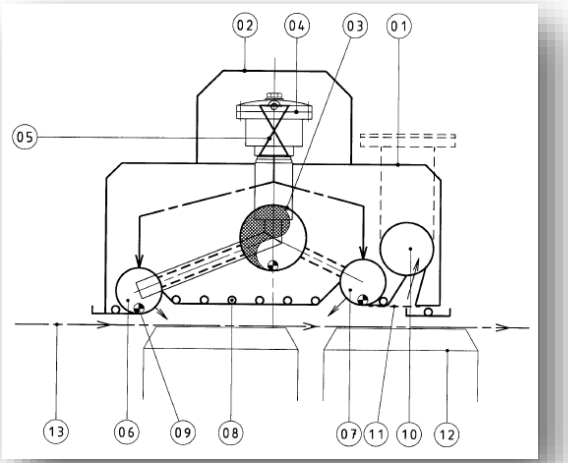
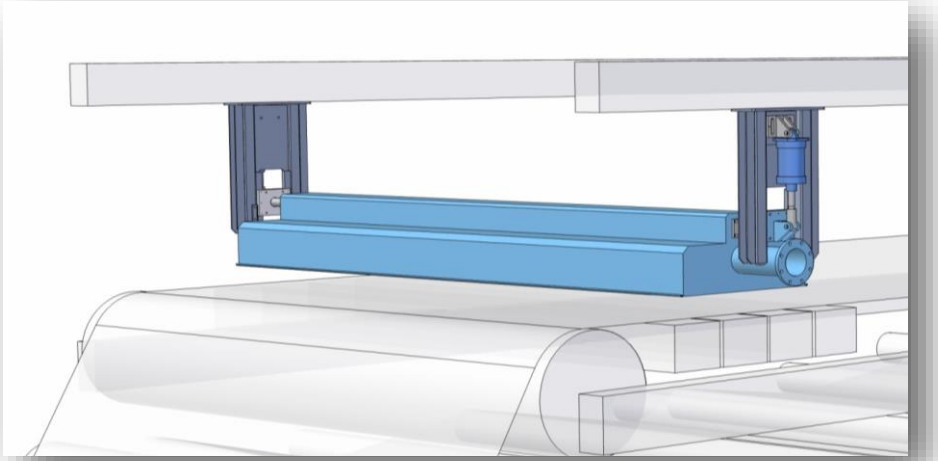
“LANBOX”, steam box on former



Main components:

01 - Steam Box body in stainless Steel
03 - Main pipe for steam supply
04 - Lantier AL-1 Actuator
06 - Steam projection 1
07 - Steam projection 2
08 - Pre-heating system
09 - Condensated steam evacuation
10 - Aspiration system (optional)

CHARACTERISTIC	EXPLANATION
Symmetrical design	Symmetrical design of the Stem Box giving possibility of installing on both senses



BENEFITS	
	Increase dewatering capacity and Nip efficiency ↓ Increase Machine efficiency
	Improve sheet CD profile
	Improve paper quality
	Increase Energy saving Or Increase production
	Reduce paper breaks

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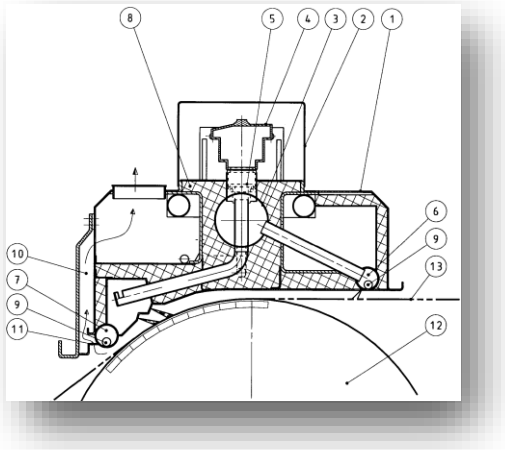
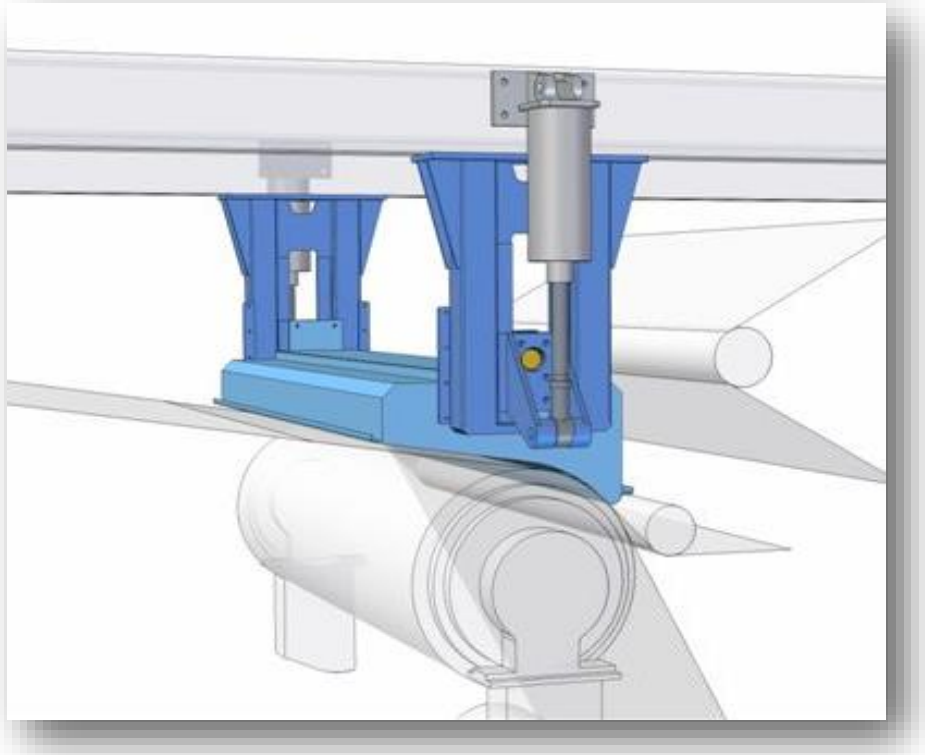
“LANBOX”, steam box on suction couch roll



Main components:

01 - Steam Box body in stainless Steel
03 - Main pipe for steam supply
04 - Lantier AL-1 Actuator
05 - Pneumatic valve
06 - Steam projection 1
07 - Steam projection 2
08 - Pre-heating system
09 Condensates evacuation
10 - Aspiration system (optional)



BENEFITS	
	Increase dewatering capacity and Nip efficiency ⇩ Increase Machine efficiency
	Improve sheet CD profile
	Improve paper quality
	Increase Energy saving Or Increase production
	Reduce paper breaks

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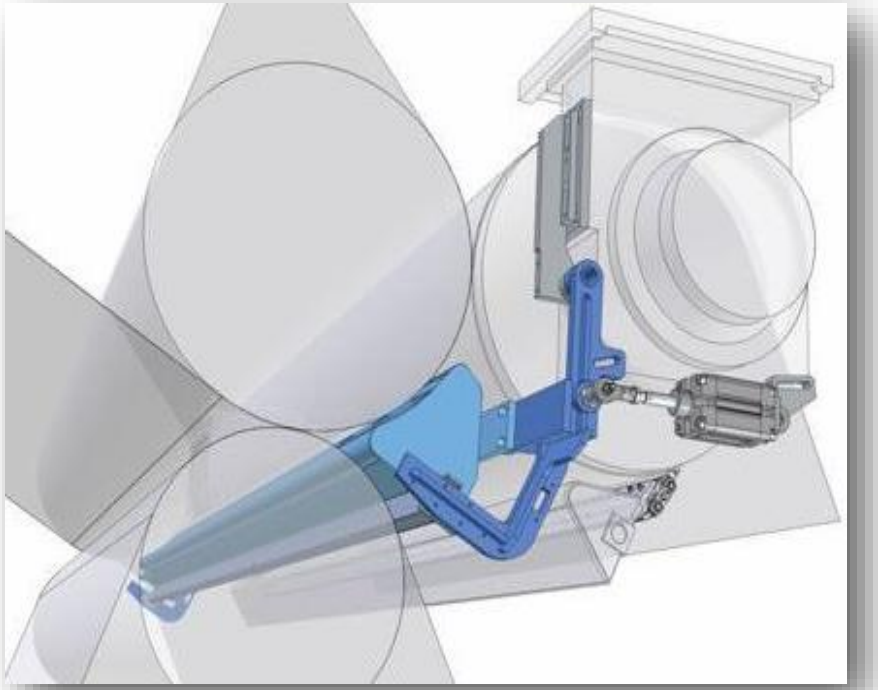
“LANBOX”, steam box on suction press



CHARACTERISTIC	EXPLANATION
Slide-out system	The box can be pulled-out sideways towards Tender side

BENEFITS
Increase dewatering capacity and Nip efficiency ↓ Increase Machine efficiency
Improve sheet CD profile
Improve paper quality
Increase Energy saving Or Increase production
Reduce paper breaks

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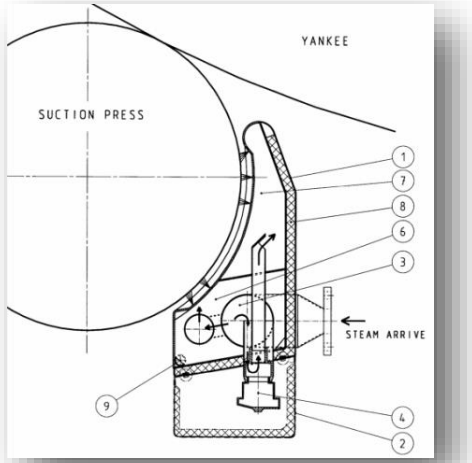
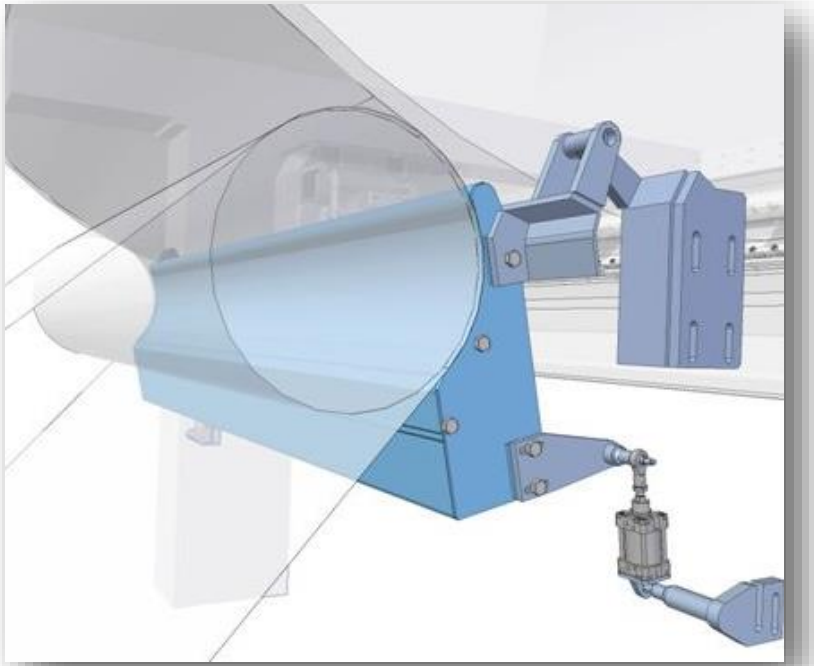
“LANBOX”, steam box on yankee suction press





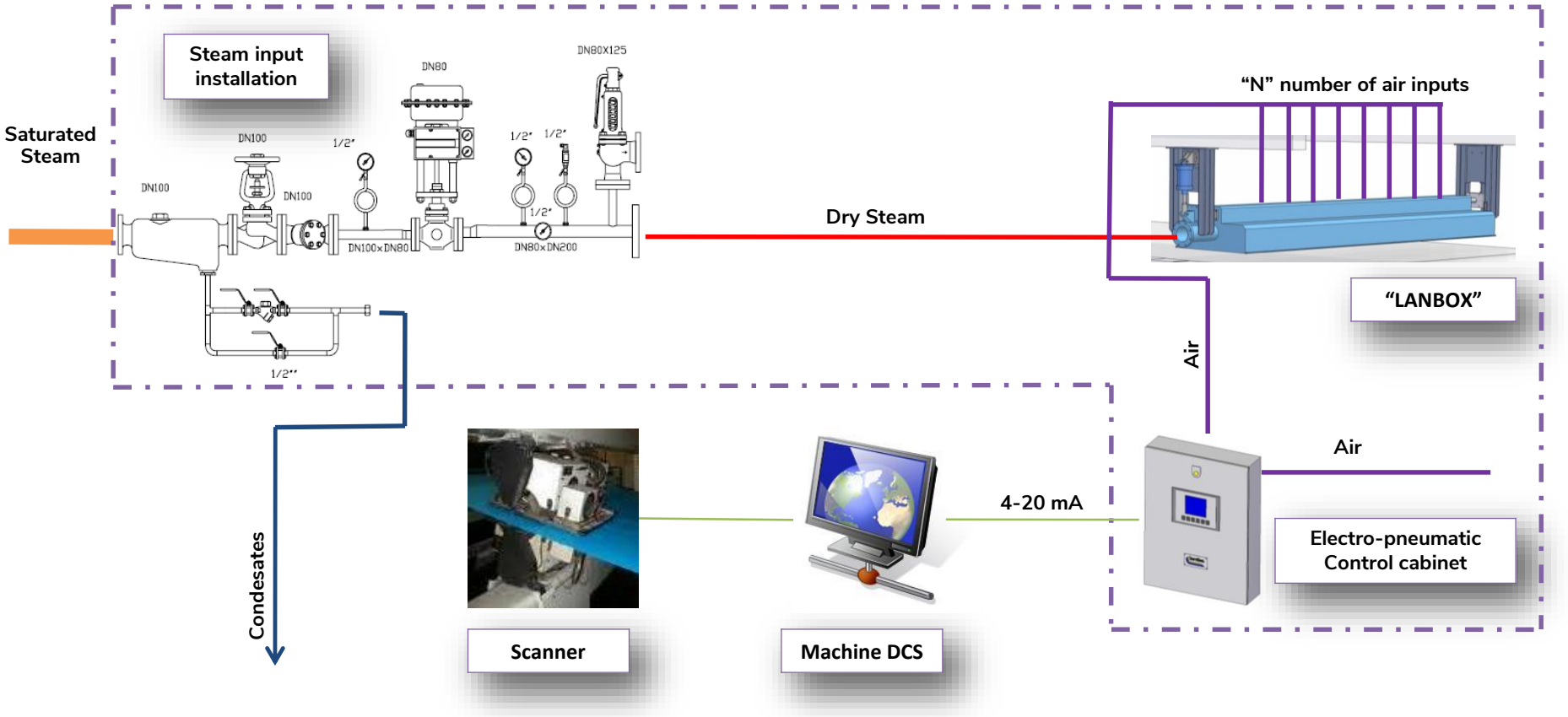
Main components:

01 - Steam Box body in stainless Steel
03 - Main pipe for steam supply
04 - Lantier AL-1 Actuator
05 - Pneumatic valve
06 - Steam projection Chamber 1 (Preheat)
07 - Steam projection Chamber 2 (Profiling)
09 - Condensate steam evacuation

BENEFITS	
	Increase dewatering capacity and Nip efficiency ↓ Increase Machine efficiency
	Improve sheet CD profile
	Improve paper quality
	Increase Energy saving Or Increase production
	Reduce paper breaks

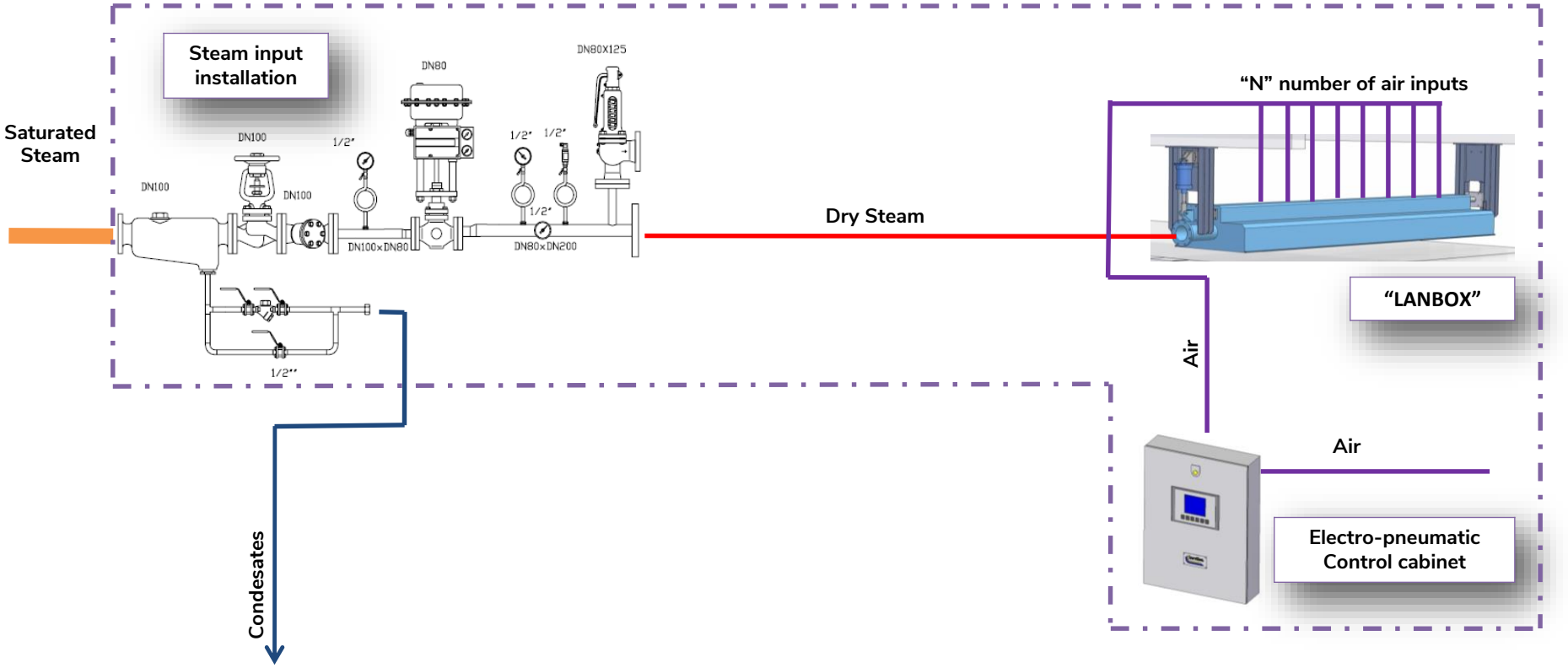
“LANBOX”, scope of supply

Electro-pneumatic control for profiling



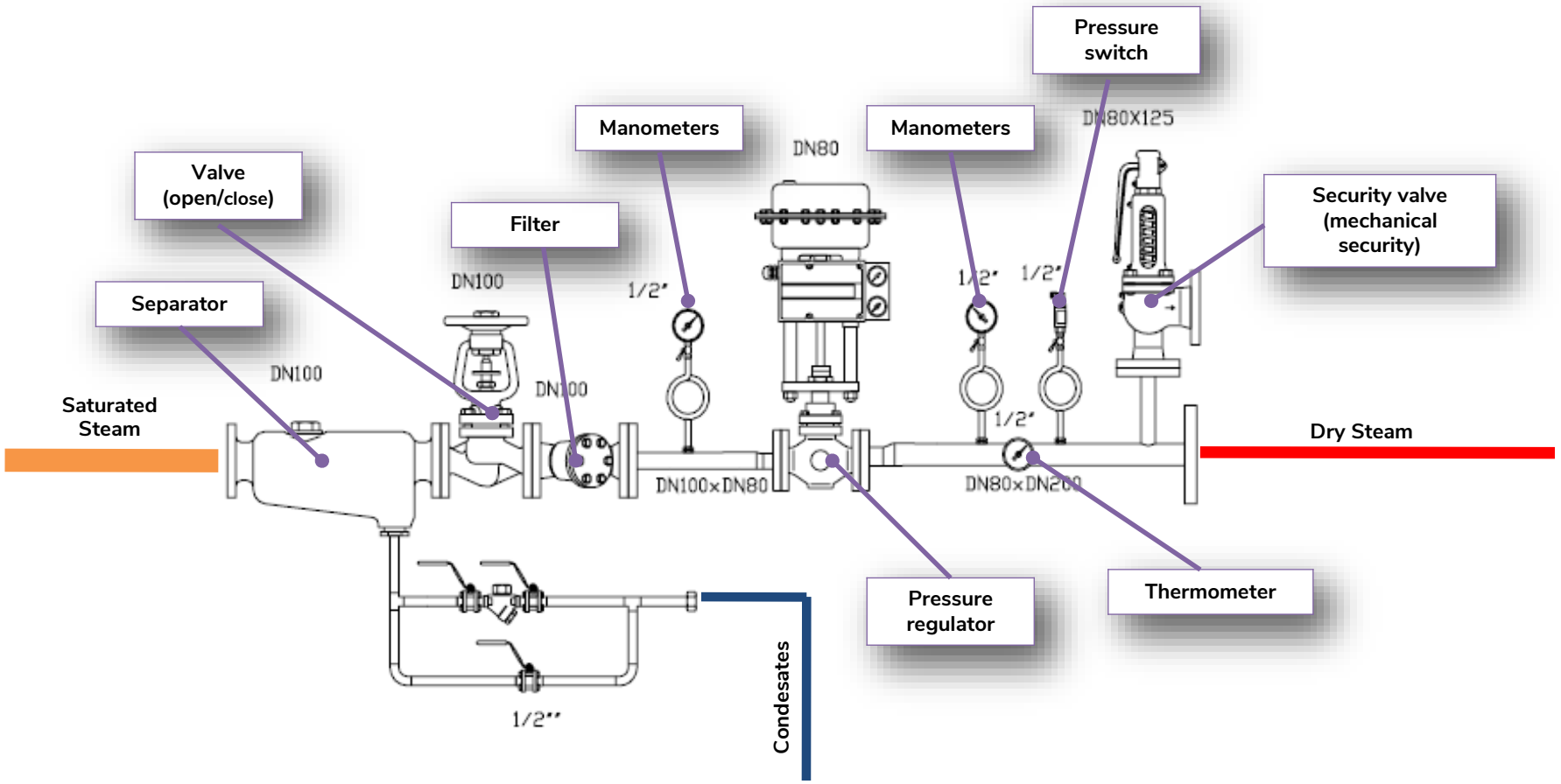
“LANBOX”, scope of supply

Manual control for profiling



“LANBOX”, side components

Steam input installation



Types of Steam

- ✓ **Saturated Steam:**

  The steam which has been heated until the temperature in which all it water content has been boiled.
  Highest specific heat.

- ✓ **Overheated Steam**

  The saturated steam which has been heating even it has not more water for being boiled.
  High specific heat.

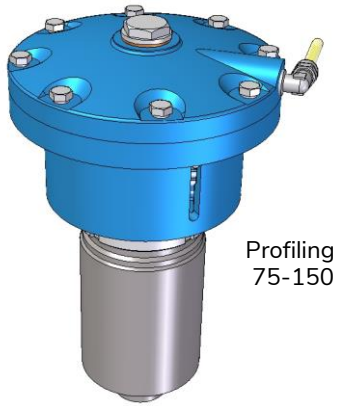
- ✓ **“Flash” Steam**

  The steam which is produced using the condensates of the saturated steam produced before.
  Medium specific heat.

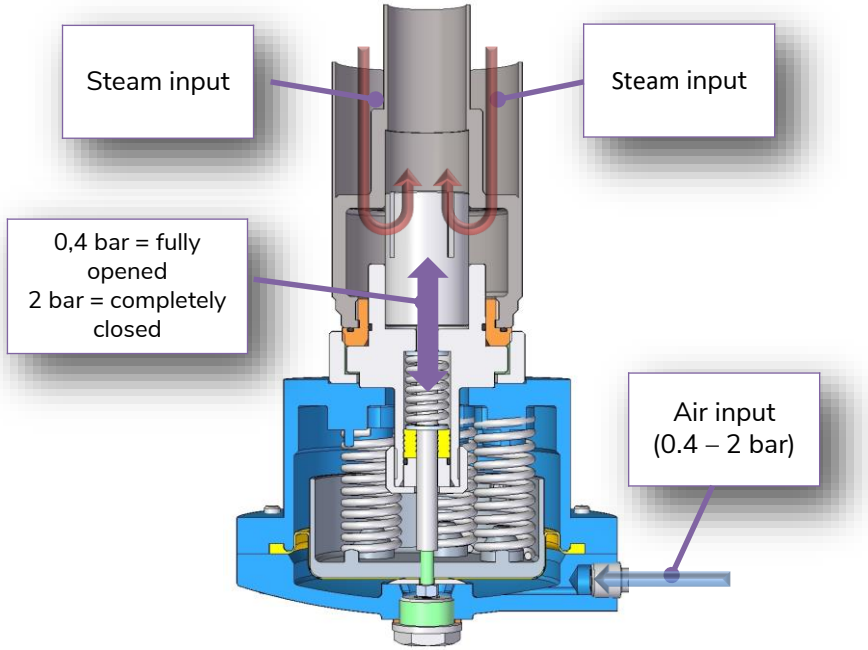
“LANBOX”, side components

Lantier Actuators

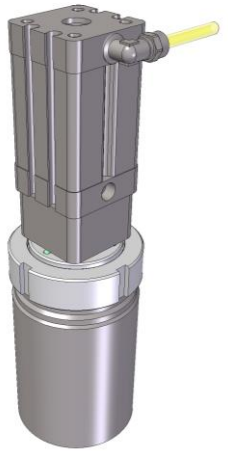
AL-1



Profiling every
75-150 mm



AL-2



Profiling every
50-75 mm

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Benefits of installing a **“LANBOX”**

Increase of production

		A		B	C	D
PAPER GRADE PRODUCED	MACHINE WIDTH (mm)	PRESENT PRODUCTION	PRODUCTION INCREASE	PRODUCTION AFTER INSTALLING A “LANBOX”	PRICE OF PAPER	EXTRA SALES
Packaging	3.000	~93.000 Tn/year	up to 5%	97.650 Tn/year	~ 435 Euro/Tn	2.022.750 €/year
Printing & Writing	3.000	~68.000 Tn/year	up to 5%	71.400 Tn/year	~ 860 Euro/Tn	2.924.000 €/year
Tissue Paper	3.000	~30.000 Tn/year	up to 10%	33.000 Tn/year	~ 950 Euro/Tn	2.850.000 €/year

General values: ΔT = 10-12°C → ΔDryness = 1% → Δproduction = 5%

$$D = (B-A) \times C$$

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Benefits of installing a **“LANBOX”**

Reduction of steam consumption

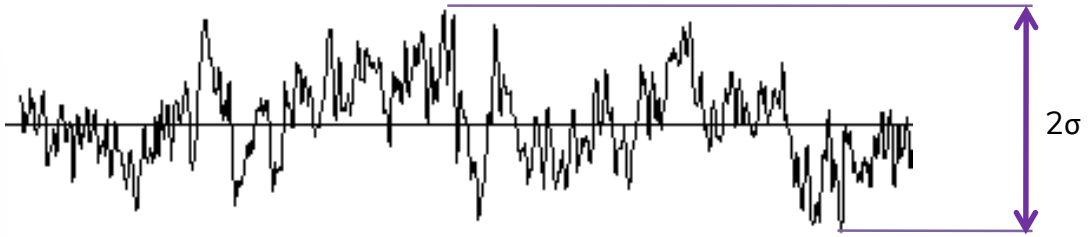
		A	B	C	D	E
PAPER GRADE PRODUCED	MACHINE WIDTH (mm)	PRESENT PRODUCTION	STEAM CONSUMPTION	REDUCTION OF STEAM CONSUMPTION	STEAM PRICE	SAVINGS
Packaging	3.000	~93.000 Tn/year	~2,4 Tn_{Steam}/Tn_{paper}	~ 3%	~ 30 €/Tn_{Steam}	200.880 €
Printing & Writing	3.000	~68.000 Tn/year	~2,2 Tn_{Steam}/Tn_{paper} (ideal value= 1,8)	~ 3%	~ 30 €/Tn_{Steam}	134.640 €
Tissue Paper	3.000	~30.000 Tn/year	~1,5 Tn_{Steam}/Tn_{paper}	~ 3%	~ 30 €/Tn_{Steam}	40.500 €

$$E = A \times B \times C \times D$$

Benefits of installing a **“LANBOX”**

Profiling – Reduce CD 2σ Humidity profile

Reduce CD 2σ profile up to 50%



Increase machine efficiency

PAPER GRADE PRODUCED	BENEFIT
Packaging	1-2% of increase in the efficiency of the machine
Tissue	1,5-3% of increase in the efficiency of the machine

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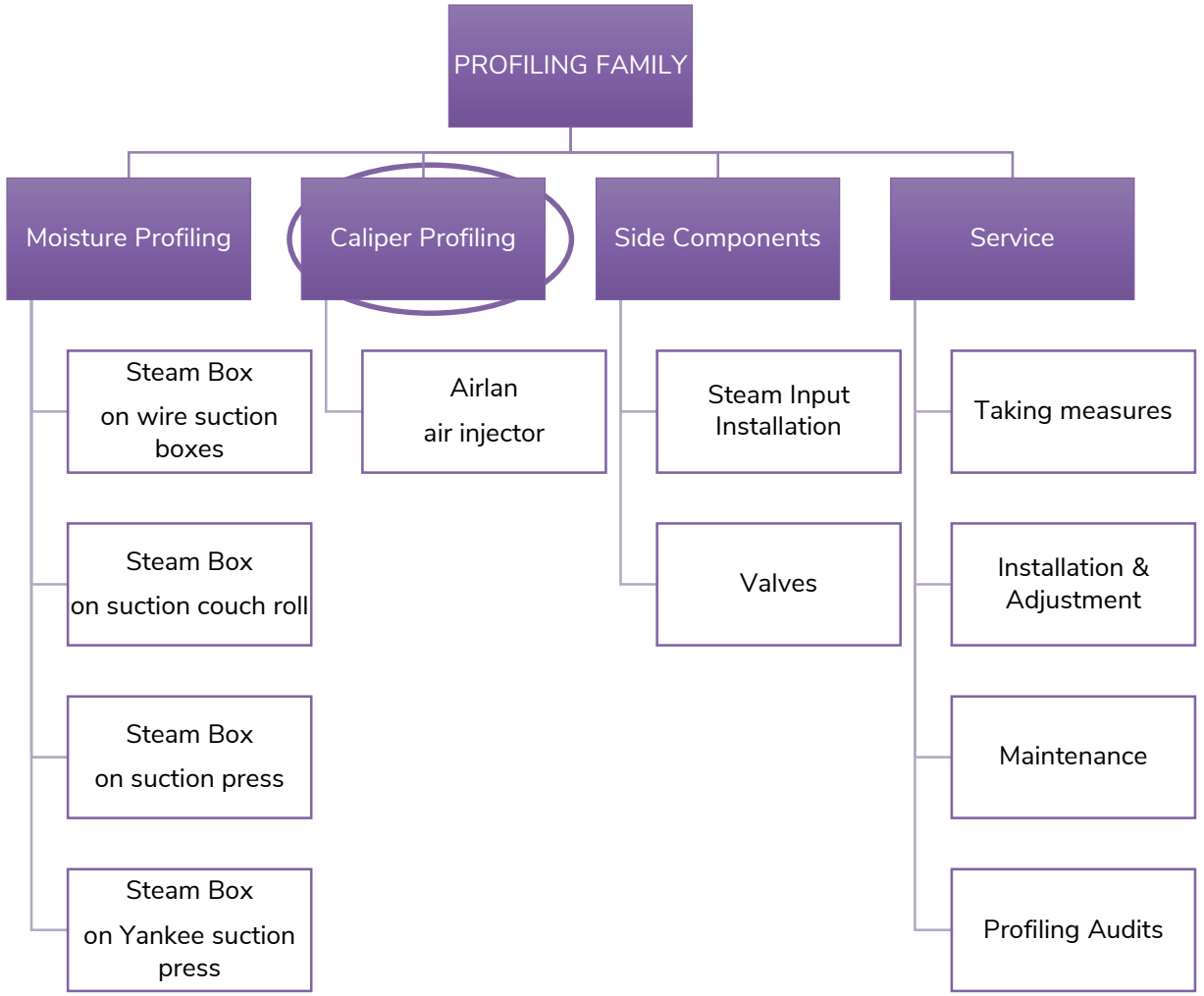

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Main characteristics

CHARACTERISTIC	EXPLANATION
Description	Cold air blowing unit
Design	Provided with several nozzles that can be controlled individually
Purpose	For cooling hot calendar roll edges (area without paper) For eliminating irregular thermal expansion due to temperature differences
Options	Possibility to control the nozzles from DCS or manually Possibility of blowing all the width of the Calender

BENEFITS	
	Improve paper quality
	Improve sheet CD profile
	Improve Calender roll lifetime

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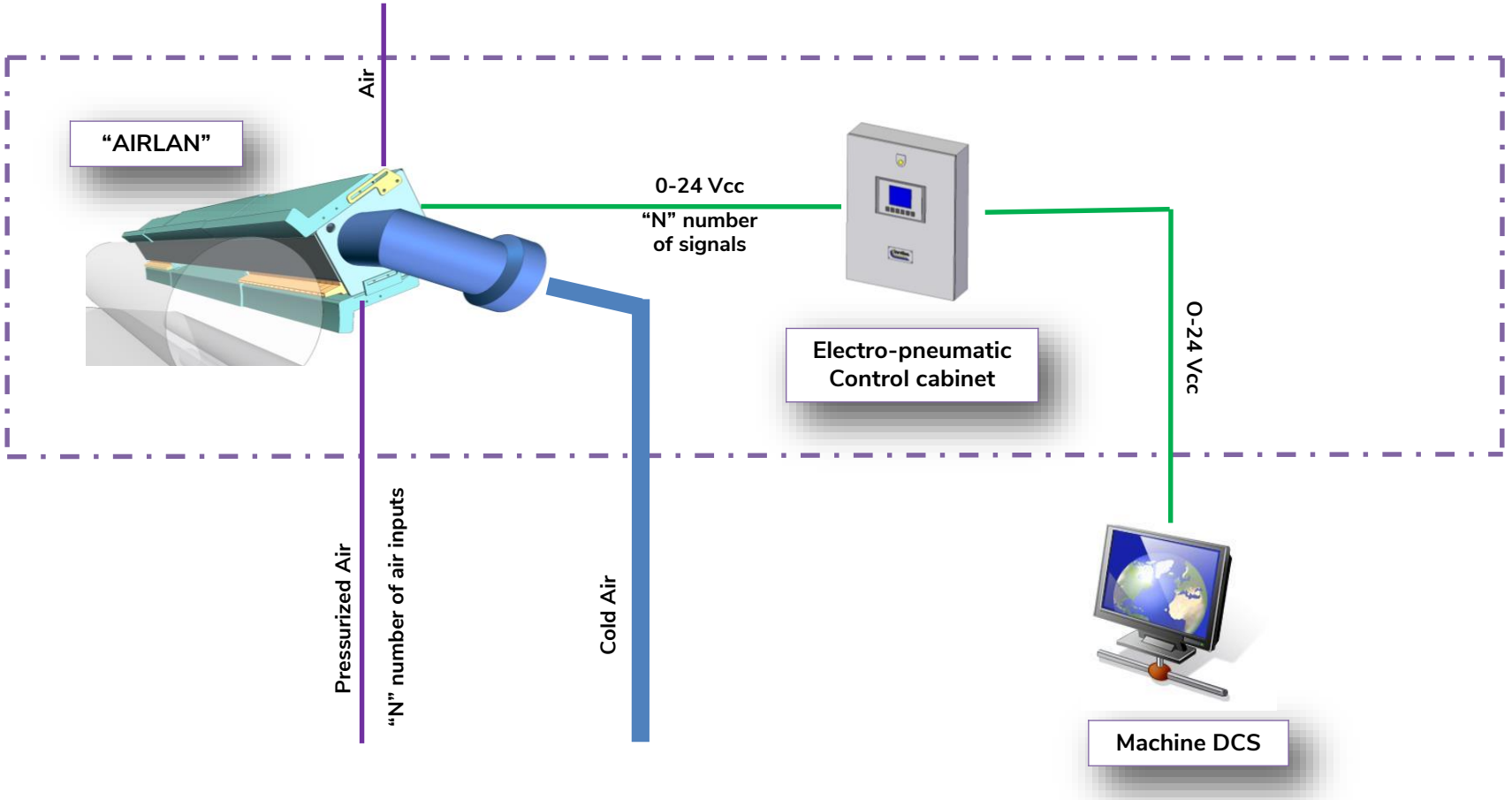
“AIRLAN”, scope of supply

Automatic control from the DCS



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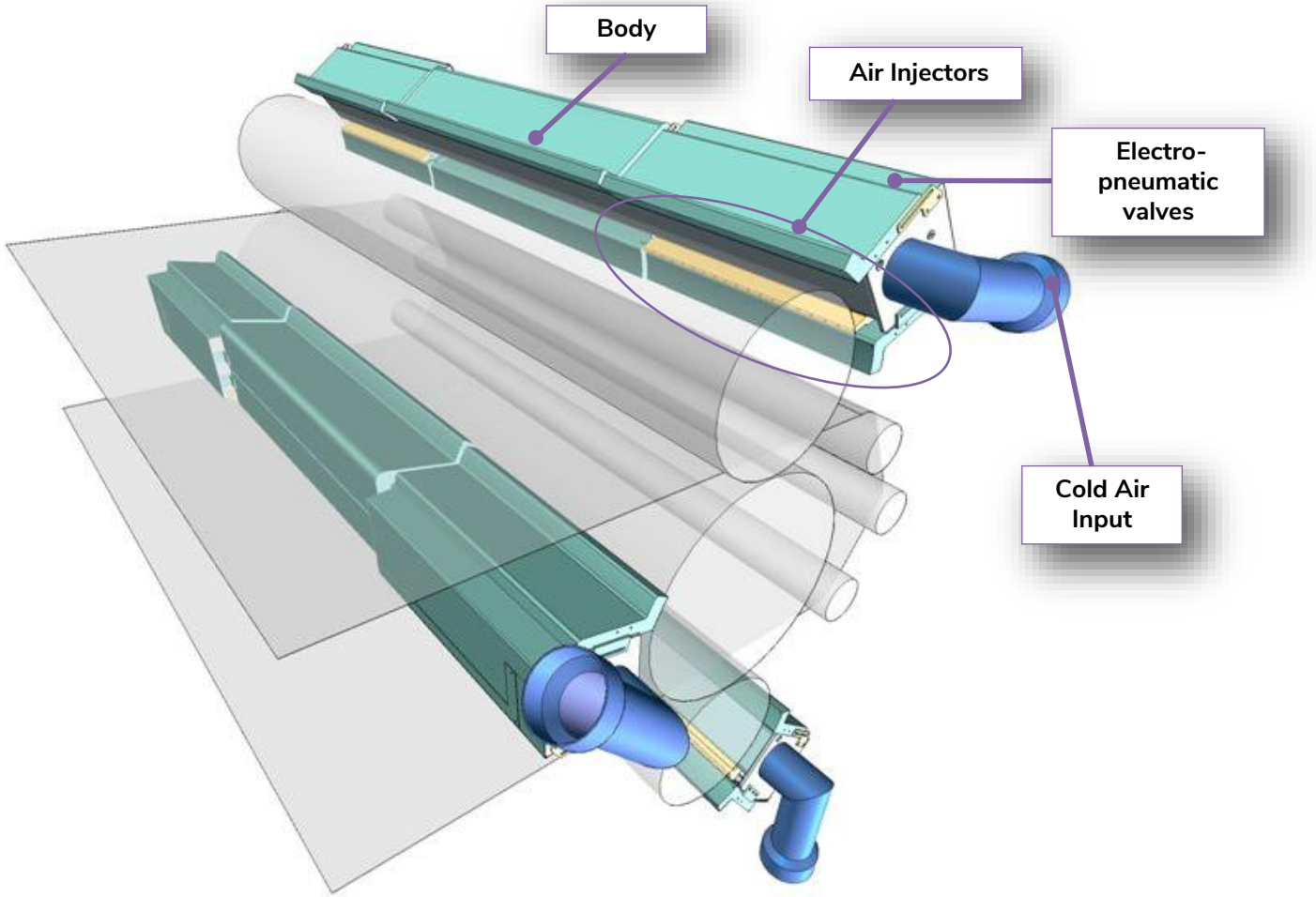
“AIRLAN”, air injectors on calender roll

Automatic control from the DCS



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“AIRLAN”, air injectors on calender roll

Manual control