




COSMEG
COSTRUZIONI
MECCANICHE GENERALI

SH 1.8 "GRIP & STACK"



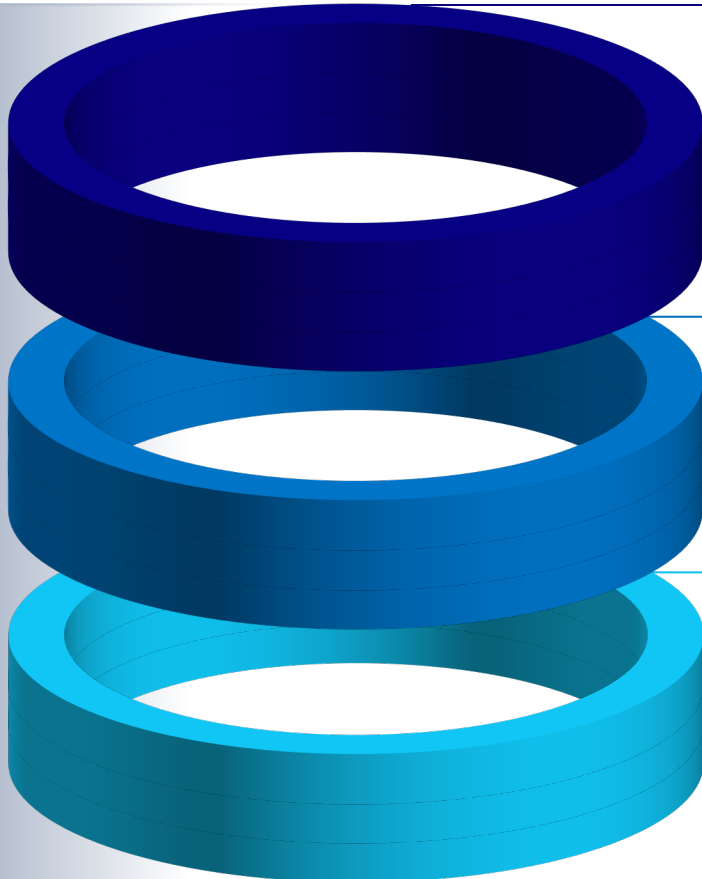


MARKET ANALYSIS

Single-face Corrugated Board

Commonly, machineries producing **single-face corrugated board** are appreciated for their high production rate which, on average, stands at a **200 mt/min** Max speed. However, as of today, several critical **constraints**, related to productive systems and cardboard formats, have been identified. These limitations, for 70% of producers, don't make it possible to exploit the maximum capability of the machinery, lowering the ADS (Average Daily Speed) to **85-90 mt/min**.

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Too many pallet changes

- A single-face corrugated board pallet with a height of **1200 mm** can stack: 550 Flute B papers or 950 Flute E or 1300 Flute F.
- At a production rate of **150 mt/min**, 125/min single-face corrugated boards are produced for a format of 1200mm of length.
- A Flute B pallet is then stacked in 4,4 mins, a Flute E in 7,6 and a Flute F in 10 mins.
- This mechanism, on average, generates **60 OUTS**, that heavily impact the **ADS**.

Too many size changes

- Over the past years the market has adopted a **JIT** (Just In Time) **production** system, where goods are produced and sold in around **3/4 days**.
- Volumes have reduced as well and **15/20 size changes** happen, on average, everyday.
- These changes, **slow down** or even **stop** the production, affecting the **ADS**.

Low Yields

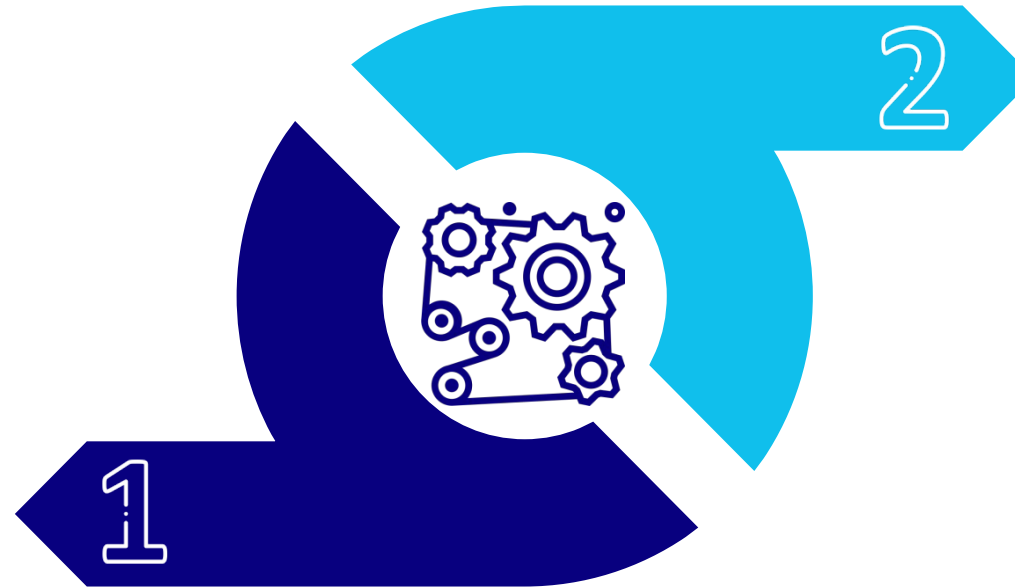
- Actual production lines, are **restricted** to stack single-face corrugated boards that have a **yield** of either **1** or **2 sizes** across the working width.



PHASE 1

- The majority of sheeter **introduction systems** for single-face corrugated board foresee either 1 roll & no crush wheels or a series of plastic belts (“sandwich”).
- These systems, considering that the board has just been produced and so, is **humid** and **not stabilized**, could heavily **damage** the product.

Introduction of the Board into the Sheeter



PHASE 2

Transferring Boards From the Sheeter To the Down-Stacker

Currently, on the market, the following transfer systems are used:

- The **first**, foresees of a series of staggered plastic belts .
- The **second**, consists in bending the board with wedges and *no-crush wheels*, stiffing and then pushing it onto the down-stacker (shingling system).
- These processes could lead to **vices** that could **undermine** following phases



OVERVIEW

SH 1.8

The Project's Aim

Reducing actual **constraints** to increase **productivity**

Guaranteeing **safety**

Achieving higher **quality**

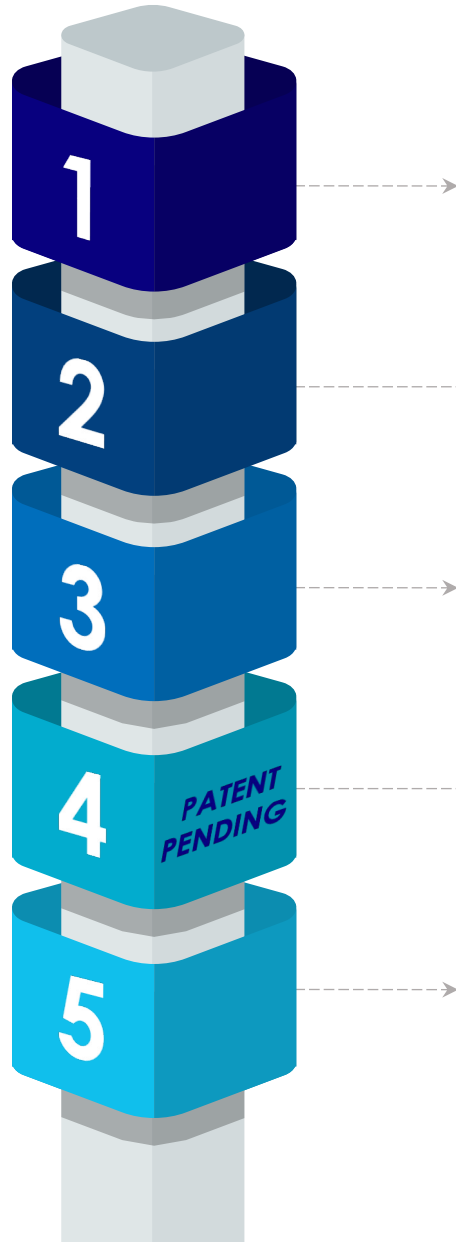
Facilitating **operability** for employees


Reaching higher **DAS** (Daily Average Speed)

Facilitating **maintenance**





A particular focus on **design** and **costs reduction** is kept



TIME 
Optimization of **time** on size and pallet changes to decrease **downtimes** of machinery

MONITORING 
The process is fully **monitored** to guarantee complete **safety** for employees

VACUUM SYSTEM 
The transfer of sheets is totally carried out with **vacuum** conveyor tapes.

AUTOMATION 
Tools' placement is fully **automated** to ensure higher **Daily Average Speed**

“GRIP & STACK” SYSTEM

- Perfectly stacks 1/2 and more sheets, cut to the width of the corrugated board 2 ply web.
- Reduces issues during pallet changes.
- Can also stack cardboard

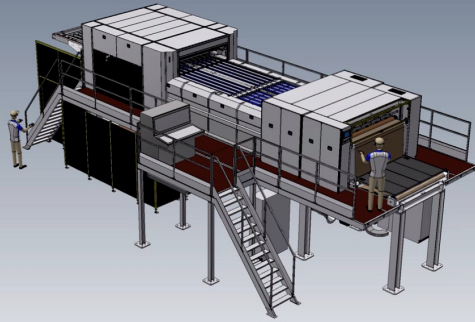
Currently, an evolution of the project, called **SH 1.8 Linear Motor**, that will **increase** the number of clamps and the **production speed**, is under development.



VISUALS

SH 1.8

Overview of the Complete Line



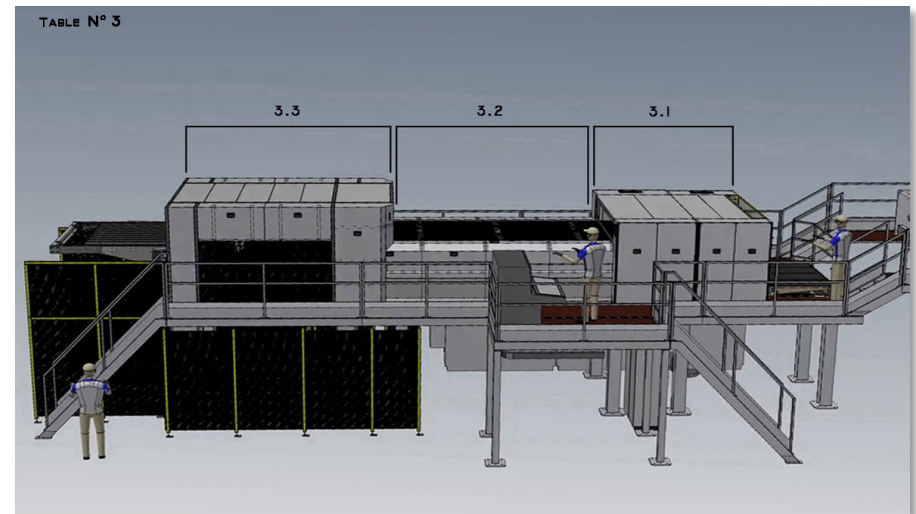
This video shows the **SH 1.8 completed** and fully **assembled**.

Composition of Sheeter-Stacker 1.8:

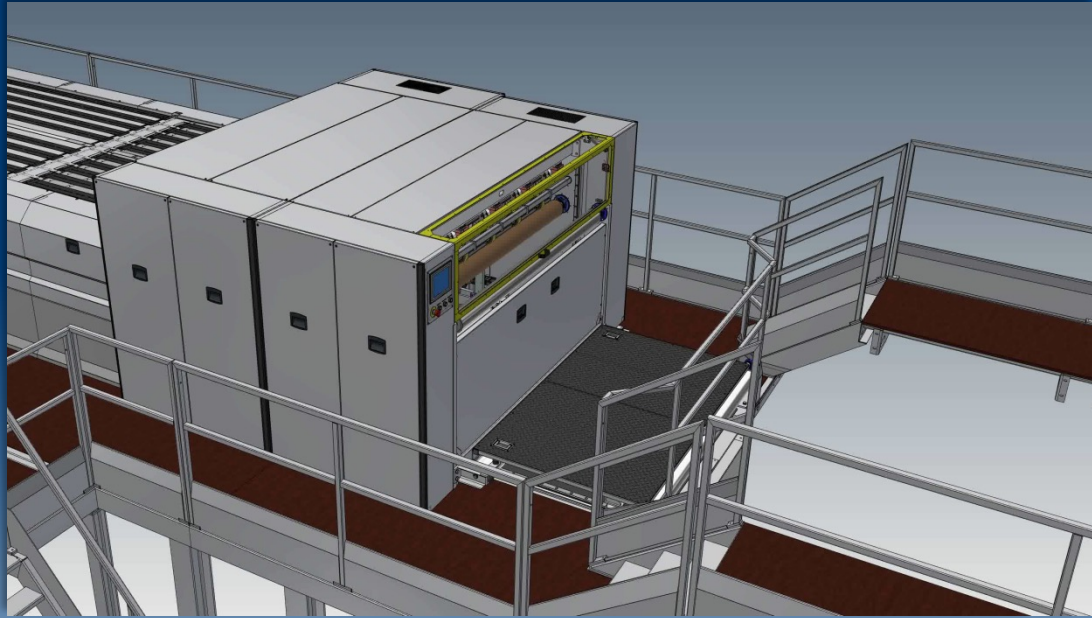
3.1 Rotary Sheeter

3.2 Suction Conveyor Tapes Transfer

3.3 Automatic Non-Stop Down-Stacker



Snapshot of the fully assembled line



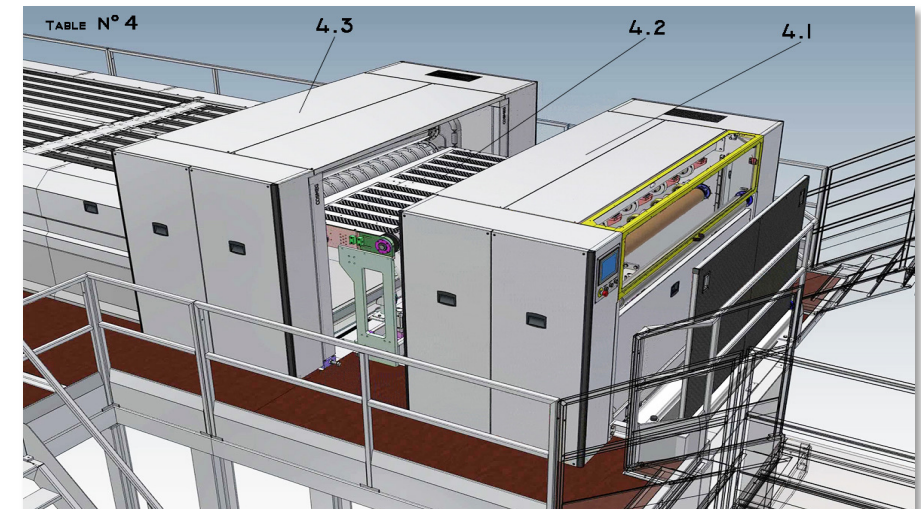
Composition of the 3 Sheeter's modules :

4.1 Slitting Knife Unit

4.2 Suction Conveyor Tapes Introduction

4.3 Cut Off Helical Rotary Knives

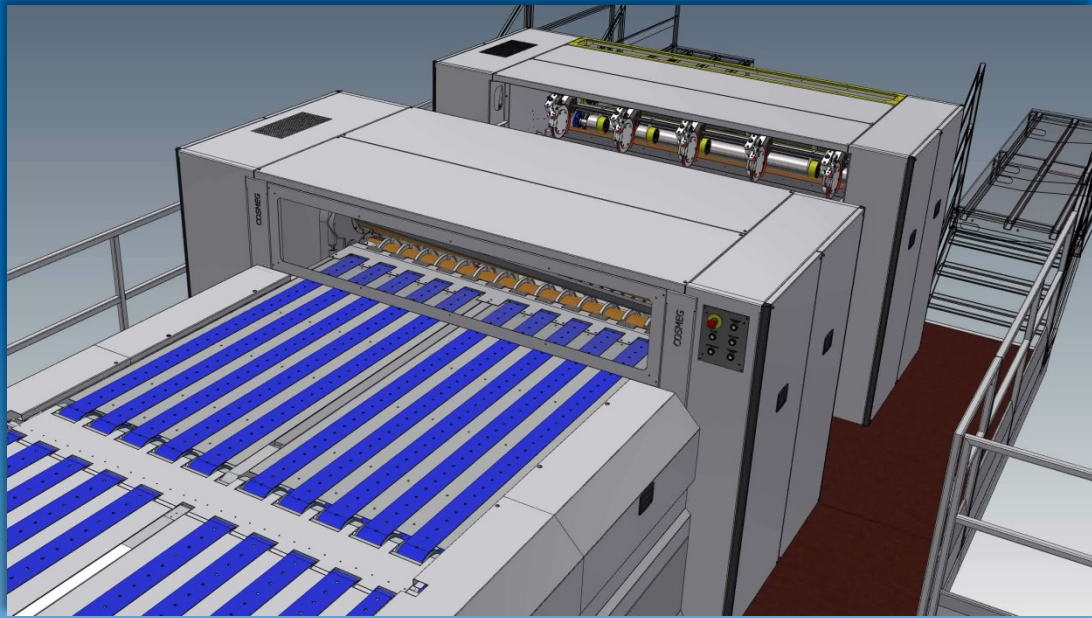
- This is a **unique place**. Nobody else has it on the market.



Snapshot of the 3 modules that compose the sheeter.



Since the helical rotary knives need **weekly regulation**, this solution significantly **simplifies maintenance** operations, as the possibility to separate the modules ensures total **safety** for employees.



The same Technology as classic Corrugated Cardboard.

Two very light helical rotary knife cylinders direct drive and Razor Blade slitting unit.

Composition of the Rotary Sheeter:

5.1 Slitting Knife Unit:

- Razor Blade
- Automatic Sharpening Knife
- Automatic Positioning

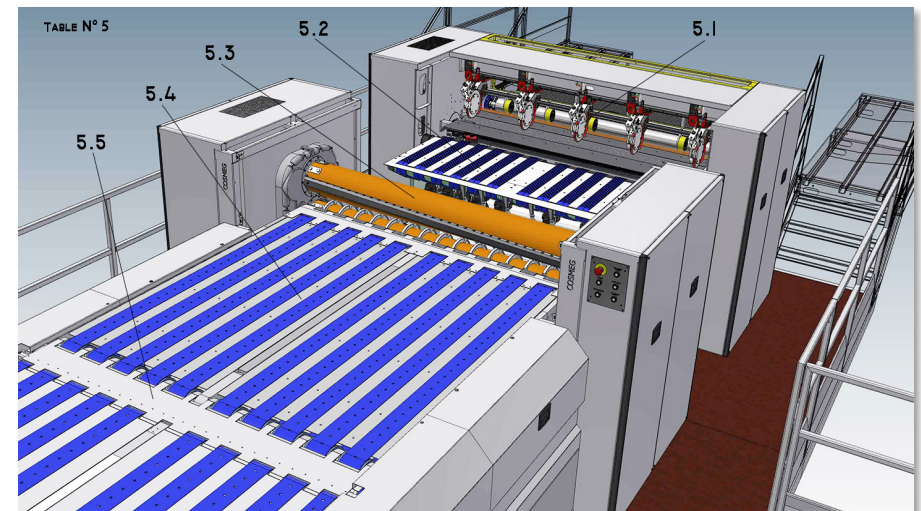
5.2 Suction Conveyor Tapes Introduction

5.3 Cut-Off:

- Two very light helical rotary knife cylinders.
- The system is controlled by Simotion-Siemens. Direct Drive.
- Mechanical Speed Max. 200 Mt/min.

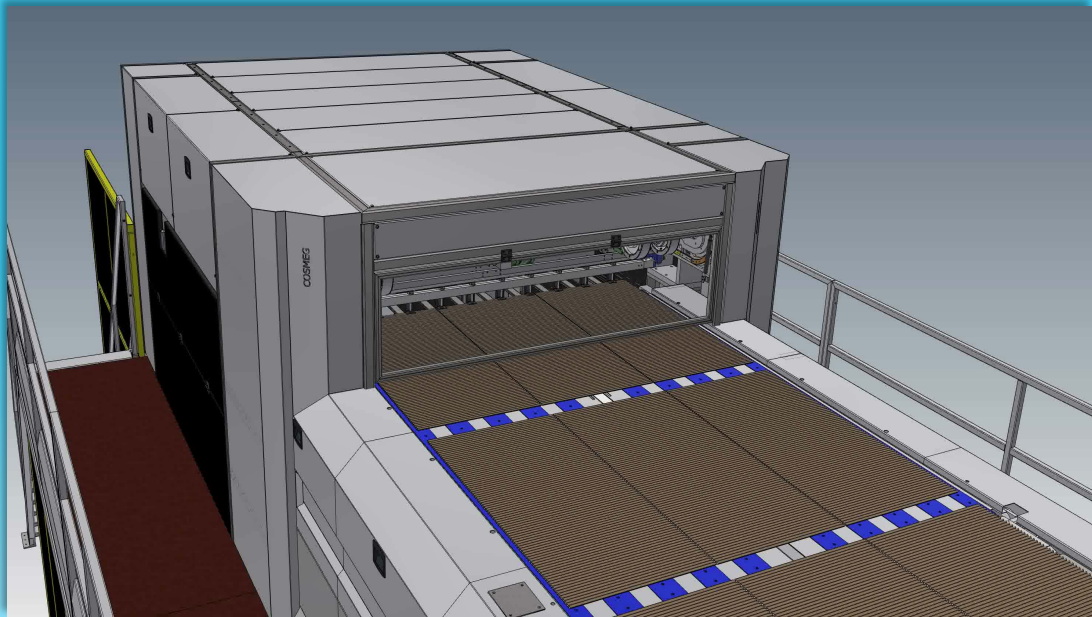
5.4 Suction Conveyor Tapes Transfer

5.5 Scraping System for unsuitable papers



Picture of the parts composing the Rotary Sheeter.

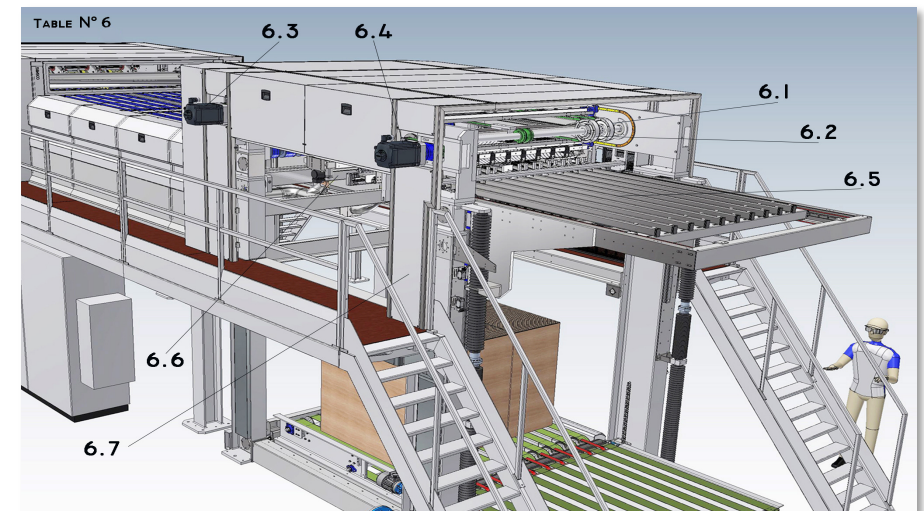
“Grip & Stack” System




This is the innovation. “Grip & Stack”, the **new Way** of stacking single-face corrugated board.
This process is currently **patent pending**.

Composition of the Automatic Non-Stop Down-Stacker:

- 6.1 “Grip & Stack” System - Axis 1
- 6.2 “Grip & Stack” System - Axis 2
- 6.3 Motor – Axis 1
- 6.4 Motor – Axis 2
- 6.5 Non-Stop System
- 6.6 Brakes Sheets and Jogger
- 6.7 Automatic Down-Stacker

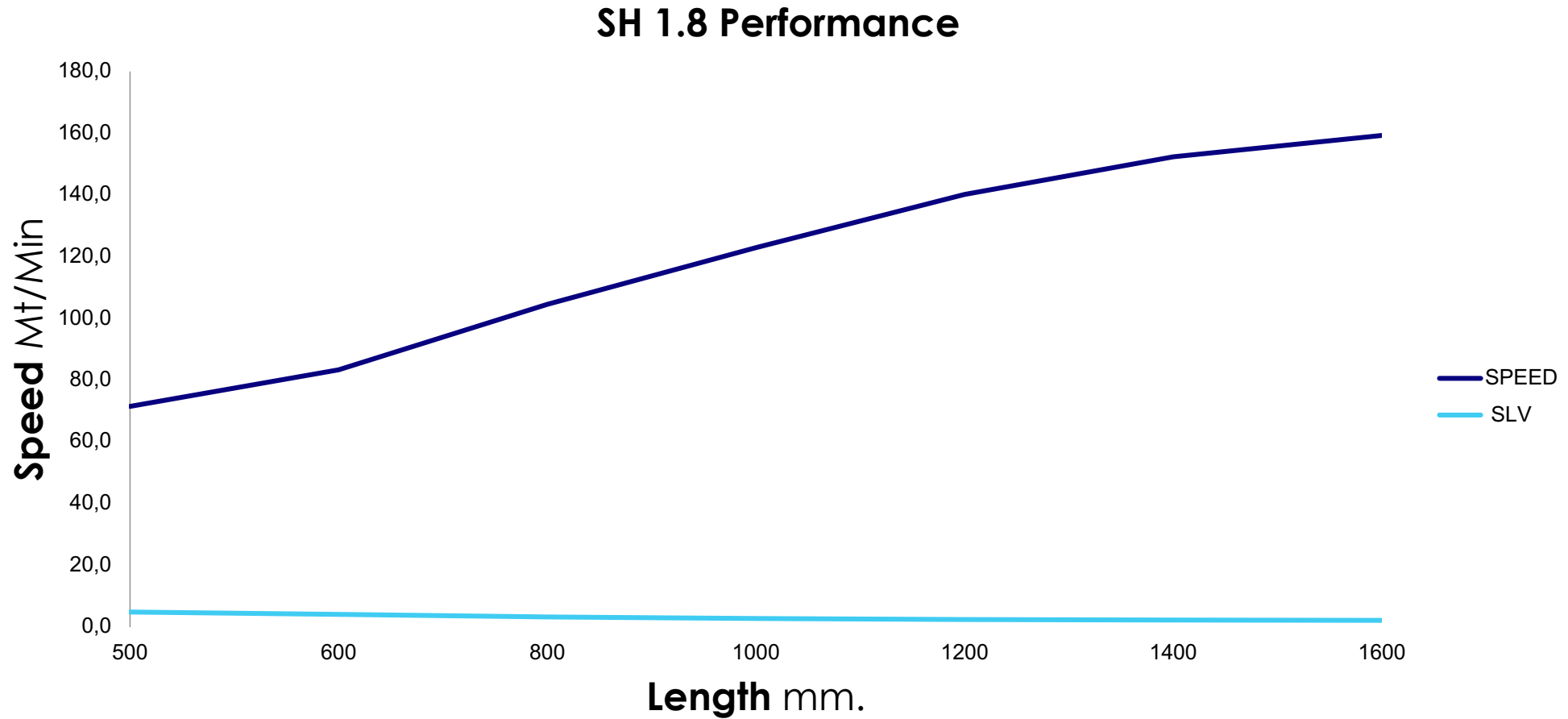


Picture of the parts composing the Automatic Non-Stop Down-Stacker.



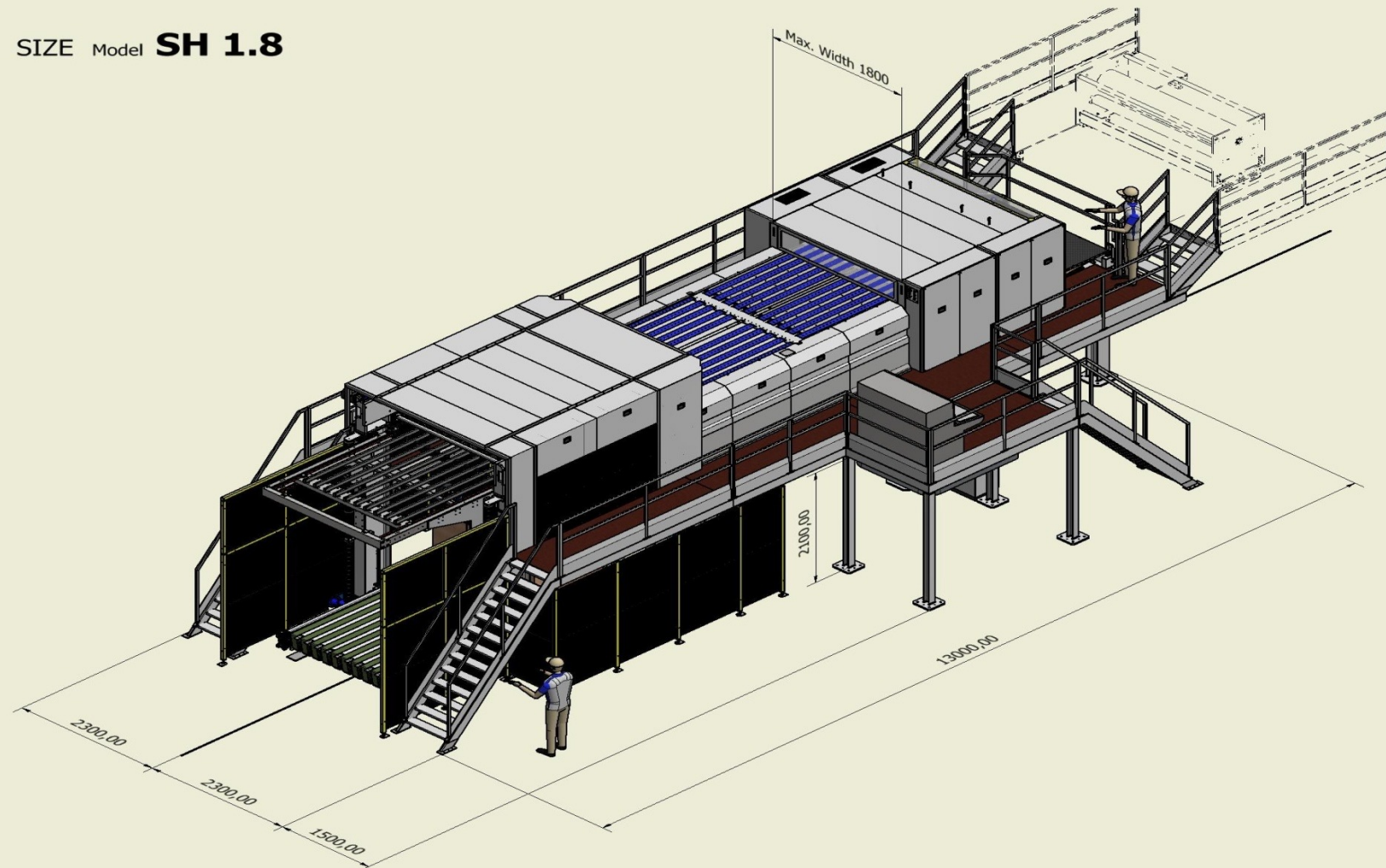
OTHER INFORMATION

SH 1.8



Dimensions

SIZE Model **SH 1.8**





THANK YOU FOR
YOUR ATTENTION