LEADERS
INNOVATE.

FRENCH FRIES

TECHNOLOGY OVERVIEW

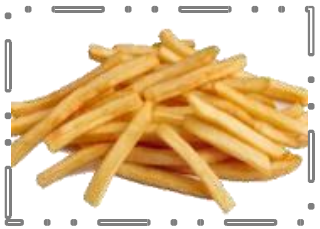
FRENCH FRIES

CAPACITY RANGE

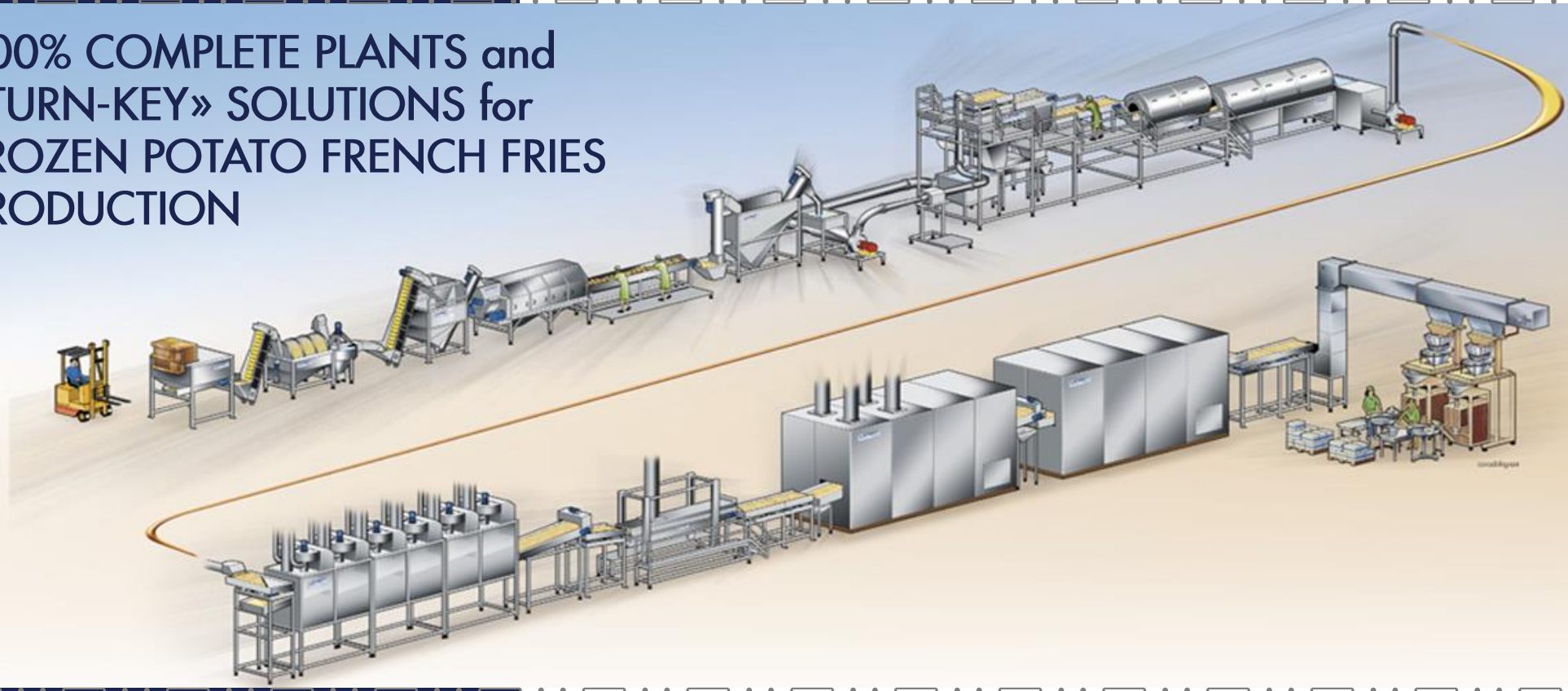
From 500 up to 12.000 KG/H (OUTPUT)

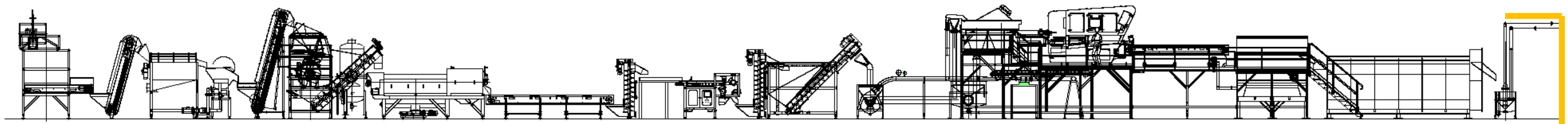
FRENCH FRIES

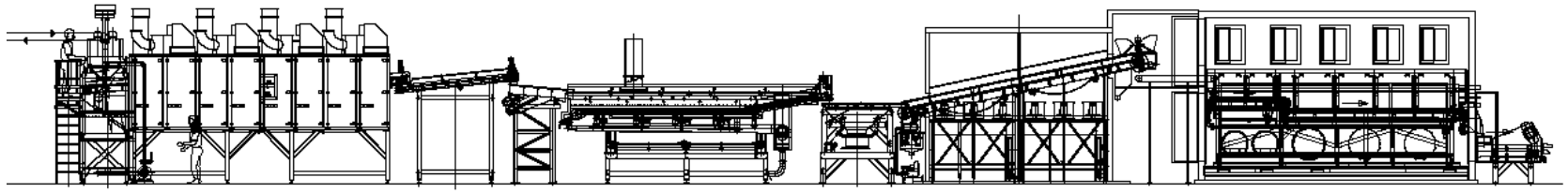
- WEGGES
- CRINKLE
- BABY
- FLAVORED



100% COMPLETE PLANTS and «TURN-KEY» SOLUTIONS for FROZEN POTATO FRENCH FRIES PRODUCTION







GENERAL LAYOUT

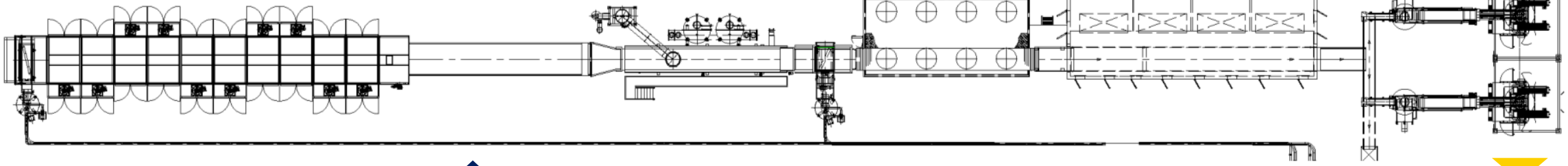
OVERVIEW

PRE-DRYING SECTION
and EQUALIZATION BELT

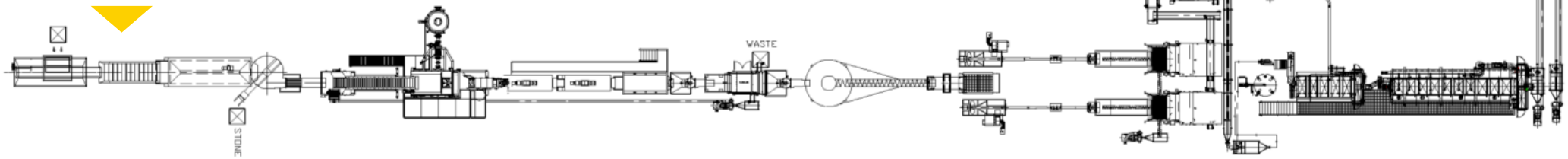
FRYING SECTION

COOLING and IQF
FREEZING SECTION

PACKING SECTION



S.A.P.P. (Sodium Acid Pyro-Phosphate)
and HIDRAULIC TRASNPORT SECTION

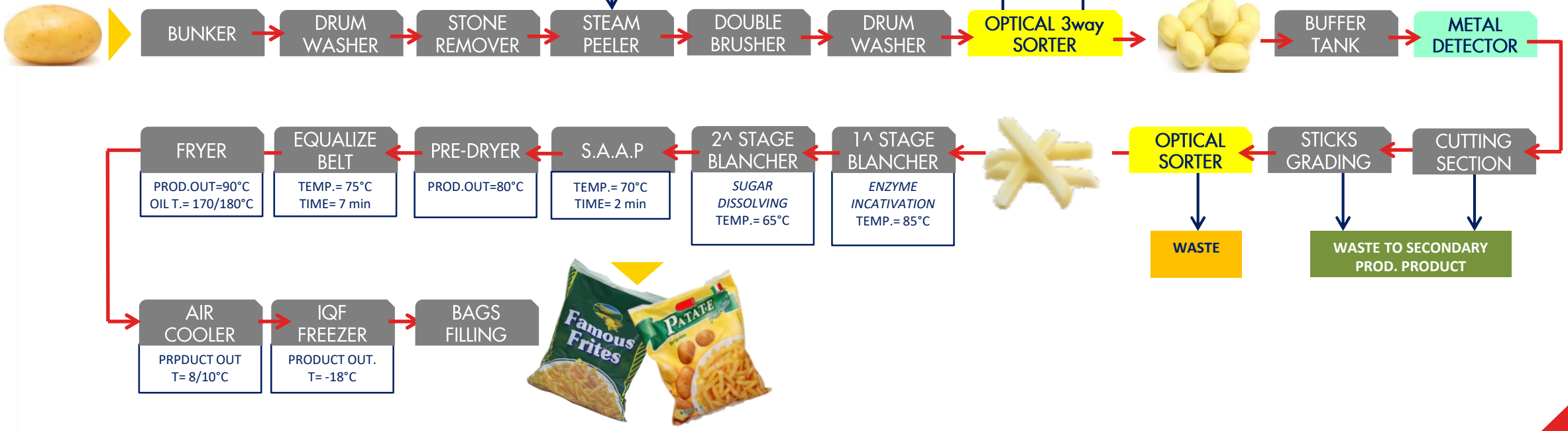


RAW PRODUCT INFEED
And WASHING SECTION

STEAM PEELING-BRUSCHING
SECTION

CUTTING, GRADING and
NUBBINS SEPARATION

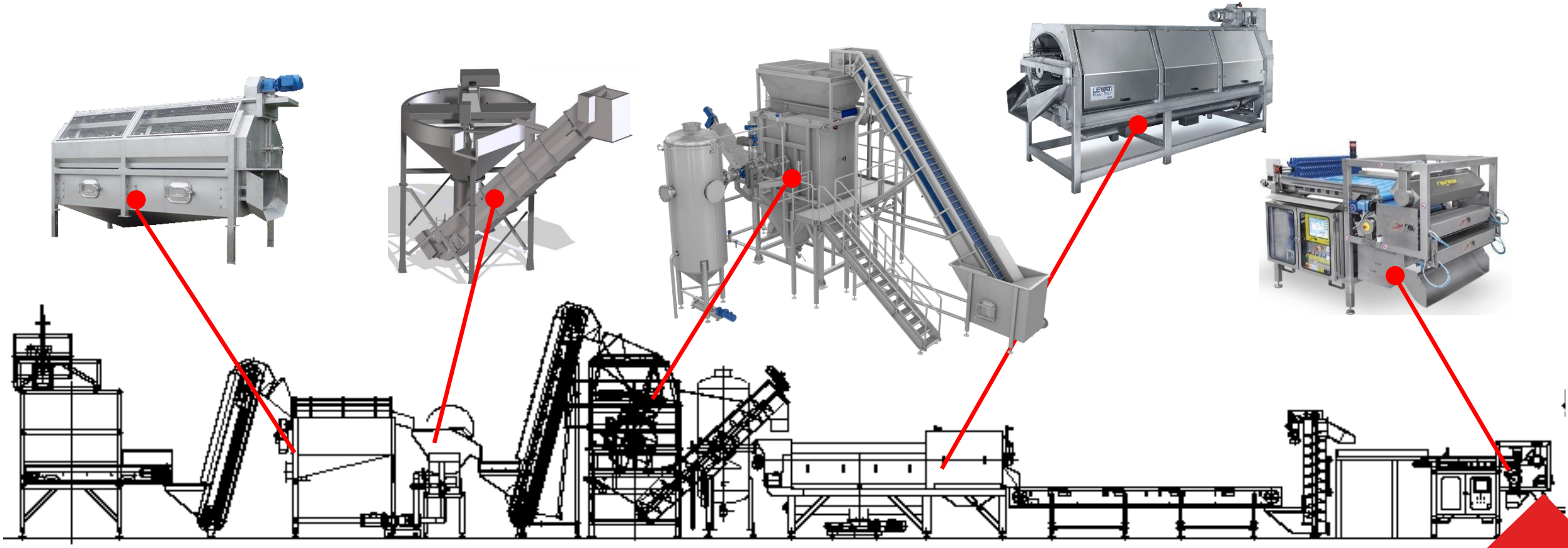
BLANCHING SECTION


UNPEELED
WASTE
BUNKER
DRUM WASHER
STONE REMOVER
STEAM PEELER
DOUBLE BRUSHER
DRUM WASHER
OPTICAL 3way SORTER
BUFFER TANK
METAL DETECTOR
CUTTING SECTION
STICKS GRADING
OPTICAL SORTER
WASTE
WASTE TO SECONDARY PROD. PRODUCT
1^ STAGE BLANCHER
ENZYME INCATIVATION
TEMP.= 85°C
2^ STAGE BLANCHER
SUGAR DISSOLVING
TEMP.= 65°C
S.A.A.P
TEMP.= 70°C
TIME= 2 min
PRE-DRYER
PROD.OUT=80°C
EQUALIZE BELT
TEMP.= 75°C
TIME= 7 min
FRYER
PROD.OUT=90°C
OIL T.= 170/180°C
AIR COOLER
PRPDUCT OUT
T= 8/10°C
IQF FREEZER
PRODUCT OUT.
T= -18°C
BAGS FILLING
Famous Frites
PATATE

RAW PRODUCT INFEED, WASHING and PEELING

THE SECTION INCLUDE ALL PLANT AND MACHINERY FROM RAW MATERIAL INLET UP TO SORTING OF THE PEELED POTATOES AFTER THE STEAM PEELING MACHINE

Up to 40 T/H
RAW MATERIAL



LINE INFEED

- Silo/bunker for product constant feeding to the line.
- Construction in stainless steel.
- Crates/bins/storage BUNKER automatic loading and dumping system;
- Belt/screw conveyor to extract the potatoes from the silo to washing and destoning;
- Complete tailor made system and solutions available according to line capacity and customer needs;

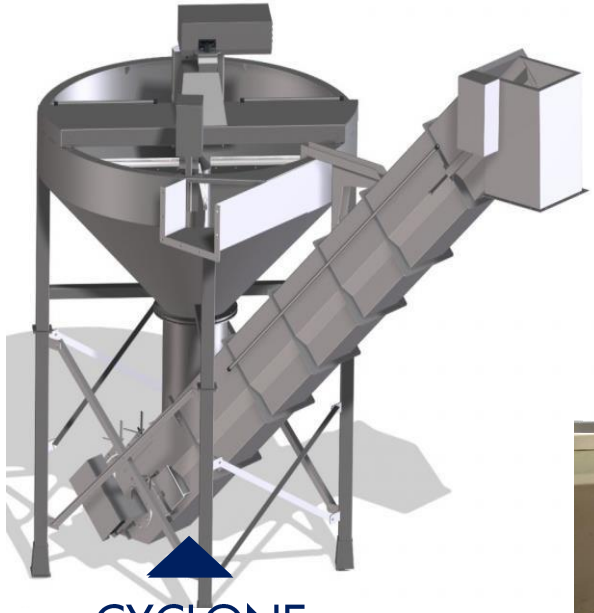
WASHING & DESTONING

DRUM WASHER

The washing machine with rotary drum has been designed to remove earth or debris from the product. The machine is completely made of stainless steel

HORIZONTAL/CYCLONE DESTONER

The horizontal or cyclone destoner has been designed to remove stones, iron pieces and heavy particles. The machine is completely made of stainless steel



CYCLONE DESTONER

HORIZONTAL DESTONER

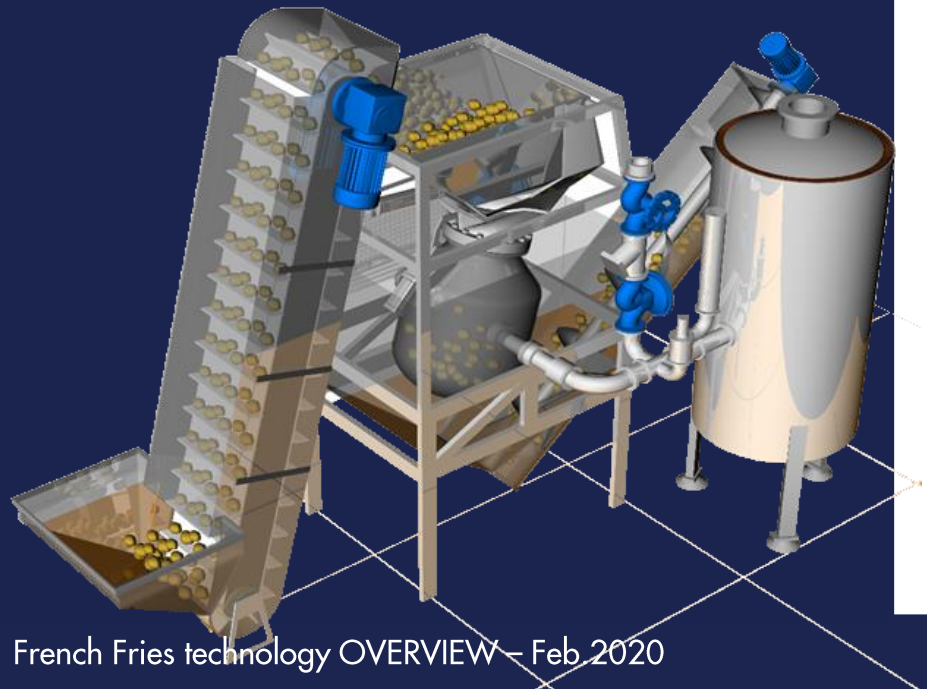
PEELING SECTION

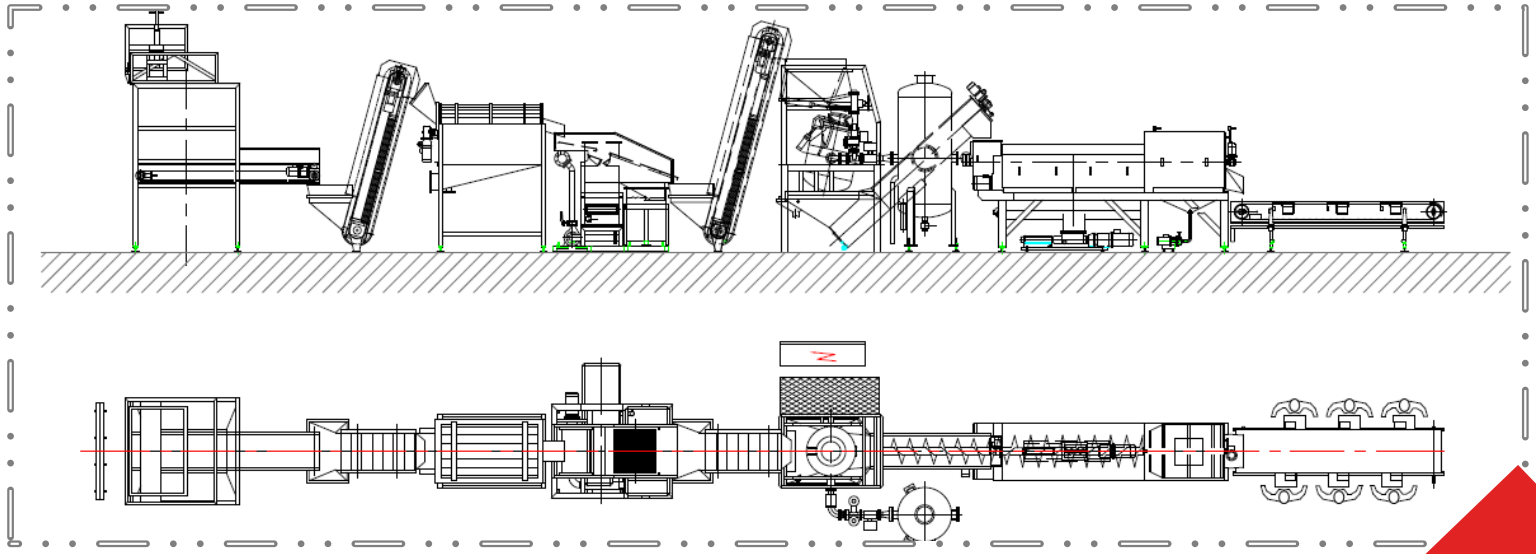
GYESER – STEAM PEELER

- The steam high temperature combined with the high-pressure make instable the water of the cells of the first layer underneath the peel of potatoes.
- At the end of the peeling cycle the steam is discharged and therefore the pressure drops abruptly. The consequent evaporation of the water makes loose the peels around the potatoes.
- The potatoes are then discharged in the cooling tank where the cold water stops the potatoes cooking.
- The operator platform make easy all the cleaning and maintenance operation on the steam peeler

From 2 T/H
Up to 40 T/H

- Higher potato peeling yield is obtained with the condensate recovering system.
- Thanks to a special designed discharge valve it is possible to remove continuously the steam condensate from the peeling vessel.
- This special feature together with the possibility to peel with a higher steam pressure allows the peeling time to be reduced down to 60".





BRUSHING & WASHING

- The brusher remove the peels from the potatoes.
- The rollers with brushes are mounted on the cradle around the conveying screw. The brushes are driven by two motors (one for each side) with soft-start.
- Each brush is self-cleaning and discharge the peels directly in the collecting hopper. The peels are dry in order to be used as animal feed.
- The brusher is equipped with C.I.P. piping.
- According to the line capacity it may be required a drum washer (integrated in the machine to perform the final cleaning of the potatoes.

SORTING SECTION (MANUAL and OPTICAL)

MANUAL SORTING

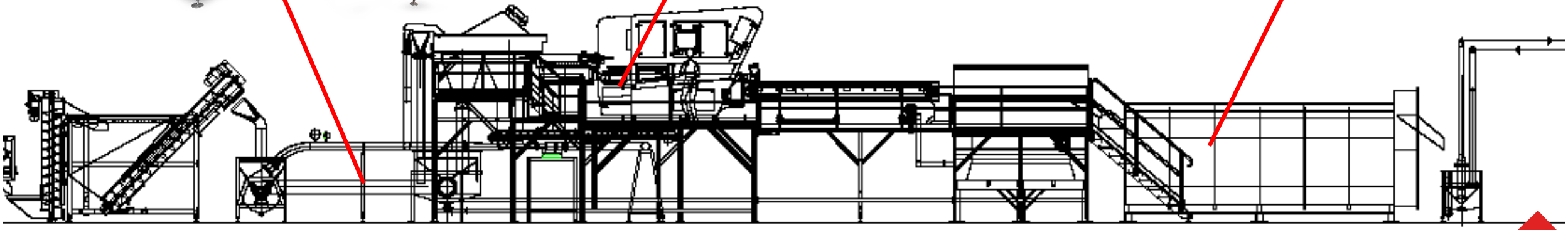
- Potatoes are sorted. The operators remove all the bad potatoes or clean the potatoes removing the defects (black dots, sprouts…) and release the wastes in the side pockets.
- The wastage are then conveyed from the return side of the belt to the feeding edge where they are collected in the wastage bin

OPTICAL SORTING

- RAYTEC VISION, part of CFT GROUP, produce optical sorting system to be integrated on CFT potatoes lines;
- The optical sorting is available both for WHOLE PEELED, STICK or FROZINE FRENCH FRIES

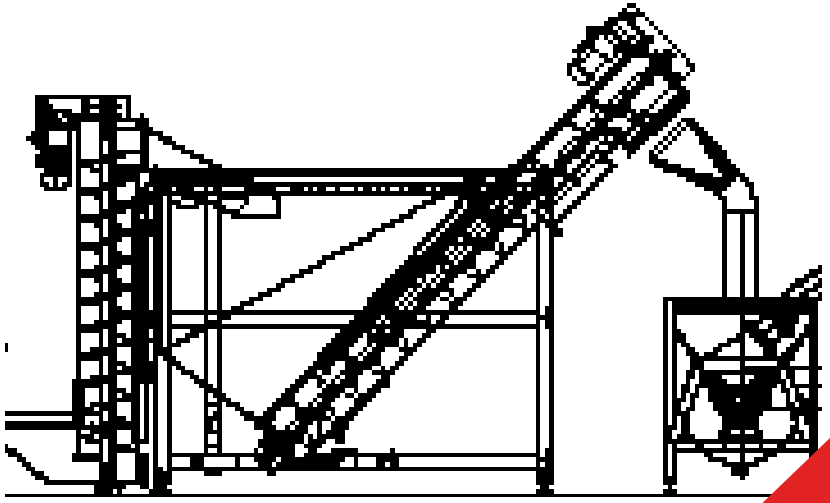
CUTTING, GRADING and BLANCHING

THE SECTION INCLUDE ALL PLANT AND MACHINERY TO CUT POTATOES IN STICK, GRADING AND SELECT THE PRODUCTS UP TO THE BLANCHING SECTION



BUFFER & PRE-HEATING

- Before cutting, the potatoes have to be heated in order to make the tubers more elastic to avoid their shuttering and the formation of cracks on sticks surface.
- During frying the edges of cracks became darks, increase the oil absorption causing oil-soaked, off-coloured sticks.
- The buffer tank is filled with hot water (heated by steam).
- The special shape of the buffer tank assure that the potatoes are evacuated with the F.I.F.O method (Firsts In, Firsts Out).
- In the same time, the buffer tank, assure the even feeding of the downstream line.



HIDRO CUTTING (STICK or SEGMENT)

- The inclined screw elevator extract the potatoes from the holding tank.
- The potatoes fall in the hopper of the high-pressure pump.
- The potatoes are “shouted” by the tremendous pressure against a wire mesh where they are cut long-wise.
- The advantage of the hydro-cutting are:
  - Production of extra-long sticks that are uniform in cross-section.
  - Low give-away product thanks to less production of nubbins and slivers.
- The Hydro-Cutter” is supplied with two cutting heads. Special cutting heads for segments cut are available.

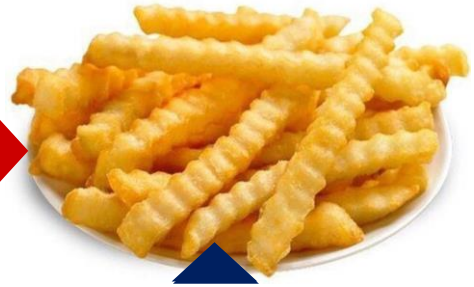
COMBINED CUTTING SYSTEM

STICK & CRINKLE

CUTTER and BLADES INTEGRATION
FROM MAIN INTERNATIONAL SUPPLIERS

FAM · stumabo High precision blades for food · URSCHEL®

BLADES CUTTER



CRINKLE
FRENCH FRIES

HIDRO CUTTER

STICK & SEGMENT
FRENCH FRIES

GRADING (Nubbins/Sleeve separator)

GRADING THE STICKS (Nubbins separator)

- The screen separates the sticks from the water that is pumped back to the "Hidro-Cutter" Unit.
- The vibrating screens unit separates the nubbins (short sticks).
- This unit is made essential by two vibrating plates, one over the other.
- The plates have bores which diameter is equal to the minimum length of sticks accepted. The sticks that are shorter then the diameter falls in the lower plate where they are further graded.
- The sticks are continuously sprayed with water to remove the exceeding starch and to ease the transport.

GRADING THE STICKS (Sleeve separator)

- After the Nubbin Separator the sticks arrive at the Sleeve Separator.
- This unit provide the separation of the sleeves (thin sticks).
- The Sleeve Separator is mainly a rollers conveyors. Each roller is lined with food grade corrugated plastic.
- The distance of rollers (pitch) can be easily adjusted according the thickness of sticks that must be removed.
- Special designed plastic "finger" helps the movement of the sticks onto the rollers conveyor.

STICK SORTING SECTION (MANUAL and OPTICAL)

MANUAL SORTING

- The final sorting of sticks is manual.
- The operators remove all the bad sticks with colour defects (black dots, sprouts…) and release the wastes in the side pockets.
- The wastage are then conveyed from the return side of the belt to the feeding edge.

OPTICAL SORTING

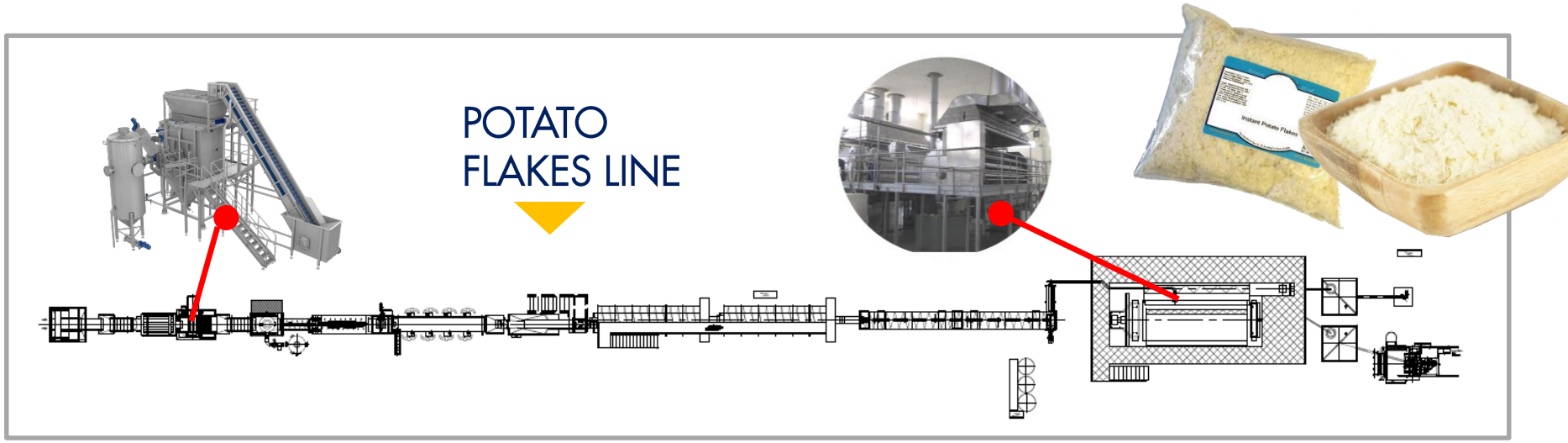
- RAYTEC VISION, part of CFT GROUP, produce optical sorting system to be integrated on CFT potatoes lines;
- The optical sorting is available both for WHOLE PEELED, STICK or FROZINE FRENCH FRIES

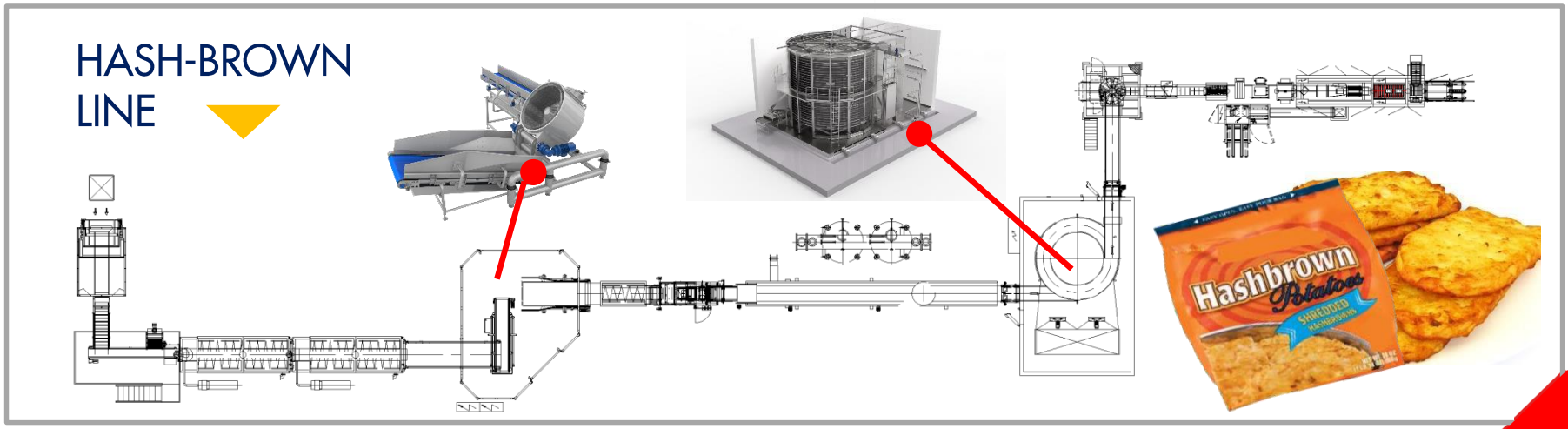
SPRAY

DISCOVERY

WASTE and UNDER-SIZE PRODUCT RECOVERY

- The under-grade sticks and waste are conveyed from the recovering screw conveyor to a collecting point.
- This product can be used for:
  - Animal feeding
  - Production of wet puree, packaged in pouches or trays and frozen.
  - Production of **Potato Flakes**
  - Production of potatoes coquettes, gnocchi, dumplings…
  - Production of **Hash Brown** or similar

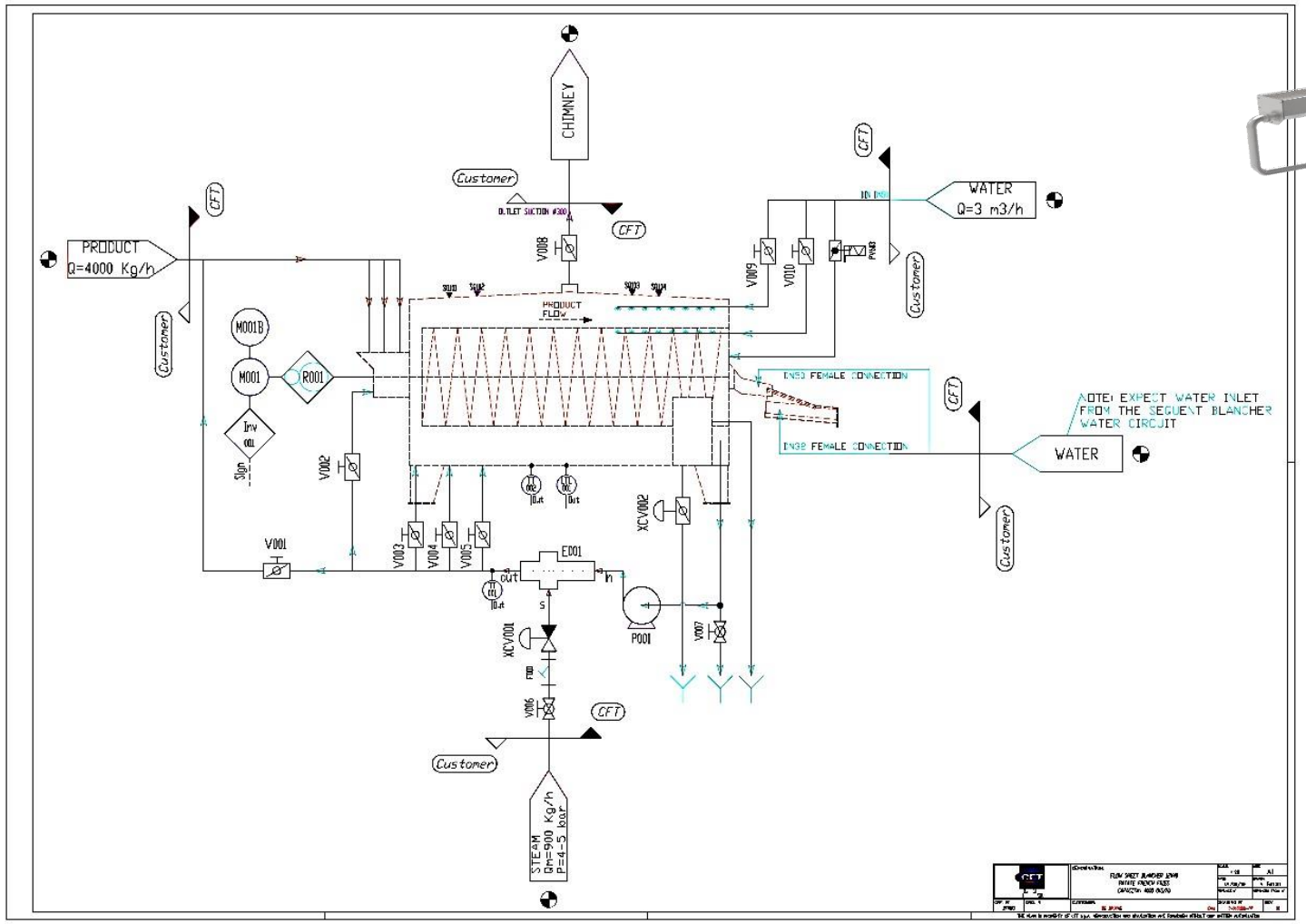




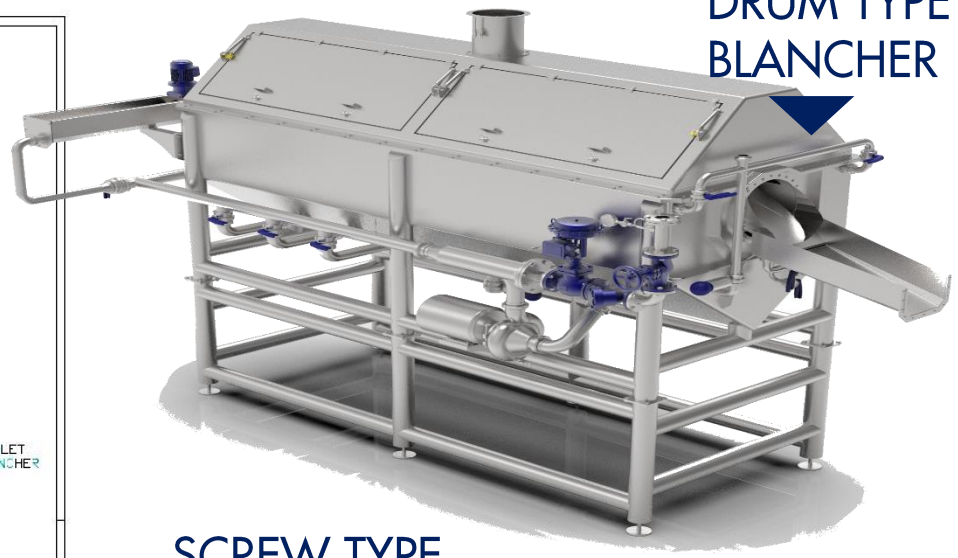
BLANCHING SECTION (1^+2^ STAGE)

- Blanching is a very important step of the French Fries Processing.
- **1^ STAGE BLANCHER** is used for **ENZYMATIC INACTIVATION (85°C)**
- **2^ STAGE BLANCHER** is used for **SUGAR DILUTION (65°C)**
- The blancher can be (according to the capacity required):
  - Drum Type
  - Screw Type
- Blanchers Common feature are:
  - Temperature control system (P.I.D.) to have a perfect tuning of the temperature; the steam is injected in the water by means of a special designed injector.
  - The blancher's ceiling is completely openable to allow a perfect sanification.

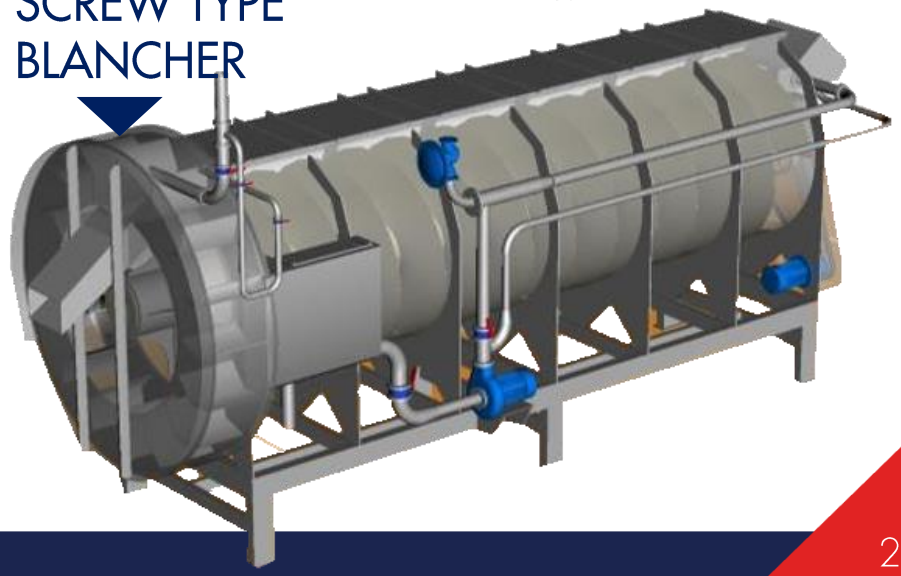
BLANCHER



DRUM TYPE BLANCHER

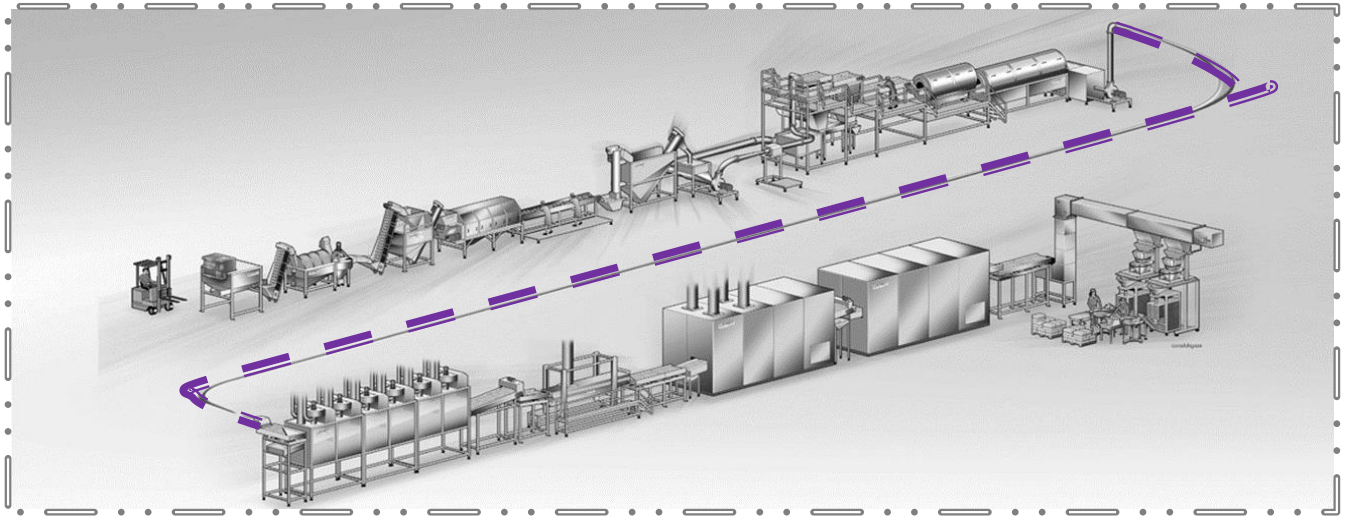


SCREW TYPE BLANCHER



S.A.P.P.
(Sodium Acid Pyro-Phosphate)

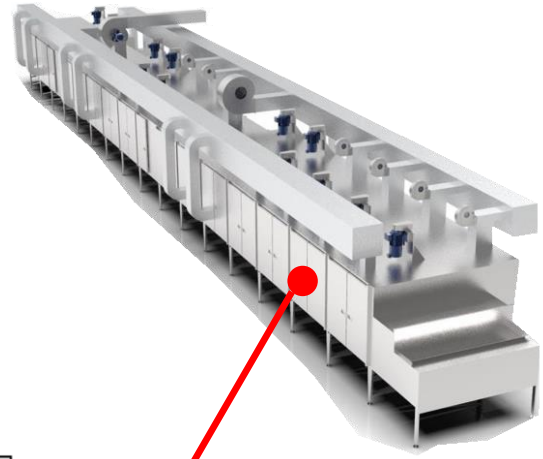
- The **S.A.P.P. (Sodium Acid Pyro-Phosphate)** is commonly used to name the treatment of sticks that is performed after the blanching.
- Sticks must be treated in order to avoid the discoloration during the drying with hot air.
- Our system is based on a water flume where sticks are submersed in the water solution with additives.
- The length of the water flume is calculated in order to have the correct treatment timing.
- The system is supplied with Pump to dose the solution in the water, Complete system to recycle the water.

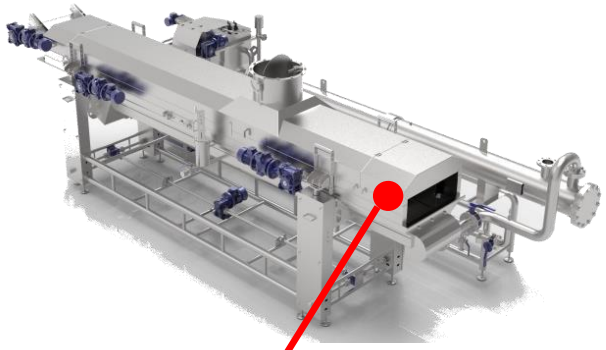


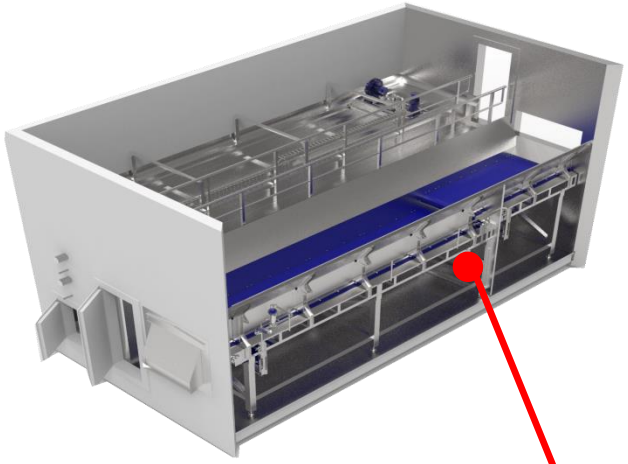
PRE-DRYING, FRYING, COOLING and FREEZING

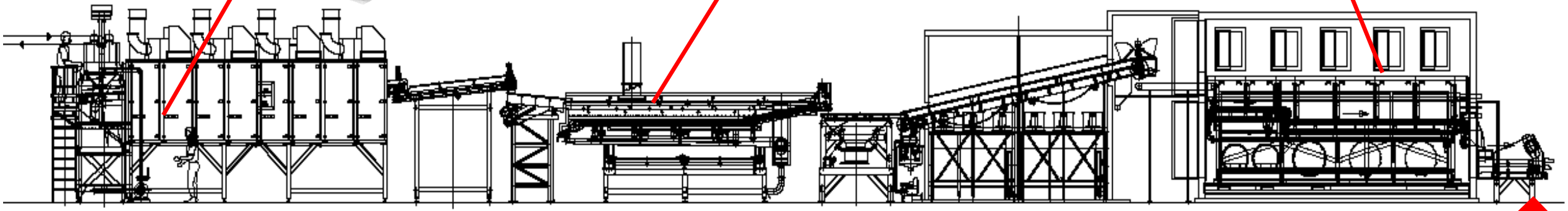
THE SECTION INCLUDE ALL PLANT AND MACHINERY FROM THE PRE-DRYING SECTION UP TO FINAL FROZEN PRODUCT AFTER THE IQF FREEZER

Up to 12 T/H
FINAL PRODUCT

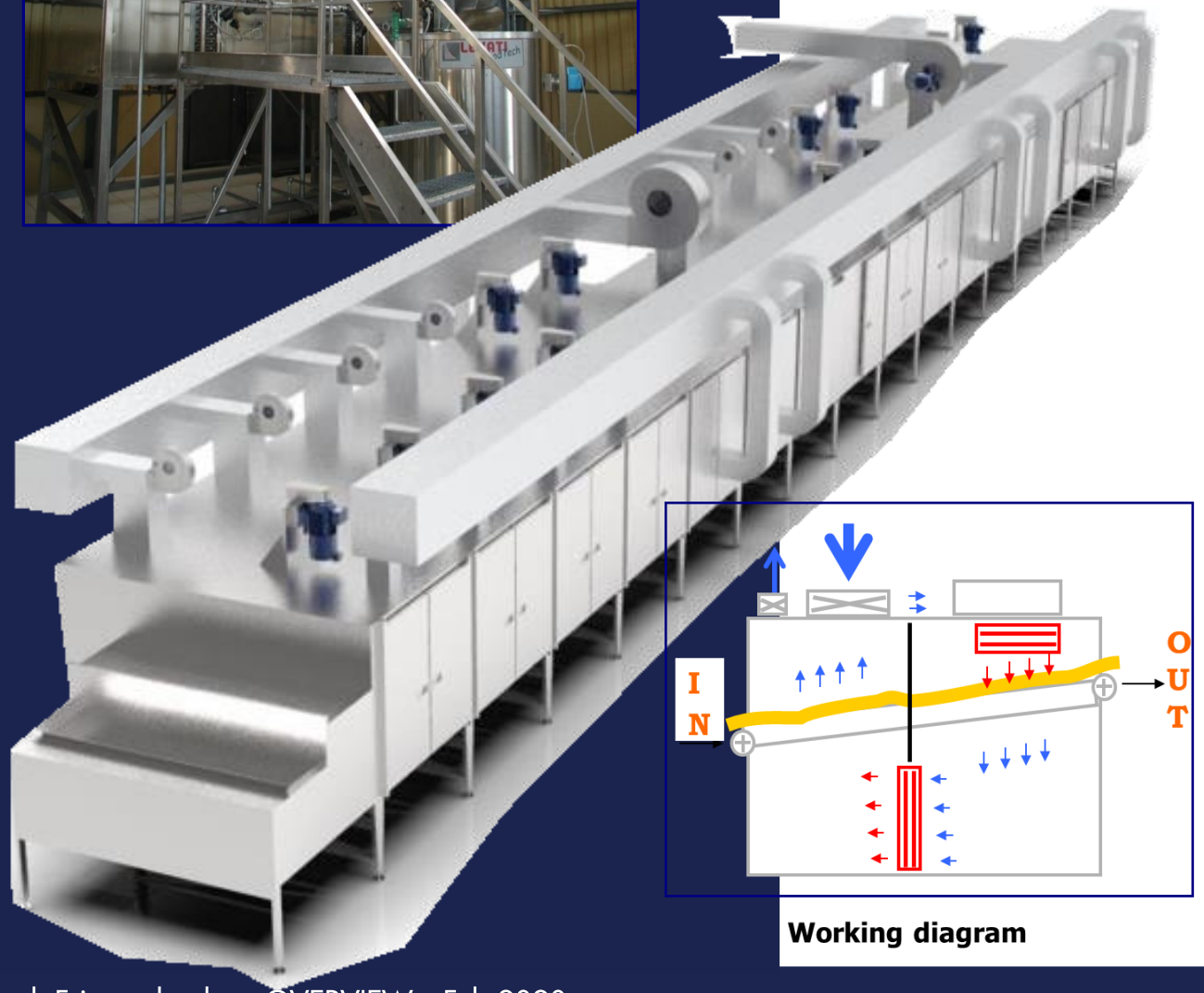








PRE-DRYING SECTION

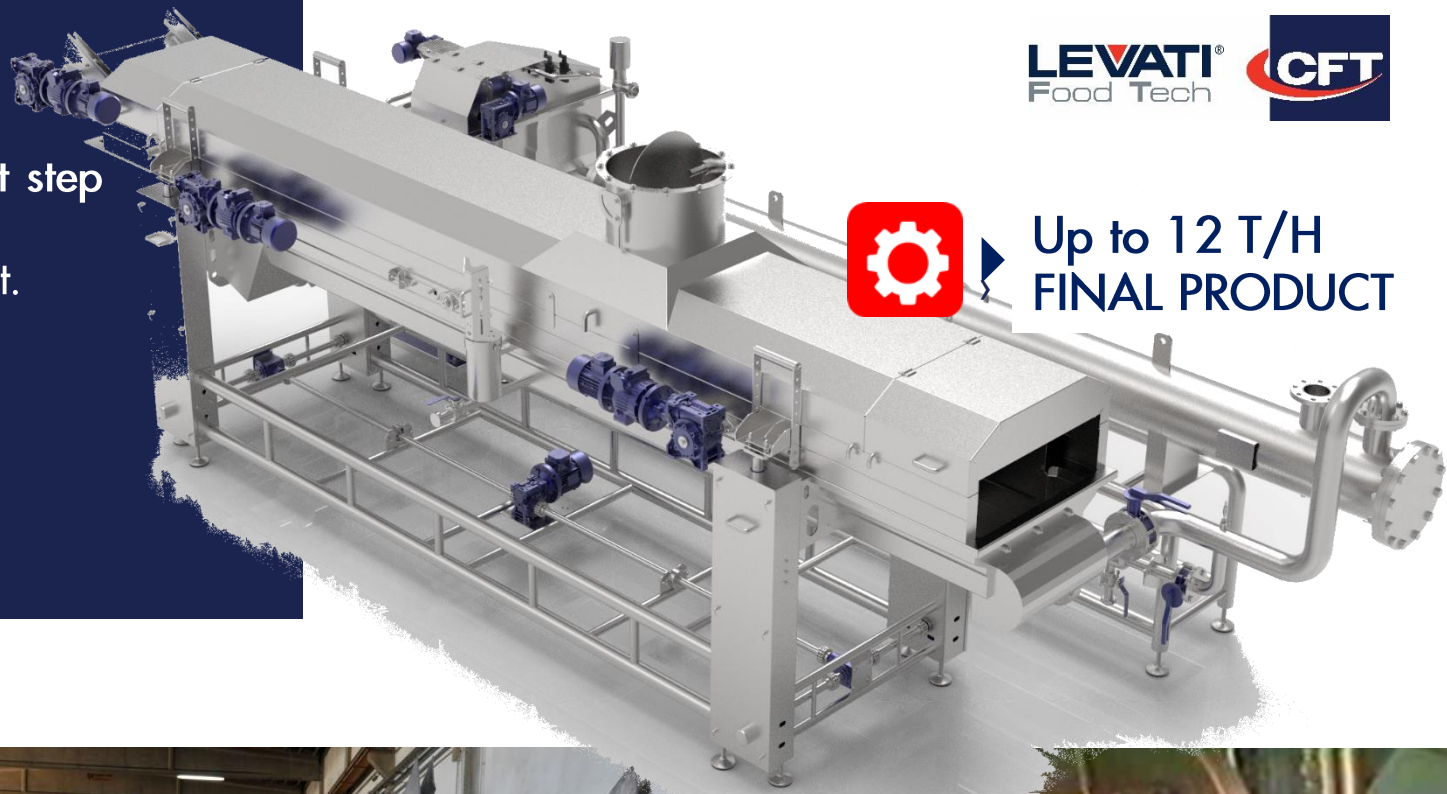


Working diagram

- The Pre-Dryer is used to dry the sticks before the frying section;
- The pre-dryer assure:
  - Low oil absorption
  - Lower frying time
  - Higher time of retention (crispness) after the final frying
- The Sticks are feed at 90° by a special designed shaking conveyor that assure the correct distribution of the product on the Pre-Dryer conveyor.
- The % of water evaporated can be adjusted tuning the temperature and the speed of the conveyor.
- The air is heated two times while passing through the product.
- Modular design: module are added according to the capacity of the line.
- The temperature of each module can be adjusted separately.

FRYING SECTION

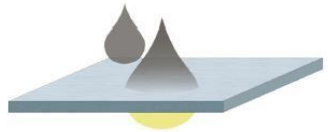
- The frying process is one of the most important step of the line.
- The sticks are partially fried for high quality product.
- Our fryers are remarkable for:
  - External heat exchanger oil/oil.
  - Completely manufactured in stainless steel.
  - High capacity stainless steel oil pump.
  - Optimum ratio capacity/oil stored



LEVATI® Food Tech CFT

Up to 12 T/H
FINAL PRODUCT

FRYER



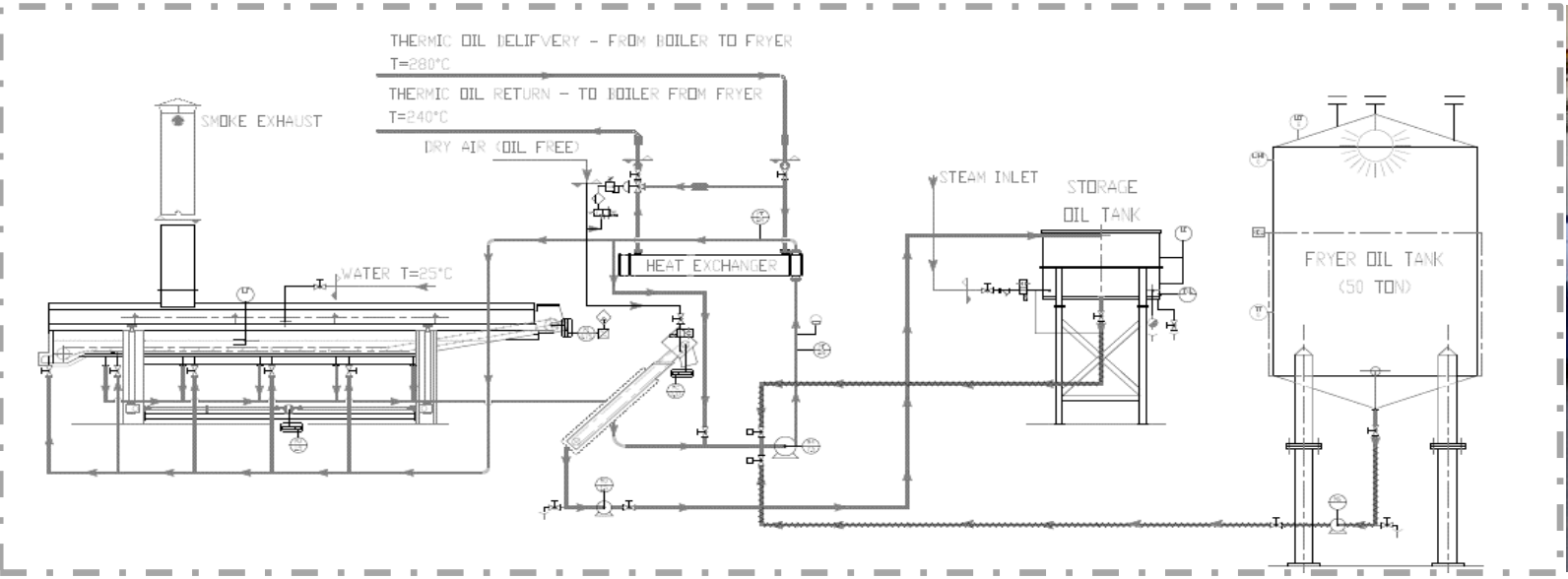
OIL FILTRATION

- Oil is filtered by a mechanical belt filter;
- Machine include also a PAPER FILTER type to separate oil mist during functioning

DE OILING CONVEYOR

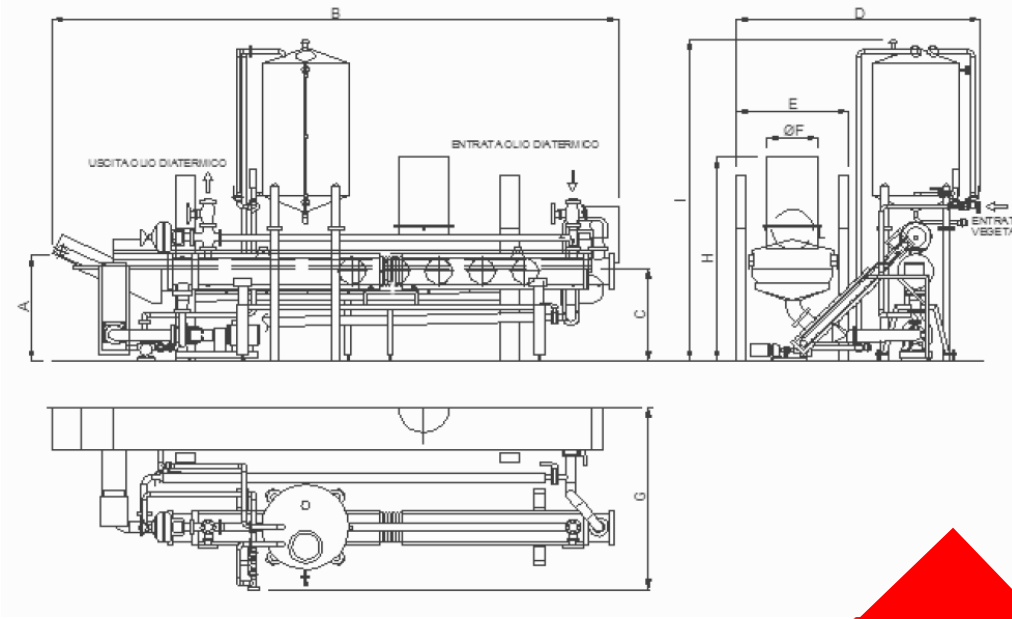
- The de-oiling shaking conveyor is placed after the fryer.
- The exceeding oil is collected in the heated trays and pumped back to the fryer.

PAPER FILTER (OPT).



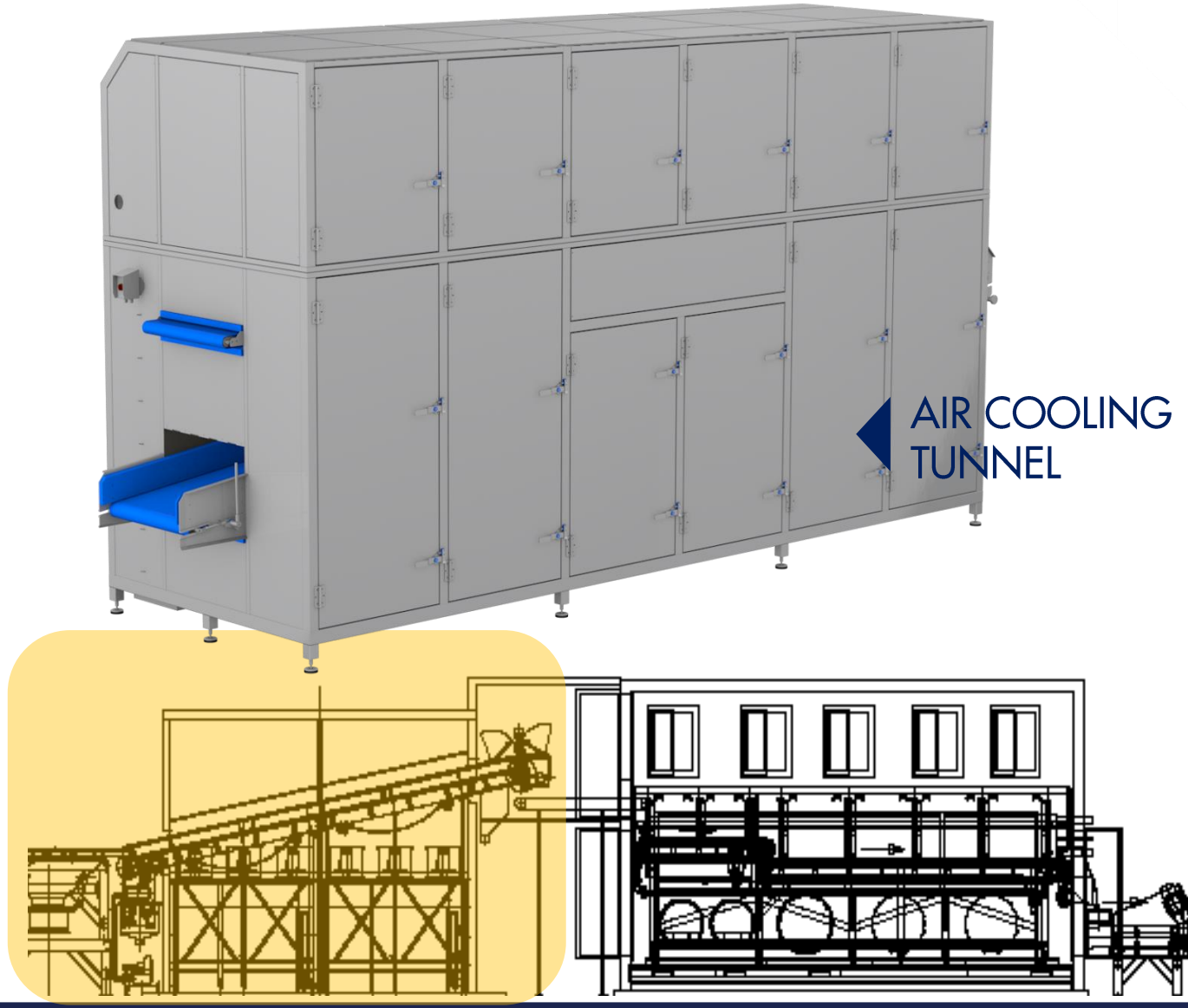
DE-OILING

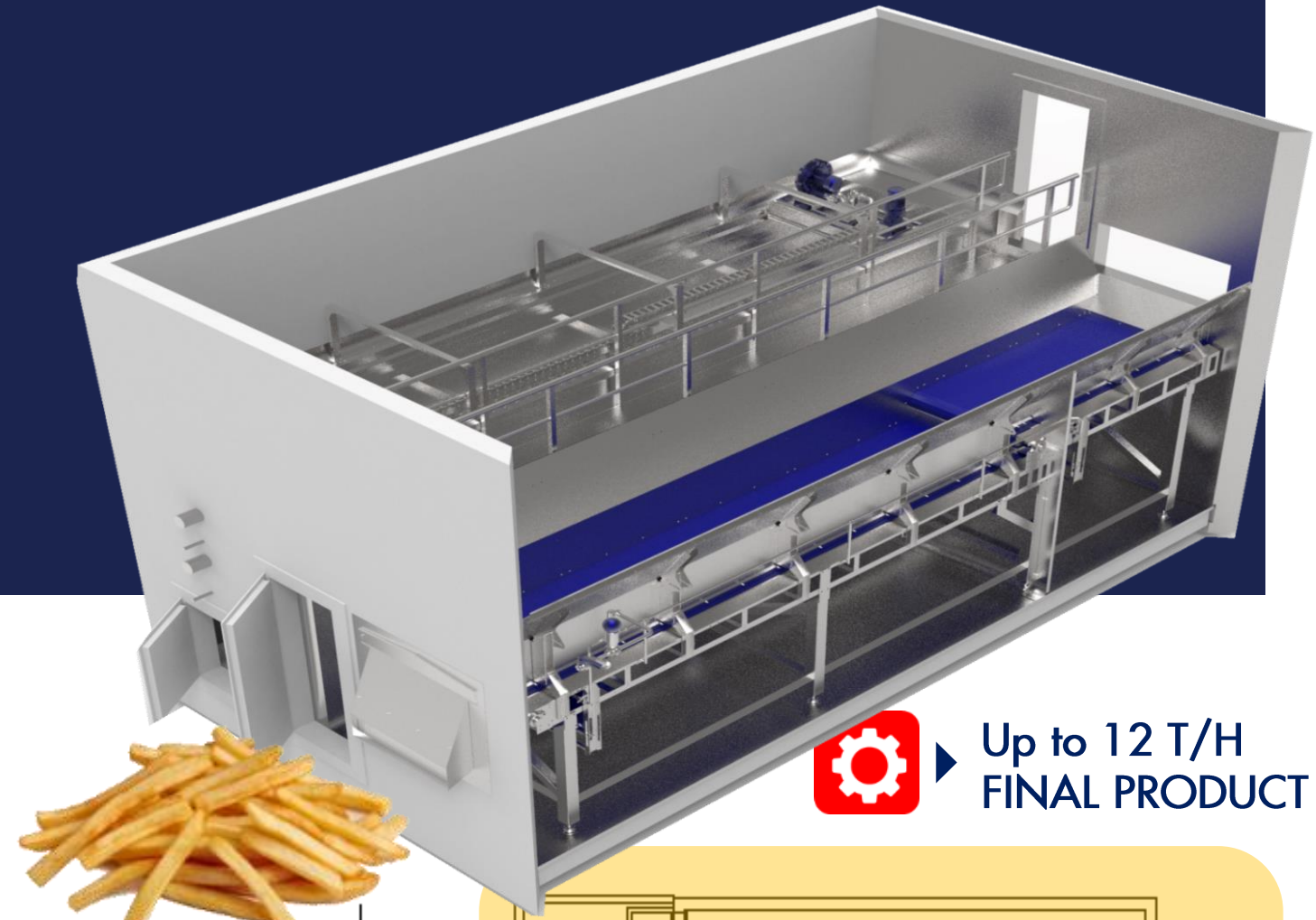
- The de-oiling shaking conveyor is placed after the fryer.
- The exceeding oil is collected in the heated trays and pumped back to the fryer.



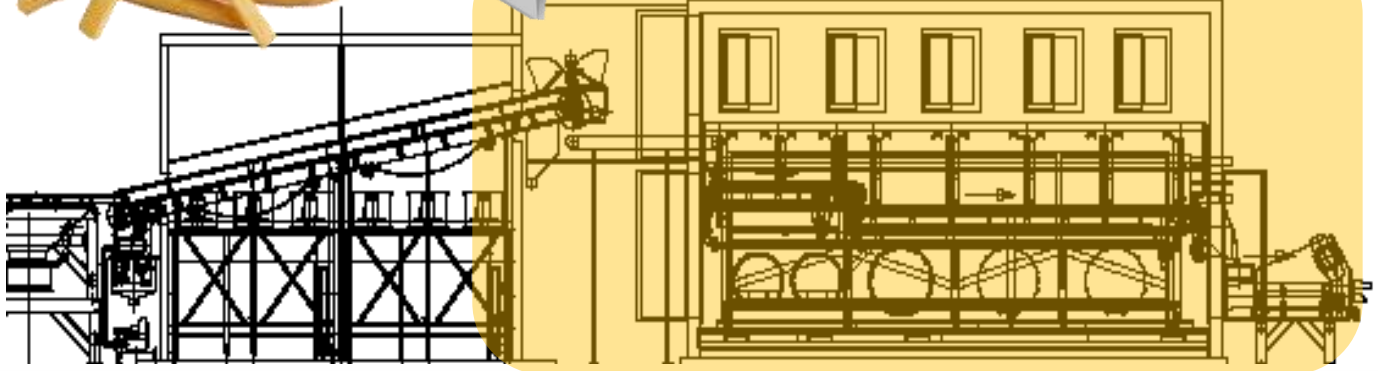
PRE-COOLING SECTION

- The sticks coming out form the fryer at a temperature of 90°C.
- In order to reduce the energy consumption of the freezing tunnel the product is cooled with COLD AIR CIRCULATION in a coolig air tunnel.





Up to 12 T/H
FINAL PRODUCT



MECFLOW – IQF FREEZER

- **After the cooling tunnel the sticks are freeze at –18°C (core temperature).**
- In order to reduce the energy consumption of the freezing tunnel the product is cooled with ambient air.
- The drop between the two conveyors inside the tunnel avoid the formation of blocks of products.
- The air flow between the products allow a perfect freezing of the product.

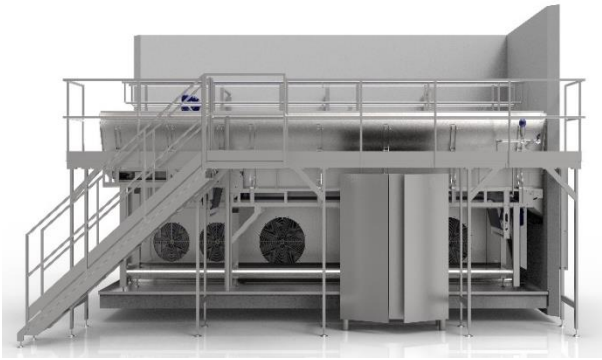
Snow removal system SRS

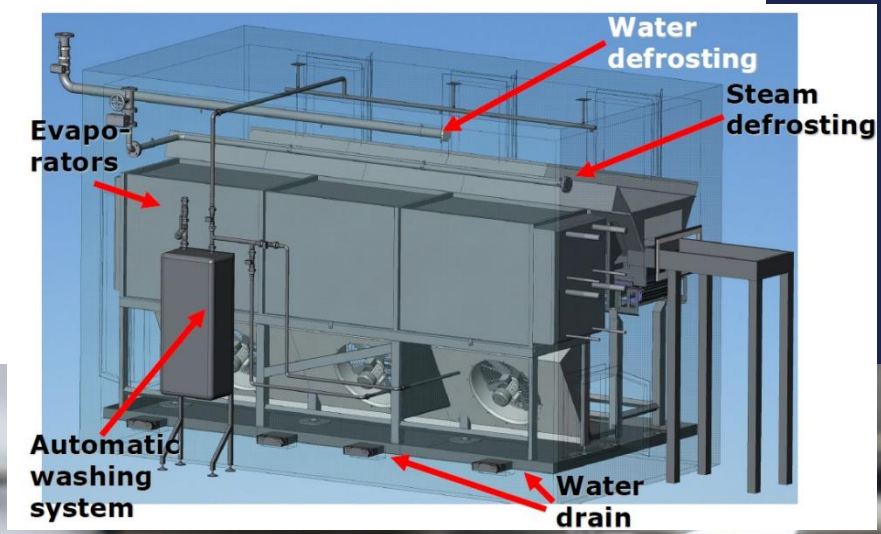
Double belt

Evapo-rators

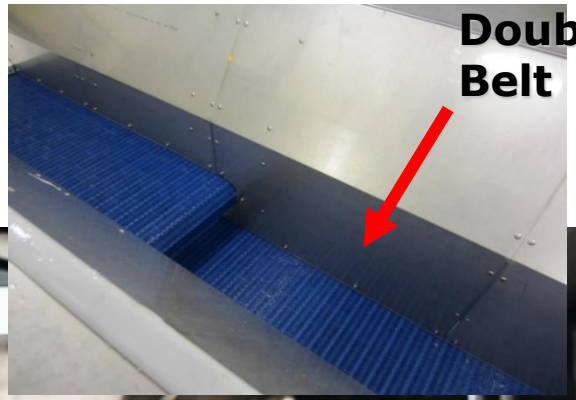
Circulation fans

Vibrating Feeder

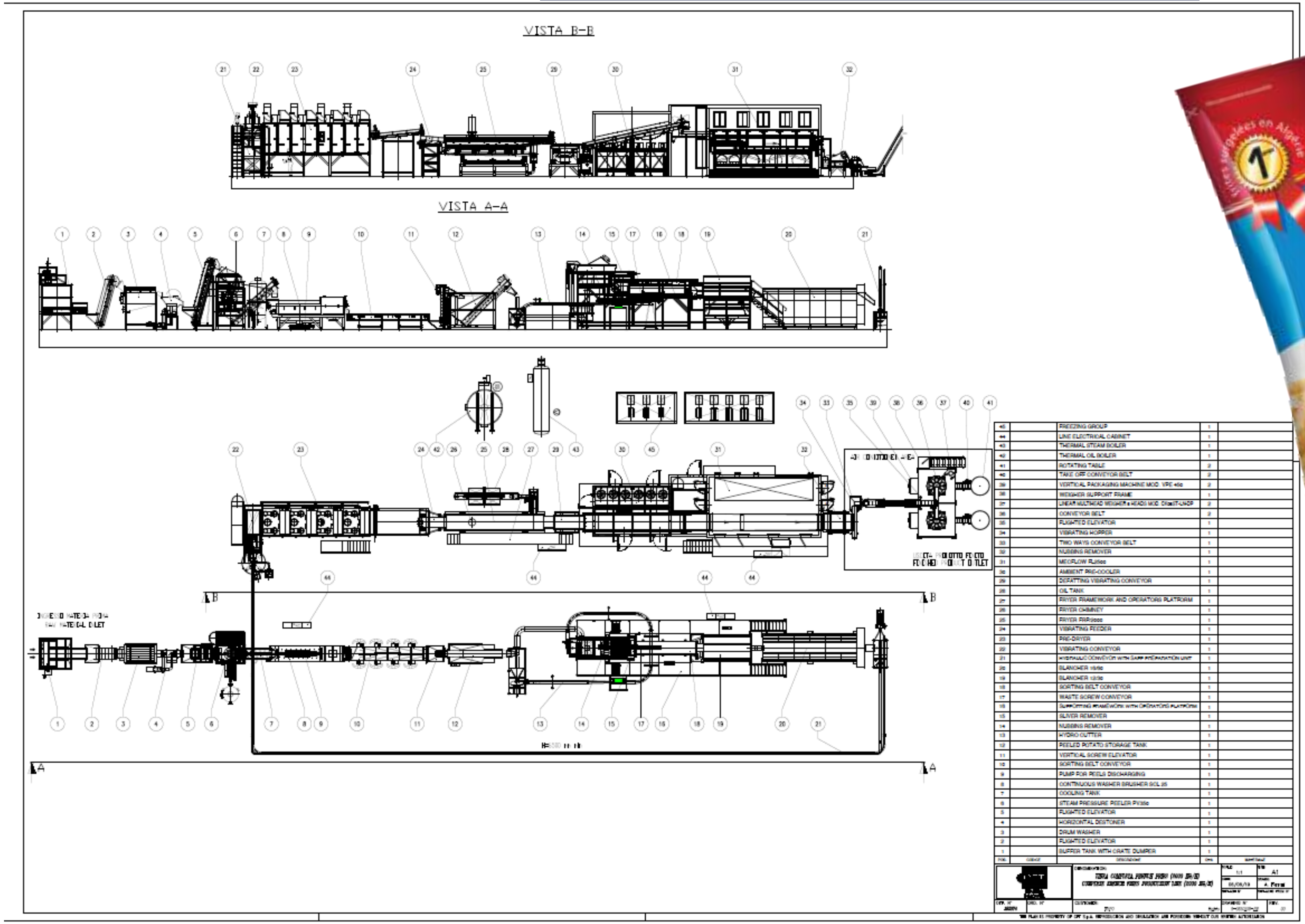



Water defrosting
Steam defrosting
Evapo-rators
Automatic washing system
Water drain


Inspection Hatches


Double Belt

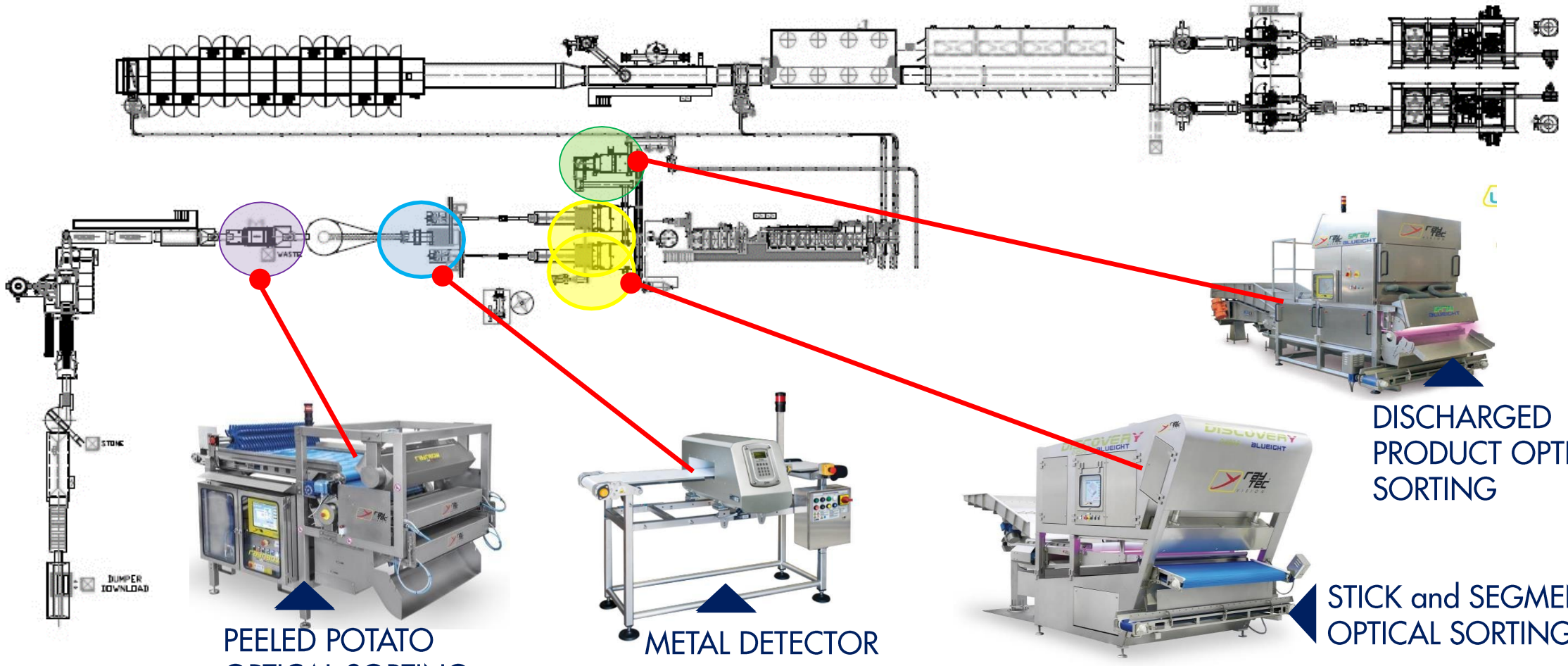
LAYOUT


VISTA B-B
VISTA A-A
45 FREEZING GROUP 1
44 LINE ELECTRICAL CABINET 1
43 THERMAL STEAM BOILER 1
42 THERMAL OIL BOILER 1
41 ROTATING TABLE 2
40 TAKE OFF CONVEYOR BELT 2
39 VERTICAL PACKAGING MACHINE 2
38 WEIGHER SUPPORT FRAME 1
37 LINEAR MULTIHEAD WEIGHER 2
36 CONVEYOR BELT 2
35 FLIGHTED ELEVATOR 1
34 VIBRATING HOPPER 1
33 TWO WAYS CONVEYOR BELT 1
32 NUBBINS REMOVER 1
31 MECFLOW 1
30 AMBIENT PRE-COOLER 1
29 DEFATTING VIBRATING CONVEYOR 1
28 OIL TANK 1
27 FRYER FRAMEWORK AND OPERATORS PLATFORM 1
26 FRYER CHIMNEY 1
25 FRYER 1
24 VIBRATING FEEDER 1
23 PRE-DRYER 1
22 VIBRATING CONVEYOR 1
21 HYDRAULIC CONVEYOR WITH SAPP PREPARATION UNIT 1
20 BLANCHER 1
19 BLANCHER 1
18 SORTING BELT CONVEYOR 1
17 WASTE SCREW CONVEYOR 1
16 SUPPORTING FRAMEWORK WITH OPERATORS PLATFORM 1
15 SLIVER REMOVER 1
14 NUBBINS REMOVER 1
13 HYDRO CUTTER 1
12 PEELED POTATO STORAGE TANK 1
11 VERTICAL SCREW ELEVATOR 1
10 SORTING BELT CONVEYOR 1
9 PUMP FOR PEELS DISCHARGING 1
8 CONTINUOUS WASHER BRUSHER 1
7 COOLING TANK 1
6 STEAM PRESSURE PEELER 1
5 FLIGHTED ELEVATOR 1
4 HORIZONTAL DESTONER 1
3 DRUM WASHER 1
2 FLIGHTED ELEVATOR 1
1 BUFFER TANK WITH CRATE DUMPER 1


FritoDido
Extra
La frite surgelée

TURN-KEY SOLUTION

LINE SAFETY and CONTROL POSSIBLE OPTIONS



THANK YOU!

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