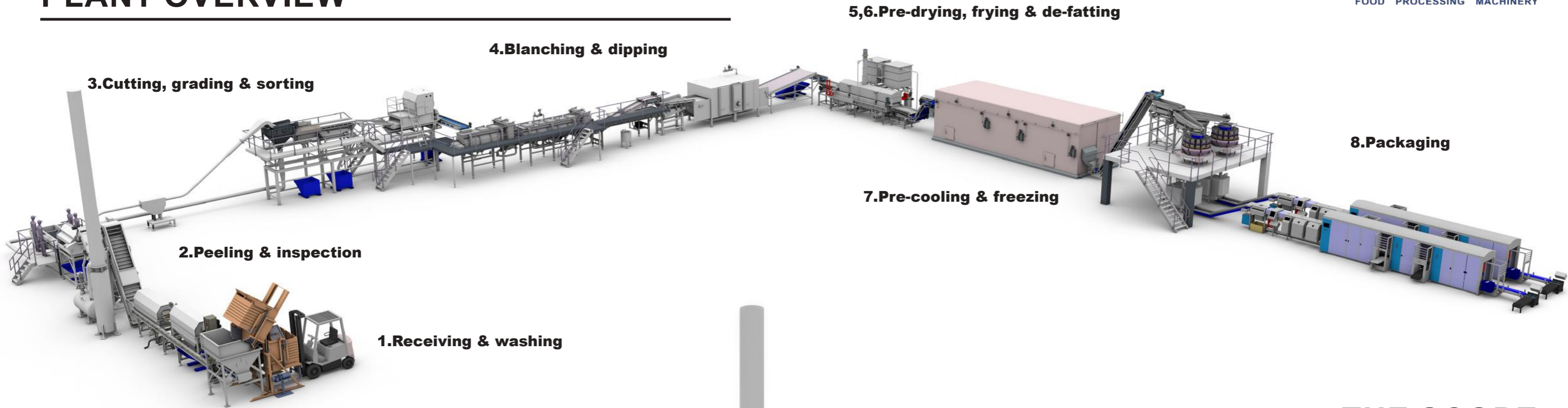


KUIPERS
FOOD PROCESSING MACHINERY



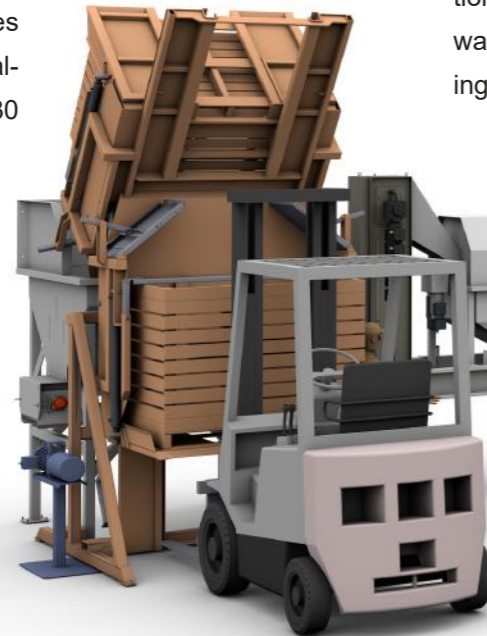
FRENCH FRIES PROCESSING

PLANT OVERVIEW



1. Crate tipper and hopper

The crate tipper will be designed for the specific crate dimensions used. Alternatively, Kuipers can quote you for a discharge hopper for potatoes in bulk. The receiving hopper will allow the processor to run at least 30 minutes continuously.



2. Dry cleaner

Equipped with a rotating cage, it will separate sand, soil and sprouts from the potatoes by friction, in order to effectively save water consumed in the wet washing system.

3. Cyclone destoner

The most effective way of separating stones and clay caps, fully adjustable by varying the water flow. A de-stoner is a must-have in the process line to avoid stones creating damages downstream.

5. Steam peeler

Efficient peeling by means of high pressure steam ensures a healthy balance between lowest possible product losses and optimum peel removal.

6. Brusher

Mechanical way of separating the peels from the potatoes without the use of water by means of rotating nylon brushes. For smaller throughputs, a combined brusher/washer is quoted instead of a separate washer.

4. Rod washer

Through a combination of friction and water, the potatoes are effectively washed, to avoid mud polluting the process. Optionally, a rotary filter can be added to reduce water consumption.

7. Roller inspection

Facilitates a visual revision of the peeled product and if required, manual trimming of defects and rotten parts. Optionally, the belt can be replaced by an optical sorter for automated inspection of the peeled potatoes.

THE SCOPE

12. Two-stage blanchers

Blanching is an essential step in the entire process. In the first step, product is heated up and enzymatic inactivation is ensured. In the second blancher the product will be fully cooked. By means of intensive recirculation of hot water, excess reducing sugars will be removed hence guaranteeing homogenous colour after frying.

11. Optical sorter

The optical sorter guarantees a quick and effective separation of strips with colour defects based on absolute or relative size compared to the product as well as shape recognition and length.

10. Length grader

The vibratory grader removes the too short strips and so-called nubbins from the product flow. The grading decks are exchangeable according to the end product specification.

9. Sliver sorter

The sliver sorter is designed to separate the thinnest cut strips from the product flow, the so-called slivers. The distance between the rollers is easily adjustable according to the allowance of slivers in the end product.

8. Hydro-cutter

To obtain the longest potential strip out of the potato with a minimum of grading loss downstream, a hydro-cutter is a must-have in a French fries line. A large variety of cut sizes is available and the change-over from size to another is quick. A centrifugal type cutter is optionally available to make crinkle-cut or diced product.

13. Dip system

The dryer feed shaker is equipped with an additional section for the spraying of the SAPP solution onto the product. A volumetric dosing system ensures the correct concentration of the SAPP in the water loop.

14. Dryer

Pre-drying of the potato strips is essential for proper product texture and lower oil absorption during frying. Optionally, the system can be equipped with water-heating instead of steam, for example using recovered energy from the fryer.

16. Fryer

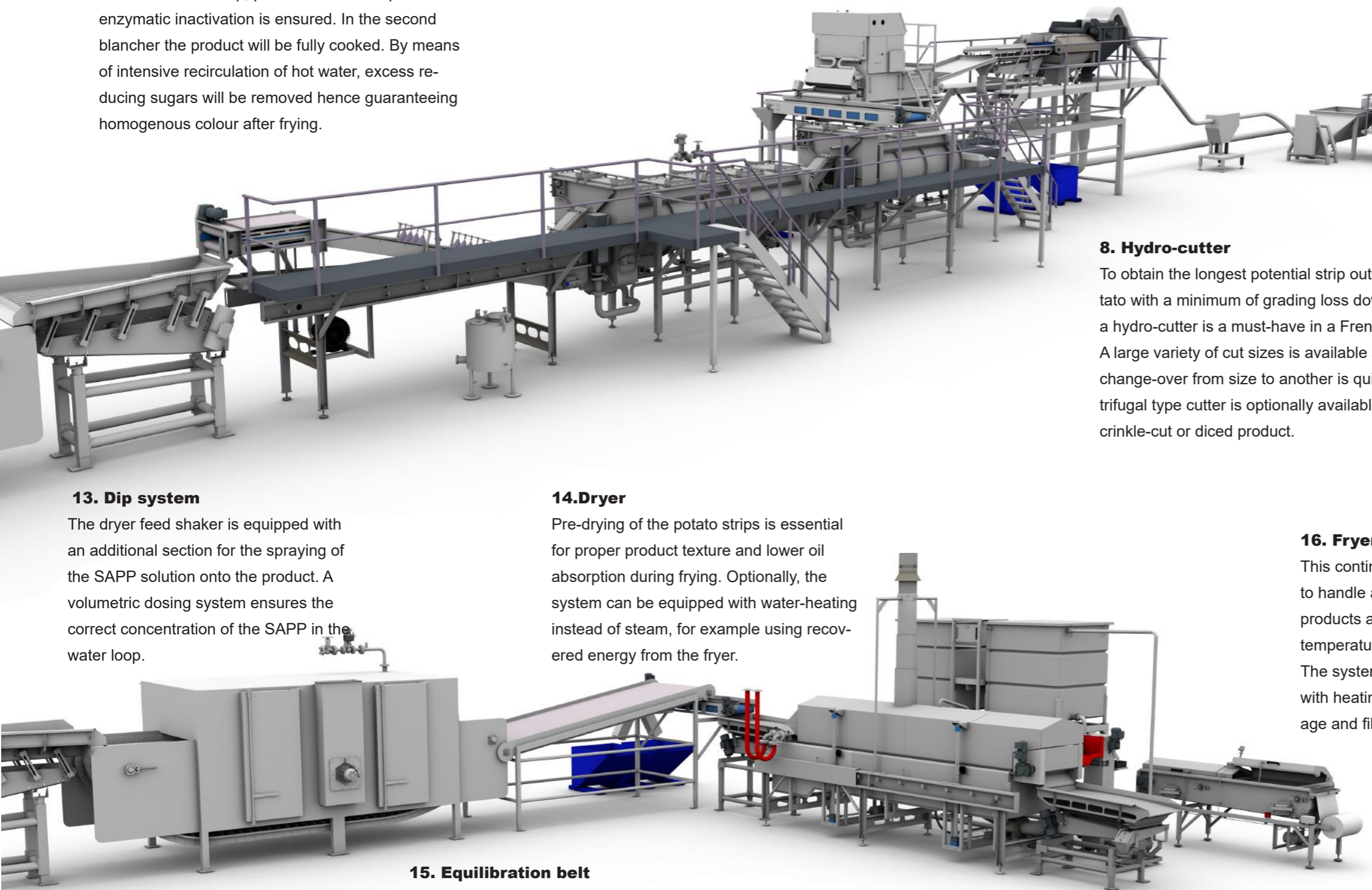
This continuous fryer is designed to handle a variety of different products and adjustable frying temperatures and retention times. The system is quoted complete with heating, oil circulation, storage and filter systems.

15. Equilibration belt

On this conveyor the product will be allowed ample time to have internal moisture transfer from the core to the outside thus creating a homogenous moisture distribution across the strip.

17. De-fatting shaker

By a specific vibrating movement, a significant part of surface frying oil is separated from the product. The bottom pan of the shaker is heated, so that the frying oil stays liquid and can be recovered by transferring it back to the frying system.



DATA SHEET

Oil turnover	7 - 8 hours
Line yield	50 - 55%
Line's gross dimensions LxWxH*	76x6x6m
End product consistency	68% humidity 5-6 % oil 26-27 % potato solids <i>Other specifications available on request</i>
Capacities	1,2 and 5 ton per hour output
Energy consumption	≈750-1500-3500kW
Raw material description	Size-graded potatoes Ø min 20mm and max 80mm >19% solid content <0,025% reducing sugar content 12-15°C core temperature

**the freezing stage is not included*

APPLICATIONS

- Standard cut 7x7, 10x10, 12x12
- Steak-house
- Crinkle cut
- Skin-on wedges
- Shoestring cut
- Clear-coated fries
- Diced
- Pommes Parisiennes

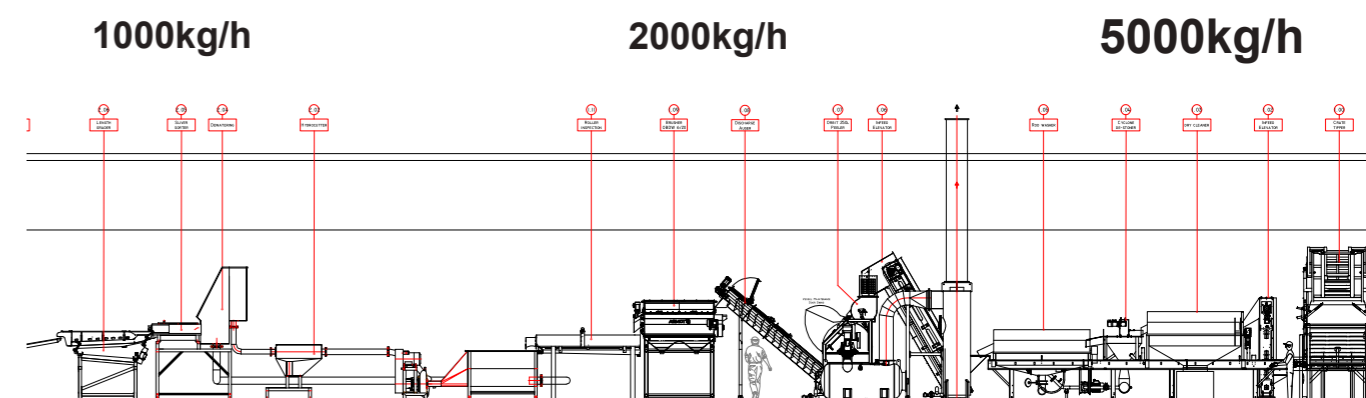


QUALITY AND EFFICIENCY

At Kuipers, we help food producers worldwide deliver a tasty product according to their desired output and local demand. Our equipment is engineered with quality and efficiency as base consequently ensuring our customers enjoy long-term advantages and cost savings. Kuipers expert team designs and manufactures turnkey French fries processing plants of capacities up to 5 ton per hour output. The equipment is crafted according to the client's needs in terms of the degree of automation, product and scope. Our solutions present food manufacturers the possibility to make various types of French fries such as the oven or crinkle cut as well as other similar potato specialties, for example, pommes Parisiennes, skin-on wedges and more.

When it comes to producing French fries, Kuipers begins the process by choosing the raw potato. Having the right input is one of the most important aspects and the foundation of a perfect French fry. Our team will develop the line, component by component alongside the client starting with advice on potato selection. After cleaning and destoning, an advanced steam peeler is integrated to ensure minimum product loss and peel removal. In addition, Kuipers presents a smart integration of both hydro and mechanical cutting systems so that all cutting shapes and sizes can be made on the same process line. Our state-of-the-art frying system incorporates a lean fryer pan design combined with efficient filtration and a well-monitored process. This as a result allows the producer to operate on extremely low turnover times and save overall costs.

Kuipers French fries plants are turnkey delivered, pre-mounted and pre-cabled for quicker installation on site. The components of the line are set up for the same net working width, guaranteeing smooth product transfers between process steps with a minimum amount of additional transfer equipment minimizing product damage and leakage. All stainless steel fabrication and high quality components.



** Pre-cooling and IQF freezing systems can be quoted upon specific request.*

Kuipers Food Processing Machinery
Woerden, Netherlands
(+31) 348 - 43 26 08
info@kuipers.nu
www.kuipers.nu

