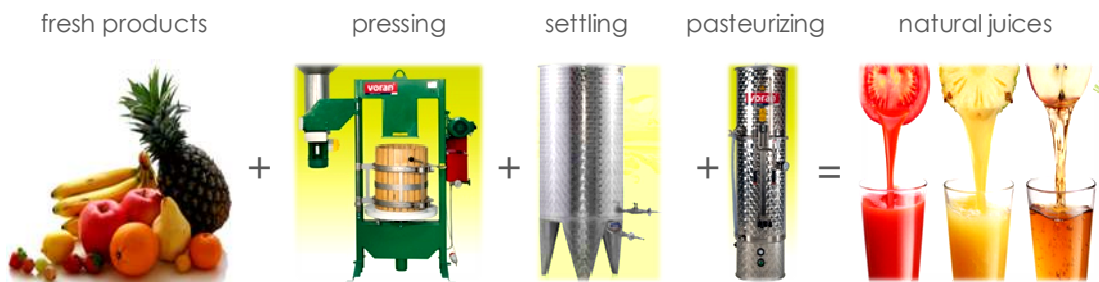


## Knowledge and technology for fruit & vegetable juice production A business case study

### Creating added value with fruits and vegetables



Complete fruit and vegetable processing line with a nominal production capacity of 130 l/h of 100% natural, nutritious and healthy fruit and vegetable juices. The extremely solid processing equipment is particularly manufactured for professional applications characterized by highly intensive 24/7 use and can be operated by a team of 4-5 members. Advanced packaging solutions using flexible pouches ensure long shelf-life in ambient temperature without any additives, colorants and preservatives. Intensive training courses held by technicians will provide first-hand knowledge, operation and maintenance of the processing line, food-safe processing and packaging methods.

### Food-safe and attractive juice packaging

Semi-automatic individual and family size dosing and filling machines



Semi-automatic dosing and filling machines of various capacities for accurate and food safe hot-filling of pasteurized juices and viscous products like edible oils into any kind of container.

Pre-made flexible pouches of many sizes and functions



Flexible pouches and bag-in-boxes with high protection against UV, humidity and heat for beverage safety, product quality, long shelf life in ambient temperature, transport and storage efficiency as well as attractive branding and marketing solutions.

Entirely manufactured by European leading companies in the fruit juice and packaging sector, the complete processing line is based on decades of experience and advanced technology that guarantees food safety, durability, energy efficiency, easy operation and maintenance.

## Juice production line



This comprehensive processing line allows the production of 100% natural pasteurized juices without any additives and preservatives. The extremely solid and reliable technology is particularly suited for professional intensive use and 4-5 operators can produce 130 l/h of fruit or vegetable juice within 80 m<sup>2</sup> working space.



Entirely manufactured by a European leading company in the fruit juice sector, this processing line is based on over 85 years of experience and advanced technology that guarantees food safety, durability, energy efficiency, easy operation and maintenance.

milling & mashing



**Centrifugal mill** with interchangeable stainless steel screens for adjusting the degree of shredding for pomaceous fruit, stone fruit and berries. Built on top of basket press.



pressing



**Basket press** with a nominal rating capacity of 180 kg/h. Built in pivoting centrifugal mill, pivoting round basket and hydraulic power unit. Easy and safe operation thanks to automatic pressure relief valve on hydraulic power unit.



filtering



**Stainless steel juice tank** 530l for filtering of the pressed juice. Diameter of 820 mm and a marmorated 3d surface. The tank is open on the top and is equipped with a reinforced edge. A lid is included in the delivery.



pasteurization & packaging



**Electro-pasteurizer** with filling system (nominal rating 180 l/h). With heating coil and tube heat exchanger. Straightforward operation thanks to manual flow control and digital display for supervising temperature. This unit is equipped with a bag-in-box and pouch-up filling system allowing to fill various sizes of containers.



# Centrifugal mill

Nominal rating kg/h	650 kg/h
Motor rating	1,5 (2,0) kW (PS)
Connected load	400V 50Hz (3-phase)
Electrical protection	16 A
Length	496 mm
Width	434 mm
Height	885 mm
Height with frame	1360 mm
Discharge height	1360 mm
Weight (without frame)	28 kg
Material	1.4301 / AISI 304
Height mash outlet	690 mm
Scope of supply	with 8 mm cutting screen



Centrifugal mill mounted on the top of the basket press. For shredding the fresh fruits before pressing. With a choice of interchangeable stainless steel screens for adjusting the degree of shredding for pomaceous fruit, stone fruit and berries.



## Basket press

Nominal rating	180 kg/h
Motor rating	Press 1,1 kW (1,5 PS) mill 1,5 kW (2,0 PS)
Connected load	400V 50Hz (3-phase)
Electrical protection	16 A
Length	1000 mm
Width	900 mm
Height	1700 mm
Discharge height	1770 mm
Weight	216 kg
Material	Juice basin from polystyrene, basket and mill in 1.4301 / AISI 304
Press force	16,1 to
Press pressure	320 bar
Juice yield	~ 75 %
Connection for juice outlet	Ø30mm
Height juice outlet	480 mm
Height pomace ejector	580 mm
Scope of supply	1 press sack 60 l, 3 sleeve inserts diam. 38cm, 3 press inserts in acacia wood diam. 38cm



Basket press with pivoting round basket, top-mounted pivoting centrifugal mill and hydraulic power unit. Easy and safe operation thanks to automatic pressure relief valve on hydraulic power unit. For apples, pears, blackberries, strawberries, blueberries, elder (grater required), blackcurrants (grater required), carrots, cranberries, herbage, horseradish, manioc, quince, beetroot, sawlow thorn, rowanberries, peeled onion etc.



- Highest yield, simple operation, very easy cleaning
- Easy-to-use stainless steel closure mechanism on the pivoting round basket
- All parts that are in contact with the fruit are in either stainless steel, wood or plastic
- Maintenance-free pump needing neither suction valves nor sleeves
- Automatic excess pressure valve 320 bar
- Oil-secure vacuum press
- Pressing sack, insert covering, press inserts

## Stainless steel juice tank

Capacity	530 liter
Length	820 mm
Width	820 mm
Height	1361 mm
Weight	40 kg
Material	1.4301 / AISI 304
Connection for juice outlet	Outside thread R 1"



Stainless steel juice tank for filtering of freshly pressed juice. 530l volume with a diameter of 820 mm and 3d surface, marmorated outside. The tank is open at top and is equipped with a reinforced edge. A lid is included in the delivery. Liter scale on the outside.

## Electro pasteurizer with family size packaging system

Nominal rating l/h	180 l/h
Electrical power	18 kW
Connected load	400V 50Hz (3-phase)
Electrical protection	32 A
Width	440 mm
Height	1580 mm
Weight	43 kg
Material	1.4301 / AISI 304
Water content	100 l
Juice vessel	65 l
Optional equipment	2 Bottle filling valves or Bag in Box filling system



Electro-pasteurizer with heating coil and tube heat exchanger. Straight forward operation thanks to manual flow control and digital display for supervising temperature. Equipped with a filling system for family-size bag-in-boxes and pouch-ups of 3, 5, 10 and 20 liter. The bags come with a VITOP spring-tap, which prevents the airflow back in the bag, preserving the nutritional quality and flavor of the juice in ambient temperature even after opening. See below for more details.



- The electric pasteurizer heats and fills fruit juices.
- The juice is heated using a stainless steel tubular heat exchanger
- The electronic temperature regulation maintains the water constantly at the set temperature.
- Digital display for the juice outflow temperature
- Heat element fitted with dry safety cut-out
- Integrated Bag-in-Box-filler valve (automatic filling start on insertion and filling stop when bag is full)
- Suitable for different bag sizes (tap diameters and heights can be varied)

## Individual size packaging



This dosing and filling machine is perfectly suited for commercial hot-filling of pasteurized fruit and vegetable juices or viscous products like edible oils into any kind of container. It completes the fruit juice production line with a packaging system for individual-size pouches of e.g. 330 ml or 1 liter. The machine has a filling capacity of 9 l/min (540 l/h) and sophisticated electronics with preprogrammed nominal filling volumes. This allows very high filling repetition accuracy and optimal filling speed. For food safety and long shelf-life considerations, we recommend to use high-barrier flexible stand-up pouches. Please contact us to learn more.

- filling capacity of up to 9 l / min at full speed pumping (with water)
- filling-amount from 5 ml to 65.000 ml
- filling of liquids with a dynamic viscosity  $\eta$  of up to 150 mPa s
- filling repetition accuracy of e.g. +/- 1-2 ml at 500 ml
- filling speed of e.g. 350 bottles á 1000ml/ hour (for water)
- height of the bottles: up to 350 mm
- variable motor-speed from 160/min - 3000/min
- to be connected to 210/110VAC by means of a transformer

### Pouches that can be filled with this system

#### 330 ml stand-up pouch with spout



Volume: 330 ml  
Material: PET/ALU/PE 12/8/70  $\mu$ m  
Dimension: 130 x 170 + 70 mm  
Originality seal  
Print: 4 color flexo print  
Design: custom made

#### 1 liter stand-up pouch with spout



Volume: 1 l  
Material: PET/ALU/PE 12/8/70  $\mu$ m  
Dimension: 170 x 250 + 120 mm  
Originality seal  
Print: 4 color flexo print  
Design: custom made



## Family size packaging



The pasteurizer of this line is equipped with an filling system that can fill family-size juice packages. Two varieties of bags are available: 1.) 3 liter flexible pouch-ups without boxes, 2.) Bag-in-Boxes of 5, 10 or 20 liter. Both bags are equipped with a VITOP spring-tap, which prevents the airflow back in the bag, preserving the quality and flavor of the fruit juice.



- Nominal rating: 180 l/h
- Connected load : 230 V, 50 Hz, single phase
- Electrical protection 16 A
- Filling accuracy :  $\pm 0,5 \%$
- Compressed air connection: 6 bar
- adjustable volume from XX to XX ccm
- dosing volume adjustment by hand wheel with graded scale
- all parts in contact with the product are stainless steel

### Pouches that can be filled with this system

#### 3 Liter Pouch-Up



Volume: 3 liter  
Size: 315 x 250 mm  
Material: PET12/PET12/PE/EVOH/PE150 $\mu$ m  
Closure: Compact Vitop  
Handle with 3 holes and 1 gusset  
Print: 4 color flexo print  
Design: standard or custom made

#### 5, 10, 20 Liter Bag-in-Box



Material bag:  
EVOH66/LLD/LDPE50  
Material carton: corrugated cardboard EE 4201  
Volumes: 5, 10, 20 liter  
Size 5 l: 170x150x230 mm  
Size 10 l: 191x189x310mm  
Size 20 l: 265x263x310 mm  
Print: flexo print  
Design: standard or custom made

## Energy-efficient diesel generator set

This reliable and high efficiency generator set combines high-quality materials and advanced technology. Its nominal power perfectly suits for the complete processing line and is designed to operate reliably in challenging applications and to have low life cycle costs.

This unit is manufactured by a leading Spanish company in the energy generation sector since over 65 years. Its technology is particularly suited for continuous operations with high energy reliability.

### Specifications

- Nominal power 25 kVA
- Gen-set 50hz
- Continuous 1500 rpm
- Open set (without canopy)
- Deutz engine
- Air cooled
- Three phase 400V
- Remote-Manual panel
- Stand-by 25 kVA
- Continuous 20 kVA
- Weight 490 kg
- Dimensions L/W/H 1450/750/1100 mm
- Acoustic power 100 dB



We kindly invite you to contact us to learn more about our packaging and energy solutions for this processing line.



## BACKGROUND INFORMATION

### Market Opportunities



Fruit and vegetable processing are among the most important agricultural activities for the development of rural businesses. Pre-packaged foods and beverages are among the largest and fastest growing markets in the North as well as in developing countries. Currently, there are no fruits and vegetables processing taking place in many emerging markets and most of processed foodstuff is being imported. Therefore, multiple opportunities exist at all stages of the value chain for small and medium-sized enterprises, women entrepreneurs and farmers cooperatives.

### Current Problems

Despite this huge demand for processed and packaged fruits and vegetables, there is barely a beverages industry in poor and fragile countries satisfying this demand. One of the reasons for this is that fruits and vegetables are produced and harvested within a few months and that the crops often are highly perishable. Large amounts of harvest in such a short time pose problems for optimal (cooled) storage and protective transportation and produces lots of avoid-able waste. Additionally, the overflow of fresh fruits and vegetables on the market keeps prices very low and deprives small and medium-sized farmers of income. Another problem is that before harvesting, many farmers use chemicals which are forbidden in a wide range of countries, thus posing health problems for the local population or complicating or even inhibiting exports to regional and international markets. Local producers of agricultural commodities can't take advantage of these opportunities as they lack appropriate and hygienic storage, processing, packaging and storing opportunities. The main reasons for this are bottlenecks in their value-chains stemming from lack of know-how and agro-technical means of production.



### NOMADES Swiss Solutions

Local entrepreneurs expect high performance, low cost and maximum availability throughout the life cycle of their equipment. In different types of service agreements of NOMADES Swiss, we have combined low operating costs with maximum machine availability.



NOMADES Swiss has designed custom-tailored solutions that integrate pre- and post-production stages according to our customer's needs. Our recommendations in choice of most efficient processing plants comprise extremely solid machinery for the processing, conditioning, and packaging of fruits and vegetables. Our projects focus mainly on local transformation of locally produced fruits and vegetables of any kind into natural processed products. As the processing plants we propose can be adapted

for different production capacities (180kg up to 6000 kg of raw materials per hour) as well as for a diversity of fruits and vegetables, our solutions help extend production over the harvest time frame and ensure year-round employment. This helps maximizing positive impacts for the weakest and poorest producers by giving them a guaranteed and fairly priced outcome to their production and employment opportunities on the plant site.

With our Service Agreements we can offer extensive service, in terms of preventive and pro-active maintenance. Risk-eliminating preventive action and modernizing parallel to operation, training for operating staff, and consistent upgrading of equipment including cost calculation are key components of this service.

Additionally, implementing local processing units help solving transportation and storage problems. The pasteurized and packaged products can be stored at least two years after processing what solves the problem of the perishable nature of fresh produce and offers solutions for malnutrition and health problems as well as extended marketing possibilities and higher added-value. Another possibility for producers is to organize them in local associations jointly running one processing unit and making them more independent from market speculations.



We kindly invite you to explore our website

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