TOMATO PASTE CAN LINE MACHINERIES & EQUIPMENT

1.12. Tomato pasteurizer 2 (2.500 – 5.000l/h)

1.12.1. Pasteurizer plant type 6700/012

As product treatment plant with indirect heating system

Capacity:	2500l/h – 5.000 l/h 12.000l/h CIP
Product:	Tomato Paste max. viscosity 100 cp/10°C max. 38 Brix°

The heating and the cooling of the product is managed indirectly by the heat exchange with water in counterflow in the supplier's tubular heat exchanger. The economic relativity of the heat exchange area and product volume guarantees an optimal product quality with high efficiency concerning the energy units.

The pressure and temperature stability of the tubular heat exchanger have simple and safe seals. Straight and smooth product-flow is assuring a safe CIP and inspection.

Specification:

1.12.2. 1 Tubular heat exchanger system

Subdivided as follows:

1 High heating system from approx. 45°C to 92°C by heat exchange with hot water in counter flow.

1 Cooling system from 92°C to approx. 45°C by heat exchange with water in counter flow with 12°C.

1 Heating system for the hot water circuit
The water is heated to the required temperature by heat exchange with steam before it enters the high heating system.

1 Cooling system for the product
The product is cooled, if necessary, by heat exchange with cooling water before it enters the return.
The cooling water is fed by a regulating valve.
The cooling system is heated by steam during the sterilisation of the system in order to shorten the sterilisation time.

1 Heat holder of tube DIN 11850, with following heat holding time:
Approx. 30 seconds flow time at nominal capacity

The following is signalized as an alarm:

- Lack of product
- High heating temperature drop
- Low compressed air pressure
- High system pressure
- High conductivity (during production)
- Fault indication of homogenizer and pumps

1.12.5. 1 Power cabinet

With air conditioning device

Inside equipped with installation plates, on which i.a. the following devices are installed:

- Power section (motor protective switch, contactors)
- Power pack

1.12.6. Preassembling

The complete above-described plant is installed ready for electrical, pneumatic and mechanical connection on a stainless steel rack (material no. 1.4301 / equivalent to AISI 304).

The connection points indicated in a drawing are the limit of the above described scope of supply.

All heat exchanger parts which are in contact with the product are made of material no. 1.4571 (equivalent to AISI 316 TI or equivalent); all other parts which are in contact with the product are made of material no. 1.4301 (equivalent to AISI 304); all other parts of heat exchanger which are not in contact with the product are made of material no. 1.4301 (equivalent to AISI 304).
The tubular heat exchangers are sealed with rings made of material PTFE.

The outside of all tubular heat exchangers, frame constructions and tubings are treated with synthetic mineral blasting shots in a compressed air blasting process.

The pressure bearing components will be manufactured and tested according to the guideline for pressure vessels (DGRL) 97 / 23 EG.

The pressure vessel calculations will be made according to the code of practise AD 2000.

Varying from the mentioned material, other equivalent or superior material can be used.

SUBJECT:	***Filling, Seaming and Pasteurizing Line***
PRODUCT:	*Tomato Paste at 28° Bx (with 2% salt) and Tomato Sauce at 8÷ 10° Brix (with salt/sugar)*
CAPACITY:	*Up to 600 cpm on 70 g can size (required)* *Up to 200 cpm on 450 g can size*
CONTAINER/S:	*Tin Plate Cans Ø 52 x h. 38 mm (70 g)* *Tin Plate Cans Ø 73 x h. 109 mm (450 g)*

1.0) FILLING AND SEAMING LINE

1.1) 1 Synchronized Group Piston Filler 24 V/ Seamer 6 H

1.1.1) 1 Rotary valve piston filler with 24 pistons – Mod. 0289-N-024

Composition:

- Base in highly rigid carbon steel, completely covered with AISI 304 stainless steel panelling, complete with perimetral liquid recovery channel and height adjustable floor rests
- Table top chain introduction conveyor in Delrin with stainless steel side-frame
- Quick-clamp synchronisation screw, adjustable both in height and laterally, with personalised container introduction device
- Container introduction star in high-density polyethylene
- Product holding tank in mirror-polished AISI 316 stainless steel.
- Product level control by means of conductive probes inside the tank
- Piston-driving cam in stainless steel complete with micrometric height regulation, also whilst the machine is in operation
- Pistons constructed entirely in stainless steel complete with interchangeable sliding pads and driving rollers in Delrin
- High thickness st. st. cylinders
- AISI 316 stainless steel valve and non-wear covering of the plug
- Motorized height adjustment

- Motorized dosage adjustment
- Break-proof "no can - no fill" device.
- Rapid size changeover without the need for tools
- Machine cabling in open steel tubes, with main junction box in steel and auxiliary box in plastic material
- Stainless steel pneumatic panel external to the machine
- Manual centralised lubrication
- Device for presence of container at infeed
- Device for blocked container outlet (only if not synchronized to the seamer).
- Device for automatic restart

NOTE: The machine is equipped for 70 grams can size Ø 52 mm.

Technical data:

number of valves:	24	
container path diameter:	960	mm
container pitch:	125,6	mm
operative speed	Up to 600	cpm (according to the product and container)

Consumptions:

installed electric power	0,75+0,37	kW
compressed air	50	Nl/1'

Optional requested and / or necessary for this application:

0288---210	Supplementary change part for Ø 73 x h. 109 mm
0288---375	Can stop device on the infeed conveyor
0288---610	Safety protection guards with LEXAN panels
0288---720	3 way valve with PT 100 probe
0288---660	"Pagoda" cover on the protection guards
0288---680	Automatic greasing with pump and plastic pipes

1.1.2) 1 6 Head St. St. Seamer - Mod. 0623-M-006

Composition:

- Rotating can seaming system with motorized footplates.
- Lubrication plant with oil filtering and recycle system, including the seaming rolls, designed to reduce maintenance costs to a minimum.
- Constructed entirely in AISI 304 stainless steel **including the upper head.**
- External protections in AISI 304 stainless steel constructed so as to collect the product inside the machine and then conveyed to a manifold.
- Rolls realized in accordance with a watertight criteria that allows for an accurate cleaning of the seaming parts without the risk of water infiltration across the bearings.
- The gear design, cam profiles and protection guard allow for the sound level to be within a value of 85 dB(A).
- "DESMODROMIC" type seaming cam, that allows for the elimination of the springs that hold in place the levers of the roll-bearing shafts.
- Each lever mounts a 1st operation and a 2nd operation roll, thus reducing the number of roll-bearing shafts as respect to the traditional system.
- The seaming cam is equipped with a device to exclude the 2nd operation during the working phase and accurately check the 1st operation.
- Drive by self-braking-cooled three-phase 4-pole motor with IP 55 protection degree.
- Speed regulation by means of frequency variator.
- Pushbutton panel positioned on the machine, to control and signal all the seamer's functions, those of the lid-feeder and of any other machines drawn. The speedometer and can counter are placed on this pushbutton panel.
- Safety protection guards designed in accordance with the CE accident-prevention standards.
- Standard length can infeed conveyor (distance between filler and seamer centre = 3100 mm) with constant pitch toothed chain in AISI 304 stainless steel.
- "No can – no lid" pneumatic device with electronic logic.
- Lid separation and dosage by means of a single screw system.
- Can height manual adjustment.
- Lid presence detector in the star.
- Set of wrenches and gauges.
- Kit of tools and primary spare parts.

NOTE: The machine is equipped for 70 grams can size Ø 52 mm.

Technical data :

chucks number	6
can diameter	50 – 105 mm
can height	45 – 200 mm
can pitch	133,35 mm

operative speed up to:	700 cpm
chuck and roll material	St.st. M340 and 440 C

Consumption:

installed electric power	15,00 kW (towing machine)

Optional requested and / or necessary for this application:

0600---172	Steam injection device
0600---184	Filler drive attachment with "in motion timer"
0600---202	Lid feed extension with vibrating channel
0600---207	Additional for chucks and seaming rolls manufactured in STOODY material and coated with Titanium Nitrade for standard equipment
0600---212	Change parts with standard chucks and rolls for Ø 73 x h. 109 mm
0600---207	Additional for chucks and seaming rolls manufactured in STOODY material and coated with Titanium Nitrade for supplementary change part
0600---xxx	No.2 Outlet twists for Ø 52 and for Ø 73 can size

1.1.3) 1 Mechanical Synchronization System between Filler and Seamer

- P.T.O with cardan shaft

1.1.4) 1 Electric panel board for the Filler/Seamer group

- AISI 304 stainless steel case, containing the electric and pneumatic instruments
- St.st. electric panel board with Siemens IM 151-8 + TP277B Touch Screen operator panel for the automatic management of the machine and portable inch device (jog)
- Including all electro-pneumatic components
- Including wiring to max 5 m distance (cable ducts/supports are at Customer charge)
- Constructed in accordance with the CE standard regulations
- IP.54 protection degree
- Power supply: 380 – 400 V – 50 HZ **(to be confirmed)**
- Low tension 24 V. auxiliary circuits

Optional requested and / or necessary for this application:

0200---04x	Remote Access Service (RAS) with Internet fast connection
0200---061	Push-button board separate from the electric panel board
0200---080	Electric panel board with air conditioning

2) PASTEURIZATION SECTION

2.1) 1 Table Top Chain Conveyor – Mod. 1441-L-085

- AISI 304 st.st. frame
- Plastic table top chain
- Powered by speed reducer
- Length: 6.000 mm

NOTE: to be confirmed in phase of definitive lay-out

2.2) 1 Tunnel Pasteuriser / Cooler– Mod. 0317-F-048

The machine is suitable to pasteurise and cool food products in: glass jars or bottles, tin-plate or aluminium cans and other types of container, at atmospheric pressure.

Composition:

Machine structure

– constructed entirely in tubular profiled AISI 304 stainless steel, complete with covers in the upper part

– vapour suction hood

Main conveyor

– composed of a net conveyor in highly resistant plastic material, with an automatic stretching device

Pasteurisation zone

– by means of hot water spraying nozzles

– water / steam direct heat exchanger

Cooling zone

– by means of showers with water spraying nozzles at decreasing temperature, constant level tanks, static filter and circulation pumps

Pre-drying zone

– by means of forced air piping, complete with electric fan

Container inlet conveyor belt

– The inlet is obtained by means of a stainless steel multiple slat chain conveyor belt, with speed adjustable through a frequency variator

Container discharge conveyor belt

– discharge is obtained by means of st.st. multiple slat chain conveyor belt, with differentiated speed driven by a frequency variator

Electric panel board

– AISI 304 st.st. cabinet containing the electrical and pneumatic instruments, constructed in accordance with the CE regulations

– Protection degree IP 54

– 24 V auxiliary circuits

Specification:

product handled	Tomato paste
Production capacity	Up to 36.000 cph with Ø 52 mm / 70 g
	Up to 12.000 cph with Ø 73 mm / 450 g
thermal cycle	Up to 45' min. (85°>95°>40°)

Consumptions:

installed electric power	20,00	kW
dry saturated steam at 6 bar	250	kg/hr
calories of cooling	429.000	Kcal
compressed air at 6 bar	100	Nl/min.

Dimensions:

work dimensions	2.000 x 24.000	mm
Net usable surface	48	m^2

TECHNICAL SPECIFICATION FOR CASE PACKER FOR TOMATO PASTE IN CAN

- Project type: packing line
- Product to handle: Can

PRODUCTS AND PERFORMANCES

Format	Type	Prod. Dim. (ØxHmm)	Case dim. (LxWxH mm)	Packing matrix	MAX speed
Tomato paste 70g	Can	Ø52x38	270x270x96	5x5x4	600 cans/min 24 layers/min 6 cases/min
			270x270x152	5x5x2	600 cans/min 24 layers/min 12 cases/min
Tomato paste 400g	Can	Ø73x109	448x302x129	6x4x1	250 cans/min 10.5 layers/min 10.5 cases/min

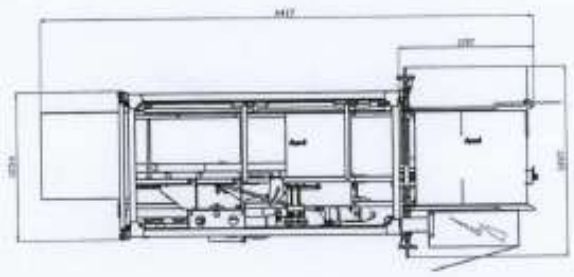
CASE ERECTOR mod. ACE22-HM

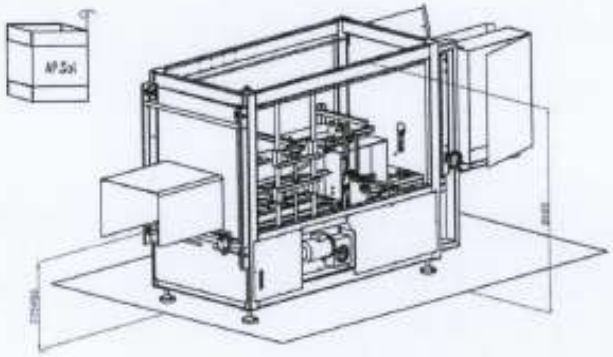
The ACE 22 – HM is an automatic machine for the squaring and sealing bottom flaps of RSC cartons by means of Hot melt glue.
It is extremely flexible with a large range of case sizes and thanks to the low level (800 mm) case magazine it is easy for the operator to load.

Machine complete of:

- Vertical carton magazine, capacity about 120-140 cartons, with minimum level alarm and automatic cartons align device (extended case magazine available as option). Approx. 800 mm. Height from floor
- Mechanically driven cartons extraction device.
- Mechanical positive case opening device.
- Mechanical positive lower flaps closer.
- Mechanical transfer shuttle.
- Nordson Pro blue 4 glue unit.

Change over is based on hand wheel adjustments with millimetric reference points.





Technical details:

- **Sturdy frame structure built in FE 360 steel with epoxy paint and color finishing.**
- **Integrated perimetral protections with clear plastic panels.**
- **Main motorization controlled by frequency converter.**
- **CE standard machine construction**

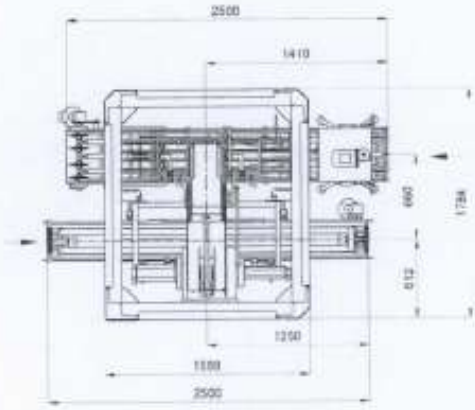
Power supply:	400 V – 50 Hz , 3Ph+N+G
Power consumption:	3 KW
Air pressure:	6 Bar
Air consumption:	110 Nl./Min.
Nominal production:	1.350 cases s/h
Accepted cartons dimensions:	Min 180x150x105 H mm
	Max 575x405x380 H mm

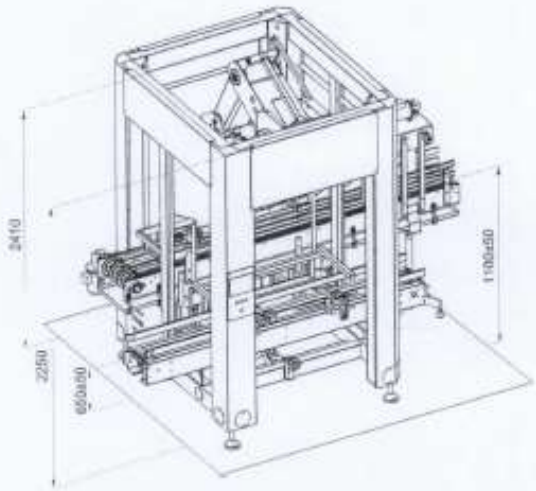
PACKING ROBOT RCP

The electronic RCP series "pick&place" case packer are designed to pack a wide variety of products in containers (i.e. bottles, cans, jars, bricks etc.) picked up from an infeed conveyor and inserted, by a vertical movements, into American cartons or crates.

Functioning cycle:

- **System based on a 2 arms controlled by means of brushless motors installed on precision gearboxes and driven by an axis control card and an interchangeable gripping head designed according to the product to be handled.**
- **A centering device, mechanically driven, helps the smooth positioning of containers into cartons.**
- **The gripping head is provided with a safety overload detector which stops the machine in case of jam or product misalignment.**





Indicative dimensions

Technical details:

- **Sturdy frame structure and mechanical arms built in FE 360 steel with epoxy paint and color finishing.**
- **Frame of the machine with clear plastic panels and access guards on the 4 sides of the machine.**
- **Product infeed table with independent motorization, 2.500 mm length and AISI 304 SS frame, composed with 2 low friction slat chain conveyor 190 mm width ea. (stainless steel chain as option).**
- **Motorized case infeed conveyor 2.500 mm length and AISI 304 SS frame, composed with low friction slat chain conveyor 190 mm width (stainless steel chain as option). It is complete with case detection photocell and case stopping device. All devices are easy adjustable for a quick change over.**

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- **logic control of the machine by axis control and microprocessor linked to a modem for remote service.**
- **Machine provided with touch screen panel for the setting of production parameters, variables and alarm display integrated into machine structure.**
- **CE standard machine construction**

Power supply:	400 V- 50 Hz, 3Ph+N+G
Power consumption:	8 kW
Air pressure:	6 Bar
Air Consumption:	80 Nl/min
Nominal production:	variable in function of configuration
Cartons acceptance range:	Min:
	Max: 300x400x340 H mm

CASE SEALER mod. ACS 30 HM

The machine is designed to automatically close and seal the top of American cartons by means of hot melt glue.

Machine complete of:

- **Motorized infeed roller conveyor with timing device.**
- **Front and back flaps closed by electro pneumatic device.**
- **Handwheel adjusted motorized side belts.**
- Hot melt group with 4 sprayers.
- **Top flaps closure by mechanical contrasts.**
- **Roller compression device.**

Change over is based on hand wheel adjustments with millimetric reference points.

Average C/O time 10 min.

Technical Data:

- **Sturdy frame structure built in FE 360 carbon steel with epoxy paint and color finishing.**
- **Integrated perimetral protections with clear plastic panels.**
- **Control cabinet integrated in the frame on the operator side, operator interface by means of push buttons and alarm lights.**
- **CE standard machine construction.**

Power supply:	400 V – 50 Hz , 3Ph+N+G
Power consumption:	4,5 KW
Air pressure:	6 Bar
Air consumption:	120 – 150 Nl./Min.
Nominal production:	Ab. 1.500 c/h

CONVEYOR SYSTEM

CONVEYING LINES FOR EMPTY/FILLED CANS FROM PDP TO PACKING

EXCLUSIONS

- supporting frames/structure for the conveying lines while they pass through/along the corridor as these will be provided by GEA and will be for NFIC care & account, **Mectra will have to provide hangers** that will be used to hang the conveyors to the GEA supporting frame;
- exit twists for steam sterilizing tunnel on tomato filling line;
- blowing/drying tunnels for cans after sterilizing/pasteurizing;

TECHNICAL FEATURES
TOMATO LINE

Can size (filling speed)	: Ø 52 mm H=38 mm (600 cpm); Ø 73 mm H=109 mm (350 cpm);
Installed power	: to be defined;
Compressed air consumption	: to be defined;
Motors protection class	: IP 54;
Power supply	: 240/415 V, 50 Hz, 3 pH, earth;
Control voltage	: 24 Vdc;

EMPTY CAN CONVEYOR

ACCESSORIES TOMATO FILLING LINE

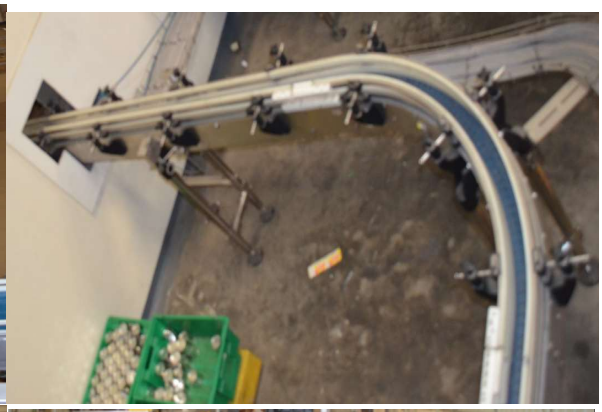
One (1) Stainless Steel rinsing/sterilizing tunnel to blow steam inside Tomato cans (NFIC will have to provide steam and connections to the steam network). The tunnel is coming **with twists at the infeed** to handle the following formats (Stainless Steel twists going from the exit of the sterilizing tunnel up to the conveyor of the filler **ARE EXCLUDED**, their features have to accommodate the final set up and for that reason it is impossible to manufacture them before, they will have to be manufactured by NFIC once the line has been installed):

Tomato can size (filling speed) : Ø 52 mm H=38 mm (600 cpm);
Ø 73 mm H=109 mm (350 cpm);

One (1) can washing machine featuring:

25.1 AISI 304 Stainless Steel frame;
25.2 one (1) driven 38 mm wide chain conveyor to convey cans through the washing machine preset for one (1) gearmotor;
25.3 one (1) washing station featuring spraying nozzles and relevant centrifugal pump;
25.4 one (1) washing water insulated tank (water is warmed up by means of a steam injection - water temperature is adjustable by operating the relevant manual thermal switch -) featuring an oil collection system;
25.5 one (1) rinsing station featuring sprying nozzles and relevant pump pumping water from an insulated tank sitting underneath the rinsing station;
25.6 one (1) set of twists to twist the can formats included in the scope of supply upside down after the washing machine (cans to be twisted back before labelling) in order to print the can on the bottom;
25.7 interlocked safety fencing;
25.8 control cabinet & electrical installation;

PASTEURIZERED CAN CONVEYOR

JET AIR CAN DRYER

CARTON CONVEYOR