



# SAS MARIANI

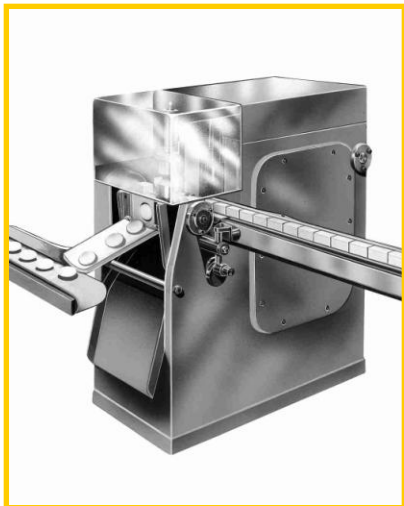
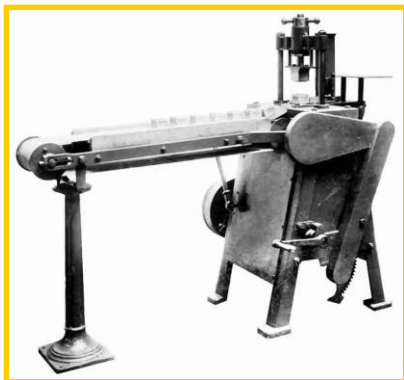
*New and Rebuilt Plants and Equipment for the Soap Industry*





**SAS MARIANI - ITALY**

**EQUIPMENT SUPPLIER FOR THE SOAP INDUSTRY**



# Company History

- 1934 - "CARLO SALA" is founded by Carlo Sala, Piero and Carlo Mariani's Grandfather. Design and production of "SERENIA", "MIGNON", "TIGRE" soap stamping machines.
- 1964 - the company name is changed to "SAS MARIANI" by Tommaso Mariani, Piero and Carlos' Father
- 1968 - "CONDOR" the world's first "multi-cavity & Flashstamping" soap press is introduced
- 1988 - Piero & Carlo join the company and take control
- 1990's - Development of finishing line and packaging equipment
- 1994 - SAS moves to a new plant
- 1999 - Introduction of the "STAMPEX" family of flashstamping soap presses
- 2001 - Design of drying plants and expansion to soap plants
- 2002 - Development of the special all-purpose "TRANSAVON" plodders and translucent soap finishing lines.
- 2004 - Further increase of business of used equipment servicing
- 2006 - Introduction of two models of electronic cutters (Easycut, Savoncut/e)
- 2007 - Development of continuous Saponification Plant using the JET
- 2008 - Turnover reached 6 millions Euro
- 2010 - Plant expansion of 1,200 square meters



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# Plants & Equipment

- Batch and continuous saponification plants, spray dryers, drum flakers (chill rolls)
- Finishing lines equipment (amalgamators, roll-mills, plodders, cutters, presses & accessories)
- Rebuilt bar wrappers, over-wrappers, bundlers, cartoners and other types of soap packaging machines.
- Soap transfers for flow-wrappers and cartoners
- Rim-block lines
- Second-hand fully rebuilt plants and machinery.





# Saponification Plant

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SAS has recently introduced the use of the JET in our Saponification process to simplify and increase efficiency of Batch and Continuous Saponification Plants. The main features of our Plants based on the JET technology are the following:

- No need of mechanical action so minimum maintenance
- Minimization of power consumption and room requirements
- No need of pressurized vessels
- Possibility to produce "concentrated" soap (without any need to dry it)
- Possibility to produce "semi-concentrated" soap that can be dried with a reduced Drying Plant
- Last but not least very competitive price



**VIDEO**



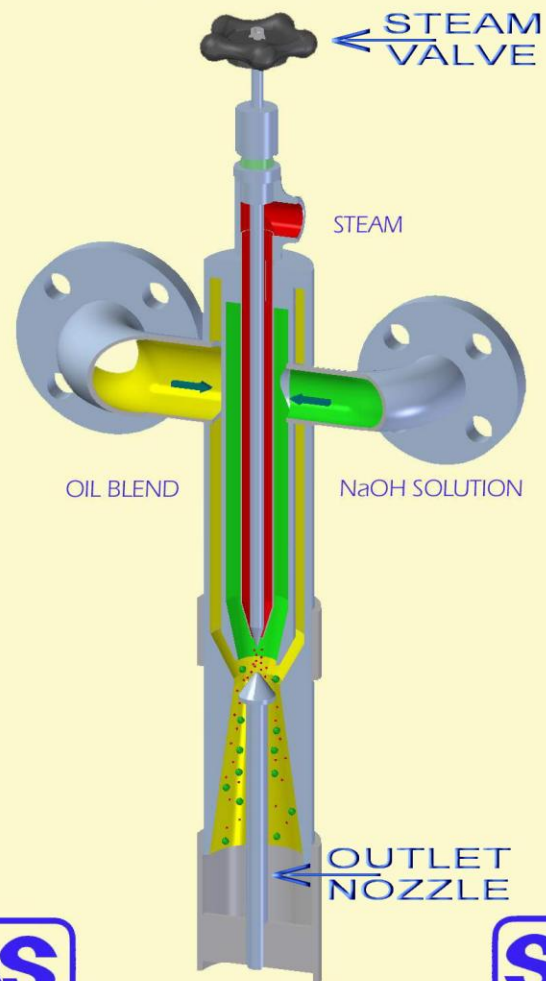
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# EMULSIFYING JET

**FOR CONTINUOUS AND BATCH  
SAPONIFICATIONS**



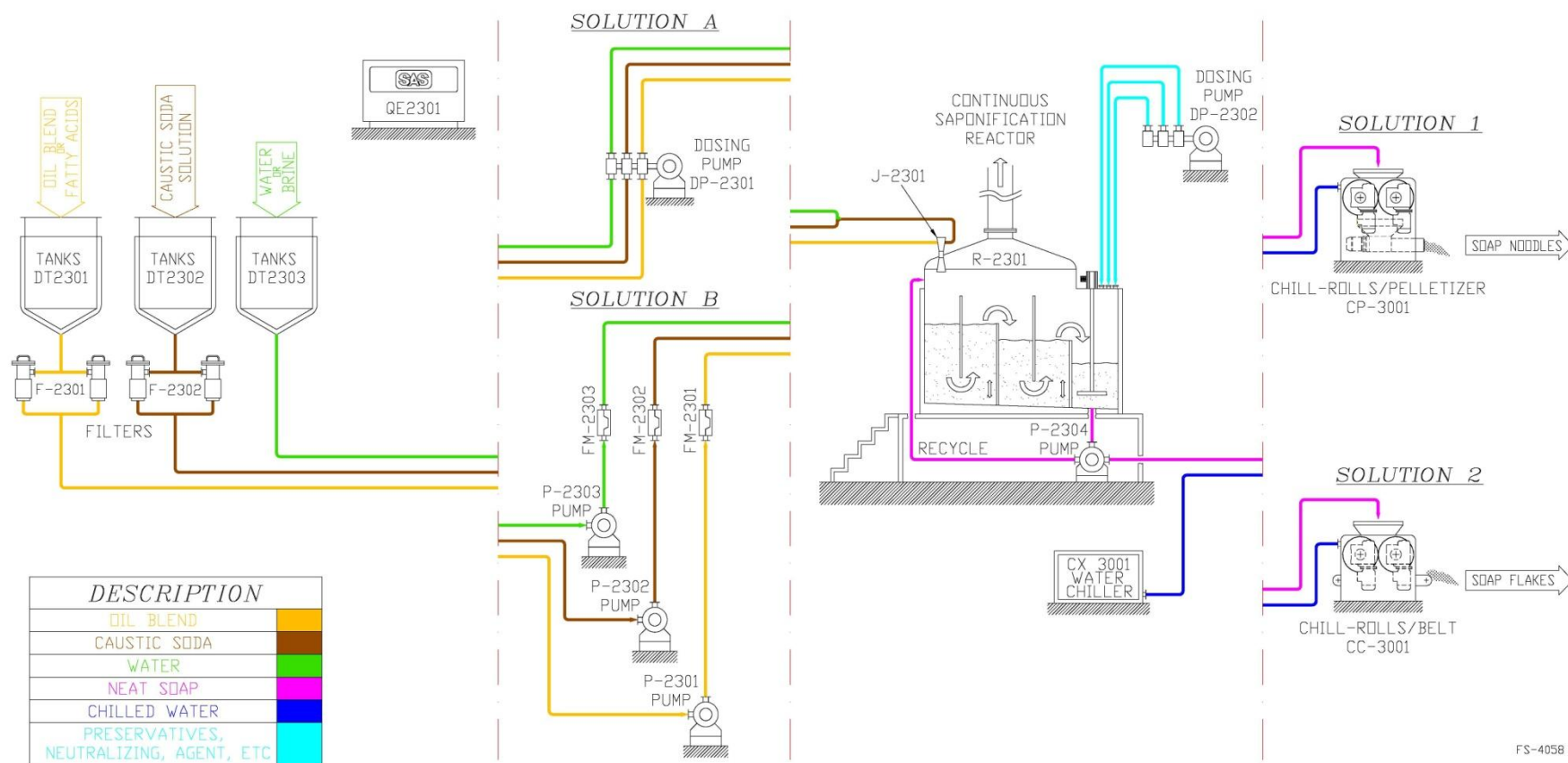




# Noodling Plant

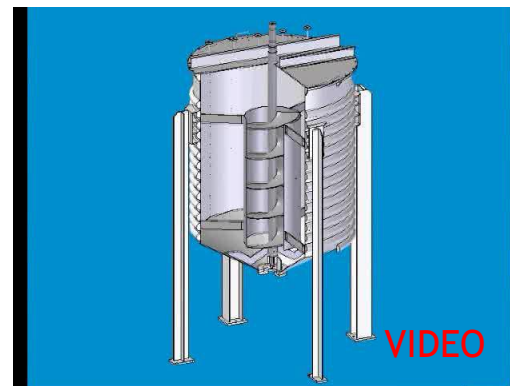
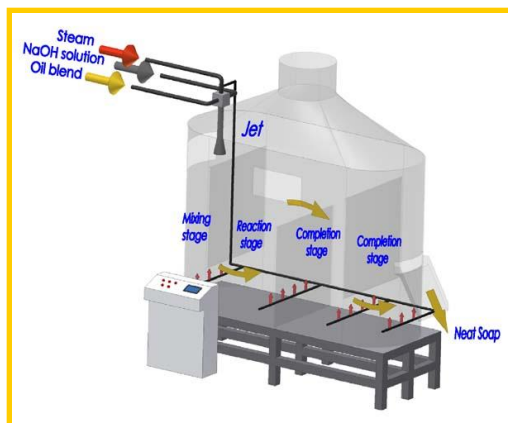
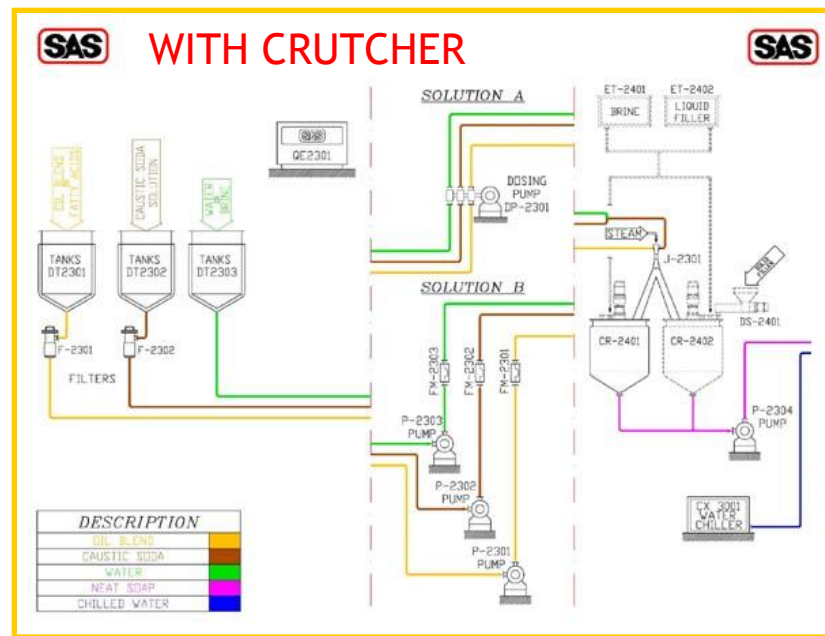
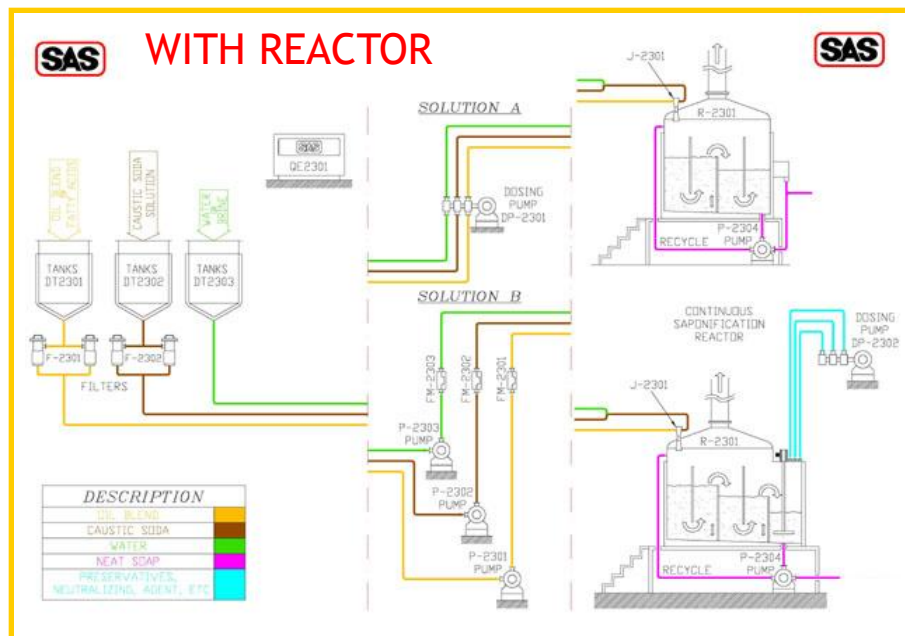


CONTINUOUS TOILET SOAP NOOLDING PLANT WITH JET AND DRUM FLAKER/PELLETIZER



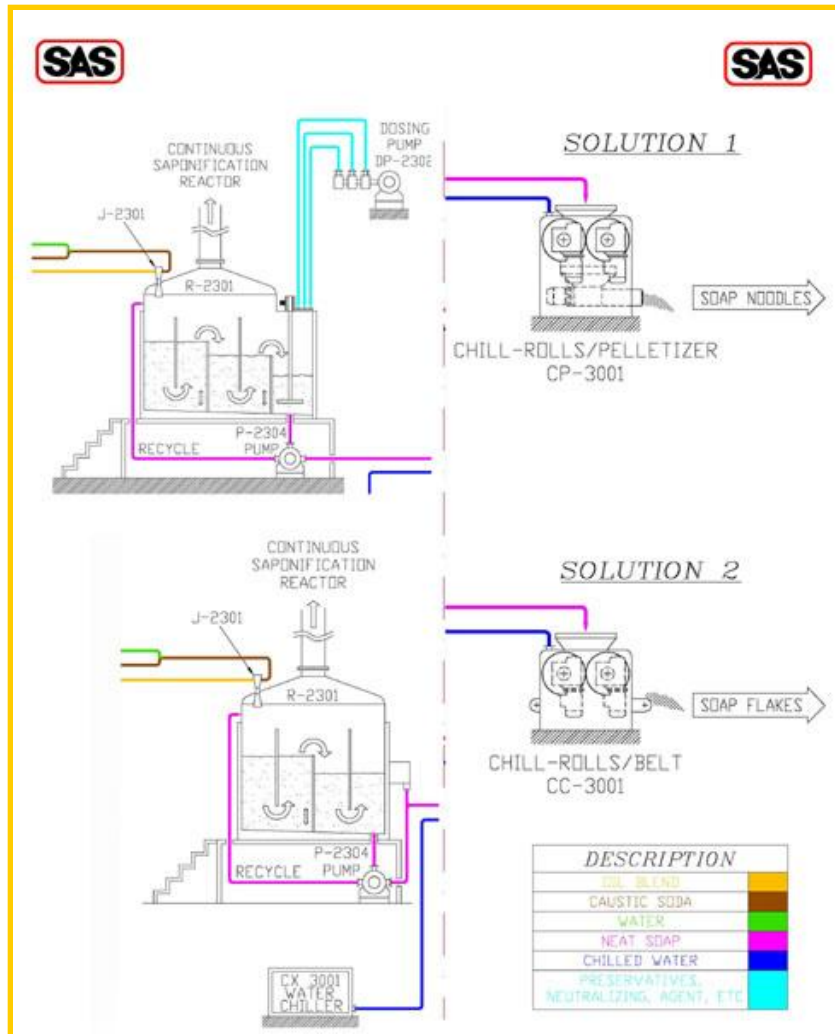


# Saponification Section





# Cooling Section







		COST FOR STEAM PRODUCTION			COST FOR ELECTRICITY		TOTAL	
					PRICE PER KWH			
					€ 0,20			
1 HOUR OPERATION		STEAM CONSUMPTION KG	DIESEL OIL CONSUMPTION LITRES	TOTAL COST DIESEL OIL	ELECTRICITY CONSUMPTION KWH	TOTAL COST ELECTRICITY	TOTAL COSTS	
DRYLESS PLANT	JET SAPO + CHILL ROLL (KG/H)							
	1000		180	13,968	€ 9,78	37,80	€ 7,56	€ 17,34
	2000		310	24,06	€ 16,84	76,45	€ 15,29	€ 32,13
	4000		450	34,92	€ 24,44	139,95	€ 27,99	€ 52,43
	6000		750	58,20	€ 40,74	189,75	€ 37,95	€ 78,69
	8000		900	69,84	€ 48,89	289,50	€ 57,90	€ 106,79
SEMI-CONCENTRATED PLANT	JET SAPO + DRYER (KG/H)							
	1000		330	25,608	€ 17,93	50,20	€ 10,04	€ 27,97
	2000		599	46,4824	€ 32,54	76,05	€ 15,21	€ 47,75
	4000		1030	79,928	€ 55,95	125,65	€ 25,13	€ 81,08
	6000		1620	125,712	€ 88,00	179,55	€ 35,91	€ 123,91
	8000		2100	162,96	€ 114,07	222,20	€ 44,44	€ 158,51
CONVENTIONAL PLANT	JET SAPO + DRYER (KG/H)							
	1000		590	45,784	€ 32,05	48,20	€ 9,64	€ 41,69
	2000		1130	87,69	€ 61,38	75,65	€ 15,13	€ 76,51
	4000		2090	162,18	€ 113,53	133,15	€ 26,63	€ 140,16
	6000		3210	249,10	€ 174,37	185,55	€ 37,11	€ 211,48
	8000		4185	324,76	€ 227,33	236,20	€ 47,24	€ 274,57



**SAS MARIANI - ITALY**

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# Drying Plant

We are pleased to present our Vacuum Spray Drying Plants for the production of toilet soaps noodles (pellets) and laundry soap bars.

We also revamp existing Plants and supply fully rebuilt second-hand Drying Plants. Spare parts, pumps and other components for existing Drying Plants are available.

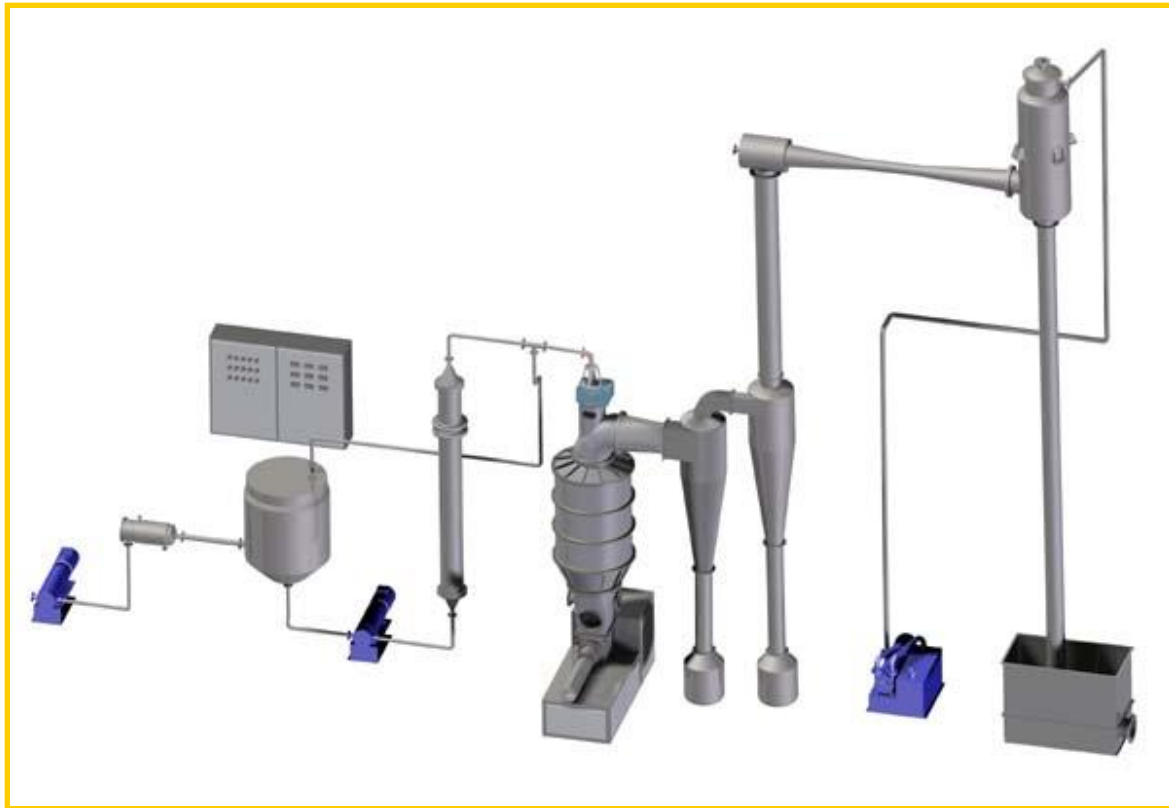
Customized complete Engineering Services are offered (layout drawings, material lists, thermal and material balances, etc.) Start-up and training by experienced technicians are available when required.

The SAS team looks forward to the opportunity of designing a soap drying plant which meets your specific needs.





# Drying Section





The diagram illustrates the process flow for soap manufacturing. Key components and flow paths include:

- Raw Materials:** Liquid Soap, Steam, and Cold Water.
- Storage and Transfer:** FT 3001 (Storage Tank), BC 3001 (Storage Tank), and various pumps (P 3001, P 3002).
- Processing:** HE 3001 (Heat Exchanger), FS 3001 (Filtration/Screening), AT 3001 (Aeration/Treatment), PL 3001 (Pulverization), VP 3001 (Vibrating Pan), BW 3001 (Batch Weighing), and FD 3001 (Filling/Discharge).
- Final Product:** Soap Noodles (QE 3001).
- Utilities:** Steam (17.5 bar, 17.5 bar, 17.5 bar), Cold Water (15/18°C), and Water Filling (15/18°C).





**SAS MARIANI - ITALY**

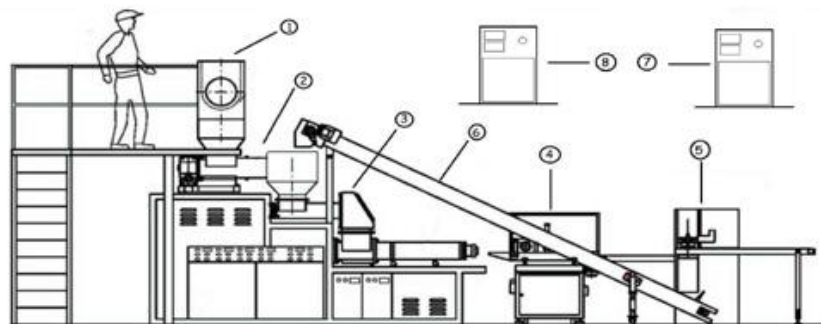
**EQUIPMENT SUPPLIER FOR THE SOAP INDUSTRY**

# Finishing Lines

Lines are a combination of equipments. We offer our standards when the Customer has no specific requirement. Many other times we cooperate with the Customer and jointly design their finishing line.

Soap finishing is the transformation of soap noodles (pellets) into formulated stamped soap bars (tablets); The goal is to refine/homogenize and compact product with optimum physical and chemical features.

Soap finishing consists of several working stages: pre-refining, mixing, refining and extrusion, stamping and packaging.



- 1 AMALGAMATOR
- 2 PELLETIZING PLODDER
- 3 TRANSVON COMBO-SCREW PLODDER
- 4 CUTTER

- 5 SOAP PRESS
- 6 RECYCLE BELT CONVEYOR
- 7 DIE CHILLER
- 8 WATER CHILLER





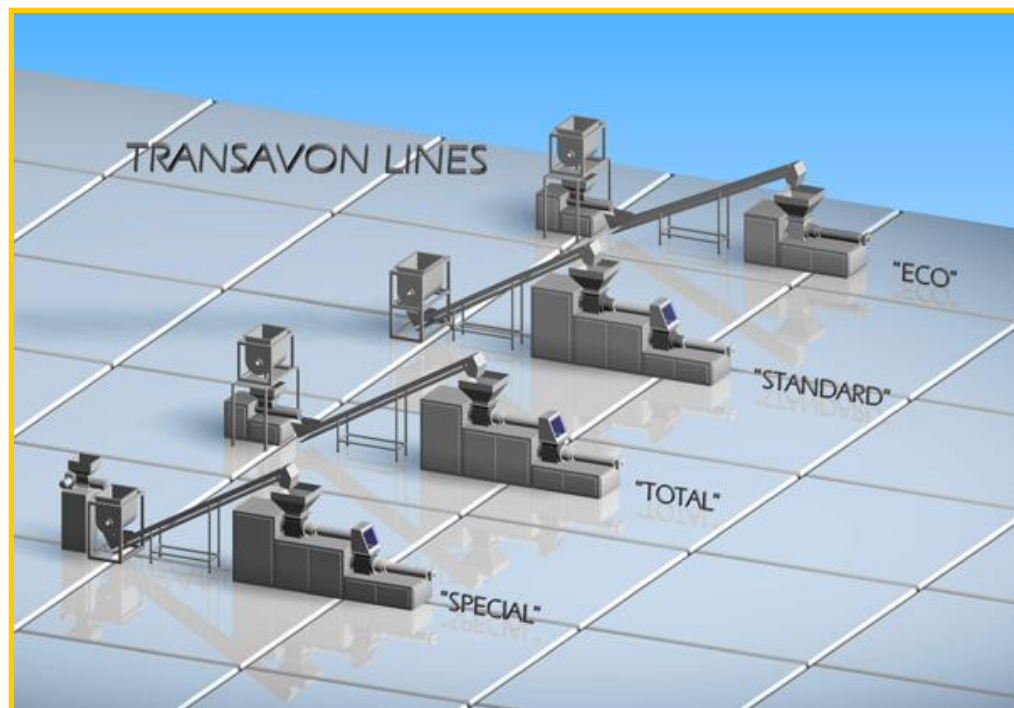
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A line with less refining stages (i.e. one Simplex Refiner and one Duplex Vacuum Plodder) is indicated to produce a limited variety of soaps (i.e. lightly coloured toilet soaps).

Lines with more refining stages (additional Three Roll-Mill) can produce soaps with large amount of additives and, in certain controlled conditions, synthetic products and translucent soaps.

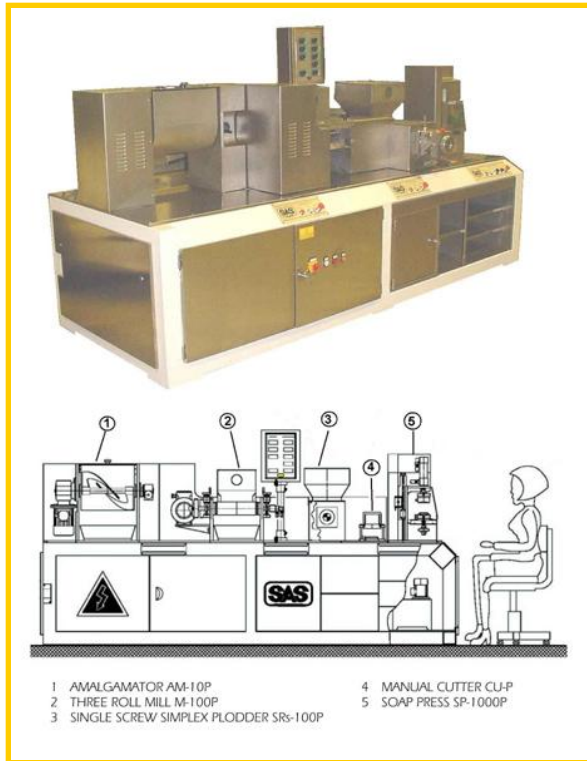
The Transavon family of plodders make it possible to use them in four types of combinations with minimum space requirement, minimum power and utility consumption.



- **SPECIAL - Multi-Product Line with Pre-Refining**  
Standard Simplex Refiner + Mixer + Transavon Duplex Vacuum Plodder
- **TOTAL - Multi-Product Line without Pre-Refining**  
Mixer + Simplex Refiner + Transavon Duplex Vacuum Plodder
- **STANDARD & Standard Transavon Line**  
Mixer + Transavon Duplex Vacuum Plodder
- **Economical Transavon Line**  
Mixer + Simplex Refiner + Transavon Simplex Plodder



Pilot Line



Hotel Soap Line



Toilet Soap Line





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**EQUIPMENT SUPPLIER FOR THE SOAP INDUSTRY**

# Mixing

We are able to supply different mixers for specific applications:

The "SASMIX" mixers (amalgamators) have been designed to mix soap pellets of all types with various liquid and solid additives.

The "DSM" mixers are equipped with two massive, tangential counter rotating "Sigma" type blades that can handle all the power required in the process. Intensive or micro mixing is achieved when the pellets are broken up to expose more surface and to allow the ingredients to penetrate inside the pellets.

**SASMIX "Z" blade**



**DSM Double Arm Sigma**







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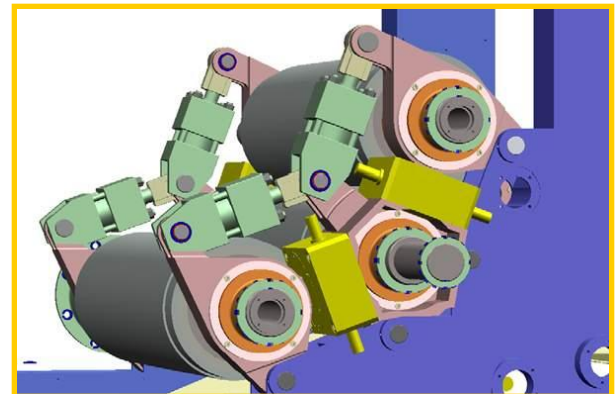
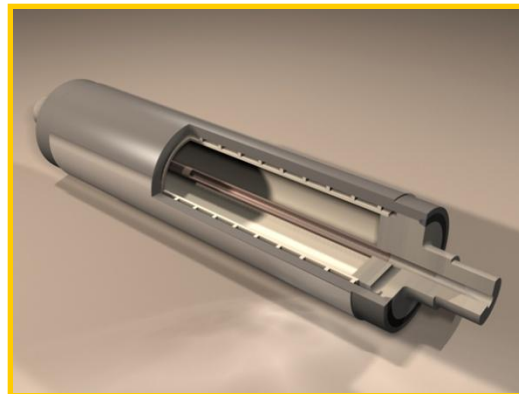
**EQUIPMENT SUPPLIER FOR THE SOAP INDUSTRY**

Milling gives plasticity to soap thanks to the mechanical actions given to the soap fibers:

- **STRETCHING.** The different speeds of the rolls make the fibers slide with shear effect.
- **LAMINATION** to thin flakes with elimination or reduction of granulometry of any not homogenized ingredient or any dry specks.

Different gaps between rolls determine differences in the refining action.

# Milling





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**EQUIPMENT SUPPLIER FOR THE SOAP INDUSTRY**

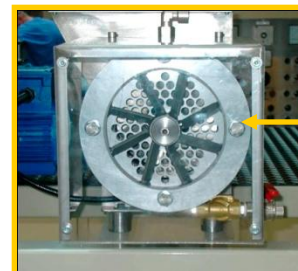
# Refining

Soap finishing is a mechanical cold process which transforms soap noodles (pellets) into formulated stamped soap bars (tablets). The final product should be refined, homogeneous and compact.

Refining is the core step of soap finishing, it is a combination of intimate homogenization and filtering of the soap.

Refining Stage as commonly defined is not a precise parameter for the following reasons:

- Different Simplex Refiners have different features (L/D ratio, installed kW, etc.)
- Mechanical conditions and maintenance determine sensible differences in the performances (i.e. a worn-out screw reduces the refining)
- The use of screens with different mesh sizes gives different refining results.



Pelletizer is designed to transform soap of different size and shape into pellets and also for break old noodles for an optimal feeding of refining-plodding stage.





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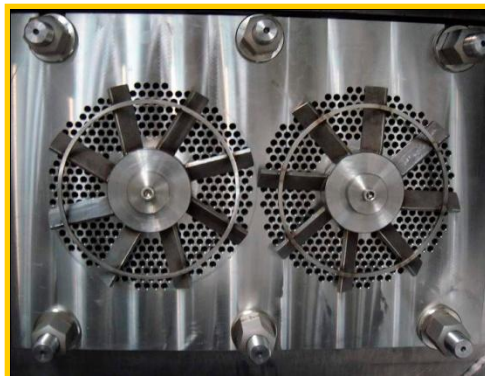
**EQUIPMENT SUPPLIER FOR THE SOAP INDUSTRY**

Duplex Plodders are designed for homogenizing, refining, compressing and extruding the processed soap in form of a continuous bar through the die-plate which gives the required shape to the bar.

The majority of our plodders are customized units which are available with different layout combinations, different L/D (length to diameter) ratios, use of various materials, several and customized screw (worm) designs, multiple options and of course are offered in different sizes.



# Plodding





# Transavon Plodders

## A new approach to Toilet Soap Finishing

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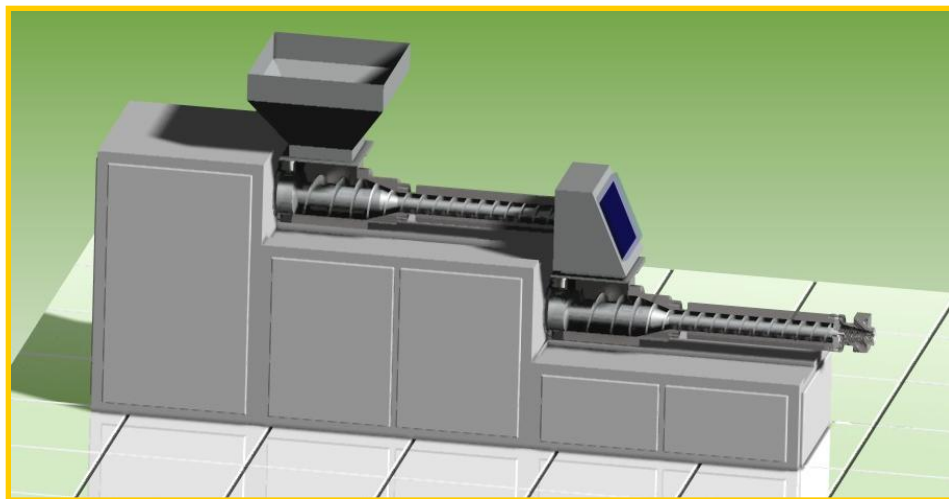
**EQUIPMENT SUPPLIER FOR THE SOAP INDUSTRY**

First mission of the Transavon project was the efficient process control for translucent soap finishing:

1. Conversion of opaque soap noodles into translucent soap.
2. Production of translucent soap bars using translucent noodles.



After the success in translucent soap applications and extensive testing of various products, the Transavon Plodders proved to be applicable for regular toilet soaps, synthetic and “combo” products.



Initially we focused on the following characteristics:

1. To allow high soap processing pressures
2. To allow in-line soap pressure adjustment
3. To increase refining capability
4. To increase soap homogenization
5. To allow powerful soap temperature control
6. To allow fine soap temperature control



# Transavon - COMBO-SCREW

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**EQUIPMENT SUPPLIER FOR THE SOAP INDUSTRY**

## COMBO-SCREW DESIGN

The novel “combo-screw” design with two different diameters optimizes the two main functions of a plodder screw:

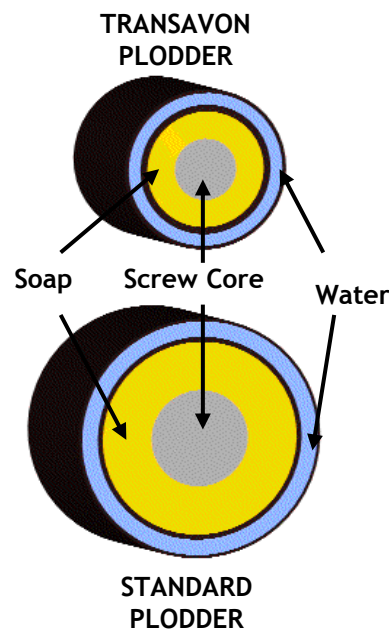
The large diameter infeed section assures an optimal soap infeed.

Small diameter and long compressing section assures maximum homogenization and compression.



## LONG & NARROW BARREL FOR BEST HEAT EXCHANGE

- Dissipation of generated heat in the barrel is a critical issue.
- Heat Exchange Efficiency =  $\frac{\text{Barrel Internal Surface}}{\text{Enclosed Soap Volume}}$
- Calculated TRANSVON efficiency ratio is 70% to 80% higher than a conventional plodder.
- Soap temperature can be decreased in a Transavon stage
- Minimum soap thickness -> minimum temperature gradient.



- SMALL SOAP QUANTITY IN THE BARREL: Quick process and formula adjustments, quick start-ups and shut-downs.
- BARREL WALL OF SMALL THICKNESS: Positive heat transfer.
- HIGH SCREW SPEED: More shear effect, more homogenization.
- WIDE SCREW SPEED RANGE: Quick soap temperature control.



# Transavon - MILLING VALVE

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This is a unique feature of the Transavon. The device consists of two sliding slotted plates positioned down-stream of the screw.

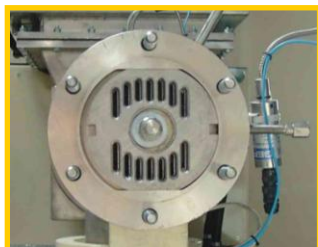
Adjustment to control the soap output can be made even during production.

Soap is then immediately re-compacted and is ready to be pelletized with a special drilled plate or extruded with a cone.

By controlling the soap passage the soap processing pressure is adjusted.

ON-LINE PRESSURE CONTROL MEANS:

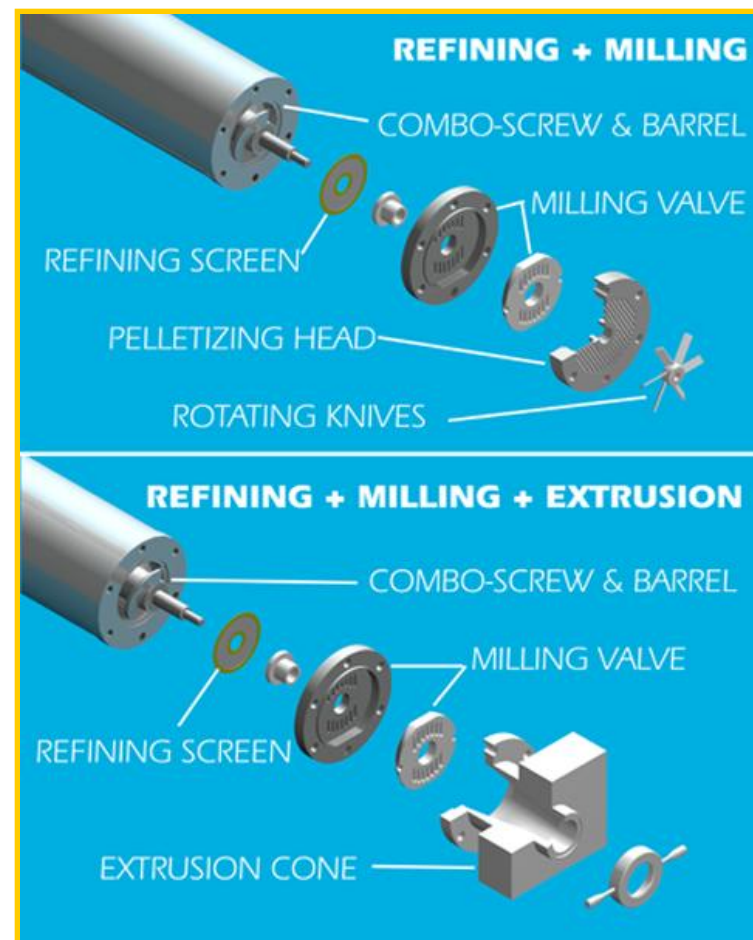
- Control of the energy transferred to the soap by shear effect.
- Control of the refining grade given to the soap.
- Control of the soap temperature.



**NO MILLING**  
**Wide Passage**

INTERNAL VIEWS WITH  
OPEN MACHINE →

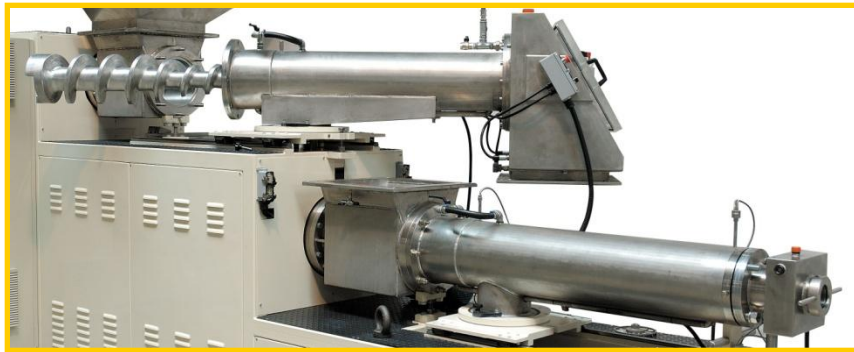
**MILLING**  
**Narrow Passage**







Transavon



The combo-screws must be extracted from the back. Sliding barrels allow quick operations.







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We offer single blade adjustable length soap cutters with different characteristics and range of applications.

Unicut is an electro-pneumatic cutter suitable for low capacity lines.

Savoncut/e is a mechanical-electronic cutter designed for medium to high speed lines. The synchronized cut is vertical even in case of billets extruded at high speeds

Easycut is a fully electronic cutter suitable for any line speed. An innovative new design with a rotating blade assures very accurate cuts for high-speed operations

All our cutters has been designed to cut continuously extruded billets from 8 to 1000 mm. The cutting length can be changed easily and immediately on the touch panel while the unit is in operation.

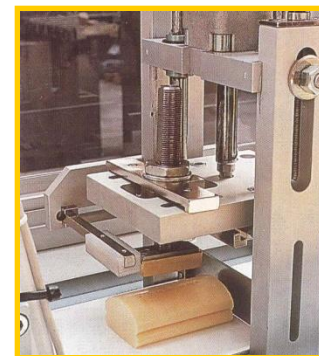
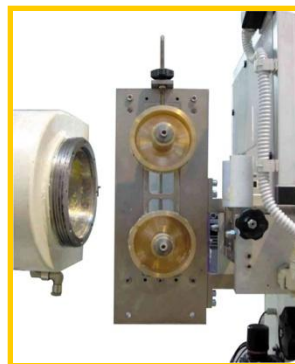
# Cutters



**UNICUT**



Optional items like top centered printing devices and side embossing rollers are available



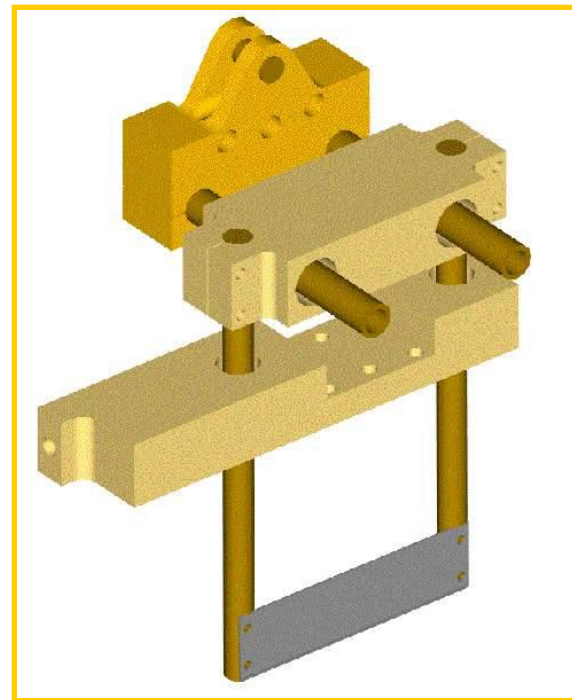
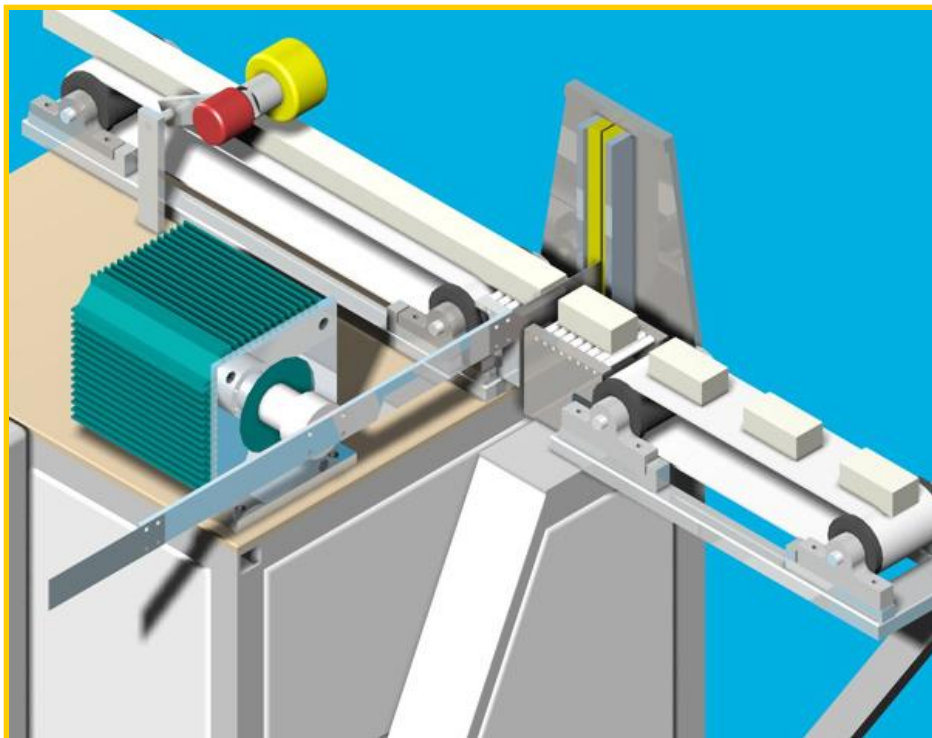


# EASYCUT soap cutter

patent pending  
[www.soapcutter.net](http://www.soapcutter.net)

VIDEO

## EASYCUT



## SAVONCUT/e



VIDEO



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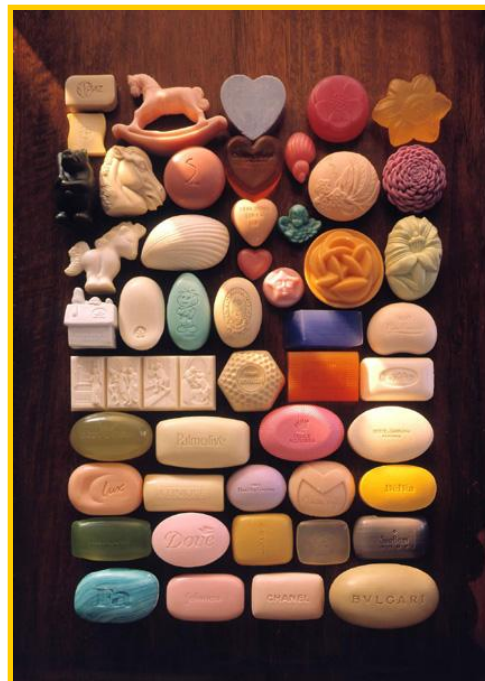
**EQUIPMENT SUPPLIER FOR THE SOAP INDUSTRY**

# Presses

We started producing soap presses seventy years ago (Condor is our most famous model).

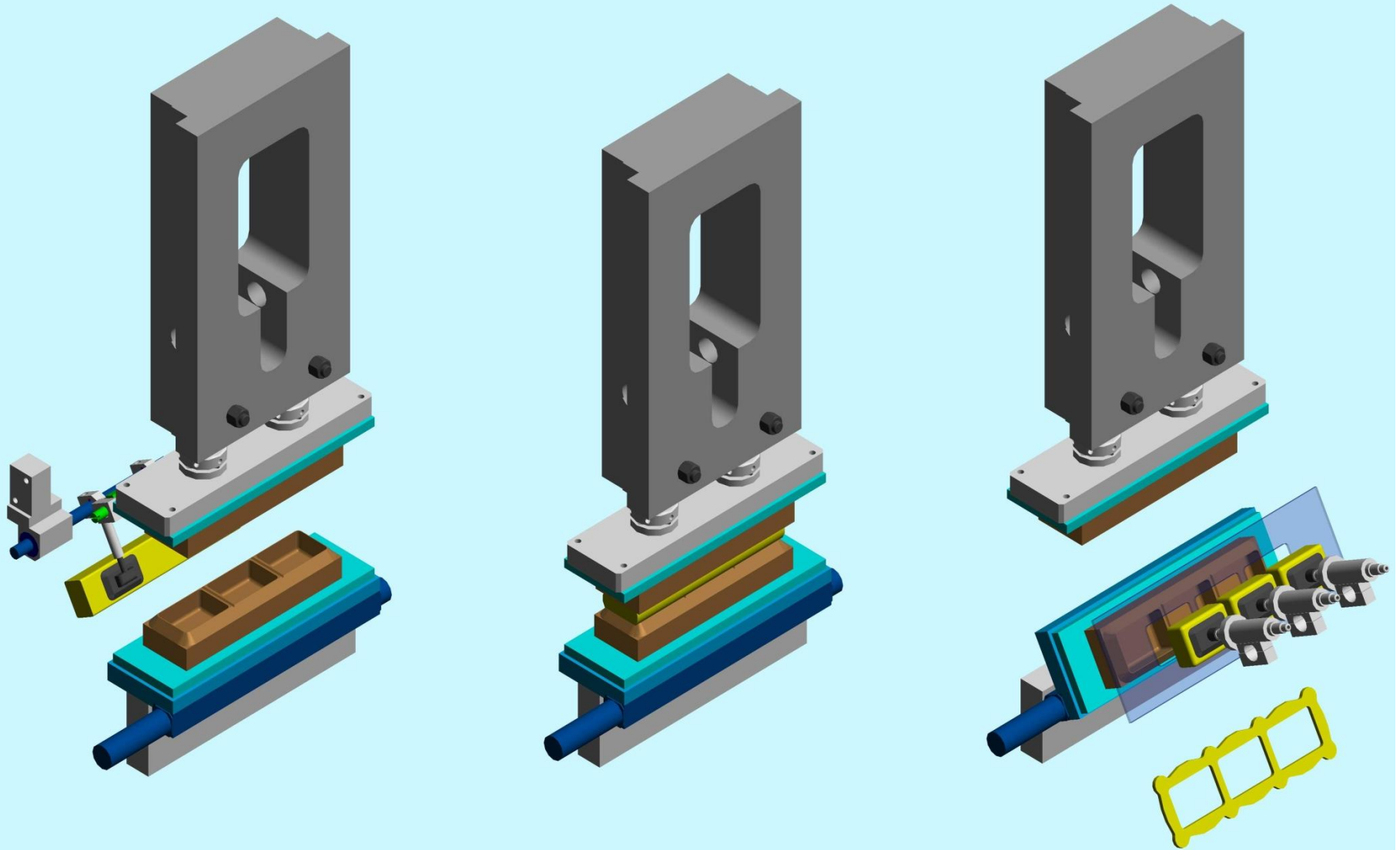
In these years we have sold, all over the world, hundreds of soap presses for any kind of application:

- Toilet Soap
- Laundry Soap
- Hotel Soap
- Translucent Soap
- “Combo” and Syndet Soap
- Irregular specialty shapes like animals, flowers and alike



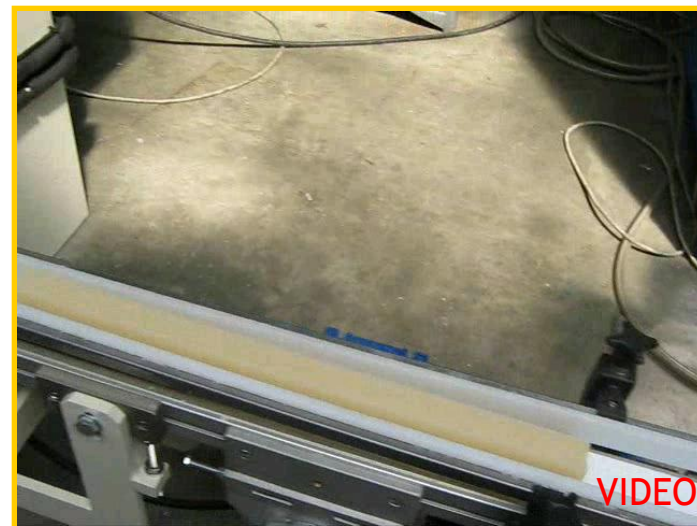
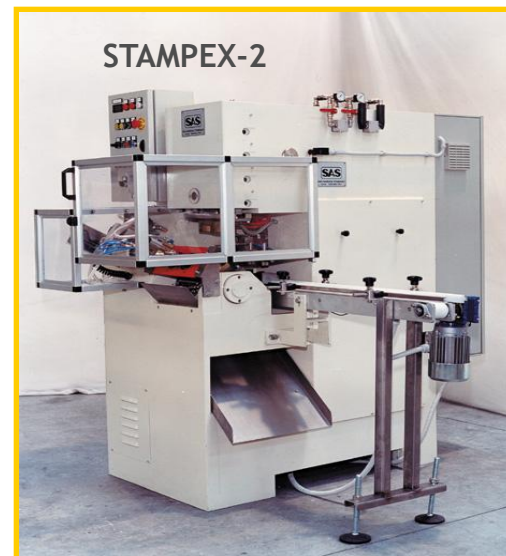
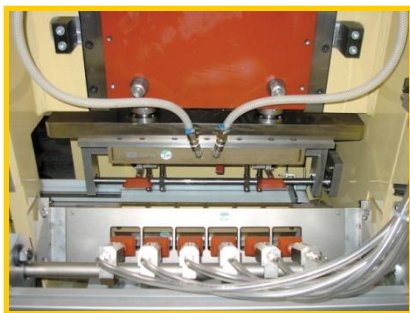


# STAMPEX - STAMPING SEQUENCE





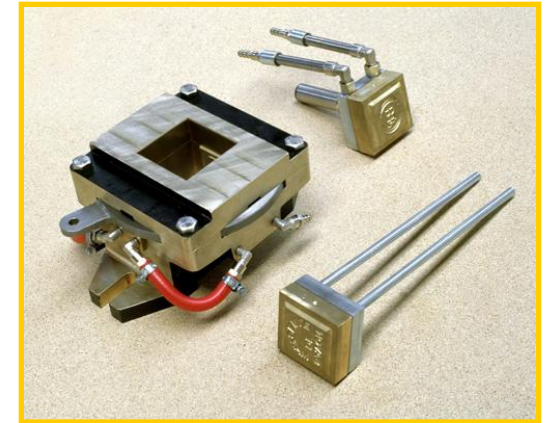
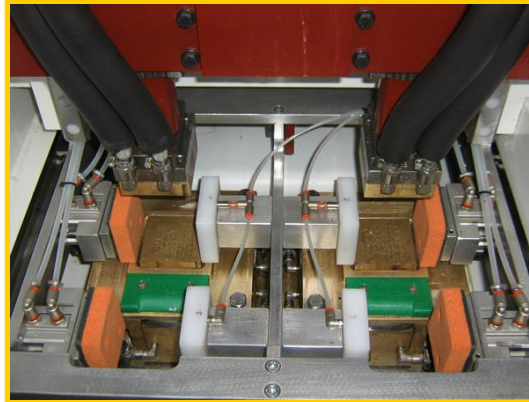
# Stampex Family







# Cubex Family



Cubex 6M



Cubex 6M Duplex

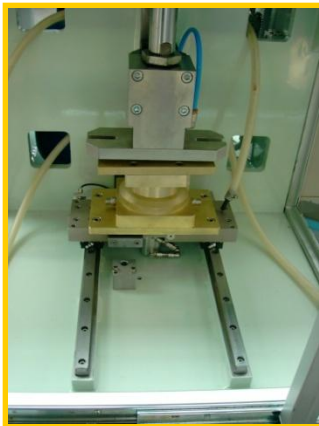


Cubex 2P

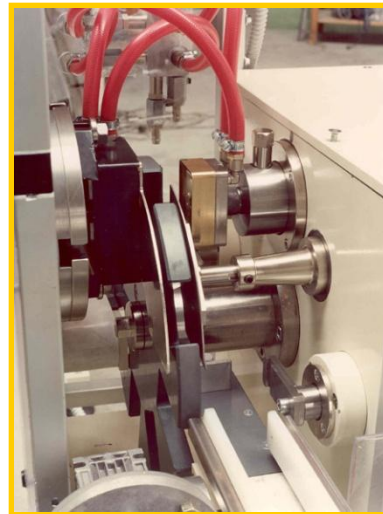


## Other Presses

SAP Press



Mignon Press



Laundrex Press







# Rim-block Lines

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The Rim-block line has been designed to extrude Rim-Blocks (Toilet-Bowl Fresheners) of any dimension and shape. The line is usually composed by three machines:

## DOUBLE ARM SIGMA MIXER

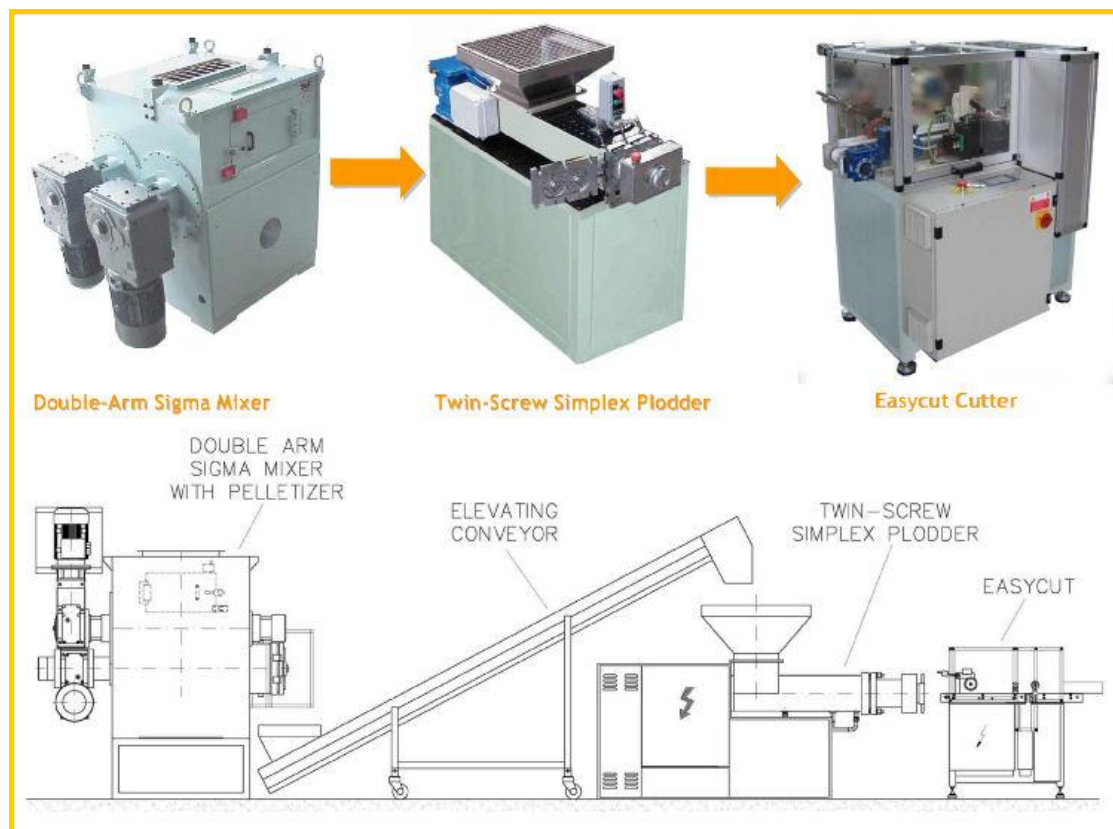
The intensive mixing of powders, colours and perfumes is guaranteed by two massive, tangential counter rotating "Sigma" type blades.

## TWIN-SCREW SIMPLEX PLODDER

The Simplex Plodder consists of one stage. The machine is designed for compressing, refining and extruding the product. The processed product is extruded in form of a continuous bar.

## CUTTER

A single blade cuts the product extruded by the plodder. The cutting action is controlled by a very simple, reliable and maintenance free system. The cutting length can be changed easily and immediately on the touch panel while the unit is in operation.





# Packaging

For many years we have been rebuilding several brands and types of soap packaging machinery:

- ACMA, Carle & Montanari and GD wrappers
- BFB Bundlers
- Continuous and alternate motion cartoners
- Guerzé stretch-film and pleat wrappers
- Flow wrappers

More than 230 soap packaging machines supplied among which more than 150 are soap wrappers. We have on stock all kinds of second-hand soap packaging equipment and, besides rebuilding them we can transform them adding special kits and following the customer's specifications. We offer a variety of services such as:

- experienced technicians for start-up or problem solving,
- specifications for wrapping materials,
- reconditioning of your existing machines,
- supplying complete change parts (size groups) and the most common spare parts for several different models.

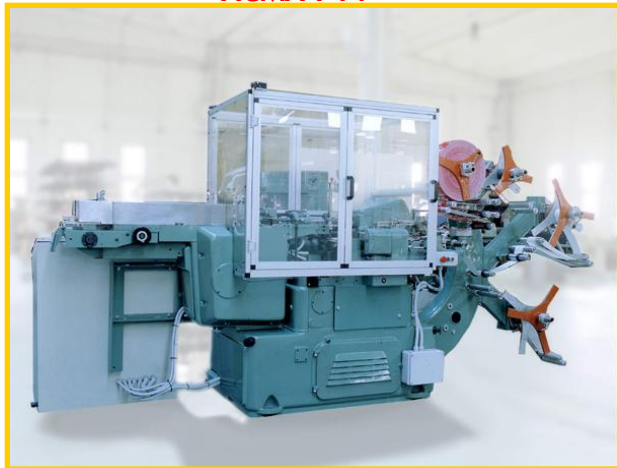






# Wrappers

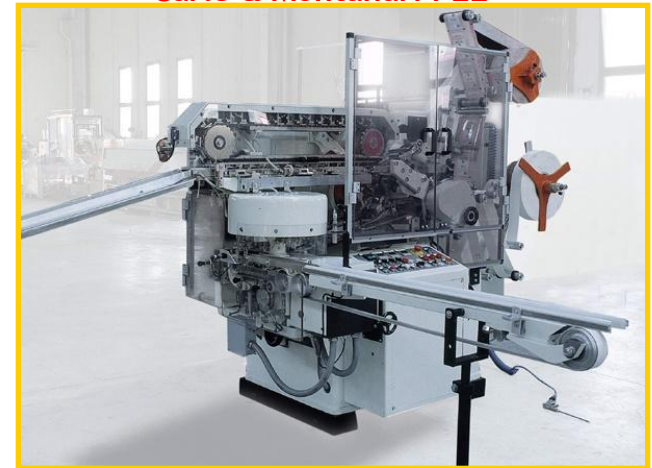
ACMA 711



BOPP KIT



Carle & Montanari P22



ACMA 791



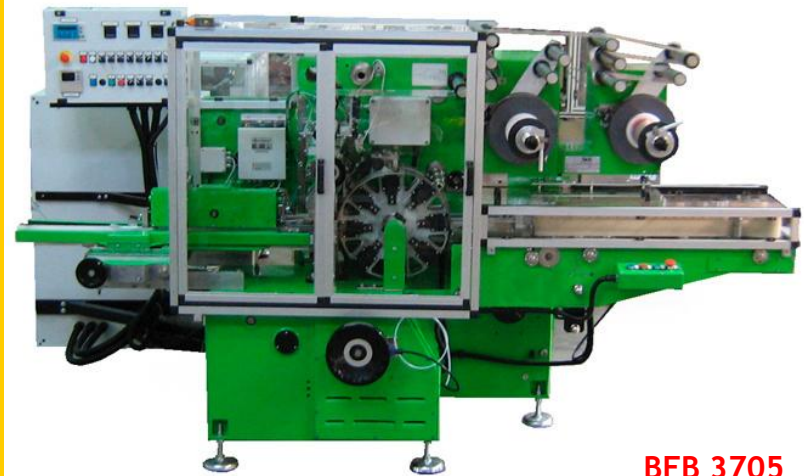


## Bundlers

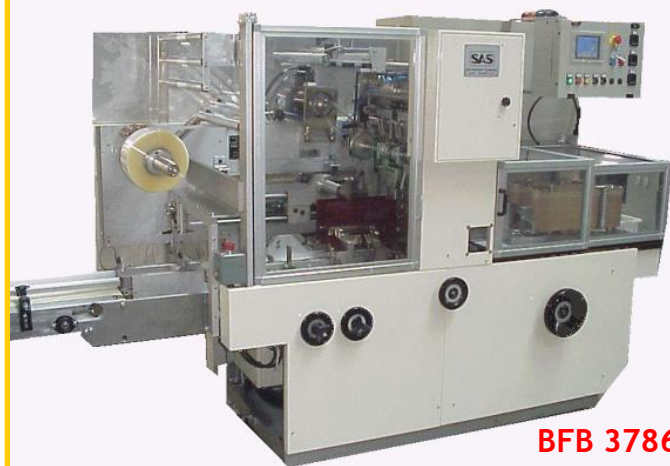
**BFB 3711LM**



**BFB 3705**



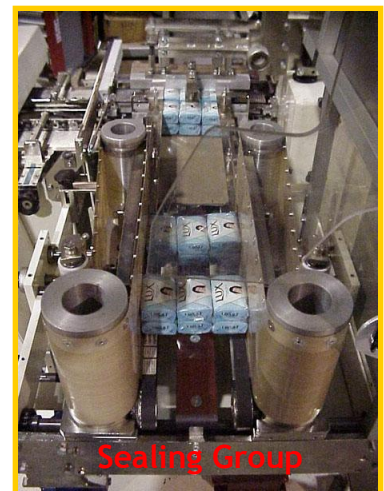
**BFB 3786**



**Folding Group**



**Sealing Group**







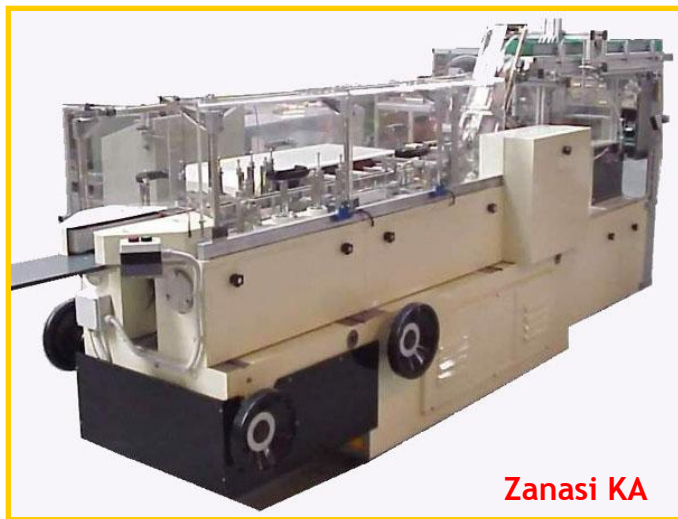
## Cartoners



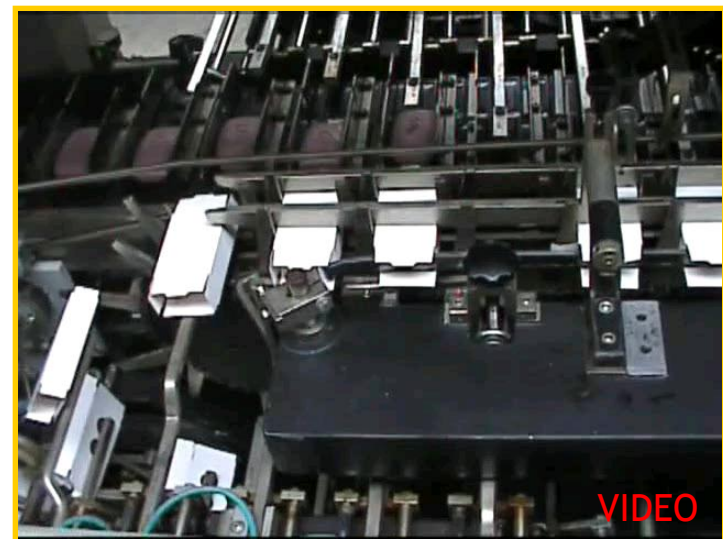
Marchesini MA-355



Marchesini BA-400



Zanasi KA



VIDEO



# Stretch film and Flow Wrappers

CE-75 Stretch Film Wrapper



Flow Wrapper



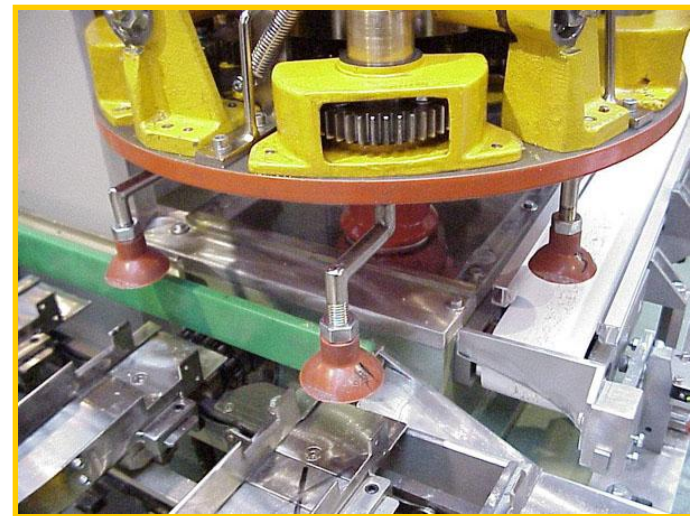
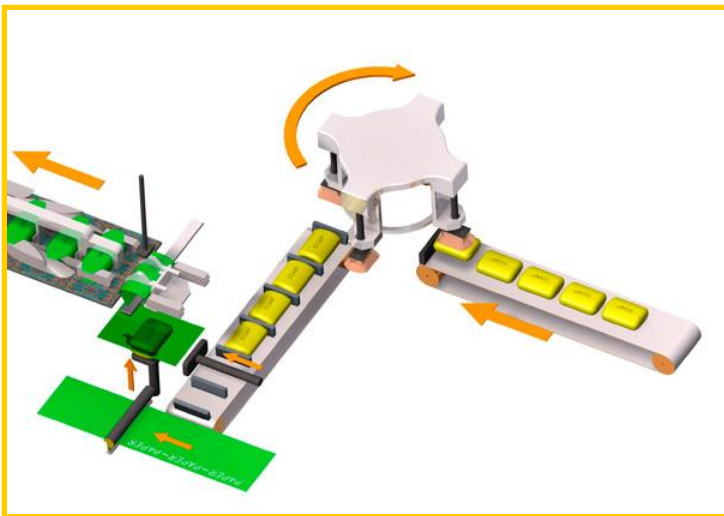




## Soap Transfers

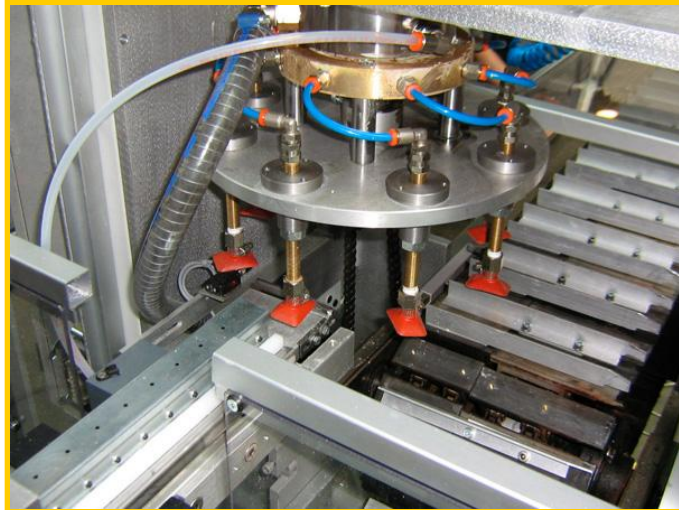
One of our missions is to transform packaging machines such as Cartoners, Bundlers Flow Wrappers, previously used in different industrial applications, into “soap” machines. A range of Soap Transfers of our design are available for any production need, from 100 to 300 bars per minute, i.e.:

- SOAP TRANSFER - 180 BPM (for cartoners and wrappers)
- SOAP TRANSFER - 180 BPM (for flow-wrappers)
- SOAP TRANSFER - 250 BPM (for cartoners and wrappers)
- SOAP TRANSFER - 300 BPM (for cartoners)

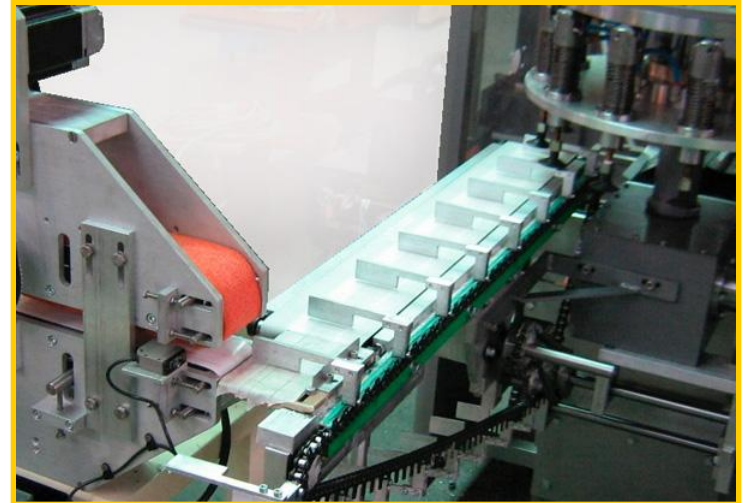




Soap transfer 8 suction-cups



Soap transfer 12 suction-cups





# Laboratory Equipment

**SAS MARIANI - ITALY**

**EQUIPMENT SUPPLIER FOR THE SOAP INDUSTRY**

The laboratory equipment is used in laboratories of soap factories or in small artisan workshops.

They consist of relatively small machines, apt to process toilet soap noodles or flakes in order to reproduce on a small scale the operations performed on the industrial production line.

The soap produced with these machines can be used for laboratory tests to check the soap performance and/or to get quantities of soap samples.



Single  
Screw  
Plodder  
  
SM-60



Twin  
Screw  
Plodder  
  
SB-50



Single  
Screw  
Duplex  
Vacuum  
Plodder  
  
DVM-60



Combo-Screw  
Transavon  
Plodder  
  
60 -> 40







# Second-hand Equipment

A branch of SAS is dedicated to the business of the second-hand soap equipment. We started several years ago by reconditioning our Condor soap presses and the most famous Italian soap wrappers then the business developed to the finishing lines and the drying plants. In such cases the majority of the projects include a combination of brand-new machines and second-hand fully rebuilt machines.

Being SAS a manufacturer of brand-new equipment, we provide to the customer not only machines which are rebuilt in a proper technical way but also a complete engineering and after-sale service.







# Second-hand Equipment

**SAS MARIANI - ITALY**

**EQUIPMENT SUPPLIER FOR THE SOAP INDUSTRY**

Before



After



Before



Before



After



After





**SAS MARIANI - ITALY**

**EQUIPMENT SUPPLIER FOR THE SOAP INDUSTRY**

# Contact Information

**Sales Department:**

[piero.mariani@sasoap.com](mailto:piero.mariani@sasoap.com)

[sales@sasoap.com](mailto:sales@sasoap.com)

**Technical Department:**

[carlo.mariani@sasoap.com](mailto:carlo.mariani@sasoap.com)

[elet@sasoap.com](mailto:elet@sasoap.com)

**Spare Parts and Export Department:**

[export@sasoap.com](mailto:export@sasoap.com)

**Financial Department:**

[mail@sasoap.com](mailto:mail@sasoap.com)

## ADDRESS

SAS MARIANI TOMMASO

VIA TOSCANINI, 46

20038 SEREGNO, ITALY

Phone: ++39 0362-239988

Fax: ++39 0362-328413

[www.sasoap.com](http://www.sasoap.com)

