

Desmet Ballestra - Mazzoni LB

Soap Finishing Lines Technologies



Detergents
Surfactants
Soap &
Chemicals

desmet ballestra



Science behind Technology

www.desmetballestra.com

Toilet Soap Finishing Lines

The widest range of toilet soap finishing lines to match our Customers most sophisticated manufacturing exigencies.

Lines capacities from 500 to 7.000 kg/h.

ULTRA LINES effective production speeds up to 700 bpm stamped and packed tablets on single stream.

Lines configurations

LTC-3

LTC-4

LTC-5S

LTC-5

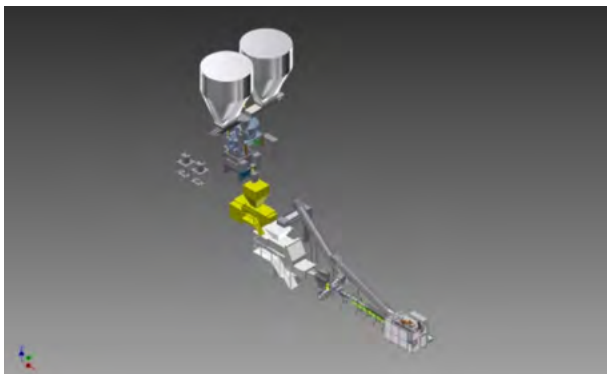
LTC-MRP

LTC-3

Ideal solution for simple formulas with limited additivation of liquid/powder ingredients.

Including:

- Simplex Refiner
- Duplex Vacuum Plodder

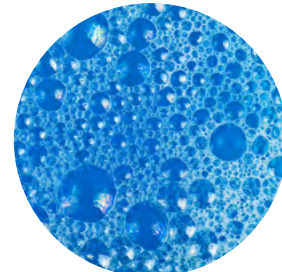
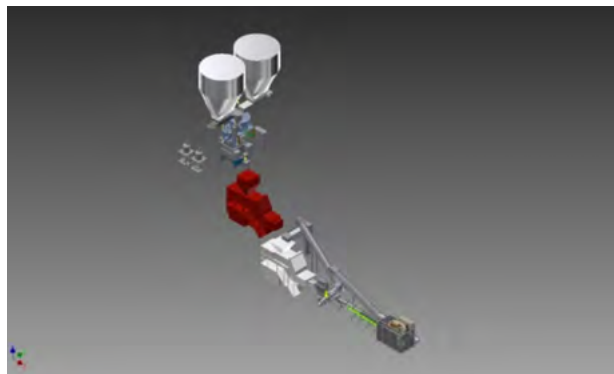


LTC-4

Ideal solution for complex formulas. Homogenizing and refining executed by plodders/refiners.

Including:

- Duplex Refiner
- Duplex Vacuum Plodder



LTC-5

Ideal solution for soaps formulas heavily additivated with powder, liquid and creamy ingredients.

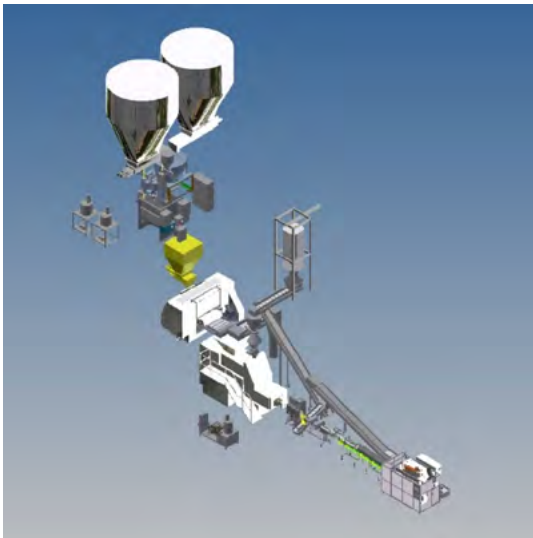
Available in two configurations:

LTC-5S including:

- Roll-mill
- Duplex Vacuum Plodder

LTC-5 including:

- Simplex Preliminary Refiner
- Roll-mill
- Duplex Vacuum Plodder



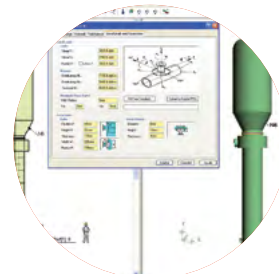
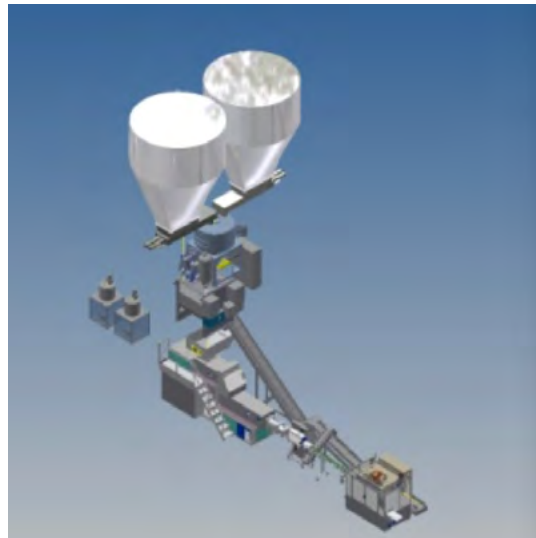
LTC-MRP

Innovative finishing line including Multi-refining Plodder

Soap homogenizing, refining and extrusion with a single machine configuration.

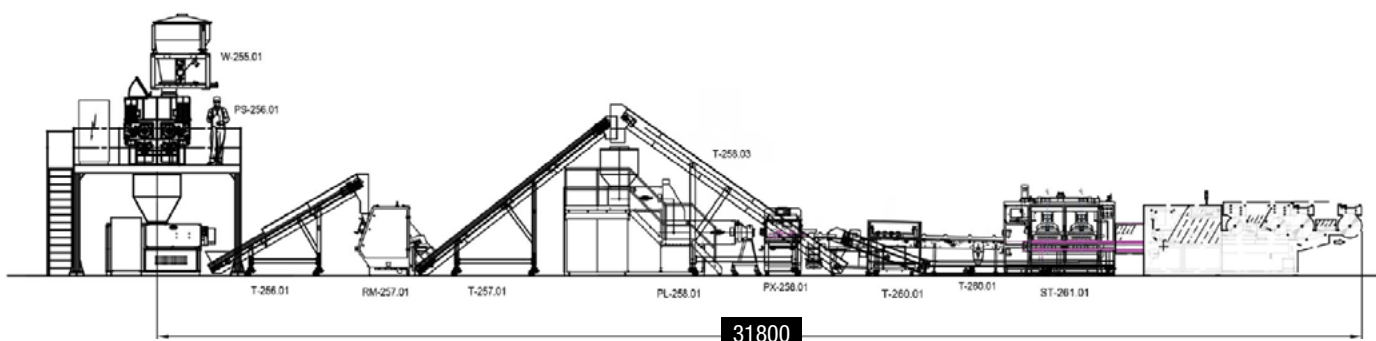
Significant energy and area requirement saving.

Changeovers time reduction and simplified maintenance.

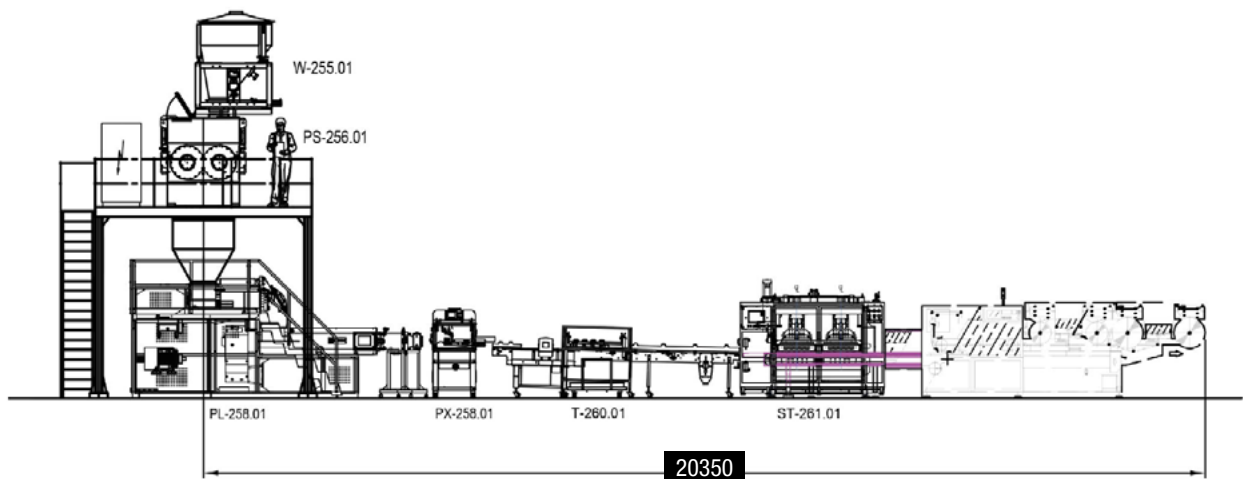


LTC-MRP VS LTC-5 Space Saving

Conventional Configuration LTC-5 Toilet Soap Finishing Line



“MRP” Innovative Finishing Line Configuration with Multi-Refining Plodder



Toilet Soap Machinery

Amalgamators/Mixers



Cutters



Roll-Mills



STUR Soap Presses



Plodders/Refiners



Packaging



Multi-Refining Plodders



Mixers / Amalgamators

Four models Mixers/Amalgamators available for:

Regular toilet
soap

Translucent
soap

Combo/
syndet

Laundry
soap

- High efficiency stainless steel cast mixing blades
- Special tank design with minimum blade/tank clearance for
- Intensive kneading action
- Double jacket for hot/cold water circulation
- Special long life mixing arms mechanical seals
- Tank vessels useful capacities from 100 to 1.500 Kg



Scale/BDM additives dosing

Automatic dosing systems for powder and liquid ingredients.

New design soap chips weighing scales on load cells.

PC/PLC computerized dosing control systems.

Mixers

MA

Single arm sigma mixers.
Simple soap formulas with limited additives dosing.



MSA

Double arm sigma mixers
Intensive mixing action for complex formulas including powder and liquids



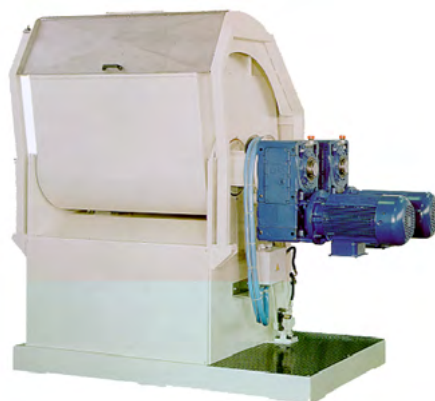
MSZ

Double arm sigma mixers with extraction worm.
Intensive mixing action for complex formulas including powder and liquids



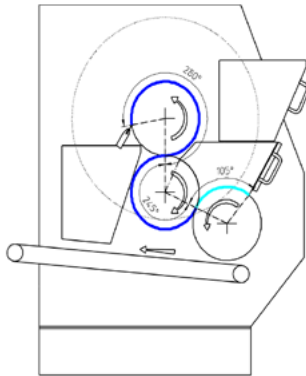
MSR

Tilting vessel sigma mixers.
Intensive mixing action for complex formulas with high liquids percentage

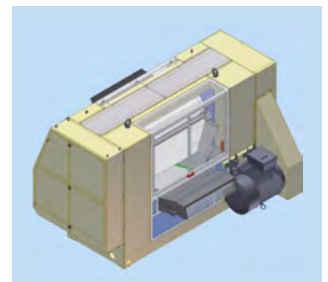


Hydraulic Roll Mills

New design Hydraulic Roll-mills for capacities up to 7 tph grant perfect soap temperature control and superior homogenizing of powder and liquid ingredients.

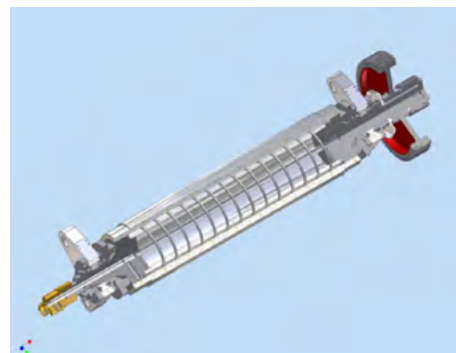


- “Clean design” operations
- 525° roll/soap contact surface

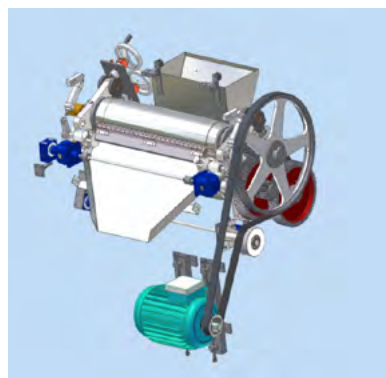


Unique Rolls Coil Closed Cooling System

Simplified milling thickness regulation



Single Drive System



Plodders & Refiners

Simplex, Duplex and Triplex plodders and refiners available in two versions:

- “Nova HE” for toilet, laundry soaps and syndet/combo refining and extrusion
- “SH” for in line positioning under the vacuum chamber of the dryers

All models available as single or twin worm having worm diameters from 100 to 475 mm

Special worm design:

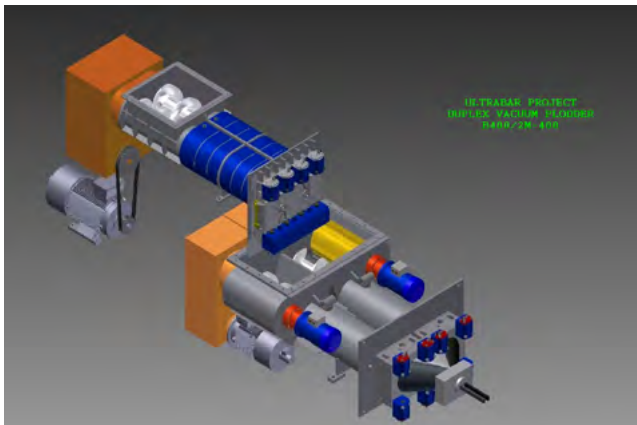
- High energy
- Low energy
- High volume

Plodders and refiners capacities up to 15 tph



“SR” Plodders

Twin worm plodders with double separated worm in the final stage driven by a special double gear-box with one motor for each worm allowing two independent flow control systems.



Preliminary stage consisting of a twin-worm refining plodder with single drive and two tangential, counter-rotating worms.

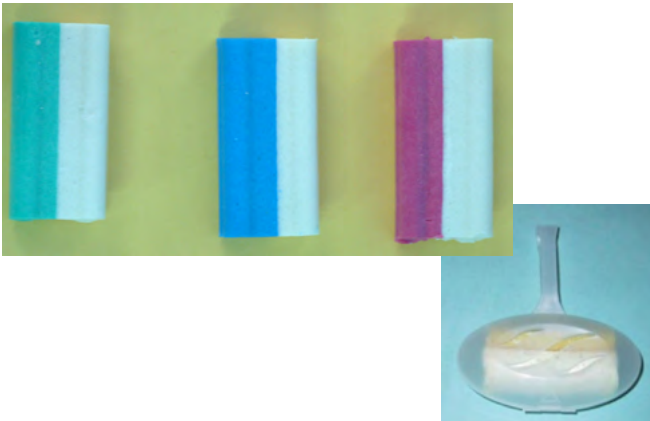
Final stage consisting of two parallel non-tangent single worms (placed side by side and mounted in a common barrel).

Special Plodders

Co-extrusion plodders for two tones soap production



Rim-block plodders for toilet waters disinfection



High capacity plodders: special duplex plodders
for capacities up to 10 tph with two independent final stage extrusion lines



“MRP” Multi-Refining Plodders

“MRP” Multi-refining Plodders perform the REFINING, HOMOGENIZING AND EXTRUSION of all soap bases (regular, translucent, syndet and combo) in a SINGLE UNIT configuration.

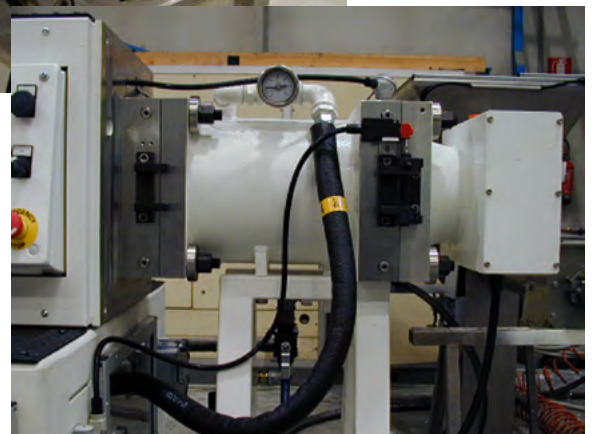
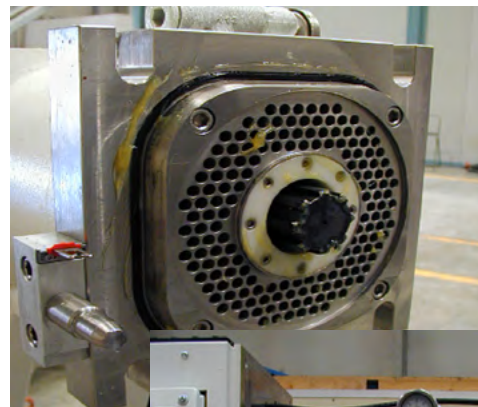
- Quicker and easier formula changeovers
- Reduced energy consumption
- Reduced maintenance/cleaning time
- Reduced area required
- Reduced capital outlay



The preliminary twin-worm stage NOVA “HE” complete with pelletizing head with refining screens performs the first refining of the toilet soap.



The final multi-refining stage consists of two separate sections, each one housing a refining group with drilled plates and refining screens.



MRP

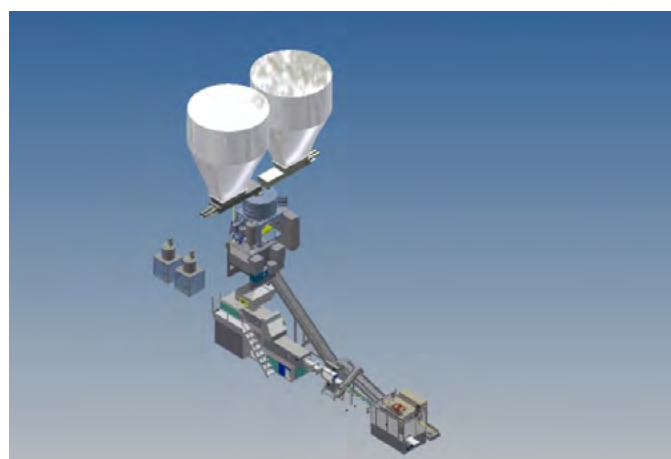


Models	Production Range kg/hr	Max. Installed power kW
B100-MRP150	500-1,000	26
B150-MRP150	1,000-1,500	37
B200-MRP200	1,500-2,750	67
B250-MRP250	2,750-4,000	92
B300-MRP300	4,000-6,000	142

“MRP” Translucent soap finishing lines

A simple and cost effective solution for translucent soap tablets production from opaque soap chips including:

- HIGH SHEAR MSA Mixer
- MRP Multi-refining Plodder



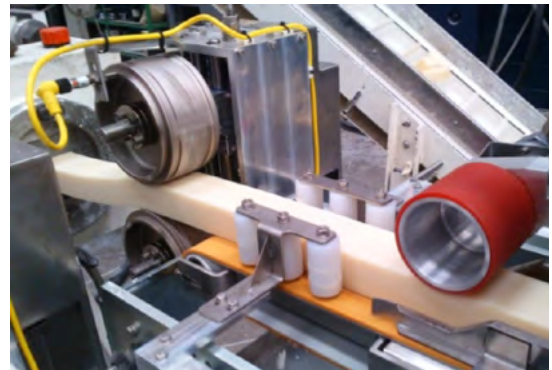
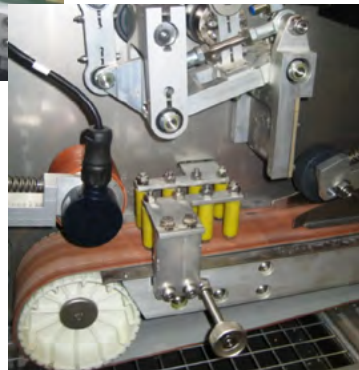
Cutting & Embossing

TE-50

TE-50 electronic cutter achieves the highest cutting speeds with perfect square cut. "Mechatronic" cutting system ensures smooth operations with the most difficult products.

TE-50 is available as Simple and Duplo with cutting centerlines variable between 70 and 450mm.

RTB centered embossing system for 2 or 4 faces engravings



TE-50		
*Cutting length	80 - 1000 mm	Cutting speed up to 300 bpm Linear speed 45 m/min
**Cutting length	50 - 1000 mm	Cutting speed up to 300 bpm Linear speed 40 m/min.
Cutting height	5 - 75 mm	Standard version
	5 - 90mm	Special version
Cutting width	5-90 mm single bar	
	5-40 mm double bar	
Installed power 5 kW		

TVE



TVE		
*Cutting length	10 - 1000 mm	Cutting speed up to 300 bpm Linear speed 40 m/min
Cutting height	5 - 100 mm	
5-100 mm single bar	5-100 mm single bar	
	5-50 mm double bar	
Installed power 2,5 kW		

Stampers

STUR Stampers cover the requirement of high and ultra-high speed finishing lines with capacities up to 800 bpm.

Vertical flash-stamping presses with lower die mounted onto a mandrel with a 60° reciprocating rotation and upper die mounted onto a slide with a vertical reciprocating motion.

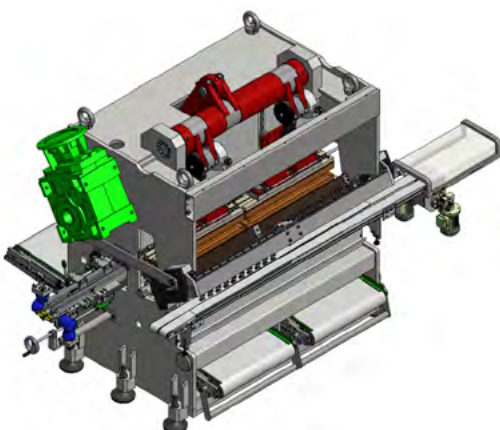
The innovative technical solutions and materials employed allow increasing the operating speed of the new High Speed STUR up to 60 strokes/minute with excellent stamped bars quality.



Line Speed	Model	Die cavities Horizontal		Stamping Strokes Per Minute	Production (kg/hr)			
		100 gr bar	150 gr bar		bpm	Kg/hr	bpm	Kg/hr
LOW	STUR 2	2	2	80	160	960	160	1440
LOW	STUR 3	3	3	70	210	1260	210	1890
MEDIUM	STUR 4N	4	4	70	280	1680	280	2520
MEDIUM	STUR 7	7	6	60	420	2520	360	3240
HIGH	STUR 8	8	7	60	480	2880	420	3780
HIGH	STUR 10	12	10	60	720	4320	600	5400
HIGH	STUR 12	12	12	60	720	4320	720	6480
HIGH	STUR ULTRA	14	12	60	840	5040	720	6480

Simplified drive mechanism: one only cam-box driving all movements through AC motor and inverter.

Easy operation: accessible and ergonomic working areas.



STAMPER TO CARTONER

600 bpm Integrated high speed finishing lines

700 bpm Integrated **Ultra high speed** finishing lines



STAMPER TO WRAPPER

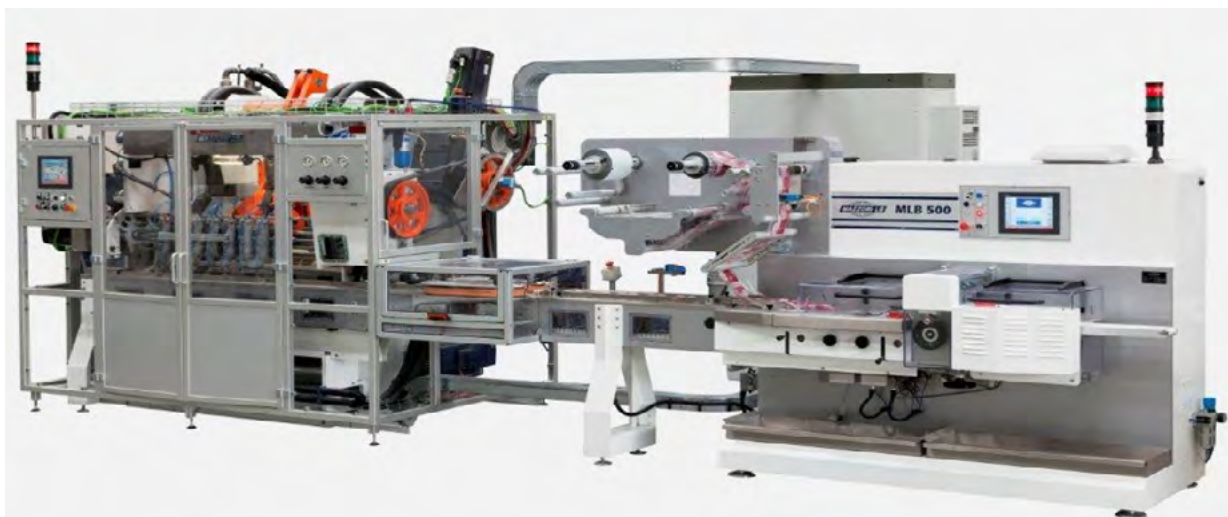
600 bpm Integrated high speed finishing lines

700 bpm Integrated **Ultra high speed** finishing lines



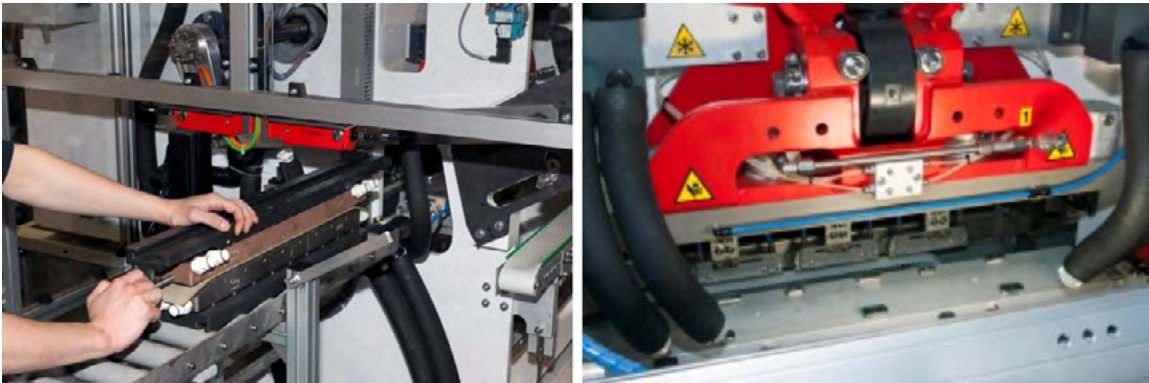
STAMPER TO FLOWPACK MLB 500

400 bpm Integrated high speed finishing lines



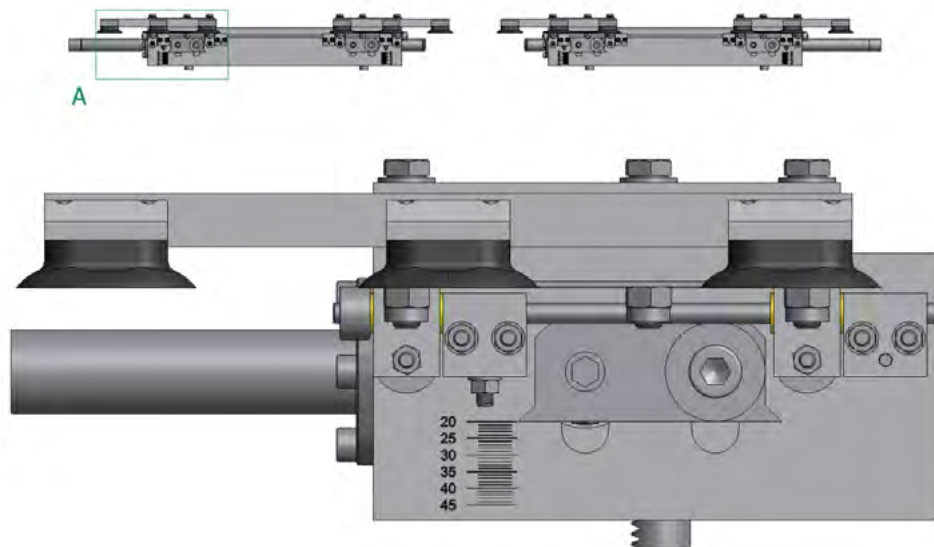
Special Options

Fast dies change with hydraulic dies clamping system.

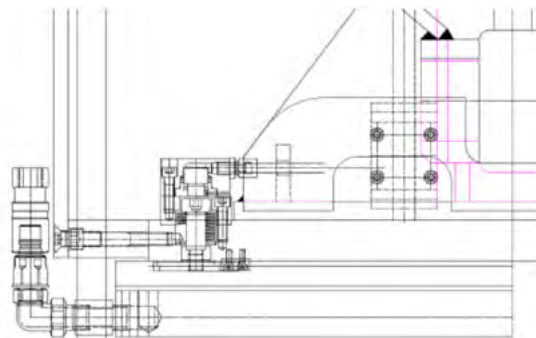


Positioning memory

- Infeed suction cups adjustment
- Discharge suction cups adjustment

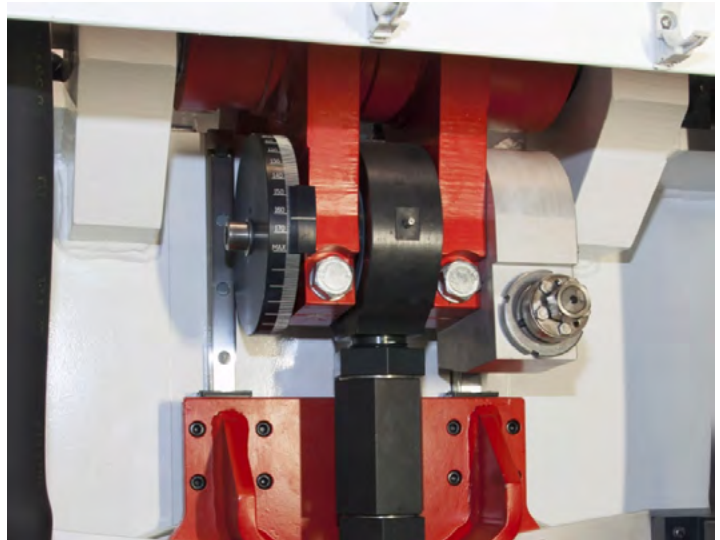


New glycol circuits outside the stamping area



Soap Dies Regulation

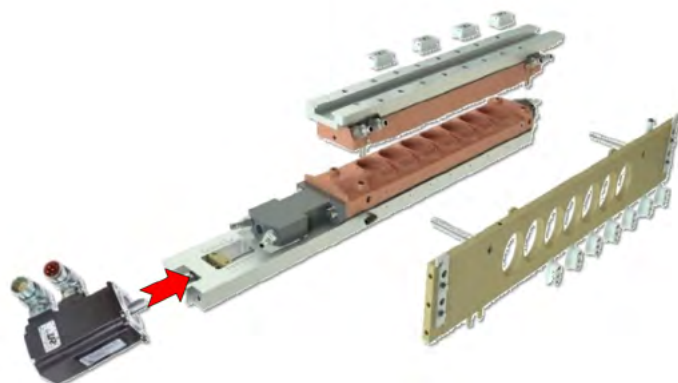
Top half die micrometric regulation:
clearance between top and bottom half die adjustable
to control the tablets weight.



Manual and automatic dies clearance adjustment



Bottom half die weight regulation for banded soap weight control.



DTS - Direct Transfer System

To interconnect the Stamper to the packaging machine via direct “pitch” discharge system.

The application of the DTS System to Stampers guarantees the smooth and efficient integration between the Stamper and the packaging machine.

“DTS” is available for Medium, High and Ultra lines from 360 to 700 bpm.

“DTS” is available in 3 configurations for:

- Paper Wrappers with pitch 140 and 180mm
- Cartoners with pitch 120 mm
- Flow-pack with pitch 100 -120 mm



STUR STAMPERS / DTS Configurations

Stamper	Die configuration	DTS	bpm	Pitch mm
STUR 8	Single	6 heads	360	140
		7 heads	420	120
STUR 10	Single	8 heads	480	120
STUR 12	Single	8 heads	480	180
		10 heads	600	120
		12 heads	720	101.5
STUR-ULTRA	Dual	10 heads	600	180
		12 heads	720	140
		12 heads	720	120

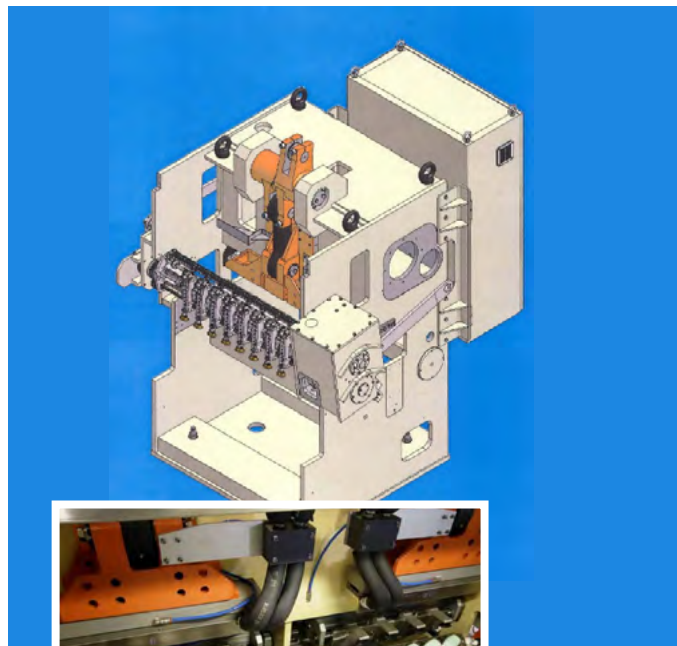
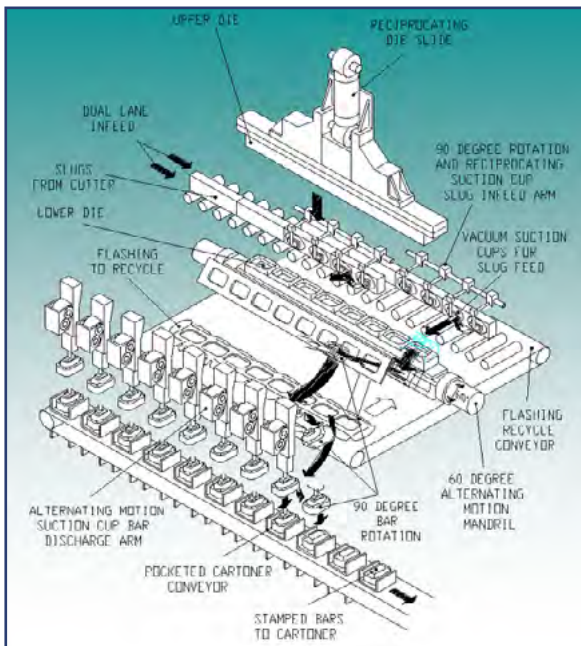
"DTS" State of the Art Technology

"ONE TOUCH" suction cups avoiding un-necessary double handlings of the stamped bars.

Die configuration: stamping technique maintaining the position of the stamped bars as required by the packaging machine.

Compact design: the DTS is mounted onto the press frame. The discharge height of DTS is in line with the one of the packaging machines.

DTS control system: it is controlled by brushless motors and special endless screw system assuring the most precise and accurate positioning of the stamped tablets into the pockets of the packaging machine, a fundamental requirement for Ultra Speed lines.

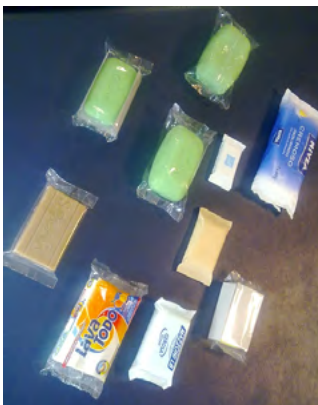


Flowpack

MLB-250 up to 250 bpm

MLB-500 up to 500 bpm

MLB-250 and MLB-500 Flow-pack machines specially developed for toilet and laundry soaps packaging.



MODEL	MLB 250	MLB 500
Speed	10-250 bpm	50-500 bpm
Cutting pitch	100-600 mm	70-180 mm
	80-480 mm	25-100 mm
	10-120 mm	10-80 mm
	10-60 mm	10-50 mm
Installed power	7-8 kW	9-0 kW
Dimensions	5200 x 1500 x 1950 mm	5200 x 1500 x 1950 mm
Weight	1300 kg	1500 kg

Special applications

Long bars wrapping up to 600mm.

- Plastic support
- Strings package
- Multipack
- Gussetting



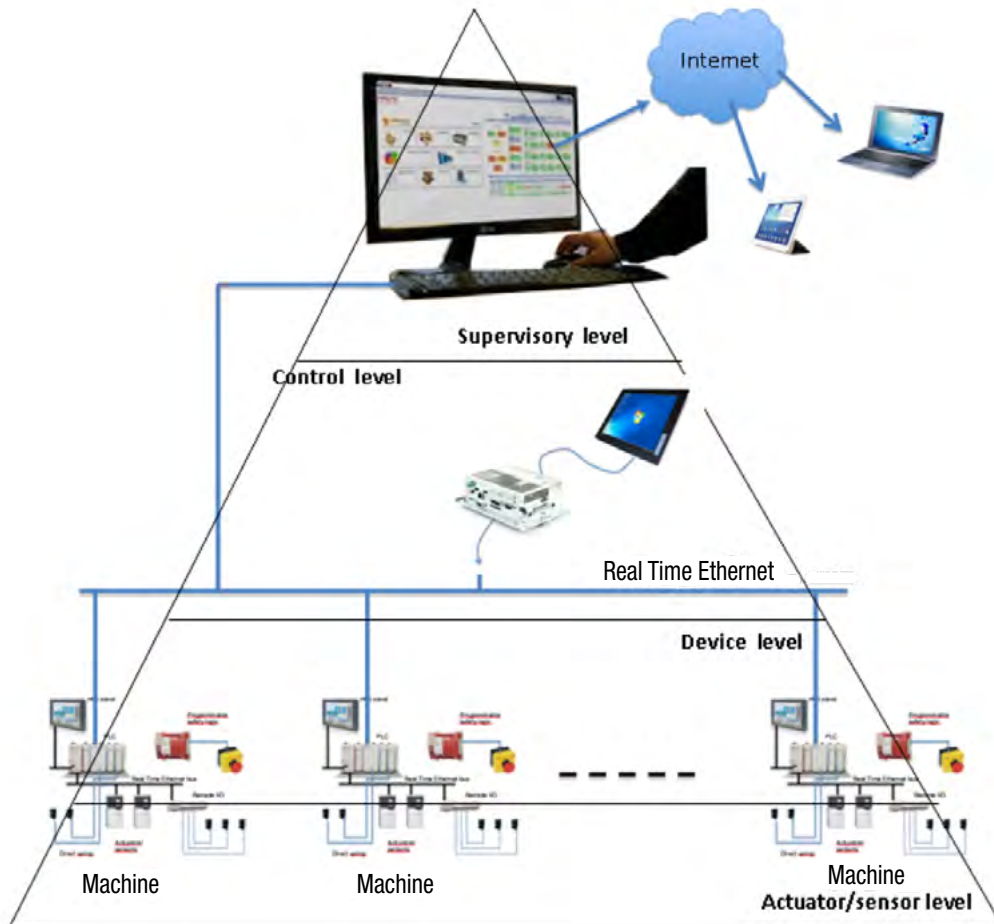
Special packaging materials

- Hydrosoluble material
- Hot or cold sealable materials (laminated polypropylene or polyethylene)



Line Supervision

4.0 Management



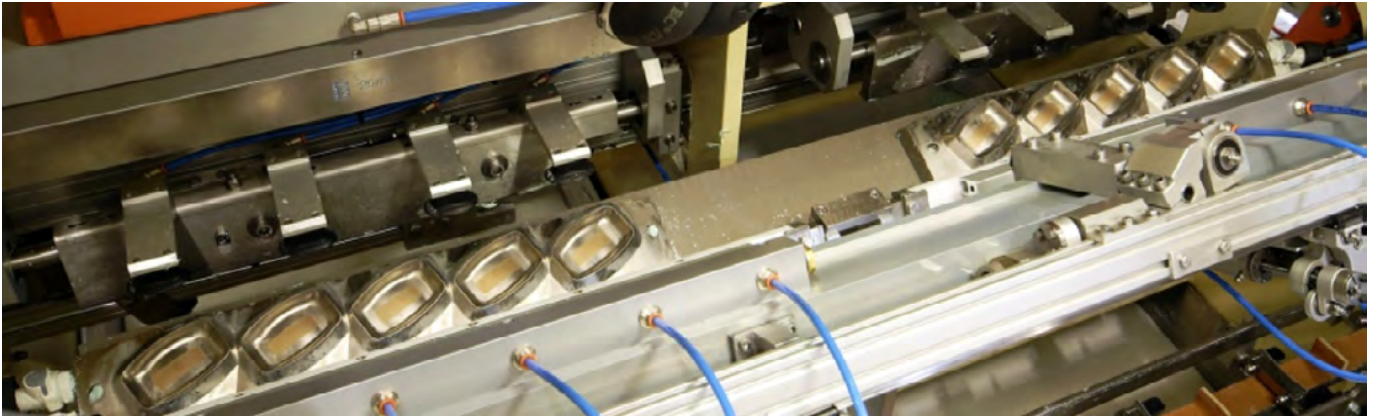
Four control layers are identified:

- 1 Actuator/sensor level:** all automation components (sensors, inverters, actuators) acting directly on the machine or receiving directly information from it.
- 2 Device level:** each machine controlled by local automation equipment (PLC, HMI) including the relevant part of the actuator/sensor level components
- 3 Control Level:** the function of line supervision, allowing to see the most relevant data of each machine from one single point, and to perform elaboration on such data.
- 4 Supervisory level:** the layer where data are collected and elaborated in order to support the plant management.

The line supervision allows:

- Process data monitoring and recording
- Maintenance programming
- Production data recording and storage
- Remote assistance

Soap Dies



Mazzoni DIES department includes dedicated specialists to develop new shapes and new dies MOC.

New 3D modelling system for in-house dums preparation.



Pilot Plants



Complete range of laboratory and pilot plants/machinery to perform the tests on raw materials, intermediate and finished products.

- Continuous/batch saponification and vacuum dryer pilot plants
- “C” LAB laboratory Vacuum Dryers
- “MINI LAB” laboratory finishing lines mounted on a single frame
- “LAB” stand-alone laboratory machinery

Pilot plants machinery available in mazzoni premises for trials with soap



“FAT” test area

Complete finishing lines trial area available in Mazzoni premises

The Desmet Ballestra Group

Worldwide close to you

The Desmet Ballestra Group is the world leader in developing, engineering and supplying technologies, processing plants and proprietary equipment for the following business areas:

- oils and fats treatment and processing
- biofuel and oleochemicals
- animal feed and agro food
- powder and liquid detergents
- surfactants, esters, chemicals

Desmet Ballestra is an integrated operation enabling to coordinate its worldwide activities making the best use of the very important technical, technological and commercial synergies existing between its operations and to provide competitive services, plants and equipment globally sourced.

A network of 15 regional offices is near to you and to your needs



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Detergents
Surfactants
Soap &
Chemicals

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Science behind Technology

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