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AL.MA. DN540 multi-station dumpling line with a continuous dough mixer

AL.MA. Srl (Italy) · 5-station configuration · up to 2250 kg/h · single-sheet dough products

Operating principle

The continuous dough mixer prepares dough without interruption and discharges it into the shuttle hopper. The shuttle travels above the line and distributes dough between the stations. Each station consists of a sheeter, a forming machine, a lobe pump for filling supply and a scrap cutter; the stations work in parallel and independently of one another.

Two-tier conveyors run along the line. Formed products with filling drop onto the upper belt and travel towards the line outlet. Trimmings of unused dough sheet, cut up by the scrap cutters, drop onto the lower belt and travel in the opposite direction — to the conveyor returning scrap to the dough mixer. The dough sheet goes back into production, so the line runs with virtually no raw material loss.

Scaling and maintenance

• the line can have from 3 to 5 stations; output grows in proportion to their number;

• the system can be ordered for the full number of stations while being equipped with machines only in part. Unused stations are switched off from the control panel;

• when output needs to grow, machines are purchased and installed on the free stations — the line does not need rebuilding;

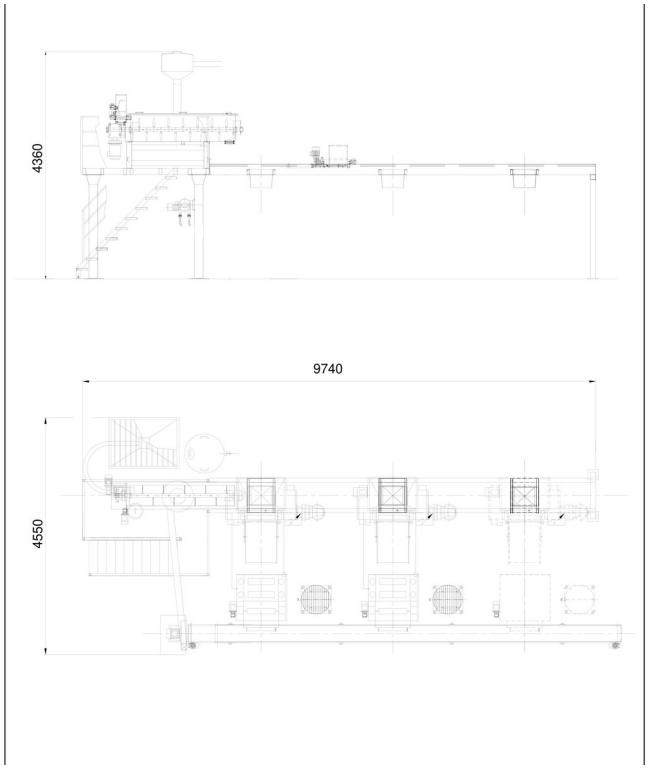
• any station can be stopped for scheduled maintenance without stopping the line: the remaining stations keep running.

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Line composition in the 5-station configuration

Item	Qty
GR.IM.2000 continuous dough mixer with TURBOMIX	1
Shuttle dough distribution system for 5 stations	1
CA540FA sheeter	5
DN540 forming machine	5
PLA100 lobe pump for filling supply	5
Scrap cutter	5
Two-tier conveyor	2
Scrap return system to the dough mixer	1
Dies	one per forming machine, shape chosen by the customer

All parts in contact with dough and filling are made of stainless steel and other non-toxic materials suitable for the food industry. The equipment complies with current CE standards.



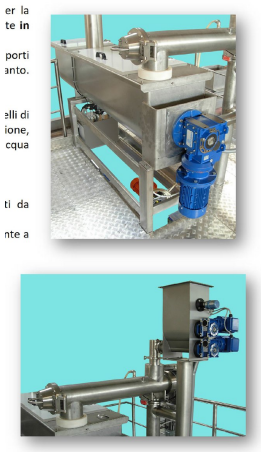
Overall line dimensions, mm

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GR.IM.2000 continuous dough mixer

A continuous dough preparation unit made entirely of AISI 304 stainless steel. It serves all stations of the line.





GR.IM.2000 continuous dough mixer — photos by the manufacturer AL.MA. Srl

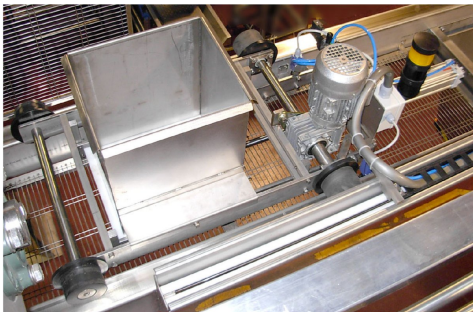
- tubular base frame on removable supports, access ladder, side guards, chequered anti-slip decking;
- group of mixing bowls in polished stainless steel, PTFE shaft seals with quick removal;
- AISI 304 stainless steel mixing shafts with independent geared motors;
- volumetric doser — continuous screw flour doser with variable speed under inverter control, maximum and minimum level sensors;
- peristaltic pump for liquids with variable speed under inverter control;
- TURBOMIX — rapid pre-mixing system, the bladed shaft is removable for sanitary cleaning;
- electropneumatic discharge, stainless steel electrical cabinet to CE standards.

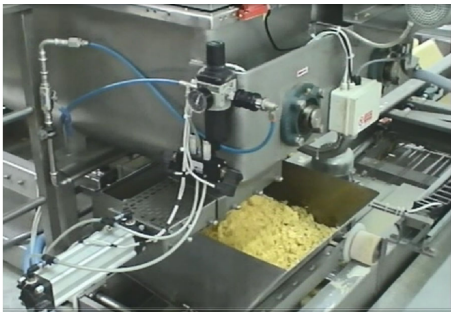
Parameter	Value
Dough output	up to 2000 kg/h
Flour feed	up to 1600 kg/h
Liquid feed	up to 500 kg/h
Mixing shaft speed	up to 50 rpm
Absorbed electrical power	14 kW

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Shuttle dough distribution system for 5 stations

A system for automatic dough distribution between five sheeters. The trolley travels on a rail track above the line and discharges dough at the required station.



Shuttle dough distribution system — photos by the manufacturer AL.MA. Srl

- stainless steel construction, frame and guides made of round tube;
- stainless steel trolley with a pneumatic system feeding dough to the sheeters;
- encoder-controlled drive ensuring an accurate discharge position;
- automatic pneumatic gate opening;
- safety devices.

Parameter	Value
Number of stations	5
Trolley capacity	40 kg
Position control	encoder

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CA540FA sheeter

An automatic machine producing a 540 mm dough sheet required to feed the forming machine. One sheeter is installed at each station.





AL.MA. CA540FA sheeter — photos by the manufacturer AL.MA. Srl

Parameter	Value
Output	400/500 kg/h
Dough sheet width	540 mm
Height	1735 mm
Width	2000 mm
Depth	1060 mm (1660 mm with conveyor)
Weight	1250 kg
Installed power	7.5 kW



CA540FA sheeting group

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DN540 forming machine

An industrial machine forming single-sheet dough products with an interchangeable die — one shape per die.



AL.MA. DN540 forming machine

Parameter	Value
Output	400/450 kg/h
Dough sheet width	540 mm
Height	2020 mm
Width	1670 mm
Depth	1590 mm
Weight	1650 kg
Installed power	9.5 kW
Die	one included with the machine, shape chosen by the customer

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PLA100 lobe pump



PLA100 lobe pump

Parameter	Value
Dimensions, H×W×D	1685 × 760 × 720 mm
Weight	200 kg
Installed power	1.5 kW

The pump feeds filling continuously and handles meat, cheese and vegetable fillings, including delicate ones containing pieces. Tilting cover with a safety grid, screw removable without tools.

Scrap cutter



Scrap cutter

The cutter cuts up unused dough sheet: cutting group with stainless steel rollers, drive speed proportional to the laminator speed, anodised aluminium construction, belt transferring scrap to the lower conveyor tier with transparent inspection guards.

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Two-tier conveyors



Two-tier conveyor — photo by the manufacturer AL.MA. Srl

Two two-tier conveyors run along the line. The upper tier carries finished products to the line outlet, the lower one carries cut-up scrap in the opposite direction, to the return system. The belts are made of material certified for food products.

Scrap return system



Scrap return system — photo by the manufacturer AL.MA. Srl

A belt elevator conveyor loading the continuous dough mixer: construction entirely of stainless steel, food-grade belt, independent variator drive.

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General specifications

Parameter	Value
Configuration	5 stations
Line output	up to 2250 kg/h — indicative, depending on the shape and weight of the product
Dough mixer output	up to 2000 kg/h of dough
Dough sheet width	540 mm
Possible configurations	from 3 to 5 stations; partial equipping with later expansion
Total installed power	approx. 106.5 kW
Power supply	380 V / 3 ph + N + E / 50 Hz
Materials	AISI 304 stainless steel, food-grade certified belts
Conformity	CE standards

Calculating the output: cycles per minute × products per cycle × weight of one product × 60. On average the forming machine runs at about 90 cycles per minute (up to 110). The number of products per cycle is set by the die, so the output depends on the chosen shape and product weight. The figures given are indicative.

The total power is calculated for the main equipment: the dough mixer, five sheeters, five forming machines and five pumps. The power of the shuttle, conveyors and scrap cutters is confirmed at order.

Supply and service

DDP delivery to the customer’s warehouse anywhere in Ukraine, positioning at the customer’s production site, commissioning, staff training, warranty and post-warranty service, dies and spare parts. The number of stations, the equipment set and product shapes are selected to order.

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Appendix. Catalogue of single-sheet dough product shapes

AL.MA. Srl catalogue · die formats for the DN540

DN series lines with interchangeable dies produce single-sheet dough products: dumplings, ravioli, cappelletti, tortelloni, pinzati and other shapes. The manufacturer catalogue pages below give the shape and the number of every die. Dies with custom shapes are made to the customer’s order.

Weight, dimensions and output are indicative and may vary with the dough sheet thickness and the dough-to-filling ratio.

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Pinzati

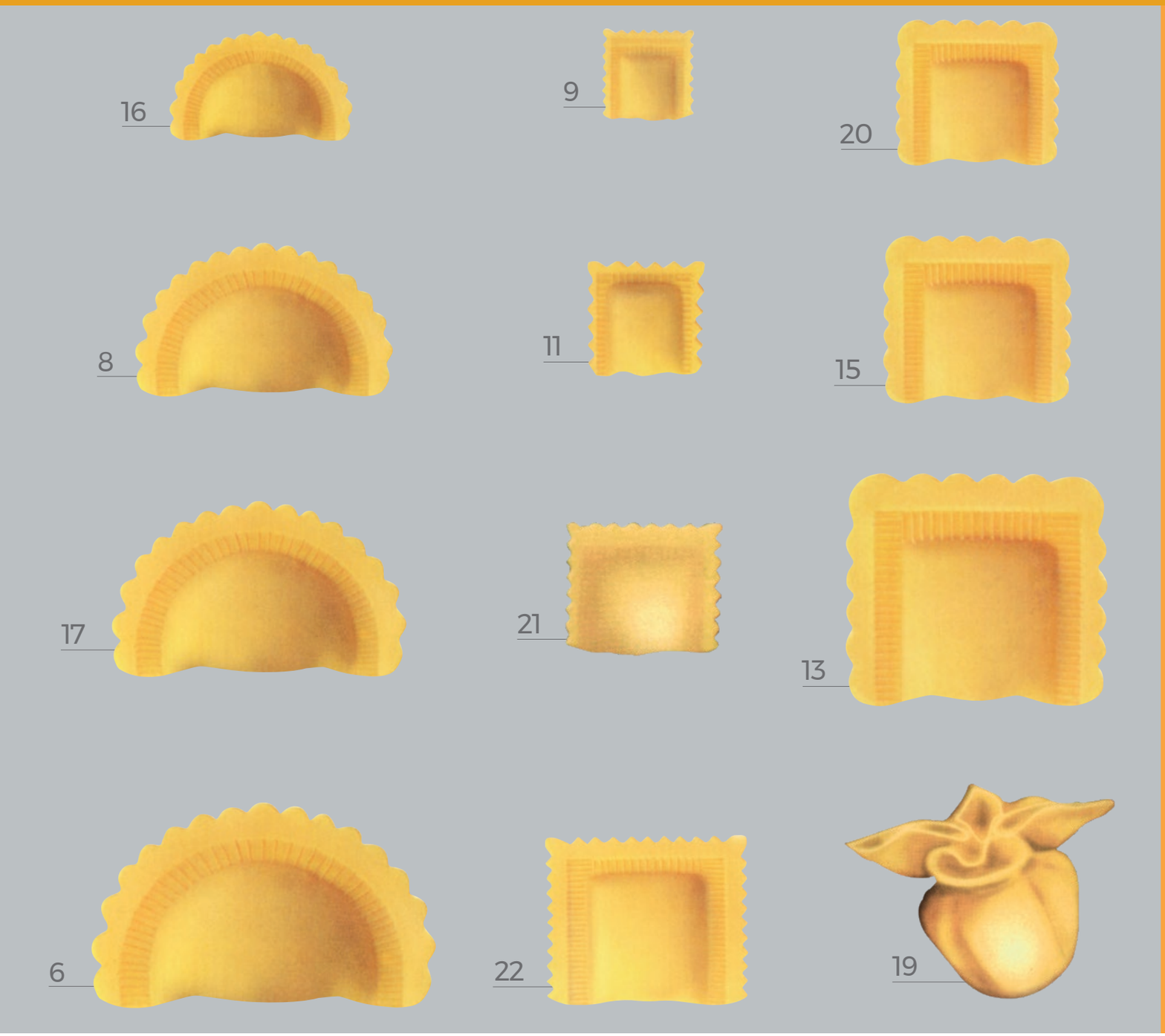
FORMATO *FORMAT*	PESO gr *WEIGHT gr*
10P	2
10	2
26	2
2	3,5
29	12/14
36P	3
5	3,5
27	8
28	10
33	10
30	8
31	8
1	4
3	8,5

Pelmeni

FORMATO *FORMAT*	PESO gr *WEIGHT gr*
4	9



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Ravioli

FORMATO *FORMAT*	PESO gr *WEIGHT gr*
16	3
8	6
17	7
9	1,5
11	2,5
20	3,5
21	3,5
22	4/4,5
15	5
6	8
13	7

Saccottini

FORMATO *FORMAT*	PESO gr *WEIGHT gr*
19 Saccottino	6
19 Saccottone	10/12