

RONDO
Dough-how & more.

XXIX Jornadas Técnicas de la AETC

The new state of the art in industrial laminating technology



Industrial lines in the past

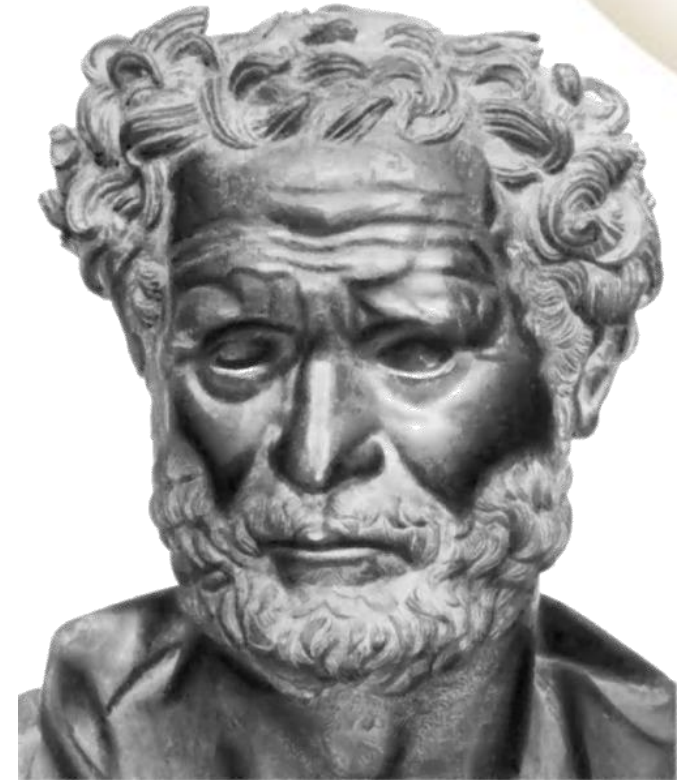
Dedicated lines for mono production

- High capacity
- Limited flexibility
 - Type of filling
 - Product size
- Longer change over times
- Gentle dough processing



“The Only Thing That Is Constant Is Change”

Heraclitus



Today's production philosophy

Today's market situation requires

Product flexibility:

- High quality
- Artisanal products
- Ethnic food
- Free-from products
- Fast change in consumer expectations
- Faster sequences of new product developments
- Market trends
- Reaction on Hypes

High productivity:

- Centralised production
- Reduce production costs
- Minimal down time
- Quick change over
- Fast cleaning



How can those requirements be fulfilled?

With clever engineering!



Machine design to handle:

- Artisanal doughs with high water levels
- Doughs with long floor times
- High quality recipes
- Different dough types



Dough band former MIDOS

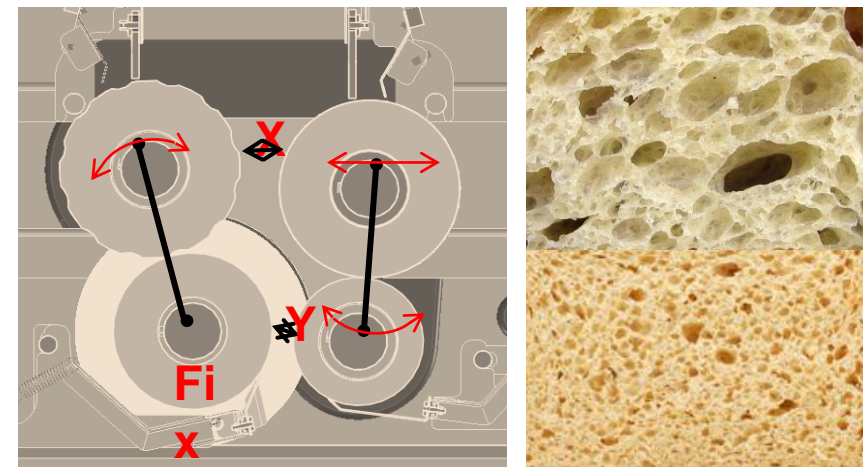
- Universal dough band former for laminated doughs and soft bread doughs
- Dough band forming without flour or oil

Goal:

- To achieve precise product weight
- Keep the cell structure of the dough

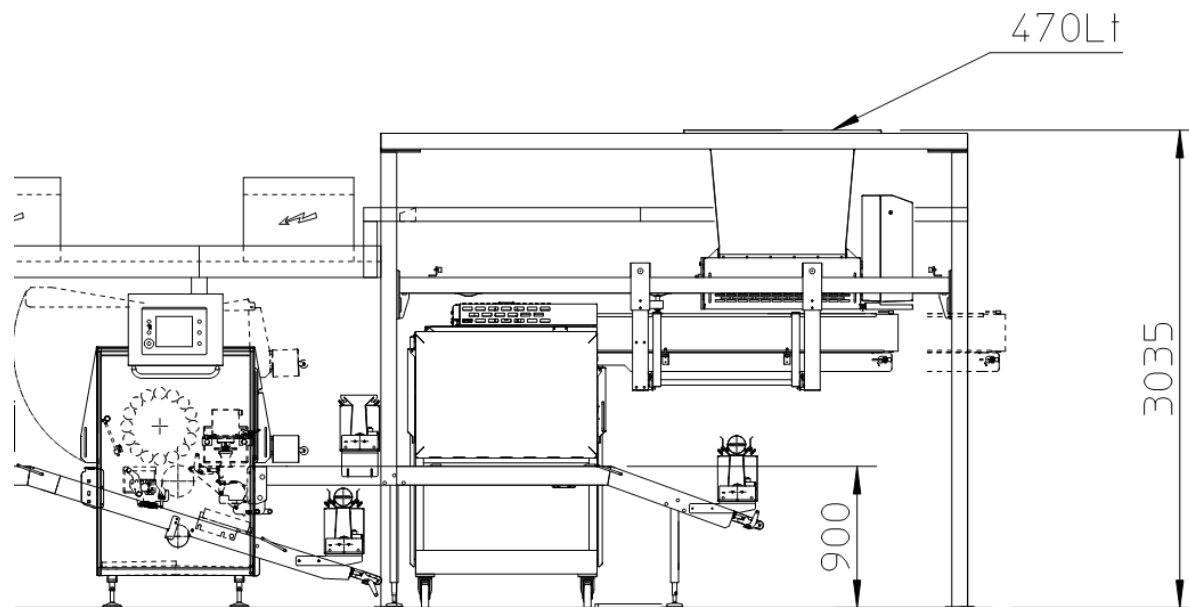
Control:

1. Individual speeds of all rollers
2. Electronic adjustment position of rollers
3. Electronic adjustment of outfeed gap



Feeding systems for dough band former MIDOS

- Indirect systems to guarantee a constant filling level
- Double chunking systems to improve the weight accuracy and product quality



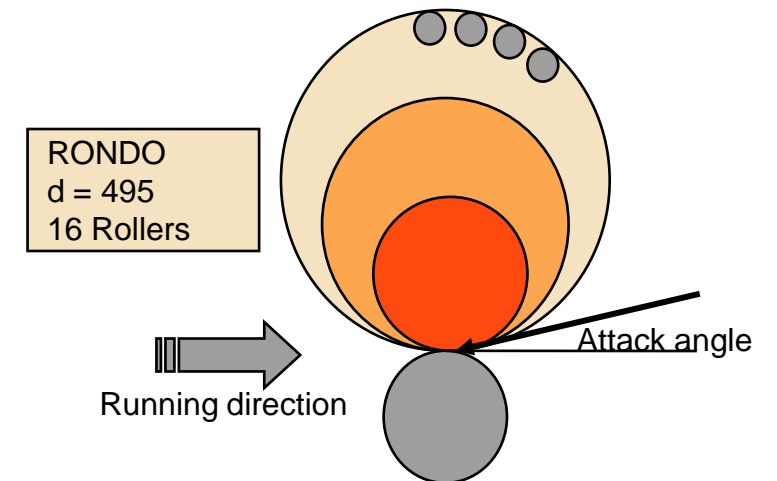
Satellite technology

Goal:

- Gentle reduction of dough band thickness in one step

Designed by physics:

- The bigger the diameter, the flatter the attack angle of the force
- The more rollers, the lower the needed speed of the satellite
- Less distance between the rollers reduces the spring back of the dough



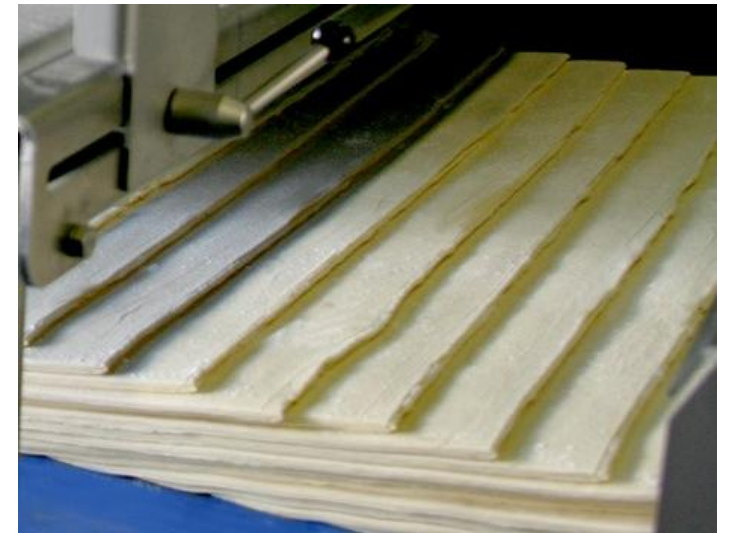
Laminating technologies:

Fan Fold systems:

- Space saving system for the first laminating stage

Cut & Stack systems:

- Stress less system for final sheeting and high capacities



How can the market demand be fulfilled?

With flexible production lines!

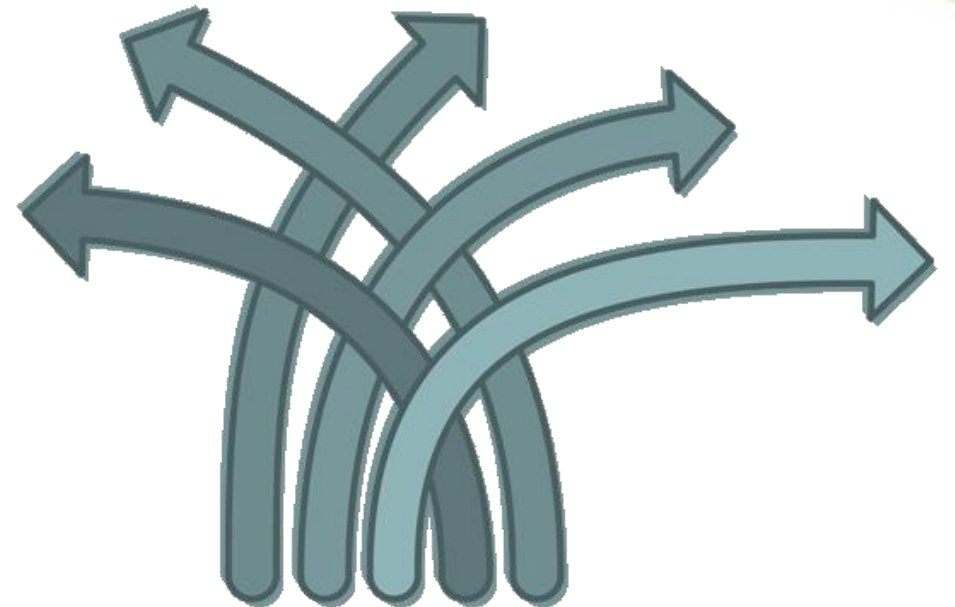


Within a certain product category

- Dough type for hard to soft

Within a certain type of dough:

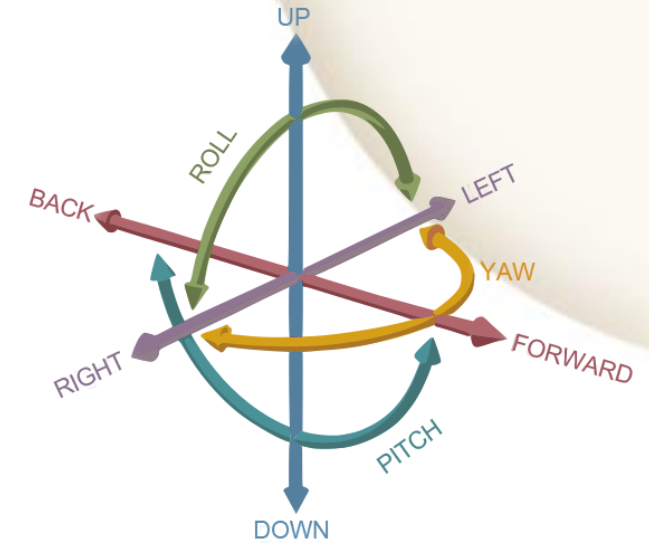
- Size from small to big
- Shape from rectangular over cylindrical to round
- From unfilled to filled products
- From low filling quantity to high filling quantity



RONDObot – for round bread products of all dough types and weights



- High flexibility due to six controllable axis
- Excellent moulding results due to Multi-phase rounding process
- Wide range of different product sizes to Universal moulding belt
- High level of automation due to Automatic tool change
- Easy to clean due to Hygienic design

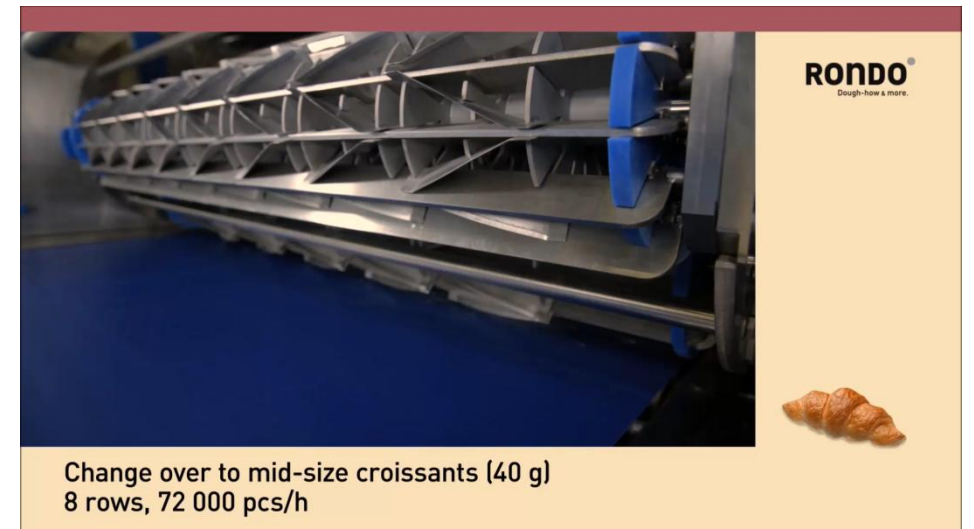


Cross cutting with guillotine

Within a certain dough type, e.g. different product size

Automatic tool change-over

- Reduced change over time
- Reduced failure
- Reduced tool damage
- Improved operator comfort



How can the latest standard be fulfilled?

With Hygienic Design!



Hygienic Design

- Reduced dirt accumulation for longer production times
- Easy access for fast cleaning
- Reduced cross contamination for product change over
- Accessibility for easy change over

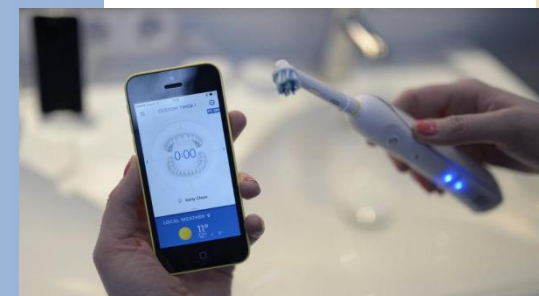
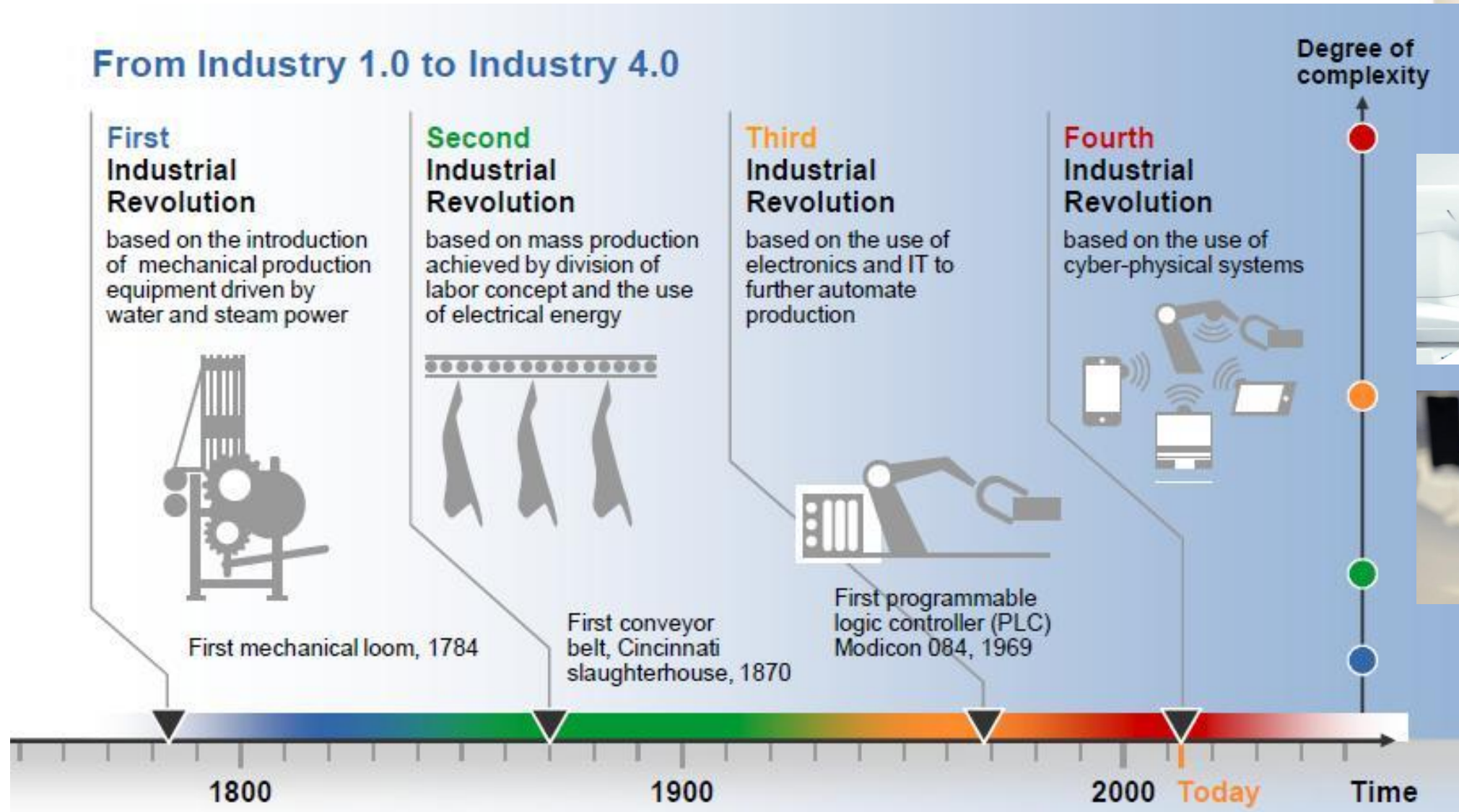


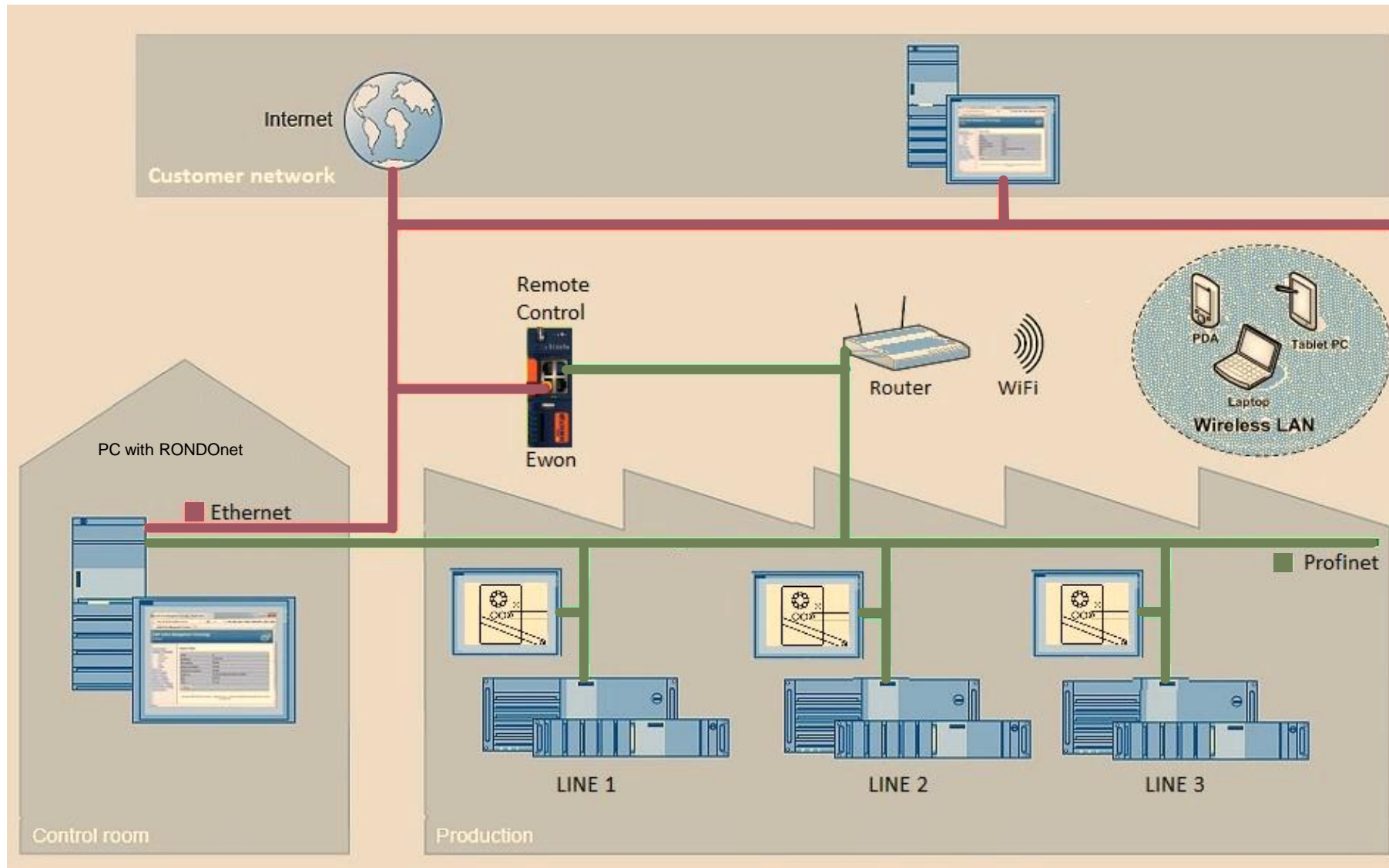
How can the production be optimised?

With Industry 4.0!



From Industry 1.0 to Industry 4.0





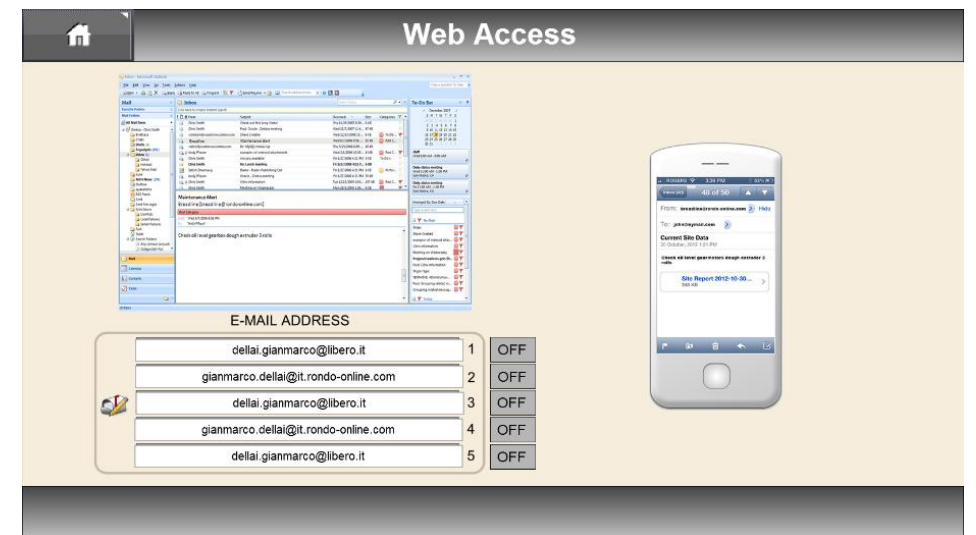
The state-of-the-art control of your line

- Easy operation
- High security
- Password protected online access
- Comprehensive management data
- Comprehensive maintenance support
- Traceability
- Easy availability of documentat



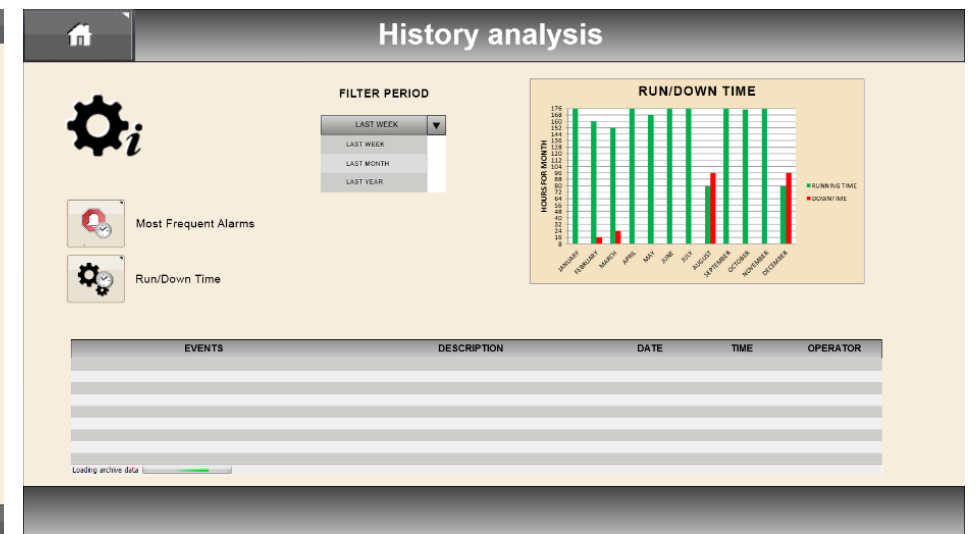
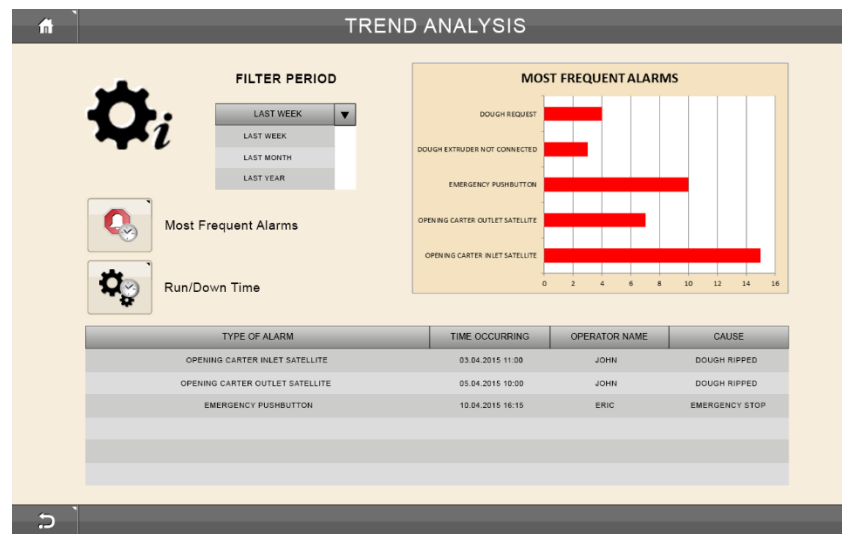
High security

- Personalised passwords and access levels
- Traceability of all operations
- Password protected online access
- Accessible with tablets and smartphones



Comprehensive management data

- Recording of all events
- Recording of downtime
- Possibility to comment on any event
- Easy data extraction to Excel
- Automatic storage of management data
- Automatic identification of defined persons in the case of pre-selected events



Comprehensive maintenance support

- Recording of all alarms
- Recalls and records service activities
- Automatic information in case of malfunction
- Automatic diagnostics of components
- Supports preventive maintenance schedules
- Maintenance support with videos

🏠
Preventive Maintenance

Diagnostic mechanical abnormalities using instantaneous of motor current

	REAL TORQUE	CALCULATED TORQUE		RESET
<input type="checkbox"/>	92 %	60 %	1M20	R
<input type="checkbox"/>	70 %	72 %	1M35	R
<input type="checkbox"/>	46 %	44 %	1M40	R

Control limit
 Calculated torque
 Real torque

🏠
Maintenance

DOUGH EXTRUDER 3 ROLLS

500	20	R
2000	100	R
500	112	R
700	1	R
200	400	R

DESCRIPTION	DATE	TIME	STATUS
Check scrapers	28.07.2015	02:52:58 PM	✖

Advantages of an intelligent machine control system

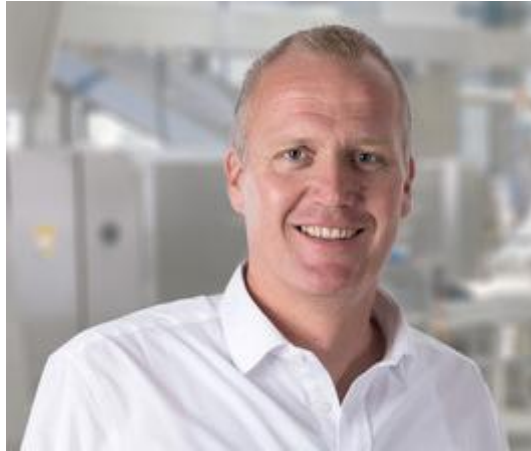
- Online access for support and maintenance alerts
- Comprehensive and easily accessible management data recording
- Downtime management through predictive maintenance function
- Operations traceability through personal password access levels
- Possibility to send messages on events
- Exchange with MES (Manufacturing Execution Systemen)



Today's industrial lines have to fulfil:

- Clever engineering
- Product flexibility
- Hygienic Design
- Quick product change over
- Smart control system
- Ready for Industry 4.0





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