

# Exploring Automation & Artisan Cheese Manufacturing Equipment

**Cheese Expo, April 2022**

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 **Tecnical**



# Fromagex & Tecnical

- 15 years of partnership
- Family-owned businesses
- Quality and efficiency-driven
- Maximize production **floorspace**.
- Customized for **quality** of cheeses.
- **Simple** to operate and maintain

# Artisan Cheeses

- Small batches and manual labor
- Tradition and knowledge
- Complex flavors & aging
- Unique product identity



# Artisan Cheesemaking SWOT

## Strengths

Flexibility  
Cheese identity  
Quality & control



## Weaknesses

Spoilage management  
Limited floorspace  
Efficiency  
Limited investment capacity

## Opportunity

Adaptability  
Reactivity



## Threats

Labor shortage  
Quality & consistency  
Exact weight requests  
Increasing costs

# Our Statement

Artisan cheesemakers can use automation  
to thrive, achive awesome cheeses while  
**staying competitive**



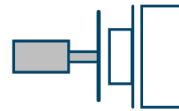
# Solution Overview

Flexible solution based on small batches  
with reasonable investment to grow step by step



## Small vats +

Flexible for production  
Adapted to prod speed  
Lower investment



## Horizontal presses +

Footprint-efficient  
Flexible for multiple sizes  
Precise & automated  
Ergonomic



## Automation

Control  
Consistency  
Labor efficient

# Focus



## Labor

Produce more with same team

Reduce physical work

Better jobs with more retention



## Cheese

Replicate the right process to reach consistency and quality

Focus on the key steps of cheesemaking

Optimize yield and quality

# Case Study

Farmstead Organic Goat milk  
Artisan cheesemaker in Spain

Lluís Mori, Owner of Mas El Garet





# Original process



## Production data:

Organic Goat Milk  
Farmstead production

HTST: 6,800 lbs/h  
Vat: 4,000 lbs  
Yield: 14%

3 cheese sizes/shapes:

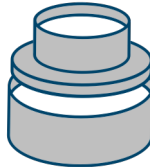
- Toma 1.1 lb (Ø 4 in)
- Liso 6.6 lbs (Ø 8 in)
- Loaf 4.4 lbs (8.5 x4 in)

Pressing time: overnight  
Labor: 15 people



## Process

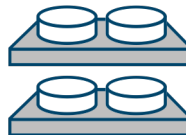
Open Vat  
Draining table



Moulds with cheese cloth



Vertical press  
Manual Demoulding  
Static brine tank

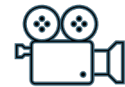


Cheese care during aging

## Challenges:



- Labor cost
- Spoilage
- Inconsistency
- Exact weight sales



Video of the  
original process

# New Production line



# Layout

Dimension:  
45' x 37'

Lid setter

Horizontal Presses

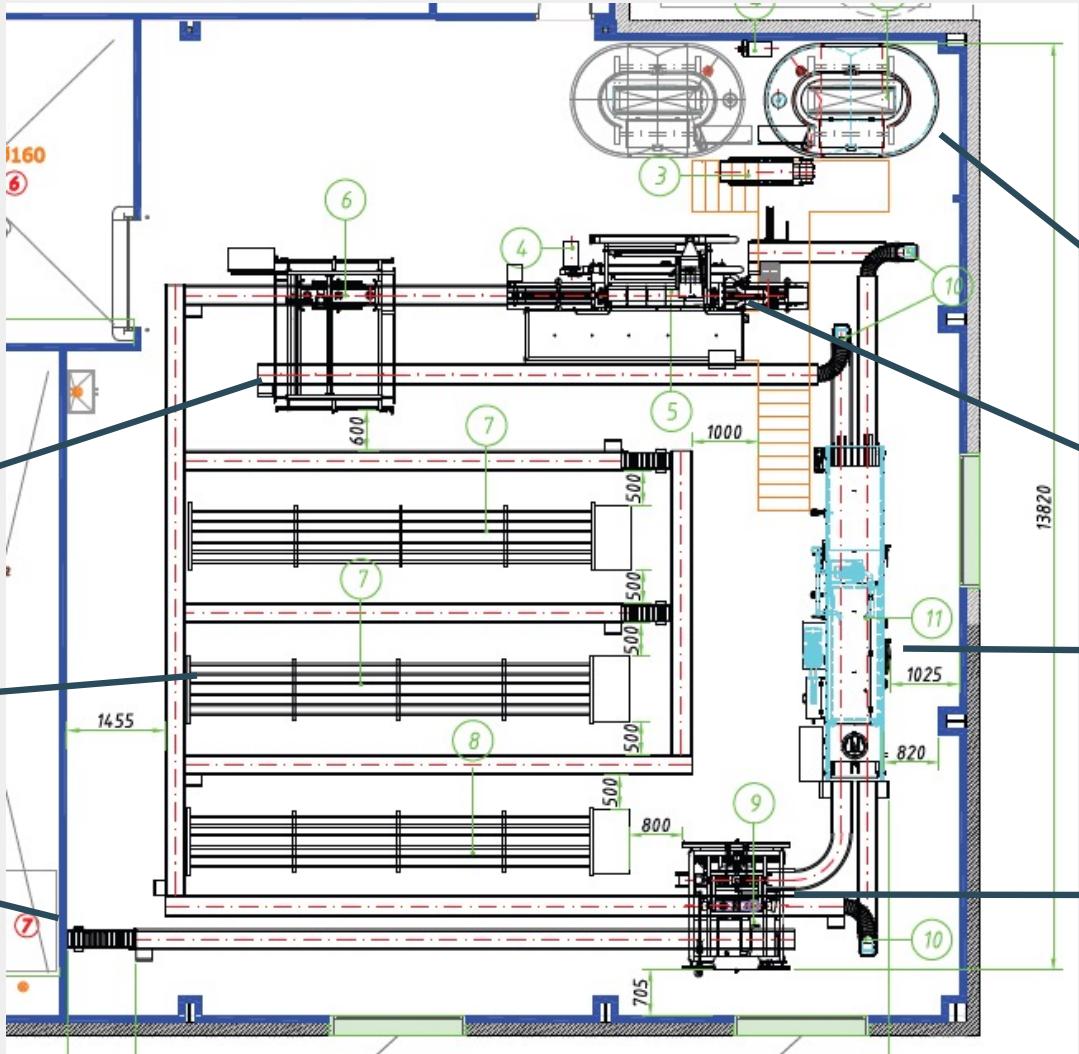
To Brining

Cheese Vat  
3 000 liters

Moulding tower

Washing tunnel

Demoulder





# Cheese vat

## Sizing:

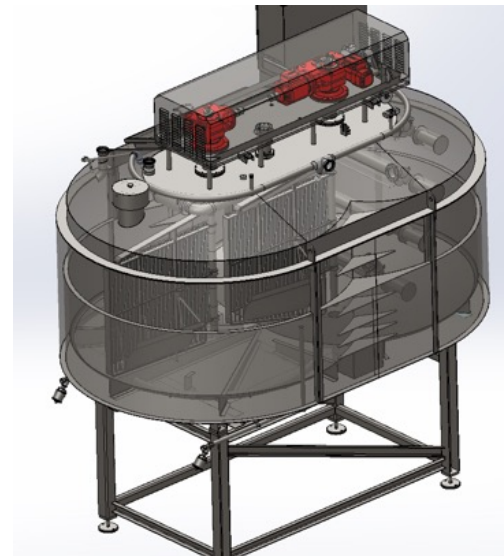
Filling at HTST speed

Vat process: 120 min

To be emptied within 30 min

## Features:

- Flexible and simple
- High efficiency and yield
- Automated and flexible: cutting / stirring
- Automatic whey pre-draw with filter
- CIP cleaning
- 3A & USDA compliant
- Sizes from 4 500 to 34 000 pounds



# Moulding Tower

## Sizing:

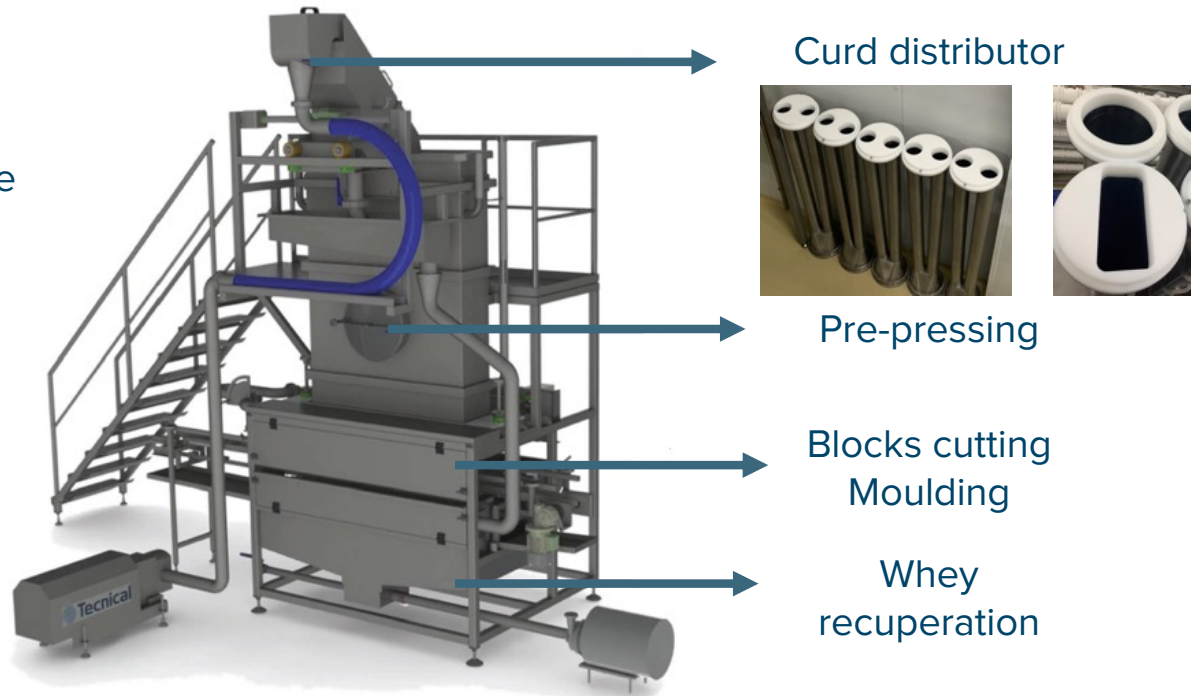
Empty a vat in < 35 min

Speed: 2 to 3 cut/min

Size of the cheeses: Flexible

## Features:

- Automated and reliable
- Several type of cheeses
- Quick format change
- CIP connection
- High efficiency and yield
- Flexible and simple



# Other equipment



Video of the  
process after

## Horizontal press

Automated program  
Flexible  
Press Each mould  
equally



## Washing tunnel

3 sections in line  
Water and chemical saving  
Food safety



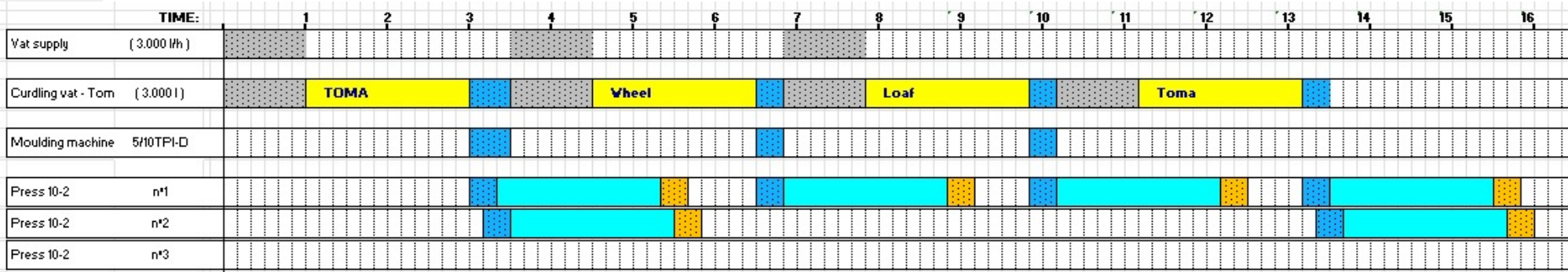
## Demoulder

Same speed as moulding  
Lid removal  
Vacuum demoulding

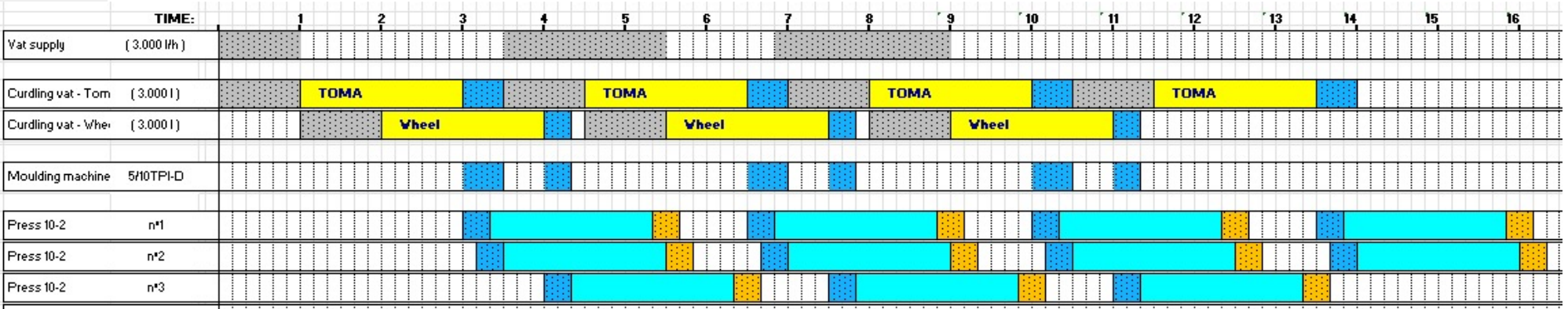


# Flow chart

1 vat = 27 000# (12 000l) in 16 hours



2 vats = 48 000# (21 000l) in 16 hours





# Results

Organic Farmstead Goat milk cheeses



## Labor

2 operators for the whole line



## Weight

Weight deviation < 3%  
Cheese sold at exact weight



## Quality

Consistent dry matter  
Nice looking wheels  
Consistent ripening



## World Cheese awards

2021: 2 silvers + 3 bronze  
2019: 2 silvers, 2 bronze  
2018: 1 Super gold, 1 gold, 1 silver

# Business Plan

Actual capacity: 27 000# (12 000l) /day  
Future capacity with 2 cheese vats: 54 000# (24 000l) /day

## Investment

Moulds : < \$100 000

Toma: 870u, Liso: 150u, Loaf: 225u

Equipment: < \$1 000 000

1 vat, 1 moulding machine,  
3 presses, 1 demoulder, 1 lid setter,  
1 washing tunnel

Total: < \$1 100 000

## Annual Savings

10 people: \$500 000

Spoilage: \$50 000

Yield improvement: \$30 000

Total: \$580 000

**Pay-back = 2 years**

Thank you!

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 **Technical**