Defrosting

Technologies and Solutions

Lutetia®

Tumbler Defrosting
Chamber Defrosting



Tumbler Defrosting

Technical principle

- Our dynamic defrosting technology combines steam injection under vacuum and heat*.
- Whatever type of tumbler you use, single or double jacket, the energy can be added directly through live steam injection and/or by direct contact through the energy released by the double jacket drum coil.
- The gradual injection of regulated steam under vacuum enables the transfer of latent heat of steam condensation in a regular and controlled way to avoid any surface cook.
- Thanks to the rotation, which gradually separate the block for a perfect uniform temperature and control of the low vacuum pressure, guarantees the final quality of the product protein.
- Our exclusive radio frequency probe, in contact with the product, manages the temperature through the total process. It controls the double jacket temperature and addition of steam.
- Defrosting may be followed by salting and marination and a complete range of Lutetia operation.

** Patented technology*

Radio frequency probe for total control of the product temperature

Product Examples

Pork Leg defrosting

Beef silver side defrosting

Chicken breast defrosting

ROI Example

Example in a tumbler T6 model with 3.000 kg small chicken fillet blocks
2 cycles per day = 6.000 kg
Considering a 6% loss in traditional defrosting method and no loss with the tumbler = 6% gain = 360 kg.
360 kg x 3 €/kg = 1.080 € per day or 21.600 € per month.
150.000 € / 21.600,00 €
Pay back on equipment = 7 months.



Chamber Defrosting

Technical principle cold convection

- Fast defrosting in cold convection optimizes conditions for heat transfer between the temperature of the chamber, the surface and the heart of the product.
- In order to have optimal defrosting using this technique, Lutetia uses two factors:
  – A high air circulation around the rack guaranteed to be identical for all products
  – An energy input with direct low pressure steam or a cold water mist* which ensures the energy transfer.
- The whole process is controlled by a program designed by Lutetia coupled with core and surface temperature probes.
- Temperature control is important in order to guarantee the quality and hygiene of the product.
- This Lutetia static process respects the most fragile product.

** Patented technology*

Products

20 kg block chicken fillet defrosting

Pork fillet defrosting

Sea bass and king prawn defrosting

On a rack or in a tray product

ROI Example

Example in a 2 trolley chamber model DGV2 with 10 kg chicken fillet blocks.
500 kg per trolly = 1.000 kg per batch x 3 batches a day = 3.000 kg per 24 hours.
Considering a 6% loss with traditional method and 1% loss with the chamber = 5% gain = 150 kg.
150 kg x 3 €/kg = 450 € per day or 9.900 € per month.
56.000 € / 9.900 €
Pay back on equipment = 6 months.



Experts in defrosting

In response to the global growing demand for rapid defrosting, giving total control over the quality and the safety of foods, Provisur has developed various patented optimized defrosting procedures.

Global advantages of the Lutetia systems

- The rationalization of production in accordance with orders.
  - Regular, from one cycle to another, via the management of defrosting conditions
  - Total process control by the PLC
- The productivity for:
  - Yield improvement or reduction of losses
  - Fast defrosting time reduced from 24 to 96 hours to 4 to 12 hours
  - Footprint reduction, optimization of the space into the factory
  - Maximum versatility
- Reduced cost and environmental impact:
  - Low energy consumption
  - Low water consumption
- Safety and Hygiene:
  - The defrosting techniques implemented require a hazard analysis to be carried out. As freezing simply stops bacterial growth, bacteria recover during thawing and are ready to grow hence the importance of providing rapid thawing techniques with continuous temperature controls
  - Excellent control of temperatures surface
  - Easy to clean system

The Lutetia tumbler gives a uniform product tempearature through process rotation with yield increase from 4 – 8 %.

Versatile to any product with cumulative operations.
Defrosting + Maturation = Yield
Productivity Optimization

Advantage of the Lutetia chamber: Limited modification of the product. Flexible and perfectly adapted to fragile materials such fish and other large block.

Technology, Design & Engineering

Loading and unloading systems

Our global experience has helped us to develop the right solution.

- Pneumatic loader
- Hydraulic loader
- Conveyor systems

All our systems for loading are fast, simple, easy to use and totally safe for your operators.

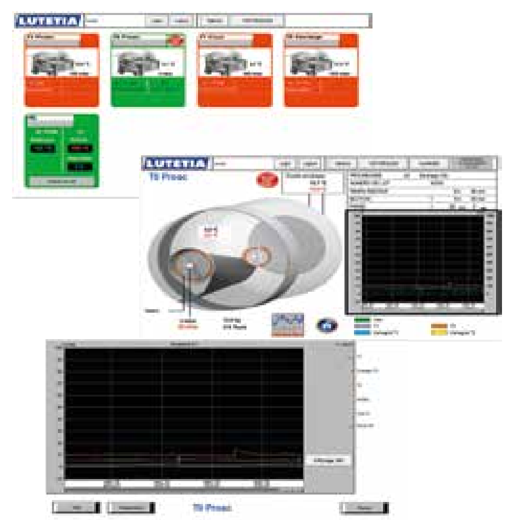
Improve the overall productivity for the product.

Process Monitoring and Performance

Supervision has been created to give you total access to the data recording.
Some data points to collect include:

- Batch number
- Date and starting time
- Name of operator with different access degree and automatic display by mail
- All alarm or fault to operator with automatic display by mail in case of fault
- Vacuum level
- Pressure
- Temperature
- Automatic end cycle report
- Connectivity 4.0

Data is available to be viewed on phone, tablet, or PC. Possibility of direct connection to SCADA with server OPC or ethernet IP. Technical assistance with equipment connected to the ethernet network of the factory.



Aftermarket service

Lutetia has extensive stock of spare parts and experienced service technicians always available. Support and spares parts can be supplied without delay.

R & D center

The Provisur Ingenuity Center (EU) is the main food process research tool for Provisur. With a complete range of processing equipment our most advanced technologies give our customer the best solutions for their process and product. A full team for process development and validation, investigation and resolution of manufacturing issues.

Design office

With a team of experienced engineers dedicated to design and development, Lutetia is well placed to maintain position in tumbler performance and technology:

- Safety and hygienic design advances
- Integrating tumblers into food manufacturing processes
- Optimisation of production methods
- Design improvements and new applications

Range of Models & Capacity

TUMBLERS			model								
			Type 1	Type 2	Type 3	Type 4	Type 40	Type 400	Type 5	Type 6	Type 7
Frozen meat capacity	(kg)		220	450	750	1.000	1.200	1.500	2.200	3.300	3.800
Floor area	(m^2)		2,69	3,41	4,19	4,85	6,00	7,10	8,13	10,39	10,65
Power excluding generator	(kW)		3,5	3,5	5,9	5,9	7,0	7,0	7,0	10,2	10,2
Indicative maximum daily capacity.											
up to 5 cycles with IQF product	(kg)		1.100	2.250	3.750	5.000	6.000	7.500	11.000	16.500	19.000
2 to 3 cycles with blocks of 5 to 10 kg	(kg)		660	1.350	2.250	3.000	3.600	4.500	6.600	9.900	11.400
1 to 2 cycles with blocks of 10 to 20 kg	(kg)		440	900	1.500	2.000	2.400	3.000	4.400	6.600	7.600

CHAMBERS				Number of trolleys in line or side by side model								
				Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7	Type 8	Type 10
Frozen meat capacity	IQF	Small	(kg)	75	150	225	300	375	450	525	600	750
		Large	(kg)	250	500	750	1.000	1.250	1.500	1.750	2.000	2.500
	Blocks	Small	(kg)	300	600	900	1.200	1.500	1.800	2.100	2.400	3.000
		Large	(kg)	500	1.000	1.500	2.000	2.500	3.000	3.500	4.000	5.000
Floor area			(m^2)	2,04	3,69	5,34	6,99	8,64	10,29	11,94	13,59	16,89
Electrical power excl. heat			(kW)	4	7	10	13	16	19	22	25	31
Steam heat power			(kg/h)	15	30	45	60	75	90	105	120	150
Indicative maximum daily capacity.												
up to 8 cycles with small IQF product			(kg)	600	1.200	1.800	2.400	3.000	3.600	4.200	4.800	6.000
4 cycles with small size block			(kg)	1.200	1.800	2.700	3.600	4.500	7.200	8.400	9.600	12.000
1 cycle with large block			(kg)	500	1.000	1.500	2.000	2.500	3.000	3.500	4.000	5.000

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