Heat recovery systems for milk coolers

More hot water
Quicker
All year round

A professional hot water production system
Designed for dairy farms
Ecolacteo recovers 100% of the heat:

Traditional heat recovery systems only recover desuperheating phase from hot gases, which represents less than 20% of the recoverable energy. In that case, the heat exchange temperature is not mastered: it is high in summer and low in winter.

Ecolacteo heat recovery system recovers all the condensation heat generated by the cooling unit. This enables to heat up water very quickly at a minimum temperature of 55°C even in difficult conditions.

Patented Dual Condense Technology (DCT):

1. «Water condenser» mode: The heat recovery system condenses all the refrigerant gas using the cold water from the water tank. It recovers all the heat rejected by the cooling unit to heat up water very quickly to a minimum temperature of 55°C, whatever the ambient temperature. Fans are stopped.

2. “Desuperheating” mode: when all the water has been preheated, fans are switched on. The heat recovery system continues heating up the water (gas desuperheating); water can reach a temperature of 65 / 70°C in summer.

The system runs within the operating envelope of the compressors (pressure and compressor temperature); Water condensation improves the compressor efficiency in summer and avoids high pressure cut-off. The 26 bars HP safety pressure switch restarts ventilation in case of water circuit dysfunction: priority is given to refrigeration.

Examples of dairy farms equipped with Ecolacteo:
(Datas recorded in pilot farms with thermal energy meters to measure their exacts savings)

<table>
<thead>
<tr>
<th>Dairy farm:</th>
<th>Nicolas</th>
<th>Darbois</th>
<th>Richeton</th>
<th>Des Naux</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual milk production:</td>
<td>260 000 L</td>
<td>465 000 L</td>
<td>700 000 L</td>
<td>1 050 000 L</td>
</tr>
<tr>
<td>Milk tank capacity:</td>
<td>2100 L</td>
<td>3100 L</td>
<td>3100 L</td>
<td>8000 L</td>
</tr>
<tr>
<td>Cooling unit power:</td>
<td>3 ch</td>
<td>6 ch</td>
<td>3 ch</td>
<td>6,5 ch</td>
</tr>
<tr>
<td>Milking parlour:</td>
<td>2x4</td>
<td>2x5</td>
<td>2x8</td>
<td>Roto 24</td>
</tr>
<tr>
<td>Water usage / day:</td>
<td>264 L</td>
<td>430 L</td>
<td>551 L</td>
<td>713 L</td>
</tr>
<tr>
<td>Kwh saved per year:</td>
<td>5400</td>
<td>8 800</td>
<td>10 500</td>
<td>14 700</td>
</tr>
</tbody>
</table>

Performance results certified by the Pôle Cristal independent laboratory.

Ecolacteo gets the best performance for water heating and for milk cooler power consumption, whatever the test conditions.

All test results, pilot farm measures and studies are available on www.ecolacteo.com
Ecolacteo system benefits:

- More water heated at high temperature for free (between 55 and 70°C).
- High performance in all seasons, even with small amounts of milk.
- High hot water production capacity. Example: more than 400 litres / hour for a 5000 litres tank 4 milking with a 7.5hp cooling unit.
- Improved milk cooling tank efficiency and reduced power consumption.
- All the heat is recoverable:
  - 1 litre of milk cooled from 35 to 3°C heats 1 litre of water 12 to 55°C.
  - Compatible with milking systems that have pre-coolers and milking robots.
  - The equipment of a single cooling unit is enough to cover all hot water needs.
  - Heating the drinking water for calves and cows can be easily archived to improve utilization of the available heat.
  - Heating premises is possible on large dairy farms.

Typical hydraulic diagrams:

Basic configuration: heat recovery alone

Application:
In addition to the existing water heater

Premium configuration: Heat recovery + hot water production up to 75°C

Application:
Replacing the existing water heater
Features:

Heat recovery module:

- 4 models for cooling units up to 15 Hp
- Insulated double wall high pressure heat exchanger for optimal security.
- Pre-assembled module with electrical connection for quick installation.
- LED warning scale formation.
- Adjustable thermostatic valve.
- Stainless steel protection box.
- Components compatible with drinking water.

✅ Priority to cooling: HP safety pressure switch, NC fan relay for a trouble-free operation in case of anomaly on the heat recovery system.

Ecolacteo combined water tanks (from 300 to 2000 litres):

More than simple hot water buffer tanks: carefully designed to optimize heat recovery and equipped with a water diffusing stick to obtain two different temperature levels and avoid the influence of the electrical resistance in the part dedicated to heat recovery. Also equipped with a separate cold water inlet to avoid cold water by-pass during heat recovery phase.

- Epoxy-coated 3mm steel tank. **7 years warranty** *.
- PVC cover with 50mm insulation foam (insulation heat transfer coefficient K = 0.726 W/m².°C).
- Anti-legionella conception.
- Total drain orifice and quick drain valve to easily remove deposits.
- Magnesium protection anode.
- Connection kit including safety valve, air vent, 2 thermometers, quick drain valve and fittings.
- Ø 100 mm cleanout opening up to 1000 litres, Ø 200 mm above.
- Optional electrical resistance.
- Ecolacteo water tanks can also be used as buffer tanks.

✅ A single water tank for preheated and hot water up to 75°C.

*See warranty conditions in the instructions manual

<table>
<thead>
<tr>
<th>Volume</th>
<th>300 l</th>
<th>500 l</th>
<th>750 l</th>
<th>1000 l</th>
<th>1500 l</th>
<th>2000 l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height (mm) *</td>
<td>1570</td>
<td>1790</td>
<td>1925</td>
<td>2355</td>
<td>2290</td>
<td>2035</td>
</tr>
<tr>
<td>Tank diameter (mm)</td>
<td>550</td>
<td>650</td>
<td>800</td>
<td>1000</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td>Diameter with insulation (mm)</td>
<td>650</td>
<td>750</td>
<td>900</td>
<td>1200</td>
<td>1350</td>
<td></td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>70</td>
<td>100</td>
<td>135</td>
<td>160</td>
<td>215</td>
<td>320</td>
</tr>
</tbody>
</table>

* Height without upper elbow or air vent: total height = height + 200 mm.