

CASE STUDY



EDC CLAW VACUUM PUMP – A DRY VACUUM PUMPING SOLUTION FOR JAM BREWING

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Replacing liquid ring pumps with a dry vacuum solution on a jam manufacturing process.

Established over 100 years ago, Unilever is one of the world's largest consumer goods companies. Unilever plc is a British multinational company founded in 1929 with subsidiaries all over the world, including the United Kingdom, Germany, the Netherlands, Israel, and India. Unilever products include food, condiments, ice cream, wellbeing vitamins, minerals and supplements, tea, coffee, breakfast cereal, cleaning agents, water and air purifiers, pet food, toothpaste, beauty products, and personal care.

They produce world-leading brands including Lipton, Knorr, Dove, Axe, Hellmann's and Omo, alongside trusted local names and innovative-forward thinking brands like Ben & Jerry's, The Dollar Shave Club and Dermalogica. Unilever's products are available in around 190 countries.

The manufacturing of consumer goods often involves vacuum as part of the process. The vacuum equipment within these processes forms a critical part when it comes to maximizing productivity, ensuring product quality and minimizing downtime.



KEY FACTS

Customer	Unilever Israel Foods Ltd.
Location	Haifa, Israel
Sector	Consumer goods

CHANGING FROM LIQUID RING PUMPS TO AN ENERGY EFFICIENT, FULLY DRY VACUUM PUMP SOLUTION

1. Process & Challenges

For a jam brewing process Unilever Israel had installed five liquid ring pumps, which they wanted to upgrade to a dry vacuum pumping solution.

At a total flow of 110 m³/h the required vacuum level was at 350 mbar. The vacuum pumps needed to be able to cope with 500 litres of water during a time period of 35 minutes. The steam temperature was at 135°C.

One of the main challenges was that the hot jam creates a very acidic environment. It was therefore key to ensure that the dry vacuum pumps were protected from the acidic liquids and that the temperature of the gas was low enough at the pump inlet.



Edwards EDC dry claw pump installed outside on the roof of the jam brewery.

2. Solution

Based on the requested technical specification, Edwards proposed the EDC150 dry claw pump. Edwards' EDC is a range of robust, single stage dry claw vacuum pumps.

The EDC range is built with innovative construction materials and coatings to provide reliable operation in many applications; it can handle harsh conditions and contaminants, making it suitable for a diverse range of applications including central vacuum systems, steam sterilization cycles, plastic extrusion or drying and reactor service in the chemical industries.

To ensure that the pump was protected from the acidic liquid, a condenser was installed to capture any liquid / vapour carry-over. Additionally, the pump was put outside on the roof of the brewery. This way gravity was assisting to prevent any liquid from entering the dry pump.

3. Main Benefits

Unilever Israel is very satisfied with the performance of the EDC150 on the first system and have already ordered an additional pump as a spare unit. For a similar system they are planning to install another EDC150 as a replacement for yet another liquid ring pump.

The EDC dry claw pumps are designed for robustness and durability, featuring

stainless steel claws and a corrosion resistant dry pumping chamber as standard. Their simple design allows for easy maintenance, with quick access to the pumping chamber for cleaning in the event of product carry-over. Their modular design allows for flexibility and efficiency in terms of maintenance and life cycle costs.

Next to significant savings in energy and water consumption, key benefit of the EDC dry vacuum pump is that it delivers an accurate and consistent performance.



Inlet condenser to protect the EDC dry vacuum pump from any acidic liquid from jam production.

