

ENGINEERING
TOMORROW

Danfoss

Case story | Innovative and Energy Efficient
solutions for Fish Processing and Cold storage Unit

Ananda Foods, Bhimavaram, Andhra Pradesh

Ananda Foods plays a significant role in the fisheries business, contributing to its growth and success. Based out of the state of Andhra Pradesh in India, the company specializes in shrimp hatchery, farming, feed mills, processing, and export.

Danfoss has been working closely with them on different projects for over a decade, offering future-ready solutions that help them enhance their overall productivity, prevent food contamination by maintaining the perfect indoor climate, and improve energy efficiency.

Ananda recently approached us with their plans. They are looking to renovate and automate an existing shrimp processing plant with a cold store. Additionally, they have proposed an investment in a new hatchery. Together, the companies developed a solution – based on Danfoss' latest industrial refrigeration, electrical floor heating, and Turbocor® solutions – that would offer Ananda the lowest possible total cost of ownership.

Increased
uptime up to
1:30 hrs
per defrost cycle

The challenge

Making the most of **fuel and space**, while **simplifying maintenance**

Ananda Foods had four main objectives. They wanted to save more plant space, reduce fuel costs, increase efficiency, and simplify maintenance.

Freezer defrosting was a particular focus area. The company wanted to design a solution that was faster, safer, and more efficient than traditional water defrosting solutions. The Ananda team was also interested in how installing intelligent solutions

could help them meet their industrial refrigeration requirements.

They were also looking for ways to improve floor temperature control. They wanted to protect their store floors from damage due to moisture migration and improve their natural ventilation systems. And finally, they wanted a more robust and efficient oil-free solution that would help avoid production losses.

The purpose of the Turbocor® chiller is to constantly maintain the water temperature within the shrimp tank at 22-24°C. The water in the shrimp tank is replaced every 4 hours. The Turbocor® chiller utilizes oil-free technology, which has replaced scroll technology, resulting in improved efficiency and operational cost savings due to extended service intervals (Turbocor® offers service intervals of 5 & 10 years).



30%
energy savings
with Danfoss
Turbocor®
Compressor

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Cold chain is very important for the quality of any fishery product. The temperature, timing, and controls play a key role, and that's where Danfoss comes into play. Danfoss Turbocor® solutions for the chilled water applications helped supply the right amount of water in a consistent way.

Ananda Ramesh Varma
Director at Ananda Group

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The **solution**

Danfoss and Ananda Foods worked together to develop cost-effective, energy-efficient solutions that met Ananda's refrigeration and heating requirements.

Industrial Refrigeration Products

- > ICF block-type valves
- > Plate-type Heat Exchanger
- > GDA sensors and central control solutions
- > Air Purger

Heating Solutions Products

- > Electric floor heating solution

Industrial Chiller

- > Turbocor® Compressor

OEM Kirloskar chillers

ICF block type valves increase plant efficiency

To help Ananda make the most of plant space, Danfoss installed ICF block type valves instead of conventional valve stations. The Danfoss team also introduced a new liquid drain method for Ananda's defrost system, which gave the company a faster, more efficient way to defrost its freezers. With this hot gas defrost system, the system runs smoothly without hammering effect.

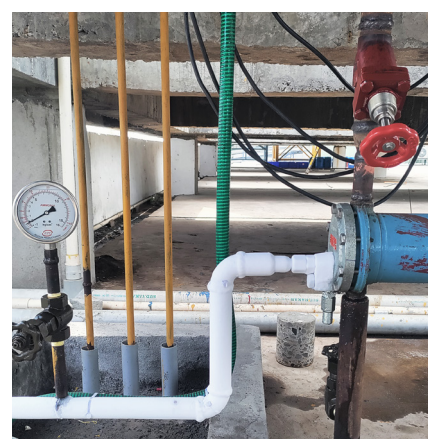


Recover heat and save fuel costs with a **Plate Heat Exchanger**

After installing the super heater with Plate type Heat Exchange, Ananda Foods can heat water to 55°C without making any investments in electric heating. This is possible because the system recovers heat from the compressor discharge gas, which is used to heat water for free, saving fuel costs.

Intelligent solutions give greater control

Ananda Foods uses Danfoss' GDA sensors and central control solutions to automate its ammonia gas detection system. The IPS 8 intelligent purging system – an intelligent, automated solution – helps Ananda keep condensing pressure under control.



Simplifying maintenance with **Turbocor® compressors**

Ananda's final objective was to simplify maintenance, and a Danfoss Turbocor® compressor – our highly reliable and energy-efficient oil-free compressor series – helped the company meet this requirement. Working together with heat exchangers and titanium tubes, this oil-free system helps avoid leakages as raw sea water is filtered and cooled for this application.


Above all, Danfoss's technology has fewer moving parts, minimum service intervals, consistent performance over time, and no performance loss due to oil degradation.



Danfoss has helped us shape our food industry in the last decade.



Ananda Ramesh Varma
Director at Ananda Group



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