IFFA – Decarbonizing food industry

**Unlock energy efficiency and emission reduction with GEA NEXUS**

Düsseldorf (Germany), April 29, 2025 – GEA NEXUS is a holistic engineering solution designed to minimize energy use and carbon footprint in food, dairy and beverage industries. By integrating processing and heating/cooling-solutions rather than treating them separately, GEA reduces plant-wide energy consumption by up to 30% sometimes even eliminating the need for a boiler. Already proven in the beverage and dairy industries, GEA is now introducing this approach to food processing and will present it at IFFA trade fair in Frankfurt (Germany, Hall 8, Booth G10) from May 3-8, 2025.

The motivation for food processors to reduce energy usage is strong. There is a continuous demand, both from legislators and consumers, to reduce GHG (Greenhouse Gas) emissions; the industry is also intensely competitive, with manufacturers under constant pressure to reduce costs to remain competitive. Around 60% of energy consumption in a food processing plant is used for heating and cooling operations, making this the most impactful area for efficiency improvements as well as carbon footprint reduction.

**Clever use of cooling and associated waste heat in the process**

At its core, GEA NEXUS takes a holistic view of the heating and cooling requirements in the production process. From the outset, the individual process phases with their respective temperature requirements and phase changes in the production process as well as the technical and process-related parameters are examined in detail and reviewed together with the food producer to find the most energy-efficient solution.

Too often, cooling is in the last part of the equation, missing key opportunities to make a real impact. Boilers and cooling systems are often oversized or the available waste heat streams are not used efficiently. For example, waste heat from cooling freshly prepared pasta can be repurposed by the heat pump to supply hot water for cooking pasta upstream – creating a sustainable, cost-effective cycle. By involving an interdisciplinary team of sustainability, cooling and process experts early in the design phase, GEA can leverage its special expertise to optimize the entire process line and achieve significant cost, energy and emission reductions for the plant.

GEA offers technical sustainability consulting services *(Add Better Consulting)* specifically for customers with existing production lines who are looking for assistance in assessing the potential and developing technical solutions to implement their sustainability goals. These are translated into detailed engineering designs, intelligently integrating the utility (heating and cooling) demands into the production processes. This approach benefits both greenfield projects and retrofitted process plants. When implemented during operation, the system ensures minimal downtime and delivers a fast return on investment.

**GEA NEXUS in practice at Wipasz**

This principle was brought into focus at Wipasz, Poland’s leading poultry producer. The company wished to make its production more energy efficient and sustainable and challenged GEA to achieve three key objectives: keeping the plant cool; recovering waste heat to reduce energy consumption; and creating adequate ventilation, especially in the slaughter area.

Around half the plant’s energy is used for cooling, all achieved by GEA ammonia-refrigeration systems. This includes the slaughtering and cutting areas and the temperature-sensitive chilling and freezing processes. Two heat-recovery systems with GEA heat pump as the key component now repurpose the heat from these cooling operations to provide all the facility’s hot water needs, including the heating of the offices. The boiler remains only as a back-up.

GEA’s experience has shown that integrating this approach early in the design phase of a plant, can reduce energy usage and operating costs by 30%, while CO2 and NOx emissions can be cut by up to 90%. CO2 emissions can even be reduced to zero if green electricity is used.

In short, GEA NEXUS accelerates the path to net-zero emissions while ensuring energy efficiency and a strong ROI.

**Meet the experts at IFFA in Frankfurt**

Every plant is unique. That’s why GEA experts will be on hand at IFFA to demonstrate the GEA NEXUS principles and assess how food manufacturers and GEA can work together to achieve significant energy and cost savings while reducing greenhouse gas emissions.

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Picture Overview

Pic. 1: Minimize energy use and carbon footprint in food, dairy and beverage industries with GEA NEXUS. Source: GEA



Pic. 2: GEA refrigeration and heat pump plant at Wipasz — Poland's leading poultry producer. Source: GEA



NOTES TO THE EDITORS

* Further [information](https://www.gea.com/en/index.jsp) about GEA
* To the GEA [Media Library](https://www.gea.com/en/company/media/media-center/index.jsp)
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GEA Group Aktiengesellschaft

Nicole Hoffmann

Peter-Müller-Str. 12, 40468 Düsseldorf, Germany

Phone +49 211 9136-1503

nicole.hoffmann@gea.com

**About GEA**

GEA is one of the world’s largest suppliers of systems and components to the food, beverage and pharmaceutical industries. The international technology group, founded in 1881, focuses on machinery and plants, as well as advanced process technology, components and comprehensive services. For instance, every second pharma separator for essential healthcare products such as vaccines or novel biopharmaceuticals is produced by GEA. In food, every fourth package of pasta or every third chicken nugget are processed with GEA technology. With more than 18,000 employees, the group generated revenues of about EUR 5.5 billion in more than 150 countries in the 2024 fiscal year. GEA plants, processes, components and services enhance the efficiency and sustainability of customers’ production. They contribute significantly to the reduction of CO2 emissions, plastic usage and food waste. In doing so, GEA makes a key contribution toward a sustainable future, in line with the company’s purpose: ”Engineering for a better world.”

GEA is listed on the German MDAX, the European STOXX® Europe 600 Index and is also a constituent of the leading sustainability indices DAX 50 ESG, MSCI Global Sustainability and Dow Jones Best-in-Class World.

More information can be found online at **gea.com**.
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