

Food & Beverage : Flavor Oil

The Objective

The objective was to design a compact, sanitary heat exchanger solution capable of heating a flavor oil-in-water emulsion from ambient temperature to 55°C, across a wide range of flow rates (4 ml/min to 200 ml/min), using a hot water loop with supply water at a minimum of 70°C.

The Challenge

The primary challenge was handling a highly variable flow rate of oil-in-water emulsion while maintaining efficient heat transfer and sanitary conditions. The solution needed to be compact enough for integration into the customer's process while ensuring reliable heating without fouling or contamination risks.

The Solution

Exergy provided a sanitary shell-and-tube heat exchanger, Model 00402 from the 17 Series, designed with all 316L stainless steel components. The exchanger offers a heat transfer area between 0.14 and 1.16 ft², a compact 0.75” shell diameter, 8.00” tube length, and ¾” sanitary flange tube side connection. This ensured a reliable, hygienic, and efficient solution.

The Results / Benefits

The solution successfully enabled the heating of the flavor oil emulsion within the specified flow range to 55°C, while ensuring sanitary operation. The compact design met space constraints and offered reliable performance with minimized risk of fouling. The customer benefited from a durable, stainless-steel solution that seamlessly integrated into their hot water loop.

Conclusion

By applying its expertise in compact sanitary heat exchangers, Exergy delivered a custom-engineered solution that addressed the customer’s precise heating requirements. The project highlights Exergy’s ability to combine compact design, sanitary construction, and robust performance to meet the stringent needs of specialty food and flavor applications.



ISO 9001:2015 CERTIFIED
QUALITY MANAGEMENT SYSTEM