Advanced Centrifugal Separation for Optimized Production and By-Product Recovery in Fats & Oils Industry

Mr Fillipo Ferrari
Sales Director, Servizi Industriali S.r.l.

The fats and oils industry faces increasing pressure to improve efficiency, sustainability, and safety, all while adhering to rigorous quality and regulatory standards. As the industry evolves, there is a growing demand not only to preserve the potential of feedstocks but also to recover valuable byproducts during processing. Centrifugal separation technology presents innovative solutions drawn from high-demand sectors, enabling the fats and oils industry to meet emerging processing methods and industrial standards. These advancements contribute to enhanced efficiency and sustainability, as well as improved product quality and safety. Some of the key innovations in the area are as follows:

Material innovation: The use of high-grade alloys and superalloys significantly improves the durability of separators, ensuring reliable performance in corrosive and high-stress environments. This is especially important in industries like biofuel production and solvent-based extraction, where the challenges are more demanding.
Safety in hazardous processes*:* Explosion-proof designs enable secure operations in solvent-based extraction and biofuel production, adhering to global safety standards.
Enhanced operational efficiency: Integrated Clean-In-Place (CIP) systems automate cleaning processes, reducing downtime and ensuring high standards of hygiene, which are critical for industries that process sensitive materials.
Smart process control: Advanced automation systems enable real-time monitoring and predictive maintenance, enhancing process accuracy and optimizing resource management. These systems offer real-time data analysis and operational insights.
Compact yet powerful designs: Modern separators deliver high throughput and complete automation, even in space-constrained settings, which is crucial for smaller production facilities seeking maximum efficiency

The following industry-driven applications will also be discussed during the presentation.

Equipment Innovation: Demand for high-grade materials supports processing of low-quality feedstocks, such as HVO and biodiesel.
Virgin Oil Growth**:** Equipment must preserve unsaponifiable in high-production crops like avocado and olive oil.
Nutrient Recovery**:** Solvent extraction enhances the value of by-products, e.g., pomegranate-derived nutrients.
Reduced Chemical Use: New methods, such as in-line degumming in cottonseed miscella improve quality and sustainability.

Centrifugal separators continue to drive efficiency, sustainability, and value creation in modern fats and oils processing.