

RELY ON EXCELLENCE

SeccoLip agitator seal used in yogurt production

Innovative sealing concept ensures smooth production and consistently high product quality

The standard agitator seals installed by the OEM proved to be unsuitable for yogurt production. The product being processed kept sticking, causing the dry-running seals to fail. Production downtime and the risk of serious quality problems required the milk processing company to take action. All agitators were successfully converted to a new sealing concept from EagleBurgmann.



A sealing solution was required that is resistant to running dry, can be operated hygienically and without contamination, and is also easy to service.

The dairy is one of the most modern milk processing plants in Europe. It produces virtually every type of dairy product, from milk, butter, yogurt, and cheese to whey derivatives. The state-of-the-art machinery consists of many complex production systems, some of which are fully automated.

Problematic seals in yogurt production

Sixteen agitators that were initially supplied with dry-running mechanical seals from an American manufacturer are in use in the yogurt production area. But it quickly became clear that these were no match for the production process. The seal failures were announced by loud squeaking noises. The sliding rings broke, and the agitator seals failed after only a short running time.

And it wasn't just the costly production downtime that the dairy had to deal with. The technicians realized that the yogurt products could be contaminated by fragments of the sliding rings. This meant that entire production batches were no longer suitable for sale.

In-depth failure and damage analyses

The company's technical managers then contacted the sealing experts at EagleBurgmann to get to the bottom of the causes. After all, dry-running mechanical seals are generally a good choice for moderate operating conditions such as those in yogurt production. Single dry-running mechanical seals are efficient to operate since they do not require a

seal supply system. Because no flushing/barrier medium is used, any resulting contamination is also excluded.

CASE STUDY

- **Reference:** Retrofit of agitators in yogurt production in Europe
- **Client:** Dairy plant
- **Industry:** Food & Beverage
- **Challenge:** Adhesion in the seal regularly caused sliding rings to break
- **EagleBurgmann services:** Consulting, design, and implementation of a novel sealing concept
- **Technical solution:** SeccoLip lip seal



An ideal application scenario for the patented SeccoLip agitator seal

Fermenter agitators for bioreactors were being used in the case at hand. An in-depth analysis of the damage revealed that the product being processed penetrated the mechanical seal after a short running time. This resulted in adhesions forming on the sliding surfaces, which first led to caking and finally to the sliding rings rupturing.

This led to the question: Is there any sealing solution that has no sensitive reactions when running dry, can be operated hygienically and without contamination, and is also easy to service?

The new SeccoLip brings all of these advantages together, making it a true innovation among agitator seals. It offers the safety and reliability of a mechanical seal but uses the functional principle of shaft sealing lips. The PTFE material of the sealing lips satisfies the strict regulations of the U.S. Food and Drug Administration, making it suitable for use in food production. Thanks to its modular design, the SeccoLip can also be coordinated precisely for any application, in terms of the number and orientation of the sealing lips, for instance. Hygiene flange, flushing and cooling flanges are available as options. They can be used according to as well as apart from DIN standards.

The compact SeccoLip was designed for the dairy plant with two lips and without roller bearings.

Advantages of SeccoLip

The patented lip seal SeccoLip is ideal for machines such as agitators, mixers, kneaders, and reactors whether they feature top, bottom, or side entry drives. It is designed as a dry running seal and can be operated both with or without a gas supply system.

- Unique shaft deflection compensation through patented technology
- Customer-specific adaptation with 2, 3, or 4 sealing lips
- Version available for glass-lined vessels (flange need not be replaced)
- Simple installation thanks to cartridge design
- Service-friendly design
- Low-maintenance, uncomplicated operation
- CIP/SIP compatibility
- Sealing system compliant with TA-Luft (German Technical Instructions on Air Quality Control) requirements



Result

The initial retrofitting quickly revealed that the new sealing concept works. All sixteen agitators have been converted to the new SeccoLip in the meantime. Since then, production has been running quietly, trouble-free, efficiently, and hygienically safe.

A special flange was also designed to make seal replacement for maintenance quick and easy. It allows both the shaft and housing flange to remain on the tank and the hole pattern of the original seal to still be used. This allowed the retrofit to be carried out by the dairy's own technicians in a cost-effective and time-efficient manner.



Further information on SeccoLip

EagleBurgmann – at the leading edge of industrial sealing technology

Our products are used wherever safety and reliability count: in the industries of oil & gas, refineries, petrochemicals, chemicals, pharmaceuticals, food, energy, water and many more. About 6,000 employees contribute their ideas, solutions and dedication every day to ensure that customers around the globe can rely on our seals. With our modular TotalSealCare Service, we emphasize our strong customer orientation and offer custom-tailored services for every need. [Rely on excellence.](#)

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