SMAK magnetic couplings for top entry drives
Agitators for the pharmaceutical and food industries often require a hermetic sealing solution to ensure that valuable and sensitive products remain safely within the system, and, in particular, to protect them against contamination from the outside. The cleanability of the tank is another primary design focus.

The challenge for magnetic couplings used to seal top entry arrangements is the shaft bearing, as there is no medium available to lubricate the bearings. This means that slide bearings cannot be used, and roller bearing have lots of gaps and dead spaces that are difficult to clean without special tools.

The new SMAK magnetic coupling from EagleBurgmann for top entry agitators cleverly implements all requirements concerning sealing, cleanability and operational safety, and applies them successfully in practice.

Features
- Hermetically sealed
- Designed to meet hygiene requirements
- CIP/SIP flush connection
- Grease-free, dry-running ceramic roller bearing, balanced
- Speed monitoring
- Polished surfaces that come in contact with the product
- Materials can be selected to suit the application
- Easy to assemble, safe to operate, long service life

Advantages
- The SMAK is located inside the vessel, rather than above as is conventional, thus reducing the installation height
- Purging connection and duct system for ease of cleaning, or sterilizing the inside of the outer magnetic rotor, and bearing area after production.
- Supplied as a ready-to-fit unit, may be removed for maintenance.
- Areas that are not accessible during cleaning are sealed with O-Rings.

Product variants / operating range

**SMAK4-75-4/40**
- Max. torque 16 Nm
- Rotational speed 0 ... 400 min⁻¹
- Temperature (max.) 130 °C (266 °F)
- Pressure 25 bar (363 PSI)
- Overall height (agitator element connection to top edge of flange) 340 mm
- Diameter (outer magnetic rotor) 110 mm
- Materials: 1.4435, EPDM (FDA), Si₃N₄, PEEK
- Surface finish Ra <0.5

**SMAK4-75-6/-40**
- Max. torque 24 Nm
- Rotational speed 0 ... 400 min⁻¹
- Temperature (max.) 130 °C (266 °F)
- Pressure 25 bar (363 PSI)
- Overall height (agitator element connection to top edge of flange) 360 mm
- Diameter (outer magnetic rotor) 110 mm
- Materials: 1.4435, EPDM (FDA), Si₃N₄, PEEK
- Surface finish Ra <0.5

**SMAK4-135-6/75**
- Max. torque 100 Nm
- Rotational speed 0 ... 400 min⁻¹
- Temperature (max.) 130 °C (266 °F)
- Pressure 25 bar (363 PSI)
- Overall height (agitator element connection to top edge of flange) 515 mm
- Diameter (outer magnetic rotor) 189 mm
- Materials: 1.4435, EPDM (FDA), Si₃N₄, PEEK
- Surface finish Ra <0.5
Cleaning / sterilization

After the production process, the entire agitator is generally cleaned. The bearing area, and inside of the SMAK are not directly accessible, but can easily be cleaned, or sterilized via the purging connection.

From the connection (1), the fluid enters the annular duct (2), and from there it passes through the holes (3) into the space between outer magnetic rotor and can. The cleaning fluid then flows through the bearing area (4), emerging into the agitator tank.
EagleBurgmann is one of the internationally leading companies for industrial sealing technology. Our products are used everywhere where safety and reliability are important: in the oil and gas industry, refining technology, the petrochemical, chemical and pharmaceutical industries, food processing, power, water, mining, pulp & paper, aerospace and many other spheres. Every day, more than 6,000 employees contribute their ideas, solutions and commitment towards ensuring that customers all over the world can rely on our seals. Our modular TotalSealCare service underlines our strong customer orientation and offers tailor-made services for every application.