



Product

Stainless Steel HiflexDRIVE

Application

Cabbage Coring Machine

Highlights

- Combination of the BK17 HiflexDRIVE gearbox and a permanent magnet synchronous motor (PMSM)
- IE4 Super premium efficiency motor
- Smooth stainless steel aseptic design for easy cleaning in washdown applications
- Ingress protection up to IP69K
- High efficiency through two-stage gear design
- 108.6:1 gear ratio
- Precise positioning without servo motor or encoder feedback

A leading manufacturer of food processing equipment needed a robust drive solution that could withstand frequent washdowns for use on a cabbage coring machine. The machine features a 48" diameter, 275 lb. stainless steel indexing table that rotates 60 degrees in 2 seconds to position a head of cabbage under the coring fixture, pauses for 5 seconds for the coring operation, then repeats. Accuracy of 1 degree or less at 5 RPM was required. Accuracy is important to ensure the coring fixture and the cabbage head are aligned to reduce spoilage. There was also a concern about needing to keep the large rotating mass stable, so a strong gear drive and support bearings were required.

Based on previous successful collaborations, the OEM contacted Bauer Gear Motor to see if it could provide a stainless steel servo motor and gear drive to rotate the machine's table. To meet the accuracy and speed requirements, Bauer supplied a stainless steel HiflexDRIVE combination of the BK17 gearbox and a permanent magnet synchronous motor (PMSM). The PMS motor provides accurate positioning when used with a high-performance VFD, even without encoder feedback. Additionally, the PMS motor offers significant energy savings by eliminating the large starting currents that would otherwise be needed to start the motor with each cycle, motor simply held at 0 RPM for each stop – no brake or power-off required.

The gearbox utilizes a 35 mm bore with a shrink disc to support the table axially, optimize accuracy, and prevent key wear due to the high switching frequency and inertia. A round plug connector are used to prevent water ingress at the motor connection. The drive's stainless steel design features smooth water-repellent surfaces that eliminate hygiene risks usually associated with painted solutions and allow for easy cleaning. The motor is designed so that a fan and cooling ribs are not required, allowing for a completely smooth outer casing.

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