

Food Processing Torque Limiter Application



- > Totally enclosed, stainless steel construction.
- > Compact size
- > Maximum torque setting of 1,015 pound inches.

Food Safe Overload Protection

Mach III has designed a number of products for use in food processing machinery. As specialists in high variation, low quantity production, Mach III has the flexibility to adapt products with sealed covers, stainless steel, anodized and electroless nickel plated components, and food safe lubricants.

SYNOPSIS: A maker of cured meat snacks was using a series of studded wheels positioned along a shaft to pull sheets of jerky through a processing machine. Problems arose when the jerky became stuck in any one of the wheels. Although the process was monitored by an operator and the jams could be cleared within a relatively short period of time, the torque spikes were causing damage to other components in the power train. A retrofit solution was needed to provide protection from torque overload that could withstand regular wash down and meet food safety standards.

Mach III engineers developed a totally enclosed torque limiter that was constructed of stainless steel components. The compact design used only 3.8 inches of axial space. Each of the studded wheels was bored to a 2 inch diameter and installed on the pilot of a torque limiter. The torque limiters were then installed on the existing 1.0 inch diameter drive shaft.

The torque limiters were set before leaving Mach III to transmit 600 pound inches of torque. The drive plate and friction disc surfaces inside the unit rotate together transmitting rotary motion from the drive shaft to the studded wheel until a jam occurs that produces torque in excess of the 600 pound inch torque setting. At that point the surfaces slip so that the torque spike caused by the jam is not transmitted to the drive shaft. An operator then has time to detect and clear the jam. Mach III's torque limiter solution was effective and has been implemented on a number of new machines built by the meat snack company.