

WP0300

Dodge® Food Safe mounted bearings: IP-69 testing

Dodge Customer/Order Engineering

07-15-2019



To meet stringent food safety regulations, food and beverage manufacturing equipment is often subjected to aggressive cleaning practices. Washing down equipment with high pressure is an accepted method for cleaning in the industry. This type of cleaning can significantly shorten the life of equipment, particularly mounted bearings used on this type of equipment. One of the biggest challenges related to washing down bearings is grease washout. The new Dodge Food Safe bearing solves this challenge using several innovative design features. To design the Food Safe, ABB performed aggressive tests that led to real solutions.



The Food Safe bearing built on extensive experience designing bearings for washdown applications. Dodge EZ-Kleen and Ultra-Kleen product lines have for years been the industry leader in Food & Beverage applications. These products, as well as the new Food Safe bearing, utilize the Dodge Max Life cage. While the patented design of the Max Life cage has demonstrated the ability to greatly reduce grease washout, washout can be prevented if water can be kept from entering the bearing in the first place. To combat water ingress, ABB developed the Hydro Armor seal. The Hydro Armor is a triple lip seal with an internal rubber lipped flinger. To prove just how good the Hydro Armor design is, IP69 certification testing for water ingress was done. To meet this rating, the bearing can't allow any water past the seal when exposed to a stream of high temperature, high pressure spray with the following conditions:

- 176 Fahrenheit
- 1160 – 1450 psi
- Distance: 4 – 6 inches
- Flow rate: 4 gallons per minute

EXTERNAL/PUBLIC DOCUMENT

ABB Motors and Mechanical Inc.

6040 Ponders Court

Greenville, SC 29615

Phone: +1 864 284 5700

Email: DodgeEngineering@abb.com

The bearing is sprayed while rotating on a turntable at five revolutions per minute as shown in **Picture 1** below. The spray nozzle is oriented at 0°, 30°, 60°, and 90° from the horizontal in relation to the bearing. The nozzle remains at each angle for 30 seconds. To pass testing, no water may reach the internal bearing cavity.



Picture 1. IP69 for water

The Dodge Food Safe bearing passed, becoming the first bearing in the industry to meet the IP69 rating without the use of an end cover. ABB also tested bearings from leading competitors in the industry and each one failed to pass. ABB is so confident in the effectiveness of the Dodge Hydro Armor seal, that the bearings are backed by an unprecedented 1-year warranty against failure due to water ingress.

For questions regarding food and beverage bearings or applications in general, contact Dodge CO Engineering for bearings and PT components at (864) 284-5700 or email at brgpttechsupport@abb.com.

EXTERNAL/PUBLIC DOCUMENT

ABB Motors and Mechanical Inc.
6040 Ponders Court
Greenville, SC 29615
Phone: +1 864 284 5700
Email: DodgeEngineering@abb.com