
NEMA

Food safety and technological advances in electric motors



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According to the U.S. Centers for Disease Control and Prevention (CDC), 48 million people get sick, 128,000 are hospitalized and 3,000 die from diseases transmitted by contaminated food annually in the United States. Among the major bacteria that cause these diseases are listeria and salmonella. This statistic is alarming and shows that much remains to be done to ensure food safety and public health, especially now that, due to a pandemic like the Coronavirus, hygiene and sanitation requirements have become and will become more rigorous. For this reason, ABB, a world leader in industrial automation with more than one million washdown electric motors installed in the food industry worldwide, continues to design technologies that contribute to energy sustainability, food safety and comply with regulations set by bodies such as the U.S. Department of Agriculture (USDA) and the Food and Drug Administration (FDA). ABB is also known for listening to food processors and organizations such as the U.S. National Sanitation Foundation (NSF) to design products that contribute to the processing of high-quality food products.

NSF zone classification and appropriate selection of electric motors

Zone 1 or Food Zone

Hygiene critical area within a food processing plant where products and ingredients vulnerable to contamination and/or microbial growth are processed, treated, handled or stored.

For this area, ABB has designed Food Safe encapsulated stainless-steel motors in NEMA and IEC versions with IP69 protection degree. The International Electrotechnical Commission (IEC) has defined an ingress protection code called IP69, which considers the procedures of "clean in place" (CIP) testing equipment under high pressure washing (1160 to 1450 psi), high temperature (80 degrees C) and cleaning methods such as those found in food processing plants.

Baldor-Reliance Food Safe motors meet IP69 protection rating due to the smooth contour and continuous weld finish to eliminate growth, survival and reproduction points of bacteria and aid in proper sanitation. The windings are encapsulated, and the internal and external shaft seals on both ends protect against high pressure water ingress that can reach as much as 1,450psi from all directions onto the motor. Motor nameplate data are laser marked on the frame to prevent bacteria growth and data loss. These motors are available from ½ up to 30HP, in two, four and six poles.



Food Safe motors in single-phase and three-phase versions.



Paint-Free Motor and Washdown Motor



Zone 2 or Splash Zone

Area of the production process where there is no direct contact with food; however, the outside of the equipment is subject to splashing, dripping or spillage of liquids during operation, such as cooling units, mixers and similar.

For this area, ABB has supplied for more than 40 years Washdown motors with white epoxy finish and the stainless-steel frames (paint free) with IP55 moisture protection, which meet the food safety criteria established by organizations such as the USDA and FDA.

Zone 3 or Dry Zone

An area of the production process that is relatively dry where there is equipment such as compressors, pumps and fans that are outside of the previous areas. For this area, food plants can use general purpose motors of any type. For this purpose, ABB manufactures energy-saving motors such as NEMA premium General Purpose motors (IE3), Severe Duty motors and the new efficiency generation EC Titanium (IE5+), an ultra-premium motor and ABB drive integrated technology.

According to the World Health Organization (WHO), food safety is everyone's responsibility, and ABB is committed with the society, adding value to the food industry with suitable electric motors and automation to increase safety in the food and beverage industry worldwide. It is now essential that food and beverage plants analyze the status of their production equipment by zone and take the necessary actions to comply with each country's food regulations to ensure food safety.



NEMA Premium General Purpose Motor with ABB Ability Smart Sensor installed

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